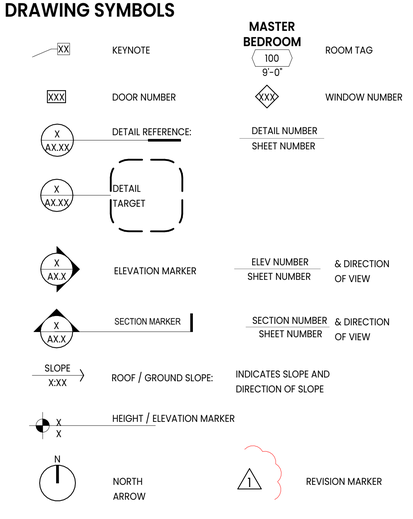
HANFORD LIBRARY REMODEL



GENERAL NOTES

1. THE ARCHITECT HAS NO CONTROL OR RESPONSIBILITY FOR THE MEANS, TECHNIQUES, SEQUENCE, OR PROCEDURES OF CONSTRUCTION OR SAFETY PROGRAMS FOR THIS PROJECT. SUCH PROGRAMS AND COMPLIANCE WITH ALL LAWS, RULES, REGULATIONS, CODES OR ORDINANCES SHALL BE THE RESPONSIBILITY OF OTHERS.
2. COORDINATE THE WORK OF ALL TRADES INVOLVED IN THE CEILING WORK TO ENSURE CLEARANCES FOR FIXTURES, DUCTS, PIPING, CEILING SUSPENSION SYSTEM, ETC., NECESSARY TO MAINTAIN THE FINISHED CEILING HEIGHTS INDICATED ON ARCHITECT'S DRAWINGS.
3. ALL WORK SHALL CONFORM TO APPLICABLE CURRENT FEDERAL, STATE AND LOCAL CODES. THE CONTRACTOR IS TO PROVIDE FOR ALL REQUIRED NOTIFICATION OF AND COORDINATION WITH CITY AND STATE AGENCIES, AND PROVIDE REQUIRED PERMITS. ALL TESTS AND INSPECTIONS ASSOCIATED WITH OBTAINING APPROVALS TO PROCEED WITH AND COMPLETE THE WORK SHALL BE PAID FOR BY THE CONTRACTOR.
4. THE INTENT OF THE CONTRACT DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS, EQUIPMENT AND TRANSPORTATION NECESSARY OR REASONABLY INFERABLE AS BEING NECESSARY FOR THE EXECUTION OF THE WORK. BY SUBMITTING A PROPOSAL, THE CONTRACTOR REPRESENTS THAT THOROUGH EXAMINATION OF THE SITE AND ALL EXISTING CONDITIONS AND LIMITATIONS HAVE BEEN MADE AND THAT THE CONTRACT DOUBT THAT THE DRAWINGS, SPECIFICATIONS AND EXISTING CONDITIONS ARE SUFFICIENT, ADEQUATE AND SATISFACTORY FOR CONSTRUCTION OF THE WORK. WHERE MINOR ADJUSTMENTS TO THE WORK ARE NECESSARY FOR THE PURPOSES OF FABRICATION AND INSTALLATION OF ITEMS, OR RESOLUTIONS OF CONFLICTS BETWEEN ITEMS, WITHIN THE INTENT OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL MAKE SUCH ADJUSTMENTS AT NO ADDED EXPENSE TO THE OWNER. WHERE SUCH MINOR ADJUSTMENTS AFFECT FUNCTIONAL OR AESTHETIC DESIGN OF THE WORK, THEY SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL.
5. THE GENERAL CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR THE EXECUTION OF HIS WORK AND FOR ANY CHANGES AND / OR DEVIATIONS FROM THE DRAWINGS AND SPECIFICATIONS MADE WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNER. THE COST OF CORRECTIONS RESULTING FROM CHANGES AND / OR DEVIATIONS SHALL BE BORNE BY THE GENERAL CONTRACTOR.
6. DESIGN ALTERATIONS MADE WITHOUT THE ARCHITECT'S KNOWLEDGE DURING THE COURSE OF CONSTRUCTION ARE DONE AT THE OWNER'S AND / OR CONTRACTOR'S RISK. THE ARCHITECT SHALL NOT BE HELD RESPONSIBLE FOR THE CONSEQUENCES OF SUCH CHANGES.
7. CONTRACTOR SHALL COORDINATE ALL OPERATIONS WITH THE OWNER, INCLUDING AREA FOR WORK, MATERIALS STORAGE, AND ACCESS TO AND FROM THE WORK, SPECIAL CONDITIONS OR NOISY WORK, TIMING OF WORK AND INTERRUPTION OF MECHANICAL AND ELECTRICAL SERVICES. NOISY OR DISRUPTIVE WORK SHALL BE SCHEDULED AT LEAST ONE (1) WEEK IN ADVANCE OF THE TIME WORK IS TO COMMENCE.
8. THE GENERAL CONTRACTOR SHALL PROVIDE ALL PROTECTIVE MEASURES FOR THE SAFETY OF THE PUBLIC AND WORKERS DURING THE COURSE OF THE WORK.
9. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HIGHEST STANDARD OF WORKMANSHIP IN GENERAL AND WITH SUCH STANDARDS AS ARE SPECIFIED.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AS REQUIRED FOR COMPLETION OF THE PROJECT. REMOVE ALL DEMOLISHED MATERIAL NOT DESIGNATED FOR REUSE FROM THE PREMISES.
11. CONTRACTOR SHALL PROVIDE FOR ALL WORK REQUIRED TO MAINTAIN COMPLIANCE WITH LOCAL FIRE CODE. PROVIDE FOR ALL REQUIRED SHOP DRAWINGS AND APPROVALS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING FIRE ALARM SYSTEM AUDIBILITY.
12. CONTRACTOR SHALL SUBMIT SAMPLES OF ALL FINISHES OF SUCH SIZE AND NUMBER THAT THEY REPRESENT A REASONABLE DISTRIBUTION OF COLOR RANGES AND PATTERN PRIOR TO INSTALLATION FOR ARCHITECT'S APPROVAL. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND PRODUCT DATA FOR ARCHITECT'S APPROVAL ON ALL SPECIAL ITEMS REQUIRING CUSTOM FABRICATION. (SHALL INCLUDE RATED FIRE DOORS AND HARDWARE).
13. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK. ALL DIMENSIONS OF EXISTING CONDITIONS ON DRAWINGS ARE INTENDED AS GUIDELINES AND MUST BE FIELD VERIFIED. DO NOT SCALE DRAWINGS FOR ANY REASON. REPORT ANY DIMENSIONAL DISCREPANCIES TO THE ARCHITECT BEFORE CONTINUING WORK. COMMENCEMENT OF WORK IMPLIES THE ACCEPTANCE OF ALL CONDITIONS. CONTRACTOR SHALL ALSO COORDINATE THE WORK WITH THE WORK OF ALL OTHER TRADES.
14. OMISSIONS MADE IN THESE DRAWINGS AND SPECIFICATIONS WHICH IS MANIFESTLY NECESSARY TO CARRY OUT THE INTENT OF THE DRAWINGS OR SPECIFICATIONS, OR WHICH IS CUSTOMARILY PERFORMED SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH OMITTED OR DESCRIBED DETAILS OF THE WORK AS IF FULLY AND COMPLETELY SET FORTH AND DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS.
15. A COMPLETE SET OF CONTRACT DOCUMENTS MUST BE KEPT AT THE JOB SITE AT ALL TIMES AND ANY CHANGES MUST BE NOTED THEREON AND INITIALED.
16. DO NOT SCALE DRAWINGS FOR ANY REASON. REPORT ANY DIMENSIONAL DISCREPANCIES TO THE ARCHITECT BEFORE CONTINUING WORK.
17. PATCH, REPAIR, OR REPLACE ALL WORK DAMAGED BY NEW CONSTRUCTION. THE GENERAL CONTRACTOR SHALL PATCH WALL AND FLOOR TO CONFORM TO MATERIAL, TEXTURE, AND SURFACE ALIGNMENT WITH THE ADJOINING SURFACE.
18. ALL FLOORS SHOULD BE LEVEL AND NOT VARY MORE THAN 1/4" IN 10'-0". THE CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY CONDITIONS THAT DO NOT MEET THIS STANDARD.
19. MATERIALS, ARTICLES, DEVICES AND PRODUCTS ARE SPECIFIED IN THE DOCUMENTS BY LISTING ACCEPTABLE MANUFACTURERS OR PRODUCTS, BY REQUIRING COMPLIANCE WITH REFERENCED STANDARDS, OR BY PERFORMANCE SPECIFICATIONS. FOR ITEMS SPECIFIED BY NAME, SELECT ANY PRODUCT NAMED. FOR THOSE SPECIFIED BY REFERENCE STANDARDS OR BY PERFORMANCE SPECIFICATIONS SELECT ANY PRODUCT MEETING OR EXCEEDING SPECIFIED CRITERIA. FOR APPROVAL OF AN ITEM NOT SPECIFIED, SUBMIT REQUIRED SUBMITTALS, PROVIDING COMPLETE BACK-UP INFORMATION FOR PURPOSES OF EVALUATION. WHERE BUILDING STANDARD ITEMS ARE CALLED FOR, NO SUBSTITUTE WILL BE ACCEPTED.
20. MECHANICAL AND ELECTRICAL FIXTURES, OUTLETS, ETC., WHEN SHOWN ON THE ARCHITECTURAL DRAWINGS, ARE FOR LOCATION INFORMATION ONLY. MECHANICAL AND ELECTRICAL TO BE DESIGNED BY OTHERS. ALL CIRCUITING COORDINATION TO BE BY OTHERS.
21. CONTRACTOR IS TO PROVIDE DRAWINGS FOR ARCHITECT'S APPROVAL SHOWING LOCATIONS OF ALL HVAC THERMOSTATS, GRILLES AND DIFFUSERS, FIRE AND SMOKE DETECTION DEVICES INCLUDING SPRINKLERS, SMOKE DETECTORS, FIRE EXTINGUISHERS AND HOSE CABINETS, PLUMBING AND PLUMBING EQUIPMENT.
22. REPLACE OR RELOCATE ALL EXISTING PIPING, CONDUIT, WIRING, ETC. REQUIRED FOR THE COMPLETION OF NEW WORK.
23. AN ENCROACHMENT PERMIT WILL BE REQUIRED FOR ANY WORK DONE IN THE PUBLIC R.O.W.
24. ALL GYPSUM BOARD PARTITIONS SHALL BE TAPED, SPACKLED AND SANDED SMOOTH WITH NO VISIBLE JOINTS.
25. ALL WORK SHALL BE ERECTED AND INSTALLED PLUMB, LEVEL, SQUARE AND TRUE.
26. ALL GLASS SHALL BE CLEAR TEMPERED GLASS, UNLESS OTHERWISE NOTED. GLAZING TONG MARKS SHALL NOT BE VISIBLE. CLEAN AND POLISH ALL GLASS PRIOR TO PROJECT DELIVERY.
27. CONTRACTOR TO PROVIDE SHOP DRAWINGS AND/OR SUBMITTALS FOR ALL FINISHES, FIXTURES, AND EQUIPMENT.
28. THE ARCHITECT HAS NO KNOWLEDGE OF HAZARDOUS MATERIALS ON THIS PROJECT. THE ARCHITECT CANNOT BE HELD LIABLE FOR ANY SUCH MATERIAL ASBESTOS, LEAD, PAINT OR OTHER SIMILAR PRODUCT THAT MAY BE UNCOVERED ON THIS PROJECT. IF SUCH MATERIAL IS ENCOUNTERED OR SUSPECTED THE OWNER SHALL BE RESPONSIBLE FOR MAKING ARRANGEMENTS FOR THE SAFE AND LEGAL REMOVAL OF SUCH MATERIAL AS REQUIRED.
29. COORDINATE WITH SUB-CONTRACTORS THE LOCATIONS OF ELECTRICAL AND VOICE/DATA OUTLETS, PLUMBING AND OTHER DEVICES WITH LAYOUT AND DESIGN OF CUSTOM CASEWORK.
30. CUSTOM CASEWORK SHALL CONFORM TO A.W.I. CURRENT STANDARDS FOR CUSTOM GRADE FABRICATION.
31. PROVIDE NEAT CUT WHERE UTILITIES PENETRATE RATED WALL AND FLOOR ASSEMBLIES, SEAL WITH NON-COMBUSTIBLE MATERIAL PER CODE. VERIFY ALL SUCH PENETRATIONS WITH ARCHITECT PRIOR TO CUTTING.
32. PRIOR TO FINAL, TEST SMOKE DETECTORS & AUTO POWER SHUT OFF

DRAWING SYMBOLS



COVER SHEET NOTES

- ALL WORK LOCATED WITHIN THE PUBLIC RIGHT OF WAY OR WITHIN THE JURISDICTION OF THE UTILITIES AND PUBLIC WORKS DEPARTMENT SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE ENGINEERING STANDARD AND STANDARD SPECIFICATIONS (THE CURRENT ADOPTED STANDARDS ARE DATES AUGUST 2020.)
- ALL SECTIONS OF DAMAGED OR DISPLACED CURB, GUTTER AND SIDEWALK, OR DRIVEWAY APPROACH SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE PUBLIC WORKS DIRECTOR
- CONTACT THE PUBLIC WORKS INSPECTION HOTLINE AT 781-7553 WITH AT LEAST 48 HOURS NOTICED FOR ANY REQUIRED ENCROACHMENT PERMIT INSPECTION OR FINAL INSPECTION
- THE ADJOINING STREET SHALL BE CLEARED BY SWEEPING OR REMOVE DIRT, DUST, MUD AND CONSTRUCTION DEBRIS AT THE END OF EACH DAY
- A TRAFFIC AND PEDESTRIAN CONTROL PLAN SHALL BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO ENCROACHMENT PERMIT ISSUANCE
- ANY EXISTING SURVEY MONUMENTS SHALL BE PROTECTED IN PLACE OR SHALL BE TIED OUT BY A LICENSED LAND SURVEYOR PRIOR TO DISTURBANCE AND THEN REPLACED PRIOR TO OCCUPANCY IN ACCORDANCE WITH SECTION 8771 OR THE CALIFORNIA BUSINESS AND PROFESSIONS CODE
- EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AND MAINTAINED TO THE SATISFACTION OF THE BUILDING OFFICIAL AND PUBLIC WORKS DIRECTOR DURING ALL DEMOLITION, CONSTRUCTION AND GROUND DISTURBING ACTIVES
- BUILDING SHALL HAVE APPROVED ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION PLACED IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETIC LETTERS. NUMBERS SHALL BE A MINIMUM 4 INCHES HIGH WITH A MINIMUM STROKE WITH OF 1/2". WHERE ACCESS IS BY MEANS OF A PRIVATE ROAD AND THE BUILDING ADDRESS CANNOT BE VIEWED FROM THE PUBLIC WAY, A MONUMENT, POLE OR OTHER SIGN OR MEANS SHALL BE USED TO IDENTIFY THE STRUCTURE.
- ANY EXISTING SURVEY MONUMENTS SHALL BE PROTECTED IN PLACE OR SHALL BE TIED OUT BY A LICENSED LAND SURVEYOR TO DISTURBANCE AND THEN REPLACED PRIOR TO OCCUPANCY IN ACCORDANCE WITH SECTION 8771 OR THE CALIFORNIA BUSINESS AND PROFESSIONS CODE.

CODE REFERENCES

THIS PROJECT SHALL COMPLY WITH CURRENT APPLICABLE CODES & ORDINANCES

2022 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE
2022 CALIFORNIA BUILDING CODE
2022 RESIDENTIAL BUILDING CODE
2022 CALIFORNIA ELECTRICAL CODE
2022 CALIFORNIA MECHANICAL CODE
2022 CALIFORNIA PLUMBING CODE
2022 CALIFORNIA ENERGY CODE
2022 CALIFORNIA HISTORICAL BUILDING CODE
2022 CALIFORNIA FIRE CODE
2022 CALIFORNIA EXISTING BUILDING CODE
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
2022 CALIFORNIA REFERENCE STANDARDS CODE

KINGS COUNTY MUNICIPAL CODE

PROJECT DATA

PROJECT DESCRIPTION

THIS PROJECT RENOVATES THE EXISTING HANFORD BRANCH LIBRARY ORIGINALLY CONSTRUCTED IN 1958, INCLUDING UPGRADES TO THE MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS, REMODELED SUPPORT AND LIBRARY SPACES, AND THE REMOVAL OF STAIRS AND MEZZANINE AREA, AND AN ADDITION TO PROVIDE A NEW COMMUNITY MEETING SPACE WITH OUTDOOR COURTYARD. EXTERIOR IMPROVEMENTS INCLUDE ACCESSIBILITY UPGRADES TO THE MAIN ENTRANCE, PATH OF TRAVEL, AND ACCESSIBLE PARKING, AS WELL AS NEW LANDSCAPING AND SIGNAGE ALONG N DOUTY AND E 9TH STREETS.

PROJECT ADDRESS	401 N. DOUTY STREET HANFORD, CA 93230
APN	010-271-017-000
OCCUPANCY GROUP	A-3
CONSTRUCTION TYPE	IIB
ZONING	R-1-5
NUMBER OF STORIES	2
LOT SIZE	16,594 SQ FT
SPRINKLERS REQUIRED	YES
SPRINKLERS PROPOSED	YES

AGENCIES & UTILITIES

CITY OF HANFORD - COMMUNITY DEVELOPMENT 317 N DOUTY ST., HANFORD, CA 93230	C: jwaters@hanfordca.gov PH: 559.585.2580
CITY OF HANFORD - BUILDING DIVISION 317 N DOUTY ST., HANFORD, CA 93230	C: twebb@hanfordca.gov PH: 559.585.2581
CITY OF HANFORD - PLANNING DIVISION 317 N DOUTY ST., HANFORD, CA 93230	C: gmyers@hanfordca.gov PH: 559.585.4768
CITY OF HANFORD - PUBLIC WORKS DEPARTMENT 900 SOUTH 10TH AVE. HANFORD, CA 93230	C: rsterling@hanfordca.gov PH: 559.585.2550
CITY OF HANFORD - FIRE DEPARTMENT 350 WEST GRANGEVILLE BLVD. HANFORD, CA 93230	C: fireadmin@hanford.city PH: 559.585.2545
SOUTHERN CALIFORNIA EDISON 2425 S. BLACKSTONE ST. TULARE, CA 93274	PH: 559.685.3240

BUILDING INFORMATION

BUILDING AREA:

EXISTING FIRST FLOOR:	14,107 SF
EXISTING SECOND FLOOR:	2,233 SF
AREA OF ADDITION:	810 SF
TOTAL BUILDING AREA:	17,150 SF (Basement excluded per CBC 506.1.3)

BUILDING IS SPRINKLED

OCCUPANCY (CBC Chapter 3):
Group A-3 - Library

TYPE OF CONSTRUCTION (CBC Chapter 6):
Type II-B - Construction in which the building elements listing in Table 601 are of noncombustible materials, except as permitted in Section 603 and elsewhere in this code.

BUILDING HEIGHT AND NUMBER OF STORIES LIMITATIONS (Per CBC 504)
Use Group A-3 - 75 Feet. Three story maximum.

BUILDING AREA LIMITATIONS (Per CBC 506)
Use Group A-3 - 36,625 SF

AREA MODIFICATIONS (CBC 506)
Sprinklered, Two story. The areas limited by Table 506.2 shall be permitted to be increased due to frontage (If) and automatic sprinkler system protection (Is) in accordance with the following: $A_a = A_t + [NS \times I_f]$

Area (Per Table CBC 506.2)

A_t = 28,500 SF
NS = 9,500 SF

Frontage Increase (CBC 506.2)

I_f = 0.75

$A_a = A_t + [NS \times I_f]$
A_a = 28,500 + [9,500 x 0.75]
A_a = 36,625

FIRE RESISTIVE ASSEMBLY RATINGS FOR TYPE II-B CONSTRUCTION (CBC Table 601)

Structural Frame including columns, girders, trusses	0-hour
Bearing walls - Exterior	0-hour
Bearing walls - Interior	0-hour
Non-bearing walls and partitions - Exterior	0-hour
Non-bearing walls and partitions - Interior	0-hour
Floor construction including supporting beams and joists	0-hour
Roof construction including supporting beams and joists	0-hour

PROJECT DIRECTORY

OWNER:
COUNTY OF KINGS
1400 W. LACEY BLVD.
HANFORD, CA 93230
CONTACT: TANYA RUSSELL (tanya.russell@kingscountylibrary.org)
PHONE: 559.852.4009

CIVIL ENGINEER:
4CREEKS
324 S SANTA FE SUITE A
VISALIA, CA 93292
CONTACT: KYLE MCDONALD (kylem@4-creeks.com)
PHONE: 559.802.3052

LANDSCAPE ARCHITECT:
WOOD ARCHITECTURE
1512 W. MINERAL KING AVE.
VISALIA, CA 93291
CONTACT: GREG MENDOSA (greg@iwoodarchitecture.com)
PHONE: 559.786.9600

ARCHITECT:
WILL RUOFF (4CREEKS)
605 SANTA ROSA STREET
SAN LUIS OBISPO, CA 93401
CONTACT: WILL RUOFF (willr@4-creeks.com)
PHONE: 805.235.5333

STRUCTURAL ENGINEER:
MARK SORHOUET (4CREEKS)
324 S SANTA FE SUITE A
VISALIA, CA 93292
CONTACT: MARK SORHUET (marks@4-creeks.com)
PHONE: 559.802.3052

MECHANICAL ENGINEER:
GLUMAC
100 MONTGOMERY STREET, SUITE 2050
SAN FRANCISCO, CA 94104
CONTACT: GUIL ORIHUELA (gorihuela@glumac.com)
PHONE: 415.398.7667

PLUMBING ENGINEER:
GLUMAC
100 MONTGOMERY STREET, SUITE 2050
SAN FRANCISCO, CA 94104
CONTACT: GUIL ORIHUELA (gorihuela@glumac.com)
PHONE: 415.398.7667

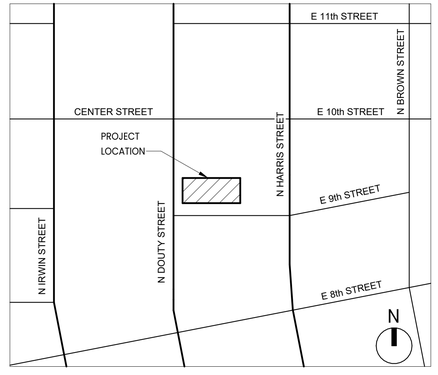
ELECTRICAL ENGINEER:
GLUMAC
100 MONTGOMERY STREET, SUITE 2050
SAN FRANCISCO, CA 94104
CONTACT: GUIL ORIHUELA (gorihuela@glumac.com)
PHONE: 415.398.7667

LOW VOLTAGE:
STRATEGIC INDUSTRY
1440 DRAPER ST. SUITE C
KINGSBURG, CA 93631
CONTACT: GARY GONZALES (gonzales@strategicindustry.us)
PHONE: 559.419.9481

FIRE ALARMING:
COSCO
4233 W. SIERRA MADRE, SUITE 108
FRESNO, CA 93722
CONTACT:
PHONE: 559.275.3795

FIRE SPRINKLERS:
JOHNSON FIRE PROTECTION INC.
732 N. ELKO STREET
VISALIA, CA 93291
CONTACT: JOSH JOHNSON (johnsonfirepro.com)
PHONE: 559.651.1882

VICINITY MAP



4CREEKS
324 S SANTA FE SUITE A
VISALIA, CA 93292
WEB: 4-Creeks.com
TEL: 559.802.3052
FAX: 559.802.3215

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LICENSED ARCHITECT
WILLIAM D. RUOFF III
C-36886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

DATE:	#	ISSUES/REVISIONS:
05/23/2025	0	ISSUE FOR BID

APPROVED BY:

DATE SIGNATURE

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HANFORD LIBRARY REMODEL
KINGS COUNTY LIBRARY
401 N DOUTY STREET
HANFORD, CA 93230
APN: 010-271-017-000
CLIENT PHONE:

PLOT DATE: 10/25/2024
JOB NO.: 23467

TITLE SHEET

T1.00

SHEET INDEX

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C3	GRADING PLAN
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A1.02	ENLARGED SITE PLAN
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TOTAL: 195

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LICENSED ARCHITECT
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C-36886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

DATE:	#	ISSUES/REVISIONS:
05/23/2025	0	ISSUE FOR BID

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SHEET INDEX

T1.01

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

CHAPTER 3
GREEN BUILDING

SECTION 301 GENERAL

301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.

301.3 NONRESIDENTIAL ADDITIONS AND ALTERATIONS. [BSC-CG] The provisions of individual sections of Chapter 5 apply to newly constructed buildings, building additions of 1,000 square feet or greater, and/or building alterations with a permit valuation of $200,000 or above (for occupancies within the authority of California Building Standards Commission). Code sections relevant to additions and alterations shall only apply to the portions of the building being added or altered within the scope of the permitted work.

A code section will be designated by a banner to indicate where the code section only applies to newly constructed buildings [N] or to additions and/or alterations [A]. When the code section applies to both, no banner will be used.

301.3.1 Nonresidential additions and alterations that cause updates to plumbing fixtures only:

Note: On and after January 1, 2014, certain commercial real property, as defined in Civil Code Section 1101.3, shall have its noncompliant plumbing fixtures replaced with appropriate water-conserving plumbing fixtures under specific circumstances. See Civil Code Section 1101.1 *et seq.* for definitions, types of commercial real property affected, effective dates, circumstances necessitating replacement of noncompliant plumbing fixtures, and duties and responsibilities for ensuring compliance.

301.3.2 Waste Diversion. The requirements of Section 5.408 shall be required for additions and alterations whenever a permit is required for work.

301.4 PUBLIC SCHOOLS AND COMMUNITY COLLEGES. (see GBSC)
301.5 HEALTH FACILITIES. (see GBSC)

SECTION 302 MIXED OCCUPANCY BUILDINGS

302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.

SECTION 303 PHASED PROJECTS

303.1 PHASED PROJECTS. For shell buildings and others constructed for future tenant improvements, only those code measures relevant to the building components and systems considered to be new construction (or newly constructed) shall apply.

303.1.1 Initial Tenant improvements. The provisions of this code shall apply only to the initial tenant improvements to a project. Subsequent tenant improvements shall comply with the scoping provisions in Section 301.3 non-residential additions and alterations.

ABBREVIATION DEFINITIONS:

HCD	Department of Housing and Community Development
BSC	California Building Standards Commission
DSA-SS	Division of the State Architect, Structural Safety
OSHPD	Office of Statewide Health Planning and Development
LR	Low Rise
HR	High Rise
AA	Additions and Alterations
N	New

CHAPTER 5
NONRESIDENTIAL MANDATORY MEASURES

DIVISION 5.1 PLANNING AND DESIGN

SECTION 5.101 GENERAL

5.101.1 SCOPE
The provisions of this chapter outline planning, design and development methods that include environmentally responsible site selection, building design, building siting and development to protect, restore and enhance the environmental quality of the site and respect the integrity of adjacent properties.

SECTION 5.102 DEFINITIONS

5.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

CUTOFF LUMINAIRES. Luminaires whose light distribution is such that the candela per 1000 lamp lumens does not numerically exceed 25 (2.5 percent) at an angle of 90 degrees above nadir, and 100 (10 percent) at a vertical angle of 80 degrees above nadir. This applies to all lateral angles around the luminaire.

LOW-EMITTING AND FUEL EFFICIENT VEHICLES.
Eligible vehicles are limited to the following:

1. Zero emission vehicle (ZEV), enhanced advanced technology PZEV (enhanced AT ZEV) or transitional zero emission vehicles (TZEV) regulated under CCR, Title 13, Section 1962.
2. High-efficiency vehicles, regulated by U.S. EPA, bearing a fuel economy and greenhouse gas rating od 9 oe 10 as regulated under 40 CFR Section 600 Subpart D.

NEIGHBORHOOD ELECTRIC VEHICLE (NEV). A motor vehicle that meets the definition of "low-speed vehicle" either in Section 385.5 of the Vehicle Code or in 49CFR571.500 (as it existed on July 1, 2000), and is certified to zero-emission vehicle standards.

TENANT-OCCUPANTS. Building occupants who inhabit a building during its normal hours of operation as permanent occupants, such as employees, as distinguished from customers and other transient visitors.

VANPOOL VEHICLE. Eligible vehicles are limited to any motor vehicle, other than a motortruck or truck tractor, designed for carrying more than 10 but not more than 15 persons including the driver, which is maintained and used primarily for the nonprofit work-related transportation of adults for the purpose of ridesharing.

Note: Source: Vehicle Code, Division 1, Section 668

ZEV. Any vehicle certified to zero-emission standards.

SECTION 5.106 SITE DEVELOPMENT

5.106.1 STORM WATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB LESS THAN ONE ACRE OF LAND. Newly constructed projects and additions which disturb less than one acre of land, and are not part of a larger common plan of development or sale, shall prevent the pollution of storm water runoff from the construction activities through one or more of the following measures:

5.106.1.1 Local ordinance. Comply with a lawfully enacted storm water management and/or erosion control ordinance.

5.106.1.2 Best Management Practices (BMPs). Prevent the loss of soil through wind or water erosion by implementing an effective combination of erosion and sediment control and good housekeeping BMPs.

1. Soil loss BMPs that should be considered for implementation as appropriate for each project include, but are not limited to, the following:
   a. Scheduling construction activity during dry weather, when possible.
   b. Preservation of natural features, vegetation, soil, and buffers around surface waters.
   c. Drainage swales or lined ditches to control stormwater flow.
   d. Mulching or hydroseeding to stabilize disturbed soils.
   e. Erosion control to protect slopes.
   f. Protection of storm drain inlets (gravel bags or catch basin inserts).
   g. Perimeter sediment control (perimeter silt fence, fiber rolls).
   h. Sediment trap or sediment basin to retain sediment on site.
   i. Stabilized construction exits.
   j. Wind erosion control.
   k. Other soil loss BMPs acceptable to the enforcing agency.
2. Good housekeeping BMPs to manage construction equipment, materials, non-stormwater discharges and wastes that should be considered for implementation as appropriate for each project include, but are not limited to, the following:
   a. Dewatering activities.
   b. Material handling and waste management.
   c. Building materials stockpile management.
   d. Management of washout areas (concrete, paints, stucco, etc.).
   e. Control of vehicle/equipment fueling to contractor's staging area.
   f. Vehicle and equipment cleaning performed off site.
   g Spill prevention and control.
   h. Other housekeeping BMPs acceptable to the enforcing agency.

5.106.2 STORMWATER POLLUTION PREVENTION FOR PROJECTS THAT DISTURB ONE OR MORE ACRES OF LAND. Comply with all lawfully enacted stormwater discharge regulations for projects that (1) disturb one acre or more of land, or (2) disturb less than one acre of land but are part of a larger common plan of development sale.

Note: Projects that (1) disturb one acre or more of land, or (2) disturb less than one acre of land but are part of the larger common plan of development or sale must comply with the post-construction requirements detailed in the applicable National Pollutant Discharge Elimination System (NPDES) General permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board or the Lahontan Regional Water Quality Control Board (for projects in the Lake Tahoe Hydrologic Unit).

The NPDES permits require postconstruction runoff (post-project hydrology) to match the preconstruction runoff (pre-project hydrology) with the installation of postconstruction stormwater management measures. The NPDES permits emphasize runoff reduction through on-site stormwater use, interception, evapotranspiration, and infiltration through nonstructural controls, such as Low Impact Development (LID) practices, and conversation design measures. Stormwater volume that cannot be addressed using nonstructural practices is required to be captured in structural practices and be approved by the enforcing agency.

Refer to the current applicable permits on the State Water Resources Control Board website at: www.waterboards.ca.gov/constructionstormwater. Consideration to the stormwater runoff management measures should be given during the initial design process for appropriate integration into site development.

5.106.4 BICYCLE PARKING. For buildings within the authority of California Building Standards Commission as specified in Section 103, comply with Section 5.106.4.1. For buildings within the authority of the Division of the State Architect pursuant to Section 105, comply with Section 5.106.4.2

5.106.4.1 Bicycle parking. [BSC-CG] Comply with Sections 5.106.4.1.1 and 5.106.4.1.2; or meet the applicable local ordinance, whichever is stricter.

5.106.4.1.1 Short-term bicycle parking. If the new project or an addition or alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack.
Exception: Additions or alterations which add nine or less visitor vehicular parking spaces.

5.106.4.1.2 Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility.

5.106.4.1.3 For additions or alterations that add 10 or more tenant-occupant vehicular parking spaces, provide secure bicycle parking for 5 percent of the tenant vehicular parking spaces being added, with a minimum of one bicycle parking facility.

5.106.4.1.4 For new shell buildings in phased projects provide secure bicycle parking for 5 percent of the anticipated tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility.

5.106.4.1.5 Acceptable bicycle parking facility for Sections 5.106.4.1.2, 5.106.4.1.3, and 5.106.4.1.4 shall be convenient from the street and shall meet one of the following:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; or
3. Lockable, permanently anchored bicycle lockers.

Note: Additional information on recommended bicycle accommodations may be obtained from Sacramento Area Bicycle Advocates.

5.106.4.2 Bicycle parking. [DSA-SS] For public schools and community colleges, comply with Sections 5.106.4.2.1 and 5.106.4.2.2

5.106.4.2.1 Student bicycle parking. Provide permanently anchored bicycle racks conveniently accessed with a minimum of four two-bike capacity racks per new building.
5.106.4.2.2 Staff bicycle parking. Provide permanent, secure bicycle parking conveniently accessed with a minimum of two staff bicycle parking spaces per new building. Acceptable bicycle parking facilities shall be convenient from the street or staff parking area and shall meet one of the following:

1. Covered, lockable enclosures with permanently anchored racks for bicycles;
2. Lockable bicycle rooms with permanently anchored racks; or
3. Lockable, permanently anchored bicycle lockers.

5.106.5.3 Electric vehicle (EV) charging. [N] Construction to provide electric vehicle infrastructure and facilitate electric vehicle charging shall comply with Section 5.106.5.3.1 and shall be provided in accordance with regulations in the California Building Code and the California Electrical Code.

Exceptions:
1. On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions:
   a. Where there is no local utility power supply
   b. Where the local utility is unable to supply adequate power.
   c. Where there is evidence suitable to the local enforcement agency substantiating the local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.
2. Parking spaces accessible only by automated mechanical car parking systems are not required to comply with this code section

5.106.5.3.1 EV capable spaces.
[N] EV capable spaces shall be provided in accordance with Table 5.106.5.3.1 and the following requirements:
1. Raceways complying with the California Electrical Code and no less that 1-inch (25 mm) diameter shall be provided and shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the EV capable and into a suitable listed cabinet, box,enclosure or equivalent. A common raceway may be used to serve multiple EV charging spaces.
2. A service panel or subpanel (s) shall be provided with panel space and electrical load capacity for a dedicated 208/240 volt, 40-ampere minimum branch circuit for each EV capable space, with delivery of 30-ampere minimum to an installed EVSE at each EVCS.
3. The electrical system and any on-site distribution transformers shall have sufficient capacity to supply full rated amperage at each EV capable space.
4. The service panel or subpanel circuit directory shall identify the reserved overcurrent protective devices space(s) as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE."

Note: A parking space served by electric vehicle supply equipment or designed as a future EV charging space shall count as at least one standard automobile parking space only for the purpose of complying with any applicable minimum parking space requirements established by an enforcement agency. See vehicle Code Section 22511.2 for further details.

TABLE 5.106.5.3.1

TOTAL NUMBER OF ACTUAL PARKING SPACES	NUMBER OF REQUIRED EV CAPABLE SPACES	NUMBER OF EVCS (EV CAPABLE SPACES PROVIDED WITH EVSE)^2
0-9	0	0
10-25	2	0
26-50	8	2
51-75	13	3
76-100	17	4
101-150	25	6
151-200	35	9
201 AND OVER	20% of total[1]	25% of EV capable spaces[1]

1. Where there is insufficient electrical supply.
2. The number of required EVCS (EV capable spaces provided with EVSE) in column 3 count towards the total number of required EV capable spaces shown in column 2.

5.106.5.3.2 Electric vehicle charging stations (EVCS)
EV capable spaces shall be provided with EVSE to create EVCS in the number indicated in Table 5.106.5.3.1. The EVCS required by Table 5.106.5.3.1 may be provided with EVSE in any combination of Level 2 and Direct Current Fast Charging (DCFC), except that at least one Level 2 EVSE shall be provided.

One EV charger with multiple connectors capable of charging multiple EVs simultaneously shall be permitted if the electrical load capacity required by Section 5.106.5.3.1 for each EV capable space is accumulatively supplied to the EV charger.

The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV capable spaces without EVSE by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.

5.106.5.3.3 Use of automatic load management systems (ALMS).
ALMS shall be permitted for EVCS. When ALMS is installed, the required electrical load capacity specified in Section
5.106.5.3.1 for each EVCS may be reduced when serviced by an EVSE controlled by an ALMS. Each EVSE controlled by an ALMS shall deliver a minimum 30 amperes to an EV when charging one vehicle and shall deliver a minimum 3.3 kW while simultaneously charging multiple EVs.

5.106.5.3.4 Accessible EVCS.
When EVSE is installed, accessible EVSC shall be provided in accordance with the *California Building Code*, Chapter 11B, Section 11B-228.3.
Note: For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

5.106.5.4 Electric Vehicle (EV) charging: medium-duty and heavy-duty. [N]
Construction shall comply with section 5.106.5.4.1 to facilitate future installation of electric vehicle supply equipment (EVSE). Construction for warehouses, grocery stores and retail stores with planned off-street loading spaces shall also comply with Section 5.106.5.4.1 for future installation of medium- and heavy-duty EVSE.
Exceptions:
1. On a case-by-case basis where the local enforcing agency has determined compliance with this section is not feasible based upon one of the following conditions:
   a. Where there is no local utility power supply.
   b. Where the local utility is unable to supply adequate power.
   c. Where there is evidence suitable to the local enforcing agency substantiating that additional local utility infrastructure design requirements, directly related to the implementation of Section 5.106.5.3, may adversely impact the construction cost of the project.

When EVSE(s) is/are installed, it shall be in accordance with the *California Building Code*, the *California Electrical Code* and as follows:

5.106.5.4.1 Electric vehicle charging readiness requirements for warehouse, grocery stores and retail stores with planned off-street loading spaces.
[N] In order to avoid future demolition when adding EV charging supply and distribution equipment, spare raceways(s) or busway(s) and adequate capacity for transformers(s), service panels(s) or subpanel(s) shall be installed at the time of construction in accordance with the California Electrical Code. Construction plans and specifications shall include but are not limited to, the following:
1. The transformer, main service equipment and subpanel shall meet the minimum power requirement in Table 5.106.5.4.1 to accommodate the dedicated branch circuits for the future installation of EVSE.
2. The construction documents shall indicate on or more location(s) convenient to the planned offstreet loading space(s) reserved for medium-and heavy-duty ZEV charging cabinets and charging dispensers, and a pathway reserved for routing of conduit from the termination of the raceway(s) or busway(s) to the charging cabinet(s) and dispenser(s) as shown in Table 5.106.5.4.1
3. Raceway(s) or busway(s) originating at a main service panel or a subpanel(s) serving the area where potential future medium-and heavy-duty EVSE will be located and shall terminate in close proximity to the potential future location of the charging equipments for medium- and heavy-duty vehicles.
4. The raceway(s) or busway(s) shall be sufficient size to carry the minimum additional system load to the future location of the charging for medium- and heavy-duty ZEVs as shown in Table 5.106.5.4.1.

TABLE 5.106.5.4.1 RACEWAY CONDUIT AND PANEL POWER REQUIREMENTS FOR MEDIUM- AND HEAVY-DUTY EVSE [N]

BUILDING TYPE	BUILDING SIZE (SQ. FT.)	NUMBER OF OFF-STREET LOADING SPACES	ADDITIONAL CAPACITY REQUIRED (KVA) FOR RACEWAY & BUSWAY AND TRANSFORMER & PANEL
Grocery	10,000 to 90,000	1 or 2	200
		3 or Greater	400
	Greater than 90,000	1 or Greater	400
Retail	10,000 to 135,000	1 or 2	200
		3 or Greater	400
	Greater than 135,000	1 or Greater	400
Warehouse	20,000 to 256,000	1 or 2	200
		3 or Greater	400
	Greater than 256,000	1 or Greater	400

5.106.8 LIGHT POLLUTION REDUCTION. [N]. I Outdoor lighting systems shall be designed and installed to comply with the following:

1. The minimum requirements in the California Energy Code for Lighting Zones 0-4 as defined in Chapter 10, Section 10-114 of the California Administrative Code; and
2. Backlight (B) ratings as defined in IES TM-15-11 (shown in Table A-1 in Chapter 8);
3. Uplight and Glare ratings as defined in California Energy Code (shown in Tables 130.2-A and 130.2-B in Chapter 8) and
4. Allowable BUG ratings not exceeding those shown in Table 5.106.8, [N] or Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.

Exceptions: [N]

1. Luminaires that qualify as exceptions in Sections 130.2 (b) and 140.7 of the California Energy Code.
2. Emergency lighting.
3. Building facade meeting the requirements in Table 140.7-B of the California Energy Code, Part 6.
4. Custom lighting features as allowed by the local enforcing agency, as permitted by Section 101.8 Alternate materials, designs and methods of construction.
5. Luminaires with less than 6,200 initial luminaire lumens.

TABLE 5.106.8 [N] MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS [1,2]

ALLOWABLE RATING	LIGHTING ZONE LZ0	LIGHTING ZONE LZ1	LIGHTING ZONE LZ2	LIGHTING ZONE LZ3	LIGHTING ZONE LZ4
MAXIMUM ALLOWABLE BACKLIGHT RATING [3]					
Luminaire greater than 2 mounting heights (MH) from property line	N/A	No Limit	No Limit	No Limit	No Limit
Luminaire back hemisphere is 1-2 MH from property line	N/A	B2	B3	B4	B4
Luminaire back hemisphere is 0.5-1 MH from property line	N/A	B1	B2	B3	B3
Luminaire back hemisphere is less than 0.5 MH from property line	N/A	B0	B0	B1	B2
MAXIMUM ALLOWABLE UPLIGHT RATING (U)					
For area lighting [3]	N/A	U0	U0	U0	U0
For all other outdoor lighting,including decorative luminaires	N/A	U1	U2	U3	UR
MAXIMUM ALLOWABLE GLARE RATING [3] (G)					
MAXIMUM ALLOWABLE GLARE RATING [3] (G)	N/A	G1	G2	G3	G4
MAXIMUM ALLOWABLE GLARE RATING [3] (G)	N/A	G0	G1	G1	G2
MAXIMUM ALLOWABLE GLARE RATING [3] (G)	N/A	G0	G0	G1	G1
MAXIMUM ALLOWABLE GLARE RATING [3] (G)	N/A	G0	G0	G0	G1

1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the *California Energy Code* and Chapter 10 of the *California Administrative Code.*

2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.

3. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaries located in these areas shall meet *U*-value limits for "all other outdoor lighting"

5.106.8.1 Facing- Backlight
Luminaries within 2MH of a property line shall be oriented so that the nearest property line is behind the fixture, and shall comply with the backlight rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point of that property line.
Exception: Corners. If two property lines (or two segments of the same property line) have equidistant point to the luminaire, then the luminaire may be oriented so that the intersection of the two lines (the corner) is directly behind the luminaire. The luminaire shall still use the distance to the nearest points(s) on the property lines to determine the required backlight rating.

5.106.8.2 Facing-Glare.
For luminaires covered by 5.106.8.1, if a property line also exists within or extends into the front hemisphere within 2MH of the luminaire then the luminaire shall comply with the more stringent glare rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point on the nearest property line within the front hemisphere.

Note: [N]
1.See also *California Building Code*, Chapter 12, Section 1205.6 for college campus lighting requirements for parking facilities and walkways.
2.Refer to Chapter 8 (Compliance Forms, Worksheets and Reference Material) for IES TM-15-11 Table A-1, *California Energy Code* Tables 130.2-A and 130.2-B.
3. Refer to the *California Building Code* for requirements for additions and alterations.

5.106.10 GRADING AND PAVING. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales.
2. Water collection and disposal systems.
3. French drains.
4. Water retention gardens.
5. Other water measures which keep surface water away from buildings and aid in groundwater recharge.
Exception: Additions and alterations not altering the drainage path.

5.106.12 SHADE TREES [DSA-SS]. Shade Trees shall be planted to comply with Sections 5.106.12.1, 5.106.12.2, and 5.106.12.3. Percentages shown shall be measured at noon on the summer solstice. Landscape irrigation necessary to establish and maintain tree health shall comply with Section 5.304.6.

5.106.12.1 Surface parking areas. Shade tree plantings, minimum #10 container size or equal, shall be installed to provide shade over 50 percent of the parking area within 15 years.

Exceptions: Surface parking area covered by solar photovoltaic shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5 shall be permitted in whole or in part in lieu of shade tree planting.

5.106.12.2 Landscape areas. Shade tress plantings, minimum #10 container size or equal shall be installed to provide shade of 20% of the landscape area within 15 years.

Exceptions: Playfields for organized sport activity are not included in the total area calculation.

5.106.12.3. Hardscape areas. Shade tree plantings, minimum #10 container size or equal shall be installed to provide shade over 20 percent of the hardscape area within 15 years.

Exceptions:
1. Walks, hardscape areas covered by solar photovoltaic shade structures or shade structures with roofing materials that comply with Table A5.106.11.2.2 in Appendix A5 shall be permitted in whole or in part in lieu of shade tree planting.
2. Designated and marked play areas of organized sport activity are not included in the total area calculation.

DIVISION 5.2 ENERGY EFFICIENCY

SECTION 5.201 GENERAL

5.201.1 Scope [BSC-CG]. ***California Energy Code [DSA-SS].*** For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory building standards.

DIVISION 5.3 WATER EFFICIENCY AND CONSERVATION

SECTION 5.301 GENERAL

5.301.1 Scope. The provisions of this chapter shall establish the means of conserving water use indoors, outdoors and in wastewater conveyance.

SECTION 5.302 DEFINITIONS

5.302.1 Definitions. The following terms are defined in Chapter 2 *(and are included here for reference)*

EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF) [DSA-SS]. An adjustment factor when applied to reference evapotranspiration that adjusts for plant factors and irrigation efficiency, which ae two major influences on the amount of water that needs to be applied to the landscape.

FOOTPRINT AREA [DSA-SS]. The total area of the furthest exterior wall of the structure projected to natural grade, not including exterior areas such as stairs, covered walkways, patios and decks.

METERING FAUCET. A self-closing faucet that dispenses a specific volume of water for each actuation cycle. The volume or cycle duration can be fixed or adjustable.

GRAYWATER. Pursuant to Health and Safety Code Section 17922.12, "graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes, but is not limited to wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines and laundry tubs, but does not include waste water from kitchen sinks or dishwashers.

MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). The California ordinance regulating landscape design, installation and maintenance practices that will ensure commercial, multifamily and other developer installed landscapes greater than 2500 square feet meet an irrigation water budget developed based on landscaped area and climatological parameters.

MODEL WATER EFFICIENT LANDSCAPE ORDINANCE (MWELO). [HCD] The California model ordinance (California Code of Regulations, Title 23, Division 2, Chapter 2.7), regulating landscape design, installation and maintenance practices. Local agencies are required to adopt the updated MWELO, or adopt a local ordinance at least as effective as the MWELO.

POTABLE WATER. Water that is drinkable and meets the U.S. Environmental Protection Agency (EPA) Drinking Water Standards. See definition in the California Plumbing Code, Part 5.

POTABLE WATER. [HCD] Water that is satisfactory for drinking, culinary, and domestic purposes, and meets the U.S. Environmental Protection Agency (EPA) Drinking Water Standards and the requirements of the Health Authority Having Jurisdiction.

RECYCLED WATER. Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur [Water Code Section 13050 (n)]. Simply put, recycled water is water treated to remove waste matter attaining a quality that is suitable to use the water again.

SUBMETER. [HCD 1] A secondary device beyond a meter that measures water consumption of an individual rental unit within a multiunit residential structure or mixed-use residential and commercial structure. (See Civic Code Section 1954.202 (g) and Water code Section 517 for additional details.)

WATER BUDGET. Is the estimated total landscape irrigation water use which shall not exceed the maximum applied water allowance calculated in accordance with the Department of Water Resources Model Efficient Landscape Ordinance (MWELO).

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2.28.2027
RENEWAL
STATE OF CALIFORNIA

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2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 2 (January 2023)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

Y	N/A	RESPON. PARTY

SECTION 5.303 INDOOR WATER USE

5.303.1 METERS. Separate submeters or metering devices shall be installed for the uses described in Sections 503.1.1 and 503.1.2.

5.303.1.1 Buildings in excess of 50,000 square feet. Separate submeters shall be installed as follows:

1. For each individual leased, rented or other tenant space within the building projected to consume more than 100 gal/day (380 L/day), including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.
2. Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems:
   a. Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s).
   b. Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s).
   c. Steam and hot water boilers with energy input more than 500,000 Btu/h (147 kW).

5.303.1.2 Excess consumption. A separate submeter or metering device shall be provided for any tenant within a new building or within an addition that is projected to consume more than 1,000 gal/day.

5.303.3 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

5.303.3.1 Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type toilets.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

5.303.3.2 Urinals.
5.303.3.2.1 Wall-mounted Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush.

5.303.3.2.2 Floor-mounted Urinals. The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush.

5.303.3.3 Showerheads. [BSC-CG]
5.303.3.3.1 Single showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

5.303.3.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.
Note: A hand-held shower shall be considered a showerhead.

5.303.3.4 Faucets and fountains.

5.303.3.4.1 Nonresidential Lavatory faucets. Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.

5.303.3.4.2 Kitchen faucets. Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

5.303.3.4.3 Wash fountains. Wash fountains shall have a maximum flow rate of not more than1.8 gallons per minute/20 [rim space (inches) at 60 psi].

5.303.3.4.4 Metering faucets. Metering faucets shall not deliver more than 0.20 gallons per cycle.

5.303.3.4.5 Metering faucets for wash fountains. Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per minute/20 [rim space (inches) at 60 psi].

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

5.303.3.4.6 Pre-rinse spray value
When installed, shall meet the requirements in the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations), Section 1605.1 (h)(4) Table H-2, Section 1605.3 (h)(4)(A), and Section 1607 (d)(7), and shall be equipped with an integral automatic shutoff.

FOR REFERENCE ONLY: The following table and code section have been reprinted from the *California Code of Regulations*, Title 20 (Appliance Efficiency Regulations), Section 1605.1 (h)(4) and Section 1605.3 (h)(4)(A).

TABLE H-2

STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALUES MANUFACTURED ON OR AFTER JANUARY 28, 2019

PRODUCT CLASS [spray force in ounce force (ozf)]	MAXIMUM FLOW RATE (gpm)
Product Class 1 (≤ 5.0 ozf)	1.00
Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)	1.20
Product Class 3 (> 8.0 ozf)	1.28

5.303.4 COMMERCIAL KITCHEN EQUIPMENT.

5.303.4.1 Food Waste Disposers. Disposers shall either modulate the use of water to no more than 1 gpm when the disposer is not in use (not actively grinding food waste/no-load) or shall automatically shut off after no more than 10 minutes of inactivity. Disposers shall use no more than 8 gpm of water.
Note: This code section does not affect local jurisdiction authority to prohibit or require disposer installation.

5.303.5 AREAS OF ADDITION OR ALTERATION. For those occupancies within the authority of the California Building Standards Commission as specified in Section 103, the provisions of Section 5.303.3 and 5.303.4 shall apply to new fixtures in additions or areas of alteration to the building.

5.303.6 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1701.1 of the *California Plumbing Code* and in Chapter 6 of this code.

SECTION 5.304 OUTDOOR WATER USE

5.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.

Notes:
1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code of Regulations, Title 23, Chapter 2.7, Division 2.
2. MWELO and supporting documents, including a water budget calculator, are available at: https://www.water.ca.gov/.

5.304.6 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. For public schools and community colleges, landscape projects as described in Sections 5.304.6.1 and 5.304.6.2 shall comply with the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) commencing with Section 490 of Chapter 2.7, Division 2, Title 23, *California Code of Regulations*, except that the evapotranspiration adjustment factor (ETAF) shall be 0.65 with an additional water allowance for special landscape areas (SLA) of 0.35.

Exception: Any project with an aggregate landscape area of 2,500 square feet or less may comply with the prescriptive measures contained in Appendix D of the MWELO.

5.304.6.1 Newly constructed landscapes. New construction projects with an aggregate landscape area equal to or greater than 500 square feet.

5.304.6.2 Rehabilitated landscapes. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 1,200 square feet.

DIVISION 5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

SECTION 5.401 GENERAL

5.401.1 SCOPE. The provisions of this chapter shall outline means of achieving material conservation and resource efficiency through protection of buildings from exterior moisture, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, and building commissioning or testing and adjusting.

SECTION 5.402 DEFINITIONS

5.402.1 DEFINITIONS. The following terms are defined in Chapter 2 *(and are included here for reference)*

ADJUST. To regulate fluid flow rate and air patterns at the terminal equipment, such as to reduce fan speed or adjust a damper.

BALANCE. To proportion flows within the distribution system, including sub-mains, branches and terminals, according to design quantities.

BUILDING COMMISSIONING. A systematic quality assurance process that spans the entire design and construction process, including verifying and documenting that building systems and components are planned, designed, installed, tested, operated and maintained to meet the owner's project requirements.

ORGANIC WASTE. Food waste, green waste, landscape and pruning wste, nonhazardous wood waste, and food soiled paper waste that is mixed in with food waste.

TEST. A procedure to determine quantitative performance of a system or equipment

SECTION 5.407 WATER RESISTANCE AND MOISTURE MANAGEMENT

5.407.1 WEATHER PROTECTION. Provide a weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1402.2 (Weather Protection), manufacturer's installation instructions or local ordinance, whichever is more stringent.

5.407.2 MOISTURE CONTROL. Employ moisture control measures by the following methods.

5.407.2.1 Sprinklers. Design and maintain landscape irrigation systems to prevent spray on structures.

5.407.2.2 Entries and openings. Design exterior entries and/or openings subject to foot traffic or wind-driven rain to prevent water intrusion into buildings as follows:

5.407.2.2.1 Exterior door protection. Primary exterior entries shall be covered to prevent water intrusion by using nonabsorbent floor and wall finishes within at least 2 feet around and perpendicular to such openings plus at least one of the following:

1. An installed awning at least 4 feet in depth.
2. The door is protected by a roof overhang at least 4 feet in depth.
3. The door is recessed at least 4 feet.
4. Other methods which provide equivalent protection.

5.407.2.2.2 Flashing. Install flashings integrated with a drainage plane.

SECTION 5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

5.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65% of the non-hazardous construction and demolition waste in accordance with Section 5.408.1.1, 5.408.1.2 or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.

5.408.1.1 Construction waste management plan. Where a local jurisdiction does not have a construction and demolition waste management ordinance, submit a construction waste management plan that:

1. Identifies the construction and demolition waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale.
2. Determines if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream).
3. Identifies diversion facilities where construction and demolition waste material collected will be taken.
4. Specifies that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.

5.408.1.2 Waste Management Company. Utilize a waste management company that can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with this section.

Note: The owner or contractor shall make the determination if the construction and demolition waste material will be diverted by a waste management company.

Exceptions to Sections 5.408.1.1 and 5.408.1.2:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.
3. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets.

5.408.1.3 Waste stream reduction alternative. The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 65% minimum requirement as approved by the enforcing agency.

5.408.1.4 Documentation. Documentation shall be provided to the enforcing agency which demonstrates compliance with Sections 5.408.1.1, through 5.408.1.3. The waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Nonresidential)" located www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen may be used to assist in documenting compliance with the waste management plan.
2. Mixed construction and demolition debris processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

5.408.2 UNIVERSAL WASTE. [A] Additions and alterations to a building or tenant space that meet the scoping provisions in Section 301.3 for nonresidential additions and alterations, shall require verification that Universal Waste items such as fluorescent lamps and ballast and mercury containing thermostats as well as other California prohibited Universal Waste materials are disposed of properly and are diverted from landfills. A list of prohibited Universal Waste materials shall be included in the construction documents.

Note: Refer to the Universal Waste Rule link at: http://www.dtsc.ca.gov/universalwaste/

5.408.3 EXCAVATED SOIL AND LAND CLEARING DEBRIS. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

Exception: Reuse, either on or off-site, of vegetation or soil contaminated by disease or pest infestation.

Notes:

1. If contamination by disease or pest infestation is suspected, contact the County Agricultural Commissioner and follow its direction for recycling or disposal of the material.
2. For a map of know pest and/or disease quarantine zones, consult with the California Department of Food and Agriculture. (www.cdfa.ca.gov)

SECTION 5.410 BUILDING MAINTENANCE AND OPERATIONS

5.410.1 RECYCLING BY OCCUPANTS. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive.

Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code 42649.82 (a)(2)(A) et seq. shall also be exempt from the organic waste portion of this section.

5.410.1.1 Additions. All additions conducted within a 12-month period under single or multiple permits, resulting in an increase of 30% or more in floor area, shall provide recycling areas on site.

Exception: Additions within a tenant space resulting in less than a 30% increase in the tenant space floor area.

5.410.1.2 Sample ordinance. Space allocation for recycling areas shall comply with Chapter 18, Part 3, Division 30 of the *Public Resources Code*. Chapter 18 is known as the California Solid Waste Reuse and Recycling Access Act of 1991 (Act).

Note: A sample ordinance for use by local agencies may be found in Appendix A of the document at the CalRecycle's web site.

5.410.2 COMMISSIONING. [N] New buildings 10,000 square feet and over. For new buildings 10,000 square feet and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements. Commissioning shall be performed in accordance with this section by trained personnel with experience on projects of comparable size and complexity. For I-occupancies that are not regulated by OSHPD or for I-occupancies and L-occupancies that are not regulated y the California Energy Code Section 100.0 Scope, all requirements in Sections 5.410.2 through 5.410.2.6 shall apply.

Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting systems and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements

Commissioning requirements shall include:

1. Owner's or Owner representative's project requirements.
2. Basis of design.
3. Commissioning measures shown in the construction documents.
4. Commissioning plan.
5. Functional performance testing.
6. Documentation and training.
7. Commissioning report.

Exceptions:

1. Unconditioned warehouses of any size.
2. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses.
3. Tenant improvements less than 10,000 square feet as described in Section 303.1.1.
4. Open parking garages of any size, or open parking garage areas, of any size, within a structure.

Note: For the purposes of this section, unconditioned shall mean a building, area, or room which does not provide heating and or air conditioning.

Informational Notes:

1. IAS AC 476 is an accreditation criteria for organizations providing training and/or certification of commissioning personnel. AC 476 is available to the Authority Having Jurisdiction as a reference for qualifications of commissioning personnel. AC 476 des not certify individuals to conduct functional performance tests or to adjust and balance systems.
2. Functional performance testing for heating, ventilation, air conditioning systems and lighting controls must be performed in compliance with the *California Energy Code*.

5.410.2.1 Owner's or Owner Representative's Project Requirements (OPR). [N] The expectations and requirements of the building appropriate to its phase shall be documented before the design phase of the project begins. This documentation shall include the following:
1. Environmental and sustainability goals.
2. Building sustainable goals.
3. Indoor environmental quality requirements.
4. Project program, including facility functions and hours of operation, and need for after hours operation.
5. Equipment and systems expectations.
6. Building occupant and operation and maintenance (O&M) personnel expectations.

5.410.2.2 Basis of Design (BOD). [N] A written explanation of how the design of the building systems meets the OPR shall be completed at the design phase of the building project. The Basis of Design document shall cover the following systems:

1. Renewable energy systems.
2. Landscape irrigation systems.
3. Water reuse system.

5.410.2.3 Commissioning plan. [N] Prior to permit issuance a commissioning plan shall be completed to document how the project will be commissioned. The commissioning plan shall include the following:
1. General project information.
2. Commissioning goals.
3. Systems to be commissioned. Plans to test systems and components shall include:
   a. An explanation of the original design intent.
   b. Equipment and systems to be tested, including the extent of tests.
   c. Functions to be tested.
   d. Conditions under which the test shall be performed.
   e. Measurable criteria for acceptable performance.
4. Commissioning team information.
5. Commissioning process activities, schedules and responsibilities. Plans for the completion of commissioning shall be included.

5.410.2.4 Functional performance testing. [N] Functional performance tests shall demonstrate the correct installation and operation of each component, system and system-to-system interface in accordance with the approved plans and specifications. Functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made.

5.410.2.5 Documentation and training. [N] A Systems Manual and Systems Operations Training are required, including Occupational Safety and Health Act (OSHA) requirements in *California Code of Regulations* (CCR), Title 8, Section 5142, and other related regulations.

5.410.2.5.1 Systems manual. [N] Documentation of the operational aspects of the building shall be completed within the systems manual and delivered to the building owner or representative. The systems manual shall include the following:
1. Site information, including facility description, history and current requirements.
2. Site contact information.
3. Basic operations and maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log.
4. Major systems.
5. Site equipment inventory and maintenance notes.
6. A copy of verifications required by the enforcing agency or this code.
7. Other resources and documentation, if applicable.

5.410.2.5.2 Systems operations training. [N] A program for training of the appropriate maintenance staff for each equipment type and/or system shall be developed and documented in the commissioning report and shall include the following:
1. System/equipment overview (what it is, what it does and with what other systems and/or equipment it interfaces).
2. Review and demonstration of servicing/preventive maintenance.
3. Review of the information in the Systems Manual.
4. Review of the record drawings on the system/equipment.

5.410.2.6 Commissioning report. [N] A report of commissioning process activities undertaken through the design and construction phases of the building project shall be completed and provided to the owner or representative.

5.410.4 TESTING AND ADJUSTING. New buildings less than 10,000 square feet. Testing and adjusting of systems shall be required for new buildings less than 10,000 square feet or new systems to serve an addition or alteration subject to Section 303.1.

5.410.4.2 (Reserved)

Note: For energy-related systems under the scope (Section 100) of the California Energy Code, including heating, ventilation, air conditioning (HVAC) systems and controls, indoor lighting system and controls, as well as water heating systems and controls, refer to California Energy Code Section 120.8 for commissioning requirements and Sections 120.5, 120.6, 130.4, and 140.9(b)3 for additional testing requirements of specific systems.

5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project:

1. Renewable energy systems.
2. Landscape irrigation systems.
3. Water reuse systems.

5.410.4.3 Procedures. Perform testing and adjusting procedures in accordance with manufacturer's specifications and applicable standards on each system.

5.410.4.3.1 HVAC balancing. In addition to testing and adjusting, before a new space-conditioning system serving a building or space is operated for normal use, the system shall be balanced in accordance with the procedures defined by the Testing Adjusting and Balancing Bureau National Standards; the National Environmental Balancing Bureau Procedural Standards; Associated Air Balance Council National Standards or as approved by the enforcing agency.

5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.

5.410.4.5 Operation and maintenance (O & M) manual. Provide the building owner or representative with detailed operating and maintenance instructions and copies of guaranties/warranties for each system. O & M instructions shall be consistent with OSHA requirements in CCR, Title 8, Section 5142, and other related regulations.

5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the enforcing agency.

DIVISION 5.5 ENVIRONMENTAL QUALITY

SECTION 5.501 GENERAL

5.501.1 SCOPE. The provisions of this chapter shall outline means of reducing the quantity of air contaminants that are odorous, irritating, and/or harmful to the comfort and well-being of a building's installers, occupants and neighbors.

SECTION 5.502 DEFINITIONS

5.502.1 DEFINITIONS. The following terms are defined in Chapter 2 *(and are included here for reference)*

ARTERIAL HIGHWAY. A general term denoting a highway primarily for through traffic usually on a continuous route.

A-WEIGHTED SOUND LEVEL (dBA). The sound pressure level in decibels as measured on a sound level meter using the internationally standardized A-weighting filter or as computed from sound spectral data to which A-weighting adjustments have been made.

1 BTU/HOUR. British thermal units per hour, also referred to as Btu. The amount of heat required to raise one pound of water one degree Fahrenheit per hour, a common measure of heat transfer rate. A ton of refrigeration is 12,000 Btu, the amount of heat required to melt a ton (2,000 pounds) of ice at 32^{0} Fahrenheit.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). A metric similar to the day-night average sound level (Ldn), except that a 5 decibel adjustment is added to the equivalent continuous sound exposure level for evening hours (7pm to 10pm) in addition to the 10 dB nighttime adjustment used in the Ldn.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, timber, prefabricated wood I–joists or finger–jointed lumber, all as specified in California Code of Regulations (CCR), Title 17, Section 93120.1(a).

Note: See CCR, Title 17, Section 93120.1.

DAY-NIGHT AVERAGE SOUND LEVEL (Ldn). The A-weighted equivalent continuous sound exposure level for a 24-hour period with a 10 dB adjustment added to sound levels occurring during nighttime hours (10p.m. to 7 a.m.).

DECIBEL (db). A measure on a logarithmic scale of the magnitude of a particular quantity (such as sound pressure, sound power, sound intensity) with respect to a reference quantity.

ELECTRIC VEHICLE (EV). An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the *California Electrical Code*, off-road, self-propoelled electric vehicles, such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats, and the like, are not included.

ELECTRIC VEHICLE CHARGING STATION(S) (EVCS)). One or more spaces intended for charging electric vehicles.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors and the electric vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

ENERGY EQUIVALENT (NOISE) LEVEL (Leq). The level of a steady noise which would have the same energy as the fluctuating noise level integrated over the time of period of interest.

EXPRESSWAY. An arterial highway for through traffic which may have partial control of access, but which may or may not be divided or have grade separations at intersections.

FREEWAY. A divided arterial highway with full control of access and with grade separations at intersections.

GLOBAL WARMING POTENTIAL (GWP). The radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time. Carbon dioxide is the reference compound with a GWP of one.

GLOBAL WARMING POTENTIAL VALUE (GWP VALUE). A 100-year GWP value published by the Intergovernmental Panel on Climate Change (IPCC) in either its Second Assessment Report (SAR) (IPCC, 1995); or its Fourth Assessment A-3 Report (AR4) (IPCC, 2007). The SAR GWP values are found in column "SAR (100-yr)" of Table 2.14.; the AR4 GWP values are found in column "100 yr" of Table 2.14.

HIGH-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that is: (a) a chlorofluorocarbon, a hdrochlorofluorocarbon, a hydrofluorocarbon, a perfluorocarbon, or any compound or blend of compounds, with a GWP value equal to or greater than 150, or (B) any ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009).

LONG RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.5 times the pipe diameter.

LOW-GWP REFRIGERANT. A compound used as a heat transfer fluid or gas that: (A) has a GWP value less than 150, and (B) is not an ozone depleting substance as defined in Title 40 of the Code of Federal Regulations, Part 82, sec.82.3 (as amended March 10, 2009).

MERV. Filter minimum efficiency reporting value, based on ASHRAE 52.2–1999.

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base REactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundreths of a gram (g O^{3}/g ROC).

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).

PSIG. Pounds per square inch, guage.

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

SCHRADER ACCESS VALVES. Access fittings with a valve core installed.

SHORT RADIUS ELBOW. Pipe fitting installed between two lengths of pipe or tubing to allow a change of direction, with a radius 1.0 times the pipe diameter.

SUPERMARKET. For the purposes of Section 5.508.2, a supermarket is any retail food facility with 8,000 square feet or more conditioned area, and that utilizes either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units.

VOC. A volatile organic compound broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a)

Note: Where specific regulations are cited from different agencies such as SCAQMD, ARB, etc., the VOC definition included in that specific regulation is the one that prevails for the specific measure in question.

SECTION 5.503 FIREPLACES

5.503.1 FIREPLACES. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove or pellet stove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150. Woodstoves, pellet stoves and fireplaces shall comply with applicable local ordinances.

5.503.1.1 Woodstoves. Woodstoves and pellet stoves shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits.

SECTION 5.504 POLLUTANT CONTROL

5.504.1 TEMPORARY VENTILATION. The permanent HVAC system shall only be used during construction if necessary to condition the building or areas of addition or alteration within the required temperature range for material and equipment installation. If the HVAC system is used during construction, use return air filters with a Minimum Efficiency Reporting Value (MERV) of 8, based on ASHRAE 52.2-1999, or an average efficiency of 30% based on ASHRAE 52.1-1992. Replace all filters immediately prior to occupancy, or, if the building is occupied during alteration, at the conclusion of construction.

5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation and during storage on the construction site until final startup of the heating, cooling and ventilation equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust, water and debris which may enter the system.

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LICENSED ARCHITECT
WILLIAM D. RUOFF III
C-36886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

DATE:	#	ISSUES/REVISIONS:
05/23/2025	0	ISSUE FOR BID

APPROVED BY:

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T2.01

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
NONRESIDENTIAL MANDATORY MEASURES, SHEET 3 (January 2023)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGR OWNER, CONTRACTOR, INSPECTOR ETC.)

5.504.4 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.6.

5.504.4.1 Adhesives, sealants and caulks. Adhesives, sealants, and caulks used on the project shall meet the requirements of the following standards:
1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products as specified in subsection 2, below.

2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with Section 94507.

TABLE 5.504.4.1 - ADHESIVE VOC LIMIT[1,2]

Less Water and Less Exempt Compounds in Grams per Liter

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT & ASPHALT TILE ADHESIVES	50
DRYWALL & PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVES	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT SPECIFICALLY LISTED	50
SPECIALTY APPLICATIONS	
PVC WELDING	510
CPVC WELDING	490
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	550
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP & TRIM ADHESIVE	250
SUBSTRATE SPECIFIC APPLICATIONS	
METAL TO METAL	30
PLASTIC FOAMS	50
POROUS MATERIAL (EXCEPT WOOD)	50
WOOD	30
FIBERGLASS	80

1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.

2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168, www.arb.ca.gov/DRDB/SC/CURHTML/R1168.PDF

TABLE 5.504.4.2 - SEALANT VOC LIMIT

Less Water and Less Exempt Compounds in Grams per Liter

SEALANTS	CURRENT VOC LIMIT
ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL	
NONPOROUS	250
POROUS	775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

NOTE: FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THESE TABLES, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.

5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.

5.504.4.3.1 Aerosol Paints and coatings. Aerosol paints and coatings shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

TABLE 5.504.4.3 - CONT.

GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS

COATING CATEGORY	CURRENT VOC LIMIT
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE/MASONRY SEALERS	100
DRIVEWAY SEALERS	50
DRY FOG COATINGS	150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	350
FLOOR COATINGS	100
FORM-RELEASE COMPOUNDS	250
GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
HIGH-TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS[1]	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, & UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS:	
CLEAR	730
OPAQUE	550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340

1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS

2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.

3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

5.504.4.3.2 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:
1. Manufacturer's product specification
2. Field verification of on-site product containers

5.504.4.4 Carpet Systems.
All carpet installed in the building interior shall meet the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers." Version 1.2, January 2017 (Emission testing method for California Specifications 01350).

See California Department of Public Health's website for certification programs and testing labs.
https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.4.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the California Department of Public Health,"Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers,"Version 1.2, January 2017 (Emission testing method for California Specifications 01350).

See California Department of Public Health's website for certification programs and testing labs.
https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.4.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 5.504.4.1.

5.504.4.5 Composite wood products. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure (ATCM) for Composite Wood (17 CCR 93120 et seq.). Those materials not exempted under the ATCM must meet the specified emission limits, as shown in Table 5.504.4.5.

5.504.4.5.3 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:
1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269 or European 636 3S standards.
5. Other methods acceptable to the enforcing agency.

TABLE 5.504.4.5 - FORMALDEHYDE LIMITS[1]

MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLE BOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD[2]	0.13

1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIFORNIA CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.

2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16 INCHES (8 MM).

5.504.4.6 Resilient flooring systems. Where resilient flooring is installed, at least 80 percent of floor area receiving resilient flooring shall meet the requirements of the California Department of Public Health,"Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.2, January 2017 (Emission testing method for California Specifications 01350)

See California Department of Public Health's website for certification programs and testing labs.
https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.6.1 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet the pollutant emission limits.

5.504.4.7 Thermal insulation
Comply with the requirements of the California Department of Public Health, "Standard Method of the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, "Version 1.2, January 1.2, January 2017 (Emission testing method for California Specification 01350).
See California Department of Public Health's website for certification programs and testing labs.
https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/VOC.aspx#material

5.504.4.7.1 Verification of compliance.
Documentation shall be provided verifying that thermal insulation materials meet the pollutant emission limits.

5.504.4.8 Acoustical ceiling and wall panels.
Comply with the requirements of the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, " Version 1.2, January 2017 (Emission testing method for California Specification 01350).
See California Department of Public Health's website for certification programs and testing labs.

5.504.4.8.1 Verification of compliance. Documentation shall be provided verifying that acoustical finish materials meet the pollutant emission limits.

5.504.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air that provides at least a Minimum Efficiency Reporting Value (MERV) of 13. MERV 13 filters shall be installed prior to occupancy, and recommendations for maintenance with filters of the same value shall be included in the operation and maintenance manual.

Exceptions: Existing mechanical equipment.

5.504.5.3.1 Labeling. Installed filters shall be clearly labeled by the manufacturer indicating the MERV rating.

5.504.7 ENVIRONMENTAL TOBACCO SMOKE (ETS) CONTROL. Where outdoor areas are provided for smoking, prohibit smoking within 25 feet of building entries, outdoor air intakes and operable windows and within the building as already prohibited by other laws or regulations; or as enforced by ordinances, regulations or policies of any city, county, city and county, California Community College, campus of the California State University, or campus of the University of California, whichever are more stringent. When ordinances, regulations or policies are not in place, post signage to inform building occupants of the prohibitions.

SECTION 5.505 INDOOR MOISTURE CONTROL

5.505.1 INDOOR MOISTURE CONTROL. Buildings shall meet or exceed the provisions of California Building Code, CCR, Title 24, Part 2, Sections 1202 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures, see Section 5.407.2 of this code.

SECTION 5.506 INDOOR AIR QUALITY

5.506.1 OUTSIDE AIR DELIVERY. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 (Requirements For Ventilation) of the *California Energy Code*, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.

5.506.2 CARBON DIOXIDE (CO_2) MONITORING. For buildings or additions equipped with demand control ventilation, CO_2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the California Energy Code, Section 120(c)(4).

5.506.3 Carbon dioxide (CO2) monitoring in classrooms.
(DSA-SS) Each public K-12 school classroom, as listed in Table 120.1-A of the *California Energy Code,* shall be equipped with a carbon dioxide monitor or sensor that meets the following requirements:
1. The monitor or sensor shall be permanently affixed in a tamper-proof manner in each classroom between 3 and 6 feet (914 mm and 1829 mm) above the floor and at least 5 feet (1524 mm) away from door and operable windows.
2. When the monitor or sensor is not integral to an Energy Management Control System (EMCS), the monitor or sensor shall display the carbon dioxide readings on the device. When the sensor is integral to an EMCS, the carbon dioxide readings shall be available to and regularly monitored by facility personnel.
3. A monitor shall provide notification though a visual indicator on the monitor when the carbon dioxide levels in the classroom have exceeded 1,100ppm. A sensor integral to an EMCS shall provide notification to facility personnel through a visual and/or audible indicator when the carbon dioxide levels in the classroom have exceeded 1,100ppm.
4. The monitor or sensor shall measure carbon dioxide levels at minimum 15- minute intervals and shall maintain a record of previous carbon dioxide measurements of not less than 30 days duration.
5. The monitor or sensor used to measure carbon dioxide levels shall have the capacity to measure carbon dioxide levels with a range of 400ppm to 2000ppm or greater.
6. The monitor or sensor shall be certified by the manufacturer to be accurate within 75ppm at 1,000ppm carbon dioxide concentration and shall be certified by the manufacturer to require calibration no more frequently than once every 5 years.

SECTION 5.507 ENVIRONMENTAL COMFORT

5.507.4 ACOUSTICAL CONTROL. Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E 90 and ASTM E 413, or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E 1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.

Exception: Buildings with few or no occupants or where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures and utility buildings.

Exception: [DSA-SS] For public schools and community colleges, the requirements of this section and all subsections apply only to new construction.

5.507.4.1 Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1. Within the 65 CNEL noise contour of an airport.

   Exceptions:

   1. L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
   2. L_{dn} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element.

2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway source as determined by the Noise Element of the General Plan.

5.507.4.1.1. Noise exposure where noise contours are not readily available. Buildings exposed to a noise level of 65 dB L_{eq} - 1-hr during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

5.507.4.2 Performance Method. For buildings located as defined in Section 5.507.4.1 or 5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level (Leq-1Hr) of 50 dBA in occupied areas during any hour of operation.

5.507.4.2.1 Site Features. Exterior features such as sound walls or earth berms may be utilized as appropriate to the building, addition or alteration project to mitigate sound migration to the interior.

5.507.4.2.2 Documentation of Compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

5.507.4.3 Interior sound transmission. Wall and floor-ceiling assemblies separating tenant spaces and tenant spaces and public places shall have an STC of at least 40.

Note: Examples of assemblies and their various STC ratings may be found at the California Office of Noise Control: www.toolbase.org/PDF/CaseStudies/stc_icc_ratings.pdf.

SECTION 5.508 OUTDOOR AIR QUALITY

5.508.1 Ozone depletion and greenhouse gas reductions. Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.

5.508.1.1 Chlorofluorocarbons (CFCs). Install HVAC, refrigeration and fire suppression equipment that do not contain CFCs.

5.508.1.2 Halons. Install HVAC, refrigeration and fire suppression equipment that do not contain Halons.

5.508.2 Supermarket refrigerant leak reduction. New commercial refrigeration systems shall comply with the provisions of this section when installed in retail food stores 8,000 square feet or more conditioned area, and that utilize either refrigerated display cases, or walk-in coolers or freezers connected to remote compressor units or condensing units. The leak reduction measures apply to refrigeration systems containing high-global-warming potential (high-GWP) refrigerants with a GWP of 150 or greater. New refrigeration systems include both new facilities and the replacement of existing refrigeration systems in existing facilities.

Exception: Refrigeration systems containing low-global warming potential (low-GWP) refrigerant with a GWP value less than 150 are not subject to this section. Low-GWP refrigerants are nonozone-depleting refrigerants that include ammonia, carbon dioxide (CO_2), and potentially other refrigerants.

5.508.2.1 Refrigerant piping. Piping compliant with the California Mechanical Code shall be installed to be accessible for leak protection and repairs. Piping runs using threaded pipe, copper tubing with an outside diameter (OD) less than 1/4 inch, flared tubing connections and short radius elbows shall not be used in refrigerant systems except as noted below.

5.508.2.1.1 Threaded pipe. Threaded connections are permitted at the compressor rack.

5.508.2.1.2 Copper pipe. Copper tubing with an OD less than 1/4 inch may be used in systems with a refrigerant charge of 5 pounds or less.

5.508.2.1.2.1 Anchorage. One-fouth-inch OD tubing shall be securely clamped to a rigid base to keep vibration levels below 8 mils.

5.508.2.1.3 Flared tubing connections. Double-flared tubing connections may be used for pressure controls, valve pilot lines and oil.

Exception: Single-flared tubing connections may be used with a multiring seal coated with industrial sealant suitable for use with refrigerants and tightened in accordance with manufacturer's recommendations.

5.508.2.1.4 Elbows. Short radius elbows are only permitted where space limitations prohibit use of long radius elbows.

5.508.2.2 Valves. Valves Valves and fittings shall comply with the *California Mechanical Code* and as follows.

5.508.2.2.1 Pressure relief valves. For vessels containing high-GWP refrigerant, a rupture disc shall be installed between the outlet of the vessel and the inlet of the pressure relief valve.

5.508.2.2.1.1 Pressure detection. A pressure gauge, pressure transducer or other device shall be installed in the space between the rupture disc and the relief valve inlet to indicate a disc rupture or discharge of the relief valve.

5.508.2.2.2 Access valves. Only Schrader access valves with a brass or steel body are permitted for use.

5.508.2.2.2.1 Valve caps. For systems with a refrigerant charge of 5 pounds or more, valve caps shall be brass or steel and not plastic.

5.508.2.2.2.2 Seal caps. If designed for it, the cap shall have a neoprene O-ring in place.

5.508.2.2.2.2.1 Chain tethers. Chain tethers to fit ovr the stem are required for valves designed to have seal caps.

Exception: Valves with seal caps that are not removed from the valve during stem operation.

5.508.2.3 Refrigerated service cases. Refrigerated service cases holding food products containing vinegar and salt shall have evaporator coils of corrosion-resistant material, such as stainless steel; or be coated to prevent corrosion from these substances.

5.508.2.3.1 Coil coating. Consideration shall be given to the heat transfer efficiency of coil coating to maximize energy efficiency.

5.508.2.4 Refrigerant receivers. Refrigerant receivers with capacities greater than 200 pounds shall be fitted with a device tha indicates the level of refrigerant in the receiver.

5.508.2.5 Pressure testing. The system shall be pressure tested during installation prior to evacuation and charging.

5.508.2.5.1 Minimum pressure. The system shall be charged with regulated dry nitrogen and appropriate tracer gas to bring system pressure up to 300 psig minimum.

5.508.2.5.2 Leaks. Check the system for leaks, repair any leaks, and retest for pressure using the same gauge.

5.508.2.5.3 Allowable pressure change. The system shall stand, unaltered, for 24 hours with no more than a +/- one pound pressure change from 300 psig, measured with the same gauge.

5.508.2.6 Evacuation. The system shall be evacuated after pressure testing and prior to charging.

5.508.2.6.1 First vacuum. Pull a system vacuum down to at least 1000 microns (+/- 50 microns), and hold for 30 minutes.

5.508.2.6.2 Second vacuum. Pull a second system vacuum to a minimum of 500 microns and hold for 30 minutes.

5.508.2.6.3 Third vacuum. Pull a third vacuum down to a minimum of 300 microns, and hold for 24 hours with a maximum drift of 100 microns over a 24-hour period.

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS

702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

1. State certified apprenticeship programs.
2. Public utility training programs.
3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
4. Programs sponsored by manufacturing organizations.
5. Other programs acceptable to the enforcing agency.

702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:

1. Certification by a national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the enforcing agency.

Notes:

1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

[BSC-CG] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.

Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

703 VERIFICATIONS

703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.

DISCLAIMER: THIS DOCUMENT IS PROVIDED AND INTENDED TO BE USED AS A MEANS TO INDICATE AREAS OF COMPLIANCE WITH THE CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN) CODE. DUE TO THE VARIABLES BETWEEN BUILDING DEPARTMENT JURISDICTIONS, THIS CHECKLIST IS TO BE USED ON AN INDIVIDUAL PROJECT BASIS AND MAY BE MODIFIED BY THE END USER TO MEET THOSE INDIVIDUAL NEEDS. THE END USER ASSUMES ALL RESPONSIBILITY ASSOCIATED WITH THE USE OF THIS DOCUMENT, INCLUDING VERIFICATION WITH THE FULL CODE.

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LICENSED ARCHITECT
WILLIAM D. RUOFF III
C-36886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

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0	ISSUE FOR BID

DATE: 05/23/2025

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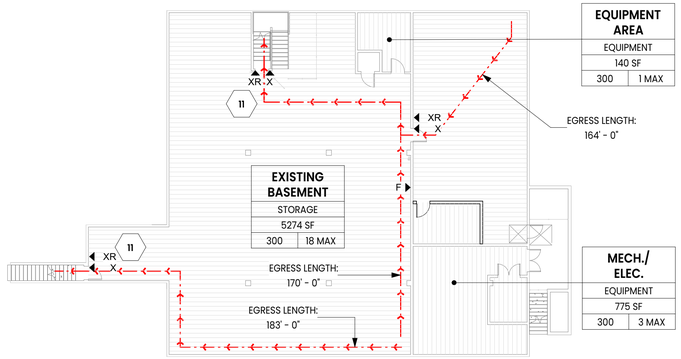
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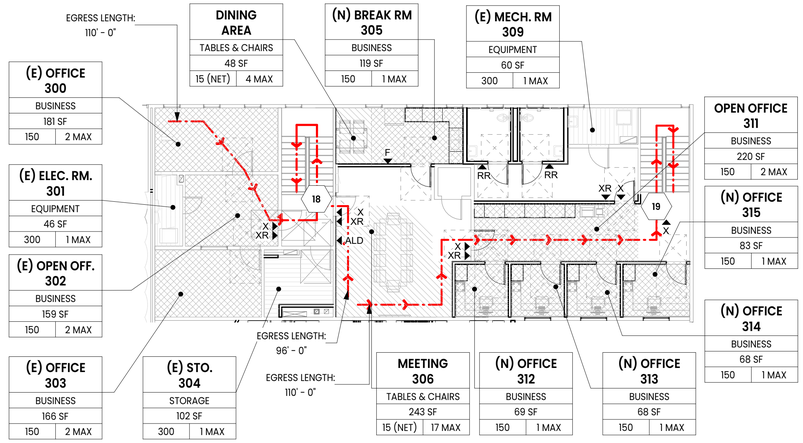
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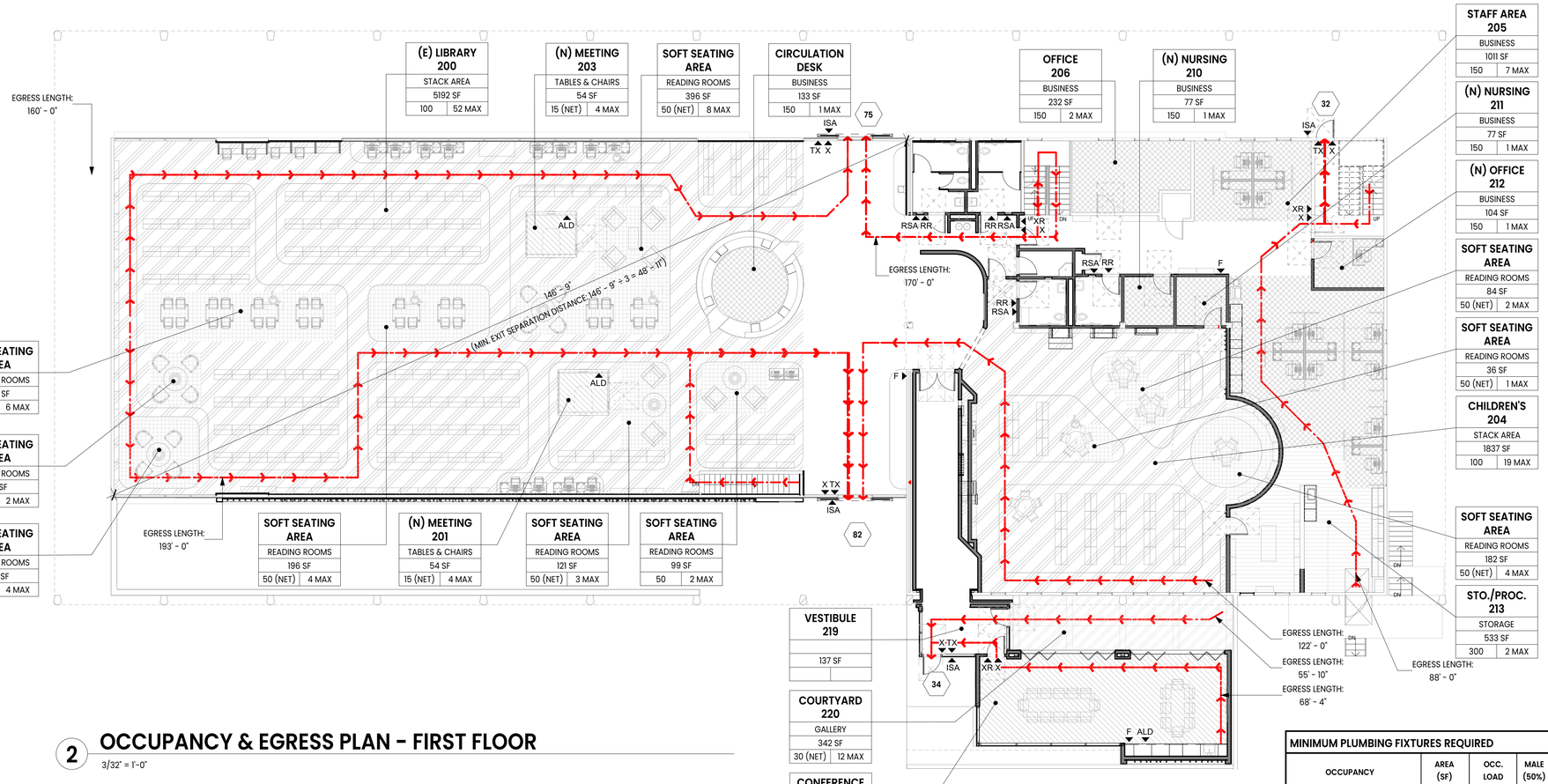
1 OCCUPANCY & EGRESS PLAN - BASEMENT

1/16" = 1'-0"



3 OCCUPANCY & EGRESS PLAN - SECOND FLOOR

3/32" = 1'-0"



2 OCCUPANCY & EGRESS PLAN - FIRST FLOOR

3/32" = 1'-0"

OCCUPANCY & EGRESS PLAN LEGEND

EXISTING WALL TO REMAIN

NEW 2X WALL

EGRESS PATH OF TRAVEL

EGRESS LENGTH: 1' - 0"

OCCUPANT LOAD TAGS

ROOM NAME 101	ROOM NAME & NUMBER
FUNCTION	FUNCTION OF SPACE PER CBC T1004.5
150 SF	ROOM AREA
LOAD | 0 MAX	OCCUPANT LOAD
	OCCUPANT LOAD FACTOR PER CBC T1004.5 (GROSS, UNO)

FUNCTION OF SPACE (AREA LEGEND)

- BUSINESS
- EQUIPMENT
- GALLERY
- READING ROOMS
- STACK AREA
- STORAGE
- TABLES & CHAIRS

- ## — CUMULATIVE OCCUPANT LOAD
- ISA — ACCESSIBLE SIGNAGE - SEE DETAIL 9, 11/A8.00
- TX — ILLUMINATED EXIT SIGN - SEE ELECTRICAL DWGS
- X — TACTILE EXIT SIGN - SEE DETAIL 10/A8.00
- XR — TACTILE EXIT ROUTE SIGN, SEE DETAIL 10/A8.00. LOCATE ADJACENT TO EXIT DOOR PER PLAN @ +60" A.F.F. MAX
- RR — RESTROOM SIGNAGE ON DOOR, SEE DETAIL 9/A8.00
- RSA — RESTROOM ADA ACCESSIBLE UNISEX RESTROOM SIGNAGE, SEE DETAIL 9/A8.00
- F — RECESSED FIRE EXTINGUISHER CABINET, SEE DETAIL 5/A8.02
- ALD — ASSISTIVE LISTENING DEVICE SIGNAGE - THE SIGN SHALL INCLUDE WORDING THAT STATES "ASSISTIVE LISTENING SYSTEM AVAILABLE". ASSISTIVE LISTENING SIGNS SHALL COMPLY WITH CBC 11B-703.5 AND SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESS FOR HEARING LOSS PER CBC 11B-703.7.2.4

ADA ACCESSIBLE DOOR, REFER TO DETAIL 1 & 13 ON SHEET A8.00 FOR ADA THRESHOLD AND CLEARANCE REQUIREMENTS

EGRESS REQUIREMENTS

MEANS OF EGRESS - OCCUPANT LOAD FACTOR - BY USE: (CBC Table 1004.5)

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR
Offices (Business):	150 gross
Mechanical:	300 gross
Gallery:	30 net
Educational Classroom Area:	20 net
Stack Area:	100 gross
Reading Rooms:	50 net
Storage:	300 gross
Unconcentrated (tables and chairs):	15 net

DOORS MINIMUM WIDTH: (CBC 1005)
Provide 0.2" per occupant served in building with fire sprinkler system.

MAXIMUM EXIT ACCESS TRAVEL DISTANCE: (CBC Table 1017.2)
250 feet in building with fire sprinkler system.

MINIMUM PLUMBING FIXTURES REQUIRED

OCCUPANCY	AREA (SF)	OCC. LOAD	MALE (50%)	FEMALE (50%)	WATER CLOSET M	WATER CLOSET F	URINALS M	LAVATORIES M	LAVATORIES F	DRINKING FOUNTAINS	OTHER
A-3 (Stack Area)	7029	70	36	36	.36	1.44	.36	.18	.36	.28	1 service sink or laundry tray
A-3 (Reading Rooms)	1632	33	17	17	.17	.68	.17	.09	.17	.13	1 service sink or laundry tray
A-3 (Gallery)	319	11	6	6	.06	.24	.06	.03	.06	.04	1 service sink or laundry tray
B (<50 occ) (Tables and Chairs)	734	49	25	25	.5	1.67	.25	.33	.5	.33	1 service sink or laundry tray
B (Offices)	2767	19	10	10	.2	.67	.1	.13	.2	.13	1 service sink or laundry tray
S-2	6930	23	12	12	.12	.12	–	.06	.06	.09	1 service sink or laundry tray
				REQUIRED:	2	5	1	1	2	1	1 service sink or laundry tray
				PROVIDED:	1	2	1	1	1	2	2 service sinks
ADDITIONAL PROVIDED IN GENDER NEUTRAL RESTROOMS:					4		–	4		–	–

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LICENSED ARCHITECT
WILLIAM D. RUOFF III
C-38886
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T3.00

CITY OF HANFORD GENERAL NOTES

1. ALL WORK AT THE TIME IT IS PERFORMED WILL CONFORM TO THE LATEST EDITIONS OF THE CITY OF HANFORD DESIGN AND IMPROVEMENT STANDARDS AND THE STANDARD SPECIFICATIONS REGARDLESS OF THE STANDARD DETAILS INCLUDED IN THESE IMPROVEMENT PLANS. ALTERNATE DETAILS AND SPECIFICATIONS MAY BE SUBMITTED FOR REVIEW AND ACCEPTANCE BY THE CITY ENGINEER. IF ACCEPTED, ALTERNATE DETAILS WILL BE SHOWN ON A REVISED SET OF THESE IMPROVEMENT PLANS.

2. ALL WORK AND MATERIALS WILL CONFORM TO LATEST EDITIONS OF THE CITY OF HANFORD STANDARD SPECIFICATIONS AND THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS. IN THE EVENT OF CONFLICT BETWEEN CITY AND STATE SPECIFICATIONS, CITY SPECIFICATIONS WILL GOVERN, UNLESS THE WORK IS WITHIN A STATE RIGHT-OF-WAY.

3. ALL MATERIALS TO BE USED FOR STREET CONSTRUCTION SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH CITY OF HANFORD STANDARD SPECIFICATIONS. THE PROCEDURES AND METHODS USED TO SAMPLE, TEST MATERIALS, AND REPORT TEST RESULTS WILL BE DETERMINED BY THE CITY ENGINEER. FOR ALL PHASES OF CONSTRUCTION, THE TYPE, SCHEDULING, FREQUENCY AND LOCATION OF ALL MATERIALS TESTING AND SAMPLING WILL BE DETERMINED BY THE CITY ENGINEER.

4. ALL REQUIRED PERMITS MUST BE ISSUED PRIOR TO COMMENCING WORK. ENCROACHMENT PERMITS COVER OFF-SITE WORK WITHIN EXISTING RIGHT-OF-WAYS AND EASEMENTS. SITE IMPROVEMENT PERMITS COVER ON-SITE WORK SUCH AS GRADING, UTILITIES, NEW STREETS, PARKING LOTS AND LANDSCAPING. GRADING PERMITS COVER ON-SITE WORK FOR ROUGH GRADING ONLY. BUILDING PERMITS COVER ON-SITE STRUCTURES. THE CITY'S ENCROACHMENT PERMIT POLICY MANUAL SHOULD BE CONSULTED FOR DETAILED INFORMATION ON ENCROACHMENT PERMITS. OTHER PERMITS SUCH AS DEMOLITION PERMITS AND WELL ABANDONMENT PERMITS MAY BE REQUIRED PRIOR TO COMMENCING WORK. ISSUED PERMIT(S) FOR EACH OF THESE PERMIT TYPES WILL NOT BE CONSTRUED IN ANY WAY AS PERMISSION TO COMMENCE WORK COVERED BY OTHER PERMIT TYPES. IT WILL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR TO UNDERSTAND THE WORK COVERED BY THE VARIOUS PERMIT TYPES ISSUED.

5. THE CONTRACTOR WILL SUBMIT ANY NECESSARY TRAFFIC CONTROL PLANS (TCP) AS REQUIRED BY THE CITY IN CONJUNCTION WITH THE ENCROACHMENT PERMITS FOR THE WORK. TRAFFIC CONTROL WILL CONFORM TO THE CALIFORNIA MUTCD. THE CITY'S ENCROACHMENT PERMIT POLICY MANUAL SHOULD BE CONSULTED FOR DETAILED INFORMATION ON TCP REQUIREMENTS. TCP'S WILL BE STAMPED APPROVED BY THE CITY AND A COPY RETURNED TO THE CONTRACTOR. A COPY OF ALL APPROVED TCP'S MUST REMAIN ON THE JOB SITE AT ALL TIMES.

6. THE CITY ENGINEER DOES NOT WARRANT ANY QUANTITIES SHOWN ON THESE PLANS.

7. ANY WORK CONCEALED WITHOUT INSPECTION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE DEVELOPER'S /CONTRACTOR'S EXPENSE.

8. DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR PRESERVATION AND OR PERPETUATION OF ALL EXISTING MONUMENTS WHICH CONTROL SUBDIVISION, TRACTS, BOUNDARIES, STREETS, HIGHWAYS, OR OTHER RIGHT-OF-WAY, EASEMENTS, OR PROVIDE SURVEY CONTROL WHICH WILL BE DISTURBED OR REMOVED DUE TO CONTRACTOR'S WORK.

9. THE CONTRACTOR WILL NOTIFY THE CITY AT LEAST 10 WORKING DAYS PRIOR TO COMMENCING WORK SO THAT THE CITY MAY PRESERVE THE LOCATIONS AND ELEVATIONS OF EXISTING MONUMENTS AND BENCHMARKS WITHIN THE PUBLIC RIGHT OF WAY WHICH WILL BE DISTURBED OR REMOVED DUE TO CONTRACTOR'S WORK. THE CITY'S PRESERVATION OF THE EXISTING MONUMENTS AND BENCHMARKS MUST BE COMPLETED PRIOR TO THE CONTRACTOR COMMENCING WORK. THE CONTRACTOR MUST RECEIVE NOTIFICATION FROM THE CITY.

10. DEVELOPER/CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE DESIGN ENGINEER TO RESET MONUMENTS OR PROVIDE PERMANENT WITNESS MONUMENTS AND FILE THE REQUIRED DOCUMENTATION WITH THE CITY ENGINEER PURSUANT TO BUSINESS AND PROFESSIONS CODE SECTION 8771.

11. DEVELOPER/CONTRACTOR IS RESPONSIBLE TO ARRANGE FOR THE RELOCATION OF ALL EXISTING UTILITIES THAT MAY INTERFERE WITH THE WORK. THE DEVELOPER/CONTRACTOR MUST SUBMIT THE UTILITY RELOCATION PLANS AND A UTILITY RELOCATION SCHEDULE TO THE CITY WHEN THE UTILITY RELOCATION INTERFERES WITH THE CONSTRUCTION OF ARTERIAL/COLLECTOR STREETS.

12. ALL UNDERGROUND STORAGE TANKS WILL BE REMOVED PER CITY OF HANFORD AND KINGS COUNTY REQUIREMENTS. A BUILDING PERMIT WILL BE OBTAINED FOR THE REMOVAL PRIOR TO START OF WORK.

13. ALL WELLS WILL BE ABANDONED PER CITY OF HANFORD REQUIREMENTS. A BUILDING PERMIT WILL BE OBTAINED FOR THE ABANDONMENT PRIOR TO START OF WORK.

14. EXISTING IRRIGATION RISERS, IRRIGATION PIPE, AND SEPTIC SYSTEMS WILL BE REMOVED.

15. ALL TRENCHES AND EXCAVATIONS OUTSIDE THE LIMITS OF THE STREETS RESULTING FROM THE REMOVAL OF UNDERGROUND STRUCTURES AND THE INSTALLATION OF UTILITIES WILL BE BACKFILLED AND COMPACTED TO A MINIMUM OF 90% RELATIVE COMPACTION.

16. CONTRACTOR IS RESPONSIBLE TO IMPLEMENT AND MAINTAIN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND CONFORM TO REQUIREMENTS OF THE GENERAL CONSTRUCTION PERMIT. A COPY OF THE GENERAL CONSTRUCTION PERMIT AND WDID# SHALL BE VISIBLE AT THE JOB SITE AND A COPY OF THE NOI AND SWPPP SHALL BE AVAILABLE ON THE JOB SITE AT ALL TIMES.

17. IN ACCORDANCE WITH THE SWPPP, THE DEVELOPER/CONTRACTOR IS RESPONSIBLE TO CONSTRUCT STABILIZED CONSTRUCTION ENTRANCES IN ORDER TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC STREETS. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTION DITCHES, PIPES PROTECTIVE BERMS, CONCRETE CHANNELS OR OTHER MEASURES DESIGNED TO PROTECT IMPROVEMENTS, WHETHER EXISTING OR PROPOSED, FROM RUNOFF OR DAMAGE FROM STORM WATER, MUST BE CONSTRUCTED PRIOR TO THE CONSTRUCTION OF ANY IMPROVEMENTS.

18. DEVELOPER/CONTRACTOR IS RESPONSIBLE TO COMPLY WITH SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (SJVAPCD) REGULATION VIII TO LIMIT FUGITIVE DUST. SUBMIT A DUST CONTROL PLAN TO THE SJVAPCD WHEN REQUIRED BY REGULATION VIII.

19. DEVELOPER/CONTRACTOR IS RESPONSIBLE TO OBTAIN ANY AND ALL OTHER PERMITS AND MEET ANY REQUIREMENTS SET FORTH BY OTHER AGENCIES OR UTILITIES, WHICH HAVE JURISDICTION, INCLUDING OSHA.

20. EXCAVATIONS WILL BE ADEQUATELY SHORED, BRACED AND SHEETED SO THAT THE EARTH WILL NOT SLIDE OR SETTLE AND SO THAT ALL EXISTING IMPROVEMENTS OF ANY KIND WILL BE FULLY PROTECTED FROM DAMAGE. WHERE THE EXCAVATION FOR A CONDUIT TRENCH, AND/OR STRUCTURE IS FIVE FEET OR MORE IN DEPTH, THE CONTRACTOR WILL PROVIDE ADEQUATE SHEETING, WHICH WILL CONFORM TO THE APPLICABLE CONSTRUCTION SAFETY ORDERS OF THE STATE OF CALIFORNIA, DEPARTMENT OF INDUSTRIAL RELATIONS, DIVISION OF INDUSTRIAL SAFETY. THE CONTRACTOR WILL ALWAYS COMPLY WITH OSHA REQUIREMENTS.

21. IF ARCHAEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION, EARTHWORK WITHIN 100 FEET OF THESE MATERIALS WILL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST WHO IS CERTIFIED BY THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) AND/OR THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA) HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST APPROPRIATE MITIGATION MEASURES, IF THEY ARE DEEMED NECESSARY.

22. REGULATORY PERMITS AND NECESSARY APPROVALS FROM THE GOVERNING BODIES AND THEIR OFFICIALS MUST BE OBTAINED PRIOR TO PROCEEDING WITH ANY WORK IN THE VICINITY OF IRRIGATION DITCHES, CREEKS AND ASSOCIATED IRRIGATION FACILITIES WHETHER OR NOT SHOWN ON THESE IMPROVEMENT PLANS.

23. FIRE ACCESS IS TO BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION.

STANDARD GENERAL NOTES

1. THE CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXEMPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF ENGINEER.

2. THE CONTRACTOR SHALL ACCEPT THE SITE IN ITS PRESENT CONDITION AND DEMOLISH AND OR REMOVE FROM THE AREA OF DESIGNATED PROJECT EARTHWORK ALL STRUCTURE, BOTH SURFACE AND SUBSURFACE, TREES, BRUSH, ROOTS, DEBRIS, ORGANIC MATTER, AND ALL OTHER MATTE DETERMINED BY THE INSPECTOR TO BE DELETERIOUS, SUCH MATERIAL SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

3. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAGMEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR SAFETY. TRAFFIC CONTROL AND ALL TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH THE "MANUAL OF TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE ZONES." LATEST EDITION AS PUBLISHED BY THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION.

4. THE CONTRACTOR SHALL POST EMERGENCY TELEPHONE NUMBERS FOR POLICE, FIRE, AMBULANCE AND THOSE AGENCIES RESPONSIBLE FOR MAINTENANCE OF UTILITIES IN THE VICINITY OF JOBSITE.

5. ALL RETURN RADII AND CURB DATA ARE TO FACE OF CURB UNLESS SHOWN OR NOTED OTHERWISE.

6. ALL QUANTITIES AND PAY ITEMS ARE AND WILL BE BASED ON HORIZONTAL MEASUREMENTS.

7. CONTRACTOR SHALL VERIFY ALL QUANTITIES THAT ARE SHOWN ON CIVIL PLANS.

8. LENGTHS OF SANITARY SEWERS AND STORM DRAINS ARE HORIZONTAL DISTANCES FROM CENTER TO CENTER OF STRUCTURES, ROUNDED OFF TO THE NEAREST FOOT.

9. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORDED INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEES MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 2 WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. CALL UNDERGROUND SERVICE ALERT (U.S.A.) AT 1-800-227-2600. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED INTO THE CONTRACT UNIT PRICE.

10. ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE LOCAL AGENCY ENGINEER, AT THE CONTRACTOR'S SOLE EXPENSE.

11. ANY RELOCATION OF PUBLIC UTILITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ANY AND ALL REQUIREMENTS OF THE UTILITY COMPANY, INCLUDING FEES, BONDS, PERMITS, AND WORKING CONDITIONS, ETC. THIS WORK SHALL BE DONE AT THE EXPENSE TO THE UTILITY COMPANY. THE OWNER SHALL PAY THE COST OF ALL SUCH RELOCATION WORK INCLUDING FEES, BONDS, PERMITS, ETC.

12. 4CREEKS, INC DOES NOT SPECIFY NOR RECOMMEND THE USE OR INSTALLATION OF ANY MATERIAL OR EQUIPMENT WHICH IS MADE FROM, OR WHICH CONTAINS ASBESTOS FOR USE IN THE CONSTRUCTION OF THESE IMPROVEMENTS. ANY PARTY INSTALLING OR USING SUCH MATERIALS OR EQUIPMENT SHALL BE SOLELY RESPONSIBLE FOR ALL INJURIES, DAMAGES, OR LIABILITIES. OF ANY KIND, CAUSED BY THE USE OF SUCH MATERIAL OR EQUIPMENT. THE PROVISIONS OF THIS NOTE SHALL APPLY UNLESS THEY ARE EXPRESSLY WAIVED IN WRITING BY 4CREEKS, INC.

13. SHOULD IT APPEAR THAT THE WORK TO BE DONE OR ANY MATTER RELATIVE THERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT 4CREEKS, INC. (559)802-3052 FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.

14. ALL ASPHALT CONCRETE PAVING SHALL BE APPLIED TO DRY GROUND IN DRY WEATHER WITH TEMPERATURES ABOVE 50 DEGREES. ALL WORK RELATED TO PAVING SHALL CONFORM TO STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARDS, SPECIFICATIONS, AND CITY OF HANFORD REQUIREMENTS.

PROJECT SPECIFIC NOTES

1. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SURVEYOR THREE WORKING DAYS PRIOR TO THE NEED FOR CONSTRUCTION SURVEY STAKES.

2. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM THE OWNER.

3. COMPACTION TESTING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D-1557.

4. ALL MANHOLE COVERS AND WATER VALVE COVERS TO BE LEFT A MINIMUM OF 0.5 FEET BELOW THE AGGREGATE BASE MATERIAL UNTIL COMPLETION OF THE ASPHALT PAVING, WHERE APPLICABLE.

5. FINAL INSPECTION AND ACCEPTANCE OF THE WORK WITHIN THE STREET RIGHT OF WAY WILL BE BY THE CITY OF HANFORD.

6. DUST CONTROL

(A). PRE-CONSTRUCTION: THAT MATERIAL EXCAVATED OR GRADED BE SUFFICIENTLY WATERED TO PREVENT EXCESSIVE AMOUNT OF DUST. WATERING SHOULD OCCUR AT LEAST TWICE A DAY WITH COMPLETE COVERAGE, PREFERABLY IN THE LATE MORNING AND AFTER WORK IS COMPLETED FOR THE DAY. THAT CLEARING, GRADING, EARTH MOVING, OR EXCAVATION ACTIVITIES CEASE DURING PERIODS OF HIGH WINDS GREATER THAN 20 MPH. THAT EARTH MATERIAL TRANSPORTED OFF-SITE BE EITHER SUFFICIENTLY WATERED OR SECURELY COVERED TO PREVENT EXCESSIVE AMOUNTS OF DUST. THAT AREAS DISTURBED BY CLEARING, EARTH MOVING, OR EXCAVATION ACTIVITIES BE MINIMIZED AT ALL TIMES. THAT WHERE ACCEPTABLE TO THE FIRE DEPARTMENT, WEED CONTROL SHOULD BE ACCOMPLISH BY MOWING INSTEAD OF DISCING, THEREBY LEAVING THE GROUND UNDISTURBED AND WITH A MULCH COVERING.

(B). DURING CONSTRUCTION: AFTER CLEARING, GRADING, EARTH MOVING OR EXCAVATION OPERATIONS, DURING THE CONSTRUCTION PHASE, FUGITIVE EMISSIONS SHOULD BE CONTROLLED BY THE FOLLOWING METHODS:

(1). THAT NON-ACTIVE PORTIONS OF THE CONSTRUCTION SITE BE RESTRICTED FROM VEHICULAR MOVEMENT.

(2). THAT ACTIVE PORTIONS OF THE SITE SHOULD BE SUFFICIENTLY WATERED TO PREVENT EXCESSIVE MOUNTS OF DUST.

(C). GENERAL FUGITIVE DUST: AT ALL TIMES, FUGITIVE DUST EMISSIONS SHOULD BE CONTROLLED USING THE FOLLOWING PROCEDURES:

(1). THAT ON SITE VEHICLE SPEED SHOULD BE LIMITED TO 15 MPH.

(2). THAT AREAS WITH VEHICLE TRAFFIC BE WATERED PERIODICALLY OR HAVE PETROLEUM-BASED PALLIATIVES APPLIED FOR STABILIZING OF DUST EMISSIONS.

(3). THAT DURING ROUGH GRADING AND CONSTRUCTION, STREETS NEXT TO THE PROJECT SITE BE SWEPT AT LEAST ONCE PER DAY, OR AS REQUIRED TO REMOVE SILT WHICH MAY HAVE ACCUMULATED FROM CONSTRUCTION ACTIVITIES.

(4). THAT DURING ROUGH GRADING AND CONSTRUCTION, ACCESS TO THE SITE SHOULD REQUIRE THE BUILDING OF AN APRON INTO THE PROJECT SITE FROM ADJOINING PAVED ROADWAYS. THAT APRON SHOULD BE PAVED OR HAVE PETROLEUM-BASED PALLIATIVE APPLIED.

(D). OZONE PRECURSORS: AT ALL TIMES, OZONE PRECURSOR EMISSIONS SHOULD BE CONTROLLED BY THE FOLLOWING METHODS:

(1). THAT ALL INTERNAL COMBUSTION ENGINE DRIVE EQUIPMENT BE PROPERLY MAINTAINED AND WELL TUNED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

7. AN ON-SITE PRE-CONSTRUCTION MEETING BETWEEN ALL PARTIES INVOLVED IN THE CONSTRUCTION AND INSPECTION OF THE IMPROVEMENTS SHALL BE ARRANGED BY THE CONTRACTOR.

8. CONTRACTOR SHALL REFER TO ELECTRICAL, MECHANICAL AND PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION REGARDING SITE UTILITIES.

9. ALL TRENCHES SHALL BE COMPLETELY BACKFILLED PRIOR TO THE END OF THE WORK DAY WHICH THEY ARE CONSTRUCTED. TRENCHES AT ALL CROSSINGS IN TRAFFIC AREAS SHALL HAVE TEMPORARY PAVEMENT INSTALLED PRIOR TO THE END OF WORK DAY IN WHICH THEY ARE CONSTRUCTED. STEEL PLATES MAY BE SUBSTITUTED FOR TEMPORARY PAVEMENT, IF REQUESTED BY THE CONTRACTOR AND APPROVED BY THE CITY ENGINEER. FOR PURPOSES OF DEFINING TRENCHES, ALL EXCAVATION FOR INSTALLING PIPES ARE TRENCHES UNLESS THEY MEET THE FOLLOWING:

(A). ARE 5 FEET OR LESS IN DEPTH AS MEASURED FROM THE ORIGINAL GROUND SURFACE
(B). HAVE 1 TO 1 SIDE SLOPES
(C). ARE 10 FEET OR WIDER AT THEIR BASE
(D). ARE LOCATED OUTSIDE OF DEVELOPED STREET RIGHTS OF WAY

CONSTRUCTION NOTES-GRADING

1. ALL GRADING SHALL BE DONE IN CONFORMANCE WITH THE CALIFORNIA BUILDING CODE, LATEST EDITION. THE CITY OF HANFORD IMPROVEMENT STANDARDS, APPLICABLE SECTION OF THE CALTRANS STANDARD SPECIFICATIONS, LATEST EDITION.

2. CONTRACTOR SHALL NOTIFY THE PROJECT INSPECTOR 48 HOURS BEFORE STARTING DEMOLITION AND GRADING WORK.

3. WORK SHALL CONSIST OF ALL EARTHWORK RELATED TO THE SITE: ALL DEMOLITION , CLEARING, GRUBBING, STRIPPING, ROUGH GRADING, EXCAVATION, IMPORT AND/OR EXPORT OF FILL, PROCESSING, PLACEMENT, AND COMPACTION OF FILL MATERIALS. PLACEMENT OF AGGREGATE BASE MATERIAL AND ALL WORK NECESSARY TO COMPLETE THE GRADING TO CONFORM TO THE LINES, GRADES AND SLOPES AS SHOWN ON THESE PLANS.

4. SITE CONDITIONS: THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE CONDITIONS AS TO THE CHARACTER AND EXTENT OF WORK INVOLVED.

5. ALL ORGANIC MATERIAL, RUBBLE OR OTHER DELETERIOUS MATERIAL SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED.

6. ALL FILL AND UPPER 6" OF EXISTING SUB GRADE AT PAVED AREAS SHALL BE COMPACTED TO 95% RELATIVE COMPACTION IN ACCORDANCE WITH ASTM D-1557. EXISTING SUBGRADE TO BE COMPACTED PRIOR TO PLACING FILL, CONCRETE OR AGGREGATED BASE.

7. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING PAD PREPARATION.

8. ANY EXISTING FILL AND/OR DISTURBED SUBGRADE MATERIAL SHALL MEET THE COMPACTION REQUIREMENTS STATED IN NOTE 6 ABOVE. ALL ORGANIC MATERIAL RUBBLE OR OTHER DELETERIOUS MATERIAL SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED.

9. IMPORT MATERIAL (IF ANY) USED AS ENGINEERED FILL SHALL CONSIST OF NON EXPANSIVE, INORGANIC GRANULAR SOILS CONFORMING TO THE FOLLOWING CRITERIA.

MAXIMUM PARTICLE SIZE	3IN
PERCENT PASSING 3" SIEVE	100%
PERCENT PASSING NO. 200 SIEVE	20-45%
MAXIMUM WATER SOLUBLE SULFATE (SO4) IN SOIL, % B WEIGHT	0.20
MAXIMUM PLASTICITY INDEX	12
MAXIMUM UBC EXPANSION INDEX	20
MINIMUM RESISTANCE VALUE	37

10. BACKFILL OR ONSITE UNDERGROUND UTILITIES PLACED ON THE SITE SHALL BE COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 90% IN LANDSCAPE AREAS. ALL BACKFILL IN TRENCHES IN PAVED AND OTHER AREAS TO BE COMPACTED ACCORDING TO THE CITY OF HANFORD STANDARD DETAILS.

11. ALL SPOIL PILES SHALL HAVE SIDE SLOPES AS REQUIRED FOR SAFETY BY THE PUBLIC WORKS INSPECTOR.

STORM DRAIN NOTES

1. OFF-SITE STORM DRAIN PIPE MATERIALS AND INSTALLATION WITHIN CITY STREET RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF THE CITY OF HANFORD CURRENT IMPROVEMENT STANDARDS AND SPECIFICATIONS.

2. ON-SITE STORM DRAIN PIPE SHALL BE ANY OF THE FOLLOWING:**

(A) REINFORCED CONCRETE PIPE (RCP) MEETING THE REQUIREMENTS OF ASTM C76, LATEST REVISION WITH THE CLASS AS SPECIFIED BELOW. JOINTS SHALL BE RUBBER GASKET CONFORMING TO ASTM C443, LATEST REVISION.

(B) FOR PIPE 4 INCHES TO 15 INCHES IN DIAMETER-POLYVINYL CHLORIDE PIPE (PVC) WITH INTEGRAL BELL AND SPIGOT JOINTS MEETING THE REQUIREMENTS OF ASTM D3034 FOR SDR-26 OR SDR-35.PIPE SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDED CONSTRUCTION PRACTICE FOR PLASTIC SEWER PIPE. UPON COMPLETION OF BACKFILL AND COMPACTION TRENCHES, THE CONTRACTOR, AT HIS OWN EXPENSE SHALL PULL A PROPERLY SIZED MANDREL THROUGH THE INSTALLED MAIN LINES, 8 INCHES INSIDE DIAMETER OR LARGER. TO DEMONSTRATE THE MAXIMUM PIPE DEFLECTION DOES NOT EXCEED 5%. IF EXCESSIVE PIPE DEFLECTION OBSTRUCTS PASSAGE OF THE MANDREL,THE CONTRACTOR SHALL EXCAVATE AND MAKE SUITABLE REPAIRS.

(C) FOR PIPE 18 INCHES TO 36 INCHES IN DIAMETER- POLYVINYL CHLORIDE PIPE (PVC) WITH INTEGRAL BELL AND SPIGOT JOINTS MEETING THE REQUIREMENTS OF ASTM F679, MIN 115 PSI PIPE STIFFNESS. PIPE SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDED CONSTRUCTION PRACTICE FOR PLASTIC SEWER PIPE. UPON COMPLETION OF BACKFILL AND COMPACTING TRENCHES, THE CONTRACTOR, AT HIS OWN EXPENSE SHALL PULL A PROPERLY SIZED MANDREL THROUGH THE INSTALLED MAIN LINES TO DEMONSTRATE THE MAXIMUM PIPE DEFLECTION DOES NOT EXCEED 5%. IF EXCESSIVE PIPE DEFLECTION OBSTRUCTS PASSAGE OF THE MANDREL, THE CONTRACTOR SHALL EXCAVATE AND MAKE SUITABLE REPAIRS.

(D) HIGH DENSITY POLYETHYLENE (HPDE) CORRUGATED EXTERIOR/SMOOTH INTERIOR PIPE- FOUR THROUGH TEN INCH DIAMETERS SHALL NET ALL THE REQUIREMENTS OF AASHTO M252 WITH THE ADDITION THAT THE PIPE SHALL HAVE A SMOOTH INTERIOR LINER. 12-36 INCH DIAMETERS SHALL CONFORM TO AASHTO M294, TYPE S. 42 AND 48 INCH DIAMETERS SHALL HAVE MINIMUM PIPE STIFFNESS OF 19 AND 17 PSI (PER ASTM 2414) AT 5% DEFLECTION AND SHALL MEET ALL OTHER REQUIREMENTS OF AASHTO M294. MATERIAL SHALL MEET ASTM D1248, TYPE III, CATEGORY 4, GRADE P33, CLASS C, OR ASTM D3350 CELL CLASSIFICATION 324420C. THE FITTINGS SHALL NOT REDUCE OR IMPAIR THE OVERALL INTEGRITY OR FUNCTION OF THE PIPE LINE. FITTING MAY BE EITHER MOLDED OR FABRICATED.COMMON CORRUGATED FITTINGS INCLUDE IN-LINE JOINT FITTINGS, SUCH AS COUPLERS AND REDUCERS, AND BRANCH OR COMPLIMENTARY ASSEMBLY FITTINGS SUCH AS TEES, WYES AND END CAPS. FITTINGS MAY BE INSTALLED BY VARIOUS METHODS SUCH AS SNAP-ON, SCREW-ON, BELL AND SPIGOT, AND WRAP AROUND. COUPLINGS SHALL PROVIDE SUFFICIENT LONGITUDINAL STRENGTH TO PRESERVE PIPE ALIGNMENT AND PREVENT SEPARATION AT THE JOINTS. ONLY FITTINGS SUPPLIED OR RECOMMENDED BY THE PIPE MANUFACTURER SHALL BE USED, A NEOPRENE OR RUBBER GASKET SHALL BE INSTALLED AT ALL JOINTS. INSTALLATION OF HPDE PIPE SHALL BE IN ACCORDANCE WITH ASTM 2321-89.

**RECOMMENDED PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS.

***THIS ONLY APPLIES WHERE PIPE MATERIALS ARE NOT SPECIFICALLY DESIGNED ON THE DRAWINGS. WHERE PIPE MATERIALS ARE INDICATED, NO SUBSTITUTIONS ARE ALLOWED.

3. STORM DRAIN MANHOLES SHALL BE CONSTRUCTED AS SHOWN ON DETAILED DRAWINGS.

4. TRENCHES SHALL BE CONSTRUCTED AS NOTED.

NOTE TO OWNER & CONTRACTOR

THIS PLAN HAS BEEN PREPARED WITH THE INTENT THAT 4CREEKS, INC. WILL BE PERFORMING THE CONSTRUCTION STAKING FOR THE COMPLETE PROJECT. IF, HOWEVER ANOTHER ENGINEERING AND/OR SURVEYING FIRM SHOULD BE EMPLOYED TO USE THESE PLANS FOR THE PURPOSE OF CONSTRUCTION STAKING, NOTICE IS HEREBY GIVEN THAT THE FIRM OF 4CREEKS, INC. WILL NOT ASSUME ANY RESPONSIBILITY FOR ERRORS OR OMISSIONS. IF ANY, WHICH MIGHT OCCUR AND WHICH COULD HAVE BEEN AVOIDED, CORRECTED OR MITIGATED IF 4CREEKS HAD PERFORMED THE STAKING WORK.

BENCHMARK

CITY OF HANFORD BM #1

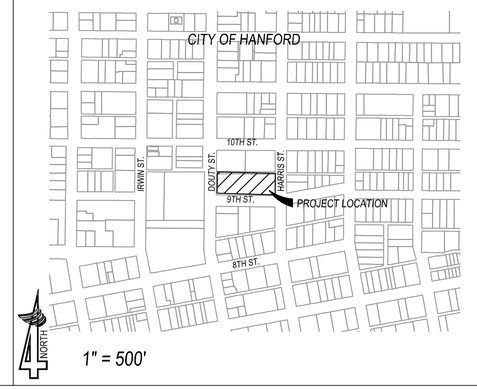
BRASS CAP IN GRANITE RAILING AT
EAST SIDE OF OLD COURTHOUSE STEPS
(SOUTH ENTRANCE) USGS #250

ELEVATION 245.157

SHEET INDEX

C1	CIVIL NOTES
C2	DEMOLITION PLAN
C3	GRADING PLAN
C4	GRADING PLAN DETAILS
C5	GRADING PLAN DETAILS
C6	SIGNING, STRIPING, AND MARKING PLAN
C7	EROSION CONTROL PLAN
CD1	CIVIL DETAILS
CD2	CIVIL DETAILS

VICINITY MAP



CIVIL NOTES

ABBREVIATIONS

AB	AGGREGATE BASE	FL	FLOW LINE	SDMH	STORM DRAIN MANHOLE
AC	ASPHALT CONCRETE	FNC	FENCE	SS	SANITARY SEWER
AP	ANGLE POINT	FTG	TOP OF FOOTING ELEVATION	SSCO	SANITARY SEWER CLEAN OUT
BC	BEGIN CURVE	GB	GRADE BREAK	SSMH	SANITARY SEWER MANHOLE
BCR	BEGIN CURB RETURN	GV	GATE VALVE	STA	STATION
BP: STA	ALIGNMENT BEGINNING POINT	HMA	HOT MIX ASPHALT	SW	SWALE
BSW	BACK OF SIDEWALK	HWL	HIGH WATER LEVEL	TC	TOP OF CURB
C, CONC	CONCRETE	INV	INVERT	TF	TOP OF FOOTING
C&G	CURB & GUTTER	LIP	LIP OF GUTTER	TG	TOP OF GRATE
CL	CENTERLINE	MB	MAILBOX	TF	TOP OF FOOTING
CNS	COMPACTED NATIVE SOIL	MH	MANHOLE	TG	TOP OF GRATE
DI	DRAINAGE INLET	MJ	MECHANICAL JOINT	TOE	TOE OF SLOPE
EC	END CURVE	OG	ORIGINAL GROUND	W	WATER
ECR	END CURB RETURN	P	PAVEMENT	WM	WATER METER
000.00	ELEVATION	PC	POINT OF CURVATURE	WS	WATER SERVICE
(000.00)	EXISTING ELEVATION	PCC	POINT OF COMPOUND CURVE	WV	WATER VALVE
EP	EDGE OF PAVEMENT	PL	PROPERTY LINE		
EP: STA	ALIGNMENT END POINT	POC	POINT ON CURVE		
FDR-C	FULL DEPTH RECLAMATION W/ CEMENT	PRC	POINT OF REVERSE CURVATURE		
FF	FINISHED FLOOR	PT	POINT OF TANGENCY		
FG	FINISHED GRADE	S=0.0000	SLOPE		
FH	FIRE H

GENERAL DEMOLITION NOTES:

1. ALL SAWCUTS TO BE A NEAT, CLEAN, ON GRADE EDGE.
2. CONTRACTOR TO REMOVE AND DISPOSE OF ALL VEGETATION, CONCRETE, IRRIGATION SYSTEMS, ASPHALT, AGGREGATE BASE , SOIL, FENCES, STRUCTURES, ETC. WITHIN APPROXIMATE LIMITS OF CLEARING, GRUBBING, AND DEMOLITION; UNLESS OTHERWISE NOTED ON THESE PLANS.
3. ALL EXISTING STREET SIGNS THAT CANNOT BE RE-USED SHALL BE RETURNED TO KINGS COUNTY.
4. ANY EXISTING MANHOLES AND/OR WATER VALVES ENCOUNTERED WHETHER OR NOT SHOWN ON THESE PLANS SHALL BE PROTECTED AND ADJUSTED TO FINISH GRADE.
5. ALL CONCRETE AND ASPHALT LOCATED OUTSIDE DEMOLITION LIMITS TO BE PROTECTED IN PLACE.
6. EXISTING IMPROVEMENTS AND UTILITIES TO BE PROTECTED IN PLACE UNLESS SHOWN OTHERWISE ON THESE PLANS.

DEMOLITION KEYNOTES (THIS SHEET ONLY)

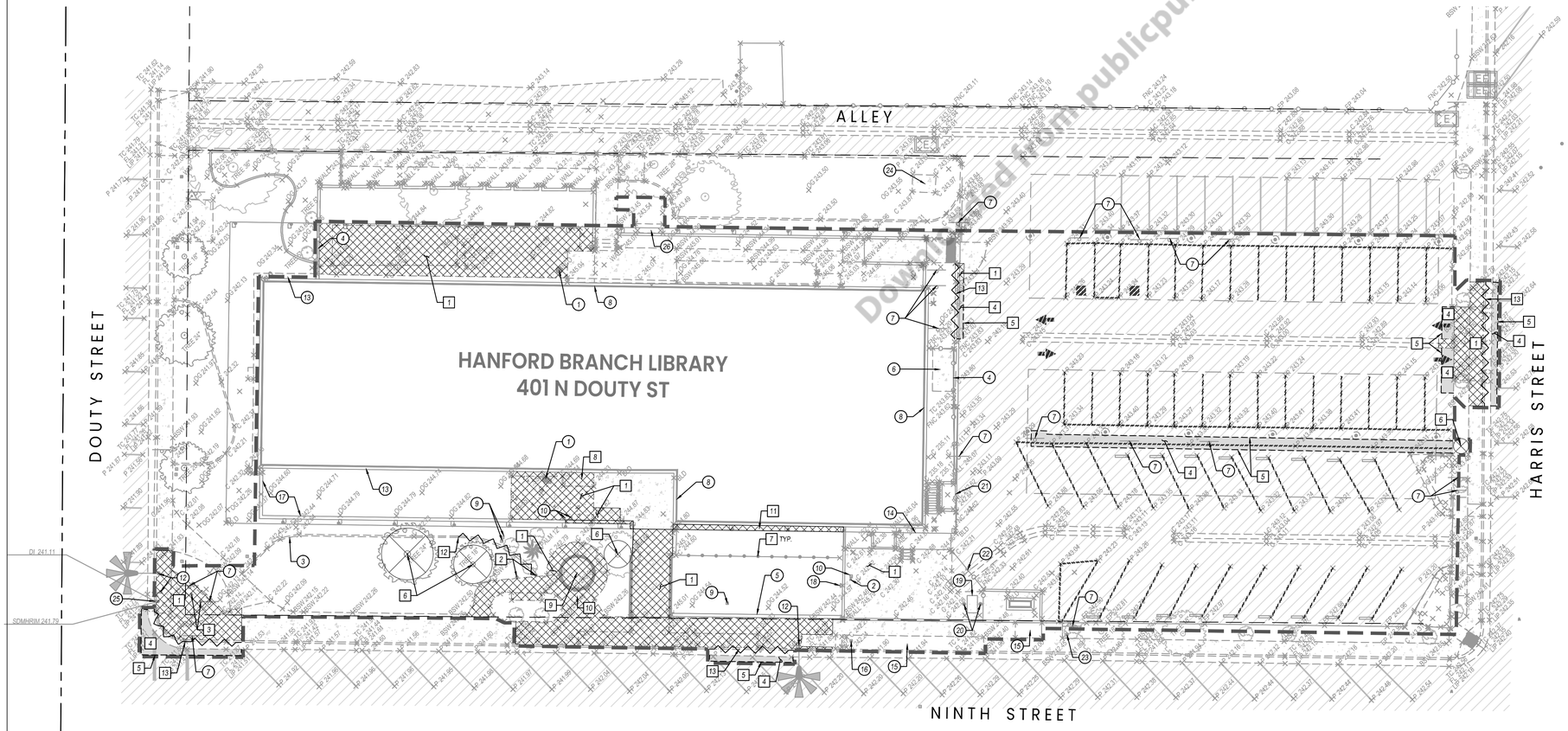
1. REMOVE EXISTING CONCRETE / BRICK
2. REMOVE EXISTING BENCH
3. REMOVE & REPLACE EXISTING SIGN LIGHTING, SEE ELECTRICAL PLANS FOR NEW LOCATION
4. REMOVE EXISTING ASPHALT CONCRETE
5. SAWCUT TO A NEAT, CLEAN ON-GRADE EDGE
6. REMOVE EXISTING VEGETATION
7. REMOVE EXISTING AWNING COLUMNS
8. REMOVE & REPLACE EXISTING BIKE RACK / CONCRETE PAD / FOOTINGS
9. REMOVE EXISTING CONCRETE RAISED PLANTER
10. REMOVE EXISTING MEMORIAL PLAQUE WITHIN CONCRETE
11. REMOVE EXISTING CONCRETE MOWSTRIP
12. REMOVE EXISTING CONCRETE MOW CURB AT EXISTING JOINT
13. REMOVE EXISTING CURB / CURB & GUTTER

PROTECTION KEYNOTES (THIS SHEET ONLY)

1. PROTECT IN PLACE EXISTING SANITARY SEWER CLEANOUT, RAISE TO FINISH GRADE
2. PROTECT IN PLACE EXISTING WATER VALVE & UNDERGROUND UTILITIES
3. PROTECT IN PLACE EXISTING MOW CURB
4. PROTECT IN PLACE EXISTING FENCE
5. PROTECT IN PLACE EXISTING CONCRETE WALL
6. PROTECT IN PLACE EXISTING ELECTRIC PANEL AND UTILITIES
7. EXISTING SIGN. SEE SIGNING, STRIPING, & MARKING PLAN, SHEET C5.
8. PROTECT IN PLACE EXISTING BUILDING
9. PROTECT IN PLACE EXISTING IRRIGATION VALVE, RAISE TO FINISHED GRADE
10. PROTECT IN PLACE EXISTING CHRISTY BOX, RAISE TO FINISHED GRADE
11. NOT USED
12. PROTECT IN PLACE EXISTING STREET LIGHT / PULL BOX, RAISE TO FINISHED GRADE
13. PROTECT IN PLACE EXISTING CONCRETE MOW STRIP
14. PROTECT IN PLACE EXISTING CANOPY
15. PROTECT IN PLACE EXISTING LANDSCAPE BOX
16. PROTECT IN PLACE EXISTING WATER METER
17. PROTECT IN PLACE EXISTING BRICK CURB
18. PROTECT IN PLACE EXISTING IRRIGATION BOX AND PIPES
19. PROTECT IN PLACE EXISTING TRASH DUMPSTER
20. PROTECT IN PLACE EXISTING BOLLARD
21. PROTECT IN PLACE EXISTING SINGLE GATE
22. PROTECT IN PLACE EXISTING DOUBLE GATE
23. PROTECT IN PLACE EXISTING CABLE BOX
24. PROTECT IN PLACE EXISTING UTILITY TRANSFORMER AND CONCRETE PAD
25. PROTECT IN PLACE EXISTING DRAINAGE INLET
26. PROTECT IN PLACE EXISTING BIKE RACK / CONCRETE PAD / FOOTINGS

LEGEND

- APPROXIMATE LIMITS OF CLEARING, GRUBBING, & DEMOLITION
- EXISTING ASPHALT CONCRETE
- EXISTING ASPHALT CONCRETE REMOVAL
- EXISTING CONCRETE
- EXISTING CONCRETE / BRICK REMOVAL
- EXISTING CURB / CURB & GUTTER / AC DIKE REMOVAL
- EXISTING FENCE REMOVAL
- SAWCUT LINE
- EXISTING STRIPING REMOVAL
- EXISTING VEGETATION REMOVAL



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TEL: 559.802.3052
FAX: 559.802.3215

REGISTERED PROFESSIONAL ENGINEER
KYLE J. McDONALD
NO. 82531
Exp. 09/30/26
CIVIL
STATE OF CALIFORNIA

ISSUES / REVISIONS:	
0	ISSUE FOR BID
DATE: 5/23/2025	

APPROVED BY:

DATE SIGNATURE

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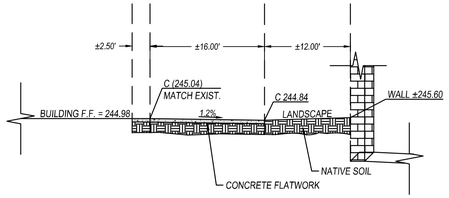
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DEMOLITION PLAN

C2

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DETAIL A-A
SCALE 1" = 10'

GENERAL CONSTRUCTION NOTES:

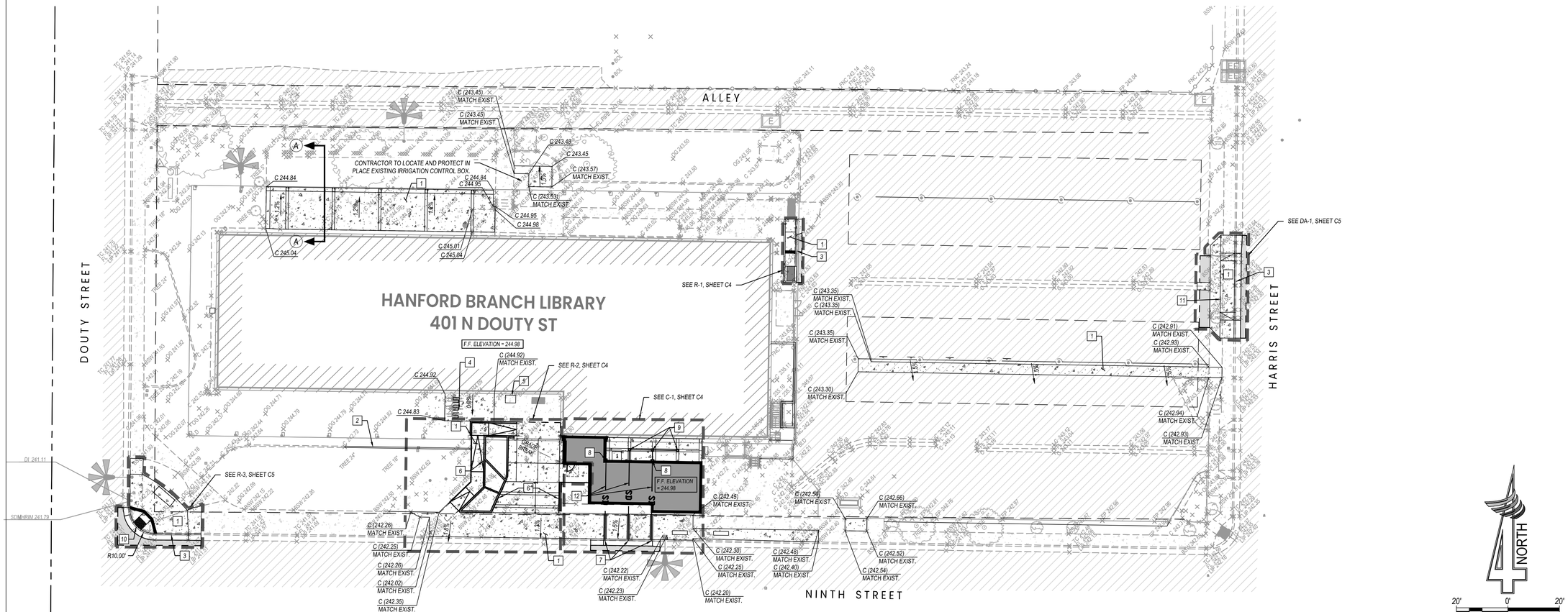
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2. ALL NEW CONCRETE IMPROVEMENTS SHALL BE DOWELED INTO EXIST. CONCRETE IMPROVEMENTS PER STD. X-2.

CONSTRUCTION KEYNOTES (THIS SHEET ONLY)

1. CONSTRUCT CONCRETE / CONCRETE SIDEWALK PER CITY STD. CO-15
2. INSTALL MOW CURB, SEE ARCH PLANS
3. INSTALL CONCRETE CURB / CURB & GUTTER PER CITY STD. CO-17
4. INSTALL BIKE RACK, SEE ARCH PLANS
5. INSTALL BOOK DROP OFF BOX, SEE ARCH PLANS
6. INSTALL HANDRAILS, SEE ARCH PLANS
7. INSTALL 3" SIDEWALK UNDERDRAIN PER CITY STD. SD-16
8. INSTALL AREA DRAIN PER DETAIL X-1 W/ 3" SD PIPE CONNECTION
9. INSTALL N.D.S FLO-WELL (OR APPROVED EQUAL) W/ DRAIN PER DETAIL X-3
10. INSTALL 10' RADIUS CURB RETURN PER CITY STD. CO-20
11. INSTALL DRIVE APPROACH PER CITY STD. CO-39
12. INSTALL 3" Ø DR-14 SD PIPE @ S=0.0100 MIN. IF REQUIRED INVERTS CANNOT BE MET, SWITCH 3" Ø SD PIPE WITH 6" Ø SD PIPE WITH A MIN. SLOPE OF S=0.0050

LEGEND

- DETAIL REFERENCE
- EXIST. ASPHALT CONCRETE
- EXIST. CONCRETE
- PROPOSED CONCRETE
- PROPOSED ASPHALT CONCRETE
- GRADE BREAK/CROWN
- SWALE
- SAWCUT LINE



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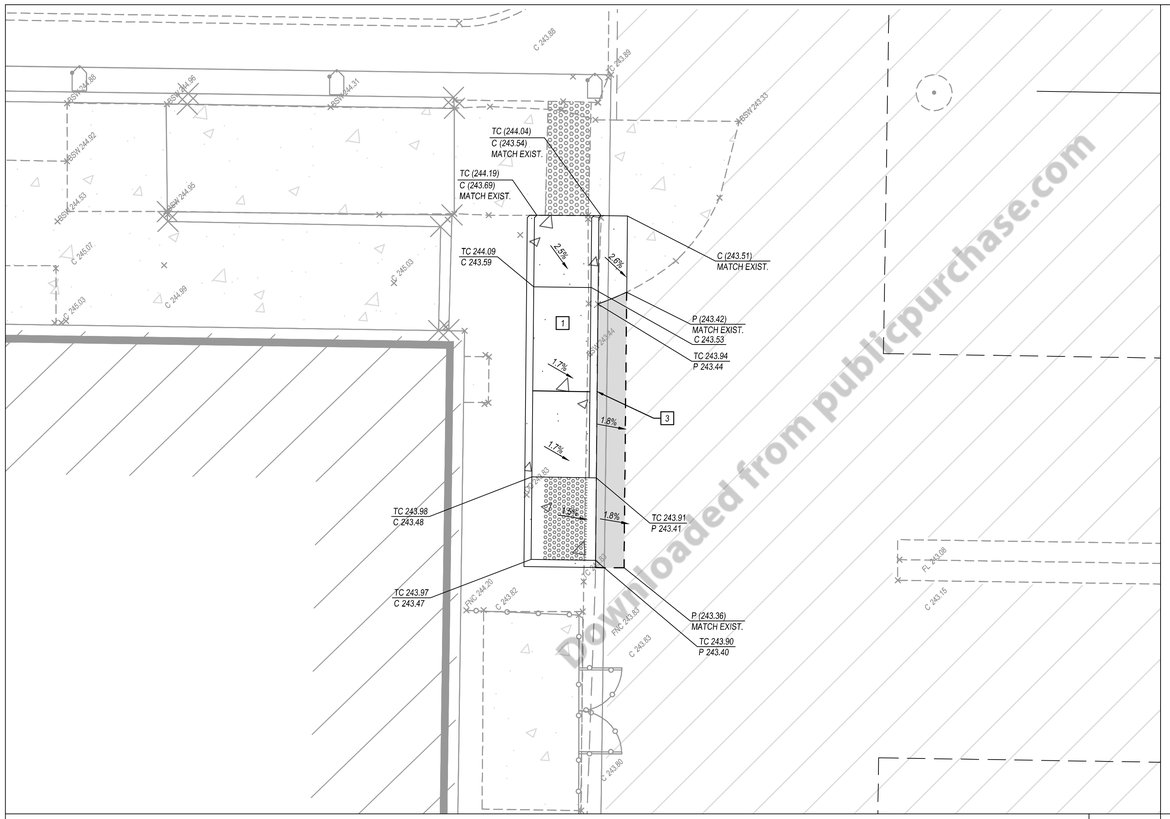
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GRADING PLAN

C3



RAMP DETAIL

R-1

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GENERAL CONSTRUCTION NOTES:

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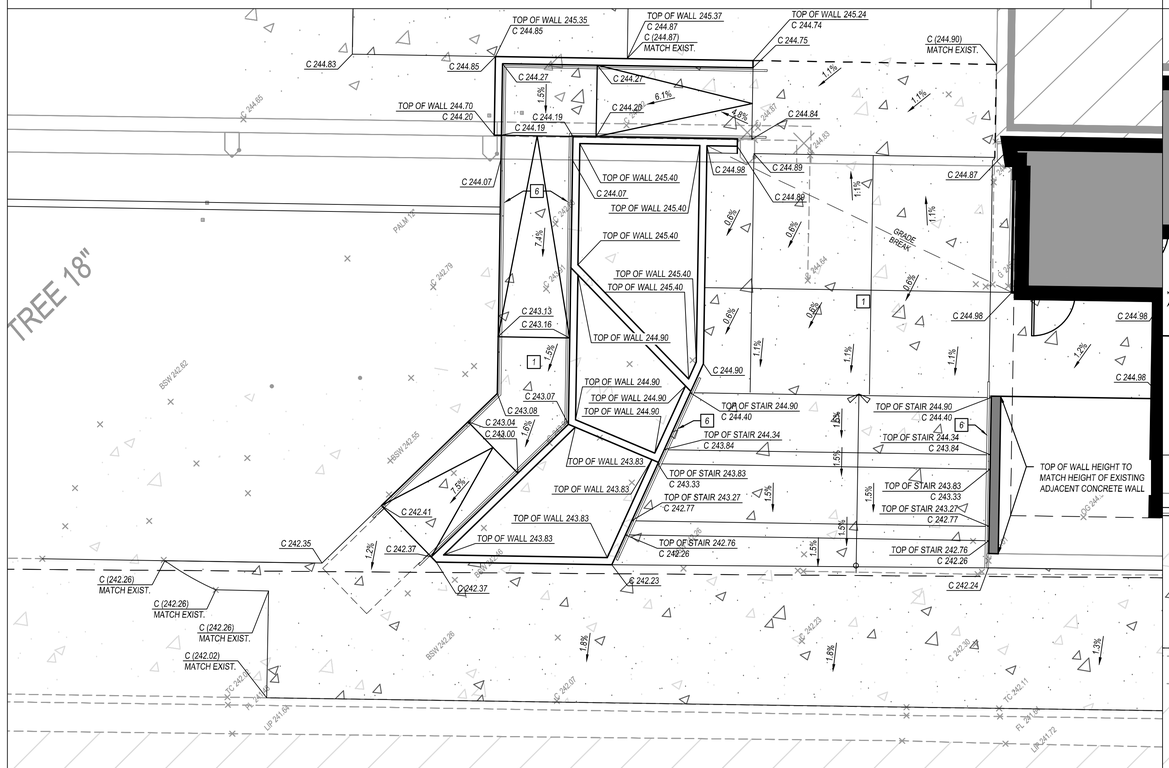
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LEGEND

- DETAIL REFERENCE
- EXIST. ASPHALT CONCRETE
- EXIST. CONCRETE
- PROPOSED CONCRETE
- PROPOSED ASPHALT CONCRETE
- GRADE BREAK/CROWN
- SWALE
- SAWCUT LINE

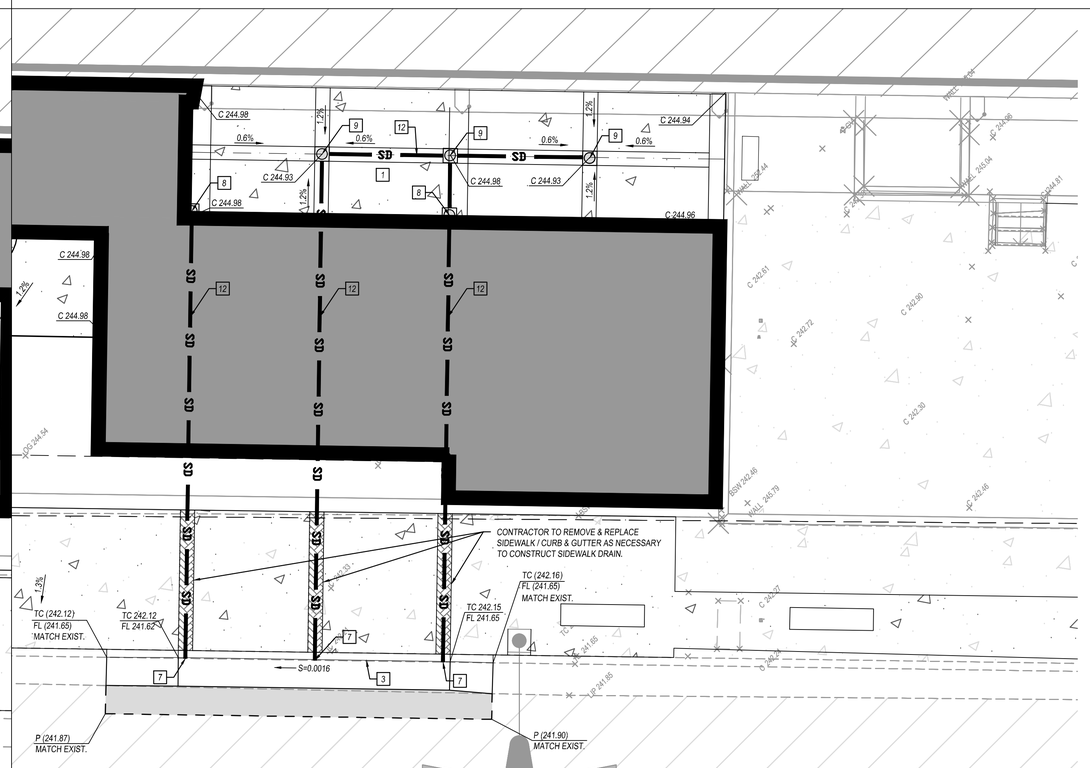
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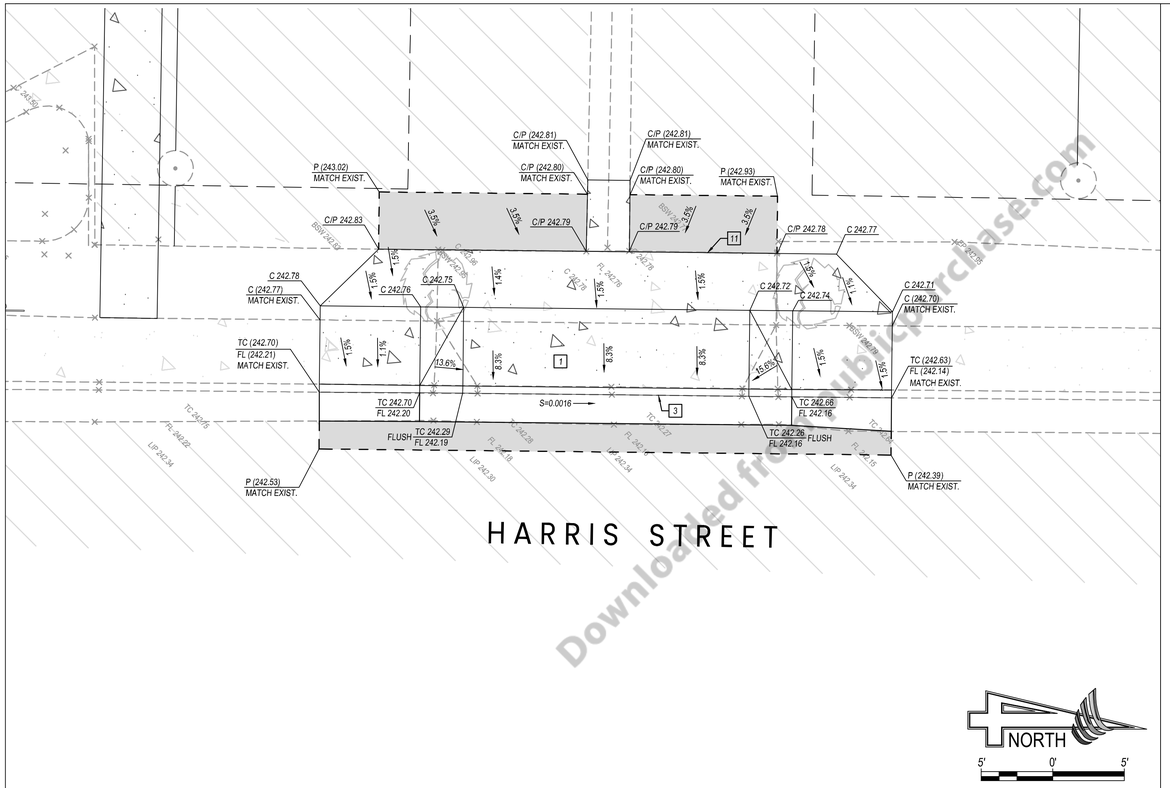
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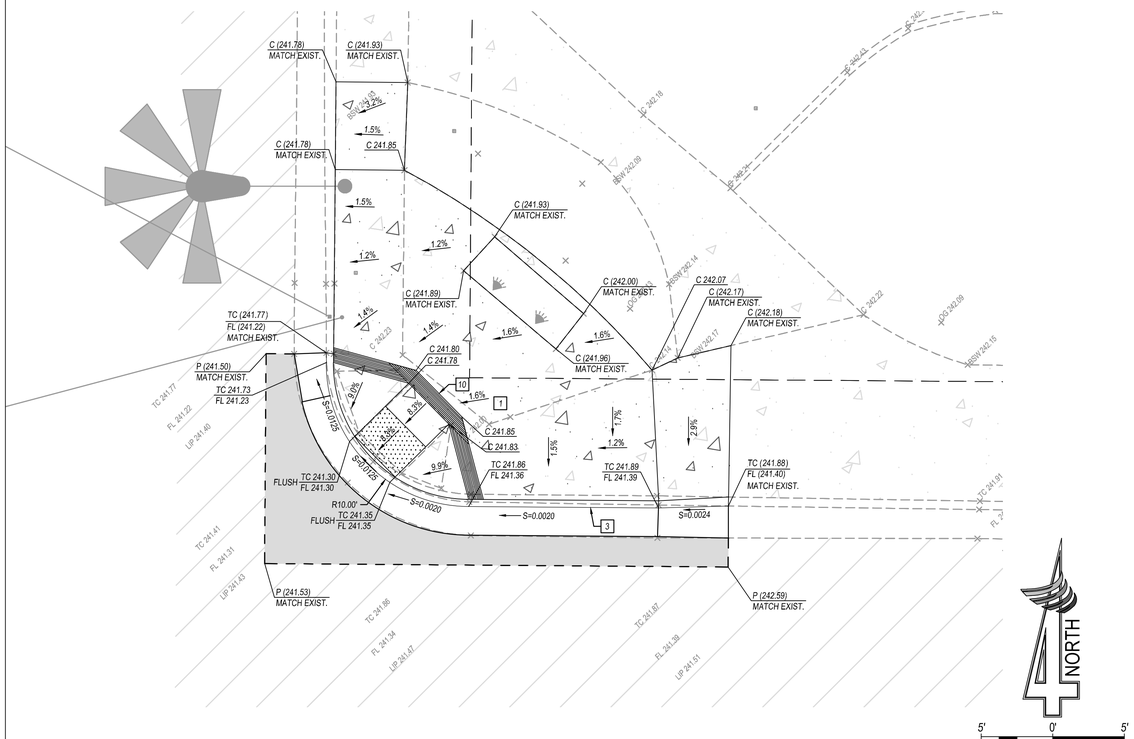
R-2


C 244.98
C 244.94
C 244.93
C 244.96
C 244.98
C 244.98
C 244.98
C 244.98
C 244.98
SD
SD
SD



DRIVE APPROACH DETAIL

DA-1



RAMP DETAIL

R-3

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6. INSTALL HANDRAILS, SEE ARCH PLANS
7. INSTALL 3" SIDEWALK UNDERDRAIN PER CITY STD. SD-16
8. INSTALL AREA DRAIN PER DETAIL X-1 W/ 3" SD PIPE CONNECTION
9. INSTALL N.D.S FLO-WELL (OR APPROVED EQUAL) W/ DRAIN PER DETAIL X-3
10. INSTALL 10' RADIUS CURB RETURN PER CITY STD. CO-20
11. INSTALL DRIVE APPROACH PER CITY STD. CO-39
12. INSTALL 3" Ø DR-14 SD PIPE @ S=0.0100 MIN. IF REQUIRED INVERTS CANNOT BE MET, SWITCH 3" Ø SD PIPE WITH 6" Ø SD PIPE WITH A MIN. SLOPE OF S=0.0050

LEGEND

- DETAIL REFERENCE
- EXIST. ASPHALT CONCRETE
- EXIST. CONCRETE
- PROPOSED CONCRETE
- PROPOSED ASPHALT CONCRETE
- GRADE BREAK/CROWN
- SWALE
- SAWCUT LINE

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324 S SANTA FE SUITE A VISALIA, CA 93292
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REGISTERED PROFESSIONAL ENGINEER
KYLE J. McDONALD
NO. 82531
Exp. 09/30/26
CIVIL
STATE OF CALIFORNIA

ISSUES / REVISIONS:	DATE:
0 ISSUE FOR BID	5/23/2025

APPROVED BY:

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GRADING PLAN DETAILS

C5

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GENERAL CONSTRUCTION NOTES

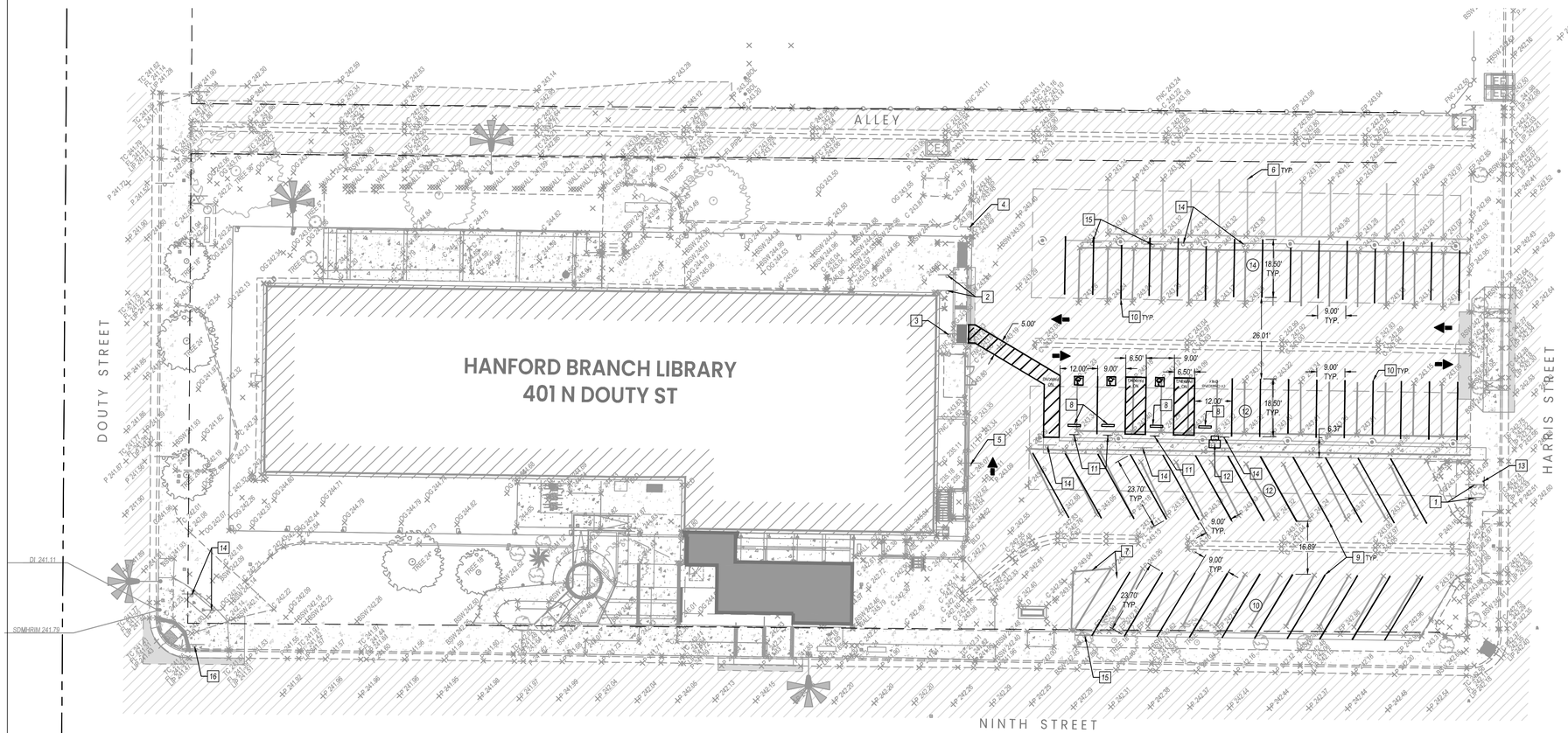
1. WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS, SIGN SPECIFICATIONS SHEETS, THE 2014 CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (2014 CALIFORNIA MUTCD), THE LATEST EDITION OF THE CITY OF HANFORD STANDARD SPECIFICATIONS AND DRAWINGS, AND THE SPECIAL PROVISIONS.
2. ALL SIGNS SHALL BE INSTALLED PER THE 2014 CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2014 CALIFORNIA MUTCD).
3. THIS PLAN IS ACCURATE FOR SIGNING, STRIPING, PAVEMENT MARKING WORK ONLY.
4. ALL EXISTING SIGNS THAT ARE TO BE REMOVED SHALL BE TEMPORARILY REPLACED WITH SUITABLE UNITS ON BARRICADES UNTIL THE PERMANENT REPLACEMENT SIGNS HAVE BEEN INSTALLED.

KEYNOTES (THIS SHEET ONLY)

1. REMOVE EXISTING LIBRARY SIGN
2. PROTECT IN PLACE EXISTING "HOURS OF OPERATION" SIGN
3. PROTECT IN PLACE EXISTING "BICYCLES AND SKATEBOARD RIDING PROHIBITED" SIGN
4. PROTECT IN PLACE EXISTING "NO PARKING" SIGN
5. PROTECT IN PLACE EXISTING "ONE WAY" SIGN
6. PROTECT IN PLACE EXISTING STRIPING
7. REMOVE EXISTING ADA PARKING SPOT, STRIPING, AND SIGN
8. INSTALL 36" MIN. x 6" HIGH CONCRETE WHEEL STOP WITH #6 x 18" REBAR
9. INSTALL 9' x 18.5' PARKING STALLS @ 60° USING 4" WHITE PAINT TYPICAL UNLESS NOTED OTHERWISE
10. INSTALL 9' x 18.5' PARKING STALLS @ 90° USING 4" WHITE PAINT TYPICAL UNLESS NOTED OTHERWISE
11. INSTALL COMBINED 12" x 24" R99c (CA) "ACCESSIBLE PARKING ONLY $250 MINIMUM FINE" SIGN
12. INSTALL EV CHARGING STATION
13. INSTALL "UNAUTHORIZED VEHICLES WILL BE TOWED" SIGN
14. REMOVE AND REPLACE EXISTING LIBRARY SIGN
15. REMOVE EXISTING ADA PARKING SIGN
16. PROTECT IN PLACE EXISTING "STOP" SIGN

LEGEND:

- (X) INDICATES NUMBER OF PARKING STALLS
- INSTALL TRAFFIC DIRECTION ARROWS, SOLID AND WHITE TYP. AS SHOWN



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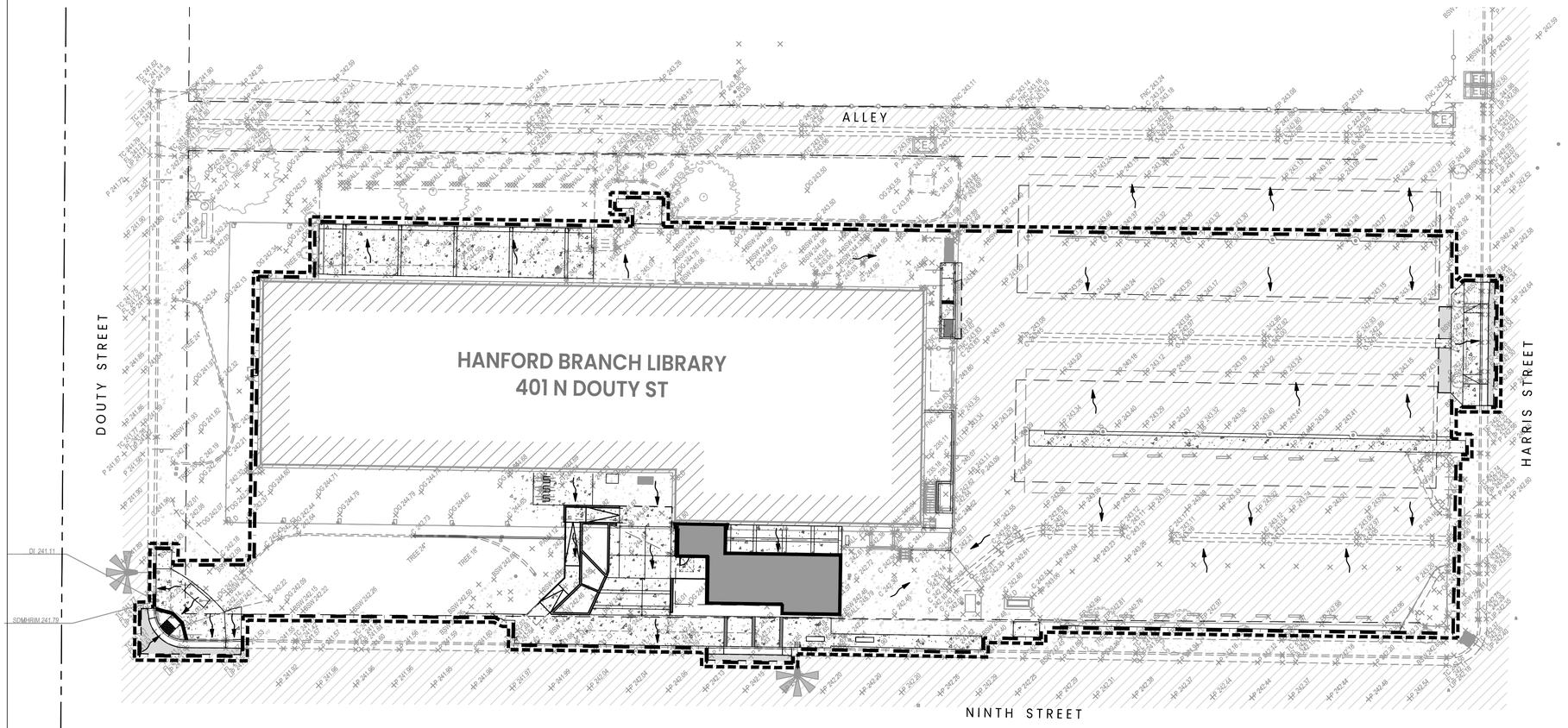
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SIGNING,STRIPING, AND MARKING PLAN

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VISUAL BMP'S	USED
WASTE MANAGEMENT	
WM-1 MATERIAL DELIVERY AND STORAGE	Y
WM-2 MATERIAL USE	Y
WM-3 STOCKPILE MANAGEMENT	N
WM-4 SPILL PREVENTION AND CONTROL	Y
WM-5 SOLID WASTE MANAGEMENT	Y
WM-6 HAZARDOUS WASTE MANAGEMENT	N
WM-7 CONTAMINATED WASTE MANAGEMENT	N
WM-8 CONCRETE WASTE MANAGEMENT	Y
WM-9 SANITARY/SEPTIC WASTE MANAGEMENT	N
WM-10 LIQUID WASTE MANAGEMENT	Y

VISUAL BMP'S	USED
WIND EROSION CONTROL	
WE-1 WIND EROSION CONTROL	Y
SEDIMENT EROSION CONTROL	
SE-1 SILT FENCE	N
SE-4 CHECK DAMS	N
SE-5 FIBER ROLLS	N
SE-7 STREET VACUUMING ***	Y
SE-10 STORM DRAIN INLET PROTECTION	N
TRACKING CONTROL	
TC-1 STABILIZED CONSTRUCTION ENTRANCE	N

NON-VISUAL BMP'S	USED
EROSION CONTROL	
EC-1 SCHEDULING	Y
EC-2 PRESERVE EXISTING VEGETATION	N
EC-4 HYDROSEEDING	N
NON-STORM WATER MANAGEMENT	
NS-1 WATER CONSERVATION PRACTICES	Y
NS-3 PAVING AND GRINDING OPERATIONS	Y
NS-8 VEHICLE AND EQUIPMENT CLEANING	Y
NS-9 VEHICLE AND EQUIPMENT FUELING	Y
NS-10 VEHICLE AND EQUIPMENT MAINTENANCE	Y
NS-12 CONCRETE CURING	Y
NS-13 CONCRETE FINISHING	Y

OTHER WPCP ELEMENTS	USED
DISCHARGE POINTS FROM PROJECT	N
DRAINAGE PATTERN	Y
CONSTRUCTION PERIMETER	Y
DISTURBED SOIL AREA	N
EXISTING VEGETATION TO BE UNDISTURBED	N
PLANNED SOIL DISTURBANCE	Y
KNOWN HAZARDOUS SOILS	N
EQUIPMENT/MAINTENANCE AREA	N

QSP		
	Name	DATE
QSD		1/13/25
	KYLE J. MCDONALD, PE	DATE



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CIVIL
STATE OF CALIFORNIA

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EROSION CONTROL PLAN

C7

CITY OF HANFORD

CALIFORNIA

CURB, GUTTER AND SIDEWALK CRITERIA

Reason for Curb and Gutter

Curb and gutter is required to protect the edge of pavement, to channel storm drainage to collection points, to define the right-of-way for vehicular traffic, to make better use of the City's street sweeping program and to protect pedestrian sidewalk traffic. It is our opinion that curb and gutter reduces the City's street maintenance costs. A secondary benefit is that it also establishes reference points for property lines and shows where underground utilities are stubbed out.

Reason for Sidewalks

The principal reason for a sidewalk is pedestrian safety. The sidewalk gives the pedestrian a place to walk outside of the vehicular travel lanes. The City's experience has been that graded or graveled areas have not been a satisfactory replacement for sidewalks as property owners' plants, vegetation, landscaping or fences force people into the street.'

Requirement by Permit

Generally, curb, gutter and sidewalk are required for all new development in the City. This requirement occurs in several areas under City procedures:

A. **Building Permits**

Pursuant to Title 15 of the Hanford Municipal Code, any person obtaining a building permit is required to construct curb, gutter and sidewalk along all public street frontage adjacent to the lot. In addition, the developer is required to pave between the edge of the existing road and the gutter. Exception to this basic requirement occurs only when a portion of the project site is developed; when a pre-existing single family lot exceed ½ acre, or in the case of a remodel and the cost of the remodeling is less than 50 percent of the value of the existing building.

In situations where it not possible to set grades or carry away water from the improvements, the property owner must sign a "Deferred Improvement Agreement" that essentially provides that curb, gutter and sidewalk will be installed upon demand of the City. Said Agreement shall provide provision for an automatic "yes" vote in any future assessment district for street improvements.

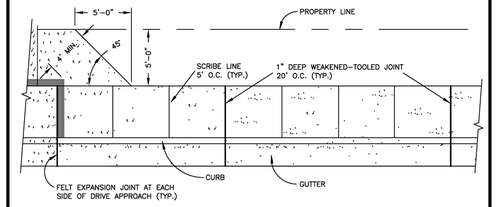
B. **Subdivisions**

It is the general policy of the City that curb, gutter and sidewalk are required as a condition of approval of any subdivision. They are required on lot sizes up to one-half (1/2) acre in area. For subdivisions by parcel map, curb, gutter and sidewalk are required as a condition to recording of final map. For subdivisions by parcel map, they are required at the time of development. The condition for curb, gutter and sidewalk is noted on the recorded parcel map. It should be noted that the City does not permit a residential lot to be created without frontage on a public street. Improvements are not required at the time of map recording when the division is made for the sole purpose of creating a parcel for sale to another developer who will further divide or develop the property. Said exception shall apply only when no development or increase in utilization is proposed by the subdivider.

C. **Use Permits, Site Plan Reviews and Variances**

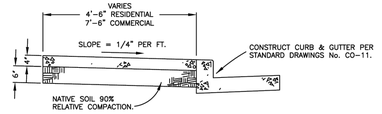
Curb, gutter and sidewalk are also required as a condition of approval of use permits, site plan reviews, variances and issuance of commercial and new construction Certificates of Occupancy. In addition, the developer is also required to pave between the edge of the existing pavement and the gutter. Generally, the conditions on these applications are more of an information item since most would fall under the building permit requirements.

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CURB, GUTTER & SIDEWALK SCRIBE LINE DETAIL

NO SCALE



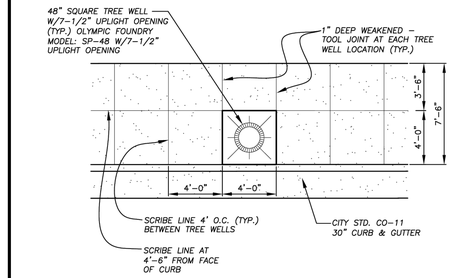
CURB, GUTTER AND SIDEWALK CROSS-SECTION

NO SCALE

NOTES:

1. FROMS TO REMAIN FOR A MIN. OF 24 HOURS.
2. WOOD FORMS SHALL HAVE A NOMINAL THICKNESS OF 2", EXCEPT ON CURVE CONSTRUCTION WHERE THE THICKNESS SHALL BE DETERMINED BY THE CITY ENGINEER.
3. SEE CONCRETE NOTES (DRAWING No. CO-32) AND CITY STANDARD SPECIFICATIONS.
4. EXPANSION JOINTS SHALL BE INSTALLED WITHIN CURVILINEAR SIDEWALKS AT MIN. 60 FEET O.C.
5. CONCRETE SHALL BE MINIMUM FIVE SACK MIX. (2500 P.S.I. MIN. IN 28 DAYS).
6. FOR DOWNTOWN 2010 PLAN AREA SEE DESIGN GUIDELINES FOR SIDEWALK SCORING PATTERN.

DEPT. OF PUBLIC WORKS	CITY OF HANFORD	ENGINEERING DIVISION
ADJACENT SIDEWALK DETAIL STANDARD DRAWING	APPROVED BY: CITY ENGINEER R.C.E. 062044	
	REVISED: 04/04/06	DRAWING NO. CO-15



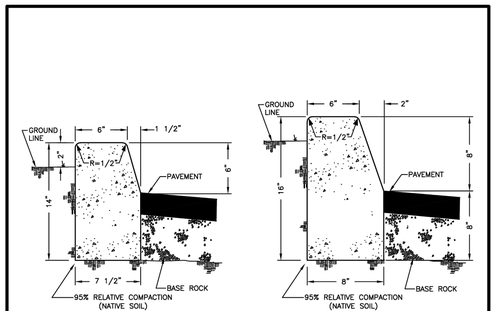
8' SIDEWALK TREE WELL DETAIL

NOT TO SCALE

NOTES:

1. FORMS TO REMAIN FOR A MIN. OF 24 HOURS.
2. WOOD FORMS SHALL HAVE A NOMINAL THICKNESS OF 2", EXCEPT ON CURVE CONSTRUCTION WHERE THE THICKNESS SHALL BE DETERMINED BY THE CITY ENGINEER.
3. SEE CONCRETE NOTES (DRAWING No. CO-32) AND CITY STANDARD SPECIFICATIONS.
4. EXPANSION JOINTS SHALL BE INSTALLED WITHIN CURVILINEAR SIDEWALKS AT MIN. 60 FEET O.C.
5. CONCRETE SHALL BE MINIMUM FIVE SACK MIX. (2500 P.S.I. MIN. IN 28 DAYS).
6. FOR DOWNTOWN 2010 PLAN AREA SEE DESIGN GUIDELINES FOR SIDEWALK SCORING PATTERN.

DEPT. OF PUBLIC WORKS	CITY OF HANFORD	ENGINEERING DIVISION
8' SIDEWALK WITH TREE WELLS FOR DOWNTOWN 2010 PLAN STANDARD DRAWING	APPROVED BY: CITY ENGINEER R.C.E. 062044	
	REVISED: 04/04/06	DRAWING NO. CO-16



LANDSCAPE PLANTER CURB

NO SCALE

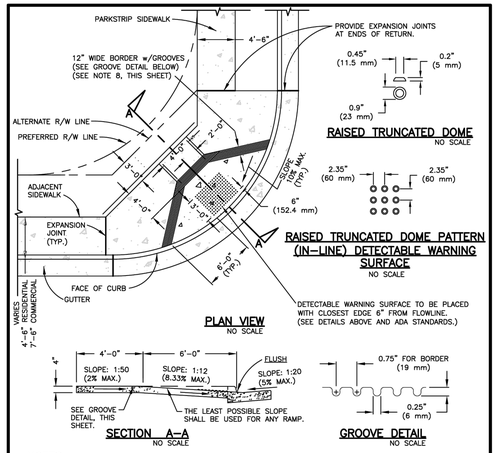
MEDIAN ISLAND CURB

NO SCALE

NOTES:

1. FORMS TO REMAIN FOR A MIN. OF 24 HOURS.
2. WOOD FORMS SHALL HAVE A NOMINAL THICKNESS OF 2" EXCEPT ON CURVE CONSTRUCTION WHERE THE THICKNESS SHALL BE DETERMINED BY THE CITY INSPECTOR.
3. 1"x2" LINE & GRADE STAKES ARE TO BE SET 3' FROM FACE OF CURB.
4. SEE CONCRETE NOTES (DRAWING No. CO-32) AND CITY STANDARD SPECIFICATIONS.
5. WEAKEND PLANE JOINTS SHALL BE CONSTRUCTED AT 20' CENTERS, AND SHALL BE A MIN. DEPTH OF 1" & SHALL BE FINISHED W/A SCORING TOOL LEAVING THE EDGES ROUNDED. FILL JOINTS AT BACK OF CURBS WITH EPOXY OR AN APPOROVED ALTERNATIVE, TO PROHIBIT DRAINAGE TO PAVED AREAS.
6. CONCRETE SHALL BE MINIMUM FIVE SACK MIX. (2500 P.S.I. MIN. IN 28 DAYS).

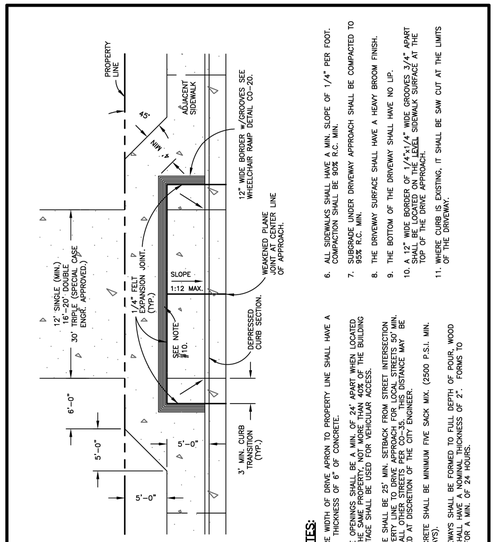
DEPT. OF PUBLIC WORKS	CITY OF HANFORD	ENGINEERING DIVISION
CONCRETE CURB DETAILS STANDARD DRAWING	APPROVED BY: CITY ENGINEER R.C.E. 062044	
	REVISED: 04/04/06	DRAWING NO. CO-17



NOTES:

1. RAMPS SHALL HAVE NO ABRUPT CHANGES IN ELEVATION OF ANGLE OF SLOPE.
2. SIDEWALK & RAMP THICKNESS SHALL BE 4". COMPACT SUBGRADE TO 90% MINIMUM.
3. ARTERIAL AND MAJOR COLLECTOR STREET INTERSECTIONS (ARTERIAL-ARTERIAL, ARTERIAL-MAJOR, MAJOR-MAJOR) SHALL HAVE 30' MIN. RADIUS RETURNS WHERE FEASIBLE (CO-21). ALL OTHER STREETS SHALL REQUIRE A 20' MIN. RADIUS RETURN.
4. THERE SHALL BE A 0.20' MIN. ELEVATION CHANGE AROUND A TYPICAL RETURN.
5. FORMS TO REMAIN FOR A MIN. OF 24 HOURS.
6. THERE SHALL BE NO SIDEWALK OBSTRUCTIONS. ALL POWER POLES, STREET LIGHTS, FIRE HYDRANTS & MAIL BOXES SHALL BE SET BACK BEHIND SIDEWALK UNLESS APPROVED OTHERWISE BY CITY ENGINEER.
7. SIDEWALK RAMP SHALL HAVE A HEAVY BROOM FINISH ACROSS THE SLOPE OF THE RAMP.
8. DEEP JOINT TO BE AT PERIMETER OF 12" WIDE BORDER w/GROOVES.
9. SEE CONCRETE NOTES (DRAWING No. CO-32) AND CITY STANDARD SPECIFICATIONS.
10. CONCRETE SHALL BE MINIMUM FIVE SACK MIX. (2500 P.S.I. MIN. IN 28 DAYS).

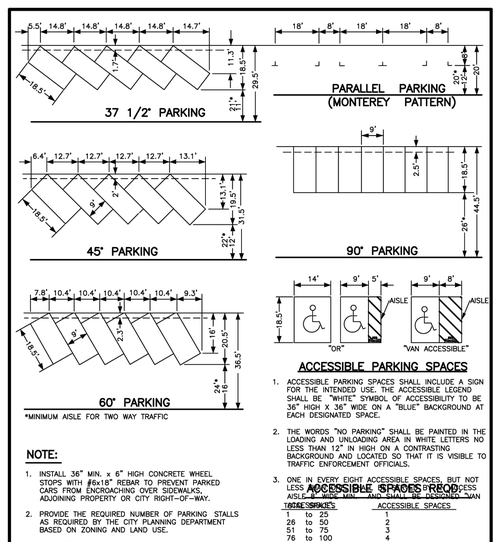
DEPT. OF PUBLIC WORKS	CITY OF HANFORD	ENGINEERING DIVISION
CURB RAMP DETAIL (20 FOOT RADIUS RETURN) STANDARD DRAWING	APPROVED BY: CITY ENGINEER R.C.E. 062044	
	REVISED: 04/04/06	DRAWING NO. CO-20



NOTES:

1. ENTIRE WIDTH OF DRIVE APRON TO PROPERTY LINE SHALL HAVE A MIN. SLOPE OF 1/4" PER FOOT.
2. DRIVE OPENINGS SHALL BE A MIN. OF 24' APART WHEN LOCATED ON THE SAME PROPERTY, NOT MORE THAN 40% OF THE BUILDING SITEFRONTAGE SHALL BE USED FOR VEHICULAR ACCESS.
3. THERE SHALL BE 25' MIN. SETBACK FROM STREET INTERSECTION PROPERTY LINES TO NEAREST EDGE OF DRIVE APPROACH. 30' MIN. FOR ALL OTHER STREETS PER CO-35. "THIS DISTANCE MAY" INCREASED AT DISCRETION OF THE CITY ENGINEER.
4. CONCRETE SHALL BE MINIMUM FIVE SACK MIX. (2500 P.S.I. MIN. IN 28 DAYS).
5. DRIVEWAYS SHALL BE FORMED TO FULL DEPTH OF POUR. WOOD FORMS SHALL HAVE A NOMINAL THICKNESS OF 2". FORMS TO REMAIN FOR A MIN. OF 24 HOURS.
6. ALL SIDEWALKS SHALL HAVE A MIN. SLOPE OF 1/4" PER FOOT. COMPACTION SHALL BE 90% R.C.M.I. MIN.
7. SUBGRADE UNDER DRIVEWAY APPROACH SHALL BE COMPACTED TO 90% R.C. MIN.
8. THE DRIVEWAY SURFACE SHALL HAVE A HEAVY BROOM FINISH.
9. THE BOTTOM OF THE DRIVEWAY SHALL HAVE NO LIP.
10. A 12" WIDE BORDER OF 1/4"x1/4" WIDE GROOVES 3/4" APART SHALL BE LOCATED ON THE LEVEL SIDEWALK SURFACE AT THE TOP OF THE DRIVE APPROACH.
11. WHERE CURB IS EXISTING, IT SHALL BE SAW CUT AT THE LIMITS OF THE DRIVEWAY.

DEPT. OF PUBLIC WORKS	CITY OF HANFORD	ENGINEERING DIVISION
RESIDENTIAL DRIVEWAY WITH ADJACENT SIDEWALK STANDARD DRAWING	APPROVED BY: CITY ENGINEER R.C.E. 062044	
	REVISED: 04/04/06	DRAWING NO. CO-39



1. ACCESSIBLE PARKING SPACES SHALL INCLUDE A SIGN FOR THE INTENDED USE. THE ACCESSIBLE LEGEND SHALL BE "WHITE" SYMBOL OF ACCESSIBILITY TO BE 36" HIGH X 36" WIDE ON A "BLUE" BACKGROUND AT EACH DESIGNATED SPACE.
2. THE WORDS "NO PARKING" SHALL BE PAINTED IN THE LOADING AND UNLOADING AREA IN WHITE LETTERS NO LESS THAN 12" IN HIGH ON A CONTRASTING BACKGROUND AND LOCATED SO THAT IT IS VISIBLE TO TRAFFIC ENFORCEMENT OFFICIALS.
3. ONE IN EVERY EIGHT ACCESSIBLE SPACES, BUT NOT LESS THAN ONE, SHALL BE DESIGNATED "VAN ACCESSIBLE" AND SHALL BE DESIGNED, SIGNED AND LOCATED AS SUCH.

TOTAL SPACES	ACCESSIBLE SPACES
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2% OF TOTAL
1001 AND OVER	20 PLUS 1 PER 100 ABOVE 1000

NOTE:

1. INSTALL 36" MIN. x 6" HIGH CONCRETE WHEEL STOPS WITH #6x18" REBAR TO PREVENT PARKED CARS FROM ENCROACHING OVER SIDEWALKS, ADJOINING PROPERTY OR CITY RIGHT-OF-WAY.
2. PROVIDE THE REQUIRED NUMBER OF PARKING STALLS AS REQUIRED BY THE CITY PLANNING DEPARTMENT BASED ON ZONING AND LAND USE.
3. COMPACT STALL SPACES SHALL BE 8'x16' & MARKED "COMPACT" WHEN APPROVED BY THE CITY ENGINEER. PLANNING DEPARTMENT SHALL DETERMINE MAX. No. OF COMPACT SPACES ALLOWED.

DEPT. OF PUBLIC WORKS	CITY OF HANFORD	ENGINEERING DIVISION
PARKING LOT REQUIREMENTS STANDARD DRAWING	APPROVED BY: CITY ENGINEER R.C.E. 062044	
	REVISED: 04/10/18	DRAWING NO. GE-29

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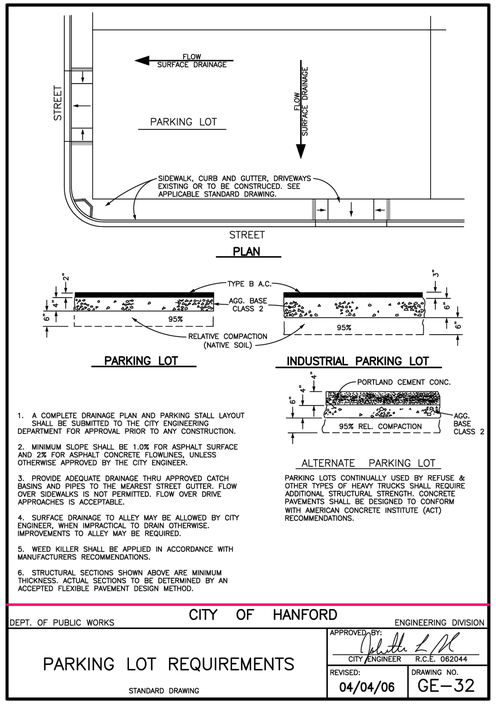
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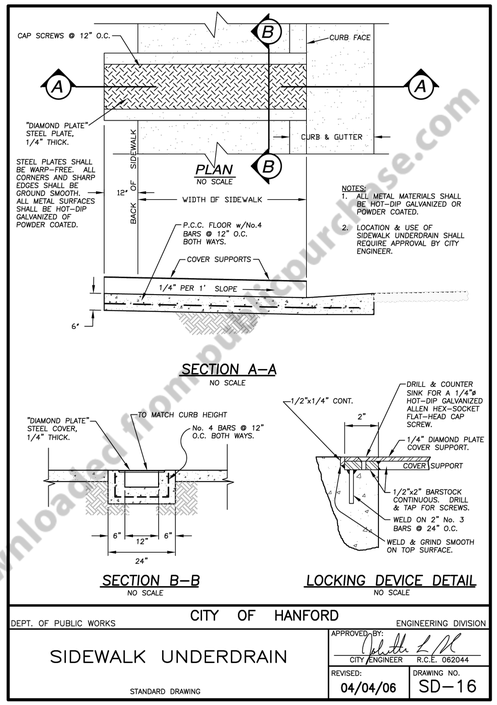
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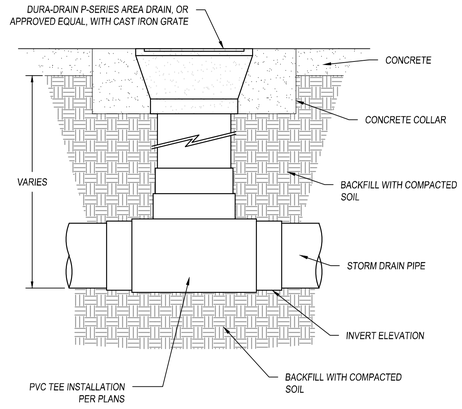
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CIVIL DETAILS

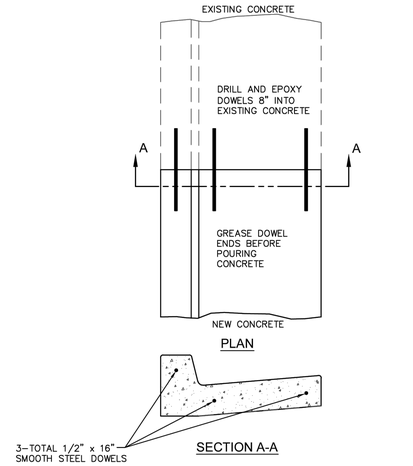
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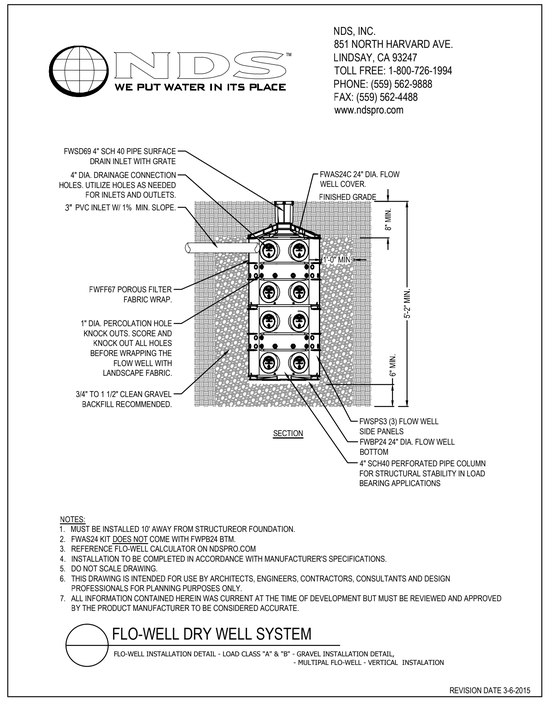












PARKING LOT REQUIREMENTS	GE-32	SIDEWALK UNDERDRAIN	SD-16	AREA DRAIN	X-1	CONCRETE COLD JOINTS	X-2
FLO-WELL DRY WELL SYSTEM	X-3						

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REGISTERED PROFESSIONAL ENGINEER
KYLE J. McDONALD
NO. 82531
Exp. 09/30/26
CIVIL
STATE OF CALIFORNIA

DATE:		ISSUES / REVISIONS:
5/23/2025	0	ISSUE FOR BID

APPROVED BY:

DATE SIGNATURE

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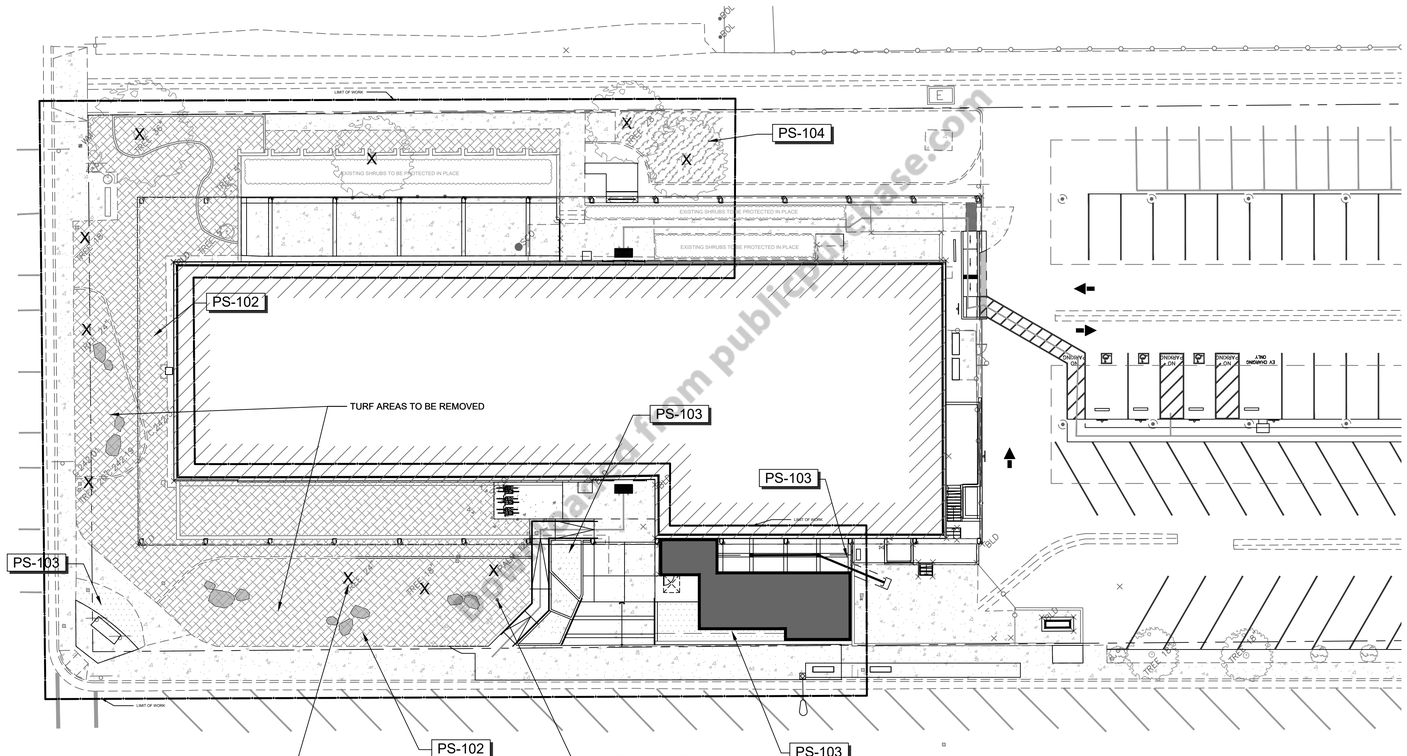
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PLOT DATE: 6/2/2025
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CIVIL DETAILS

CD2



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Planting Soils Legend

CODE	DESCRIPTION	QTY
PS-101 (ALL PLANTING AREAS)	Certified Compost: 1.5" thick layer of compost shall be applied in all planting areas. Compost shall be certifed by the U.S. Composting Council´s STA Program. See specifications for further information.	74.3 cy
PS-102	Modified Existing Soil - Compacted sub soil: Trenching For planting areas greater than eight feet with soil compaction greater than 85% of Standard Proctor Method. See detail and specifications for further information.	8,601 sf
PS-103	Modified Existing Soil - Compacted sub soil: Fracturing For planting areas less than eight feet with soil compaction greater than 85% of Standard Proctor Method. See detail and specifications for further information.	512 sf
PS-104	Modified Existing Soil - Compacted surface soil: Tilling For all planting areas where soil compaction is between 75 - 85% of Standard Proctor Method. See detail and specifications for further information.	501 sf

Notes:
1 - All quantities and amounts shown on the plans are best estimates for the benefit of the contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the contractor 's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

2- Contractor shall verify site compaction using the Standard Proctor Method prior to the beginning of work. If compaction rates are between 75% - 85% only minimal modification shall occur. See soil modification - compacted surface soil detail.

0 20 40 60 feet
1" = 20'

NORTH

GENERAL PLANTING SOIL NOTES

1. Existing utilities- information on the drawings relating to existing utility lines and services from the best sources available. All such information is furnished only for information and is not guaranteed. The Contractor shall excavate test pits as required to determine the exact location of existing utilities.

Call utility locating service for precise utility locations before beginning of any work. 811, DIG ALERT.

2. Utility Requirements- The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below shall be contacted.
- Gas Company
- Telephone Company
- Electrical Power Company
- Cable Television Company
- Water Supply Company

The California Public Utilities Commission mandates that in, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the gas company's headquarters planning office 48 hours prior to the start of construction.

3. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

4. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

5. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of conduct of the work as drawn and specified. If the contractor observes that a conflict exist between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

6. Wherever references are made to standards or coded in accordance with which works is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless expressly set forth.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

8. Comply with the requirements for the California code of Regulation title 23 waters, division 2 department of water resources chapter 2.7 model water efficient landscape ordinance, 492.5 soil management report.
a. Where the requirements of specification section Planting Soil are more stringent than the California code, the more stringent requirements shall prevail.

9. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

10. The Contractor shall be responsible for any coordination with subcontractors as requiring to accomplish the soil preparation operations.

11. Top soil, existing site soil and Planting Soil Mix testing; Submit soil test analysis report for each sample of Topsoil, existing site soil and Planting Soil from an approved soil testing laboratory.

12. Submit all testing required by California code of Regulation title 23 waters, division 2 department of water resources chapter 2.7 model efficient landscape ordinance, 492.5 soil management report.

13. Soil testing shall be at the expense of the Contractor. Copies of the soil test analysis along with receipts and delivery slips of recommended amendments shall be provided to the Owner's Representative.

14. Contractor shall be aware of all surface and subsurface conditions, and to notify the Owner's Representative, in writing of any circumstances that would negatively impact the health of plantings. Contractor shall not proceed with work until corrected.
a. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering the cost of corrections. If the contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for the plant material under the warrantee clause of the specifications.

15. Imported top soil shall be fertile, friable soil containing less than 5% total volume of the combination of subsoil, refuse, roots larger than 1" diameter, heavy or stiff clay, stones larger than 2 inches in diameter, noxious seeds, sticks, brush, litter, or any substances deleterious to planter growth. The % of the above objects shall be controlled by source selection not by screening the soil. Topsoil shall be suitable for the germination of seeds and the support of vegetative growth. Imported Topsoil shall not contain weed seeds in quantities that cause noticeable weed infestation in the final planting beds.

16. Compost shall be organic blended material, composted for a minimum of 9 months and at temperatures sufficient to break down all woody fibers, seeds and leaf structures, free of toxic and non-organic matter. Source material shall be yard waste trimmings blended with other organic material designed to produce Compost high in fungal material.
a. Organic matter shall be commercially prepared compost and meet US Composting Council STA/TMECC.

17. Existing trees shall be protected and cared for as required in the details and specifications.

18. The Owner's Representative shall approve all rough grading prior to the installation of organic matter, fine grading, and mulching.

19. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements in the plans, details and specifications.
a. Pre - Construction meeting
b. Existing soil conditions review
c. Completion of site preparation review
d. Completion of finished grading and surface soil modification review.

20. If the work fails to pass inspection, any subsequent inspections must be rescheduled as required in the specifications. The cost to the Owner for additional inspections will be charged to the Contractor at the prevailing hourly rate of the inspector.

21. Contractor shall include in the bid continued maintenance (warranty) period of 1 year after completion of construction and acceptance of the project by the Owner's Representative.

22. The landscape plans have designed in accordance with the state model water efficient landscape ordinance (MWELO). It is the Contractors responsibility to adhere to the requirements and regulations of that ordinance during the installation of the landscape design plan. During the installation of the landscape design plan, any portion which comes into conflict with MWELO shall be brought to the attention of the Owner/Owner's Representative. In the even that notification does not take place, the Contractor assumes responsibility for all necessary changes and work in order to meet compliance.

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LICENSED LANDSCAPE ARCHITECT
GREGORY A. MENDONCA No. 6711
Signature
07-31-27
Renewal Date
Date
STATE OF CALIFORNIA

DATE	SUBMITTAL
05.23.2025	ISSUE FOR BID

APPROVED BY:

DATE SIGNATURE

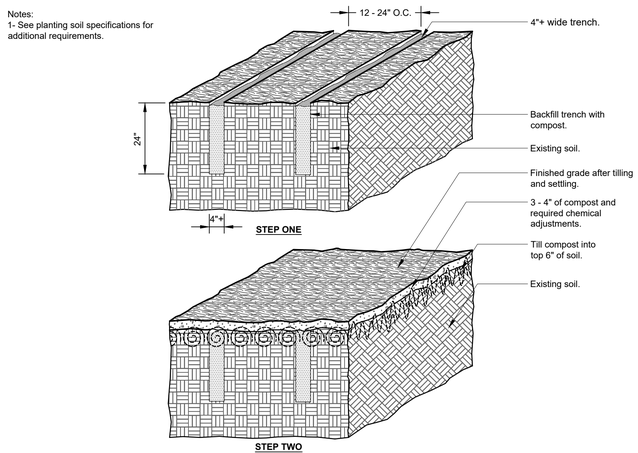
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PLANTING SOILS PLAN

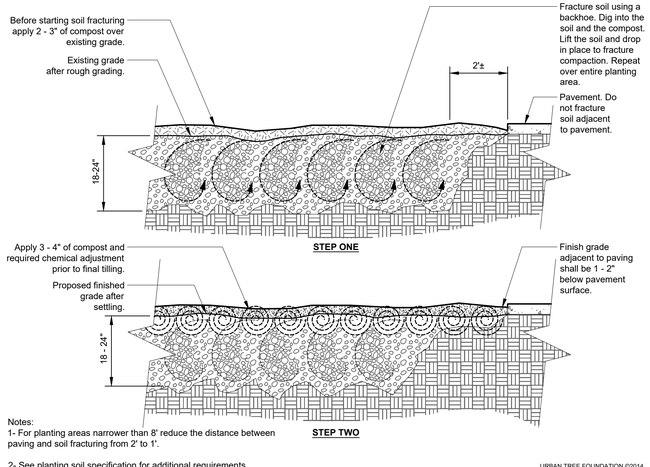
L-1



Notes:
1- See planting soil specifications for additional requirements.

1 SOIL MODIFICATION - TRENCHING

P-IN-24014_WA-05



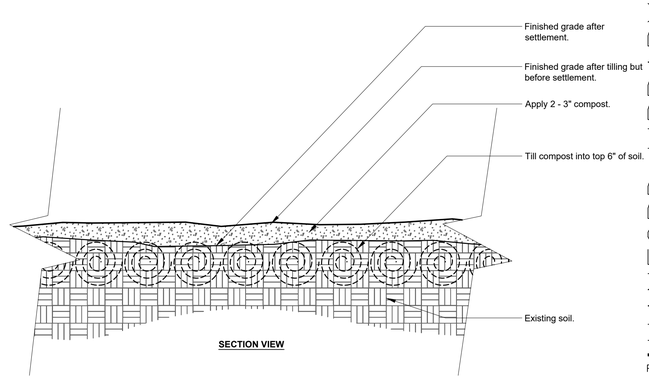
Notes:
1- For planting areas narrower than 8' reduce the distance between paving and soil fracturing from 2' to 1'.

2- See planting soil specification for additional requirements.

2 SOIL MODIFICATION - FRACTURING

URBAN TREE FOUNDATION ©2014
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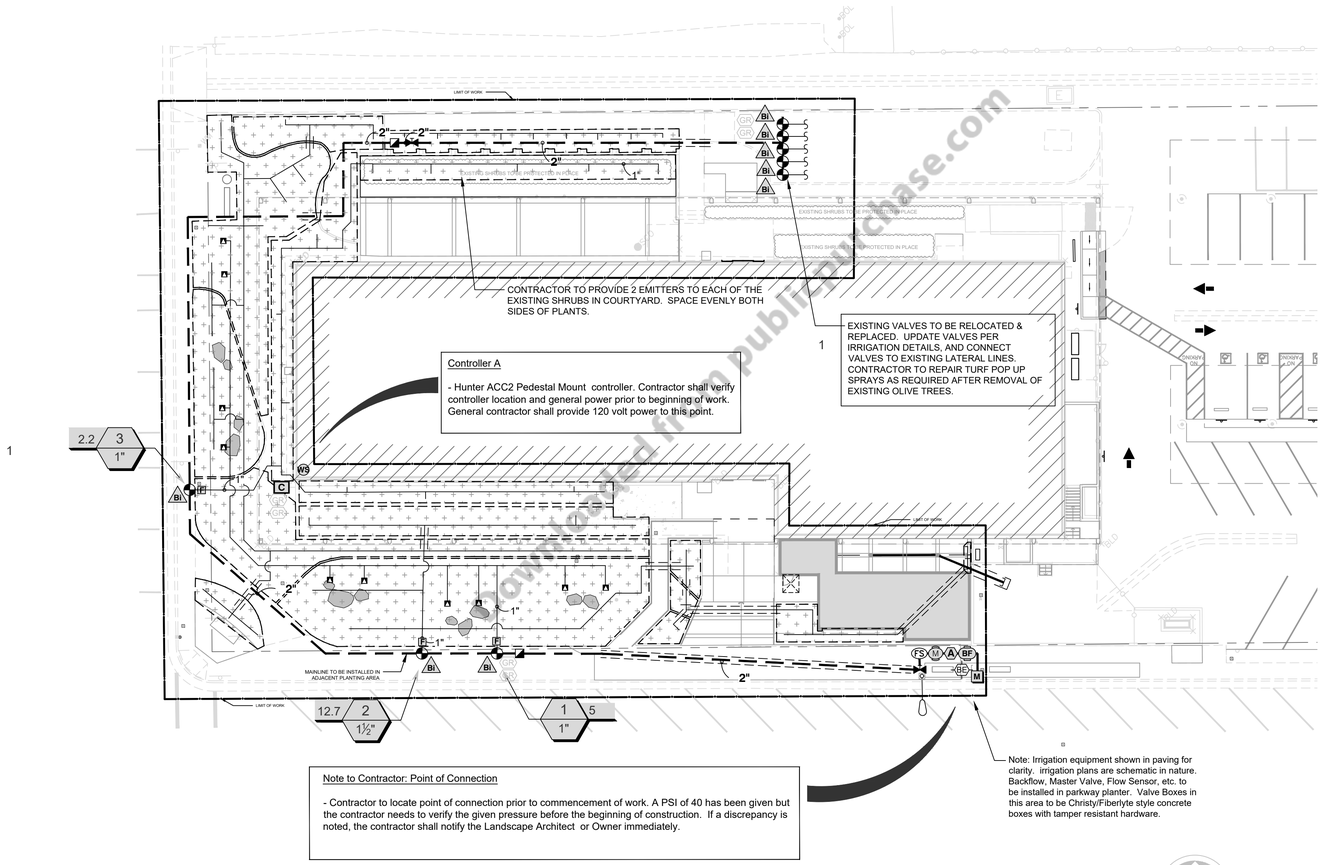


Notes:
1- See planting soil specifications for additional requirements.

3 SOIL MODIFICATION - COMPACTED SURFACE SOIL

P-IN-24014_WA-38

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IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI
25 50 18 28	Hunter PCB Flood Bubbler, 1/2" FIPT. See irrigation detail.	10	15

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Area to Receive Drip Emitters Salco Emitter by Area Salco 1/2" threaded pressure compensating drip emitter. Model # SLV-PST-CV-2. See irrigation detail. Emitter Notes: 2.0 GPH emitters (1 assigned to each 1 gal plant) 2.0 GPH emitters (2 assigned to each 5 gal plant) 4.0 GPH emitters (1 assigned to each 15 gal plant) 4.0 GPH emitters (2 assigned to each 24" box plant)	9,047 sf

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Hunter ICV-G 1-1/2" 1in., 1-1/2in., 2in., and 3in. Plastic Electric Remote Control Valves, Globe Configuration, with NPT Threaded Inlet/Outlet, for Commercial/Municipal Use.	1
	Hunter ICV-G 1" 1in., 1-1/2in., 2in., and 3in. Plastic Electric Remote Control Valves, Globe Configuration, with NPT Threaded Inlet/Outlet, for Commercial/Municipal Use.	2
	Hunter HQ-44LRC 1" Quick coupler valve, yellow rubber locking cover, red brass and stainless steel, with 1in. NPT inlet, 2-piece body.	2
	LASCO Fittings TUBV-SC 1", 1-1/2", 2", and 3" Plastic Full Block True Union Ball Valve. Shut Off/Isolation Valve to Eliminate Water Hammer. Install same size as mainline. See irrigation detail.	2
M	Hunter IBV-FS 1" 1in., 1-1/2in., 2in., and 3in. Brass Electric Master Valve, Globe Configuration, with NPT Threaded Inlet/Outlet, for Commercial/Municipal Use. With Filter Sentry Factory Installed Option.	1
A	Watts Water Hammer Arrestor Watts 1" lead free water hammer arrestor model # LF15M2-F Install per manufacturer`s specifications and recommendations. See irrigation detail.	1
BF	Zurn 375 XLB 1-1/2" Reduced Pressure Principle Assembly. Sizes 1/2", 3/4", 1", 1-1/4", 1-1/2", 2â€ . Install per manufacturer`s specifications and recommendations. See irrigation detail.	1
C	Hunter PED-SS-A2C-75D-SS 75-Station decoder controller in an outdoor stainless steel pedestal.	1
BI	Hunter ICD-100 Single Station Decoder w/Surge Suppression and Ground Wire. To be installed on Universal Decoder Stake Kit (DECSTAKE10).	8
WS	Hunter MWS Weather Station with rain sensor, wind sensor, 120 VAC, 5 amp. 5 year warranty.	1
FS	Creative Sensor Technology FSI-T10-001 1in. PVC tee type flow sensor w/socket ends, custom mounting tee and ultra-lightweight impeller enhances low flow measurement. 2 wire digital output compatible w/all irrigation controllers. Flow range: .86 GPM - 52 GPM.	1
F	Rain Bird PRB-QKCHK-100-100M 1" 1in. Pressure Regulating w/ 100 mesh stainless steel screen= Red 120 mesh stainless steel screen= Green 200 mesh stainless steel screen= White	3
BE	V.I.T. Products SBBC-30SS Low profile, tube and wire construction smooth touch surface, stainless steel backflow enclosure. 31.5"L, 28"H, 17.75"W (80.01cm L, 71.12cm H, 45.085cm W). See irrigation detail.	1
GR	Grounding Rod 8` x 1/2" copper grounding rod. Install per controller manufacturer`s specifications and recommendations. See irrigation detail.	6
M	Water Meter 2"	1
	Irrigation Lateral Line: PVC Class 200 SDR 21 (Shrubs) 1" See irrigation detail.	1,285 lf
	Irrigation Lateral Line: PVC Class 200 SDR 21 (Trees) 1" See irrigation detail.	264.9 lf
	Irrigation Lateral Line: PVC Class 200 SDR 21 (Overhead) 3/4" See irrigation detail.	1.3 lf
	Irrigation Mainline: PVC Schedule 40 (Mainline) See irrigation detail.	108.3 lf
	Irrigation Mainline: PVC Schedule 40 (Mainline) 2" See irrigation detail.	410.9 lf
	Pipe Sleeve: PVC Schedule 40 Standard pipe sleeve for irrigation pipe. Pipe sleeve shall be two times the diameter of pipe being sleeved. Irrigation mainline, lateral lines, and wire shall all be in separate sleeves.	192.4 lf

Valve Callout
Valve Number
Valve Flow
Valve Size

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	WIRE	PSI	PSI @ POC	PRECIP
1	Hunter ICV-G	1"	Bubbler	5	212.8	17.7		2.1 in/h
2	Hunter ICV-G	1-1/2"	Area for Drip Emitters	12.72	191.8	22.4		0.46 in/h
3	Hunter ICV-G	1"	Area for Drip Emitters	2.2	102.0	22.2		0.23 in/h
	Common Wire				519.1			

WATERING SCHEDULE

NUMBER	MODEL	TYPE	PRECIP	IN./WEEK	MIN./WEEK	GAL./WEEK	GAL./DAY
1	Hunter ICV-G	Bubbler	2.1 in/h	1	29	145	48.3
2	Hunter ICV-G	Area for Drip Emitters	0.46 in/h	0.5	65	827	276
3	Hunter ICV-G	Area for Drip Emitters	0.23 in/h	0.5	133	292	97.4
		TOTALS:			227	1,264	421.4

Notes:
1- The system indicated on the drawing is diagrammatic. All equipment shown in paved areas is diagrammatic. All equipment shall be located in planting areas. Avoid any conflicts between the irrigation system, planting, or architectural features.

2- All quantities and amounts shown on the plans are best estimates for the benefit of the contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the Contractor's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

3- Contractor shall verify point of connection and minimum static pressure prior to commencing of work. Any discrepancies shall be brought to the attention of the Owner and Landscape Architect prior to starting work.

4- All irrigation wire shall be installed in 1.5" Sch. 40 electrical conduit unless otherwise noted. Contractor to bid the project assuming the use of electrical conduit. If electrical conduit is not used the Contractor shall submit the credit back to the owner.

5- Certificate of Installation shall be required for the irrigation controller system. It is the responsibility of the Contractor to coordinate inspections with the irrigation controller service provider.

6- Irrigation plans were designed in accordance with CA AB 1881; the Model Water Efficient Landscape Ordinance. It is the responsibility of the Irrigation Contractor to adhere to that ordinance. Any portion of the irrigation systems installation that comes into conflict with the state ordinance shall be immediately brought to the attention of the Owner and Landscape Architect. In the event that notification does not occur, the Irrigation Contractor assumes any and all responsibility for changes to the work which must be done in order to meet compliance.

CRITICAL ANALYSIS

Generated:	2024-10-10 10:47
P.O.C. NUMBER: 01	
Water Source Information:	
FLOW AVAILABLE	
Water Meter Size:	2"
Flow Available	120 GPM
PRESSURE AVAILABLE	
Static Pressure at POC:	40 PSI
Elevation Change:	5.00 ft
Service Line Size:	3"
Length of Service Line:	20 ft
Pressure Available:	38 PSI
DESIGN ANALYSIS	
Maximum Station Flow:	10.32 GPM
Flow Available at POC:	120 GPM
Residual Flow Available:	109.68 GPM
Critical Station:	2
Design Pressure:	20 PSI
Friction Loss:	0.51 PSI
Fittings Loss:	0.05 PSI
Elevation Loss:	0 PSI
Loss through Valve:	1.5 PSI
Pressure Req. at Critical Station:	22.1 PSI
Loss for Fittings:	0.02 PSI
Loss for Main Line:	0.16 PSI
Loss for POC to Valve Elevation:	0 PSI
Loss for Backflow:	12 PSI
Loss for Master Valve:	3 PSI
Loss for Water Meter:	0.4 PSI
Critical Station Pressure at POC:	37.6 PSI
Pressure Available:	38 PSI
Residual Pressure Available:	0.37 PSI

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LICENSED LANDSCAPE ARCHITECT
GREGORY A. MENDONCA No. 6119
Signature
07-31-27
Renewal Date
Date
STATE OF CALIFORNIA

DATE SUBMITTAL
05.23.2025 ISSUE FOR BID

APPROVED BY:
DATE SIGNATURE

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JOB NO.: 23467

IRRIGATION PLAN

L-2

GENERAL IRRIGATION NOTES

1. Existing utilities- information on the drawings relating to existing utility lines and services from the best sources available. All such information is furnished only for information and is not guaranteed. The Contractor shall excavate test pits as required to determine the exact location of existing utilities.

Call utility locating service for precise utility locations before beginning of any work. 811, DIG ALERT.

2. Utility Requirements- The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below shall be contacted.
- Gas Company
- Telephone Company
- Electrical Power Company
- Cable Television Company
- Water Supply Company

The California Public Utilities Commission mandates that in, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the gas company's headquarters planning office 48 hours prior to the start of construction.

3. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

4. Irrigation piping and related equipment are drawn diagrammatically. Scaled dimensions are approximate only. Before proceeding with work, carefully check and verify dimensions and immediately notify the Owner's Representative of discrepancies between the drawings or specifications and the actual conditions. Although sites and locations of plants and or irrigation equipment are drawn to scale wherever possible, it is not within the scope of the drawings to show all necessary offsets, obstructions, or site conditions. The Contractor shall be responsible to install the work in such a manner that it will be in conformance to site conditions, complete, and in good working order.

5. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of conduct of the work as drawn and specified. If the contractor observes that a conflict exist between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

6. Wherever references are made to standards or coded in accordance with which works is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless expressly set forth.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

8. Comply with the requirements for the California code of Regulation title 23 waters, division 2 department of water resources chapter 2.7 model water efficient landscape ordinance, 492.3 water efficient landscape worksheet, 492.7 irrigation design plan and irrigation scheduling.
   a. Where the requirements of specification section Irrigation are more stringent than the California code, the more stringent requirements shall prevail.

9. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

10. The Contractor shall be responsible for any coordination with subcontractors as requiring to accomplish the irrigation installation operations.

11. It is the responsibility of the Contractor to be aware of all surface and sub - surface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the installation of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

12. Before final acceptance of work, the Contractor shall provide a record set of drawing showing the irrigation system works as built. The drawings shall be transmitted to the Owner's Representative in paper format and as a pdf file of each document on compact disk or flash drive. The drawing shall include all of the information on the original document and revised to reflect all changes in the work. See specification section Irrigation for further information.

13. Contractor shall prepare and deliver to the Owner's Representative within ten calendar days prior to completion of construction, two 3 - ring binders, of Operation & Maintenance manuals. See specification section Irrigation for further information.

14. Existing trees shall be protected and cared for as required in the details and specifications.

15. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relive the Contractor from meeting all the requirements in the plans, details and specifications.
   a. Pre - Construction meeting.
   b. Trenching and sleeving review.
   c. Pressure mainline test.
   d. Adjustment and coverage test.
   e. Pre - maintenance observation.
   f. Final site observation and acceptance.

16. If the work fails to pass inspection, any subsequent inspections must be rescheduled as required in the specifications. The cost to the Owner for additional inspections will be charged to the Contractor at the prevailing hourly rate of the inspector.

17. Contractor shall include in the bid continued maintenance (warranty) period of 1 year after completion of construction and acceptance of the project by the Owner's Representative.

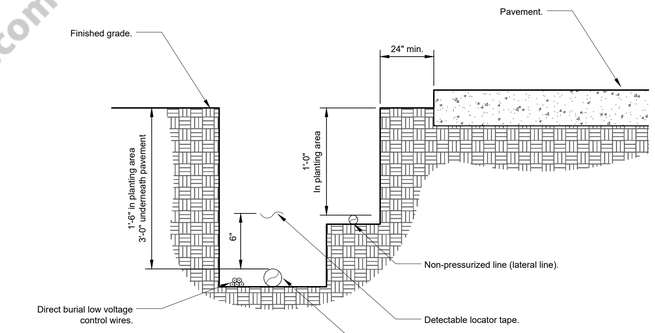
18. The irrigation design is based on a minimum operating pressure of xx PSI and a maximum demand of xx GPM on valve # xx for the point of connection on xxxxx. and xxxxx. The Contractor shall verify water pressure prior to installation. Any difference between the pressure indicated on the plans and that at the actual point of connection shall be brought to the attention of the Owner's Representative immediately.

19. A 120 volt electrical power outlet at the irrigation controller location shall be provided by the Contractor. It shall be the responsibility of the Contractor to make the final hook up from the electrical outlet to the irrigation controller.

20. Irrigation between the hours of 10:00 pm and 6:00 am only. Watering outside this time frame must be done manually with qualified supervisory personnel on-site. No system shall be left unattended during use outside the normal schedule.

21.The irrigation plans have designed in accordance with the state model water efficient landscape ordinance (MWELO). It is the Contractors responsibility to adhere to the requirements and regulations of that ordinance during the installation of the landscape design plan. During the installation of the irrigation design plans, any portion which comes into conflict with MWELO shall be brought to the attention of the Owner/Owner's Representative. In the event that notification does not take place, the Contractor assumes responsibility for all necessary changes and work in order to meet compliance.

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NOTES:
1- See irrigation legend for mainline and lateral line pipe size and type.

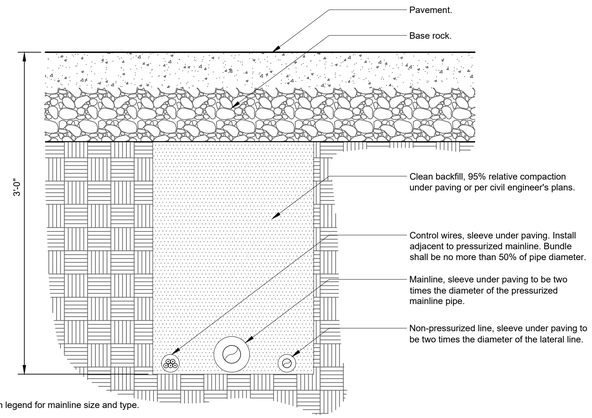
2- Direct burial control wires shall be installed in Sch. 40 PVC electrical conduit if required.

3- 2-wire irrigation wire shall be installed in Sch. 40 PVC electrical conduit.

4- Detectable locator tape shall be located six inches (6") above the entire mainline run.

4 IRRIGATION TRENCHING

P-IN-24014_WA-21



Notes:
1- See irrigation legend for mainline size and type.

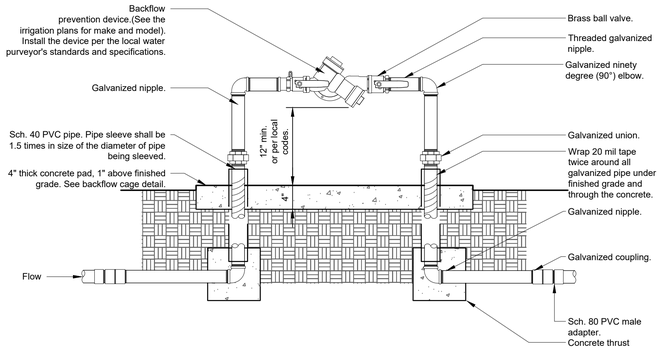
2- All sleeves shall be Sch. 40 PVC pipe.

3- All sleeves shall extend 12" beyond the edge of pavement.

4- End of sleeves shall be located with a wooden stake or PVC pipe. Locators shall run continuously from the end of the sleeve to finished grade.

5 PIPE AT PAVEMENT

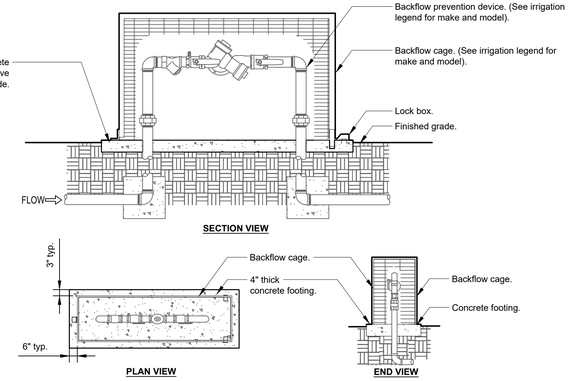
P-IN-24014_WA-22



Note:
1- Install per the City of Hanford standard details and specifications. See detail WA-18 and WA-19.
2- All assembly parts (threaded nipples, fittings, etc.) shall be galvanized or brass per local codes and requirements.
3- Galvanized nipple shall extend 12" past the edge of the concrete footing.
4- Sch. 80 PVC male adapter shall be used in connection from galvanize to the mainline.
5- Backflow prevention device shall be located as close as possible to the landscape meter.
6- Backflow prevention device shall be located in planting area unless approved by Owner's Representative.
7- See detail for backflow cage installation.
8- All backflow prevention devices shall have freeze blanket included upon installation.
9- All galvanized connections shall to be made using pipe thread sealant. All Sch. 80 PVC to galvanized connections to be made using teflon tape.

1 BACKFLOW PREVENTION DEVICE- CITY OF HANFORD

P-IN-24014_WA-19



Notes:
1- Install backflow cage per manufacturer's specifications and recommendations. See City of Hanford Detail WA-18 and WA-19.

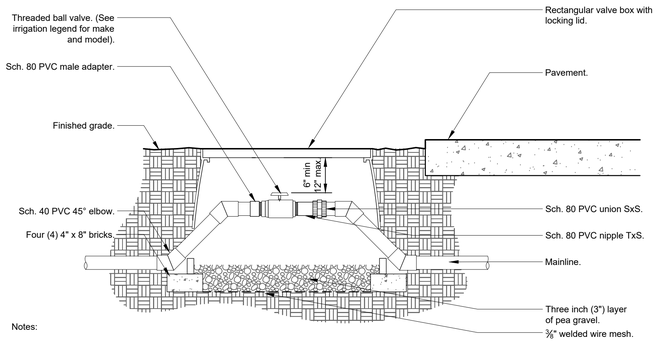
2- See backflow prevention device detail for reference.

2- Lock box shall be located above concrete footing

3- Contractor shall provide a lock as approved by the Owner's Representative.

2 BACKFLOW CAGE- CITY OF HANFORD

P-IN-24014_WA-18



Notes:

1- Locate valve boxes in planting areas.

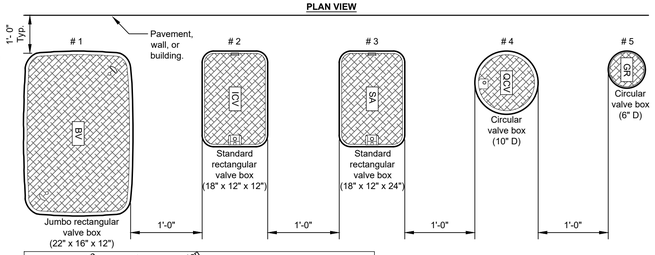
2- Wrap valve box with a minimum of 3 mil thick plastic and secure it using duct tape or electrical tape.

3- All threaded connection to be made using teflon tape.

4- All changes in elevation shall be made using Sch. 40 PVC 45° elbows.

7 BALL VALVE 3" OR SMALLER

P-IN-24014_WA-28



Water type	Controller	Designation	Box size	Lid Color	Identification Guide
PW	A	MV	# 2	Green	Master valve
PW	A	FS	# 2	Green	Flow sensor
PW	A	HM	# 2	Green	Hydrometer
PW	A	BV	# 2	Green	Ball valve 3" or less
PW	A	BV	# 1	Green	Ball valve 4" or more
PW	A	GV	# 2	Green	Gate valve
PW	A	ARV	# 2	Green	Air release valve
PW	A	QCV	# 4	Green	Quick coupler valve
PW	A	RCV	# 2	Green	Remote control valve
PW	A	MS	# 2	Green	Moisture sensor
PW	A	GR	# 5	Green	Grounding rod
PW	A	SB	# 4	Green	Splice box
PW	A	FC	# 2	Green	Future connection
PW	A	SA	# 3	Green	Surge Arrestor

EXAMPLE

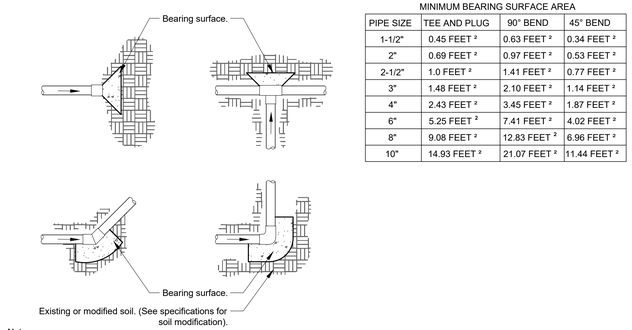
Potable water system on Controller 'A', Remote control valve station # 3.

Notes:

1- Valve box # 1 thru # 4 shall have stainless steel locking hardware.
2- Valve boxes shall be labeled by hot iron branding or aluminum asphaltic base water proof paint.
3- Locate valve assemblies in planting area.
4- Valve locations shall be approved by the Owner's Representative prior to installation.
5- Valve boxes shall be centered above valve assemblies to facilitate access and maintenance.
6- Valve boxes shall be flush with finished grade.
7- Valve boxes shall be set parallel to each other and perpendicular to the edge of pavement.
8- See other irrigation details for further information.

6 VALVE BOX LAYOUT

P-IN-24014_WA-25



MINIMUM BEARING SURFACE AREA

PIPE SIZE	TEE AND PLUG	90° BEND	45° BEND
1-1/2"	0.45 FEET ²	0.63 FEET ²	0.34 FEET ²
2"	0.69 FEET ²	0.97 FEET ²	0.53 FEET ²
2-1/2"	1.0 FEET ²	1.41 FEET ²	0.77 FEET ²
3"	1.48 FEET ²	2.10 FEET ²	1.14 FEET ²
4"	2.43 FEET ²	3.45 FEET ²	1.87 FEET ²
6"	5.25 FEET ²	7.41 FEET ²	4.02 FEET ²
8"	9.08 FEET ²	12.83 FEET ²	6.96 FEET ²
10"	14.93 FEET ²	21.07 FEET ²	11.44 FEET ²

Notes:
1- Size thrust blocks shall be specified as show in the table above.

2- Control wires shall not be encased in concrete.

3- All fittings shall be wrapped with polyethylene to prevent concrete from adhering to pipe, fittings or bolts.

4- Joints and bolts shall be accessible for repairs.

5- Thrust blocks shall be a minimum of 6" thick.

6- One 80 lbs. sack of concrete shall cover .6 ft.³

3 THRUST BLOCKS

P-IN-24014_WA-20

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559. 636. 3277 (f)
www.lwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT
GREGORY A. MENDONCA No. 6171
Signature
6-27-25
Renewal Date
Date
STATE OF CALIFORNIA

DATE SUBMITTAL
05.23.2025 ISSUE FOR BID

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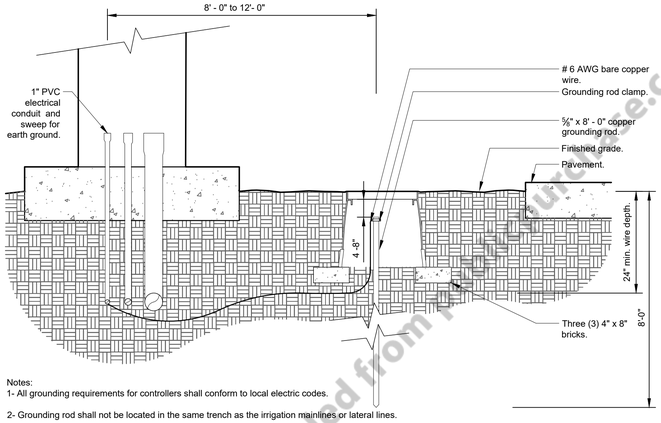
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HANFORD, CA
APN 010-271-017-000

PLOT DATE 7/23/2024
JOB NO.: 23467

IRRIGATION DETAILS

L-3

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Notes:
1- All grounding requirements for controllers shall conform to local electric codes.

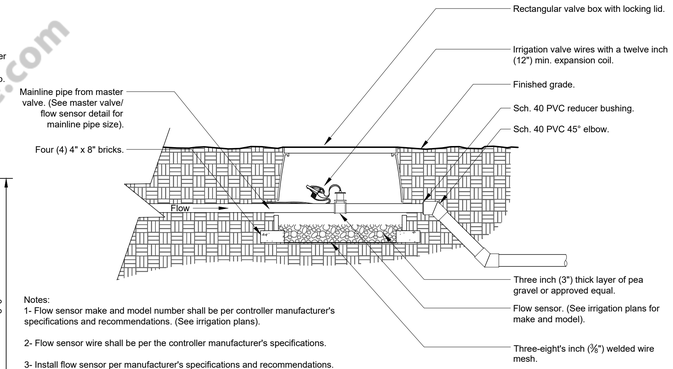
2- Grounding rod shall not be located in the same trench as the irrigation mainlines or lateral lines.

3- Valve box shall be wrapped with a minimum 3 mil thick plastic and secured to the valve box using duct tape or electrical tape.

4- Install grounding rod per the controller manufacturer's specifications and recommendations.

7 GROUNDING ROD

P-IN-24014_WA-24



Notes:
1- Flow sensor make and model number shall be per controller manufacturer's specifications and recommendations. (See irrigation plans).

2- Flow sensor wire shall be per the controller manufacturer's specifications.

3- Install flow sensor per manufacturer's specifications and recommendations.

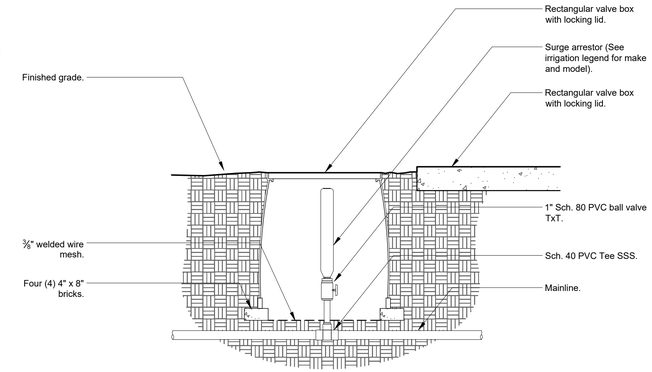
4- All wire runs shall be continuous without any splices. Wire connections shall be made using DBR/Y-6 connectors or approved equal.

5- Valve box shall be wrapped with a min. of three (3) mil thick plastic and secure it to the valve box using duct tape or electrical tape.

6- See master valve/flow sensor detail for linear dimensions.

4 FLOW SENSOR

P-IN-24014_WA-32



Notes:

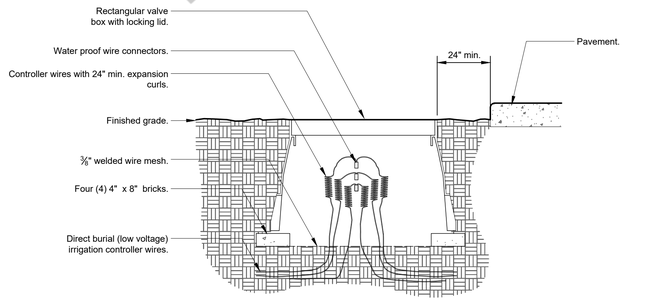
1- Locate valve boxes in planting areas.

2- Wrap valve box with a minimum of 3 mil thick plastic and secure it using duct tape or electrical tape.

3- All threaded connection to be made using teflon tape or pipe dope.

1 SURGE ARRESTOR

P-IN-24014_WA-26



Note:
1- Valve boxes shall be located in planting areas.

2- Splices shall only be made at electrical pull boxes.

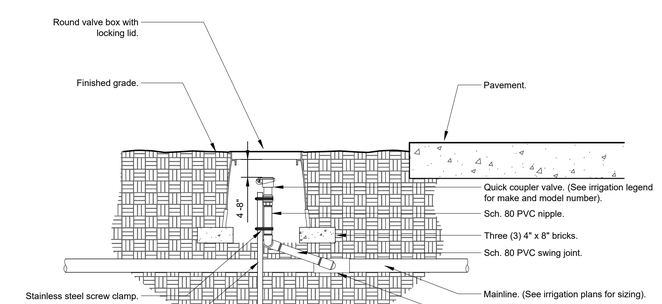
3- Low voltage wires under roadways must be in continuous conduit with 90° Sch. 40 PVC sweeps terminating in pull boxes.

4- All wire connections shall be made using DBR/Y-6 connectors or approved equal.

5- Valve box shall be wrapped with minimum 3 mil. thick plastic and secure it using duct tape or electrical tape.

8 SPLICE BOX

P-IN-24014_WA-29



Notes:
1- All threaded connections shall be installed using teflon tape.

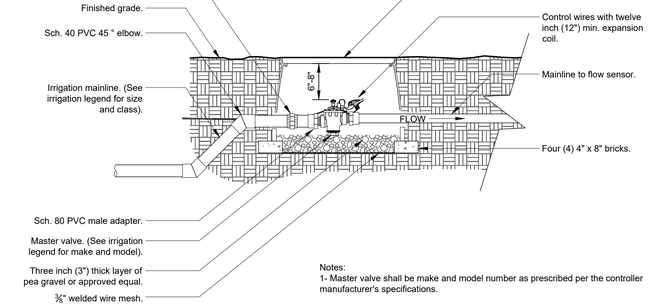
2- Valve box shall be wrapped with a minimum 3 mil thick plastic and secured to the valve box using duct tape or electrical tape.

3- All quick couplers shall be installed a minimum of 18" off of the mainline.

4- Valve boxes shall be located in planting areas.

5 QUICK COUPLER VALVE

P-IN-24014_WA-27



Notes:
1- Master valve shall be make and model number as prescribed per the controller manufacturer's specifications.

2- Install master valve per manufacturer's specifications and recommendations.

3- Master valve wire shall be 14 AWG or larger. Color: black.

4- All wire runs shall be continuous without any splices. Wire connections shall be made using DBR-Y/6 connectors or approved equal.

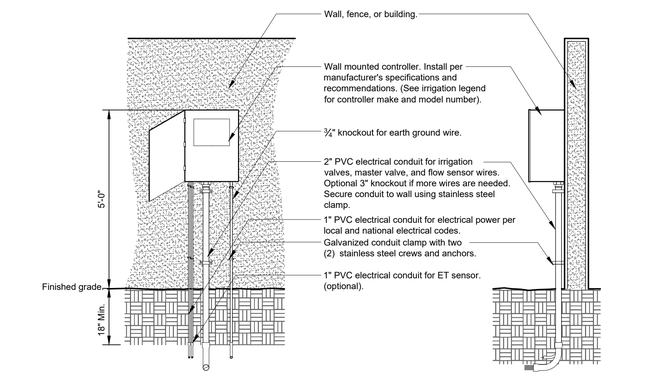
5- Wrap valve box with min. 3 mil. thick plastic and secure it to the valve box using duct tape or electrical tape.

6- See master valve/ flow sensor detail for linear dimensions.

7- Valve boxes shall be located in planting areas.

2 MASTER VALVE

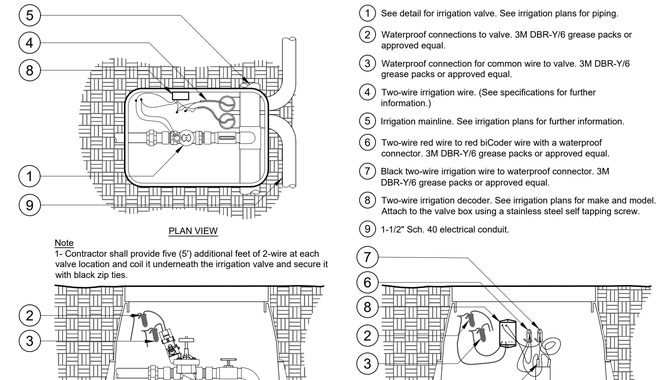
P-IN-24014_WA-34



Notes:
1- Common and controller wire to be bundled using electrical tape at 10'-0" on center.
2- Grounding rods shall be located between 8"- 0" to 12'- 0" away from the controller. Grounding rods shall be ⅝" in diameter x 8' in length. Connect the grounding rod to the controller using 6 gauge bare copper wire or per the manufacturer's specifications.See grounding rod detail.
3- Grounding rod shall not be located within the same trench as the irrigation wire.
4- ET Station shall be installed no further than 90' away from the controller and a minimum of 15' off of the ground, out from under any overhead obstructions such as, but not limited to, building overhangs, trees, or utilities.

9 WALL MOUNTED CONTROLLER

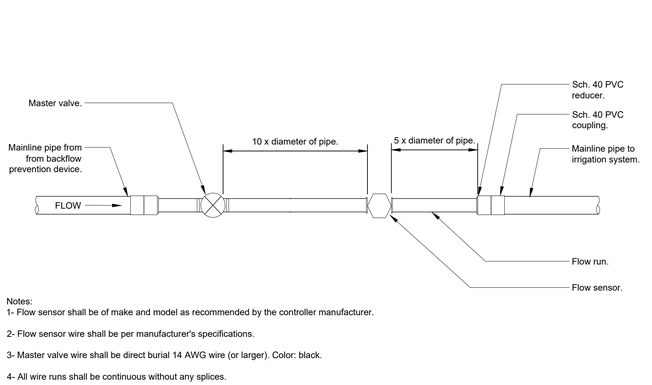
P-IN-24014_WA-15



1 See detail for irrigation valve. See irrigation plans for piping.
2 Waterproof connections to valve. 3M DBR-Y/6 grease packs or approved equal.
3 Waterproof connection for common wire to valve. 3M DBR-Y/6 grease packs or approved equal.
4 Two-wire irrigation wire. (See specifications for further information.)
5 Irrigation mainline. See irrigation plans for further information.
6 Two-wire red wire to red biCoder wire with a waterproof connector. 3M DBR-Y/6 grease packs or approved equal.
7 Black two-wire irrigation wire to waterproof connector. 3M DBR-Y/6 grease packs or approved equal.
8 Two-wire irrigation decoder. See irrigation plans for make and model. Attach to the valve box using a stainless steel self tapping screw.
9 1-1/2" Sch. 40 electrical conduit.

6 2-WIRE IRRIGATION CONNECTIONS

P-IN-24014_WA-30



Notes:
1- Flow sensor shall be of make and model as recommended by the controller manufacturer.

2- Flow sensor wire shall be per manufacturer's specifications.

3- Master valve wire shall be direct burial 14 AWG wire (or larger). Color: black.

4- All wire runs shall be continuous without any splices.

5- See master valve detail and flow sensor detail for further information.

6- Flow run pipe shall be reduced down one (1) pipe size as indicated.
Example
3" mainline = 2-1/2" flow run
2-1/2" mainline = 2" flow run
2" mainline = 1-1/2" flow run

3 MASTER VALVE & FLOW SENSOR LAYOUT

P-IN-24014_WA-33

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GREGORY A. MENDONCA No. 6113
Signature
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Renewal Date
Date
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IRRIGATION DETAILS

L-4

MWELO Calculations

Water Efficient Landscape Worksheet

Use drop down menus or type in values in white cells only. Results appear in Yellow or Red highlighted cells below.

Site Information

Project Name →	*Kings County - Hanford Branch Library*		
Project Location →	*Hanford, Ca*		
Site Type →	Commercial	**Allowed ETAF:**	0.45
Annual Eto (inches/yr) →	51.5		

Hydrozone or Planting Description	Plant Factor (PF)	Irrigation Method	Irrigation Efficiency (IE)	ETAF (PF/IE)	Hydrozone Area (sqft.)	ETAF x Area	Estimated Total Water Use (gal./yr.)
Regular Landscape Areas							
1(trees)	0.2	Low	Bubbler	0.81	0.2	1,200	296	9,461
2(shrubs)	0.2	Low	Drip	0.81	0.2	7,893	1,949	62,228
3Natal Plum	0.4	Mod./Ave.	Drip	0.81	0.5	1,880	928	29,644
						0		
						0		
					SUBTOTAL →	**10,973**	**3,174**	**101,332**
Special Landscape Areas								
9					1		0	0
10					1		0	0
11					1		0	0
12					1		0	0
					SUBTOTAL →	**0**	**0**	**0**
						Estimated Total Water Use (ETWU) →		**101,332**
						Maximum Allowed Water Allowance (MAWA) →		**157,666**

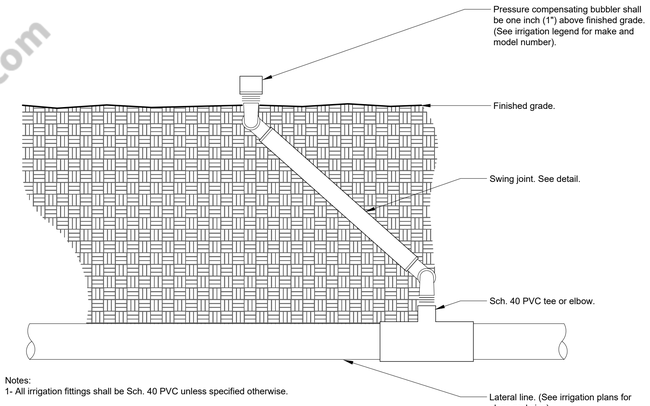
ETAF Calculations

Regular Landscape Areas	
Total ETAF x Area	3,174
Total Area	10,973
Average ETAF	0.29
All Landscape Areas	
Total ETAF x Area	3,174
Total Area	10,973
Sitewide ETAF	0.29

Notes:

** Adapted from California Code of Regulations Title 23, Division 2, Chapter 2.7. Model Water Efficient Landscape Ordinance*

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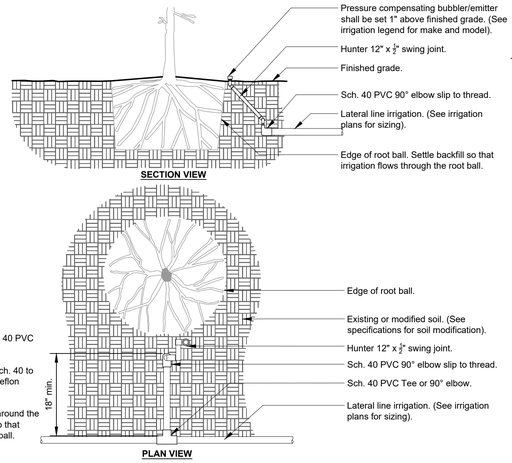
Notes:
1- All irrigation fittings shall be Sch. 40 PVC unless specified otherwise.

2- All threaded connection from Sch. 40 to Sch. 80 PVC shall be made using teflon tape.

3- Contractor shall settle soil around the bubbler and swing joint prior after installation.

4 BUBBLER ON SWING JOINT

P-IN-24014_WA-95



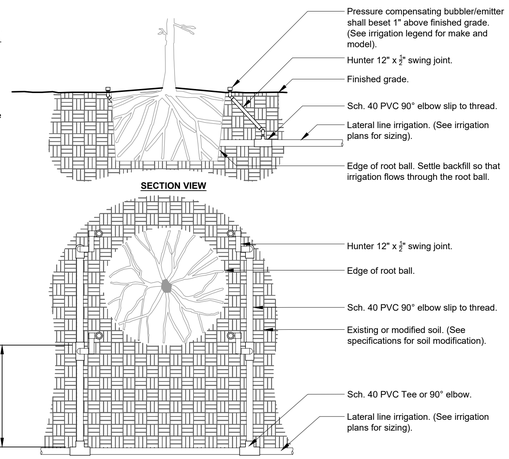
Notes:
1- All irrigation fittings shall be Sch. 40 PVC unless specified otherwise.

2- All threaded connections from Sch. 40 to Sch. 80 PVC shall be made using teflon tape.

3- Contractor shall settle the area around the bubbler and edge of the root ball so that all irrigation flows through the root ball.

5 BUBBLER/EMITTER ON ROOT BALL LAYOUT

P-IN-24014_WA-35



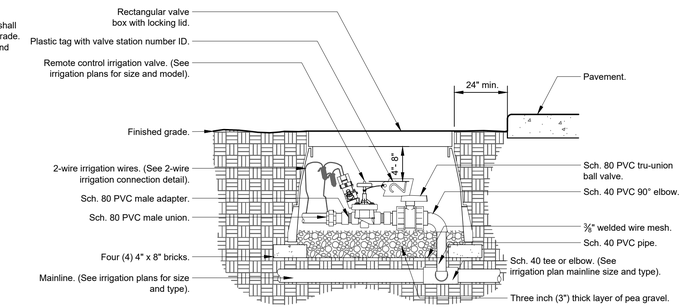
Notes:
1- All irrigation fittings shall be Sch. 40 PVC unless specified otherwise.

2- All threaded connections from Sch. 40 to Sch. 80 PVC shall be made using teflon tape.

3- Contractor shall settle the area around the bubbler and edge of the root ball so that all irrigation flows through the root ball.

6 BUBBLERS/EMITTERS (4) ON ROOT BALL

P-IN-24014_WA-14



Note:
1- Common wire and controller wire shall be direct burial 14 AWG or larger controller manufacturer approved 2-wire irrigation wire .

2- All wire runs shall be continuous without any splices unless approved by the Owner's Representative. See splice box detail. Wire connections shall be made using DBR/Y-6 connectors or approved equal.

3- Contractor shall coil and additional five feet (5') of 2-wire irrigation wire at each valve for future use and secure it below the valve using black zip ties.

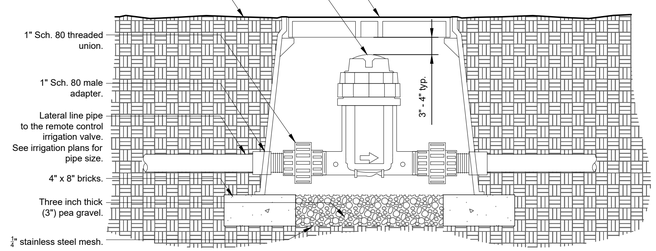
4-Valve box shall be wrapped with min. 3 mil thick plastic and secured using duct tape or electrical tape.

5- All Sch. 80 PVC to Sch. 40 PVC threaded connections shall be made using teflon tape.

6- Valve boxes shall be located in planting areas.

1 2- WIRE REMOTE CONTROL VALVE

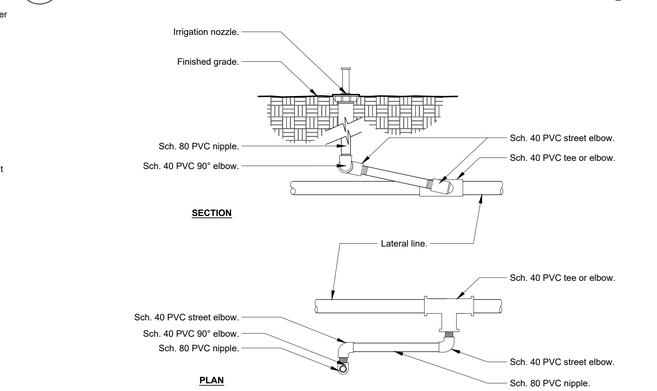
P-IN-24014_WA-12



Notes:
1- Contractor shall threaded fittings with no more than two (2) wraps of teflon tape or monster tape.
2- Prior to the installation of the drip filter/pressure regulator, the Contractor shall flush the lines a minimum of two (2) times to remove all glue, tape and/or debris from the mainline and lateral lines.
3- After the installation of the drip filter/pressure regulator, the Contractor shall cap all lateral lines downstream of the filter and pressurize the irrigation system and verify there are no leaks or breaks.

2 1" BASKET DRIP FILTER/PRESSURE REGULATOR

P-IN-24014_WA-16

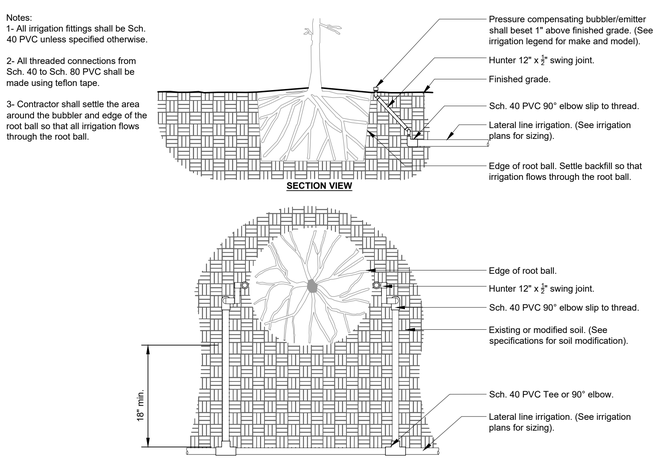


Note:
1- All threaded connections from Sch. 40 PVC to Sch. 80 PVC shall be made using teflon tape.

2- Hunter swing joints or approved equal shall be used per approval by the Owner's Representative.

3 SWING JOINT

P-IN-24014_WA-23



Notes:
1- All irrigation fittings shall be Sch. 40 PVC unless specified otherwise.

2- All threaded connections from Sch. 40 to Sch. 80 PVC shall be made using teflon tape.

3- Contractor shall settle the area around the bubbler and edge of the root ball so that all irrigation flows through the root ball.

7 BUBBLERS/EMITTERS (2) ON ROOT BALL

P-IN-24014_WA-36

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Visalia, Ca 93291
559. 786. 9600 (c)
559. 636. 3277 (f)
www.iwoodarchitecture.com

LICENSED LANDSCAPE ARCHITECT
GREGORY A. MENDONCA No. 6119
Signature
07-31-27
Renewal Date
Date
STATE OF CALIFORNIA

DATE	
05.23.2025	ISSUE FOR BID
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APPROVED BY:

DATE SIGNATURE

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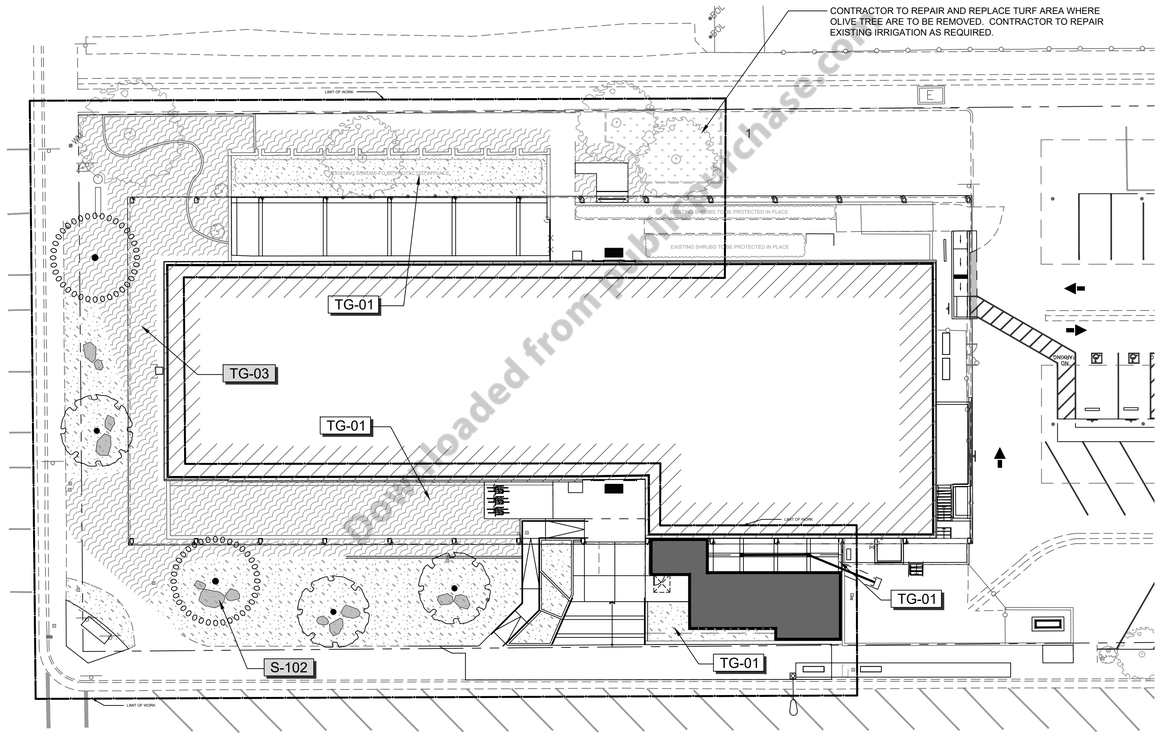
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IRRIGATION DETAILS

L-5



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SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	USE	WUCOLS	STYLE	CA NATIVE	QTY
TREES									
	Brachychiton rupestris	Queensland Bottle Tree	15 gal	Evergreen	Accent Tree	Low	Natural	No	3
	Cercidium x 'Desert Museum'	Desert Museum Palo Verde	15 gal	Deciduous	Accent Tree	Low	Multi	Yes	2

Materials Legend

CODE	DESCRIPTION	QTY
SITE FURNISHINGS		
S-102	30" to 38" long washed moss rock boulders. See detail for further information.	
TREE AND GROUNDCOVER		
TG-01	3" Thick layer of 3/8" rock mulch. Color: California Gold. See specifications for further information.	55.8 cy
TG-03	5" Thick layer of 3-6" rock mulch. Color: Autumn Gold. See specifications for further information.	40.0 cy

1

Notes:

1- Cross sections shall be per soils report recommendations. See civil plans.

2- All concrete specialty finishes shall be as indicated on the landscape construction plans.

3- Contractor shall provide one sample pour (min. 3' x 3') for each color/finish on site prior to installation and notify the Owner's Representative 72 hours for review and observation. The Owner's Representative reserves the right to change the selected color after the sample is poured. Contractor shall include in their bid the cost of the additional sample for the Owner's Representative's approval.

4- All quantities and amount shown on the plans are best estimates for the benefit of the contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the Contractor's responsibility to verify all lengths, square footages, and amount prior to bidding the project.

0 20 40 60 feet

1" = 20'

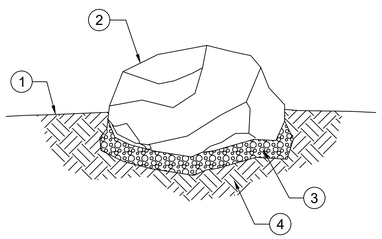
NORTH

1 Finish grade.

2 Ornamental boulder. Size per plan. Bury boulder to a depth of 1/4 to 1/3 overall boulder height. Set as directed by Landscape Architect.

3 3" min. layer of crushed roack. Work boulder into crushed rock until solidlly set.

4 Conpacted subgrade.



1 ORNAMENDTAL BOULDER SETTING

1" = 1'-0" P-IN-24014_WA-02

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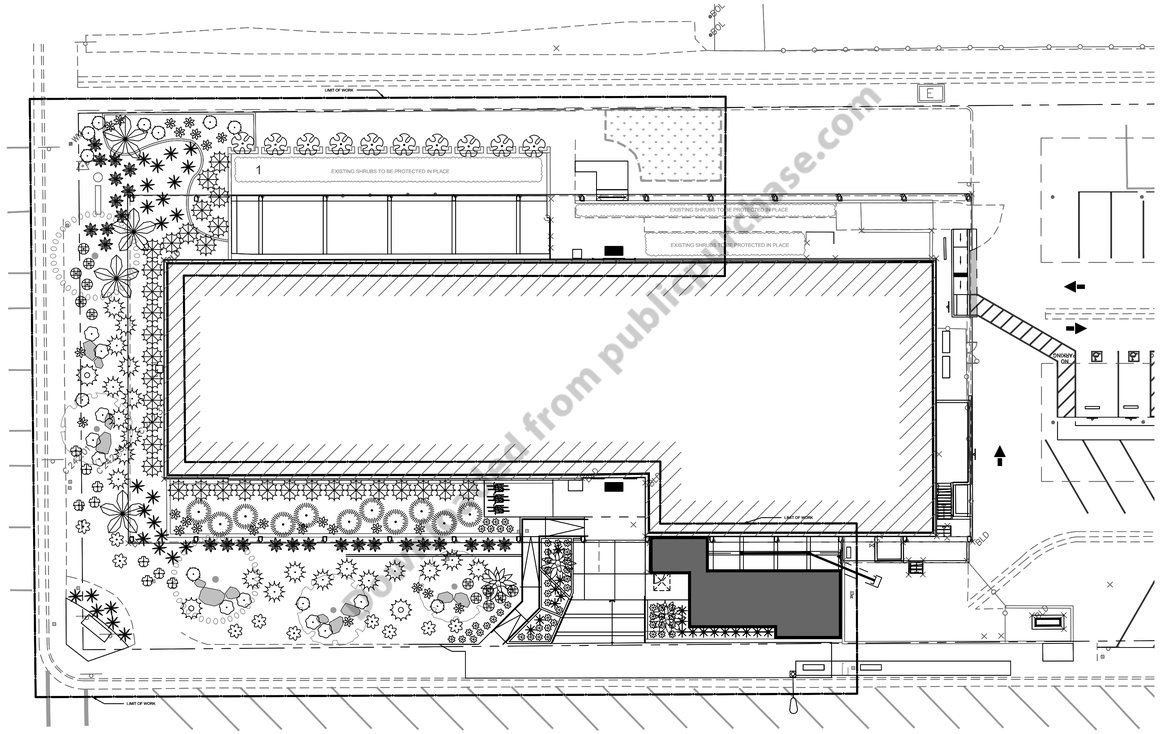
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TREE & GROUNDCOVER

L-6



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0 20 40 60 feet

1" = 20'

NORTH

1

PLANT SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	WUCOLS	CA NATIVE	QTY
SHRUBS							
	Agave franzosinii	NCN	15 gal	Evergreen	Very Low	No	4
	Agave ovatifolia `Frosty Blue`	Whale`s Tongue Agave	5 gal	Evergreen	Very Low	No	3
	Agave shawii	Coastal Agave	5 gal	Evergreen	Very Low	Yes	25
	Agave x `Blue Glow`	Blue Glow Agave	5 gal	Evergreen	Very Low	No	10
	Aloe salm-dyckiana	NCN	5 gal	Evergreen	Very Low	No	26
	Aloe wickensii	Geelaalwyn	5 gal	Evergreen	Very Low	No	18
	Aloe x `Blue Elf`	Aloe	1 gal	Evergreen	Very Low	No	45
	Aloe x `Hercules`	Hercules Aloe	10 gal	Evergreen	Very Low	No	3
	Bougainvillea x 'Moneth'	Purple Queen® Bougainvillea	5 gal	Evergreen	Low	No	1
	Carissa macrocarpa	Natal Plum	15 gal	Evergreen	Medium	No	32
	Dasylirion longissimum	Toothless Desert Spoon	15 gal	Evergreen	Very Low	No	10
	Dasylirion wheeleri	Grey Desert Spoon	5 gal	Evergreen	Very Low	No	20
	Eriogonum arborescens	Santa Cruz Island Buckwheat	1 gal	Evergreen	Very Low	Yes	10
	Hesperaloe parviflora	Red Yucca	5 gal	Evergreen	Low	Yes	26
	Opuntia basilaris	Beavertail Prickly Pear	1 gal	Evergreen	Very Low	Yes	11
	Opuntia santa-rita 'Tubac'	Santa Rita Prickly Pear	5 gal	Evergreen	Very Low	No	10
	Salvia chamaedryoides	Mexican Blue Sage	1 gal	Evergreen	Very Low	No	9
	Zauschneria canum `Sierra Salmon`	California Fuchsia	1 gal	Evergreen	Very Low	Yes	12

Notes:

1- Graphic symbols take precedence over written quantities. Contractor to verify total quantities.

2- Plant quality shall be as prescribed in the details and specifications. Any plant not meeting such requirement shall be removed from the site and replaced at no cost to the Owner or Landscape Architect.

3- All quantities and amounts shown on the plans are best estimates for the benefit of the Contractor. In field conditions may vary compared to what is shown on the plans. Therefore, it is the Contractor 's responsibility to verify all lengths, square footages, and amounts prior to bidding the project.

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SHRUB LAYOUT PLAN

L-7

GENERAL PLANTING NOTES

1. Existing utilities- information on the drawings relating to existing utility lines and services from the best sources available. All such information is furnished only for information and is not guaranteed. The Contractor shall excavate test pits as required to determine the exact location of existing utilities.

Call utility locating service for precise utility locations before beginning of any work. 811, DIG ALERT.

2. Utility Requirements- The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below shall be contacted.
- Gas Company
- Telephone Company
- Electrical Power Company
- Cable Television Company
- Water Supply Company

The California Public Utilities Commission mandates that in, in the interest of public safety, main line gas valves be maintained in a manner to be readily accessible and in good operating condition. The Contractor shall notify the gas company's headquarters planning office 48 hours prior to the start of construction.

3. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities.

4. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

5. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation of conduct of the work as drawn and specified. If the contractor observes that a conflict exist between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

6. Wherever references are made to standards or coded in accordance with which works is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless expressly set forth.

7. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

8. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

9. The Contractor shall be responsible for any coordination with subcontractors as requiring to accomplish the planting operations.

10. Contractor shall be aware of all surface and subsurface conditions, and to notify the Owner's Representative, in writing of any circumstances that would negatively impact the health of plantings. Contractor shall not proceed with work until corrected.
a. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposal covering the cost of corrections. If the contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for the plant material under the warrantee clause of the specifications.

11. Irrigation and site preparation work shall be completed and accepted prior to the installation of any plants.
a. Planting operations shall not begin until such time that the irrigation system is completely operational for the areas to be planted, and the irrigation system for that area has been preliminarily inspected and approved by the Owner's Representative.

12. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relive the Contractor from meeting all the requirements in the plans, details and specifications.
a. Pre - Construction meeting.
b. Site conditions prior to the start of planting.
c. Plant quality.
d. Completion of planting.

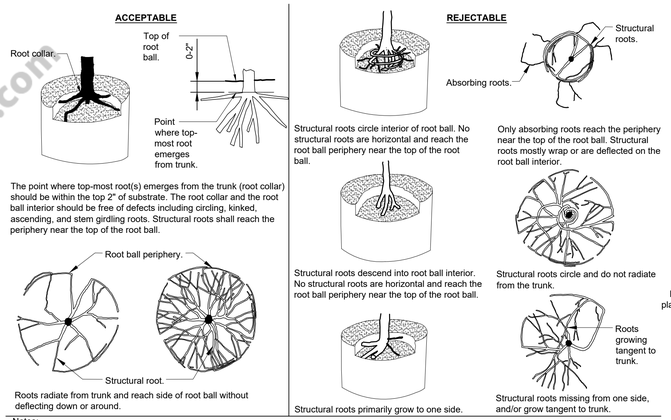
13. If the work fails to pass inspection, any subsequent inspections must be rescheduled as required in the specifications. The cost to the Owner for additional inspections will be charged to the Contractor at the prevailing hourly rate of the inspector.

14. Contractor shall include in the bid continued maintenance (warranty) period of 1 year after completion of construction and acceptance of the project by the Owner's Representative.

15. Submit to the Owner's representative, for approval, plant sources including the names and locations of nurseries proposed as sources of acceptable plants, and a list of the plants they will provide. The plant list shall include the botanical and common name and the size at the time of selection. Inspect all nursery materials to determine that the materials meet the requirements of the specification.

16. The landscape plans have designed in accordance with the state model water efficient landscape ordinance (MWELO). It is the Contractors responsibility to adhere to the requirements and regulations of that ordinance during the installation of the landscape design plan. During the installation of the landscape design plan, any portion which comes into conflict with MWELO shall be brought to the attention of the Owner/Owner's Representative. In the even that notification does not take place, the Contractor assumes responsibility for all necessary changes and work in order to meet compliance.

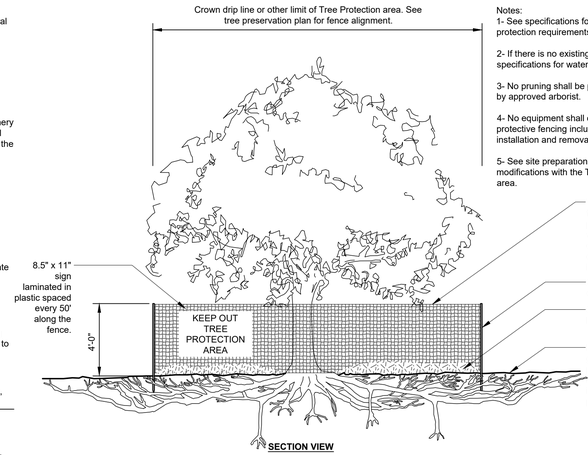
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Notes:
1- Observations of roots shall occur prior to acceptance. Roots and substrate may be removed during the observation process; substrate/soil shall be replaced after observation has been completed.
2- Small roots (⅛" or less) that grow around, up, or down the root ball periphery are considered a normal condition in container production and are acceptable however they should be eliminated at the time of planting. Roots on the periperhy can be removed at the time of planting. (See root ball shaving container detail).
3- See specifications for observation process and requirements.

4 ROOT OBSERVATION DETAIL - CONTAINER

P-IN-24014_WA-01



Notes:
1- See specifications for additional tree protection requirements.

2- If there is no existing irrigation, see specifications for watering requirements.

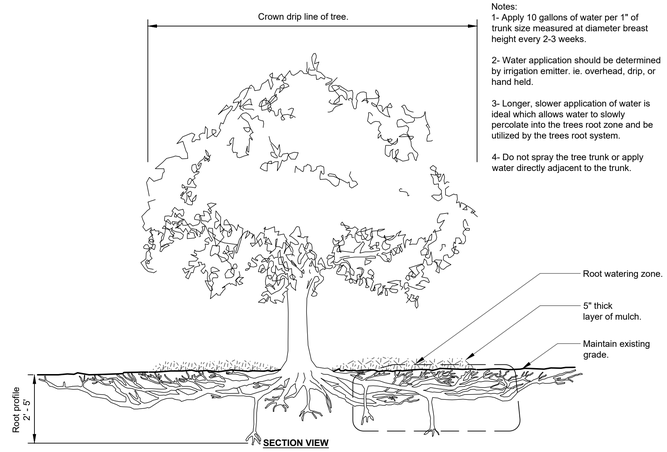
3- No pruning shall be performed except by approved arborist.

4- No equipment shall operate inside the protective fencing including during fence installation and removal.

5- See site preparation plan for any modifications with the Tree Protection area.

1 TREE PROTECTION

P-IN-24014_WA-08



Notes:
1- Apply 10 gallons of water per 1" of trunk size measured at diameter breast height every 2-3 weeks.

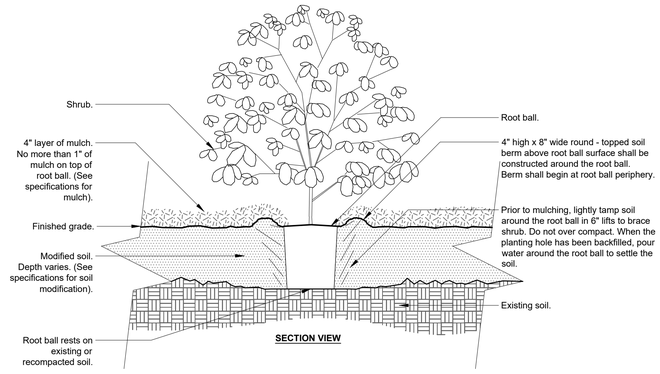
2- Water application should be determined by irrigation emitter. ie. overhead, drip, or hand held.

3- Longer, slower application of water is ideal which allows water to slowly percolate into the trees root zone and be utilized by the trees root system.

4- Do not spray the tree trunk or apply water directly adjacent to the trunk.

2 WATERING MATURE TREES

P-IN-24014_WA-09



Notes:
1- Shrubs shall be of quality prescribed in the root observations detail and specifications.

2- See specifications for further requirements related to this detail.

3 SHRUB - MODIFIED SOIL

P-IN-24014_WA-07

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PLANTING DETAILS

L-8

SITE PLAN GENERAL NOTES

1. VERIFY ADEQUACY OF SEWER LATERAL PRIOR TO NEW CONSTRUCTION.
2. WATER PRESSURE IN EXCESS OF 80 PSI REQUIRES A PRESSURE REGULATOR.
3. BUILDINGS SHALL HAVE APPROVED ADDRESS NUMBERS, BUILDING NUMBERS OR APPROVED BUILDING IDENTIFICATION PLACED IN A POSITION THAT IS PLAINLY LEGIBLE AND VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. THESE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS SHALL BE ARABIC NUMERALS OR ALPHABETICAL LETTERS. NUMBERS SHALL BE A MINIMUM OF 4" HIGH WITH A MINIMUM STROKE WIDTH OF 1/2". VERIFY MINIMUM HEIGHT REQUIREMENTS WITH LOCAL FIRE DEPARTMENT AND USE MORE RESTRICTIVE.
4. SLOPE GROUND IMMEDIATELY ADJACENT TO FOUNDATION AWAY FROM BUILDING AT A SLOPE OF NOT LESS THAN 1:20 (5%) FOR A MINIMUM OF 10' MEASURED PERPENDICULAR TO FACE OF WALL OR AT A 2% SLOPE WHEN A SWALE IS PROVIDED. IMPERVIOUS SURFACES WITHIN 10' OF BUILDING FOUNDATION SHALL BE SLOPED A MINIMUM OF 2% AWAY FROM BUILDING.
5. DURING CONSTRUCTION/GROUND DISTURBING ACTIVITIES, THE APPLICANT SHALL IMPLEMENT THE FOLLOWING PARTICULATE (DUST) CONTROL MEASURES. THE CONTRACTOR OR BUILDER SHALL DESIGNATE A PERSON OR PERSONS TO MONITOR THE DUST CONTROL PROGRAM AND TO ORDER INCREASED WATERING, AS NECESSARY, TO PREVENT TRANSPORT OF DUST OFF SITE. THEIR DUTIES SHALL INCLUDE HOLIDAY AND WEEKEND PERIODS WHEN WORK MAY NOT BE IN PROGRESS. THE NAME AND TELEPHONE NUMBER OF SUCH PERSONS SHALL BE PROVIDED TO THE APCD PRIOR TO COMMENCEMENT OF CONSTRUCTION.
   - 5.1. REDUCE THE AMOUNT OF DISTURBED AREA WHERE POSSIBLE.
   - 5.2. USE OF WATER TRUCKS OR SPRINKLER SYSTEM IN SUFFICIENT QUANTITIES TO PREVENT AIRBORNE DUST FROM LEAVING THE SITE. RECLAIMED (NONPOTABLE) WATER SHOULD BE USED WHENEVER POSSIBLE.
   - 5.3. VEHICLE SPEED FOR ALL CONSTRUCTION VEHICLES SHALL NOT EXCEED 15 MPH ON ANY UNPAVED SURFACE AT THE CONSTRUCTION SITE.
   - 5.4. ALL TRUCKS HAULING DIRT, SAND, SOIL, OR OTHER LOOSE MATERIALS ARE TO BE COVERED OR SHOULD MAINTAIN AT LEAST TWO FEET OF FREEBOARD (MINIMUM VERTICAL DISTANCE BETWEEN TOP LOAD AND TOP OF TRAILER) IN ACCORDANCE WITH CALIFORNIA VEHICLE CODE.
   - 5.5. SWEEP STREETS AT THE END OF EACH DAY IF VISIBLE SOIL MATERIAL IS CARRIED ONTO ADJACENT PAVED ROADS. WATER SWEEPERS WITH RECLAIMED WATER SHOULD BE USED WHERE FEASIBLE.
   - 5.6. ALL DIRT STOCK-PILE AREAS SHOULD BE SPRAYED DAILY AS NEEDED.
6. ANY PORTION OF A FENCE OR OTHER STRUCTURES WITHIN 5' OF THE BUILDING SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL OR APPROVED EXTERIOR FIRE-RETARDANT WOOD OR MATERIAL THAT MEETS THE SAME FIRE-RESISTIVE STANDARDS AS THE EXTERIOR WALLS OF THE BUILDING.
7. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AND MAINTAINED DURING ALL DEMOLITION, CONSTRUCTION AND GRADING.

SPEC KEYNOTES

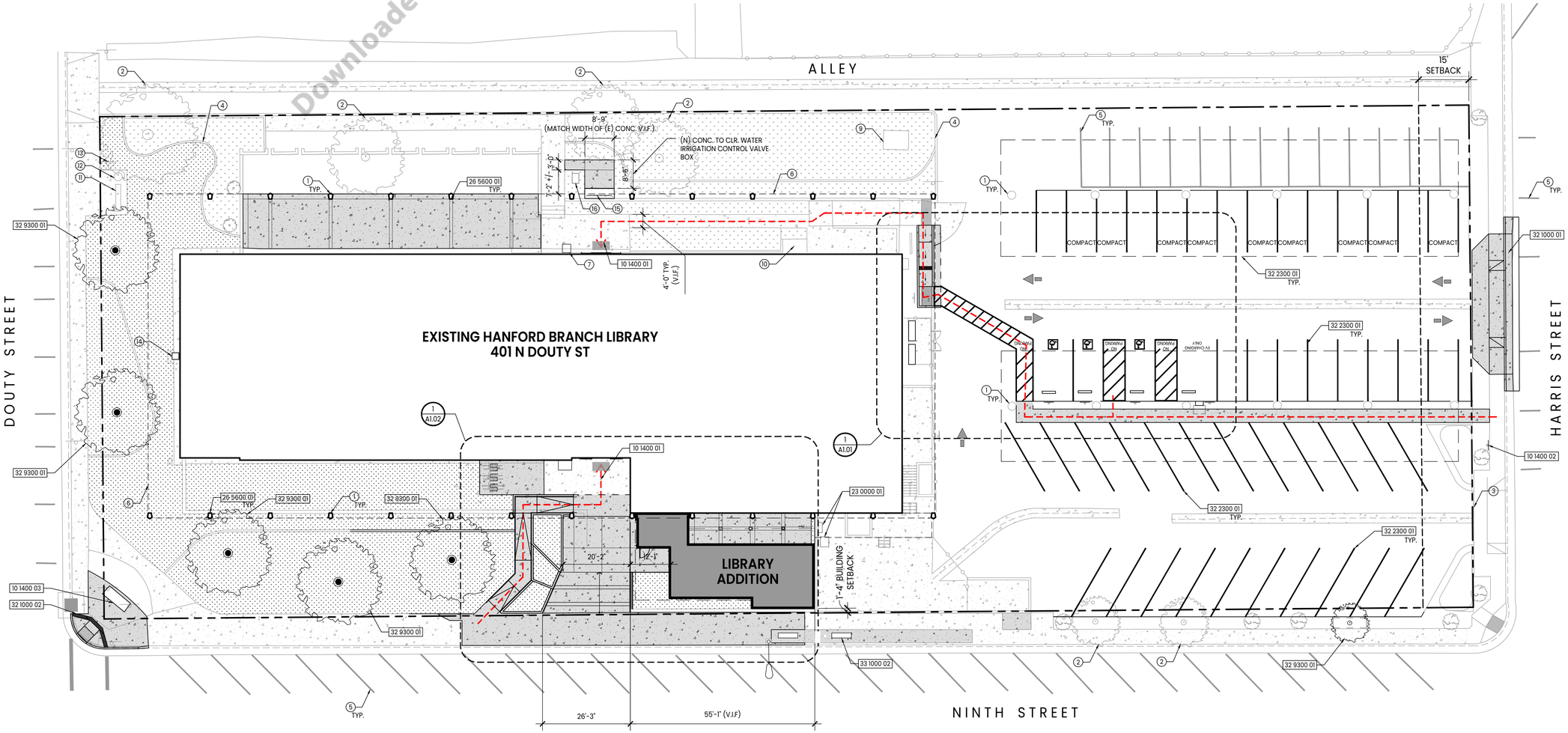
10 1400 01	PATH OF ACCESSIBLE TRAVEL FROM PUBLIC SIDEWALK AND FROM ACCESSIBLE PARKING STALL TO BUILDING ENTRY. THERE SHALL BE NO VERTICAL OFFSET GREATER THAN 1/4" ALONG THE ENTIRE PATH OF TRAVEL FROM PUBLIC WAY AND FROM ACCESSIBLE PARKING STALL TO BUILDING ENTRY. ENTIRE PATH OF TRAVEL TO HAVE A MAX 2% SLOPE IN ANY DIRECTION. REFER TO CIVIL PLANS FOR FURTHER INFORMATION. CONTRACTOR TO CONFIRM PATH OF TRAVEL MEETS ADA REQUIREMENTS.
10 1400 02	LOCATION OF REQUIRED 'UNAUTHORIZED VEHICLE' SITE ENTRANCE SIGNAGE, REFER TO DETAIL 6/A1.03. REFER TO CIVIL PLANS FOR FURTHER INFORMATION
10 1400 03	(N) SIGNAGE, REFER TO DETAIL 11, 12/A1.03
23 0000 01	MECHANICAL UNIT, REFER TO MECHANICAL PLANS FOR FURTHER INFORMATION
26 5600 01	UP LIGHTING TO BE PLACED IN (E) LIGHTING LOCATION AND (N) LOCATION. REFER TO ELECTRICAL PLANS FOR FURTHER INFORMATION
32 1000 01	(N) DRIVE APPROACH TO COMPLY WITH CITY STANDARD CO-39. REFER TO CIVIL PLANS FOR FURTHER INFORMATION.
32 1000 02	(N) CURB TO MEET CITY/ADA STANDARDS. REFER TO CIVIL PLANS FOR FURTHER INFORMATION.
32 2300 01	(N) PARKING STRIPING, REFER TO CIVIL PLANS FOR FURTHER INFORMATION
32 9300 01	(N) TREE, REFER TO LANDSCAPE PLANS FOR FURTHER INFORMATION
33 1000 02	LOCATION OF (N) FIRE SUPPRESSION BACKFLOW PREVENTER, REFER TO FIRE PROTECTION PLANS FOR FURTHER INFORMATION

GENERAL KEYNOTES

1. EXISTING COLUMN/POST TO REMAIN, CONTRACTOR TO PROTECT IN PLACE
2. EXISTING TREE TO REMAIN
3. EXISTING DRIVE APPROACH TO REMAIN, REFER TO CIVIL PLANS FOR FURTHER INFORMATION
4. EXISTING CURB PLANTER TO REMAIN
5. EXISTING PARKING STRIPING TO REMAIN
6. EXISTING ROOF OVERHEAD
7. EXISTING BOOK DROP BOX TO REMAIN
8. NOT USED
9. EXISTING ELECTRICAL TRANSFORMER TO REMAIN, REFER TO ELECTRICAL PLANS FOR FURTHER INFORMATION. CONTRACTOR TO PROTECT IN PLACE
10. EXISTING BASEMENT VENTILATION AND HANDRAILS TO REMAIN
11. EXISTING PUBLIC BUS STOP BENCH TO REMAIN
12. EXISTING PUBLIC BUS STOP TRASH CAN TO REMAIN
13. EXISTING PUBLIC BUS STOP SIGNAGE TO REMAIN
14. EXISTING FAN AND BELOW GRADE DUCTWORK AND GRILLES TO REMAIN. REFER TO MECHANICAL PLANS
15. EXISTING BICYCLE RACK TO REMAIN
16. EXISTING WATER IRRIGATION CONTROL VALVE TO REMAIN. PROTECT IN PLACE

ARCHITECTURAL SITE PLAN LEGEND

- EXISTING CONCRETE
- NEW CONCRETE, REFER TO CIVIL PLANS FOR FURTHER INFORMATION
- EXISTING LANDSCAPING
- NEW LANDSCAPING, REFER TO LANDSCAPE PLANS FOR FURTHER INFORMATION
- NEW LIBRARY ADDITION
- ADA ACCESSIBLE PATH OF TRAVEL, SURFACE TO BE LEVEL AND PROVIDE 44" CLEAR WIDTH ALONG THE ENTIRE PATH NO MORE THAN 1/8" HEIGHT CHANGE AND NO MORE THAN 2% SLOPE IN ANY DIRECTION
- (E) PROPERTY LINE
- (E) SETBACK LINE



1 SITE PLAN

SCALE: 1/16" = 1'-0"

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LICENSED ARCHITECT — WILLIAM D. RUOFF III — C-36886 2.28.2025 RENEWAL — STATE OF CALIFORNIA

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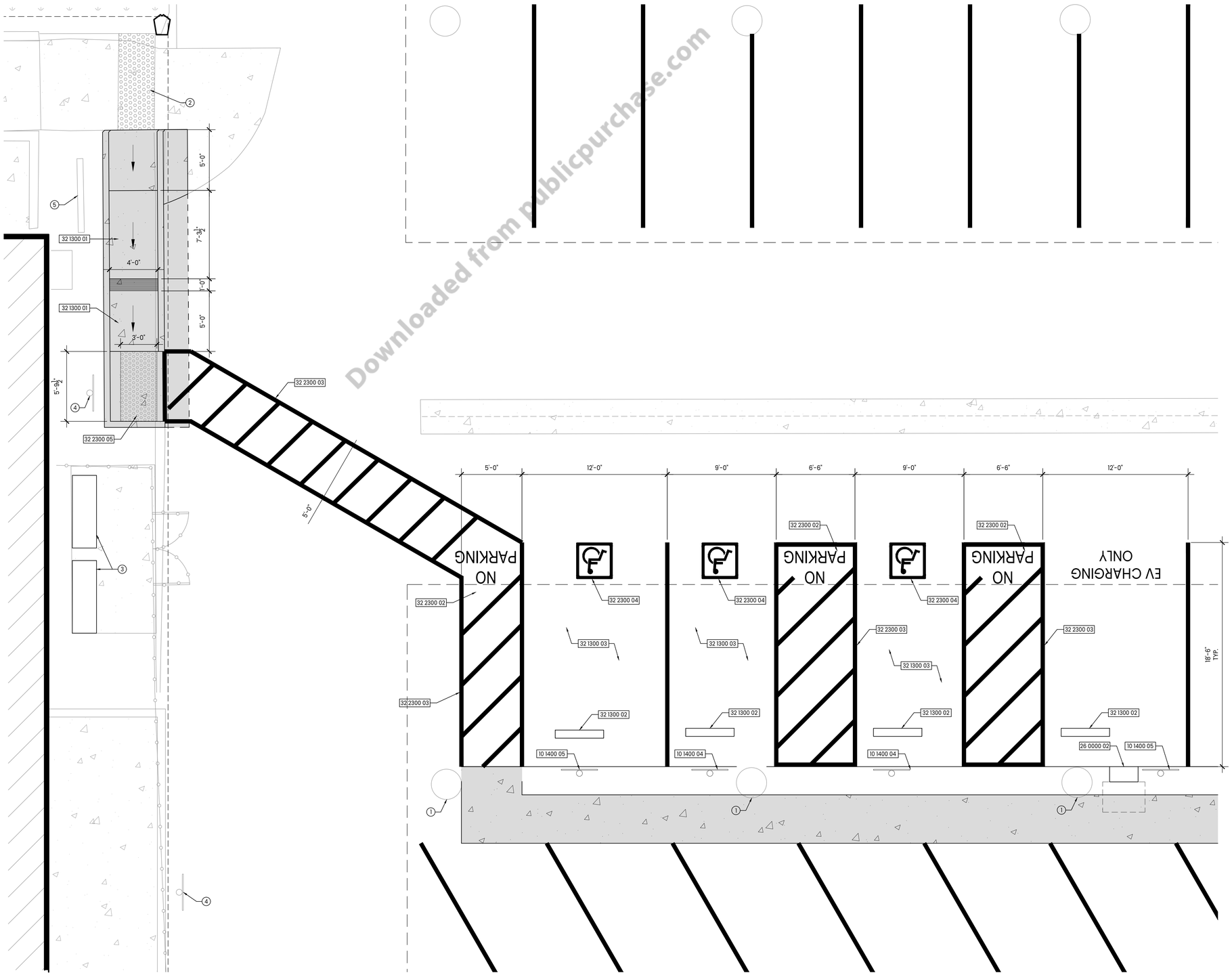
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SITE PLAN

A1.00



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1 ENLARGED ACCESSIBLE PARKING PLAN

SCALE: 1/4" = 1'-0"

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ARCHITECTURAL SITE PLAN LEGEND

EXISTING CONCRETE

NEW CONCRETE, REFER TO CIVIL FOR FURTHER INFORMATION

EXISTING LIBRARY BUILDING

SPEC KEYNOTES

10 1400 04	POST MOUNTED STANDARD ACCESSIBLE PARKING SIGNAGE, REFER TO DETAIL 5/A1.03. REFER TO CIVIL PLANS FOR FURTHER INFORMATION
10 1400 05	POST MOUNTED EV PARKING SIGNAGE TO READ "EXCEPT FOR ELECTRICAL VEHICLE PARKING"
32 1300 01	ACCESSIBLE CURB RAMP; MAX 8.33% SLOPE IN THE PATH OF TRAVEL DIRECTION AND MAX 2% CROSS SLOPE. PROVIDE TRUNCATED DOMES FULL WIDTH OF RAMP FOR 3'-0" IN THE DIRECTION OF TRAVEL
32 1300 02	4' LONG CONCRETE WHEEL STOP SET AWAY FROM FRONT CURB. REFER TO CIVIL PLANS FOR FURTHER INFORMATION
32 1300 03	ACCESSIBLE PARKING SPACE AND AISLE; SURFACE SLOPES OF ACCESSIBLE SPACE SHALL BE THE MINIMUM POSSIBLE AND SHALL NOT EXCEED 1 UNIT VERTICAL OF 50 UNITS HORIZONTAL (2% IN ANY DIRECTION), REFER TO CIVIL DRAWINGS FOR FURTHER INFORMATION
32 2300 02	THE WORDS "NO PARKING" SHALL BE PAINTED ON THE SURFACE WITHIN THE ACCESS AISLE IN LETTERS A MINIMUM OF 12" IN HEIGHT AND LOCATED TO BE PAINTED WHITE PER CBC 11B-502.3.3..
32 2300 03	MINIMUM 5' WIDE STRIPED ACCESS AISLE AT ADA ACCESSIBLE STALLS PAINTED BLUE PER CBC 11B-502.3.3., STRIPING TO BE SPACED 36" O.C. MAX.
32 2300 04	3'-0" X 3'-0" MIN. ACCESSIBLE PARKING SYMBOL PAINTED WHITE, REFER TO CIVIL PLANS FOR FURTHER INFORMATION
32 2300 05	TRUNCATED DOMES AT DRIVE AISLE, REFER TO DETAIL 10/A1.03. REFER TO CIVIL DRAWINGS FOR FURTHER INFORMATION
26 0000 02	EV CHARGING PORT, REFER TO ELECTRICAL PLANS

GENERAL KEYNOTES

1. EXISTING COLUMN/POST TO REMAIN, CONTRACTOR TO PROTECT IN PLACE
2. EXISTING TRUNCATED DOMES TO REMAIN, CONTRACTOR TO PROTECT IN PLACE
3. EXISTING ELECTRICAL EQUIPTMENT TO REMAIN, CONTRACTOR TO PROTECT IN PLACE. REFER TO ELECTRICAL PLANS
4. EXISTING SITE SIGNAGE AND SIGNAGE POST TO REMAIN
5. EXISTING HANFORD LIBRARY SIGN TO REMAIN

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C-36886
2.28.2025
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STATE OF CALIFORNIA

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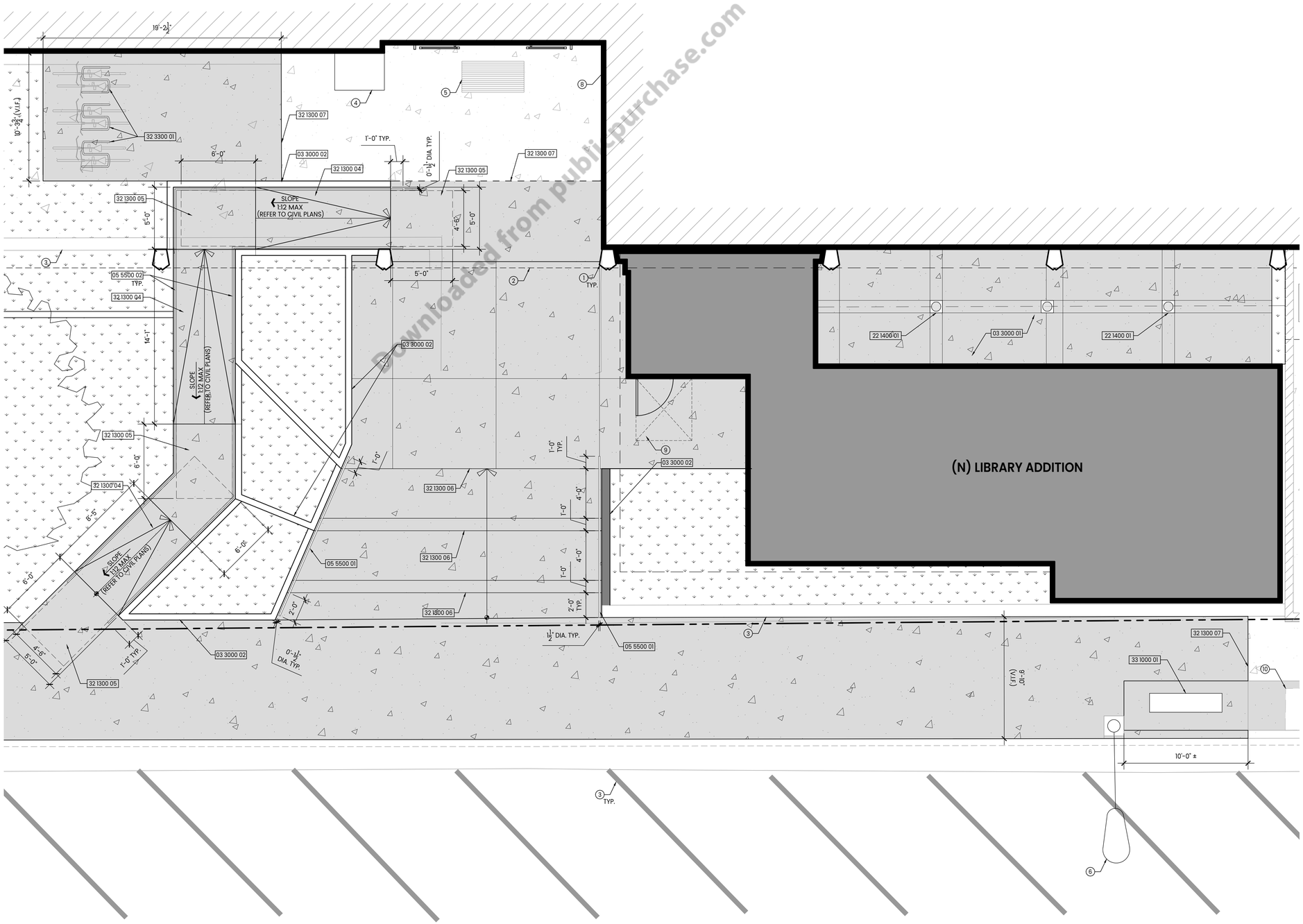
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ENLARGED SITE PLAN

A1.01



1 ENLARGED RAMP AND STAIRS PLAN

SCALE: 1/4" = 1'-0"

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ARCHITECTURAL SITE PLAN LEGEND

- EXISTING CONCRETE
- NEW CONCRETE, REFER TO CIVIL FOR FURTHER INFORMATION
- NEW LANDSCAPING, REFER TO LANDSCAPE PLANS FOR FURTHER INFORMATION
- EXISTING SITE MASONRY WALL
- EXISTING LIBRARY BUILDING
- NEW LIBRARY ADDITION
- (E) PROPERTY LINE

SPEC KEYNOTES

03 3000 01	(N) CONCRETE TO BE TOP-CAST
03 3000 02	(N) CONCRETE PLANTER WALL, REFER TO CIVIL PLANS FOR FURTHER INFORMATION
05 5500 01	STAIR HANDRAIL 36" ABOVE TREAD NOSING PER CBC 11B-505.10, REFER TO DETAIL 7 AND 8/A1.03
05 5500 02	RAMP HANDRAIL, REFER TO DETAIL 4/A1.03
22 1400 01	(N) AREA DRAIN, REFER TO CIVIL AND PLUMBING PLANS FOR FURTHER INFORMATION
32 1300 04	(N) ADA ACCESSIBLE NON-SLIP CONCRETE RAMP PER CBC 1012, REFER TO DETAIL 1, 2 AND 3/A1.03, AND CIVIL DRAWINGS FOR FURTHER INFORMATION
32 1300 05	RAMP LANDING TO COMPLY WITH CBC 11B-405.7, SLOPE SHALL NOT EXCEED 1:48. REFER TO CIVIL DRAWINGS FOR FURTHER INFORMATION
32 1300 06	6 11/16" RISE STEP, REFER TO DETAIL 7 AND 8/A1.03
32 1300 07	MAINTAIN SMOOTH TRANSITION AT JOINT BETWEEN (N) & (E) CONCRETE PER 2022 CBC 11B-303
32 3300 01	(N) BICYCLE RACK, REFER TO DETAIL 9/A1.03
33 1000 01	LOCATION OF (N) IRRIGATION BACKFLOW PREVENTER, REFER TO LANDSCAPE PLANS FOR FURTHER INFORMATION

GENERAL KEYNOTES

1. EXISTING COLUMN/POST TO REMAIN, CONTRACTOR TO PROTECT IN PLACE
2. EXISTING ROOF OVERHEAD
3. EXISTING WALL TO REMAIN; STUCCO WALL FINISH TO COVER EXISTING BRICK
4. EXISTING BOOK DROP BOX TO BE RELOCATED
5. EXISTING WALK OFF MAT TO REMAIN
6. EXISTING STREET LIGHT TO REMAIN
7. EXISTING PARKING STRIPING TO REMAIN
8. EXISTING KNOX BOX AND SIGNAGE TO REMAIN, CONTRACTOR TO PROTECT IN PLACE
9. CONCRETE LANDING AT EXTERIOR DOOR TO MAINTAIN A 5 FOOT MINIMUM DEPTH AND 24 INCH MINIMUM CLEAR SPACE ON THE STRIKE SIDE OF THE DOOR
10. EXISTING WATER BACKFLOW PREVENTER TO REMAIN

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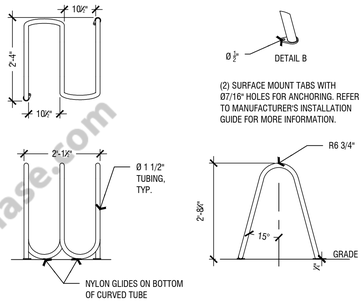
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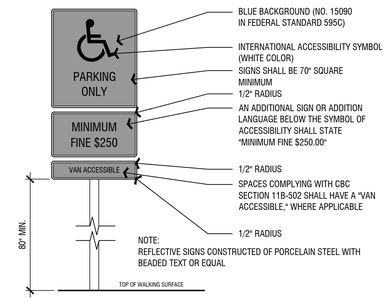
ENLARGED SITE PLAN

A1.02



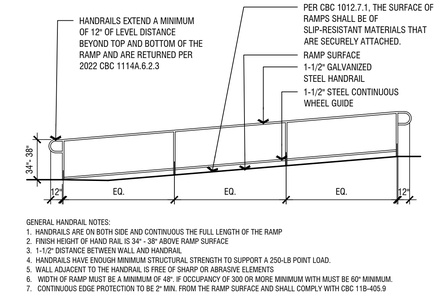
9 SHORT-TERM BIKE RACK

SCALE: 1/2" = 1'-0"



5 ACCESSIBLE PARKING SIGNAGE

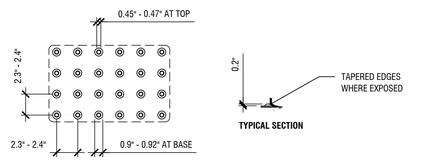
SCALE: 3/4" = 1'-0"



GENERAL HANDRAIL NOTES:
1. HANDRAILS ARE ON BOTH SIDE AND CONTINUOUS THE FULL LENGTH OF THE RAMP
2. FINISH HEIGHT OF HAND RAIL IS 34" - 38" ABOVE RAMP SURFACE
3. 1-1/2" DISTANCE BETWEEN WALL AND HANDRAIL
4. HANDRAILS HAVE ENOUGH MINIMUM STRUCTURAL STRENGTH TO SUPPORT A 250-LB POINT LOAD.
5. WALL ADJACENT TO THE HANDRAIL IS FREE OF SHARP OR ABRASIVE ELEMENTS
6. WIDTH OF RAMP MUST BE A MINIMUM OF 48". IF OCCUPANCY OF 300 OR MORE MINIMUM WITH MUST BE 60" MINIMUM.
7. CONTINUOUS EDGE PROTECTION TO BE 2" MIN. FROM THE RAMP SURFACE AND SHALL COMPLY WITH CBC 11B-405.9

1 ACCESSIBLE RAMP SECTION

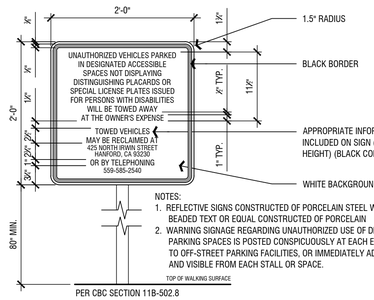
SCALE: 3/16" = 1'-0"



NOTE:
DETECTABLE WARNING SURFACES SHALL BE YELLOW. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE SURFACE. DETECTABLE WARNING SURFACES SHALL DIFFER FROM ADJOINING SURFACES IN RESILIENCY OR SOUND-ON-CANE CONTACT.

10 TRUNCATED DOMES

SCALE: 1-1/2" = 1'-0"



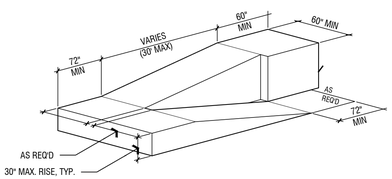
NOTES:
1. REFLECTIVE SIGNS CONSTRUCTED OF PORCELAIN STEEL WITH BEADED TEXT OR EQUAL CONSTRUCTED OF PORCELAIN
2. WARNING SIGNAGE REGARDING UNAUTHORIZED USE OF DISABLED PARKING SPACES IS POSTED CONSPICUOUSLY AT EACH ENTRANCE TO OFF-STREET PARKING FACILITIES, OR IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE.

PER CBC SECTION 11B-502.8

6 UNAUTHORIZED PARKING SIGNAGE

SCALE: 1" = 1'-0"

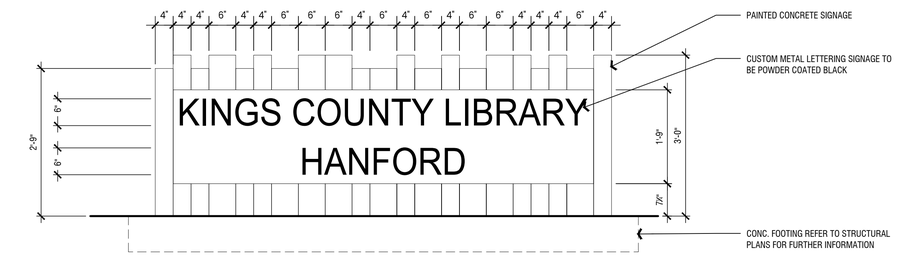
NOTE:
WHEN DOOR SWINGS ONTO LANDING PROVIDE DOOR WIDTH PLUS 42"
RAMP RUNS SHALL HAVE A RUNNING SLOPE NOT STEEPER THAN 1:12. 2022 CBC 11B-405.2
CROSS SLOPE OF RAMPS SHALL NOT BE STEEPER THAN 1:48. 2022 CBC 11B-405.3
RAMPS SHALL HAVE LANDINGS AT THE TOP AND BOTTOM. 2022 CBC 11B-407.7
LANDING SLOPES SHALL NOT EXCEED 1:48 2022 CBC 1118-405.7.1



2 TYPICAL RAMP

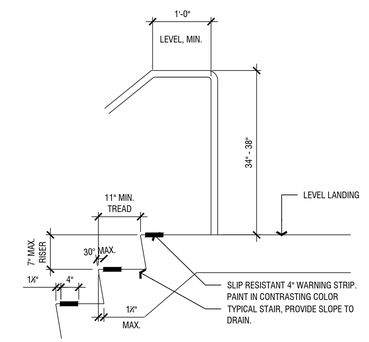
INTERMEDIATE SWITCH BACK PLATFORM

SCALE: 3" = 1'-0"



11 MONUMENT SIGNAGE ELEVATION

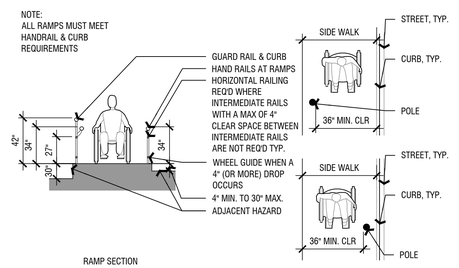
SCALE: 3/4" = 1'-0"



7 TYP. EXTERIOR STAIR

TOP OF STAIR

SCALE: 3/4" = 1'-0"

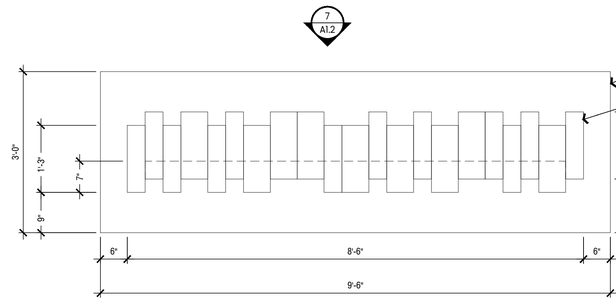


RAMP SECTION

3 TYPICAL RAMP

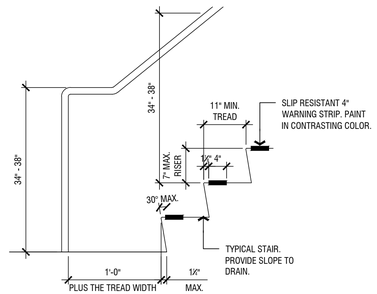
PLAN AND SECTION

SCALE: 3" = 1'-0"



12 MONUMENT SIGNAGE PLAN

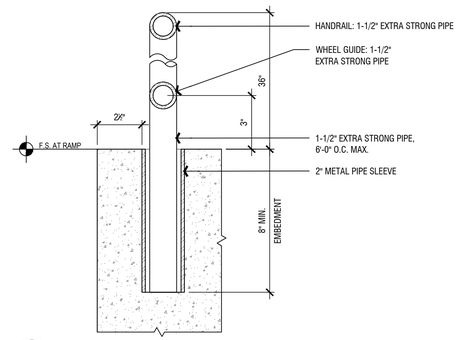
SCALE: 3/4" = 1'-0"



8 TYP. EXTERIOR STAIR

BOTTOM OF STAIR

SCALE: 3/4" = 1'-0"



4 HANDRAIL AT RAMP

SECTION DETAIL

SCALE: 1" = 1'-0"

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SITE DETAILS

A1.03

DEMOLITION NOTES

1. THE GENERAL CONTRACTOR SHALL MAINTAIN AND LEAVE THE PROJECT AREA IN A CLEAN, SAFE AND ORDERLY CONDITION.
2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO SAFELY CAP, SEAL OR TERMINATE ALL PLUMBING, MECHANICAL OR ELECTRICAL COMPONENTS AS NECESSARY AT AREAS OF DEMOLITION.
3. ALL ITEMS TO BE REUSED OR RETURNED TO OWNER SHALL BE MAINTAINED IN GOOD CONDITION. ALL ITEMS TO BE REMOVED SHALL EITHER BE (1) RETAINED BY THE OWNER AT HIS DISCRETION, (2) REMOVED AND RECYCLED OFF-SITE, OR (3) DELIVERED TO AN APPROPRIATE DUMPSITE. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL AGENCY REQUIREMENTS.
4. NO WORK SHALL BE PERFORMED UNTIL ALL UTILITIES ARE SHUT OFF, REMOVED, DISCONNECTED, OR CAPPED TO INSURE WORKERS' SAFETY AND ABILITY TO PERFORM PROPOSED DEMOLITION.
5. PRIOR TO DEMOLITION, ANY EROSION CONTROL METHODS REQUIRED SHOULD BE INSTALLED AND SUFFICIENTLY VERIFIED BY THE GENERAL CONTRACTOR, WHERE REQUIRED.
6. HOURS OF DEMOLITION SHALL BE LIMITED FROM 7:00 AM TO 7:00 PM, MONDAY THROUGH SATURDAY. VERIFY WITH OWNER.
7. PEDESTRIANS SHALL BE PROTECTED FROM CONSTRUCTION / DEMOLITION AS STATED IN CBC CHAPTER 33, SECTION 3303.
8. DUST CONTROL MEASURES SHALL BE IN EFFECT CONTINUOUSLY DURING DEMOLITION AS TO LIMIT THE AMOUNT OF AIRBORNE DEBRIS AND DUST. PROVIDE PROTECTION AROUND AREAS WHERE NEW WORK AND/OR DEMOLITION IS TO BE PERFORMED IN ORDER TO PREVENT DUST AND DIRT FROM ENTERING ACTIVE PORTIONS OF THE BUILDING.
9. MATERIAL AND CONSTRUCTION DEBRIS TO BE HAULED OFF SITE SHALL BE SUFFICIENTLY COVERED OR TARPED AS TO NOT ALLOW ANY MATERIAL TO LEAVE THE VEHICLE WHILE ON ANY PUBLIC RIGHT-OF-WAY AND SHALL BE RECYCLED OR DISPOSED OF IN MEANS APPROVED BY JURISDICTION.
10. REMOVE ALL DEBRIS AND TRASH FROM PREMISES AND REMOVE FROM SITE DAILY.
11. SAFEGUARDS DURING CONSTRUCTION AND DEMOLITION SHALL BE IN ACCORDANCE WITH CFC CHAPTER 33. COMBUSTIBLE CONSTRUCTION DEBRIS SHALL NOT BE PERMITTED TO ACCUMULATE WITHIN THE BUILDING AND SHALL BE REMOVED DAILY.
12. VERIFY ALL ITEMS TO BE DEMOLISHED WITH OWNER/TENANT PRIOR TO COMMENCING DEMOLITION/REMOVAL. NOTIFY ARCHITECT OF ANY DISCREPANCIES FOUND IMMEDIATELY.
13. PRIOR TO CONSTRUCTION/DEMOLITION, NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES FOUND BETWEEN THE PLANS AND THE AS BUILT CONDITION.
14. VERIFY FRAMING MEMBER SIZES AND DIRECTION AND NOTIFY ARCHITECT/ENGINEER WITH DISCREPANCIES
15. VERIFY ALL PLUMBING LOCATIONS WITH OWNER/TENANT PRIOR TO CONSTRUCTION/DEMOLITION AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
16. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AS REQUIRED FOR COMPLETION OF THE PROJECT. REMOVE ALL DEMOLISHED MATERIAL NOT DESIGNATED FOR REUSE FROM THE PREMISES.
17. REPLACE, OR RELOCATE ALL EXISTING PIPING, CONDUIT, WIRING, ETC. REQUIRED FOR THE COMPLETION OF NEW WORK.
18. SEE CIVIL SHEET C2 FOR GENERAL SITE DEMOLITION.

GENERAL SHEET KEYNOTES

9	EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE
13	EXISTING MECHANICAL GRILLES TO REMAIN, PROTECT IN PLACE
14	EXISTING COLUMNS TO REMAIN, PROTECT IN PLACE
16	EXISTING UPPER AND LOWER CABINETS TO REMAIN, PROTECT IN PLACE
18	EXISTING STAIR AND RAILING TO REMAIN, PROTECT IN PLACE
19	EXISTING LIFT TO REMAIN, PROTECT IN PLACE
38	EXISTING PLAQUE TO REMAIN, PROTECT IN PLACE
39	EXISTING ELEVATOR SWITCHGEAR AND DOOR SIGNAGE TO REMAIN, PROTECT IN PLACE
40	EXISTING METAL GRATE TO REMAIN
41	EXISTING BIRD NETTING TO REMAIN

GENERAL NOTES

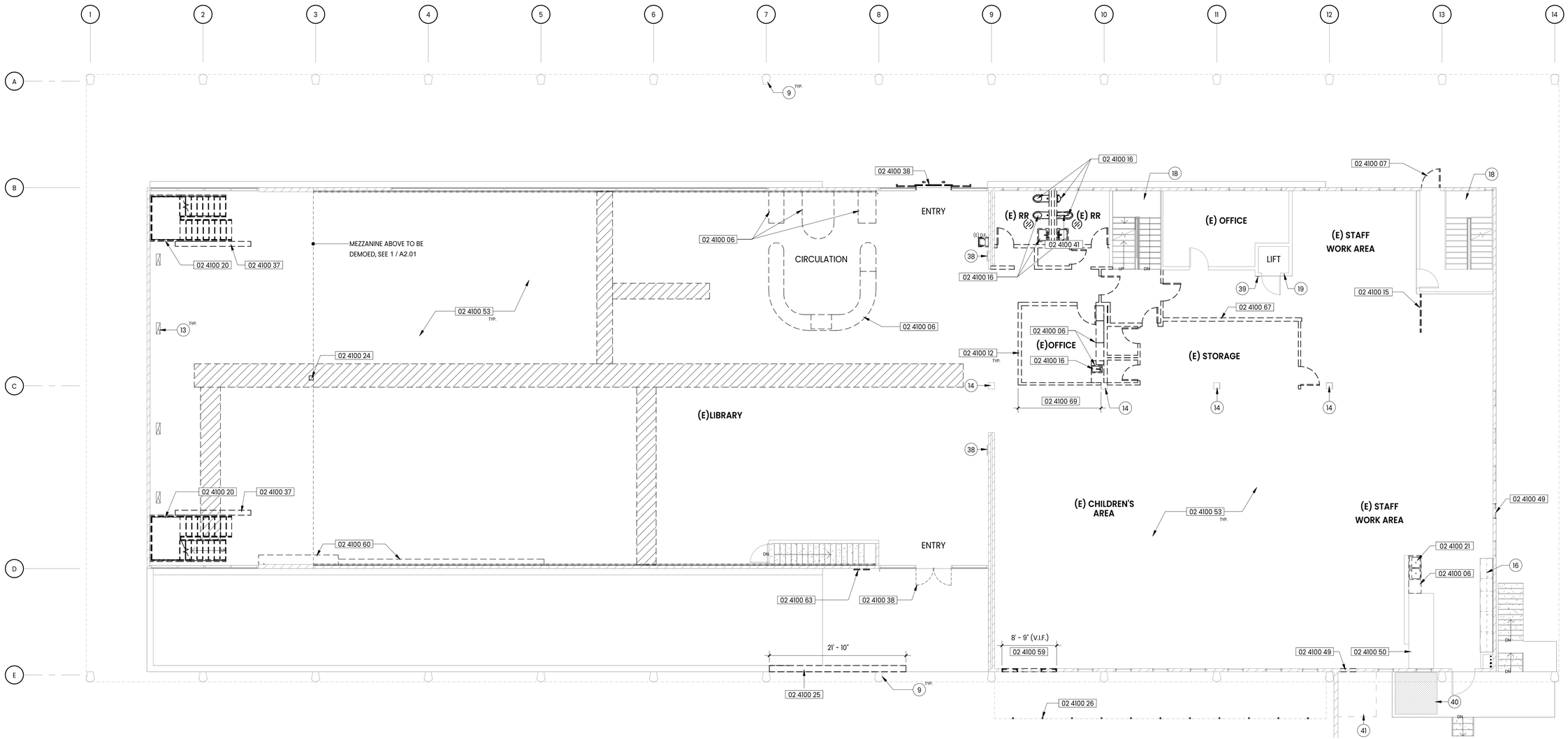
A. REMOVE ALL INTERIOR FINISHES INCLUDING: ALL CEILING FINISHES, WALL FINISHES, AND FLOOR FINISHES, U.N.O.
B. REMOVE AND CAP ALL PLUMBING, U.N.O., SEE PLUMBING
C. REMOVE & SALVAGE ALL FURNITURE AND EQUIPMENT TO OWNER, U.N.O.
D. REMOVE ALL LIGHTING FIXTURES, U.N.O., SEE ELECTRICAL

DEMO FLOOR PLAN SPEC KEYNOTES

02 4100 06	REMOVE EXISTING CASEWORK, SALVAGE TO OWNER
02 4100 07	REMOVE EXISTING DOOR, FRAME AND HARDWARE FOR INSTALLATION OF NEW DOOR
02 4100 12	REMOVE EXISTING WALL
02 4100 15	REMOVE EXISTING OFFICE PARTITION SYSTEM & DESKS, SALVAGE TO OWNER; TYP.
02 4100 16	REMOVE EXISTING FIXTURES, ACCESSORIES, AND FINISHES; CONTRACTOR TO CAP PLUMBING PIPES, TYP.
02 4100 20	REMOVE EXISTING STAIRS AND HANDRAILS
02 4100 21	REMOVE & REPLACE EXISTING UTILITY SINK; EXISTING PLUMBING TO REMAIN, SEE PLUMBING FOR FURTHER INFORMATION
02 4100 24	REMOVE EXISTING STEEL COLUMN AND FOOTING, SEE STRUCTURAL
02 4100 25	REMOVE PORTION OF EXISTING EXTERIOR SITE WALL, SEE CIVIL
02 4100 26	REMOVE EXISTING METAL SHADE STRUCTURE, SUPPORTS, AND ATTACHMENTS TO THE WALL AND FOOTINGS
02 4100 37	REMOVE EXISTING BRICK WALL, PRESERVE BRICK FOR PATCHWORK; REMOVE EXISTING FOOTING AND PATCH TO MATCH EXISTING CONCRETE
02 4100 38	REMOVE EXISTING DOOR AND HARDWARE WITHIN EXISTING WINDOW SYSTEM
02 4100 41	REMOVE EXISTING ELECTRICAL PANEL AND EQUIPMENT, FOR MORE INFORMATION SEE ELECTRICAL
02 4100 49	REMOVE EXISTING LOUVERED WINDOW AND PROVIDE NEW WINDOW IN ITS PLACE
02 4100 50	OWNER TO REMOVE EXISTING TABLE AND REINSTALL AFTER CONSTRUCTION IS COMPLETE
02 4100 53	REMOVE EXISTING FLOORING/CARPETING AND WALL BASE THROUGHOUT
02 4100 59	REMOVE EXISTING PORTION OF WALL AND WINDOWS
02 4100 60	REMOVE EXISTING SHELVES, SALVAGE TO OWNER
02 4100 63	REMOVE CAREFULLY AND SALVAGE EXISTING BUILDING PLAQUE FOR REINSTALLATION
02 4100 67	REMOVE EXISTING GUARDRAIL FROM WALL
02 4100 69	REMOVE AND SALVAGE EXISTING MURAL FOR REINSTALLATION, FOR MORE INFORMATION SEE SHEET A2.4

DEMO FLOOR PLAN WALL LEGEND

- EXISTING FRAMED WALL TO REMAIN
- EXISTING BLOCK WALL TO REMAIN
- REMOVE EXISTING FRAMED WALL AND ALL MOUNTED ACCESSORIES, U.N.O.
- REMOVE EXISTING BLOCK WALL
- REMOVE EXISTING ITEMS, TYP.
- REMOVE EXISTING DOOR, FRAME AND HARDWARE
- FLOOR TRENCHING FOR FLOOR RECEPTACLES, FOR MORE INFORMATION, SEE STRUCTURAL & ELECTRICAL
- EXISTING CONTINUED VENTS AND PIPE ON WALL TO REMAIN



1 **FIRST FLOOR DEMO PLAN**
1/8" = 1'-0"

N

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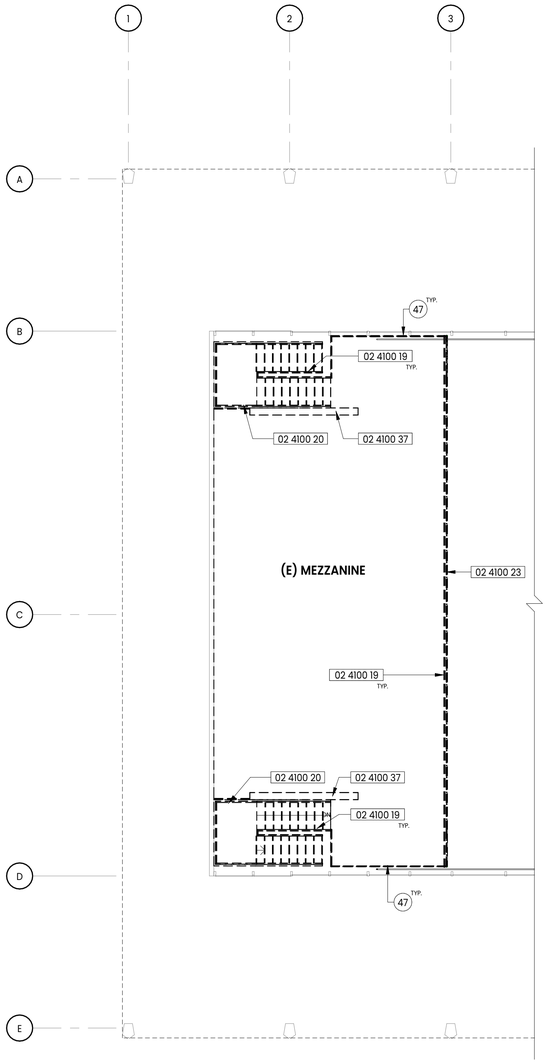
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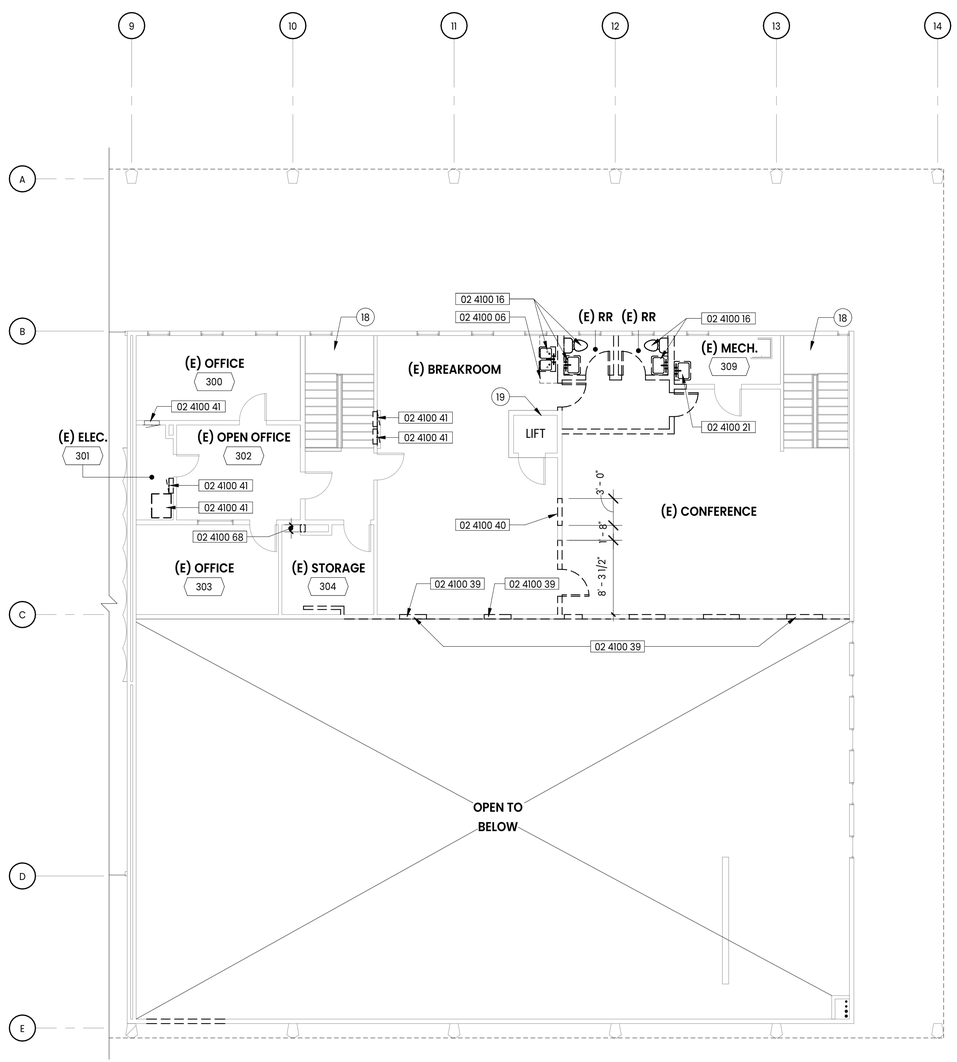
DEMO FIRST FLOOR PLAN

A2.00



1 MEZZANINE FLOOR DEMO PLAN

1/8" = 1'-0"



2 SECOND FLOOR DEMO PLAN

1/8" = 1'-0"

DEMO FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- REMOVE EXISTING WALL
- REMOVE EXISTING ITEMS, TYP.
- REMOVE EXISTING DOOR AND FRAME

DEMO FLOOR PLAN SPEC KEYNOTES

02 4100 06	REMOVE EXISTING CASEWORK, SALVAGE TO OWNER
02 4100 16	REMOVE EXISTING FIXTURES, ACCESSORIES, AND FINISHES; CONTRACTOR TO CAP PLUMBING PIPES, TYP.
02 4100 19	RAILING TO BE REMOVED
02 4100 20	REMOVE EXISTING STAIRS AND HANDRAILS
02 4100 21	REMOVE & REPLACE EXISTING UTILITY SINK; EXISTING PLUMBING TO REMAIN, SEE PLUMBING FOR FURTHER INFORMATION
02 4100 23	REMOVE EXISTING MEZZANINE IN ITS ENTIRETY
02 4100 37	REMOVE EXISTING BRICK WALL, PRESERVE BRICK FOR PATCHWORK; REMOVE EXISTING FOOTING AND PATCH TO MATCH EXISTING CONCRETE
02 4100 39	REMOVE PORTION OF EXISTING WALL FOR INSTALLATION OF NEW WINDOW(S), SEE INTERIOR ELEVATIONS ON SHEET A6.09
02 4100 40	REMOVE PORTION OF EXISTING WALL FOR INSTALLATION OF NEW DOOR, REFER TO FLOOR PLAN ON SHEET A2.07
02 4100 41	REMOVE EXISTING ELECTRICAL PANEL AND EQUIPMENT, FOR MORE INFORMATION SEE ELECTRICAL
02 4100 68	REMOVE EXISTING PORTION OF WALL

GENERAL SHEET KEYNOTES

- (18) EXISTING STAIR AND RAILING TO REMAIN, PROTECT IN PLACE
- (19) EXISTING LIFT TO REMAIN, PROTECT IN PLACE
- (47) PATCH AND REPAIR MULLIONS WHERE HANDRAILS/GUARDRAILS ARE REMOVED, PAINT TO MATCH STOREFRONT FRAME

GENERAL NOTES

A. REMOVE ALL INTERIOR FINISHES INCLUDING: ALL CEILING FINISHES, WALL FINISHES, AND FLOOR FINISHES, U.N.O.
B. REMOVE AND CAP ALL PLUMBING, U.N.O., SEE PLUMBING
C. REMOVE & SALVAGE ALL FURNITURE AND EQUIPMENT TO OWNER, U.N.O.
D. REMOVE ALL LIGHTING FIXTURES, U.N.O., SEE ELECTRICAL

DEMOLITION NOTES

1. THE GENERAL CONTRACTOR SHALL MAINTAIN AND LEAVE THE PROJECT AREA IN A CLEAN, SAFE AND ORDERLY CONDITION.
2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO SAFELY CAP, SEAL OR TERMINATE ALL PLUMBING, MECHANICAL OR ELECTRICAL COMPONENTS AS NECESSARY AT AREAS OF DEMOLITION.
3. ALL ITEMS TO BE REUSED OR RETURNED TO OWNER SHALL BE MAINTAINED IN GOOD CONDITION. ALL ITEMS TO BE REMOVED SHALL EITHER BE (1) RETAINED BY THE OWNER AT HIS DISCRETION, (2) REMOVED AND RECYCLED OFF-SITE, OR (3) DELIVERED TO AN APPROPRIATE DUMPSITE. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL AGENCY REQUIREMENTS.
4. NO WORK SHALL BE PERFORMED UNTIL ALL UTILITIES ARE SHUT OFF, REMOVED, DISCONNECTED, OR CAPPED TO INSURE WORKERS' SAFETY AND ABILITY TO PERFORM PROPOSED DEMOLITION.
5. PRIOR TO DEMOLITION, ANY EROSION CONTROL METHODS REQUIRED SHOULD BE INSTALLED AND SUFFICIENTLY VERIFIED BY THE GENERAL CONTRACTOR, WHERE REQUIRED.
6. HOURS OF DEMOLITION SHALL BE LIMITED FROM 7:00 AM TO 7:00 PM, MONDAY THROUGH SATURDAY. VERIFY WITH OWNER.
7. PEDESTRIANS SHALL BE PROTECTED FROM CONSTRUCTION / DEMOLITION AS STATED IN CBC CHAPTER 33, SECTION 3303.
8. DUST CONTROL MEASURES SHALL BE IN EFFECT CONTINUOUSLY DURING DEMOLITION AS TO LIMIT THE AMOUNT OF AIRBORNE DEBRIS AND DUST. PROVIDE PROTECTION AROUND AREAS WHERE NEW WORK AND/OR DEMOLITION IS TO BE PERFORMED IN ORDER TO PREVENT DUST AND DIRT FROM ENTERING ACTIVE PORTIONS OF THE BUILDING.
9. MATERIAL AND CONSTRUCTION DEBRIS TO BE HAULED OFF SITE SHALL BE SUFFICIENTLY COVERED OR TARPED AS TO NOT ALLOW ANY MATERIAL TO LEAVE THE VEHICLE WHILE ON ANY PUBLIC RIGHT-OF-WAY AND SHALL BE RECYCLED OR DISPOSED OF IN MEANS APPROVED BY JURISDICTION.
10. REMOVE ALL DEBRIS AND TRASH FROM PREMISES AND REMOVE FROM SITE DAILY.
11. SAFEGUARDS DURING CONSTRUCTION AND DEMOLITION SHALL BE IN ACCORDANCE WITH CFC CHAPTER 33. COMBUSTIBLE CONSTRUCTION DEBRIS SHALL NOT BE PERMITTED TO ACCUMULATE WITHIN THE BUILDING AND SHALL BE REMOVED DAILY.
12. VERIFY ALL ITEMS TO BE DEMOLISHED WITH OWNER/TENANT PRIOR TO COMMENCING DEMOLITION/REMOVAL. NOTIFY ARCHITECT OF ANY DISCREPANCIES FOUND IMMEDIATELY.
13. PRIOR TO CONSTRUCTION/DEMOLITION, NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES FOUND BETWEEN THE PLANS AND THE AS BUILT CONDITION.
14. VERIFY FRAMING MEMBER SIZES AND DIRECTION AND NOTIFY ARCHITECT/ENGINEER WITH DISCREPANCIES
15. VERIFY ALL PLUMBING LOCATIONS WITH OWNER/TENANT PRIOR TO CONSTRUCTION/DEMOLITION AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
16. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AS REQUIRED FOR COMPLETION OF THE PROJECT. REMOVE ALL DEMOLISHED MATERIAL NOT DESIGNATED FOR REUSE FROM THE PREMISES.
17. REPLACE, OR RELOCATE ALL EXISTING PIPING, CONDUIT, WIRING, ETC. REQUIRED FOR THE COMPLETION OF NEW WORK.

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C-36886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

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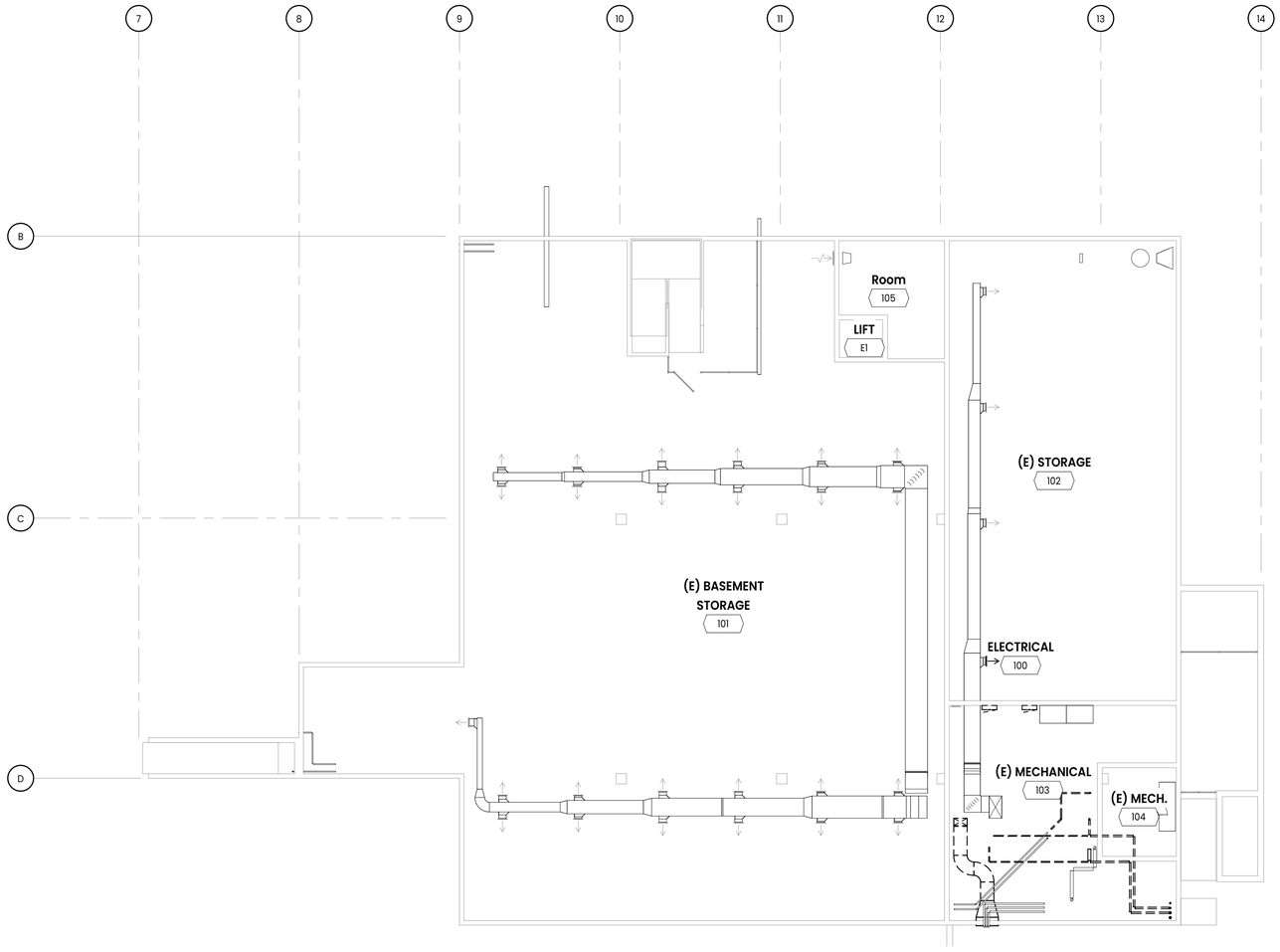
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DEMO SECOND FLOOR / DEMO MEZZANINE PLAN

A2.01



DEMO RCP LEGEND

- (E) PLASTER OR GYP. BD. CEILING TO REMAIN
- REMOVE (E) PLASTER OR GYP. BD. CEILING
- REMOVE (E) ACT CEILING TILE
- EXISTING FRAMED WALL TO REMAIN
- EXISTING BLOCK WALL TO REMAIN
- REMOVE EXISTING FRAMED WALL AND ALL MOUNTED ACCESSORIES, U.N.O.
- REMOVE EXISTING BLOCK WALL
- REMOVE EXISTING ITEMS, TYP.

N

1 DEMO BASEMENT REFLECTED CEILING PLAN

1/8" = 1'-0"

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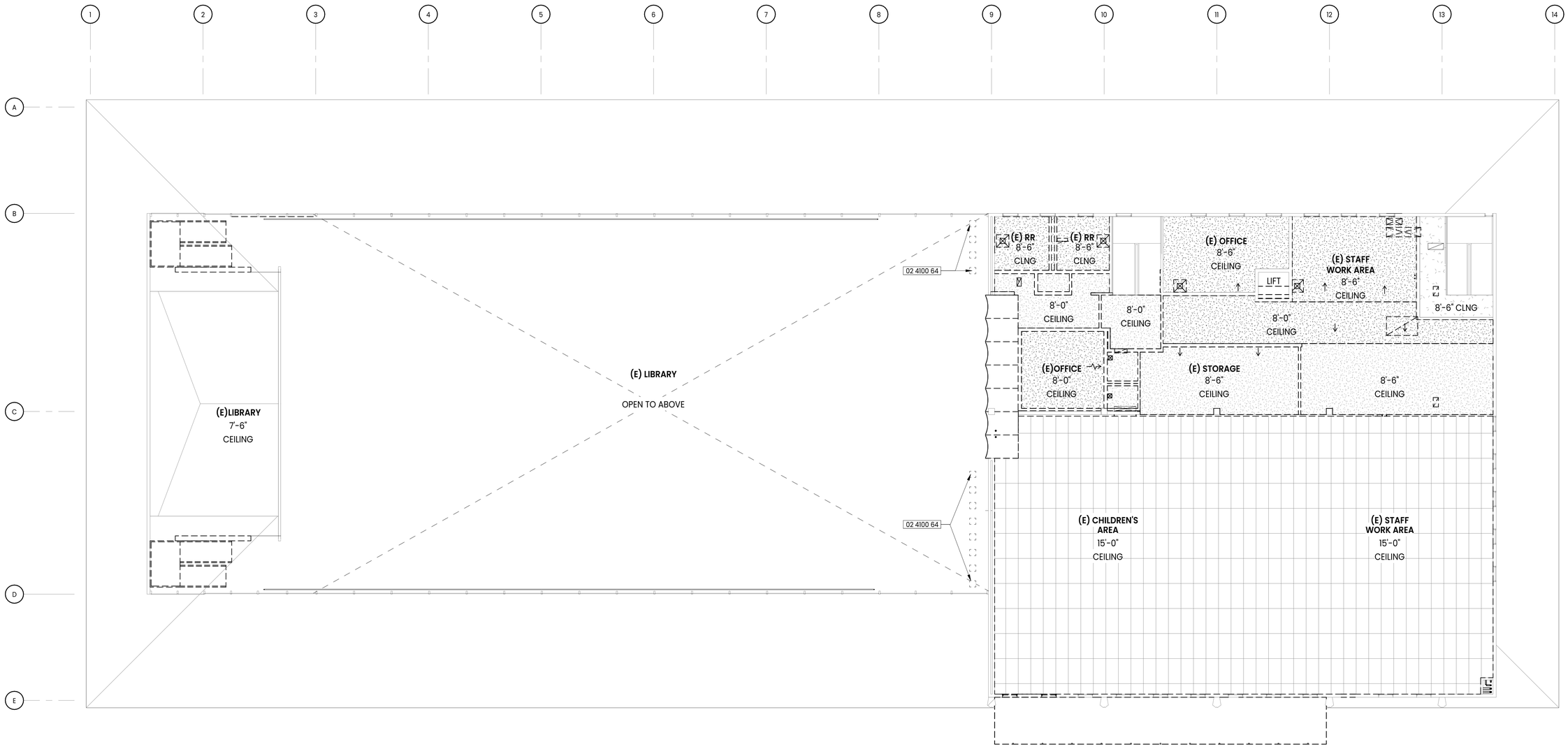
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DEMO BASEMENT RCP

A2.02

DEMO RCP LEGEND

- (E) PLASTER OR GYP. BD. CEILING TO REMAIN
- REMOVE (E) PLASTER OR GYP. BD. CEILING
- REMOVE (E) ACT CEILING TILE
- EXISTING FRAMED WALL TO REMAIN
- EXISTING BLOCK WALL TO REMAIN
- REMOVE EXISTING FRAMED WALL AND ALL MOUNTED ACCESSORIES, U.N.O.
- REMOVE EXISTING BLOCK WALL
- REMOVE EXISTING ITEMS, TYP.



1 DEMO FIRST FLOOR REFLECTED CEILING PLAN - B

1/8" = 1'-0"

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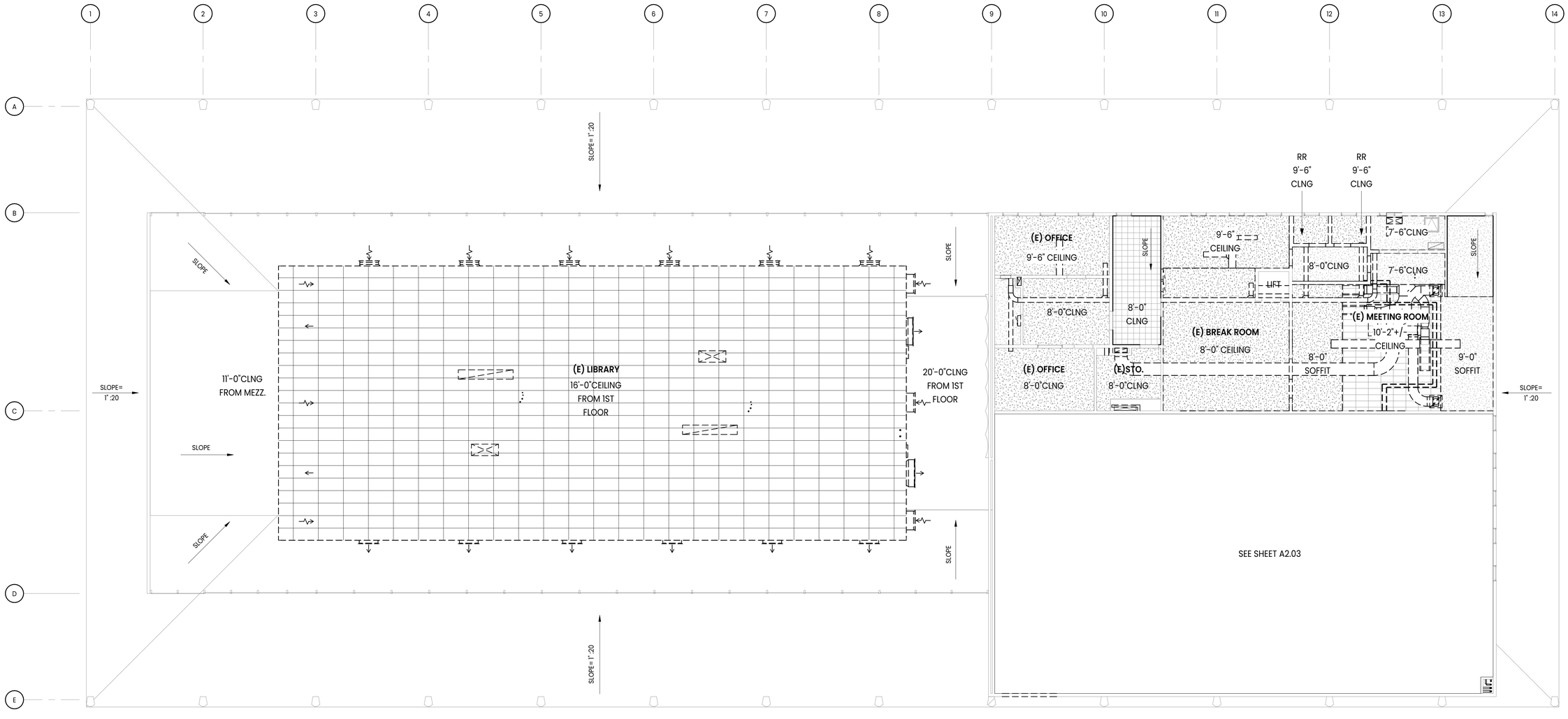
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DEMO FIRST FLOOR RCP

A2.03

DEMO RCP LEGEND

- (E) PLASTER OR GYP. BD. CEILING TO REMAIN
- REMOVE (E) PLASTER OR GYP. BD. CEILING
- REMOVE (E) ACT CEILING TILE
- EXISTING FRAMED WALL TO REMAIN
- EXISTING BLOCK WALL TO REMAIN
- REMOVE EXISTING FRAMED WALL AND ALL MOUNTED ACCESSORIES, U.N.O.
- REMOVE EXISTING BLOCK WALL
- REMOVE EXISTING ITEMS, TYP.



1 **DEMO 2ND FLOOR RCP**

1/8" = 1'-0"

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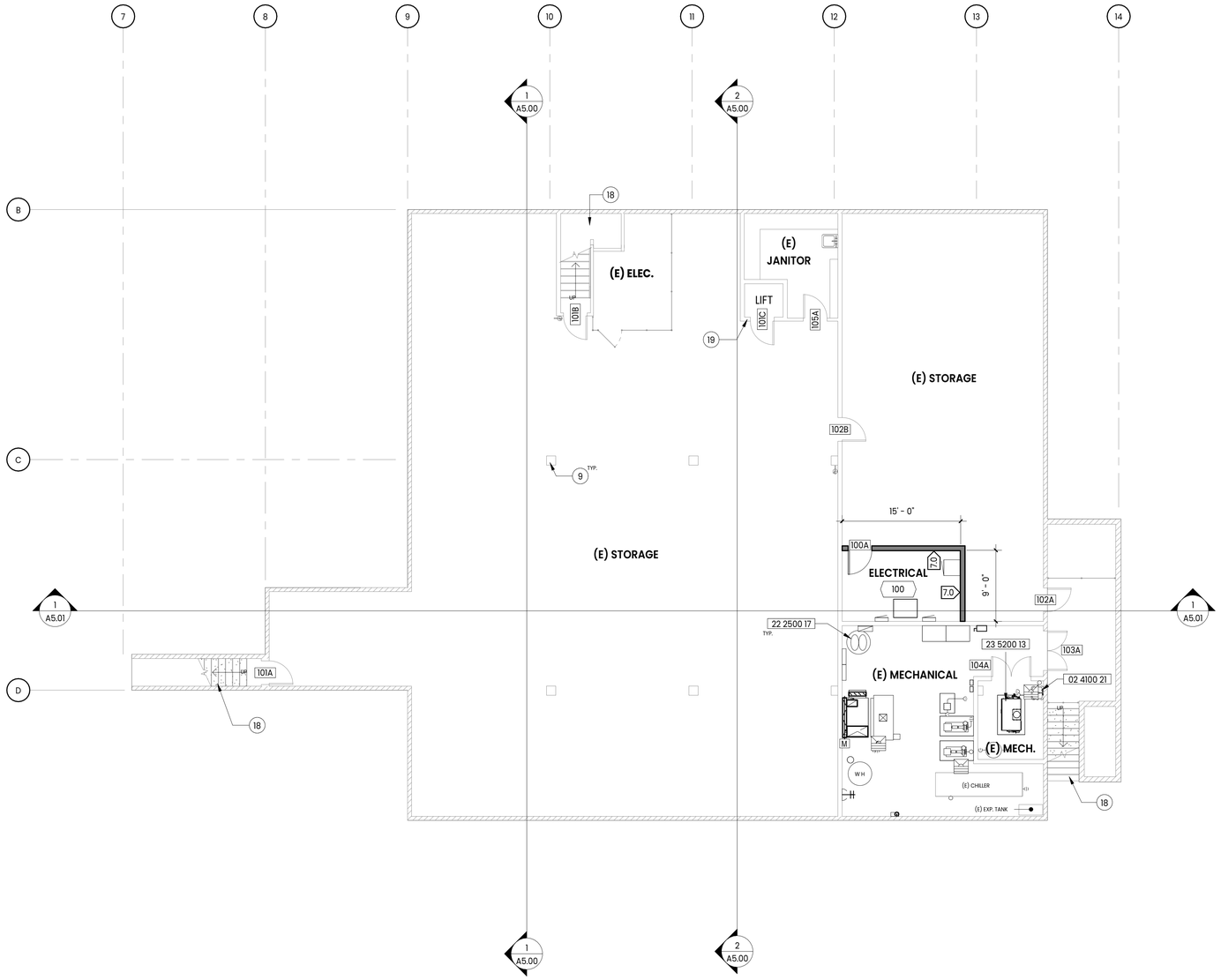
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DEMO SECOND FLOOR RCP

A2.04



1 **BASEMENT FLOOR PLAN**

1/8" = 1'-0"

BASEMENT FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL, SEE FINISH FLOOR PLANS
- (#) WALL ASSEMBLY TYPE, SEE SHEET A7.02
- (###) DOOR TAG SEE DOOR SCHEDULE SHEET A7.00

FLOOR PLAN SPEC KEYNOTES

02 4100 21	REMOVE & REPLACE EXISTING UTILITY SINK; EXISTING PLUMBING TO REMAIN, SEE PLUMBING FOR FURTHER INFORMATION
22 2500 17	SUMP PUMP, SEE ELECTRICAL
23 5200 13	BOILER, SEE MECHANICAL

GENERAL SHEET KEYNOTES

- (9) EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE
- (18) EXISTING STAIR AND RAILING TO REMAIN, PROTECT IN PLACE
- (19) EXISTING LIFT TO REMAIN, PROTECT IN PLACE

BASEMENT FLOOR PLAN NOTES

1. FOR MORE INFORMATION, SEE MECHANICAL, ELECTRICAL, AND PLUMBING DEMO PLANS.

DIMENSION NOTES

1. DO NOT SCALE DRAWINGS, WRITTEN DIMENSIONS GOVERN. ALL PARTITION LOCATIONS SHALL BE AS SHOWN ON PARTITION PLAN. IN CASE OF CONFLICT NOTIFY ARCHITECT. PARTITION PLAN BY ARCHITECT TAKES PRECEDENCE OVER ALL OTHER PLANS.
2. ALL DIMENSIONS ARE TO FACE OF FRAMING OR FACE OF CONCRETE UNLESS NOTED OTHERWISE. CONTACT ARCHITECT FOR ANY REQUIRED CLARIFICATIONS. ALL DIMENSIONS MARKED "CLEAR" OR "CLR" SHALL BE MAINTAINED AND SHALL ALLOW FOR THICKNESSES OF ALL WALL FINISHES, U.N.O.
3. DIMENSIONS NOTED "CLEAR" OR "CLR" MUST BE ACCURATELY MAINTAINED, AND SHALL NOT VARY MORE THAN 1/8" WITHOUT WRITTEN INSTRUCTION FROM ARCHITECT.
4. DIMENSIONS MARKED +/- MEAN A TOLERANCE NOT GREATER NOR SMALLER THAN 2 INCHES FROM INDICATED DIMENSION, U.N.O.
5. NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES OR CONFLICTS IN THE LOCATION(S) OF NEW CONSTRUCTION. UPON COMPLETION OF PARTITION LAYOUT, NOTIFY ARCHITECT. VERIFICATION OF THE LAYOUT TO BE PROVIDED BY THE ARCHITECT PRIOR TO PARTITION INSTALLATION.
6. REFER TO REFLECTED CEILING PLANS FOR SOFFITS, CEILING HEIGHTS AND PLENUM BARRIER LOCATIONS.
7. "ALIGN" MEANS TO ACCURATELY LOCATE FINISHED FACES IN THE SAME PLANE.
8. VERIFY ALL EXISTING DIMENSIONS IN FIELD.

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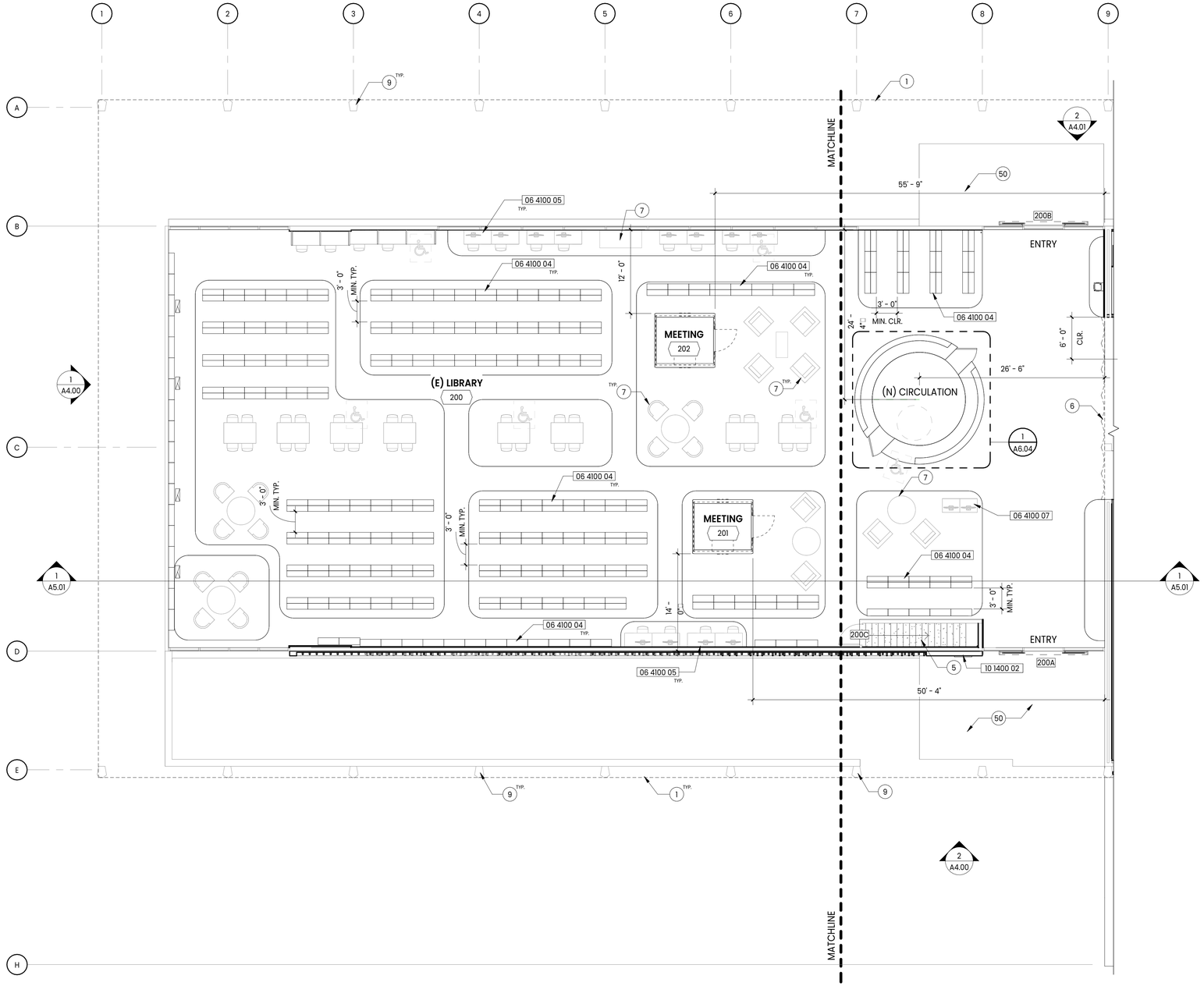
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BASEMENT FLOOR PLAN

A2.05



1 FIRST FLOOR PLAN - A

1/8" = 1'-0"

FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL, SEE FINISH FLOOR PLANS
- (#) WALL ASSEMBLY TYPE, SEE SHEET A7.02
- (###) DOOR TAG SEE DOOR SCHEDULE SHEET A7.00

FLOOR PLAN SPEC KEYNOTES

06 4100 04	LIBRARY BOOK SHELVING, O.P.C.I
06 4100 05	COMPUTER DESK, O.P.C.I
06 4100 07	SELF-CHECKOUT STATION, O.P.C.I. REFER TO ELECTRICAL PLANS FOR FURTHER INFORMATION
10 1400 02	REINSTALL SALVAGED BUILDING PLAQUE

GENERAL SHEET KEYNOTES

1. EXISTING ROOF OUTLINE ABOVE
5. EXISTING STAIR AND RAILING TO REMAIN, PROTECT IN PLACE
6. EXISTING SOFFIT OVERHEAD, PROTECT IN PLACE
7. FURNISHINGS TO BE O.P.O.I., AS TO NOT INTERFERE WITH DOOR CLEARANCES
9. EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE
50. EXISTING EXTERIOR CONCRETE SLAB TO REMAIN, PROTECT IN PLACE

FLOOR PLAN NOTES

1. ELECTRICAL OUTLETS TO BE PLACED AT 18" TO CENTERLINE ABOVE FINISH FLOOR U.N.O.
2. ELECTRICAL SWITCHES TO BE PLACED AT 48" TO CENTERLINE FROM FINISH FLOOR U.N.O.
3. PROVIDE R-13 MINIMUM INSULATION AT PLUMBING WALLS.
4. SEE SHEET A1.0 FOR GENERAL SITE IMPROVEMENTS.

DIMENSION NOTES

1. DO NOT SCALE DRAWINGS, WRITTEN DIMENSIONS GOVERN. ALL PARTITION LOCATIONS SHALL BE AS SHOWN ON PARTITION PLAN. IN CASE OF CONFLICT NOTIFY ARCHITECT. PARTITION PLAN BY ARCHITECT TAKES PRECEDENCE OVER ALL OTHER PLANS.
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3. DIMENSIONS NOTED "CLEAR" OR "CLR" MUST BE ACCURATELY MAINTAINED, AND SHALL NOT VARY MORE THAN 1/8" WITHOUT WRITTEN INSTRUCTION FROM ARCHITECT.
4. DIMENSIONS MARKED +/- MEAN A TOLERANCE NOT GREATER NOR SMALLER THAN 2 INCHES FROM INDICATED DIMENSION, U.N.O.
5. NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES OR CONFLICTS IN THE LOCATION(S) OF NEW CONSTRUCTION. UPON COMPLETION OF PARTITION LAYOUT, NOTIFY ARCHITECT. VERIFICATION OF THE LAYOUT TO BE PROVIDED BY THE ARCHITECT PRIOR TO PARTITION INSTALLATION.
6. REFER TO REFLECTED CEILING PLANS FOR SOFFITS, CEILING HEIGHTS AND PLENUM BARRIER LOCATIONS.
7. "ALIGN" MEANS TO ACCURATELY LOCATE FINISHED FACES IN THE SAME PLANE.
8. VERIFY ALL EXISTING DIMENSIONS IN FIELD

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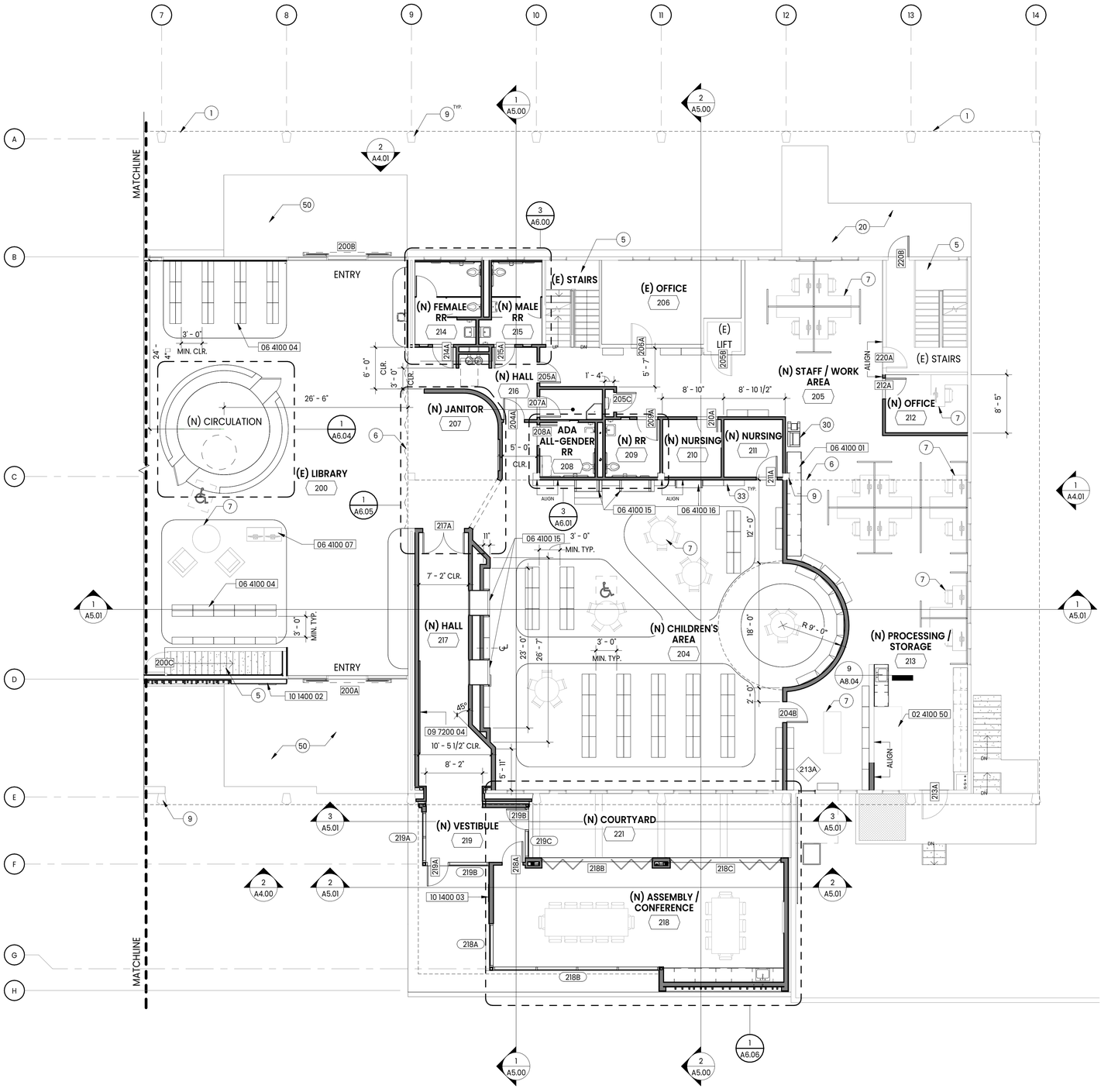
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FIRST FLOOR PLAN

A2.06A



1 FIRST FLOOR PLAN - B

1/8" = 1'-0"

N

FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL, SEE FINISH FLOOR PLANS
- ### DOOR TAG, SEE DOOR SCHEDULE SHEET A7.00
- ### STOREFRONT TAG, SEE STOREFRONT SCHEDULE SHEET A7.01
- 1\ WINDOW TAG, SEE WINDOW SCHEDULE SHEET A7.01

FLOOR PLAN SPEC KEYNOTES

02 4100 50	OWNER TO REMOVE EXISTING TABLE AND REINSTALL AFTER CONSTRUCTION IS COMPLETE
06 4100 01	24" LOWER BASE CABINETS & COUNTERTOP, SEE DETAILS 1,2,4/A8.04
06 4100 04	LIBRARY BOOK SHELVING, O.P.C.I
06 4100 07	SELF-CHECKOUT STATION, O.P.C.I. REFER TO ELECTRICAL PLANS FOR FURTHER INFORMATION
06 4100 15	BUILT-IN BOOK SHELVES AND READING NOOKS, SEE INTERIOR ELEVATIONS ON SHEET A6.09
06 4100 16	BUILT-IN BOOK SHELF, SEE INTERIOR ELEVATIONS ON SHEET A6.09
09 7200 04	REINSTALL SALVAGED MURAL, COORDINATE WITH LIBARARY STAFF FOR MOUNTING HEIGHT AND LOCATION
10 1400 02	REINSTALL SALVAGED BUILDING PLAQUE
10 1400 03	COMMEMORATIVE PLAQUE, FOR ANCHORAGE SEE DETAIL X/AX

GENERAL SHEET KEYNOTES

1. EXISTING ROOF OUTLINE ABOVE
5. EXISTING STAIR AND RAILING TO REMAIN, PROTECT IN PLACE
6. EXISTING SOFFIT OVERHEAD, PROTECT IN PLACE
7. FURNISHINGS TO BE O.P.O.I., AS TO NOT INTERFERE WITH DOOR CLEARANCES
9. EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE
20. EXISTING EXTERIOR CONCRETE FLOOR TO REMAIN, CONTRACTOR TO VERIFY IT MEETS ADA STANDARDS
30. PRINTER TO BE OPOI AND ORGANIZED BY OWNER, REFER TO ELECTRICAL FOR APPROPRIATE POWER REQUIREMENTS
33. EXISTING BOOK SHELF, 3'-0" x 7'-0" (CONTRACTOR TO VERIFY DIMENSIONS PRIOR TO FRAMING AROUND BUILT-INS)
50. EXISTING EXTERIOR CONCRETE SLAB TO REMAIN, PROTECT IN PLACE

FLOOR PLAN NOTES

1. ELECTRICAL OUTLETS TO BE PLACED AT 18" TO CENTERLINE ABOVE FINISH FLOOR U.N.O.
2. ELECTRICAL SWITCHES TO BE PLACED AT 48" TO CENTERLINE FROM FINISH FLOOR U.N.O.
3. PROVIDE R-13 MINIMUM INSULATION AT PLUMBING WALLS.
4. SEE SHEET A1.0 FOR GENERAL SITE IMPROVEMENTS.

DIMENSION NOTES

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3. DIMENSIONS NOTED "CLEAR" OR "CLR" MUST BE ACCURATELY MAINTAINED, AND SHALL NOT VARY MORE THAN 1/8" WITHOUT WRITTEN INSTRUCTION FROM ARCHITECT.
4. DIMENSIONS MARKED +/- MEAN A TOLERANCE NOT GREATER NOR SMALLER THAN 2 INCHES FROM INDICATED DIMENSION, U.N.O.
5. NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES OR CONFLICTS IN THE LOCATION(S) OF NEW CONSTRUCTION. UPON COMPLETION OF PARTITION LAYOUT, NOTIFY ARCHITECT. VERIFICATION OF THE LAYOUT TO BE PROVIDED BY THE ARCHITECT PRIOR TO PARTITION INSTALLATION.
6. REFER TO REFLECTED CEILING PLANS FOR SOFFITS, CEILING HEIGHTS AND PLENUM BARRIER LOCATIONS.
7. "ALIGN" MEANS TO ACCURATELY LOCATE FINISHED FACES IN THE SAME PLANE.
8. VERIFY ALL EXISTING DIMENSIONS IN FIELD

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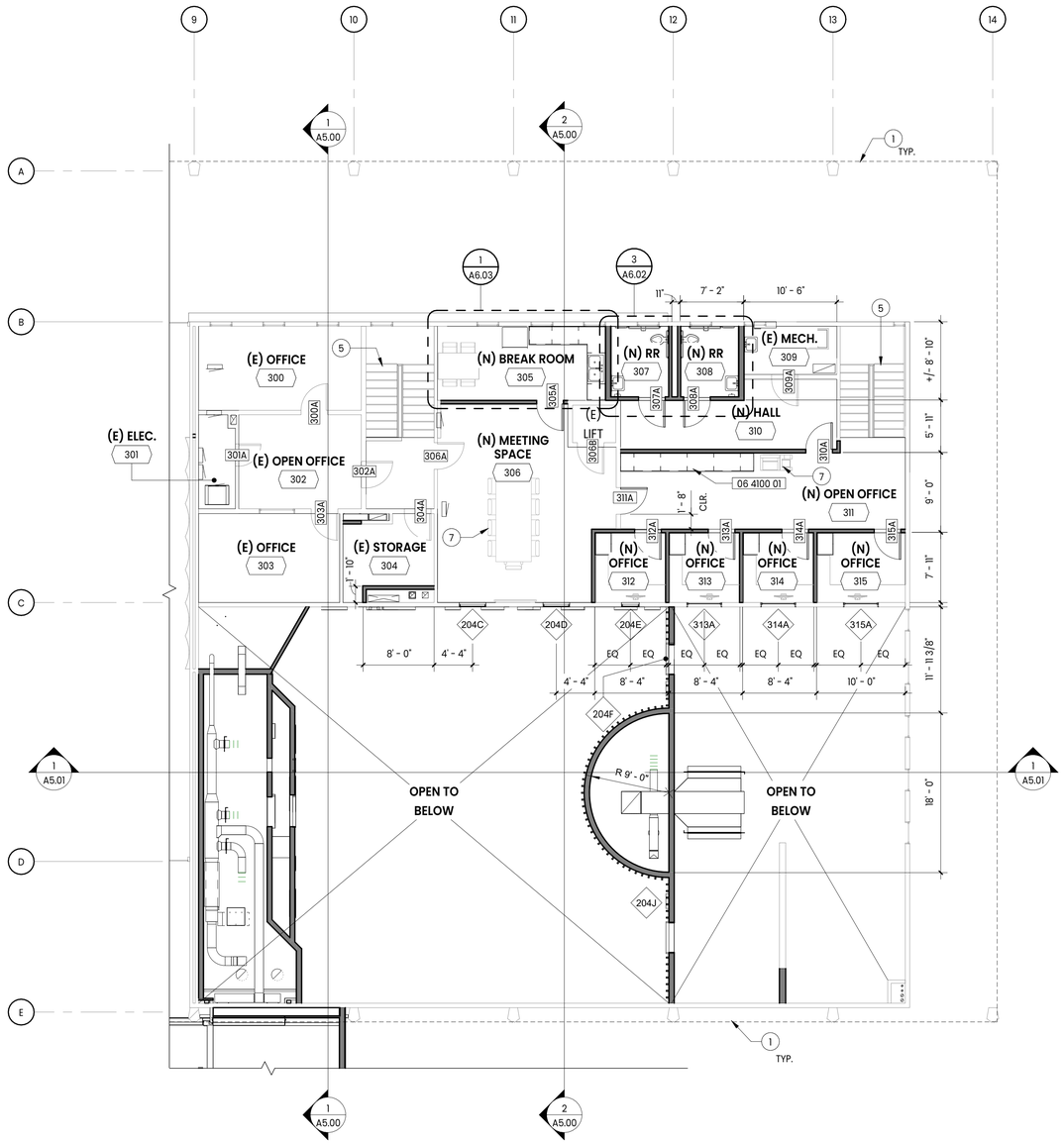
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FIRST FLOOR PLAN

A2.06B



2 SECOND FLOOR PLAN

1/8" = 1'-0"

N

FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL, SEE FINISH FLOOR PLANS
- ### DOOR TAG, SEE DOOR SCHEDULE SHEET A7.00
- 1\ WINDOW TAG, SEE WINDOW SCHEDULE SHEET A7.01

FLOOR PLAN SPEC KEYNOTES

06 4100 01	24" LOWER BASE CABINETS & COUNTERTOP, SEE DETAILS 1,2,4/A8.04

GENERAL SHEET KEYNOTES

1. EXISTING ROOF OUTLINE ABOVE
5. EXISTING STAIR AND RAILING TO REMAIN, PROTECT IN PLACE
7. FURNISHINGS TO BE O.P.O.I., AS TO NOT INTERFERE WITH DOOR CLEARANCES

FLOOR PLAN NOTES

1. ELECTRICAL OUTLETS TO BE PLACED AT 18" TO CENTERLINE ABOVE FINISH FLOOR U.N.O.
2. ELECTRICAL SWITCHES TO BE PLACED AT 48" TO CENTERLINE FROM FINISH FLOOR U.N.O.
3. PROVIDE R-13 MINIMUM INSULATION AT PLUMBING WALLS.
4. SEE SHEET A1.0 FOR GENERAL SITE IMPROVEMENTS.

DIMENSION NOTES

1. DO NOT SCALE DRAWINGS; WRITTEN DIMENSIONS GOVERN. ALL PARTITION LOCATIONS SHALL BE AS SHOWN ON PARTITION PLAN. IN CASE OF CONFLICT NOTIFY ARCHITECT. PARTITION PLAN BY ARCHITECT TAKES PRECEDENCE OVER ALL OTHER PLANS.
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SECOND FLOOR PLAN

A2.07

ROOF PLAN SPEC KEYNOTES

23 0000 05	AIR HANDLER UNITS, REFER TO MECHANICAL PLANS FOR FURTHER INFORMATION

GENERAL SHEET KEYNOTES

(8) EXISTING ROOF HATCH AND LADDER, CONTRACTOR TO CONFIRM OPENING MEETS CBC REQUIREMENTS

(11) EXISTING MECHANICAL ROOF SCREEN TO REMAIN, PROTECT IN PLACE

(28) EXISTING ROOF DRAIN TO REMAIN, CONTRACTOR TO PROTECT IN PLACE

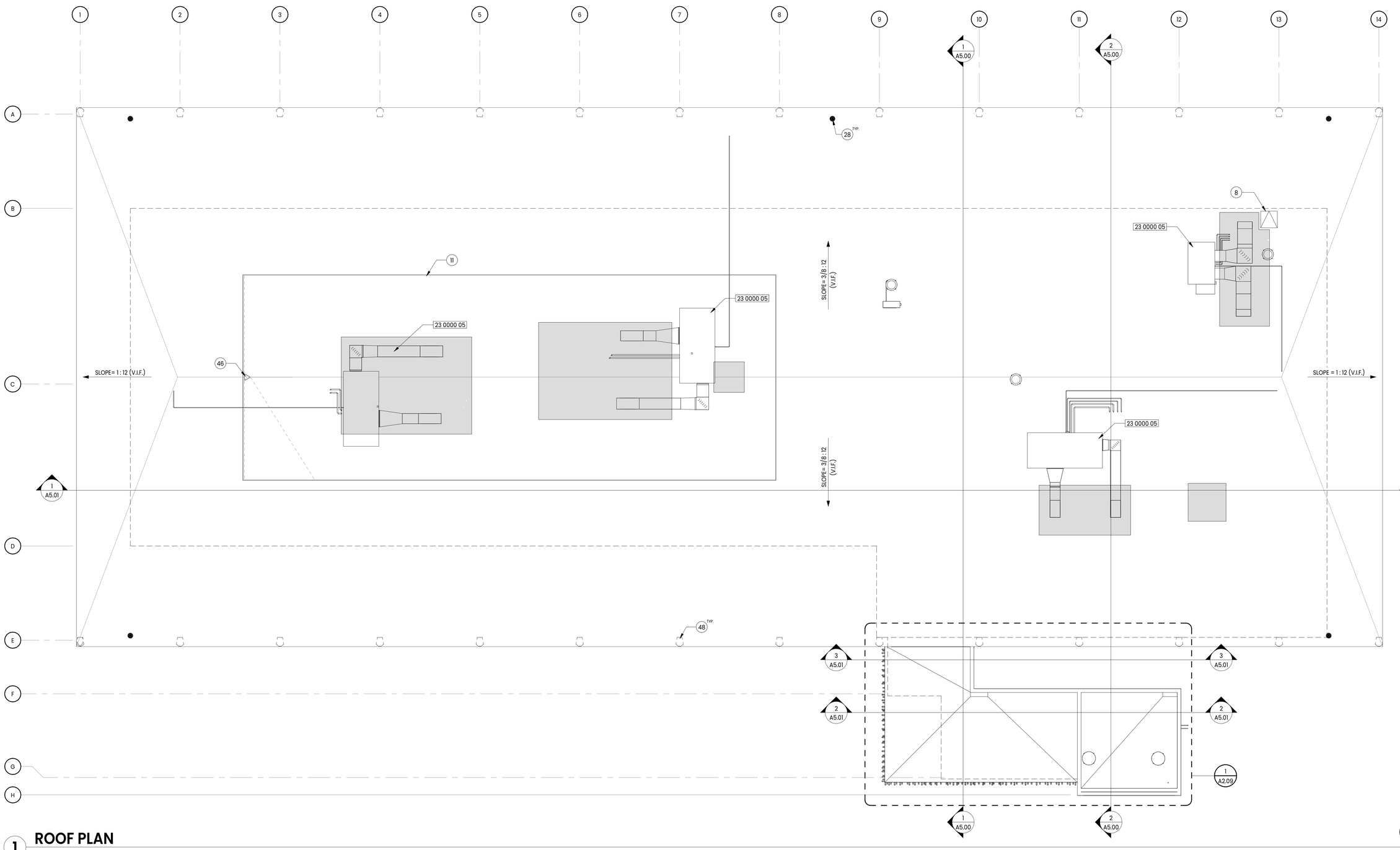
(46) EXISTING ANTENNA AND GUY WIRES, PROTECT IN PLACE

(48) EXISTING COLUMNS BELOW

ROOF PLAN LEGEND

ROOF PATCH TO MATCH EXISTING, SEE DETAIL - / ---

BUILDING OUTLINE BELOW



1 **ROOF PLAN**

1/8" = 1'-0"

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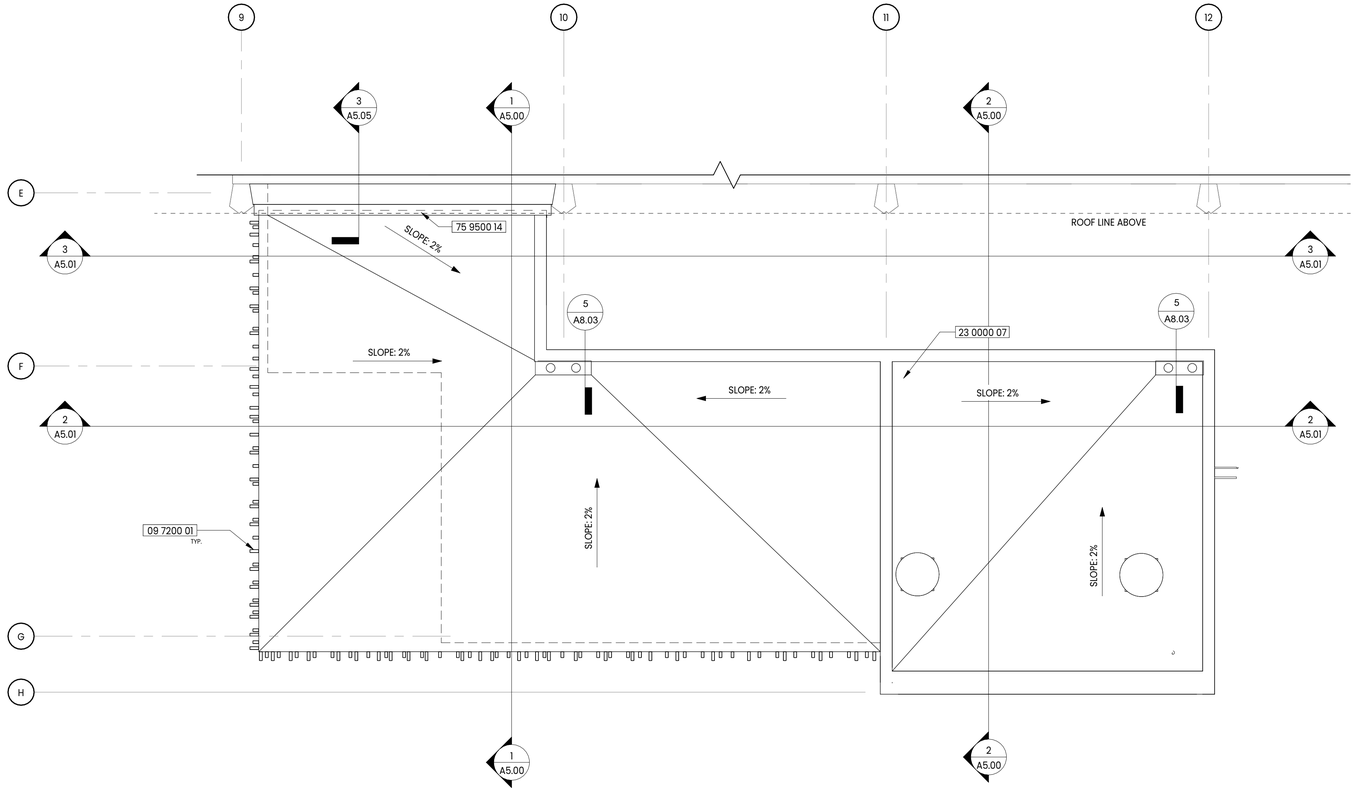
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ROOF PLAN

A2.08



1 ENARGED ROOF PLAN

1/4" = 1'-0"

N

ENLARGED ROOF PLAN LEGEND

BUILDING OUTLINE BELOW

ROOF PLAN SPEC KEYNOTES

09 7200 01	ARCHITECTURAL SHADE SYSTEM, PER MANUFACTURERS RECOMMENDATIONS
23 0000 06	VRF HEAT PUMP FAN COIL, REFER TO MECHANICAL PLANS FOR FURTHER INFORMATION
23 0000 07	REFRIGERANT PIPING DN, REFER TO MECHANICAL PLANS FOR FURTHER INFORMATION
75 9500 14	4" GAP EXPANSION JOINT FLASHING

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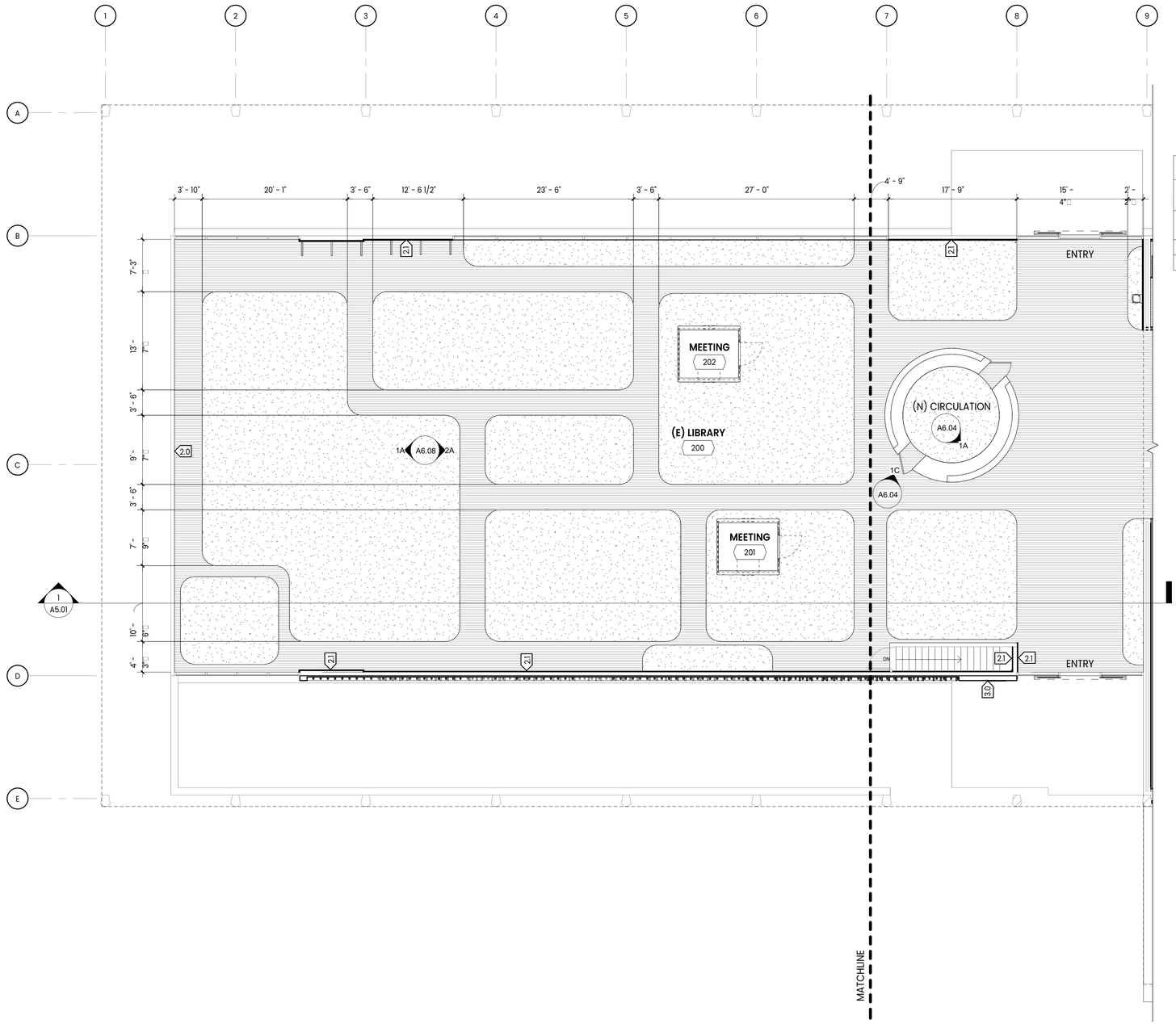
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ENLARGED ROOF PLAN

A2.09

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FLOOR PLAN FINSH LEGEND

- EXISTING WALL TO REMAIN
- EXISTING FLOOR FINISH TO REMAIN
- LUXURY VINYL TILE, REFER TO FLOOR SCHEDULE ON SHEET A7.02, REFER TO DETAIL 8/A8.03 FOR CARPET TO LVT TRANSITION
- CARPET, REFER TO FLOOR SCHEDULE ON SHEET A7.02, REFER TO DETAIL 8/A8.03 FOR CARPET TO LVT TRANSITION
- TILE
- # WALL TYPE TAG, SEE SHEET A7.02

FINISH SCHEDULE - A2.8A

ROOM NUMBER	ROOM NAME	FLOORING	BASE	CEILING	WALLS					NOTES
					NORTH	EAST	SOUTH	WEST	WAINSCOT	
200	(E) LIBRARY	CPT-1 / LVT	RB	ACP / (E)	PT-1	(E)	PT-1	(E)	-	SOFFIT DROPDOWN TO BE PAINTED PT-2
201	MEETING	FF	-	FF	FF	FF	FF	FF	-	
202	MEETING	FF	-	FF	FF	FF	FF	FF	-	

NOTES

1. RESTROOMS AND JANITOR CLOSETS TO HAVE WATER RESISTANT GYPSUM WALL BOARD.

ABBREVIATIONS

LVT	LUXURY VINYL TILE	CPT-1	CARPET - PLAYFUL PINE
		CPT-2	CARPET - BLUE SKIES
RB	4" RUBBER BASE	CPT-3	CARPET - BEING GREEN
		CPT-4	CARPET - LAGUNA
CB	6" CERAMIC TILE COVED BASE		
		CT-1	TILE - SONORA BEIGE
GB	GYPSUM BOARD	CT-2	TILE - WHITE DESERT
		CT-3	TILE - TURCHESE
ACT	ACOUSTIC CEILING TILE	CT-4	TILE - FERN
		CT-5	TILE - TAHQUITZ
ACP	ACOUSTIC CEILING METAL PANELS		
		PT-1	PAINT - ZURICH WHITE
SC	SEALED CONCRETE	PT-2	PAINT - BALBOA MIST
		PT-3	PAINT - AFTERGLOW
EXP	EXPOSED CEILING		
FF	FACTORY FINISH		

N

1 **FINISH FIRST FLOOR PLAN - A**
1/8" = 1'-0"

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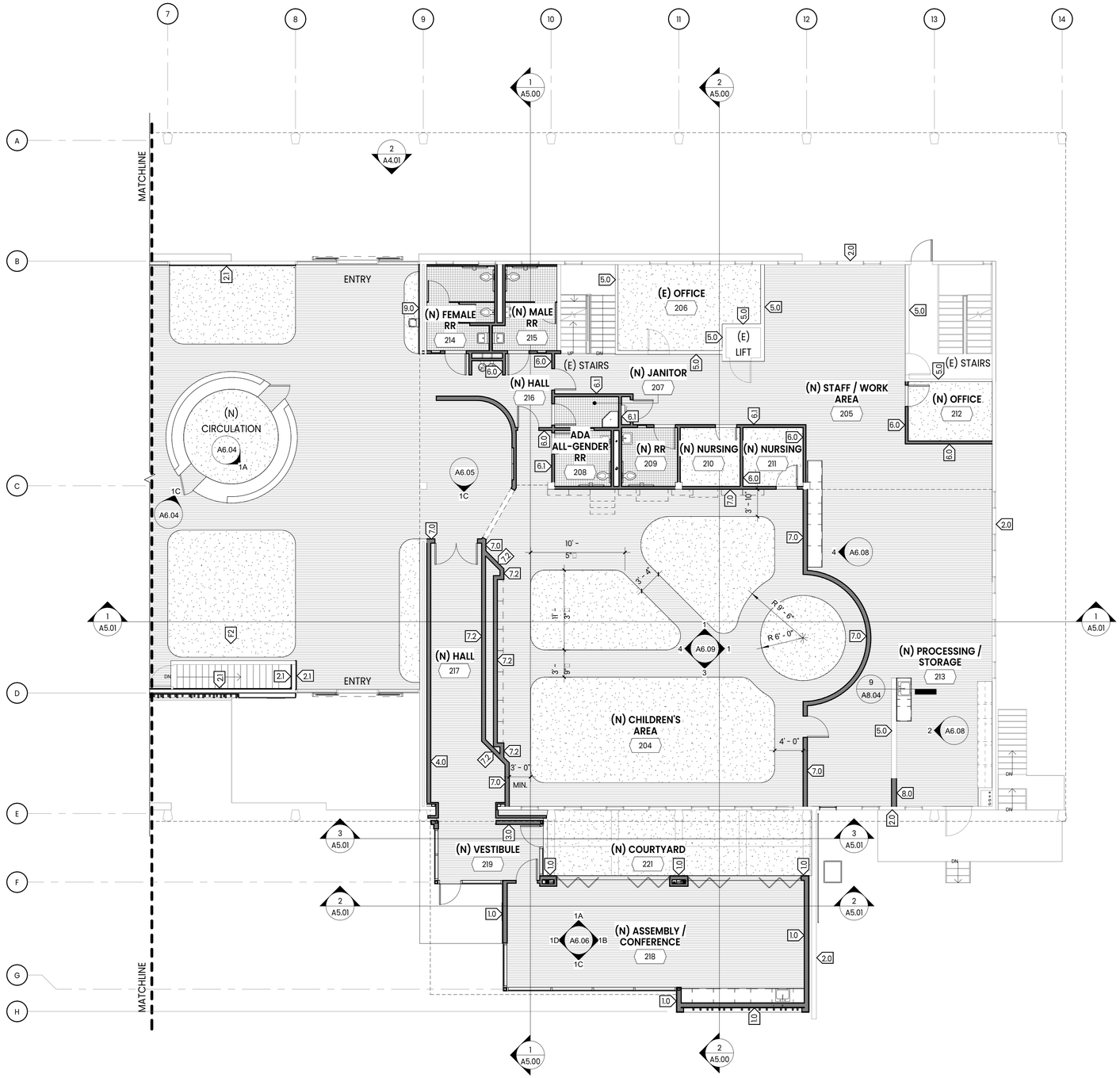
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FINISH FIRST FLOOR PLAN

A2.10A



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- TILE
- # WALL TYPE TAG, SEE SHEET A7.02

FINISH SCHEDULE - A2.8B

ROOM NUMBER	ROOM NAME	FLOORING	BASE	CEILING	WALLS					NOTES
					NORTH	EAST	SOUTH	WEST	WAINSCOT	
204	(N) CHILDREN'S AREA	CPT-1, CPT-2, CPT-3 / LVT	RB	PT-1	PT-1	VARIES	(E)	PT-1	-	
205	(N) STAFF / WORK AREA	LVT	RB	PT-1	PT-1 / (E)	PT-1	PT-1	PT-1	-	
206	(E) OFFICE	CPT-4	RB	PT-1	(E)	PT-1	PT-1	PT-1	-	
207	(N) JANITOR	CS	-	PT-1	PT-1	PT-1	PT-1	PT-1	-	
208	ALL-GENDER RR	CT-5	-	PT-3	PT-3	PT-3	PT-3	PT-3	CT-5	
209	(N) RR	CT-1	-	PT-1	PT-1	PT-1	PT-1	PT-1	CT-2	
210	(N) NURSING	CPT-4	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
211	(N) NURSING	CPT-4	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
212	(N) OFFICE	CPT-4	RB	PT-1	PT-1	(E)	PT-1	PT-1	-	
213	(N) PROCESSING / STORAGE	LVT	RB	PT-1	PT-1	(E)	(E)	PT-1	-	
214	(N) FEMALE RR	CT-1	-	PT-1	PT-1	PT-1	PT-1	PT-1	CT-4	
215	(N) MALE RR	CT-1	-	PT-1	PT-1	PT-1	PT-1	PT-1	CT-4	
216	(N) HALL	LVT	-	PT-1	PT-1	PT-1	PT-1	PT-1	-	
217	(N) HALL	LVT	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
218	(N) ASSEMBLY / CONFERENCE	LVT	RB	PT-1 / EXP.	PT-1	PT-1	PT-1	PT-1	-	
219	(N) VESTIBULE	LVT	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
220	(N) SELFIE WALL	LVT	RB	PT-1	PT-1	PT-1	PT-1	-	-	

NOTES

1. RESTROOMS AND JANITOR CLOSETS TO HAVE WATER RESISTANT GYPSUM WALL BOARD.

ABBREVIATIONS

LVT	LUXURY VINYL TILE	CPT-1	CARPET - PLAYFUL PINE
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GB	GYPSUM BOARD	CT-2	TILE - WHITE DESERT
		CT-3	TILE - TURCHESE
ACT	ACOUSTIC CEILING TILE	CT-4	TILE - FERN
		CT-5	TILE - TAHQUITZ
ACP	ACOUSTIC CEILING METAL PANELS		
		PT-1	PAINT - ZURICH WHITE
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EXP	EXPOSED CEILING		
FF	FACTORY FINISH		

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1 **FINISH FIRST FLOOR PLAN - B**
1/8" = 1'-0"

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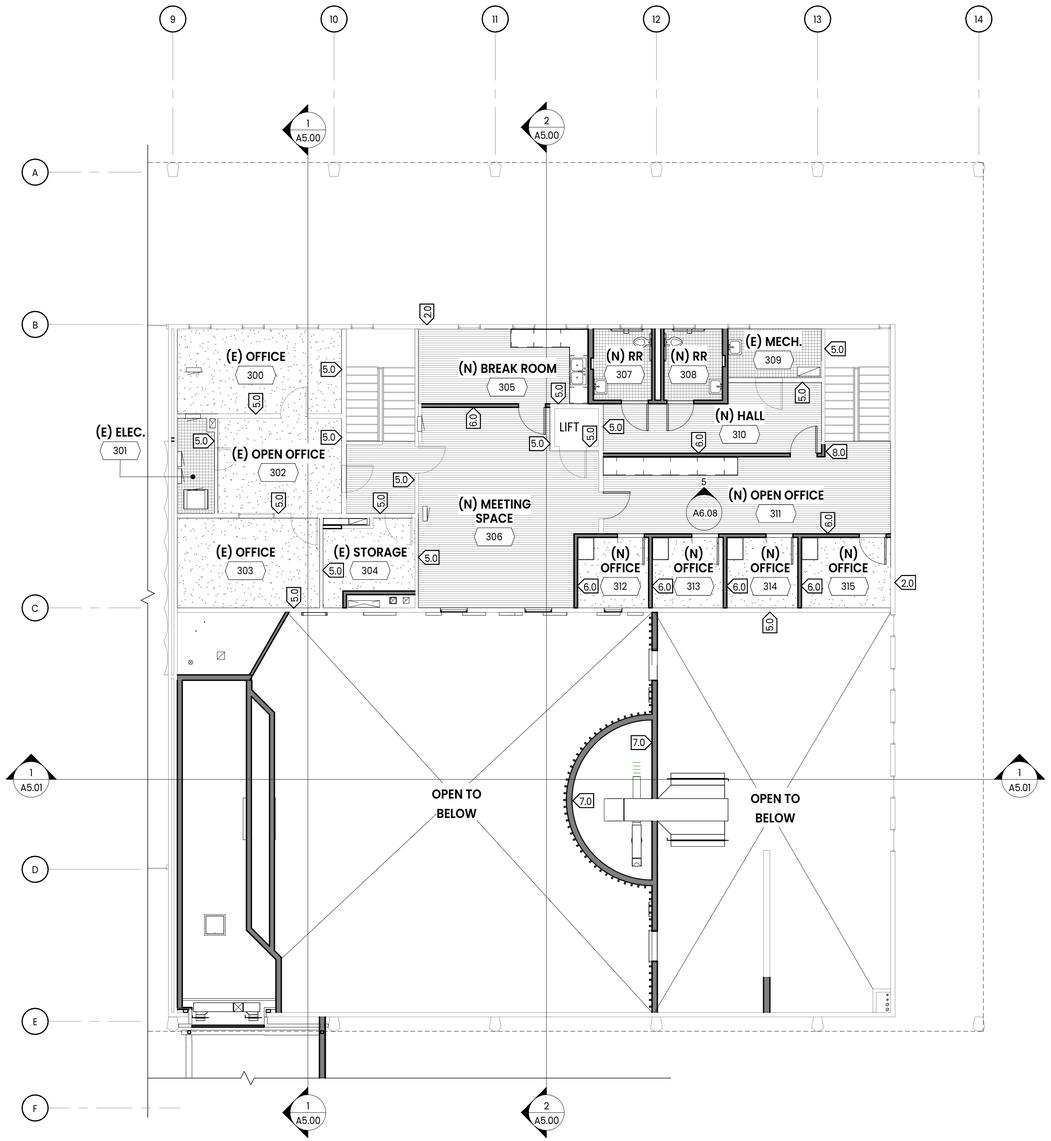
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FINISH FIRST FLOOR PLAN

A2.10B



FLOOR PLAN FINSH LEGEND

- EXISTING WALL TO REMAIN
- EXISTING FLOOR FINISH TO REMAIN
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- CARPET, REFER TO FLOOR SCHEDULE ON SHEET A7.02, REFER TO DETAIL 8/A8.03 FOR CARPET TO LVT TRANSITION
- TILE
- # WALL TYPE TAG, SEE SHEET A7.02

FINISH SCHEDULE - A2.11

ROOM NUMBER	ROOM NAME	FLOORING	BASE	CEILING	WALLS					NOTES
					NORTH	EAST	SOUTH	WEST	WAINSCOT	
300	(E) OFFICE	CPT-4	RB	PT-1	(E)	PT-1	PT-1	(E)	-	
301	(E) ELEC.	CS	-	PT-1	PT-1	PT-1	PT-1	(E)	-	
302	(E) OPEN OFFICE	CPT-4	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
303	(E) OFFICE	CPT-4	RB	PT-1	PT-1	PT-1	PT-1	(E)	-	
304	(E) STORAGE	CPT-4	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
305	(N) BREAK ROOM	LVT	RB	PT-1	(E)	PT-1	PT-1	PT-1	-	
306	(N) MEETING SPACE	LVT	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
307	(N) RR	CT-1	-	PT-1	(E)	PT-1	PT-1	PT-1	CT-2	
308	(N) RR	CT-1	-	PT-1	(E)	PT-1	PT-1	PT-1	CT-2	
309	(E) MECH.	CS	-	PT-1	(E)	PT-1	PT-1	PT-1	-	
310	(N) HALL	LVT	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
311	(N) OPEN OFFICE	LVT	RB	PT-1	PT-1	(E)	PT-1	PT-1	-	
312	(N) OFFICE	CPT-4	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
313	(N) OFFICE	CPT-4	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
314	(N) OFFICE	CPT-4	RB	PT-1	PT-1	PT-1	PT-1	PT-1	-	
315	(N) OFFICE	CPT-4	RB	PT-1	PT-1	(E)	PT-1	PT-1	-	

NOTES

1. RESTROOMS AND JANITOR CLOSETS TO HAVE WATER RESISTANT GYPSUM WALL BOARD.

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1 **FINISH SECOND FLOOR PLAN**
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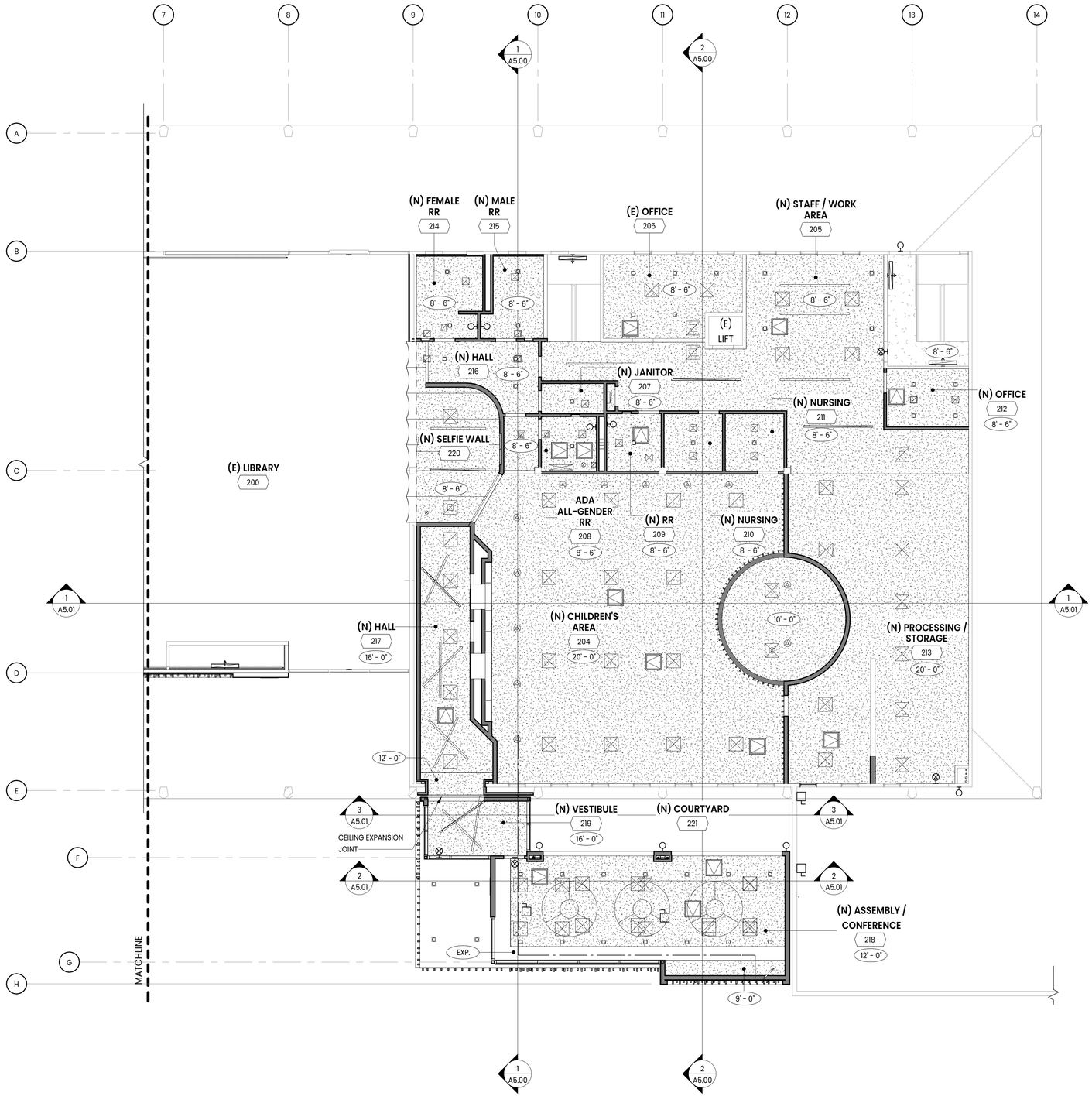
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FINISH SECOND FLOOR PLAN

A2.11



RCP LEGEND

- (E) PLASTER OR GYP. BD. CEILING
- (E) PLASTER SOFFIT, PAINT
- (N) PLASTER OR GYP. BD. CEILING
- (N) 2' X 4' ACT CEILING TILE, SEE DETAIL 6/A8.04 AND 8/A8.04 FOR SUSPENDED CEILING DETAILS
- CEILING ACCESS PANEL, FOR MORE INFORMATION SEE MECHANICAL

ELECTRICAL SYMBOLS LEGEND

- RECESSED HIGH EFFICACY CEILING LIGHT FIXTURE, SEE ELECTRICAL
- CEILING HUNG PENDANT HIGH EFFICACY LIGHT FIXTURE, SEE ELECTRICAL
- SURFACE MOUNTED HIGH EFFICACY LIGHT FIXTURE, SEE ELECTRICAL
- CEILING EXHAUST FAN, SEE MECHANICAL
- CEILING SUPPLY, SEE MECHANICAL
- CEILING RETURN, SEE MECHANICAL
- CEILING EXHAUST, SEE MECHANICAL
- SD — SMOKE DETECTOR
- CM — CARBON MONOXIDE DETECTOR
- 200 AMP. ELECTRICAL PANEL - GROUND TO EARTH GROUNDING ROD PER ELECTRICAL CODE.
- SURFACE HIGH EFFICIENCY LIGHT FIXTURE, SEE ELECTRICAL
- SURFACE HIGH EFFICIENCY LIGHT FIXTURE, SEE ELECTRICAL
- STRIP U.N.O. HIGH EFFICIENCY LIGHT FIXTURE, SEE ELECTRICAL
- MECHANICAL DUCT, SEE MECHANICAL
- PC — PHOTOCELL SENSOR, SEE ELECTRICAL
- OS — OCCUPANCY SENSOR, SEE ELECTRICAL
- LINEAR RECESSED CEILING LIGHT FIXTURE, SEE ELECTRICAL
- CEILING HUNG LIGHT PENDANT, SEE ELECTRICAL

N

1 **FIRST FLOOR REFLECTED CEILING PLAN - B**
1/8" = 1'-0"

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C-38886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

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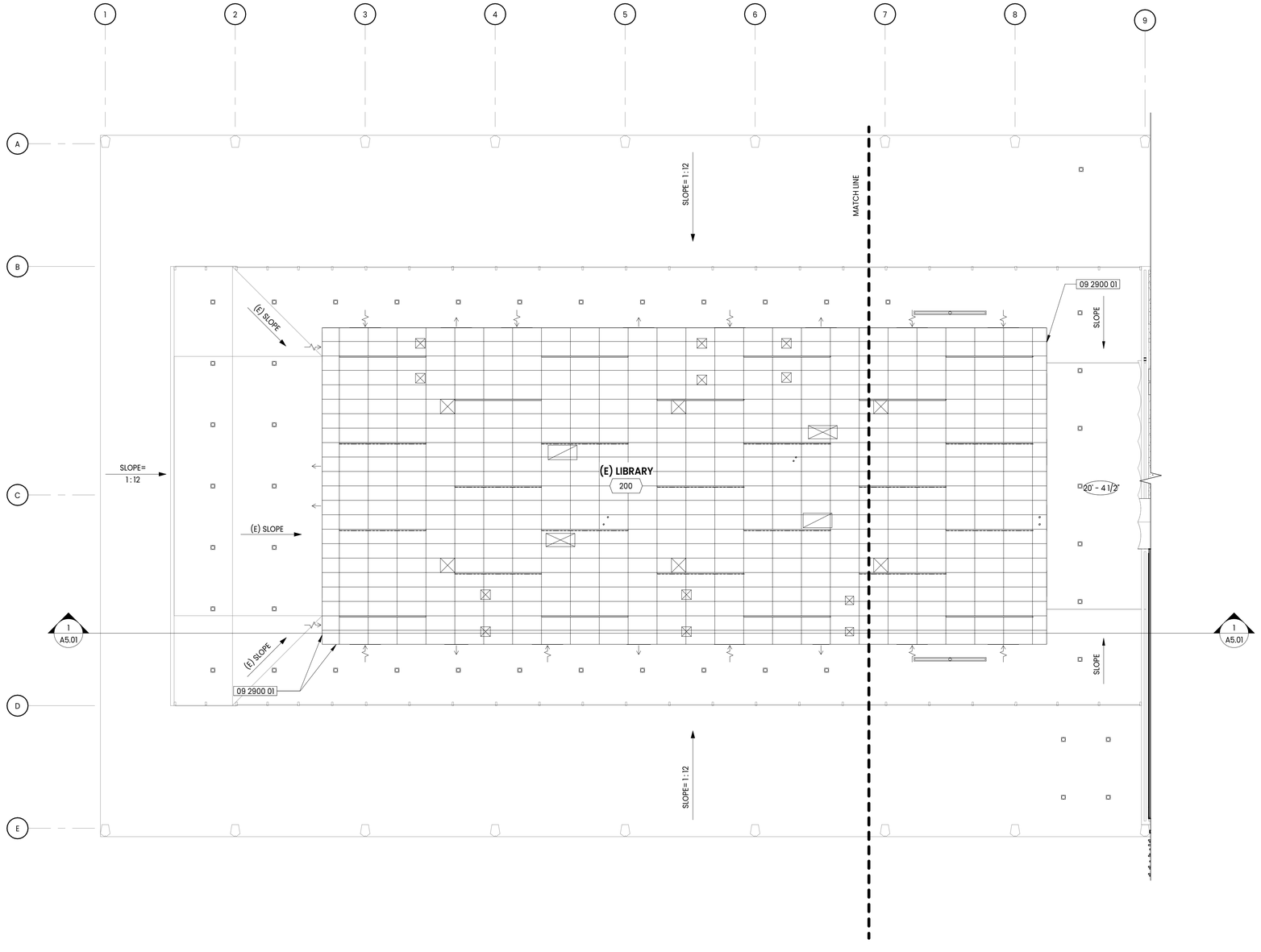
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FIRST FLOOR RCP

A3.00



RCP LEGEND

- (E) PLASTER OR GYP. BD. CEILING
- (E) PLASTER SOFFIT, PAINT
- (N) PLASTER OR GYP. BD. CEILING
- (N) 2' X 4' ACT CEILING TILE, SEE DETAIL 6/A8.04 AND 8/A8.04 FOR SUSPENDED CEILING DETAILS
- CEILING ACCESS PANEL, FOR MORE INFORMATION SEE MECHANICAL

RCP SPEC KEYNOTES

09 2900 01	GYPSUM BOARD OVER EXISTING METAL PANELS ON ALL FOUR SIDES

ELECTRICAL SYMBOLS LEGEND

- RECESSED HIGH EFFICACY CEILING LIGHT FIXTURE, SEE ELECTRICAL
- CEILING HUNG PENDANT HIGH EFFICACY LIGHT FIXTURE, SEE ELECTRICAL
- SURFACE MOUNTED HIGH EFFICACY LIGHT FIXTURE, SEE ELECTRICAL
- CEILING EXHAUST FAN, SEE MECHANICAL
- CEILING SUPPLY, SEE MECHANICAL
- CEILING RETURN, SEE MECHANICAL
- CEILING EXHAUST, SEE MECHANICAL
- SD — SMOKE DETECTOR
- CM — CARBON MONOXIDE DETECTOR
- 200 AMP. ELECTRICAL PANEL - GROUND TO EARTH GROUNDING ROD PER ELECTRICAL CODE.
- SURFACE HIGH EFFICIENCY LIGHT FIXTURE, SEE ELECTRICAL
- SURFACE HIGH EFFICIENCY LIGHT FIXTURE, SEE ELECTRICAL
- STRIP U.N.O. HIGH EFFICIENCY LIGHT FIXTURE, SEE ELECTRICAL
- MECHANICAL DUCT, SEE MECHANICAL
- PC — PHOTOCELL SENSOR, SEE ELECTRICAL
- OS — OCCUPANCY SENSOR, SEE ELECTRICAL
- LINEAR RECESSED CEILING LIGHT FIXTURE, SEE ELECTRICAL
- CEILING HUNG LIGHT PENDANT, SEE ELECTRICAL

N

1 MAIN LIBRARY REFLECTED CEILING PLAN

1/8" = 1'-0"

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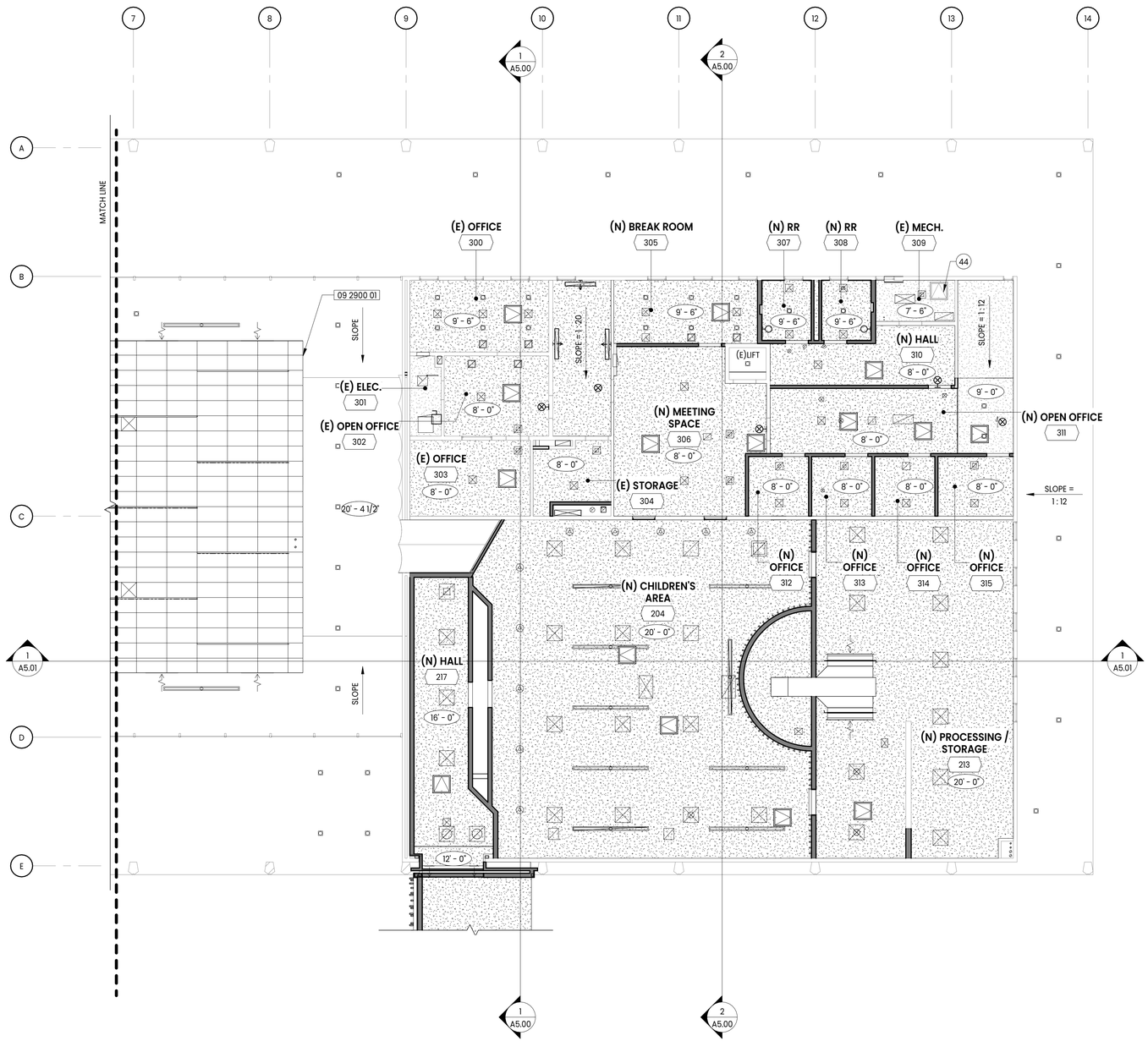
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MAIN LIBRARY RCP

A3.01A



RCP LEGEND

- (E) PLASTER OR GYP. BD. CEILING
- (E) PLASTER SOFFIT, PAINT
- (N) PLASTER OR GYP. BD. CEILING
- (N) 2' X 4' ACT CEILING TILE, SEE DETAIL 6/A8.04 AND 8/A8.04 FOR SUSPENDED CEILING DETAILS
- CEILING ACCESS PANEL, FOR MORE INFORMATION SEE MECHANICAL

RCP SPEC KEYNOTES

GENERAL SHEET KEYNOTES

(44) EXISTING CEILING ACCESS HATCH TO REMAIN

ELECTRICAL SYMBOLS LEGEND

- RECESSED HIGH EFFICACY CEILING LIGHT FIXTURE, SEE ELECTRICAL
- CEILING HUNG PENDANT HIGH EFFICACY LIGHT FIXTURE, SEE ELECTRICAL
- SURFACE MOUNTED HIGH EFFICACY LIGHT FIXTURE, SEE ELECTRICAL
- CEILING EXHAUST FAN, SEE MECHANICAL
- CEILING SUPPLY, SEE MECHANICAL
- CEILING RETURN, SEE MECHANICAL
- CEILING EXHAUST, SEE MECHANICAL
- (SD) SMOKE DETECTOR
- (CM) CARBON MONOXIDE DETECTOR
- 200 AMP. ELECTRICAL PANEL - GROUND TO EARTH GROUNDING ROD PER ELECTRICAL CODE.
- SURFACE HIGH EFFICIENCY LIGHT FIXTURE, SEE ELECTRICAL
- SURFACE HIGH EFFICIENCY LIGHT FIXTURE, SEE ELECTRICAL
- STRIP U.N.O. HIGH EFFICIENCY LIGHT FIXTURE, SEE ELECTRICAL
- MECHANICAL DUCT, SEE MECHANICAL
- PC PHOTOCELL SENSOR, SEE ELECTRICAL
- OS OCCUPANCY SENSOR, SEE ELECTRICAL
- LINEAR RECESSED CEILING LIGHT FIXTURE, SEE ELECTRICAL
- CEILING HUNG LIGHT PENDANT, SEE ELECTRICAL

N

1 SECOND FLOOR / MEZZANINE REFLECTED CEILING PLAN - B

1/8" = 1'-0"

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SECOND FLOOR RCP

A3.01B



1 **(E) MURAL**
N.T.S.

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EXISTING MURAL PHOTOS

A3.02

ELEVATION SPEC KEYNOTES	
02 4100 49	REMOVE EXISTING LOUVERED WINDOW AND PROVIDE NEW WINDOW IN ITS PLACE
09 2400 01	CONTRACTOR TO STUCCO OVER EXISTING BRICK WALL
09 2400 02	CONTRACTOR TO INFILL WALL TO MATCH EXISTING AND PROTECT EXISTING PIPING
10 1400 02	REINSTALL SALVAGED BUILDING PLAQUE
10 1400 03	COMMEMORATIVE PLAQUE, FOR ANCHORAGE SEE DETAIL X/AX

GENERAL SHEET KEYNOTES

9 EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE

10 OUTLINE OF BASEMENT BEYOND

45 APPROXIMATE LOCATION OF EXISTING COMMUNICATIONS EQUIPMENT SHOWN DASHED, PROTECT IN PLACE

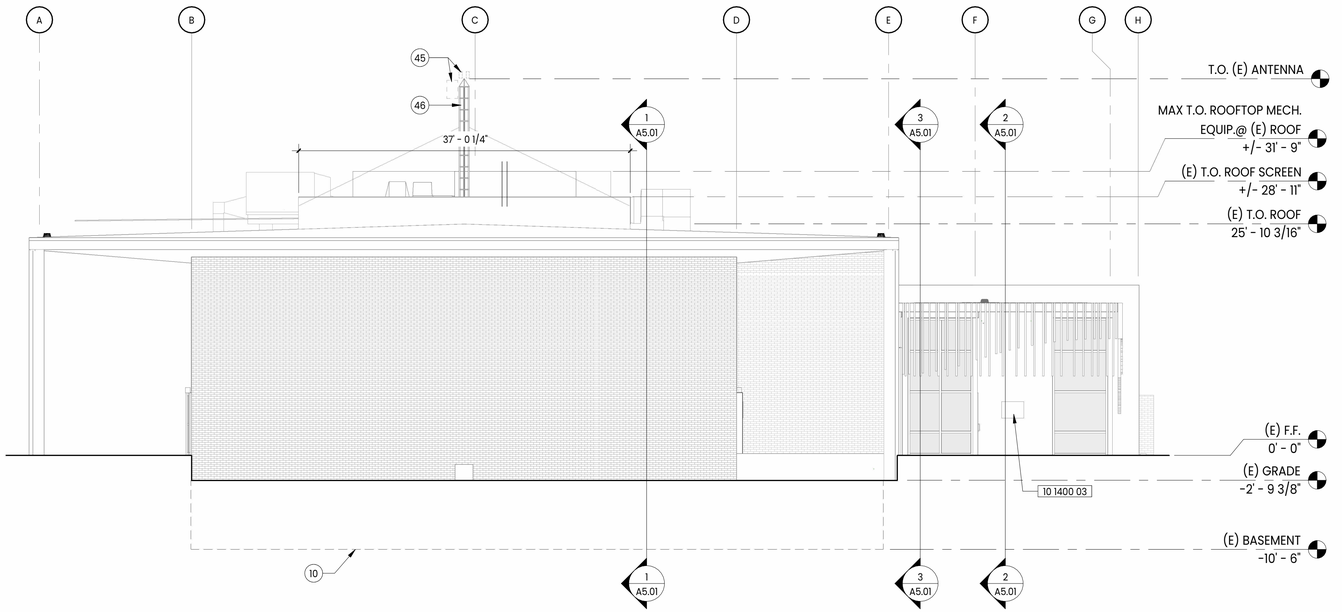
46 EXISTING ANTENNA AND GUY WIRES, PROTECT IN PLACE

LEGEND

EXISTING BRICK WALL TO REMAIN, PAINT PER FINISH SCHEDULE

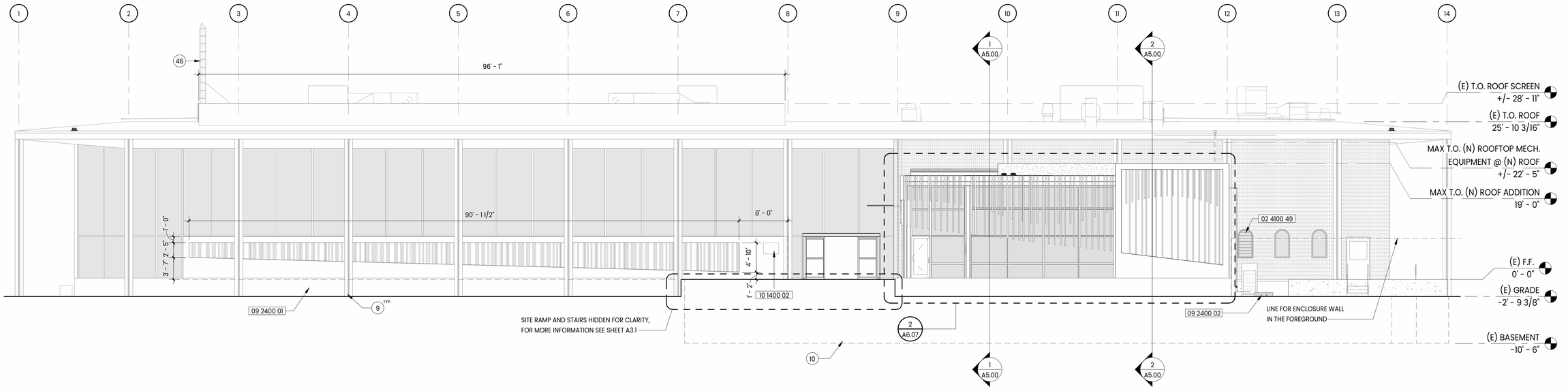
(N) STUCCO PER FINISH SCHEDULE, SEE WALL SCHEDULE ON SHEET A7.02

GLAZING STOREFRONT/WINDOW SYSTEM, SEE WINDOW SCHEDULE ON SHEET A7.01



1 WEST ELEVATION

1/8" = 1'-0"



2 SOUTH ELEVATION

1/8" = 1'-0"

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EXTERIOR ELEVATIONS

A4.00

ELEVATION SPEC KEYNOTES

02 4100 52	EXISTING LOUVERED WINDOW TO REMAIN
09 2400 01	CONTRACTOR TO STUCCO OVER EXISTING BRICK WALL

GENERAL SHEET KEYNOTES

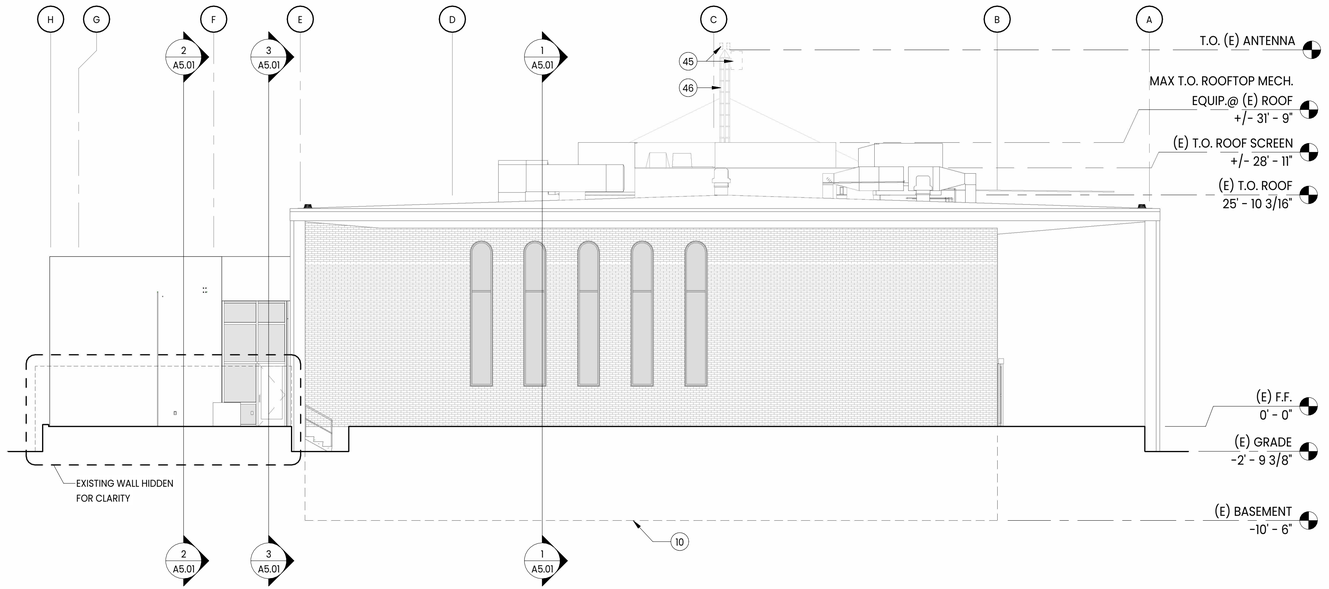
9 EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE
10 OUTLINE OF BASEMENT BEYOND
45 APPROXIMATE LOCATION OF EXISTING COMMUNICATIONS EQUIPMENT SHOWN DASHED, PROTECT IN PLACE
46 EXISTING ANTENNA AND GUY WIRES, PROTECT IN PLACE

LEGEND

EXISTING BRICK WALL TO REMAIN, PAINT PER FINISH SCHEDULE

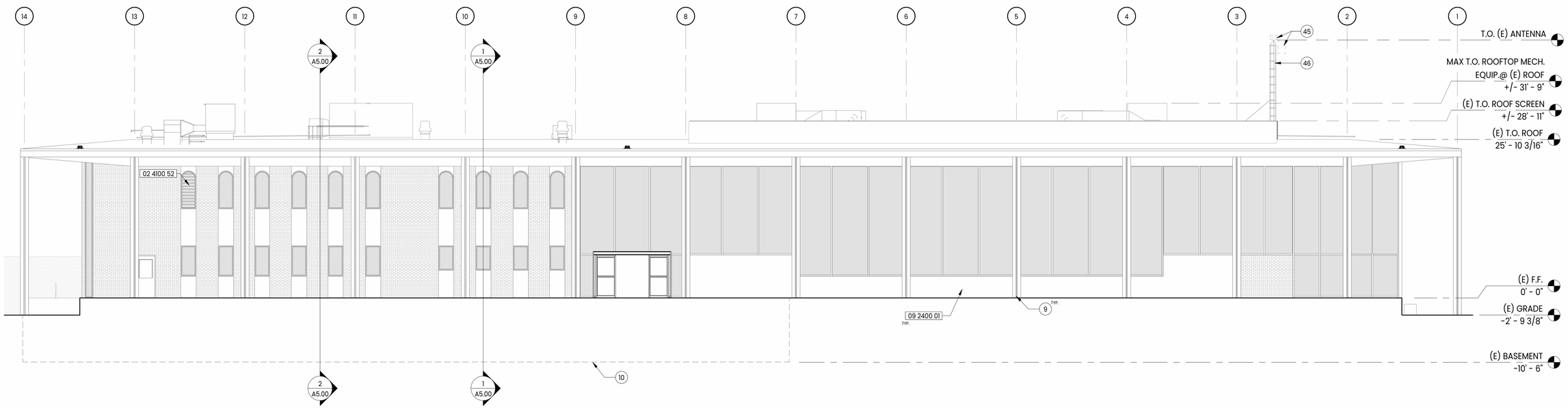
(N) STUCCO PER FINISH SCHEDULE, SEE WALL SCHEDULE ON SHEET A7.02

GLAZING STOREFRONT/WINDOW SYSTEM, SEE WINDOW SCHEDULE ON SHEET A7.01



1 EAST ELEVATION

1/8" = 1'-0"



2 NORTH ELEVATION

1/8" = 1'-0"

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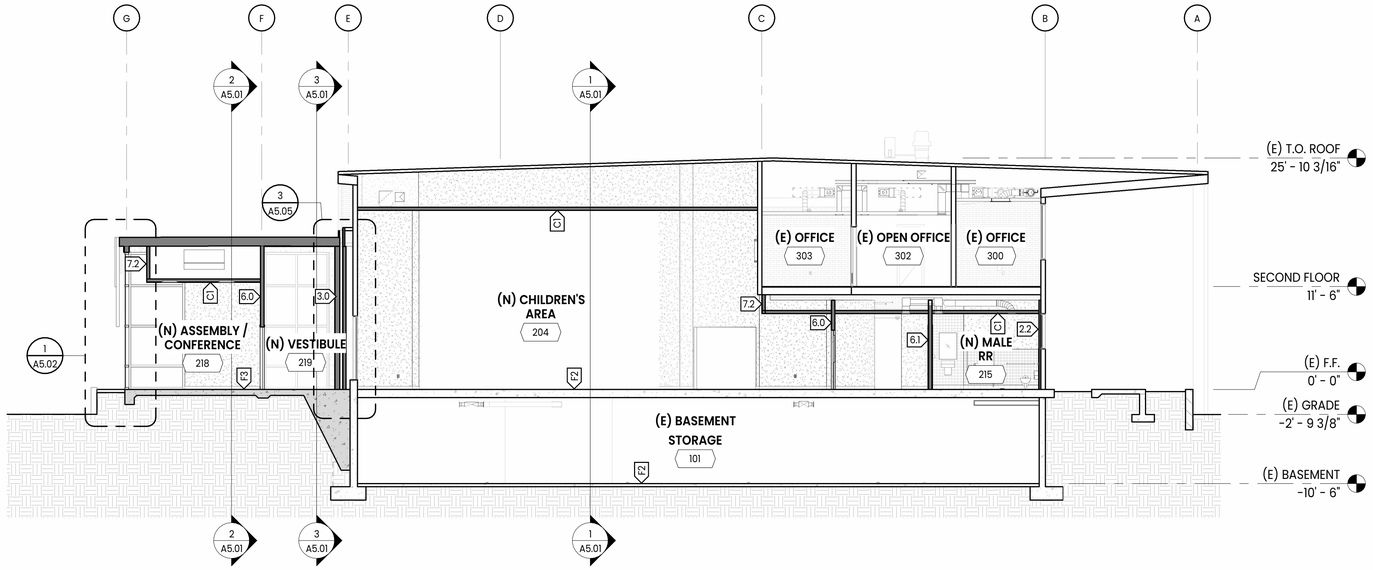
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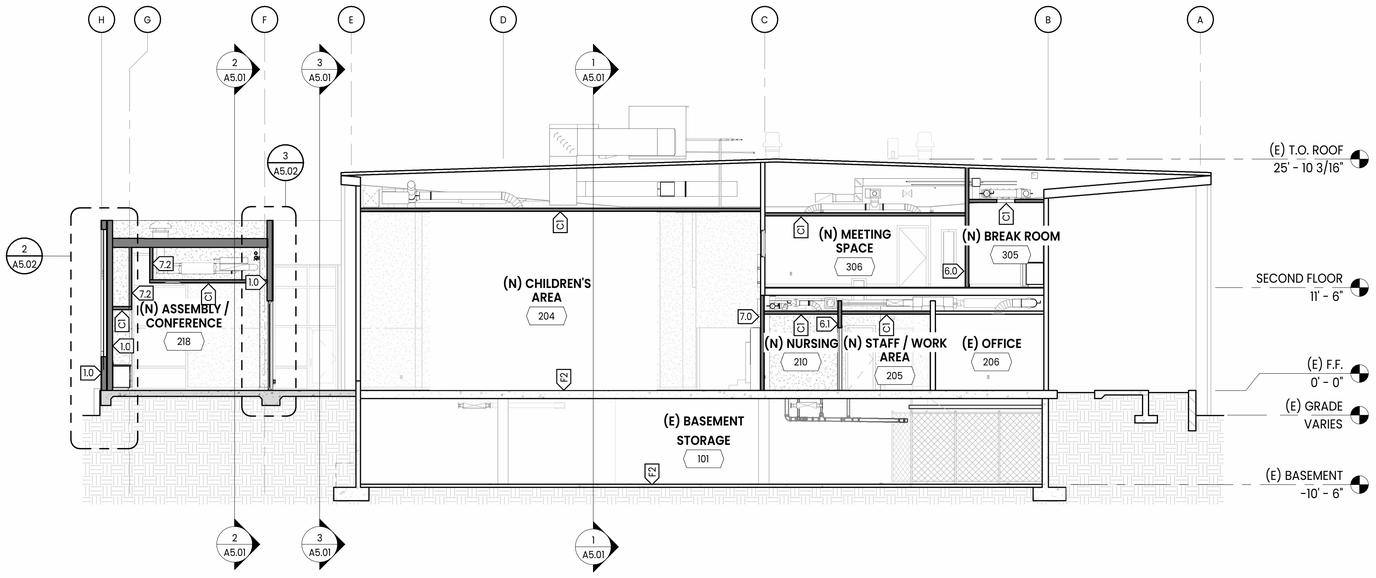
EXTERIOR ELEVATIONS

A4.01



1 SECTION A-A

1/8" = 1'-0"



2 SECTION B-B

1/8" = 1'-0"

BUILDING SECTIONS LEGEND

WALL, FLOOR, OR CEILING ASSEMBLY TYPE, SEE SHEET A7.02

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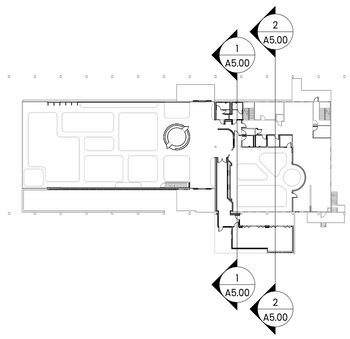
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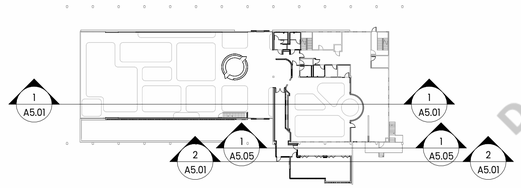
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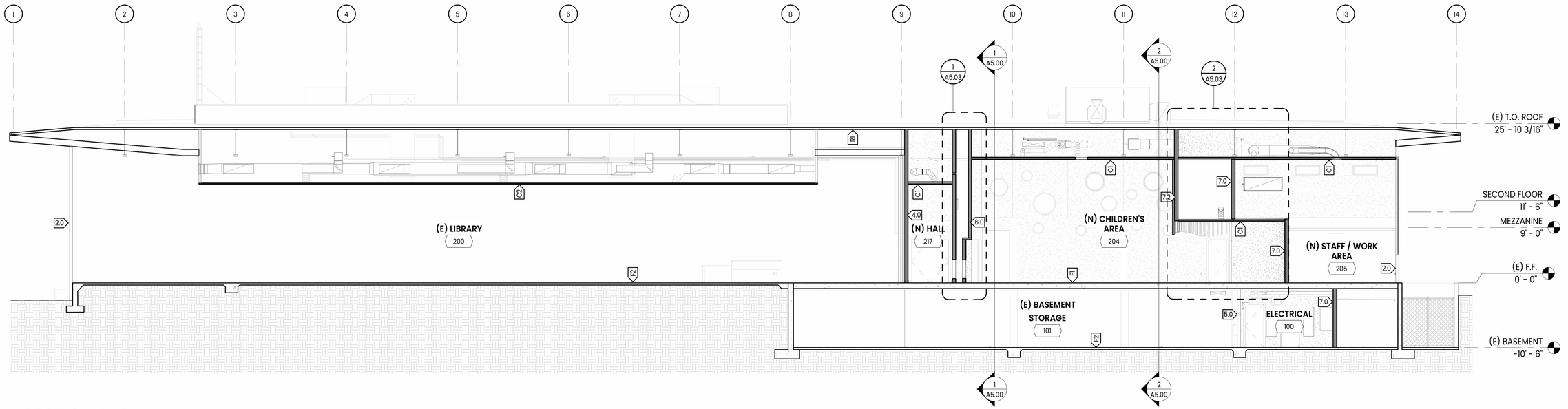
SECTIONS

A5.00

BUILDING SECTIONS LEGEND

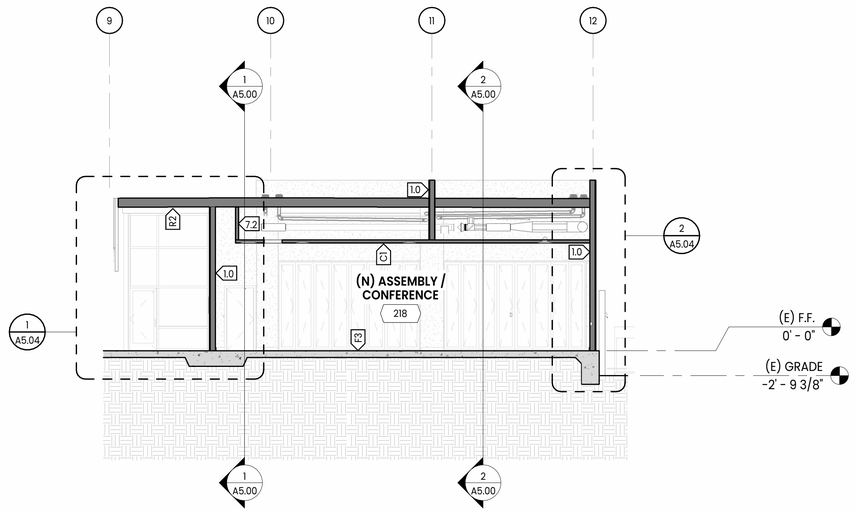
WALL, FLOOR, OR CEILING ASSEMBLY TYPE, SEE SHEET A7.02





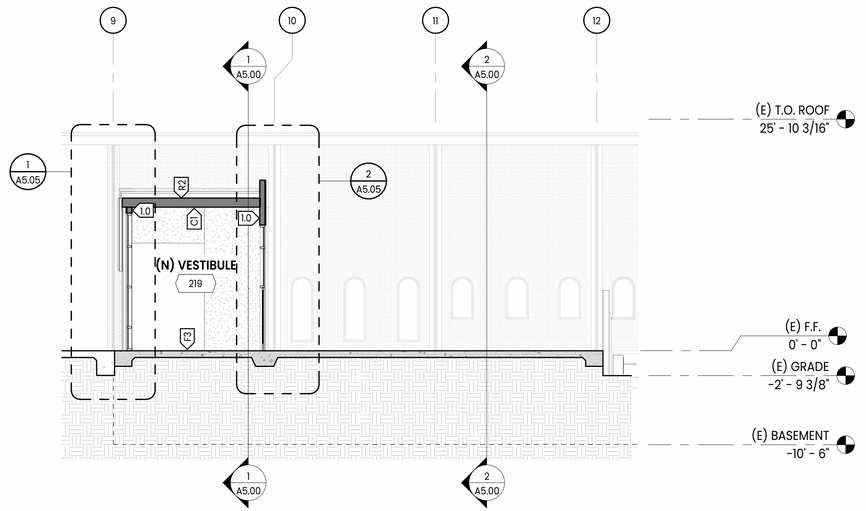
1 SECTION C-C

1/8" = 1'-0"



2 SECTION D-D

1/8" = 1'-0"



3 SECTION E-E

1/8" = 1'-0"

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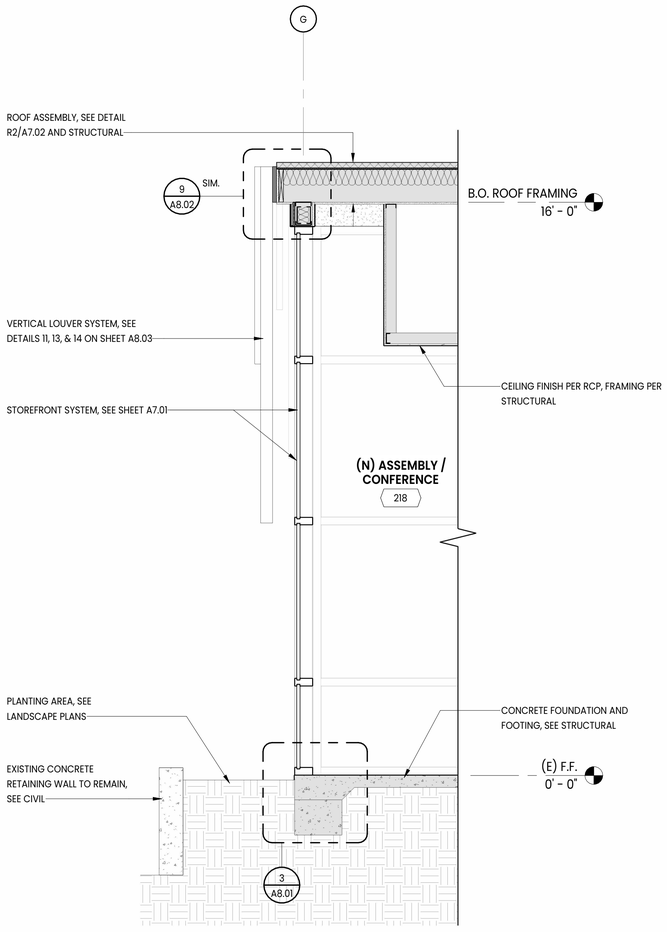
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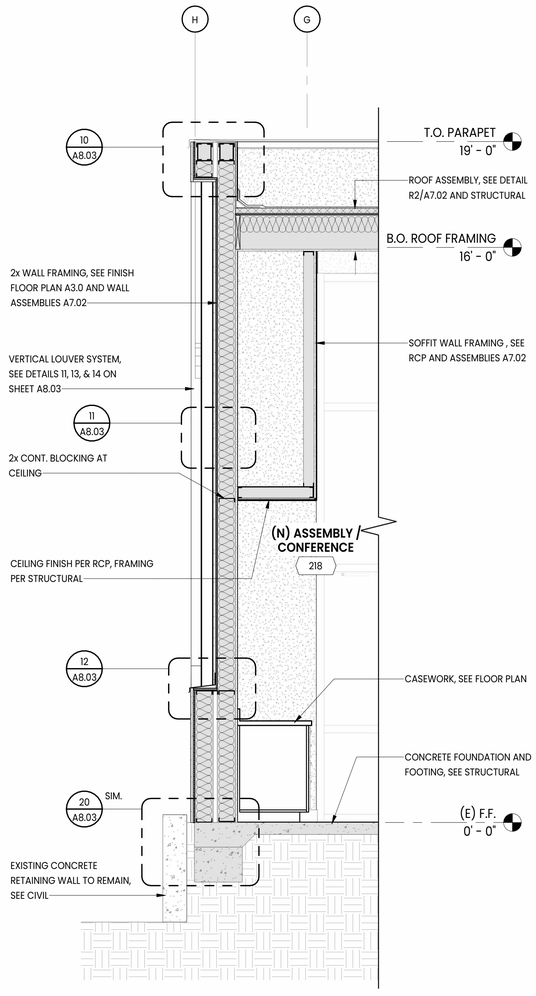
SECTIONS

A5.01



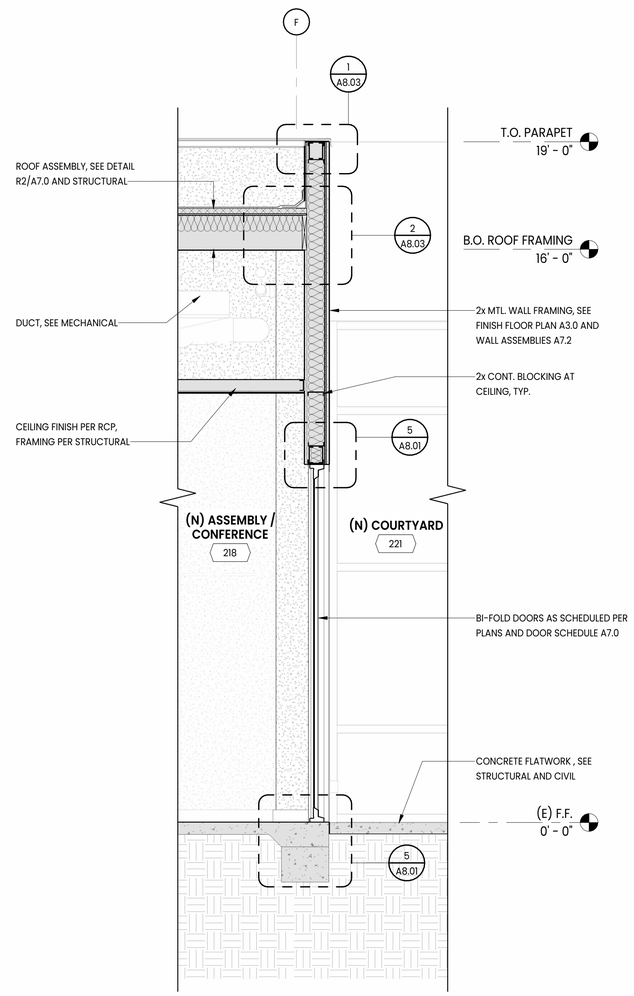
1 WALL SECTION @ ADDITION SPACE

1/2" = 1'-0"



2 WALL SECTION B-B1

1/2" = 1'-0"



3 WALL SECTION B-B2

1/2" = 1'-0"

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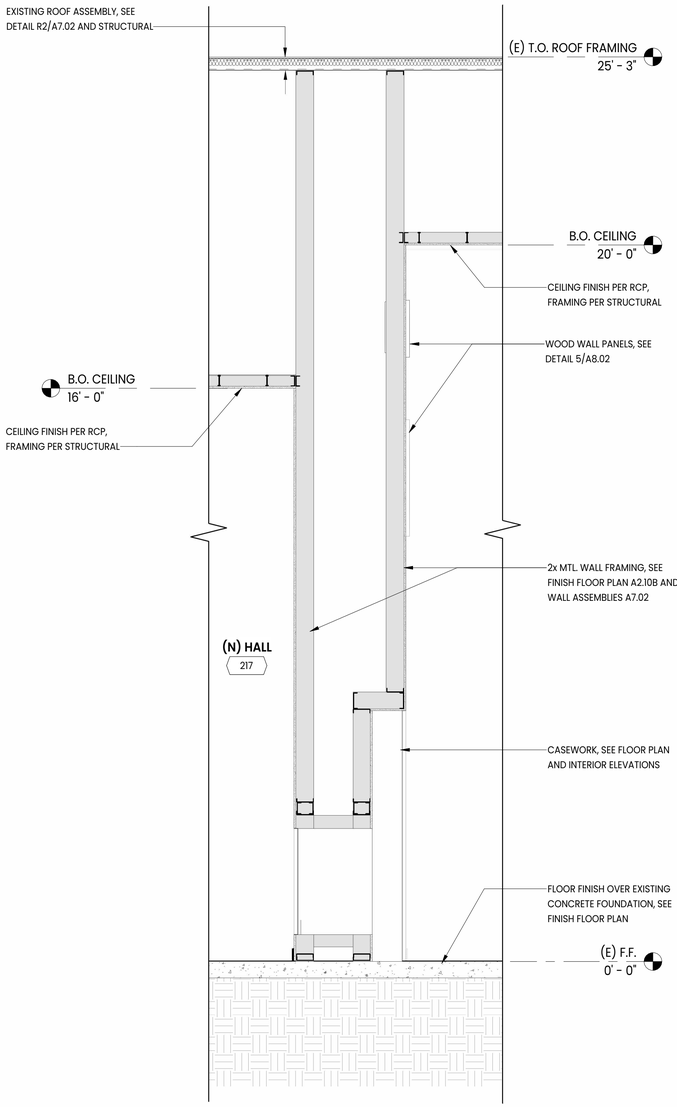
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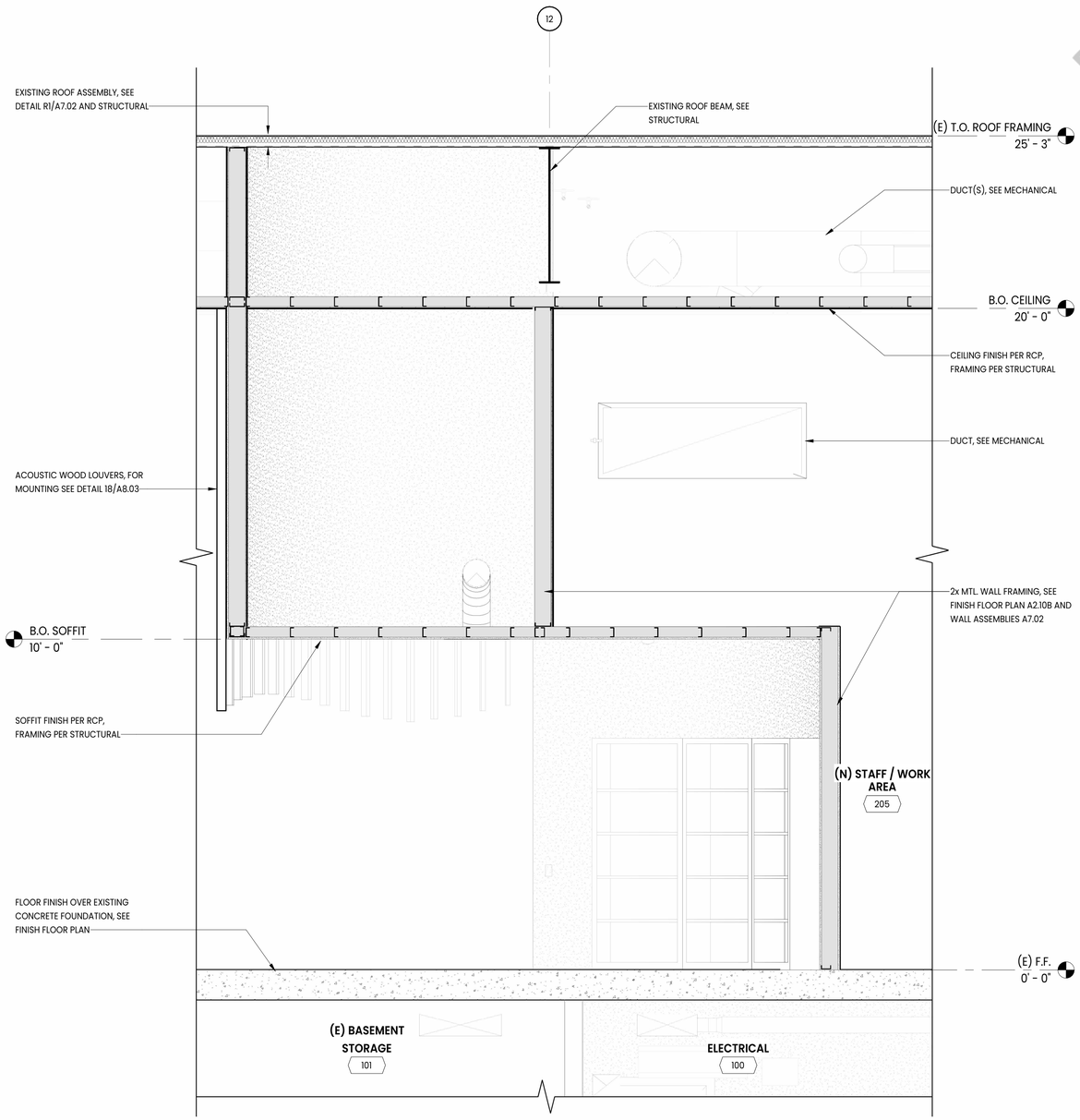
WALL SECTIONS

A5.02



1 WALL SECTION C-C1

1/2" = 1'-0"



2 WALL SECTION C-C2

1/2" = 1'-0"

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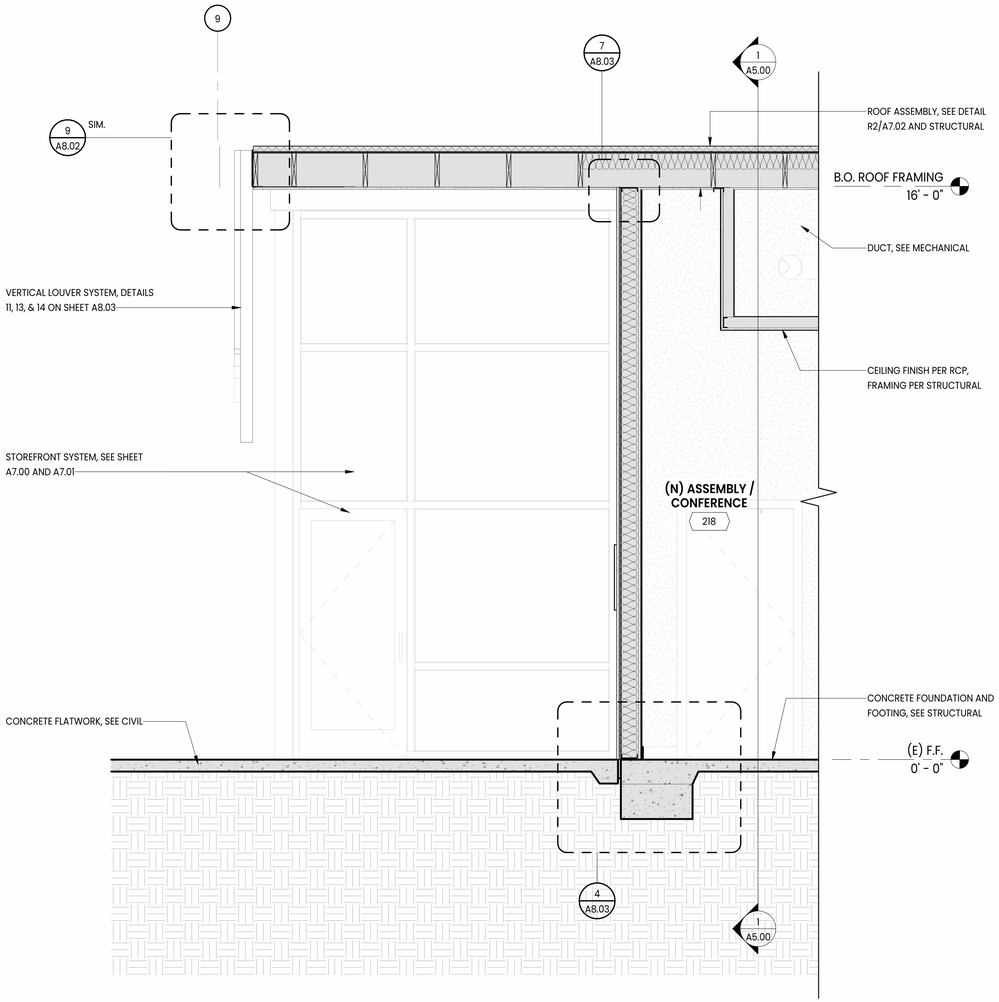
HANFORD LIBRARY REMODEL

KINGS COUNTY LIBRARY
401 N DOUTY STREET
HANFORD, CA 93230
APN: 010-271-017-000

PLOT DATE: 03/18/25
JOB NO.: 23467

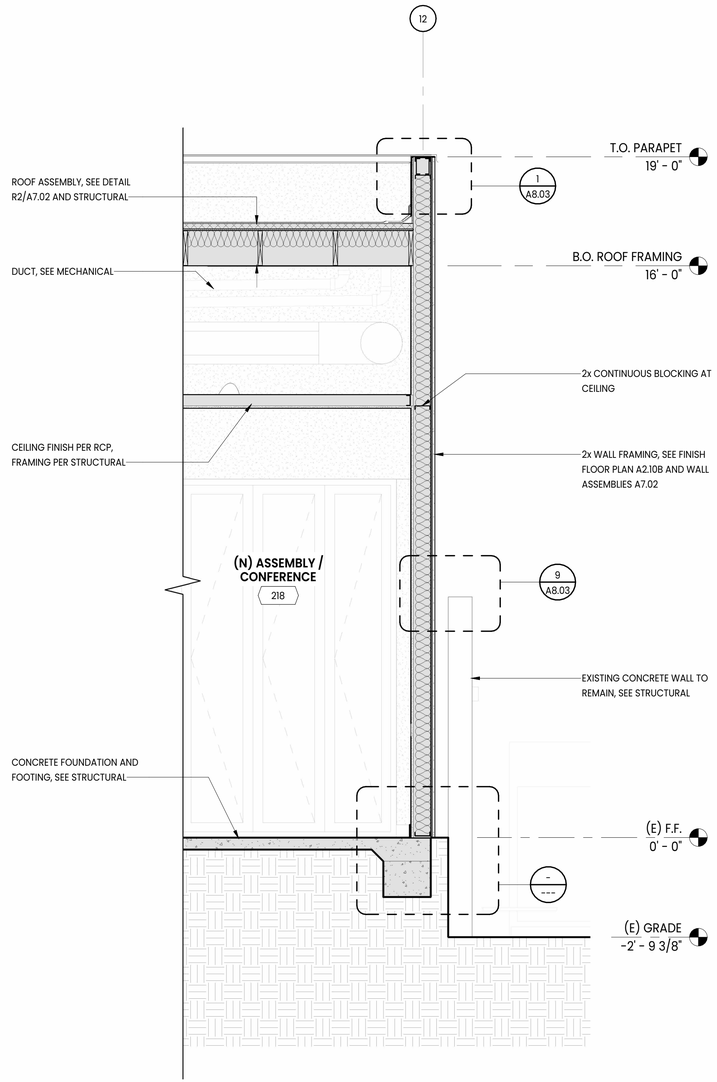
WALL SECTIONS

A5.03



1 WALL SECTION D-D1

1/2" = 1'-0"



2 WALL SECTION D-D2

1/2" = 1'-0"

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SUITE A
VISALIA, CA 93292
WEB: 4-Creeks.com
TEL: 559.802.3052
FAX: 559.802.3215

LICENSED ARCHITECT
WILLIAM D. RUOFF III
C-36886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

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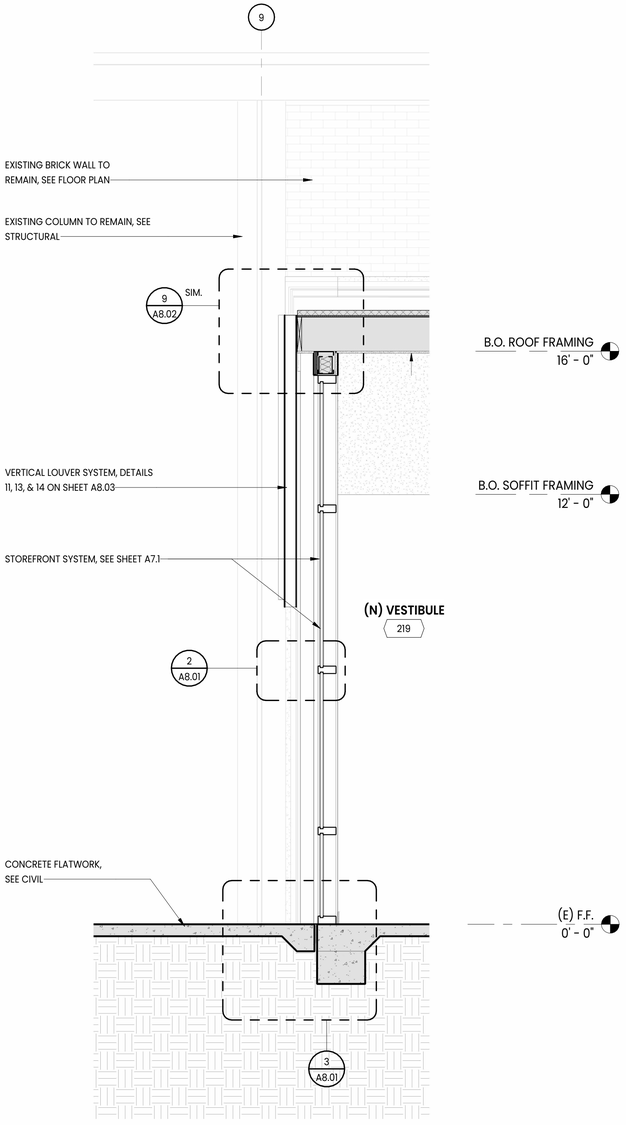
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KINGS COUNTY LIBRARY

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HANFORD, CA 93230
APN: 010-271-017-000

PLOT DATE: 03/19/25
JOB NO.: 23467

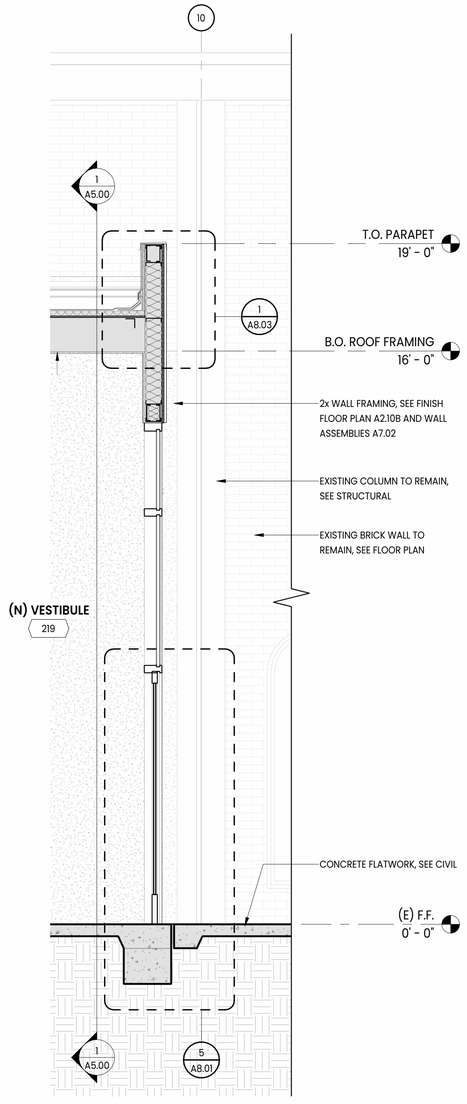
WALL SECTIONS

A5.04



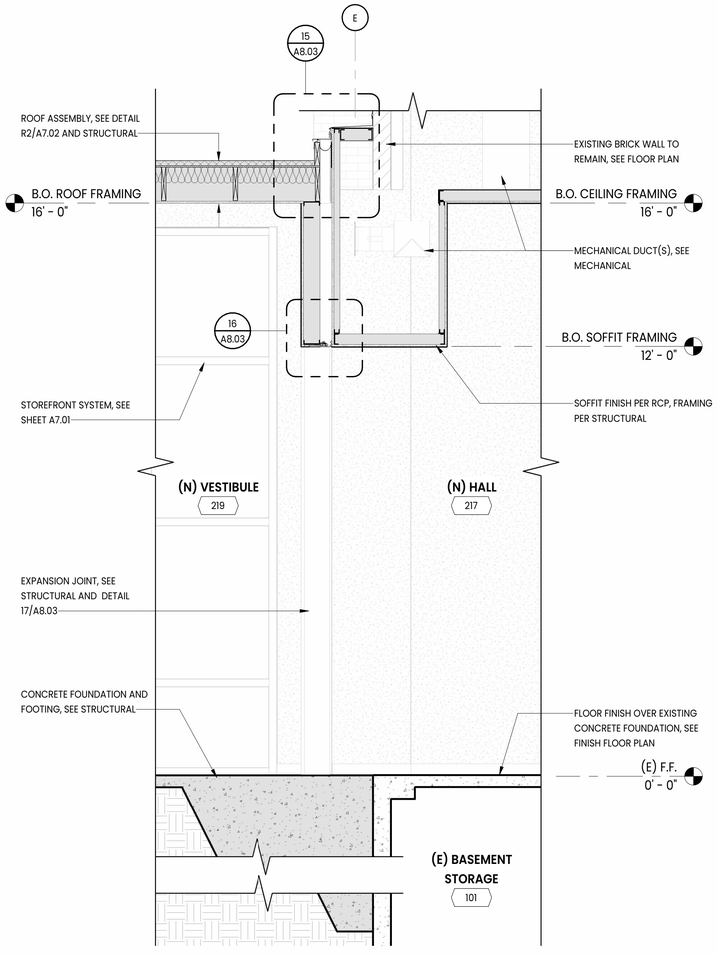
1 WALL SECTION E-E1

1/2" = 1'-0"



2 WALL SECTION E-E2

1/2" = 1'-0"



3 WALL SECTION E-E3

1/2" = 1'-0"

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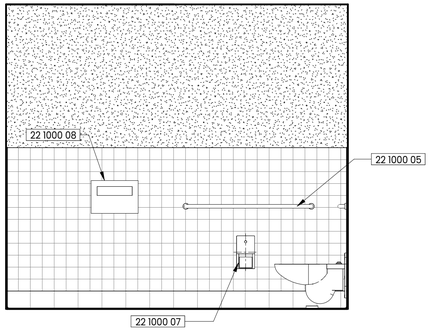
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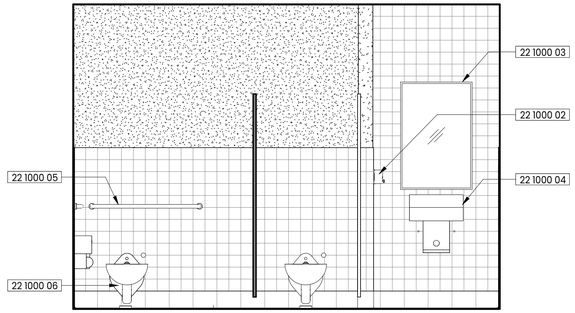
PLOT DATE: 03/20/25
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WALL SECTIONS

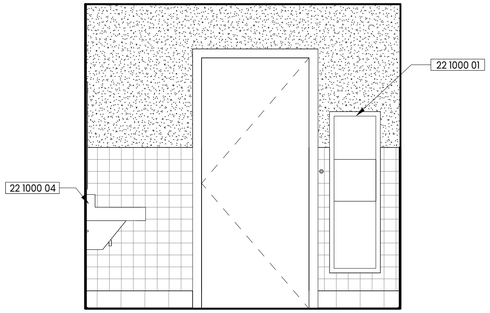
A5.05



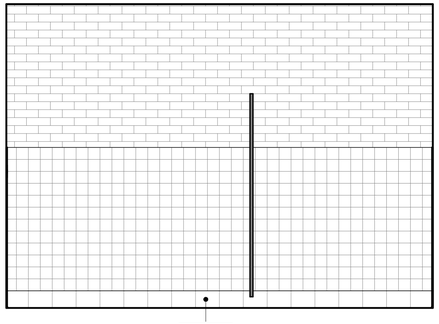
NORTH - 1A



EAST - 1B



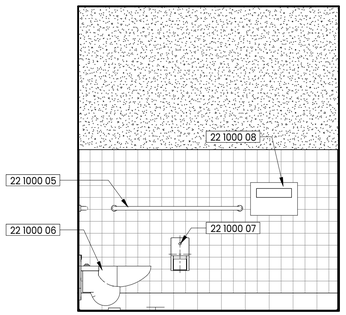
SOUTH - 1C



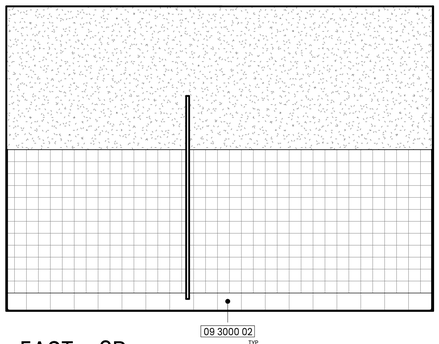
WEST -1D

1 (N) FEMALE RR - 214

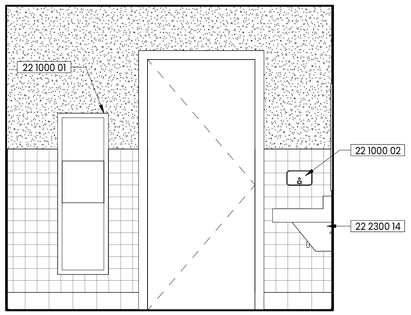
1/2" = 1'-0"



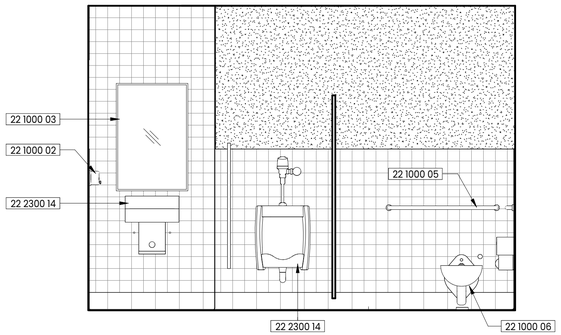
NORTH - 2A



EAST - 2B



SOUTH - 2C



WEST -2D

2 (N) MALE RR - 215

1/2" = 1'-0"

SPEC KEYNOTES

09 3000 02	TILE COVED BASE, SEE FINISH SCHEDULE
22 1000 01	RECESSED PAPER TOWEL DISPENSER AND TRASH BIN, REFER TO DETAIL 6/A8.00 FOR ADA HEIGHTS
22 1000 02	SOAP DISPENSER, REFER TO DETAIL 6/A8.00 FOR ADA HEIGHTS
22 1000 03	MIRROR, SEE DETAIL 6/A8.00 FOR ADA HEIGHTS
22 1000 04	ADA ACCESSIBLE SINK AND FAUCET, SEE DETAIL 3/A8.00 FOR ADA HEIGHTS AND SIZING, REFER TO PLUMBING PLANS FOR FURTHER INFORMATION
22 1000 05	ADA ACCESSIBLE GRAB BARS AT WATER CLOSET, SEE DETAIL 7/A8.00 FOR MOUNTING HEIGHTS AND SIZING
22 1000 06	ADA ACCESSIBLE WATER CLOSET, SEE PLUMBING AND DETAIL 7/A8.00 FOR ADA MOUNTING HEIGHT REQUIREMENTS
22 1000 07	TOILET DISPENSER, REFER TO DETAIL 7/A8.00 FOR ADA MOUNTING HEIGHTS
22 1000 08	SEAT COVER DISPENSER, REFER TO DETAIL 6/A8.00 FOR ADA HEIGHTS
22 2200 13	ADA ACCESSIBLE HI-LO DRINKING FOUNTAIN, SEE DETAIL 14/A8.00 AND PLUMBING PLANS
22 2300 14	ADA ACCESSIBLE URINAL, SEE PLUMBING AND DETAIL 12/A8.00 FOR ADA MOUNTING HEIGHT REQUIREMENTS

GENERAL SHEET KEYNOTES

51 CLEAR FLOOR SPACE AT WATER CLOSET, SEE DETAIL 4/A8.00

52 CLEAR FLOOR SPACE AT URINAL, SEE DETAIL 12/A8.00

53 30"x48" LEVEL MANEUVERING FLOOR CLEARANCE AT LAVATORY, SEE DETAIL 3/A8.00

54 LEVEL MANEUVERING CLEARANCE AT DOOR, SEE DETAIL 1/A8.00

55 30"x48" CLEAR FLOOR SPACE AT DRINKING FOUNTAIN, SEE DETAIL 14/A8.00

56 60" TURNING RADIUS CLEAR FLOOR SPACE

FLOOR PLAN WALL LEGEND

EXISTING WALL TO REMAIN

NEW 2X WALL PER WALL ASSEMBLY TAG

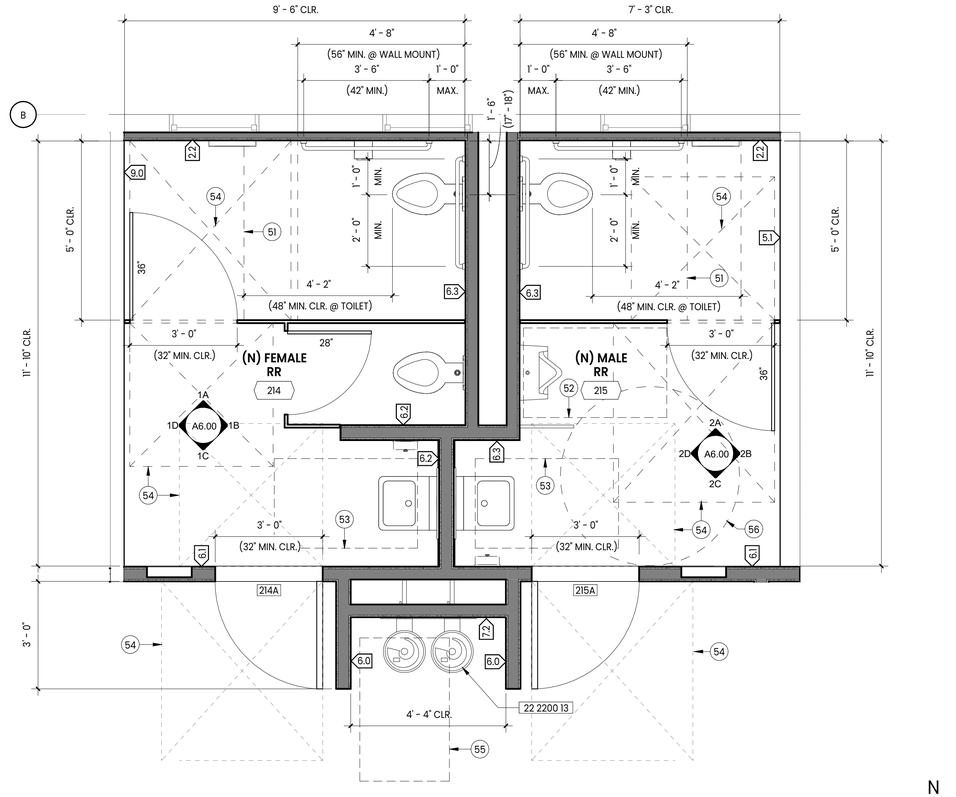
GYP. BOARD FINISH, SEE FINISH PLAN AND SCHEDULE

EXISTING BRICK WALL TO REMAIN, PROTECT IN PLACE

TILE WALL AND COVED BASE, SEE WALL ASSEMBLIES ON SHEET A7.02

WALL ASSEMBLY TYPE, SEE SHEET A7.02

DOOR TAG, SEE DOOR SCHEDULE SHEET A7.00



3 (N) ENLARGED RESTROOMS - 214 / 215

1/2" = 1'-0"

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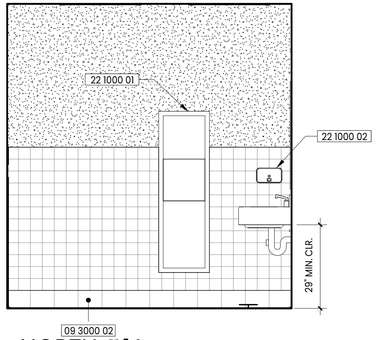
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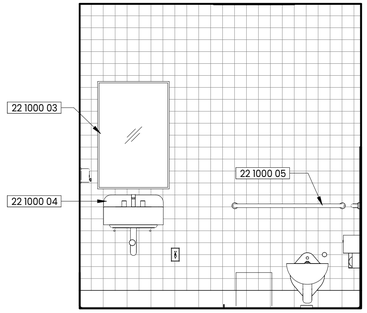
PLOT DATE: 10/25/2024
JOB NO.: 23467

ENLARGED RESTROOM PLAN

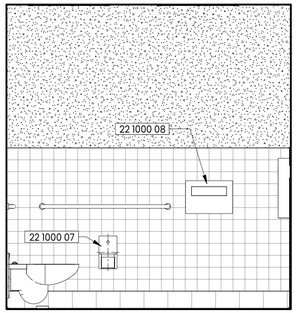
A6.00



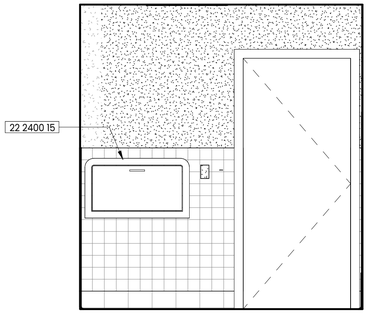
NORTH - 1A



EAST - 1B



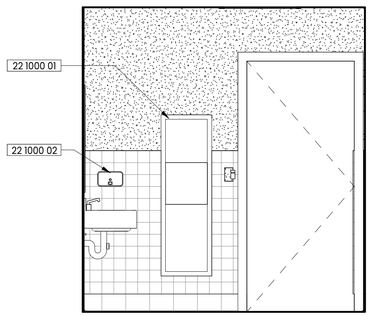
SOUTH - 1C



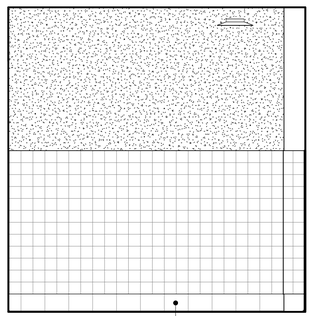
WEST -1D

1 ADA ALL-GENDER RR - 208

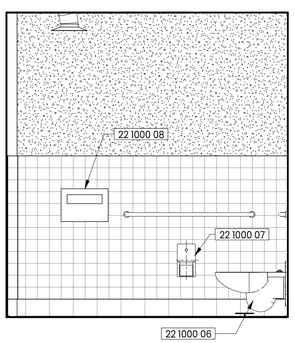
1/2" = 1'-0"



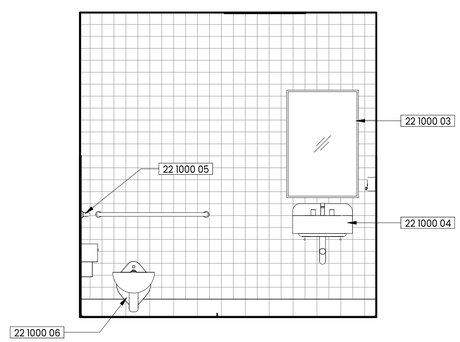
NORTH - 2A



EAST - 2B



SOUTH - 2C



WEST -2D

2 (N) RR - 209

1/2" = 1'-0"

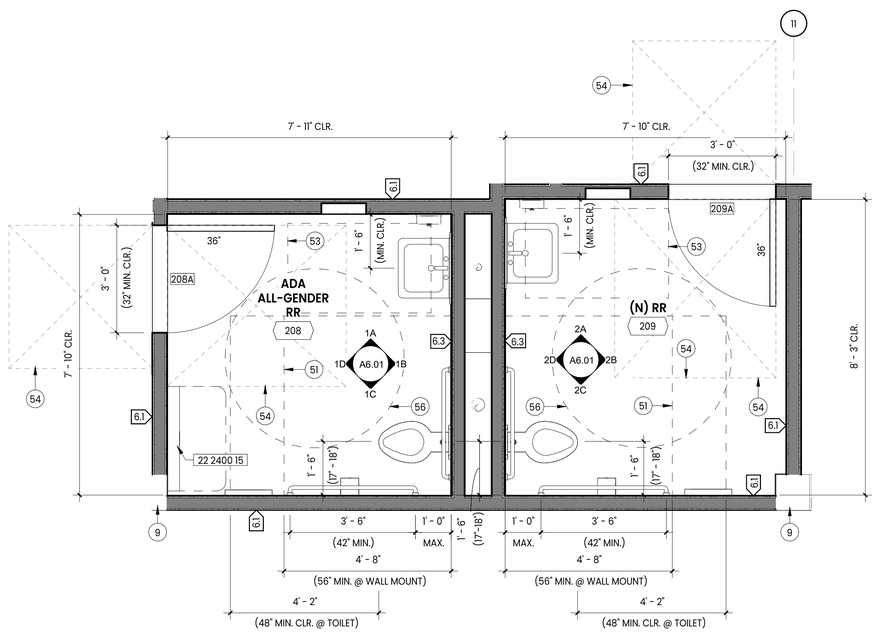
SPEC KEYNOTES	
09 3000 02	TILE COVED BASE, SEE FINISH SCHEDULE
22 1000 01	RECESSED PAPER TOWEL DISPENSER AND TRASH BIN, REFER TO DETAIL 6/A8.00 FOR ADA HEIGHTS
22 1000 02	SOAP DISPENSER, REFER TO DETAIL 6/A8.00 FOR ADA HEIGHTS
22 1000 03	MIRROR, SEE DETAIL 6/A8.00 FOR ADA HEIGHTS
22 1000 04	ADA ACCESSIBLE SINK AND FAUCET, SEE DETAIL 3/A8.00 FOR ADA HEIGHTS AND SIZING, REFER TO PLUMBING PLANS FOR FURTHER INFORMATION
22 1000 05	ADA ACCESSIBLE GRAB BARS AT WATER CLOSET, SEE DETAIL 7/A8.00 FOR MOUNTING HEIGHTS AND SIZING
22 1000 06	ADA ACCESSIBLE WATER CLOSET, SEE PLUMBING AND DETAIL 7/A8.00 FOR ADA MOUNTING HEIGHT REQUIREMENTS
22 1000 07	TOILET DISPENSER, REFER TO DETAIL 7/A8.00 FOR ADA MOUNTING HEIGHTS
22 1000 08	SEAT COVER DISPENSER, REFER TO DETAIL 6/A8.00 FOR ADA HEIGHTS
22 2400 15	BABY DIAPER CHANGING STATION

GENERAL SHEET KEYNOTES

- (9) EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE
- (51) CLEAR FLOOR SPACE AT WATER CLOSET, SEE DETAIL 4/A8.00
- (53) 30"x48" LEVEL MANEUVERING FLOOR CLEARANCE AT LAVATORY, SEE DETAIL 3/A8.00
- (54) LEVEL MANEUVERING CLEARANCE AT DOOR, SEE DETAIL 1/A8.00
- (56) 60" TURNING RADIUS CLEAR FLOOR SPACE

FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL, SEE WALL SCHEDULES ON SHEET A7.02
- GYP. BOARD FINISH, SEE FINISH PLAN AND SCHEDULE
- TILE WALL AND COVED BASE, SEE WALL ASSEMBLIES ON SHEET A7.02
- (#) WALL ASSEMBLY TYPE, SEE SHEET A7.02
- (###) DOOR TAG, SEE DOOR SCHEDULE SHEET A7.00



3 (N) ENLARGED RESTROOMS - 208 / 209

1/2" = 1'-0"

N

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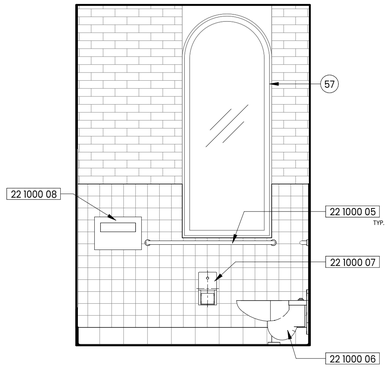
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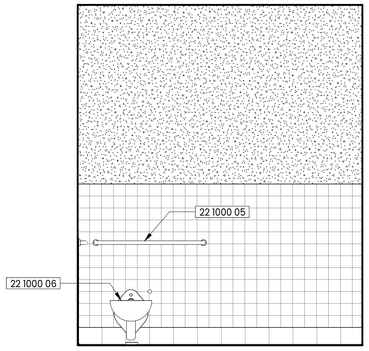
PLOT DATE: 10/25/2024
JOB NO.: 23467

ENLARGED RESTROOM PLAN

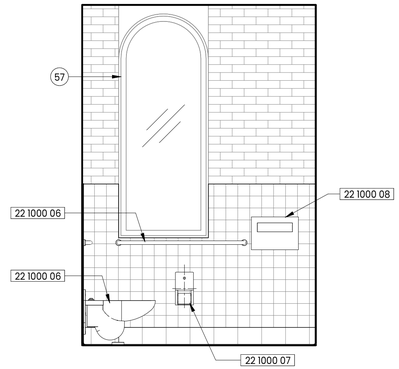
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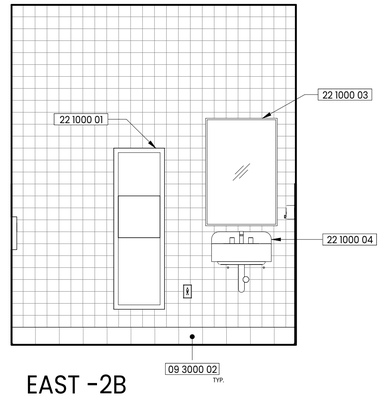
NORTH - 1A



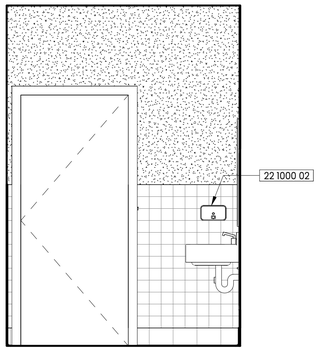
EAST - 1B



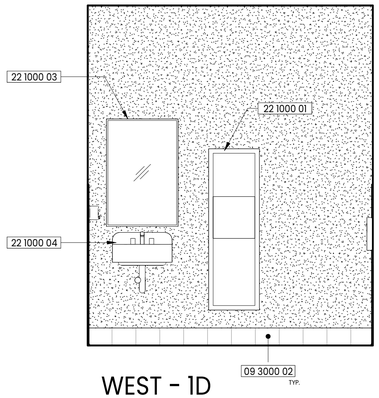
NORTH - 2A



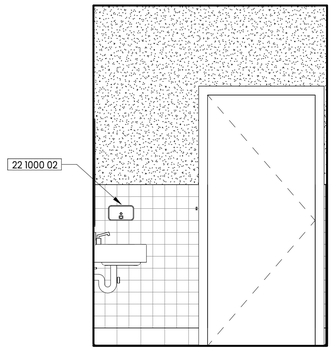
EAST -2B



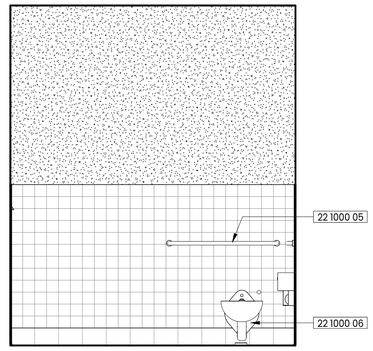
SOUTH - 1C



WEST - 1D



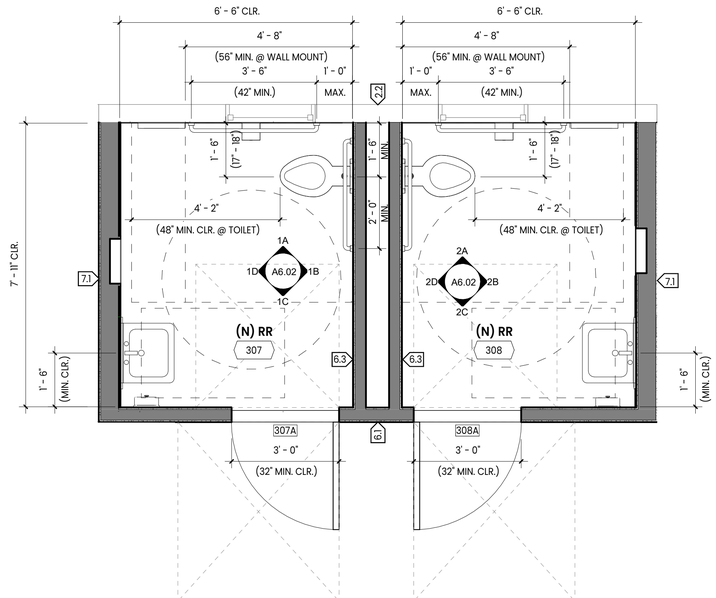
SOUTH - 2C



WEST -2D

1 (N) RR - 307

1/2" = 1'-0"



3 (N) ENLARGED RESTROOMS - 307 / 308

1/2" = 1'-0"

N

2 (N) RR - 308

1/2" = 1'-0"

FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL PER WALL ASSEMBLY TAG
- GYP. BOARD FINISH, SEE FINISH PLAN AND SCHEDULE
- EXISTING BRICK WALL TO REMAIN, PROTECT IN PLACE
- TILE WALL AND COVED BASE, SEE WALL ASSEMBLIES ON SHEET A7.02
- # — WALL ASSEMBLY TYPE, SEE SHEET A7.02
- ### — DOOR TAG, SEE DOOR SCHEDULE SHEET A7.00

SPEC KEYNOTES

09 3000 02	TILE COVED BASE, SEE FINISH SCHEDULE
22 1000 01	RECESSED PAPER TOWEL DISPENSER AND TRASH BIN, REFER TO DETAIL 6/A8.00 FOR ADA HEIGHTS
22 1000 02	SOAP DISPENSER, REFER TO DETAIL 6/A8.00 FOR ADA HEIGHTS
22 1000 03	MIRROR, SEE DETAIL 6/A8.00 FOR ADA HEIGHTS
22 1000 04	ADA ACCESSIBLE SINK AND FAUCET, SEE DETAIL 3/A8.00 FOR ADA HEIGHTS AND SIZING, REFER TO PLUMBING PLANS FOR FURTHER INFORMATION
22 1000 05	ADA ACCESSIBLE GRAB BARS AT WATER CLOSET, SEE DETAIL 7/A8.00 FOR MOUNTING HEIGHTS AND SIZING
22 1000 06	ADA ACCESSIBLE WATER CLOSET, SEE PLUMBING AND DETAIL 7/A8.00 FOR ADA MOUNTING HEIGHT REQUIREMENTS
22 1000 07	TOILET DISPENSER, REFER TO DETAIL 7/A8.00 FOR ADA MOUNTING HEIGHTS
22 1000 08	SEAT COVER DISPENSER, REFER TO DETAIL 6/A8.00 FOR ADA HEIGHTS

GENERAL SHEET KEYNOTES

57 EXISTING OBSCURED GLAZING TO REMAIN

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C-38886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

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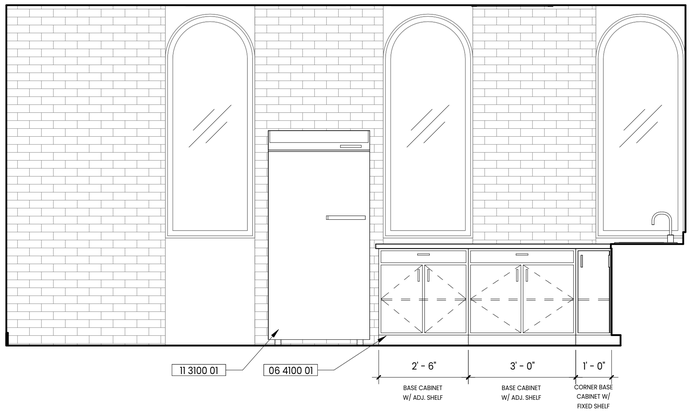
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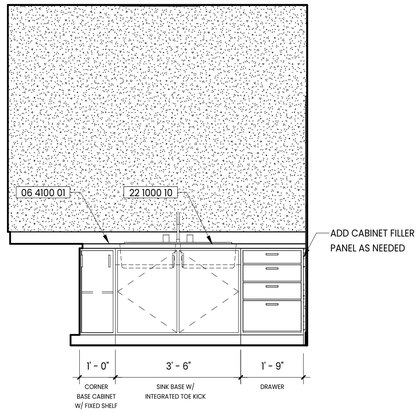
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ENLARGED RESTROOM PLAN

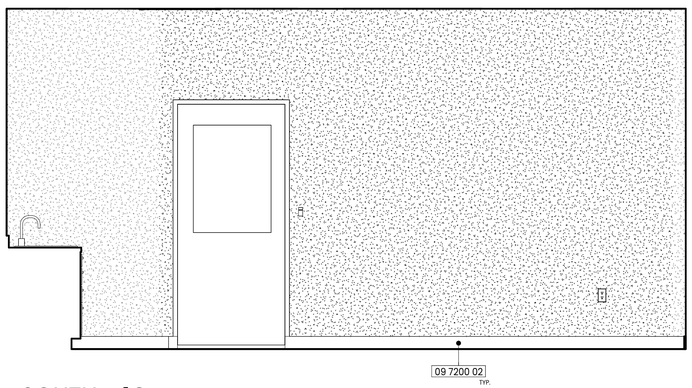
A6.02



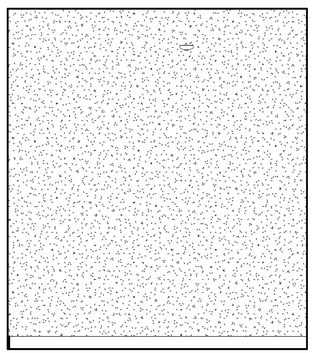
NORTH - 1A



EAST - 1B



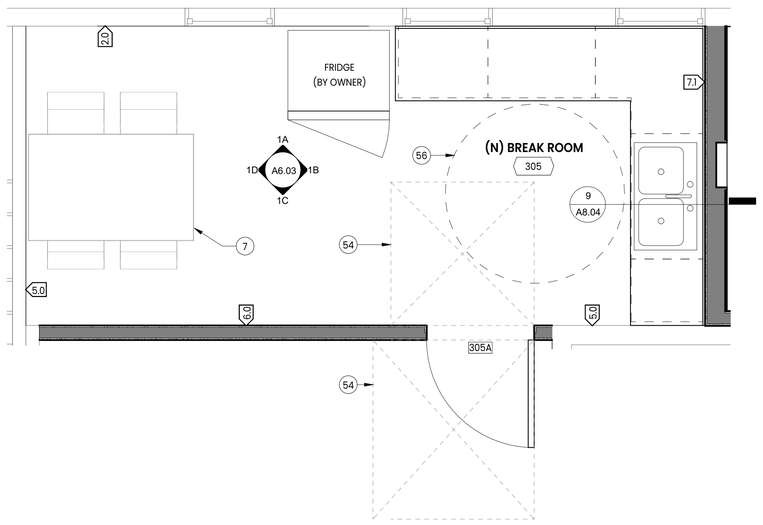
SOUTH - 1C



WEST- 1D

1 (N) RR - 307

1/2" = 1'-0"



1 ENLARGED BREAK ROOM PLAN - 305

1/2" = 1'-0"

FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL PER WALL ASSEMBLY TAG
- GYP. BOARD FINISH, SEE FINISH PLAN AND SCHEDULE
- EXISTING BRICK WALL TO REMAIN, PROTECT IN PLACE
- # WALL ASSEMBLY TYPE, SEE SHEET A7.02
- ### DOOR TAG, SEE DOOR SCHEDULE SHEET A7.00

SPEC KEYNOTES

06 4100 01	24" LOWER BASE CABINETS & COUNTERTOP, SEE DETAILS 1,2,4/A8.04
09 7200 02	4" RUBBER BASE, SEE FINISH FLOOR PLAN AND FINISH SCHEDULE
11 3100 01	REFRIGERATOR, O.F.C.I.
22 1000 10	DOUBLE COMPARTMENT SINK, REFER TO PLUMBING PLANS FOR FURTHER INFORMATION

GENERAL SHEET KEYNOTES

7 FURNISHINGS TO BE O.P.O.I., AS TO NOT INTERFERE WITH DOOR CLEARANCES
54 LEVEL MANEUVERING CLEARANCE AT DOOR, SEE DETAIL 1/A8.00
56 60" TURNING RADIUS CLEAR FLOOR SPACE

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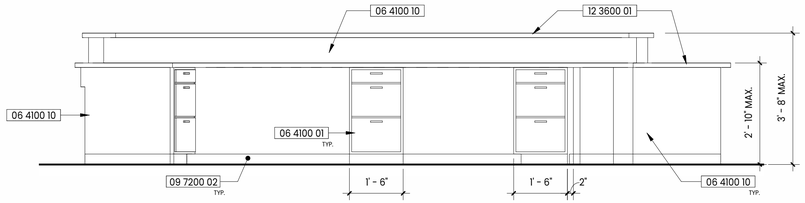
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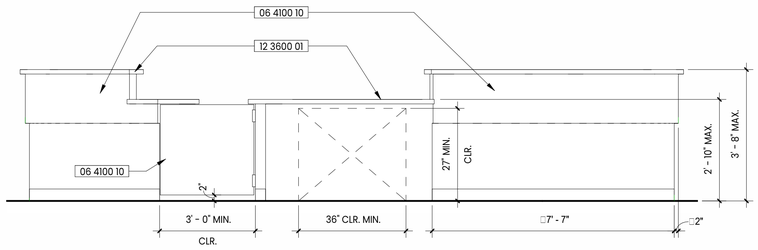
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ENLARGED BREAK ROOM PLAN

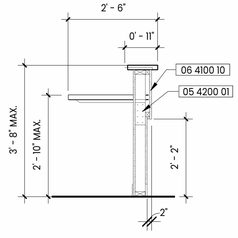
A6.03



NORTH (CIRCULATION SIDE) - 1A



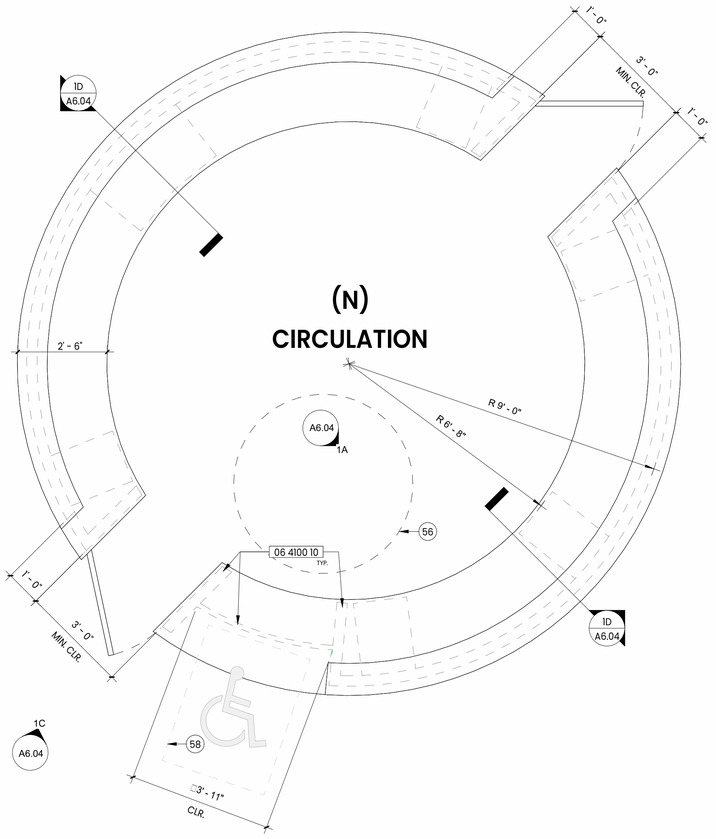
SOUTH (MAIN LIBRARY SIDE) - 1A



SECTION - 1D

1 ENLARGED CIRCULATION DESK

1/2" = 1'-0"



1 ENLARGED CIRCULATION DESK PLAN

1/2" = 1'-0"

N

FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL, PER WALL ASSEMBLY TAG
- GYP. BOARD FINISH, SEE FINISH PLAN AND SCHEDULE

SPEC KEYNOTES

05 4200 01	CONCEALED COUNTERTOP SUPPORT BRACKETS ATTACHED TO PONY WALL STUDS
06 4100 01	24" LOWER BASE CABINETS & COUNTERTOP, SEE DETAILS 1,2,4/A8.04
06 4100 10	1" PLYWOOD PANEL W/ PLASTIC LAMINATE
09 7200 02	4" RUBBER BASE, SEE FINISH FLOOR PLAN AND FINISH SCHEDULE
12 3600 01	SOLID SURFACE COUNTERTOP

GENERAL SHEET KEYNOTES

56 60" TURNING RADIUS CLEAR FLOOR SPACE

58 30"x48" CLEAR FLOOR SPACE AT RECEPTION DESK, SEE DETAIL 2/A8.00 & 15/A8.00

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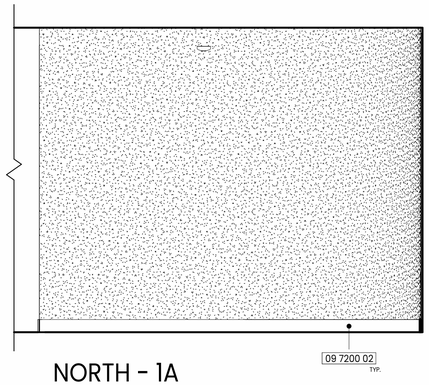
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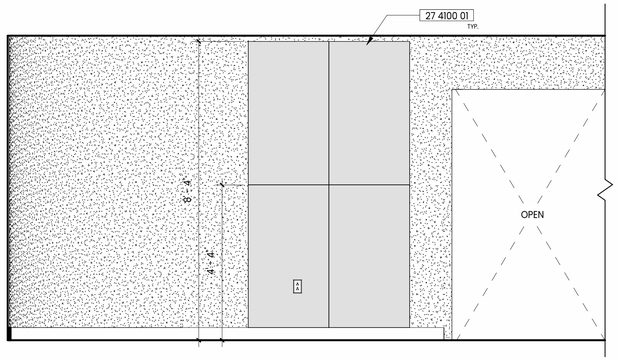
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ENLARGED CIRCULATION DESK

A6.04



NORTH - 1A



EAST - 1B



SOUTH - 1C

SECTION - 1D

N

1 ENLARGED SELFIE WALL - 221

1/2" = 1'-0"

1 ENLARGED SELFIE WALL PLAN

1/2" = 1'-0"

FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL, PER WALL ASSEMBLY TAG
- GYP. BOARD FINISH, SEE FINISH PLAN AND SCHEDULE
- # — WALL ASSEMBLY TYPE, SEE SHEET A7.02
- ### — DOOR TAG SEE DOOR SCHEDULE SHEET A7.00

SPEC KEYNOTES

09 7200 02	4" RUBBER BASE, SEE FINISH FLOOR PLAN AND FINISH SCHEDULE
27 4100 01	TELEVISION, O.P.O.I; FOR MORE INFORMATION SEE ELECTRICAL AND LOW VOLTAGE DRAWINGS

GENERAL SHEET KEYNOTES

- 6 EXISTING SOFFIT OVERHEAD, PROTECT IN PLACE
- 9 EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE

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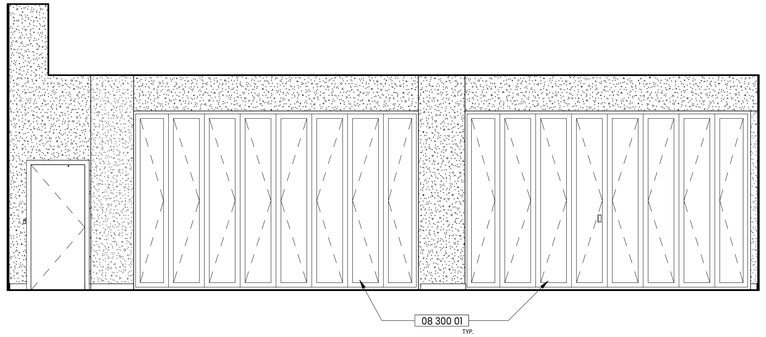
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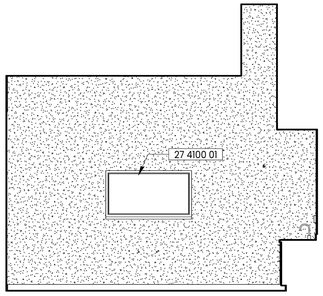
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ENLARGED SELFIE WALL PLAN

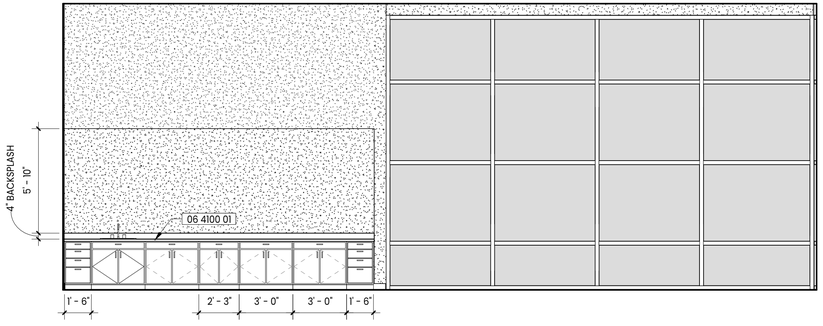
A6.05



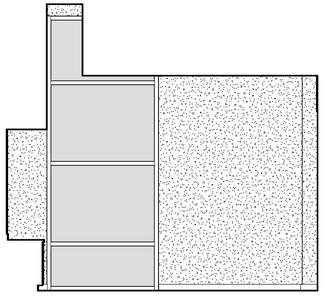
NORTH - 1A



EAST - 1B



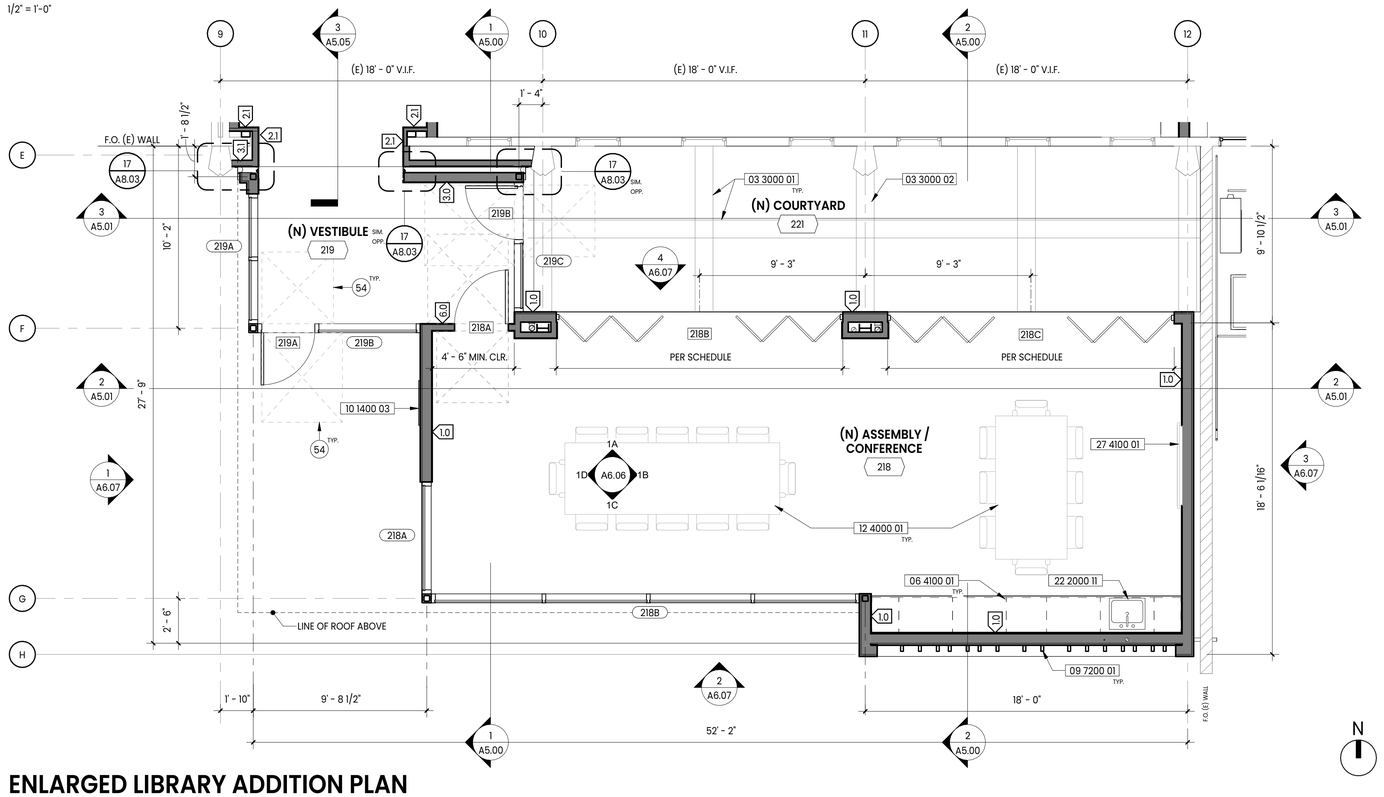
SOUTH - 1C



WEST- 1D

1 (N) ASSEMBLY / CONFERENCE - 218

1/2" = 1'-0"



1 ENLARGED LIBRARY ADDITION PLAN

1/4" = 1'-0"

FLOOR PLAN WALL LEGEND

- EXISTING WALL TO REMAIN
- NEW 2X WALL, SEE FINISH FLOOR PLANS
- # — WALL ASSEMBLY TYPE, SEE SHEET A7.02
- ### — DOOR TAG SEE DOOR SCHEDULE SHEET A7.00
- ### — STOREFRONT TAG, SEE STOREFRONT SCHEDULE SHEET A7.01

FLOOR PLAN SPEC KEYNOTES

03 3000 01	CONCRETE CONTROL JOINT, U.N.O.
03 3000 02	CONCRETE EXPANSION JOINT
06 4100 01	24" LOWER BASE CABINETS & COUNTERTOP, SEE DETAILS 1,2,4/A8.04
08 300 01	BI-FOLD DOOR, SEE DOOR SCHEDULE
09 7200 01	ARCHITECTURAL SHADE SYSTEM, PER MANUFACTURERS RECOMMENDATIONS
10 1400 03	COMMEMORATIVE PLAQUE, FOR ANCHORAGE SEE DETAIL X/AX
12 4000 01	FURNITURE, O.P.O.I.
22 2000 11	SINGLE COMPARTMENT WASH SINK, REFER TO PLUMBING PLANS FOR FURTHER INFORMATION
27 4100 01	TELEVISION, O.P.O.I; FOR MORE INFORMATION SEE ELECTRICAL AND LOW VOLTAGE DRAWINGS

GENERAL SHEET KEYNOTES

(54) LEVEL MANEUVERING CLEARANCE AT DOOR, SEE DETAIL 1/A8.00

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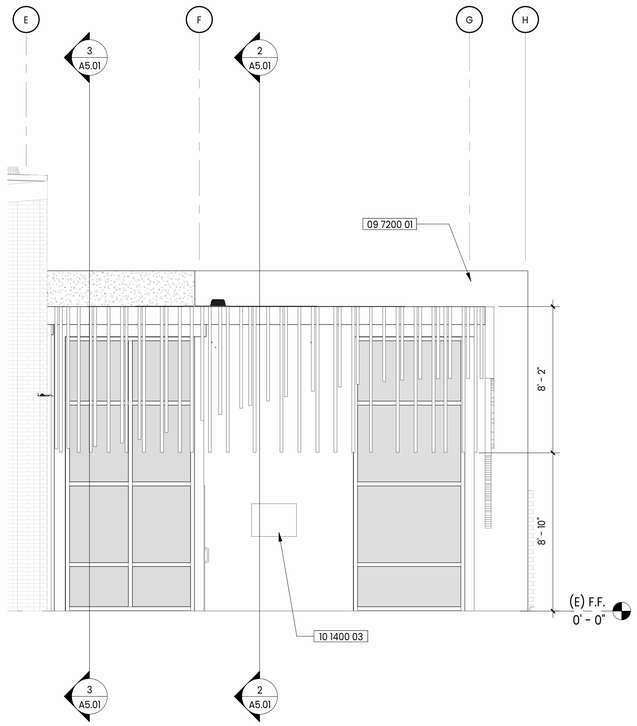
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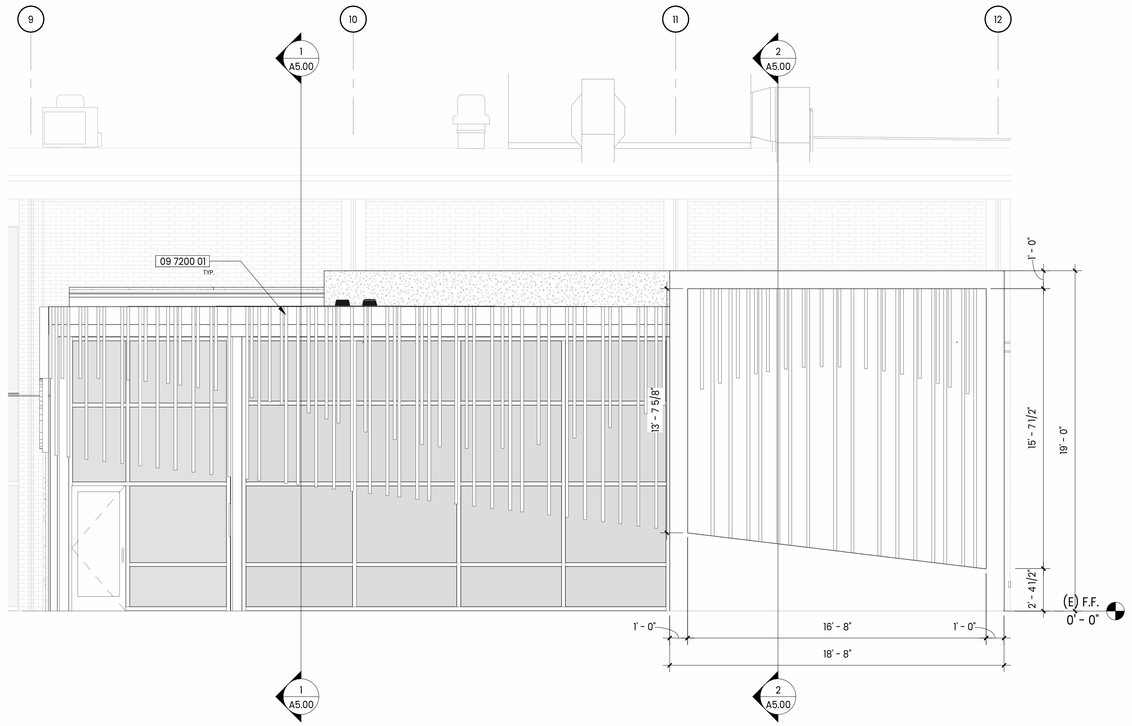
ENLARGED LIBRARY ADDITION

A6.06



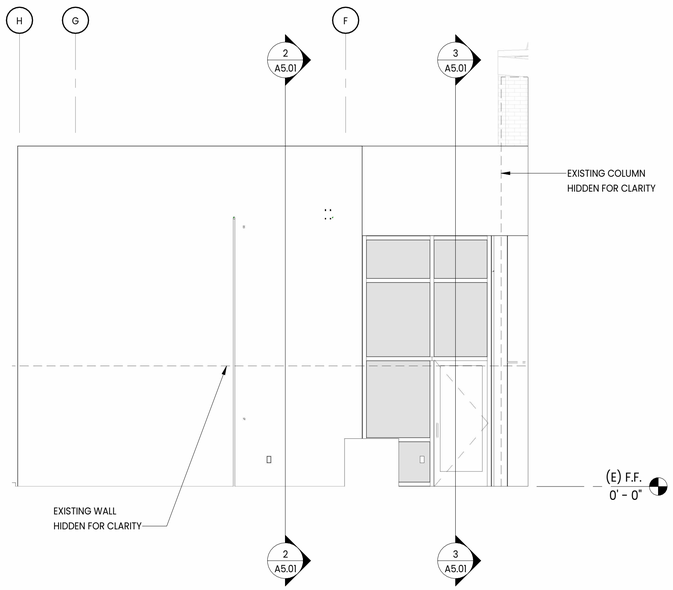
1 LIBRARY ADDITION WEST ELEVATION

1/4" = 1'-0"



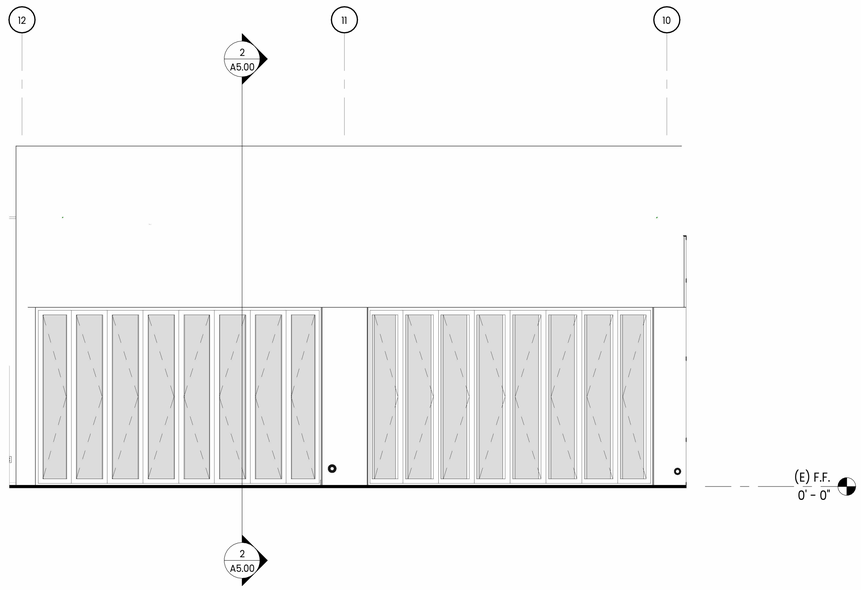
2 LIBRARY ADDITION SOUTH ELEVATION

1/4" = 1'-0"



3 LIBRARY ADDITION EAST ELEVATION

1/4" = 1'-0"



4 LIBRARY ADDITION NORTH ELEVATION

1/4" = 1'-0"

LEGEND

EXISTING BRICK WALL TO REMAIN, PAINT PER FINISH SCHEDULE

(N) STUCCO PER FINISH SCHEDULE, SEE WALL SCHEDULE ON SHEET A7.02

GLAZING STOREFRONT/WINDOW SYSTEM, SEE WINDOW SCHEDULE ON SHEET A7.01

ELEVATION SPEC KEYNOTES

09 7200 01	ARCHITECTURAL SHADE SYSTEM, PER MANUFACTURERS RECOMMENDATIONS
10 1400 03	COMMEMORATIVE PLAQUE, FOR ANCHORAGE SEE DETAIL X/AX

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LIBRARY ADDITION
EXTERIOR ELEVATIONS

A6.07

SPEC KEYNOTES

02 4100 50	OWNER TO REMOVE EXISTING TABLE AND REINSTALL AFTER CONSTRUCTION IS COMPLETE
06 4100 01	24" LOWER BASE CABINETS & COUNTERTOP, SEE DETAILS 1,2,4/A8.04
27 4100 01	TELEVISION, O.P.O.I; FOR MORE INFORMATION SEE ELECTRICAL AND LOW VOLTAGE DRAWINGS

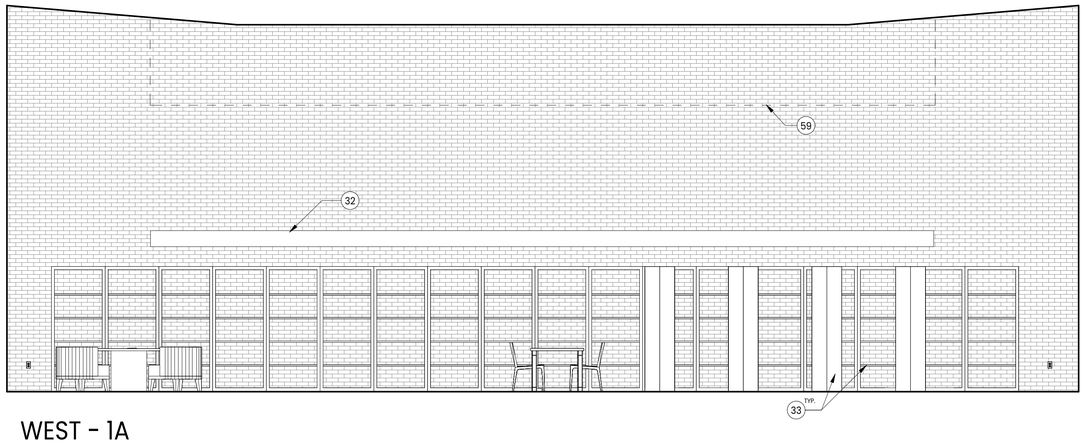
GENERAL SHEET KEYNOTES

- (9) EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE
- (31) EXISTING SCALLOPED SOFFIT TO REMAIN, CONTRACTOR TO PROTECT IN PLACE
- (32) EXISTING STEEL PLATE
- (33) EXISTING BOOK SHELF, 3'-0" x 7'-0" (CONTRACTOR TO VERIFY DIMENSIONS PRIOR TO FRAMING AROUND BUILT-INS)
- (49) EXISTING DRINKING FOUNTAIN TO REMAIN
- (59) EXISTING SOFFIT OUTLINE

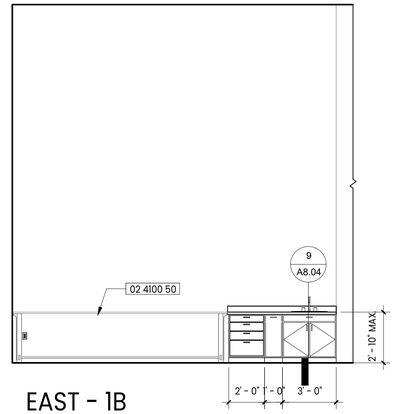
INTERIOR ELEVATIONS LEGEND

EXISTING BRICK WALL TO REMAIN, PROTECT IN PLACE

GYP. BOARD FINISH, SEE FINISH PLAN AND SCHEDULE



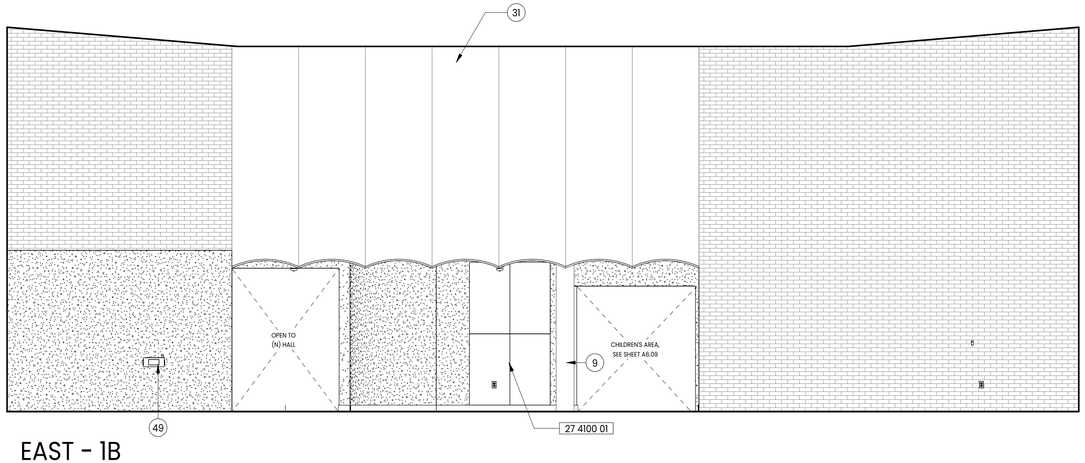
WEST - 1A



EAST - 1B

2 Elevation 205a

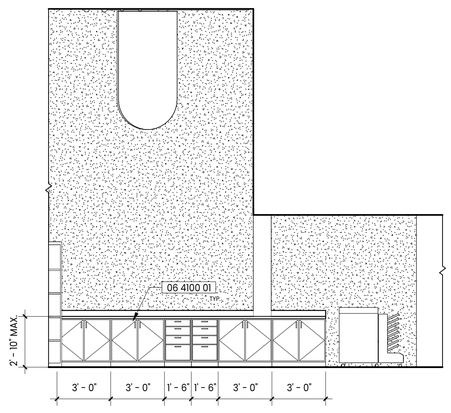
1/4" = 1'-0"



EAST - 1B

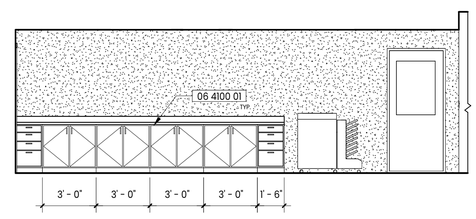
1 (E) LIBRARY - 200

1/2" = 1'-0"



4 Elevation 213a

1/4" = 1'-0"



5 Elevation 311a

1/4" = 1'-0"

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INTERIOR ELEVATIONS

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SPEC KEYNOTES

06 4100 17	WOOD PANEL AND CASING TO MATCH WINDOWS ABOVE, SEE DETAIL 5/A8.02
06 4100 18	BUILT-IN BOOK SHELVES AND READING NOOKS, SEE DETAILS 1,2,3,4/A8.05
08 8700 01	PROVIDE BLACKOUT WINDOW FILM
09 7200 05	VERTICAL 2x4 WOOD SLATS, SEE DETAIL 18/A8.03
09 7200 06	CURVED WALL BEHIND

GENERAL SHEET KEYNOTES

(9) EXISTING COLUMN/POST TO REMAIN, PROTECT IN PLACE

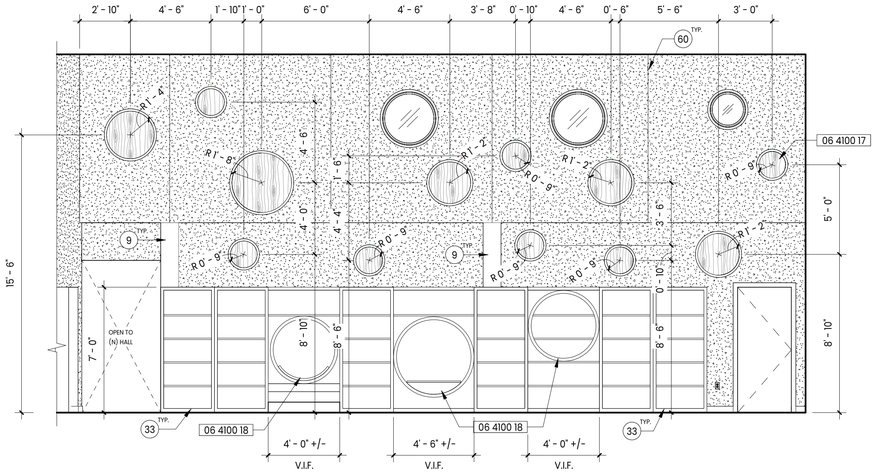
(33) EXISTING BOOK SHELF, 3'-0" x 7'-0" (CONTRACTOR TO VERIFY DIMENSIONS PRIOR TO FRAMING AROUND BUILT-INS)

(60) EXISTING PLASTER CONTROL JOINT

INTERIOR ELEVATIONS LEGEND

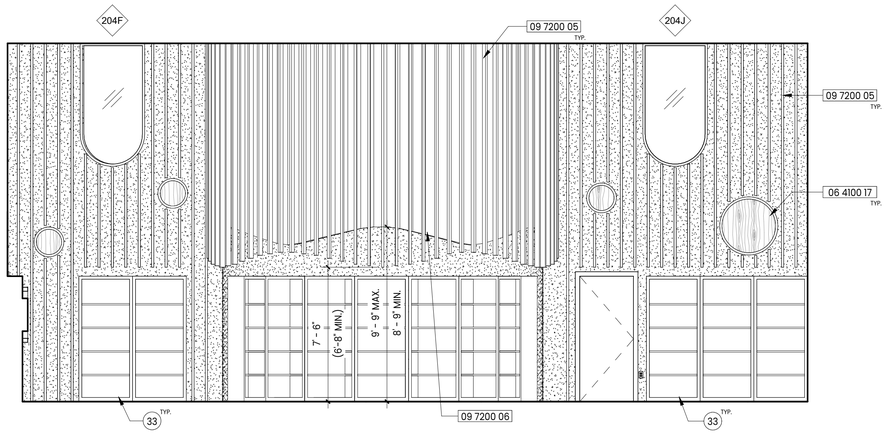
EXISTING BRICK WALL TO REMAIN, PROTECT IN PLACE

GYP. BOARD FINISH, SEE FINISH PLAN AND SCHEDULE



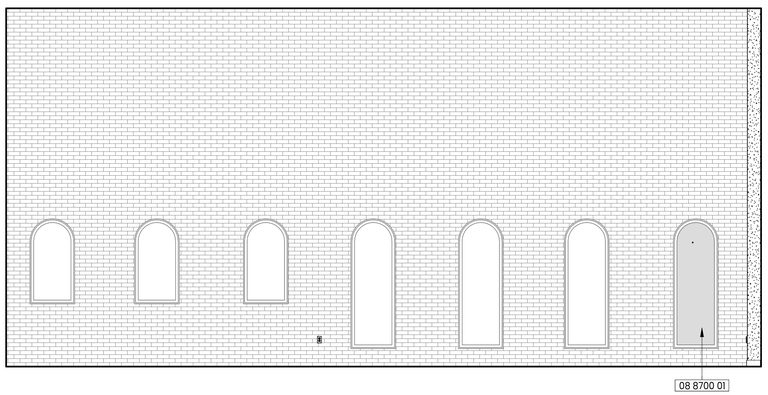
1 Elevation 204c

1/4" = 1'-0"



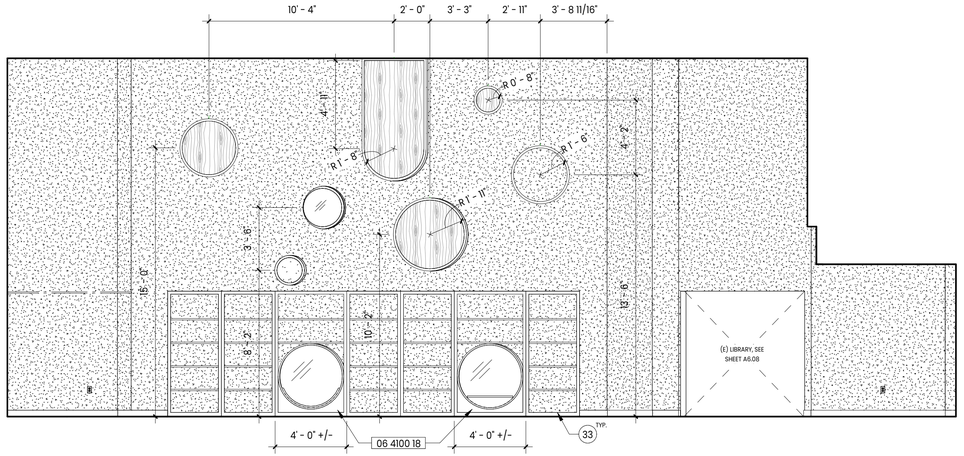
2 Elevation 204d

1/4" = 1'-0"



3 Elevation 204b

1/4" = 1'-0"



4 Elevation 204a

1/4" = 1'-0"

4CREEKS

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WILLIAM D. RUOFF III
C-36886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

DATE:	#	ISSUES/REVISIONS:
05/23/2025	0	ISSUE FOR BID

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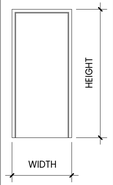
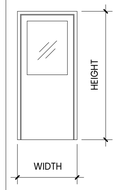
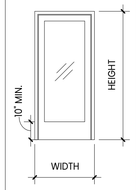
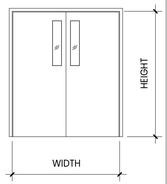
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JOB NO.: 23467

INTERIOR ELEVATIONS

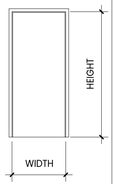
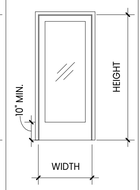
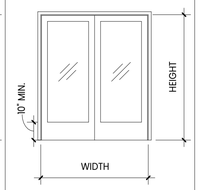
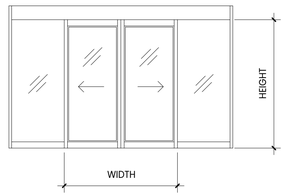
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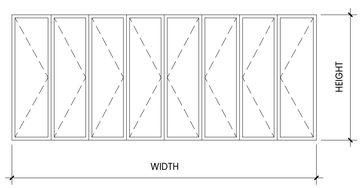
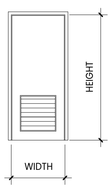
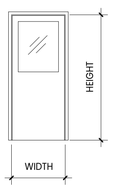
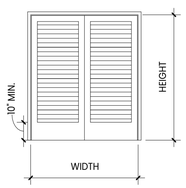
DOOR TYPES

TYPE	A	B	C	D
FRONT ELEVATION				
OPERATION	SWING	SWING	SWING	DOUBLE DOOR
EXT./INT.	INTERIOR	INTERIOR	INTERIOR	INTERIOR

DOOR TYPES

TYPE	E	F	G	H
FRONT ELEVATION				
OPERATION	SWING	SWING	DOUBLE DOOR	DOUBLE SLIDING DOOR
EXT./INT.	EXTERIOR	EXTERIOR	EXTERIOR	EXTERIOR

DOOR TYPES - EXTERIOR

TYPE	I	J	K	L
FRONT ELEVATION				
OPERATION	8 PANEL BI-FOLD DOOR	SWING	SWING	SWING
EXT./INT.	EXTERIOR	INTERIOR	EXTEROR	EXTEROR

DOOR SCHEDULE

###	OPENING SIZE		DOOR			FRAME					
TAG	WIDTH	HEIGHT	TYPE	MATERIAL	FINISH	MATERIAL	FINISH	HEAD DETAIL	JAMB DETAIL	THRESHOLD DETAIL	NOTES
100A	3' - 0"	7' - 0"	J	HM	P	HM	P	2/A8.02	2/A8.02	--	DOOR LOUVER, SEE MECHANICAL
101A	3' - 0"	6' - 8"	(E) A	(E) WD	(E) P	(E) HM	(E) P	(E)	(E)	(E)	
101B	3' - 0"	6' - 8"	(E) A	(E) WD	(E) P	(E) HM	(E) P	(E)	(E)	(E)	
101C	3' - 0"	6' - 8"	(E) A	(E) HM	(E) P	(E) HM	(E) P	(E)	(E)	(E)	
102A	3' - 0"	6' - 8"	(E) K	(E) HM	(E) P	(E) HM	(E) P	(E)	(E)	(E)	
102B	3' - 0"	6' - 8"	(E) A	(E) WD	(E) P	(E) HM	(E) P	(E)	(E)	(E)	
103A	5' - 0"	6' - 8"	(E) L	(E) HM	(E) P	(E) HM	(E) P	(E)	(E)	(E)	
104A	5' - 0"	6' - 8"	(E) L	(E) HM	(E) P	(E) HM	(E) P	(E)	(E)	(E)	
105A	3' - 0"	6' - 8"	(E) A	(E) WD	(E) P	(E) HM	(E) P	(E)	(E)	(E)	
200A	5' - 4" CLR.	7' - 0"	H	ALUM	FF	ALUM	FF	13/A8.01	15/A8.01	14/A8.01	PROVIDE DOOR MFR's PANIC DEVICE
200B	5' - 4" CLR.	7' - 0"	H	ALUM	FF	ALUM	FF	13/A8.01	15/A8.01	14/A8.01	PROVIDE DOOR MFR's PANIC DEVICE
200C	3' - 0"	6' - 8"	(E) A	(E) WD	ST	(E) WD	ST	(E)	(E)	(E)	
204A	3' - 0"	7' - 0"	B	WD	ST	HM	P	2/A8.02	2/A8.02	--	
204B	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
205A	3' - 0"	7' - 0"	B	WD	ST	HM	P	2/A8.02	2/A8.02	--	
205B	3' - 0"	6' - 8"	(E) A	(E) HM	P	(E) HM	P	(E)	(E)	(E)	
205C	2' - 10"	7' - 0"	A	HM	P	HM	P	2/A8.02	2/A8.02	--	
206A	3' - 0"	6' - 8"	(E) A	(E) WD	P	(E) HM	P	(E)	(E)	(E)	
207A	3' - 0"	7' - 0"	J	WD	ST	HM	P	2/A8.02	2/A8.02	--	DOOR LOUVER, SEE MECHANICAL
208A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
209A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
210A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
211A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
212A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
213A	3' - 8"	6' - 8"	(E) K	(E) HM	P	(E) HM	P	(E)	(E)	(E)	
214A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
215A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
217A	6' - 0"	7' - 0"	D	WD	ST	HM	P	2/A8.02	2/A8.02	--	
218A	3' - 0"	7' - 0"	C	HM	P	HM	P	2/A8.02	2/A8.02	--	
218B	16' - 0"	10' - 0"	I	ALUM	FF	ALUM	FF	9/A8.01	11/A8.01	10/A8.01	
218C	16' - 0"	10' - 0"	I	ALUM	FF	ALUM	FF	9/A8.01	11/A8.01	10/A8.01	
219A	3' - 0"	7' - 0"	F	ALUM	FF	ALUM	FF	6/A8.01	12 & 20/A8.01	7/A8.01	
219B	3' - 0"	7' - 0"	F	ALUM	FF	ALUM	FF	6/A8.01	5 & 12/A8.01	7/A8.01	
220A	3' - 0"	6' - 8"	(E) A	(E) WD	P	(E) HM	P	(E)	(E)	(E)	
220B	3' - 0"	6' - 8"	(E) K	(E) HM	P	(E) HM	P	(E)	(E)	(E)	
300A	3' - 0"	6' - 8"	(E) A	(E) WD	(E) ST	(E) ALUM	(E) FF	(E)	(E)	(E)	
301A	2' - 6"	6' - 8"	(E) A	(E) WD	(E) ST	(E) ALUM	(E) FF	(E)	(E)	(E)	
302A	3' - 0"	6' - 8"	(E) B	(E) WD	(E) ST	(E) ALUM	(E) FF	(E)	(E)	(E)	
303A	3' - 0"	6' - 8"	(E) A	(E) WD	(E) ST	(E) ALUM	(E) FF	(E)	(E)	(E)	
304A	3' - 0"	6' - 8"	(E) B	(E) WD	(E) ST	(E) ALUM	(E) FF	(E)	(E)	(E)	
305A	3' - 0"	7' - 0"	B	WD	ST	HM	P	2/A8.02	2/A8.02	--	
306A	3' - 0"	6' - 8"	(E) A	(E) WD	(E) ST	(E) ALUM	(E) FF	(E)	(E)	(E)	
306B	3' - 0"	6' - 8"	(E) A	(E) HM	P	(E) HM	P	(E)	(E)	(E)	
307A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
308A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
309A	3' - 0"	6' - 8"	(E) J	(E) WD	(E) ST	(E) ALUM	(E) FF	(E)	(E)	(E)	REPLACE (E) DOOR LOUVER w/ NEW DOOR LOUVER, SEE MECHANICAL
310A	3' - 0"	7' - 0"	B	WD	ST	HM	P	2/A8.02	2/A8.02	--	
311A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
312A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
313A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
314A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	
315A	3' - 0"	7' - 0"	A	WD	ST	HM	P	2/A8.02	2/A8.02	--	

ABBREVIATIONS

WD	WOOD	TG	TEMPERED GLASS
HM	HOLLOW METAL	IG	INSULATED GLASS
FF	FACTORY FINISH	M	METAL
ALUM	ALUMINUM	FG	FIBERGLASS
P	PAINT	ST	WOOD STAIN

NOTES

A. THE MAXIMUM FORCE REQUIRED TO PUSH OR PULL OPEN A DOOR SHALL BE NO MORE THAN 5 LBS FOR INTERIOR AND EXTERIOR DOORS (15 LBS FOR FIRE DOORS).
B. HAND-ACTIVATED DOOR OPENING HARDWARE, HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THEAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE.
C. THE BOTTOM 10" OF ALL DOORS EXCEPT AUTOMATIC AND SLIDING SHALL HAVE A SMOOTH, UNINTERRUPTED SURFACE TO ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION.
D. SPECIFY DOOR CLOSING SPEEDS TO COMPLY WITH CBC 11B-404.2.8
E. VISION PANEL LOCATION TO COMPLY WITH CBC 11B-404.2.11 (43" MAXIMUM TO BOTTOM OF GLAZING OR 66" MINIMUM).
F. SINGLE USER BATHROOM DOORS SHALL HAVE PRIVACY LATCHES PER CBC 11B-213.2.1
G. DOOR MANEUVERING CLEARANCES SHALL BE LEVEL (MAXIMUM 1:48 SLOPE IN ANY DIRECTION).

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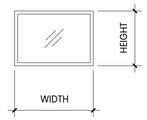
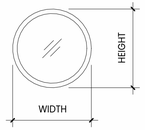
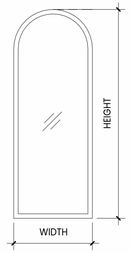
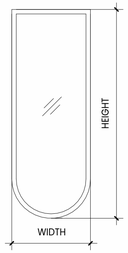
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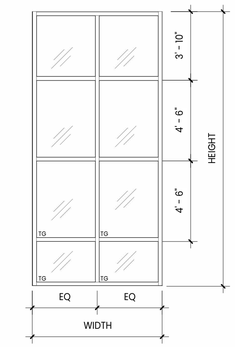
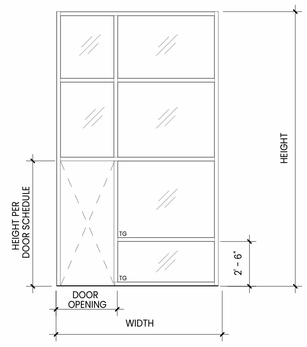
DOOR SCHEDULE

A7.00

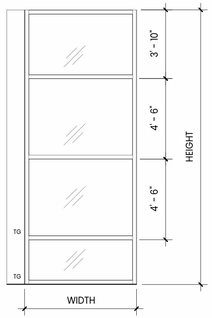
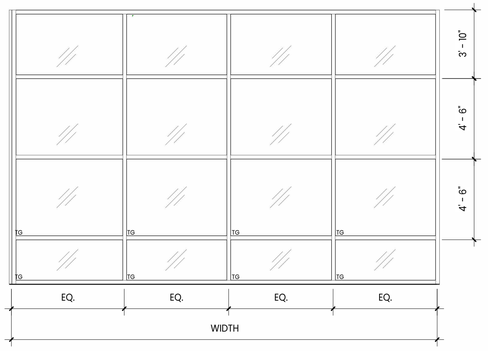
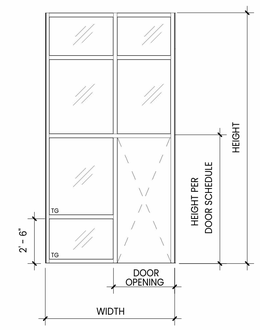
WINDOW TYPES

TYPE	A	B	C	D
FRONT ELEVATION				
OPERATION	FIXED	FIXED	FIXED	FIXED
EXT./INT.	INTERIOR	INTERIOR	EXTERIOR	INTERIOR

STOREFRONT WINDOW TYPES

TYPE	D	E
FRONT ELEVATION		
EXT./INT.	EXTERIOR	EXTERIOR

STOREFRONT WINDOW TYPES

TYPE	F	G	H
FRONT ELEVATION			
EXT./INT.	EXTERIOR	EXTERIOR	EXTERIOR

WINDOW SCHEDULE

## TAG	OPENING SIZE WIDTH	OPENING SIZE HEIGHT	FRAME TYPE	FRAME SILL HEIGHT	FRAME MAT	FRAME FIN	FINISH INT	FINISH EXT	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	NOTES
204C	3' - 0"	3' - 0"	B	3' - 5"	ALUM	P	P	P	4/A8.02	--	4/A8.02	
204D	3' - 0"	3' - 0"	B	3' - 5"	ALUM	P	P	P	4/A8.02	--	4/A8.02	
204E	2' - 0"	2' - 0"	B	4' - 5"	ALUM	P	P	P	4/A8.02	--	4/A8.02	
204F	3' - 7"	6' - 10"	D	13' - 1"	WOOD	ST	ST	ST	4/A8.02	4/A8.02 (SIM.)	4/A8.02	
204J	3' - 7"	6' - 10"	D	13' - 1"	WOOD	ST	ST	ST	4/A8.02	4/A8.02 (SIM.)	4/A8.02	
213A	2' - 6"	4' - 6"	C	3' - 6"	ALUM	P	P	P	6/A8.02	6/A8.02 (SIM.)	6/A8.02	
313A	4' - 0"	1' - 6"	A	6' - 0"	ALUM	P	P	P	7/A8.02	7/A8.02 (SIM.)	7/A8.02	
314A	4' - 0"	1' - 6"	A	6' - 0"	ALUM	P	P	P	7/A8.02	7/A8.02 (SIM.)	7/A8.02	
315A	4' - 0"	1' - 6"	A	6' - 0"	ALUM	P	P	P	7/A8.02	7/A8.02 (SIM.)	7/A8.02	

STOREFRONT WINDOW SCHEDULE

### TAG	OPENING SIZE WIDTH	OPENING SIZE HEIGHT	STOREFRONT TYPE	STOREFRONT SILL HEIGHT	FRAME MAT	FRAME FIN	FINISH INT	FINISH EXT	HEAD DETAIL	JAMB DETAIL - NORTH/WEST	MULLION DETAILS	SILL DETAIL	NOTES
218A	6' - 3"	15' - 4"	F	0' - 0"	ALUM	P	P	P	1/A8.01	18 & 19/A8.01	2/A8.01	3/A8.01	
218B	23' - 11"	15' - 4"	G	0' - 0"	ALUM	P	P	P	1/A8.01	4 & 19/A8.01	2/A8.01, 8/A8.01	3/A8.01	
219A	7' - 3"	15' - 4"	D	0' - 0"	ALUM	P	P	P	1/A8.01	18 & 19/A8.01	2/A8.01, 8/A8.01	3/A8.01	
219B	9' - 1"	15' - 4"	E	0' - 0"	ALUM	P	P	P	1/A8.01	9 & 17/A8.1	2/A8.01, 8/A8.01	3/A8.01	
219C	7' - 2 1/2"	14' - 0"	H	0' - 0"	ALUM	P	P	P	1/A8.01	12 & 17/A8.01	2/A8.01, 8/A8.01	3/A8.01	

ABBREVIATIONS

WD	WOOD	TG	TEMPERED GLASS
HM	HOLLOW METAL	IG	INSULATED GLASS
FF	FACTORY FINISH	M	METAL
ALUM	ALUMINUM	FG	FIBERGLASS
P	PAINT	ST	WOOD STAIN

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LICENSED ARCHITECT
WILLIAM D. RUOFF III
C-36886
2.28.2027
RENEWAL
STATE OF CALIFORNIA

#	ISSUES/REVISIONS:	DATE:
0	ISSUE FOR BID	05/23/2025

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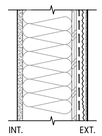
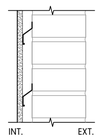
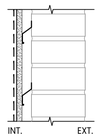
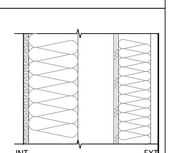
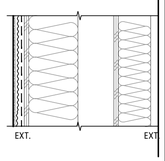
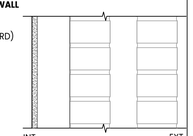
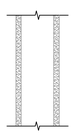
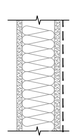
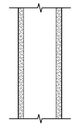
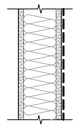
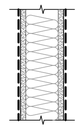
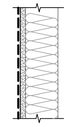
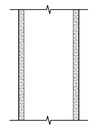
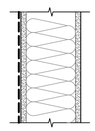
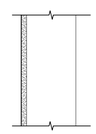
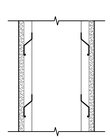
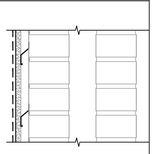
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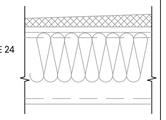
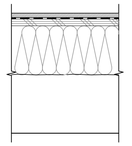
WINDOW SCHEDULE

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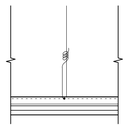
WALL ASSEMBLY SCHEDULE

TYPE	DESCRIPTION (TOP TO BOTTOM OF ASSEMBLY)	DETAIL GRAPHIC
1.0	**EXTERIOR METAL FRAMED WALL - STUCCO FINISH** (N) 5/8" GYP. BOARD (N) 1 5/8" X 6" METAL FRAMED WALL (N) R-21 BATT INSULATION PER TITLE 24 (N) PLYWOOD SHEATHING, REFER TO STRUCTURAL (N) (2) LAYERS WRB (N) METAL LATHE (N) 7/8" STUCCO FINISH	
2.0	**EXISTING EXTERIOR WALL** (E) BRICK WALL	
2.1	**EXISTING EXTERIOR WALL FURRING** (N) 5/8" GYP. BOARD (N) 7/8" METAL FURRING CHANNEL (E) BRICK WALL	
2.2	**EXISTING EXTERIOR WALL FURRING** (N) CERAMIC TILE FINISH WHERE OCCURS, REFER TO ENLARGED RESTROOM PLANS (N) 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD) (N) 7/8" METAL FURRING CHANNEL (E) BRICK WALL	
3.0	**INTERIOR METAL FRAMED WALL AT EXPANSION JOINT** (N) 5/8" GYP. BOARD (N) 1 5/8" X 5 1/2" METAL STUD WALL (N) BATT INSULATION PER TITLE 24 4" EXPANSION GAP (N) PLYWOOD SHEATHING, REFER TO STRUCTURAL (N) 1 5/8" X 3 5/8" METAL STUD WALL (N) BATT INSULATION PER TITLE 24	
3.1	**EXTERIOR METAL FRAMED WALL AT EXPANSION JOINT** (N) 7/8" STUCCO FINISH (N) METAL LATHE (N) (2) LAYERS WRB (N) PLYWOOD SHEATHING, REFER TO STRUCTURAL (N) 1 5/8" X 5 1/2" METAL FRAMED WALL (N) BATT INSULATION PER TITLE 24 4" EXPANSION GAP (N) PLYWOOD SHEATHING, REFER TO STRUCTURAL (N) 1 5/8" X 3 5/8" METAL STUD WALL (N) BATT INSULATION PER TITLE 24	
4.0	**INTERIOR WOOD FRAMED FURRING AT EXISTING WALL** FRP WHERE OCCURS 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD) 1 5/8" X 6" METAL FRAMED WALL ACOUSTIC BATT INSULATION WHERE OCCURS 5/8" GYP. BOARD	
5.0	**EXISTING INTERIOR METAL FRAMED WALL** (E) 5/8" GYP. BOARD (E) METAL STUD WALL (E) 5/8" GYP. BOARD	
5.1	**EXISTING INTERIOR METAL FRAMED WALL, RESTROOM WALL SINGLE** (E) 5/8" GYP. BOARD (E) METAL STUD WALL (N) BATT INSULATION PER TITLE 24 (E) 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD) (N) CERAMIC TILE FINISH WHERE OCCURS, REFER TO ENLARGED RESTROOM PLANS	
6.0	**TYPICAL INTERIOR METAL FRAMED WALL, UNO** (N) 5/8" GYP. BOARD (N) 1 5/8" X 3 5/8" METAL STUD WALL (N) 5/8" GYP. BOARD NOTE: PROVIDE MOISTURE RESISTANT GYP. BOARD WHEREVER TILE APPEARS ON FINISH FLOOR PLAN	
6.1	**INTERIOR METAL FRAMED WALL, RESTROOM WALL SINGLE** (N) 5/8" GYP. BOARD (N) 1 5/8" X 3 5/8" METAL STUD WALL (N) BATT INSULATION PER TITLE 24 (N) 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD) (N) CERAMIC TILE FINISH WHERE OCCURS, REFER TO ENLARGED RESTROOM PLANS	
6.2	**INTERIOR METAL FRAMED WALL - RESTROOM WALL DBL** (N) CERAMIC TILE FINISH WHERE OCCURS, REFER TO ENLARGED RESTROOM PLANS (N) 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD) (N) 1 5/8" X 3 5/8" METAL STUD WALL (N) BATT INSULATION PER TITLE 24 (N) 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD) (N) CERAMIC TILE FINISH WHERE OCCURS, REFER TO ENLARGED RESTROOM PLANS	
6.3	**INTERIOR METAL FRAMED WALL - RESTROOM WALL OPEN** (N) CERAMIC TILE FINISH WHERE OCCURS, REFER TO ENLARGED RESTROOM PLANS (N) 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD) (N) 1 5/8" X 3 5/8" METAL STUD WALL (N) BATT INSULATION PER TITLE 24	
7.0	**INTERIOR METAL FRAMED WALL** (N) 5/8" GYP. BOARD (N) 1 5/8" X 6" METAL STUD WALL (N) 5/8" GYP. BOARD	
7.1	**INTERIOR METAL FRAMED WALL - RESTROOM WALL** (N) CERAMIC TILE FINISH WHERE OCCURS, REFER TO ENLARGED RESTROOM PLANS (N) 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD) (N) 1 5/8" X 5 1/2" METAL STUD WALL (N) BATT INSULATION PER TITLE 24 (N) 5/8" GYP. BOARD	
7.2	**INTERIOR METAL FRAMED WALL - OPEN** (N) 5/8" GYP. BOARD (N) 1 5/8" X 6" METAL STUD WALL (N) BATT INSULATION PER TITLE 24 WHERE OCCURS	
8.0	**INTERIOR METAL FRAMED WALL TO MATCH EXISTING** (N) 5/8" GYP. BOARD, ALIGN TO EXISTING ADJACENT WALL (N) 7/8" METAL FURRING CHANNEL (N) 1 5/8" X 5 1/2" METAL STUD WALL (N) 7/8" METAL FURRING CHANNEL (N) 5/8" GYP. BOARD, ALIGN TO EXISTING ADJACENT WALL	
9.0	**INTERIOR METAL FRAMED WALL TO MATCH EXISTING** (N) CERAMIC TILE FINISH WHERE OCCURS, REFER TO ENLARGED RESTROOM PLANS (N) 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD) (N) 7/8" METAL FURRING CHANNEL (E) BRICK WALL	

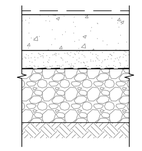
ROOF ASSEMBLY SCHEDULE

TYPE	DESCRIPTION (TOP TO BOTTOM OF ASSEMBLY)	DETAIL GRAPHIC
R1	**EXISTING BUILT UP ROOF** (E) ROOF SHEATHING (E) BUILT UP ROOF SLOPE (E) METAL DECK (N) R-38 CLOSED CELL SPRAYFOAM INSULATION PER TITLE 24	
R2	**SINGLE-PLY MEMBRANE ROOF** TPO SINGLE-PLY ROOFING MEMBRANE UNDERLAYMENT PER ROOF MEMBRANE MANUFACTURER REQUIREMENTS OR RECOMMENDATIONS (1) LAYER PLYWOOD SHEATHING PER STRUCTURAL 12" JOISTS PER STRUCTURAL R-38 CLOSED CELL SPRAYFOAM INSULATION PER TITLE 24 FINISHED CEILING PER REFLECTED CEILING PLAN NOTE: PROVIDE ROOFING MEMBRANE COMPLYING WITH ASTM D6878 NOTE: INSTALL 1/4" DENS DECK OR SECUROCK. MECHANICALLY ATTACH 60 MIL TPO SINGLE PLY ROOFING MEMBRANE, ROOF UP PARAPETS, ROOF JACKS, WATER BLOCK IN ROOF DRAIN AND HEAT WELD ALL SEEMS. PROVIDE 10 YEAR WARRANTY	

CEILING ASSEMBLY SCHEDULE

TYPE	DESCRIPTION (TOP TO BOTTOM OF ASSEMBLY)	DETAIL GRAPHIC
C1	**TYPICAL SOFFIT CEILING** (N) 2X CEILING FRAMING PER STRUCTURAL (N) (1) LAYER 5/8" GYP. BOARD (MOISTURE RESISTANT GYP. BOARD)	
C2	**ACOUSTIC ALUMINUM CEILING PANEL** (N) SUSPENDED FRAME AND SUPPORTS PER MANUFACTURER REFER TO DETAILS 6, 8/A8.04 (N) ACOUSTIC BACKER (N) ALUMINUM PANEL	

FLOOR ASSEMBLY SCHEDULE

TYPE	DESCRIPTION (TOP TO BOTTOM OF ASSEMBLY)	DETAIL GRAPHIC
F1	**EXISTING CONCRETE FLOOR STRUCTURE** (N) FLOOR FINISH WHERE OCCURS, REFER TO FINISH FLOOR PLANS FOR FLOOR FINISH (E) CONCRETE FLOOR STRUCTURE	
F2	**EXISTING CONCRETE SLAB ON GRADE** (N) FLOOR FINISH WHERE OCCURS, REFER TO FINISH FLOOR PLANS FOR FLOOR FINISH (E) CONCRETE SLAB	
F3	**CONCRETE SLAB ON GRADE** (N) CARPET OR LVT FLOORING WHERE OCCURS, REFER TO FINISH FLOOR PLANS (N) CONCRETE SLAB (N) CLEAN SAND BASE (N) 15 MIL PLASTIC MEMBRANE VAPOR BARRIER (N) CLEAN FREE DRAINING COARSE AGGREGATE SUB GRADE	

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LICENSED ARCHITECT
WILLIAM D. RUOFF III
C-36886
2.28.2025
RENEWAL
STATE OF CALIFORNIA

DATE	#	SUBMITTAL:
5/23/2025	0	ISSUE FOR BID

APPROVED BY:

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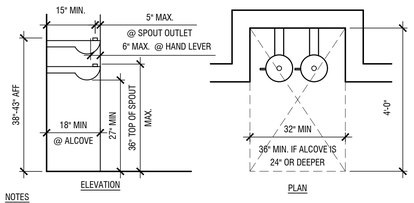
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FLOOR & WALL SCHEDULES
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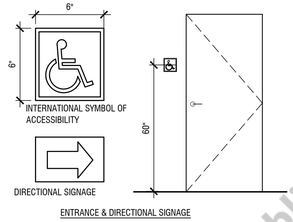


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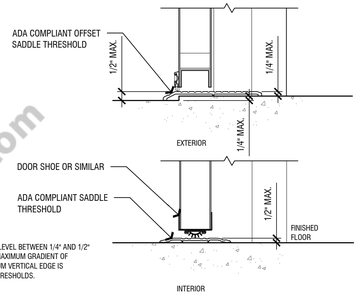
1. DRINKING FOUNTAIN TO BE FULLY LOCATED WITHIN ALCOVE
2. THE BUBBLE CAN BE ACTIVATED BY HAND OPERATED LEVER, WITHIN 6" OF THE FRONT; PUSH BAR ALONG FRONT OR BY ANOTHER APPROVED CONTROL EASILY OPERATED BY A HANDICAPPED PERSON
3. TEXTURED SURFACE TO BE CLEARLY IDENTIFIABLE BY A BLIND PERSON USING A CANE
4. SPOUT OUTLET OF WATER FOUNTAIN TO BE 36" MAX ABOVE FINISHED FLOOR AND WITHIN 5" OF FRONT OF FOUNTAIN. WATER TO HAVE A MIN. OF 4" HEAD OF WATER PRESSURE, FLOWING PARALLEL TO FRONT SIDE OF FOUNTAIN
5. NO MORE THAN A 5 LB FORCE IS REQUIRED TO ACTIVATE LEVER

14 'HI-LO' DRINKING FOUNTAIN

SCALE: 1/2" = 1'-0"



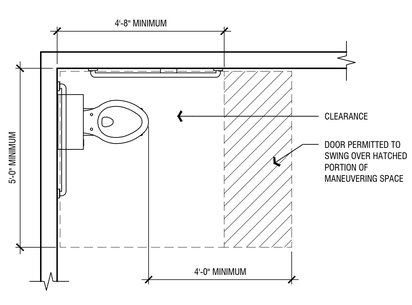
ENTRANCE & DIRECTIONAL SIGNAGE



NOTE: CHANGE IN LEVEL BETWEEN 1/4" AND 1/2" IS BEVELED AT A MAXIMUM GRADIENT OF 1:2. A 1/4" MAXIMUM VERTICAL EDGE IS ALLOWABLE AT THRESHOLDS.

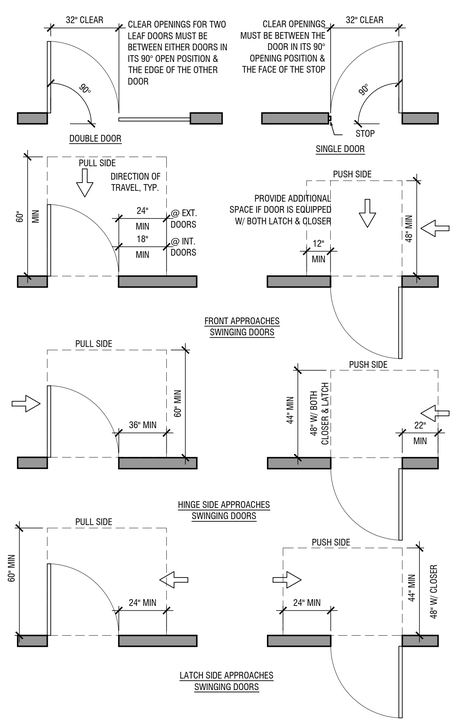
8 TYP. SWING DOOR THRESHOLD

SCALE: 3" = 1'-0"



4 WC FLOOR CLEARANCE

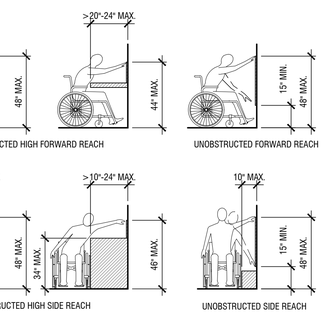
SCALE: 1/2" = 1'-0"



1 LEVEL MANEUVERING

DOOR CLEARANCES

SCALE: N.T.S.



15 REACH RANGES

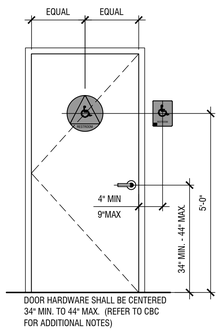
SCALE: 1/4" = 1'-0"

NOTES:

1. PROVIDE AT LEAST ONE ACCESSIBLE BUILDING ENTRANCE SIGN AND ADDITIONAL DIRECTIONAL SIGNS AS REQUIRED TO BE VISIBLE TO PERSONS ALONG APPROACHING PEDESTRIAN WAYS.
2. LETTERS & NUMBERS ON SIGNS SHALL HAVE A WIDTH TO HEIGHT RATIO BETWEEN 3:5 AND 1:1 STROKE WIDTH TO HEIGHT RATIO BETWEEN 1:5 TO 1:10.
3. CHARACTERS AND NUMBERS ON SIGNS SHALL BE SIZED ACCORDING TO THE VIEW DISTANCE FROM WHICH THEY ARE READ. LOWER CASE LETTERS ARE PERMITTED.
4. LETTERS & NUMERALS SHALL BE RAISED 1/32" UPPERCASE, SANSERIF & SHALL BE ACCOMPANIED W/ GRADE 2 BRAILLE. RAISED CHARACTERS SHALL BE 5/8"-2". PICTOGRAMS SHALL BE ACCOMPANIED BY THE EQUIVALENT VERBAL DESCRIPTION DIRECTLY BELOW.
5. THE CHARACTERS & BACKGROUNDS OF SIGNS SHALL BE EGGSHELL, MATTE, OR OTHER NON-GLARE FINISH. CHARACTERS & SYMBOLS SHALL CONTRAST W/ THEIR BACKGROUND.
6. PERMANENT IDENTIFICATION SIGNS SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. WHERE THERE IS NO WALL SPACE TO LATCH SIDE OF DOOR, INCLUDING AT DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL. MOUNTING HEIGHT SHALL BE 48" MIN A.F.F. TO BASELINE OF LOWEST LINE AT BRAILLE & 60" A.F.F. TO HIGHEST LINE OF RAISED CHARACTERS. MOUNTING LOCATION FOR SUCH SIGNAGE SHALL BE SO THAT A PERSON MAY APPROACH WITHIN 3" OF SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN SWING OF THE DOOR.

11 ACCESSIBLE SIGNAGE

SCALE: N.T.S.

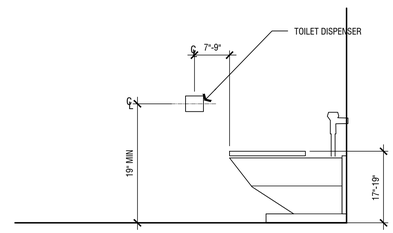




SIGNS TO BE 1/4" THICK
DOOR MOUNTED SIGNS COLOR TO CONTRAST COLOR OF DOOR. SIGN EDGES TO BE EASED/ROUNDED OR CHAMFERED 1/8" MAX.
TRIANGLE IS TO CONTRAST WITH THE CIRCLE AND THE CIRCLE IS TO CONTRAST WITH THE DOOR.

9 ACCESSIBLE ROOM SIGNAGE

SCALE: 1/2" = 1'-0"



NOTE: ALL CLEARANCE DIMENSIONS ARE TO FINISH SURFACE - VIF

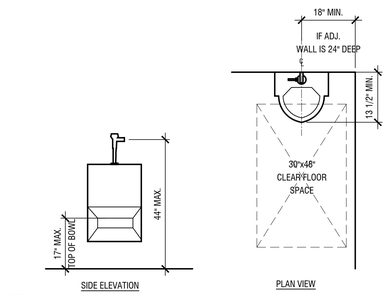
5 TOILET DISPENSER LOCATION

SCALE: 3/4" = 1'-0"

1 LEVEL MANEUVERING

DOOR CLEARANCES

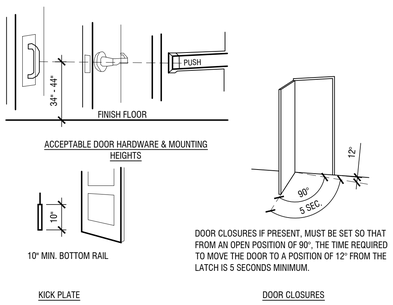
SCALE: N.T.S.



NOTES:
1. ALL CLEARANCE DIMENSIONS ARE TO FINISH SURFACE - VIF

12 ACCESSIBLE URINAL

SCALE: 1/2" = 1'-0"



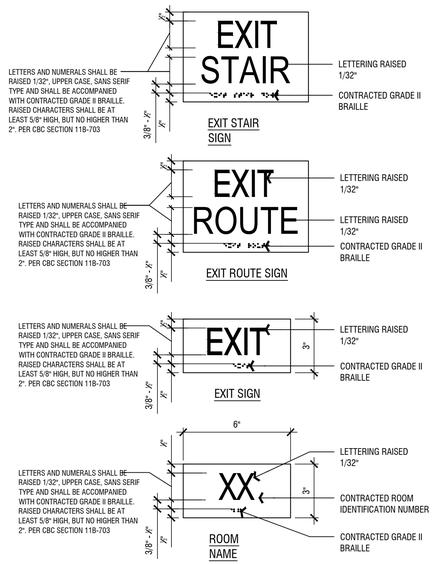
13 ACCESSIBLE DOOR

HARDWARE AND KICKPLATE

SCALE: N.T.S.

NOTE:
1. TACTILE CHARACTERS ON SIGNS SHALL BE LOCATED 48" MINIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE LOWEST BRAILLE CELLS AND 60" MAXIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST LINE OF RAISED CHARACTERS.

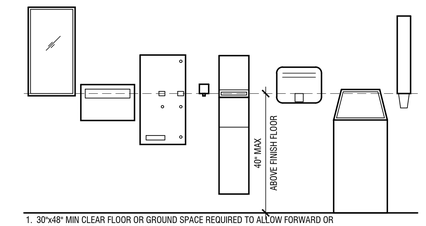
2. TACTILE EXIT SIGNS ARE REQUIRED AT THE FOLLOWING LOCATIONS:
   A. EACH GRADE-LEVEL EXTERIOR EXIT DOOR IDENTIFIED BY A TACTILE EXIT WITH THE WORD "EXIT"
   B. EACH EXIT DOOR THAT LEADS DIRECTLY TO A GRADE-LEVEL EXTERIOR EXIT BY MEANS OF A STAIRWAY OR RAMP SHALL BE IDENTIFIED BY A TACTILE EXIST SIGN WITH THE APPROPRIATE WORDS:
      "EXIT STAIR DOWN", "EXIST RAMP DOWN", "EXIT STAIR UP", "EXIT RAMP UP"
   C. EACH EXIT ACCESS DOOR FROM AN INTERIOR ROOM OR AREA TO A CORRIDOR OR HALLWAY THAT IS REQUIRED TO HAVE A VISUAL EXIT SIGN, SHALL BE IDENTIFIED BY A TACTILE EXIT SIGN WITH THE WORK "EXIT ROUTE."
   D. EACH EXIT DOOR THROUGH A HORIZONTAL EXIT SHALL BE IDENTIFIED BY A SIGN WITH THE WORDS, "TO EXIT"



10 SIGNAGE

TACTILE IDENTIFICATION

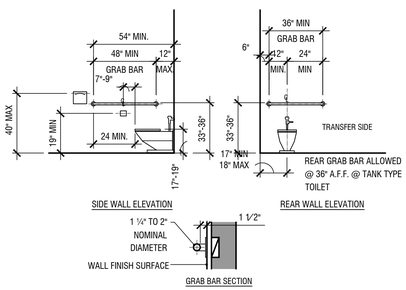
SCALE: 3" = 1'-0"



1. 30"x48" MIN CLEAR FLOOR OR GROUND SPACE REQUIRED TO ALLOW FORWARD OR PARALLEL APPROACH TO ACCESSORIES
2. LOCATE ALL OPERABLE PARTS OF FIXTURES AND ACCESSORIES 40" MAX. A.F.F.
3. CONTROLS & OPERATING MECHANISMS MUST OPERATE W/ ONE HAND & NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF WRIST
4. MAXIMUM 5 LB FORCE TO OPERATE CONTROLS
5. LOCATE COAT HOOKS & SHELVING WITHIN APPROPRIATE REACH RANGE (48" MAX. ABOVE FLOOR RECOMMENDED)

6 ACCESSIBLE ACCESSORIES

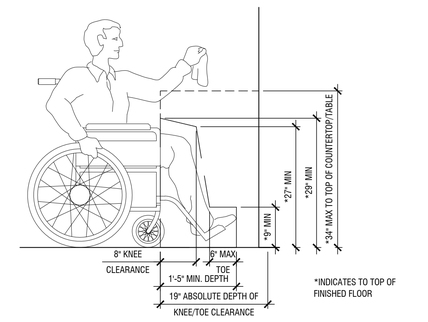
SCALE: 1/2" = 1'-0"



NOTE: ALL CLEARANCE DIMENSIONS ARE TO FINISH SURFACE - VIF

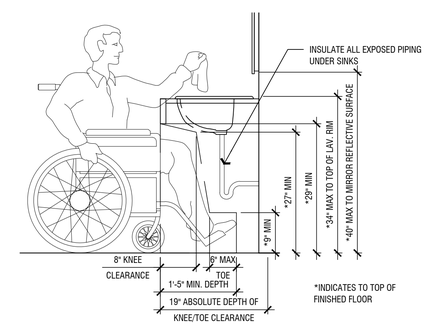
7 WC & GRAB BARS

SCALE: 1/4" = 1'-0"



2 ACCESSIBLE APPROACH

SCALE: 3/4" = 1'-0"



3 SINK KNEE CLEARANCE

SCALE: 3/4" = 1'-0"

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WILLIAM D. RUOFF III
C-36886
2.28.2025
RENEWAL
STATE OF CALIFORNIA

DATE	#	SUBMITTAL:
5/23/2025	0	ISSUE FOR BID

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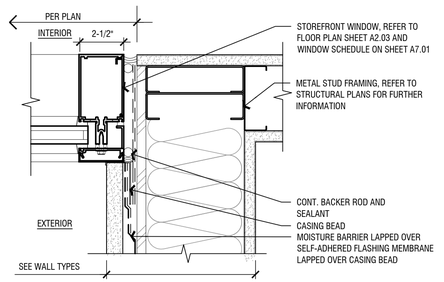
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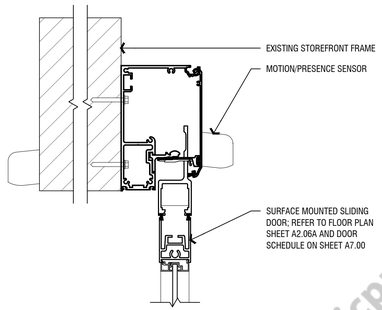
ADA DETAILS

A8.00



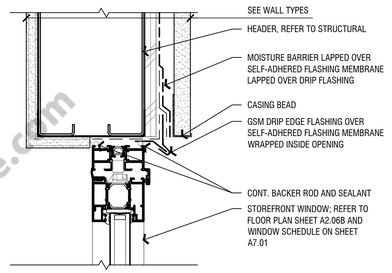
17 (N) STOREFRONT JAMB
@ (N) METAL STUD FRAMING - INSIDE CORNER 2

SCALE: 3" = 1'-0"



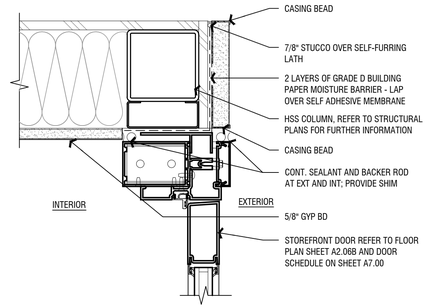
13 (N) SLIDING DOOR HEAD
@ (E) STOREFRONT FRAME

SCALE: 3" = 1'-0"



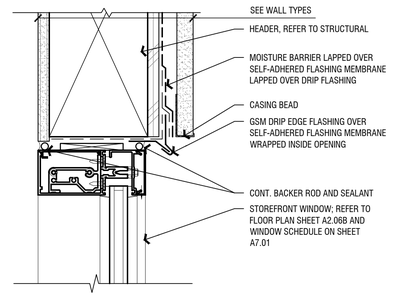
9 (N) BI-FOLD DOOR HEAD
@ (N) WOOD FRAMING

SCALE: 3" = 1'-0"



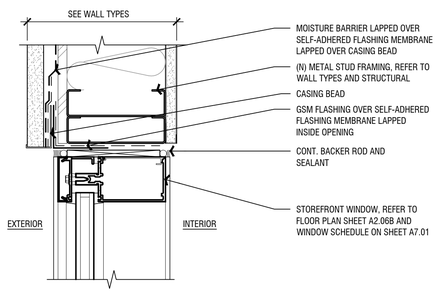
5 (N) STOREFRONT JAMB
STOREFRONT DOOR AT WALL

SCALE: 3" = 1'-0"



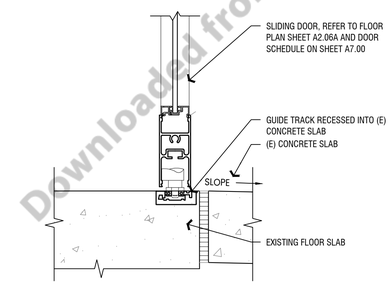
1 (N) STOREFRONT HEAD
@ (N) WOOD FRAMING (CHILDREN'S ROOM)

SCALE: 3" = 1'-0"



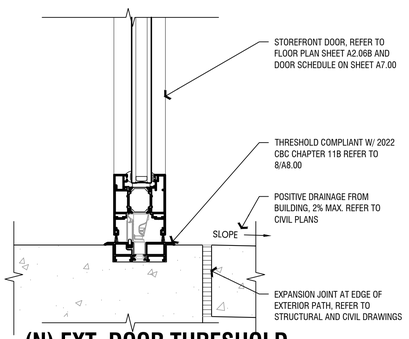
18 (N) STOREFRONT JAMB
@ (N) METAL STUD FRAMING

SCALE: 3" = 1'-0"



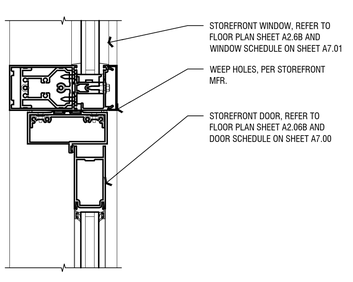
14 (N) SLIDING DOOR SILL
@ (E) CONC. FLOOR

SCALE: 3" = 1'-0"



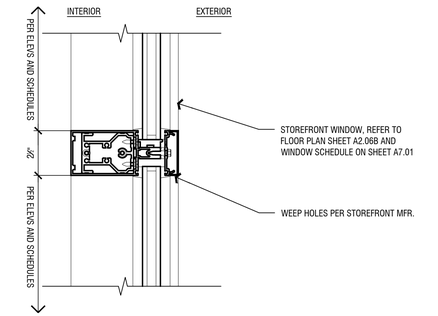
10 (N) EXT. DOOR THRESHOLD @ (N) BI-FOLD DOOR
SECTION VIEW

SCALE: 3" = 1'-0"



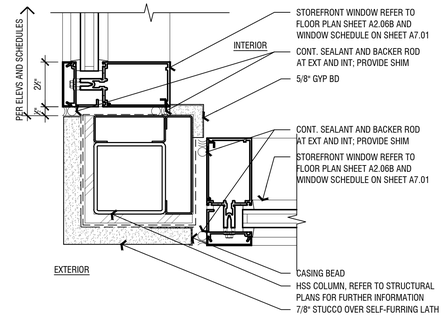
6 (N) STOREFRONT DOOR HEAD @ (N) STOREFRONT TRANSOM
SECTION VIEW

SCALE: 3" = 1'-0"



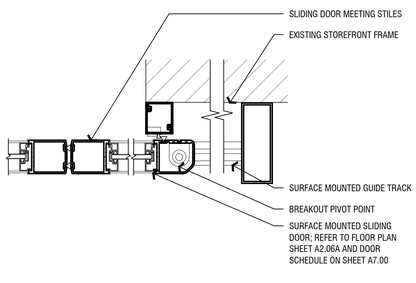
2 (N) STOREFRONT MULLION
SECTION VIEW

SCALE: 3" = 1'-0"



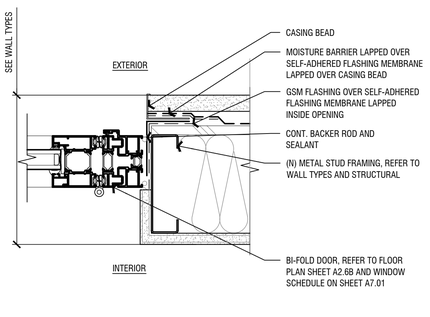
19 STOREFRONT CORNER CONNECTION
STOREFRONT AT STOREFRONT

SCALE: 3" = 1'-0"



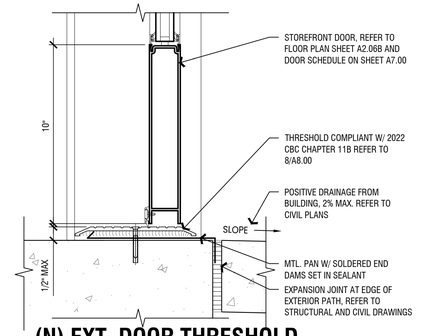
15 (N) SLIDING DOOR JAMB
PLAN VIEW

SCALE: 3" = 1'-0"



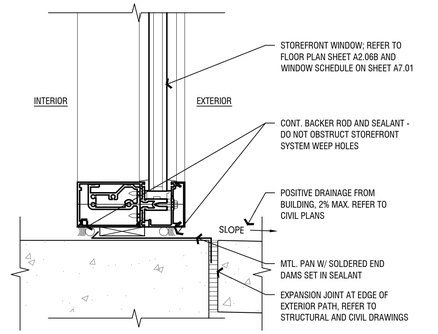
11 (N) BI-FOLD DOOR JAMB
@ (N) WOOD FRAMING

SCALE: 3" = 1'-0"



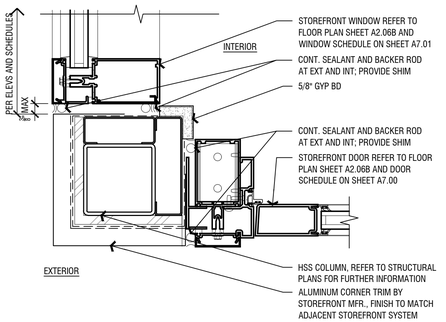
7 (N) EXT. DOOR THRESHOLD @ (N) STOREFRONT DOOR
SECTION VIEW

SCALE: 3" = 1'-0"



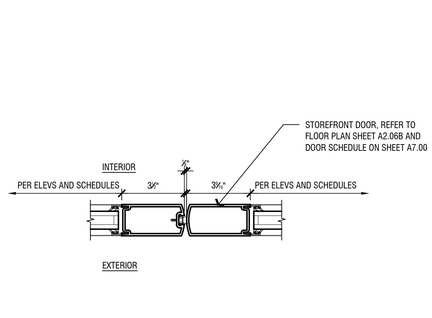
3 (N) STOREFRONT SILL
@ CONC. SLAB

SCALE: 3" = 1'-0"



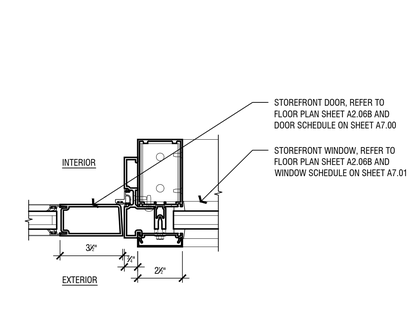
20 STOREFRONT CORNER CONNECTION
STOREFRONT AT STOREFRONT DOOR

SCALE: 3" = 1'-0"



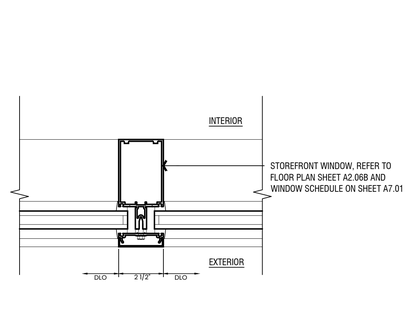
16 (N) DOUBLE DOOR MEETING STILES @ (N) STOREFRONT
PLAN VIEW

SCALE: 3" = 1'-0"



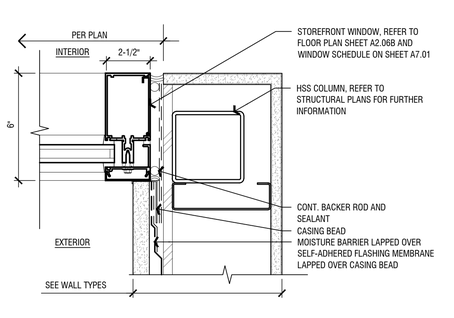
12 (N) STOREFRONT DOOR JAMB @ (N) STOREFRONT MULLION
PLAN VIEW

SCALE: 3" = 1'-0"



8 (N) STOREFRONT MULLION
PLAN VIEW

SCALE: 3" = 1'-0"



4 (N) STOREFRONT JAMB
@ (N) METAL STUD FRAMING - INSIDE CORNER 1

SCALE: 3" = 1'-0"

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LICENSED ARCHITECT
WILLIAM D. RUOFF III
C-36886
2.28.2025
RENEWAL
STATE OF CALIFORNIA

#	DATE	SUBMITTAL:
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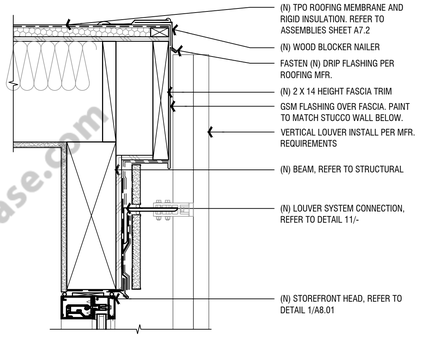
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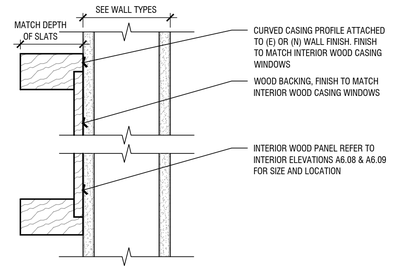
PLOT DATE: 4/24/2025
JOB NO.: 23467

DOOR & WINDOW DETAILS

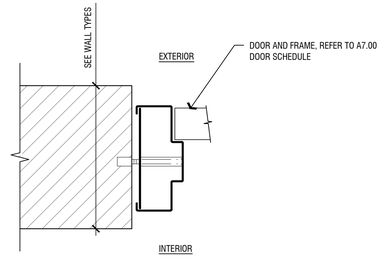
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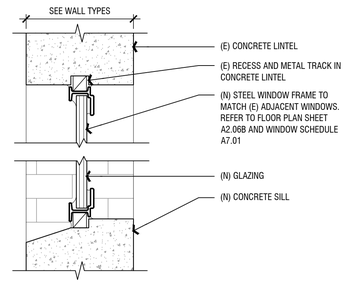
9 ROOF RAKE OVERHANG
WOOD FRAMING
SCALE: 1-1/2" = 1'-0"



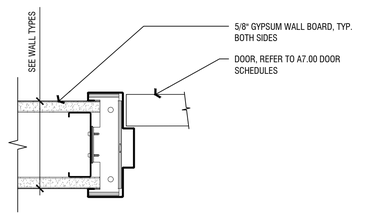
5 (N) WOOD WALL PANEL HEAD & SILL (JAMB SIM.)
INTERIOR CONDITION
SCALE: 3" = 1'-0"



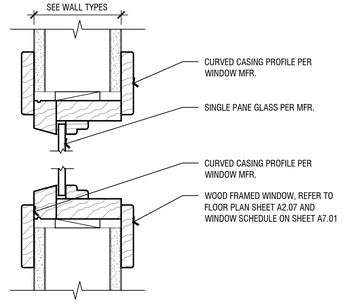
1 DOOR JAMB (HEAD SIM.)
@ MASONRY WALL
SCALE: 3" = 1'-0"



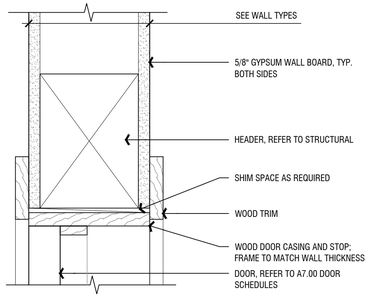
6 (N) ARCHED WINDOW HEAD & SILL (JAMB SIM.)
AT (E) MASONRY WALL
SCALE: 3" = 1'-0"



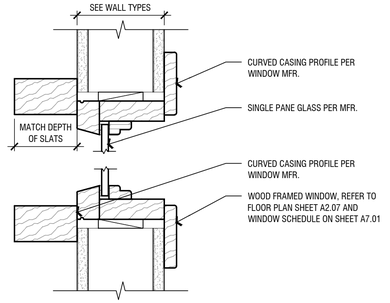
2 HOLLOW METAL DOOR JAMB (HEAD SIM.)
TYP. INTERIOR CONDITION
SCALE: 3" = 1'-0"



7 (N) WOOD FRAMED WINDOW HEAD & SILL (JAMB SIM.)
INTERIOR CONDITION
SCALE: 3" = 1'-0"



3 WOOD DOOR HEADER (JAMB SIM.)
TYP. INTERIOR CONDITION
SCALE: 3" = 1'-0"



4 (N) CIRCULAR WOOD FRAMED WINDOW HEAD & SILL (JAMB SIM.)
INTERIOR CONDITION
SCALE: 3" = 1'-0"

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LICENSED ARCHITECT
WILLIAM D. RUOFF III
C-36886
2.28.2025
RENEWAL
STATE OF CALIFORNIA

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0	5/23/2025	ISSUE FOR BID

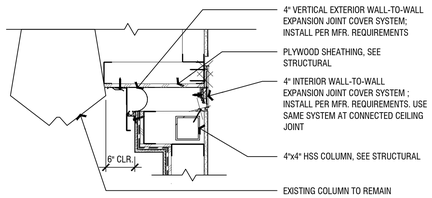
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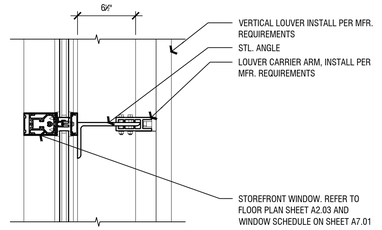
PLOT DATE: 4/24/2025
JOB NO.: 23467

DOOR & WINDOW DETAILS
A8.02



17 EXPANSION JOINT AT FLOOR PLAN

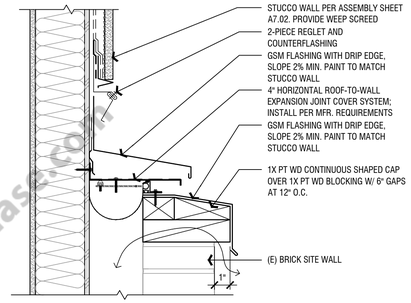
SCALE: 3/4" = 1'-0"



13 LOUVERED FACADE CONNECTION @ STOREFRONT

SECTION VIEW

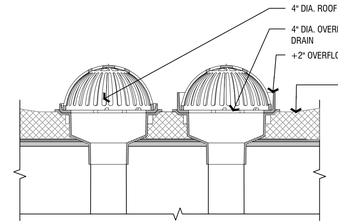
SCALE: 1-1/2" = 1'-0"



9 EXPANSION JOINT

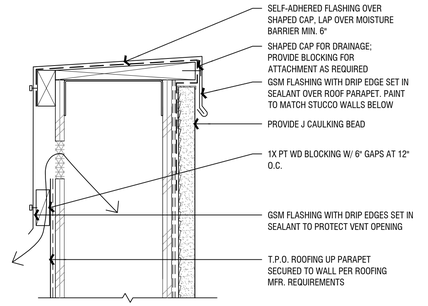
@ (E) MASONRY WALL

SCALE: 1-1/2" = 1'-0"



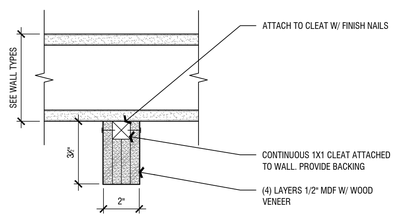
5 ROOF DRAINS

SCALE: 1-1/2" = 1'-0"



1 PARAPET CAP

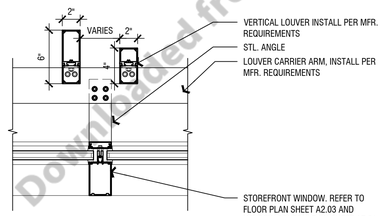
SCALE: 1" = 1'-0"



18 WOOD WALL SLAT CONNECTION

@ CHILDREN'S AREA

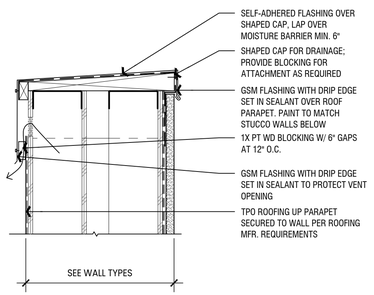
SCALE: 3" = 1'-0"



14 LOUVERED FACADE CONNECTION @ STOREFRONT

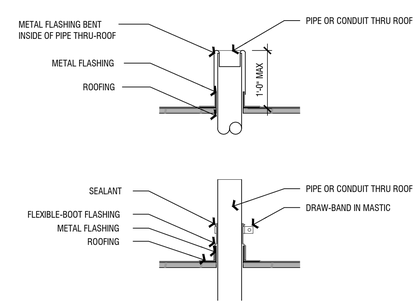
PLAN VIEW

SCALE: 1-1/2" = 1'-0"



10 PARAPET CAP @ DOUBLE WALL

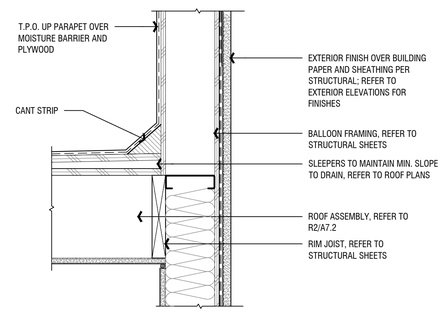
SCALE: 1-1/2" = 1'-0"



6 VENT AT ROOF

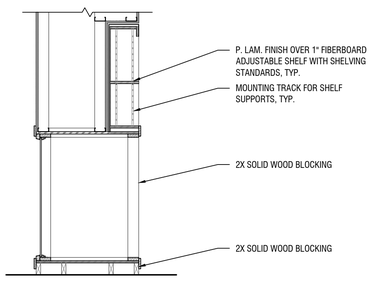
SECTION

SCALE: 1" = 1'-0"



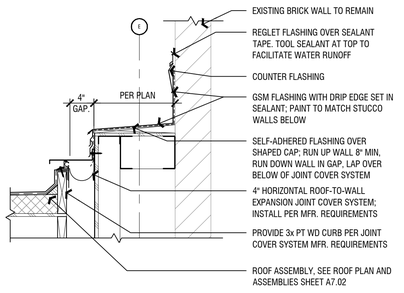
2 CANT STRIP AT PARAPET

SCALE: 1-1/2" = 1'-0"



19 CHILDREN'S READING NOOK

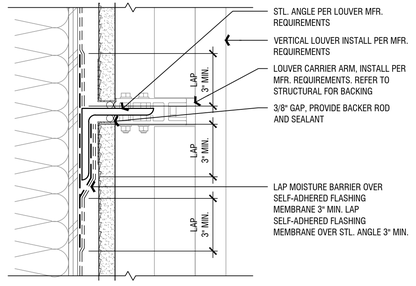
SCALE: 1/2" = 1'-0"



15 EXPANSION JOINT AT ROOF

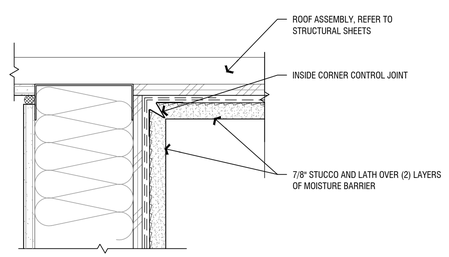
SECTION

SCALE: 1" = 1'-0"



11 (N) LOUVER SYSTEM CONNECTION TO (N) WALL

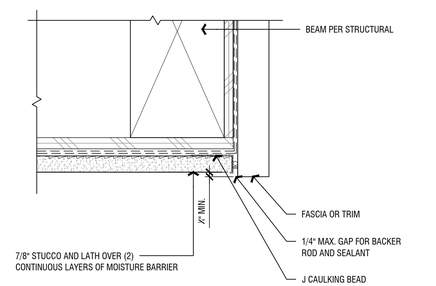
SCALE: 1-1/2" = 1'-0"



7 SOFFIT INSIDE CORNER

STUCCO TO STUCCO

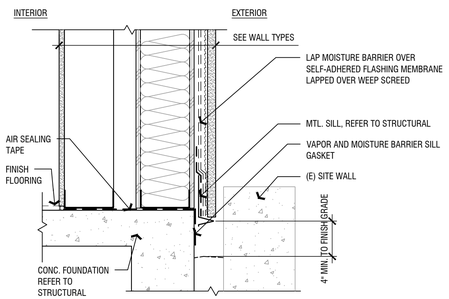
SCALE: 3" = 1'-0"



3 SOFFIT OUTSIDE CORNER

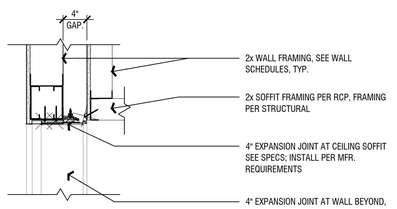
STUCCO TO STUCCO

SCALE: 3" = 1'-0"



20 STUCCO SIDING @ DOUBLE WALL

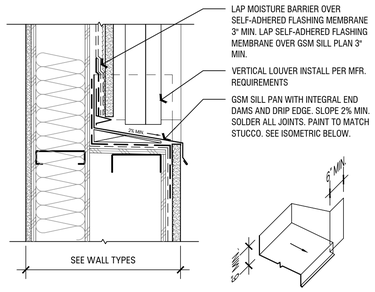
SCALE: 1-1/2" = 1'-0"



16 EXPANSION JOINT AT SOFFIT

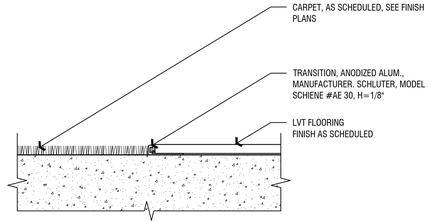
SECTION

SCALE: 1" = 1'-0"



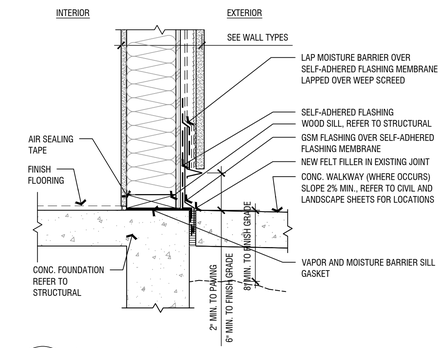
12 SILL PAN @ DOUBLE WALL

SCALE: 1-1/2" = 1'-0"



8 CARPET TO LVT FLOORING

SCALE: 6" = 1'-0"



4 STUCCO SIDING TYP.

SCALE: 1-1/2" = 1'-0"

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2.28.2025
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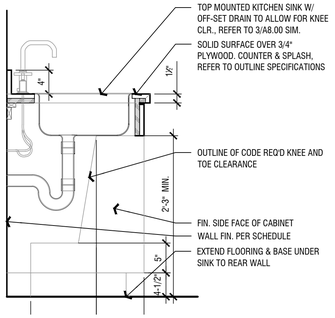
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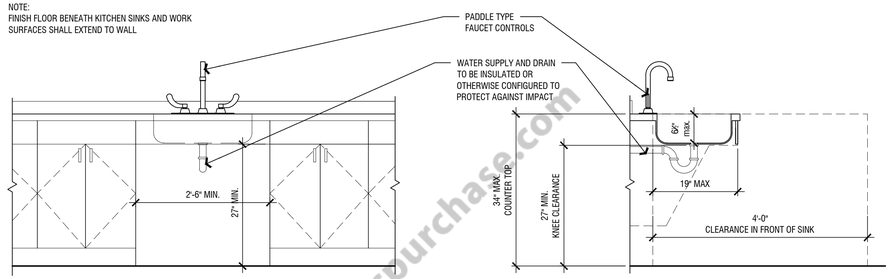
DETAILS

A8.03



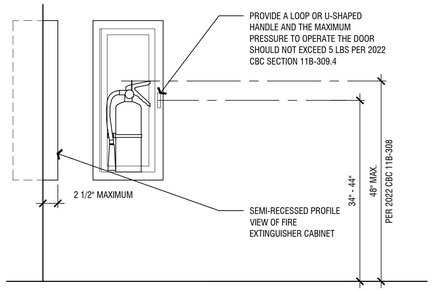
9 BASE CABINET W/SINK

SCALE: 1" = 1'-0"



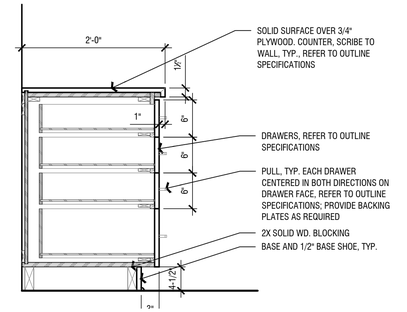
7 ACCESSIBLE KITCHEN SINK

SCALE: 3/4" = 1'-0"



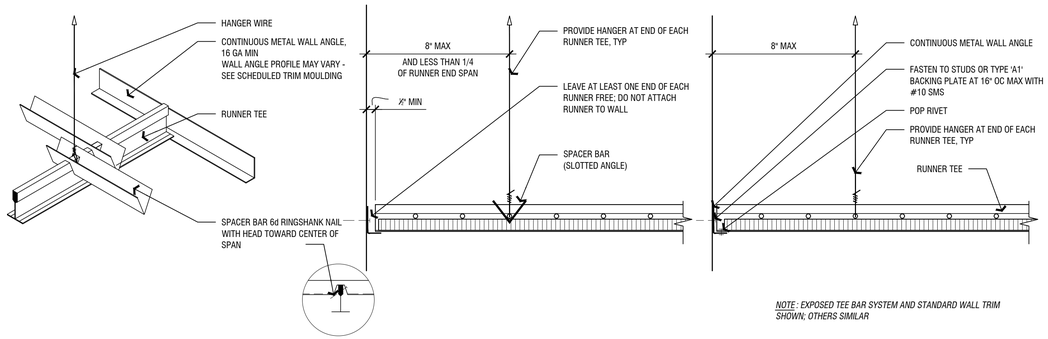
5 FIRE EXTINGUISHER

SCALE: 1" = 1'-0"

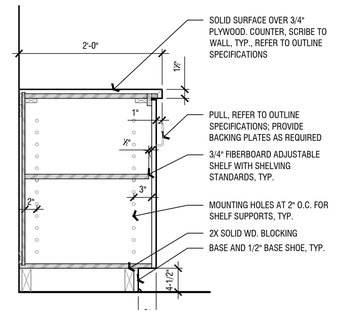


1 BASE CABINET W/DRAWERS

SCALE: 1" = 1'-0"

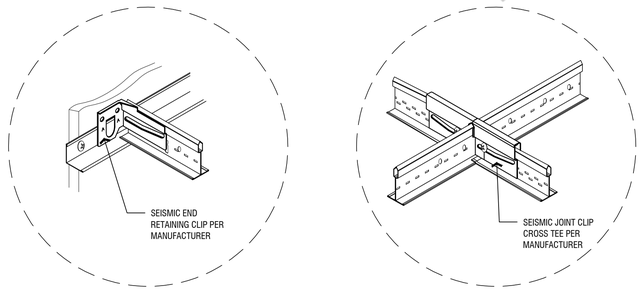


NOTE: EXPOSED TEE BAR SYSTEM AND STANDARD WALL TRIM SHOWN; OTHERS SIMILAR



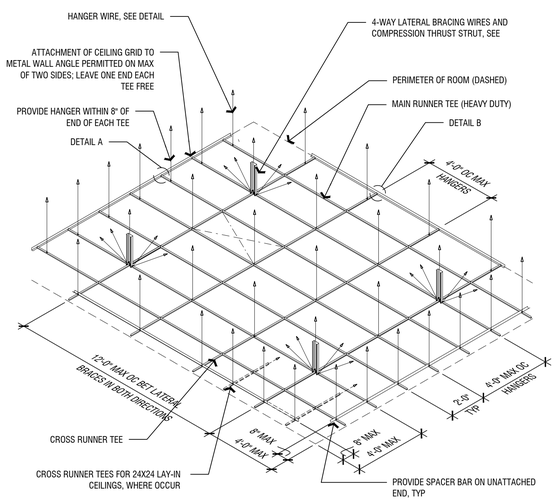
2 BASE CABINET

SCALE: 1" = 1'-0"



DETAIL A

DETAIL B



8 ISOMETRIC FRAMING DIAGRAM

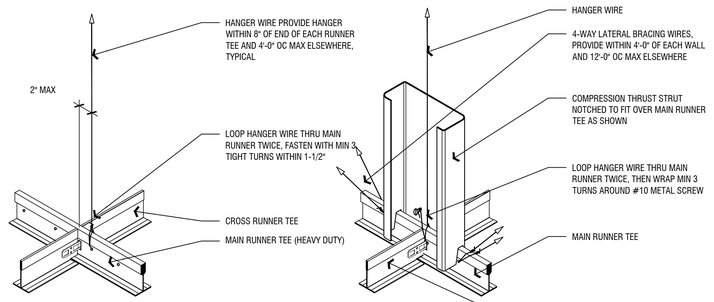
TYP. AT SUSPENDED ACOUSTIC CEILING

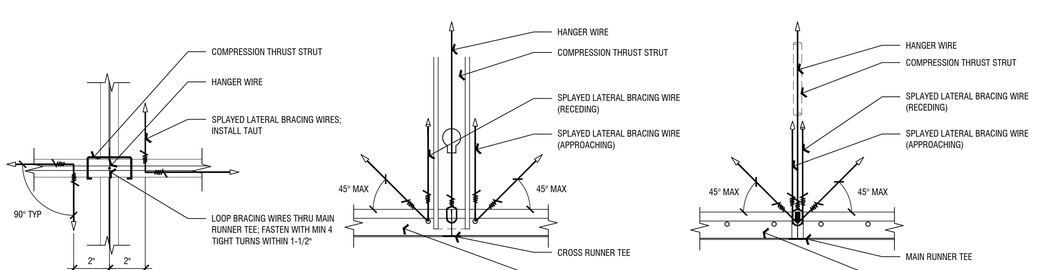
SCALE: 1/4" = 1'-0"

1. HANGER AND BRACING WIRES SHALL BE 12 GAGE (MIN) GALV MILD STEEL WIRE. SPLICES IN WIRES ARE NOT PERMITTED.
2. WIRES SHALL NOT BEND AROUND NOR BE ATTACHED TO OBSTRUCTIONS SUCH AS DUCTS, PIPES, CONDUITS. MAINTAIN 6" MIN HORIZONTAL SEPARATION BET WIRES AND OBSTRUCTIONS. PROVIDE TRAPEZE DEVICE WHERE OBSTRUCTIONS PRECLUDE DIRECT ATTACHMENT TO STRUCTURE ABOVE.
3. HANGER WIRES SHALL NOT HANG MORE THAN 1 IN 6 OUT-OF-PLUMB.
4. COMPRESSION STRUTS SHALL BE STEEL SECTION WITH MAX L/R RATIO OF 200. STRUTS SHALL NOT REPLACE HANGER WIRE.
5. SUSPENDED CEILINGS ARE REQUIRED TO BE INSTALLED IN ACCORDANCE WITH ASTM C 635 AND ASTM C 636. 2022 CBC 808.1.1.1.
6. LUMINAIRES SHALL BE SECURELY FASTENED BY BOLTS, SCREWS, RIVETS OR LISTED CLIPS IDENTIFIED FOR USE WITH THE TYPE OF CEILING FRAMING AND LUMINAIRES. CEC 410.36(B)

COMPRESSION STRUT TABLE

MAX HEIGHT	STRUT MATERIAL	R	L/R
UP TO 4'-0"	1 1/2" COLD-ROLLED CHANNEL	.248	193
UP TO 10'-0"	20 GA 2-1/2" METAL STUD	.448	187
UP TO 14'-0"	18 GA 3-5/8" METAL STUD	.624	180

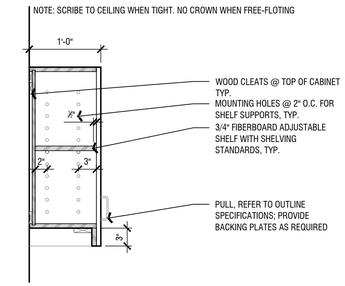




6 HANGER, LATERAL BRACING & COMPRESSION STRUT DETAILS

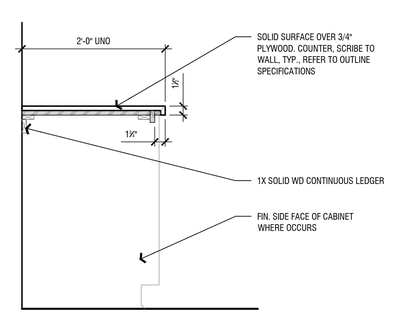
TYP. FOR SUSPENDED ACOUSTIC PANEL OR TILE CEILINGS

SCALE: 3" = 1'-0"



3 UPPER CABINET

SCALE: 1" = 1'-0"



4 COUNTERTOP

SCALE: 1" = 1'-0"

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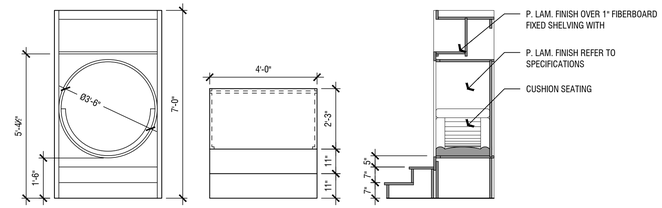
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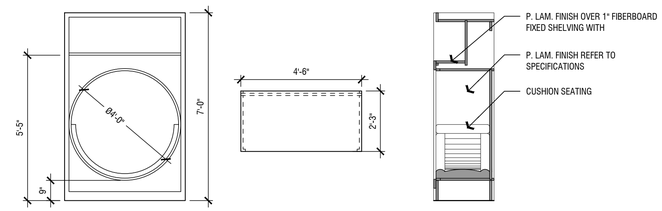
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ELEVATION PLAN VIEW SECTION

1 CHIDLREN'S READING NOOK 1

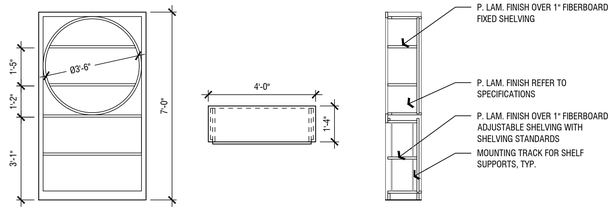
SCALE: 3/8" = 1'-0"



ELEVATION PLAN VIEW SECTION

2 CHIDLREN'S READING NOOK 2

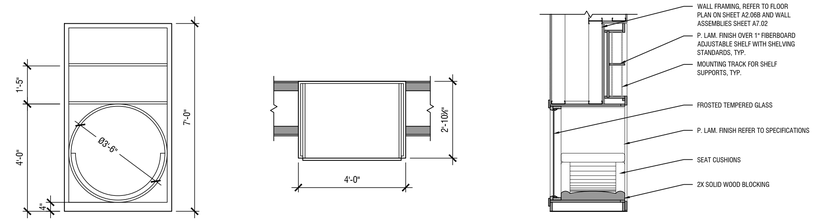
SCALE: 3/8" = 1'-0"



ELEVATION PLAN VIEW SECTION

3 CHIDLREN'S READING NOOK 3

SCALE: 3/8" = 1'-0"



ELEVATION PLAN VIEW SECTION

4 CHIDLREN'S READING NOOK 4

SCALE: 3/8" = 1'-0"

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LICENSED ARCHITECT
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C-36886
2.28.2025
RENEWAL
STATE OF CALIFORNIA

DATE	#	SUBMITTAL:
5/23/2025	0	ISSUE FOR BID

APPROVED BY:

DATE SIGNATURE

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DETAILS

A8.05

ABBREVIATIONS

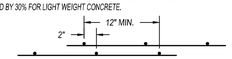
&	AND	JST.	JOIST
@	AT	JT.	JOINT
℄	CENTERLINE	L	ANGLE
Ø	DIAMETER OR ROUND	L.	LENGTH
#	POUND	LAT.	LATERAL
(E)	EXISTING	LB.	POUND
(N)	NEW	LF	LINEAR FEET
℄	PLATE	LLH	LONG LEG HORIZONTAL
A.B.	ANCHOR BOLT	LLV	LONG LEG VERTICAL
ABV	ABOVE	MAX.	MAXIMUM
APPROX.	APPROXIMATE	M.B.	MACHINE BOLT
ARCH.	ARCHITECTURAL	MC	MISCELLANEOUS CHANNEL
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	MECH.	MECHANICAL
		MFR.	MANUFACTURER
AVG.	AVERAGE	MIN.	MINIMUM
BLW	BELOW	MISC.	MISCELLANEOUS
BLDG.	BUILDING	MLB	MICRO LAM BEAM (TRUSS JOIST)
BLKG.	BLOCKING	NO.	NUMBER
BM.	BEAM	N.S.	NEAR SIDE
BOT.	BOTTOM	O/	OVER
C	CHANNEL	O.A.	ON CENTER
C.I.P.	CAST IN PLACE	O.F.	OUTSIDE FACE
CL	CENTER LINE	O.H.	OPPOSITE HAND
C.J.	CONSTRUCTION JOINT	OPNG	OPENING
CLR.	CLEAR	OPP.	OPPOSITE
COL.	COLUMN	OWSJ	OPEN WEB STEEL JOIST
CONN.	CONNECTION	P	PILE
CONT.	CONTINUOUS	P.C.	PRECAST CONCRETE
C.P.	COMPLETE PENETRATION	P.L.	PLATE
CTR.	CENTER	PLB	PARALLAM BEAM (TRUS JOIST)
CTSK.	COUNTERSINK	PLY	PLYWOOD
DBL.	DOUBLE	P.S.F.	PER SQUARE FOOT
DET.	DETAIL	P.S.I.	POUND PER SQUARE INCH
D.F.	DOUGLAS FIR	PT.	POINT
DIA.	DIAMETER	P.T.	PRESSURE TREATED
DIM.	DIMENSION	R	RADIUS
DWG.	DRAWING	RD.	ROOF DRAIN
EA.	EACH	REF.	REFERENCE
E.B.	EXPANSION BOLT	REINF.	REINFORCEMENT
E.F.	EACH FACE	REQ'D.	REQUIRED
EL.	ELEVATION	RF	ROOF
ELEV.	ELEVATOR	S.A.D.	SEE ARCHITECTURAL DETAILS
EMBED.	EMBEDMENT	SECT.	SECTION
E.N.	EDGE NAIL	SIM.	SIMILAR
E.S.	EACH SIDE	SPEC.	SPECIFICATION
EQ.	EQUAL	SQ.	SQUARE
ETC.	ET CETERA	STAG.	STAGGERED
EXT.	EXTERIOR	STD.	STANDARD
E.W.	EACH WAY	STIFF.	STIFFENER
F.F.	FINISHED FLOOR	STL.	STEEL
F.N.	FIELD NAIL	STRL.	STRUCTURAL
F.O.	FACE OF	SYM.	SYMMETRICAL
F.O.C.	FACE OF CONCRETE	T&B	TOP AND BOTTOM
F.S.	FAR SIDE	T&G	TONGUE AND GROOVE
FT.	FOOT, FEET	THK.	THICK
GA.	GAGE	T.O.	TOP OF
GALV.	GALVANIZED	T.O.C.	TOP OF CONCRETE
GLB	GLU-LAM BEAM	T.O.S	TOP OF STEEL
>	GREATER THAN	TS	TUBE STEEL
>=	GREATER THAN OR EQUAL TO	TYP.	TYPICAL
<	LESS THAN	U.O.N.	UNLESS OTHERWISE NOTED
<=	LESS THAN OR EQUAL TO	VERT.	VERTICAL
H.D.	HOLD DOWN	W	WIDE FLANGE BEAM
HORIZ.	HORIZONTAL	W/	WITH
H.S.B	HIGH STRENGTH BOLT	WF	WIDE FLANGE BEAM
H.S.S.	HOLLOW STRUCTURAL STEEL	W/O	WITHOUT
HT.	HEIGHT	W.P.	WORK POINT
I.D.	INSIDE DIAMETER	W.P.C.	WEAKENED PLANE JOINT
I.E.	IN EXAMPLE	WT	WIDE FLANGE TEE
I.F.	INSIDE FACE	WT.	WEIGHT
INT.	INTERIOR	W.W.F.	WELDED WIRE FABRIC

REINFORCEMENT BAR LAP SPLICE (Ld) FOR NORMAL WEIGHT CONCRETE (CLASS "B" SPLICE)

LOACATION	CONC. F'c (PSI)	STEEL Fy (KSI)	BAR SIZE 3	4	5	6	7	8	9	10	11
			"Ld" = LAP SPLICE (in)								
TOP	3000	60	28	37	42	56	81	93	105	132	162
OTHER	3000	60	22	29	36	43	63	72	81	102	125
TOP	4000	60	24	32	40	48	70	80	91	114	140
OTHER	4000	60	19	25	31	37	54	62	70	88	108
TOP	5000	60	22	29	36	43	63	72	81	102	126
OTHER	5000	60	17	22	28	33	49	55	63	79	97
TOP	6000	60	20	26	33	40	58	66	74	93	115
OTHER	6000	60	15	20	25	31	44	51	57	72	88
TOP	7000	60	18	25	31	37	53	61	69	86	106
OTHER	7000	60	14	19	24	28	41	47	53	67	82

NOTES:
1. LAP LENGTHS SHOWN IN THE SCHEDULE ARE CASE 1 LAP SPLICES PER THE 2009 CRSI MANUAL OF STANDARD PRACTICE. THE MINIMUM CONCRETE COVER MUST BE GREATER THAN db AND THE CENTER TO CENTER SPACING MUST BE GREATER THAN 3db. WHERE "db" IS THE NOMINAL BAR DIAMETER.
2. BARS NOT MEETING CASE 1 REQUIREMENTS SHALL BE PER ACI 318, CHAPTER 25. CASE 1 LAP SPLICE LENGTHS MAY BE FOUND IN THE 2009 CRSI MANUAL OF STANDARD PRACTICE.
3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW THE BAR.
4. THE SMALLER LAP SPLICE LENGTH MAY BE USED WHEN TWO BARS OF DIFFERENT SIZES ARE TO BE LAPPED.
5. LAP SPLICE LENGTH SHALL BE INCREASED BY 30% FOR LIGHT WEIGHT CONCRETE.

W.W.F. - LAP SPLICE LENGTHS



REINFORCEMENT BAR DEVELOPMENT LENGTH (ld) FOR NORMAL WEIGHT CONCRETE

LOACATION	CONC. F'c (PSI)	STEEL Fy (KSI)	BAR SIZE 3	4	5	6	7	8	9	10	11	14	18
			"ld" = DEVELOPMENT LENGTH (in)										
TOP	3000	60	22	29	36	43	63	72	81	102	125	170	230
OTHER	3000	60	17	22	28	33	48	55	62	78	96	131	192
TOP	4000	60	19	25	31	37	54	62	70	88	108	147	216
OTHER	4000	60	15	19	24	29	42	48	54	68	83	113	166
TOP	5000	60	17	22	28	33	49	55	63	79	97	132	193
OTHER	5000	60	13	17	22	26	37	43	48	61	74	101	149
TOP	6000	60	15	20	25	31	44	51	57	72	88	120	177
OTHER	6000	60	12	16	20	24	34	39	44	55	68	92	136
TOP	7000	60	14	19	24	28	41	47	53	67	82	111	163
OTHER	7000	60	12	15	18	22	32	36	41	51	63	86	126

NOTES:
1. DEVELOPMENT LENGTHS SHOWN IN THE SCHEDULE ARE CASE 1 LENGTHS THE PER 2009 CRSI MANUAL OF STANDARD PRACTICE. THE MINIMUM CONCRETE COVER MUST BE GREATER THAN db AND THE CENTER TO CENTER SPACING MUST BE GREATER THAN 3db. WHERE "db" IS THE NOMINAL BAR DIAMETER.
2. BARS NOT MEETING CASE 1 REQUIREMENTS SHALL BE PER ACI 318, CHAPTER 25. CASE 1 DEVELOPMENT LENGTHS MAY BE FOUND IN THE 2009 CRSI MANUAL OF STANDARD PRACTICE.
3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW THE BAR.
4. DEVELOPMENT LENGTH SHALL BE INCREASED BY 30% FOR LIGHT WEIGHT CONCRETE.

REINFORCEMENT BAR DEVELOPMENT (Ldh) FOR STANDARD HOOKS IN NORMAL WEIGHT CONCRETE GENERAL USE (NOT FOR FRAME JOINTS)

CONC. F'c (PSI)	STEEL Fy (KSI)	BAR SIZE 3	4	5	6	7	8	9	10	11	14	18
		"Ldh" = DEVELOPMENT LENGTH (in)										
3000	60	6	8	10	12	14	16	18	20	22	37	50
4000	60	6	7	9	10	12	14	15	17	19	32	43
5000	60	6	7	8	9	11	12	14	15	17	29	39
6000	60	6	7	7	8	10	11	13	14	16	27	35
7000	60	6	7	7	8	9	10	12	14	15	25	33

NOTES:
1. SIDE COVER MUST BE GREATER THAN OR EQUAL TO 2 1/2".
2. END COVER MUST BE GREATER THAN OR EQUAL TO 2".
3. HOOK DEVELOPMENT LENGTH SHALL BE INCREASED BY 30% FOR LIGHT WEIGHT CONCRETE

1. GENERAL NOTES

1. CONSIDER GENERAL NOTES AS APPLYING TO ALL STRUCTURAL DRAWINGS.
2. DO ALL WORK IN ACCORDANCE WITH ALL STATE AND LOCAL BUILDING CODES IN EFFECT AT THE PLACE OF THE BUILDING. DESIGN WAS PERFORMED IN ACCORDANCE WITH THE 2022 CALIFORNIA BUILDING CODE.
3. THE ENGINEER SHALL HAVE NO CONTROL OR CHARGE OF, NOR BE RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, SAFETY PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK, THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY PERSONS PERFORMING ANY OF THE WORK OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
4. PROVIDE SPECIAL INSPECTION AS REQUIRED BY SECTION 1704 & 1705 OF THE 2022 CALIFORNIA BUILDING CODE FOR THE FOLLOWING ITEMS:
   - 4.1. PLACEMENT OF REINFORCING STEEL,
   - 4.2. TAKING OF TEST SPECIMENS AND PLACING OF ALL CONCRETE.
   - 4.3. BOLTS IN CONCRETE.
   - 4.4. STRUCTURAL WELDING.
   - 4.5. OBSERVATION OF SOIL EXCAVATION AND FOUNDATION CONSTRUCTION OPERATION BY GEOTECHNICAL ENGINEER.
   - 4.6. INSTALLATION OF BOLTS AND REINFORCEMENT IN EPOXY
5. USE THE FOLLOWING DESIGN LOADS/PARAMETERS:

ROOF DEAD LOAD - WOOD		LIVE LOAD	BUILDING PARAMETERS					SITE PARAMETERS			SEISMIC COEFFICIENTS			WIND PARAMETERS	
JOIST (PSF)	BEAM (PSF)	ROOF (PSF)	OCC.	I	R	Ω	Cd	SITE CLASS	SS	S1	SDC	SDS	SD1	MPH	EXP.
13.5	15.5	20	II	1.0	6.5/3.5	3/3	4/3	D	0.732	0.266	D	0.593	0.367	94	B

   - 5.1. THE ABOVE BUILDING PARAMETERS ARE FOR A "LIGHT-FRAMED WALL SHEATHED WITH STRUCTURAL PANELS" SYSTEM IN N-S DIRECTION AND "ORDINARY STEEL MOMENT FRAME" IN E-W DIRECTION TYPE OF SEISMIC FORCE RESISTING SYSTEM.
   - 5.2. THE SEISMIC ANALYSIS PROCEDURE USED FOR THIS STRUCTURE IS THE EQUIVALENT LATERAL FORCE PROCEDURE.
6. CONSTRUCT THOSE FEATURES OF THE PROJECT, WHICH MAY NOT BE FULLY SHOWN, IN A MANNER SIMILAR TO THAT USED FOR SIMILAR FEATURES.
7. CONTRACTOR IS TO VERIFY ALL DIMENSIONS PRIOR TO BEGINNING OF CONSTRUCTION. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH WORK. COORDINATE STRUCTURAL DIMENSIONS WITH ARCHITECTURAL AND ALL OTHER DRAWINGS AND SPECIFICATION.
8. THE STRUCTURAL SYSTEMS HAVE BEEN DESIGNED TO CARRY THE SUPERIMPOSED LIVE LOADS AS PRESCRIBED BY THE BUILDING CODE AND IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICES. WITH NO SPECIAL PROVISIONS FOR CARRYING CONCENTRATED LOADS FROM STORAGE AND HANDLING OF CONSTRUCTION MATERIALS OR FROM OPERATION OF CONSTRUCTION EQUIPMENT. THE CONTRACTOR SHALL PROVIDE ALL SCAFFOLDING, BRACING, AND SHORING SYSTEMS AS REQUIRED FOR INSTALLATION, STABILITY, AND SAFETY OF NEW WORK AND PROVIDE PROTECTION AS REQUIRED FOR THE SAFETY OF PEDESTRIANS AND JOBSITE PERSONNEL. AT ALL TIMES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS OF THE JOBSITE INCLUDING SAFETY OF PERSONS AND PROPERTY. THE CONTRACTOR SHALL PROTECT NEW AND EXISTING CONSTRUCTION AND MATERIALS FROM ADVERSE CONDITIONS AND DAMAGE.
9. SHOP DRAWING SUBMITTALS SHALL BE STAMPED BY THE PROJECT ENGINEER OF RECORD AS HAVING BEEN REVIEWED/APPROVED PRIOR TO SUBMITTAL TO THE CITY AND DISTRIBUTION TO THE JOB SITE. SUBMITTAL SHALL INCLUDE 3 SETS OF PRINTS. SUBMIT SHOP DRAWINGS FOR EACH OF THE FOLLOWING:
   - 9.1. CONCRETE MIX DESIGN.
   - 9.2. GLULAMINATED LUMBER.
   - 9.3. PREFABRICATED ROOF TRUSSES.
10. GENERAL CONTRACTOR SHALL OBTAIN SPECIAL INSPECTION FORMS FROM THE CITY. FORMS SHALL BE COMPLETED, SIGNED, AND RESUBMITTED PRIOR TO PERMIT ISSUE.
11. SHOULD ANY CONDITION ARISE WHERE THE INTENT OF THE DRAWINGS IS IN DOUBT OR WHERE THERE APPEARS TO BE AN ERROR ON THE DRAWINGS OR DISCREPANCY BETWEEN THE DRAWINGS AND FIELD CONDITION, THE ENGINEER SHALL BE NOTIFIED AS SOON AS POSSIBLE FOR A PROCEDURE TO BE FOLLOWED. IF THE CONTRACTOR PROCEEDS WITH THE WORK AFFECTED WITHOUT INSTRUCTIONS FROM THE ENGINEER, THE CONTRACTOR SHALL MAKE GOOD ANY RESULTING DAMAGE OR DEFECTS. THIS INCLUDES TYPOGRAPHICAL ERRORS IN THE SPECIFICATIONS AND ERRORS ON THE DRAWINGS.
12. IN THE CASE WHERE TWO OR MORE DETAILS APPLYING TO THE SAME PART OF THE WORK ARE IN CONFLICT, THE MOST RESTRICTIVE SHALL GOVERN UNLESS CLARIFIED OR OTHERWISE APPROVED BY THE ENGINEER.
13. THE CONTRACTOR AND EACH SUBCONTRACTOR SHALL CAREFULLY EXAMINE THE CONDITIONS AFFECTING HIS WORK BEFORE PROCEEDING AND SHALL REPORT TO THE ENGINEER ANY CONDITION WHICH WOULD PREVENT THE PROPER AND LEGAL COMPLETION OF HIS WORK. NOT REPORTING ANY SUCH UNSUITABLE CONDITION WILL CONSTITUTE ACCEPTANCE OF ALL CONDITIONS BY THE CONTRACTOR OR SUBCONTRACTOR.
14. APPROVAL OF SHOP DRAWINGS MEANS APPROVAL OF GENERAL FABRICATION ONLY. DIMENSIONS AND QUANTITIES MAY NOT BE CHECKED, AND APPROVAL OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS UNLESS SPECIFICALLY SO INDICATED IN THE APPROVAL.
15. THE ENGINEER HAS NOT BEEN RETAINED FOR SUPERVISION OR INSPECTIONS, BUT WILL RESOLVE IN WRITING ITEMS BROUGHT TO HIS ATTENTION. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR VERBAL INSTRUCTIONS.
16. SPECIAL INSPECTION AGENCY AND ALL SPECIAL INSPECTORS SHALL BE RECOGNIZED AND APPROVED BY THE CITY BUILDING OFFICIAL AS DESCRIBED IN THE CURRENT EDITION OF THE SPECIAL INSPECTION AGENCY RECOGNITION LIST WHICH IS PUBLISHED BY THE ICC SPECIAL INSPECTION COMMITTEE.
17. CONSTRUCTION DOCUMENTS SHALL CONSIST OF THE "APPROVED" DRAWINGS, SPECIFICATIONS AND ADDENDUM BEARING THE STAMP AND SIGNATURE OF THE ARCHITECT AND THE APPROVAL OF THE JURISDICTION AL BUILDING DEPARTMENT. STRUCTURAL CALCULATIONS ARE NOT PART OF THE CONSTRUCTION DOCUMENTS AND SHALL NOT BE USED FOR THIS PURPOSE.

2. FOUNDATION NOTES

1. DO EXCAVATIONS AS NEARLY AS POSSIBLE TO NEAT LINES REQUIRED BY SIZE AND SHAPE OF FOOTINGS WHICH ARE CAST IN EARTH TRENCHES WITHOUT FORMING, UNLESS OTHERWISE SHOWN. BACKFILL OVER EXCAVATIONS WITH CONCRETE OR REPORT TO THE SOILS ENGINEER AND BACKFILL AS HE DIRECTS (ALSO SEE SOILS REPORT).
2. ALLOWABLE SOIL PRESSURES:
   - 2.1. 2500 LBS/SQ. FT. FOR COMBINED DEAD AND LIVE LOADS
   - 2.2. 3325 LBS/SQ. FT. FOR COMBINED DEAD, LIVE AND SEISMIC LOADS
3. SOILS REPORT FOR THIS PROJECT HAS BEEN PREPARED BY KRAZAN & ASSOCIATES, INC., 215 W. DAKOTA AVENUE, CLOVIS, CA 93612, 559-348-2200. SEE SOILS REPORT NO. 012-24041 FOR SPECIFIC DESIGN CRITERIA.
4. FOUNDATIONS AND GRADE BEAMS SHALL BE POURED DIRECTLY AGAINST UNDISTURBED SOIL OR THE VOIDS CREATED FROM FORMING SHALL BE BACKFILLED WITH MATERIAL COMPACTED TO AT LEAST 90 PERCENT RELATIVE COMPACTION.
5. IF A GEOTECHNICAL REPORT IS AVAILABLE, SEE SOILS ENGINEER'S REPORT PRIOR TO ANY SITE WORK, GRADING, SHORING, COMPACTION, LIME TREATMENT, OR EXCAVATION OF FOUNDATIONS. FOLLOW SOILS REPORT RECOMMENDATIONS AND PROCEDURES.
6. THE SOILS ENGINEER SHALL SUBMIT A LETTER TO THE BUILDING OFFICIAL CONFIRMING THAT THE FOUNDATION PLAN, GRADING PLAN, AND SPECIFICATIONS HAVE BEEN REVIEWED AND THAT IT HAS BEEN DETERMINED THAT THE RECOMMENDATIONS IN THE SOILS REPORT ARE PROPERLY INCORPORATED INTO THE PLANS.
7. THE SOILS ENGINEER SHALL BE RETAINED TO PROVIDE OBSERVATION AND TESTING SERVICES DURING THE GRADING, PAVING, AND FOUNDATION PHASE OF CONSTRUCTION PER THE SOILS REPORT RECOMMENDATIONS. SUBMIT INSPECTION AND TESTING REPORTS TO THE BUILDING DEPARTMENT.

3. CONCRETE NOTES

1. CEMENT: ASTM C 150 TYPE II. CEMENT SHALL BE OF SAME BRAND, TYPE AND SOURCE THROUGHOUT PROJECT. WHERE AGGREGATES ARE POTENTIALLY REACTIVE, USE LOW ALKALI CEMENT.
2. AGGREGATES SHALL CONFORM TO ASTM C33.
3. CONCRETE MIXES SHALL BE DESIGNED BY A TESTING LABORATORY APPROVED BY THE ENGINEER. MIXES SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS, REGARDLESS OF OTHER MINIMUM REQUIREMENTS SPECIFIED HEREIN OR ON THE DRAWINGS. MIX DESIGNS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE USE. DESIGNS SHALL SHOW PROPORTIONS OF CEMENT, FINE AND COARSE AGGREGATES AND WATER, AND GRADATION OF COMBINED AGGREGATES.
4. PROVIDE MIX DESIGNS THAT WILL MEET THE MINIMUM REQUIREMENTS LISTED BELOW. INCREASE CEMENT CONTENT OVER THAT SHOWN, IF REQUIRED TO OBTAIN THE COMPRESSIVE STRENGTH:

CONCRETE MIX DESIGN SCHEDULE

LOCATION	28-DAY COMPRESSIVE STRENGTH (PSI)	MIN. CEMENT CONTENT (SACKS)	MAX. WATER/CEMENT RATIO	RANGE SLUMP (IN.)	MAX. AGGREGATE SIZE (IN.)
FOUNDATIONS	3000	5 1/2	0.50	3"-4"	1"
SLAB-ON-GRADE	3000	5 1/2	0.45	3"-4"	1"
MISC. SITE WORK	3000	5	0.55	3"-4 1/2"	1"

5. FIELD TESTING SHALL BE PERFORMED DURING POURING OPERATIONS WITH FREQUENCY OF TESTING AND NUMBER OF SPECIMENS DETERMINED IN ACCORDANCE WITH ACI-318, SECTION 26.12. FIELD-CURED SPECIMENS SHALL BE TESTED IN ACCORDANCE WITH SECTION 26.12.2 AND 26.12.3.
6. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED BY MEANS OF A MECHANICAL VIBRATION DURING CONCRETE PLACEMENT.
7. USE INTERMEDIATE GRADE ASTM A615, GRADE 60 REINFORCING TYP U.O.N. USE ASTM A706, GRADE 60 FOR ALL REINFORCING THAT IS TO BE WELDED. WELDING OF REINFORCING BARS TO BE IN ACCORDANCE WITH SECTION 26.6.4 OF THE ACI 318-19.
8. UNLESS OTHERWISE NOTED, OBSERVE THE FOLLOWING REINFORCEMENT CLEARANCES:
   - 8.1. 3" SURFACES POURED AGAINST EARTH
   - 8.2. 2" AT FORMED SURFACES EXPOSED TO EARTH OR WEATHER
   - 8.3. 1-1/2" AT OTHER SURFACES
9. PROVIDE 3/4" CHAMFER AT EXPOSED EDGES OF CONCRETE, UNLESS OTHERWISE SHOWN.
10. SECURE REINFORCING, ANCHOR BOLTS, INSERTS, ETC. RIGIDLY IN PLACE PRIOR TO POURING CONCRETE.
11. SUPPORT HORIZONTAL REINFORCING ON GALVANIZED CHAIRS EXCEPT MORTAR BLOCKS OR OTHER APPROVED METHOD OF SUPPORT MAY BE USED AT FOOTINGS, AND SLABS ON GRADE. NOTE THAT BRACING AND LIFT INSERTS, AND CHAIRS AT TILT-UP PANELS, NEED NOT BE GALVANIZED BUT SHALL HAVE PLASTIC TIPS.
12. REMOVE FORMS AT FOLLOWING MINIMUM TIMES AFTER POURING:
   - 12.1. AT SLAB EDGES - 24 HOURS
   - 12.2. AT WALLS LESS THAN 4' HIGH - 36 HOURS
13. MAKE HOOKS ACI 318-14 STANDARD HOOKS UNLESS OTHERWISE NOTED. PROVIDE 135 DEGREE MINIMUM TURN, PLUS 4" EXTENSION AT FREE ENDS OF COLUMN PILASTER TIES.
14. MAKE LAPS CONTACT SPLICES, DEVELOPMENT LENGTHS, HOOK EMBEDMENTS PER ACI 318-19, UNLESS OTHERWISE NOTED. STAGGER LAP SPLICES WHERE POSSIBLE.
15. ALL REBAR SHALL BE COLD BENT.

4. STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL AND MISCELLANEOUS IRON SHALL CONFORM TO AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICES. USE AWS SPECIFICATIONS FOR WELDING.
2. SHOP PAINTING IS REQUIRED ONLY AT STEEL EXPOSED TO WEATHER, WHERE USED THE FOLLOWING APPLIES: CLEAN STEEL SURFACES THOROUGHLY. APPLY ONE COAT OF RUST-INHIBITIVE PAINT CONFORMING TO FEDERAL SPECIFICATION TT-P-86, TYPE III EVENLY AND COMPLETELY. TOUCH UP ABRASIONS AND CHIPS IN SHOP. COAT AFTER ERECTION USING THE SAME PAINT.
3. WELDED STUDS SHALL BE TRW NELSON STUD WELDING OR EQUIVALENT. 3/4"Ø AND LARGER SHALL BE S3L AND 5/8"Ø AND SMALLER SHALL BE H4L.
4. STRUCTURAL STEEL MATERIAL SPECIFICATIONS SHALL BE AS FOLLOWS:

STEEL MATERIAL SCHEDULE

STEEL MATERIAL SCHEDULE	STEEL MATERIAL SCHEDULE
WF BEAMS AND COLUMNS	ASTM A992
CHANNELS	ASTM A36
ANGLES	ASTM A36
RECTANGULAR HSS TUBE STEEL	ASTM A500 GRADE B
STIFFENER/SHEAR PLATES	ASTM A36
GUSSET PLATES	ASTM A36
HSS COL BASE PLATE	ASTM A36
WF COL BASE PLATE <=4"	A572 GRADE 50 OR A529 GRADE 50
WF COL BASE PLATE >4"	A572 GRADE 42
DOUBLER PLATE	A572 GRADE 50 OR A529 GRADE 50
CONTINUITY PLATES	A572 GRADE 50 OR A529 GRADE 50
MISCELLANEOUS PLATES	ASTM A36
3/4"Ø MACHINE BOLTS (M.B.)	ASTM A307
7/8"Ø HIGH STRENGTH BOLTS (H.S.B.)	ASTM A325
THREADED RODS	ASTM A36
NUTS	ASTM A563
HARDENED WASHERS	ASTM F436
ANCHOR BOLTS TYP. (U.O.N)	ASTM F1554 GRADE 36
ANCHOR BOLTS AT MOMENT FRAMES AND BRACED FRAMES	ASTM A354 GRADE BD
WELDED STEEL HEADED STUDS	ASTM 108 GRADE 1010 - 1020
WELDING ELECTRODES	E70XX

   - 4.1. BOLTS SHALL BE INSTALLED "SNUG TIGHT" WITH THREADS EXCLUDED FROM THE SHEAR PLANE. U.O.N. BOLTS NOTED AS "(S.C)" ON THE PLANS AND DETAILS SHALL BE INSTALLED AS SLIP CRITICAL (THREADS EXCLUDED FROM THE SHEAR PLANE) WITH CONTACT SURFACES FREE OF PAINT.
   - 4.2. E70-T4 OR N5-3M ELECTRODES SHALL NOT BE USED.
   - 4.3. HARDENED WASHERS SHALL BE USED AT A325 BOLTS AND A490 BOLTS USED IN SLIP CRITICAL (S.C.) CONNECTIONS AND OVERSIZED AND SHORT SLOTTED HOLES. 5/16" THICK PLATE WASHERS OF STRUCTURAL GRADE MATERIAL SHALL BE USED AT LONG SLOTTED HOLES. WASHERS SHALL HAVE A SIZE SUFFICIENT TO COMPLETELY COVER THE SLOT AFTER INSTALLATION.
   - 4.4. GROUP 3 SHAPES WITH FLANGES 1 1/2" THICK OR THICKER THAT ARE PART OF THE LATERAL FORCE RESISTING SYSTEM AND ASTM A6 GROUP 4 & 5 SHAPES, SHALL MEET THE REQUIREMENTS OF AISC 13TH EDITION.
5. AT WF HORIZONTAL BEAM MOMENT CONNECTIONS THAT ARE PART OF A MOMENT FRAME, REMOVE FLANGE BACKER BAR AND GRIND WELD SMOOTH OR AIR ARC. PROVIDE FILLET WELD AT AREA THAT IS GROUND SMOOTH OR THE AREA THAT HAS BEEN AIR ARCED. (SEE DETAILS FOR SPECIFIC LOCATIONS).
6. ANY CUTS MADE IN FLANGES SHALL BE PROPORTIONED SO AS TO AVOID SHARP CUT CORNERS. ALL CORNERS SHALL BE ROUNDED TO MINIMIZE NOTCH EFFECTS. CUT EDGES SHALL CUT OR GROUND TO HAVE A SURFACE ROUGHNESS MEETING THE REQUIREMENTS OF AWS D1.1.
7. WHERE THE TOP AND BOTTOM FLANGE OF A BEAM IS TO HAVE FULL PENETRATION WELDS THE BOLTS AT SHEAR TABS FOR THE BEAM SHALL BE TIGHTENED FOR A FRICTION CONNECTION AFTER THE WELDS HAVE COOLED.

4. STRUCTURAL STEEL NOTES (CONT'D)

8. CVN INDICATES WELDS SHALL MEET THE CHARPY V-NOTCH REQUIREMENTS OF THE SPECIFICATIONS. THESE WELDS SHALL HAVE A V-NOTCH TOUGHNESS OF 20 FT-LBS AT 0°F. WHERE WELDS ARE DESIGNATED AS DEMAND CRITICAL PER SPECIFICATIONS, THEY SHALL HAVE A V-NOTCH TOUGHNESS OF 20 FT-LBS AT 0°F AND 40 FT-LBS AT 70°F. DEMAND CRITICAL CONNECTIONS ARE AS FOLLOWS.
   - 8.1. COLUMN SPLICES OF ALL MOMENT FRAMES (MF), SPECIAL CONCENTRIC BRACED FRAMES (SCBF) AND ECCENTRICALLY BRACED FRAMES (EBF) USING COMPLETE-JOINT-PENETRATION (CJP) GROOVE WELDS.
   - 8.2. CJP GROOVE WELDS BETWEEN COLUMNS AND BASE PLATES AT ALL MF'S, SCBF'S AND EBF'S.
   - 8.3. BEAM FLANGE TO COLUMN FLANGE CONNECTION IN MF'S.
9. STAINLESS STEEL SHALL BE "TYPE 18-8 STAINLESS STEEL" TYPE 302, 303 OR 304, AND SHALL MEET ASTM 276, A479, A581 & A582

5. LUMBER AND TIMBER FRAMING NOTES

1. USE DOUGLAS FIR-LARCH FRAMING LUMBER, CLASSIFIED UNDER STRUCTURAL LIGHT FRAMING, MANUFACTURED AND GRADED IN ACCORDANCE WITH WCLIB OR WWPA GRADING RULES, UNLESS SPECIFICALLY SHOWN OTHERWISE AS FOLLOWS:
2. 2x PLATES/BLOCKING: STANDARD GRADE OR BETTER
   - 2.1. 2x4 STUDS: STANDARD GRADE OR BETTER
   - 2.2. 2x6 AND DEEPER STUDS/JOISTS: #2 GRADE OR BETTER
   - 2.3. 4x AND 6x BEAMS: NO. 1 GRADE OR BETTER
3. FRAMING LUMBER DIRECTLY IN CONTACT WITH CONCRETE SLABS ON GRADE SHALL BE PRESSURE PRESERVATIVELY TREATED. FRAMING LUMBER PERMANENTLY EXPOSED TO WEATHER (MECHANICAL UNIT SLEEPERS) SHALL BE CALIFORNIA REDWOOD NO. 2 GRADE OR BETTER OR DOUGLAS FIR PRESSURE PRESERVATIVELY TREATED.
4. PROVIDE SHEATHING AS FOLLOWS:
   - 4.1. ROOF 19/32" OR 5/8" OSB STRUCT I APA RATED 40/20. WHERE INDICATED ON ROOF SHEATHING AND NAILING SCHEDULE.
   - 4.2. WALLS 1/2" CDX APA 24/16 (5 PLY)
   - 4.3. ALL SHEATHING SUBSTITUTIONS SHALL BE OF EQUAL RATING IN ACCORDANCE WITH REPORT PRP 108.
5. HAVE GLUE LAMINATED LUMBER MANUFACTURED IN ACCORDANCE WITH AITC 117-79. PROVIDE STANDARD CAMBER AS REQUIRED PER FRAMING NOTES. REQUIRE FABRICATOR TO PROVIDE AITC CERTIFICATE OF CONFORMANCE WITH ATTACHMENTS 1 & 2 TO ARCHITECT/ENGINEER AND CITY BUILDING DEPARTMENT FOR REVIEW W/ MINIMUM PROPERTIES AS FOLLOWS:
   - 5.1. Fb = 2400 PSI Fv = 240 PSI
6. PROVIDE MINIMUM STANDARD NAILING, USING COMMON NAILS, AT EACH BOARD OR MEMBER AT EACH POINT OF CONTACT, EXCEPT WHERE SHOWN OTHERWISE, AS FOLLOWS:
   - 6.1. STUDS TO PLATES: 2-10d TOENAILS EACH SIDE OR 2-16d END NAIL

7. EXPANSION BOLTS NOTES

1. CONCRETE EXPANSION ANCHORS SHALL BE SIMPSON STRONG-BOLT WEDGE ANCHORS. INSTALL PER ICC ESR-1771. SPECIAL INSPECTION IS REQUIRED.
2. CONCRETE EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ WEDGE ANCHORS. INSTALL PER ICC ESR 1917. SPECIAL INSPECTION IS REQUIRED.
3. SUBSTITUTIONS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION

8. ADHESIVES NOTES

1. EPOXY SHALL BE SIMPSON EPOXY-TIE SET-XP. INSTALL PER ICC ESR-2568.
2. EPOXY SHALL BE HILTI HIT-RE 500-V3. INSTALL PER ICC ESR-3814.
3. SUBSTITUTIONS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

9. SHOT PINS (POWER ACTUATED FASTENERS) NOTES

1. SHOT PINS SHALL BE MANUFACTURED BY SIMPSON STRONG-TIE INSTALL PER ICC ER-2138.
2. SHOT PINS SHALL BE MANUFACTURED BY ITW RAMSET/REDHEAD. INSTALL PER ICC 1799.
3. SUBSTITUTIONS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

10. FIELD REPORTS

1. PRIOR TO FINAL INSPECTION, THE STRUCTURAL ENGINEER OF RECORD SHALL ISSUE A FINAL REPORT STATING THAT THE COMPLETED BUILDING STRUCTURE SUBSTANTIALLY CONFORMS TO THE APPROVED PLANS AND SPECIFICATIONS.

11. ENGINEER OBSERVATIONS

1. THE STRUCTURAL ENGINEER OF RECORD SHALL PROVIDE PERIODIC STRUCTURAL OBSERVATION PER SECTION 1709 OF 2022 CALIFORNIA BUILDING CODE AND THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER 48 HOURS IN ADVANCE OF COMPLETING THE FOLLOWING TO ARRANGE FOR PERIODIC OBSERVATION:
   - 1.1. FOUNDATION AND SLAB REINFORCING.
   - 1.2. ROOF SHEATHING NAILING.
   - 1.3. SHEAR WALL SHEATHING NAILING.
   - 1.4. ALL FRAMING PRIOR TO CLOSE-IN.

12. SPECIAL INSPECTIONS

1. A STATEMENT OF SPECIAL INSPECTION MUST BE SUBMITTED BY THE SPECIAL INSPECTION AGENCY OF RECORD IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE SECTION 1704.2.3 AS A CONDITION FOR PERMIT ISSUANCE.

   SPECIAL INSPECTIONS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 1704 & 1705 OF THE CALIFORNIA BUILDING CODE AND ANY LOCAL AMENDMENTS. ALL TESTS AND INSPECTIONS SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND INSPECTION AGENCY EMPLOYED BY THE OWNER OR AGENT OF THE OWNER. ALL CERTIFIED SPECIAL INSPECTORS MUST SUBMIT FINAL REPORTS AS SOON AS TESTS AND INSPECTIONS ARE PERFORMED. REPORTS SHALL BE FURNISHED TO THE BUILDING OFFICIAL, PROJECT REPRESENTATIVE, OWNER, CONTRACTOR, ARCHITECT, AND STRUCTURAL ENGINEER. THE INSPECTION AGENCY SHALL SUBMIT A FINAL REPORT INDICATING THE WORK REQUIRED WAS INSPECTED AND IS IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND THAT ALL DISCREPANCIES NOTED HAVE BEEN CORRECTED.

2. THE FOLLOWING ITEMS ARE SUBJECT TO SPECIAL INSPECTIONS AND TESTS IN ACCORDANCE WITH C.B.C. SECTION 1705: (EXCEPTIONS MAY BE TAKEN AS APPLICABLE)

   2.1. STRUCTURAL STEEL FIELD WELDING (1705.2.1) - CONTINUOUS INSPECTION IS REQUIRED PER THE QUALITY ASSURANCE REQUIREMENTS OF AISC 360 TABLES N5.4-1, N5.4-2 AND N5.4-3 AND AISC 341 TABLES J6-1, J6-2 AND J6-3 AND PER AWS D1.1 CONTINUOUS INSPECTION OF WELDING IS REQUIRED BY AN AWS CERTIFIED INSPECTOR OR AN APPROVED FABRICATION SHOP PER CBC SEC. 1704.2.5.

TABLE N5.4-1
Inspection Tasks Prior to Welding

Inspection Tasks Prior to Welding	QC	QA
Welder qualification records and continuity records	P	O
WPS available	P	P
Manufacturer certifications for welding consumables available	P	P
Material identification (type/grade)	O	O
Welder identification system[a]	O	O
Fit-up of groove welds (including joint geometry) • Joint preparations • Dimensions (alignment, root opening, root face, bevel) • Cleanliness (condition of steel surfaces) • Tacking (tack weld quality and location) • Backing type and fit (if applicable)	O	O
Fit-up of CJP groove welds of HSS T-, Y- and K-joints without backing (including joint geometry) • Joint preparations • Dimensions (alignment, root opening, root face, bevel) • Cleanliness (condition of steel surfaces) • Tacking (tack weld quality and location)	P	O
Configuration and finish of access holes	O	O
Fit-up of fillet welds • Dimensions (alignment, gaps at root) • Cleanliness (condition of steel surfaces) • Tacking (tack weld quality and location)	O	O
Check welding equipment	O	–

[a] The fabricator or erector, as applicable, shall maintain a system by which a welder who has welded a joint or member can be identified. Stamps, if used, shall be the low-stress type.

TABLE N5.4-2
Inspection Tasks During Welding

Inspection Tasks During Welding	QC	QA
Control and handling of welding consumables • Packaging • Exposure control	O	O
No welding over cracked tack welds	O	O
Environmental conditions • Wind speed within limits • Precipitation and temperature	O	O
WPS followed • Settings on welding equipment • Travel speed • Selected welding materials • Shielding gas type/flow rate • Preheat applied • Interpass temperature maintained (min./max.) • Proper position (F, V, H, OH)	O	O
Welding techniques • Interpass and final cleaning • Each pass within profile limitations • Each pass meets quality requirements	O	O
Placement and installation of steel headed stud anchors	P	P

TABLE N5.4-3
Inspection Tasks After Welding

Inspection Tasks After Welding	QC	QA
Welds cleaned	O	O
Size, length and location of welds	P	P
Welds meet visual acceptance criteria • Crack prohibition • Weld/base-metal fusion • Crater cross section • Weld profiles • Weld size • Undercut • Porosity	P	P
Arc strikes	P	P
k-area[a]	P	P
Weld access holes in rolled heavy shapes and built-up heavy shapes[b]	P	P
Backing removed and weld tabs removed (if required)	P	P
Repair activities	P	P
Document acceptance or rejection of welded joint or member	P	P
No prohibited welds have been added without the approval of the EOR	O	O

[a] When welding of doubler plates, continuity plates or stiffeners has been performed in the k-area, visually inspect the web k-area for cracks within 3 in. (75 mm) of the weld.
[b] After rolled heavy shapes (see Section A3.1c) and built-up heavy shapes (see Section A3.1d) are welded, visually inspect the weld access hole for cracks.

TABLE J6.1
Visual Inspection Tasks Prior to Welding

Visual Inspection Tasks Prior to Welding	QC Task	QC Doc.	QA Task	QA Doc.
Material identification (Type/Grade)	O	—	O	—
Welder identification system	O	—	O	—
Fit-up of Groove Welds (including joint geometry) –Joint preparation –Dimensions (alignment, root opening, root face, bevel) –Cleanliness (condition of steel surfaces) –Tacking (tack weld quality and location) –Backing type and fit (if applicable)	P/O **	—	O	—
Configuration and finish of access holes	O	—	O	—
Fit-up of Fillet Welds –Dimensions (alignment, gaps at root) –Cleanliness (condition of steel surfaces) –Tacking (tack weld quality and location)	P/O **	—	O	—

** Following performance of this inspection task for ten welds to be made by a given welder, with the welder demonstrating understanding of requirements and possession of skills and tools to verify these items, the Perform designation of this task shall be reduced to Observe, and the welder shall perform this task. Should the inspector determine that the welder has discontinued performance of this task, the task shall be returned to Perform until such time as the Inspector has re-established adequate assurance that the welder will perform the inspection tasks listed.

TABLE J6.2
Visual Inspection Tasks During Welding

Visual Inspection Tasks During Welding	QC Task	QC Doc.	QA Task	QA Doc.
WPS followed –Settings on welding equipment –Travel speed –Selected welding materials –Shielding gas type/flow rate –Preheat applied –Interpass temperature maintained (min/max.) –Proper position (F, V, H, OH) –Intermix of filler metals avoided unless approved	O	—	O	—
Use of qualified welders	O	—	O	—
Control and handling of welding consumables –Packaging –Exposure control	O	—	O	—
Environmental conditions –Wind speed within limits –Precipitation and temperature	O	—	O	—
Welding techniques –Interpass and final cleaning –Each pass within profile limitations –Each pass meets quality requirements	O	—	O	—
No welding over cracked tacks	O	—	O	—

TABLE J6.3
Visual Inspection Tasks After Welding

Visual Inspection Tasks After Welding	QC Task	QC Doc.	QA Task	QA Doc.
Welds cleaned	O	—	O	—
Size, length, and location of welds	P	—	P	—
Welds meet visual acceptance criteria –Crack prohibition –Weld/base-metal fusion –Crater cross section –Weld profiles and size –Undercut –Porosity	P	D	P	D
k-area1	P	D	P	D
Placement of reinforcing or contouring fillet welds (if required)	P	D	P	D
Backing removed, weld tabs removed and finished, and fillet welds added (if required)	P	D	P	D
Repair activities	P	—	P	D

1 When welding of doubler plates, continuity plates or stiffeners has been performed in the k-area, visually inspect the web k-area for cracks within 3 in. (75 mm) of the weld. The visual inspection shall be performed no sooner than 48 hours following completion of the welding.

2.2 STRUCTURAL HIGH-STRENGTH BOLTING (1705.2.6) - PERIODIC INSPECTION IS REQUIRED PER THE QUALITY ASSURANCE REQUIREMENTS OF AISC 360 TABLES N5.6-1, N5.6-2 AND N5.6-3, AND AISC 341 TABLES J7-1, J7-2 AND J7-3.

TABLE N5.6-1
Inspection Tasks Prior to Bolting

Inspection Tasks Prior to Bolting	QC	QA
Manufacturer's certifications available for fastener materials	O	P
Fasteners marked in accordance with ASTM requirements	O	O
Correct fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane)	O	O
Correct bolting procedure selected for joint detail	O	O
Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	O	O
Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used	P	O
Protected storage provided for bolts, nuts, washers and other fastener components	O	O

TABLE N5.6-2
Inspection Tasks During Bolting

Inspection Tasks During Bolting	QC	QA
Fastener assemblies placed in all holes and washers and nuts are positioned as required	O	O
Joint brought to the snug-tight condition prior to the pretensioning operation	O	O
Fastener component not turned by the wrench prevented from rotating	O	O
Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid point toward the free edges	O	O

TABLE N5.6-3
Inspection Tasks After Bolting

Inspection Tasks After Bolting	QC	QA
Document acceptance or rejection of bolted connections	P	P

TABLE J7.1
Inspection Tasks Prior To Bolting

Inspection Tasks Prior To Bolting	QC Task	QC Doc.	QA Task	QA Doc.
Proper fasteners selected for the joint detail	O	—	O	—
Proper bolting procedure selected for joint detail	O	—	O	—
Connecting elements, including the faying surface condition and hole preparation, if specified, meet applicable requirements	O	—	O	—
Pre-installation verification testing by installation personnel observed for fastener assemblies and methods used	P	D	O	D
Proper storage provided for bolts, nuts, washers and other fastener components	O	—	O	—

TABLE J7.2
Inspection Tasks During Bolting

Inspection Tasks During Bolting	QC Task	QC Doc.	QA Task	QA Doc.
Fastener assemblies placed in all holes and washers (if required) are positioned as required	O	—	O	—
Joint brought to the snug tight condition prior to the pretensioning operation	O	—	O	—
Fastener component not turned by the wrench prevented from rotating	O	—	O	—
Bolts are pretensioned progressing systematically from the most rigid point toward the free edges	O	—	O	—

TABLE J7.3
Inspection Tasks After Bolting

Inspection Tasks After Bolting	QC Task	QC Doc.	QA Task	QA Doc.
Document accepted and rejected connections	P	D	O	D

TABLE J8.1
Other Inspection Tasks

Other Inspection Tasks	QC Task	QC Doc.	QA Task	QA Doc.
RBS requirements, if applicable –Contour and finish –Dimensional tolerances	P	D	O	D
Protected zone—no holes and unapproved attachments made by fabricator or erector, as applicable	P	D	O	D

2.3 INSPECTION OF CONCRETE PLACEMENT AND REINFORCEMENT (PER TABLE 1705.3) WHEN f'c > 2500PSI.

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Inspect reinforcement, including prestressing tendons, and verify placement.	—	X
3. Inspect anchors cast in concrete.	—	X
4. Inspect anchors post-installed in hardened concrete members.[b] a.Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.[c]	X	—
b.Mechanical anchors and adhesive anchors not defined in 4.a.	—	X
5. Verify use of required design mix.	—	X
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—
7. Inspect concrete and shotcrete placement for proper application techniques.	X	—
8. Verify maintenance of specified curing temperature and techniques.	—	X
14. Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X

2.4 INSPECTION OF EXISTING SITE SOILS, EXCAVATION AND FILL PLACEMENT (TABLE 1705.6)

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	—	X
2. Verify excavations are extended to proper depth and have reached proper material.	—	X
3. Perform classification and testing of compacted fill materials.	—	X
4. During fill placement, verify use of proper materials and procedures in accordance with the provisions of the approved geotechnical report. verify densities and lift thicknesses during placement and compaction of compacted fill.	X	—
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	—	X

2.5 INSTALLATION OF POST-INSTALLED CONCRETE ANCHORS (EXPANSION BOLTS AND ADHESIVE ANCHORS) - PERIODIC INSPECTION IS REQUIRED

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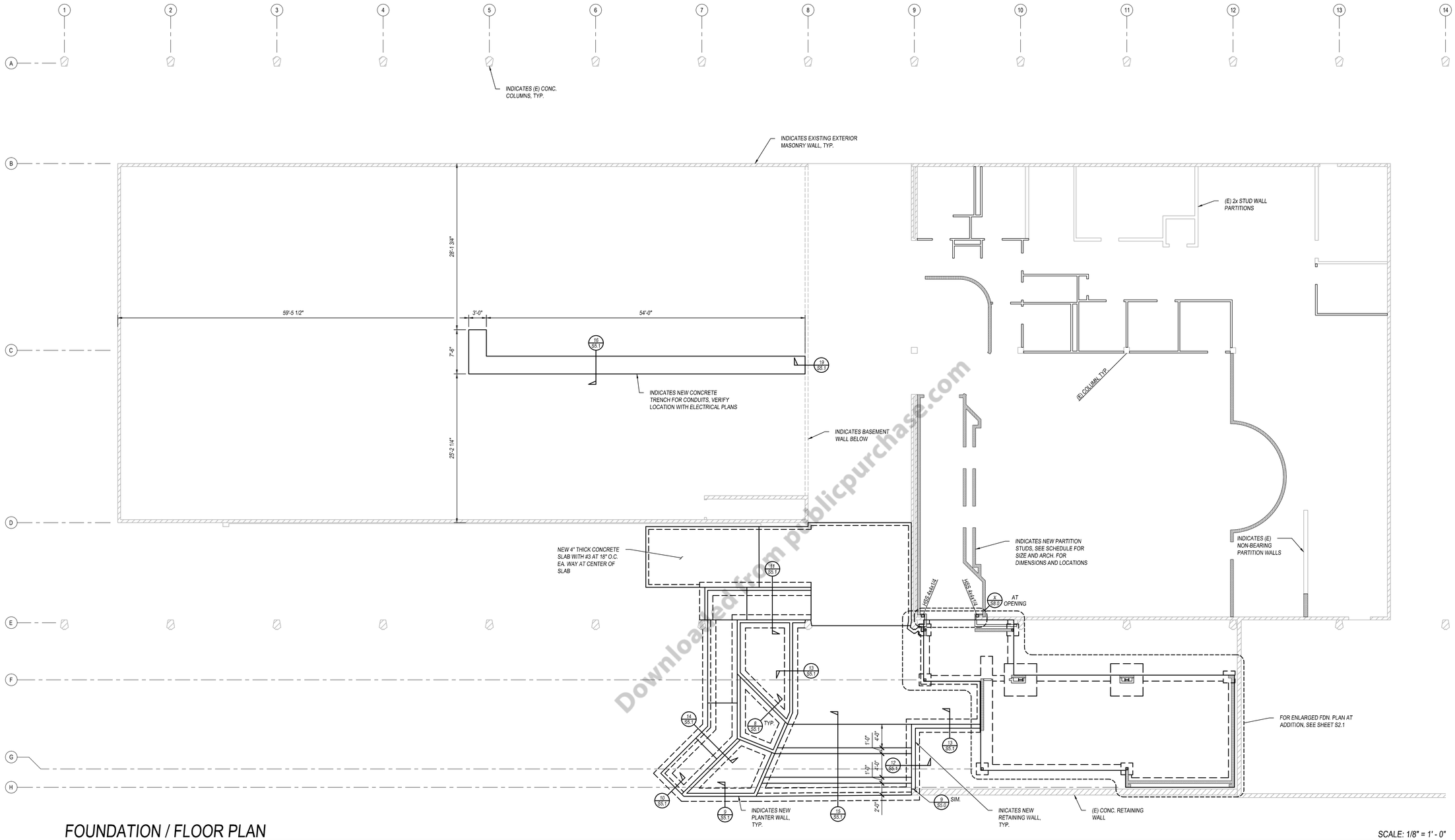
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GENERAL NOTES

S1.1

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FOUNDATION / FLOOR PLAN

SCALE: 1/8" = 1' - 0"

FOUNDATION NOTES

1. FOR TYPICAL BAR BENDS, SEE 1/S5.0.
2. FOR TYPICAL BAR LAP AND EMBEDMENTS, SEE S1.0.
3. COORDINATE WALL LOCATIONS AND OPENING DIMENSIONS WITH ARCHITECTURAL DRAWINGS AS WELL AS FOR SIZE AND LOCATION NON-BEARING WALLS.

WALL FRAMING NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.
2. FOR HEADER SCHEDULE SEE 9/S8.0. AND FOR TYPICAL HEADER "HDR1", SEE 8/S8.0.
3. SU410 ETC. DENOTES FRAMING CONNECTORS BY SIMPSON STRONG-TIE (OR APPROVED EQUAL).
4. FOR TYPICAL PARTITION WALL INTERSECTIONS, SEE 19/S8.0 AND FOR TYPICAL STUD SILL PLATE, SEE 10/S8.0.
5. FOR TYPICAL TOP PLATE CONTINUITY WALLS, SEE DETAIL 6/S8.0.
6. FOR GENERAL FRAMING REQUIREMENTS NOT NOTED, REFER TO CALIFORNIA BUILDING CODE SECTION 2201.
7. ALL METAL STUD WALLS SHALL BE SHEATHED WITH MIN. 1/2" GYPSUM BOARD SHEATHING ATTACHED W/ #6 SCREWS AT 8" O.C. EDGE NAIL AND 12" O.C. FIELD NAIL. BLOCK ALL PANEL EDGES AS INDICTED ON DETAIL 18/S8.0.
8. FOR PARTITION WALL ATTACHMENT TO SLAB, SEE 12/S5.0.

WALL FRAMING SCHEDULE

	EXISTING EXTERIOR MASONRY WALL
	362S137-33 STUDS AT 16" O.C. INTERIOR PARTITION WALL.
	600S162-43 STUDS AT 16" O.C. INTERIOR PARTITION WALL

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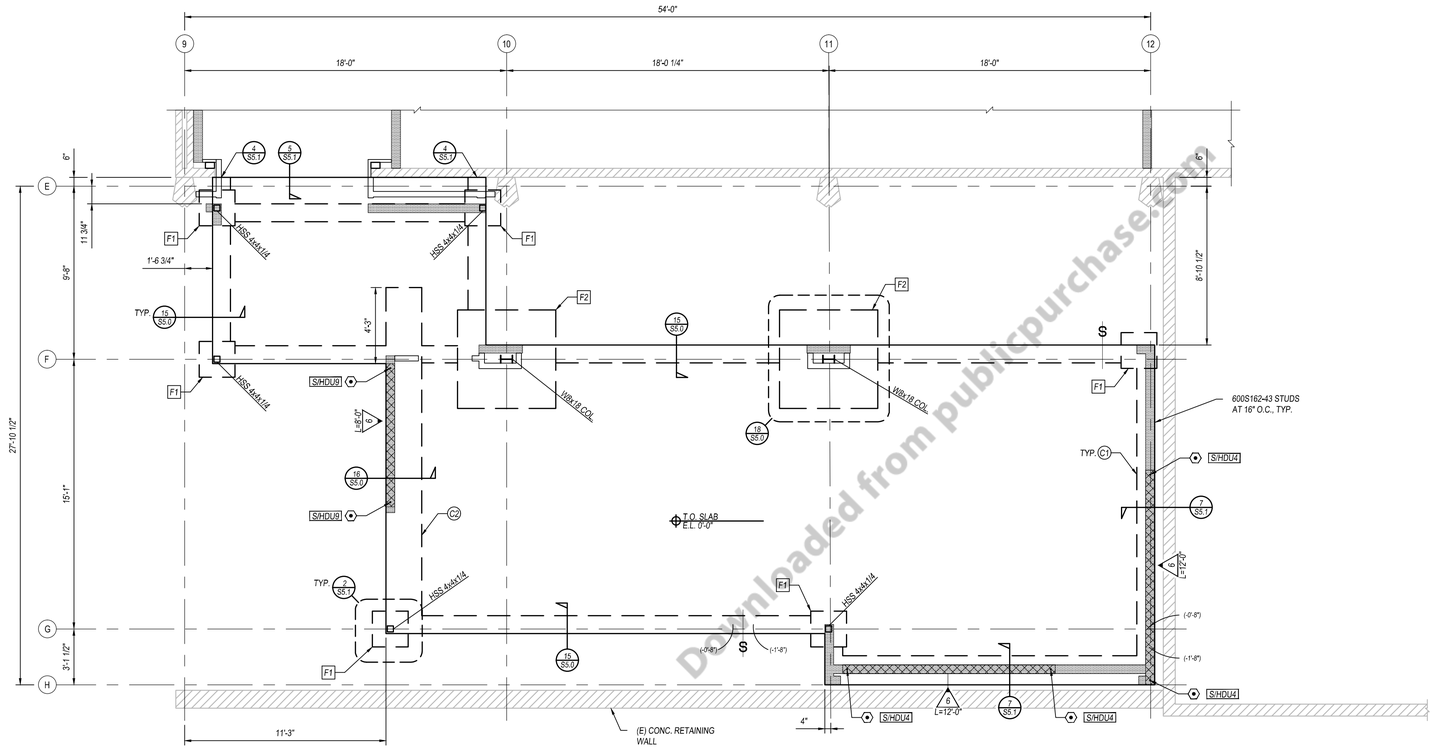
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FOUNDATION / FLOOR PLAN

S2.0



ADDITION FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

FOUNDATION NOTES

1. *"C.J." DENOTES CONSTRUCTION JOINT. "W.P.J." DENOTES WEAKENED PLANE JOINT. W.P.J.'S MAY NOT BE SUBSTITUTED FOR C.J.'S (EVEN WHEN LASER SCREED IS USED). SEE DETAILS 2/S5.0 AND 3/S5.0.*
2. *FOR UTILITY PIPING AND/OR CONDUITS NEAR FOUNDATIONS, SEE DETAIL 6/S5.0 AND 7/S5.0.*
3. *FOR CONSTRUCTION JOINT IN CONTINUOUS FOOTINGS, SEE DETAIL 5/S5.0.*
4. *CONTRACTOR SHALL COORDINATE TOP OF FOOTING ELEVATIONS WITH CIVIL DRAWINGS TO ENSURE ADEQUATE COVERAGE OVER TOP OF FOOTINGS.*
5. *F1 , C1 , ETC. DENOTES FOOTING REFERENCE. SEE SCHEDULE ON THIS SHEET.*
6. *FOR TYPICAL BAR BENDS, SEE 1/S5.0.*
7. *FOR TYPICAL BAR LAP AND EMBEDMENTS, SEE S1.0.*
8. *FOR TYPICAL FOOTING REINFORCING AT CORNERS, SEE 4/S5.0.*
9. *FOR REINFORCING WHERE ADJACENT FOOTINGS DIFFER, SEE 6/S5.0.*
10. *COORDINATE WALL LOCATIONS AND OPENING DIMENSIONS WITH ARCHITECTURAL DRAWINGS AS WELL AS FOR SIZE AND LOCATION NON-BEARING WALLS.*
11. S/HDU2 *INDICATES APPROXIMATE HOLDOWN LOCATION AND TYPE BY SIMPSON-TIE (OR APPROVED EQUAL) AS FOLLOWS:* FOR S/HDU2, *SEE 14/SS.0*
12. 6 / L=19' *INDICATES SHEAR WALL TYPE AND APPROXIMATE LENGTH ABOVE, SEE SHEAR WALL SCHEDULE ON 1/S8.0.*
13. *HOLDOWN LOCATIONS SHALL NOT BE SCALED OFF OF FOUNDATION PLAN. THEY SHALL BE LOCATED BY CLOSE EVALUATION OF ARCHITECTURAL FLOOR PLAN IN CONJUNCTION WITH TYPICAL HOLDOWN DETAIL.*
14. *(-0'-8") INDICATES DISTANCE FROM FINISH FLOOR TO TOP OF FOUNDATION.*
15. *ANCHOR BOLT (WHERE CALLED FOR) SHALL BE 5/8"Ø x12" LONG SPACED AT 4'-0" O.C. MAX U.O.N. SEE PLAN AND SHEARWALL SCHEDULE ON x/S8.0. PROVIDE MIN. 2 BOLTS PER LENGTH OF SILL PLATE, 12" MAX & 4" MIN. FROM PLATE ENDS. OMITTED BOLTS MAY BE REPLACED w/ EXPANSION BOLTS INSTALLED NO LESS THAN 7 DAYS AFTER CONCRETE IS POURED.*
16. *SHOT PINS FOR NON-STRUCTURAL WALL SILL PLATES SHALL BE .145"Ø X2 1/2" LONG POWDER DRIVEN PINS SPACED AT 32" O.C. MAX. PROVIDE MIN. 2 PINS PER LENGTH OF SILL PLATE, 12" MAX. AT 6" MIN. FROM PLATE ENDS. PIN HEADS SHALL BE DRIVEN FLUSH W/ DISK WASHER AND EMBEDDED MIN. 3/4" INTO CONC. SLAB. A.B. (SEE NOTE 15) MAY BE SUBSTITUTED FOR PINS AT CONTRACTORS OPTION.*
17. *DETAILERS OPTION TO USE TWO SEPARATE OPEN TIES IN LIEU OF CLOSED TIES SHOWN*
18. *INDICATES STEP IN CONCRETE FOUNDATION TO ADDRESS GRADE DIFFERENCES, SEE 6/S5.1.*

CONTINUOUS FOUNDATION SCHEDULE

FOUNDATION CALLOUT	FOUNDATION SIZE AND REINFORCING	FOUNDATION NOTES
C1	CONTINUOUS 1'-4" WIDE x 1'-0" THICK FTG. w/ (2) - #4 BARS @ TOP AND BOTTOM.	
C2	CONTINUOUS 2'-0" WIDE x 1'-0" THICK FTG. w/ (2) - #5 BARS @ TOP AND BOTTOM.	

NOTES:
1. ALL FOOTINGS SHALL EXTEND A MINIMUM OF 1'-0" INTO NATIVE SOILS.
2. FOOTINGS ARE TYPE C1 UNLESS NOTED OTHERWISE.

SPREAD FOUNDATION SCHEDULE

FOUNDATION CALLOUT	FOUNDATION SIZE AND REINFORCING	FOUNDATION NOTES
F1	2'-0" SQ. x 1'-0" THK. w/ (3) #4 EA. WAY AT BOTTOM	
F2	5'-6" SQ. x 1'-6" THK. w/ (5) #6 EA. WAY AT BOTTOM	

CONCRETE SLAB

5" CONCRETE SLAB w/ #3 @18" O.C. EA. WAY OVER 10 MIL. MEMBRANE OVER 2" - 4" COMPACTED GRANULAR FILL OVER 3" MIN. COMPACTED GRAVEL OVER SUB-GRADE.

WALL FRAMING NOTES

1. *SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.*
2. *FOR TYPICAL HEADER DETAIL SEE 8/S8.0., U.O.N.*
3. S/HTI *ETC. DENOTES FRAMING CONNECTORS BY SIMPSON STRONG-TIE (OR APPROVED EQUAL).*
4. *ALL EXTERIOR WALLS SHALL BE SHEATHED WITH 1/2" OR 15/32" CDX PLY (OR OSB) NAILED WITH #8 SCREW AT 6" o.c. EDGE NAIL AND 12" o.c. FIELD NAIL, U.O.N. BLOCKING OF HORIZONTAL PANEL JOINTS REQUIRED ONLY AT DESIGNATED SHEAR WALLS. SEE REQUIREMENTS FOR WALL TYPE A ON 1/S8.0.*
5. *FRAME ALL WALL WITH 600S162-43 STUDS AT 16" o.c., U.O.N. ON PLANS (SEE SHEAR WALL NOTES FOR DBL. STUD LOCATIONS).*
6. *FOR TYPICAL SHEAR WALL INTERSECTIONS SEE 4/S8.0.*
7. *FOR TYPICAL TOP PLATE CONTINUITY AT ALL SHEAR WALLS OR EXTERIOR WALLS SEE DETAIL 6/S8.0..*
8. *FOR GENERAL FRAMING REQUIREMENTS NOT NOTED, REFER TO CALIFORNIA BUILDING CODE SECTION 2201*

WALL FRAMING SCHEDULE

	EXISTING EXTERIOR MASONRY WALL
	362S137-33 STUDS AT 16" O.C. INTERIOR PARTITION WALL.
	600S162-43 STUDS AT 16" O.C. INTERIOR PARTITION WALL

4CREEKS

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REGISTERED PROFESSIONAL ENGINEER
MARK A. SORHOUET
No. S6308
Exp. 12-31-25
STRUCTURAL
STATE OF CALIFORNIA

DATE		SUBMITTAL
05/23/2025	0	ISSUE FOR BID

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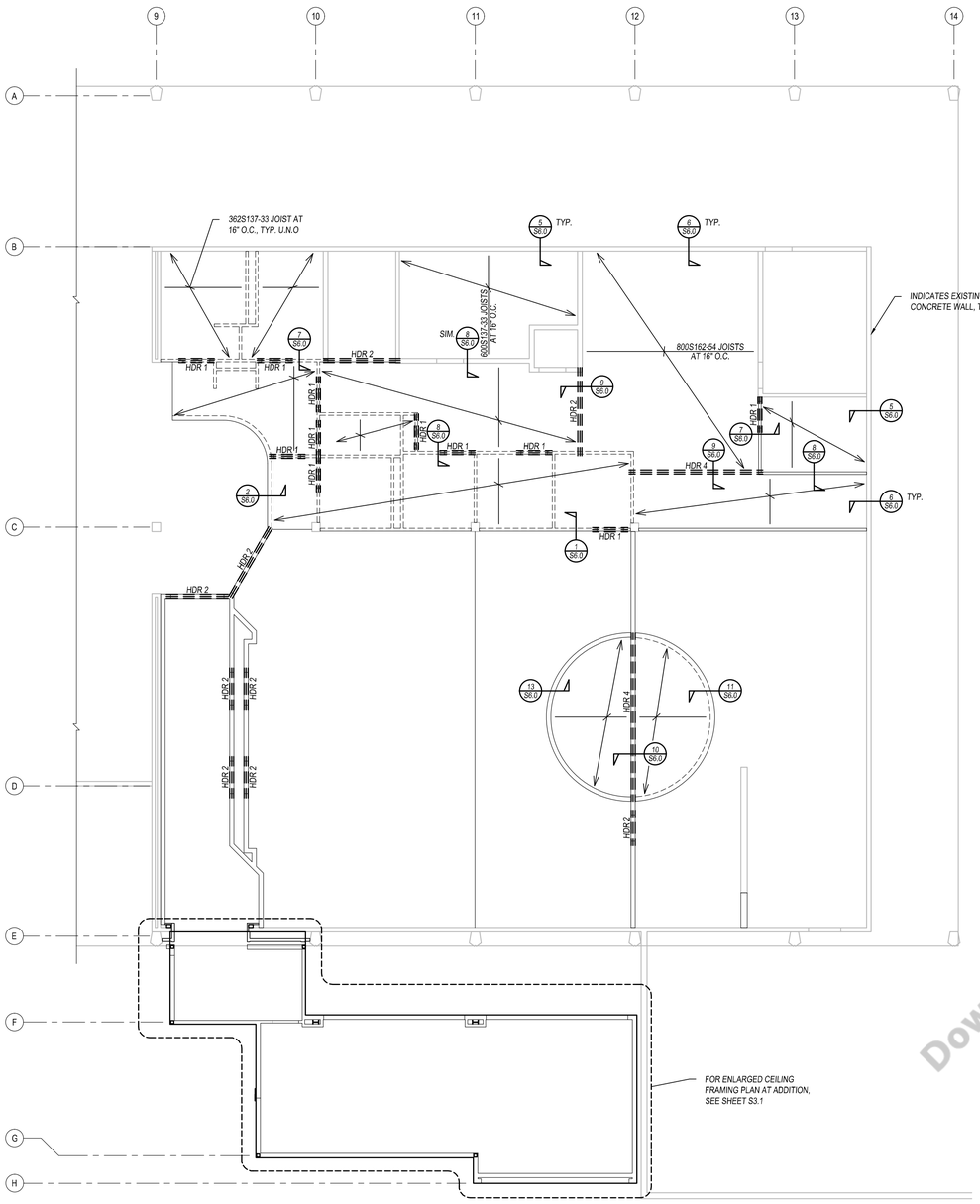
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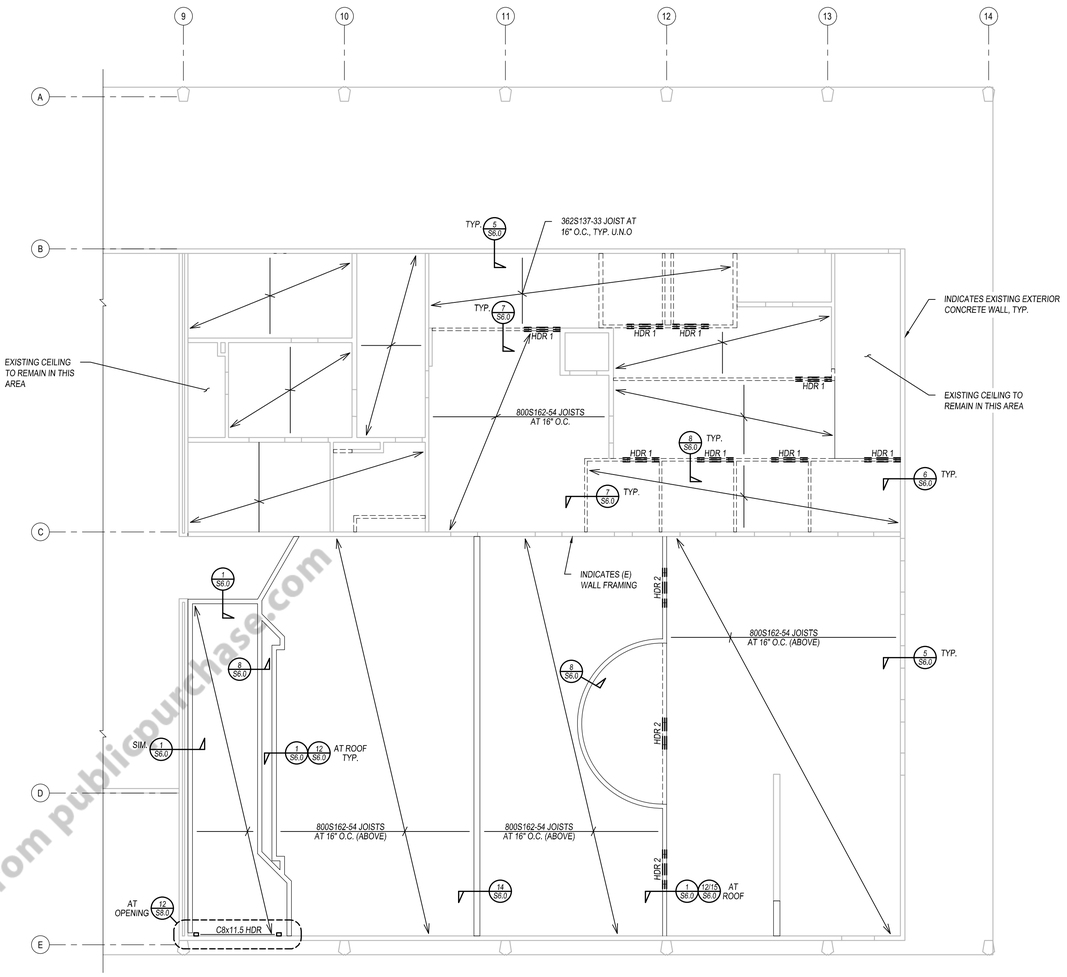
ADDITION
FOUNDATION PLAN

S2.1

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1st FLOOR CEILING FRAMING PLAN - B

SCALE: 1/8" = 1' - 0"

CEILING FRAMING NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.
2. COORDINATE WALL LOCATIONS AND OPENING DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
3. HEADER LOCATIONS INDICATED BY "HDR" ON PLAN, SEE SCHEDULE ON 9/S8.0 AND 8/S8.0 FOR DETAILS AND SIZES.
4. SU410 ETC. DENOTES FRAMING CONNECTORS BY SIMPSON STRONG-TIE (OR APPROVED EQ.)
4. FOR GENERAL FRAMING REQUIREMENTS AND NAILING NOT NOTED, REFER TO CBC SEC. 2201.
5. ALL CEILING JOISTS SHALL BE COVERED WITH MIN. 1/2" GYPSUM BOARD SHEATHING ATTACHED WITH #6 SCREWS AT 8" O.C. EDGE NAIL AND 12" O.C. FIELD NAIL. BLOCK ALL PANEL EDGES AS INDICATED ON DETAIL 18/S8.0.
6. NOTCHES IN STRUCTURAL MEMBERS ARE NOT PERMITTED WITHOUT APPROVAL BY ENGINEERS.
7. FOR ADDITIONAL TYPICAL FRAMING INFORMATION, SEE WALL FRAMING NOTES ON S2.0.
8. USE 18 GA. CONTINUOUS TOP TRACK FOR PARTIAL HEIGHT INTERIOR WALLS U.O.N.

HEADER SCHEDULE	
HDR1	METAL STUD BOX HEADER w/ (2) 362S137-33 JOISTS AND (2) 362T150-33 TRACKS
HDR2	METAL STUD BOX HEADER w/ (2) 600S162-43 JOISTS AND (2) 600T150-43 TRACKS
HDR4	METAL STUD BOX HEADER w/ (2) 1600S250-97 JOISTS AND (2) 600T200-97 TRACKS

2nd FLOOR WALL / CEILING FRAMING PLAN - B

SCALE: 1/8" = 1' - 0"

CEILING FRAMING NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.
2. COORDINATE WALL LOCATIONS AND OPENING DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
3. HEADER LOCATIONS INDICATED BY "HDR" ON PLAN, SEE SCHEDULE ON 9/S8.0 AND 8/S8.0 FOR DETAILS AND SIZES.
4. SU410 ETC. DENOTES FRAMING CONNECTORS BY SIMPSON STRONG-TIE (OR APPROVED EQ.)
4. FOR GENERAL FRAMING REQUIREMENTS AND NAILING NOT NOTED, REFER TO CBC SEC. 2201.
5. ALL CEILING JOISTS SHALL BE COVERED WITH MIN. 1/2" GYPSUM BOARD SHEATHING ATTACHED WITH #6 SCREWS AT 8" O.C. EDGE NAIL AND 12" O.C. FIELD NAIL. BLOCK ALL PANEL EDGES AS INDICATED ON DETAIL 18/S8.0.
6. NOTCHES IN STRUCTURAL MEMBERS ARE NOT PERMITTED WITHOUT APPROVAL BY ENGINEERS.
7. FOR ADDITIONAL TYPICAL FRAMING INFORMATION, SEE WALL FRAMING NOTES ON S2.0.
8. USE 18 GA. CONTINUOUS TOP TRACK FOR PARTIAL HEIGHT INTERIOR WALLS U.O.N.

HEADER SCHEDULE	
HDR1	METAL STUD BOX HEADER w/ (2) 362S137-33 JOISTS AND (2) 362T150-33 TRACKS
HDR2	METAL STUD BOX HEADER w/ (2) 600S162-43 JOISTS AND (2) 600T150-43 TRACKS

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STATE OF CALIFORNIA

DATE	△	SUBMITTAL
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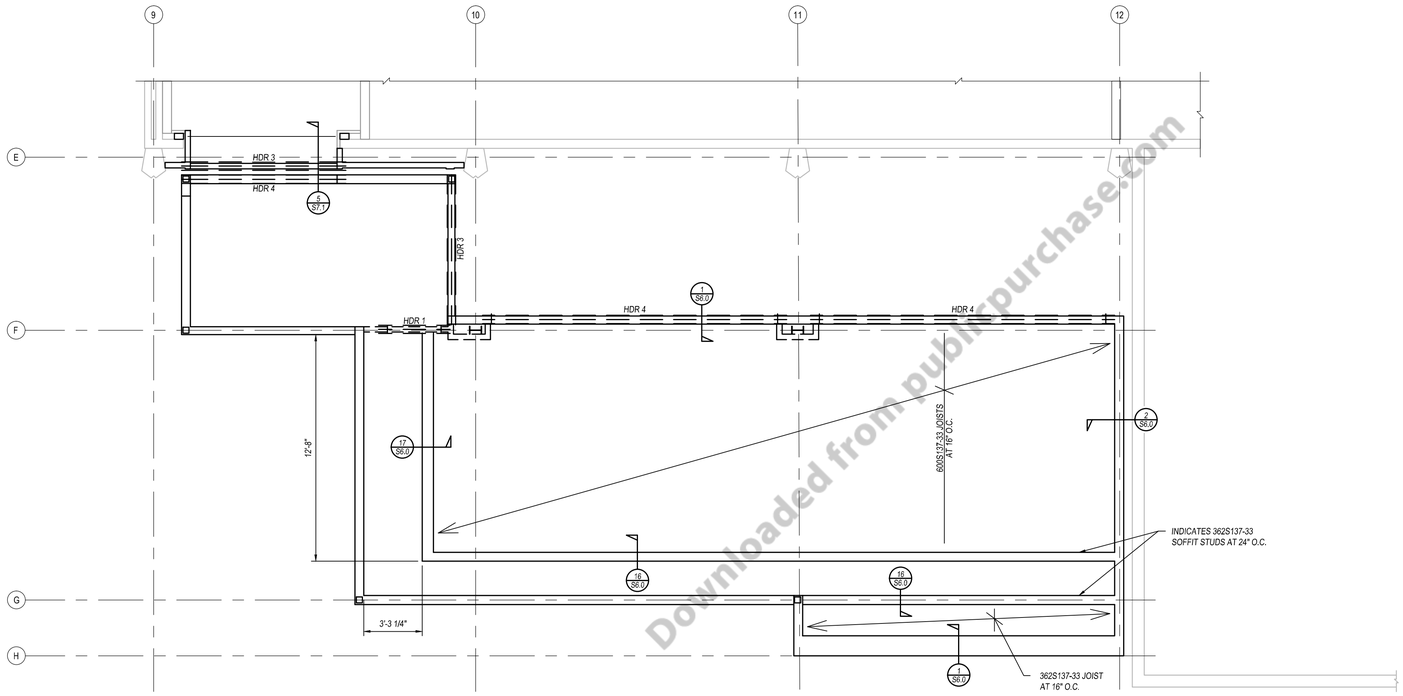
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1st/2nd FLR. WALL / CEILING FRAMING PLANS - B

S3.0



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ADDITION CEILING FRAMING PLAN

SCALE: 1/4" = 1'-0"

CEILING FRAMING NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.
2. COORDINATE WALL LOCATIONS AND OPENING DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
3. HEADER LOCATIONS INDICATED BY "HDR" ON PLAN. SEE SCHEDULE ON S/S8.0 AND 8/S8.0 FOR DETAILS AND SIZES.
4. SUH10 ETC. DENOTES FRAMING CONNECTORS BY SIMPSON STRONG-TIE (OR APPROVED EQ.)
4. FOR GENERAL FRAMING REQUIREMENTS AND NAILING NOT NOTED, REFER TO CBC SEC. 2201.
5. ALL CEILING JOISTS SHALL BE COVERED WITH MIN. 1/2" GYPSUM BOARD SHEATHING ATTACHED WITH #6 SCREWS AT 6" O.C. EDGE NAIL AND 12" O.C. FIELD NAIL. BLOCK ALL PANEL EDGES AS INDICATED ON DETAIL 16/S8.0.
6. NOTCHES IN STRUCTURAL MEMBERS ARE NOT PERMITTED WITHOUT APPROVAL BY ENGINEERS.
7. FOR ADDITIONAL TYPICAL FRAMING INFORMATION, SEE WALL FRAMING NOTES ON S2.0.
8. USE 18 GA. CONTINUOUS TOP TRACK FOR PARTIAL HEIGHT INTERIOR WALLS U.O.N.

HEADER SCHEDULE

HDR1	METAL STUD BOX HEADER w/ (2) 600S162-43 JOISTS AND (2) 600T150-43 TRACKS
HDR3	METAL STUD BOX HEADER w/ (2) 1000S162-54 JOISTS AND (2) 600T150-54 TRACKS
HDR4	METAL STUD BOX HEADER w/ (2) 1600S250-97 JOISTS AND (2) 600T200-97 TRACKS

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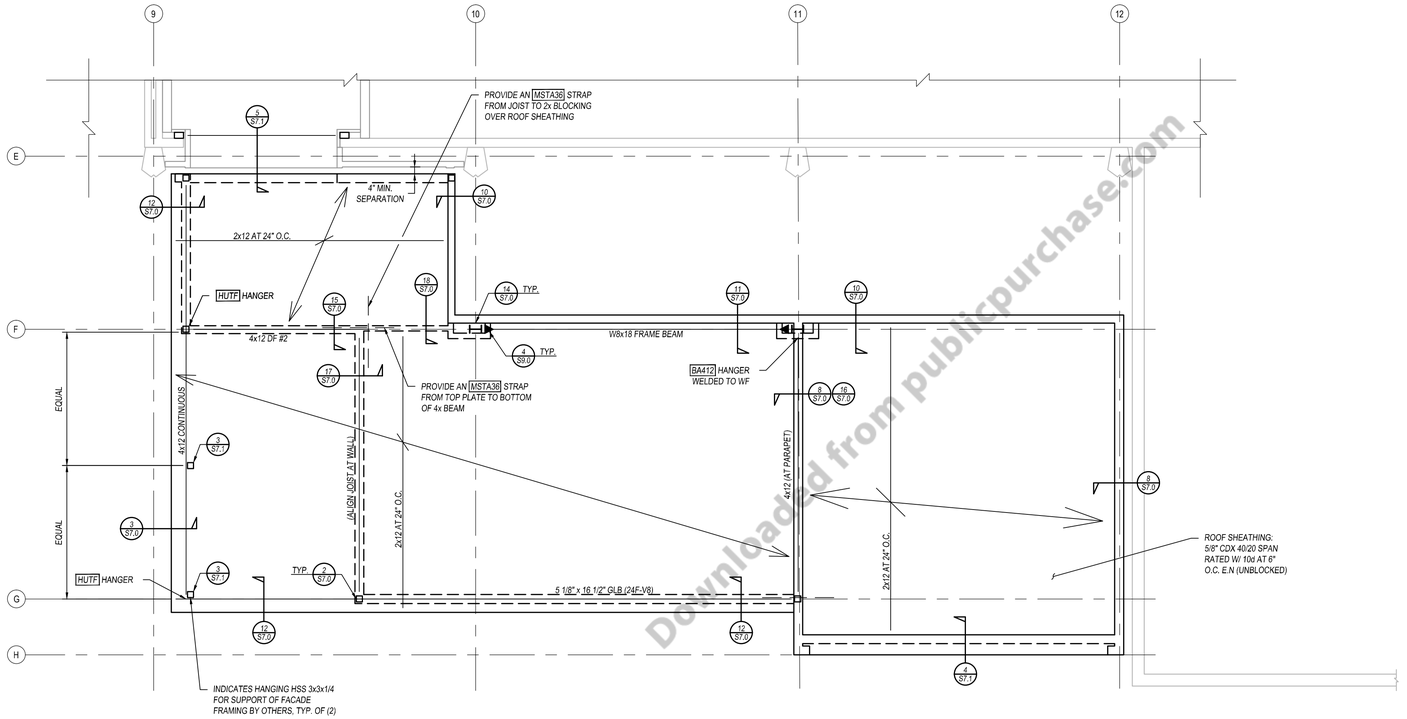
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401 N DOUTY STREET
HANFORD, CA 93230

PLOT DATE: 10/18/2024
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ADDITION CEILING FRAMING PLAN

S3.1

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ADDITION ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"

ROOF FRAMING NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.
2. COORDINATE MECHANICAL DUCT AND SKYLIGHT OPENINGS WITH ARCHITECTURAL DRAWINGS.
3. SUH10 ETC. DENOTES FRAMING CONNECTORS BY SIMPSON STRONG-TIE (OR APPROVED EQ.)
4. FOR GENERAL FRAMING REQUIREMENTS AND NAILING NOT NOTED, REFER TO CBC SEC. 2320.
5. CONTRACTOR SHALL PROVIDE ALL FRAMING AT VENTILATION HATCHES, ROOF HATCH, AND OTHER PENETRATIONS UNLESS OTHERWISE NOTED.
6. NOTCHES IN STRUCTURAL MEMBERS ARE NOT PERMITTED WITHOUT APPROVAL BY ENGINEERS. ENGINEER SHALL BE NOTIFIED TO PROVIDE REINFORCED SUPPORT WHEN PIPES OR DUCT LARGER THAN 3 IN DIAMETER ARE USED.
7. FOR ADDITIONAL TYPICAL FRAMING INFORMATION, SEE WALL FRAMING NOTES ON S2.0.
8. FOR INTERIOR PARTITION WALLS (NON-BEARING, NON-SHEAR) BELOW ROOF FRAMING, SEE DETAILS 5/S7.0 AND 6/S7.0 TYP. U.O.N. FOR SIMILAR CONDITION.
9. ▶ INDICATES STEEL MOMENT FRAME CONNECTION. REFER TO CONNECTION DETAIL 4 ON S9.0 FOR INFORMATION.
10. FOR NOTCHES IN 2X JOISTS, SEE 4/S7.0..
11. FOR ROOF FRAMING AROUND PENETRATIONS (NOT SHOWN ON PLAN), SEE 1/S7.0.
12. NO FIRE SPRINKLER LINES GREATER THAT 1"Ø SHALL BE HUNG FROM 2x / I-JOISTS.

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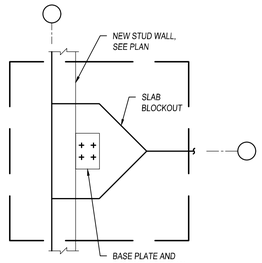
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JOB NO.: 23467

ADDITION ROOF FRAMING PLAN

S4.0

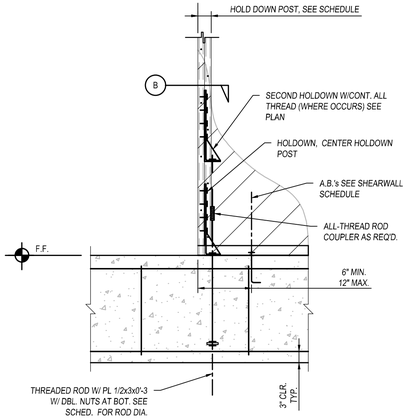
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NOTE:
CENTER FOOTING ON BUILDING COLUMN U.N.O. ON PLANS

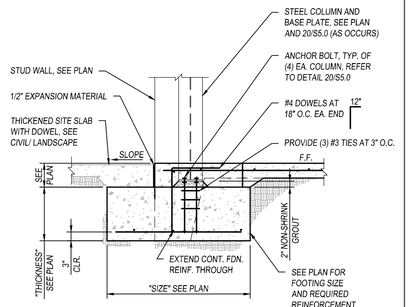


PLAN

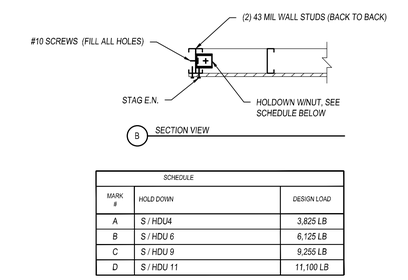
DETAIL N.T.S. 18



DETAIL N.T.S. 14

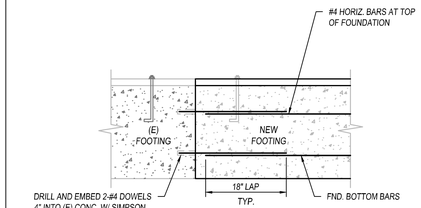


DETAIL N.T.S. 18

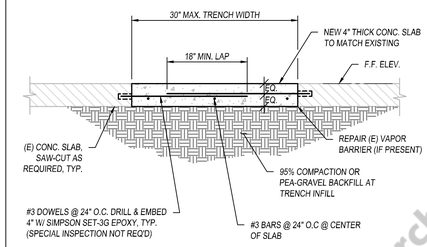


SCHEDULE		
MARK #	HOLD DOWN	DESIGN LOAD
A	S / HDU4	3,825 LB
B	S / HDU 6	6,125 LB
C	S / HDU 9	9,255 LB
D	S / HDU 11	11,100 LB

DETAIL N.T.S. 14

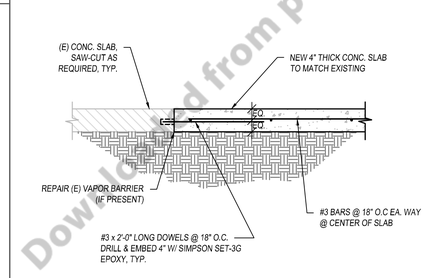


DETAIL N.T.S. 9



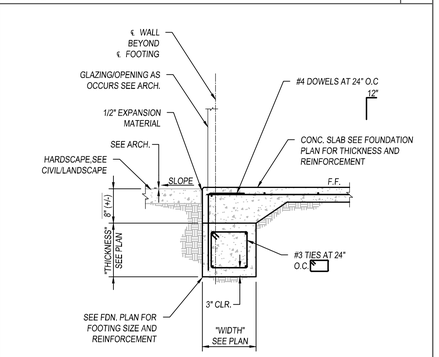
UTILITY TRENCH

DETAIL N.T.S. 11

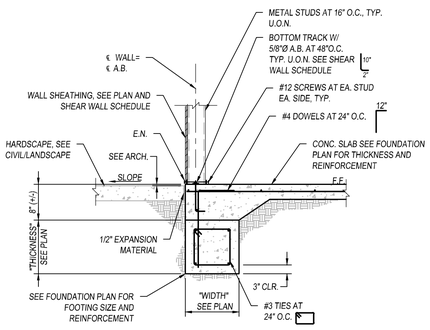


SLAB REPLACEMENT

DETAIL N.T.S. 15



DETAIL N.T.S. 16



DETAIL N.T.S. 12

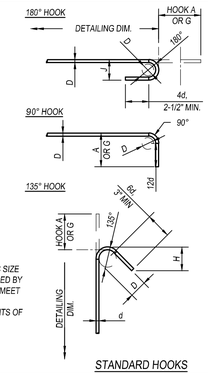
RECOMMENDED END HOOKS (ALL GRADES)
D=FINISHED BEND DIAMETER

BAR SIZE	180° HOOKS D (in)	180° HOOKS A OR G	90° HOOKS J	90° HOOKS A OR G
#3	1-1/2	5	3	6
#4	2	6	4	8
#5	2-1/2	7	5	10
#6	4-1/2	8	6	1-0
#7	5-1/2	10	7	1-2
#8	6	11	8	1-4
#9	9-1/2	1-3	11 1/4	1-7
#10	10-3/4	1-5	1-5	1-10
#11	12	1-7	1-2 1/4	2-0
#14	18-1/4	2-3	1-9 1/4	2-7
#18	24	3-0	2-4 1/2	3-5

135° SEISMIC STIRRUP/TIE HOOK DIMENSIONS (ALL GRADES)

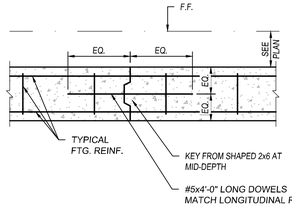
BAR SIZE	135° HOOKS D (in)	A OR G	H APPROX.
#3	1-1/2	4-1/4	3
#4	2	4-1/2	3
#5	2-1/2	5-1/2	3-3/4
#6	4-1/2	8	4-1/2
#7	5-1/2	9	5-1/4
#8	6	10-1/2	6

NOTE:
ALL SPECIFIC SIZE RECOMMENDED BY CRSI BELOW MEET MINIMUM REQUIREMENTS OF ACI 318

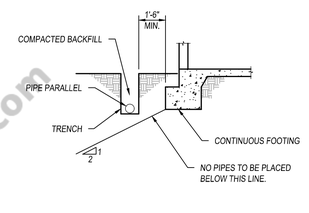


STANDARD HOOKS

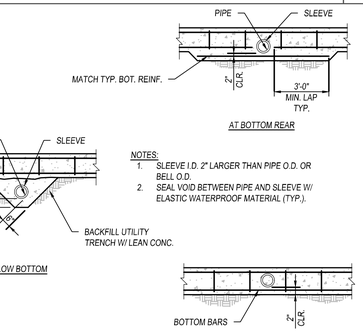
DETAIL N.T.S. 1



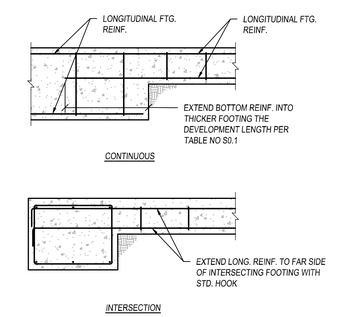
DETAIL N.T.S. 5



DETAIL N.T.S. 6



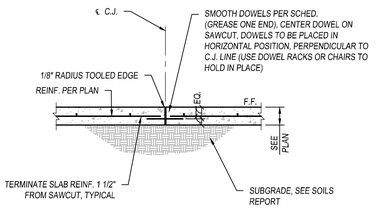
DETAIL N.T.S. 7



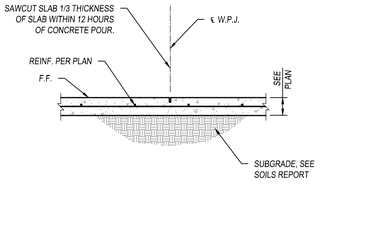
DETAIL N.T.S. 8

NOTE:
1. CONTRACTORS OPTION TO USE1/4"x4.5" DIAMOND DOWEL PLATE AND POCKET FORMER SPACED PER MFR. ASMANUFACTURED BY PNA CONSTRUCTION TECHNOLOGIES (1-800-542-0214) IN LIEU OF SMOOTH DOWELS.

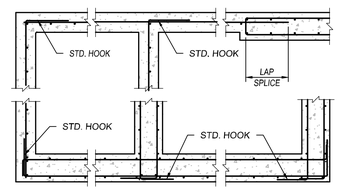
DOWEL SCHEDULE		
SLAB	DOWEL	SPACING
5"	3/4"Ø x12"	12" O.C.
6"	3/4"Ø x14"	12" O.C.
EDGE	1"Ø x18"	12" O.C.



DETAIL N.T.S. 2



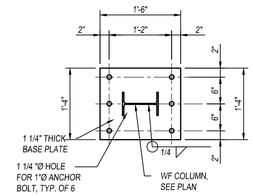
DETAIL N.T.S. 3



NOTES:
1. SPLICE HORIZONTAL REINFORCING BARS, WHERE REQ'D, USING "TOP BAR" LAP SPLICES, SEE SCHEDULE ON S1.0
2. STANDARD HOOK MINIMUM, TURN DOWNWARD IF REQUIRED FOR FIT, TYPICAL

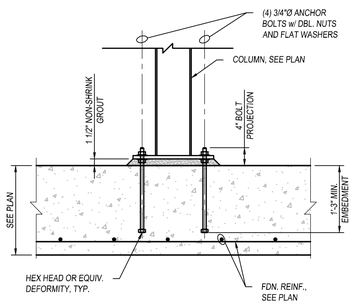
FOOTING INTERSECTION

DETAIL N.T.S. 4



BASE PLATE

DETAIL N.T.S. 20



ANCHOR BOLT

DETAIL N.T.S. 16

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4CREEKS
324 S SANTA FE
SUITE A
VISALIA, CA 93292
WEB: 4-Creeks.com
TEL: 559.802.3052
FAX: 559.802.3215

REGISTERED PROFESSIONAL ENGINEER
MARK A. SORHOUET
No. S6308
Exp. 12-31-25
STRUCTURAL
STATE OF CALIFORNIA

DATE		SUBMITTAL
05/23/2025	0	ISSUE FOR BID

APPROVED BY:

DATE SIGNATURE

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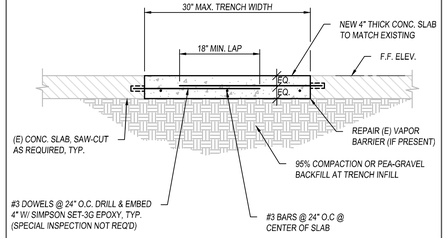
COUNTY OF KERN
401 N DOUTY STREET
HANFORD, CA 93230

PLOT DATE: 10/18/2024
JOB NO.: 23467

FOUNDATION DETAILS

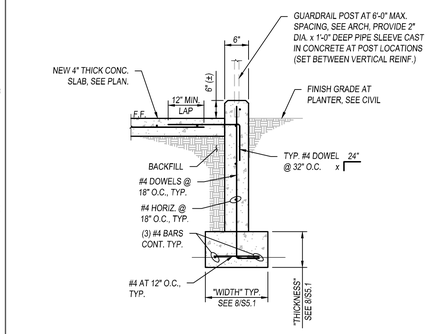
S5.0

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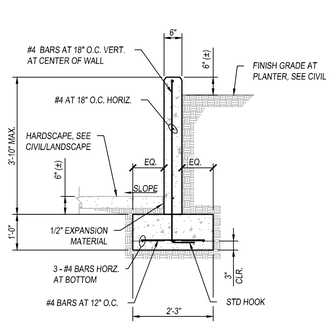


UTILITY TRENCH

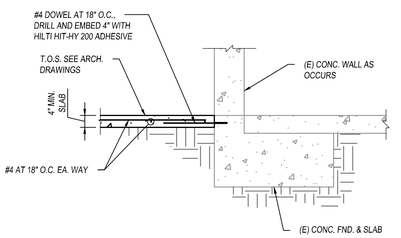
DETAIL N.T.S. 18



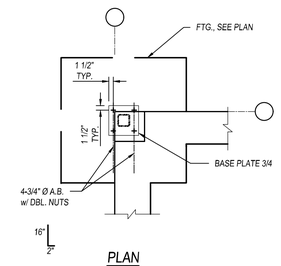
DETAIL N.T.S. 13



DETAIL N.T.S. 9

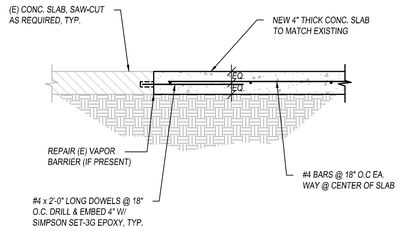


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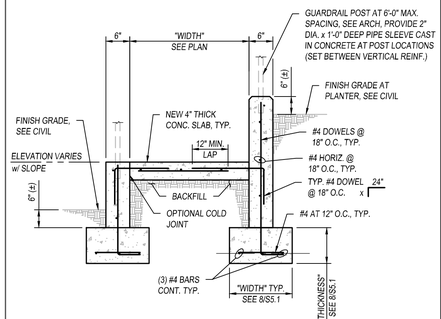
PLAN

DETAIL N.T.S. 2

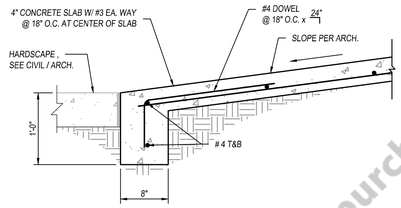


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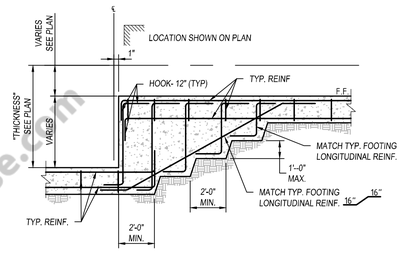
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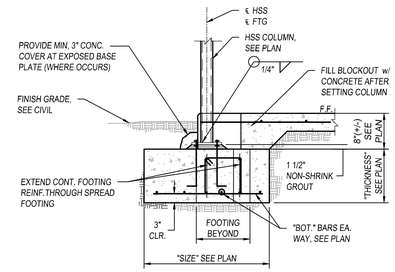
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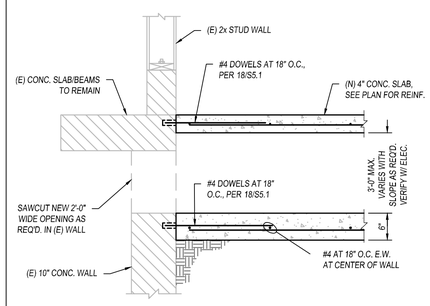
DETAIL N.T.S. 10



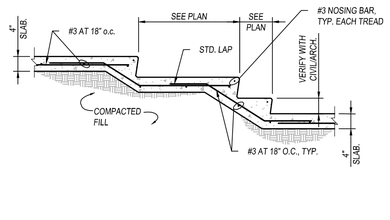
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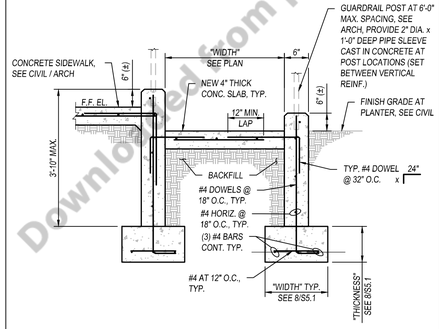
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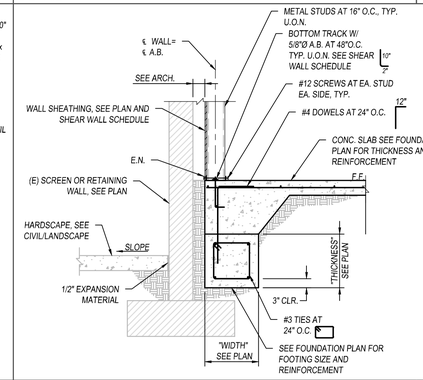
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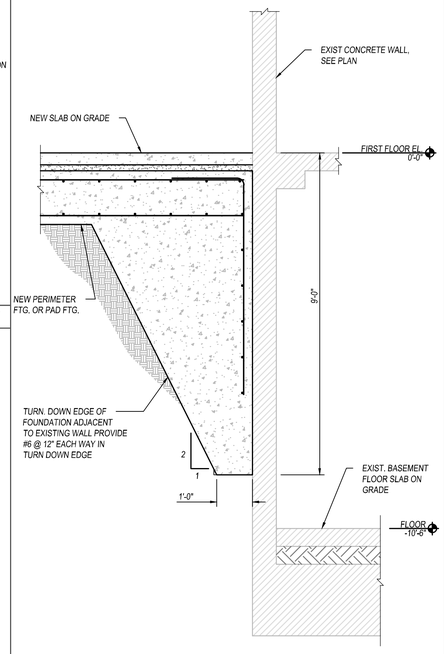
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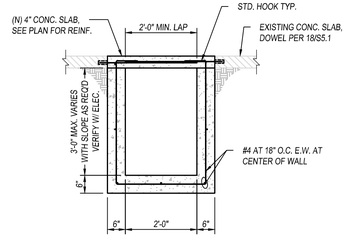
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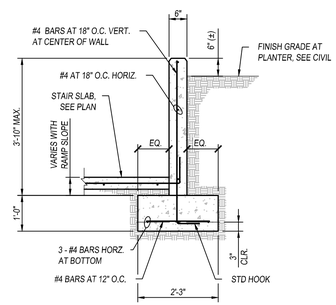
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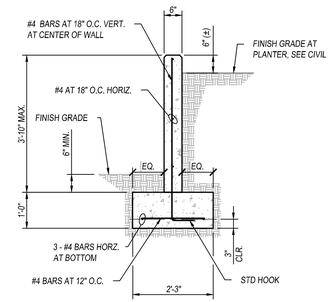
DETAIL N.T.S. 4



DETAIL N.T.S. 16



DETAIL N.T.S. 12



DETAIL N.T.S. 8

DETAIL N.T.S.

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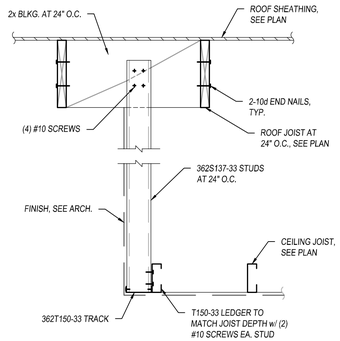
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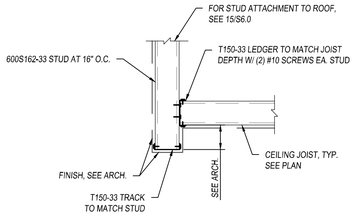
FOUNDATION DETAILS

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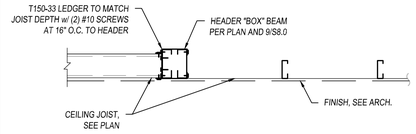
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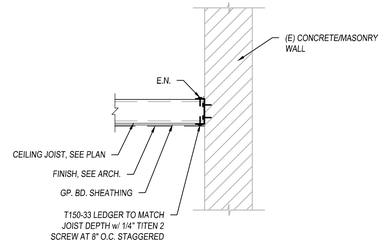
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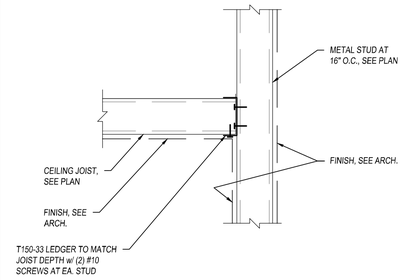
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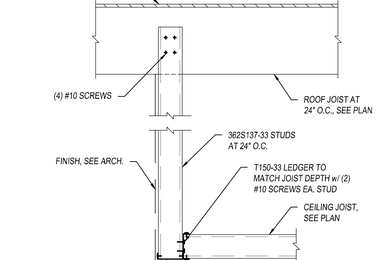
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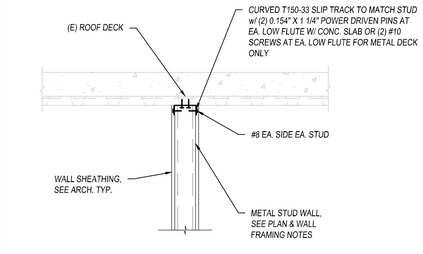
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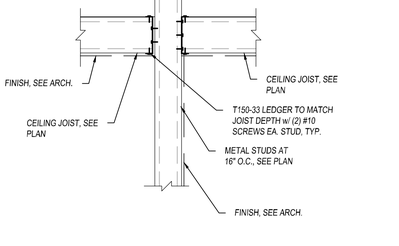
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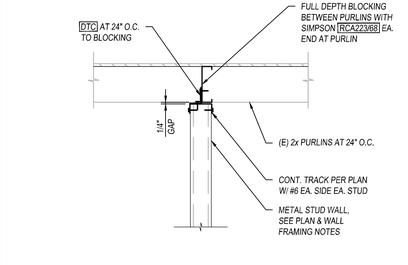
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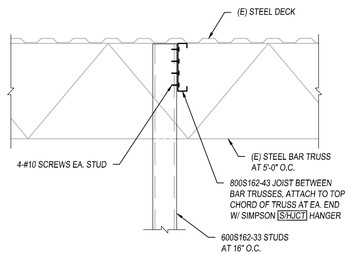
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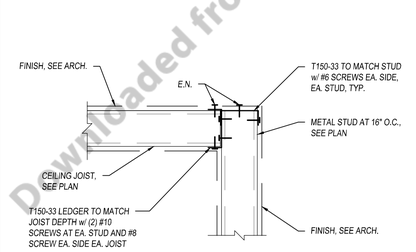
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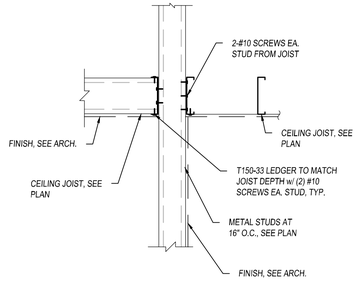
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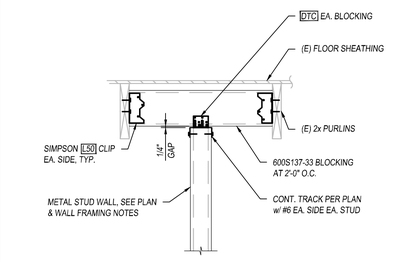
DETAIL N.T.S. 15



DETAIL N.T.S. 11



DETAIL N.T.S. 7



DETAIL N.T.S. 3

DETAIL N.T.S. 16

DETAIL N.T.S. 12

DETAIL N.T.S. 8

DETAIL N.T.S. 4

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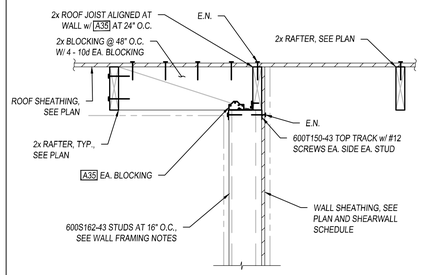
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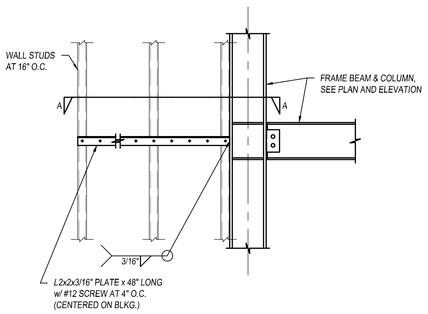
CEILING FRAMING DETAILS

S6.0

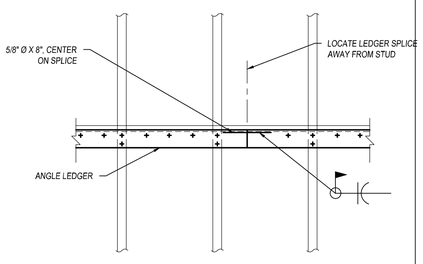
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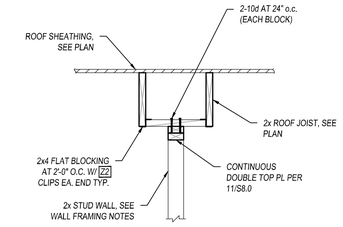


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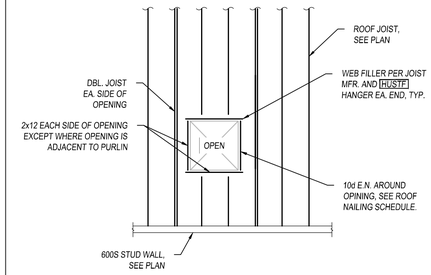
A-A

DETAIL N.T.S. 10



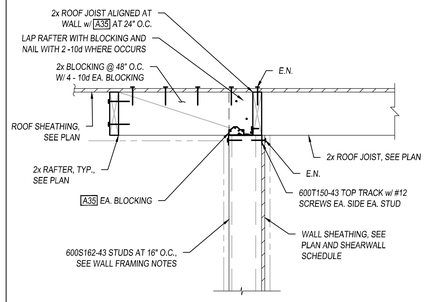
INTERIOR WALL PARALLEL TO JOISTS
(PARTITION WALL)

DETAIL N.T.S. 5

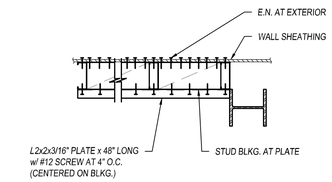


TYPICAL OPENING IN ROOF

DETAIL N.T.S. 1

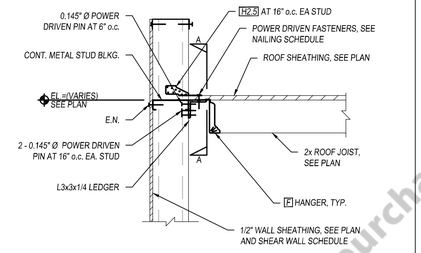


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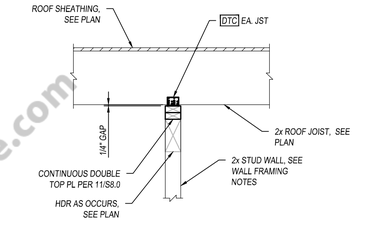


SECTION A-A

DETAIL N.T.S. 14



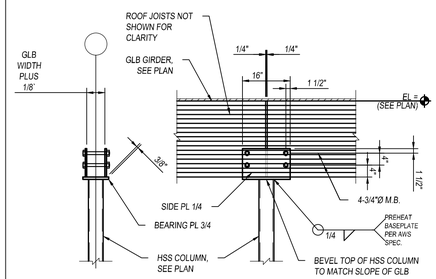
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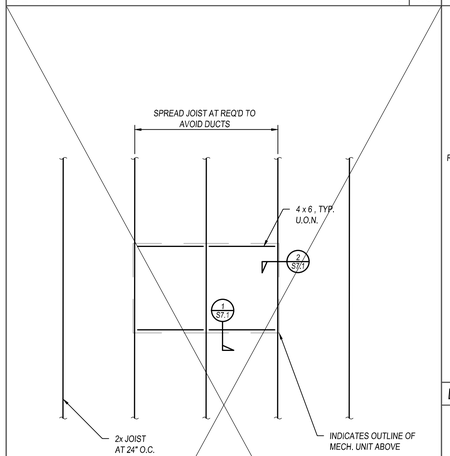
INTERIOR WALL PERPENDICULAR TO JOISTS
(PARTITION WALL)

DETAIL N.T.S. 6

NOTE:
1. OPTION TO USE SIMPSON ECCOQ COLUMN CAP WELDED TO HSS COLUMN IN LIEU OF FABRICATED COLUMN CAP SHOWN.
2. OPTION TO USE ECCOQ COLUMN CAP AT OFFSET COLUMN.



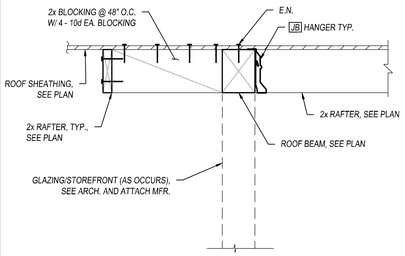
DETAIL N.T.S. 2



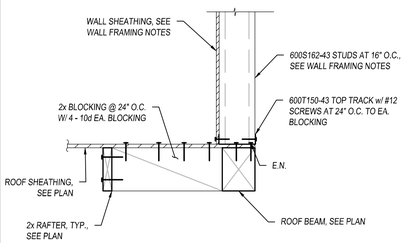
AC FRAMING PLAN

NOTES:
1. SEE GENERAL NOTES ON SHEET S3.0
2. USE F OR HUS HANGERS WHERE 2x OR 4x FRAMES INTO 2x OR 4x MEMBERS
3. MAX. UNIT WT. = 500LB.

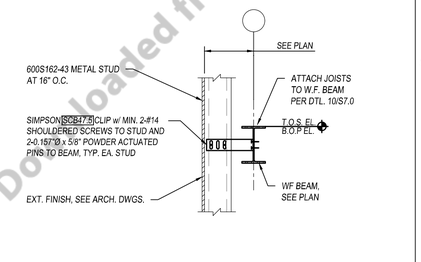
DETAIL N.T.S. 20



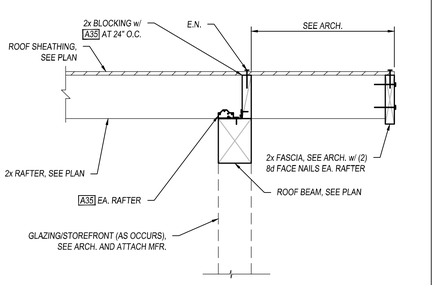
DETAIL N.T.S. 15



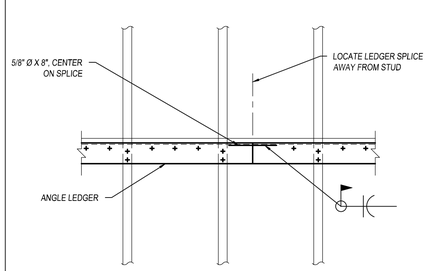
DETAIL N.T.S. 16



DETAIL N.T.S. 11

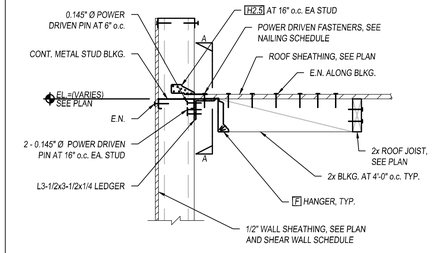


DETAIL N.T.S. 12

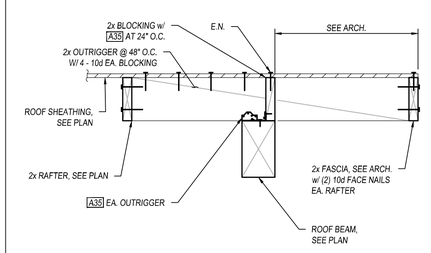


A-A

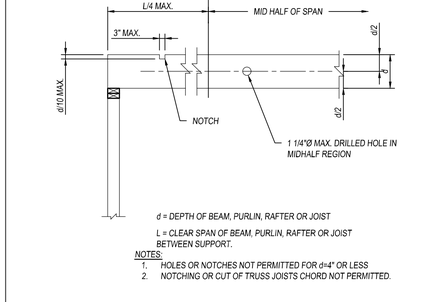
DETAIL N.T.S. 8



DETAIL N.T.S. 4



DETAIL N.T.S. 3



d = DEPTH OF BEAM, PURLIN, RAFTER OR JOIST

L = CLEAR SPAN OF BEAM, PURLIN, RAFTER OR JOIST BETWEEN SUPPORT.

NOTES:
1. HOLES OR NOTCHES NOT PERMITTED FOR d=4" OR LESS
2. NOTCHING OR CUT OF TRUSS JOISTS CHORD NOT PERMITTED.

DETAIL N.T.S. 1

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REGISTERED PROFESSIONAL ENGINEER
MARK A. SORHOUET
No. S6308
Exp. 12-31-25
STRUCTURAL
STATE OF CALIFORNIA

DATE	0	SUBMITTAL
05/23/2025		ISSUE FOR BID

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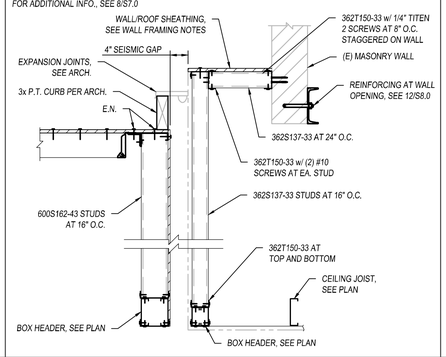
COUNTY OF KERN
401 N DOUTY STREET
HANFORD, CA 93230

PLOT DATE: 10/18/2024
JOB NO.: 23467

ROOF FRAMING DETAILS

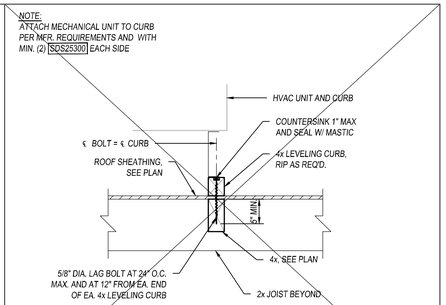
S7.0

NOTE:
FOR ADDITIONAL INFO., SEE 8/S7.0



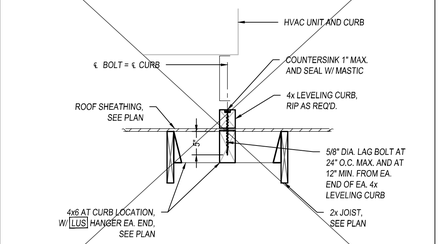
DETAIL N.T.S. 5

NOTE:
ATTACH MECHANICAL UNIT TO CURB PER MFR. REQUIREMENTS AND WITH MIN. (2) SDS25300 EACH SIDE



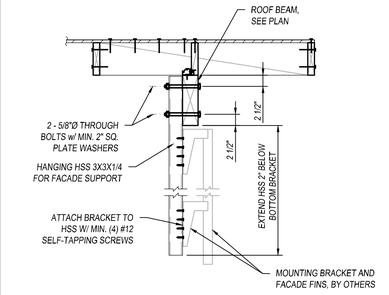
DETAIL N.T.S. 1

NOTE:
ATTACH MECHANICAL UNIT TO CURB PER MFR. REQUIREMENTS AND WITH MIN. (2) SDS25300 EACH SIDE



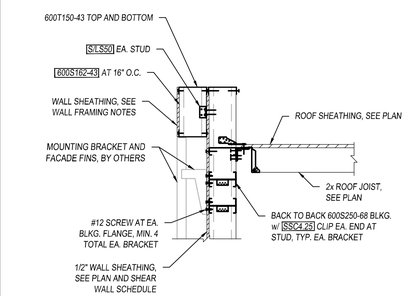
DETAIL N.T.S. 2

NOTE:
1. FOR ADDITIONAL INFO. SEE 3/S7.0 OR 12/S7.0.
2. AT CORNER POST, BRACKETS MAY OCCUR ON BOTH SIDES.



DETAIL N.T.S. 3

NOTE:
1. FOR ADDITIONAL INFORMATION, SEE 10/S7.0



DETAIL N.T.S. 4

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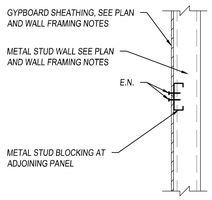
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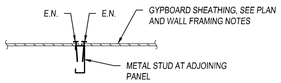
ROOF FRAMING DETAILS

S7.1



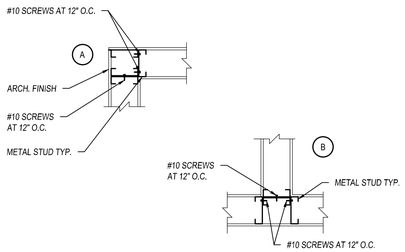
GYPBOARD SHEATHING SPLICED AT SINGLE BLOCK

DETAIL N.T.S. 18



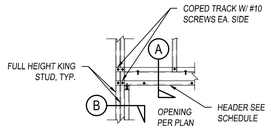
GYPBOARD SHEATHING SPLICED AT SINGLE STUD

DETAIL N.T.S. 19



NON-SHEAR WALL INTERSECTIONS

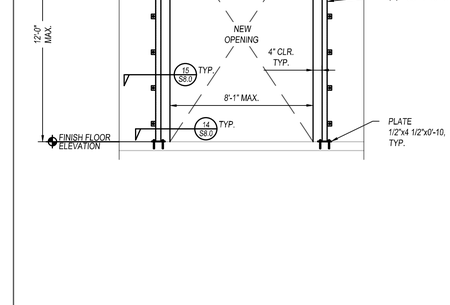
DETAIL N.T.S. 16



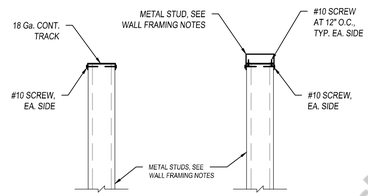
NOTE:
1. WHERE HSS POST OCCURS AT KING STUD LOCATION ON PLAN, HEADER CAN BE ATTACHED DIRECTLY TO HSS POST AND HSS USED IN LIEU OF KING STUDS.

	MAX. OPENING	HEADER		KING AND TRIM STUDS		
		MEMBER SIZE	SECTION A-A	MEMBER SIZE	SECTION B-B	TOP TRACK FASTENERS TO HEADER
2	9'-0"	(2) 600S162-43	#10 SCREWS AT 12" O.C. TYP. / METAL STUD HEADER, EA. FACE / #10 SCREWS AT 12" O.C. TYP. / 600T150-54 AT HDR2/HDR3 AND 600T200-97 AT HDR4	600S162-43 AT HDR 2 & 3 600S162-97 AT HDR4 (SEE PLAN)	2-FULL HEIGHT KING STUDS / TRIM STUDS / E.N. WHEN HOLD DOWN OCCURS AT KING STUDS / 2 ROWS OF #10 SCREWS AT 12" O.C. STAG. / E.N.	2-#10 SCREWS
3	8'-6"	(2) 1000S162-54				
4	16'-0"	(2) 1600S250-97				

DETAIL SCALE: 1/2" = 1'-0" 9

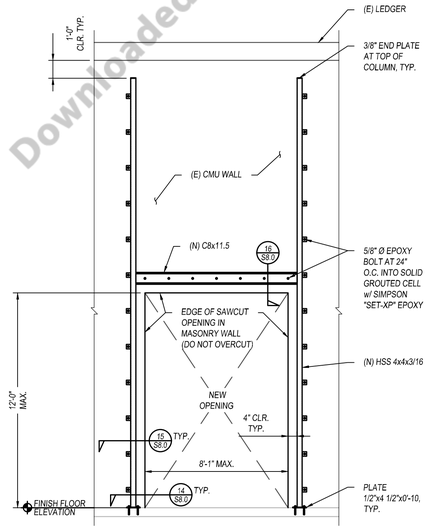


DETAIL N.T.S. 14



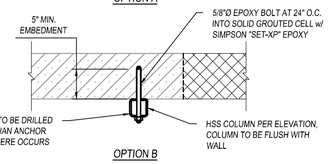
SILL SECTION

SILL DETAIL N.T.S. 10



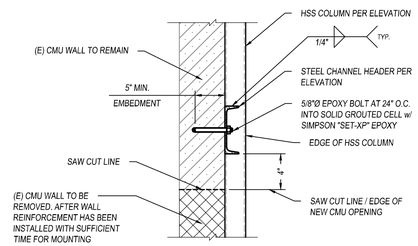
WALL OPENING ELEVATION DETAIL N.T.S. 12

OPTION A

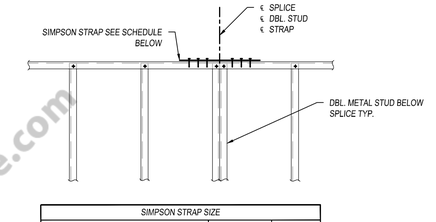


OPTION B

DETAIL N.T.S. 15

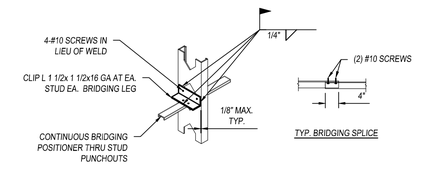


DETAIL N.T.S. 16



SIMPSON STRAP SIZE		
WALL TYPE	FASTENER	CALL OUT
SHEAR WALL AND EXTERIOR WALL	S / MST60	A
NON-SHEAR WALL	ST6224	B

TOP TRACK SPLICE DETAIL N.T.S. 6

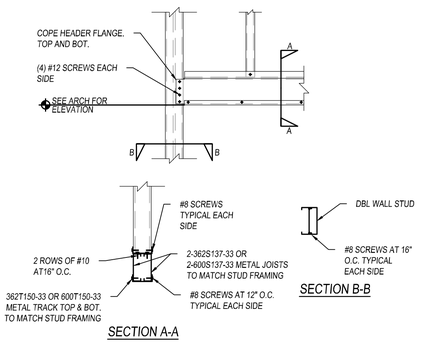


BRIDGING
(FOR WALLS WITHOUT SHEATHING, OR SHEATHING ONE FACE)

NOTES:
1. BRIDGING: CONT. THRU STUD PUNCHOUTS. (MAY BE DISCONTINUED AT ELEC. AND MECH. ROUGH-INS.)
A. WALLS UP TO 10'-0" HIGH: ONE ROW OF BRIDGING AT MIDHEIGHT (TYP.)
B. WALLS OVER 10'-0" HIGH: BRIDGING AT 5'-0" MAX. (TYP.)
C. PROVIDE ADDITIONAL ROW OF BRIDGING AT FLOOR AND ROOF LEVELS WHERE WALL PASSES FLOOR OR ROOF LEVEL
D. NON-FULL HEIGHT PARTITIONS TO EXTEND 8" ABOVE BOTTOM OF CEILING

METAL STUD BRIDGING DETAIL N.T.S. 7

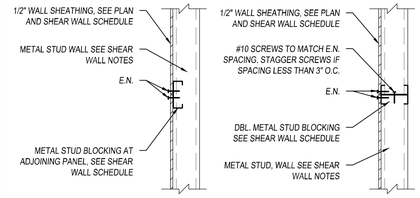
NOTES:
1. TYPICAL FOR "HDR1" WITH MAX. SPAN 3'-0"



SECTION A-A

SECTION B-B

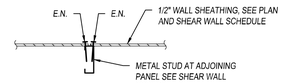
TYPICAL HEADER DETAIL N.T.S. 8



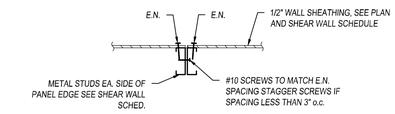
SHEAR WALL SHEATHING SPLICED AT SINGLE BLOCK

SHEAR WALL SHEATHING SPLICED AT DOUBLE BLOCK

DETAIL N.T.S. 2

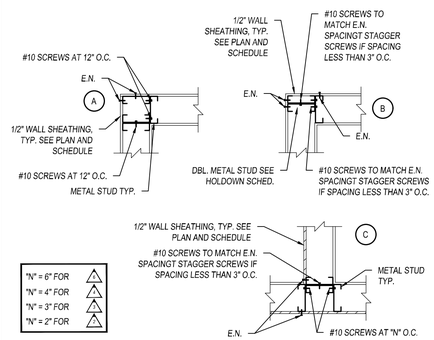


SHEAR WALL SHEATHING SPLICED AT SINGLE STUD



SHEAR WALL SHEATHING SPLICED AT SEPARATE DOUBLE STUD

DETAIL N.T.S. 3

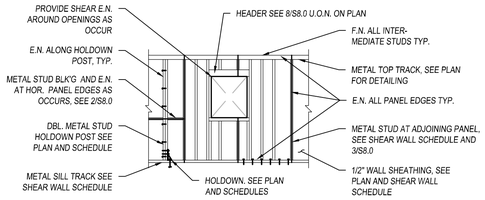


"N" = 6" FOR △1
"N" = 4" FOR △2
"N" = 3" FOR △3
"N" = 2" FOR △4

SHEAR WALL INTERSECTIONS DETAIL N.T.S. 4

METAL SHEAR WALL SCHEDULE

WALL MARK	MINIMUM STUD OR BLKG. THICKNESS AT PANEL JOINT	WALL SHEATHING				BOTTOM TRACK THICKNESS	DESIGN LOAD (PLF)
		TYPE	FASTENER	EDGE NAILS	FIELD		
△1	43 MIL	1/2" OSB	#8 SCREWS	6" O.C.	12"	54 MIL	330
△2	43 MIL	1/2" OSB	#8 SCREWS	4" O.C.	12"	54 MIL	494
△3	43 MIL	1/2" OSB	#8 SCREWS	3" O.C.	12"	54 MIL	618
△4	43 MIL	1/2" OSB	#8 SCREWS	2" O.C.	12"	54 MIL	824



DETAIL SCALE: 1/2" = 1'-0" 1

METAL SHEAR WALL NOTES:

1. SPACE SCREWS AT 12" o.c. ALONG INTERMEDIATE FRAMING MEMBERS.
2. BLOCK ALL HORIZONTAL PANEL EDGES WITH METAL STUD BLOCKING MATCH STUD GAGE.
3. APPLY SCREWS TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.
4. METAL STUD SPACING TO BE 16" o.c. MAX.
5. SCREWS SHALL BE DRIVEN FLUSH WITH SURFACE OF SHEATHING.
6. EXTEND SHEATHING PAST INTERSECTING WALLS TO END OF WALL OR WINDOW/DOOR OPENING, U.O.N.
7. SEE SHEAR WALL ELEVATION FOR TYP. SHEAR WALL CONSTRUCTION.
8. WHERE SHEAR WALL INTERSECT, SEE 4/S8.0, U.O.N.
9. FOR SHEAR WALL SHEATHING SPLICE SEE 2/S8.0 AND 3/S8.0.

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WALL FRAMING DETAILS

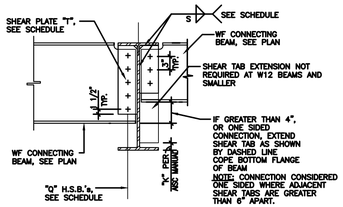
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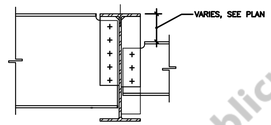
CONNECTING BEAM SIZE	No. OF 1"ø A490 SC H.S.B.'s "O" PER COLUMN	SHEAR PL "T"	SHEAR PL WELD
W10x	2	3/8	5/16"
W12x	3	3/8	5/16"
W14x	3	1/2	5/16"
W16x	4	5/8	3/8"
W18x	4	5/8	3/8"
W21x	5	3/4	1/2"
W24x	6	3/4	1/2"
W27x	7	3/4	1/2"
W30x	8	3/4	1/2"
W33x	9	7/8	5/8"
W36x	10	7/8	5/8"

MOMENT FRAME SHEAR PLATE CONNECTION SCHEDULE

DETAIL N.T.S. 9

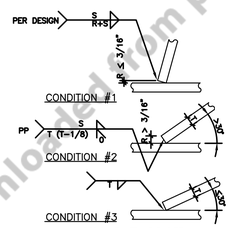


TYPICAL CONDITION



DROPPED WF CONDITION

NOTE: SEE TYPICAL CONDITION FOR DETAILING.

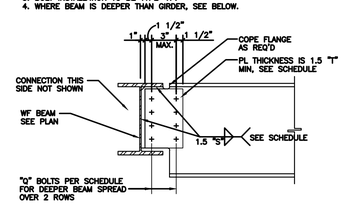


SKEWED SHEAR PL WELDING

BOLT SCHEDULE			
CONNECTING BEAM SIZE	No. OF 7/8"ø A325 "O"	SHEAR PL "T"	SHEAR PL WELD "S"
W8x	2	3/8"	3/16
W10x	2	3/8"	3/16
W12x	3	3/8"	3/16
W14x	3	3/8"	3/16
W16x	4	3/8"	1/4
W18x	4	3/8"	1/4
W21x	5	3/8"	1/4
W24x	6	1/2"	5/16
W27x	7	1/2"	5/16
W30x	8	5/8"	3/8
W33x	9	3/4"	3/8
W36x	10	3/4"	3/8
W40x	11	3/4"	3/8

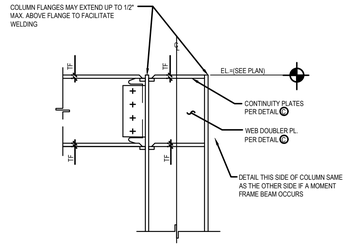
TYPICAL WF TO WF CONNECTION

NOTES:
1. AT SKEWED CONNECTION, USE SAME SCHEDULE.
2. SKEW SHEAR PLATE TO MATCH BEAM ALIGNMENT.
3. BOLT INSTALLATION TO BE TYPE "X".
4. WHERE BEAM IS DEEPER THAN GIRDER, SEE BELOW.



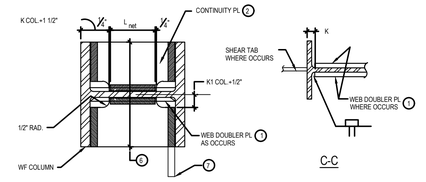
CONNECTION OF WF BEAM TO SHALLOWER WF GIRDER

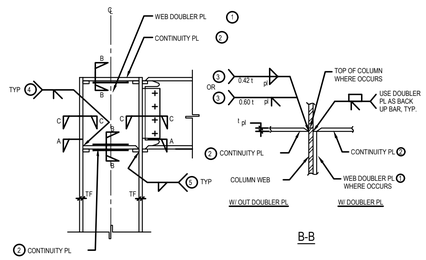
DETAIL N.T.S. 12



ORDINARY MOMENT FRAME

NOTE:
1. A, B, AND C FOR WELDING AND BOLTING REQUIREMENTS.
2. ALL MOMENT FRAME CONNECTION WELD METAL SHALL MEET CVN REQUIREMENTS AS DEFINED IN SPECIFICATIONS.





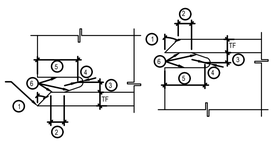
C CONTINUITY & WEB DOUBLER PLATE DETAIL

(SEE DETAIL A FOR CONTINUITY PLATE LOCATIONS)

NOTES FOR C:
1. WEB DOUBLER PLATE NOT REQUIRED, WELD QC/QA CATAGORY BI/L.
2. CONTINUITY PLATE SHALL BE 3/8" THICK MIN.
3. REQUIRED TOTAL WELD STRENGTH PER SIDE OF WEB = 0.6t pl (L net)Fy pl. QC/QA CATEGORY BI/L.
4. CJP TYPICAL. QC/QA CATEGORY BM/T. FOR EXTERIOR BEAM-COLUMN CONNECTIONS (BEAM ONE SIDE ONLY). WELD OF CONTINUITY PLATE TO COLUMN FLANGE AT FREE SIDE MAY BE 5/16" FILLET WELDS AT TOP AND BOTTOM FACE OF PLATE.
5. AISC MINIMUM CONTINUOUS FILLET WELD UNDER BACKING.
6. MINIMUM WIDTH TO MATCH BEAM FLANGE, PREFERRED ALTERNATIVE; EXTEND PLATE FLUSH WITH COLUMN FLANGES.
7. REMOVE WELD TABS TO 1/4" MAXIMUM FROM EDGE OF CONTINUITY PLATE. GRIND END OF WELD SMOOTH (500 u-in), NOT FLUSH. DO NOT GOUGE COLUMN FLANGE.
8. OVERSIZED ACCESS HOLES ARE REQUIRED AT ROTARY-STRAIGHTENED MEMBERS. ROTARY STRAIGHTENED SIZES ARE: W14x145, W12x152 AND ALL OTHER COLUMNS<300 LBS PER FT.

A TYPICAL WELDING DETAILS

NOTES FOR A:
1. CJP GROOVE WELD AT TOP AND BOTTOM FLANGE. AT TOP FLANGE, EITHER (1) REMOVE WELD BACKING. BACKGOUGE, AND ADD 5/16" MINIMUM FILLET WELD, OR (2) LEAVE BACKING IN PLACE AND ADD 5/16" FILLET UNDER BACKING. AT BOTTOM FLANGE, REMOVE WELD BACKING, BACKGOUGE, AND ADD 5/16" MINIMUM FILLET WELD. WELD: QC/QA CATEGORY AH/T.
2. WELD ACCESS HOLE SEE DETAIL B
3. CJP WELD FULL LENGTH OF SHEAR TAB TO COLUMN FLANGE. WELD: QC/QA CATEGORY BL/T.
4. SHEAR TAB, SEE DETAIL 9/S4.0.
5. HSB (S.C.) BOLTS, SEE DETAIL 9/S4.0.
6. CONTINUITY AND WEB DOUBLER PLATES PER C
7. "QC/QA" DENOTES QUALITY CONTROL/QUALITY ASSURANCE, ALL QC/QA SHALL BE IN CONFORMANCE WITH THE SPECIFICATIONS: EXAMPLE: "QC/QA" CATEGORY - BH/L", WHERE THE FIRST LETTER (IN THIS CASE B) INDICATES THE DEMAND CATEGORY, THE SECOND LETTER (IN THIS CASE H) INDICATES THE CONSEQUENCE CATEGORY AND THE THIRD LETTER, EITHER T OR L, INDICATES THAT PRIMARY LOADING IS EITHER TRANSVERSE OR LONGITUDINAL, RESPECTIVELY. SEE D AND SPECIFICATIONS FOR QC/QA REQUIREMENT.



B WELD ACCESS HOLE DETAIL

NOTES FOR B:
1. BEVEL AS REQUIRED BY AWS D1.1 FOR SELECTED WELD PROCEDURE.
2. LARGER OF TF OR 1/2 INCH. (PLUS 1/2 TF, OR MINUS 1/4 TF)
3. 3/4 TF TO TF, 3/4" MINIMUM (±1/4 INCH)
4. 3/8" MINIMUM RADIUS (PLUS NOT LIMITED, OR MINUS 0)
5. 3 TF, (±1/2 INCH)
6. SEE SPECIFICATIONS, DIVISION 5100, SECTION 3.04 FOR FABRICATION DETAILS INCLUDING CUTTING METHODS AND SMOOTHNESS REQUIREMENTS.

CONSEQUENCE	DEMAND A	DEMAND B	DEMAND C
H	C-JP: MT 100% OF JOINTS, FULL LENGTH UT 100% OF JOINTS, FULL LENGTH P-JP, FILLETS: MT 100% OF JOINTS FULL LENGTH	C-JP: MT 100% OF JOINTS, FULL LENGTH IF TRANSVERSELY LOADED, PARTIAL LENGTH IF LONGITUDINALLY LOADED UT 100% OF JOINTS, FULL LENGTH IF TRANSVERSELY LOADED, PARTIAL LENGTH IF LONGITUDINALLY LOADED (REDUCE UT TO 25% OF JOINTS, OF LENGTH AS ABOVE, WITH HIGH ACCEPTANCE RATE) P-JP, FILLETS: MT 25% OF JOINTS FULL LENGTH IF TRANSVERSELY LOADED, PARTIAL LENGTH IF LONGITUDINALLY LOADED	C-JP: UT 10% OF JOINTS, FULL LENGTH IF TRANSVERSELY LOADED, PARTIAL LENGTH IF LONGITUDINALLY LOADED P-JP, FILLETS: MT 10% OF JOINTS, 6" SPOT AT RANDOM
M	C-JP: MT100% OF JOINTS, FULL LENGTH UT 100% OF JOINTS, FULL LENGTH (REDUCE UT TO 25% OF JOINTS, OF LENGTH AS ABOVE, WITH HIGH ACCEPTANCE RATE) P-JP, FILLETS: MT 100% OF JOINTS FULL LENGTH	C-JP: MT100% OF JOINTS, FULL LENGTH IF TRANSVERSELY LOADED, PARTIAL LENGTH IF LONGITUDINALLY LOADED UT 100% OF JOINTS, FULL LENGTH IF TRANSVERSELY LOADED, PARTIAL LENGTH IF LONGITUDINALLY LOADED (REDUCE UT TO 25% OF JOINTS, OF LENGTH AS ABOVE, WITH HIGH ACCEPTANCE RATE) P-JP, FILLETS: MT 25% OF JOINTS FULL LENGTH IF TRANSVERSELY LOADED, PARTIAL LENGTH IF LONGITUDINALLY LOADED	'NO NDT REQ'D
L	C-JP: MT 25% OF JOINTS, FULL LENGTH UT 25% OF JOINTS, FULL LENGTH P-JP, FILLETS: MT 100% OF JOINTS FULL LENGTH	C-JP: UT 10% OF JOINTS, FULL LENGTH P-JP, FILLETS: MT 10% OF JOINTS, 6" SPOT AT RANDOM	'NO NDT REQ'D

D NON DESTRUCTIVE TESTING REQUIREMENTS

NOTES:
1. CJP, COMPLETE JOINT PENETRATION; PJP, PARTIAL JOINT PENETRATION; MT, MAGNETIC PARTICLE TESTING; UT, ULTRASONIC TESTING.
2. UT ONLY WHEN WELD THROAT IS 5/16" OR GREATER.
3. REDUCE RATE OF UT AND MT WHEN AN INDIVIDUAL WELDER'S REJECT RATE IS LESS THAN 5%, AFTER 40 WELD HAVE BEEN INSPECTED.
4. PARTIAL LENGTH TESTING FOR LONGITUDINALLY LOADED WELDS IS APPLICABLE FOR WELDS OVER 24" IN LENGTH, AND INCLUDES THE BEGINNING AND END OF EACH WELD FOR A 6" LENGTH, PLUS ANY LOCATION ALONG THE LENGTH OF THE WELD WHERE A START AND RESTART IS VISUALLY NOTED FOR A DISTANCE OF 6" ON EITHER SIDE OF THE STOP/START LOCATION, AND A 6" LENGTH EVERY 10' FOR A GIVEN WELD.
5. CJP AND PJP GROOVE WELDED COLUMN SPLICES THAT ARE A PART OF THE SEISMIC-FORCE-RESISTING SYSTEM AND ARE SUBJECT TO APPLIED TENSION SHALL BE ULTRASONICALLY TESTED AS BH/T.

DETAIL N.T.S. 4

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REGISTERED PROFESSIONAL ENGINEER MARK A. SORHOUET No. S6308 Exp. 12-31-25 STRUCTURAL STATE OF CALIFORNIA

DATE		SUBMITTAL
05/23/2025	0	ISSUE FOR BID

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STEEL FRAMING DETAILS

S9.0

MECHANICAL LEGEND

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS ARE APPLICABLE TO THIS PROJECT. REFER TO DETAILS AND NOTES FOR MOUNTING HEIGHTS.

GENERAL SYMBOLS

SYMBOL	DESCRIPTION
(N)	NEW
(E)	EXISTING TO REMAIN
(D)	EXISTING TO BE REMOVED
(ER)	EXISTING TO BE RELOCATED
(RL)	NEW LOCATION OF RELOCATED ITEM
(F)	FUTURE
℄	CENTER LINE
	POINT OF CONNECTION OR POINT OF DISCONNECTION
1 / M-1	DETAIL 1, DRAWING M-1
A / M-1	SECTION A, DRAWING M-1
1 / M-1	ELEVATION 1, DRAWING M-1
EXH / 1	RISER IDENTIFICATION EXHAUST #1
HP / 1	EQUIPMENT IDENTIFICATION HEAT PUMP UNIT #1
1	KITCHEN EQUIPMENT TAG
#	KEYED NOTE
150	DIRECTION OF TRANSFER AIRFLOW (150 CFM)
78°F	78 DEGREES FAHRENHEIT

PIPING

SYMBOL	DESCRIPTION
	DIRECTION OF SLOPE
	DIRECTION OF FLOW
	PIPE UP (OR UP & DOWN WITH NOTATION)
	PIPE DOWN
	PIPE DROP/PIPE RISE
	TOP CONNECTION - BRANCH LINE
	BOTTOM CONNECTION - BRANCH LINE
	PIPE ANCHOR
	TEE UP
	TEE DOWN
	STRAINER
	STRAINER WITH BLOW OFF
	INLINE PUMP
	BASE MOUNTED PUMP
	TEST TAP (PETE'S PLUG)
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	VACUUM BREAKER
	VENT THRU ROOF
	PIPE GUIDE
	EXPANSION JOINT
	FLEXIBLE CONNECTOR
	UNION
	CAPPED OR PLUGGED TEE
	BLIND FLANGE, CAP
	CONCENTRIC REDUCER
	EXPANSION LOOP
	VALVE ON RISE
6"	PIPE SIZE (DIAMETER IN INCHES)

VALVES & GAUGES

SYMBOL	DESCRIPTION
	BALL VALVE
	SOLENOID CONTROL VALVE
	PRESSURE AND TEMP. RELIEF VALVE
	BUTTERFLY VALVE
	MOTORIZED BUTTERFLY VALVE
	GATE VALVE
	BALANCING VALVE
	ANGLE GATE VALVE
	GLOBE VALVE
	ANGLE GLOBE VALVE
	CHECK VALVE
	2-WAY CONTROL VALVE
	3-WAY CONTROL VALVE
	NON-SLAM WAFER CHECK VALVE
	PRESSURE REDUCING VALVE (PRV)
	DIAPHRAGM VALVE
	LOCK SHIELD VALVE
	NEEDLE VALVE
	QUICK OPENING VALVE
	VENTURI FLOW METER
	PRESSURE GAUGE
	PRESS. GAUGE WITH COCK AND SNUBBER
	THERMOMETER

HYDRONIC

SYMBOL	DESCRIPTION
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN

CONTROLS

SYMBOL	DESCRIPTION
WALL / CEILING MOUNTED DEVICE: TS	TEMPERATURE SENSOR
T	THERMOSTAT OR THERMOMETER
CO2	CARBON DIOXIDE SENSOR
OS	OCCUPANCY SENSOR
H	HUMIDITY SENSOR OR HUMIDISTAT
SP	STATIC PRESSURE SENSOR
RS	REFRIGERANT SENSOR
CO	CARBON MONOXIDE SENSOR
H	HYDROGEN SENSOR
EQUIPMENT / SYSTEM MOUNTED DEVICE: DSD	DUCT SMOKE DETECTOR
TS	TEMPERATURE SENSOR
SP	STATIC PRESSURE SENSOR
PS	PRESSURE SENSOR OR SWITCH
DPS	DIFFERENTIAL PRESSURE SENSOR
AFMS	AIR FLOW MEASURING STATION
HS	HUMIDITY SENSOR
FS	FLOW SENSOR OR SWITCH
FM	FLOW METER
CS	CURRENT SENSOR
M	MOTOR
A	ACTUATOR
HM	HYDROGEN MONITOR
RM	REFRIGERANT MONITOR
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
BAS	BUILDING AUTOMATION SYSTEM
PI	PULSING INPUT

MISCELLANEOUS

SYMBOL	DESCRIPTION
R	REFRIGERANT LINE SET
	PNEUMATIC CONTROL VALVE
A	AIR LINE
ST	SOUND TRAP
CC	COOLING COIL
HC	HEATING COIL
RHT	RADIANT HEATER
BHT	BASEBOARD HEATER
CB	CHILLED BEAM
	THRUST BLOCK

DUCTWORK

SYMBOL	DESCRIPTION
AD/AP	ACCESS DOOR / ACCESS PANEL
	FLEXIBLE CONNECTION
	FLEXIBLE DUCT RUNOUT TO DIFFUSER
12x6	RECTANGULAR DUCT SIZE (WIDTH x DEPTH IN INCHES)
18ø	ROUND DUCT SIZE (DIAMETER IN INCHES)
24x12ø	OVAL DUCT SIZE (WIDTH x DEPTH IN INCHES)
	DUCT THROUGH BEAM PENETRATION
R D	DUCT OFFSET (RISE OR DROP)
VD RVD	VOLUME DAMPER OR REMOTE VOLUME DAMPER
FD SD FSD	FIRE, SMOKE OR FIRE/SMOKE DAMPER
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	EXHAUST DUCT UP
	EXHAUST DUCT DOWN
	RETURN DUCT UP
	RETURN DUCT DOWN
	CROSS SECTION OF SUPPLY DUCT
	CROSS SECTION OF EXHAUST AIR DUCT
	CROSS SECTION OF RETURN AIR DUCT
	CROSS SECTION OF ROUND DUCT
	DUCT ELBOW WITH TURNING VANES
	SMOOTH RADIUS DUCT ELBOW WITHOUT TURNING VANES
	CONICAL BRANCH FITTING
	45 DEGREE BOOT LO-LOSS BRANCH FITTING
	WYE BRANCH FITTING
12x6 / M	ACOUSTICAL LINING DUCT (DIMENSION IS INSIDE DIMENSION)
	MOTORIZED DAMPER INSIDE DUCT
TAG NECK SIZE-CFM	TRANSFER DUCT (WITH LINER)
8' - 11" BOD	INDICATES 8'11" TO BOTTOM OF DUCT
TAG NECK SIZE-CFM	RECTANGULAR OR ROUND SUPPLY DIFFUSER OR REGISTER (SEE SCHEDULE). 4-WAY THROW UNLESS INDICATED OTHERWISE. EXAMPLE: SB12X12-400 REFERS TO TAG SB WITH 12"X12" NECK AND 400 CFM
TAG NECK SIZE-CFM	RECTANGULAR OR ROUND EXHAUST GRILLE OR REGISTER (SEE SCHEDULE)
TAG NECK SIZE-CFM	RECTANGULAR OR ROUND RETURN GRILLE OR REGISTER (SEE SCHEDULE)
TAG NECK SIZE-CFM	WALL SUPPLY GRILLE OR REGISTER (SEE SCHEDULE)
TAG NECK SIZE-CFM	WALL RETURN OR EXHAUST GRILLE OR REGISTER (SEE SCHEDULE)
TAG NECK SIZE-LENGTH-CFM	LINEAR SLOT DIFFUSER (SEE SCHEDULE FOR NUMBER OF SLOTS). 2-WAY THROW UNLESS NOTED OTHERWISE. EXAMPLES: SN10-48-250 REFERS TO TAG SN WITH 10" ROUND NECK, 48" SLOT LENGTH AND 250 CFM.
	VARIABLE AIR VOLUME TERMINAL UNIT
	VARIABLE AIR VOLUME TERMINAL UNIT W/ REHEAT

MECHANICAL DRAWING LIST

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M0.02	BASIS OF DESIGN AND TABULATED DATA
M0.03	SCHEDULES
M0.04	SCHEDULES
M0.05	SCHEDULES
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M1.01	FIRST FLOOR - HVAC DEMO PLAN
M1.02	SECOND FLOOR - HVAC DEMO PLAN
M1.03	ROOF - HVAC DEMO PLAN
M2.00	BASEMENT - HVAC PLAN
M2.11	FIRST FLOOR - HVAC PLAN
M2.12	SECOND FLOOR - HVAC PLAN
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M3.10	BASEMENT - ZONING PLAN
M3.11	FIRST FLOOR - HVAC ZONING PLAN
M3.12	SECOND FLOOR - HVAC ZONING PLAN
M4.00	BASEMENT - PIPING PLAN
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M5.00	ENLARGED PLANS
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M5.04	MECHANICAL SYSTEM SECTION VIEWS
M5.05	ENLARGED PLANS
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MT24.1	MECHANICAL TITLE 24 DOCUMENTATION
MT24.2	MECHANICAL TITLE 24 DOCUMENTATION
MT24.3	MECHANICAL TITLE 24 DOCUMENTATION
MT24.4	MECHANICAL TITLE 24 DOCUMENTATION
MT24.5	MECHANICAL TITLE 24 DOCUMENTATION
MT24.6	MECHANICAL TITLE 24 DOCUMENTATION
MT24.7	MECHANICAL TITLE 24 DOCUMENTATION
MT24.8	MECHANICAL TITLE 24 DOCUMENTATION

TITLE 24 MANDATORY MEASURES

THE MECHANICAL SYSTEMS HAVE BEEN DESIGNED TO COMPLY WITH THE FOLLOWING TITLE 24 MANDATORY MEASURES:

- HEATING EQUIPMENT EFFICIENCY PER §110.1
- COOLING EQUIPMENT EFFICIENCY PER §110.1
- DUCT INSULATION PER §120.4
- HEATING HOT WATER EQUIPMENT EFFICIENCY PER §110.1
- PIPE INSULATION PER §120.3(b)
- AIR DUCT AND PLENUM SYSTEM IS PER§120.4(a)-(f)

DEFERRED SUBMITTALS

1. SEISMIC BRACING FOR MECHANICAL AND PLUMBING SYSTEMS, INCLUDING EQUIPMENT, PIPING, AND DUCTWORK.
2. PIPE SYSTEM CERTIFICATION AND ANALYSIS:
   - A. DESIGN: DESIGN AND CALCULATE REQUIREMENTS FOR THERMAL EXPANSION OF PIPING SYSTEMS AND FOR SELECTING AND DESIGNING EXPANSION JOINTS AND LOOPS.
   - B. ANCHOR DETAILS: DETAIL FABRICATION OF EACH ANCHOR. SHOW DIMENSIONS AND METHODS OF ASSEMBLY AND ATTACHMENT TO BUILDING STRUCTURE. SUPPORTS, ANCHORS, AND GUIDES SHALL BE DESIGNED FOR COMBINED GRAVITY, SEISMIC, PRESSURE, AND THERMAL LOADS.
   - C. ALIGNMENTS GUIDE DETAILS: DETAIL FIELD ASSEMBLY AND ATTACHMENT TO BUILDING STRUCTURE.
   - D. SCHEDULE: EACH EXPANSION JOINT SHALL BE SCHEDULE WITH MANUFACTURER, TYPE, MATERIAL, SIZE, PRESSURE RATING, END CONNECTIONS, AND LOCATION.
   - E. FULLY COORDINATE WITH DESIGN OF SEISMIC RESTRAINT AND ANCHORAGE.

*FOR ALL ITEMS LISTED ABOVE, THE PLUMBING AND/OR MECHANICAL CONTRACTOR SHALL PROVIDE A DELEGATED DESIGN SUBMITTAL WITH DOCUMENTATION AND ENGINEERING REQUIRED TO SATISFY REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (AHJ). THE DELEGATED DESIGN SUBMITTAL SHALL INCLUDE BUT NOT BE LIMITED TO ANALYSIS DATA SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

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MECHANICAL LEGEND AND ABBREVIATIONS

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GENERAL NOTES

1. THESE GENERAL NOTES APPLY TO ALL SHEETS.
2. CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. DO NOT SCALE FOR MATERIAL QUANTITIES. ALL SCALING SHOULD BE REFERENCED TO ARCHITECTURAL PLANS ONLY.
3. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ALL OTHER DISCIPLINES AND AS SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
4. CONTRACTOR SHALL VISIT SITE AND VERIFY ALL EXISTING CONDITIONS AND CONNECTIONS TO EXISTING WORK PRIOR TO BIDDING AND CONSTRUCTION. THE CONTRACTOR SHALL PAY FOR AND REPAIR ALL DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES UNLESS OTHERWISE INDICATED.
5. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED FEES, PERMITS AND INSPECTIONS. OBTAIN ALL FIELD APPROVALS ON WORK FROM REGULATING AGENCIES WHERE REQUIRED.
6. DURING ENTIRE CONSTRUCTION PERIOD MAINTAIN ADEQUATE FIRE EXTINGUISHERS READY FOR USE IN CASE OF FIRE.
7. PROTECTION OF PUBLIC: THE CONTRACTOR SHALL PROTECT THE PUBLIC FROM INJURY DURING THE WORK BY POSTING WARNING SIGNS, GUARD LIGHTS AND BARRICADES.
8. COORDINATE ALL WORK WITH OTHER TRADES AND AVOID IMPACTING ARCHITECTURAL AND STRUCTURAL MEMBERS. NO WORK SUCH AS PIPE, DUCTWORK, ETC., SHALL BE IN CONTACT WITH ANY EQUIPMENT OR BUILDING MEMBERS.
9. COORDINATE ALL CUTTING AND PATCHING WITH GENERAL CONTRACTOR AND OTHER DISCIPLINES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING RELATED TO THEIR WORK.
10. DRAWINGS THAT INDICATE EXISTING ITEMS FOR RELOCATION (ER) SHALL BE REMOVED, STORED, CLEANED, PROTECTED FROM DAMAGE AND INSTALLED IN NEW LOCATIONS AS INDICATED ON DRAWINGS.
11. OBTAIN WRITTEN PERMISSION OF STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY CUTTING OR PATCHING OF STRUCTURAL SYSTEMS. DO NOT CUT ROOF FRAMING.
12. ALL ATTACHMENTS TO THE BUILDING STRUCTURE SHALL BE COORDINATED WITH THE STRUCTURAL DESIGN. ALL BRACING AND MOUNTING OF PIPES AND DUCTS SHALL MEET THE MINIMUM REQUIREMENTS OF THE MOST RECENT SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE. CONTRACTOR SHALL MAINTAIN ONE COPY OF THIS MANUAL ON SITE AT ALL TIMES FOR REVIEW AND ACCESS BY INSPECTORS AND OWNER'S REPRESENTATIVES.
13. REFER TO STRUCTURAL DESIGN FOR SEISMIC ATTACHMENT REQUIREMENTS PER THE BUILDING CODE. ALL SEISMIC RESTRAINTS OF PIPES AND DUCTS SHALL MEET THE MINIMUM REQUIREMENTS OF THE MOST RECENT SMACNA SEISMIC RESTRAINT MANUAL. CONTRACTOR SHALL MAINTAIN ONE COPY ON SITE AT ALL TIMES FOR REVIEW AND ACCESS BY INSPECTORS AND OWNER'S REPRESENTATIVES.
14. THESE PLANS AND ACCOMPANYING SPECIFICATIONS HAVE BEEN DESIGNED TO SHOW SUBSTANTIAL COMPLIANCE WITH THE APPLICABLE BUILDING ENERGY EFFICIENCY CODE. ALL EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE APPLICABLE BUILDING ENERGY EFFICIENCY CODE.
15. ALL SUPPLY AND RETURN AIR DUCTWORK SHALL BE INSULATED WITH NOT LESS THAN THE AMOUNT OF INSULATION INDICATED IN ACCORDANCE WITH THE APPLICABLE MECHANICAL CODE AND BUILDING ENERGY EFFICIENCY CODE. ALL DUCTWORK MOUNTED EXTERIOR TO THE BUILDING ENVELOPE SHALL BE SANDWICHED INSULATION WITH DOUBLE WALL SHEETMETAL CONSTRUCTION.
16. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
17. REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.
18. ALL DUCT HANGERS AND SUPPORTS SHALL COMPLY WITH THE MECHANICAL CODE AND THE "SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE".
19. ALL SUPPLY, RETURN AND EXHAUST AIR DUCTWORK SHALL BE GALVANIZED SHEET METAL IN ACCORDANCE WITH MECHANICAL CODE, SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND ASHRAE STANDARDS. DUCT GAUGE AND CONSTRUCTION SHALL BE SELECTED AT 1.5 TIMES THE DESIGN FAN SUPPLY STATIC, OR GREATER, TO ACCOMMODATE SYSTEM PRESSURE TESTING REQUIREMENTS AND FAN DEADHEAD STATIC. INSTALL TURNING VANES OR RADIUSED ELBOWS AT EACH RECTANGULAR SUPPLY ELBOW PER SPECIFICATION AND WHERE SHOWN ON DRAWINGS.
20. DIMENSIONS AND SHAPE OF THE DUCT MAY BE ALTERED, AS LONG AS THE SAME AIR VELOCITY AND FLOW RATE ARE MAINTAINED, TO AVOID INTERFERENCES AND MAINTAIN ADEQUATE CLEARANCES.
21. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.
22. SEAL ALL DUCT JOINTS, INCLUDING LONGITUDINAL JOINTS, WITH WATER BASED SEALANT. MAXIMUM ALLOWABLE DUCTWORK LEAKAGE SHALL NOT EXCEED 5% AND AS DEFINED ELSEWHERE IN DOCUMENTS.
23. IDENTIFY ALL NEW MECHANICAL EQUIPMENT WITH NAMEPLATES PERMANENTLY ENGRAVED WITH 1/2 INCH HIGH WHITE LETTERS ON A BLACK BACKGROUND. IDENTIFY EQUIPMENT WITH SYMBOLS SHOWN ON THE PLANS AND AREA SERVED DESCRIPTION.
24. INSTALL VOLUME DAMPERS WHERE SHOWN AND AS REQUIRED FOR PROPER BALANCING OF EACH DIFFUSER/GRILLE/REGISTER, INCLUDING DEVICES WITH OPPOSED BLADE DAMPERS. VOLUME DAMPERS SHALL BE MOUNTED IMMEDIATELY DOWNSTREAM OF BRANCH CONNECTIONS. PROVIDE EXTENDED REGULATORS, WITH CONCEALED COVER PLATES, TO OPERATE DAMPERS LOCATED ABOVE INACCESSIBLE CEILINGS.
25. CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, VOLUME DAMPERS, ETC., ARE INDICATED ON THE CONTRACT DOCUMENT DRAWINGS FOR CLARITY FOR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS.
26. PROVIDE FLASHING AND COUNTERFLASHING FOR ALL PENETRATIONS THROUGH WALLS OR ROOF TO MAKE WATERPROOF INSTALLATION.
27. OUTSIDE AIR FOR A HEATING OR COOLING SYSTEM SHALL NOT BE TAKEN FROM CLOSER THAN TEN (10) FEET FROM AN APPLIANCE VENT OUTLET, VENT OPENING OF A PLUMBING SYSTEM, OR THE DISCHARGE OUTLET OF EXHAUST FAN, UNLESS THE OUTLET IS THREE (3) FEET ABOVE THE OUTSIDE AIR INLET.
28. COORDINATE ALL SUPPLY DIFFUSERS AND RETURN GRILLES WITH CEILING GRID, LIGHTS, SPRINKLER HEADS, SEISMIC BRACING, TELEPHONE EQUIPMENT, AREA DETECTORS, ETC.
29. CEILING DIFFUSER SIZES SHOWN INDICATE NECK SIZES. PROVIDE FRAMES AS REQUIRED TO MATCH MOUNTING SURFACE.
30. DUCT SIZE SERVING DIFFUSERS AND GRILLES MUST BE EQUAL TO, OR GREATER THAN, THE NECK SIZE AREA UNLESS OTHERWISE NOTED ON THE DRAWINGS.
31. CONDENSATE AND PRESSURE RELIEF PIPING SHALL BE TYPE L OR M COPPER TUBING WITH WROUGHT COPPER FITTINGS. A PRIMARY DRAIN PAN SHALL BE PROVIDED WITH COOLING COIL AND EXTEND BEYOND THE LEAVING SIDE OF THE COIL AND UNDERNEATH THE COOLING COIL CONNECTIONS. PROVIDE SECONDARY DRAIN PIPE FOR EQUIPMENT ABOVE CEILINGS AND ROUTE TO A READILY VISIBLE LOCATION.
32. SUPPORT ALL PIPING SO THAT IT IS FIRMLY HELD IN PLACE BY APPROVED IRON HANGERS AND SUPPORTS IN ACCORDANCE WITH RECOMMENDATIONS OF AMERICAN PIPE FITTERS ASSOCIATION AND PIPE HANGER INSTITUTE.
33. MOTOR STARTERS AND VARIABLE FREQUENCY DRIVES, WHERE REQUIRED, SHALL BE PROVIDED AND MOUNTED BY THE MECHANICAL INSTALLER. CONDUIT AND WIRING SHALL BE PROVIDED BY ELECTRICAL INSTALLER.
34. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE HVAC SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
35. IN CORRIDORS WHERE CEILING SPEAKERS AND AIR DIFFUSERS ARE INDICATED BETWEEN THE SAME LIGHT FIXTURES, INSTALL BOTH DEVICES AT THE QUARTER POINTS BETWEEN THE SAME FIXTURE.
36. COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
37. FIELD ERECTED AND FACTORY ASSEMBLED AIR HANDLING UNIT COILS SHALL BE ARRANGED FOR REMOVAL FROM THE UPSTREAM SIDE WITHOUT DISMANTLING SUPPORTS. PROVIDE GALVANIZED STRUCTURAL STEEL SUPPORTS FOR ALL COILS (EXCEPT LOWEST COIL) IN BANKS OVER TWO COILS HIGH TO PERMIT INDEPENDENT REMOVAL OF ANY COIL.
38. ALL FAN COILS AND PACKAGED ROOFTOP UNIT SHALL OPERATE WITHOUT MOISTURE CARRYOVER.
39. LOCATE ALL MECHANICAL EQUIPMENT FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS AND VALVING.
40. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN, AND EXHAUST) CONNECTED TO AIR HANDLING UNITS AND FANS. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
41. INDIVIDUAL RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED FIVE (5) FEET.
42. ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED, AND REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
43. ALL EQUIPMENT SHALL BE ATTACHED AND ANCHORED PER THE APPLICABLE BUILDING CODE, MANUFACTURER'S INSTRUCTIONS AND STRUCTURAL DESIGN.
44. PROVIDE VIBRATION ISOLATION DEVICES FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
45. ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
46. PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL FANS, SMOKE DETECTORS, FIRE DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, HUMIDIFIERS, COILS, AND OTHER ITEMS LOCATED IN THE DUCTWORK WHICH REQUIRE OPERATION, ADJUSTMENT AND MAINTENANCE.
47. DUCT MOUNTED PHOTOELECTRIC SMOKE DETECTORS SHALL BE INSTALLED FOR EACH HEATING OR COOLING SYSTEM SUPPLYING AIR IN EXCESS OF 2000 CFM AND IN SYSTEMS SERVING MORE THAN ONE OCCUPANCY TYPE. DETECTOR SHALL BE PROVIDED WITH METAL SAMPLING TUBE AND BE MOUNTED IN THE SUPPLY AIR DUCTWORK. DETECTOR SHALL SHUT DOWN THE AIR-MOVING EQUIPMENT WHEN SMOKE IS DETECTED. PROVIDE REMOTE TEST AND RESET STATION FOR MOUNTING AT THE CEILING OR WALL IN THE VICINITY OF THE SMOKE DETECTOR.
48. SMOKE DETECTORS SHALL BE WIRED BY THE ELECTRICAL INSTALLER. THE MECHANICAL INSTALLER SHALL BE RESPONSIBLE FOR MOUNTING THE SMOKE DETECTOR IN DUCTWORK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
49. THE EXACT LOCATION AND SIZE OF EQUIPMENT PADS, ROOF OPENINGS, WALL OPENINGS, WALL/FLOOR PENETRATIONS, AND MOUNTING FRAMES SHALL BE COORDINATED IN THE FIELD WITH FINAL EQUIPMENT FURNISHED AND BUILDING CONSTRUCTION.
50. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
51. MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
52. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UPSTREAM AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR RATED ACCURACY.
53. UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM TEMPERATURE SENSORS AND THERMOSTATS SUCH THAT OPERABLE PARTS ARE NO HIGHER THAN 48" ABOVE FINISHED FLOOR. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY ROOMS WHERE THIS CANNOT BE MAINTAINED OR WHERE THERE IS A CONCERN ABOUT LOCATION. DO NOT MOUNT TEMPERATURE SENSORS ABOVE LIGHT SWITCHES.
54. COORDINATE ALL CONTROLS AND SEQUENCES OF OPERATION WITH THE BUILDING AUTOMATION SYSTEM (BAS). PROVIDE ALL DEVICES, CONTROLLERS, SENSORS, CONDUIT, WIRING AND LABOR TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM TO MEET THE OWNER'S PROJECT REQUIREMENTS AND THE DESIGN INDICATED ON THESE DRAWINGS AND SPECIFICATIONS.
55. ALL CONTROL CONDUIT AND WIRING SHALL COMPLY WITH THE ELECTRICAL CODE AND THE SPECIFICATIONS.
56. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
57. CONCRETE HOUSEKEEPING PADS FOR MECHANICAL EQUIPMENT SHALL HAVE A MINIMUM PAD THICKNESS SHALL BE 6 INCHES. PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 6 INCHES ON EACH SIDE. CONCRETE HOUSEKEEPING PADS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
58. WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.
59. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
60. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. DO NOT SCALE DRAWINGS.
61. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
62. ALL DUCTWORK, PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
63. HYDRONIC PIPING SHALL HAVE MANUAL VENTS AT ALL HIGH POINTS. A MINIMUM OF ONE AUTOMATIC AIR VENT SHALL BE PROVIDED AT THE HIGHEST POINT IN THE SYSTEM AND SHALL HAVE EXTENDED TUBING ROUTED TO APPROVED DRAINAGE. PROVIDE DRAIN VALVES WITH REMOVABLE PLUG AT THE BOTTOM OR PIPE RISERS AND LOW POINTS TO ALLOW DRAINING SYSTEM.
64. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM METAL DECK.
65. ALL ROOF MOUNTED EQUIPMENT CURBS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.
66. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
67. ALL PENETRATIONS THROUGH FIRE AND SMOKE RATED WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE AND SMOKE STOPPED WITH A UL APPROVED SEALANT SYSTEM.
68. MECHANICAL DUCT PENETRATIONS OF A NON-FIRE RESISTANCE RATED FLOOR ASSEMBLY SHALL BE PROTECTED WITH A SHAFT ASSEMBLY IN ACCORDANCE WITH THE BUILDING CODE. OR, WHEN THE DUCT CONNECTS NOT MORE THAN TWO STORIES, THE ANNULAR SPACE AROUND THE PENETRATING DUCT MUST BE MATERIAL THAT RESISTS THE FREE PASSAGE OF FLAME AND PRODUCTS OF CONSTRUCTION.
69. ALL AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH FAN COIL UNIT AND PACKAGED ROOFTOP UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO NEAREST DRAIN. SEE DETAILS SHOWN ON THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR DEPTH OF AIR CONDITIONING CONDENSATE TRAP TO EXCEED UNIT STATIC PRESSURE. CONDENSATE DRAIN LINES SHALL NOT BE LESS THAN 3/4" INTERNAL DIAMETER AND SHALL NOT DECREASE IN SIZE FROM THE OUTLET OF THE DRAIN PAN CONNECTION TO THE PLACE OF CONDENSATE DISPOSAL. EQUIPMENT MANUFACTURER SHALL PROVIDE OUTLET SIZE TO ALIGN WITH CONDENSATE DRAIN SIZING TABLES IN THE MECHANICAL AND PLUMBING CODES. UNIT OUTLET SIZE SHALL BE 3/4" FOR EQUIPMENT CAPACITY TO 20 TON OF REFRIGERATION AND 1" FOR EQUIPMENT CAPACITY OVER 20 TONS TO 40 TONS OF REFRIGERATION.
70. PROVIDE 120 VOLT ELECTRICAL OUTLETS WITHIN 25 FEET OF ALL MECHANICAL EQUIPMENT.
71. EQUIPMENT AND APPLIANCES SHALL BE ACCESSIBLE FOR SERVICE, INSPECTION, REPAIR AND REPLACEMENT WITHOUT REMOVING PERMANENT CONSTRUCTION. SUFFICIENT CLEARANCE SHALL BE MAINTAINED TO PERMIT CLEANING, REPLACEMENT OF FILTERS, BLOWERS, MOTORS, CONTROLS AND LUBRICATION OF MOVING PARTS. MINIMUM OF 30 INCHES OF CLEARANCE IN DEPTH WIDTH AND HEIGHT SHALL BE PROVIDED TO SERVICE THE APPLIANCE OR EQUIPMENT.
72. PERMANENT LIGHTING FIXTURES SHALL BE INSTALLED FOR ALL EQUIPMENT AND APPLIANCES INSTALLED ABOVE PERMANENTLY CONSTRUCTED CEILING OR IN AN ATTIC. CONTROL OF THE LIGHT FIXTURES SHALL BE PROVIDED AT THE ACCESS ENTRANCE.
73. ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
74. BALANCE AIR FLOW AT ALL AIR INLETS AND OUTLETS TO AIR QUANTITIES SHOWN. MECHANICAL CONTRACTOR SHALL PROVIDE MOTORS, PULLEYS AND BELTS AS REQUIRED TO ACCOMMODATE THE REQUIRED AIR FLOWS. BALANCE ALL WATER FLOWS TO COILS AND MECHANICAL EQUIPMENT TO VALUES SHOWN. INSTALL TEST PLUGS WHERE NECESSARY. PROVIDE FIVE TYPED FINAL BALANCE REPORTS. BALANCING CONTRACTOR SHALL BE INDEPENDENT OF THE INSTALLING CONTRACTORS AND CERTIFIED BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR ASSOCIATED AIR BALANCE COUNCIL (AABC) WITH AT LEAST THREE YEARS OF EXPERIENCE.
75. ALL EXPOSED PIPE, PIPE SUPPORTS, DUCTWORK, UNFINISHED EQUIPMENT AND DUCT SUPPORTS SHALL MATCH ADJACENT FINISHES AS REQUIRED BY PAINTING SPECIFICATION AND ARCHITECTURAL DRAWINGS.
76. RESTORE ALL DAMAGE RESULTING FROM YOUR WORK AND LEAVE PREMISES IN CLEAN CONDITION WHEN FINISHED WITH WORK.
77. GUARANTEE ALL WORK AND MATERIALS FOR ONE YEAR (MINIMUM) FROM DATE OF CERTIFICATE OF OCCUPANCY.
78. AT COMPLETION OF CONSTRUCTION PROVIDE AS-BUILT DRAWINGS AND COPIES OF BOUND OPERATIONS AND MAINTENANCE MANUALS.
79. A COPY OF THE MANUFACTURERS INSTALLATION INSTRUCTIONS SHALL BE PROVIDED AT THE LOCATION OF EACH PIECE OF EQUIPMENT.
80. REFER TO ARCHITECTURAL PLANS FOR DOOR SCHEDULE WITH DOOR GRILLES AND/OR UNDERCUT DOORS THAT ARE USED FOR TRANSFER AIR.
81. ALL MECHANICAL AND ELECTRICAL EQUIPMENT SHALL BE ANCHORED OR BRACED TO MEET THE HORIZONTAL AND VERTICAL FORCES PRESCRIBED IN THE APPLICABLE SECTIONS OF THE BUILDING CODE AND ASCE 7.
82. FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE DESIGN DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE MECHANICAL /ELECTRICAL /STRUCTURAL ENGINEER.
83. A COPY OF THE PRE-APPROVAL MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM.
84. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE ANCHORAGE BETWEEN THE EQUIPMENT AND THE STRUCTURE
85. AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEETMETAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST, WATER AND DEBRIS WHICH MAY ENTER THE SYSTEM.
86. ALL PIPING AND DUCT WORK SHALL BE INSULATED CONSISTENT WITH THE REQUIREMENTS OF SECTIONS 120.3, 120.4 AND 120.7 TITLE 24 ENERGY STANDARDS AND CHAPTER 6 OF CMC.
87. ALL HVAC SYSTEMS SHALL MEET THE CONTROL REQUIREMENTS PER SECTION 110.2 AND 120.2 E.E.S.
88. ALL HVAC EQUIPMENT AND APPLIANCES SHALL MET THE REQUIREMENTS PER SECTION 110.1, 110.3, 110.5, 120.1, 120.4 TITLE 24 ENERGY STANDARDS.
89. ALL MECHANICAL CERTIFICATE OF ACCEPTANCE FORMS AND ALL RELATED ACCEPTANCE DOCUMENTS SHALL BE SUBMITTED TO THE FIELD INSPECTOR DURING CONSTRUCTION. CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL THESE FORMS ARE REVIEWED AND APPROVED.
90. MATERIALS EXPOSED WITHIN A DUCT OR PLENUM SHALL COMPLY WITH SECTION 602.2 CMC.
91. FACTORY-MADE FLEXIBLE AIR DUCTS AND CONNECTORS SHALL NOT BE MORE THAN 5 FEET IN LENGTH PER SECTION 603.4.1 CMC.
92. PROVIDE ACCESS PANELS IN DUCTWORK AT ALL FIRE SMOKE DAMPERS. SINGLE-WALL METAL PIPE SHALL TERMINATE AT LEAST 5 FEET IN VERTICALHEIGHT ABOVE THE HIGHEST CONNECTED APPLIANCE DRAFT HOOD OR FLUE COLLAR. [CMC § 802.7.2(1)].

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MECHANICAL GENERAL NOTES

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MECHANICAL - BASIS OF DESIGN

A. THIS PROJECT INVOLVES A REMODEL OF AN EXISTING THREE-STORY LIBRARY LOCATED IN HANFORD, CA.
B. THE DESIGN INCLUDES THE FOLLOWING NOTABLE FEATURES, BUT IS NOT LIMITED TO THIS SCOPE. CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL CONTRACT DOCUMENTS AND COORDINATING WITH ALL DISCIPLINES.
   1. EQUIPMENT:
      A. MAIN LIBRARY STACKS: TWO (2) NEW VARIABLE VOLUME (VAV) ROOFTOP AIR HANDLING UNITS WITH CHILLED WATER COILS, DIRECT DRIVE SUPPLY AND RETURN FANS, MODULATING DAMPERS, AND AIR ECONOMIZER FUNCTION. NEW VAV TERMINAL UNITS WITH REHEAT COILS PROVIDED AT THE ZONE LEVEL. EXISTING HYDRONIC RADIANT HEATERS ALONG THE PERIMETER WALL TO REMAIN AND ADDRESS ENVELOPE HEATING LOAD.
      B. FIRST FLOOR CHILDRENS AND STAFF AREA: NEW VAV AIR HANDLING UNIT WITH CHILLED AND HEATING HOT WATER COILS, DIRECT DRIVE SUPPLY AND RETURN FANS, MODULATING DAMPERS, AND AIR ECONOMIZER FUNCTION. NEW VAV TERMINAL UNITS WITH REHEAT COILS PROVIDED AT THE ZONE LEVEL.
      C. SECOND FLOOR MEETING AND STAFF AREA: NEW VAV AIR HANDLING UNIT WITH CHILLED AND HEATING HOT WATER COILS, DIRECT DRIVE SUPPLY AND RETURN FANS, MODULATING DAMPERS, AND AIR ECONOMIZER FUNCTION. NEW VAV TERMINAL UNITS WITH REHEAT COILS PROVIDED AT THE ZONE LEVEL.
      D. BASEMENT: NEW SINGLE ZONE AIR HANDLING UNIT WITH CHILLED AND HEATING HOT WATER COILS, DIRECT DRIVE SUPPLY FAN, MODULATING DAMPERS, AND AIR ECONOMIZER FUNCTION.
      E. NEW CONFERENCE AREA: NEW VARIABLE REFRIGERANT FLOW (VRF) HEAT PUMP SYSTEM WITH AN ENERGY RECOVERY VENTILATOR (ERV) FOR VENTILATION.
   2. CENTRAL PLANT SYSTEMS:
      A. HEATING HOT WATER: NEW NATURAL GAS HEATING WATER BOILER USING VARIABLE PRIMARY HEATING WATER DISTRIBUTED TO BASEMENT AIR HANDLING UNIT COIL AND TERMINAL UNIT REHEAT COILS. VARIABLE FREQUENCY DRIVES OPERATING PUMPS.
      B. CHILLED WATER: EXISTING WATER COOLED CHILLER WITH EVAPORATIVE CONDENSER USING VARIABLE PRIMARY CHILLED WATER DISTRIBUTED TO AIR HANDLING UNIT COILS AND VARIABLE FREQUENCY DRIVES OPERATING PUMPS.
   3. CONTROLS: ALL NEW EQUIPMENT SHALL BE PROVIDED WITH DIRECT DIGITAL CONTROLS INTEGRATED INTO EXISTING COUNTY CENTRAL BUILDING AUTOMATION SYSTEM (BAS) TO OPERATE ALL SYSTEM FUNCTIONS AND SCHEDULES REMOTELY.
C. CODES AND STANDARDS
   1. AMERICANS WITH DISABILITIES ACT (ADA).
   2. NFPA 90A: STANDARD FOR THE INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS.
   3. NFPA 90B: STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR-CONDITIONING SYSTEMS.
   4. NFPA 101: LIFE SAFETY CODE.
   5. ASHRAE 2022 HANDBOOK, REFRIGERATION.
   6. ASHRAE 2021 HANDBOOK, FUNDAMENTALS.
   7. ASHRAE 2020 HANDBOOK, HVAC SYSTEMS AND EQUIPMENT.
   8. ASHRAE 2019 HANDBOOK, HVAC APPLICATIONS.
   9. ASHRAE 55-2020 THERMAL ENVIRONMENTAL CONDITIONS FOR HUMAN OCCUPANCY.
   10. ASHRAE 62.1-2022 VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY.
   11. CALIFORNIA BUILDING CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION (AHJ):
      a. 2022 CALIFORNIA BUILDING CODE (CBC)
      b. 2022 CALIFORNIA MECHANICAL CODE (CMC)
      c. 2022 CALIFORNIA PLUMBING CODE (CPC)
      d. 2022 CALIFORNIA FIRE CODE (CFC)
      e. 2022 CALIFORNIA ELECTRIC CODE (CEC)
      f. 2022 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARD FOR RESIDENTIAL AND NONRESIDENTIAL BUILDINGS
      g. 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
D. OUTDOOR DESIGN CONDITIONS:
   1. LOCATION: HANFORD, CA
   2. SUMMER: 102°F DB/71°F WB (TITLE-24, 0.1%)
   3. WINTER: 25°F (TITLE-24, 0.2%)
   4. ELEVATION: 242 FEET ABOVE SEA LEVEL.
   5. CLIMATE ZONE: 13
E. INDOOR DESIGN CONDITIONS: BASED ON +/-2°F CONTROL ACCURACY FROM SETPOINTS.
   1. ALL CONDITIONED AREAS:
      a. COOLING: 75°F
      b. HEATING: 70°F
   2. EXCEPTIONS:
      a. ELECTRICAL EQUIPMENT ROOMS: 85°F (MAXIMUM)
      b. DATA/IDF/MDF/TELECOM ROOMS: COOLING ONLY, 85°F (MAXIMUM)
   3. HUMIDITY CONTROL
      a. ALL AREAS, UNLESS OTHERWISE NOTED: NONE. NO ACTIVE HUMIDIFICATION SYSTEMS.
F. CALIFORNIA VENTILATION CRITERIA:
   1. LIBRARY STACKS/READING ROOMS: 15 CFM/PERSON OR 0.15 CFM/SQ.FT., WHICHEVER IS GREATER.
   2. MEETING/CONFERENCE: 15 CFM/PERSON OR 0.5 CFM/SQ.FT., WHICHEVER IS GREATER.
   3. BREAKROOM: 15 CFM/PERSON OR 0.5 CFM/SQ.FT., WHICHEVER IS GREATER.
   4. COMPLY WITH CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARD.
   5. COMPLY WITH CHAPTER 4 OF CMC, CHAPTER 12 OF CBC AND ASHRAE 62.1.
G. EXHAUST TO OUTDOORS (MINIMUM RATES):
   1. TOILET ROOMS: 12 AIR CHANGES PER HOUR OR 75 CFM/FIXTURE, WHICHEVER IS GREATER. ONE EXHAUST GRILLE SPACED EVERY THREE TO FIVE FIXTURES, MAXIMUM.
   2. JANITOR CLOSET: 100 CFM OR 10 AIR CHANGES PER HOUR, WHICHEVER IS GREATER.
   3. BREAK ROOM: 100 CFM, MINIMUM.
H. BUILDING ENVELOPE:
   1. GLAZING: GLASS/FRAME COMBINATION:
      a. TYPICAL EXISTING:
         1. DESCRIPTION: EXISTING SINGLE-PANE
         2. U = 1.04
         3. SHADING COEFFICIENT = 0.88
      b. TYPICAL NEW:
         1. DESCRIPTION: 2022 T-24 COMPLIANT GLAZING
         2. U = 0.41
         3. SHADING COEFFICIENT = 0.26
   2. WALL CONSTRUCTION:
      a. TYPICAL EXISTING:
         1. STRUCTURE: 9-1/2" BRICK WALL
         2. INSULATION: NONE
         3. OVERALL U-VALUE = 0.67
      b. TYPICAL NEW:
         1. DESCRIPTION: 2022 T-24 COMPLIANT WALL
         2. OVERALL U-VALUE = 0.059
   3. ROOF CONSTRUCTION:
      a. TYPICAL EXISTING:
         1. STRUCTURE: 3-1/2" "ZONOLITE" CONCRETE FILL OVER METAL DECK
         2. INSULATION: ZONOLITE, ASSUME R-2/INCH
         3. OVERALL U-VALUE = 0.116
      b. TYPICAL NEW:
         1. DESCRIPTION: 2022 T-24 COMPLIANT ROOF
         2. OVERALL U-VALUE = 0.098
I. INTERNAL HEAT GAINS:
   1. LIGHTING:
      a. LIBRARY STACK AREAS: 1.0 W/SQ.FT.
      b. LIBRARY READING AREAS: 0.8 W/SQ.FT.
      c. OFFICE > 250 SQ.FT: 0.6 W/SQ.FT.
      d. OFFICE ≤ 250 SQ.FT: 0.65 W/SQ.FT.
      e. CONFERENCE ROOMS: 0.75 W/SQ.FT.
      f. RESTROOMS: 0.65 W/SQ.FT.
      g. CORRIDORS: 0.6 W/SQ.FT.
   2. RECEPTACLE POWER:
      a. COMPUTER LAB: 200 W/COMPUTER
      b. LIBRARY AREAS: 0.5 W/SQ.FT.
   3. ELECTRICAL TRANSFORMERS: 2% LOSS
   4. OCCUPANCY CRITERIA IN CALIFORNIA:
      a. OCCUPANTS: 245 BTUH SENSIBLE/205 BTUH LATENT
      b. LIBRARY STACK AREAS: 1 PERSON/100 SQ.FT.
      c. LIBRARY READING AREAS: 1 PERSON/50 SQ.FT.
      d. OFFICE AREAS: 1 PERSON/100 SQ.FT.
      e. COMPUTER LAB: SEAT COUNT
J. DUCTWORK DESIGN CRITERIA:
   1. DESIGN DUCTWORK TO PROVIDE HIGH EFFICIENCY OPERATION WITH MINIMAL ACOUSTICAL NOISE. DUCT STATIC PRESSURE FRICTION LOSS SHALL NOT EXCEED 0.2" PER 100 FEET IN MECHANICAL ROOMS AND SHAFTS. LOW PRESSURE SUPPLY DUCT STATIC PRESSURE FRICTION LOSS BASED ON A MAXIMUM OF 0.08" PER 100 FEET. LOW PRESSURE RETURN AND EXHAUST DUCT STATIC PRESSURE FRICTION LOSS BASED ON A MAXIMUM OF 0.06" PER 100 FEET. MEDIUM PRESSURE DUCTWORK SHALL NOT EXCEED A DUCT STATIC PRESSURE FRICTION LOSS BASED ON A MAXIMUM OF 0.1" PER 100 FEET. MAXIMUM SUPPLY, RETURN AND EXHAUST DUCT AIR FLOW VELOCITIES, REGARDLESS OF PRESSURE DROP, SHALL NOT EXCEED THE FOLLOWING CRITERIA:
      a. MAINS ABOVE CEILING: 1750 FPM
      b. MAINS ABOVE OPEN OCCUPIED SPACES: 1450 FPM
      c. BRANCHES ABOVE CEILING: 1400 FPM
      d. BRANCHES ABOVE OPEN OCCUPIED SPACES: 1150 FPM
      e. RUN-OUTS TO DIFFUSERS: 725 FPM
      f. IN SHAFTS: 2500 FPM
      g. IN MECHANICAL ROOMS: 3000 FPM
K. ACOUSTICAL:
   1. THE FOLLOWING NOISE NC/RC CRITERIA LEVELS DEFINED IN THE ASHRAE HVAC APPLICATIONS HANDBOOK SHALL BE USED BY THE CONTRACTOR FOR INSTALLATION OF SYSTEMS WITHIN THE SCOPE OF THIS PROJECT. THESE LEVELS ADDRESS THE MECHANICAL SYSTEMS ONLY. ACTUAL SOUND PERFORMANCE REQUIREMENTS FOR EACH SPACE MUST BE VERIFIED WITH ACOUSTICAL CONSULTANT.
      a. OPEN OFFICES: 40
      b. CONFERENCE ROOMS: 30
      c. PRIVATE OFFICES: 30
      d. CORRIDORS: 40
      e. LIBRARY: 30
L. COILS IN AIR HANDLING UNITS:
   1. MAXIMUM FACE VELOCITY: 500 FPM
   2. MAXIMUM FINS PER INCH: 12
   3. MAXIMUM AIR PRESSURE DROP-COOLING COIL: 0.8" WC (WET COIL)
   4. MAXIMUM AIR PRESSURE DROP–HEATING COIL: 0.25" WC
   5. MAXIMUM TUBE PRESSURE DROP: 10 FT. WG.
   6. MINIMUM TUBE PRESSURE DROP: 2 FT. WG.
   7. MINIMUM TUBE ROWS – COOLING COIL: 4
   8. MINIMUM TUBE ROWS – HEATING COIL: 1
M. HEATING COILS IN TERMINAL UNITS:
   1. MAXIMUM AIR PRESSURE DROP: 0.50" WC
   2. MINIMUM TUBE ROWS – REHEAT COIL IN VAV TERMINAL UNIT: 2 (UNLESS OTHERWISE NOTED)
N. AIR FILTERS:
   1. OUTSIDE AIR PRE-FILTERS: MERV-8 (MINIMUM)
   2. FINAL FILTERS: MERV-13 (MINIMUM):
O. HYDRONIC PIPING DESIGN CRITERIA:
   1. MAXIMUM WATER PRESSURE DROP: 4 FT.WG./100 FT.
   2. MAXIMUM WATER VELOCITY FOR MAINS, RISERS AND BRANCH PIPING: 6 FPS UP TO 5" PIPE, 7 FPS FOR 6" TO 12" PIPE, 8 FPS FOR 14" AND LARGER PIPE SIZES.
   3. MAXIMUM WATER VELOCITY IN MECHANICAL ROOMS: 10 FPS
   4. PROVIDE SHUT OFF VALVE FOR ISOLATION OF MAJOR AREAS, AT EACH PIECE OF EQUIPMENT, AND EACH AIR HANDLING SYSTEM.
P. SEISMIC:
   1. ANCHORAGE AND RESTRAINTS MUST BE COORDINATED WITH STRUCTURAL ENGINEER AND AUTHORITY HAVING JURISDICTION.
Q. CENTRAL PLANT SYSTEMS TEMPERATURES SERVING THIS BUILDING:
   1. CHILLED WATER
      a. ENTERING WATER TEMPERATURE (EWT): 55°F
      b. LEAVING WATER TEMPERATURE (LWT): 45°F
   2. HEATING WATER
      a. ENTERING WATER TEMPERATURE (EWT): 140°F
      b. LEAVING WATER TEMPERATURE (LWT): 160°F

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AIR HANDLING UNIT SCHEDULE

PHASE	TAG	#	CHILLED WATER COIL TAG	HEATING WATER COIL TAG	MANUFACTURER	MODEL NUMBER	LOCATION	SUPPLY FANS								RETURN/EXHAUST/RELIEF FANS								PRE-FILTER		FINAL FILTER		ELECTRICAL						UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
								AIR FLOW (CFM)	MIN OSA (CFM)	ESP (IN WG)	TSP (IN WG)	DRIVE	FAN QUANTITY	BHP (PER FAN)	HP (PER FAN)	VFD (Y/N)	AIR FLOW (CFM)	ESP (IN WG)	TSP (IN WG)	DRIVE	FAN QUANTITY	BHP (PER FAN)	HP (PER FAN)	VFD (Y/N)	TYPE	MERV	TYPE	MERV	VOLTS	PH	MCA (A)	MOCP (A)	SINGLE POC (Y/N)	EMERG POWER (Y/N)			
(N)	AHU	8	CC-8	HC-8	ENVIROTEC	VDD40	BASEMENT	3360	1100	1.5	2.72	DIRECT	2	-	1.5	No	-	-	-	-	-	-	-	No	2"	8	4"	14	460	3	4.95	15	Yes	No	54x68x59	900	1,3,5,6,8,9,10,11,13,14
(N)	AHU	9	CC-9	HC-9	DAIKIN APPLIED	DAHA19A	ROOF	7250	1300	1.5	3.8	DIRECT	1	6.56	7.5	Yes	7250	1	1.26	DIRECT	1	3.5	8	No	2"	8	4"	14	460	3	19.1	25	Yes	No	163x77x71	3200	1-10,15
(N)	AHU	10A	CC-10A	-	DAIKIN APPLIED	DAHA21A	ROOF	9000	1500	1.25	3.6	DIRECT	1	7.84	10	Yes	8000	0.5	0.9	DIRECT	1	4.01	8	No	2"	8	4"	14	460	3	22.6	35	Yes	No	163x77x71	3200	1-10,15
(N)	AHU	10B	CC-10B	-	DAIKIN APPLIED	DAHA21A	ROOF	9350	1500	1.25	3.7	DIRECT	1	8.36	10	Yes	8000	0.5	0.9	DIRECT	1	4.01	8	No	2"	8	4"	14	460	3	22.6	35	Yes	No	163x77x71	3200	1-10,15
(N)	AHU	11	CC-11	HC-11	DAIKIN APPLIED	DAHA07A	ROOF	2600	700	1.5	2.6	DIRECT	1	1.65	4	Yes	2600	1	1.1	DIRECT	1	0.86	2.3	No	2"	8	4"	14	460	3	7.9	15	Yes	No	91x58x57	1500	1-10,12,15,16

NOTES:
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
2. PROVIDE MANUFACTURER'S FIELD POWERED 115 VOLT GFI CONVENIENCE RECEPTACLES OPTION.
3. PROVIDE MANUFACTURER'S UNITARY CONTROLLER WITH BACNET INTERFACE.
4. PROVIDE FACTORY MOUNTED VARIABLE FREQUENCY DRIVE FOR EACH SUPPLY FAN. PROVIDE ELECTRONICALLY COMMUTATED MOTOR (ECM) FOR EACH RETURN FAN.
5. PROVIDE COMMON MINIMUM OA DAMPER AND ECONOMIZER DAMPER.
6. SMOKE DETECTORS TO BE PROVIDED FOR AUTOMATIC UNIT SHUTDOWN OF UNIT. ADDRESSABLE SMOKE DETECTOR TO BE PROVIDED BY FIRE ALARM CONTRACTOR, INSTALLED BY MECHANICAL CONTRACTOR.
7. PROVIDE MANUFACTURER'S AIRFLOW MEASUREMENT STATION OPTION AT OUTSIDE AIR DAMPER.
8. PROVIDE AIRFLOW MEASUREMENT STATION AT SUPPLY AND RETURN FANS.
9. PROVIDE 100% MODULATING COMPARATIVE DRY BULB ECONOMIZER.
10. PROVIDE SINGLE POINT POWER CONNECTION TO AIR HANDLING UNIT. SINGLE POINT POWER SHALL INCLUDE ALL INTERNAL WIRING TO FAN MOTORS/DRIVES, STEPDOWN TRANSFORMER AS REQUIRED.
11. PROVIDE MANUFACTURER'S HIGH EFFICIENCY FILTER RACK.
12. PROVIDE MANUFACTURER'S ENGINEERED VIBRATION ISOLATION AND HORIZONTAL SUPPLY/RETURN ADAPTER CURB. SCHEDULED UNIT OPERATING WEIGHT DOES NOT INCLUDE ADAPTER CURB WEIGHT (ESTIMATED 700 LBS).
13. PROVIDE AIRFLOW MEASUREMENT STATION AT OUTSIDE AIR DAMPER.
14. PROVIDE ELECTRONICALLY COMMUTATED MOTOR (ECM) FOR FAN.
15. UNIT TO HAVE HORIZONTAL SUPPLY AND RETURN DUCT CONNECTIONS.
16. PROVIDE FIELD FABRICATED MIXING BOX. COORDINATE ALL DUCT CONNECTIONS IN FIELD.

CHILLED WATER COOLING COIL SCHEDULE

TAG	#	MANUFACTURER	MODEL	AREA SERVED	LOCATION	CAPACITY		AIR							WATER					CONTROL VALVE (2-W/3-W)	NOTES
						TOTAL (MBH)	SENSIBLE (MBH)	FLOW (CFM)	VEL. (FPM)	APD (IN WG)	EAT (DB °F)	EAT (WB °F)	LAT (DB °F)	LAT (WB °F)	EWT (°F)	LWT (°F)	FLOW (GPM)	WPD (FT WG)	ROWS/ FPI		
CC	8	ENVIROTEC	-	BASEMENT	BASEMENT	128.9	111.3	3360	398	0.38	84	66	54	53.3	45	55.1	25.5	1.15	6/12	3-W	1
CC	9	DAIKIN	-	CHILDREN'S AREA	ROOF	247.2	215.4	7250	384	0.66	79.9	64	52.7	52.3	45	56.5	42.9	2.8	5/12	3-W	1
CC	10A	DAIKIN	-	LIBRARY	ROOF	302.1	261.2	9000	420	0.76	79.5	64	53	52.5	45	56.3	53.3	3.5	5/12	3-W	1
CC	10B	DAIKIN	-	LIBRARY	ROOF	309.7	269.6	9350	436	0.81	79.4	63.9	53	52.6	45	56.3	54.8	3.7	5/12	3-W	1
CC	11	DAIKIN	-	LEVEL 2	ROOF	97.4	83.4	2600	374	0.44	82.3	64.8	52.8	51.9	45	55	19.4	6.9	5/12	3-W	1

NOTES:
1. COPPER TUBES AND ALUMINUM FINS.

HEATING WATER COIL SCHEDULE

TAG	#	MANUFACTURER	MODEL	AREA SERVED	LOCATION	TOTAL CAPACITY (MBH)	AIR					WATER					CONTROL VALVE (2-W/3-W)	NOTES
							FLOW (CFM)	VEL. (FPM)	APD (IN WG)	EAT (DB °F)	LAT (DB °F)	EWT (°F)	LWT (°F)	FLOW (GPM)	WPD (FT WG)	ROWS/ FPI		
HC	8	ENVIROTEC	-	BASEMENT	BASEMENT	107.6	3360	398	0.05	54.0	83.5	160	140	11	2.24	1/12	3-W	1
HC	9	DAIKIN	-	CHILDREN'S AREA	ROOF	143.8	7250	488	0.18	55.0	76.6	160	140	15.5	1.3	1/12	3-W	1
HC	11	DAIKIN	-	LEVEL 2	ROOF	52.7	2600	313	0.03	55.0	83.5	160	140	5.3	0.3	1/8	3-W	1

NOTES:
1. COPPER TUBES AND ALUMINUM FINS.

EXISTING EVAPORATIVE CONDENSER SCHEDULE

PHASE	TAG	#	MANUFACTURER	MODEL NUMBER	CONNECTED EQUIPMENT	LOCATION	COOLING CAPACITY	FAN MOTOR			PUMP					NOTES
							NOM. CAP (TONS)	VOLTS	PH	HP	QTY	FLOW (GPM)	HP	VOLTS	PHASE	
(E)	EC	1	BALTIMORE AIRCOIL CO	VC1-90P	CH-1	LOADING DOCK	90	460	3	7.5	1	0	0.75	460	3	1,2

NOTES:
1. EQUIPMENT IS EXISTING TO REMAIN. CONTRACTOR SHALL INSPECT AND TEST THAT UNIT IS FULLY FUNCTIONAL. CONTRACTOR SHALL ALSO CLEAN AND REPLACE ANY WORN PARTS.
2. CAPACITY IS BASED ON (2) REFRIGERANT CIRCUITS ON A 105F CONDENSING TEMPERATURE AND 40F SUCTION TEMPERATURE WITH AIR WET BULB OF 78F. CIRCUIT A IS 41.5 TONS, AND CIRCUIT B IS 48.5 TONS.

EXISTING CHILLER SCHEDULE

PHASE	TAG	#	MANUFACTURER	MODEL	CONNECTED EQUIPMENT	LOCATION	NOM. CAP. (TONS)	COMP TYPE	EVAPORATOR				ELECTRICAL				NOTES
									FLOW (GPM)	LWT (°F)	EWT (°F)	REFRIG TYPE	VOLTS	PH	SINGLE POC (Y/N)	EMERG POWER (Y/N)	
(E)	CH	1	CARRIER	30HXA086N-671AA	EC-1	BASEMENT	78.5	SCROLL	188	45	55	R134A	480	3	Yes	No	1

NOTES:
1. EQUIPMENT IS EXISTING TO REMAIN. CONTRACTOR SHALL INSPECT AND TEST THAT UNIT IS FULLY FUNCTIONAL. CONTRACTOR SHALL ALSO CLEAN AND REPLACE ANY WORN PARTS.

NATURAL GAS HEATING WATER BOILER SCHEDULE

PHASE	TAG	#	MANUFACTURER	MODEL	LOCATION	GAS HEATING							PRESS RATING (PSIG)	FLUE SIZE (IN)	ELECTRICAL			UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
						INPUT CAP (MBH)	OUTPUT CAP (MBH)	MIN EFF (AFUE%)	EWT (°F)	LWT (°F)	FLOW (GPM)	WPD (FT WG)			VOLTS	PH	FLA (A)			
(N)	B	1	RBI	DOMINATOR 900	BASEMENT	900	756	0.84	140	160	76	2.2	160	12.0	120	1	5.9	49x30x38	670	1-14

NOTES:
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
2. PROVIDE NATURAL GAS SUPPLY AT 11 IN. WG.
3. INSTALL ON HOUSEKEEPING PAD. COORDINATE WITH STRUCTURAL ENGINEER.
4. PROVIDE THERMOMETER AND PRESSURE GAUGE AT HOT WATER INLET AND OUTLET.
5. PROVIDE ASME SAFETY RELIEF VALVE AT 125 PSI.
6. PROVIDE WATER FLOW SWITCH, LOW WATER CUTOFF, AND MANUAL RESET HIGH LIMIT SAFETY SWITCHES.
7. PROVIDE LOW PRESSURE GAS SWITCH, AUXILIARY SAFETY SHUTOFF GAS VALVE, MAIN MANUAL SHUTOFF VALVE, GAS PRESSURE REGULATORS, SPARK IGNITION ASSEMBLY AND AUTOMATIC GAS VALVE OPERATOR.
8. PROVIDE BOILER PROVIDED WITH 2-STAGE CONFIGURATION.
9. PROVIDE MANUFACTURER RECOMMENDED VENT MATERIAL.
10. PROVIDE MANUFACTURER BOILER CONTROL PACKAGE WITH WATER TEMPERATURE, COMBUSTION CONTROL, ALARMS, BOILER STATUS.
11. BOILER MANUFACTURER TO PROVIDE CONTROLS INTERFACE FOR INTEGRATION WITH BAS AND COORDINATE WITH CONTROLS INSTALLER AND SPECIFICATIONS.
12. PROVIDE MOTORIZED ISOLATION VALVE CONNECTED TO BOILER CONTROLLER TO OPEN WHEN BOILER IS ENERGIZED.
13. BOILER SHALL MEET LOCAL AIR QUALITY DISTRICT LOW-NOX EMISSIONS REQUIREMENTS.
14. PROVIDE MANUALLY OPERATED REMOTE SHUTDOWN PER ASME CSD-1 AND MECHANICAL CODE.

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PUMP SCHEDULE

PHASE	TAG	#	MANUFACTURER	MODEL	SYSTEM SERVED	TYPE	FLOW (GPM)	HEAD (FT WG)	MIN. EFF. (%)	NPSH (FT)	RPM	ELECTRICAL						OPER. WT. (LBS)	NOTES
												BHP	HP	VOLTS	PH	VFD	EMERG POWER (Y/N)		
(N)	CHWP	5	BELL & GOSSETT	e-1510-2BD-SS-213T-S	CHILLED WATER COILS	END SUCTION	180	85	74.6	4.8	1716	5.16	7.5	460	3	Yes	No	350	1,2,3,4,5,6,7
(N)	HHWP	6	BELL & GOSSETT	e1510-2BD-SS-184T-S	HEATING HOT WATER SECONDARY	END SUCTION	160	60	73.8	4.34	1660	3.27	5	460	3	Yes	No	250	1,2,3,4,5,6,7
(N)	HHWP	7	GOULDS	15SV1GE4F60	HEATING HOT WATER PRIMARY	VERTICAL MULTISTAGE	75	35	60.5	7.48	3500	1.71	2	460	3	Yes	No	100	1,2,3,5,6,7,8

NOTES:
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
2. PROVIDE NON-OVERLOADING NEMA PREMIUM EFFICIENCY, INVERTER READY MOTOR.
3. FOR PUMPS LOCATED INDOORS PROVIDE OPEN DRIPPROOF (ODP) MOTORS.
4. PROVIDE VARIABLE FREQUENCY DRIVE (VFD) BY MECHANICAL AND WIRED BY ELECTRICAL.
5. PROVIDE MOTOR SHAFT GROUNDING SYSTEM FOR MOTOR CONTROLLED BY VFD.
6. PROVIDE INLET SUCTION DIFFUSER.
7. PROVIDE VIBRATION ISOLATION AND SEISMIC RESTRAINT PER SPECIFICATIONS.
8. PROVIDE MANUFACTURER'S PUMP MOUNTED VARIABLE FREQUENCY DRIVE (VFD).

VARIABLE REFRIGERANT FLOW (VRF) HEAT PUMP CONDENSING UNIT SCHEDULE

PHASE	TAG	#	FAN COIL TAG	MANUFACTURER	MODEL	AREA SERVED	LOCATION	COOLING (102°F ODB/75°F IDB/62.5°F EWB)			HEATING (22°F ODB/72°F IDB)		REFRIG TYPE	ELECTRICAL					UNIT SIZE (L"xW"xH")	OPER. WT. (LBS.)	NOTES
								CAP. (MBH)	EER	IEER	CAP. (MBH)	COP17		VOLTS	PH	MCA (A)	MOCP (A)	EMERG POWER (Y/N)			
(N)	VRCU	1	VRFC 1-01, 1-02	DAIKIN	RXYQ72AAYDB	NEW CONFERENCE AREA	LOADING DOCK	58.4	12.2	19.8	70.4	2.4	R-410A	460	3	12.4	15	No	37x31x66	510	1-4

NOTES:
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECTS AS REQUIRED BY MANUFACTURER.
2. PROVIDE REFRIGERANT PIPING PER MANUFACTURER'S REQUIREMENTS.
3. PROVIDE MANUFACTURER'S CENTRAL CONTROL SYSTEM WITH BACNET INTERFACE.
4. PROVIDE VIBRATION ISOLATORS UNDER EACH CONDENSING UNIT MOUNTED ON THE ROOF. COORDINATE ATTACHMENT WITH STRUCTURAL DESIGN.

VARIABLE REFRIGERANT FLOW (VRF) HEAT PUMP FAN COIL SCHEDULE

PHASE	TAG	#	COND UNIT TAG	MANUFACTURER	MODEL	AREA SERVED	LOCATION	COOLING CAPACITY		HEATING CAPACITY (MBH)	SUPPLY					ELECTRICAL					UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
								TOTAL (MBH)	SENSIBLE (MBH)		AIR FLOW (CFM)	MIN OSA (CFM)	EAT (°F)	LAT (°F)	ESP (IN WG)	VOLTS	PH	MCA (A)	MOCP (A)	EMERG POWER (Y/N)			
(N)	VRFC	1-01	VRCU-1	DAIKIN	FXSQ48TBVJU	NEW CONFERENCE AREA	NEW CONFERENCE AREA	37.6	34.3	51.6	1300	200	72	55	0.6	208	1	2.8	15	No	56x32x10	110	1-8
(N)	VRFC	1-02	VRCU-1	DAIKIN	FXSQ24TBVJU	NEW CONFERENCE AREA	NEW CONFERENCE AREA	15.6	11.7	25.8	740	200	72	55	0.6	208	1	1.8	15	No	40x32x10	85	1-8

NOTES:
1. REFRIGERANT: R-410A.
2. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
3. PROVIDE MANUFACTURER'S PROGRAMMABLE THERMOSTAT, SEE ZONING PLANS FOR LOCATIONS AND ADDITIONAL NOTES.
4. PROVIDE VIBRATION ISOLATORS AND SEISMIC RESTRAINTS AS REQUIRED AND PER SPECIFICATIONS.
5. PROVIDE MANUFACTURER'S FILTER BOX TO ACCOMMODATE MERV-13 FILTERS AND LATCHING SWING ACCESS DOOR.
6. OUTSIDE AIR IS PROVIDED FROM THE DEDICATED OUTSIDE AIR SYSTEMS TO THE RETURN AIR SIDE OF THE FAN COIL UNIT.
7. HORIZONTAL FAN COIL.
8. PROVIDE WITH INTEGRATED FACTORY CONDENSATE PUMP.

SPLIT SYSTEM HEAT PUMP FAN COIL SCHEDULE

PHASE	TAG	#	COND UNIT TAG	MANUFACTURER	MODEL	AREA SERVED	LOCATION	COOLING CAPACITY		TOTAL (MBH)	SUPPLY		ELECTRICAL					UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
								TOTAL (MBH)	SENSIBLE (MBH)		AIR FLOW (CFM)	EAT (°F)	VOLTS	PH	MCA (A)	MOCP (A)	EMERG POWER (Y/N)			
(N)	FCU	1	CU-1	DAIKIN	FTXF24AXVJU	ELEC ROOM	ELEC ROOM	22.4	16.4	23.6	754	78	208	1	SEE NOTE 4	SEE NOTE 4	No	11 x 39 x 11	31	1-6
(N)	FCU	2	CU-1	DAIKIN	FTXF24AXVJU	ELEC ROOM	ELEC ROOM	22.4	16.4	23.6	754	78	208	1	SEE NOTE 4	SEE NOTE 4	No	11 x 39 x 11	31	1-6

NOTES:
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
2. PROVIDE PROGRAMMABLE THERMOSTAT WITH TEMPERATURE SETPOINTS FOR AT LEAST FOUR SCHEDULING PERIODS WITHIN 24 HOURS.
3. PROVIDE EXTERNAL CONDENSATE PUMP, REFER TO CONDESATE PUMP SCHEDULE.
4. OUTDOOR UNIT POWERS INDOOR UNIT.
5. COOLING CAPACITY BASED ON 67°F ENTERING WET BULB AND 45°F COIL TEMPERATURE.
6. PROVIDE SECONDARY DRIP PAN WITH MOISTURE DETECTOR FOR UNIT SHUTDOWN. CONNECT MOISTURE DETECTOR TO BAS FOR ALARM.

SPLIT-SYSTEM CONDENSING UNIT SCHEDULE

PHASE	TAG	#	MANUFACTURER	MODEL	INDOOR UNIT TAG	AREA SERVED	LOCATION	COOLING (95°F ODB/80°F IDB/67°F EWB)			REFRIG TYPE	REFRIG (LBS)	ELECTRICAL					UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
								NOM. CAP. (TONS)	EER	SEER			VOLTS	PH	MCA (A)	MOCP (A)	EMERG POWER (Y/N)			
(N)	CU	1	DAIKIN	RXF24AXVJU	FCU-1	ELEC ROOM	ROOF	2	12	21	R-32	3.31	208	1	9.4	15	No	37x14x28	105	1-6
(N)	CU	2	DAIKIN	RXF24AXVJU	FCU-1	ELEC ROOM	LOADING DOCK	2	12	21	R-32	3.31	208	1	9.4	15	No	37x14x28	105	1-6

NOTES:
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
2. PROVIDE MANUFACTURER'S CONTROLLER.
3. OUTDOOR UNIT POWERS INDOOR UNIT.
4. PROVIDE REFRIGERANT PIPING PER MANUFACTURER'S REQUIREMENTS.
5. CAPACITY RATED AT ARI STANDARD CONDITIONS.
6. LOCK OUT HEATING MODE. UNIT TO OPERATE AS COOLING ONLY.

GRAVITY VENTILATOR SCHEDULE

PHASE	TAG	#	MANUFACTURER	MODEL	AREA SERVED	LOCATION	SERVICE	THROAT VELOCITY (FPM)	MINIMUM FREE AREA (SQ FT)	THROAT SIZE (IN)	OVERALL SIZE (L"xW"xH")	WEIGHT (LBS)	NOTES
(N)	GV	1	GREENHECK	GRSR-12	NEW CONFERENCE AREA	NEW CONFERENCE AREA - ROOF	RELIEF	488	1	12	29x29x22	30	1-4
(N)	GV	2	GREENHECK	GRSI-12	NEW CONFERENCE AREA	NEW CONFERENCE AREA - ROOF	INTAKE	488	1	12	29x29x22	30	1-4

NOTES:
1. PROVIDE MANUFACTURER ROOF CURB.
2. PROVIDE BACKDRAFT DAMPER.
3. PROVIDE MOTORIZED DAMPER (WITH END SWITCH).
4. PROVIDE BIRDSCREEN

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ENERGY RECOVERY VENTILATOR SCHEDULE

PHASE	TAG	#	MANUFACTURER	MODEL	AREA SERVED	LOCATION	HEAT EXCHANGER TYPE	EXHAUST AIR				SUPPLY AIR					EFFECTIVENESS (%)				FILTER		ELECTRICAL									UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
								AIRFLOW (CFM)	ESP (IN WG)	EC MOTOR WATTS	INDOOR DB/RH (°F/%)	AIRFLOW (CFM)	ESP (IN WG)	EC MOTOR WATTS	SUMMER OAT DB/WB (°F)	WINTER OAT DB	COOLING		HEATING		TYPE	MERV	VOLTS	PH	MCA (A)	MOCP (A)	EXHAUST FAN VFD (Y/N)	SUPPLY FAN VFD (Y/N)	SINGLE POC (Y/N)	EMERG POWER (Y/N)			
																	TEMPERATURE EXCHANGE	ENTHALPY EXCHANGE	TEMPERATURE EXCHANGE	ENTHALPY EXCHANGE												
(N)	ERV	1	DAIKIN	VAM470GVJU	NEW CONFERENCE AREA	NEW CONFERENCE AREA	AIR TO AIR CROSSFLOW TOTAL HEAT, PLATE TYPE	400	0.6	280	75/63	400	0.6	280	102/71	25	69	48	69	60	2"	13	208	1	3.9	15	No	No	Yes	No	44x33x16	130	1-4

NOTES:
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
2. PROVIDE ECM (ELECTRONICALLY COMMUTATED MOTORS).
3. PROVIDE UNIT WITH SPRING ISOLATOR HANGERS.
4. PROVIDE FACTORY CONTROLLER WITH BACNET INTERFACE FOR BAS INTEGRATION.

FAN SCHEDULE

PHASE	TAG	#	MANUFACTURER	MODEL	AREA SERVED	LOCATION	DISCH	TYPE	DRIVE	AIR FLOW (CFM)	SP (IN WG)	FAN RPM	ELECTRICAL							UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
													BHP	HP	FLA	VOLTS	PH	VFD (Y/N)	EMERG POWER (Y/N)			
(N)	EF	1	GREENHECK	G-100-VG	RESTROOMS, BREAK ROOM 305, NURSING 210 & 211	ROOF	DOWNBLAST	CENTRIFUGAL	DIRECT	800	0.75	1483	0.18	1/4	3.8	115	1	No	No	24x24x36	65	1-6
(N)	EF	2	GREENHECK	G-097-VG	JANITOR 207	ROOF	DOWNBLAST	CENTRIFUGAL	DIRECT	100	0.25	1478	0.01	1/15	1.3	115	1	No	No	19x19x24	40	1-6
(N)	EF	3	GREENHECK	G-097-VG	MECH/JANITOR 309	ROOF	DOWNBLAST	CENTRIFUGAL	DIRECT	100	0.25	1478	0.01	1/15	1.3	115	1	No	No	19x19x24	40	1-6

NOTES:
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
2. PROVIDE NEMA PREMIUM EFFICIENCY MOTOR.
3. PROVIDE ECM (ELECTRONICALLY COMMUTATED MOTOR) WITH FACTORY MOUNTED POTENTIOMETER FOR SPEED ADJUSTMENT.
4. PROVIDE VIBRATION ISOLATION AND SEISMIC RESTRAINT PER SPECIFICATIONS.
5. PROVIDE BACKDRAFT DAMPER.
6. PROVIDE FACTORY STANDARD ROOF CURB AND CURB SEAL.

VARIABLE AIR VOLUME TERMINAL UNIT SCHEDULE-HOT WATER REHEAT

PHASE	TAG	#	AREA SERVED	MANUFACTURER	MODEL	INLET SIZE (IN)	AIRFLOW				AIR PD (IN WG)	HW REHEAT COIL									CONTROL VALVE	OPER. WT. (LBS)	NOTES
							COOL MAX (CFM)	COOL/HEAT MIN (CFM)	HEAT MAX (CFM)	DCV MIN (CFM)		CAP (MBH)	LAT (°F)	EWT (°F)	EAT (°F)	LWT (°F)	FLOW (GPM)	WPD (FT WG)	ROWS	CONN (IN)			
(N)	VAV	9-01	CHILDRENS AREA 204	PRICE	SDV	8	460	285	285	-	0.22	12.6	95	160	55	117.3	0.6	0.1	2	1/2"	2-WAY	25	1-10
(N)	VAV	9-02	CHILDRENS AREA 204	PRICE	SDV	14	1750	150	875	-	0.37	38.5	95	160	55	115.3	1.76	0.47	2	7/8"	2-WAY	50	1-10
(N)	VAV	9-03	CHILDRENS AREA 204	PRICE	SDV	8	520	75	260	-	0.27	11.5	95	160	55	115.5	0.53	0.08	2	1/2"	2-WAY	25	1-10
(N)	VAV	9-04	STORAGE 213	PRICE	SDV	14	2220	90	1110	-	0.56	48.9	95	160	55	121.1	2.57	0.92	2	7/8"	2-WAY	50	1-10
(N)	VAV	9-05	OPEN OFFICE 205	PRICE	SDV	14	1920	140	960	-	0.44	42.3	95	160	55	117.4	2.03	0.6	2	7/8"	2-WAY	50	1-10
(N)	VAV	9-06	OPEN OFFICE 205	PRICE	SDV	10	750	135	375	-	0.27	16.6	95	160	55	114.8	0.75	0.19	2	7/8"	2-WAY	30	1-10
(N)	VAV	9-07	NURSING 210, NURSING 211	PRICE	SDV	8	150	150	150	-	0.02	6.7	95	160	55	150.7	1.47	1.94	1	1/2"	2-WAY	25	1-11
(N)	VAV	9-08	HALL 216, HALL 217	PRICE	SDV	12	1510	140	755	-	0.53	33.3	95	160	55	122.8	1.83	1.11	2	7/8"	2-WAY	40	1-10
(N)	VAV	9-09	OFFICE 206	PRICE	SDV	6	420	40	210	-	0.26	9.3	95	160	55	118.1	0.46	0.05	2	7/8"	2-WAY	20	1-10
(N)	VAV	9-10	OFFICE 212	PRICE	SDV	6	150	20	75	-	0.02	3.4	95	160	55	143.7	0.43	0.15	1	7/8"	2-WAY	20	1-10
(N)	VAV	10A-01	(E) LIBRARY 200	PRICE	SDV	16	2600	35	1300	-	0.51	57.2	95	160	55	119.5	2.89	1.2	2	7/8"	2-WAY	55	1-10
(N)	VAV	10A-02	(E) LIBRARY 200	PRICE	SDV	14	2350	165	1175	-	0.61	51.7	95	160	55	122.7	2.83	1.09	2	7/8"	2-WAY	50	1-10
(N)	VAV	10A-03	(E) LIBRARY 200	PRICE	SDV	16	2500	210	1250	-	0.47	55	95	160	55	118.5	2.71	1.07	2	7/8"	2-WAY	55	1-10
(N)	VAV	10A-04	(E) LIBRARY 200	PRICE	SDV	14	2380	165	1190	-	0.63	52.4	95	160	55	123	2.89	1.13	2	7/8"	2-WAY	50	1-10
(N)	VAV	10A-05	(E) LIBRARY 200	PRICE	SDV	16	2690	395	1345	-	0.54	59.2	95	160	55	120.4	3.06	1.33	2	7/8"	2-WAY	55	1-10
(N)	VAV	10A-06	(E) LIBRARY 200	PRICE	SDV	14	1760	330	880	-	0.38	38.7	95	160	55	115.4	1.78	0.48	2	7/8"	3-WAY	50	1-10
(N)	VAV	10B-01	(E) LIBRARY 200	PRICE	SDV	16	2600	45	1300	-	0.51	57.2	95	160	55	119.5	2.89	1.2	2	7/8"	2-WAY	55	1-10
(N)	VAV	10B-02	(E) LIBRARY 200	PRICE	SDV	14	2215	125	1105	-	0.56	48.6	95	160	55	120.9	2.54	0.9	2	7/8"	2-WAY	50	1-10
(N)	VAV	10B-03	(E) LIBRARY 200	PRICE	SDV	14	2270	195	1135	-	0.58	50	95	160	55	121.7	2.67	0.98	2	7/8"	2-WAY	50	1-10
(N)	VAV	10B-04	(E) LIBRARY 200	PRICE	SDV	14	1715	140	855	-	0.36	37.7	95	160	55	114.9	1.71	0.45	2	7/8"	2-WAY	50	1-10
(N)	VAV	10B-05	(E) LIBRARY 200	PRICE	SDV	14	2340	410	1170	-	0.61	51.5	95	160	55	122.5	2.81	1.07	2	7/8"	2-WAY	50	1-10
(N)	VAV	11-01	OPEN OFFICE 311	PRICE	SDV	6	400	75	200	-	0.24	8.9	95	160	55	116.8	0.42	0.04	2	7/8"	2-WAY	20	1-10
(N)	VAV	11-02	OFFICE 315	PRICE	SDV	6	175	15	85	-	0.06	3.8	95	160	55	104.2	0.14	0.01	2	7/8"	2-WAY	20	1-10
(N)	VAV	11-03	OFFICE 312, OFFICE 313, OFFICE 314	PRICE	SDV	6	150	45	75	-	0.05	3.4	95	160	55	103	0.12	0.01	2	7/8"	2-WAY	20	1-10
(N)	VAV	11-04	HALL 310	PRICE	SDV	6	175	175	175	-	0.06	7.7	95	160	55	114.1	0.34	0.03	2	7/8"	2-WAY	20	1-11
(N)	VAV	11-05	CONFERENCE 306	PRICE	SDV	6	280	215	215	65	0.13	9.6	95	160	55	118.7	0.47	0.05	2	7/8"	2-WAY	20	1-10
(N)	VAV	11-06	BREAK ROOM 305	PRICE	SDV	8	540	90	270	-	0.29	12	95	160	55	116.6	0.57	0.09	2	1/2"	2-WAY	25	1-10
(N)	VAV	11-07	OFFICE 300	PRICE	SDV	8	525	30	260	-	0.28	11.5	95	160	55	115.5	0.53	0.08	2	1/2"	2-WAY	25	1-10
(N)	VAV	11-08	OPEN OFFICE 302	PRICE	SDV	6	100	30	50	-	0.01	2	90	160	55	132.2	0.15	0.02	1	7/8"	2-WAY	20	1-10
(N)	VAV	11-09	OFFICE 303	PRICE	SDV	6	100	30	50	-	0.01	2	90	160	55	132.2	0.15	0.02	1	7/8"	3-WAY	20	1-10
(N)	VAV	11-10	STORAGE 304, STAIR	PRICE	SDV	6	150	20	75	-	0.02	3.4	95	160	55	143.7	0.43	0.15	1	7/8"	2-WAY	20	1-10

NOTES:
1. PROVIDE PRESSURE INDEPENDENT TERMINAL UNIT.
2. TERMINAL AIR PRESSURE DROP SHALL BE CALCULATED WITH THE COOLING MAXIMUM AIR FLOW THROUGH THE REHEAT COIL.
3. COOLING AND HEATING MINIMUM AIR FLOW IN THE DEADBAND RANGE SHALL NOT EXCEED THE DESIGN ZONE OUTDOOR AIR FLOW RATE.
4. HEATING MAXIMUM AIR FLOW SHALL NOT EXCEED THE GREATER OF 50% OF THE COOLING MAXIMUM AIR FLOW OR THE DESIGN ZONE OUTDOOR AIR FLOW RATE.
5. MAXIMUM NC-30 DISCHARGE AND RADIATED SOUND LEVELS AT 0.5" STATIC PD. NOISE RATING IN ACCORDANCE WITH ARI STANDARD 880.
6. UNIT VENDOR TO VERIFY COIL SELECTIONS AND SIZING. REHEAT COIL SHALL BE SELECTED AT PEAK HEAT DESIGN CONDITIONS. MAXIMUM LEAVING REHEAT AIR TEMPERATURE SHALL NOT EXCEED 95°F.
7. PROVIDE NEMA 1 CONTROLS ENCLOSURE. COORDINATE WITH BUILDING AUTOMATION SYSTEM.
8. PROVIDE NEW TRANSFORMER IN BASEMENT MECHANICAL ROOM FOR TERMINAL UNITS, COORDINATE WITH ELECTRICAL FOR POWER AND CONTROLS INSTALLING CONTRACTOR FOR LOW VOLTAGE WIRING TO INDIVIDUAL TERMINAL UNITS.
9. TERMINAL CABINET SHALL INCLUDE 3/4" MINIMUM INTERNAL INSULATION LINING. TYPE SHALL BE FIBER-FREE OR FOIL FACED FIBERGLASS.
10. PROVIDE MINIMUM FIVE (5) FOOT LONG SOUND ATTENUATION DISCHARGE PLENUM ATTACHED TO TERMINAL UNIT. INSIDE CLEAR DIMENSION SHALL BE 2" HIGHER THAN TERMINAL HEIGHT AND 4" WIDER THAN TERMINAL WIDTH. INSULATION LINING TYPE SHALL BE MINIMUM 1" THICK OR R-4.2, WHICHEVER IS GREATER, WITH NON-FIBER, ANTI-MICROBIAL COATING. REFER TO DETAILS AND SPECIFICATIONS.
11. CONSTANT VOLUME TERMINAL UNIT.

FIRE SMOKE DAMPER SCHEDULE

TAG	#	MANUFACTURER	MODEL	LOCATION	SYSTEM SERVED	SIZE WIDTH (IN.)	SIZE HEIGHT (IN.)	AIR FLOW (CFM)	PRESSURE DROP (IN. WG)	BLADE TYPE (AIRFOIL/3V)	EMERG POWER	NOTES
FSD	1-01	RUSKIN	FSD-60	RR 208	EXHAUST	8	8	250	0.08	AIRFOIL	No	1-4
FSD	1-02	RUSKIN	FSD-60	RR 208	EXHAUST	8	8	100	0.01	AIRFOIL	No	1-4

NOTES:
1. REFER TO SPECIFICATIONS FOR ADDITIONAL DAMPER REQUIREMENTS.
2. DAMPER ACTUATOR TO BE LOCATED OUTSIDE OF AIRSTREAM.
3. ELECTRIC ACTUATOR MOTOR INTERLOCKED WITH FIRE ALARM SYSTEM. COORDINATE WITH ELECTRICAL DESIGN.
4. PROVIDE OPTIONAL TEST SWITCH FOR REMOTE TESTING OF DAMPER (NORMAL, CLOSED AND OVERRIDE SWITCH) AND INDICATOR LIGHTS FOR OPEN AND CLOSED DAMPER POSITIONS.

DIFFUSER AND GRILLE SCHEDULE

TAG	MANUFACTURER	MODEL	DESCRIPTION	FACE TYPE	FACE SIZE	COLOR	MATERIAL	NOTES
EA	TITUS	PAR	SQUARE CEILING EXHAUST	PERFORATED	12x12	WHITE	ALUMINUM	2-7
RA	TITUS	PAR	SQUARE CEILING RETURN	PERFORATED	24x24	WHITE	STEEL	2-7
RB	TITUS	PAR	SQUARE CEILING RETURN	PERFORATED	12x12	WHITE	STEEL	2-7
RC	TITUS	23RL	AEROBLADE GRILLE RETURN	3/4" SINGLE SPACING, 45° DEFLECTION	SEE PLANS	WHITE	STEEL	2-7
SA	TITUS	TMSA	SQUARE CEILING SUPPLY	ADJUSTABLE, 3-CONE	24x24	WHITE	STEEL	2-7
SB	TITUS	PCS	SQUARE CEILING SUPPLY	PERFORATED	12x12	WHITE	STEEL	2-7
SC	TITUS	272RL	AEROBLADE SUPPLY GRILLE	3/4" SPACING, DOUBLE DEFLECTION	SEE PLANS	WHITE	STEEL	1-7
SD	TITUS	PCS	SQUARE CEILING SUPPLY	PERFORATED	24x24	WHITE	STEEL	2-7

NOTES:
1. ANY GRILLE/DIFFUSER MOUNTED DIRECTLY ON EXPOSED DUCT SHALL MATCH COLOR OF DUCT (IF PAINTED) OR SHALL HAVE CLEAR ANODIZED FINISH (IF DUCT IS UNPAINTED).
2. MAXIMUM TOTAL PRESSURE DROP SHALL NOT EXCEED 0.15" WG WITH DUCT TRANSITION.
3. MAXIMUM NC LEVEL SHALL BE 30.
4. ALL VISIBLE SURFACES AND DUCTWORK BEHIND FACE SHALL BE PAINTED FLAT BLACK.
5. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLANS FOR BORDER TYPES.
6. NECK SIZE AND CFM SHOWN ARE ON PLANS (EXAMPLE: SA12x12-400 REFERS TO TAG "SA" WITH 12x12 NECK AND 400 CFM).
7. PROVIDE RECTANGULAR/SQUARE TO ROUND TRANSITION AS REQUIRED AND SIZED FOR MAXIMUM 0.01" WG TOTAL PRESSURE DROP.

CONDENSATE PUMP SCHEDULE

PHASE	TYPE	MARK	MANUFACTURER	MODEL	EQUIP. SERVED TAG	FLOW (GPM)	HEAD (FT WG)	ELECTRICAL			NOTES
								VOLTS	PHASE	EMERGENCY POWER	
(N)	CDP	1	LITTLE GIANT	VCL-24ULS	FCU-1	210	9	115	1	No	
(N)	CDP	2	LITTLE GIANT	VCL-24ULS	FCU-2	210	9	115	1	No	

NOTES:
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.

REFRIGERANT CONCENTRATION CALCULATION

CRITICAL CIRCUIT			CRITICAL VOLUME				REFRIGERANT DENSITY		COMPLIANCE	
EQUIPMENT	TYPE	CHARGE (LB)	SPACE(S)	AREA (SF)	HEIGHT (FT)	VOLUME (CU FT)	DESIGN (LB/1000 CF)	ALLOWABLE (LB/1000 CF)	EXHAUST REQUIRED	NOTES
VRCU-1	R-410A	17.19	CONFERENCE 218	309	14	4,326	4.0	26	N	-
CU-1	R-32	3.49	ELECTRICAL 301	43	8	344	10.1	4.8	N/A	2
CU-2	R-32	3.49	ELECTRICAL	56	8	448	7.8	4.8	N/A	2

GENERAL NOTES:
A. SUBMIT REFRIGERANT VOLUMES AND CALCULATIONS FOR FINAL PROPOSED REFRIGERANT LINE TO ENGINEER FOR REVIEW.
B. DESIGN DENSITY BASED ON LINE LENGTHS AND ROOM VOLUMES ESTIMATED DURING DESIGN. ALL SHOULD BE REVIEW BY CONTRACTOR PRIOR TO CONSTRUCTION.
C. LINE LENGTHS SHALL BE MINIMIZED AS MUCH AS POSSIBLE.
D. MAXIMUM ALLOWABLE REFRIGERANT CONCENTRATION LIMITS PER 2022 CALIFORNIA MECHANICAL CODE TABLE 1102.3.

NOTES:
1. CRITICAL ROOM VOLUME IS CONNECTED TO ADJACENT SPACES THROUGH TRANSFER DUCTS OR DOOR UNDERCUT.
2. SYSTEM EXEMPT PER CALIFORNIA MECHANICAL CODE SECTION 1104.2 EXCEPTION 1; LISTED EQUIPMENT CONTAINS NO MORE THAN 6.6 LBS OF REFRIGERANT.

BUFFER TANK SCHEDULE

PHASE	TAG	#	MANUFACTURER	MODEL	LOCATION	SYSTEM SERVED	TANK VOL. (GAL)	INLET SIZE (IN)	OUTLET SIZE (IN)	CONNECTION TYPE	SIZE DIA x H (IN)	OPER. WT. (LBS)	NOTES
(N)	BT	1	GRUNDFOS	GCBT-120-4F	BASEMENT MECH RM	HEATING HOT WATER PRIMARY	120	4	4	FLANGED	24x60	1410	1 - 4

NOTES:
1. PROVIDE TANK RATED FOR ASME WORKING PRESSURE OF 125 PSIG.
2. PROVIDE TANK WITH VERTICAL CONFIGURATION.
3. ANCHOR TO HOUSEKEEPING PAD. COORDINATE WITH STRUCTURAL DESIGN.
4. PROVIDE MANUAL AIR VENT ON TOP OF TANK.

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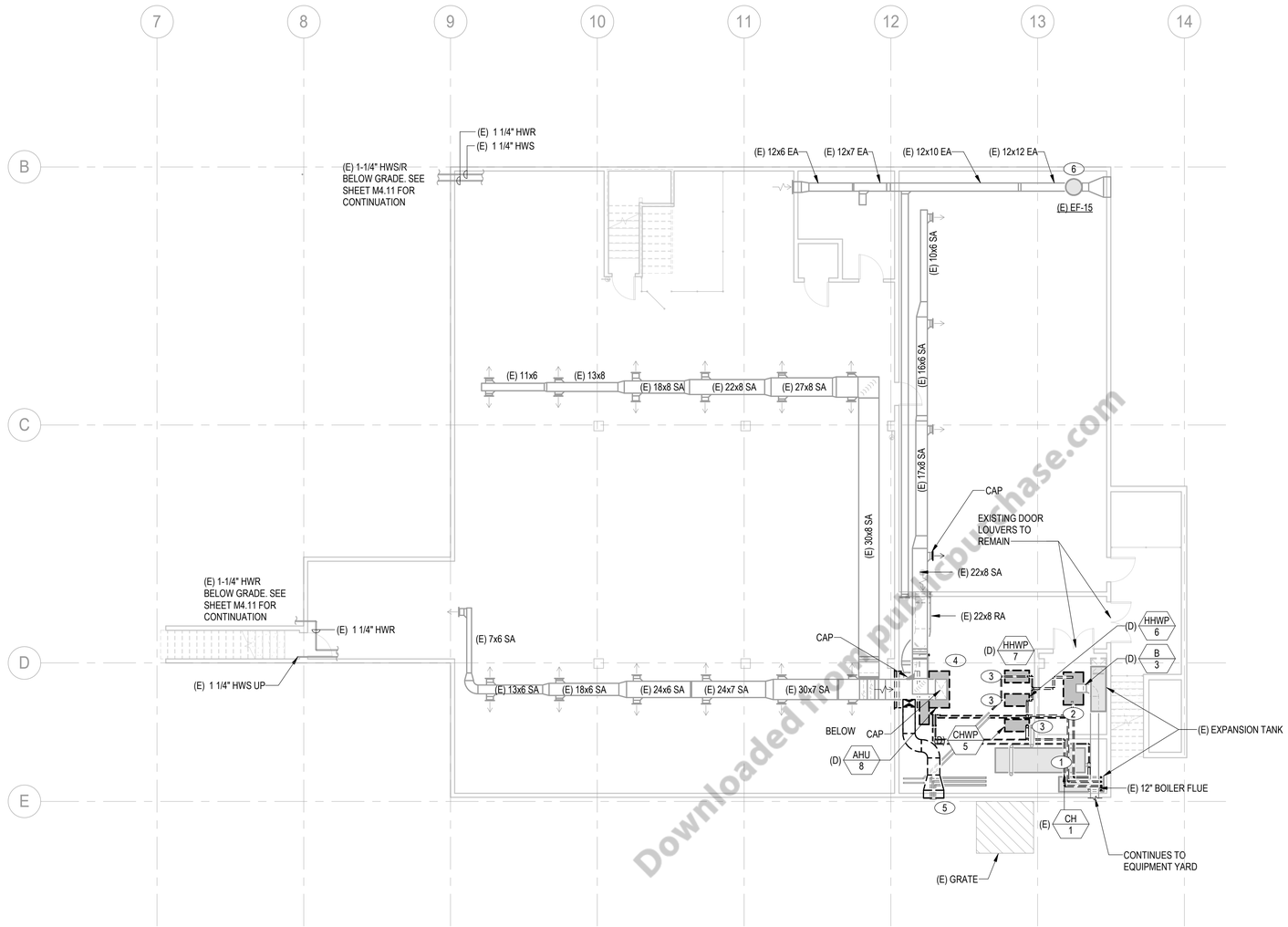
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1 BASEMENT - HVAC DEMO PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. ALL HVAC EQUIPMENT IS EXISTING TO REMAIN UNLESS EXPLICITLY INDICATED AS DEMOLISHED.
B. EXISTING CONDITIONS SHOWN HAVE BEEN TAKEN FROM RECORD DRAWINGS AND VISUAL INSPECTION. CONTRACTOR SHALL VERIFY ALL CONDITIONS SHOWN PRIOR TO THE START OF WORK TO DETERMINE THE ACCURACY OF THE LOCATION, SIZE, ETC.... OF CONDITIONS AS SHOWN. REPORT TO THE ARCHITECT AND ENGINEER ANY DISCREPANCIES FROM THE CONDITIONS SHOWN AND THE ACTUAL FIELD CONDITIONS.
C. ALL UNUSED OR ABANDONED DUCTWORK AND PIPING WITHIN THE PROJECT AREA SHALL BE REMOVED BACK TO THE NEXT MAIN DUCT UPSTREAM AND BLANKED OFF OR CAPPED. USE SHEET METAL SCREWS TO SECURE CAP AND USE DUCT SEALER TO SEAL DUCTS, DUCT TAPE NOT ALLOWED. UNWANTED FIRE DAMPERS AND OTHER DEVICES IN RE-USED EXISTING DUCTWORK SHALL BE REMOVED AND DUCTWORK PUT TOGETHER AND SEALED AIRTIGHT.
D. DURING ALL PHASES OF CONSTRUCTION, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS TO MINIMIZE DUST, WATER AND DEBRIS FROM ENTERING THE SYSTEM. REMOVED ITEMS THAT WILL BE RE-USED SHALL BE STORED IN A SECURE LOCATION AND PROTECTED FROM DAMAGE AND ENTRY OF DIRT AND DEBRIS.

KEYED NOTES (#)

1 EXISTING CHILLER TO REMAIN. CONTRACTOR SHALL INSPECT AND TEST THAT UNIT IS FULLY FUNCTIONAL. CONTRACTOR SHALL ALSO CLEAN AND REPLACE ANY WORN PARTS.

2 BOILER TO BE REPLACED IN-KIND. CONTRACTOR SHALL INSPECT AND TEST EXISTING FLUE ROUTING (INCLUDING UNDERGROUND RUN) FOR LEAKS.

3 DEMOLISH EXISTING PUMPS AND PREPARE AREA FOR REPLACEMENT PUMPS. HOUSEKEEPING PADS WILL BE REPLACED. DEMOLISH ATTACHED PIPES AND ACCESSORIES UP TO OVERHEAD MAINS. CAP AND PREPARE PIPES FOR RECONNECTION.

4 EXISTING AIR HANDLING UNIT AND ACCESSORIES TO BE DEMOLISHED. CAP SUPPLY AND RETURN DUCTS AT UNIT CONNECTION. PREPARE DUCTWORK FOR RECONNECTION.

5 EXISTING OUTSIDE AIR DUCT TO BE DEMOLISHED AND RE-ROUTED. REFER TO ARCHITECTURAL FOR SEALING AND WATERPROOFING OF ENVELOPE PENETRATIONS.

6 EXISTING EXHAUST FAN TO REMAIN.

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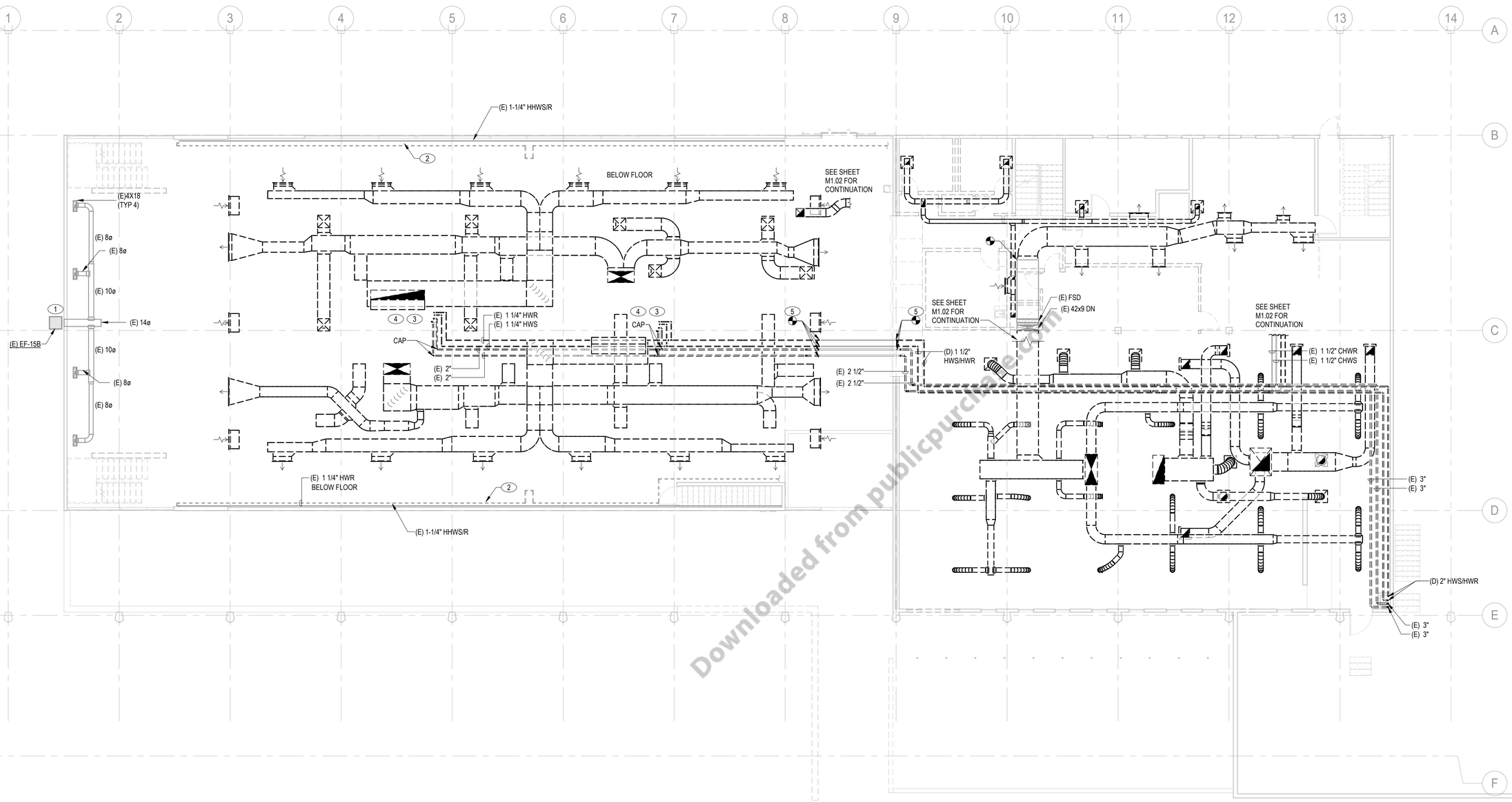
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BASEMENT - HVAC DEMO PLAN

M1.00

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1 FIRST FLOOR - HVAC DEMO PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. ALL HVAC EQUIPMENT IS EXISTING TO REMAIN UNLESS EXPLICITLY INDICATED AS DEMOLISHED.
B. EXISTING CONDITIONS SHOWN HAVE BEEN TAKEN FROM RECORD DRAWINGS AND VISUAL INSPECTION. CONTRACTOR SHALL VERIFY ALL CONDITIONS SHOWN PRIOR TO THE START OF WORK TO DETERMINE THE ACCURACY OF THE LOCATION, SIZE, ETC... OF CONDITIONS AS SHOWN. REPORT TO THE ARCHITECT AND ENGINEER ANY DISCREPANCIES FROM THE CONDITIONS SHOWN AND THE ACTUAL FIELD CONDITIONS.
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KEYED NOTES (#)

1 EXISTING FAN AND BELOW GRADE EXHAUST DUCTWORK AND GRILLES TO REMAIN.

2 HEATING HOT WATER PIPING SERVING EXISTING TO REMAIN HYDRONIC RADIATORS.

3 DEMOLISH EXISTING PIPES TO AIR HANDLING UNITS BACK TO SOURCE AND CAP.

4 REMOVE EXISTING THERMOSTAT ASSOCIATED WITH AHU.

5 DEMOLISH EXISTING PIPES UP TO EITHER END OF CEILING TRANSITION. CAP BOTH ENDS OF PIPE AND ABANDON IN PLACE.

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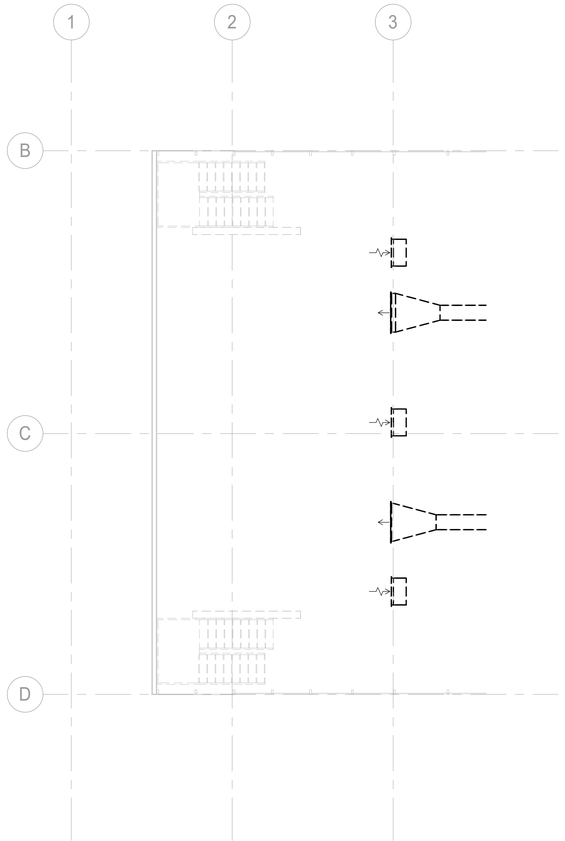
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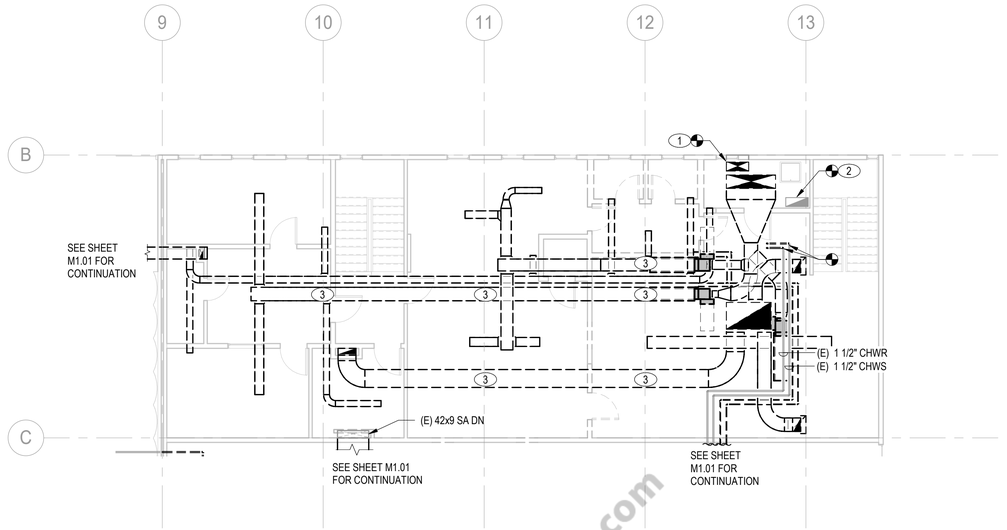
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FIRST FLOOR - HVAC DEMO PLAN

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KEYED NOTES (#)

1 DEMOLISH EXISTING OUTSIDE AIR DUCT UP TO WALL AND CAP.

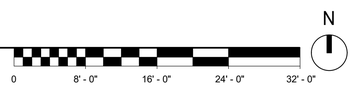
2 CAP EXISTING 30x12 RELIEF DUCT ON EITHER SIDE.

3 EXISTING BEAM OPENINGS TO BE UTILIZED FOR NEW WORK. CONTRACTOR SHALL SURVEY OPENINGS SIZES AND REPORT BACK TO ENGINEER OF RECORD FOR REVIEW PRIOR TO START OF NEW WORK.

1 **MEZZANINE- HVAC DEMO PLAN**
SCALE: 1/8" = 1'-0"



2 **SECOND FLOOR - HVAC DEMO PLAN**
SCALE: 1/8" = 1'-0"



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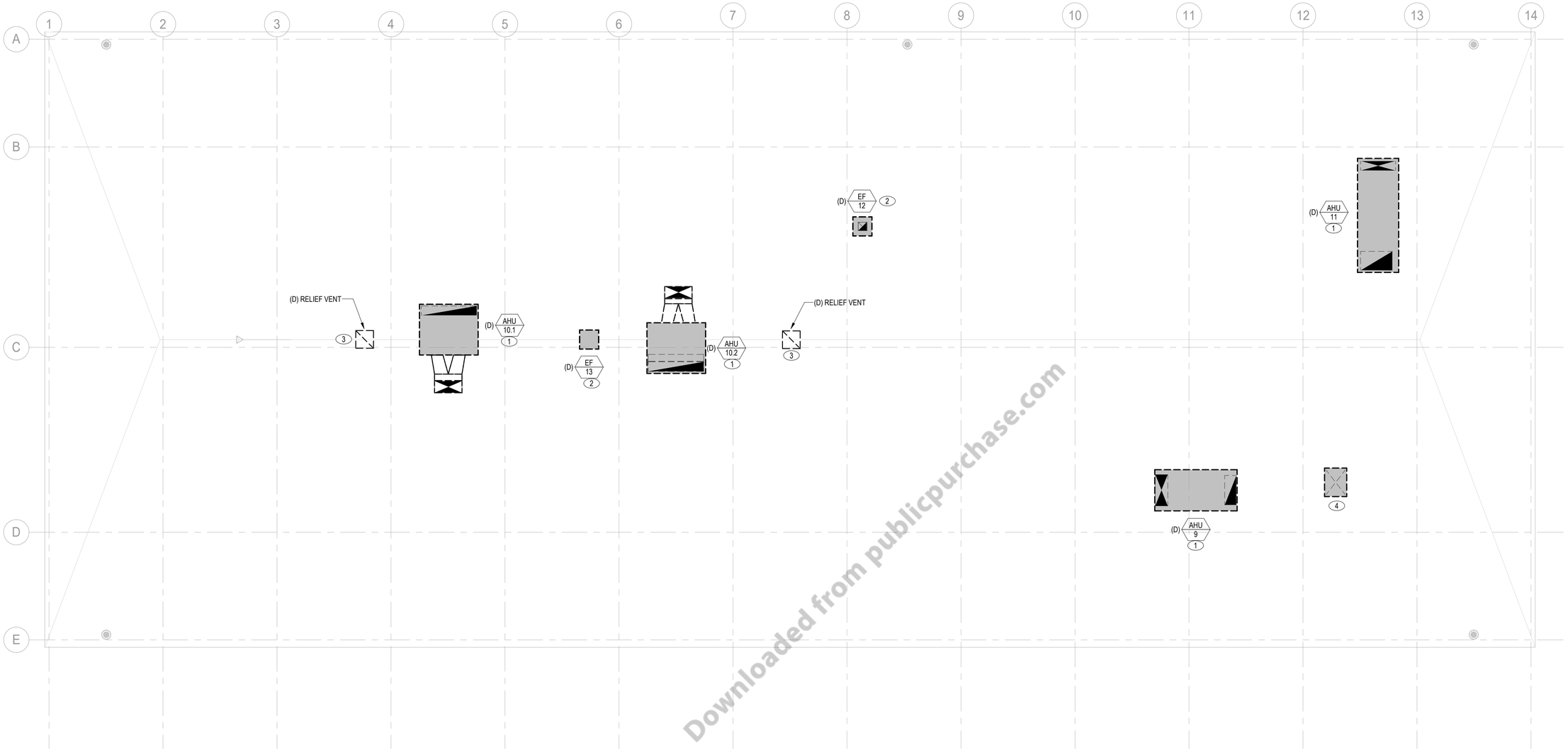
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SECOND FLOOR - HVAC DEMO PLAN

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1 ROOF - HVAC DEMO PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

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KEYED NOTES (#)

1 DEMOLISH EXISTING AIR HANDLING UNIT, DUCT RISERS, CURB, AND ACCESSORIES. LOCATION OF OPENINGS FOR DUCT RISERS TO BE RE-USED FOR NEW DUCTWORK. REFER TO ARCHITECT FOR PATCHING AND SEALING OF ROOF IN PREPARATION FOR NEW DUCTWORK.

2 DEMOLISH EXISTING FAN, DUCT RISER, CURB, AND ACCESSORIES. REFER TO ARCHITECT FOR PATCHING AND SEALING OF ROOF.

3 DEMOLISH EXISTING RELIEF VENT AND PROVIDE INSULATED STAINLESS STEEL CROSS-BROKEN CURB CAP.

4 DEMOLISH EXISTING LOUVERED PENTHOUSE AND PROVIDE INSULATED STAINLESS STEEL CROSS-BROKEN CURB CAP.

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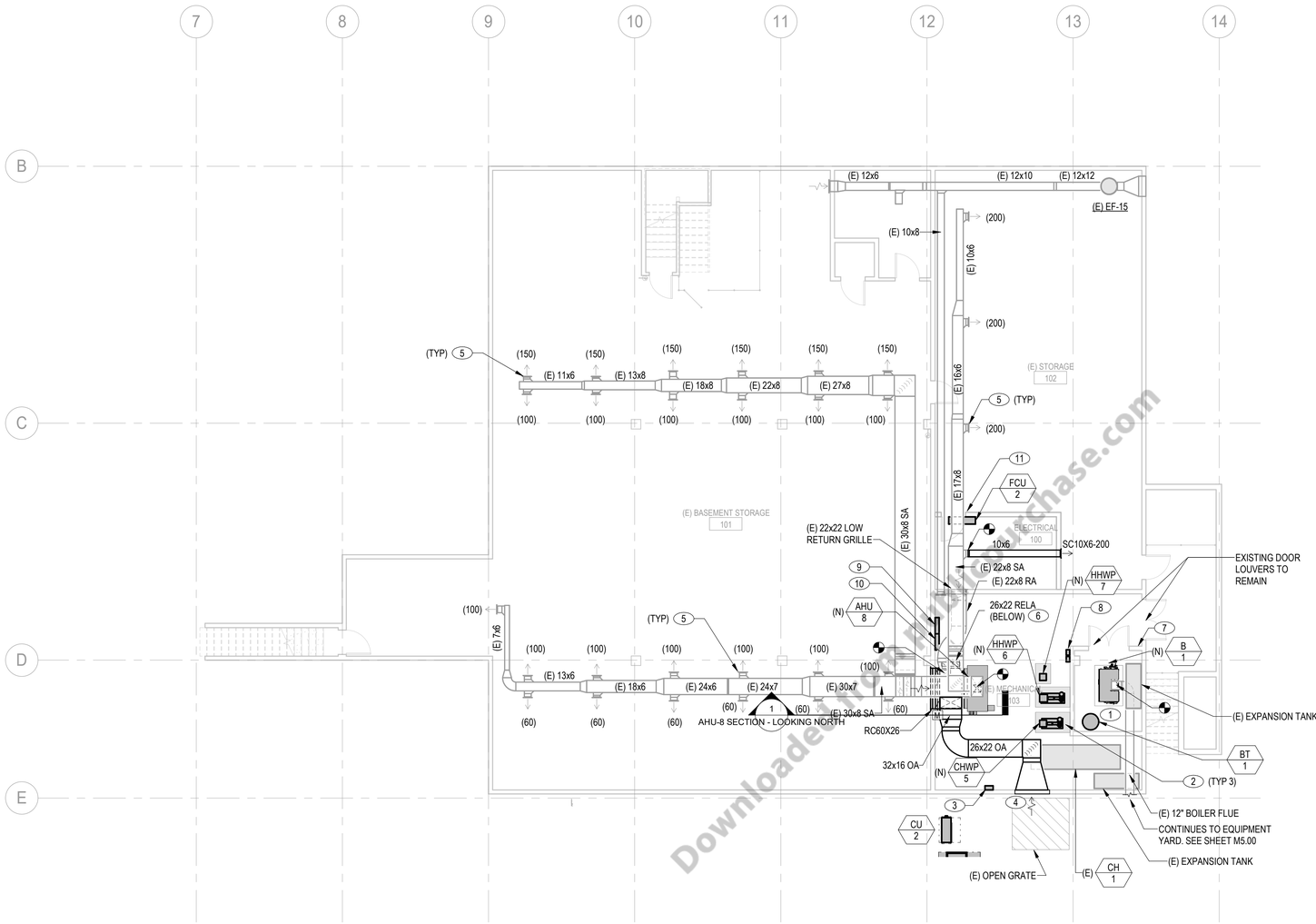
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ROOF - HVAC DEMO PLAN

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1 BASEMENT - HVAC PLAN

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SHEET NOTES

A. REFER TO GENERAL NOTES ON SHEET M0.01
B. INSTALL VOLUME DAMPERS ON ALL NEW BRANCH DUCTWORK. PROVIDE REMOTE BALANCING DAMPERS FOR DIFFUSERS IN AREAS WITH HARD LID OR INACCESSIBLE CEILINGS. REFER TO DETAILS.

KEYED NOTES (#)

1 PROVIDE NEW CO MONITORING AND HOUSEKEEPING PAD FOR NEW BOILER.

2 PROVIDE NEW HOUSEKEEPING PAD (MINIMUM 4" TALL) EXTENDING 6" PAST EDGE OF EQUIPMENT. PROVIDE NEW INERTIA BASE.

3 VRF SYSTEM MANUFACTURER'S CONTROLLER. ELECTRICAL TO PROVIDE 120V/1PH POWER TO PANEL.

4 NEW OUTSIDE AIR INTAKE LOUVER TO BE INSTALLED IN PORTION OF EXISTING WINDOW, MINIMUM 9 SQFT FREE AREA. SEE ARCHITECTURAL.

5 CLEAN EXISTING GRILLE AND REBALANCE TO AIRFLOW INDICATED.

6 PROVIDE BAROMETRIC RELIEF DAMPER.

7 PROVIDE EMERGENCY SHUTDOWN SWITCH MOUNTED OUTSIDE BOILER ROOM DOORS. REFER TO SPECIFICATION 235200.

8 VARIABLE FREQUENCY DRIVES FOR CHWP-5 & HHWP-6

9 NEMA 1 BAS CONTROL PANEL. ELECTRICAL TO PROVIDE 120V/1PH POWER TO PANEL. COORDINATE WITH I.T. FOR DATA DROPS.

10 REFER TO ELECTRICAL FOR 120V/1PH PANEL FOR VAV POWER SUPPLY.

11 NEW 2.8 SQFT MINIMUM FREE AREA DOOR LOUVER FOR RETURN AIR. REFER TO ARCHITECUTRAL DRAWINGS.

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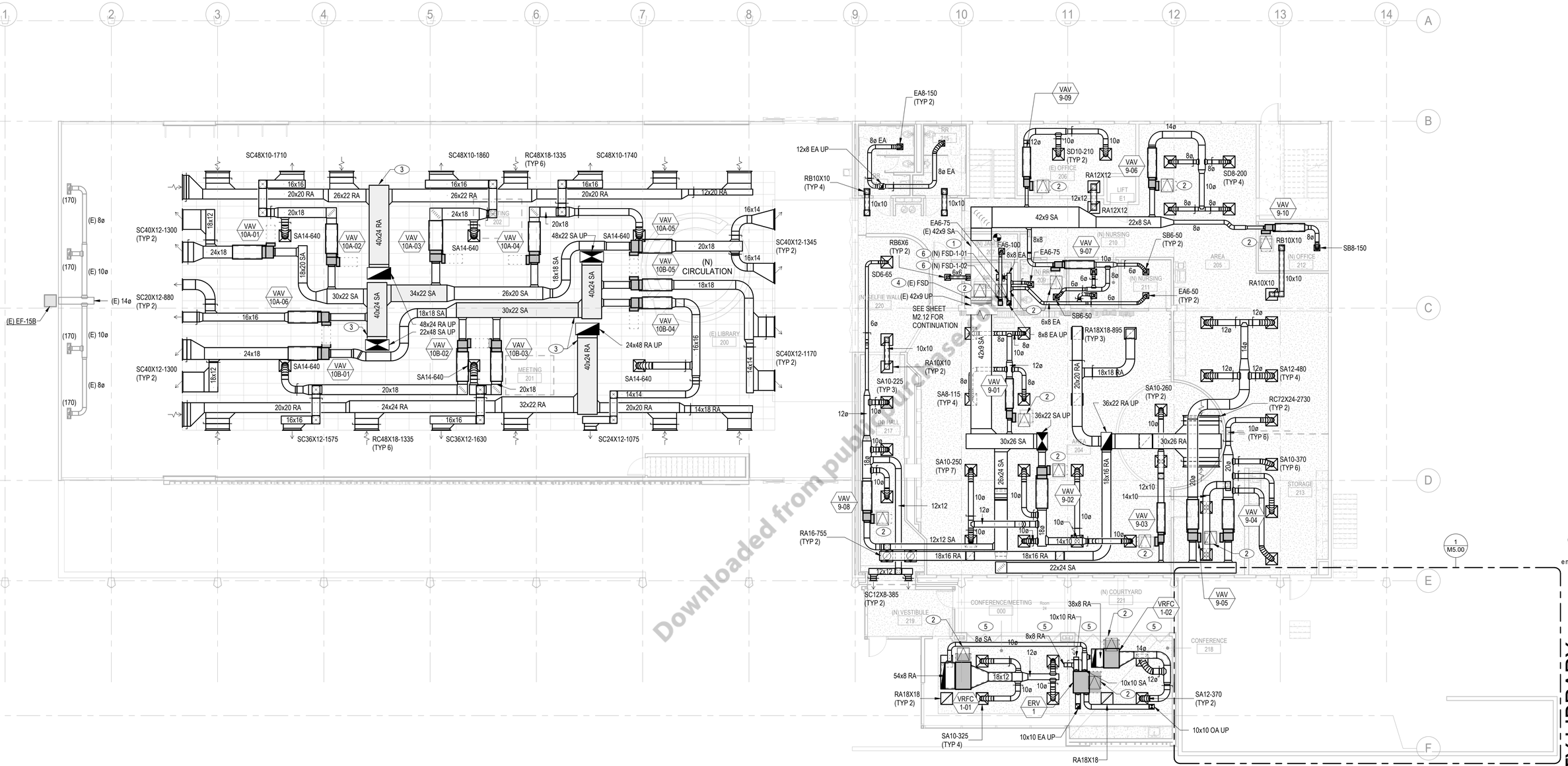
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BASEMENT - HVAC PLAN

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1 FIRST FLOOR - HVAC PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. REFER TO GENERAL NOTES ON SHEET M0.01
B. INSTALL VOLUME DAMPERS ON ALL NEW BRANCH DUCTWORK. PROVIDE REMOTE BALANCING DAMPERS FOR DIFFUSERS IN AREAS WITH HARD LID OR INACCESSIBLE CEILINGS. REFER TO DETAILS.

KEYED NOTES (#)

1 16X12 DOOR LOUVER FOR MAKEUP AIR.

2 24"x24" CEILING ACCESS PANEL. COORDINATE EXACT LOCATION WITH ARCHITECTURAL RCP.

3 PROVIDE MASS LOADED VINYL FOR ALL DUCTWORK IN SHADED AREA.

4 PRESERVE EXISTING FIRE RATED ASSEMBLY AT EXISTING FIRE SMOKE DAMPER LOCATION. CONTRACTOR TO INSPECT AND VERIFY EXISTING FIRE SMOKE DAMPER IS OPERATIONAL AND ENSURE ACCESSIBILITY IS MAINTAINED WITH NEW SPACE LAYOUT.

5 PROVIDE MECHANICAL SYSTEM SHUT-OFF CONTROLS INTERLOCK WITH OPERABLE DOOR PER CMC 140.4(n), REFER TO CONTROLS SHEETS.

6 NEW EXHAUST AIR FIRE SMOKE DAMPER SHALL MATCH EXISTING SUPPLY FIRE SMOKE DAMPER ORIENTATION.

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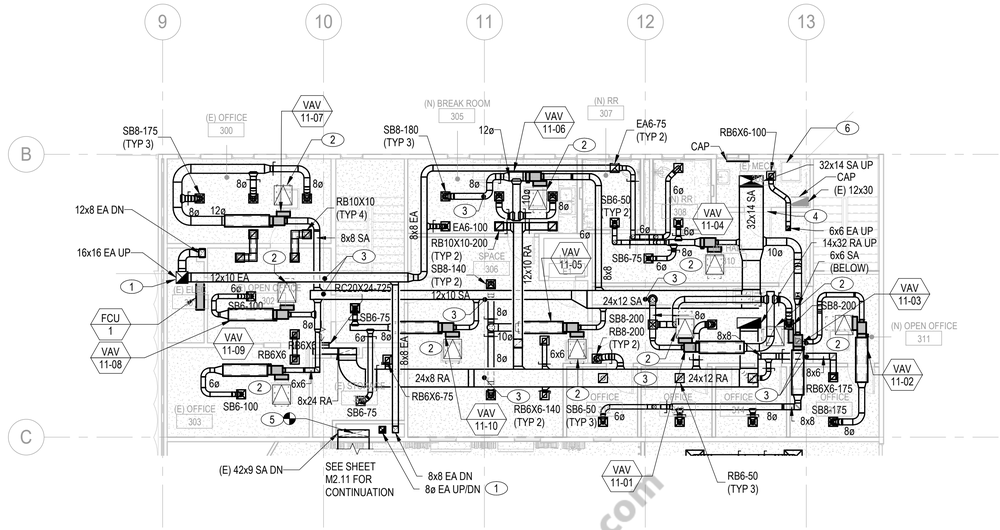
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FIRST FLOOR - HVAC PLAN

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SHEET NOTES

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KEYED NOTES (#)

1 INSULATE EXHAUST RISER 10 FEET FROM THE ROOF.

2 24"x24" CEILING ACCESS PANEL. COORDINATE EXACT LOCATION WITH ARCHITECTURAL RCP.

3 NEW DUCTS THROUGH EXISTING BEAM PENETRATION. CONTRACTOR TO VERIFY IN FIELD SIZE AND ACTUAL LOCATION OF PENETRATION.

4 16X12 DOOR LOUVER FOR MAKEUP AIR.

5 CONNECT TO (E) 42x9 SUPPLY RISER.

6 EXISTING ROOF ACCESS HATCH.

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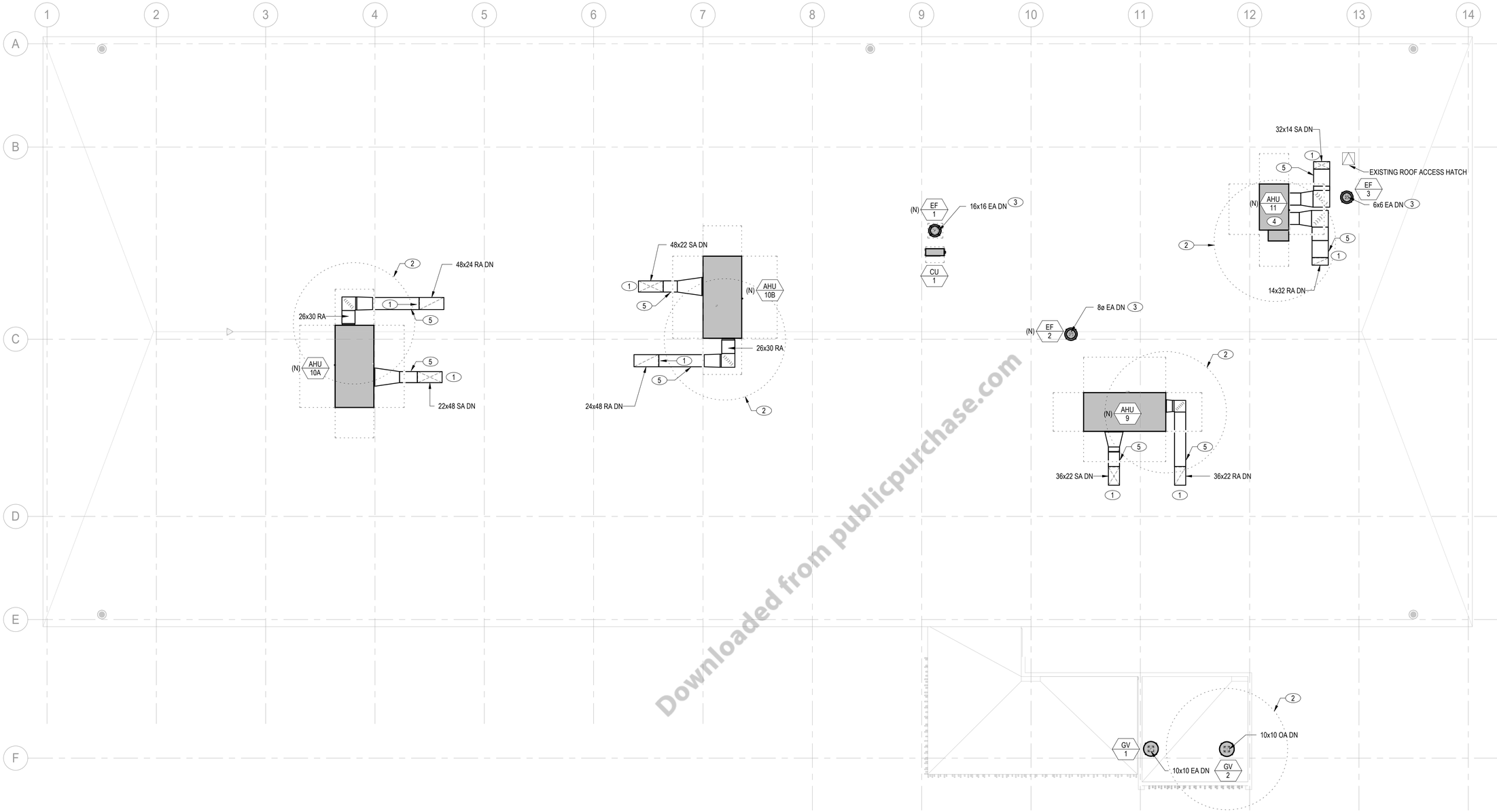
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SECOND FLOOR - HVAC PLAN

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KEYED NOTES (#)

1 NEW DUCT RISER TO UTILIZE EXISTING OPENING LOCATION. REFER TO ARCHITECTURAL TO MAINTAIN PROPER SEAL AROUND NEW PENETRATION TO ACCOMODATE NEW DUCTWORK

2 MAINTAIN A MINIMUM OF 10 FEET DISTANCE OF OUTSIDE AIR INTAKE FROM NEW AND EXISTING EXHAUST AND SANITARY VENTS.

3 NEW DUCT RISER. REFER TO ARCHITECTURAL TO MAINTAIN PROPER SEAL AROUND NEW PENETRATION.

4 PROVIDE MANUFACTURER'S SIDE DISCHARGE ADAPTER CURB.

5 PROVIDE DOUBLE WALL INSULATED DUCTWORK FOR EXPOSED ROOF DUCTWORK. DUCTWORK SHALL BE CONSTRUCTED AND SEALED AIRTIGHT AND WATERTIGHT. THE TOP OF EXTERIOR DUCTS SHALL BE CROSS-BROKEN AND SLOPED 1% TOWARDS EDGE OF DUCT TO ELIMINATE ANY LOCATIONS WHERE RAINWATER CAN COLLECT. OR, PROVIDE ADDITIONAL DUCT SUPPORTS AND MOUNTING ADJUSTMENTS AS NECESSARY TO PREVENT WATER RETENTION ON TOP OF DUCTWORK.SEE SPECIFICATIONS.

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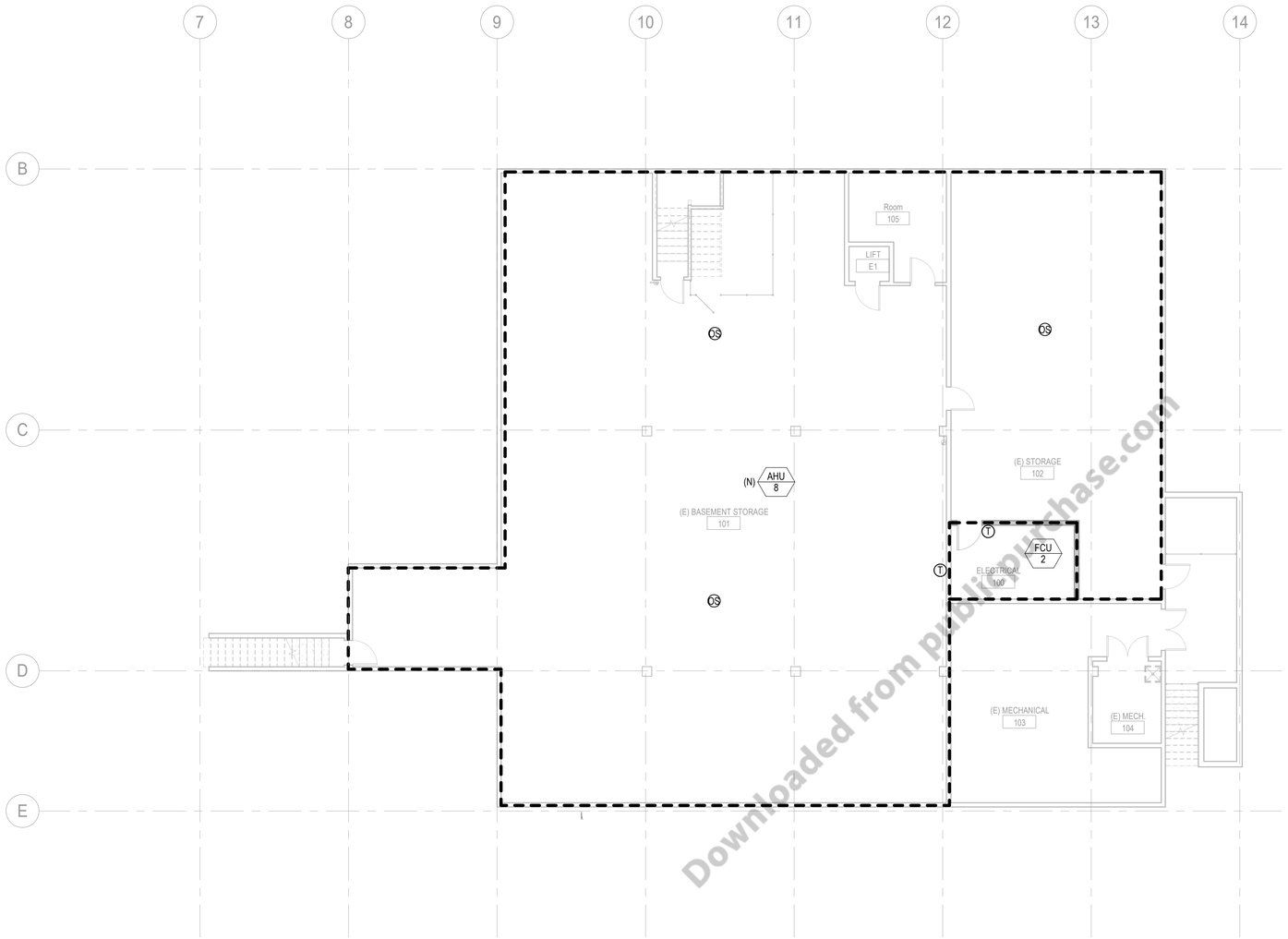
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ROOF - HVAC PLAN

M2.13

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1 BASEMENT - MECHANICAL ZONING PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. COORDINATE THERMOSTAT AND SENSOR LOCATIONS WITH ARCHITECTURAL AND ELECTRICAL PLANS.
B. PROVIDE INSULATED BACKING FOR THERMOSTATS NEAR EXTERIOR FACES.
C. PROVIDE OCCUPANCY SENSOR TIE-IN FOR SPACES REQUIRING OCCUPIED STANDBY MODE PER 2022 BUILDING ENERGY EFFICIENCY STANDARDS SECTION 120.2(e)3.

KEYED NOTES (#)

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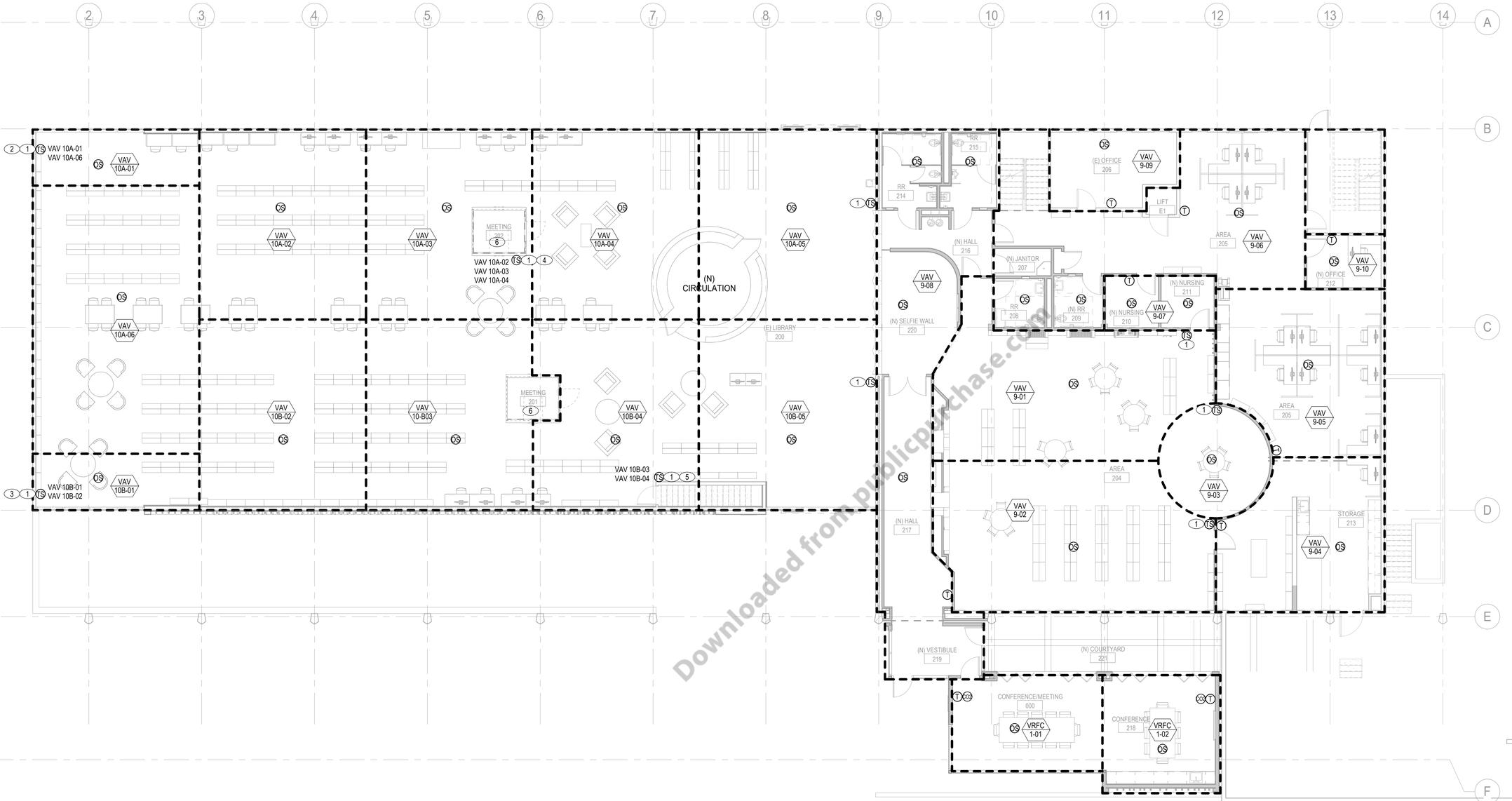
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BASEMENT - ZONING PLAN

M3.10

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1 FIRST FLOOR - HVAC ZONING PLAN

SCALE: 1/8" = 1'-0"

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

N

SHEET NOTES

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B. PROVIDE INSULATED BACKING FOR THERMOSTATS NEAR EXTERIOR FACES.
C. PROVIDE OCCUPANCY SENSOR TIE-IN FOR SPACES REQUIRING OCCUPIED STANDBY MODE PER 2022 BUILDING ENERGY EFFICIENCY STANDARDS SECTION 120.2(e)3.

KEYED NOTES (#)

1 TEMPERATURE SENSING ONLY. NO LOCAL SETPOINT ADJUSTMENT OR READOUT. SETPOINT ADJUSTMENT SHALL BE THROUGH BAS ONLY.

2 PROVIDE SINGLE TEMPERATURE SENSOR FOR ZONES VAV 10A-01 & VAV 10A-06.

3 PROVIDE SINGLE TEMPERATURE SENSOR FOR ZONES VAV 10B-01 & VAV 10B-02.

4 PROVIDE SINGLE TEMPERATURE SENSOR FOR ZONES VAV 10A-02 THRU VAV 10A-04.

5 PROVIDE SINGLE TEMPERATURE SENSOR FOR ZONES VAV 10B-03 & VAV 10B-04.

6 PREFABRICATED MEETING ROOM WITH SELF-CONTAINED VENTILATION SYSTEM. VENTILATION PROVIDED FOR ROOM FROM ADJACENT ZONE.

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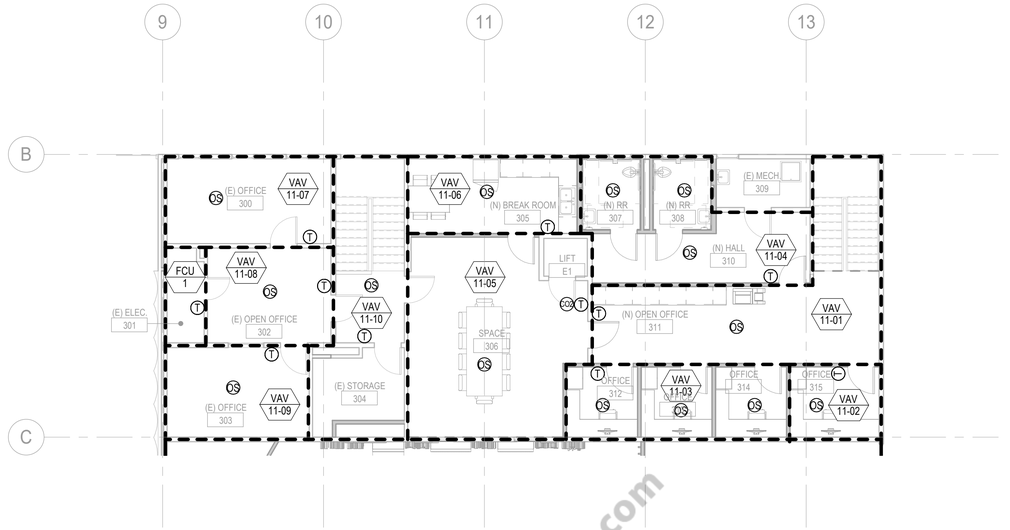
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FIRST FLOOR - HVAC ZONING PLAN

M3.11

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2 SECOND FLOOR - HVAC ZONING PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. COORDINATE THERMOSTAT AND SENSOR LOCATIONS WITH ARCHITECTURAL AND ELECTRICAL PLANS.
B. PROVIDE INSULATED BACKING FOR THERMOSTATS NEAR EXTERIOR FACES.
C. PROVIDE OCCUPANCY SENSOR TIE-IN FOR SPACES REQUIRING OCCUPIED STANDBY MODE PER 2022 BUILDING ENERGY EFFICIENCY STANDARDS SECTION 120.2(e)3.

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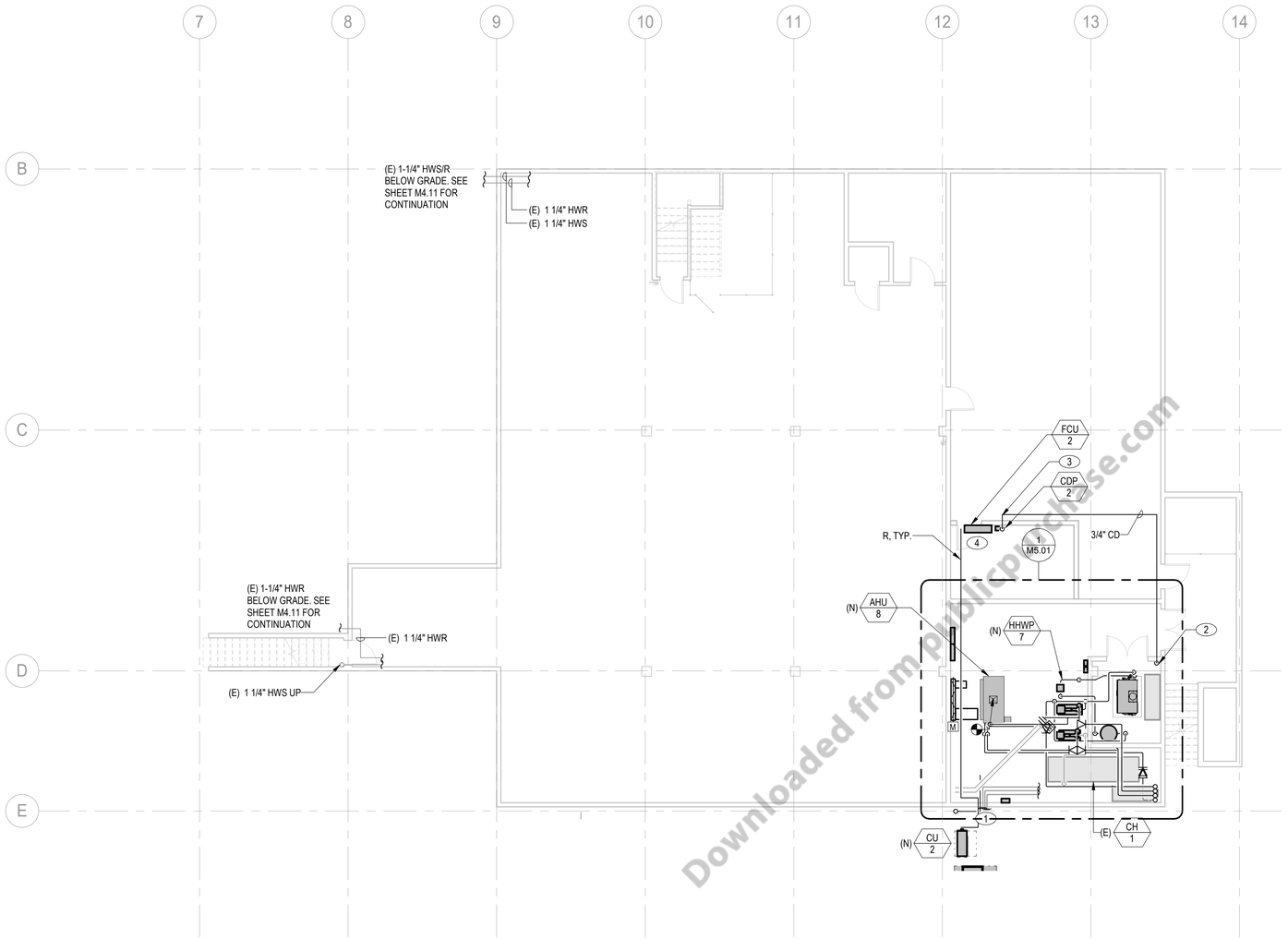
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SECOND FLOOR - HVAC ZONING PLAN

M3.12

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1 BASEMENT - PIPING PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. REFER TO GENERAL NOTES ON SHEET M0.01
B. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF THE HYDRONIC PIPING SYSTEM. CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL PIPING INSTALLATIONS, SUPPORTS, ACCESSORIES, AND TRANSITIONS WHERE REQUIRED AS NECESSARY FOR A COMPLETE WORKABLE SYSTEM.
C. REFRIGERANT PIPE ROUTING IS FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL ROUTING AND VERIFY THAT FINAL REFRIGERANT LINE LENGTHS ARE WITHIN MANUFACTURER'S LINE LENGTH LIMITATIONS.
D. ALL CONDENSATE PIPING IS TO BE ROUTED AT 1/8" PER LINEAR FOOT SLOPE, UNLESS OTHERWISE NOTED. PROVIDE CLEANOUTS PER CPC.
E. ALL SECONDARY CONDENSATE PIPING TO BE 3/4".

KEYED NOTES (#)

1 OPENING SHALL BE SEALED PER ARCHITECT'S REQUIREMENTS.

2 CONDENSATE PIPING TO TERMINATE TO EXISTING FLOOR SINK WITH 1" AIR GAP.

3 PROVIDE CLEANOUT PORT IN ACCESSIBLE LOCATION.

4 SPLIT WALL MOUNT UNITS: PROVIDE A SECONDARY CONDENSATE DRAIN PAN WITH LEAK DETECTION SYSTEM AND MOISTURE ALARM TO THE BAS UNDER CONDENSATE PUMP. DRAIN LINES FROM SECONDARY CONTAINMENT PANS MUST TERMINATE THROUGH ADJACENT WALL IN ESCUTCHEON PLATE WITH AN ELBOW DOWN 6" ABOVE FINISHED FLOOR.

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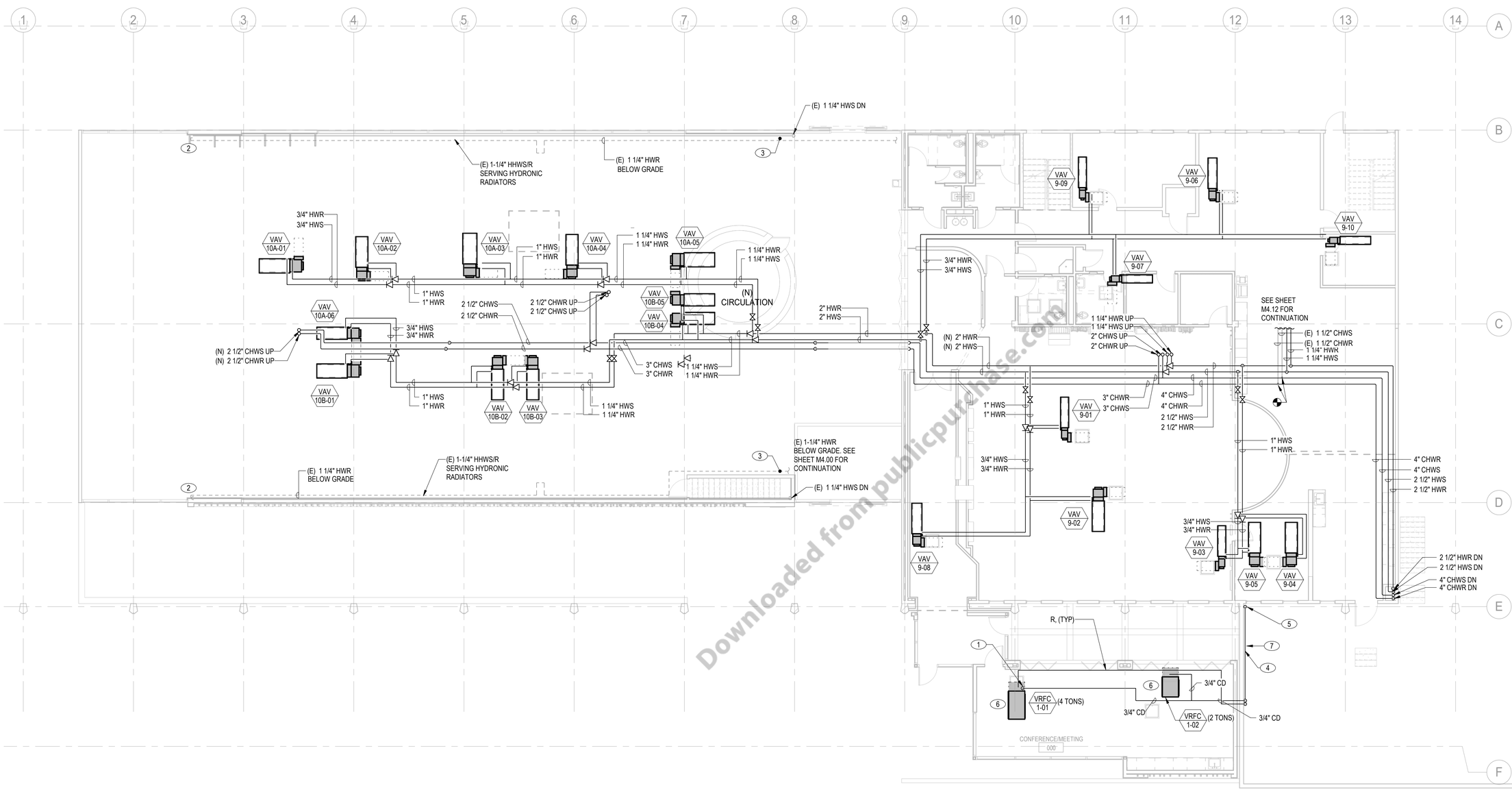
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BASEMENT - PIPING PLAN

M4.00

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1 FIRST FLOOR - PIPING PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. REFER TO GENERAL NOTES ON SHEET M0.01
B. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF THE HYDRONIC PIPING SYSTEM. CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL PIPING INSTALLATIONS, SUPPORTS, ACCESSORIES, AND TRANSITIONS WHERE REQUIRED AS NECESSARY FOR A COMPLETE WORKABLE SYSTEM.
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D. ALL CONDENSATE PIPING IS TO BE ROUTED AT 1/8" PER LINEAR FOOT SLOPE, UNLESS OTHERWISE NOTED. PROVIDE CLEANOUTS PER CPC.
E. ALL SECONDARY CONDENSATE PIPING TO BE 3/4".
F. ALL HWS/R BRANCH PIPING TO VAVS TO BE 3/4" UNLESS NOTED OTHERWISE.

KEYED NOTES (#)

1 PROVIDE CLEANOUT PORT IN ACCESSIBLE LOCATION.

2 THERMOSTAT IN THIS LOCATION CONTROLLING EXISTING 3-WAY VALVE.

3 EXISTING 3-WAY MIXING VALVE IN THIS LOCATION.

4 CONDENSATE AND REFRIGERANT PIPING ROUTED ALONG EXTERIOR WALL.

5 CONDENSATE PIPING TO TERMINATE AT FLOOR SINK IN BASEMENT LEVEL WITH 1" AIR GAP. SEE CONTINUATION ON SHEET M4.00.

6 PROVIDE MANUFACTURER'S FLOAT SWITCH OR AUTOMATIC UNIT SHUTOFF WHEN PRIMARY CONDENSATE DRAIN IS CLOGGED.

7 FOR ALL REFIGERANT PIPING, PROVIDE PIPE SUPPORTS AND INSULATION JACKETING PER SPECIFICATIONS.

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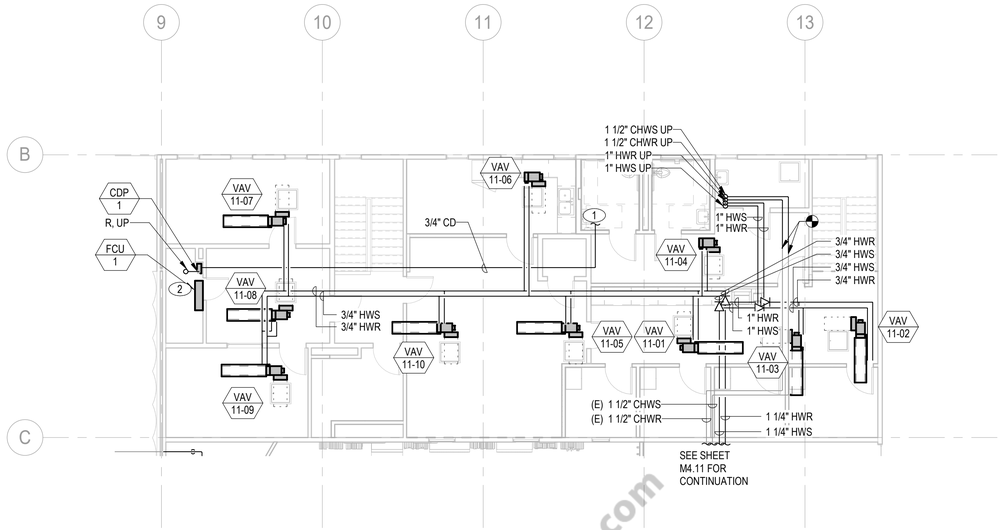
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FIRST FLOOR - PIPING PLAN

M4.11

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2 SECOND FLOOR - PIPING PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. REFER TO GENERAL NOTES ON SHEET M0.01
B. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF THE HYDRONIC PIPING SYSTEM. CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL PIPING INSTALLATIONS, SUPPORTS, ACCESSORIES, AND TRANSITIONS WHERE REQUIRED AS NECESSARY FOR A COMPLETE WORKABLE SYSTEM.
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E. ALL SECONDARY CONDENSATE PIPING TO BE 3/4".
F. ALL HWS/R BRANCH PIPING TO VAVS TO BE 3/4" UNLESS NOTED OTHERWISE.

KEYED NOTES (#)

1 CONNECT CONDENSATE TO NEARBY SINK TAILPIECE, REFER TO PLUMBING PLANS.

2 SPLIT WALL MOUNT UNITS: PROVIDE A SECONDARY CONDENSATE DRAIN PAN WITH LEAK DETECTION SYSTEM AND MOISTURE ALARM TO THE BAS UNDER CONDENSATE PUMP. DRAIN LINES FROM SECONDARY CONTAINMENT PANS MUST TERMINATE THROUGH ADJACENT WALL IN ESCUTCHEON PLATE WITH AN ELBOW DOWN 6" ABOVE FINISHED FLOOR.

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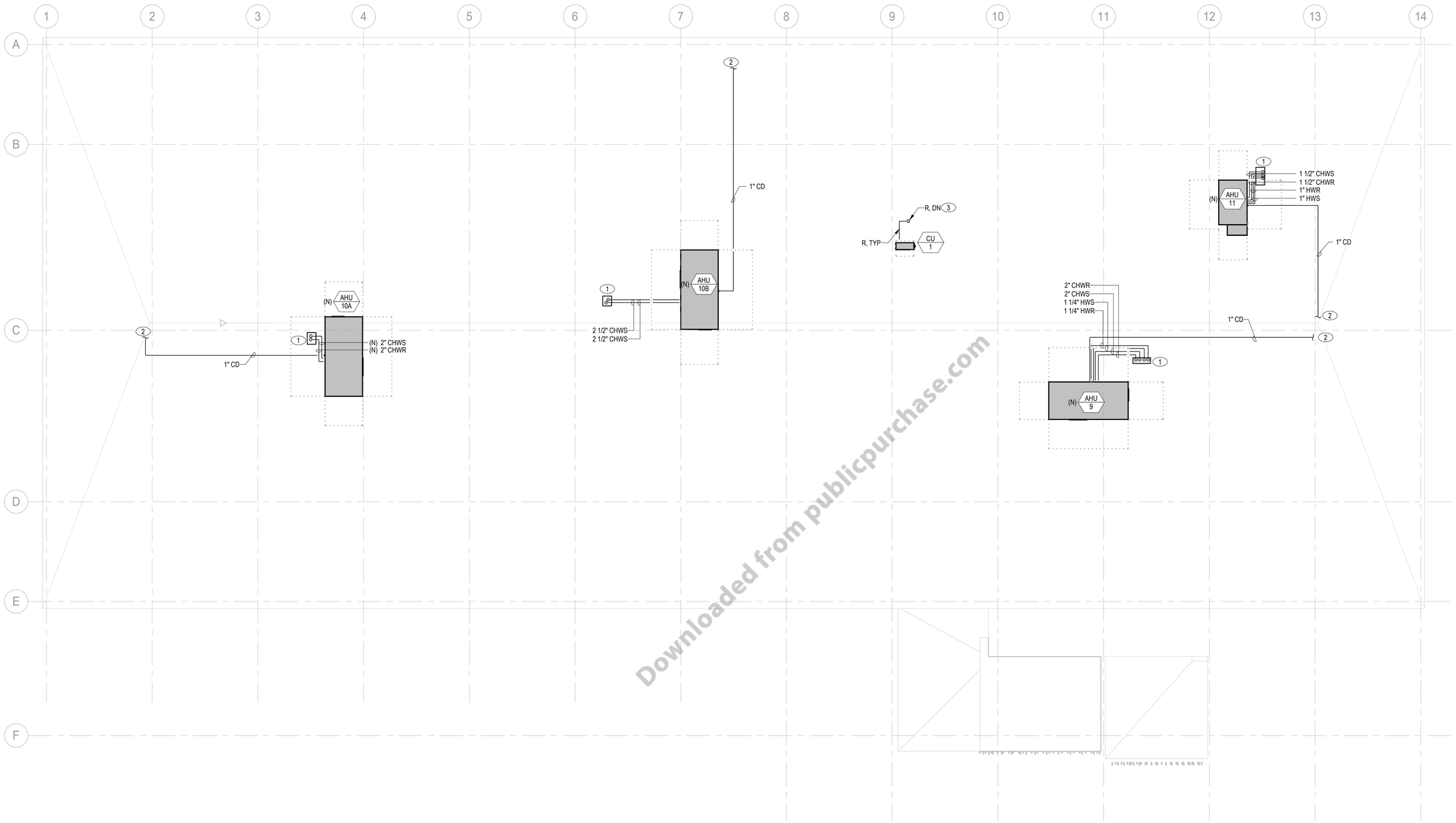
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SECOND FLOOR - PIPING PLAN

M4.12

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1 ROOF - PIPING PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

A. REFER TO GENERAL NOTES ON SHEET M0.01
B. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF THE HYDRONIC PIPING SYSTEM. CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL PIPING INSTALLATIONS, SUPPORTS, ACCESSORIES, AND TRANSITIONS WHERE REQUIRED AS NECESSARY FOR A COMPLETE WORKABLE SYSTEM.
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D. ALL CONDENSATE PIPING IS TO BE ROUTED AT 1/8" PER LINEAR FOOT SLOPE, UNLESS OTHERWISE NOTED. PROVIDE CLEANOUTS PER CPC.
E. ALL SECONDARY CONDENSATE PIPING TO BE 3/4".
F. ALL HWS/R BRANCH PIPING TO VAVS TO BE 3/4" UNLESS NOTED OTHERWISE.

KEYED NOTES (#)

1 PROVIDE NEW PIPE VAULT FOR NEW PIPING. REFER TO ARCHITECT FOR ROOF PIPE CURB AND PENETRATION DETAILS.

2 ROUTE 1" CONDENSATE PIPE TO NEAREST ROOF DRAIN.

3 FOR ALL REFIGERANT PIPING, PROVIDE PIPE SUPPORTS AND INSULATION JACKETING PER SPECIFICATIONS. REFER TO ARCHITECTURAL FOR ROOF PENETRATION ASSEMBLY

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ROOF - PIPING PLAN

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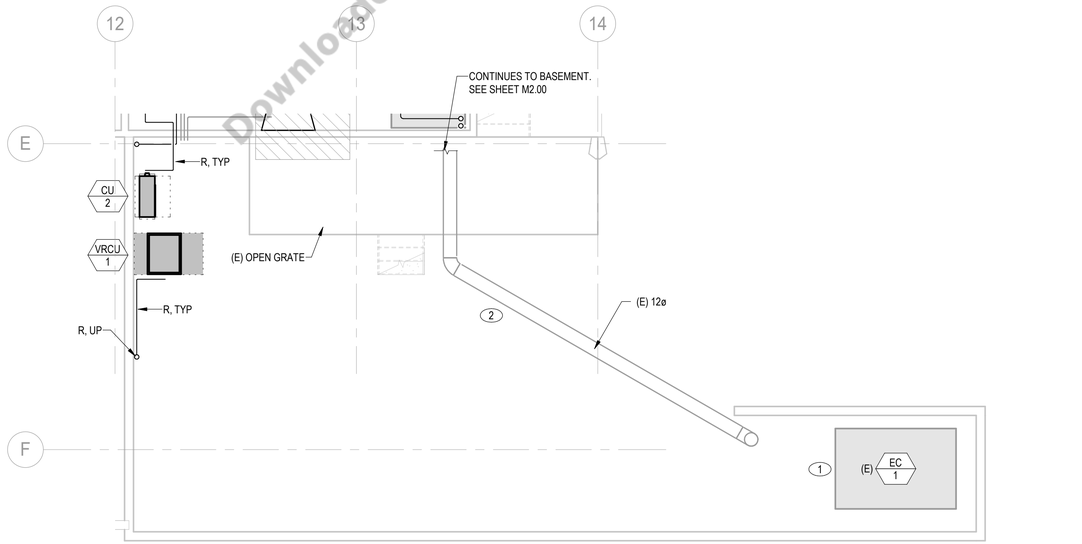
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F. ALL HWS/R BRANCH PIPING TO VAVS TO BE 3/4" UNLESS NOTED OTHERWISE.

KEYED NOTES (#)

1 EVAPORATIVE CONDENSER IS EXISTING TO REMAIN. CONTRACTOR SHALL INSPECT AND TEST THAT UNIT IS FULLY FUNCTIONAL. CONTRACTOR SHALL CARRY ALLOWANCE TO CLEAN AND REPLACE ANY WORN PARTS.

2 BOILER TO BE REPLACED IN-KIND. CONTRACTOR SHALL INSPECT AND TEST EXISTING FLUE ROUTING (INCLUDING UNDERGROUND RUN) FOR LEAKS.



1 **FIRST FLOOR - HVAC PLAN - MECHANICAL YARD**
SCALE: 3/16" = 1'-0"

N

0 5' - 4" 10' - 8" 16' - 0" 21' - 4"

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ENLARGED PLANS

M5.00

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SHEET NOTES

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D. ALL CONDENSATE PIPING IS TO BE ROUTED AT 1/8" PER LINEAR FOOT SLOPE, UNLESS OTHERWISE NOTED. PROVIDE CLEANOUTS PER CPC.

KEYED NOTES (#)

1 FIELD VERIFY FREE AREA OF EXISTING DOOR LOUVERS. MINIMUM FREE AREA SHALL BE 6.5 SQFT TOTAL PER BOILER MANUFACTURER'S INSTALALTION REQUIREMENTS.

2 EXISTING 120 GALLON EXPANSION TANK TO REMAIN

3 DISCHARGE BOILER DRAIN LINE TO EXISTING FLOOR SINK

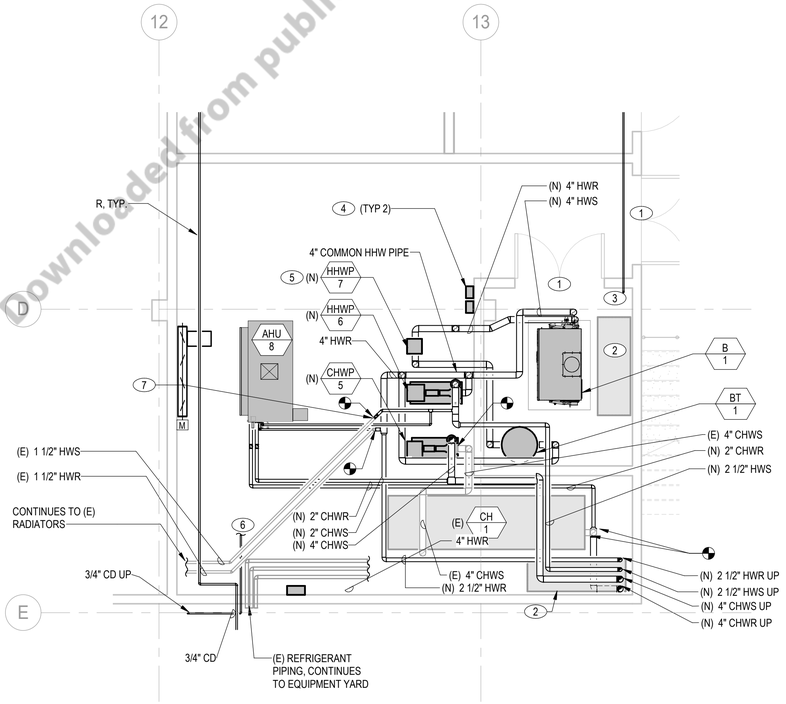
4 VARIABLE FREQUENCY DRIVES FOR NEW PUMPS

5 MANUFACTURER'S VARIABLE FREQUENCY DRIVE MOUNTED ON PUMP.

6 CONDENSATE PIPING TO TERMINATE TO NEAREST EXISTING FLOOR SINK WITH 1" AIR GAP.

7 PROVIDE NEW AUTO-CONTROL VALVE RATED FOR 36 GPM.

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1 BASEMENT - MECHANICAL ROOM - PIPING ENLARGED PLAN

SCALE: 1/4" = 1'-0"

N

0 4' - 0" 8' - 0" 12' - 0" 16' - 0"

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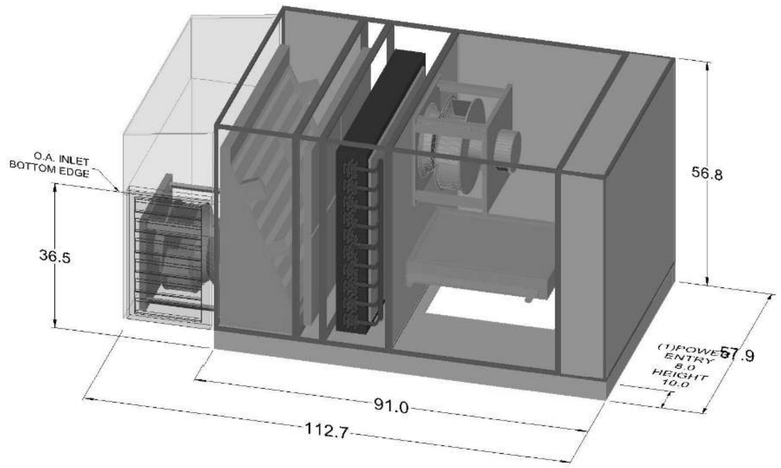
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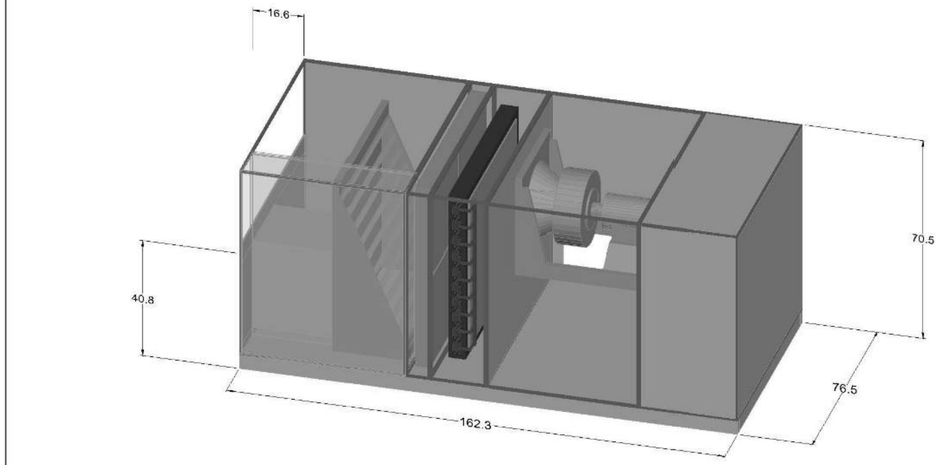


Notes:
(1) Recommended location for optional field cut side power connection.

	Unit Tag: AHU-11_ALT4			Sales Office: NORMAN S WRIGHT			DAIKIN
Product: Rebel	Project Name: Kings County Library - Hanford			Sales Engineer:			13600 Industrial Park Blvd. Minneapolis, MN 55441
Model: DAHA07A	Apr. 08, 2025	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 0.25"	Dwg Units: in [mm]	www.DaikinApplied.com Software Version: 13.40

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4 AHU-11 ENLARGED PLAN
SCALE: NONE

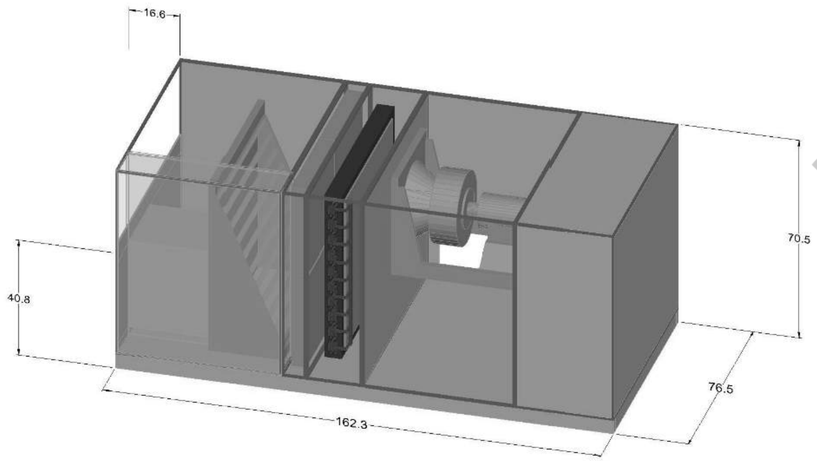


Notes:
(1) Recommended location for optional field cut side power connection.

	Unit Tag: AHU-10A_ALT4			Sales Office: NORMAN S WRIGHT			DAIKIN
Product: Rebel	Project Name: Kings County Library - Hanford			Sales Engineer:			13600 Industrial Park Blvd. Minneapolis, MN 55441
Model: DAHA21A	Apr. 08, 2025	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 0.25"	Dwg Units: in [mm]	www.DaikinApplied.com Software Version: 13.40

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2 AHU-10A ENLARGED PLAN
SCALE: NONE

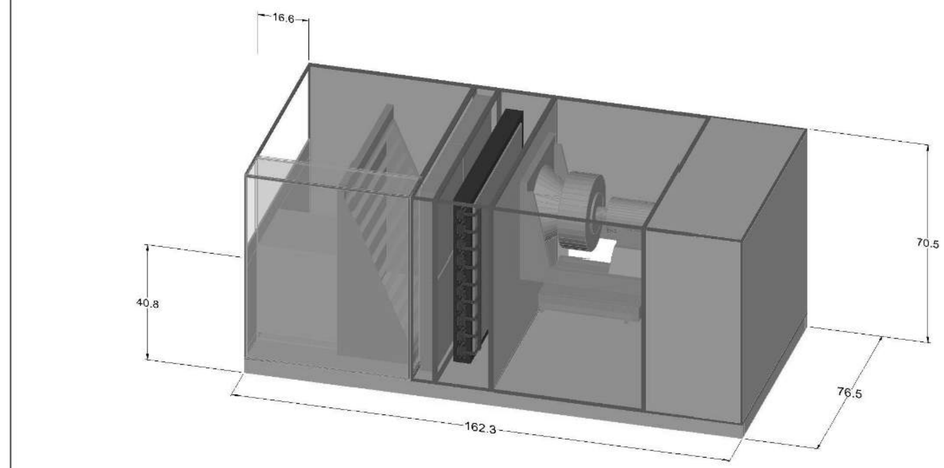


Notes:
(1) Recommended location for optional field cut side power connection.

	Unit Tag: AHU-10B_ALT4			Sales Office: NORMAN S WRIGHT			DAIKIN
Product: Rebel	Project Name: Kings County Library - Hanford			Sales Engineer:			13600 Industrial Park Blvd. Minneapolis, MN 55441
Model: DAHA21A	Apr. 08, 2025	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 0.25"	Dwg Units: in [mm]	www.DaikinApplied.com Software Version: 13.40

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3 AHU-10B ENLARGED PLAN
SCALE: NONE



Notes:
(1) Recommended location for optional field cut side power connection.

	Unit Tag: AHU-9_ALT4			Sales Office: NORMAN S WRIGHT			DAIKIN
Product: Rebel	Project Name: Kings County Library - Hanford			Sales Engineer:			13600 Industrial Park Blvd. Minneapolis, MN 55441
Model: DAHA19A	Apr. 08, 2025	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 0.25"	Dwg Units: in [mm]	www.DaikinApplied.com Software Version: 13.40

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1 AHU-9 ENLARGED PLAN
SCALE: NONE

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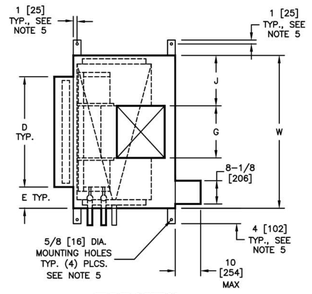
ENLARGED PLANS

M5.02

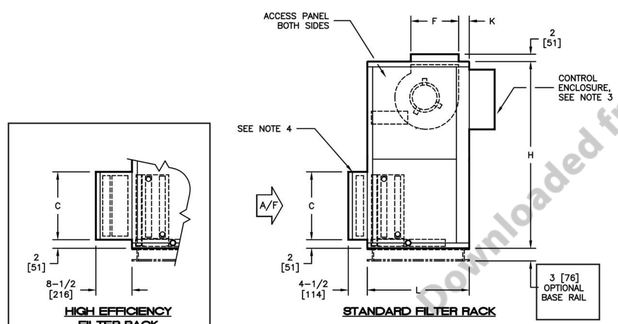
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NOTES:

1. All dimensions are Inches [millimeters]. All dimensions are ±1/4" [6mm]. Metric values are soft conversion.
2. Right hand unit shown, left hand unit opposite. Motor/drive location may be specified Left or Right Hand. Standard control enclosure location matches motor/drive position.
3. Provide sufficient clearance to permit access to controls and comply with applicable codes and ordinances.
4. Flat filter rack may be located at unit inlet as required. See drawing FR-001 for filter rack details.
5. Base rail is optional on the base unit. See drawing BR-001. Base rails must be used with mixing box.
6. See coil connection detail drawings for coil connection sizes and locations.



TOP VIEW



HIGH EFFICIENCY FILTER RACK

STANDARD FILTER RACK

SIDE VIEWS

DIMENSIONS

SIZE	FAN SIZE	L	W	H	C	D	E	F	G	J	K
08	9 X 6 [229 X 152]	24 [610]	30 [762]	44 [1118]	16 [406]	20 [508]	5 [127]	10-3/8 [264]	8-3/8 [213]	10-7/8 [276]	2-1/2 [64]
12	9 X 6 [229 X 152]	24 [610]	36 [914]	44 [1118]	16 [406]	25 [635]	5-1/2 [140]	10-3/8 [264]	8-3/8 [213]	13-7/8 [352]	2-1/2 [64]
16	10 X 8 [254 X 203]	24 [610]	44 [1118]	44 [1118]	16 [406]	39-1/2 [1003]	2-1/4 [57]	11-1/2 [292]	10-5/8 [270]	16-3/4 [425]	2-1/2 [64]
20	10 X 8 [254 X 203]	30 [762]	50 [1270]	50 [1270]	16 [406]	44-1/2 [1130]	2-3/4 [70]	11-1/2 [292]	10-5/8 [270]	19-3/4 [502]	2-1/2 [64]
30	10 X 8 [254 X 203]	30 [762]	59 [1499]	56 [1422]	25 [635]	51 [1295]	4 [102]	11-1/2 [292]	10-5/8 [270]	24-1/4 [629]	10 [254]
40	10 X 8 [254 X 203]	30 [762]	68 [1727]	59 [1499]	25 [635]	59 [1499]	4-1/2 [114]	11-1/2 [292]	10-5/8 [270]	28-3/4 [730]	10 [254]

TITLE: MODEL VDD
DIRECT DRIVE BLOWER COIL UNIT
BASIC UNIT – DISCHARGE ARGT. 2

ENVIRO-TEC

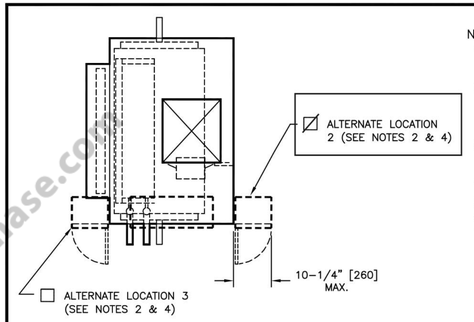
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CKD BY: CV	DATE: 04/06/18	REV: 00	

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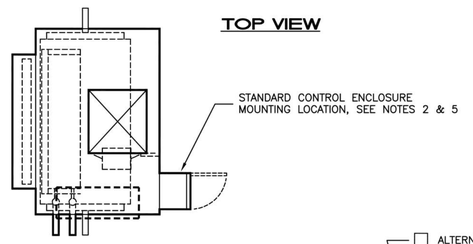
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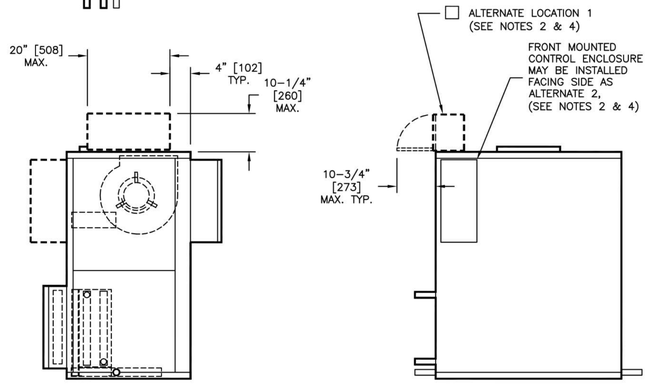
NOTES:

1. All dimensions are Inches [millimeters]. All dimensions are ±1/4" [6mm]. Metric values are soft conversion.
2. Right hand unit shown, left hand unit opposite. Motor/drive location may be specified Left or Right Hand. Standard control enclosure and alternate control enclosure locations match motor/drive position.
3. Provide sufficient clearance to permit access to controls and comply with applicable codes and ordinances.
4. Enclosure may overhang unit cabinet up to 1/2" [13].
5. Enclosure cover hinging direction may vary.
6. Model VDD unit shown.
7. Drawing depicts control box locations but not actual blower arrangement.



TOP VIEW





SIDE VIEW

FRONT VIEW

TITLE: VERTICAL BCU, DIRECT DRIVE
CONTROL ENCLOSURE MOUNTING
ALTERNATE LOCATIONS

ENVIRO-TEC

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CKD BY: NRC	DATE: 1/10/2020	REV: B	

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1 AHU-8 ENLARGED PLANS

SCALE: NONE

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M5.03

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SHEET NOTES

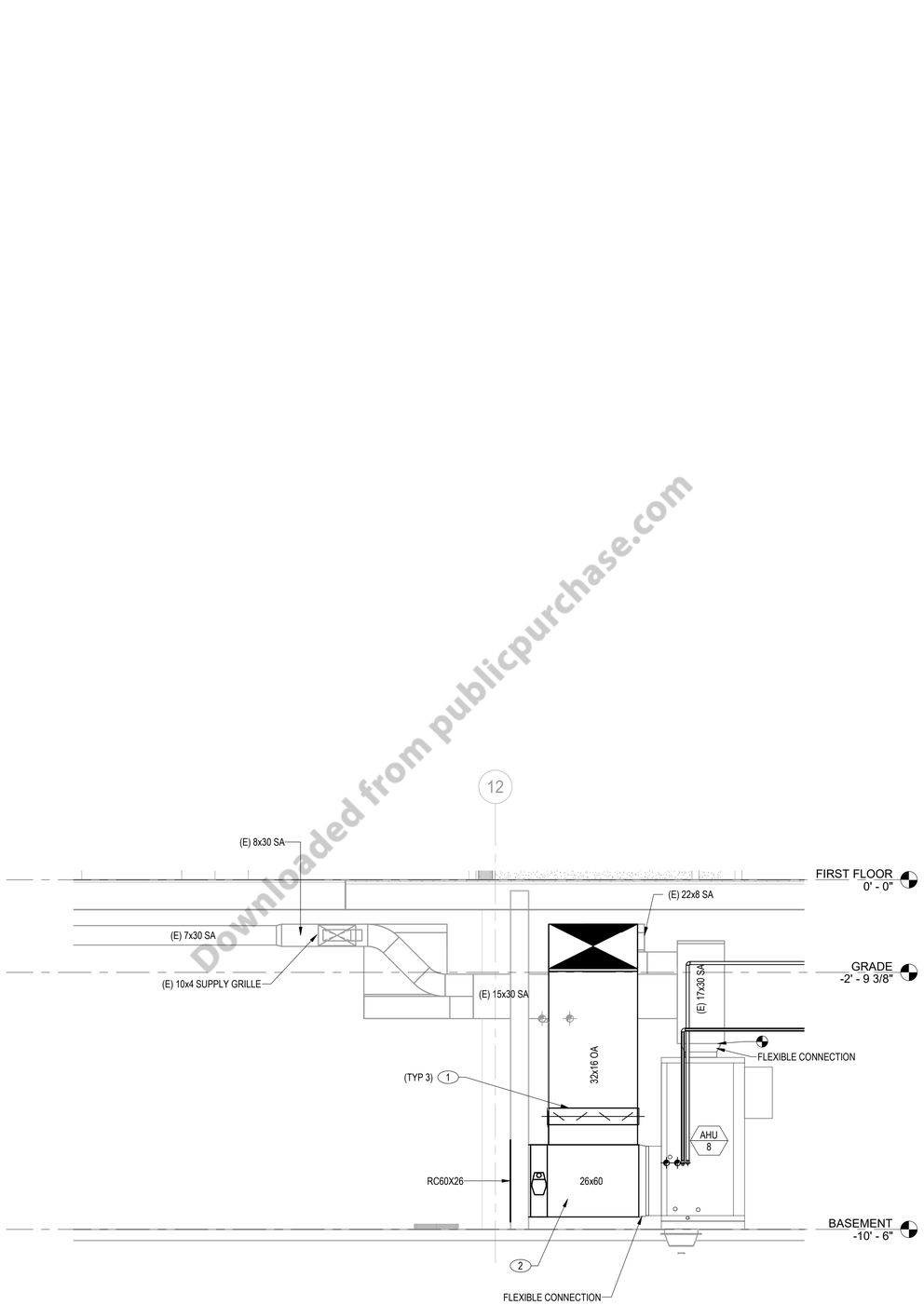
A. REFER TO GENERAL NOTES ON SHEET M0.01

KEYED NOTES (#)

1 MOTORIZED CONTROL DAMPER IN OUTSIDE AIR AND RETURN AIR DUCTS. 120V/1P. COORDINATE WITH ELECTRICAL FOR POWER.

2 FIELD FABRICATED MIXING BOX.

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1 AHU-8 SECTION - LOOKING NORTH

SCALE: 1/2" = 1'-0"

0 2' - 0" 4' - 0" 6' - 0" 8' - 0"

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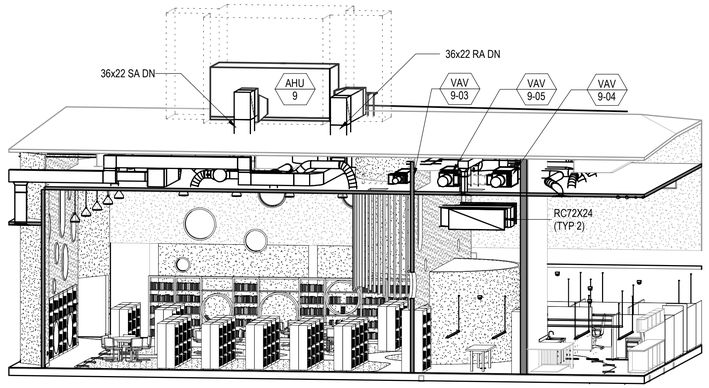
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MECHANICAL SYSTEM SECTION VIEWS

M5.04

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1 3D VIEW - CHILDREN'S AREA LOOKING NORTHWEST

SCALE: NONE

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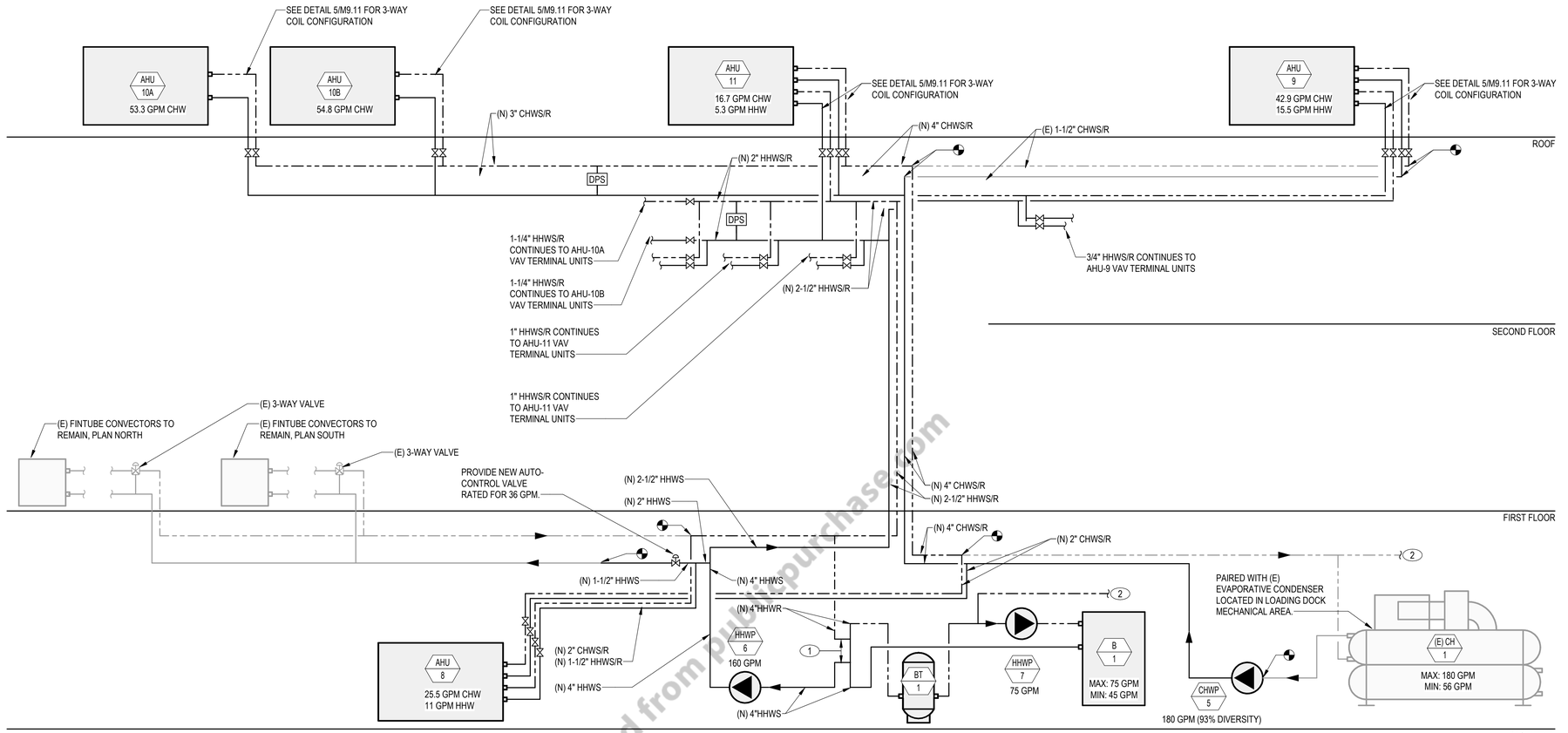
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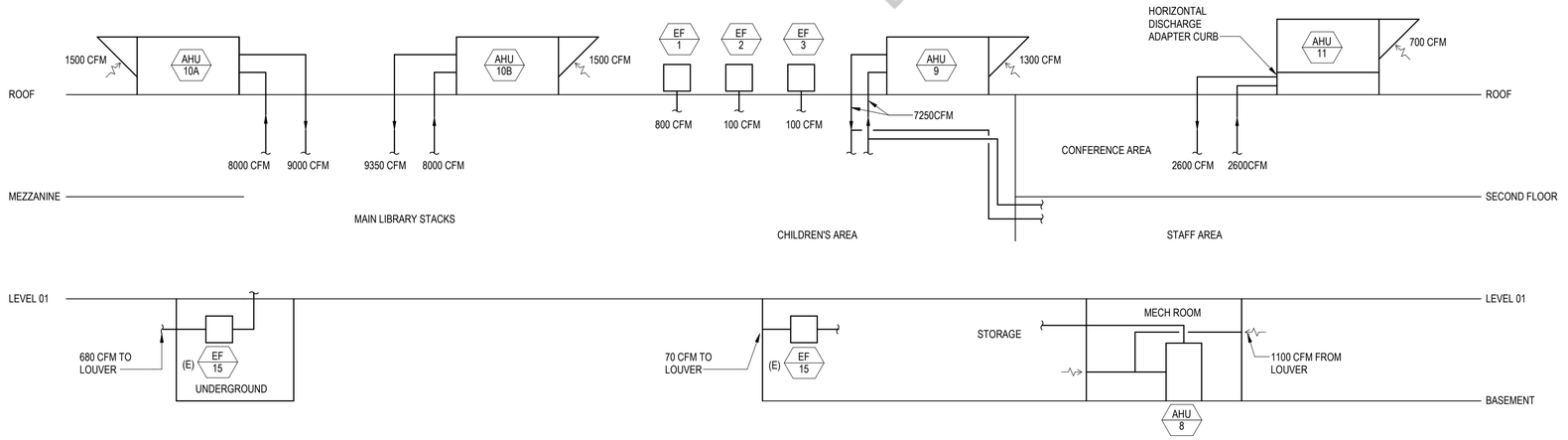
KEYED NOTES (#)

1. INSTALL CLOSELY SPACED TEES NO FURTHER THAN 4 DIAMETERS APART.
2. TO EXISTING EXPANSION TANK.



2 HYDRONIC SYSTEM DIAGRAM

SCALE: 12" = 1'-0"



BUILDING AIR BALANCE

EQUIPMENT TAG	SUPPLY AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR (CFM)
AHU-8	3360	3360	
AHU-9	7250	7250	
AHU-10A	9000	8000	
AHU-10B	9350	8000	
AHU-11	2600	2600	
EF-1	0	0	800
EF-2	0	0	100
EF-2	0	0	100
(E) EF-15	0	0	70
(E) EF-15B	0	0	680
TOTAL (CFM)	31560	-29210	-1750
BUILDING TOTAL (CFM)	31560-29210-1750= + 600 CFM AHU-10A&10B FANS TO MODULATE TO MAINTAIN POSITIVE BUILDING PRESSURE.		

1 AIRSIDE SYSTEM RISER DIAGRAM

SCALE: 1/8" = 1'-0"

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HVAC SYSTEM DIAGRAMS

M6.00

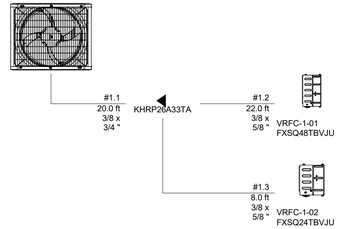
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SHEET NOTES

A. REFER TO GENERAL NOTES ON SHEET M0.01
B. REFRIGERANT PIPING DIAGRAMS ARE SCHEMATIC IN NATURE. FINAL ROUTING OF PIPING AND WIRING MUST BE DETERMINED BY THE INSTALLING CONTRACTOR. FINAL PIPE SIZING AND REFRIGERANT CHARGE SHALL BE DETERMINED BY ACTUAL INSTALLED CONDITIONS AND COORDINATED WITH THE MANUFACTURER.

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Client	USA
Project	Kings County Library - Hanford Branch
Title	Piping schematics VRCU-1 Air cooled heat pump VRV EMERION-B-(460V) RXYQ72AAYDB
Date	10/24/2024
Drawing No	VRCU-1 RXYQ72AAYDB



1 VRF SYSTEM DIAGRAM

SCALE: NONE

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HVAC SYSTEM DIAGRAMS

M6.01

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GENERAL

A. BACNET COMMUNICATIONS INTERFACE
   1. FOR ALL EQUIPMENT DESIGNATED WITH A BACNET COMMUNICATION INTERFACE MODULE, THE CONTROLS SUBCONTRACTOR MUST REVIEW THE SEQUENCE OF OPERATION IDENTIFIED BELOW AND COORDINATE WITH EACH APPROVED EQUIPMENT MANUFACTURER TO PROVIDE THE DESIGNATED POINTS EITHER THROUGH THE INTERFACE OR A HARD WIRED CONNECTION (AT NO ADDITIONAL COST) WHERE CAPABILITY IS NOT AVAILABLE THROUGH INTERFACE.
   2. IDENTIFY POINTS TO BE EITHER COMMANDED, TRENDED OR MONITORED THROUGH THE INTERFACE.
   3. AT A MINIMUM, THE BAS MUST HAVE CAPABILITY TO ACCESS THE FOLLOWING FUNCTIONS FOR THE SYSTEM AND ALL SUBEQUIPMENT: SYSTEM ENABLE, EQUIPMENT ENABLE, STATUS, ALARM, TEMPERATURE, PRESSURE, RESET SIGNALS, MAINTENANCE ALARM, OPERATION MODE, RUN TIME, FIRING/INPUT RATE, SET POINT ADJUSTMENT, DELAY AND SCHEDULING.
   4. THE CONTROLS SUBCONTRACTOR MUST COORDINATE WITH EACH APPROVED EQUIPMENT MANUFACTURER TO PROVIDE A FULL LIST OF AVAILABLE POINTS AVAILABLE THROUGH THE INTERFACE. ALL FUNCTIONS TO BE MAPPED THROUGH THE INTERFACE SHOULD BE SUBMITTED FOR ENGINEER APPROVAL.

3 GENERAL COMMUNICATION

SCALE: NONE

ELECTRIC METER

A. THE BAS MUST MONITOR THE ELECTRIC CONSUMPTION ON A CONTINUAL BASIS, REFER TO ELECTRICAL SPECIFICATIONS FOR METER WITH BACNET CAPABILITY.
B. THESE VALUES MUST BE MADE AVAILABLE TO THE SYSTEM AT ALL TIMES.
   1. PEAK DEMAND HISTORY: PEAK READINGS MUST BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.
   2. USAGE HISTORY: THE BAS MUST MONITOR AND RECORD ELECTRIC METER READINGS SO AS TO PROVIDE A POWER CONSUMPTION HISTORY. USAGE READINGS MUST BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.
   3. DEMAND LEVELS: THE BAS MUST SET THE SYSTEM DEMAND LEVEL BASED ON THE CURRENT POWER CONSUMPTION READINGS FROM THE ELECTRIC METER. THERE MUST BE SIX DAILY TIME PERIODS IN WHICH THE DEMAND MUST BE ADJUSTED ON THREE LEVELS. THESE DEMAND LEVELS MUST BE AVAILABLE FOR FACILITY EQUIPMENT TO UTILIZE FOR DEMAND LIMITING.
      a. DEMAND LEVEL 1: POWER CONSUMPTION HAS EXCEEDED THE FIRST DEMAND LEVEL THRESHOLD .
      b. DEMAND LEVEL 2: POWER CONSUMPTION HAS EXCEEDED THE SECOND DEMAND LEVEL THRESHOLD .
      c. DEMAND LEVEL 3: POWER CONSUMPTION HAS EXCEEDED THE THIRD DEMAND LEVEL THRESHOLD .
C. ALARM MUST BE GENERATED AS FOLLOWS:
   1. METER FAILURE: SENSOR READING INDICATES A LOSS OF PULSE OUTPUT FROM THE ELECTRIC METER.

OUTSIDE AIR CONDITIONS

A. THESE VALUES MUST BE MADE AVAILABLE TO THE SYSTEM AT ALL TIMES:
   1. OUTSIDE AIR CONDITIONS: THE BAS MUST READ THE OUTSIDE AIR TEMPERATURE AND DEWPOINT (HUMIDITY) FROM THE DEDICATED OUTSIDE AIR SYSTEM'S CONTROLLER AND CALCULATE THE OUTSIDE AIR ENTHALPY ON A CONTINUAL BASIS.
   2. EXTREME TEMPERATURES: THE BAS MUST MONITOR AND RECORD THE HIGH AND LOW TEMPERATURE READINGS FOR THE OUTSIDE AIR. THESE READINGS MUST BE RECORDED ON A DAILY, MONTH-TO-DATE,AND YEAR-TO-DATE BASIS.
B. ALARM MUST BE GENERATED AS FOLLOWS:
   1. HARDWARE COMMUNICATIONS FAILURE: SENSOR READING INDICATES SHORTED OR DISCONNECTED SENSOR. IN THE EVENT OF A SENSOR FAILURE, AN ALTERNATE OUTSIDE AIR CONDITIONS SENSOR MUST BE MADE AVAILABLE TO THE SYSTEM WITHOUT INTERRUPTION IN SENSOR READINGS.
      a. IF AN OA TEMP SENSOR CANNOT BE READ, A DEFAULT VALUE OF 65°F WILL BE USED.
      b. IF AN OA HUMIDITY SENSOR CANNOT BE READ, A DEFAULT VALUE OF 50 % RH WILL BE USED.

SHELTER-IN-PLACE EMERGENCY MODE

A. A MANUAL OVERRIDE MUST BE PROVIDED WITH THREE MODES THAT CAN BE ACTIVATED BY THE BUILDING OPERATOR BASED ON EXTERNAL CONDITIONS. COORDINATE WITH LLNL IF PHYSICAL INTERFACE OR ACTIVATION ON BAS FRONT-END ONLY IS DESIRED. THAT MAY REQUIRE CRITICAL SYSTEM RECONFIGURATION AS FOLLOWS:
   1. NORMAL OPERATION
   2. EMERGENCY SHELTER-IN-PLACE
   3. EMERGENCY SHUT-DOWN
B. RUN CONDITIONS
   1. NORMAL OPERATION
      A. ALL DAILY FUNCTIONS AND SCHEDULES ARE OPERATING NORMALLY.
   2. EMERGENCY SHELTER-IN-PLACE (NO OUTSIDE AIR OR EXHAUST)
      A. ALL PROGRAMMED SUPPLY FAN AND TEMPERATURE CONTROL FEATURES MUST OPERATE AS NORMAL WITH THE FOLLOWING EXCEPTIONS:
         1. ALL EXHAUST AIR FANS MUST BE DEENERGIZED.
         2. ALL OUTSIDE AIR FANS MUST BE DEENERGIZED.
         3. ALL OUTSIDE AIR INTAKE DAMPERS MUST BE CLOSED.
         4. ALL EXHAUST AIR DAMPERS MUST BE CLOSED
   3. EMERGENCY SHUT-DOWN: ALL HVAC SYSTEMS MUST BE DEENERGIZED, INCLUDING FANS, VFDS, ETC. ALL DAMPERS MUST BE CLOSED.

LEAK DETECTION

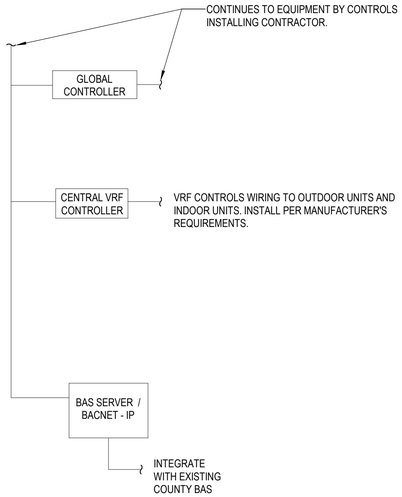
A. WATER LEAK SENSORS ARE CONNECTED TO THE BAS TO ALARM AND/OR STOP EQUIPMENT ON DETECTING THE PRESENCE OF WATER IN THE FOLLOWING LOCATIONS:
   1. SECONDARY CONDENSATE DRIP PAN BELOW AIR CONDITIONING AIR HANDLING UNITS AND FAN COILS LOCATED ABOVE SPACES WITH ELECTRICAL AND/OR ELECTRONIC EQUIPMENT.
   2. PANS UNDER CONDENSATE PUMPS.
   3. ON THE FLOOR OF MECHANICAL ROOMS ADJACENT TO ELECTRICAL EQUIPMENT AND/OR DATA/ELECTRONICS EQUIPMENT ROOMS.
B. ALARMS:
   1. ALARMS MUST BE INITIATED UPON THE INITIAL DETECTION OF WATER BY ANY PRIMARY WATER SENSORS.

2 METERING AND MONITORING

SCALE: NONE

NOTES:

1. CONTROLS INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL NEW BUILDING CONTROLS FOR INTEGRATION TO THE COUNTY BUILDING AUTOMATION SYSTEM.
2. THE TERMS "BUILDING AUTOMATION SYSTEM" (BAS), "BUILDING MANAGEMENT SYSTEM" (BMS), AND "ENERGY MANAGEMENT CONTROL SYSTEM" (EMCS) SHALL BE CONSIDERED SYNONYMOUS.
3. CONTRACTOR SHALL COORDINATE AMONG TRADES AND WITH FINAL CONTROLS SHOP DRAWINGS TO PROVIDE DATA DROPS FOR ALL BAS CONTROLLERS AS NEEDED. ALL FINAL IT NETWORK TERMINATIONS SHALL BE COORDINATED WITH THE LLNL.
4. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL TRADE TO PROVIDE 120V POWER FOR THE BUILDING CONTROLLER(S) WHERE NECESSARY.
5. ALL ROOM INFORMATION ON THE GRAPHICAL FRONT-END SHALL MATCH FINAL ROOM NAME AND NUMBER DESIGNATIONS. COORDINATE WITH LLNL AND ARCHITECT.
6. ALL SCHEDULES, SET POINTS, LIMITS, AND CONTROLS SHALL BE ADJUSTABLE BY THE LLNL AT THE FRONT END.
7. CONTROLS INSTALLING CONTRACTOR SHALL PROVIDE FRONT END SCHEDULE SUMMARY PAGES AND EQUIPMENT SUMMARY PAGES LISTING ALL SIMILAR EQUIPMENT SEPARATED PER AREA OR BUILDING AS APPLICABLE. SUMMARY PAGES SHALL LIST ALL COMMON SETPOINTS AND MEASURED POINTS.
8. CONTROLS INSTALLING CONTRACTOR SHALL PROVIDE VIRTUAL SEQUENCE PAGES AT FRONT END BASED ON FINAL AS-BUILTS, INCLUDING ALL MODIFICATIONS MADE IN THE FIELD.
9. CONTROLS INSTALLING CONTRACTOR TO INCLUDE PDF FILES OF A COMPLETE PROJECT POINTS LIST, SYSTEM DIAGRAM AND SEQUENCE OF OPERATIONS FOR ALL EQUIPMENT EXPORTED FROM THE COMPLETED CONTROLS SYSTEM AS PART OF THE AS-BUILT DOCUMENTATION RECORDS.



1 BAS ARCHITECTURE

SCALE: NONE

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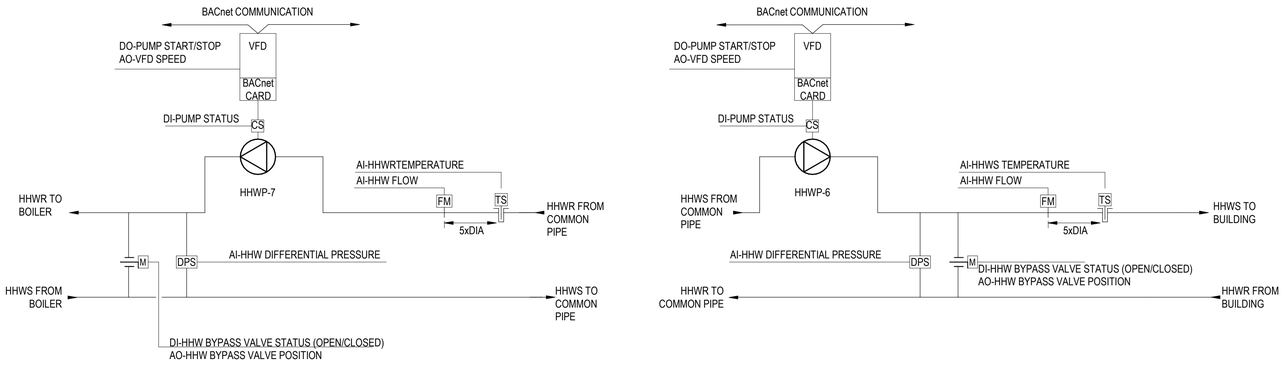
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MECHANICAL CONTROLS

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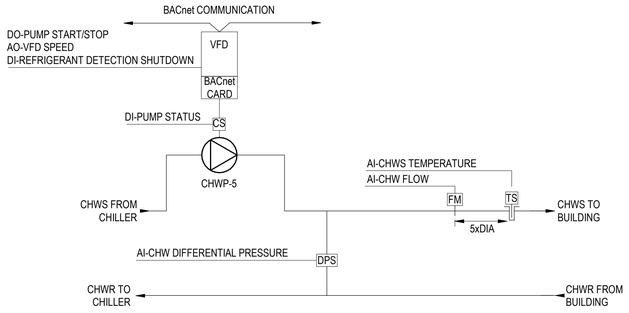
NOTES:
1. REFER TO PLANS AND PIPING SCHEMATICS FOR HEATING WATER PIPING ARRANGEMENT.
2. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL REQUIREMENTS.
3. EACH PUMP SHALL BE OPERATED BY A DEDICATED VFD.
4. VFD BACnet CARD SHALL PROVIDE VFD SPEED OUTPUT, VFD FAULT AND VFD KW AS MINIMUM INPUTS TO BAS HEADEND.
5. PROVIDE A DIFFERENTIAL PRESSURE SENSOR LOCATED AT REMOTE COIL LOCATION IN BUILDING. PROVIDE ADDITIONAL REMOTE PRESSURE SENSORS AS SHOWN ON PLANS OR AS REQUIRED BY ENERGY CODE.

2 CONTROL SCHEMATIC-HEATING WATER PUMP

SCALE: NONE

SINGLE BOILER SYSTEM – VARIABLE/PRIMARY DISTRIBUTION SYSTEM

A. BOILER SYSTEM RUN CONDITIONS:
   1. THE BOILER SYSTEM SHALL BE ENABLED TO RUN WHENEVER:
      a. A DEFINABLE NUMBER OF HEATING WATER COILS NEED HEATING WATER.
      b. AND, OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJUSTABLE).
   2. TO PREVENT SHORT CYCLING, THE BOILER SYSTEM SHALL RUN OR BE OFF FOR 15 MINUTE MINIMUM ADJUSTABLE TIMES (ADJUSTABLE), UNLESS SHUTDOWN ON SAFETIES OR OUTSIDE AIR CONDITIONS.
   3. THE BOILER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.
   4. THE BOILER SYSTEM SHALL ALSO RUN FOR FREEZE PROTECTION WHENEVER THE OUTSIDE AIR TEMPERATURE IS LESS THAN 38°F (ADJUSTABLE).
B. BOILER SAFETIES AND ALARMS SHALL BE PROVIDED FOR EACH BOILER:
   1. SAFETIES SHALL BE MONITORED AND ALARMS SHALL BE ISSUED FOR THE FOLLOWING:
      a. BOILER ALARM.
      b. LOW WATER LEVEL.
C. PRIMARY HEATING WATER PUMP:
   1. THE PRIMARY HEATING WATER PUMP ASSOCIATED WITH EACH BOILER SHALL START WHEN THAT BOILER RECEIVES A START SIGNAL AND SHALL HAVE A USER DEFINABLE DELAY OF 15 MINUTES MINIMUM (ADJUSTABLE) ON STOP.
   2. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HEATING WATER PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      b. HEATING WATER PUMP RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      c. HEATING WATER PUMP RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
      d. PUMP VFD FAULT. (VFDS CAN PROVIDE PROOF WITHOUT NEED FOR CURRENT SENSOR)
D. BOILER OPERATION:
   1. BOILER SHALL OPERATE WHEN CALLED TO RUN AND WATER FLOW IS PROVEN.
      a. THE TWO-POSITION ISOLATION VALVE SHALL REMAIN CLOSED UNTIL THERE IS A DEMAND CALL FOR A BOILER TO OPERATE. THE TWO-POSITION ISOLATION VALVE SHALL BE OPENED PRIOR TO ENERGIZING BOILER.
      b. THE LEAD BOILER SYSTEM SHALL RUN FIRST.
   2. ALARMS SHALL BE PROVIDED FOR BOILER AS FOLLOWS:
      a. FAILURE: COMMANDED ON BUT THE STATUS IS OFF.
      b. RUNNING IN HAND: COMMANDED OFF BUT THE STATUS IS ON.
      c. RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
      d. LEAD BOILER FAILURE: THE LEAD BOILER IS IN FAILURE AND THE LAG BOILER IS ON.
      e. ISOLATION VALVE COMMANDED OPEN, BUT VALVE IS FAILED IN A CLOSED POSITION.
E. SECONDARY HEATING WATER SUPPLY TEMPERATURE SETPOINT: THE SECONDARY HEATING WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET USING A TRIM AND RESPOND ALGORITHM BASED ON HEATING REQUIREMENTS.
   1. AS THE FACILITY'S HEATING WATER VALVES OPEN BEYOND A USER DEFINABLE THRESHOLD (90% OPEN) THE SETPOINT SHALL RESET TO A HIGHER VALUE (ADJUSTABLE). ONCE THE HEATING WATER COILS ARE SATISFIED (VALVES CLOSING) THEN THE SETPOINT SHALL GRADUALLY LOWER OVER TIME TO REDUCE HEATING ENERGY USER.
   2. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH SECONDARY HEATING WATER SUPPLY TEMP: IF GREATER THAN 200°F (ADJUSTABLE).
      b. LOW SECONDARY HEATING WATER SUPPLY TEMP: IF LESS THAN 100°F (ADJUSTABLE).
F. BOILER PRIMARY HEATING WATER TEMPERATURE MONITORING:
   1. THE FOLLOWING TEMPERATURES SHALL BE MONITORED FOR EACH BOILER:
      a. BOILER PRIMARY HEATING WATER SUPPLY.
      b. BOILER PRIMARY HEATING WATER RETURN.
   2. ALARMS SHALL BE PROVIDED FOR EACH BOILER AS FOLLOWS:
      a. HIGH BOILER HEATING WATER SUPPLY TEMP: IF GREATER THAN 200°F (ADJUSTABLE).
      b. LOW BOILER HEATING WATER SUPPLY TEMP: IF LESS THAN 100°F (ADJUSTABLE).
G. SYSTEM FLOW METER:
   1. THE BAS SHALL MONITOR THE WATER FLOW METER FOR MAIN SYSTEM WATER FLOW RATE ON A CONTINUAL BASIS. THESE VALUES SHALL BE MADE AVAILABLE TO THE BAS SYSTEM AT ALL TIMES.
      a. FLOW VALUES SHALL BE MEASURED BY THE TEST AND BALANCE AGENCY AND PROVIDED TO THE BAS PROGRAMMER FOR MONITORING OPERATING FLOW SETPOINTS.
      b. SYSTEM FLOW VALUES SHALL BE PROVIDED FOR THE MINIMUM AND MAXIMUM ALLOWABLE SYSTEM FLOW WITH ONE BOILER OPERATING.
   2. ALARM SHALL BE GENERATED FOR A METER FAILURE WHEN THE SENSOR READING INDICATES A LOSS OF PULSE OUTPUT FROM THE WATER METER.
   3. PEAK DEMAND HISTORY: THE BAS SHALL MONITOR AND RECORD THE PEAK (HIGH AND LOW) DEMAND READINGS FROM THE WATER METER. THESE READINGS SHALL BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.
H. TWO-WAY SYSTEM MODULATING VALVE: THE BAS SHALL MEASURE THE SECONDARY HEATING WATER SUPPLY FLOW AND MODULATE THE POSITION OF THE TWO-WAY SYSTEM CONTROL VALVE TO MAINTAIN THE MINIMUM HEATING WATER FLOW THROUGH THE BOILER.
   1. THE MODULATING VALVE SHALL BE ENABLED WHENEVER THE HEATING WATER SYSTEM IS CALLED TO RUN.
   2. THE MODULATING VALVE SHALL FAIL TO A CLOSED POSITION.
   3. THE MODULATING VALVE SHALL OPEN AS REQUIRED TO MAINTAIN PRESET MINIMUM SYSTEM FLOW RATES AS MEASURED BY THE SYSTEM FLOW METER AND AS REQUIRED BY THE SUM OF THE MINIMUM FLOW RATES OF THE BOILERS.



NOTES:
1. REFER TO PLANS AND PIPING SCHEMATICS FOR CHILLED WATER PIPING ARRANGEMENT.
2. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL REQUIREMENTS.
3. EACH PUMP SHALL BE OPERATED BY A DEDICATED VFD.
4. VFD BACnet CARD SHALL PROVIDE VFD SPEED OUTPUT, VFD FAULT AND VFD KW AS MINIMUM INPUTS TO BAS HEADEND.
5. PROVIDE A DIFFERENTIAL PRESSURE SENSOR LOCATED AT REMOTE COIL LOCATION IN BUILDING. PROVIDE ADDITIONAL REMOTE PRESSURE SENSORS AS SHOWN ON PLANS OR AS REQUIRED BY ENERGY CODE.

1 CONTROL SCHEMATIC-CHILLED WATER PUMP

SCALE: NONE

CHILLER AND EVAPORATIVE CONDENSER

A. CHILLER - RUN CONDITIONS:
   1. THE CHILLER SHALL BE ENABLED TO RUN WHENEVER:
      a. A DEFINABLE NUMBER OF CHILLED WATER COILS NEED COOLING
      b. AND THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 54°F (ADJUSTABLE).
   2. TO PREVENT SHORT CYCLING, THE CHILLER SHALL RUN FOR AND BE OFF FOR MINIMUM TIME PERIOD OF 10 MINUTES (ADJUSTABLE), UNLESS SHUTDOWN ON SAFETIES OR OUTSIDE AIR CONDITIONS.
   3. THE CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.
B. EMERGENCY SHUTDOWN: THE CHILLER SHALL SHUTDOWN AND AN ALARM GENERATED UPON RECEIVING AN EMERGENCY SHUTDOWN SIGNAL STATUS.
C. REFRIGERANT DETECTION: THE CHILLER SHALL SHUTDOWN AND AN ALARM GENERATED UPON RECEIVING A REFRIGERANT LEAK DETECTION STATUS.
D. COOLING TOWER VIBRATION SWITCH: THE CHILLER AND COOLING TOWER SHALL SHUT DOWN AND AN ALARM GENERATED UPON RECEIVING A VIBRATION SWITCH STATUS.
E. CHILLED WATER ISOLATION VALVE:
   1. THE CHILLED WATER ISOLATION VALVE SHALL OPEN ANYTIME THE CHILLER IS CALLED TO RUN. THE CHILLED WATER ISOLATION VALVE SHALL ALSO OPEN WHENEVER THE CHILLED WATER PUMP RUNS FOR FREEZE PROTECTION.
   2. THE CHILLED WATER ISOLATION VALVE SHALL OPEN PRIOR TO THE CHILLER BEING ENABLED AND SHALL CLOSE ONLY AFTER THE CHILLER IS DISABLED. THE CHILLED WATER ISOLATION VALVE SHALL THEREFORE HAVE:
      a. A USER ADJUSTABLE DELAY ON START.
      b. AND, A USER ADJUSTABLE DELAY ON STOP.
   3. THE DELAY TIMES SHALL BE SET APPROPRIATELY TO ALLOW FOR ORDERLY CHILLED WATER SYSTEM START-UP, SHUTDOWN AND SEQUENCING.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. CHILLED WATER ISOLATION VALVE FAILURE: VALVE COMMANDED TO OPEN BUT THE STATUS INDICATES CLOSED.
      b. CHILLED WATER ISOLATION VALVE OPEN IN HAND: VALVE COMMANDED TO CLOSE BUT THE STATUS INDICATES OPEN.
      c. CHILLED WATER ISOLATION VALVE RUNTIME EXCEEDED: VALVE STATUS RUNTIME EXCEEDS A USER-DEFINABLE LIMIT.
F. CHILLED WATER PUMP OPERATION:
   1. THE CHILLED WATER PUMP(S) SHALL RUN FOR FREEZE PROTECTION WHENEVER THE OUTSIDE AIR TEMPERATURE IS LESS THAN A USER DEFINABLE SETPOINT (ADJUSTABLE).
   2. THE PUMP SHALL START PRIOR TO THE CHILLER BEING ENABLED AND SHALL STOP ONLY AFTER THE CHILLER IS DISABLED. THE PUMP SHALL THEREFORE HAVE:
      a. A USER ADJUSTABLE DELAY ON START.
      b. AND A USER ADJUSTABLE DELAY ON STOP.
   3. THE DELAY TIMES SHALL BE SET APPROPRIATELY TO ALLOW FOR ORDERLY CHILLED WATER SYSTEM START-UP, SHUTDOWN AND SEQUENCING.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. CHILLED WATER PUMP
         1. FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
         2. RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
         3. RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
         4. PUMP VFD FAULT.
G. CHILLED WATER DIFFERENTIAL PRESSURE CONTROL:
   1. THE BAS SHALL MEASURE CHILLED WATER DIFFERENTIAL PRESSURE AND MODULATE THE LEAD CHILLED WATER PUMP VFD TO MAINTAIN ITS CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT. THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTED DURING THE COMMISSIONING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.
   2. THE BAS SHALL MODULATE CHILLED WATER PUMP SPEED TO MAINTAIN A CHILLED WATER DIFFERENTIAL PRESSURE OF 12 PSI (ADJUSTABLE) OR AS DETERMINED BY THE TEST AND BALANCE AGENCY. THE VFD MINIMUM SPEED SHALL NOT DROP BELOW 25% (ADJUSTABLE).
   3. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH CHILLED WATER DIFFERENTIAL PRESSURE: IF THE CHILLED WATER DIFFERENTIAL PRESSURE IS 25% (ADJUSTABLE) GREATER THAN SETPOINT.
      b. LOW CHILLED WATER DIFFERENTIAL PRESSURE: IF THE CHILLED WATER DIFFERENTIAL PRESSURE IS 25% (ADJUSTABLE) LESS THAN SETPOINT.
H. CHILLER:
   1. THE CHILLER SHALL THEREFORE HAVE A USER ADJUSTABLE DELAY ON START. THE CHILLER SHALL BE ENABLED 120 SECONDS (ADJUSTABLE) AFTER PUMP STATUSES ARE PROVEN ON.
   2. THE DELAY TIME SHALL BE SET APPROPRIATELY TO ALLOW FOR ORDERLY CHILLED WATER SYSTEM START-UP, SHUTDOWN AND SEQUENCING.
   3. THE CHILLER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. CHILLER FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      b. CHILLER RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      c. CHILLER RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
I. CHILLED WATER SUPPLY TEMPERATURE - SETPOINT RESET:
   1. THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET USING A TRIM AND RESPOND ALGORITHM BASED ON COOLING REQUIREMENTS.
   2. THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL RESET TO A LOWER VALUE AS THE FACILITY'S CHILLED WATER VALVES MODULATE BEYOND 90% OPEN. ONCE THE CHILLED WATER COILS ARE SATISFIED (VALVES CLOSING) THEN THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT SHALL GRADUALLY RISE OVER TIME TO REDUCE COOLING ENERGY USE.
J. EVAPORATIVE CONDENSER VFD FAN - WATER TEMPERATURE CONTROL:
   1. THE BAS SHALL MODULATE THE FAN VFD TO MAINTAIN SETPOINTS.
   2. THE FOLLOWING SETPOINTS ARE RECOMMENDED VALUES. ALL SETPOINTS SHALL BE FIELD ADJUSTED DURING THE COMMISSIONING PERIOD TO MEET THE REQUIREMENTS OF ACTUAL FIELD CONDITIONS.
   3. ON RISING SUPPLY TEMPERATURE, THE BAS SHALL MODULATE THE FAN VFD SPEED TO MAINTAIN SETPOINT.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. FAN
         1. FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
         2. RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
         3. RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
         4. FAN VFD FAULT.
K. CHILLED WATER TEMPERATURE MONITORING:
   1. THE FOLLOWING TEMPERATURES SHALL BE MONITORED:
      a. CHILLED WATER SUPPLY.
      b. CHILLED WATER RETURN.
   2. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      a. HIGH CHILLED WATER SUPPLY TEMP: IF THE CHILLED WATER SUPPLY TEMPERATURE IS GREATER THAN 55°F (ADJUSTABLE).
      b. LOW CHILLED WATER SUPPLY TEMP: IF THE CHILLED WATER SUPPLY TEMPERATURE IS LESS THAN 38°F (ADJUSTABLE).

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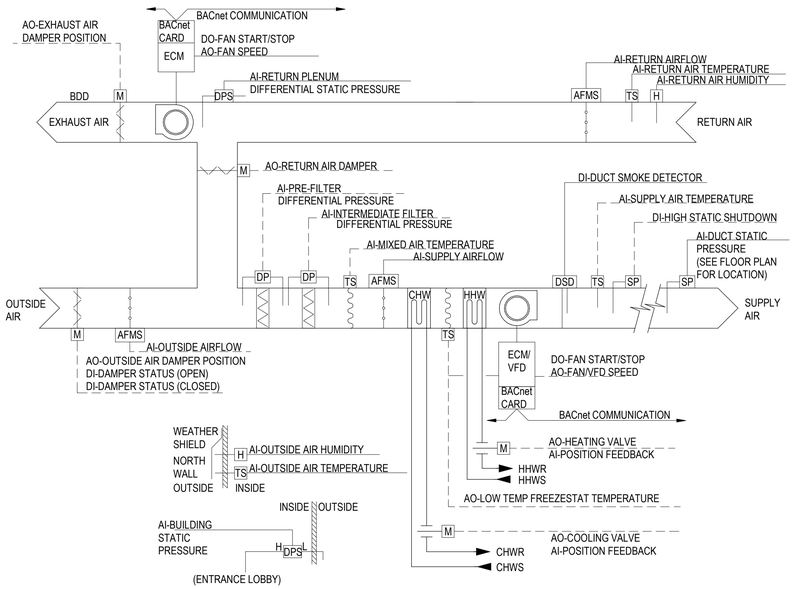
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MECHANICAL CONTROLS

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NOTES:

1. REFER TO PLANS AND AIR HANDLING UNIT SCHEDULE FOR QUANTITY OF FANS AND SYSTEM COMPONENTS.
2. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL REQUIREMENTS.
3. UNLESS OTHERWISE NOTED, ALL COMPONENTS SHOWN IN THIS DIAGRAM MUST BE FACTORY-FURNISHED AND INSTALLED BY THE UNIT MANUFACTURER, WHERE COMPONENTS ARE NOT AN OPTION FROM THE MANUFACTURER, CONTROLS INSTALLING SUBCONTRACTOR MUST FURNISH AND INSTALL HARDWARE AS INDICATED AND NECESSARY TO ACCOMPLISH THE ENTIRE SEQUENCE OF OPERATIONS WRITTEN HERE.
4. HIGH STATIC TRIP SHALL REQUIRE MANUAL RESET AT STATIC SENSOR.
5. SMOKE DETECTOR: FURNISHED BY MECHANICAL. HARDWIRE SMOKE DETECTOR TO EMERGENCY STOP TERMINALS ON SUPPLY AND EXHAUST FAN VFDS BY ELECTRICAL.
6. PROVIDE PROGRAMMABLE OVERRIDE BUTTON AT EACH TEMPERATURE SENSOR AS AN OVERRIDE TO ENERGIZE HVAC SYSTEM AFTER NORMAL OCCUPIED HOURS.
7. OCCUPANCY SENSOR FURNISHED AND INSTALLED BY ELECTRICAL. CONTROL WIRING INTERLOCK WITH BAS BY MECHANICAL.
8. – – – – DASHED LINES INDICATE POINTS FACTORY-WIRED TO MANUFACTURER'S CONTROLLER
9. THIS DETAIL APPLIES TO: AHU-9 AND AHU-11
   A. AHU-9 HAS A DIRECT DRIVE SUPPLY FAN WITH VFD
   B. AHU-11 HAS A ECM SUPPLY FAN

1 CONTROL SCHEMATIC - AIR HANDLING UNIT W/ CHW & HHW

SCALE: NONE

VARIABLE AIR VOLUME AIR HANDLING UNIT -CHILLED AND HEATING WATER

A. FEATURES
   1. CHILLED WATER COIL
   2. HEATING WATER COIL
   3. SUPPLY FAN AIR FLOW MONITORING
   4. EXHAUST FAN AIR FLOW MONITORING
   5. MINIMUM OUTSIDE AIR FLOW MONITORING
   6. ECONOMIZER OUTSIDE AIR FLOW MONITORING
   7. DRY BULB AIR ECONOMIZER
   8. ALL SETPOINTS SHALL BE USER ADJUSTABLE

B. RUN CONDITIONS -REQUESTED:
   1. THE AIR HANDLING UNIT SHALL RUN WHENEVER:
      A. THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE.
      B. ANY ZONE IS OCCUPIED BASED ON BAS OCCUPANCY SENSOR.
      C. ANY ZONE IS ACTIVATED USING ZONE OVERRIDE.
      D. A DEFINABLE NUMBER OF UNOCCUPIED ZONES NEED HEATING OR COOLING.

C. ALARMS SHALL BE PROVIDED AS FOLLOWS:
   1. SUPPLY AIR SMOKE DETECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A SUPPLY AIR SMOKE DETECTOR STATUS.
   2. RETURN AIR SMOKE DETECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A RETURN AIR SMOKE DETECTOR STATUS.
   3. HIGH STATIC SHUTDOWN: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A HIGH STATIC SHUTDOWN SIGNAL. THE FANS SHALL BE SHUTDOWN THROUGH A DUCT STATIC PRESSURE HIGH LIMIT SENSOR OR SWITCH. THE SWITCH SHALL BE SET TO TRIP AT A PRESSURE THAT IS 20% GREATER THAN THE MAXIMUM DESIGN WORKING PRESSURE OR 75% OF THE SUPPLY DUCT SMACNA DUCT PRESSURE RATING,WHICHEVER IS GREATER.
   4. FREEZE PROTECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZE CONDITION STATUS WITH AN OUTSIDE AIR DRY BULB TEMPERATURE OF 35F.

D. AHU OPTIMAL START: THE UNIT SHALL START, AT LEAST ONE HOUR, PRIOR TO SCHEDULED NORMAL OCCUPANCY BASED ON THE TIME NECESSARY FOR THE ZONES TO REACH THEIR OCCUPIED SETPOINTS. THE START TIME SHALL AUTOMATICALLY ADJUST BASED ON CHANGES IN OUTSIDE AIR TEMPERATURE AND ZONE TEMPERATURES.

E. SUPPLY FAN: THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      B. SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      C. SUPPLY FAN VFD FAULT.
      D. SUPPLY FAN RUNTIME EXCEEDED: THE RUNTIME OF THE EQUIPMENT EXCEEDS A USER DEFINABLE LIMIT (ADJUSTABLE).

F. SUPPLY AIR DUCT STATIC PRESSURE CONTROL: THE BAS SHALL MEASURE DUCT STATIC PRESSURE AND SHALL MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN A DUCT STATIC PRESSURE SETPOINT AS FOLLOWS:
   1. THE BASE DUCT STATIC PRESSURE SETPOINT SHALL BE SET TO 1.5 INCHES H2O.
   2. AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 0.5 INCHES H2O ABOVE THE BASE STATIC PRESSURE SETPOINT.
   3. AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO 0.25 INCHES H2O BELOW THE BASE STATIC PRESSURE SETPOINT.
   4. THE MINIMUM FAN VFD SPEED(S) SHALL NOT DROP BELOW 15 HZ, OR AS RECOMMENDED BY THE VFD MANUFACTURER.
   5. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 1.0 INCHES H2O GREATER THAN SETPOINT.
      B. LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE DROPS TO 0.5 INCHES H2O.

G. EXHAUST FAN: THE EXHAUST FAN SHALL RUN WHENEVER THE SUPPLY FAN RUNS.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. EXHAUST FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      B. EXHAUST FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      C. EXHAUST FAN VFD FAULT.
      D. EXHAUST FAN RUNTIME EXCEEDED: THE RUNTIME OF THE EQUIPMENT EXCEEDS A USER DEFINABLE LIMIT (ADJUSTABLE).

H. EXHAUST FAN SPEED CONTROL: THE BAS SHALL MODULATE THE EXHAUST FAN SPEED BY THE GREATER OF THE TWO FOLLOWING CONTROL LOOPS:
   1. THE SUPPLY FAN SIGNAL SHALL BE UTILIZED FOR THE PRIMARY CONTROL LOOP TO DETERMINE THE CFM SETPOINT OF THE EXHAUST FAN IS SENSED BY THE FAN SPEED SIGNAL. THE CFM SETPOINT SHALL BE USED TO ESTABLISH A LINEAR RELATIONSHIP FROM THE SIGNAL ESTABLISHED DURING THE AIR BALANCE BASED ON THE MAXIMUM MEASURED SUPPLY CFM LESS ANY CFM REQUIRED TO MAINTAIN THE BUILDING AT +0.02" WC.
   2. AND, THE SECONDARY CONTROL LOOP SHALL BE BASED ON MAINTAINING A POSITIVE PRESSURE IN THE EXHAUST AIR PLENUM BY MODULATING THE EXHAUST AIR DAMPERS TO MAINTAIN AN EXHAUST PLENUM PRESSURE OF +0.02" WC MINIMUM TO 0.07" WC MAXIMUM.
   3. THE MINIMUM FAN VFD SPEED(S) SHALL NOT DROP BELOW 15 HZ, OR AS RECOMMENDED BY THE VFD MANUFACTURER.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH RETURN AIR STATIC PRESSURE: IF THE RETURN AIR STATIC PRESSURE IS 1.0 INCHES H2O GREATER THAN SETPOINT.
      B. LOW RETURN AIR STATIC PRESSURE: IF THE RETURN AIR STATIC PRESSURE DROPS TO 0.25 INCHES H2O.

I. BUILDING STATIC PRESSURE CONTROL: THE BAS SHALL MEASURE BUILDING STATIC PRESSURE AND MODULATE THE EXHAUST AIR DAMPERS AS REQUIRED TO MAINTAIN BUILDING STATIC PRESSURE AT THE MAIN ENTRANCE DOORS AT +0.02" WC WITH A RANGE OF + 0.01" WC MINIMUM TO +0.08" WC MAXIMUM
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH BUILDING STATIC PRESSURE: IF THE BUILDING AIR STATIC PRESSURE EXCEEDS +0.10" WC H2O.
      B. LOW BUILDING STATIC PRESSURE: IF THE BUILDING AIR STATIC PRESSURE IS NEGATIVE, LESS THAN 0.0" WC H2O.

J. SUPPLY AIR TEMPERATURE SETPOINT -OPTIMIZED: THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN A SUPPLY AIR TEMPERATURE SETPOINT RESET BASED ON ZONE COOLING REQUIREMENTS.
   1. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET FOR COOLING BASED ON ZONE COOLING REQUIREMENTS AS FOLLOWS:
      A. THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 55°F.
      B. AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 52°F.
      C. AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 72°F. BMS SHALL MEASURE ALL ZONES TO ENSURE ALL ZONES ARE SATISFIED PRIOR TO SUPPLY AIR TEMPERATURE RESET.

K. COOLING COIL VALVE:
   1. THE BAS SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULATE THE COOLING COIL VALVE TO MAINTAIN ITS COOLING SETPOINT. THE COOLING CONTROL VALVE SHALL MODULATE SLOWLY TO LIMIT SUPPLY TEMPERATURE CHANGE TO NO MORE THAN 1°F IN A TWO-MINUTE PERIOD.
   2. THE COOLING SHALL BE ENABLED WHENEVER:
      A. OUTSIDE AIR TEMPERATURE IS GREATER THAN 65°F (ADJUSTABLE).
      B. AND, THE ECONOMIZER MODE (IF PRESENT) IS DISABLED OR FULLY OPEN.
      C. AND, THE SUPPLY FAN STATUS IS ON.
      D. AND, THE HEATING MODE (IF PRESENT) IS NOT ACTIVE.
   3. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS 5°F GREATER THAN SETPOINT.
      B. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS BELOW 40°F.

L. HEATING COIL VALVE:
   1. THE BAS SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULATE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT. THE HEATING CONTROL VALVE SHALL MODULATE SLOWLY TO LIMIT SUPPLY TEMPERATURE CHANGE TO NO MORE THAN 1°F IN A TWO-MINUTE PERIOD.
   2. THE HEATING SHALL BE ENABLED WHENEVER:
      A. OUTSIDE AIR TEMPERATURE IS LESS THAN 60°F.
      B. AND, THE SUPPLY FAN STATUS IS ON.
      C. AND, THE COOLING IS NOT ACTIVE.
   3. THE HEATING COIL VALVE SHALL OPEN WHENEVER:
      A. SUPPLY AIR TEMPERATURE DROPS TO 50°F.
      B. DISABLE HEATING IF ECONOMIZER IS ACTIVE.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS 5°F LESS THAN SETPOINT.

M. AIR ECONOMIZER: THE BAS SHALL MEASURE THE MIXED AIR TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION PER DESIGN AND AS DETERMINED BY THE TEST AND BALANCE CONTRACTOR WHENEVER OCCUPIED. THE BAS SHALL MONITOR THE ECONOMIZER OUTSIDE AIRFLOW.
   1. THE ECONOMIZER MODE SHALL BE ENABLED WHENEVER:
      A. OUTSIDE AIR TEMPERATURE IS LESS THAN 73°F OR MAXIMUM TEMPERATURE AS ALLOWED BY LOCAL ENERGY CODE.
      B. OR, THE OUTSIDE AIR ENTHALPY IS LESS THAN 28 BTU/LB.
      C. AND, THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
      D. AND, THE SUPPLY FAN STATUS IS ON.
   2. THE OUTSIDE AIR DAMPERS SHALL CLOSE WHENEVER:
      A. MIXED AIR TEMPERATURE DROPS BELOW THE SUPPLY AIR TEMPERATURE REQUIRED TO MEET THE COOLING DEMAND. AN ALARM SHALL BE INITIATED.
      B. OR, ON LOSS OF SUPPLY FAN STATUS.

N. THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF. DURING OPTIMAL START UP THE MIXED AIR DAMPERS SHALL OPERATE AS DESCRIBED IN THE OCCUPIED MODE EXCEPT THAT THE OUTSIDE AIR DAMPERS SHALL MODULATE TO FULLY CLOSED POSITION.

O. MINIMUM OUTSIDE AIR VENTILATION: WHEN IN THE OCCUPIED MODE, THE BAS SHALL MEASURE THE MINIMUM OUTSIDE AIRFLOW AND MODULATE THE OUTSIDE AIR DAMPERS TO MAINTAIN THE PROPER MINIMUM OUTSIDE AIR VENTILATION, OVERRIDING NORMAL DAMPER CONTROL. ON DROPPING OUTSIDE AIRFLOW, THE BAS SHALL MODULATE THE OUTSIDE AIR DAMPERS OPEN TO MAINTAIN THE DESIGN OUTSIDE AIRFLOW RATE.

P. MINIMUM OUTSIDE AIR VENTILATION -CARBON DIOXIDE (CO2) CONTROL: WHEN IN THE OCCUPIED MODE, THE BAS SHALL MONITOR ZONE CO2 LEVELS SERVED BY THIS AIR HANDLING UNIT. THE BAS SHALL TAKE THE HIGHEST ZONE CO2 LEVEL AND MODULATE THE OUTSIDE AIR DAMPER(S) OPEN ON RISING CO2 CONCENTRATIONS, OVERRIDING NORMAL DAMPER OPERATION TO MAINTAIN A CO2 SETPOINT OF 600 PPM ABOVE AMBIENT OUTDOOR CO2 LEVEL.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH ZONE CARBON DIOXIDE CONCENTRATION: IF THE HIGHEST ZONE CO2 CONCENTRATION IS GREATER THAN 1000 PPM.

Q. PRE-OCCUPANCY: THE AIR HANDLER SHALL BE ENERGIZED A MINIMUM OF ONE HOUR PRIOR TO SCHEDULED OCCUPIED PERIOD TO CIRCULATE DESIGN MINIMUM VENTILATION AIR THROUGHOUT THE BUILDING OR A MINIMUM OF THREE COMPLETE AIR CHANGES, WHICHEVER IS LESS. TEMPERATURE CONTROL MAY CONTINUE TO FUNCTION PER THE UN-OCCUPIED SCHEDULE.

R. FILTER DIFFERENTIAL PRESSURE MONITOR: THE BAS SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT INITIALLY SET TO 1.0" WG ABOVE THE CLEAN FILTER DIFFERENTIAL STATIC PRESSURE.

S. MIXED AIR TEMPERATURE: THE BAS SHALL MONITOR THE MIXED AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL (IF PRESENT) OR PREHEATING CONTROL (IF PRESENT).
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH MIXED AIR TEMPERATURE: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90°F.
      B. LOW MIXED AIR TEMPERATURE: IF THE MIXED AIR TEMPERATURE IS LESS THAN 40°F.

T. RETURN AIR TEMPERATURE: THE BAS SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR SETPOINT CONTROL OR ECONOMIZER CONTROL.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH RETURN AIR TEMPERATURE: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F.
      B. LOW RETURN AIR TEMPERATURE: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F.

U. RETURN AIR CO2: THE BAS SHALL MONITOR THE RETURN AIR CO2 CONCENTRATION.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH RETURN AIR CO2 CONCENTRATION: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 1000 PPM.

V. SUPPLY AIR TEMPERATURE: THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 85°F.
      B. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F.

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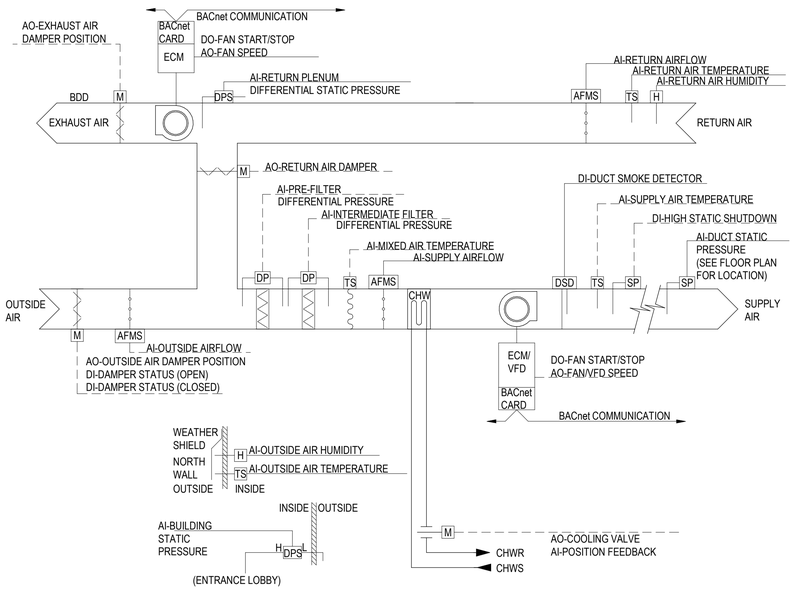
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MECHANICAL CONTROLS

M7.02



NOTES:

1. REFER TO PLANS AND AIR HANDLING UNIT SCHEDULE FOR QUANTITY OF FANS AND SYSTEM COMPONENTS.
2. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL REQUIREMENTS.
3. UNLESS OTHERWISE NOTED, ALL COMPONENTS SHOWN IN THIS DIAGRAM MUST BE FACTORY-FURNISHED AND INSTALLED BY THE UNIT MANUFACTURER, WHERE COMPONENTS ARE NOT AN OPTION FROM THE MANUFACTURER, CONTROLS INSTALLING SUBCONTRACTOR MUST FURNISH AND INSTALL HARDWARE AS INDICATED AND NECESSARY TO ACCOMPLISH THE ENTIRE SEQUENCE OF OPERATIONS WRITTEN HERE.
4. HIGH STATIC TRIP SHALL REQUIRE MANUAL RESET AT STATIC SENSOR.
5. SMOKE DETECTOR: FURNISHED BY MECHANICAL. HARDWIRE SMOKE DETECTOR TO EMERGENCY STOP TERMINALS ON SUPPLY AND EXHAUST FAN VFDS BY ELECTRICAL.
6. PROVIDE PROGRAMMABLE OVERRIDE BUTTON AT EACH TEMPERATURE SENSOR AS AN OVERRIDE TO ENERGIZE HVAC SYSTEM AFTER NORMAL OCCUPIED HOURS.
7. OCCUPANCY SENSOR FURNISHED AND INSTALLED BY ELECTRICAL. CONTROL WIRING INTERLOCK WITH BAS BY MECHANICAL.
8. — — — — DASHED LINES INDICATE POINTS FACTORY-WIRED TO MANUFACTURER'S CONTROLLER
9. THIS DETAIL APPLIES TO: AHU-10A & AHU-10B

1 CONTROL SCHEMATIC - AIR HANDLING UNIT W/ CHW

SCALE: NONE

VARIABLE AIR VOLUME AIR HANDLING UNIT -CHILLED AND HEATING WATER

A. FEATURES
   1. CHILLED WATER COIL
   2. SUPPLY FAN AIR FLOW MONITORING
   3. EXHAUST FAN AIR FLOW MONITORING
   4. MINIMUM OUTSIDE AIR FLOW MONITORING
   5. ECONOMIZER OUTSIDE AIR FLOW MONITORING
   6. DRY BULB AIR ECONOMIZER
   7. ALL SETPOINTS SHALL BE USER ADJUSTABLE

B. RUN CONDITIONS -REQUESTED:
   1. THE AIR HANDLING UNIT SHALL RUN WHENEVER:
      A. THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE.
      B. ANY ZONE IS OCCUPIED BASED ON BAS OCCUPANCY SENSOR.
      C. ANY ZONE IS ACTIVATED USING ZONE OVERRIDE.
      D. A DEFINABLE NUMBER OF UNOCCUPIED ZONES NEED HEATING OR COOLING.

C. ALARMS SHALL BE PROVIDED AS FOLLOWS:
   1. SUPPLY AIR SMOKE DETECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A SUPPLY AIR SMOKE DETECTOR STATUS.
   2. RETURN AIR SMOKE DETECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A RETURN AIR SMOKE DETECTOR STATUS.
   3. HIGH STATIC SHUTDOWN: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A HIGH STATIC SHUTDOWN SIGNAL. THE FANS SHALL BE SHUTDOWN THROUGH A DUCT STATIC PRESSURE HIGH LIMIT SENSOR OR SWITCH. THE SWITCH SHALL BE SET TO TRIP AT A PRESSURE THAT IS 20% GREATER THAN THE MAXIMUM DESIGN WORKING PRESSURE OR 75% OF THE SUPPLY DUCT SMACNA DUCT PRESSURE RATING,WHICHEVER IS GREATER.
   4. FREEZE PROTECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZE CONDITION STATUS WITH AN OUTSIDE AIR DRY BULB TEMPERATURE OF 35F.

D. AHU OPTIMAL START: THE UNIT SHALL START, AT LEAST ONE HOUR, PRIOR TO SCHEDULED NORMAL OCCUPANCY BASED ON THE TIME NECESSARY FOR THE ZONES TO REACH THEIR OCCUPIED SETPOINTS. THE START TIME SHALL AUTOMATICALLY ADJUST BASED ON CHANGES IN OUTSIDE AIR TEMPERATURE AND ZONE TEMPERATURES.

E. SUPPLY FAN: THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      B. SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      C. SUPPLY FAN VFD FAULT.
      D. SUPPLY FAN RUNTIME EXCEEDED: THE RUNTIME OF THE EQUIPMENT EXCEEDS A USER DEFINABLE LIMIT (ADJUSTABLE).

F. SUPPLY AIR DUCT STATIC PRESSURE CONTROL: THE BAS SHALL MEASURE DUCT STATIC PRESSURE AND SHALL MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN A DUCT STATIC PRESSURE SETPOINT AS FOLLOWS:
   1. THE BASE DUCT STATIC PRESSURE SETPOINT SHALL BE SET TO 1.5 INCHES H2O.
   2. AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 0.5 INCHES H2O ABOVE THE BASE STATIC PRESSURE SETPOINT.
   3. AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO 0.25 INCHES H2O BELOW THE BASE STATIC PRESSURE SETPOINT.
   4. THE MINIMUM FAN VFD SPEED(S) SHALL NOT DROP BELOW 15 HZ, OR AS RECOMMENDED BY THE VFD MANUFACTURER.
   5. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 1.0 INCHES H2O GREATER THAN SETPOINT.
      B. LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE DROPS TO 0.5 INCHES H2O.

G. EXHAUST FAN: THE EXHAUST FAN SHALL RUN WHENEVER THE SUPPLY FAN RUNS.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. EXHAUST FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      B. EXHAUST FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      C. EXHAUST FAN VFD FAULT.
      D. EXHAUST FAN RUNTIME EXCEEDED: THE RUNTIME OF THE EQUIPMENT EXCEEDS A USER DEFINABLE LIMIT (ADJUSTABLE).

H. EXHAUST FAN SPEED CONTROL: THE BAS SHALL MODULATE THE EXHAUST FAN SPEED BY THE GREATER OF THE TWO FOLLOWING CONTROL LOOPS:
   1. THE SUPPLY FAN SIGNAL SHALL BE UTILIZED FOR THE PRIMARY CONTROL LOOP TO DETERMINE THE CFM SETPOINT OF THE EXHAUST FAN IS SENSED BY THE FAN SPEED SIGNAL. THE CFM SETPOINT SHALL BE USED TO ESTABLISH A LINEAR RELATIONSHIP FROM THE SIGNAL ESTABLISHED DURING THE AIR BALANCE BASED ON THE MAXIMUM MEASURED SUPPLY CFM LESS ANY CFM REQUIRED TO MAINTAIN THE BUILDING AT +0.02" WC.
   2. AND, THE SECONDARY CONTROL LOOP SHALL BE BASED ON MAINTAINING A POSITIVE PRESSURE IN THE EXHAUST AIR PLENUM BY MODULATING THE EXHAUST AIR DAMPERS TO MAINTAIN AN EXHAUST PLENUM PRESSURE OF +0.02" WC MINIMUM TO 0.07" WC MAXIMUM.
   3. THE MINIMUM FAN VFD SPEED(S) SHALL NOT DROP BELOW 15 HZ, OR AS RECOMMENDED BY THE VFD MANUFACTURER.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH RETURN AIR STATIC PRESSURE: IF THE RETURN AIR STATIC PRESSURE IS 1.0 INCHES H2O GREATER THAN SETPOINT.
      B. LOW RETURN AIR STATIC PRESSURE: IF THE RETURN AIR STATIC PRESSURE DROPS TO 0.25 INCHES H2O.

I. BUILDING STATIC PRESSURE CONTROL: THE BAS SHALL MEASURE BUILDING STATIC PRESSURE AND MODULATE THE EXHAUST AIR DAMPERS AS REQUIRED TO MAINTAIN BUILDING STATIC PRESSURE AT THE MAIN ENTRANCE DOORS AT +0.02" WC WITH A RANGE OF + 0.01" WC MINIMUM TO +0.08" WC MAXIMUM
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH BUILDING STATIC PRESSURE: IF THE BUILDING AIR STATIC PRESSURE EXCEEDS +0.10" WC H2O.
      B. LOW BUILDING STATIC PRESSURE: IF THE BUILDING AIR STATIC PRESSURE IS NEGATIVE, LESS THAN 0.0" WC H2O.

J. SUPPLY AIR TEMPERATURE SETPOINT -OPTIMIZED: THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN A SUPPLY AIR TEMPERATURE SETPOINT RESET BASED ON ZONE COOLING REQUIREMENTS.
   1. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET FOR COOLING BASED ON ZONE COOLING REQUIREMENTS AS FOLLOWS:
      A. THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 55°F.
      B. AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 52°F.
      C. AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 72°F. BMS SHALL MEASURE ALL ZONES TO ENSURE ALL ZONES ARE SATISFIED PRIOR TO SUPPLY AIR TEMPERATURE RESET.

K. COOLING COIL VALVE:
   1. THE BAS SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULATE THE COOLING COIL VALVE TO MAINTAIN ITS COOLING SETPOINT. THE COOLING CONTROL VALVE SHALL MODULATE SLOWLY TO LIMIT SUPPLY TEMPERATURE CHANGE TO NO MORE THAN 1°F IN A TWO-MINUTE PERIOD.
   2. THE COOLING SHALL BE ENABLED WHENEVER:
      A. OUTSIDE AIR TEMPERATURE IS GREATER THAN 65°F (ADJUSTABLE).
      B. AND, THE ECONOMIZER MODE (IF PRESENT) IS DISABLED OR FULLY OPEN.
      C. AND, THE SUPPLY FAN STATUS IS ON.
      D. AND, THE HEATING MODE (IF PRESENT) IS NOT ACTIVE.
   3. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS 5°F GREATER THAN SETPOINT.
      B. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS BELOW 40°F.

L. AIR ECONOMIZER: THE BAS SHALL MEASURE THE MIXED AIR TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION PER DESIGN AND AS DETERMINED BY THE TEST AND BALANCE CONTRACTOR WHENEVER OCCUPIED. THE BAS SHALL MONITOR THE ECONOMIZER OUTSIDE AIRFLOW.
   1. THE ECONOMIZER MODE SHALL BE ENABLED WHENEVER:
      A. OUTSIDE AIR TEMPERATURE IS LESS THAN 73°F OR MAXIMUM TEMPERATURE AS ALLOWED BY LOCAL ENERGY CODE.
      B. OR, THE OUTSIDE AIR DRY BULB IS LESS THAN 28 BTU/LB.
      C. AND, THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
      D. AND, THE SUPPLY FAN STATUS IS ON.
   2. THE OUTSIDE AIR DAMPERS SHALL CLOSE WHENEVER:
      A. MIXED AIR TEMPERATURE DROPS BELOW THE SUPPLY AIR TEMPERATURE REQUIRED TO MEET THE COOLING DEMAND. AN ALARM SHALL BE INITIATED.
      B. OR, ON LOSS OF SUPPLY FAN STATUS.

M. THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF. DURING OPTIMAL START UP THE MIXED AIR DAMPERS SHALL OPERATE AS DESCRIBED IN THE OCCUPIED MODE EXCEPT THAT THE OUTSIDE AIR DAMPERS SHALL MODULATE TO FULLY CLOSED POSITION.

N. MINIMUM OUTSIDE AIR VENTILATION: WHEN IN THE OCCUPIED MODE, THE BAS SHALL MEASURE THE MINIMUM OUTSIDE AIRFLOW AND MODULATE THE OUTSIDE AIR DAMPERS TO MAINTAIN THE PROPER MINIMUM OUTSIDE AIR VENTILATION, OVERRIDING NORMAL DAMPER CONTROL. ON DROPPING OUTSIDE AIRFLOW, THE BAS SHALL MODULATE THE OUTSIDE AIR DAMPERS OPEN TO MAINTAIN THE DESIGN OUTSIDE AIRFLOW RATE.

O. MINIMUM OUTSIDE AIR VENTILATION -CARBON DIOXIDE (CO2) CONTROL: WHEN IN THE OCCUPIED MODE, THE BAS SHALL MONITOR ZONE CO2 LEVELS SERVED BY THIS AIR HANDLING UNIT. THE BAS SHALL TAKE THE HIGHEST ZONE CO2 LEVEL AND MODULATE THE OUTSIDE AIR DAMPER(S) OPEN ON RISING CO2 CONCENTRATIONS, OVERRIDING NORMAL DAMPER OPERATION TO MAINTAIN A CO2 SETPOINT OF 600 PPM ABOVE AMBIENT OUTDOOR CO2 LEVEL.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH ZONE CARBON DIOXIDE CONCENTRATION: IF THE HIGHEST ZONE CO2 CONCENTRATION IS GREATER THAN 1000 PPM.

P. PRE-OCCUPANCY: THE AIR HANDLER SHALL BE ENERGIZED A MINIMUM OF ONE HOUR PRIOR TO SCHEDULED OCCUPIED PERIOD TO CIRCULATE DESIGN MINIMUM VENTILATION AIR THROUGHOUT THE BUILDING OR A MINIMUM OF THREE COMPLETE AIR CHANGES, WHICHEVER IS LESS. TEMPERATURE CONTROL MAY CONTINUE TO FUNCTION PER THE UN-OCCUPIED SCHEDULE.

Q. FILTER DIFFERENTIAL PRESSURE MONITOR: THE BAS SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT INITIALLY SET TO 1.0" WG ABOVE THE CLEAN FILTER DIFFERENTIAL STATIC PRESSURE.

R. MIXED AIR TEMPERATURE: THE BAS SHALL MONITOR THE MIXED AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL (IF PRESENT) OR PREHEATING CONTROL (IF PRESENT).
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH MIXED AIR TEMPERATURE: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90°F.
      B. LOW MIXED AIR TEMPERATURE: IF THE MIXED AIR TEMPERATURE IS LESS THAN 40°F.

S. RETURN AIR TEMPERATURE: THE BAS SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR SETPOINT CONTROL OR ECONOMIZER CONTROL.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH RETURN AIR TEMPERATURE: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F.
      B. LOW RETURN AIR TEMPERATURE: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F.

T. RETURN AIR CO2: THE BAS SHALL MONITOR THE RETURN AIR CO2 CONCENTRATION.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH RETURN AIR CO2 CONCENTRATION: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 1000 PPM.

U. SUPPLY AIR TEMPERATURE: THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 85°F.
      B. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F.

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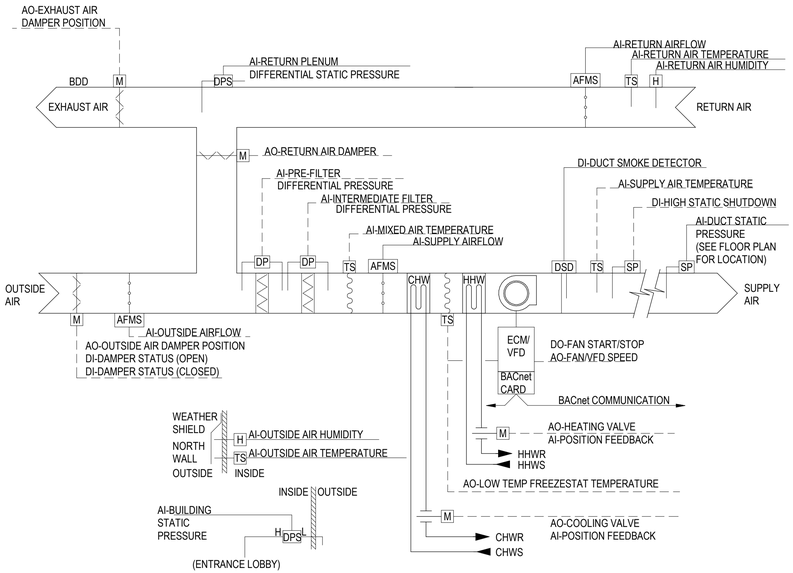
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MECHANICAL CONTROLS

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NOTES:
1. REFER TO PLANS AND AIR HANDLING UNIT SCHEDULE FOR QUANTITY OF FANS AND SYSTEM COMPONENTS.
2. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL REQUIREMENTS.
3. UNLESS OTHERWISE NOTED, ALL COMPONENTS SHOWN IN THIS DIAGRAM MUST BE FACTORY-FURNISHED AND INSTALLED BY THE UNIT MANUFACTURER, WHERE COMPONENTS ARE NOT AN OPTION FROM THE MANUFACTURER, CONTROLS INSTALLING SUBCONTRACTOR MUST FURNISH AND INSTALL HARDWARE AS INDICATED AND NECESSARY TO ACCOMPLISH THE ENTIRE SEQUENCE OF OPERATIONS WRITTEN HERE.
4. HIGH STATIC TRIP SHALL REQUIRE MANUAL RESET AT STATIC SENSOR.
5. SMOKE DETECTOR: FURNISHED BY MECHANICAL. HARDWIRE SMOKE DETECTOR TO EMERGENCY STOP TERMINALS ON SUPPLY AND EXHAUST FAN VFDS BY ELECTRICAL.
6. PROVIDE PROGRAMMABLE OVERRIDE BUTTON AT EACH TEMPERATURE SENSOR AS AN OVERRIDE TO ENERGIZE HVAC SYSTEM AFTER NORMAL OCCUPIED HOURS.
7. OCCUPANCY SENSOR FURNISHED AND INSTALLED BY ELECTRICAL. CONTROL WIRING INTERLOCK WITH BAS BY MECHANICAL.
8. – – – – – DASHED LINES INDICATE POINTS FACTORY-WIRED TO MANUFACTURER'S CONTROLLER
9. THIS DETAIL APPLIES TO: AHU-8

CONTROL SCHEMATIC - AIR HANDLING UNIT W/ CHW & HHW - SUPPLY FAN ONLY

1 SCALE: NONE

VARIABLE AIR VOLUME AIR HANDLING UNIT -CHILLED AND HEATING WATER, SUPPLY FAN ONLY

A. FEATURES
   1. CHILLED WATER COIL
   2. HEATING WATER COIL
   3. SUPPLY FAN AIR FLOW MONITORING
   4. MINIMUM OUTSIDE AIR FLOW MONITORING
   5. ECONOMIZER OUTSIDE AIR FLOW MONITORING
   6. DRY BULB AIR ECONOMIZER
   7. ALL SETPOINTS SHALL BE USER ADJUSTABLE

B. RUN CONDITIONS -REQUESTED:
   1. THE AIR HANDLING UNIT SHALL RUN WHENEVER:
      A. THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE.
      B. ANY ZONE IS ACTIVATED USING ZONE OVERRIDE.
      C. A DEFINABLE NUMBER OF UNOCCUPIED ZONES NEED HEATING OR COOLING.

C. ALARMS SHALL BE PROVIDED AS FOLLOWS:
   1. SUPPLY AIR SMOKE DETECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A SUPPLY AIR SMOKE DETECTOR STATUS.
   2. RETURN AIR SMOKE DETECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A RETURN AIR SMOKE DETECTOR STATUS.
   3. HIGH STATIC SHUTDOWN: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A HIGH STATIC SHUTDOWN SIGNAL. THE FANS SHALL BE SHUTDOWN THROUGH A DUCT STATIC PRESSURE HIGH LIMIT SENSOR OR SWITCH. THE SWITCH SHALL BE SET TO TRIP AT A PRESSURE THAT IS 20% GREATER THAN THE MAXIMUM DESIGN WORKING PRESSURE OR 75% OF THE SUPPLY DUCT SMACNA DUCT PRESSURE RATING,WHICHEVER IS GREATER.
   4. FREEZE PROTECTION: THE UNIT SHALL SHUTDOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZE CONDITION STATUS WITH AN OUTSIDE AIR DRY BULB TEMPERATURE OF 35F.

D. AHU OPTIMAL START: THE UNIT SHALL START, AT LEAST ONE HOUR, PRIOR TO SCHEDULED NORMAL OCCUPANCY BASED ON THE TIME NECESSARY FOR THE ZONES TO REACH THEIR OCCUPIED SETPOINTS. THE START TIME SHALL AUTOMATICALLY ADJUST BASED ON CHANGES IN OUTSIDE AIR TEMPERATURE AND ZONE TEMPERATURES.

E. SUPPLY FAN: THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      B. SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      C. SUPPLY FAN VFD FAULT.
      D. SUPPLY FAN RUNTIME EXCEEDED: THE RUNTIME OF THE EQUIPMENT EXCEEDS A USER DEFINABLE LIMIT (ADJUSTABLE).

F. SUPPLY AIR DUCT STATIC PRESSURE CONTROL: THE BAS SHALL MEASURE DUCT STATIC PRESSURE AND SHALL MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN A DUCT STATIC PRESSURE SETPOINT AS FOLLOWS:
   1. THE BASE DUCT STATIC PRESSURE SETPOINT SHALL BE SET TO 1.5 INCHES H2O.
   2. AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 0.5 INCHES H2O ABOVE THE BASE STATIC PRESSURE SETPOINT.
   3. AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO 0.25 INCHES H2O BELOW THE BASE STATIC PRESSURE SETPOINT.
   4. THE MINIMUM FAN VFD SPEED(S) SHALL NOT DROP BELOW 15 HZ, OR AS RECOMMENDED BY THE VFD MANUFACTURER.
   5. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 1.0 INCHES H2O GREATER THAN SETPOINT.
      B. LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE DROPS TO 0.5 INCHES H2O.

G. BUILDING STATIC PRESSURE CONTROL: THE BAS SHALL MEASURE BUILDING STATIC PRESSURE AND MODULATE THE EXHAUST AIR DAMPERS AS REQUIRED TO MAINTAIN BUILDING STATIC PRESSURE AT THE MAIN ENTRANCE DOORS AT +0.02" WC WITH A RANGE OF + 0.01" WC MINIMUM TO +0.08" WC MAXIMUM
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH BUILDING STATIC PRESSURE: IF THE BUILDING AIR STATIC PRESSURE EXCEEDS +0.10" WC H2O.
      B. LOW BUILDING STATIC PRESSURE: IF THE BUILDING AIR STATIC PRESSURE IS NEGATIVE, LESS THAN 0.0" WC H2O.

H. SUPPLY AIR TEMPERATURE SETPOINT -OPTIMIZED: THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN A SUPPLY AIR TEMPERATURE SETPOINT RESET BASED ON ZONE COOLING REQUIREMENTS.
   1. THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET FOR COOLING BASED ON ZONE COOLING REQUIREMENTS AS FOLLOWS:
      A. THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 55°F.
      B. AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 52°F.
      C. AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 72°F. BMS SHALL MEASURE ALL ZONES TO ENSURE ALL ZONES ARE SATISFIED PRIOR TO SUPPLY AIR TEMPERATURE RESET.

I. COOLING COIL VALVE:
   1. THE BAS SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULATE THE COOLING COIL VALVE TO MAINTAIN ITS COOLING SETPOINT. THE COOLING CONTROL VALVE SHALL MODULATE SLOWLY TO LIMIT SUPPLY TEMPERATURE CHANGE TO NO MORE THAN 1°F IN A TWO-MINUTE PERIOD.
   2. THE COOLING SHALL BE ENABLED WHENEVER:
      A. OUTSIDE AIR TEMPERATURE IS GREATER THAN 65°F (ADJUSTABLE).
      B. AND, THE ECONOMIZER MODE (IF PRESENT) IS DISABLED OR FULLY OPEN.
      C. AND, THE SUPPLY FAN STATUS IS ON.
      D. AND, THE HEATING MODE (IF PRESENT) IS NOT ACTIVE.
   3. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS 5°F GREATER THAN SETPOINT.
      B. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS BELOW 40°F.

L. HEATING COIL VALVE:
   1. THE BAS SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULATE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT. THE HEATING CONTROL VALVE SHALL MODULATE SLOWLY TO LIMIT SUPPLY TEMPERATURE CHANGE TO NO MORE THAN 1°F IN A TWO-MINUTE PERIOD.
   2. THE HEATING SHALL BE ENABLED WHENEVER:
      A. OUTSIDE AIR TEMPERATURE IS LESS THAN 60°F.
      B. AND, THE SUPPLY FAN STATUS IS ON.
      C. AND, THE COOLING IS NOT ACTIVE.
   3. THE HEATING COIL VALVE SHALL OPEN WHENEVER:
      A. SUPPLY AIR TEMPERATURE DROPS TO 50°F.
      B. DISABLE HEATING IF ECONOMIZER IS ACTIVE.
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS 5°F LESS THAN SETPOINT.

M. AIR ECONOMIZER: THE BAS SHALL MEASURE THE MIXED AIR TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION PER DESIGN AND AS DETERMINED BY THE TEST AND BALANCE CONTRACTOR WHENEVER OCCUPIED. THE BAS SHALL MONITOR THE ECONOMIZER OUTSIDE AIRFLOW.
   1. THE ECONOMIZER MODE SHALL BE ENABLED WHENEVER:
      A. OUTSIDE AIR TEMPERATURE IS LESS THAN 73°F OR MAXIMUM TEMPERATURE AS ALLOWED BY LOCAL ENERGY CODE.
      B. OR, THE OUTSIDE AIR ENTHALPY IS LESS THAN 28 BTU/LB.
      C. AND, THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
      D. AND, THE SUPPLY FAN STATUS IS ON.
   2. THE OUTSIDE AIR DAMPERS SHALL CLOSE WHENEVER:
      A. MIXED AIR TEMPERATURE DROPS BELOW THE SUPPLY AIR TEMPERATURE REQUIRED TO MEET THE COOLING DEMAND. AN ALARM SHALL BE INITIATED.
      B. OR, ON LOSS OF SUPPLY FAN STATUS.

N. THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF. DURING OPTIMAL START UP THE MIXED AIR DAMPERS SHALL OPERATE AS DESCRIBED IN THE OCCUPIED MODE EXCEPT THAT THE OUTSIDE AIR DAMPERS SHALL MODULATE TO FULLY CLOSED POSITION.

O. MINIMUM OUTSIDE AIR VENTILATION: WHEN IN THE OCCUPIED MODE, THE BAS SHALL MEASURE THE MINIMUM OUTSIDE AIRFLOW AND MODULATE THE OUTSIDE AIR DAMPERS TO MAINTAIN THE PROPER MINIMUM OUTSIDE AIR VENTILATION, OVERRIDING NORMAL DAMPER CONTROL. ON DROPPING OUTSIDE AIRFLOW, THE BAS SHALL MODULATE THE OUTSIDE AIR DAMPERS OPEN TO MAINTAIN THE DESIGN OUTSIDE AIRFLOW RATE.

P. MINIMUM OUTSIDE AIR VENTILATION -CARBON DIOXIDE (CO2) CONTROL: WHEN IN THE OCCUPIED MODE, THE BAS SHALL MONITOR ZONE CO2 LEVELS SERVED BY THIS AIR HANDLING UNIT. THE BAS SHALL TAKE THE HIGHEST ZONE CO2 LEVEL AND MODULATE THE OUTSIDE AIR DAMPER(S) OPEN ON RISING CO2 CONCENTRATIONS, OVERRIDING NORMAL DAMPER OPERATION TO MAINTAIN A CO2 SETPOINT OF 600 PPM ABOVE AMBIENT OUTDOOR CO2 LEVEL.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH ZONE CARBON DIOXIDE CONCENTRATION: IF THE HIGHEST ZONE CO2 CONCENTRATION IS GREATER THAN 1000 PPM.

Q. PRE-OCCUPANCY: THE AIR HANDLER SHALL BE ENERGIZED A MINIMUM OF ONE HOUR PRIOR TO SCHEDULED OCCUPIED PERIOD TO CIRCULATE DESIGN MINIMUM VENTILATION AIR THROUGHOUT THE BUILDING OR A MINIMUM OF THREE COMPLETE AIR CHANGES, WHICHEVER IS LESS. TEMPERATURE CONTROL MAY CONTINUE TO FUNCTION PER THE UN-OCCUPIED SCHEDULE.

R. FILTER DIFFERENTIAL PRESSURE MONITOR: THE BAS SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT INITIALLY SET TO 1.0" WG ABOVE THE CLEAN FILTER DIFFERENTIAL STATIC PRESSURE.

S. MIXED AIR TEMPERATURE: THE BAS SHALL MONITOR THE MIXED AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL (IF PRESENT) OR PREHEATING CONTROL (IF PRESENT).
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH MIXED AIR TEMPERATURE: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90°F.
      B. LOW MIXED AIR TEMPERATURE: IF THE MIXED AIR TEMPERATURE IS LESS THAN 40°F.

T. RETURN AIR TEMPERATURE: THE BAS SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR SETPOINT CONTROL OR ECONOMIZER CONTROL.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH RETURN AIR TEMPERATURE: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F.
      B. LOW RETURN AIR TEMPERATURE: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F.

U. RETURN AIR CO2: THE BAS SHALL MONITOR THE RETURN AIR CO2 CONCENTRATION.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH RETURN AIR CO2 CONCENTRATION: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 1000 PPM.

V. SUPPLY AIR TEMPERATURE: THE BAS SHALL MONITOR THE SUPPLY AIR TEMPERATURE.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 85°F.
      B. LOW SUPPLY AIR TEMPERATURE: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F.

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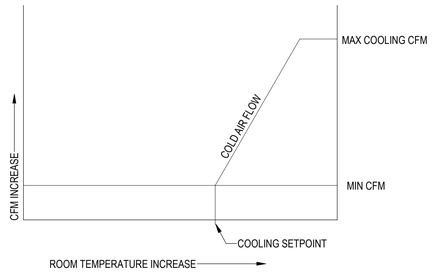
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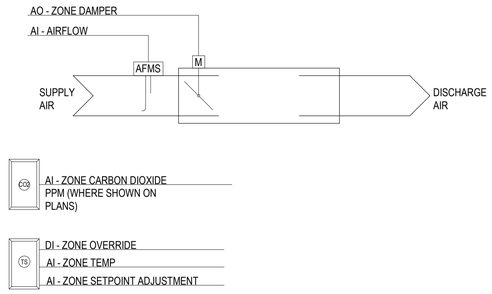
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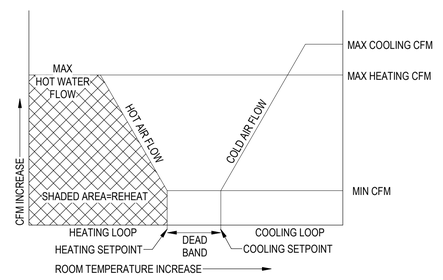


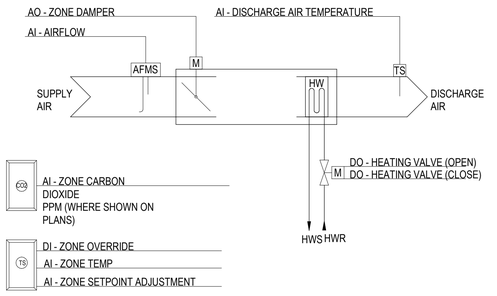
NOTES:
1. IN THE COOLING MODE, AS THE ROOM TEMPERATURE INCREASES, THE UNIT MODULATES THE COLD AIRFLOW FROM THE MINIMUM TO THE MAXIMUM COOLING SETTING.

NOTES:
1. ALL CONTROL POINTS TO BE CONNECTED DIRECTLY TO UNIT MOUNTED CONTROLLER WITH INTERFACE TO BAS COMMUNICATION BUSS.
2. PROVIDE PROGRAMMABLE OVERRIDE BUTTON AT EACH TEMPERATURE SENSOR AS AN OVERRIDE TO ENERGIZE HVAC SYSTEM AFTER NORMAL OCCUPIED HOURS.

2 VAV COOLING ONLY-CONTROL

SCALE: NONE





NOTES:
1. IN THE COOLING MODE, AS THE ROOM TEMPERATURE INCREASES, THE UNIT MODULATES THE COLD AIRFLOW FROM THE MINIMUM TO THE MAXIMUM COOLING SETTING.
2. IN THE HEATING MODE, THE UNIT REFERENCES THE ALTERNATE (HIGHER) MINIMUM AIRFLOW. AS THE ROOM TEMPERATURE DECREASES, THE UNIT MODULATES THE AIRFLOW FROM THE HEATING MINIMUM TO MAXIMUM AND MODULATES THE HEATING WATER COIL VALVE FROM CLOSED TO THE OPEN POSITION. THE VALVE OPERATES ONLY IN THE HEATING MODE.

NOTES:
1. ALL CONTROL POINTS TO BE CONNECTED DIRECTLY TO UNIT MOUNTED CONTROLLER WITH INTERFACE TO BAS COMMUNICATION BUSS.
2. VAV CONTROL FOR TYPICAL SYSTEMS WITH HEATING HOT WATER REHEAT VALVE WITH FLOATING POINT ACTUATOR. FLOATING POINT ACTUATOR REQUIRES TWO DIGITAL OUTPUT SIGNALS TO DRIVE THE VALVE OPEN AND CLOSED.
3. PROVIDE PROGRAMMABLE OVERRIDE BUTTON AT EACH TEMPERATURE SENSOR AS AN OVERRIDE TO ENERGIZE HVAC SYSTEM AFTER NORMAL OCCUPIED HOURS.

1 VAV REHEAT-CONTROL

SCALE: NONE

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VARIABLE AIR VOLUME TERMINAL UNIT -HEATING WATER REHEAT WITH CARBON DIOXIDE (CO2) MONITORING AND OCCUPANCY SENSOR MONITORING

A. FEATURES
   1. COOLING DAMPER AND ACTUATOR
   2. HEATING WATER REHEAT COIL
   3. CARBON DIOXIDE MONITORING
   4. OCCUPANCY SENSOR MONITORING VIA BAS.
   5. ALL SETPOINTS SHALL BE USER ADJUSTABLE
B. RUN CONDITIONS -SCHEDULED: THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE AND MAINTAIN THE FOLLOWING MODES:
   1. OCCUPIED MODE TEMPERATURES:
      A. REFER TO THE BUILDING SCHEDULE
      B. VAV TERMINAL BOXES SERVING CLASSROOMS SPACES TO BE TIED TO CLASSROOM SCHEDULE.
      C. DURING OCCUPIED MODE, VAV BOXES TO COOL TO 75°F(ADJ) AND HEAT TO 70°F(ADJ).
   2. STANDBY MODE TEMPERATURES:
      A. REFER TO THE BUILDING SCHEDULE
      B. IF OCCUPANCY SENSOR FOR ALL SPACES SERVED BY THE TERMINAL ZONE SHOWS THAT THE SPACE IS UNOCCUPIED, VAV BOX SHALL SWITCH TO STANDBY MODE TEMPERATURES.
      C. DURING STANDBY MORE, VAV BOXES TO COOL TO A MAXIMUM OF 80°F(ADJ) AND HEAT TO A MINIMUM OF 65°F(ADJ).
   3. FOUR AIR FLOW CONTROL SETPOINTS SHALL APPLY AS FOLLOWS:
      A. COOLING MAXIMUM AIR FLOW AS SCHEDULED
      B. HEATING MAXIMUM AIR FLOW AS SCHEDULED
      C. COOLING/HEATING MINIMUM AIR FLOW AS SCHEDULED
      D. COOLING/HEATING DEMAND CONTROL VENTILATION MINIMUM AIR FLOW AS SCHEDULED
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS 5°F GREATER THAN THE COOLING SETPOINT.
      B. LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS 5°F LESS THAN THE HEATING SETPOINT.
C. MINIMUM VENTILATION ON CARBON DIOXIDE (CO2) CONCENTRATION: WHEN IN THE OCCUPIED MODE, THE BAS SHALL MEASURE THE ZONE CO2 LEVELS AND MODULATE THE ZONE DAMPER OPEN ON RISING CO2 CONCENTRATIONS, OVERRIDING NORMAL DAMPER OPERATION TO MAINTAIN A CO2 SETPOINT OF NOT MORE THAN 600 PPM ABOVE AMBIENT OUTSIDE AIR CO2 CONCENTRATION. THE MINIMUM AIRFLOW SHALL MODULATE BETWEEN COOL MIN AND DCV MIN AS SCHEDULED.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH ZONE CARBON DIOXIDE CONCENTRATION: IF THE ZONE CO2 CONCENTRATION IS GREATER THAN 1000 PPM.
D. ZONE SETPOINT ADJUST: ZONE SETPOINT SHALL BE CONTROLLED BY FACILITY OPERATIONS.
E. ZONE UNOCCUPIED OVERRIDE: FACILITY OPERATIONS SHALL BE ABLE TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.
F. AIR FLOW CONTROL: THE UNIT SHALL MAINTAIN ZONE SETPOINTS BY CONTROLLING THE AIRFLOW THROUGH ONE OF THE FOLLOWING:
   1. OCCUPIED:
      A. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW AND THE MAXIMUM COOLING AIRFLOW UNTIL THE ZONE IS SATISFIED.
      B. WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT (DEADBAND), THE ZONE DAMPER SHALL MAINTAIN THE MINIMUM REQUIRED ZONE VENTILATION. THE VOLUME OF AIR IN THE DEADBAND SHALL NOT EXCEED THE LARGER OF 20% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE VENTILATION RATE.
      C. WHEN THE ZONE TEMPERATURE IS LESS THAN ITS HEATING SET-POINT, THE BAS SHALL ENABLE HEATING AND MAINTAIN ROOM TEMPERATURE SETPOINT BY MODULATING THE REHEAT CONTROL VALVE TO INCREASE THE SUPPLY AIR TEMPERATURE UP TO MAXIMUM SUPPLY AIR TEMPERATURE OF 95°F WHILE AIRFLOW IS KEPT AT THE DEADBAND FLOW RATE. UPON A FURTHER CALL FOR HEATING, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW AND THE MAXIMUM HEATING AIRFLOW, AND THE REHEAT CONTROL VALVE SHALL MODULATE TO MAINTAIN THE MAXIMUM SUPPLY AIR TEMPERATURE, UNTIL THE ZONE IS SATISFIED. THE MAXIMUM VOLUME OF PRIMARY AIR THAT IS REHEATED SHALL NOT EXCEED THE LARGER OF 50% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE VENTILATION RATE. SEE HEATING MAX AIRFLOW RATES ON VAV SCHEDULE.
   2. STANDBY:
      A. IF ALL SPACES CONTROLLED BY THE VAV BOX ARE UNOCCUPIED, THE VAV BOX SHALL SWITCH TO STANDBY MODE. IF THE SPACE IS UNOCCUPIED FOR OVER 30 MINUTES, BAS SHALL INCREASE ZONE COOLING SETPOINT AND LOWER HEATING SETPOINT BY 1°F EVERY 30 MINUTES (ADJ) TO A MAXIMUM OF 3°F ABOVE COOLING SETPOINT AND A MINIMUM OF 3°F BELOW HEATING SETPOINT.
      B. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE DCV MINIMUM AIRFLOW AND THE MAXIMUM COOLING AIRFLOW UNTIL THE ZONE IS SATISFIED.
      C. WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT (DEADBAND), THE ZONE DAMPER SHALL MAINTAIN THE DCV MINIMUM REQUIRED ZONE VENTILATION. THE VOLUME OF AIR IN THE DEADBAND SHALL NOT EXCEED THE LARGER OF 20% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE DCV RATE.
      D. WHEN THE ZONE TEMPERATURE IS LESS THAN ITS HEATING SET-POINT, THE BAS SHALL ENABLE HEATING AND MAINTAIN ROOM TEMPERATURE SETPOINT BY MODULATING THE REHEAT CONTROL VALVE TO INCREASE THE SUPPLY AIR TEMPERATURE UP TO MAXIMUM SUPPLY AIR TEMPERATURE OF 95°F WHILE AIRFLOW IS KEPT AT THE DEADBAND FLOW RATE. UPON A FURTHER CALL FOR HEATING, THE ZONE DAMPER SHALL MODULATE BETWEEN THE DCV MINIMUM AIRFLOW AND THE MAXIMUM HEATING AIRFLOW, AND THE REHEAT CONTROL VALVE SHALL MODULATE TO MAINTAIN THE MAXIMUM SUPPLY AIR TEMPERATURE, UNTIL THE ZONE IS SATISFIED. THE MAXIMUM VOLUME OF PRIMARY AIR THAT IS REHEATED SHALL NOT EXCEED THE LARGER OF 50% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE VENTILATION RATE.
G. REHEAT COIL CONTROL VALVE: THE BAS SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE REHEATING COIL VALVE OPEN ON DROPPING TEMPERATURE TO MAINTAIN ITS HEATING SETPOINT. THE REHEAT COIL CONTROL VALVE SHALL FAIL CLOSED.
H. REHEATING -HIGH DISCHARGE AIR TEMPERATURE LIMIT: THE BAS SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND LIMIT REHEATING IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 25°F ABOVE THE ZONE TEMPERATURE.
I. DISCHARGE AIR TEMPERATURE: THE BAS SHALL MONITOR THE DISCHARGE AIR TEMPERATURE.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120°F.
      B. LOW DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40°F.
J. OCCUPANCY SENSOR OPERATION:
   1. WHEN SPACE IS OCCUPIED AS DETERMINED BY AN OCCUPANCY SENSOR, THE TERMINAL UNIT CONTROL SEQUENCE SHALL FUNCTION AS PREVIOUSLY STATED FOR THE OCCUPIED MODE.
   2. WHEN SPACE IS UNOCCUPIED AS DETERMINED BY AN OCCUPANCY SENSOR FOR MORE THAN 10 MINUTES, THE TERMINAL UNIT CONTROL SEQUENCE SHALL FUNCTION AS PREVIOUSLY STATED FOR STANDBY MODE.
K. DAMPER POSITION:
   1. THE VAV DAMPER SHALL MAINTAIN A MODULATING POSITION (ADJUSTABLE) DURING ZONE OCCUPIED MODE TO MEET ZONE AIRFLOW DEMAND AND SHALL BE SET TO THE VAV MINIMUM AIRFLOW DURING UNOCCUPIED MODE.

VARIABLE AIR VOLUME TERMINAL UNIT -HEATING WATER REHEAT WITH OCCUPANCY SENSOR MONITOR, WITHOUT DEMAND CONTROL VENTILATION

A. FEATURES
   1. COOLING DAMPER AND ACTUATOR
   2. HEATING WATER REHEAT COIL
   3. OCCUPANCY SENSOR MONITORING VIA BAS.
   4. ALL SETPOINTS SHALL BE USER ADJUSTABLE
B. RUN CONDITIONS -SCHEDULED: THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE AND MAINTAIN THE FOLLOWING MODES:
   1. OCCUPIED MODE TEMPERATURES:
      A. REFER TO THE BUILDING SCHEDULE
      B. DURING OCCUPIED MODE, VAV BOXES TO COOL TO 75°F(ADJ) AND HEAT TO 70°F(ADJ).
   2. STANDBY MODE TEMPERATURES:
      A. REFER TO THE BUILDING SCHEDULE
      B. IF OCCUPANCY SENSOR FOR ALL SPACES SERVED BY THE TERMINAL ZONE SHOWS THAT THE SPACE IS UNOCCUPIED, VAV BOX SHALL SWITCH TO STANDBY MODE TEMPERATURES.
      C. DURING STANDBY MORE, VAV BOXES TO COOL TO A MAXIMUM OF 80°F(ADJ) AND HEAT TO A MINIMUM OF 65°F(ADJ).
   3. THREE AIR FLOW CONTROL SETPOINTS SHALL APPLY AS FOLLOWS:
      A. COOLING MAXIMUM AIR FLOW AS SCHEDULED
      B. HEATING MAXIMUM AIR FLOW AS SCHEDULED
      C. COOLING/HEATING MINIMUM AIR FLOW AS SCHEDULED
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS 5°F GREATER THAN THE COOLING SETPOINT.
      B. LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS 5°F LESS THAN THE HEATING SETPOINT.
C. AIR FLOW CONTROL: THE UNIT SHALL MAINTAIN ZONE SETPOINTS BY CONTROLLING THE AIRFLOW THROUGH ONE OF THE FOLLOWING:
   1. OCCUPIED:
      A. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW AND THE MAXIMUM COOLING AIRFLOW UNTIL THE ZONE IS SATISFIED.
      B. WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT (DEADBAND), THE ZONE DAMPER SHALL MAINTAIN THE MINIMUM REQUIRED ZONE VENTILATION. THE VOLUME OF AIR IN THE DEADBAND SHALL NOT EXCEED THE LARGER OF 20% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE VENTILATION RATE.
      C. WHEN THE ZONE TEMPERATURE IS LESS THAN ITS HEATING SET-POINT, THE BAS SHALL ENABLE HEATING AND MAINTAIN ROOM TEMPERATURE SETPOINT BY MODULATING THE REHEAT CONTROL VALVE TO INCREASE THE SUPPLY AIR TEMPERATURE UP TO MAXIMUM SUPPLY AIR TEMPERATURE OF 95°F WHILE AIRFLOW IS KEPT AT THE DEADBAND FLOW RATE. UPON A FURTHER CALL FOR HEATING, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW AND THE MAXIMUM HEATING AIRFLOW, AND THE REHEAT CONTROL VALVE SHALL MODULATE TO MAINTAIN THE MAXIMUM SUPPLY AIR TEMPERATURE, UNTIL THE ZONE IS SATISFIED. THE MAXIMUM VOLUME OF PRIMARY AIR THAT IS REHEATED SHALL NOT EXCEED THE LARGER OF 50% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE VENTILATION RATE.
   2. STANDBY:
      A. IF ALL SPACES CONTROLLED BY THE VAV BOX ARE UNOCCUPIED, THE VAV BOX SHALL SWITCH TO STANDBY MODE. IF THE SPACE IS UNOCCUPIED FOR OVER 30 MINUTES, BAS SHALL INCREASE ZONE COOLING SETPOINT AND LOWER HEATING SETPOINT BY 1°F EVERY 30 MINUTES (ADJ) TO A MAXIMUM OF 3°F ABOVE COOLING SETPOINT AND A MINIMUM OF 3°F BELOW HEATING SETPOINT.
      B. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE DCV MINIMUM AIRFLOW AND THE MAXIMUM COOLING AIRFLOW UNTIL THE ZONE IS SATISFIED.
      C. WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT (DEADBAND), THE ZONE DAMPER SHALL MAINTAIN THE DCV MINIMUM REQUIRED ZONE VENTILATION. THE VOLUME OF AIR IN THE DEADBAND SHALL NOT EXCEED THE LARGER OF 20% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE DCV RATE.
      D. WHEN THE ZONE TEMPERATURE IS LESS THAN ITS HEATING SET-POINT, THE BAS SHALL ENABLE HEATING AND MAINTAIN ROOM TEMPERATURE SETPOINT BY MODULATING THE REHEAT CONTROL VALVE TO INCREASE THE SUPPLY AIR TEMPERATURE UP TO MAXIMUM SUPPLY AIR TEMPERATURE OF 95°F WHILE AIRFLOW IS KEPT AT THE DEADBAND FLOW RATE. UPON A FURTHER CALL FOR HEATING, THE ZONE DAMPER SHALL MODULATE BETWEEN THE DCV MINIMUM AIRFLOW AND THE MAXIMUM HEATING AIRFLOW, AND THE REHEAT CONTROL VALVE SHALL MODULATE TO MAINTAIN THE MAXIMUM SUPPLY AIR TEMPERATURE, UNTIL THE ZONE IS SATISFIED. THE MAXIMUM VOLUME OF PRIMARY AIR THAT IS REHEATED SHALL NOT EXCEED THE LARGER OF 50% OF PEAK PRIMARY AIRFLOW OR THE DESIGN ZONE VENTILATION RATE.
D. REHEATING COIL VALVE: THE BAS SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE REHEATING COIL VALVE OPEN ON DROPPING TEMPERATURE TO MAINTAIN ITS HEATING SETPOINT. THE REHEAT COIL CONTROL VALVE SHALL FAIL IN THE LAST POSITION (NON-SPRING RETURN).
E. REHEATING -HIGH DISCHARGE AIR TEMPERATURE LIMIT: THE BAS SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND LIMIT REHEATING IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 25°F ABOVE THE ZONE TEMPERATURE.
F. DISCHARGE AIR TEMPERATURE: THE BAS SHALL MONITOR THE DISCHARGE AIR TEMPERATURE.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120°F.
      B. LOW DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40°F.
G. DAMPER POSITION:
   1. THE VAV DAMPER SHALL MAINTAIN A MODULATING POSITION (ADJUSTABLE) DURING ZONE OCCUPIED MODE TO MEET ZONE AIRFLOW DEMAND AND SHALL BE SET TO THE VAV MINIMUM AIRFLOW DURING UNOCCUPIED MODE.
H. OCCUPANCY SENSOR OPERATION:
   1. WHEN SPACE IS OCCUPIED AS DETERMINED BY AN OCCUPANCY SENSOR, THE TERMINAL UNIT CONTROL SEQUENCE SHALL FUNCTION AS PREVIOUSLY STATED FOR THE OCCUPIED MODE.
   2. WHEN SPACE IS UNOCCUPIED AS DETERMINED BY AN OCCUPANCY SENSOR FOR MORE THAN 10 MINUTES, THE TERMINAL UNIT CONTROL SEQUENCE SHALL FUNCTION AS PREVIOUSLY STATED FOR STANDBY MODE.

VARIABLE AIR VOLUME TERMINAL UNIT - COOLING ONLY

A. FEATURES
   1. COOLING DAMPER AND ACTUATOR
   2. OCCUPANCY SENSOR MONITORING VIA BAS.
   3. ALL SETPOINTS SHALL BE USER ADJUSTABLE
B. RUN CONDITIONS -SCHEDULED: THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE AND MAINTAIN THE FOLLOWING MODES:
   1. OCCUPIED MODE TEMPERATURES:
      A. REFER TO THE BUILDING SCHEDULE
      B. DURING OCCUPIED MODE, VAV BOXES TO COOL TO 75°F(ADJ)
   2. STANDBY MODE TEMPERATURES:
      A. REFER TO THE BUILDING SCHEDULE
      B. IF OCCUPANCY SENSOR FOR ALL SPACES SERVED BY THE TERMINAL ZONE SHOWS THAT THE SPACE IS UNOCCUPIED, VAV BOX SHALL SWITCH TO STANDBY MODE TEMPERATURES.
      C. DURING STANDBY MORE, VAV BOXES TO COOL TO A MAXIMUM OF 80°F(ADJ) AND HEAT TO A MINIMUM OF 65°F(ADJ).
   3. TWO VAV AIR FLOW CONTROL SETPOINTS SHALL APPLY AS FOLLOWS:
      A. COOLING MAXIMUM AIR FLOW AS SCHEDULED
      B. COOLING MINIMUM AIR FLOW AS SCHEDULED
   4. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS 5°F GREATER THAN THE COOLING SETPOINT.
C. AIR FLOW CONTROL: THE UNIT SHALL MAINTAIN ZONE SETPOINTS BY CONTROLLING THE AIRFLOW THROUGH ONE OF THE FOLLOWING:
   1. OCCUPIED:
      A. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW AND THE MAXIMUM COOLING AIRFLOW UNTIL THE ZONE IS SATISFIED.
      B. WHEN THE ZONE TEMPERATURE BELOW THE COOLING SETPOINT, THE ZONE DAMPER SHALL MAINTAIN THE MINIMUM REQUIRED ZONE VENTILATION.
   2. STANDBY:
      A. IF ALL SPACES CONTROLLED BY THE VAV BOX ARE UNOCCUPIED, THE VAV BOX SHALL SWITCH TO STANDBY MODE. IF THE SPACE IS UNOCCUPIED FOR OVER 30 MINUTES, BAS SHALL INCREASE ZONE COOLING SETPOINT AND LOWER HEATING SETPOINT BY 1°F EVERY 30 MINUTES (ADJ) TO A MAXIMUM OF 80° F FOR COOLING AND A MINIMUM 65°F FOR HEATING.
      B. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE DCV MINIMUM AIRFLOW AND THE MAXIMUM COOLING AIRFLOW UNTIL THE ZONE IS SATISFIED.
      C. WHEN THE ZONE TEMPERATURE IS BELOW THE COOLING SETPOINT, THE ZONE DAMPER SHALL MAINTAIN THE DCV MINIMUM REQUIRED ZONE VENTILATION.
D. DISCHARGE AIR TEMPERATURE: THE BAS SHALL MONITOR THE DISCHARGE AIR TEMPERATURE.
   1. ALARMS SHALL BE PROVIDED AS FOLLOWS:
      A. HIGH DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 120°F.
      B. LOW DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40°F.
E. DAMPER POSITION:
   1. THE VAV DAMPER SHALL MAINTAIN A MODULATING POSITION (ADJUSTABLE) DURING ZONE OCCUPIED MODE TO MEET ZONE AIRFLOW DEMAND AND SHALL BE SET TO THE VAV MINIMUM AIRFLOW DURING UNOCCUPIED MODE.
F. OCCUPANCY SENSOR OPERATION:
   1. WHEN SPACE IS OCCUPIED AS DETERMINED BY AN OCCUPANCY SENSOR, THE TERMINAL UNIT CONTROL SEQUENCE SHALL FUNCTION AS PREVIOUSLY STATED FOR THE OCCUPIED MODE.
   2. WHEN SPACE IS UNOCCUPIED AS DETERMINED BY AN OCCUPANCY SENSOR FOR MORE THAN 10 MINUTES, THE TERMINAL UNIT CONTROL SEQUENCE SHALL FUNCTION AS PREVIOUSLY STATED FOR STANDBY MODE.

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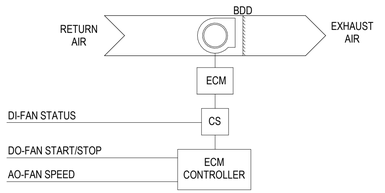
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MECHANICAL CONTROLS

M7.05

Please go to publicpurchase.com to make sure you have the latest information and any addendums released



EXHAUST FAN WITH INTERLOCK

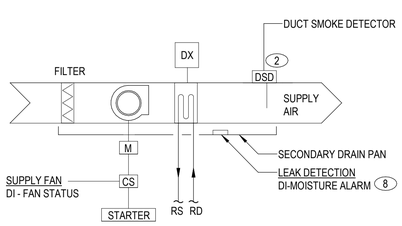
A. RUN CONDITIONS - INTERLOCKED:
   a. THE FAN(S) MUST OPERATE WHEN INTERLOCKED UNITS ARE ENABLED PER THE BUILDING SCHEDULE OR OCCUPANT OVERRIDE. THE FAN(S) MUST BE INTERLOCKED SUCH THAT IF MULTIPLE INTERLOCKED SYSTEMS ARE ENERGIZED, FANS ARE ON. IF MULTIPLE INTERLOCKED SYSTEMS ARE DE-ENERGIZED, FANS ARE OFF.
   b. FAN AND UNIT INTERLOCKS ARE AS FOLLOWS:
      *
   c. FAN SPEED OUTPUTS ARE FOR BALANCING WITH SPEED DETERMINED BY TEST AND BALANCE AND NOT RESET.
B. FAN STATUS: THE BAS MUST MONITOR THE FAN STATUS.
   1. ALARMS MUST BE PROVIDED AS FOLLOWS:
      A. FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      B. FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
      C. FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS 6 MONTHS.

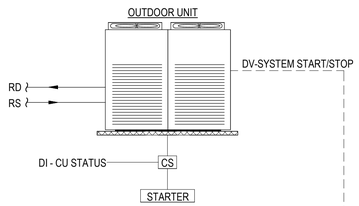
NOTES:
1. REFER TO PLANS FOR DUCTWORK ARRANGEMENT.
2. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL REQUIREMENTS.
3. CURRENT SENSOR MUST BE VERIS #H6ECM05 SERIES OR EQUIVALENT.
4. THIS DETAIL APPLES TO ALL EXHAUST FANS.

2 CONTROL SCHEMATIC - EXHAUST FANS

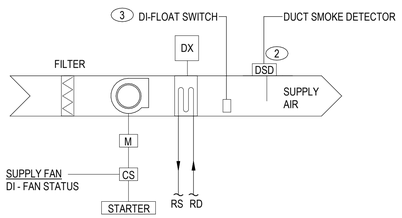
SCALE: NONE

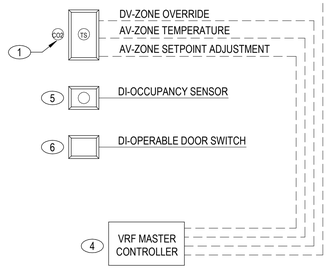
FAN COIL UNITS WITH SECONDARY DRAIN PANS (SEE PLANS)





FAN COIL UNITS WITH FLOAT SWITCH ONLY





NOTES:
1. SEE PLANS FOR LOCATIONS REQUIRING CO2 SENSING.
2. SMOKE DETECTOR FURNISHED BY MECHANICAL, HARDWIRE SMOKE DETECTOR TO EMERGENCY STOP TERMINALS ON SUPPLY FAN BY ELECTRICAL.
3. FURNISH AND INSTALL FLOAT SWITCH AT SECONDARY DRAIN CONNECTION.
4. CONTROLS SUBCONTRACTOR TO INSTALL AND CONFIGURED MANUFACTURER'S CENTRAL CONTROLLER PER PROJECT OPERATIONAL REQUIREMENTS.
5. PROVIDE BAS OCCUPANCY SENSOR.
6. SEE ZONING PLANS FOR ZONES REQUIRING DOOR INTERLOCK WITH OPERABLE DOOR IN THE ZONE.
7. REFER TO SEQUENCE OF OPERATION FOR ADDITIONAL REQUIREMENTS.
8. PROVIDE LEAK DETECTION SYSTEM WITH BAS ALARM.
9. — — — — — DASHED LINES INDICATE POINTS ACCESSIBLE THROUGH VRF MANUFACTURER'S CENTRAL CONTROLLER

1 CONTROL SCHEMATIC - VRF SYSTEM GENERAL CONDITIONING

SCALE: NONE

VARIABLE REFRIGERANT FLOW SYSTEM

A. CONTROL/MONITORING: THE VRF CONDENSING UNIT, VRF BRANCH CIRCUIT CONTROLLER AND VRF FAN COIL UNIT MUST BE CONTROLLED BY THE MANUFACTURER'S VRF CONTROLS. THE BUILDING AUTOMATION SYSTEM MUST BE CONNECTED TO THE VRF SYSTEM FOR ZONE SETPOINT CONTROL, ENABLE/DISABLE, ZONE MONITORING AND EQUIPMENT MONITORING.
B. RUN CONDITIONS -SCHEDULED: THE UNIT MUST RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE AND MAINTAIN THE FOLLOWING MODES:
   1. OCCUPIED MODE TEMPERATURES:
      A. COOLING: 75°F(ADJ)
      B. HEATING: 70°F(ADJ)
   2. UNOCCUPIED/STANDBY MODE TEMPERATURES:
      A. IF OCCUPANCY SENSOR FOR ALL SPACES SERVED BY THE FAN COIL UNIT SHOWS THAT THE SPACE IS UNOCCUPIED, FAN COIL UNIT MUST SETUP AND SETBACK ZONE SETPOINTS BY +/- 5 DEGREES AS FOLLOWS:
         a. COOLING: 80°F(ADJ)
         b. HEATING: 65°F(ADJ)
C. ZONE SETPOINT ADJUST: THE OCCUPANT MUST BE ABLE TO ADJUST THE ZONE TEMP HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR.
D. ZONE UNOCCUPIED OVERRIDE: A TIMED LOCAL OVERRIDE CONTROL MUST ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN UNOCCUPIED MODE UP TO TWO HOURS (ADJ.) AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT MUST AUTOMATICALLY RETURN TO THE SCHEDULE.
E. FAN: THE FAN MUST RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.
F. ALARMS MUST BE PROVIDED AS FOLLOWS:
   1. HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS 5°F GREATER THAN THE COOLING SETPOINT.
   2. LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS 5°F LESS THAN THE HEATING SETPOINT.
G. STATUS: THE ON/OFF STATUS OF THE FAN AND CONDENSING UNIT MUST BE MONITORED.
   1. ALARMS MUST BE PROVIDED AS FOLLOWS:
      A. FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
      B. CONDENSING UNIT FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
H. SPACE TEMPERATURE SETBACK: OCCUPANCY SENSOR THAT IS PROVIDED BY OTHERS MUST BE MONITORED TO DETERMINE SPACE OCCUPANCY. MUST THE SPACE BE DETERMINED AS UNOCCUPIED BY THE OCCUPANCY SENSOR, THE SPACE MUST PROVIDE A SETBACK. WHEN THE SPACE IS DETERMINED AS OCCUPIED BY THE OCCUPANCY SENSOR, THE SPACE MUST RESUME NORMAL OPERATION. THERE MUST BE A MINIMUM RUNTIME AFTER EACH CHANGE IN DETERMINED OCCUPANCY OF 5 MINUTES TO PREVENT SHORT CYCLING.
I. FAN COIL UNIT MODE: THE FAN COIL UNIT MUST MAINTAIN ZONE SETPOINTS BY CONTROLLING THE OPERATION MODE THROUGH ONE OF THE FOLLOWING:
   1. OCCUPIED:
      A. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE FAN COIL UNIT MUST OPERATE IN COOLING MODE UNTIL THE ZONE IS SATISFIED.
      B. WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT (DEADBAND), THE FAN COIL UNIT MUST OPERATE IN FAN ONLY MODE TO MAINTAIN THE REQUIRED ZONE VENTILATION FROM THE ASSOCIATED DEDICATED OUTSIDE AIR SYSTEM.
      C. WHEN THE ZONE TEMPERATURE IS LESS THAN ITS HEATING SET-POINT, THE FAN COIL UNIT MUST OPERATE IN HEATING MODE UNTIL THE ZONE IS SATISFIED.
   2. STANDBY:
      A. IF ALL SPACES SERVED BY THE FAN COIL UNIT ARE UNOCCUPIED, THE FAN COIL UNIT MUST SWITCH TO STANDBY MODE. IF THE SPACE IS UNOCCUPIED FOR OVER 30 MINUTES, BAS MUST RELAX ZONE COOLING OR HEATING SETPOINTS BY 1°F GRADUALLY TO THE STANDBY SETPOINTS DEFINED ABOVE.
      B. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE FAN COIL UNIT MUST OPERATE IN COOLING MODE UNTIL THE ZONE IS SATISFIED.
      C. WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT (DEADBAND), THE FAN COIL UNIT MUST OPERATE IN FAN ONLY MODE TO MAINTAIN THE DCV MINIMUM REQUIRED ZONE VENTILATION FROM DEDICATED OUTSIDE AIR SYSTEM.
      D. WHEN THE ZONE TEMPERATURE IS LESS THAN ITS HEATING SET-POINT, THE FAN COIL UNIT MUST OPERATE IN HEATING MODE UNTIL THE ZONE IS SATISFIED.
   3. UNOCCUPIED:
      A. WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE FAN COIL UNIT MUST OPERATE IN COOLING MODE UNTIL THE ZONE IS SATISFIED.
      B. WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT (DEADBAND), THE FAN COIL UNIT MUST SHUT OFF.
      C. WHEN THE ZONE TEMPERATURE IS LESS THAN ITS HEATING SET-POINT, THE FAN COIL UNIT MUST OPERATE IN HEATING MODE UNTIL THE ZONE IS SATISFIED.
J. OCCUPANCY SENSOR OPERATION:
   1. WHEN SPACE IS OCCUPIED AS DETERMINED BY AN OCCUPANCY SENSOR, THE INDOOR UNIT CONTROL SEQUENCE MUST FUNCTION AS PREVIOUSLY STATED FOR THE OCCUPIED MODE.
   2. WHEN SPACE IS UNOCCUPIED AS DETERMINED BY AN OCCUPANCY SENSOR FOR MORE THAN 10 MINUTES, THE TERMINAL UNIT CONTROL SEQUENCE MUST FUNCTION AS PREVIOUSLY STATED FOR STANDBY MODE.
   3. OCCUPANCY SENSOR MUST BE PROVIDED BY THE CONTRACTOR FOR HVAC CONTROLS.
   4. BAS MUST COMMAND FAN COIL UNIT MODE BASED ON OCCUPANCY VIA THE VRF MASTER CONTROLLER.
K. FLOAT SWITCH:
   1. WHERE INDICATED ON PLAN, CONTROLS INSTALLING SUBCONTRACTOR MUST FURNISH AND INSTALL A FLOAT SWITCH IN THE SECONDARY CONDENSATE DRAIN CONNECTION. UPON THE FLOAT SWITCH ENGAGING, THE FCU MUST BE SHUT DOWN AND AN ALARM MUST BE GENERATED AT THE BAS.
L. MOISTURE ALARM:
   1. WHERE INDICATED ON PLAN, CONTROLS INSTALLING SUBCONTRACTOR MUST FURNISH AND INSTALL A LEAK DETECTION SYSTEM CAPABLE OF ALARM AT THE BAS. UPON AN ALARM EVENT, THE FCU MUST BE SHUT DOWN.
M. OPERABLE DOOR SWITCH
   1. WHEN OPERABLE DOOR SWITCH DETECTS AN OPEN DOOR, THE ASSOCIATED FAN COIL UNIT MUST BE DE-ENERGIZED AND THE STATUS AT THE BAS FRONTEND MUST SHOW "DOOR OPEN"
   2. DOOR SWITCH FOR UNIT S/O BY OTHERS. DRY CONTACTS AT DOOR FOR LOW VOLTAGE WIRING TIE IN BY OTHERS. FURNISH AND INSTALL CONDUIT PATHWAY AND WIRING UP FROM DOOR INTO SLAB ABOVE TO ASSOCIATED FCU DRY CONTACTS.

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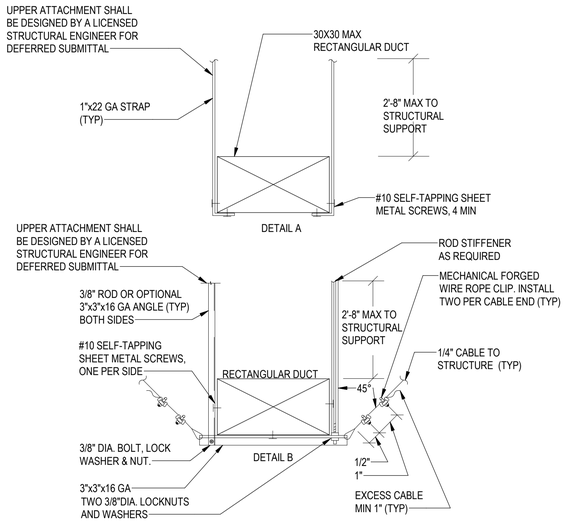
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MECHANICAL CONTROLS

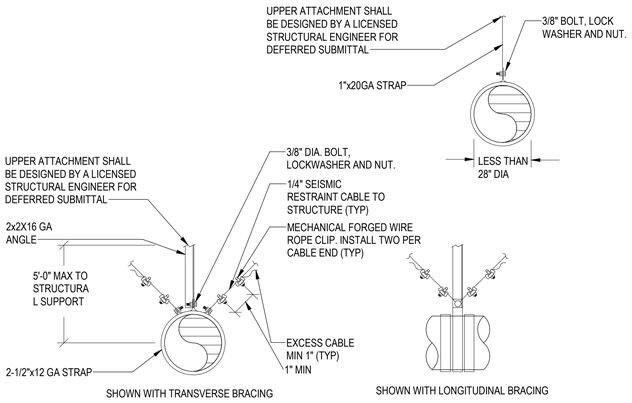
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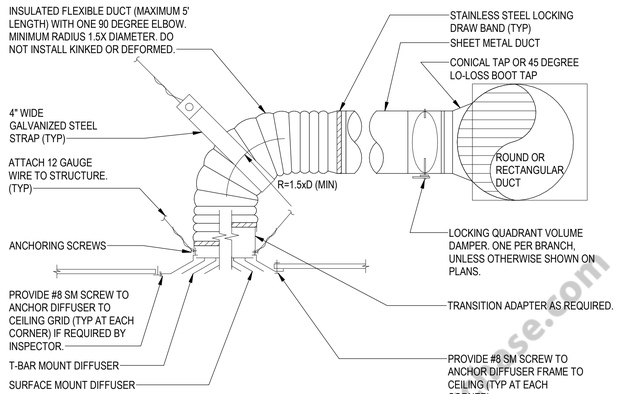
NOTES:
1. MAXIMUM SPACING OF HANGERS SHALL BE 5'-0".
2. IF A FLEXIBLE CONNECTION IS INSTALLED BETWEEN THE MECHANICAL EQUIPMENT AND THE DUCT, THEN THIS DETAIL MAY BE USED. OTHERWISE, USE DETAIL B BELOW.
3. SEISMIC RESTRAINT CABLES MAY BE OMITTED WHERE:
   A. THERE IS A FLEXIBLE CONNECTION BETWEEN THE MECHANICAL EQUIPMENT AND
   B. RECTANGULAR DUCT IS LESS THAN 6 SQUARE FEET IN AREA OR
   C. DUCT OF ANY SIZE IS SUPPORTED WITHIN 12" OF STRUCTURE AS MEASURED FROM THE TOP OF DUCT TO THE BOTTOM OF STRUCTURE.
4. WHERE SEISMIC RESTRAINTS ARE REQUIRED,
   A. PROVIDE TRANSVERSE BRACING AT 30 FT AND
   B. LONGITUDINAL BRACING AT 60 FT.
5. VERTICAL HANGERS, DIAGONAL AND HORIZONTAL BRACES TO BE SIZED IN ACCORDANCE WITH SMACNA SEISMIC RESTRAINT MANUAL TABLE 5-1 AND 5-2.
6. REFER TO STRUCTURAL DETAILS FOR ADDITIONAL INFORMATION NOT SHOWN HERE.
7. INSTALL ROD STIFFENER AS REQUIRED. REFER TO STRUCTURAL DESIGN FOR ADDITIONAL ATTACHMENT REQUIREMENTS. REFER TO HILTI ICC#ESR-1917 PRE-APPROVAL. DUCT HANGERS AND SUPPORTS SHALL COMPLY WITH PRE-APPROVED B-LINE "SEISMIC RESTRAINT SYSTEM".

6 RECTANGULAR DUCT SUPPORT
SCALE: NONE



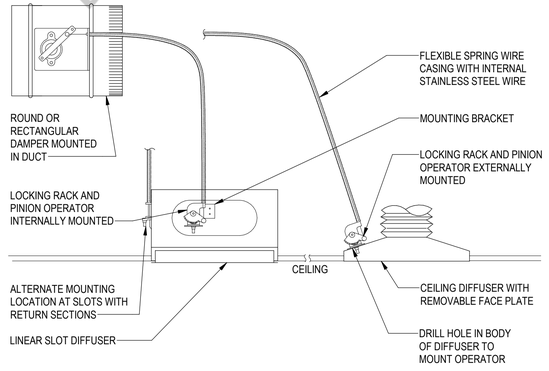
NOTES:
1. HANGERS SHALL BE INSTALLED AT EVERY CHANGE OF DIRECTION AND NO MORE THAN 10'-0" APART.
2. PROVIDE A FLEXIBLE CONNECTION BETWEEN MECHANICAL EQUIPMENT AND DUCT.
3. STRAP MAY BE REDUCED TO 1"x22 GA FOR DUCT 24" DIA. AND LESS IN DIAMETER.
4. SEISMIC RESTRAINT CABLES MAY BE OMITTED WHERE DUCT IS SUPPORTED WITHIN 12" OF STRUCTURE AS MEASURED FROM THE TOP OF DUCT TO THE BOTTOM OF STRUCTURE.
5. VERTICAL HANGERS, DIAGONAL AND HORIZONTAL BRACES TO BE SIZED IN ACCORDANCE WITH SMACNA SEISMIC RESTRAINT MANUAL.
6. COORDINATE WITH STRUCTURAL ENGINEER FOR UPPER ATTACHMENTS.
7. WHERE SEISMIC CABLE RESTRAINTS ARE REQUIRED,
   A. PROVIDE SEISMIC CABLE TRANSVERSE BRACING AT 30 FT AND
   B. SEISMIC CABLE LONGITUDINAL BRACING AT 60 FT.
   C. SEISMIC CABLE RESTRAINTS ARE NOT REQUIRED AT EVERY HANGER LOCATION.

5 ROUND DUCT SUPPORT
SCALE: NONE



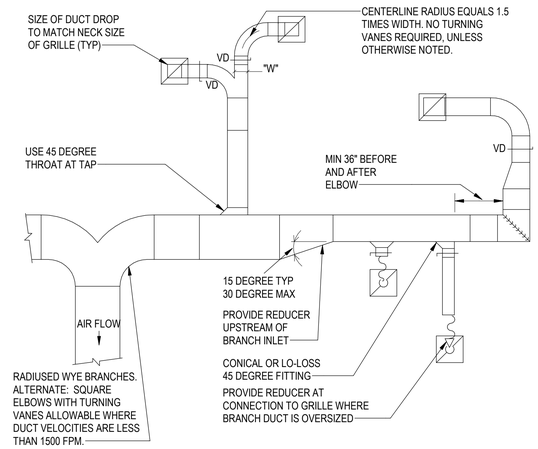
NOTES:
1. ACCESS TO BALANCING DAMPER MAY BE PROVIDED THRU REMOVABLE RETURN AIR REGISTER OR HINGED LIGHT FIXTURE.
2. FOR INACCESSIBLE CEILING USE REMOTE FLEXIBLE STEEL SHAFT DAMPER OPERATOR OR PROVIDE 18"x18" (MIN) ACCESS DOOR.
3. DIFFUSER FRAME SHALL MATCH ARCHITECTURAL CEILING TYPE.
4. IF FLEXIBLE DUCT SIZE INDICATED ON PLAN IS LARGER OR SMALLER THAN DIFFUSER NECK OR IF DIFFUSER NECK IS SQUARE OR RECTANGULAR PROVIDE TRANSITION FITTING AT DIFFUSER NECK.
5. REFER TO STRUCTURAL DESIGN FOR ATTACHMENT REQUIREMENTS AND ADDITIONAL SUPPORT OPTIONS.

4 CEILING DIFFUSER MOUNTING-FLEXIBLE
SCALE: NONE



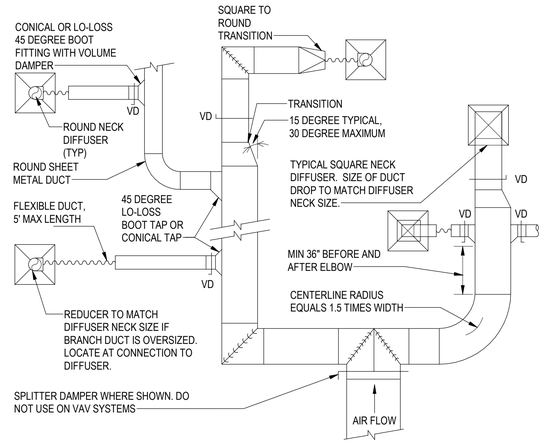
NOTES:
1. REFER TO PLANS FOR DUCT SIZES AND CONTINUATION.
2. COORDINATE EXACT LOCATION OF CONCEALED REGULATOR WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION OR INSTALL ABOVE ADJACENT ACCESSIBLE CEILING.
3. THE CABLE CONTROL SYSTEM IS DESIGNED TO BE CONCEALED IN THE AIR DIFFUSER DEVICE.
4. OPERATION TO BE ADJUSTABLE USING A STANDARD SOCKET WRENCH.

3 REMOTE DAMPER REGULATOR-DIFFUSER
SCALE: NONE



NOTES:
1. PROVIDE DUCT LINER AND/OR EXTERNAL DUCT INSULATION AS NOTED ON PLANS OR IN SPECIFICATIONS.
2. PROVIDE HANGERS AND SEISMIC BRACING PER SMACNA AND BUILDING CODE.
3. LOCATE MANUAL BALANCING DAMPERS IMMEDIATELY DOWNSTREAM OF EACH DUCT TAP.
4. MAINTAIN MINIMUM 36" CLEARANCE BETWEEN LEADING OR TRAILING ELBOW JOINT AND DUCT TAP FITTINGS.
5. TURNING VANES REQUIRED ON RECTANGULAR DUCT SYSTEM ELBOWS. SINGLE THICKNESS VANES UP TO 25" HEIGHT AND DOUBLE THICKNESS VANES IN DUCTS GREATER THAN 25" HEIGHT. RADIUSED ELBOWS MAY BE USED AS AN ALTERNATE.
6. NO TURNING VANES REQUIRED ON DUCT SIZES LESS THAN 180 SQ. IN. IF DUCT VELOCITY IS LESS THAN 1500 FPM.

2 RETURN EXHAUST DUCT FITTINGS
SCALE: NONE



NOTES:
1. PROVIDE DUCT LINER AND/OR EXTERNAL DUCT INSULATION AS NOTED ON PLANS OR IN SPECIFICATIONS.
2. PROVIDE HANGERS AND SEISMIC BRACING PER SMACNA AND BUILDING CODE REQUIREMENTS.
3. LOCATE MANUAL BALANCING DAMPERS IMMEDIATELY DOWNSTREAM OF EACH DUCT TAP.
4. CUSHION HEADS OR BULLHEAD TEES ARE NOT ALLOWED.
5. MAINTAIN MINIMUM 36" CLEARANCE BETWEEN LEADING OR TRAILING ELBOW JOINT AND DUCT TAP FITTINGS.
6. RADIUSED ELBOWS OR TURNING VANES REQUIRED ON RECTANGULAR DUCT SYSTEM ELBOWS. SINGLE THICKNESS VANES UP TO 25" HEIGHT AND DOUBLE THICKNESS VANES IN DUCTS GREATER THAN 25" HEIGHT.

1 SUPPLY DUCT FITTINGS
SCALE: NONE

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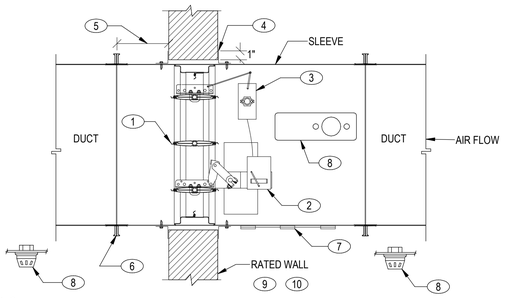
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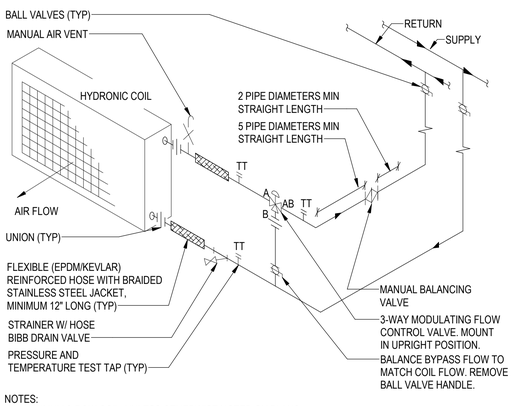


NOTES: (#)

1. DAMPER BLADES
2. ELECTRIC ACTUATOR MOTOR INTERLOCKED WITH SMOKE DETECTOR OR FIRE ALARM SYSTEM. COORDINATE WITH ELECTRICAL DESIGN FOR POWER, CONTROL WIRING AND SEQUENCE OF OPERATION.
3. ELECTRIC RESETTABLE FUSIBLE LINK CLOSES AND LOCKS THE DAMPER WHEN TEMPERATURE EXCEEDS PRESET TEMPERATURE. DAMPER MAY BE RESET BY PRESSING RESET BUTTON. INTEGRAL DAMPER BLADE INDICATOR SWITCH FOR REMOTE MONITORING OF OPEN AND CLOSED POSITIONS.
4. STEEL RETAINING ANGLES, MINIMUM 1-1/2"x1-1/2"x0.060", FASTENED TO FIRE DAMPER SLEEVE. ANGLES SHALL BE INSTALLED ON ALL FOUR SIDES OF DAMPER AND ON EACH SIDE OF THE WALL. FASTEN ANGLE TO SLEEVE WITH #10 SHEET METAL SCREWS (MINIMUM). ANGLE GAUGE AND FASTENING METHOD AS PERMITTED AS A CONDITION OF DAMPER LISTING. REFER TO MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. MINIMUM 1" ANGLE OVERLAP ON ALL SIDES OF PARTITION WALL.
5. DAMPER SLEEVE ON OPPOSITE SIDE OF WALL FROM ACTUATOR MUST BE MINIMUM 3" AND MAXIMUM OF 6" LONG.
6. DUCT CONNECTION AS PERMITTED PER DAMPER LISTING. FLANGED BREAK-AWAY STYLE DUCT/SLEEVE CONNECTIONS ARE SHOWN.
7. ACCESS DOOR SHOWN ON BOTTOM OF SLEEVE FOR ACCESS TO FIRE DAMPER BLADES. PANEL TO BE HINGED WITH AIRTIGHT SEAL. ACCESS SIZE MUST BE MINIMUM OF 12" BY 12" OR THE WIDTH OF DUCT IF SMALLER THAN 12" WIDE. ACCESS PANEL MUST BE LABELED WITH THE WORDS, "FIRE DOOR - DO NOT OBSTRUCT" IN LETTERS NO LESS THAN 1" IN HEIGHT. EXTERNAL INSULATION SHALL NOT CONCEAL ACCESS UNLESS A LABEL IS ATTACHED TO THE INSULATION WHICH INDICATES THE EXACT LOCATION OF THE OPENING.
8. DUCT SMOKE DETECTOR MOUNTED IN SLEEVE ON OPPOSITE SIDE FROM ACTUATOR WITHIN FIVE FEET OF DAMPER. OR, AREA SMOKE DETECTORS CONNECTED TO CENTRAL FIRE ALARM SYSTEM. SMOKE DETECTORS SHALL BE ADDRESSABLE AND UNIQUELY TAGGED.
9. LOCATE 3/4" HIGH WHITE PLASTIC LAMINATE SIGNS WITH 3/8" HIGH BLACK LETTERING WITH THE INITIALS "FSD" AND UNIQUE NUMBER ON THE CEILING ACCESS DOOR OR T-BAR CEILING GRID IN THE AREA OF THE DAMPER ACCESS PANEL. ATTACH TO CEILING WITH EPOXY ADHESIVE.
10. FIRE/SMOKE DAMPER DETAIL FOR REFERENCE ONLY. FIRE DAMPER SHALL BE STATE FIRE MARSHAL APPROVED. INSTALL PER MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS WHICH SHALL BE MADE AVAILABLE TO INSPECTION AUTHORITIES.
11. UL 555 & 555S COMPLIANT. LISTINGS: RUSKIN#R5531, GREENHECK#R13317, POTTORFF#R11767, NAILOR#R9492, CESCO#R6462 .
12. REFER TO SPECIFICATION SECTION 233113 FOR ADDITIONAL REQUIREMENTS.

6 FSD WALL AIRFOIL BLADE

SCALE: NONE

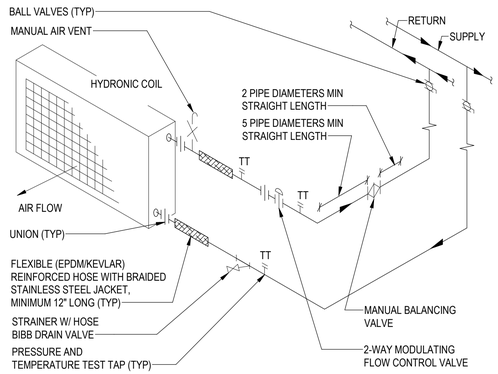


NOTES:

1. MINIMUM 2-ROW COIL, UNLESS OTHERWISE NOTED ON PLANS.
2. MINIMUM 3/4" PIPE SIZE, UNLESS OTHERWISE NOTED ON PLANS.
3. WATER SHALL BE PIPED COUNTER FLOW TO AIRFLOW, SUPPLY AT BOTTOM.
4. LOCATE PIPING TO CLEAR ACCESS DOORS.
5. INSULATE PIPING, VALVES AND FITTINGS FROM PIPE MAINS TO COIL CONNECTIONS.
6. REVISE PIPING AT THREE-WAY VALVE PER SELECTED VALVE PORTING.
7. MOUNT STRAINER AT LOW POINT. IF NOT POSSIBLE, PROVIDE SEPARATE DRAIN VALVE.
8. MOUNT MANUAL AIR VENT AT HIGH POINT NEAR TOP CONNECTION TO COIL.
9. INSTALL ANCHORS AND SUPPORTS TO ALLOW COIL MOVEMENT IN ALL DIRECTIONS WITH MINIMAL PIPE STRESS.
10. REFER TO SPECIFICATIONS FOR ADDITIONAL VALVE REQUIREMENTS.

5 3-WAY COIL

SCALE: NONE

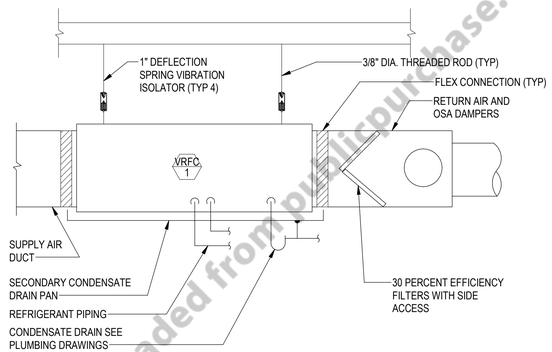


NOTES:

1. MINIMUM 2-ROW COIL, UNLESS OTHERWISE NOTED ON PLANS.
2. MINIMUM 3/4" PIPE SIZE, UNLESS OTHERWISE NOTED ON PLANS.
3. WATER SHALL BE PIPED COUNTER FLOW TO AIRFLOW, SUPPLY AT BOTTOM.
4. LOCATE PIPING TO CLEAR ACCESS DOORS.
5. INSULATE PIPING, VALVES AND FITTINGS FROM PIPE MAINS TO COIL CONNECTIONS.
6. MOUNT MANUAL AIR VENT AT HIGH POINT NEAR TOP CONNECTION TO COIL.
7. INSTALL ANCHORS AND SUPPORTS TO ALLOW COIL MOVEMENT IN ALL DIRECTIONS WITH MINIMAL PIPE STRESS.
8. REFER TO SPECIFICATIONS FOR ADDITIONAL VALVE REQUIREMENTS.

4 2-WAY COIL

SCALE: NONE

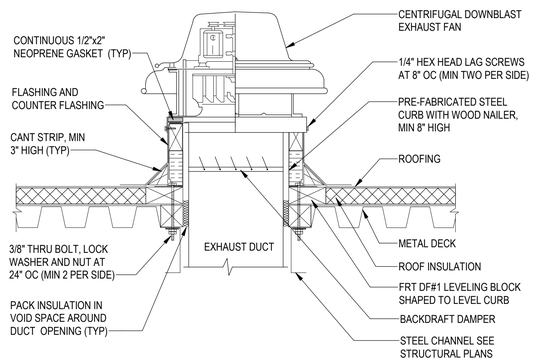


NOTES:

1. REFER TO PLANS FOR SIZES AND CONTINUATION.
2. PROVIDE MOISTURE ALARM IN SECONDARY DRAIN PAN WHERE NOTED ON THE EQUIPMENT SCHEDULE.

3 FAN COIL-SUSPENDED

SCALE: NONE

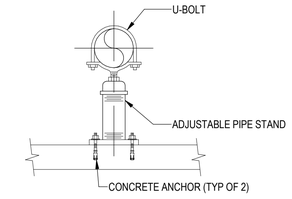


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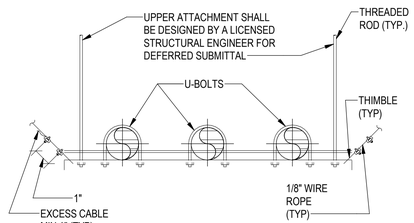
1. COORDINATE ANCHORAGE REQUIREMENTS WITH STRUCTURAL DESIGN.

2 DOWNBLAST EXHAUST FAN-METAL ROOF

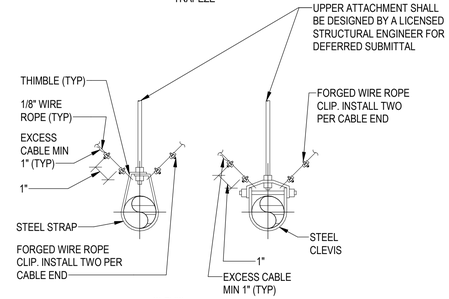
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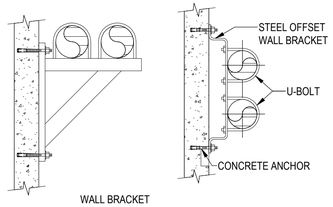
PEDESTAL BRACKET



TRAPEZE



CLEVIS



WALL BRACKET

NOTES:

1. PIPING SUPPORTS SHALL MEET ALL STATE AND LOCAL SEISMIC RESTRAINT REQUIREMENTS.
2. COORDINATE ANCHORAGE REQUIREMENTS WITH STRUCTURAL DESIGN.
3. PROVIDE SEISMIC CABLE TRANSVERSE BRACING AT 40 FEET. AND EACH CHANGE OF DIRECTION.
4. SEISMIC CABLE LONGITUDINAL BRACING AT 80 FEET. AND EACH CHANGE OF DIRECTION.
5. MAXIMUM ROD SPAN BETWEEN SUPPORTS IS 10'. CLOSER SPAN AS REQUIRED BY SPECIFICATIONS AND SMACNA.
6. PROVIDE TRANSVERSE AND LONGITUDINAL BRACES AT 40 FEET MAXIMUM FOR PIPES SMALLER THAN 4 IN. AND AT 20 FEET MAXIMUM FOR PIPES 4 TO 8 INCHES.
7. SEISMIC CABLE RESTRAINTS ARE NOT REQUIRED AT EVERY HANGER LOCATION. VERTICAL HANGERS, DIAGONAL AND HORIZONTAL BRACES TO BE SIZED IN ACCORDANCE WITH SMACNA SEISMIC RESTRAINT MANUAL.
8. SEISMIC BRACING REQUIRED FOR PIPE SIZE 2-1/2" AND LARGER.

1 PIPE SUPPORTS

SCALE: NONE

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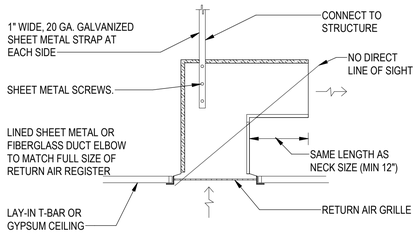
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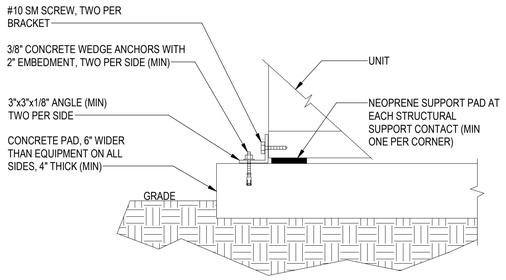
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NOTES:
1. REFER TO PLANS FOR SIZES AND CONTINUATION.

7 RETURN PLENUM BOOT - LINED

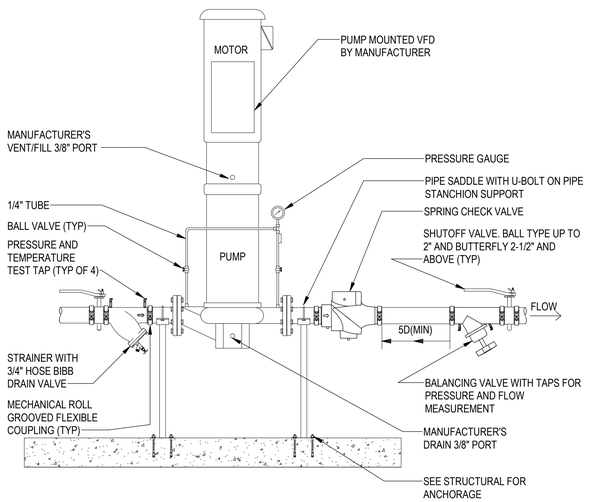
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NOTES:
1. COORDINATE ANCHORAGE REQUIREMENTS WITH STRUCTURAL DESIGN.

6 CONDENSING UNIT-PAD MOUNTED

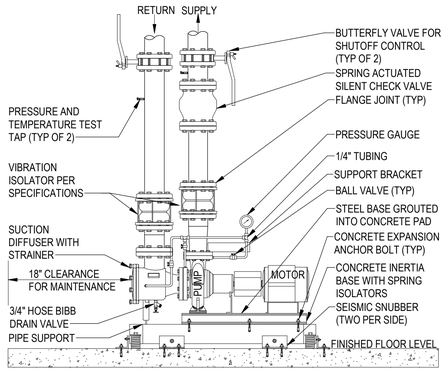
SCALE: NONE



NOTES:
1. INSULATE ALL FITTINGS, VALVES, STRAINER, CHECK VALVE, PIPE AND PUMP IMPELLER. EXTEND MEASUREMENT PORTS TO EXTERIOR OF INSULATION.
2. PROVIDE CONCRETE PAD, 4" HIGH (MINIMUM), WITH DIMENSIONS AS NECESSARY TO SUPPORT PUMP.
3. REMOVE FINE MESH STRAINER PRIOR TO FINAL WATER BALANCE.
4. TRIPLE DUTY VALVES NOT ALLOWED.
5. COORDINATE ANCHORAGE REQUIREMENTS WITH STRUCTURAL DESIGN.

5 INLINE PUMP PAD MOUNT

SCALE: NONE

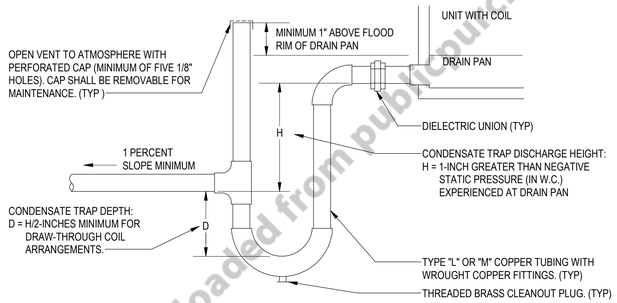


NOTES:
1. INSULATE ALL FITTINGS, VALVES, STRAINER, CHECK VALVE, PIPE AND PUMP IMPELLER. EXTEND MEASUREMENT PORTS TO EXTERIOR OF INSULATION.
2. PROVIDE CONCRETE PAD, 4" HIGH (MINIMUM), WITH DIMENSIONS AS NECESSARY TO SUPPORT PUMP.
3. REMOVE FINE MESH STRAINER PRIOR TO FINAL WATER BALANCE.
4. MAINTAIN MINIMUM FIVE TIMES PIPE DIAMETER STRAIGHT LENGTH PRIOR TO CHECK VALVE.
5. TRIPLE DUTY VALVES NOT ALLOWED.
6. COORDINATE ANCHORAGE REQUIREMENTS WITH STRUCTURAL DESIGN.

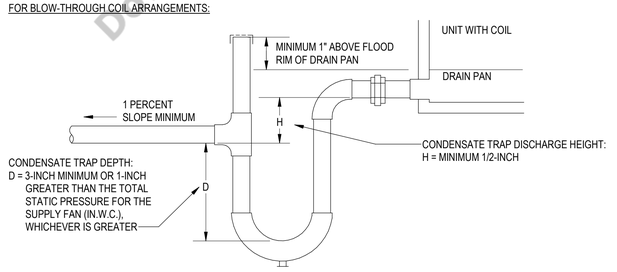
4 BASE MOUNTED END SUCTION PUMP W INERTIA BASE

SCALE: NONE

FOR DRAW-THROUGH COIL ARRANGEMENTS:



FOR BLOW-THROUGH COIL ARRANGEMENTS:

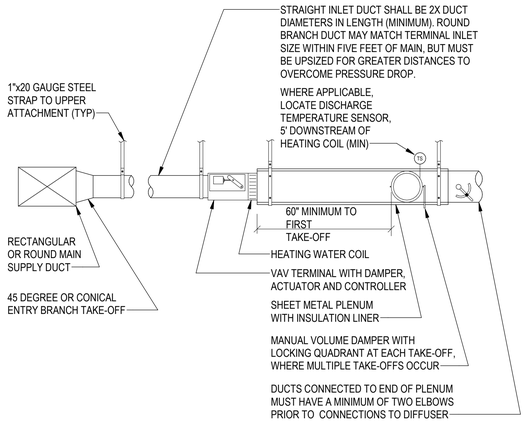


NOTES:
1. ALL REFERENCES TO ITEMS LABELED AS (TYP) REFER TO BOTH THE BLOW-THROUGH AND DRAW-THROUGH DETAIL
2. CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECT APPLICATION OF THIS DETAIL WITH ACTUAL EQUIPMENT PURCHASED
3. VERIFY CONDENSATE TRAP DESIGN WITH AIR HANDLING MANUFACTURER'S REQUIREMENTS
4. CONDENSATE PIPE TERMINATION SHALL BE LOCATED A MINIMUM OF 1" ABOVE THE FLOOD RIM OF AN APPROVED TRAPPED RECEPTOR, LANDSCAPING AREA OR OTHER LOCATION AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.
5. ALL INTERIOR CONDENSATE DRAIN PIPING ABOVE CEILINGS SHALL BE INSULATED.
6. PROVIDE PIPE SUPPORTS AS REQUIRED TO MAINTAIN MINIMUM 1% SLOPE.
7. INSTALL TRAP PARALLEL TO UNIT, IF POSSIBLE.
8. MINIMUM CONDENSATE PIPE SIZES SHALL BE PER THE FOLLOWING TABLE UNLESS LARGER SIZE IS SHOWN ON PLANS OR AS REQUIRED BY AUTHORITY HAVING JURISDICTION AND/OR LOCAL BUILDING CODE REQUIREMENTS.

CAPACITY	SIZE
UP TO 20 TONS	3/4"
21 TO 40 TONS	1"
41 TO 90 TONS	1-1/4"
91 TO 125 TONS	1-1/2"

3 AHU CONDENSATE TRAP

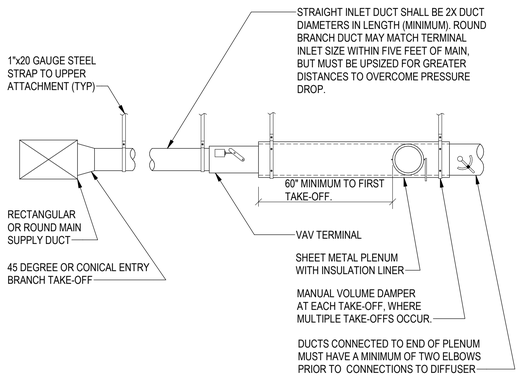
SCALE: NONE



NOTES:
1. MAINTAIN ADEQUATE CLEARANCE FOR EASILY ACCESS TO MAINTAIN DAMPERS AND CONTROLS.
2. CONTRACTOR MUST PROVIDE OVERSIZED SHEET METAL PLENUM WITH 1" THICK (R-4.2) INSULATION (MINIMUM) FOR ACOUSTICAL ATTENUATION AND TO MINIMIZE HEAT TRANSFER. INSIDE CLEAR DIMENSIONS SHALL BE 2" TALLER THAN TERMINAL UNIT OUTLET HEIGHT AND 4" WIDER THAN TERMINAL UNIT OUTLET WIDTH TO MINIMIZE NOISE TRANSMISSION THROUGH DUCTWORK TO DIFFUSERS.
3. LENGTH OF PLENUM SHALL BE LONG ENOUGH TO ALLOW FOR MINIMUM FIVE FOOT DISTANCE BETWEEN TERMINAL DAMPER AND FIRST DUCT CONNECTION. PLENUM MAY BE EXTENDED TO ACCOMMODATE ADDITIONAL DUCT CONNECTIONS.

2 VAV TERMINAL W REHEAT COIL

SCALE: NONE



NOTES:
1. MAINTAIN ADEQUATE CLEARANCE FOR EASILY ACCESS TO MAINTAIN DAMPERS AND CONTROLS.
2. CONTRACTOR MUST PROVIDE OVERSIZED SHEET METAL PLENUM WITH 1" THICK (R-4.2) INSULATION (MINIMUM) FOR ACOUSTICAL ATTENUATION AND TO MINIMIZE HEAT TRANSFER. INSIDE CLEAR DIMENSIONS SHALL BE 2" TALLER THAN TERMINAL UNIT OUTLET HEIGHT AND 4" WIDER THAN TERMINAL UNIT OUTLET WIDTH TO MINIMIZE NOISE TRANSMISSION THROUGH DUCTWORK TO DIFFUSERS.
3. LENGTH OF PLENUM SHALL BE LONG ENOUGH TO ALLOW FOR MINIMUM FIVE FOOT DISTANCE BETWEEN TERMINAL DAMPER AND FIRST DUCT CONNECTION. PLENUM MAY BE EXTENDED TO ACCOMMODATE ADDITIONAL DUCT CONNECTIONS.

1 VAV TERMINAL COOLING ONLY

SCALE: NONE

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MECHANICAL DETAILS

M9.12

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Heating Mode				Cooling Mode		
		Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
(N)VRCU-1	>=65,000 and <135,000	17 °Fdb/ 15 °Fwb OSA	COP	2.25	2.4	EER IEER	11 14.6	12.2 19.8
(N)CU-1, CU-2	<65,000					SEER2	14.3	21

Boiler Efficiency and Controls

Boiler System Serving		Building							
01	02	03	04	05	06	07	08	09	10
Boiler Name or Item Tag	Equipment Type[1]	Qty	Rated Input Capacity (Btu/h)[2,3]	Rated Efficiency	Minimum Efficiency Required per 110.2	Efficiency Unit	Boiler Controls per 140.4(k), 170.2(c)iiii		High Capacity Boiler Exceptions
							Isolation Valve	Temperature Reset	
(N)B-1	Hot Water, Gas-Fired	1	900,000	0.84	0.84	TE	NA: only 1 boiler in plant	Yes	Replacement gas hot water boiler
System Efficiency				Minimum System Efficiency for High Capacity Boilers per 140.4(k)8A					

[1]FOOTNOTES: Use NRCC-PLB to document compliance with domestic hot water and service water heating systems.
[2]Maximum capacity- minimum and maximum ratings as provided for and allowed by the unit's controls
[3] Includes oil-fired (residual)

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Space Conditioning System Information

01	02	03	04	05	06
System Name	Quantity	System Serving	System Status	Space Type	Utilizing Recovered Heat
(N)VRCU-1	1	Multi-zone			☐
(N)CU-1, CU-2	2	Single zone	New/ Addition	All Other Occupancies	☐

Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2, 140.4(a)2 and 170.2(c)3aii	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available[1] 140.4(a) and 170.2(c)1	Equipment Sizing per Mechanical Schedule (kBtu/h) 140.4(a&b), 170.2(c)1 & 170.2(c)2						
				Heating Output[2,3]			Cooling Output[2,3]		Load Calculations[3,4]	
				Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
(N)VRCU-1	Variable Refrigerant Flow	VRF heat pump, air cooled	Yes	69	69	0	40	69	69	61
(N)CU-1, CU-2	Unitary Heat Pumps	Air-cooled, split (1phase)	Yes	0	23.6	0	16.4	24	23.6	16

[1]FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(a) and 170.2(c)1. Healthcare facilities are excepted.
[2]It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.
[3] If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.
[4] Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance.

01		02		03		04		05		06		07		08	09
System Summary 110.1, 110.2, 140.4, 170.2(c)	AND	Pumps 140.4(k), 170.2(c)4I	AND	Fans/ Economizers 140.4(c), 140.4(e), 170.2(c)	AND	System Controls 110.2, 120.2, 140.4(f), 170.2(c)	AND	Ventilation 120.1, 160.2	AND	Terminal Box Controls 140.4(d), 170.2(c)4B	AND	Distribution 120.3, 140.4(l), 160.2, 160.3	AND	Cooling Towers 110.2(e)2	Compliance Results
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	
Yes	AND	Yes	AND	Yes	AND	Yes	AND	Yes	AND	Yes	AND	Yes	AND		COMPLIES with Exceptional Conditions
Mandatory Measures Compliance (See Table Q for Details)										COMPLIES					

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

The permit applicant has indicated on Table J that ventilation calculations have been attached or included elsewhere on the plans.
Selections made in the Certificates of Acceptance Table have been changed by the permit applicant. See Table E. Additional Remarks for permit applicant's explanation.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

{NRCA-MCH-06-A Explanation} VAV 11-05 provided with DCV --- {NRCA-MCH-19-A Explanation} Occupancy sensors provided throughout

A. GENERAL INFORMATION

01	Project Location (city)	Hanford	04 Total Conditioned Floor Area	24953
02	Climate Zone	13	05 Total Unconditioned Floor Area	1000
03	Occupancy Types Within Project:		06 # of Stories (Habitable Above Grade)	2

● Library ● Office

B. PROJECT SCOPE

This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)2 and 180.2(b)2 for alterations.

01	02	03
Air System(s)	Wet System Components	Dry System Components
☒ Heating Air System	☐ Water Economizer	☒ Air Economizer
☒ Cooling Air System	☒ Pumps	☐ Electric Resistance Heat
Mechanical Controls	☒ System Piping	☒ Fan Systems
☒ Mechanical Controls (existing to remain, altered or new)	☐ Cooling Towers	☒ Ductwork (existing to remain, altered or new)
	☐ Chillers	☒ Ventilation
	☒ Boilers	☒ Zonal Systems/ Terminal Boxes

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MECHANICAL TITLE 24 DOCUMENTATION

MT24.1

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CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Kings County Hanford Library	**Report Page:**	**(Page 8 of 21)**
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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	(N)AHU-10B	Quantity	1	Fan System Status	New	System Zoning	Multi-zone VAV systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	9,350	Site Elevation	242	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance (watt/cfm)	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Fan Electrical Input Power (kW)
(N)AHU-10B Supply	Supply	1	Hydronic/DX cooling coil or heat pump coil	100		0.114	0.266	Manufacturer provided		0.97
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		0.114				
			Economizer Return Damper	100		0.038				
(N)AHU-10B Return	Return	1	Airflow control devices required for space pressurization control	100			0.2	Default per Table 140.4-D/141.0-D	>=3 and <5	4.17
			Fully ducted, or Systems that maintain pressure differential between rooms	100						
Supply Fan Base Allowance (watt/cfm)		0.453	Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)		0.24	Fan System Allowance (kW)[3]		10.89	Fan System Electrical Input Power (kW)	5.14

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	(N)AHU-10A	Quantity	1	Fan System Status	New	System Zoning	Multi-zone VAV systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	9,000	Site Elevation	242	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance (watt/cfm)	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Fan Electrical Input Power (kW)
(N)AHU-10A Supply	Supply	1	Hydronic/DX cooling coil or heat pump coil	100		0.114	0.228	Manufacturer provided		0.99
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		0.114				
(N)AHU-10A Return	Return	1	Airflow control devices required for space pressurization control	100			0.2	Default per Table 140.4-D/141.0-D	>=3 and <5	4.17
			Fully ducted, or Systems that maintain pressure differential between rooms	100						
Supply Fan Base Allowance (watt/cfm)		0.453	Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)		0.24	Fan System Allowance (kW)[3]		10.14	Fan System Electrical Input Power (kW)	5.16

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H. FAN SYSTEMS & AIR ECONOMIZERS

Supply Fan Base Allowance (watt/cfm)		Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)		Fan System Allowance (kW)[3]		Fan System Electrical Input Power (kW)	0.46

System Name	(N)AHU-9	Quantity	1	Fan System Status	New	System Zoning	Multi-zone VAV systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	7,250	Site Elevation	242	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance (watt/cfm)	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Fan Electrical Input Power (kW)
(N)AHU-9 Supply	Supply	1	Hydronic/DX cooling coil or heat pump coil	100		0.114	0.314	Manufacturer provided		0.87
			Central Hydronic heating coil	100		0.048				
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		0.114				
			Economizer Return Damper	100		0.038				
(N)AHU-9 Return	Return	1	Airflow control devices required for space pressurization control	100			0.2	Default per Table 140.4-D/141.0-D	>=3 and <5	4.17
			Fully ducted, or Systems that maintain pressure differential between rooms	100						
Supply Fan Base Allowance (watt/cfm)		0.453	Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)		0.24	Fan System Allowance (kW)[3]		8.79	Fan System Electrical Input Power (kW)	5.04

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G. PUMPS

This table is used to demonstrate compliance with Prescriptive hydronic system requirements found in 140.4(k) 170.2(c)4I applicable to pumps < 5hp.

Name or Item Tag	Equipment Type	Qty	HP	Controls per 140.4(k) & 170.2(c)4I: Variable Flow	Hydronic Heat Pump Isolation	VSD on Pumps > 5HP	Differential Pressure Sensor
01	02	03	04	05	06	07	08
(N)CHWP-5	Primary chilled water	1	7.5	Yes		Yes	Required
(N)HHWP-6	Secondary heating hot water	1	5	Yes			
(N)HHWP-7	Primary heating hot water	1	2	Yes			

H. FAN SYSTEMS & AIR ECONOMIZERS

This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)3, and 170.2(c)4A for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name	(N)AHU-8	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	3,360	Site Elevation	242	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance (watt/cfm)	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Fan Electrical Input Power (kW)
AHU-8 Supply	Supply	2	Hydronic/DX cooling coil or heat pump coil	100		0.139	0.37	Manufacturer provided		0.22
			Central Hydronic heating coil	100		0.046				
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		0.139				
			Economizer Return Damper	100		0.046				

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MECHANICAL TITLE 24 DOCUMENTATION

MT24.2

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J. VENTILATION AND INDOOR AIR QUALITY

This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1 120.2(e)3B 140.4(p) and 140.4(q) for all nonresidential and hotel/motel and d:t24refnolink/]160.2, 160.3(a)3D, 170.2(a)4N, 170.2(a)4O for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.

01	☒	Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table.
02	☐	Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces
	☐	
03	☐	Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)2.

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I. SYSTEM CONTROLS

This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (n), 170.2(c)4D 170.2(c)4L or requirements in 141.0(b)2E 180.2(b)2 for altered space conditioning systems.

01	02	03	04	05	06	07	08	09	10
System Name	System Zoning	Conditioned Floor Area Being Served (ft^2)	Thermostats 110.2(b) & (c)[1], 120.2(a) 160.3(a)2A or 141.0(b)2E & 180.2(b)2	Shut-Off Controls 120.2(e) & 160.3(a)2D	Isolation Zone Controls 120.2(g) & 160.3(a)2F	Demand Response 110.12 120.2(b) & 160.3(a)2B	Supply Air Temp. Reset 140.4(f) & 170.2(c)4D	Window Interlocks per 140.4(n) & 170.2(c)4D	Direct Digital Control (DDC) per 120.2
(N)AHU-8	Single zone	<= 25,000 ft^2	EMCS	EMCS	NA: Single Zone	EMCS	NA: Single Zone	NA: No operable windows	Provided
(N)VRCU-1	Multi-zone w/ DDC to zone	<= 25,000 ft^2	EMCS	EMCS	NA: Serves < 25k ft^2	EMCS	NA: Alteration	Provided	Provided
(N)CU-1, (N)CU-2	Single zone	<= 25,000 ft^2	Setback	NA: 7 day per 120.2(e)1	NA: Serves < 25k ft^2	NA: PTAC, PTHP, Rm AC, HP	NA: Single Zone	NA: No operable windows	NA: Single Zone
(N)AHU-9, (N)AHU-10A, (N)AHU-10B, (N)AHU-11	Multi-zone w/ DDC to zone	<= 25,000 ft^2	EMCS	EMCS	NA: Serves < 25k ft^2	EMCS	Included	NA: No operable windows	Provided

[1]FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

STATE OF CALIFORNIA
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CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
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H. FAN SYSTEMS & AIR ECONOMIZERS

[5] Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.
[6] Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRC-E document..

H. EXHAUST AIR HEAT RECOVERY 140.4(q), 170.2(c)4O

01	02	03	04	05	06	07	08	09	10	11
Fan System Name	Qty	Hours of Operation per Year	Design Supply Airflow Rate	Outdoor Airflow	% Outdoor Air at Full Design Airflow	Exemptions to Exhaust Air Heat Recovery Requirement per 140.4(q) & 170.2(c)4O	Exhaust Air Heat Recovery 140.4(q) & 170.2(c)4O	Type Of Heat Recovery Rating	Required Recovery Ratio	Energy Recovery Bypass
(N)AHU-8	1	< 8,000	3,360	1,100	33	No Exemptions Apply	Not Required			
(N)AHU-9	1	< 8,000	7,250	1,300	18	No Exemptions Apply	Not Required			
(N)AHU-10A	1	< 8,000	9,000	1,500	17	No Exemptions Apply	Not Required			
(N)AHU-10B	1	< 8,000	9,350	1,500	16	No Exemptions Apply	Not Required			
(N)AHU-11	1	< 8,000	2,600	700	27	No Exemptions Apply	Not Required			

Fan Energy Index (FEI)

01	02	03
Name or Item Tag	FEI Exception	FEI

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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	(N)AHU-11	Quantity	1	Fan System Status	New	System Zoning	Multi-zone VAV systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,600	Site Elevation	242	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance (watt/cfm)	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Fan Electrical Input Power (kW)
(N)AHU-11 Supply	Supply	1	Hydronic/DX cooling coil or heat pump coil	100		0.135	0.362	Manufacturer provided		1.38
			Central Hydronic heating coil	100		0.046				
			MERV 13-16 Filter upstream of thermal conditioning equipment	100		0.136				
			Economizer Return Damper	100		0.045				
(N)AHU-11 Return	Return	1	Airflow control devices required for space pressurization control	100			0.232	Default per Table 140.4-D/141.0-D	<1	0.96
			Fully ducted, or Systems that maintain pressure differential between rooms	100						
Supply Fan Base Allowance (watt/cfm)		0.395	Exhaust/Return/Relief/Transfer Fan Base Allowance(watt/cfm)		0.22	Fan System Allowance (kW)[3]		3.14	Fan System Electrical Input Power (kW)	2.34

[1] FOOTNOTES: Fans serving spaces with design background noise goals below NC35
[2] Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.
[3] Fan system allowance includes fan system base allowance.
[4] Filter pressure loss can only be counted once per fan system.

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MECHANICAL TITLE 24 DOCUMENTATION

MT24.3

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L. DISTRIBUTION (DUCTWORK and PIPING)				
		AHU-8 Supply & Return	**Dwelling Units:** Total duct leakage of duct system shall not exceed 15% or duct system to outside shall not exceed 10% per RA3.1.4 required for systems?	---
			Duct leakage testing per CMC Section 603.9.2 required for these systems?	No
11	No	The scope of the project includes only duct systems serving healthcare facilities		
12	No	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.		
13	No	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.		
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:		
15	No	The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.		
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.		
17	Yes	All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A		
18	Yes	All ductwork is an extension of an existing duct system		
19	No	Ductwork serving individual dwelling unit		
20	Yes	< 25 ft of new or replacement space conditioning ducts installed in multifamily occupancy		
21	R-4.2	Duct Insulation R-value		
22	Yes	Ductwork Existing To Remain		
23	No	Duct System Connected To Altered Space Conditioning System		
The answers to the questions below apply to the following duct systems:		AHU-9, AHU-10A,	**NR/ Common Use:** Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	No

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L. DISTRIBUTION (DUCTWORK and PIPING)

This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.

01	☒	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed.

Mandatory Pipe Insulation

02	03	04	05	06	07	08	09	10	10a
System Type	Nominal Pipe Diameter (in)	Fluid Temperature Range (°F)	Conductivity Range (Btu-in per hr per ft^2 per °F)	Insulation Mean Rating Temp. (°F)	Min. Insulation Thickness Required per Table 120.3-A (in)	Min. Insulation Thickness Required per 120.3(c)2 & 160.3(c)1dii (in)	Insulation Thickness per Design (in)	Exception to 120.3 & 160.3(c) (if applicable)	Serving Res or NR Space?
Space heating	<1	141-200	0.25 - 0.29	125	1.5		1.5	No exception taken	Nonresidential
Space heating	1 to <1.5	141-200	0.25 - 0.29	125	1.5		1.5	No exception taken	Nonresidential
Space heating	1.5 to <4	141-200	0.25 - 0.29	125	2		2	No exception taken	Nonresidential
Space cooling	1.5 to <4	40-60	0.21 - 0.27	75	1		1	No exception taken	Nonresidential
Space cooling	4 to <8	40-60	0.21 - 0.27	75	1		1	No exception taken	Nonresidential

Duct Leakage Testing

The answers to the questions below apply to the following duct systems:		**NR/ Common Use:** Duct leakage testing shall not exceed 15% per NA7.5.3 required for these systems?	---

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K. TERMINAL BOX CONTROLS

(N)VAV 10B-05	VAV with DDC @ zone	2340	410	1170	410		410	1170	Yes	Yes	Yes
(N)VAV 11-01	VAV with DDC @ zone	400	75	200	75		75	200	Yes	Yes	Yes
(N)VAV 11-02	NA: Peak SA <= 300 CFM										Yes
(N)VAV 11-03	NA: Peak SA <= 300 CFM										Yes
(N)VAV 11-04	NA: Peak SA <= 300 CFM										Yes
(N)VAV 11-05	NA: Peak SA <= 300 CFM										Yes
(N)VAV 11-06	VAV with DDC @ zone	540	90	270	90		90	270	Yes	Yes	Yes
(N)VAV 11-07	VAV with DDC @ zone	525	30	260	30		30	262.5	Yes	Yes	Yes
(N)VAV 11-08	NA: Peak SA <= 300 CFM										Yes
(N)VAV 11-09	NA: Peak SA <= 300 CFM										Yes
(N)VAV 11-10	NA: Peak SA <= 300 CFM										Yes

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K. TERMINAL BOX CONTROLS

This table is used to demonstrate compliance with prescriptive zone control requirements in 140.4(d) & 170.2(c)4B.

01	02	03	04	05	06	07	08	09	10	11	12
		Design			Deadband Compliance			Reheated, Recooled, Mixed Air Compliance			
Zone/System/VAV Box Name or Item Tag	Zonal Control Strategy per 140.4(d)	Peak Primary Airflow CFM	Primary Air in Deadband CFM	Reheated Recooled Mixed Airflow CFM	Outside Air CFM	30% of Peak Primary Airflow CFM	Max Deadband Airflow CFM	50% of Peak Primary Airflow	1st Stage Modulates <=95 °F and Maintains DB Rate?	2nd Stage Modulates from DB Flow to Heating Max Flow?	Complies
(N)VAV 9-01	VAV with DDC @ zone	460	285	285	285		285	230	Yes	Yes	Yes
(N)VAV 9-02	VAV with DDC @ zone	1750	150	875	150		150	875	Yes	Yes	Yes
(N)VAV 9-03	VAV with DDC @ zone	520	75	260	75		75	260	Yes	Yes	Yes
(N)VAV 9-04	VAV with DDC @ zone	2220	90	1110	90		90	1110	Yes	Yes	Yes
(N)VAV 9-05	VAV with DDC @ zone	1920	140	960	140		140	960	Yes	Yes	Yes
(N)VAV 9-06	VAV with DDC @ zone	750	135	375	135		135	375	Yes	Yes	Yes
(N)VAV 9-07	NA: Peak SA <= 300 CFM										Yes
(N)VAV 9-08	VAV with DDC @ zone	1510	140	755	140		140	755	Yes	Yes	Yes
(N)VAV 9-09	VAV with DDC @ zone	420	40	210	40		40	210	Yes	Yes	Yes
(N)VAV 9-10	NA: Peak SA <= 300 CFM										Yes
(N)VAV 10A-01	VAV with DDC @ zone	2600	35	1300	35		35	1300	Yes	Yes	Yes
(N)VAV 10A-02	VAV with DDC @ zone	2350	165	1175	165		165	1175	Yes	Yes	Yes
(N)VAV 10A-03	VAV with DDC @ zone	2500	210	1250	210		210	1250	Yes	Yes	Yes
(N)VAV 10A-04	VAV with DDC @ zone	2380	165	1190	165		165	1190	Yes	Yes	Yes
(N)VAV 10A-05	VAV with DDC @ zone	2690	395	1345	395		395	1345	Yes	Yes	Yes
(N)VAV 10A-06	VAV with DDC @ zone	1760	330	880	330		330	880	Yes	Yes	Yes
(N)VAV 10B-01	VAV with DDC @ zone	2600	45	1300	45		45	1300	Yes	Yes	Yes
(N)VAV 10B-02	VAV with DDC @ zone	2215	125	1105	125		125	1107.5	Yes	Yes	Yes
(N)VAV 10B-03	VAV with DDC @ zone	2270	195	1135	195		195	1135	Yes	Yes	Yes
(N)VAV 10B-04	VAV with DDC @ zone	1715	140	855	140		140	857.5	Yes	Yes	Yes

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MECHANICAL TITLE 24 DOCUMENTATION

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O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE	
NRCA-MCH-19-A Occupancy Sensor Controls	

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION
There are no NRCV forms required for this project.

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

01		02
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block	Yes	Plan sheet or construction document location: M0.00

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O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4

Form/Title	Systems/Spaces To Be Field Verified
NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap.	
NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to "Yes'. If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".	(N)CU-1, (N)CU-2
NRCA-MCH-05-A - Air Economizer Controls	(N)AHU-8; (N)AHU-9; (N)AHU-10A; (N)AHU-10B; (N)AHU-11
NRCA-MCH-06-A Demand Control Ventilation Systems must be submitted for all systems required to employ demand controlled ventilation (refer to 120.1(c)3) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO_2) concentration setpoints.	
NRCA-MCH-07-A Supply Fan Variable Flow Controls	(N)AHU-9 Supply; (N)AHU-10A Supply; (N)AHU-10B Supply; (N)AHU-11 Supply
NRCA-MCH-08-A Valve Leakage Test	(N)CHWP-5; (N)HHWP-6; (N)HWP-7
NRCA-MCH-10-A Hydronic System Variable Flow Controls	(N)CHWP-5; (N)HHWP-6; (N)HWP-7
NRCA-MCH-11-A Automatic Demand Shed Controls	(N)AHU-8; (N)VRCU-1; (N)AHU-9, (N)AHU-10A, (N)AHU-10B, (N)AHU-11
NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance	(N)CU-1, CU-2
NRCA-MCH-16-A Supply Air Temperature Reset Controls	(N)AHU-9, (N)AHU-10A, (N)AHU-10B, (N)AHU-11
NRCA-MCH-18-A Energy Management Control Systems	(N)AHU-8; (N)VRCU-1; (N)AHU-9, (N)AHU-10A, (N)AHU-10B, (N)AHU-11

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N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

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Form/Title
NRCI-MCH-01-E - Must be submitted for all buildings

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
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L. DISTRIBUTION (DUCTWORK and PIPING)

	AHU-10B, AHU-11 Supply and Return, VRF-1 and ERV-1	**Dwelling Units:** Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	---
		Duct leakage testing per CMC Section 603.9.2 required for these systems?	Yes

11	No	The scope of the project includes only duct systems serving healthcare facilities
12	No	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	No	The space conditioning system serves less than 5,000 ft^2 of conditioned floor area.
14	No	The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system:
15	No	The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A
18	No	All ductwork is an extension of an existing duct system
19	No	Ductwork serving individual dwelling unit
20		< 25 ft of new or replacement space conditioning ducts installed
21	R-4.2	Duct Insulation R-value
22	No	Ductwork Existing To Remain
23	No	Duct System Connected To Altered Space Conditioning System

M. COOLING TOWERS

This section does not apply to this project.

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MECHANICAL TITLE 24 DOCUMENTATION

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TITLE 24 VENTILATION CALCULATIONS

	SPACE DATA							VENTILATION - AREA BASIS		VENTILATION - OCCUPANCY BASIS		
SPACE NAME	ZONE	SYSTEM	AREA (SF)	NUMBER OF PEOPLE	MIN VENTILATION (CFM)	SPACE TYPE	AIR SUPPLY TYPE	VENTILATION RATE (CFM/SF)	MIN CFM BY AREA	OCCUPANCY	CFM PER PERSON	MIN CFM BY PEOPLE
Library - 200 - North - 1	VAV 10A-01	AHU-10A	233	2	35	Reading Rooms	Mechanical	0.15	35	2	15	30
L1 - Computer Lab - 1	VAV 10A-02	AHU-10A	206	5	75	Computer Lab	Mechanical	0.15	35	5	15	75
Library - 200 - Interior - 1	VAV 10A-02	AHU-10A	595	6	90	Stack Areas	Mechanical	0.15	90	6	15	90
L1 - Computer Lab - 2	VAV 10A-03	AHU-10A	208	4	60	Computer Lab	Mechanical	0.15	35	4	15	60
Library - 200 - Interior - 3	VAV 10A-03	AHU-10A	533	6	90	Stack Areas	Mechanical	0.15	80	6	15	90
Meeting - 202	VAV 10A-03	AHU-10A	60	4	60	Conference/ meeting	Mechanical	0.5	30	4	15	60
L1 - Computer Lab - 3	VAV 10A-04	AHU-10A	153	2	30	Computer Lab	Mechanical	0.15	25	2	15	30
Library - 200 - Interior - 5	VAV 10A-04	AHU-10A	562	8	120	Reading Rooms	Mechanical	0.15	85	8	15	120
Library - 200 - North - 2	VAV 10A-04	AHU-10A	89	1	15	Stack Areas	Mechanical	0.15	15	1	15	15
L1 - Entry - Interior	VAV 10A-05	AHU-10A	498	5	250	Lobbies	Mechanical	0.5	250	5	15	75
L1 - Entry - North	VAV 10A-05	AHU-10A	225	3	115	Lobbies	Mechanical	0.5	115	3	15	45
Library - 200 - North - 3	VAV 10A-05	AHU-10A	138	2	30	Stack Areas	Mechanical	0.15	25	2	15	30
Library - 200 - West - 1	VAV 10A-06	AHU-10A	279	3	45	Stack Areas	Mechanical	0.15	45	3	15	45
Library - 200 - West - 2	VAV 10A-06	AHU-10A	279	6	90	Reading Rooms	Mechanical	0.15	45	6	15	90
Library - 200 - West - 3	VAV 10A-06	AHU-10A	291	7	105	Reading Rooms	Mechanical	0.15	45	7	15	105
Library - 200 - West - 4	VAV 10A-06	AHU-10A	270	6	90	Reading Rooms	Mechanical	0.15	45	6	15	90
Library - 200 - South - 1	VAV 10B-01	AHU-10B	229	3	45	Stack Areas	Mechanical	0.15	35	3	15	45
Library - 200 - Interior - 2	VAV 10B-02	AHU-10B	530	5	80	Stack Areas	Mechanical	0.15	80	5	15	75
Library - 200 - South - 2	VAV 10B-02	AHU-10B	278	3	45	Stack Areas	Mechanical	0.15	45	3	15	45
Library - 200 - Interior - 4	VAV 10B-03	AHU-10B	500	6	90	Stack Areas	Mechanical	0.15	75	6	15	90
Library - 200 - South - 3	VAV 10B-03	AHU-10B	278	3	45	Stack Areas	Mechanical	0.15	45	3	15	45
Meeting - 201	VAV 10B-03	AHU-10B	60	4	60	Conference/ meeting	Mechanical	0.5	30	4	15	60
Library - 200 - Interior - 6	VAV 10B-04	AHU-10B	541	7	105	Reading Rooms	Mechanical	0.15	85	7	15	105
Library - 200 - South - 4	VAV 10B-04	AHU-10B	206	2	35	Stack Areas	Mechanical	0.15	35	2	15	30
L1 - Entry - South	VAV 10B-05	AHU-10B	812	9	410	Lobbies	Mechanical	0.5	410	9	15	135
Open Office - 311	VAV 11-01	AHU-11	403	5	75	Office space	Mechanical	0.15	65	5	15	75
Office - 315	VAV 11-02	AHU-11	87	1	15	Office space	Mechanical	0.15	15	1	15	15
Office - 312	VAV 11-03	AHU-11	70	1	15	Office space	Mechanical	0.15	15	1	15	15
Office - 313	VAV 11-03	AHU-11	70	1	15	Office space	Mechanical	0.15	15	1	15	15
Office - 314	VAV 11-03	AHU-11	70	1	15	Office space	Mechanical	0.15	15	1	15	15
Hall - 310	VAV 11-04	AHU-11	171	0	30	Corridors, Restrooms, & Support Areas	Mechanical	0.15	30	0	15	0
Meeting Space - 306	VAV 11-05	AHU-11	422	10	215	Conference/ meeting	Mechanical	0.5	215	10	15	150
Break Room - 305	VAV 11-06	AHU-11	174	4	90	Break room	Mechanical	0.5	90	4	15	60
Office - 300	VAV 11-07	AHU-11	188	1	30	Office space	Mechanical	0.15	30	1	15	15
Open Office - 302	VAV 11-08	AHU-11	158	2	30	Office space	Mechanical	0.15	25	2	15	30
Office - 303	VAV 11-09	AHU-11	174	1	30	Office space	Mechanical	0.15	30	1	15	15
Storage - 304	VAV 11-10	AHU-11	112	0	20	Corridors, Restrooms, & Support Areas	Mechanical	0.15	20	0	15	0
Childrens Area - 204 - Interior - 1	VAV 9-01	AHU-9	914	19	285	Reading Rooms	Mechanical	0.15	140	19	15	285
Childrens Area - 204 - South	VAV 9-02	AHU-9	1000	10	150	Stack Areas	Mechanical	0.15	150	10	15	150
Childrens Area - 204 - Interior - 2	VAV 9-03	AHU-9	253	5	75	Reading Rooms	Mechanical	0.15	40	5	15	75
Processing Storage - 213	VAV 9-04	AHU-9	589	6	90	Office space	Mechanical	0.15	90	6	15	90
Staff Work Area - 205 - East - 1	VAV 9-05	AHU-9	77	1	15	Office space	Mechanical	0.15	15	1	15	15
Staff Work Area - 205 - East - 2	VAV 9-05	AHU-9	255	5	75	Office space	Mechanical	0.15	40	5	15	75
Staff Work Area - 205 - Interior - 2	VAV 9-05	AHU-9	329	2	50	Office space	Mechanical	0.15	50	2	15	30
Staff Work Area - 205 - Interior - 1	VAV 9-06	AHU-9	485	5	75	Office space	Mechanical	0.15	75	5	15	75
Staff Work Area - 205 - North	VAV 9-06	AHU-9	277	4	60	Office space	Mechanical	0.15	45	4	15	60
Nursing - 210	VAV 9-07	AHU-9	77	1	15	Office space	Mechanical	0.15	15	1	15	15
Nursing - 211	VAV 9-07	AHU-9	77	1	15	Office space	Mechanical	0.15	15	1	15	15
Hall - 216	VAV 9-08	AHU-9	393	0	60	Corridors, Restrooms, & Support Areas	Mechanical	0.15	60	0	15	0
Hall - 217	VAV 9-08	AHU-9	335	0	55	Corridors, Restrooms, & Support Areas	Mechanical	0.15	55	0	15	0
Vestibule - 26	VAV 9-08	AHU-9	159	0	25	Corridors, Restrooms, & Support Areas	Mechanical	0.15	25	0	15	0
Office - 206	VAV 9-09	AHU-9	239	1	40	Office space	Mechanical	0.15	40	1	15	15
Office - 212	VAV 9-10	AHU-9	108	1	20	Office space	Mechanical	0.15	20	1	15	15
Conference - 000	VRFC 1-01	ERV-1	366	12	185	Conference/ meeting	Mechanical	0.5	185	12	15	180
Conference - 218	VRFC 1-02	ERV-1	350	8	175	Conference/ meeting	Mechanical	0.5	175	8	15	120
L0 - Storage - 1	-	AHU-8	4160	5	625	Corridors, Restrooms, & Support Areas	Mechanical	0.15	625	5	15	75
L0 - Storage - 2	-	AHU-8	1204	2	185	Corridors, Restrooms, & Support Areas	Mechanical	0.15	185	2	15	30

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STATE OF CALIFORNIA
Mechanical Systems CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-E
Project Name: Kings County Hanford Library	**Report Page:** (Page 21 of 21)
Project Address: 401 N Douty St., Hanford, CA 93230	**Date Prepared:** 2025-04-11T18:54:23-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Jevin Almazan	Documentation Author Signature:
Company: GLUMAC	Signature Date: 4/11/2025
Address: 100 Montgomery Street, Suite 2050	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: San Francisco, CA 94104	Phone: 415.398.7667

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Jevin Almazan	Responsible Designer Signature:
Company: GLUMAC	Date Signed: 4/11/2025
Address: 100 Montgomery Street, Suite 2050	License: M38285
City/State/Zip: San Francisco, CA 94104	Phone: 415.398.7667

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

Generated Date/Time:
Report Version: 2022.0.000
Schema Version: rev 20220101

Documentation Software: Energy Code Ace
Compliance ID: 219574-0425-0007
Report Generated: 2025-04-11 15:54:30

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FAX: 559.802.3215

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DATE
05/23/2025
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APPROVED BY:
DATE SIGNATURE

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Project Manager: GUIL ORIHUELA
Job. No.: 24US00239

KINGS COUNTY LIBRARY
HANFORD
401 N DOUTY ST
HANFORD, CA 93230
APN: 010-271-017-000

PLOT DATE: 04/11/25
JOB NO.: 24US00239

MECHANICAL TITLE 24 DOCUMENTATION

MT24.6

Please go to publicpurchase.com to make sure you have the latest information and any addendums released

STATE OF CALIFORNIA

Domestic Water Heating System

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name: Kings County Hanford Library	**Report Page:**	**(Page 4 of 6)**
Project Address: 401 N Douty St., Hanford, CA 93230	**Date Prepared:**	2024-10-24T18:32:42-04:00

H. DOMESTIC HOT WATER CONTROLS

This table is used to demonstrate compliance with control requirements in 110.3 for all occupancies. For multifamily residential and hotel/motel occupancies, compliance is also demonstrated with requirements in 160.4(e) / 170.2(d).

	Yes	No	Not Applicable	Requirement
01	☒	☐	☐	Construction documents require manufacturer certification that service water-heating systems are equipped with automatic temperature controls capable of adjusting temperature settings per 110.3(a).
02	☐	☐	☒	Systems with capacity > 167,000 BTUH equipped with outlet temperature controls per 110.3(c)1 unless covered by California Plumbing Code 613.0.
03	☐	☐	☒	Controls for circulating pumps or electrical heat trace systems are capable of automatically turning off the system per §110.3(c)2 unless systems serves healthcare facility.
04	☐	☐	☒	For recirculation systems serving multiple dwelling units, design includes automatic pump controls per 170.2(d) or 180.1(b)3 for additions.
05	☐	☐	☒	For recirculation systems serving individual dwelling units, design includes manual on/off controls as specified in Reference Appendix RA4.4.9 per 170.2(d).
06	☐	☐	☒	Combustion air positive shut-off shall be provided per 160.4(3).on all newly installed commercial boilers as follows: • Boilers with input capacity >= 2.5 MMBtu/h, in which the boiler is designed to operate with a nonpositive vent static pressure • Boilers where one stack serves two or more boilers with a total combined input capacity per stack of 2.5 MMBtu/h.
07	☐	☐	☒	Boiler combustion air fans with motor >= 10 hp shall meet one of the following • The fan motor shall be driven by a variable speed drive OR • The fan motor shall include controls that limit the fan motor demand to <=30% of the total design wattage at 50% of the design air volume.
08	☐	☐	☒	Newly installed boilers with an input capacity (d:gte/) 5MMBtu/h and a steady state full-load combustion efficiency < 90% shall maintain excess (stack-gas) oxygen concentrations <= 5% by volume on a dry basis over firing rates of 20-100%. Combustion air volume shall be controlled with respect to firing rate or flue gas oxygen concentration. Use of a common gas and combustion air control linkage or jack shaft is prohibited.

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STATE OF CALIFORNIA

Domestic Water Heating System

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name: Kings County Hanford Library	**Report Page:**	**(Page 3 of 6)**
Project Address: 401 N Douty St., Hanford, CA 93230	**Date Prepared:**	2024-10-24T18:32:42-04:00

F. DOMESTIC HOT WATER EQUIPMENT

This table is used to demonstrate compliance with mandatory equipment requirements in 110.1 and 110.3. Compliance with prescriptive requirements in 140.5(c) / 170.2(d) must also be demonstrated and with 141.0 / 180.1/ 180.2 for addition and alteration scopes.

Equipment Schedule: Water Heating Efficiency and Standby Loss

03		04		05		06		
System Name	WH-1	Exception to 140.5(c)/ 170.2(d)3	Exceptions Do Not Apply	☐	Gas Service Water Heating System >= 1MMBtu/h[1]	Capacity-weighted Average Efficiency %		
07	08	09	10		11	12	13	14	15
Name or Item Tag	Equipment Type	Volume (gal)	Rated Input Capacity (Btu/h)	Max GPM/ First Hour Rating (FHR)	Rated Efficiency	Minimum Efficiency Required	Efficiency Unit	Designed Standby Loss	Maximum Standby Loss
WH-1	Commercial Electric Storage Water Heater	50						0.84	0.84

[1]FOOTNOTE: In systems >= 1MMBtu/h with multiple units, gas water heaters with input capacity > 100,000 Btu/h may meet 90% Et requirements via an input capacity-weighted average.

[2]FOOTNOTE: Compliant equipment may be found in the Modernized Appliance Efficiency Database System (MAEDBS) on the Energy Commission website: https://cacertappliances.energy.ca.gov/Pages/Search/AdvancedSearch.aspx

Water Heating Equipment All Occupancies

	Yes	No	Not Applicable	Requirement
18	☐	☐	☒	Unfired storage tank insulation shall have Internal + External >=R-16 OR External >=R-3.5. Label required per 110.3(c)3
19	☐	☐	☒	New state buildings 60% of energy for service water heating from site solar energy or recovered energy per 110.3(c)5
20	☐	☐	☒	Isolation valves for instantaneous water heater with input rating >6.8 kBTUH or 2 kW has been specified per 110.3(c)6
21	☐	☐	☒	School buildings < 25,000 ft^2 and < 4 stories must install a heat pump water heating system per 140.5(a)1. Water heating systems serving an individual bathroom space may be an instantaneous electric water heater.

STATE OF CALIFORNIA

Domestic Water Heating System

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name: Kings County Hanford Library	**Report Page:**	**(Page 2 of 6)**
Project Address: 401 N Douty St., Hanford, CA 93230	**Date Prepared:**	2024-10-24T18:32:42-04:00

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

STATE OF CALIFORNIA

Domestic Water Heating System

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name: Kings County Hanford Library	**Report Page:**	**(Page 1 of 6)**
Project Address: 401 N Douty St., Hanford, CA 93230	**Date Prepared:**	2024-10-24T18:32:42-04:00

This document is used to demonstrate compliance for nonresidential occupancies with requirements in 110.1, 110.3, 120.3, and 140.5, and with requirements in 141.0 for additions and alterations, for domestic water heating scopes using the prescriptive path. For high-rise residential and hotel/motel occupancies compliance is demonstrated with requirements in 110.1, 110.3, 160.4 and 170.2(d), and with requirements 180.1 for additions and 180.2 for alterations.

A. GENERAL INFORMATION

01	Project Location (city)	Hanford	02	Climate Zone	13
03	Occupancy Types Within Project (select all that apply):				

● Library ● Office

B. PROJECT SCOPE

This table includes domestic water heating systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive paths outlined in 140./ 170.2(d) and 141.0(a)/ 180.1, or 141.0(b)2N / 180.2 for additions or alterations. Solar water heating systems are documented on the NRCC-SAB compliance document. Combined hydronic water heating systems are documented on the NRCC-MCH compliance document.

01	02	03		
My project consists of (check all that apply):	System Type[1,2]	System Components		
☐ New system (DHW system being installed for the first time)		☐ Equipment	☐ Distribution	☐ Controls
☒ System Alteration (equipment, distribution or controls)	Central System (serving nonresidential spaces)	☒ Equipment	☐ Distribution	☒ Controls

[1]FOOTNOTES: Point of use water heaters, or other non-central systems used to serve nonresidential spaces, are considered individual systems.

[2] Dwelling units refers to hotel/motel guest rooms and units in a multifamily residential occupancy.

[3] DHW systems serving 2 or more dwelling units are considered "Central Systems" for multifamily occupancies

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with water heating requirements. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. or the table indicated as not compliant for guidance.

01	02	03	04
Domestic Hot Water Equipment	Distribution Systems	Controls	**Compliance Results**
Table F	Table G	Table H	
Yes		Yes	COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

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MECHANICAL TITLE 24 DOCUMENTATION

MT24.7

STATE OF CALIFORNIA

Domestic Water Heating System

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name:	Kings County Hanford Library	**Report Page:** **(Page 6 of 6)**
Project Address:	401 N Douty St., Hanford, CA 93230	**Date Prepared:** 2024-10-24T18:32:42-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Jevin Almazan	Documentation Author Signature:
Company: GLUMAC	Signature Date: 10/24/2024
Address: 100 Montgomery Street, Suite 2050	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: San Francisco, CA 94104	Phone: 415.398.7667

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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Responsible Designer Name: Jevin Almazan	Responsible Designer Signature:
Company: GLUMAC	Date Signed: 10/24/2024
Address: 100 Montgomery Street, Suite 2050	License: M38285
City/State/Zip: San Francisco, CA 94104	Phone: 415.398.7667

STATE OF CALIFORNIA

Domestic Water Heating System

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name:	Kings County Hanford Library	**Report Page:** **(Page 5 of 6)**
Project Address:	401 N Douty St., Hanford, CA 93230	**Date Prepared:** 2024-10-24T18:32:42-04:00

I. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-PLB-E - Must be submitted for all buildings

J. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no forms required for this project.

K. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no forms required for this project.

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
Generated Date/Time:
Report Version: 2022.0.000
Schema Version: rev 20220101
Documentation Software: Energy Code Ace
Compliance ID: 219574-1024-0004
Report Generated: 2024-10-24 15:32:45

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MECHANICAL TITLE 24 DOCUMENTATION

MT24.8

PLUMBING BASIS OF DESIGN

A. THIS BUILDING IS A RENOVATION OF THE EXISTING 2-STORY LIBRARIES HANFORD BRANCH LIBRARY LOCATED AT KINGS COUNTY, CALIFORNIA.
B. CODES AND STANDARDS (LATEST EDITIONS UNLESS OTHERWISE REQUIRED BY AHJ)
   1. AMERICANS WITH DISABILITIES ACT (ADA)
   2. CALIFORNIA BUILDING CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION (AHJ):
      a. 2022 CALIFORNIA BUILDING CODE (CBC), CALIFORNIA CODE OF REGULATIONS, TITLE-24, PART 2 (2021 INTERNATIONAL BUILDING CODE WITH STATE AND LOCAL AMENDMENTS)
      b. 2022 CALIFORNIA PLUMBING CODE (CPC), CALIFORNIA CODE OF REGULATIONS, TITLE-24, PART 5 (2021 UNIFORM PLUMBING CODE WITH STATE AND LOCAL AMENDMENTS)
      c. 2022 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARD FOR NONRESIDENTIAL COMPLIANCE, CALIFORNIA CODE OF REGULATIONS, TITLE-24, PART 6
      d. 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE, CALIFORNIA CODE OF REGULATIONS, TITLE-24, PART 11
C. OUTDOOR DESIGN CONDITIONS (FOR INSULATION AND GAS FIRING CRITERIA):
   1. LOCATION: KINGS COUNTY, CA
   2. WINTER: 28.5°F.
   3. ELEVATION: 249 FEET.
D. WATER SUPPLY:
   1. MINIMUM AVAILABLE WATER PRESSURE (STATIC): EXISTING PSI AVAILABLE FROM MUNICIPAL WATER SERVICE.
   2. COLD WATER PIPE SIZE: EXISTING 2.5 INCHES (MINIMUM).
   3. COLD WATER METER SIZE: EXISTING.
   4. CONNECTED LOAD: 50.6 WFU
   5. COLD WATER TEMPERATURE: 60° F
   6. REFER TO PLUMBING CALCULATIONS AND SCHEDULES FOR ADDITIONAL CRITERIA.
E. DOMESTIC HOT WATER:
   1. WATER HEATER SET POINT: 140° F
   2. MASTER MIXING VALVE SET POINT: 120° F
   3. POINT-OF-USE LAVATORY AND HAND WASHING MIXING VALVES: 110° F
   4. THE MAXIMUM ALLOWABLE PIPING LENGTH FOR DOMESTIC HOT WATER FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL NOT EXCEED THREE FEET FOR PUBLIC LAVATORIES AND HAND WASHING SINKS. FOR OTHER FIXTURES, SUCH AS SHOWERS, KITCHEN SINKS, AND SCRUB SINKS, THE MAXIMUM PIPING LENGTH SHALL NOT EXCEED TEN FEET.
   5. RECIRC PUMP:
      - TIMER: SET TO "ON" DURING OCCUPIED HOURS
      - IF TIMER "ON" AND RETURN TEMP <95°F: PUMP "ON"
      - IF TIMER "ON" AND RETURN TEMP >115°F: PUMP "OFF"
F. SANITARY SEWER:
   1. BUILDING SEWER SIZE: 4 INCHES
   2. SLOPE: 2% UNLESS OTHERWISE NOTED
   3. CONNECTED LOAD: 46 DFU
G. STORM DRAIN:
   1. RAINFALL INTENSITY: 1 INCHES/HOUR (PER NOAA NATIONAL WEATHER SERVICE).
   2. REFER TO PLANS FOR AREA SERVED BY ROOF DRAINS.

WATER AND WASTE SERVICE CALCULATIONS

JOB NAME:	KINGS COUNTY LIBRARY HANFORD	DATE:	10/18/24
JOB NUMBER:	24US00239	USER:	NS/CG

FIXTURE TYPE	NO.	WASTE		COLD WATER		HOT WATER		TOTAL WATER
		FU	TOTAL	FU	TOTAL	FU	TOTAL	FU
DRINKING FOUNTAIN	1	0.5	0.5	0.5	0.5	0	0	0.5
HOSE BIBB (PER BRANCH)	1	0	0	2.5	2.5	0	0	2.5
KITCHEN SINK (DOMESTIC)	1	2	2	1.125	1.125	1.125	1.125	1.5
LAVATORY	6	1	6	0.75	4.5	0.75	4.5	6
SERVICE SINK	3	3	9	2.25	6.75	2.25	6.75	9
SINK, 1-1/2" TRAP	1	2	2	1.5	1.5	1.5	1.5	2
URINAL, 1.0 GPF	1	2	2	4	4	0	0	4
WATER CLOSET, FV, PUBLIC	7	4	28	5	35	0	0	35
TOTAL FU			49.5		55.9		13.9	60.5

EQUIVALENT COLD WATER FLOW RATE (GPM):	55
ADDITIONAL DEMAND LOAD (GPM)	
PRESSURE AVAILABLE AT MAIN (PSI):	60
METER LOSS (PSI):	3
BACKFLOW PREVENTER LOSS (PSI):	10
PRESSURE DROP FROM UTILITY TO BUILDING (PSI):	2
TOTAL SUPPLY PRESSURE AVAILABLE:	45
MINIMUM REQUIRED FIXTURE PRESSURE (PSI):	25
ELEVATION RISE (FT):	20
ADDITIONAL PRESSURE DROP (PSI):	0
EQUIVALENT PIPE LENGTH TO MOST REMOTE FIXTURE (FT):	200
ESTIMATED FRICTION LOSS (PSI):	6
BOOSTER PUMP DISCHARGE PRESSURE-IF REQUIRED (PSI)	0
BOOSTER PUMP DISCHARGE PRESSURE-(OVERRIDE) (PSI)	
BOOST REQUIRED (PSI):	0
MAXIMUM ALLOWABLE PIPE FRICTION LOSS (PSI):	11
MAXIMUM ALLOWABLE PIPE FRICTION LOSS (PSI/100FT):	5.67
MAXIMUM WATER FLOW VELOCITY (FPS):	5.67
MINIMUM REQUIRED 'WATER' PIPE SIZE (INCHES):	2
MINIMUM REQUIRED 'WASTE' AT 2% SLOPE PIPE SIZE (INCHES):	4
MINIMUM REQUIRED 'WASTE' AT 1% SLOPE PIPE SIZE (INCHES):	4
(CALCULATIONS PER THE PLUMBING CODE)	

ABBREVIATIONS

(N)	NEW
(E)	EXISTING TO REMAIN
(D)	EXISTING TO BE REMOVED
(ER)	EXISTING TO BE RELOCATED
(RL)	NEW LOCATION OF RELOCATED ITEM
(F)	FUTURE
ABV	ABOVE
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AP	ACCESS PANEL
ARCH	ARCHITECT
ASR	AUTO FIRE SPRINKLER RISER
BAS	BUILDING AUTOMATION SYSTEM
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BV	BALL VALVE
BWV	BACKWATER VALVE
CA	COMPRESSED AIR
CD	CONDENSATE DRAIN
CR	STEAM CONDENSATE RETURN
CFF	CAP FOR FUTURE
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CLG	CEILING
CO	CLEANOUT
CONC	CONCRETE
CV	CHECK VALVE
CW	DOMESTIC COLD WATER
CWFU	COLD WATER FIXTURE UNIT
DN	DOWN
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DDCVA	DOUBLE DETECTOR CHECK VALVE ASSEMBLY
DFU	DRAINAGE FIXTURE UNIT
DIA	DIAMETER
DSN	DOWNSPOUT NOZZLE
DWG	DRAWING
DWV	DRAINAGE WASTE AND VENT
ELEC	ELECTRICAL
FA	FLOW ALARM
FC	FLEXIBLE CONNECTION
FCO	FLOOR CLEANOUT
FDV	FIRE DEPARTMENT VALVE
FDVC	FIRE DEPARTMENT VALVE CABINET
FFA/FFB	FROM FLOOR ABOVE/BELOW
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FHV	FIRE HOSE VALVE
FIN	FINISHED
FO	FUEL OIL
FPS	FEET PER SECOND
FT	FEET
FT	FLUSH TANK
FU	FIXTURE UNIT
FV	FLUSH VALVE
G	GAS
GAL	GALLONS
GC	GAS COCK
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HD	HUB DRAIN
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RECIRCULATION
HWFU	HOT WATER FIXTURE UNIT
IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
IE	INVERT ELEVATION
IRR	IRRIGATION
LAV	LAVATORY
LBS	POUNDS (UNIT OF FORCE)
MAX	MAXIMUM
MBH	THOUSANDS BTU/HR
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MH	MANHOLE
NC	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN OR NUMBER
NIC	NOT IN CONTRACT
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OW	OIL WASTE
POC	POINT OF CONNECTION
POD	POINT OF DISCONNECTION
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
RI&C	ROUGH IN AND CONNECT
R	RISE, RISER
RP	REDUCED-PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY
RPM	REVOLUTIONS PER MINUTE
SD	STORM DRAIN
SF	SQUARE FEET
SHWR	SOLAR HOT WATER RETURN
SHWS	SOLAR HOT WATER SUPPLY
SOV	SHUT-OFF VALVE
SPK	SPRINKLER
SS	SANITARY SEWER
TFA/TFB	TO FLOOR ABOVE/BELOW
TP	TRAP PRIMER
TS	TAMPER SWITCH
TT	TEST TEE
TYP	TYPICAL
U/UR	URINAL
VB	VACUUM BREAKER
V	VENT
VTR	VENT THROUGH ROOF
W	WASTE
WC	WATER CLOSET
WHA	WATER HAMMER ARRESTOR
WCO	WALL CLEANOUT
W/	WITH
YB	YARD BOX

SYMBOL	DESCRIPTION
	TRAP PRIMER
	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	BALANCING VALVE
	SHUT OFF VALVE IN CONCRETE YARD BOX
	ANGLE GATE VALVE
	SOLENOID VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	MIXING VALVE
	PLUG VALVE / GAS COCK
	RELIEF VALVE
	VACUUM RELIEF VALVE
	PRESSURE & TEMPERATURE RELIEF VALVE
	AUTOMATIC AIR VENT
	BACKWATER VALVE
	REDUCED - PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY (RP)
	UNION
	STRAINER
	STRAINER WITH BLOW OFF HOSE BIBB
	PIPE ANCHOR
	PIPE ALIGNMENT GUIDE
	EXPANSION JOINT
	FLEXIBLE CONNECTOR
	CAP OR PLUG
	BLIND FLANGE
	CONCENTRIC REDUCER
	AQUASTAT
WHA	WATER HAMMER ARRESTOR
PG	PRESSURE GAUGE WITH COCK
T	THERMOMETER
CO/WCO	CLEANOUT / WALL CLEANOUT
FCO/COTG	FLOOR CLEANOUT / CLEANOUT TO GRADE
YCO/COTG	YARD CLEANOUT / CLEANOUT TO GRADE
TT	TEST TEE
WH	WALL HYDRANT
HB	HOSE BIBB
	ROOF HYDRANT
YH	YARD HYDRANT
	THRUST BLOCK
FD	FLOOR DRAIN
FS	FLOOR SINK W/ GRATE AS SHOWN
	HUB DRAIN
	ROOF RECEPTOR
	STORM DRAIN
	OVERFLOW DRAIN
	DECK DRAIN, PLANTER DRAIN
	DOWN SPOUT NOZZLE
M	SUB-METER

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS ARE APPLICABLE TO THIS PROJECT. REFER TO DETAILS AND NOTES FOR MOUNTING HEIGHTS.

SYMBOL	DESCRIPTION
1% SLOPE	DIRECTION OF SLOPE
	DIRECTION OF FLOW
	PIPE UP OR UP & DN
	PIPE DOWN
	PIPE DROP
	TOP CONNECTION - BRANCH LINE
	BOTTOM CONNECTION - BRANCH LINE
	COLD WATER
FW	FLUSH WATER
	HOT WATER
	HOT WATER RECIRCULATION
140	HOT WATER (140°F)
	VENT
	PIPING BELOW GRADE OR FLOOR
	PIPING ABOVE GRADE OR FLOOR
SS	SANITARY SEWER, WASTE OR SOIL
SD	STORM DRAIN, RAINWATER DRAIN PIPING
OD	OVERFLOW STORM DRAIN PIPING
PD	PUMPED DISCHARGE
D	DRAIN LINE
IW	INDIRECT WASTE
GW	GREASE WASTE
GRW	GREY WATER WASTE
G	NATURAL GAS (7"W.C.)
MG	MEDIUM PRESSURE GAS (2 PSIG TO 5 PSIG)
LG	LOW PRESSURE GAS
CA	COMPRESSED AIR
TW	TEMPERED WATER
TWR	TEMPERED WATER RETURN
6"	PIPE SIZE (DIAMETER IN INCHES)

GENERAL SYMBOLS

SYMBOL	DESCRIPTION
(E)	EXISTING WORK TO REMAIN
(D)	EXISTING TO BE REMOVED
(ER)	EXISTING TO BE RELOCATED
(RL)	NEW LOCATION OF RELOCATED ITEM
(F)	FUTURE
℄	CENTER LINE
	POINT OF CONNECTION OR POINT OF DISCONNECTION
SS	SANITARY SEWER STACK
V	VENT STACKS
CW	COLD WATER RISER
HW	HOT WATER RISER
HWC	HOT WATER RECIRC. RISER
G	GAS RISER
SD	STORM DRAIN RISER
OD	OVERFLOW DRAIN RISER
CA	COMPRESSED AIR RISER
XX / X	PLUMBING EQUIPMENT
#	KEYED NOTE
1 / P2	DETAIL NO. SHEET NO.
#	POUNDS OR NUMBER
A / P-1	SECTION A, DRAWING P-1

PLUMBING DRAWING LIST

P0.00	PLUMBING LEGEND AND ABBREVIATIONS
P0.01	PLUMBING MATERIAL AND TESTING DATA
P0.02	GENERAL NOTES AND SCHEDULES
P1.00	BASEMENT - PLUMBING DEMO PLAN
P1.01	FIRST FLOOR - PLUMBING DEMO PLAN
P1.02	SECOND FLOOR - PLUMBING DEMO PLAN
P2.00	BASEMENT - PLUMBING PLAN
P2.11	FIRST FLOOR - PLUMBING PLAN
P2.12	SECOND FLOOR - PLUMBING PLAN
P2.13	ROOF - PLUMBING PLAN
P9.10	PLUMBING DETAILS

DEFERRED SUBMITTALS

1. FIRE SPRINKLER DESIGN
2. SEISMIC BRACING FOR MECHANICAL AND PLUMBING SYSTEMS, INCLUDING EQUIPMENT, PIPING, AND DUCTWORK.
3. PIPE SYSTEM CERTIFICATION AND ANALYSIS:
   A. DESIGN: DESIGN AND CALCULATE REQUIREMENTS FOR THERMAL EXPANSION OF PIPING SYSTEMS AND FOR SELECTING AND DESIGNING EXPANSION JOINTS AND LOOPS.
   B. ANCHOR DETAILS: DETAIL FABRICATION OF EACH ANCHOR. SHOW DIMENSIONS AND METHODS OF ASSEMBLY AND ATTACHMENT TO BUILDING STRUCTURE. SUPPORTS, ANCHORS, AND GUIDES SHALL BE DESIGNED FOR COMBINED GRAVITY, SEISMIC, PRESSURE, AND THERMAL LOADS.
   C. ALIGNMENTS GUIDE DETAILS: DETAIL FIELD ASSEMBLY AND ATTACHMENT TO BUILDING STRUCTURE.
   D. SCHEDULE: EACH EXPANSION JOINT SHALL BE SCHEDULE WITH MANUFACTURER, TYPE, MATERIAL, SIZE, PRESSURE RATING, END CONNECTIONS, AND LOCATION.
   E. FULLY COORDINATE WITH DESIGN OF SEISMIC RESTRAINT AND ANCHORAGE.

*FOR ALL ITEMS LISTED ABOVE, THE PLUMBING AND/OR MECHANICAL CONTRACTOR SHALL PROVIDE A DELEGATED DESIGN SUBMITTAL WITH DOCUMENTATION AND ENGINEERING REQUIRED TO SATISFY REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (AHJ). THE DELEGATED DESIGN SUBMITTAL SHALL INCLUDE BUT NOT BE LIMITED TO ANALYSIS DATA SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

SIZING OF RAINWATER PIPING

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SIZING OF RAINWATER PIPING

1	IN/HR	DESIGN RAINFALL RATE		
SIZE OF PIPE (IN)		MAX ALLOWABLE SQUARE FEET		
		1% SLOPE	2% SLOPE	VERTICAL
3		3,228	4,640	8,795
4		7,513	10,601	18,395
6		21,401	30,200	53,998
8		46,071	65,201	116,017
10		82,791	116,831	
12		133,196	187,949	
15		238,018	335,978	

SIZING OF COMBINED RAINWATER PIPING

2	IN/HR	DESIGN RAINFALL RATE		
SIZE OF PIPE (IN)		MAX ALLOWABLE SQUARE FEET		
		1% SLOPE	2% SLOPE	VERTICAL
3		1,614	2,320	4,397
4		3,756	5,301	9,198
6		10,701	15,100	26,999
8		23,036	32,601	58,009
10		41,396	58,416	
12		66,598	93,975	
15		119,009	167,989	

NOTES:
REFER TO UPC CHAPTER 11 FOR STORM DRAINAGE DESIGN
FOR COMBINED PRIMARY AND SECONDARY DRAINAGE SYSTEMS:
- DOUBLE RAINFALL RATE, OR HALVE ALLOWABLE SQUARE FOOTAGE

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PLUMBING LEGEND AND ABBREVIATIONS

P0.00

PIPE MATERIAL SCHEDULE

SERVICE	LOCATION OF USE	PIPE SIZE	PIPE MATERIALS: COPPER, TYPE "K", ASTM B88	COPPER, TYPE "L", ASTM B88	COPPER, TYPE "M", ASTM B69	COPPER, DWV, ASTM B306	CAST IRON, NO-HUB, ASTM A888	BLACK STEEL, SCHEDULE 40, ASTM A53	GALVANIZED STEEL, SCH 40, ASTM A53	ABS, SCHEDULE 40, ASTM D2661	PEX-A TUBING, ASTM F876 / F877	PVC, SCHEDULE 40, ASTM D2665	STAINLESS STEEL, SCH 10, ASTM A312	STAINLESS STEEL, SCH 40, ASTM A312	DUCTILE IRON, ANSI A21.51	POLYETHYLENE, ASTM 2513	BLACK STEEL, SCHEDULE 10, ASTM A53	UL LISTED FIBERGLASS, ASTM D-2996	FITTINGS/JOINTS
DOMESTIC HW DOMESTIC CW DOMESTIC HWC	BELOW GRADE	ALL	A																WROUGHT COPPER, BRAZED, ANSI B16.22
	ABOVE GRADE	ALL		A															WROUGHT COPPER, 95-5 SOLDERED, ANSI B16.22
				B															COPPER PRESS FITTINGS, O-RING EPDM, ANSI B16.22
	BRANCH RUNOUTS	2" AND SMALLER																	ENGINEERED POLYMER (EP) FITTINGS, ASTM F1960 / F1807
	ABOVE GRADE	2-1/2" AND LARGER											B						STAINLESS, SCHEDULE 10, ASTM A 312 / A 312M
														B					STAINLESS, SCHEDULE 40, ASTM A 312 / A312M
CONDENSATE & INDIRECT DRAINS (FROM COILS)	ABOVE GRADE	ALL				A													WROUGHT COPPER, SOLDERED FITTINGS, DWV, ANSI B16.22
CONDENSATE (PRODUCT OF COMBUSTION)	ABOVE GRADE	ALL										A							PVC, SCHEDULE 40, SOLID WALL, SOLVENT, ASTM D2665 / D331
TRAP PRIMER	ABV & BEL GRADE	ALL	A																NO JOINTS BELOW GRADE, DOUBLE WRAP BELOW GRADE
											B								NO JOINTS BELOW GRADE
SANITARY WASTE	ABOVE GRADE	ALL					A												CAST IRON, NO-HUB, ASTM A888, HEAVY-DUTY COUPLINGS
	BELOW GRADE	ALL					A												CAST IRON, NO-HUB, ASTM A888, HEAVY-DUTY 4-BAND COUPLINGS
												B							PVC, SCHEDULE 40, SOLVENT, SOLID WALL, ASTM D2665 / D331
SANITARY VENT	ABOVE GRADE	ALL					A												CAST IRON NO-HUB, ASTM A888, HEAVY-DUTY COUPLINGS
												B							PVC, SCHEDULE 40, SOLID WALL, SOLVENT, ASTM D2665 / D331 PLENUMS SHALL INCLUDE PLENUM RATED WRAP.
										B									ABS, SCHEDULE 40, SOLID WALL, SOLVENT, ASTM D2661 / D331 PLENUMS SHALL INCLUDE PLENUM RATED WRAP.
	BELOW GRADE	ALL					A												CAST IRON, NO-HUB, ASTM A888, HEAVY-DUTY 4-BAND COUPLINGS
												B							PVC, SCHEDULE 40, SOLID WALL, SOLVENT, ASTM D2665 / D331
ROOF DRAIN STORM DRAIN OVERFLOW DRAIN	ABOVE GRADE	ALL					A												CAST IRON NO-HUB, ASTM A888, HEAVY-DUTY COUPLINGS
	ABOVE GRADE BUILDING EXTERIOR						A												CAST IRON NO-HUB, ASTM A888, HEAVY-DUTY COUPLINGS
						B													BRONZE, ANSI B16.23 OR WROUGHT COPPER, SOLDERED, ANSI B16.29
	BELOW GRADE	ALL					A												CAST IRON, NO-HUB, ASTM A888, HEAVY-DUTY 4-BAND COUPLINGS
												B							PVC, SCHEDULE 40, SOLID WALL, SOLVENT, ASTM D2665 / D331
LOW PRESSURE NATURAL GAS (<14"W.C.)	ABOVE GRADE ACCESSIBLE AREAS	2" AND SMALLER						A											BLACK STEEL, ANSI B16.11 WELDED, 150 LB RATING
		2-1/2" AND LARGER						A											BLACK STEEL, ANSI B16.25 OR B16.11 WELDED, 150 LB RATING
	ABOVE GRADE CONCEALED AREAS	2" AND SMALLER						A											BLACK STEEL, ANSI B16.25 OR B16.11 WELDED, 150 LB RATING
		2-1/2" AND LARGER						A											BLACK STEEL, ANSI B16.25 OR B16.11 WELDED, 150 LB RATING
	BELOW GRADE	ALL														A			POLYETHYLENE, HEAT FUSED JOINTS

PIPE SCHEDULE LEGEND
A = ALLOWED MATERIAL PER BASIS OF DESIGN
B = ALLOWED AS AN ALTERNATE MATERIAL PER CODE AND AS APPROVED BY OWNER.

PIPE SCHEDULE NOTES
1. REFER TO SPECIFICATIONS FOR ADDITIONAL PIPING MATERIAL AND FITTING REQUIREMENTS.
2. ALL DOMESTIC HOT WATER SUPPLY AND RECIRCULATION PIPING SHALL BE THERMALLY INSULATED AS REQUIRED BY CODE.
3. ALL INTERIOR CONDENSATE PIPING SHALL BE INSULATED WITH 1/2" WALL MINIMUM, SELF SEALING, CLOSED CELL FOAM INSULATION.
4. ALTERNATE MATERIAL: PVC SANITARY VENT PIPING IS ALLOWED, BUT NOT ALLOWED IN AIR PLENUMS OR SHAFTS.
5. STAINLESS STEEL PIPING SHALL NOT BE INSTALLED IN ANY SYSTEM INTERCONNECTED WITH COPPER PIPING.

BASIS OF DESIGN ALTERNATIVES
OPTION #1 - PROVIDE COPPER TYPE L FOR THE MAIN RISER HOT AND COLD WATER RISERS AND PEX IS ALLOWED FOR THE BRANCHES (SIZES FROM 3/8 TO 3" NOMINAL DIAMETER). CONTRACTOR SHALL PROVIDE 10-YEAR WARRANTY AGAINST LEAKS IN THE PIPE AND JOINTS TO INCLUDE ALL MATERIAL, LABOR AND TRAVEL. ANY RESIZING OF THE PIPING AS A RESULT OF CHANGING THE PIPING MATERIAL IS THE CONTRACTOR'S RESPONSIBILITY. CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTALLATION REQUIREMENTS.
OPTION #2 - PVC IS ALLOWED FOR THE SANITARY VENT PIPING AND FITTINGS PER CODE. PVC IS NOT ALLOWED IN AIR PLENUMS OR SHAFTS. ANY REQUIRED REDESIGN OF PIPING LAYOUT OR SIZING AS A RESULT OF DEVIATING FROM THE BASIS OF DESIGN PIPE MATERIAL IS THE CONTRACTOR'S RESPONSIBILITY. CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTALLATION REQUIREMENTS.

TESTING

A. PROVIDE ALL TESTS SPECIFIED HEREINAFTER. ALL TESTS SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF APPLICABLE CODES AND LOCAL ORDINANCES. PROVIDE ALL TEST EQUIPMENT, INCLUDING TEST PUMPS, GAUGES, INSTRUMENTS, AND OTHER EQUIPMENT REQUIRED. TEST ALL ROTATIONAL EQUIPMENT FOR PROPER DIRECTION OF ROTATION. UPON COMPLETION OF TESTING, CERTIFY TO THE ARCHITECT, IN WRITING, THAT THE SPECIFIED TESTS HAVE BEEN PERFORMED AND THAT THE INSTALLATION COMPLIES WITH THE SPECIFIED REQUIREMENTS AND PROVIDE A REPORT OF THE TEST OBSERVATIONS SIGNED BY QUALIFIED INSPECTOR.

B. PIPING: REMOVE FROM THE SYSTEM, DURING TESTING, ALL EQUIPMENT WHICH WOULD BE DAMAGED BY TEST PRESSURE. REPLACE REMOVED EQUIPMENT WHEN TESTING HAS BEEN ACCOMPLISHED. THE SYSTEM MAY BE TESTED IN SECTIONS AS THE WORK PROGRESSES; HOWEVER, ANY PREVIOUSLY TESTED PORTION SHALL BECOME A PART OF ANY LATTER TEST OF A COMPOSITE SYSTEM. CORRECT LEAKS BY REMAKING JOINTS WITH NEW MATERIAL.

C. TEST TIME WILL BE ACCRUED ONLY WHILE FULL TEST PRESSURE IS ON THE SYSTEM, UNLESS INDICATED OTHERWISE. "TOLERANCE" SHALL BE NO PRESSURE DROP, EXCEPT THAT DUE TO TEMPERATURE CHANGE IN A 24-HOUR PERIOD. INSPECT AND TEST ALL WORK PRIOR TO BURYING OR CONCEALING. TEST PRESSURE SHALL BE ONE AND ONE-HALF TIMES THE SYSTEM OPERATING PRESSURE OR THE LISTED TEST PRESSURE BELOW, WHICHEVER IS GREATER:

SYSTEM	TEST MEDIUM	TEST PRESSURE	TOLERANCE-TEST PERIOD
DOMESTIC WATER	WATER	150 PSIG	NONE – 8 HOURS
SANITARY SEWER AND GRAVITY CONDENSATE (NON-PLASTIC)	WATER	10 FT HEAD (OR 5 PSI AIR)	NO LEAKS – 8 HOURS
SANITARY SEWER AND GRAVITY CONDENSATE (PLASTIC)	WATER	10 FT HEAD	NO LEAKS – 8 HOURS
PUMPED SANITARY AND CONDENSATE	WATER	150 PSIG OR 150% OF PUMP SHUTOFF HEAD, WHICHEVER IS GREATER	NONE – 8 HOURS
VENT (NON-PLASTIC)	AIR	5 PSI	NO LEAKS – 8 HOURS
VENT (PLASTIC OR NON-PLASTIC)	WATER	10 FT HEAD	NO LEAKS – 8 HOURS
RAINWATER	WATER	10 FT HEAD (OR 5 PSI AIR)	NO LEAKS – 8 HOURS
NATURAL GAS/ PROPANE/LP GAS	AIR OR NITROGEN	100 PSIG	NONE – 24 HOURS

D. VALVES: TEST ALL VALVE BONNETS FOR TIGHTNESS. TEST OPERATE ALL VALVES AT LEAST ONCE FROM CLOSED-TO-OPEN-TO-CLOSED POSITION WHILE VALVE IS UNDER TEST PRESSURE. TEST ALL AUTOMATIC VALVES, INCLUDING SOLENOID VALVES, AND TEMPERATURE AND PRESSURE RELIEF VALVES, SAFETY VALVES, AND TEMPERATURE AND PRESSURE RELIEF VALVES NOT LESS THAN THREE (3) TIMES.

E. PIPING SPECIALTIES: TEST ALL THERMOMETERS, PRESSURE GAUGES, AND WATER METERS FOR ACCURATE INDICATION; AUTOMATIC WATER FEEDERS, AIR VENTS, TRAP PRIMERS, AND VACUUM BREAKERS FOR PROPER PERFORMANCE. TEST ALL AIR VENT POINTS TO ENSURE THAT ALL AIR HAS BEEN VENTED.

F. BACKFLOW PREVENTERS: EACH TESTABLE BACKFLOW PREVENTION DEVICE SHALL BE TESTED AND APPROVED BY CERTIFIED TESTERS AFTER INSTALLATION. SUBMIT TEST RESULTS.

TABLE 2
INSULATION BASED ON CALIFORNIA T-24 ENERGY CODE TABLE 120.3-A
MINIMUM PIPE INSULATION THICKNESSES OR GREATER

FLUID TEMPERATURE RANGE (°F)	CONDUCTIVITY RANGE (in Btu-inch per hour per square foot °F)	INSULATION MEAN RATING TEMPERATURE (°F)	NOMINAL PIPE DIAMETER (in inches)				
			Less than 1	1 to 1-1/2	2 to 3	4 to 6	8 and larger
			INSULATION THICKNESS REQUIRED (in inches)				
Space heating systems (steam, steam condensate and hot water) and Domestic Services Water Heating Systems							
Above 350	0.32-0.34	250	4.5	5	5	5	5
251-350	0.29-0.32	200	3	4	4.5	4.5	4.5
201-250	0.27-0.30	150	2.5	2.5	2.5	3	3
141-200	0.25-0.29	125	1.5	1.5	2	2	2
105-140	0.22-0.28	100	1	1.5	2	2	2
Space cooling systems (chilled water, refrigerant and brine)							
40-60	0.21-0.27	75	0.5	0.5	1	1	1
Below 40	0.20-0.26	75	1	1.5	1.5	1.5	1.5

1.1 CLEANING, FLUSHING, DISINFECTING

A. GENERAL: CLEAN EXTERIOR SURFACES OF INSTALLED PIPING SYSTEMS OF SUPERFLUOUS MATERIALS, AND PREPARE FOR APPLICATION OF SPECIFIED COATINGS (IF ANY).
B. FLUSH OUT PIPING SYSTEMS WITH CLEAN WATER BEFORE PROCEEDING WITH REQUIRED TESTS. INSPECT EACH RUN OF EACH SYSTEM FOR COMPLETION OF JOINTS, SUPPORTS, AND ACCESSORY ITEMS.
C. INSPECT PRESSURE PIPING IN ACCORDANCE WITH PROCEDURES OF ASME B31.
D. DISINFECT WATER MAINS AND WATER SERVICE PIPING IN ACCORDANCE WITH SECTION 220500.

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PLUMBING MATERIAL AND TESTING DATA

P0.01

PLUMBING - GENERAL NOTES

1. THESE GENERAL NOTES APPLY TO ALL SHEETS.
2. CONTRACT DOCUMENT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. DO NOT SCALE FOR MATERIAL QUANTITIES. ALL SCALING SHOULD BE REFERENCED TO ARCHITECTURAL PLANS ONLY.
3. COORDINATE CONSTRUCTION OF ALL PLUMBING WORK WITH ALL OTHER DISCIPLINES AND AS SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
4. CONTRACTOR SHALL VISIT SITE AND VERIFY ALL EXISTING CONDITIONS AND CONNECTIONS TO EXISTING WORK PRIOR TO BIDDING AND CONSTRUCTION. COORDINATE WITH OWNER'S REPRESENTATIVE WHEN FIELD CONDITIONS PREVENT CORRECT INSTALLATION.
5. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PAY FOR AND REPAIR ALL DAMAGE CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES UNLESS OTHERWISE INDICATED.
6. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED FEES, PERMITS AND INSPECTIONS. OBTAIN ALL FIELD APPROVALS ON WORK FROM REGULATING AGENCIES WHERE REQUIRED.
7. DURING ENTIRE CONSTRUCTION PERIOD MAINTAIN ADEQUATE TYPE 2A:40BC FIRE EXTINGUISHERS READY FOR USE IN CASE OF FIRE.
8. PROTECTION OF PUBLIC: THE CONTRACTOR SHALL PROTECT THE PUBLIC FROM INJURY DURING THE WORK BY POSTING WARNING SIGNS, GUARD LIGHTS AND BARRICADES.
9. COORDINATE ALL WORK WITH OTHER TRADES AND AVOID IMPACTING ARCHITECTURAL AND STRUCTURAL MEMBERS. NO WORK SUCH AS PIPE, DUCTWORK, ETC., SHALL BE IN CONTACT WITH ANY EQUIPMENT OR BUILDING MEMBERS.
10. COORDINATE ALL CUTTING AND PATCHING WITH GENERAL CONTRACTOR AND OTHER DISCIPLINES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING RELATED TO THEIR WORK.
11. DRAWINGS THAT INDICATE EXISTING ITEMS FOR RELOCATION (ER) SHALL BE REMOVED, STORED, CLEANED, PROTECTED FROM DAMAGE AND INSTALLED IN NEW LOCATIONS AS INDICATED ON DRAWINGS.
12. ALL ATTACHMENTS TO THE BUILDING STRUCTURE SHALL BE COORDINATED WITH THE STRUCTURAL DESIGN.
13. OBTAIN WRITTEN PERMISSION OF STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY CUTTING OR PATCHING OF STRUCTURAL SYSTEMS. DO NOT CUT ROOF FRAMING.
14. REFER TO STRUCTURAL PLANS FOR SEISMIC ATTACHMENT REQUIREMENTS PER SECTION 1613 OF THE BUILDING CODE.
15. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE OWNER'S REPRESENTATIVE BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
16. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN ON DRAWINGS FOR PIPING AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR.
17. ALL PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS IS NOT PERMITTED. THE USE OF C-CLAMPS IS NOT PERMITTED.
18. PIPING SHALL NOT BE SUPPORTED FROM METAL DECK.
19. THESE PLANS AND ACCOMPANYING SPECIFICATIONS HAVE BEEN DESIGNED TO SHOW SUBSTANTIAL COMPLIANCE WITH THE APPLICABLE PLUMBING CODE AND BUILDING ENERGY EFFICIENCY CODE. ALL EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE BUILDING ENERGY EFFICIENCY CODE.
20. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
21. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS, ROUGH IN DIMENSIONS, AND MOUNTING HEIGHTS OF ALL FIXTURES, EQUIPMENT, ACCESS PANELS, CLEANOUTS, AND OTHER EXPOSED PLUMBING ELEMENTS. WHERE DIMENSIONS ARE NOT INDICATED, COORDINATE WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING CURRENT REQUIREMENTS WITH THE MANUFACTURER OF THE PRODUCTS USED ON THE PROJECT AND NOTIFY THE OWNER'S REPRESENTATIVE IF ANY DISCREPANCIES ARE FOUND BEFORE THE PURCHASE OF THE PRODUCT AND PRIOR TO INSTALLATION WORK OF ANY OWNER-FURNISHED PRODUCTS.
23. CONTRACTOR SHALL PROVIDE DUST COVERS AT ALL EXPOSED PIPING OPENINGS DURING CONSTRUCTION. BROOM CLEAN WORK AREA ON A DAILY BASIS TO MINIMIZE DUST AND DEBRIS WITHIN THE CONSTRUCTION AREA.
24. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
25. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL FIRE AND SMOKE RATED ASSEMBLIES. PROVIDE UL LISTED SEALANT SYSTEM AT ALL LOCATIONS WHERE PIPING PENETRATES FIRE OR SMOKE RATED ASSEMBLIES (WALLS AND FLOORS).
26. DO NOT INSTALL ANY PIPING INSIDE ANY RATED WALL ASSEMBLIES OR IN STAIRWELLS.
27. PROVIDE WATER PROOF SEALANT AT FLOOR PENETRATIONS.
28. THESE DRAWINGS DO NOT INCLUDE ALL NECESSARY SAFETY REQUIREMENTS. CONTRACTOR TO COMPLY WITH SAFETY REQUIREMENTS SET FORTH BY THE LOCAL AUTHORITIES HAVING JURISDICTION.
29. ALL PLUMBING WORK SHALL BE INSTALLED AS TO AVOID INTERFERENCE WITH OTHER TRADES.
30. ALL CLEANOUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE AND LOCATED AS PER CODE REQUIREMENTS. DO NOT INSTALL ANY FLOOR CLEANOUTS IN PATHS OF TRAVEL. THE CONTRACTOR SHALL COORDINATE ALL CLEANOUT LOCATIONS WITH EQUIPMENT, FURNITURE, CASEWORK, ETC. AND THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
31. SHUT OFF VALVES, WATER CONTROL DEVICES, CLEANOUTS, ETC. SHALL BE THE SAME SIZE AS PIPING SERVED, UNLESS NOTED OTHERWISE.
32. BEFORE FABRICATION OR INSTALLATION, THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT AND EQUIPMENT PROVIDED UNDER ANOTHER SECTION OF SPECIFICATIONS. EXACT ROUGH IN LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED IN THE FIELD.
33. ALL HORIZONTAL PIPING LINES EXTENDED AND CONNECTED TO EQUIPMENT SHALL BE RUN AT THE HIGHEST POSSIBLE ELEVATIONS.
34. ALL PIPING SHALL BE SUPPORTED SO AS NOT TO CONTACT ANY PORTION OF THE SUSPENDED CEILING SYSTEMS, STUDS/GYPSUM BOARD/NOISE CONTROL ELEMENTS OF THE OVERALL STRUCTURE. TRAPEZES OR OTHER DEVICES SHALL BE USED WHERE PIPING INTERFACES WITH THE NORMAL SPACING OF HANGER WIRES FOR CEILING SYSTEMS.
35. HORIZONTAL SOIL, WASTE, AND TRAP PRIMER PIPING WITHIN THE BUILDING SHALL BE INSTALLED CONCEALED WITHIN WALLS, BELOW FINISH FLOOR, OR BELOW FINISH SLAB AS APPLICABLE UNLESS NOTED OTHERWISE. ALL OTHER HORIZONTAL PIPING WITHIN THE BUILDING SHALL BE INSTALLED CONCEALED ABOVE CEILING OR WITHIN WALLS AS APPLICABLE UNLESS NOTED OTHERWISE. ALL VERTICAL PIPING SHALL BE INSTALLED CONCEALED WITHIN WALLS UNLESS NOTED OTHERWISE. NO PIPING SHALL BE INSTALLED IN EXPOSED LOCATIONS UNLESS SPECIFICALLY NOTED AS SUCH ON PLANS.
36. PIPING BETWEEN EACH PLUMBING FIXTURE AND THE NEAREST BRANCH OR MAIN PIPING RUN SHALL BE SIZED TO MATCH THE CORRESPONDING FIXTURE SCHEDULE CONNECTION SIZE AT A MINIMUM UNLESS NOTED AS A LARGER SIZE ON PLANS. PIPE HEADERS IN WALLS SERVING BANKS OF FIXTURES SHALL BE FULL LINE SIZE FROM THE UPSTREAM END OF THE BRANCH LINE TO THE END TERMINAL UNLESS NOTED OTHERWISE.
37. VERIFY EXACT LOCATIONS OF ALL MECHANICAL, FIRE PROTECTION, ELECTRICAL AND/OR OTHER EQUIPMENT INSTALLED BY OTHERS REQUIRING PLUMBING CONNECTIONS PRIOR TO ORDERING OF MATERIALS OR INSTALLATION. COORDINATE EXACT ROUGH IN LOCATIONS AND REQUIREMENTS WITH OTHER INSTALLING CONTRACTORS AS APPLICABLE PRIOR TO INSTALLATION.
38. SANITARY SEWER, STORM DRAIN, DOMESTIC WATER, FIRE PROTECTION, NATURAL GAS INDICATED ON THESE DRAWINGS SHALL EXTEND TO PLUMBING/CIVIL POINTS OF CONNECTION AT 5'-0" OUTSIDE OF THE BUILDING UNLESS NOTED OTHERWISE. CONTINUATION OF THESE PIPING SYSTEMS ARE INDICATED ON THE CIVIL DRAWINGS WITH PIPE MATERIALS SPECIFIED UNDER A SEPARATE SECTION OF THE PROJECT SPECIFICATIONS. ALL SUCH PIPING SHALL BE INSTALLED IN A MANNER TO PROVIDE PROPER CONNECTION TO INVERT ELEVATIONS INDICATED ON CIVIL DRAWINGS. WHERE SIZES DIFFER BETWEEN PLUMBING AND CIVIL DRAWINGS, CONTRACTOR SHALL PROVIDE TRANSITION FITTINGS AS NECESSARY TO ALLOW FOR PROPER CONNECTION.
39. DOMESTIC WATER PIPING, FITTINGS, VALVES, AND APPURTENANCES SHALL BE LEAD-FREE IN COMPLIANCE WITH STATE REQUIREMENTS.
40. REFER TO TYPICAL DETAILS FOR PIPING AND EQUIPMENT INSTALLATION.
41. PROVIDE FLASHING AND COUNTERFLASHING FOR ALL PENETRATIONS THROUGH WALLS OR ROOF TO MAKE WATERPROOF INSTALLATION.
42. SUPPORT ALL PIPING SO THAT IT IS FIRMLY HELD IN PLACE BY APPROVED IRON HANGERS AND SUPPORTS. IN ACCORDANCE WITH RECOMMENDATIONS OF AMERICAN PIPE FITTERS ASSOCIATION AND PIPE HANGER INSTITUTE.
43. MOTOR STARTERS AND VARIABLE FREQUENCY DRIVES, WHERE REQUIRED, SHALL BE PROVIDED AND MOUNTED BY THE PLUMBING INSTALLER AND WIRING/CONDUIT INSTALLED BY ELECTRICAL INSTALLER.
44. INSTALL ALL PLUMBING EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
45. MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
46. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL PIPING DIMENSIONS BEFORE FABRICATION.
47. CONCRETE HOUSEKEEPING PADS TO SUIT PLUMBING EQUIPMENT SHALL BE SIZED AND LOCATED BY THE PLUMBING INSTALLER. MINIMUM CONCRETE PAD THICKNESS SHALL BE 6 INCHES. PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 6 INCHES ON EACH SIDE. CONCRETE HOUSEKEEPING PADS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
48. CONDENSATE AND PRESSURE RELIEF PIPING SHALL BE TYPE L OR M COPPER TUBING WITH WROUGHT COPPER FITTINGS. PRIMARY DRAIN PAN SHALL BE PROVIDED WITH COOLING COIL AND EXTEND BEYOND THE LEAVING SIDE OF THE COIL AND UNDERNEATH THE COOLING COIL CONNECTIONS. PROVIDE SECONDARY DRAIN PIPE FOR EQUIPMENT ABOVE CEILINGS AND ROUTE TO VISIBLE LOCATION OR APPROVED RECEPTOR.
49. ALL AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH AIR HANDLING UNIT AND ROOFTOP UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO NEAREST DRAIN. SEE DETAILS SHOWN ON THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR DEPTH OF AIR CONDITIONING CONDENSATE TRAP TO EXCEED UNIT STATIC PRESSURE. CONDENSATE DRAIN LINES SHALL NOT BE LESS THAN 3/4" INTERNAL DIAMETER AND SHALL NOT DECREASE IN SIZE FROM THE OUTLET OF THE DRAIN PAN CONNECTION TO THE PLACE OF CONDENSATE DISPOSAL. EQUIPMENT MANUFACTURER SHALL PROVIDE OUTLET SIZE TO ALIGN WITH CONDENSATE DRAIN SIZING TABLES IN THE MECHANICAL AND PLUMBING CODES. UNIT OUTLET SIZE SHALL BE 3/4" FOR EQUIPMENT CAPACITY TO 20 TON OF REFRIGERATION AND 1" FOR EQUIPMENT CAPACITY OVER 20 TONS TO 40 TONS OF REFRIGERATION.
50. WHEREVER POSSIBLE, USE SAME ACCESS PANEL FOR SHUT OFF VALVES, TRAP PRIMERS, CLEANOUTS, AND/OR OTHER INTERIOR WALL COMPONENTS WHEN LOCATED DIRECTLY ADJACENT IN SAME VICINITY. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS. WHERE DIMENSIONS ARE NOT INDICATED, COORDINATE WITH ARCHITECT AND/OR OWNER'S REPRESENTATIVE FOR LOCATIONS PRIOR TO INSTALLATION.
51. NATURAL GAS PIPING SYSTEMS INDICATED IN THESE DRAWINGS INCLUDE ALL GAS PIPING SYSTEMS EXTENDING AND CONNECTING TO THE OUTLETS FROM THE GAS METER.
52. ALL TESTS SHALL BE COMPLETED BEFORE ANY PIPING INSULATION IS APPLIED.
53. TEST SYSTEMS IN ACCORDANCE WITH REQUIREMENTS OF THE GOVERNING AUTHORITIES.
54. DISINFECTION AND FLUSHING OF POTABLE WATER PIPING SHALL BE DONE IN ACCORDANCE WITH THE PLUMBING CODE.
55. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING AND REPAIRING ALL AREAS WHICH ARE EXCAVATED AND/OR DAMAGED BY THEIR OPERATIONS. THE CONTRACTOR SHALL RESTORE ALL AREAS DAMAGED BY THEIR OPERATIONS TO THEIR ORIGINAL CONDITION.
56. AT COMPLETION OF CONSTRUCTION PROVIDE AS-BUILT DRAWINGS AND COPIES OF BOUND OPERATIONS AND MAINTENANCE MANUALS.
57. GUARANTEE ALL WORK AND MATERIALS FOR ONE YEAR (MINIMUM) FROM DATE OF CERTIFICATE OF OCCUPANCY.
58. A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE PROVIDED AT THE LOCATION OF EACH PIECE OF EQUIPMENT.

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE	MANUFACTURER	MODEL	ADA (Y/N)	FLOW (GPF/GPM)	CONNECTION SIZE W	V	HW	CW	ELECTRICAL V	PH	A	REMARKS
3" DSN-1	DOWN SPOUT NOZZLE	JR SMITH	1770			3"							SEE PLANS FOR SIZE
DF-1	ELECTRIC WATER COOLER	ELKAY	LZWS-LRPBM28K	YES	0	1 1/2"	1 1/2"		1/2"	115	1	5	BI-LEVEL FOUNTAIN, MECHANICAL BUBBLER WITH BACK PLATE, NON FILTERED, NON REFRIGERATED, DOUBLE ROUND
HB-1	HOSE BIBB	WOODFORD	24		0				3/4"				
LV-1	LAVATORY - WALL HUNG	ACORN	1652FALRB	YES	0.35	2"	2"	1/2"	1/2"				FIXTURE: ACORN STAINLESS STEEL, WALL HUNG, 14"x12"x4-1/2", SINGLE CENTER FAUCET HOLE. CARRIER: JR SMITH 0805 FAUCET: SLOAN EAF-150-0.35 SENSOR BATTERY POWERED FAUCET ACCESSORIES: PROVIDE OFFSET DRAIN WITH FIXED GRID STRAINER. PROVIDE PLUMBEREX "PRO-EXTREME" P-TRAP AND SUPPLY PROTECTION MIXING VALVE: WATTS LFUSG-B SERIES SET TO 105°F, ASSE 1070
LV-2	LAVATORY - WALL HUNG	AMERICAN STANDARD	0356.041	YES	0.35	2"	2"	1/2"	1/2"				FIXTURE: VITREOUS CHINA, WALL HUNG, 21-1/4"x18-1/4", SINGLE CENTER FAUCET HOLE FAUCET: SLOAN EAF-150-0.35 SENSOR BATTERY POWERED FAUCET ACCESSORIES: PROVIDE OFFSET DRAIN WITH FIXED GRID STRAINER. PROVIDE PLUMBEREX "PRO-EXTREME" P-TRAP AND SUPPLY PROTECTION MIXING VALVE: WATTS LFUSG-B SERIES SET TO 105°F, ASSE 1070
MS-1	MOP SINK	STERN WILLIAMS	CRS-2200-BP	-	2	3"	2"	3/4"	3/4"				FIXTURE: TERRAZZO CRESCENT, 28"x28" FAUCET: T-10-VB ROUGH CHROME ACCESSORIES: PROVIDE WITH HOSE AND WALL BRACKET, STAINLESS STEEL MOP HANGER AND SHELF, WALL GUARD, AND ALUMINUM BUMPER GUARDS
OB-1	OUTLET BOX	SIOUX CHIEF	OX BOX						1/2"				SINGLE HOLE OUTLET BOX
OD-1	OVERFLOW DRAIN	JR SMITH	1070Y-03			3"	0"						16"DIAMETER, CAST IRON BODY WITH FLANGE, FLASHING RING WITH GRAVEL STOP, UNDERDECK CLAMP, EXTENSION, SUMP RECEIVER, STANDPIPE COLLAR, ALUMINUM DOME, NO-HUB JOINT.
SK-1	SINGLE BOWL SINK (25" X 21" x 6")	ELKAY	LRAD 25216 "LUSTERTONE"	YES	2.2	2"	2"	3/4"	3/4"				SINK: UNDERMOUNT/DROP-IN, TWO HOLE, ADA FAUCET: CHICAGO 2302-GN8AE3ABCP, GOOSENECK, 2.2-GPM PROVIDE WITH: GRID STRAINER
SK-2	DOUBLE BOWL SINK (29" X 18" x 5-1/2")	ELKAY	LRAD291855 "LUSTERTONE"	YES	2.2	2"	2"	3/4"	3/4"				SINK: DROP-IN, TWO HOLE, ADA FAUCET: 2302-GN8AE3ABCP-2.2, GOOSE NECK, 2.2-GPM PROVIDE WITH: GRID STRAINER
SK-3	SINGLE BOWL SINK (25" X 21" x 6")	ELKAY	LRAD 25216 "LUSTERTONE"	YES	0.5	2"	2"	3/4"	3/4"				SINK: UNDERMOUNT/DROP-IN, TWO HOLE, ADA FAUCET: CHICAGO 2302-GN8AE3ABCP, GOOSENECK WITH CHICAGO FUACETS E2605-5JKABCP 0.5-GPM AERATOR PROVIDE WITH: GRID STRAINER
SS-1	SERVICE SINK	KOHLER	K-6716	NO	2	3"	2"	3/4"	3/4"				SINK: WALL MOUNTED W/ FLOOR SUPPORT FAUCET: CHICAGO 897-RCF WITH VACUUM BREAKER FLOW CONTROL: 2.0 GPM OMNI A-810VR-2.0-LF CARRIER: JR SMITH 0871 MOUNTING HEIGHT: 28" FLOOR TO LEDGE
UR-1	URINAL	ACORN	2158 SERIES	YES	0.125	2"	2"		3/4"				FLUSH VALVE: SLOAN G2 8186-0.125 BATTERY OPERATED CARRIER: JR SMITH 0637 MOUNTING HEIGHT: 17" TO RIM
WC-1	WATER CLOSET ,WALL MOUNT - ADA	AMERICAN STANDARD	2257.101	YES	1.28	4"	2"		1 1/4"				FIXTURE: VITREOUS CHINA, WALL MOUNT, ELONGATED BOWL FLUSH VALVE: SLOAN G2 8111-1.28 SENSOR BATTERY POWERED SEAT: OLSONITE #95SSCT OPEN FRONT SEAT MOUNT HEIGHT: MOUNT RIM AT 17" AFF. COORDINATE FLUSH VALVE MOUNTING HEIGHT AND TRIP HANDLE WITH GRAB BAR MOUNTING BREAK AND ADJUST FLUSH VALVE AS REQUIRED, PROVIDE OFFSET OUTLET TUBE ON FLUSH VALVE. COORDINATE WITH ARCHITECTURAL DETAILS
WC-2	WATER CLOSET ,WALL MOUNT - ADA	ACORN	2100 SERIES	YES	1.28	4"	2"		1 1/2"				FLUSH VALVE: SLOAN G2 8111-1.28 BATTERY OPERATED CARRIER: JR SMITH 0310 AS APPLICABLE SEAT: -HS-OFLC, HINGED SEAT, OPEN FRONT LESS COVER MOUNTING HEIGHT: 17" TO RIM
DRAINS													
FD-1 (2")	FLOOR DRAIN - FINISHED	JR SMITH	2010-A-02			2"	1 1/2"						9" DIAMETER CAST IRON BODY, 5" DIAMETER NICKEL BRONZE STRAINER HEAD, WITH VANDAL PROOF SCREWS, AND TRAP PRIMER CONNECTION.
FD-2 (2")	FLOOR DRAIN - FINISHED	JR SMITH	2010-A-02			2"	2"						9" DIAMETER CAST IRON BODY WITH FLANGE, INTEGRAL REVERSIBLE CLAMPING COLLAR, SEEPAGE OPENINGS, ADJUSTABLE ROUND SATIN NICKEL BRONZE STRAINER, SEDIMENT BUCKET, BOTTOM OUTLET, CAULK INSIDE OR TY SEAL OR NO-HUB JOINT. PROVIDE TRAP PRIMER.
RD-1	ROOF DRAIN	JR SMITH	1010Y-03			3"	0"						16" DIAMETER, CAST IRON BODY WITH FLANGE, FLASHING RING WITH GRAVEL STOP, UNDER DECK CLAMP, EXTENSION, SUMP RECEIVER, ALUMINUM DOME, NO HUB JOINT.
TP-1	TRAP PRIMER	PPP	PR-500						1/2"				REQUIRES A 3-PSI PRESSURE DROP TO ACTIVATE

NOTES:
A. COMPLY WITH ALL MANUFACTURER INSTALLATION REQUIREMENTS TO PROVIDE COMPLETE AND OPERATIONAL FIXTURES.
B. PROVIDE TRANSITION FITTING AS REQUIRED TO CONNECT TO BRANCH PIPING, WHICH MAY BE A DIFFERENT SIZE, AND AS SHOWN ON DRAWINGS.
C. PROVIDE STOP VALVES, BACKFLOW PREVENTERS AND SUPPORTS AS REQUIRED BY THE MANUFACTURER AND PLUMBING CODE.
D. COORDINATE WITH ELECTRICAL DESIGN FOR POWER SUPPLY AND LOCATIONS.
E. HOT WATER SHALL BE LIMITED TO ALL FIXTURES IN ACCORDANCE WITH ASSE STANDARDS: PUBLIC LAVATORIES SHALL BE LIMITED TO 110 F (ASSE 1070).

DOMESTIC WATER HEATER SCHEDULE

TAG	#	MANUFACTURER	MODEL	LOCATION	VOL (GAL)	RECOV (GPH)	EWT (°F)	LWT (°F)	CONNECTION SIZE CW (IN)	HW (IN)	ELECTRICAL KW	VOLTS	PH	UNIT SIZE (L"xW"xH")	OPER. WT. (LBS)	NOTES
WH	1	AO SMITH	DEN-40	ROOM 003	40	14	50	140	3/4"	3/4"	3	240	1	20-1/2 (DIA)x59	460	1, 2
WH	2	CHRONOMITE	CMI-15L/277	CONFERENCE 218	0	-	50	105	3/8"	3/8"	4.15	277	1	13-7/16x2-3/4x6-1/4	5	1,3

NOTES
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
2. TANK TYPE, ELECTRIC WATER HEATER, TWO NON-SIMULTANEOUS ELEMENTS 3000 WATTS EACH.
3. INSTANTANEOUS ELECTRIC TANKLESS, 0.2 GMP ACTIVATION FLOW RATE, 57°F RISE AT 0.5GPM FLOW RATE. MOUNT BELOW SINK. UNIT HAS BUILT-IN ASSE 1070 THERMOSTATIC MIXING VALVE. MAX TEMPERATURE: 105°F.

PLUMBING EXPANSION TANK SCHEDULE

TAG	#	MANUFACTURER	MODEL	LOCATION	TYPE	TANK VOL. (GAL)	ACCEPT. VOL. (GAL)	FILL PRESS. (PSIG)	OPER. PRESS. (PSIG)	RELIEF PRESS. (PSIG)	MAX. TEMP. (°F)	SYSTEM CONN. (IN)	SIZE (DIA x H IN)	OPER. WT. (LBS)	NOTES
ET	1	WATTS	DETA 5	ROOM 003	BLADDER	3.5	2.30	55	60	80	140	3/4"	10 X 14	22	1

NOTES
1. PROVIDE TANK WITH VERTICAL CONFIGURATION.

DOMESTIC SEWAGE/SUMP PUMP SCHEDULE

TAG	#	MANUFACTURER	MODEL	SYSTEM SERVED	PUMP TYPE	PUMP FLOW (GPM)	PUMP HEAD (FT WG)	PUMP RPM	PUMP QUAN.	ELECTRICAL HP	ELECTRICAL VOLTS	ELECTRICAL PH	SINGLE POC (Y/N)	EMERG POWER (Y/N)	(E) BASIN CAPACITY VOL (GAL)	(E) BASIN CAPACITY SIZE (H"xDIA")	NOTES
SP	1	WEIL	1408	SANITARY	SUBMERSIBLE	35	20	1750	2	1/3	115	1	Yes	No	290	48 X 42.5	1 - 4

NOTES
1. COORDINATE WITH ELECTRICAL FOR POWER AND DISCONNECT AS REQUIRED.
2. PROVIDE NON-OVERLOADING AIR FILLED, HERMETICALLY SEALED MOTOR.
3. PROVIDE CONTROL PANEL WITH THE FOLLOWING FEATURES: DISCONNECT SWITCHES, MAGNETIC STARTERS,TEST/OFF/AUTO SWITCH, RUNNING LIGHTS, ALARM LIGHTS, HORN, AND SILENCE SWITCH.
4. FOR DUPLEX SYSTEM PROVIDE FOUR (4) NON-MERCURY FLOAT SWITCHES WITH CABLES AND WALL BRACKETS. MOUNT FLOATS AT LEVELS FOR OFF/STOP, START, LAG/STANDBY, AND HIGH WATER ALARM.

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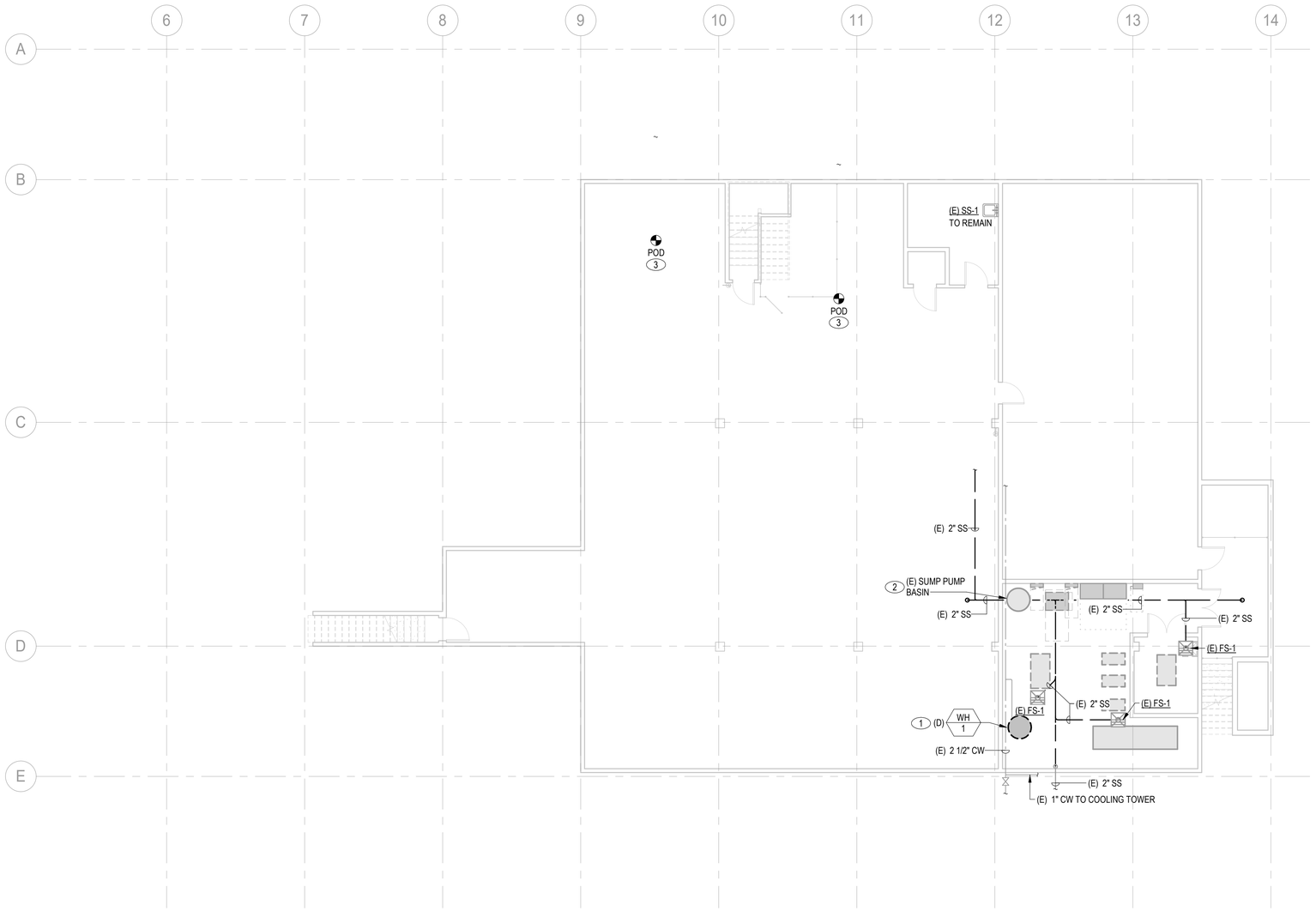
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GENERAL NOTES AND SCHEDULES

P0.02



1 BASEMENT - PLUMBING DEMO PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

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C. UNLESS OTHERWISE NOTED, ALL DEMOLISHED PIPING THAT IS ACCESSIBLE SHALL BE REMOVE FROM SITE, AND NOT ABANDONED IN PLACE.
D. REFERENCE ARCHITECTURAL DRAWINGS FOR DEMOLISHED PLUMBING FIXTURES.

KEYED NOTES (#)

1 EXISTING WATER HEATER, EXPANSION TANK AND ASSOCIATED SPECIALTIES AND APPURTENANCES TO BE DEMOLISHED. CAP AND ABANDON HOT WATER AND HOT WATER RECIRCULATION PIPING IN PLACE. PREPARE COLD WATER PIPING FOR NEW HOSE BIBB INSTALLATION.
2 EXISTING SANITARY SUMP PUMP EQUIPMENT, VALVES, APPURTENANCES, AND ASSOCIATED PIPING TO BE DEMOLISHED. EXISTING SUMP BASINS TO REMAIN IN PLACE. PREPARE BASIN FOR NEW PUMP EQUIPMENT TO BE INSTALLED.
3 DEMOLISH SANITARY PIPING BACK TO THIS POINT.

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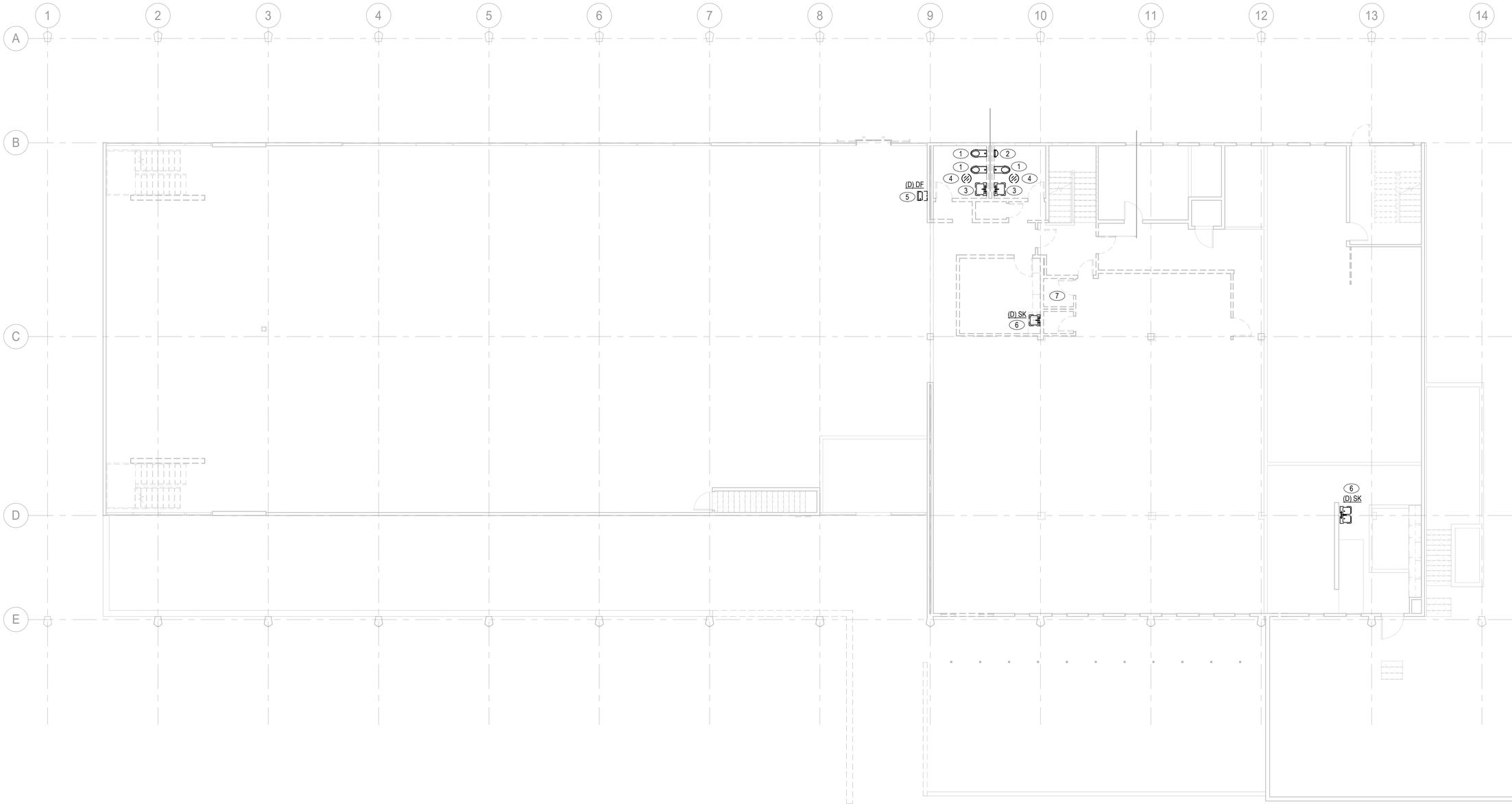
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BASEMENT - PLUMBING DEMO PLAN

P1.00



1 FIRST FLOOR - PLUMBING DEMO PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

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D. REFERENCE ARCHITECTURAL DRAWINGS FOR DEMOLISHED PLUMBING FIXTURES.

KEYED NOTES (#)

1 DEMOLISH AND REMOVE EXISTING URINAL, CARRIER, AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO DEMOLISH AND REMOVE OBSOLETE SANITARY WASTE PIPING AND CAP UNDER FLOORING. PATCH CONCRETE TO MATCH EXISTING FLOORING. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING BACK TO MAIN AND CAP. COLD WATER TO BE DEMOLISHED BACK TO MAIN. PROVIDE ISOLATION VALVE AND CAP, NO DEAD LEGS ARE PERMITTED.

2 DEMOLISH AND REMOVE EXISTING URINAL, CARRIER, AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO DEMOLISH AND REMOVE OBSOLETE SANITARY WASTE PIPING AND CAP UNDER FLOORING. PATCH CONCRETE TO MATCH EXISTING FLOORING. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING BACK TO MAIN AND CAP. COLD WATER TO BE DEMOLISHED BACK TO MAIN. PROVIDE ISOLATION VALVE AND CAP, NO DEAD LEGS ARE PERMITTED.

3 DEMOLISH AND REMOVE EXISTING LAVATORY, CARRIER, AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO DEMOLISH AND REMOVE OBSOLETE SANITARY WASTE PIPING AND CAP UNDER FLOORING. PATCH CONCRETE TO MATCH EXISTING FLOORING. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING AND CAP. COLD AND HOT WATER TO BE DEMOLISHED BACK TO MAIN. PROVIDE ISOLATION VALVE AND CAP, NO DEAD LEGS ARE PERMITTED.

4 CONFIRM LOCATION OF FLOOR DRAIN. DEMOLISH AND REMOVE EXISTING FLOOR DRAIN AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO CAP PIPING UNDER FLOOR. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING THAT IS IN CONFLICT WITH THE NEW RESTROOM CORE LAYOUT AND CAP UNDER FLOOR.

5 DEMOLISH AND REMOVE EXISTING DRINKING FOUNTAIN, CARRIER, AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO DEMOLISH AND REMOVE OBSOLETE SANITARY WASTE PIPING AND CAP UNDER FLOORING. PATCH CONCRETE TO MATCH EXISTING FLOORING. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING BACK TO MAIN AND CAP. COLD WATER TO BE DEMOLISHED BACK TO MAIN. PROVIDE ISOLATION VALVE AND CAP, NO DEAD LEGS ARE PERMITTED.

6 DEMOLISH AND REMOVE EXISTING SINK, CARRIER, AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO DEMOLISH AND REMOVE OBSOLETE SANITARY WASTE PIPING AND CAP UNDER FLOORING. PATCH CONCRETE TO MATCH EXISTING FLOORING. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING AND CAP. COLD AND HOT WATER TO BE DEMOLISHED BACK TO MAIN. PROVIDE ISOLATION VALVE AND CAP, NO DEAD LEGS ARE PERMITTED.

7 DEMOLISH AND REMOVE EXISTING ABANDONED IN PLACE UTILITIES WITHIN WALL, CARRIER, AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO DEMOLISH AND REMOVE OBSOLETE SANITARY WASTE PIPING AND CAP UNDER FLOORING. PATCH CONCRETE TO MATCH EXISTING FLOORING. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING AND CAP. COLD AND HOT WATER TO BE DEMOLISHED BACK TO MAIN. PROVIDE ISOLATION VALVE AND CAP, NO DEAD LEGS ARE PERMITTED.

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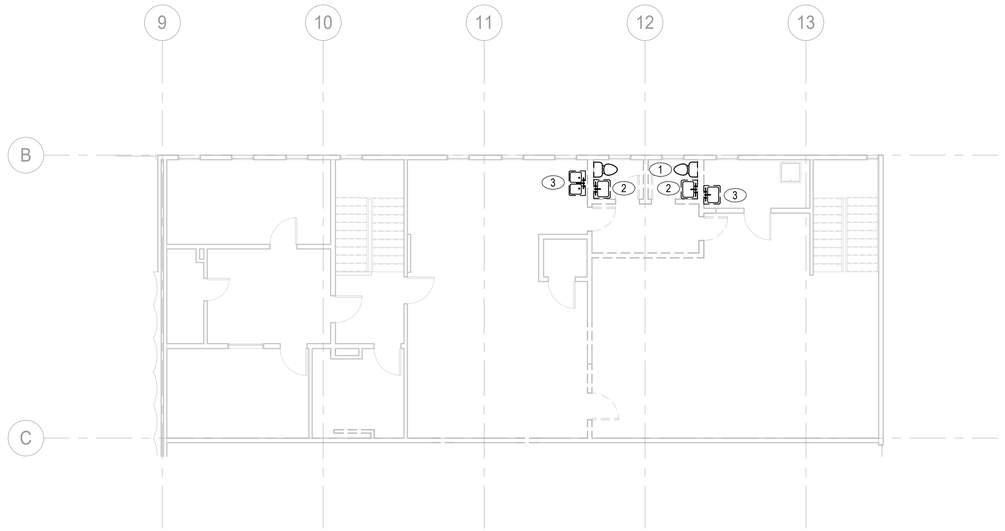
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FIRST FLOOR - PLUMBING DEMO PLAN

P1.01



1 SECOND FLOOR - PLUMBING DEMO PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

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D. REFERENCE ARCHITECTURAL DRAWINGS FOR DEMOLISHED PLUMBING FIXTURES.

KEYED NOTES (#)

1 DEMOLISH AND REMOVE EXISTING WATER CLOSET, CARRIER, AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO DEMOLISH AND REMOVE OBSOLETE SANITARY WASTE PIPING AND CAP UNDER FLOORING. PATCH CONCRETE TO MATCH EXISTING FLOORING. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING. COLD WATER TO BE DEMOLISHED.

2 DEMOLISH AND REMOVE EXISTING LAVATORY, CARRIER, AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO DEMOLISH AND REMOVE OBSOLETE SANITARY WASTE PIPING AND CAP UNDER FLOORING. PATCH CONCRETE TO MATCH EXISTING FLOORING. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING. COLD AND HOT WATER TO BE DEMOLISHED.

3 DEMOLISH AND REMOVE EXISTING SINK, CARRIER, AND ALL OTHER ASSOCIATED APPURTENANCES. CONTRACTOR IS TO DEMOLISH AND REMOVE OBSOLETE SANITARY WASTE PIPING AND CAP UNDER FLOORING. PATCH CONCRETE TO MATCH EXISTING FLOORING. DEMOLISH AND REMOVE OBSOLETE SANITARY VENT PIPING. COLD AND HOT WATER TO BE DEMOLISHED.

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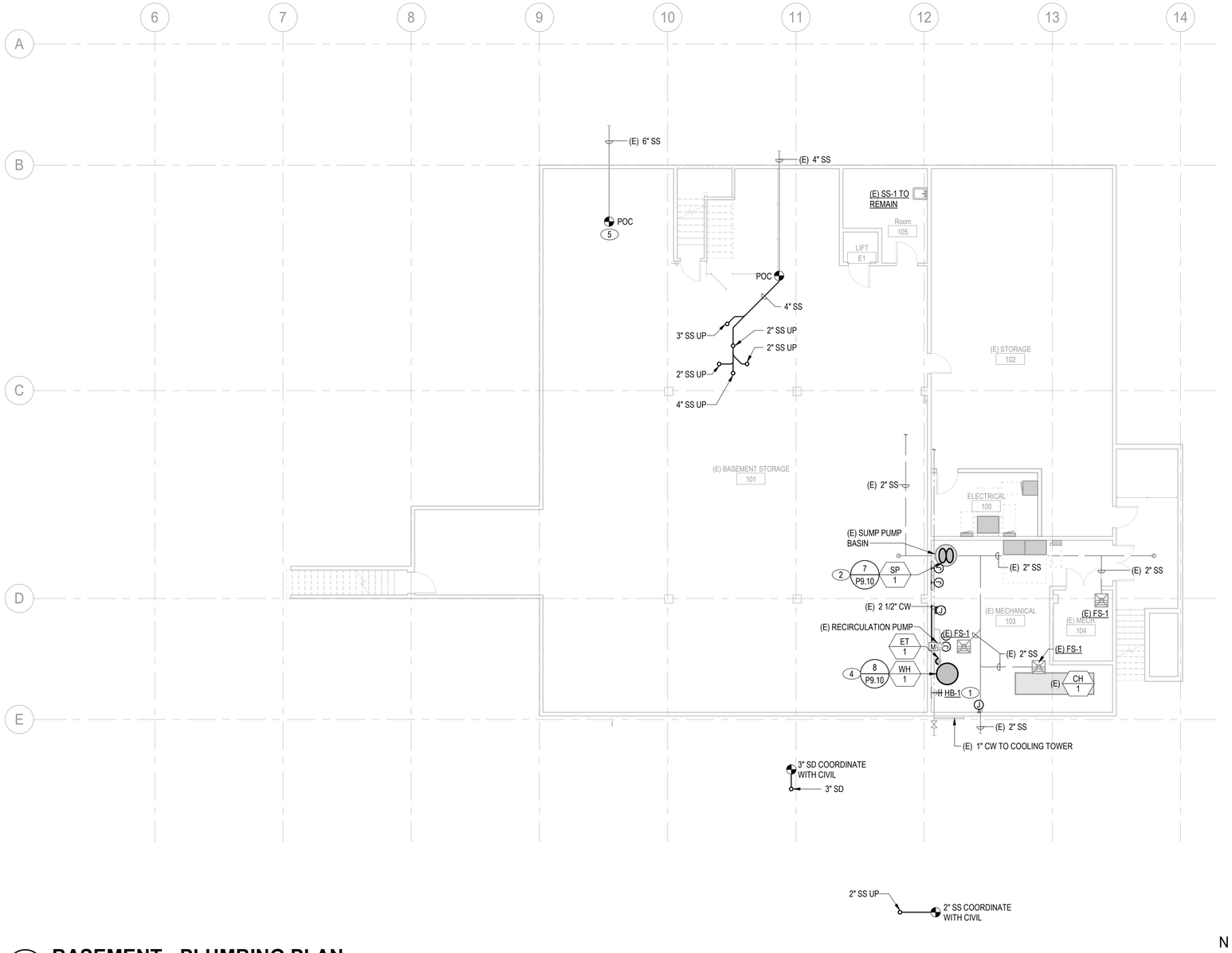
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SECOND FLOOR - PLUMBING DEMO PLAN

P1.02



1 BASEMENT - PLUMBING PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

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D. REFERENCE ARCHITECTURAL DRAWINGS FOR DEMOLISHED PLUMBING FIXTURES.

KEYED NOTES (#)

1 EXISTING COLD WATER DOWN TO NEW HOSE BIBB.
2 PROVIDE NEW SUMP PUMP (SP-1) EQUIPMENT WITHIN EXISTING BASIN. SEE DETAIL 7/P9.10 FOR FURTHER DETAIL. COORDINATE CONTROL PANEL ELECTRICAL CONNECTION WITH ELECTRICAL CONTRACTOR.
4 NEW WATER HEATER. CONNECT EXISTING RECIRCULATION PUMP AND REUSE RECIRCULATION SYSTEM.
5 REPLACE ALL PIPING TO FIXTURES ABOVE.

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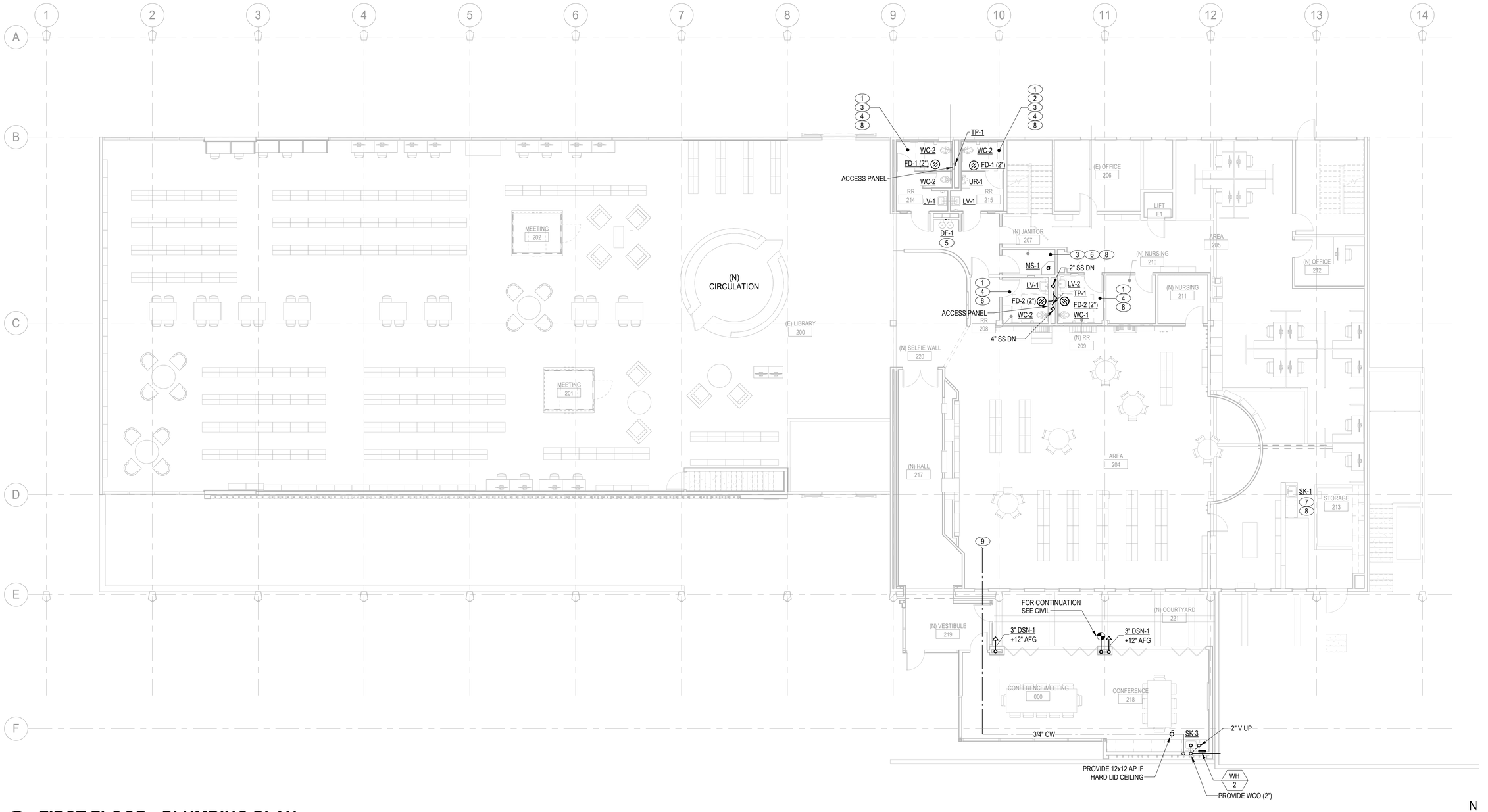
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BASEMENT - PLUMBING PLAN

P2.00



1 FIRST FLOOR - PLUMBING PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

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KEYED NOTES (#)

1 INSTALL NEW WATER CLOSET AND CARRIER. CONNECT EXISTING CW, WASTE, AND VENT. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
2 INSTALL NEW URINAL AND CARRIER. CONNECT EXISTING CW, WASTE, AND VENT. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
3 INSTALL NEW FLOOR DRAINS. CONNECT EXISTING WASTE AND VENT. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
4 INSTALL NEW LAVATORIES AND CARRIER. CONNECT EXISTING CW, HW, WASTE, AND VENT. EXTEND EXISTING HWC DOWN TO LAVATORY, WITHIN THREE FEET, AND NEW BALANCING VALVE WITH ACCESS PANEL. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
5 INSTALL NEW DRINKING FOUNTAIN. CONNECT EXISTING CW, WASTE, AND VENT. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
6 INSTALL NEW MOP SINK. CONNECT EXISTING CW, HW, WASTE, AND VENT. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
7 INSTALL NEW SINK AND CARRIER. CONNECT EXISTING CW, HW, WASTE, AND VENT. EXTEND EXISTING HWC UP FROM BASEMENT TO SINK, WITHIN THREE FEET, AND NEW BALANCING VALVE WITH ACCESS PANEL. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
8 PLUMBING IS TO BE RELOCATED/SHIFTED AND TIED INTO EXISTING.
9 CONTRACTOR TO FIELD VERIFY POINT OF CONNECT FOR NEW 3/4" COLD WATER SERVICE THAT IS TO BE ROUTED TO CONFERENCE ROOM.

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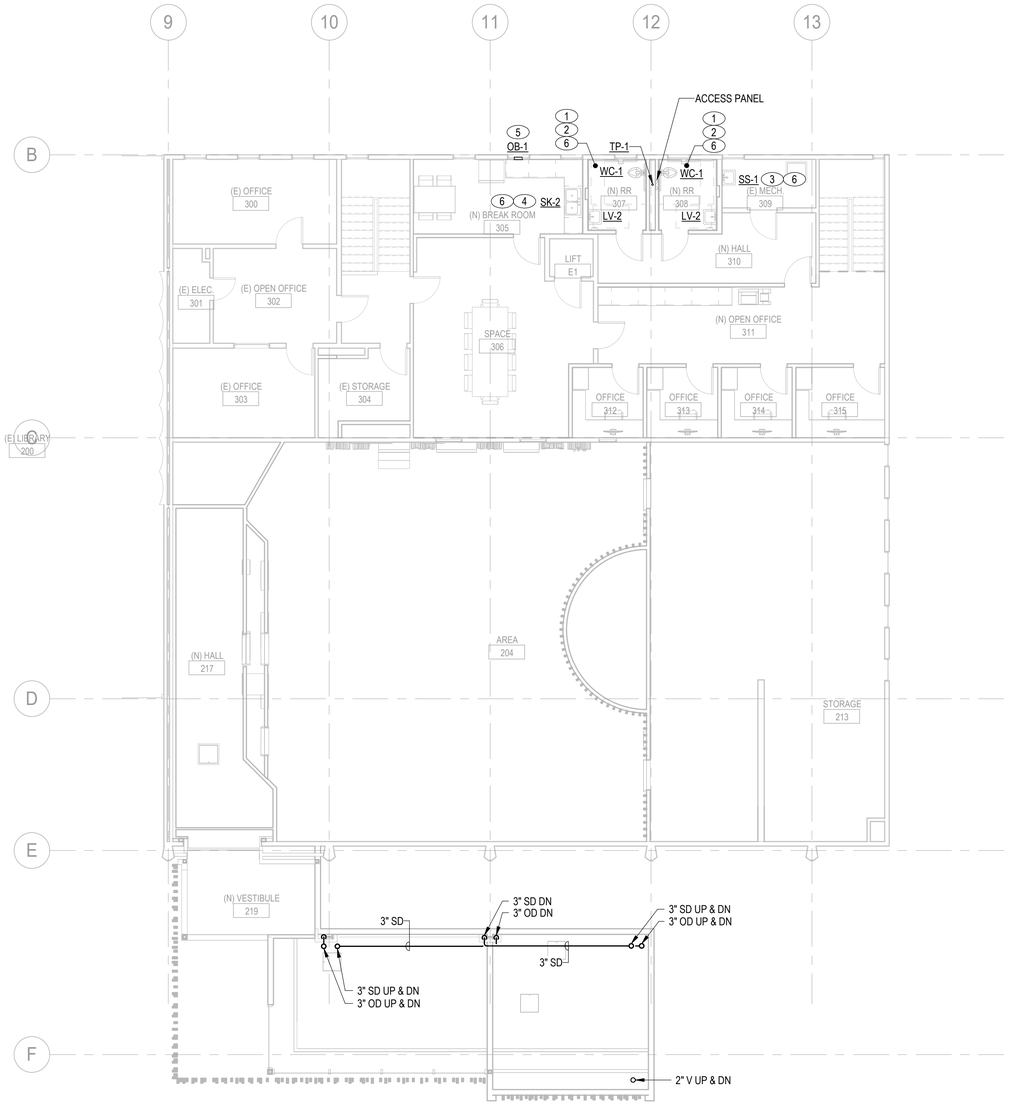
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FIRST FLOOR - PLUMBING PLAN

P2.11



2 SECOND FLOOR - PLUMBING PLAN

SCALE: 1/8" = 1'-0"

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KEYED NOTES (#)

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2 INSTALL NEW LAVATORIES AND CARRIER. CONNECT EXISTING CW, HW, WASTE, AND VENT. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
3 INSTALL NEW SERVICE SINK AND CARRIER. CONNECT EXISTING CW, HW, WASTE, AND VENT. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
4 INSTALL NEW SINK AND CARRIER. CONNECT EXISTING CW, HW, WASTE, AND VENT. CONTRACTOR TO FIELD VERIFY TO MAKE A COMPLETE WORKING SYSTEM.
5 PROVIDE OUTLET BOX FOR 1/2" CW SUPPLY TO REFRIGERATOR.
6 PLUMBING IS TO BE RELOCATED/SHIFTED AND TIED INTO EXISTING.

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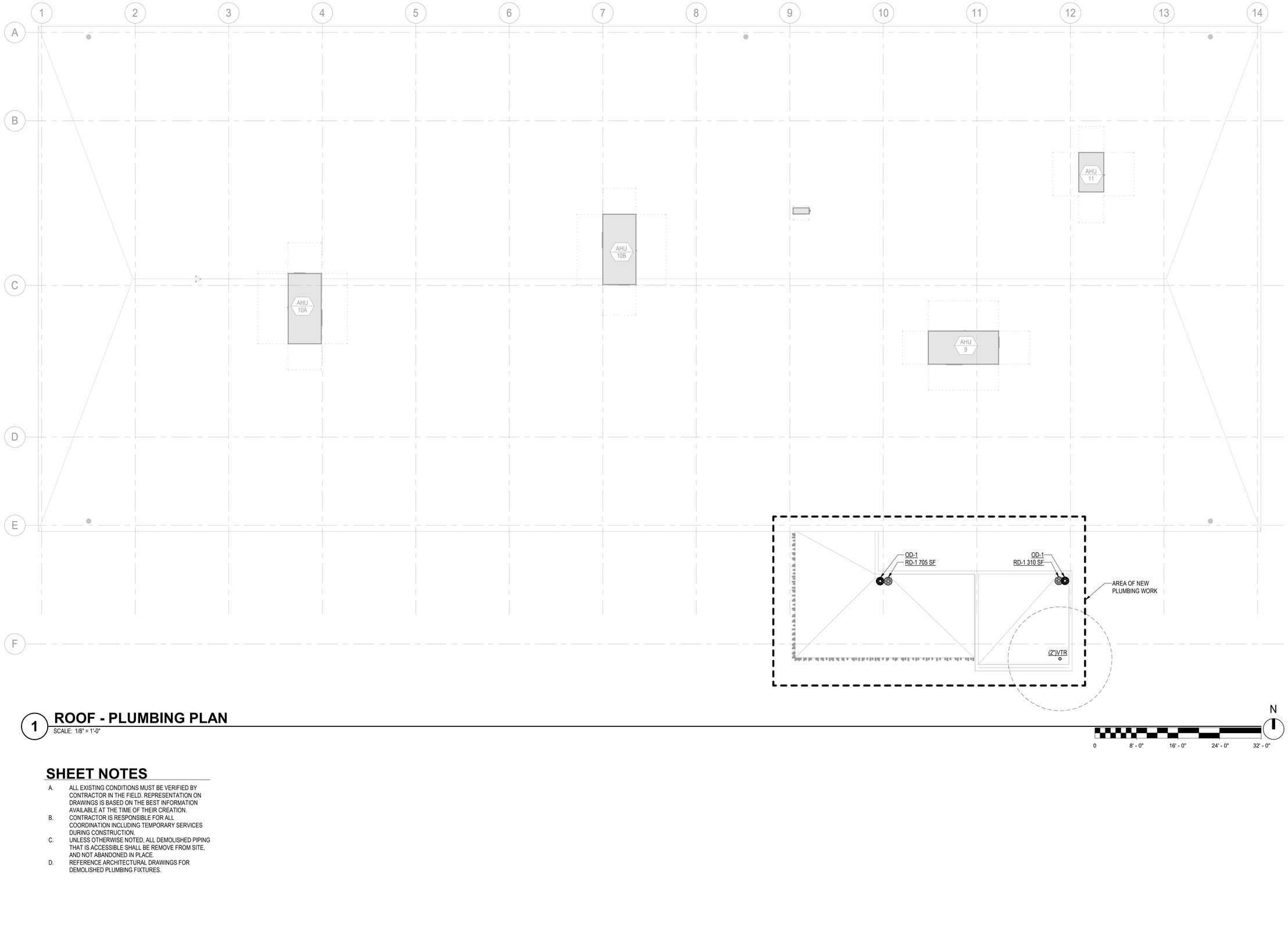
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SECOND FLOOR - PLUMBING PLAN

P2.12



1 ROOF - PLUMBING PLAN

SCALE: 1/8" = 1'-0"

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D. REFERENCE ARCHITECTURAL DRAWINGS FOR DEMOLISHED PLUMBING FIXTURES.

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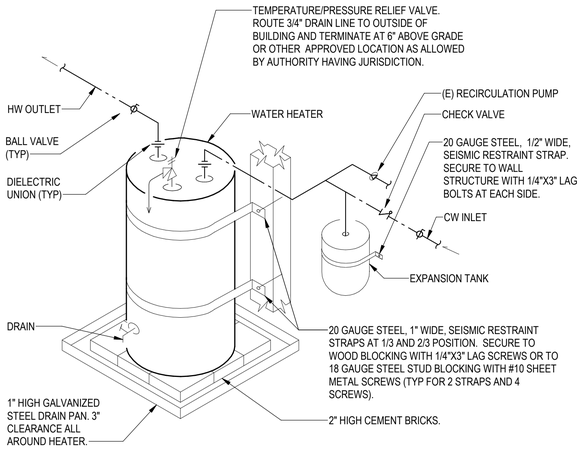
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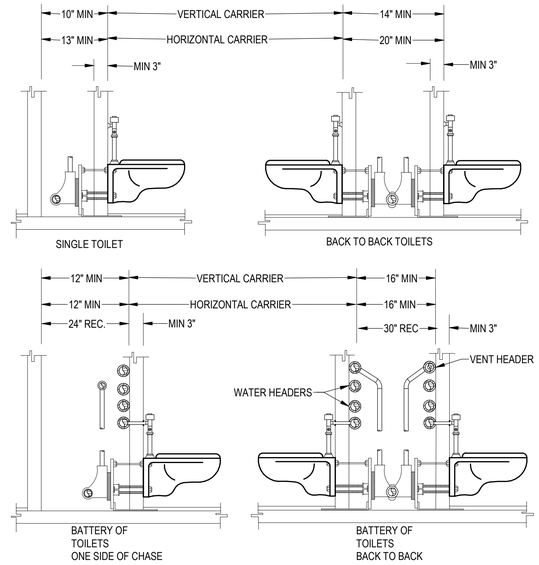
ROOF - PLUMBING PLAN

P2.13



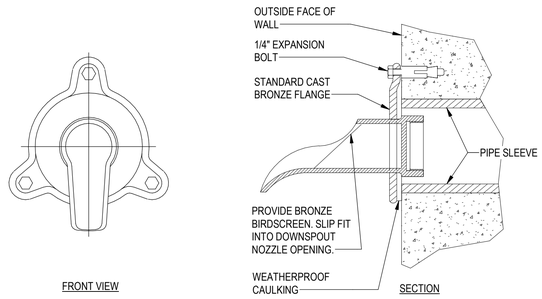
NOTES:
1. REFER TO PLANS FOR SIZES AND CONTINUATION.

8 FLOOR
SCALE: NONE



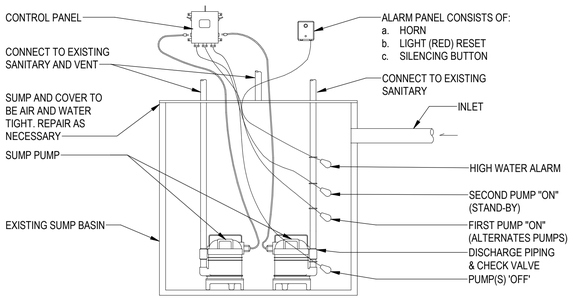
NOTES:
1. PIPE CHASE CLEARANCES FOR WALL HUNG CARRIER TOILETS.
2. REFER TO PLANS FOR SIZES AND CONTINUATION.

6 PIPE CHASE WALL HUNG CLOSETS
SCALE: NONE



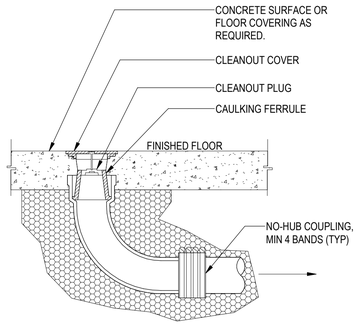
NOTES:
1. REQUIREMENTS FOR CONCRETE WALL CONSTRUCTION.
2. CAST BRONZE OVERFLOW NOZZLE.

5 DOWNSPOUT NOZZLE-CONCRETE
SCALE: NONE



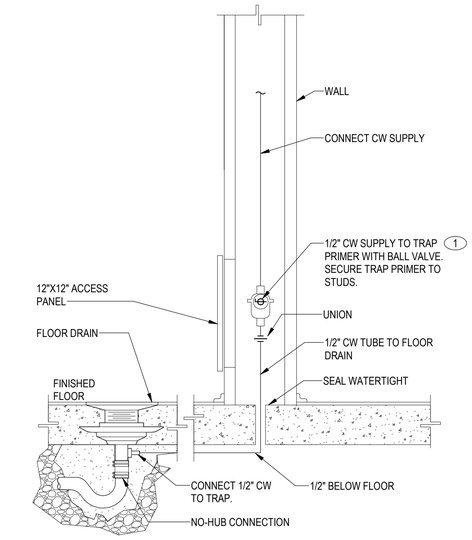
NOTES:
1. REFER TO PLANS FOR SIZES AND CONTINUATION.

7 DUPLEX SEWAGE EJECTOR
SCALE: NONE



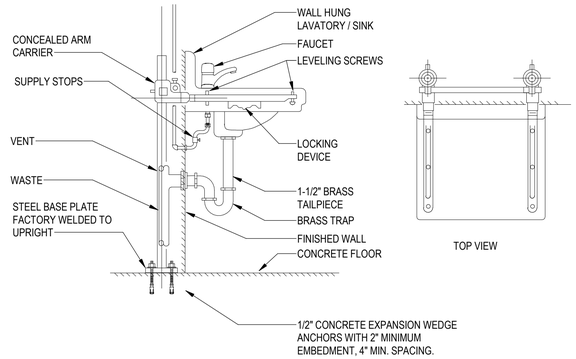
NOTES:
1. REFER TO PLANS FOR SIZES AND CONTINUATION.

4 FLOOR CLEANOUT
SCALE: NONE



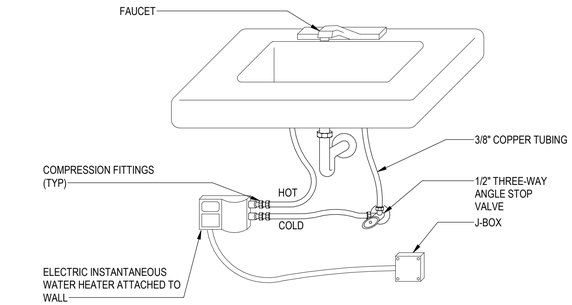
NOTES:
1. PRESSURE ACTIVATED TRAP PRIMER. TRAP PRIMER TO MOUNTED IN LINE WITH COLD WATER SERVICE IN WALL. MOUNT TRAP PRIMER A MINIMUM OF 12" ABOVE FINISHED FLOOR. PROVIDE ACCESS DOOR TO VALVES AND FITTINGS IN WALL. REFER TO FLOOR PLANS FOR LOCATIONS.

3 FLOOR DRAIN WITH TRAP PRIMER
SCALE: NONE



NOTES:
1. REFER TO PLANS FOR SIZES AND CONTINUATION.
2. COORDINATE WATER, WASTE, VENT AND POWER WITH MANUFACTURER REQUIREMENTS.

2 WALL HUNG LAVATORY
SCALE: NONE



NOTES:
1. REFER TO PLANS FOR SCHEDULE AND LOCATION. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. FOR ADA COMPLIANCE INSULATE EXPOSED WATER PIPES,DRAIN PIPE, VALVES AND FITTINGS. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER THE SINK.

1 ELECTRIC UNDER SINK INSTANTANEOUS WATER HEATER
SCALE: NONE

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PLUMBING DETAILS

P9.10

ELECTRICAL LEGEND

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS ARE APPLICABLE TO THIS PROJECT. REFER TO DETAILS AND NOTES FOR MOUNTING HEIGHTS.

LIGHTING

SYMBOL	DESCRIPTION
	RECESSED 2X4 LUMINAIRE
	SURFACE MOUNTED 2X4 LUMINAIRE
	RECESSED 1X4 LUMINAIRE
	SURFACE MOUNTED 1X4 LUMINAIRE
	RECESSED 2X2 LUMINAIRE
	SURFACE MOUNTED 2X2 LUMINAIRE
	SHADING OF ANY LUMINAIRE INDICATES CONNECTION TO ALTERNATE POWER SOURCE (EMERGENCY, UPS, STANDBY, ETC.) PER CIRCUITING INDICATED
	SUSPENDED LINEAR LUMINAIRE (SIZE VARIES)
	WALL MOUNTED LINEAR LUMINAIRE (SIZE VARIES)
	SUSPENDED PENDANT LUMINAIRE (SIZE VARIES)
	RECESSED DOWNLIGHT, CEILING MOUNTED
	SURFACE DOWNLIGHT, CEILING MOUNTED
WW DIRECTION	RECESSED WALLWASH
WW DIRECTION	SURFACE WALLWASH
	RECESSED LINEAR WALLWASH
	SURFACE LINEAR WALLWASH
	RECESSED WALL MOUNTED LUMINAIRE
	TRACK LIGHTING WITH HEADS AS INDICATED.
	RECESSED CEILING ADJUSTABLE POINT SOURCE
	SURFACE CEILING ADJUSTABLE POINT SOURCE
	WALL MOUNTED LUMINAIRE
	WALL MOUNTED DIRECTIONAL (SIZE VARIES)
	STRIPLIGHT - POWER FEED SECTION, FEED THROUGH SECTION. LENGTH AS SHOWN.
	WALL MOUNTED STRIPLIGHT
	UNDERCABINET STRIPLIGHT
	CONTINUOUS LINEAR
	BATTERY POWER EMERGENCY UNIT EQUIPMENT (SEE LUMINAIRE SCHEDULE FOR QUANTITY OF HEADS) - WALL, CEILING MOUNTED.
	ILLUMINATED EXIT SIGN, SHADED QUADRANT INDICATES FACES, ARROWS AS SHOWN
	BOLLARD
	POLE MOUNTED LUMINAIRE- SINGLE OR DUAL HEAD
	INDICATES ROTATED OPTICS
	POST TOP MOUNTED LUMINAIRE
	IN-GRADE POINT SOURCE
	GARAGE LIGHTING LUMINAIRE WITH CUTOFF LOUVERS
HA 3c	LUMINAIRE MARKING CONVENTION LEGEND: HA = LUMINAIRE TYPE IDENTIFICATION. SEE LUMINAIRE SCHEDULE. 3c = CIRCUIT NUMBER VIA LOCAL SWITCH (LOWERCASE LETTER) THAT SERVES THE LUMINAIRE. 3A = CIRCUIT NUMBER/UPPERCASE LETTER COMBINATION INDICATES LOW VOLTAGE RELAY OR LIGHTING CONTACTOR THAT SERVES THE LUMINAIRE
HA 3A	

SWITCHING CONTROLS

SYMBOL	DESCRIPTION
^{a} OS a,b	LOWER CASE LETTER NOTATIONS ADJACENT TO SWITCH OR LIGHTING CONTROL DEVICE INDICATE SIMILARLY MARKED LUMINARIES THAT ARE TO BE CONTROLLED BY THAT SWITCH OR DEVICE
$S_{\#\#}$	LINE VOLTAGE SWITCH. DESIGNATION ADJACENT TO SWITCH INDICATES TYPE AS FOLLOWS: 2 = TWO POLE SWITCH 3 = THREE WAY SWITCH 4 = FOUR WAY SWITCH K = KEY OPERATED SWITCH XP = EXPLOSION PROOF WP = WEATHERPROOF P = PILOT IS "ON" WHEN SWITCH IS "ON" PL = PILOT IS "ON" WHEN SWITCH IS "OFF" TS = TIMER SWITCH OR# = LIGHTING CONTROL OVERRIDE SWITCH NUMBER INDICATES ZONE CONTROLLED
S_v	LINE VOLTAGE, VARIABLE SPEED FAN CONTROL SWITCH, PROVIDED BY DIV. 23 INSTALLED BY DIV. 26. LOCATE ADJACENT TO ADJACENT LIGHT SWITCHES.
D	LINE VOLTAGE DIMMER SWITCH WITH RATING EQUAL TO LOAD. DESIGNATION ADJACENT TO DIMMER INDICATES ADDITIONAL FEATURES AS FOLLOWS: OS = INTEGRAL OCCUPANCY SENSOR
D	DIMMER SWITCH UNDER SEPARATE COVERPLATE
S_T	MOTOR-RATED THERMAL OVERLOAD SWITCH
S^{a} D^{a}	LOW VOLTAGE SWITCH/DIMMER. SEE SEQUENCE OF OPERATION FOR BUTTON QUANTITY AND ZONE/SCENE PROGRAMMING REQUIREMENTS. DESIGNATION ADJACENT TO SWITCH INDICATES ADDITIONAL FEATURES AS FOLLOWS: K = KEY OPERATED OS = INTEGRAL OCCUPANCY SENSOR T = TIMER TS = TOUCH SCREEN
PC	PHOTOCELL
TC	TIME CLOCK
OS a,b	OCCUPANCY SENSOR \ SWITCH - WALL MOUNTED PROVIDE 1 OR 2 SWITCH UNIT AS REQUIRED TO SERVE LIGHTING IN ROOM PER SWITCH DESIGNATION.
OS	OCCUPANCY SENSOR; CEILING MOUNTED U.O.N 360 DEGREE COVERAGE
OS	OCCUPANCY SENSOR; CEILING MOUNTED U.O.N 180 DEGREE COVERAGE
OS	OCCUPANCY SENSOR; CEILING MOUNTED U.O.N CORRIDOR/AISLE COVERAGE
RCL	LIGHTING SYSTEM ROOM CONTROLLER
RCR	LIGHTING SYSTEM RECEPTACLE CONTROLLER
EM	UL294 EMERGENCY LIGHTING RELAY
T T	THERMOSTAT - WALL, CEILING. PROVIDED BY DIV. 23, INSTALLED AND WIRED BY DIV. 26
EPO	EMERGENCY POWER OFF
LCP-#	LIGHTING CONTROL PANEL AND ASSOCIATED COMPONENTS. PROVIDE 120V OR 277V CONTROL POWER AS REQUIRED OR AS INDICATED.
TX	REMOTE MOUNTED LINE TO LOW-VOLTAGE FUSED TRANSFORMER. CONCEAL FROM VIEW.

POWER DEVICES

SYMBOL	DESCRIPTION
	SIMPLEX RECEPTACLE - WALL, CEILING, ON ALT.
	DUPLEX RECEPTACLE - WALL, CEILING, ON ALT.
	DOUBLE DUPLEX RECEPTACLE - WALL, CLG, ON ALT.
	SPECIAL PURPOSE RECEPTACLE -WALL, CEILING ON ALT. POWER; NEMA CONFIGURATION AS NOTED PROVIDE QUAD FOR SPECIAL PURPOSE RECEPTACLE LABELED AS 5-20R
"ON ALT."	SHADED RECEPTACLES NOTED "ON ALT." ABOVE ARE CONNECTED TO ALTERNATE POWER SOURCE (EMERG., STANDBY, UPS, ETC.) PER CIRCUITING INDICATED
AB AB	LETTER DESIGNATIONS ADJACENT TO RECEPTACLE: AB = ABOVE COUNTER BACKSPLASH. S.A.D. C = HALF OF ONE DUPLEX CONTROLLED BY ROOM OCCUPANCY SENSOR R = HALF OF ONE DUPLEX CONTROLLED BY TIMEBLOCK RELAY DC = ONE WHOLE DUPLEX CONTROLLED BY ROOM OCCUPANCY SENSOR DR = ONE WHOLE DUPLEX CONTROLLED BY TIMECLOCK RELAY GFI = DUPLEX RECEPTACLE W/ INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER WP = WEATHERPROOF DUPLEX RECEPTACLE W/ IN-USE COVER AND INTEGRAL GFI TP = TAMPER PROOF RECEPTACLE
	DUPLEX RECEPTACLE - WALL - HALF SWITCHED
S	COMBINATION SWITCH/DUPLEX RECEPTACLE
+42"	RECEPTACLE TYPE SHOWN AT SPECIAL HEIGHT
J J	WALL, FLOOR MOUNTED ELECTRICAL CONNECTION TO ELECTRIFIED FURNITURE. PROVIDE 8 WIRES (4 HOTS, 1 DEDICATED NEUTRAL, 1 COMMON NEUTRAL, 1 IG) NEUTRALS TO BE #10 AWG. USE LIQUID-TIGHT FLEX.
	FLUSH FLOOR POKE THRU DEVICE - SIMPLEX, DUPLEX, DOUBLE DUBLEX
	FLUSH FLOOR BOX DEVICE - SIMPLEX, DUPLEX, DOUBLE DUPLEX
	PEDESTAL FLOOR DEVICE - SIMPLEX, DUPLEX, DOUBLE DUPLEX
	FLOOR POKE THRU PEDESTAL MOUNTED DEVICE - SIMPLEX, DUPLEX, DOUBLE DUPLEX RECEPTACLE
	POKE THRU UNIT WITH DOUBLE DUPLEX RECEPTACLE - FLUSH, PEDESTAL MOUNTED.
	COMBO POKE THRU UNIT WITH DUPLEX RECEPTACLE AND TELE\DATA OUTLET - FLUSH, PEDESTAL MOUNTED.
	MULTI-SERVICE FLOOR BOX CAST IN CONC. OR IN RAISED FLOOR - SEE ARCH DWGS; WITH RECEPTACLES & SIGNAL OUTLETS AS NOTED.
J	POKE THRU UNIT WITH JUNCTION BOX ABOVE FLOOR.
J J	TELE/POWER POLE, POWER POLE
J	TWO-PIECE SURFACE METAL RACEWAY WITH RECEPTACLES AS NOTED, BACK LENGTH AS INDICATED ON THE DRAWINGS AND WITH ALL FITTINGS AS REQUIRED.
J	TWO OR THREE COMPARTMENT SURFACE METAL RACEWAY WITH RECEPTACLES AND OUTLETS AS INDICATED, LENGTH AS INDICATED ON THE DRAWINGS. PROVIDE ALL FITTINGS AS REQUIRED.

ABBREVIATIONS

(N)	NEW
(E)	EXISTING TO REMAIN
(D)	EXISTING TO BE REMOVED
(ER)	EXISTING TO BE RELOCATED
(RL)	NEW LOCATION OF RELOCATED ITEM
(F)	FUTURE
AB	ABOVE COUNTER BACKSPLASH
ACU	AIR CONDITIONING UNIT
AC	ALTERNATING CURRENT
A, AMP	AMPERES
ADJ	ADJACENT
AF	AMPERE (RATED) FUSE OR CB FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	EQUIPMENT SHORT CIRCUIT INTERRUPT RATING (RMS SYM. AMPS)
AL	ALUMINUM (ALLOY)
ALC	AUTOMATIC LIGHTING CONTROL
AS	AMPERE (RATED) SWITCH
AT	CIRCUIT BRKR TRIP SETTING (AMPS)
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BC	BARE COPPER
BG	BELOW GRADE
BRKR	CIRCUIT BREAKER
C	CONDUIT (CIRCULAR RACEWAY)
CAB	CABINET
CB	CIRCUIT BREAKER
CFM	CUBIC FEET PER MINUTE
CKT	CIRCUIT
CLG	CEILING
CO	CONDUIT ONLY
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
DC	DIRECT CURRENT
DISC	DISCONNECT
DIA	DIAMETER
DIV	DIVISION
DP	DISTRIBUTION PANEL
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DWG	DRAWING
E,EMER	EMERGENCY
EF	EXHAUST FAN
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EO	ELECTRICALLY OPERATED
EOL	END OF LINE
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FC	FOOT CANDLES
FF	FLUSH FLOOR MOUNTED
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE
FPB	FAN POWERED BOX
FSD	FIRE/SMOKE DAMPER
FW	FLUSH WALL MOUNTED
FU	FUSE
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
G,GND	GROUND
GRAP	GENERATOR REMOTE ANNUNCIATOR PANEL
GRC	GALVANIZED RIGID STEEL CONDUIT
HLO	HANDLE LOCK-ON(OFF)
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
HTR	HEATER
HZ	HERTZ (CYCLES PER SECOND)
IES	ILLUMINATING ENGINEERING SOCIETY
IBC	INDIVIDUAL BRANCH CIRCUIT
ID	INSIDE DIAMETER
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
KCMIL	THOUSAND CIRCULAR MILS
KN	KEYED NOTE
KO	KNOCK OUT
KW	KILOWATTS
KVA	KILOVOLT-AMPERES
LTG	LIGHTING
LCP	LIGHTING CONTROL PANEL
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPERES
MCB	MAIN CIRCUIT BREAKER
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MO	MANUAL OPERATOR
MTD	MOUNTED
MTR	MOTOR
N	NEUTRAL (GROUNDED CONDUCTOR)
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
-,NEG	NEGATIVE
NEMA	NATIONAL ELECTRICAL MFGR'S ASSOC.
NL	NIGHT LIGHT (UNSWITCHED)
NO	NORMALLY OPEN
NTS	NOT TO SCALE
NP	NAMEPLATE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
ODOI	OWNER FURNISHED, OWNER INSTALLED
OS	OCCUPANCY SENSOR
P	POLE
PB	PUSHBUTTON
PDZ	PRIMARY DAYLIGHT ZONE
PH,Ø	PHASE
PNL	PANEL
+,POS	POSITIVE
PRI	PRIMARY
REQD	REQUIRED
RNC	RIGID NON-METALLIC CONDUIT (PVC)
RS	RAPID START
RST	REMOTE STATION TRANSMITTER
SAD	SEE ARCHITECTURAL DRAWINGS
SDZ	SECONDARY DAYLIGHT ZONE
SEC	SECONDARY
SN	SHEET NOTE
SOL	SOLENOID
SPD	SURGE PROTECTION DEVICE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SUB	SUBSTATION
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TB	TERMINAL BOARD
TDC	TIME DELAY CLOSING
TDO	TIME DELAY OPENING
TEL	TELEPHONE
TYP	TYPICAL
UF	UNDERFLOOR
UG	UNDERGROUND
UL	UNDERWRITERS LAB
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTX	UTILITY TRANSFORMER
V	VOLTS
VA	VOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFR	TRANSFORMER
XP	EXPLOSION PROOF
Z	ZONE
",IN	INCHES
',FT	FEET
Ø	PHASE
>	GREATER THAN
<	LESS THAN
>	GREATER THAN OR EQUAL TO

GENERAL NOTES

1. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL CODES, LAWS AND REGULATIONS.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED FEES, PERMITS AND INSPECTIONS.
4. CONTRACTOR IS DIRECTED TO VISIT SITE AND BE FULLY COGNIZANT OF ALL CONDITIONS PRIOR TO PROPOSAL.
5. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL FIXTURES, DEVICES, OUTLETS, ETC.
6. FURNISH AND INSTALL COMPLETE ALL MATERIALS, EQUIPMENT AND LABOR AS SHOWN AND AS NECESSARY FOR COMPLETE WORKABLE SYSTEM.
7. COORDINATE ALL WORK WITH ARCHITECTURAL, MECHANICAL AND STRUCTURAL DRAWINGS. INSTALL ALL WORK TO CLEAR NEW AND EXISTING ARCHITECTURAL AND STRUCTURAL MEMBERS. NO ITEM SUCH AS PIPE, DUCT, ETC. SHALL BE IN CONTACT WITH ANY ELECTRICAL EQUIPMENT.
8. OBTAIN WRITTEN PERMISSION FROM ARCHITECT AND GENERAL CONTRACTOR BEFORE PROCEEDING WITH ANY CUTTING OR PATCHING OF STRUCTURAL SYSTEMS. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING RELATED TO THEIR WORK.
9. RUN ALL HOMERUN WIRING IN CONDUIT (EMT) CONCEALED WHEREVER POSSIBLE IN CEILING, WALL OR FLOOR SPACES. RUN ALL RACEWAY TIGHT TO STRUCTURE, PARALLEL TO BUILDING LINES. EXPOSED RACEWAY IN STAIRWELL, EQUIPMENT ROOMS, ETC. SHALL TIGHTLY CONFORM TO BUILDING OUTLINES SO AS TO BE AS INCONSPICUOUS AS POSSIBLE.
10. CONNECT ALL EQUIPMENT FURNISHED UNDER OTHER TRADES AS REQUIRED.
11. UPDATE PANELBOARD DIRECTORY AS CIRCUITS ARE INSTALLED (TO BE TYPED IN PANELBOARD DIRECTORY). ADD NEW LABELS TO UNLABELED PANELS.
12. RESTORE ALL DAMAGE RESULTING FROM YOUR WORK AND LEAVE PREMISES IN CLEAN CONDITION WHEN FINISHED WITH WORK.
13. ANY CONFLICT BETWEEN ANY DRAWINGS IS TO BE CLARIFIED, OR SPECIFICALLY EXCLUDED IN THE SUBMITTED BID DOCUMENT. FOR CONFLICTS NOT CLARIFIED, OR EXCLUDED IN THE BID, THE MOST COMPREHENSIVE CONDITION IS TO APPLY DURING THE COURSE OF THE PROJECT.
14. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITER'S LABORATORIES.
15. ANY JUNCTION BOXES (NEW AND EXISTING) ABOVE CEILING MUST BE ACCESSIBLE AT TIME OF COMPLETION. COORDINATE ACCESS PANELS WITH ARCHITECT WHERE REQUIRED.
16. ELECTRICAL CONTRACTOR SHALL REFER TO TELECOMMUNICATIONS CONSULTANT DRAWINGS AND SPECIFICATIONS, AND COORDINATE WITH TELECOM INSTALLER FOR ADDITIONAL WORK TO BE PERFORMED. CONTRACTOR SHALL PROVIDE SEPARATE LINE ITEM IN BID FOR A COMPLETE AND OPERABLE SYSTEM.
17. ELECTRICAL CONTRACTOR SHALL REFER TO SECURITY SYSTEM CONSULTANT DRAWINGS AND SPECIFICATIONS, AND COORDINATE WITH S/S INSTALLER FOR ADDITIONAL WORK TO BE PERFORMED. CONTRACTOR SHALL PROVIDE SEPARATE LINE ITEM IN BID FOR A COMPLETE AND OPERABLE SYSTEM.
18. ELECTRICAL CONTRACTOR SHALL REFER TO AUDIO VISUAL SYSTEM CONSULTANT DRAWINGS AND SPECIFICATIONS, AND COORDINATE WITH A/V INSTALLER FOR ADDITIONAL WORK TO BE PERFORMED. CONTRACTOR SHALL PROVIDE SEPARATE LINE ITEM IN BID FOR A COMPLETE AND OPERABLE SYSTEM.
19. ELECTRICAL CONTRACTOR SHALL REFER TO DATA/PBX SYSTEM CONSULTANT DRAWINGS AND SPECIFICATIONS, AND COORDINATE WITH DATA/PBX INSTALLER FOR ADDITIONAL WORK TO BE PERFORMED. CONTRACTOR SHALL PROVIDE SEPARATE LINE ITEM IN BID FOR A COMPLETE AND OPERABLE SYSTEM.

DEFERRED SUBMITTALS/ DELEGATED DESIGN

FOR ALL ITEMS LISTED BELOW, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DELEGATED DESIGN SUBMITTAL WITH DOCUMENTATION AND ENGINEERING REQUIRED TO SATISFY REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (AHJ) AND OWNER. THE DELEGATED DESIGN SUBMITTAL SHALL INCLUDE BUT NOT BE LIMITED TO ANALYSIS DATA SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

1. HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
2. VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS
3. SHORT-CIRCUIT STUDIES
4. COORDINATION STUDIES
5. ARC-FLASH HAZARD ANALYSIS
6. LIGHTING CONTROL DEVICES
7. ADDRESSABLE FIRE-ALARM SYSTEMS

ELECTRICAL DRAWING LIST

E0.00	ELECTRICAL LEGEND AND ABBREVIATIONS
E0.01	BASIS OF DESIGN AND CALCULATION TABLES
E0.02	LIGHTING LUMINAIRE SCHEDULE
E1.00	ELECTRICAL SITE PLAN
E1.10	BASEMENT - ELECTRICAL DEMO PLAN
E1.11	FIRST FLOOR - ELECTRICAL DEMO PLAN
E1.12	SECOND FLOOR - ELECTRICAL DEMO PLAN
E1.13	ROOF - ELECTRICAL DEMO PLAN
E2.00	BASEMENT - LIGHTING PLAN
E2.10	FIRST FLOOR - LIGHTING PLAN
E2.11	SECOND FLOOR - LIGHTING PLAN
E3.00	BASEMENT - POWER PLAN
E3.10	FIRST FLOOR - POWER PLAN
E3.11	SECOND FLOOR - POWER PLAN
E3.12	ROOF - POWER PLAN
E5.10	ELECTRICAL SCHEDULES
E5.11	ELECTRICAL SINGLE LINE DIAGRAM - DEMO
E5.12	ELECTRICAL SINGLE LINE DIAGRAM - NEW
E5.13	PANELBOARD SCHEDULES
E5.14	PANELBOARD SCHEDULES
E9.10	ELECTRICAL DETAILS
E9.11	ELECTRICAL T24 FORMS
E9.12	ELECTRICAL T24 FORMS
E9.13	ELECTRICAL T24 FORMS
E9.14	ELECTRICAL T24 FORMS
E9.15	ELECTRICAL T24 FORMS

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ELECTRICAL LEGEND AND ABBREVIATIONS

E0.00

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WIRE AND CABLE

A. CONDUCTORS SHALL BE COPPER AND RATED AT NOT LESS THAN 600 VOLTS. POWER AND LIGHTING CONDUCTORS SHALL BE MINIMUM #12 AWG. ALL WIRE #8 AWG OR LARGER SHALL BE STRANDED.
B. SPECIAL PRE-MANUFACTURED CABLING SYSTEMS, SUCH AS MODULAR WIRING AND MC TYPE CABLE MAY BE USED FOR FINAL TERMINATIONS TO FIXTURES AND DEVICES WITHIN THE ROOM. ALL HOMERUNS SHALL BE IN EMT OR RIGID.
C. ALL WIRE AND CABLE SHALL BE INSTALLED IN RACEWAY.
D. ALL LIFE SAFETY (FIRE ALARM, PUBLIC ADDRESS) SYSTEM WIRING SHALL BE INSTALLED IN RACEWAY. RACEWAY AND JUNCTION BOX COVERS SHALL BE RED.
E. AT EACH FIXTURE OUTLET A LOOP OR END OF WIRE NOT LESS THAN 8" LONG SHALL BE LEFT FOR CONNECTION TO FIXTURES.

WIRING DEVICES

A. MISCELLANEOUS RECEPTACLES AND SWITCHES IN THE CORE, LOBBY, COMMON AREAS (SUCH AS RESTROOMS OR AMENITIES SPACES, MECHANICAL AREAS, AND UTILITY AREAS WILL BE INSTALLED AS REQUIRED.
B. RECEPTACLES SHALL BE COMMERCIAL GRADE, RATED AT 20A. COVER PLATES THROUGHOUT THE FACILITY WILL BE NYLON IN PUBLIC AREAS AND STAINLESS STEEL IN MECHANICAL AND NON-PUBLIC SPACES.
C. RECEPTACLES WILL BE PROVIDED WITHIN 25 FEET OF ALL ELECTRICAL AND MECHANICAL EQUIPMENT.
D. CONTROLLED RECEPTACLES WILL BE PROVIDED IN AT AT LEAST 50 PERCENT OF RECEPTACLES IN THE FOLLOWING LOCATIONS: PRIVATE OFFICES, OPEN OFFICE AREAS, CONFERENCE ROOMS, COPY/PRINTING ROOMS, AND BREAK ROOMS. IN THESE LOCATIONS, LOAD CONTROL MODULES WILL BE PROVIDED FOR CONTROL BY THE LIGHTING CONTROL SYSTEM (TIMECLOCK OR OCCUPANCY SENSOR).
E. GROUND FAULT CIRCUIT INTERRUPTERS (GFCI) DUPLEX RECEPTACLES SHALL BE PROVIDED AS REQUIRED PER THE NEC, INCLUDING AT LOCATIONS WITHIN SIX FEET OF A WATER SOURCE, SUCH AS SINKS AND RESTROOMS, AND PROVIDED FOR ALL OUTDOOR LOCATIONS. GFCI RECEPTACLES SHALL NOT SERVE OTHER RECEPTACLES FROM THEIR LOAD-SIDE TERMINALS.
    1. EXTERIOR WEATHERPROOF GFCI RECEPTACLES MOUNTED IN NEMA 3R WEATHERPROOF ENCLOSURES WITH NO GREATER THAN 50' SPACING AROUND THE PERIMETER OF THE BUILDING.
F. ARC FAULT CIRCUIT INTERRUPTING (AFCI) DEVICES WILL BE PROVIDED AS REQUIRED BY THE NEC.
G. TAMPER PROOF RECEPTACLES TO BE PROVIDED PER NEC 406.12.
H. ALL SWITCHES AND RECEPTACLES WILL BE LABELED WITH PANEL AND CIRCUIT NUMBER.
I. SPECIAL PURPOSE RECEPTACLES WILL BE PROVIDED AS REQUIRED BY THE EQUIPMENT SERVED.

EQUIPMENT CONNECTIONS:

A. MECHANICAL EQUIPMENT:
    1. CONNECTIONS WILL BE MADE FOR ALL MECHANICAL EQUIPMENT. ALL MOTORS RATED 5HP AND LARGER WILL BE WIRED FOR 480V, 3Ø POWER. ALL MOTORS RATED 1/2 HP AND LARGER WILL BE WIRED FOR 208V, 3Ø POWER. MOTORS RATED LESS THAN 1/2 HP WILL BE WIRED FOR 120V, 1Ø POWER.
    2. ELECTRICAL CONTRACTOR IS TO VERIFY AND COORDINATE WITH THE MECHANICAL CONTRACTOR FOR POWER REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT, AND TO PROVIDE POWER TO ALL MECHANICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO AIR HANDLING UNITS, CONDENSING UNITS, COOLING TOWER FANS, FAN COIL UNITS, EXHAUST FANS, HVAC CONTROL PANELS, FIRE SMOKE DAMPERS, AND PUMPS.
    3. REFER TO MECHANICAL AND PLUMBING SECTIONS OF THIS NARRATIVE FOR EQUIPMENT AND LOCATIONS.

B. ELEVATOR EQUIPMENT:
    1. ELEVATOR IS EXISTING AND WILL REMAIN.
C. MISCELLANEOUS REQUIREMENTS: IN ADDITION TO DIVISION 23 MECHANICAL EQUIPMENT, CONVENIENCE OUTLETS, AND LIGHTING, POWER CONNECTION WILL BE PROVIDED FOR MISCELLANEOUS EQUIPMENT INCLUDING, BUT NOT LIMITED TO:
    1. ADA ACCESS DOORS WITH POWERED DOORS
    2. HAND DRYERS
    3. TELECOMMUNICATIONS SYSTEMS
    4. BUILDING MANAGEMENT SYSTEM AND FIRE ALARM SYSTEM
    5. IRRIGATION CONTROLLERS
D. FIRE AND LIFE SAFETY EQUIPMENT
    1. FSDS: DIVISION 26 IS RESPONSIBLE FOR POWER WIRING TO THE DAMPER ACTUATOR MOTOR TO OPEN FSDS. FSD CLOSURE IS ACTUATED BY LOSS OF ACTUATOR MOTOR POWER, BY FIRE ALARM SYSTEM CONTROL MODULE
E. SITE ELECTRICAL – POWER AND FIRE ALARM FOR CIVIL VAULTS, SECURITY EQUIPMENT, LANDSCAPE IRRIGATION CONTROLS,

MISCELLANEOUS SYSTEMS

GROUNDING

A. GROUNDING WILL BE INSTALLED TO CONFORM TO THE CALIFORNIA ELECTRICAL CODE AND APPLICABLE RECOMMENDATIONS IN THE IEEE STANDARD.
B. SEPARATELY DERIVED SYSTEMS WILL BE GROUNDED PER NEC REQUIREMENTS.
C. THE ELECTRICAL SYSTEM NEUTRAL WILL BE BONDED TO GROUND VIA MAIN BUILDING GROUND BUS BAR IN THE MAIN ELECTRICAL ROOM.
D. ALL CONNECTIONS TO GROUNDING ELECTRODE SYSTEM WILL BE MADE UTILIZING EXOTHERMIC WELDING METHOD.
E. A SEPARATE EQUIPMENT INSULATED GROUND WIRE WILL BE RUN IN EACH FEEDER CONDUIT AND EACH BRANCH CIRCUIT CONDUIT.
F. A COPPER BUILDING MAIN REFERENCE GROUND BUS WILL BE INSTALLED IN THE MAIN ELECTRICAL ROOM.
G. GREEN GROUND CONDUCTORS SHALL BE PROVIDED IN ALL FEEDER CONDUITS.
H. THE TELECOM SYSTEM SHALL BE FULLY GROUNDED, INCLUDING CABLE TRAY, CABINETS, ETC.
I. PROVIDE ALL GROUNDING FOR ELECTRICAL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH ARTICLE 250 OF THE CALIFORNIA ELECTRICAL CODE.
J. PROVIDE SEPARATE GREEN INSULATED EQUIPMENT GROUND CONDUCTOR IN ALL NON-METALLIC AND FLEXIBLE ELECTRICAL RACEWAYS. EFFECTIVELY GROUND ALL FIXTURES, PANELS, CONTROLS, MOTORS, DISCONNECT SWITCHES, AND NON-CURRENT CARRYING METALLIC ENCLOSURES. USE BONDING JUMPERS, GROUNDING BUSHINGS, LUGS, BUSES, ETC., FOR THIS PURPOSE. PROVIDE GROUNDING BUSHINGS ON ALL FEEDER CONDUIT ENTRANCES TO PANELS AND EQUIPMENT ENCLOSURES AND BOND BUSHINGS TO ENCLOSURES WITH MINIMUM #10 AWG CONDUCTOR. CONNECT THE EQUIPMENT GROUND TO THE BUILDING SYSTEM GROUND. USE THE SAME SIZE EQUIPMENT GROUND CONDUCTORS AS PHASE CONDUCTORS, UP THROUGH #10 AWG. USE NEC TABLE 250-95 FOR CONDUCTOR SIZE WITH PHASE CONDUCTORS #8 AND LARGER, IF NOT SHOWN ON THE DRAWINGS.
K. RECEPTACLES: PERMANENTLY CONNECT THE GROUND TERMINAL ON EACH RECEPTACLE TO THE GREEN GROUND CONDUCTOR OR GROUNDED METAL RACEWAY SYSTEM WITH A GROUND WIRE.
L. MOTORS: CONNECT THE GROUND CONDUCTOR TO THE CONDUIT WITH AN APPROVED GROUNDING BUSHING, AND TO THE METAL FRAME WITH A BOLTED SOLDERLESS LUG. BOLTS, SCREWS AND WASHERS SHALL BE BRONZE OR CADMIUM PLATED STEEL.
M. GROUND CONDUCTORS SHALL BE 600 VOLT - #12 AWG STRANDED COPPER MINIMUM, WITH GREEN INSULATION; AND SHALL BE CONTINUOUS FROM TERMINAL TO TERMINAL WITHOUT SPLICE.

IDENTIFICATIONS:

A. ALL ELECTRICAL EQUIPMENT WILL BE PROVIDED WITH COLOR-CODED LABELLING THAT IDENTIFIES THE EQUIPMENT NAME, VOLTAGE, POWER SOURCE, ARC FAULT INFORMATION, ETC.
B. BRANCH PANELS WILL BE PROVIDED WITH TYPE-WRITTEN PANEL DIRECTORIES.
C. ALL RECEPTACLES WILL BE LABELLED WITH THE PANEL AND CIRCUIT NUMBER.
D. ALL JUNCTION BOXES WILL BE PROVIDED WITH PANEL NAME AND CIRCUITS.
E. A SINGLE LINE DIAGRAM WILL BE PROVIDED IN ELECTRICAL ROOM

TESTING

F. ALL ELECTRICAL SYSTEMS WILL BE TESTED.
G. MANUFACTURER TESTING AND START-UP REPORTS WILL BE PROVIDED ON CENTRAL BATTERY INVERTER.

SEISMIC BRACING
H. ELECTRICAL EQUIPMENT MUST BE INSTALLED AND BRACED FOR THE APPROPRIATE SEISMIC ZONE LOCATION. ELECTRICAL EQUIPMENT INCLUDES: EXIT SIGNS, LIGHTING FIXTURES, DISTRIBUTION EQUIPMENT, LIGHTING INVERTER, TRANSFORMERS, ETC

LIGHTNING PROTECTION

I. A LIGHTNING PROTECTION SYSTEM WILL NOT BE PROVIDED.

FIRE ALARM

J. THE FIRE ALARM SYSTEM SHALL BE DESIGN / BUILD BY THE FIRE ALARM SYSTEM VENDOR.
K. FIRE ALARM SYSTEM DESIGN SHALL BE SUBMITTED SEPARATELY FOR DEFERRED PLAN CHECK AND PERMITTING.
L. THE DESIGN INCLUDES THE FOLLOWING NOTABLE FEATURES BUT IS NOT LIMITED TO THIS SCOPE.
    1. SMOKE DETECTORS SHALL BE PLACED IN ALL SPACES AS REQUIRED. AREAS THAT ARE NOT SUITABLE FOR SMOKE DETECTION, SUCH AS MECHANICAL, RESTROOMS, ETC. SHALL CONTAIN HEAT DETECTION.
    2. DESIGN SHALL INCLUDE HVAC AUTOMATIC SHUTDOWN FOR UNITS OR GROUP OF UNITS OVER 2000 CFM.
    3. NOTIFICATION SHALL BE PROVIDED WITH HORNS, HORNS/STROBES, & STROBES. STROBE COVERAGE SHALL BE THROUGHOUT ALL PUBLIC SPACES, WHEREAS AUDIBILITY SHALL BE THROUGHOUT THE ENTIRE BUILDING WITH +15 DB ABOVE AMBIENT NOISE LEVEL.
M. SCHEDULE AND COORDINATE ALL LIFE SAFETY WORK WITH THE BUILDING ENGINEER.
CONTRACTOR SHALL PROVIDE CERTIFICATION OF THE LIFE SAFETY SYSTEM COMPLETION AND VERIFY PROPER FUNCTIONING OF SUCH

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ELECTRICAL
SYSTEM OVERVIEW
THE DESIGN INCLUDES THE FOLLOWING NOTABLE FEATURES BUT IS NOT LIMITED TO THIS SCOPE. CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL CONTRACT DOCUMENTS AND COORDINATING WITH ALL DISCIPLINES.
A. BRANCH CIRCUIT DISTRIBUTION INCLUDING ALL REQUIRED TRANSFORMERS, PANELBOARDS, CONDUIT, WIRING, AND DEVICES.
B. LIGHTING SYSTEMS, INCLUDING LIGHTING CONTROLS AND DAYLIGHTING CONTROLS.
C. FIRE ALARM MODIFICATIONS.

EXISTING ELECTRICAL UTILITY SERVICE
A. THE BUILDING IS SERVED AT 277/480V, 3-PHASE, 4-WIRE BY SOUTHERN CALIFORNIA EDISON VIA A 300KVA PAD-MOUNTED TRANSFORMER LOCATED OUTDOOR BEHIND THE BUILDING.
B. THE SERVICE FEEDER IS ROUTED UNDERGROUND TO THE MAIN SWITCHBOARD LOCATED IN THE BASEMENT LEVEL OF THE BUILDING.
C. THE MAIN SWITCHBOARD IS RATED FOR 600A AT 277/480V, 3-PHASE, 4-WIRE AND IS LOCATED IN A SHARED ROOM WITH MECHANICAL EQUIPMENT.

BUILDING DISTRIBUTION
EXISTING ELECTRICAL DISTRIBUTION SYSTEM

A. THE MAIN SWITCHBOARD SERVES THE FOLLOWING EXISTING LOADS:
    1. CHILLED WATER PUMP: VIA 175A/3P BREAKER
    2. HOT WATER PUMP CONVERTER: VIA 20A/3P BREAKER
    3. EVAPORATOR CONDENSER: VIA 30A/3P BREAKER
    4. HOT WATER PUMP: VIA 20A/3P BREAKER
    5. EMERGENCY PANEL E: VIA 30A/3P BREAKER (GENERATOR COULD NOT BE LOCATED)
    6. WATER CHILLER: VIA 175A/3P BREAKER
    7. PANEL A: VIA 175A/3P BREAKER (TO BE REPLACED)
        A. FEEDS PANEL D VIA 112.5KVA STEP-DOWN TRANSFORMER AND 125A/3P BREAKER (TO BE REPLACED)
            1) FEEDS PANEL D0 VIA 90A/3P BREAKER (TO BE DEMOLISHED)
    8. PANEL C: VIA 125A/3P BREAKER (TO BE REPLACED)
        A. FEEDS PANEL F VIA 45KVA STEP-DOWN TRANSFORMER AND 90A/3P BREAKER (TO BE REPLACED)
            1) FEEDS PANEL B VIA 100A/3P BREAKER (TO BE REPLACED)

PROPOSED ELECTRICAL DISTRIBUTION SYSTEM

A. THE EXISTING MAIN SWITCHBOARD IS IN PROPER WORKING ORDER AND WILL REMAIN. EXISTING BREAKERS WILL BE REPLACED AS REQUIRED TO FEED NEW HVAC EQUIPMENT.
B. EXISTING 277/480V BRANCH PANELS AND ASSOCIATED STEP-DOWN TRANSFORMERS AND 120/208V BRANCH PANELS WILL BE REPLACED AS FOLLOWS:
    1. (N) PANEL A: 225A BUS WITH 175A MAIN BREAKER
        a. (N) 75KVA TRANSFORMER TO SERVE (N) PANEL D RATED 250A BUS WITH 250A MAIN BREAKER
    2. (N) PANEL C: 225A BUS WITH 125A MAIN BREAKER
        a. (N) 75KVA TRANSFORMER TO SERVE (N) PANEL F RATED 250A BUS WITH 250A MAIN BREAKER
    3. (N) PANEL B: 100A BUS WITH 100A MAIN BREAKER

PANELBOARDS AND CIRCUIT BREAKERS
A. PANELBOARDS SHALL BE SEQUENCE PHASED, FACTORY ASSEMBLED, WITH COPPER BUS, SIZED AS INDICATED ON DRAWINGS; WITH 42 POLES.
B. CABINET SHALL BE MINIMUM 20" WIDE, UNLESS OTHERWISE NOTED. FRONT TRIM SHALL BE DEAD FRONT AND CONTAIN A TYPEWRITTEN DIRECTORY BEHIND CLEAR PLASTIC IN A METAL FRAME. CABINETS, DOORS AND TRIMS SHALL BE FABRICATED FROM CODE GAUGE STEEL.
C. MOLDED CASE CIRCUIT BREAKERS SHALL BE BY PANELBOARD MANUFACTURER TO MATCH EXISTING WITH FRAME, TRIP AND SHORT CIRCUIT RATING AS INDICATED ON THE DRAWINGS.
D. CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON TYPE MOUNTING. MULTI-POLE BREAKERS SHALL BE SINGLE DEVICES, IN ONE ENCLOSURE, WITH ONE OPERATING HANDLE AND COMMON TRIP.
E. MINIMUM RMS SYMMETRICAL RATING OF CIRCUIT BREAKERS SHALL MATCH PANEL RATING.
F. PANELBOARDS SHALL BE MOUNTED PLUMB AND TRIM ADJUSTED TO BE VERTICAL AND COVERING ALL OPENINGS.TOP OF PANELBOARD SHALL BE MAXIMUM 6'-6" ABOVE FINISHED FLOOR.
G. CIRCUIT BREAKER TERMINATIONS SHALL NOT BE DOUBLE LUGGED TO TAP OFF FOR ADDITIONAL CIRCUIT RUNS. ALL BRANCH CIRCUIT TAPS SHALL BE MADE OUTSIDE OF PANELS IN APPROPRIATE JUNCTION BOXES.
H. PROVIDE FULLY RATED ELECTRICAL EQUIPMENT. SERIES RATED EQUIPMENT IS NOT ALLOWED.
I. PROVIDE MULTI-POLE CIRCUIT BREAKER OR SINGLE-POLE CIRCUIT BREAKERS WITH HANDLE TIE FOR DISCONNECTING MEANS OF MULTIWIRE BRANCH CIRCUIT WITH A SHARED NEUTRAL.
J. THE ELECTRICAL CONTRACTOR SHALL PERFORM A COMPLETE FAULT CURRENT STUDY BASED ON ACTUAL AVAILABLE SHORT CIRCUIT CURRENT OBTAINED FROM THE ELECTRICAL UTILITY PROVIDER AND ADJUST DISTRIBUTION PANEL, BRANCH PANELS, AND CIRCUIT BREAKER SHORT-CIRCUIT RATINGS AS REQUIRED PRIOR TO ORDERING EQUIPMENT.
K. THE ELECTRICAL CONTRACTOR SHALL PERFORM A COMPLETE ARC FLASH STUDY BASED ON ACTUAL AVAILABLE SHORT CIRCUIT CURRENT OBTAINED FROM THE ELECTRICAL UTILITY PROVIDER.

TRANSFORMERS

A. TRANSFORMERS SHALL BE CERTIFIED AS MEETING DOE 2016 ENERGY EFFICIENCY STANDARDS.
B. TRANSFORMER CORES SHALL BE ELECTRICAL GRADE, NON-AGING SILICON STEEL WITH HIGH PERMEABILITY AND LOW HYSTERESIS LOSSES.
C. TRANSFORMER COILS SHALL BE CONTINUOUS ALUMINUM WINDINGS WITHOUT SPLICES EXCEPT FOR TAPS. INTERNAL COIL CONNECTIONS SHALL BE BRAZED OR PRESSURE TYPE.
D. TRANSFORMERS SMALLER THAN 30 KVA SHALL HAVE CORE AND COILS COMPLETELY RESIN ENCAPSULATED.
E. INSULATION CLASS FOR TRANSFORMERS SHALL BE 220 DEGREE C WITH A UL-COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 150 DEGREE C RISE ABOVE 40 DEGREE C AMBIENT TEMPERATURE.

ALTERNATE POWER SYSTEMS

CENTRAL LIGHTING INVERTER

A. EMERGENCY POWER IS TO BE PROVIDED FOR EMERGENCY/EGRESS LIGHTING VIA A NEW 8KVA LIGHTING INVERTER LOCATED IN THE BASEMENT LEVEL OF THE BUILDING. EXACT LOCATION TO BE DETERMINED.
B. NO ADDITIONAL STANDBY POWER IS PROVIDED FOR THE PROJECT.

EXISTING ENERGY STORAGE AND GENERATION

A. EXISTING PHOTOVOLTAIC SYSTEM
    1. THE BUILDING IS EQUIPPED WITH AN EXISTING PHOTOVOLTAIC (PV) ARRAY LOCATED ON A STRUCTURE ABOVE THE PARKING LOT. THERE IS A 200A PV DISCONNECT LOCATED IN THE MECHANICAL/ELECTRICAL ROOM THAT IS CONNECTED TO THE LINE SIDE OF THE MAIN BREAKER AT THE MAIN SWITCHBOARD.

ELECTRICAL ROOM REQUIREMENTS

A. ALL ELECTRICAL EQUIPMENT SHALL BE LOCATED WITHIN DEDICATED ELECTRICAL ROOMS. EXISTING ELECTRICAL ROOMS WILL BE USED WHERE POSSIBLE.
B. A NEW ELECTRICAL ROOM WILL BE PROVIDED ON THE BASEMENT LEVEL. MINIMUM ROOM DIMENSIONS WILL BE 7' X 9'.

BRANCH CIRCUIT DESIGN

WIRING METHODS AND RACEWAYS

A. CONVENIENCE POWER OUTLETS WILL BE PROVIDED TO MEET ALL APPLICABLE CODES AND STANDARDS. CONVENIENCE OUTLETS WILL BE PROVIDED IN ALL COMMON AREAS, SUCH AS LOBBIES, RESTROOMS. IN ADDITION, OUTLETS WILL BE PROVIDED IN ALL UTILITY SPACES SUCH AS MECHANICAL, ELECTRICAL, IDF ROOMS, AND JANITOR CLOSETS.
B. THE MAXIMUM NUMBER OF CONVENIENCE OUTLETS ON ONE CIRCUIT WILL BE SIX. MAXIMUM LOADING OF LIGHTING BRANCH CIRCUITS WILL BE 60% (I.E., 12 AMPS).
C. ALL BRANCH CIRCUIT AND FEEDER WIRING ARE TO BE COPPER AND PROVIDED WITH SEPARATE, GREEN EQUIPMENT CONDUCTORS.
D. ALL BRANCH CIRCUIT AND FEEDERS LARGER THAN #10 WILL UTILIZE STRANDED CONDUCTORS.
E. FEEDERS FOR PANELBOARDS ARE GENERALLY SIZED FOR THE PANEL RATING, ALLOWING FOR CONNECTED LOADS PLUS 25% SPARE CAPACITY.
F. FEEDERS FOR HVAC EQUIPMENT SHALL BE SIZED PER NEC (AS A MINIMUM), OR AS RECOMMENDED BY THE MANUFACTURER.
G. DEDICATED NEUTRALS FOR EACH CIRCUIT WILL BE PROVIDED TO COMPLY WITH NEC 210.4(B).
H. DEDICATED CIRCUITS WILL BE PROVIDED FOR TELECOM LOADS, APPLIANCES, AND SPECIALTY AREAS.
I. 120-VOLT BRANCH CIRCUIT LENGTHS SHOULD BE KEPT SHORTER THAN 100 FEET TO MINIMIZE VOLTAGE DROP AND MINIMIZE NEUTRAL TO GROUND VOLTAGE POTENTIALS. BRANCH CIRCUIT LENGTH LARGER THAN 100 FEET WILL REQUIRE UP SIZING THE CONDUCTORS TO NEGATE VOLTAGE DROP TO THE LOAD. BRANCH CIRCUITS SHALL BE SIZED SUCH THAT VOLTAGE DROP ALONG ENTIRE CIRCUIT IS LIMITED TO 3% BASED ON ACTUAL LOAD ON CIRCUIT.
J. THE LIGHTING, POWER, AND FIRE ALARM SYSTEMS WILL BE IN CONDUIT. STEEL METAL CLAD (MC) FOR BRANCH POWER WIRING WILL BE ALLOWED IN WALLS IF CONCEALED.
K. CONCEAL ALL CONDUIT WHEREVER POSSIBLE EXCEPT IN MECHANICAL OR ELECTRICAL EQUIPMENT AREAS. EXPOSED CONDUIT SHALL BE RUN PARALLEL OR AT RIGHT ANGLES TO THE LINES OF THE BUILDING. CONDUIT CONCEALED IN CEILING SPACES SHALL BE RUN PARALLEL TO BUILDING LINES WHERE POSSIBLE.
L. CONDUIT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE; SUPPORTS FROM AIR CONDITIONING DUCTS OR PIPING SHALL NOT BE PERMITTED. REAM CONDUITS AFTER THREADS ARE CUT; ENDS SHALL BE CUT SQUARE AND SHALL BUTT SOLIDLY INTO COUPLINGS AND CONNECTORS.
M. CONDUITS INSIDE THE BUILDING SHALL BE EMT CONDUIT, UNLESS SPECIFICALLY NOTED OTHERWISE. MINIMUM SIZE IS ¾" TRADE SIZE. CONDUIT CONNECTIONS SHALL BE SET-SCREW TYPE FOR CONDUITS 2" AND LARGER TRADE SIZE WITH COMPRESSION FITTINGS FOR CONDUITS 1-1/2" AND SMALLER.
N. CONDUITS SHALL NOT BE INSTALLED ON THE TOPSIDE OF ROOF MEMBRANES. CONDUITS SHALL BE INSTALLED INSIDE THE BUILDING WITH APPROPRIATE CONDUIT PORTAL PENETRATIONS THROUGH THE ROOF MEMBRANE. IF ANY CONDUITS ARE REQUIRED ABOVE THE ROOF, THEY SHALL BE MINIMIZED FROM THE CONDUIT PORTAL TO THE EQUIPMENT, USING EMT WITH COMPRESSION FITTINGS, AND FLEXIBLE SEALTIGHT CONDUIT FOR FINAL CONNECTIONS TO THE EQUIPMENT.
O. ANNULAR SPACE IN AND AROUND SLEEVES THAT PASS THROUGH FIRE RESISTIVE OR FIRE RATED PARTITIONS, FLOORS, OR CEILINGS SHALL BE CLOSED BY PACKING WITH A FIRE RESISTIVE MATERIAL THAT WILL MAINTAIN THE RATING OF THE BARRIER PENETRATED.
P. CONDUITS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND FROM OUTLETS TO CABINETS, JUNCTION OR PULL BOXES, AND SHALL ENTER AND BE SECURED AT ALL BOXES SO THAT EACH SYSTEM SHALL BE ELECTRICALLY CONTINUOUS THROUGHOUT.
Q. A NYLON PULL CORD SHALL BE LEFT IN ALL CONDUITS IN WHICH PERMANENT WIRING IS NOT INSTALLED.
R. PROVIDE SLEEVES FOR ALL TELECOM CABLING WHICH PENETRATES FULL HEIGHT PARTITIONS.

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LUMINAIRE SCHEDULE

TAG	DESCRIPTION	FINISH	LAMP			CCT	MANUFACTURER	MODEL	POWER SUPPLY		VOLTAGE	LOAD	MOUNTING		COMMENTS
			TYPE	LUMENS	CRI				DRIVER	DIMMING TYPE			TYPE	HEIGHT	
(E)	EXTERIOR DOWNLIGHTS IN CANOPY TO BE RE-LAMPED	TBD BY ARCHITECT	LED	500	90	3000K	-	-	-	-	120 V	7.0 W	RECESSED		
B1	4-FOOT LINEAR BOH STRIPLIGHT	STANDARD WHITE / TBD BY ARCHITECT	LED	4000	80	4000K	LITHONIA	CSS L48 4000LM MVOLT 40K 80CRI ZACVH M100	INTEGRAL DIMMING TO 10%	0-10V	277 V	36.0 W	PENDANT		
B2	4-FOOT LINEAR DIRECTIONAL SURFACE	STANDARD WHITE / TBD BY ARCHITECT	LED	4000	80	4000K	LITHONIA	CSS L48 4000LM MVOLT 40K 80CRI ZACVH M100	INTEGRAL DIMMING TO 10%	0-10V	277 V	36.0 W	WALL		
L1	4-INCH RECESSED LINEAR WITH STANDARD DOWNLIGHT OPTIC	STANDARD WHITE / TBD BY ARCHITECT	LED	381 / FT	90	3000K	FINELITE	HP-4	INTEGRAL DIMMING TO 1%	0-10V	277 V	6.8 W / FT	RECESSED		
L2	INTEGRATED LED LINEAR LIGHTINNG SYSTEM PROVIDED WITH ACCOUSTIC PANELS	SPECIFIED BY ARCHITECT	LED	4200	90	3500K	ARKTURA	INLINE LIGHTING SYSTEM	INTEGRAL	0-10V	277 V	5.0 W / FT	SURFACE		REFER TO ARCHITECT ON SPECIFICATIONS
P1	LINEAR PENDANT DIRECT/INDIRECT	STANDARD WHITE / TBD BY ARCHITECT	LED	428 LM/FT INDIRECT 379 LM/FT DIRECT	90	3500K	FINELITE	HP-4 PENDANT	INTEGRAL DIMMING TO 1%	0-10V	277 V	7.0 W / FT	PENDANT		
P2	LINEAR PENDANT DIRECT/INDIRECT	STANDARD WHITE / TBD BY ARCHITECT	LED	428 LM/FT INDIRECT 379 LM/FT DIRECT	90	3500K	FINELITE	HP-4 PENDANT DIRECT/INDIRECT	INTEGRAL DIMMING TO 1%	0-10V	277 V	10.0 W / FT	PENDANT		
P4	22-INCH CIRCULAR PENDANT	TBD BY ARCHITECT	LED	6100	90	3500K	VISA LIGHTING	CP7120-8 ZUME	REMOTE	-	277 V	8.0 W	PENDANT		
P5	4-FOOT CIRCULAR PENDANT	TBD BY ARCHITECT	LED	3520	90	3500K	FINELITE	HP-4 C	INTEGRAL DIMMING TO 10%	0-10V	277 V	36.0 W	PENDANT		
R1	4-INCH ROUND FLANGED RECESSED DOWNLIGHT - GENERAL	TBD BY ARCHITECT	LED	800	90	3500K	MAXILUME BY ELITE LIGHTING	HH4-LED	INTEGRAL DIMMING TO 1%	0-10V	277 V	10.0 W	RECESSED		
S1	INGROUND UPLIGHT	TBD BY ARCHITECT	LED	3786	80	3000K	HYDREL	M9700C LED	INTEGRAL	0-10V	120 V	35.0 W	GRADE		
S2	15-INCH HEIGHT BY 6-INCH WIDTH CYLINDER DIRECT/INDIRECT EXTERIOR BUILDING MOUNTED SCONCE	TBD BY ARCHITECT	LED	700	80	3000K	HYDREL	LOWELL WALL MOUNT	INTEGRAL	0-10V	120 V	15.0 W	WALL		
S4	INGROUND DIRECTIONAL FLOODLIGHT	TBD BY ARCHITECT	LED	2330	80	3000K	BEGA	84618	REMOTE	-	120 V	24.6 W	GRADE		
S6	STEPLIGHT		LED								120 V	7.0 W	SURFACE		
W1	RESTROOM VANITY SCONCE	TBD BY ARCHITECT	LED	1000	90	3500K	VISA LIGHTING	CB5524 SHINE	INTEGRAL DIMMING TO 10%	0-10V	277 V	11.0 W	WALL		
XA1	EXIT LIGHT	RED / TBD BY ARCHITECT	LED	-	-	-	LITHONIA	EDGC	-	-	277 V	5.0 W	WALL		

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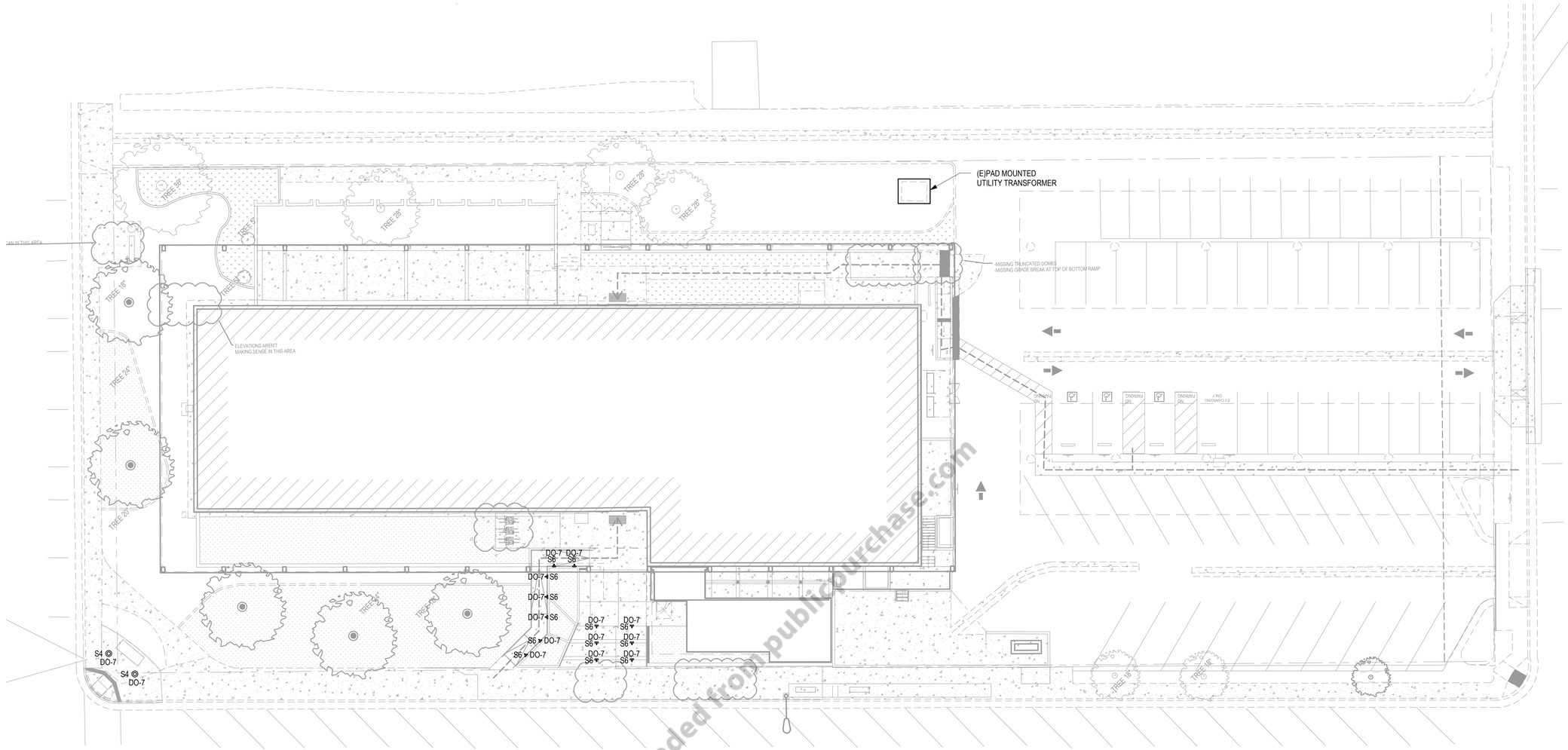
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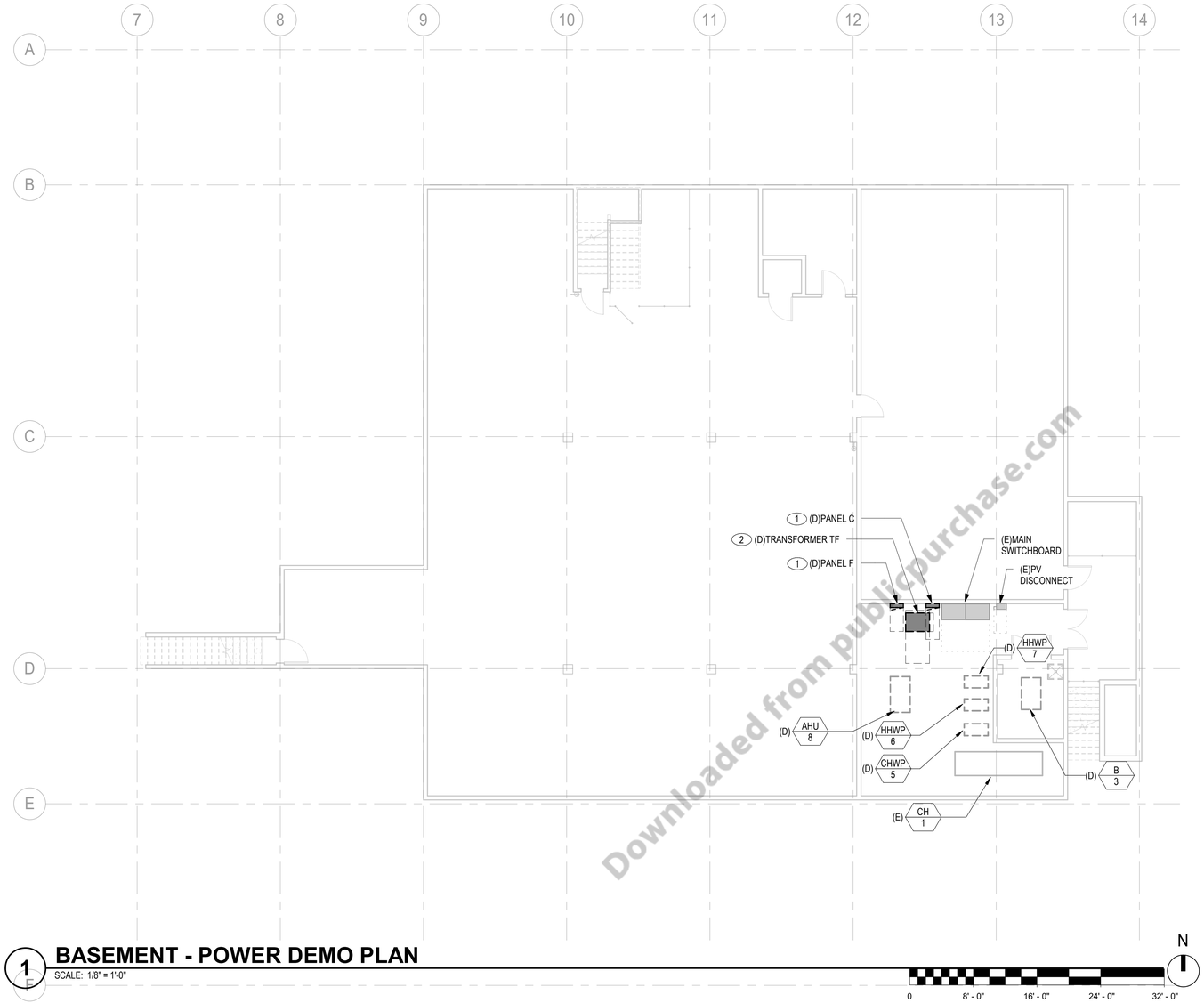
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LIGHTING LUMINAIRE SCHEDULE

E0.02

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(E)PAD MOUNTED
UTILITY TRANSFORMER
-MISSING TRUNCATED DOMES
-MISSING GRADE BREAK AT TOP OF BOTTOM RAMP
ELEVATIONS AREN'T
MAKING SENSE IN THIS AREA
TREE 36"
TREE 28"
TREE 28"
TREE 28"
TREE 18"
TREE 24"
TREE 28"
TREE 18"
TREE 18"
TREE 18



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1 E

BASEMENT - POWER DEMO PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. EXISTING WALLS AND CEILINGS TO BE DEMOLISHED ARE SHOWN DASHED. REFER TO ARCHITECTURAL DRAWINGS FOR FULL EXTENT OF DEMOLITION.
B. REFER TO SPECIFICATIONS FOR ADDITIONAL DEMOLITION SCOPE OF WORK.
C. FOR WALLS, SOFFITS, CASEWORK, ISLANDS, CEILINGS, ETC. SHOWN TO BE DEMOLISHED REMOVE THE FOLLOWING:
   1. TELECOM OUTLET BOXES AND RACEWAYS, COORDINATE CABLE REMOVAL WITH GENERAL CONTRACTOR AND OWNER.
   2. POWER OUTLETS, WIREMOLD, RECEPTACLES AND ALL OTHER ELECTRICAL DEVICES INCLUDING THEIR J-BOXES, CONDUIT AND WIRE.
   3. LIGHT SWITCHES INCLUDING THEIR J-BOXES, CONDUIT AND WIRE.
   4. FIRE ALARM AND OTHER LOW-VOLTAGE DEVICES INCLUDING THEIR J-BOXES, CONDUIT AND WIRE.
   5. ALL J-BOXES ON EXPOSED CEILINGS AND WALLS, REWORK CONDUIT AND WIRING IF CIRCUIT CONTAINED OR USED IN J-BOX SERVES EXISTING TO REMAIN LIGHTING OR DEVICES, RELOCATE J-BOX AS REQUIRED TO ABOVE ACCESSIBLE CEILING. INTENT IS TO HAVE NO BLANK COVERPLATES ON FINISHED SURFACES AT COMPLETION OF PROJECT.
   6. EXISTING LUMINAIRES, ASSOCIATED CONDUIT AND CONDUCTORS.
   7. ALL EXIT SIGNS, LEAVE EXISTING CONDUIT AND WIRING, WHERE APPROPRIATE, THAT IS LOCATED ABOVE CEILINGS, INTENT IS TO KEEP EXISTING EMERGENCY POWER SYSTEM WIRING AND INSTALL NEW EXIT SIGNS IN SAME LOCATION, IF APPLICABLE.
D. FOR WALL, COLUMNS, CASEWORK, SOFFITS, ISLANDS, ETC. SHOWN EXISTING TO REMAIN PERFORM THE FOLLOWING:
   1. OPEN WALL AS REQUIRED TO ALLOW FOR INSTALLATION IN NEW SCOPE OF WORK.
   2. REMOVE RECEPTACLES AND COVERPLATES, INSTALL NEW DEVICES AND COVERPLATES IN THE NEW SCOPE OF WORK, EXISTING CONDUIT AND WIRING TO REMAIN IF IN GOOD CONDITION.
   3. REMOVE LIGHT SWITCHES AND COVERPLATES. INSTALL NEW DEVICES AND COVERPLATES IN THE NEW SCOPE OF WORK. EXISTING CONDUIT AND WIRING TO REMAIN IF IN GOOD CONDITION.
   4. FOR LIGHT SWITCHES THAT SERVE EXISTING LIGHTING TO BE REMOVED, REMOVE LIGHT SWITCHES INCLUDING THEIR J-BOXES, CONDUIT AND WIRE.
   5. REMOVE FIRE ALARM DEVICES AND COVERPLATES, INSTALL NEW DEVICES, COVERPLATES AND WIRING IN THE NEW SCOPE OF WORK, EXISTING J-BOX AND CONDUIT TO REMAIN.
   6. REMOVE EXIT SIGNS, EXISTING J-BOX AND CONDUIT TO REMAIN.
E. WHERE REMODELING INTERFERES WITH EXISTING CIRCUITS AND EQUIPMENT WHICH ARE NOT TO BE REMOVED, SUCH CIRCUITS AND EQUIPMENT SHALL BE REWORKED AND RELOCATED AS REQUIRED TO MAINTAIN SERVICE TO ITEM. REFER ALL QUESTIONABLE SITUATIONS TO THE ENGINEER. DO NOT LOCATE J-BOXES ON WALLS, EXCEPT ONES REQUIRED TO MOUNT THE ITEM. AT THE COMPLETION OF THE PROJECT THERE SHALL BE NO J-BOXES WITH BLANK COVERPLATES ON WALLS OR CEILINGS. THE PROJECT SHALL APPEAR AS NEW CONSTRUCTION.
F. REMOVE ALL EXISTING BRANCH CIRCUIT CONDUCTORS AND CONDUITS ASSOCIATED WITH REMOVED ELECTRICAL EQUIPMENT AND DEVICES BACK TO THE EXISTING HOMERUN FROM WHICH THEY ARE FED OR THE NEAREST ACTIVE DEVICE THAT IS TO REMAIN. REMOVE ALL OLD TYPE WIRING IF IT IS NOT RATED FOR 90°C.
G. IF POSSIBLE, EXISTING BRANCH CIRCUIT HOMERUN CONDUITS AND WIRES ARE TO REMAIN AND BE REUSED IN THE NEW CONSTRUCTION PHASE OF WORK, DOWNSTREAM BRANCH CIRCUIT CONDUITS AND WIRING SERVING EXISTING-TO-BE-REMOVED EQUIPMENT, RECEPTACLES AND LUMINAIRES ARE TO BE REMOVED. INTENT IS TO REUSE THE MAIN INFRASTRUCTURE AND REMOVE ALL THE BRANCH CIRCUITING THAT WILL NO LONGER BE USED. REMOVE EXISTING HOMERUNS BACK TO PANEL IF THEY WILL NOT BE USED AT THE COMPLETION OF THE PROJECT.
H. CONTRACTOR SHALL VERIFY CIRCUITS WITH TRACING DEVICE AND LABEL CIRCUITS AVAILABLE AT EACH J-BOX, MODIFY DRAWINGS AS REQUIRED TO DOCUMENT ACTUAL CIRCUITING.
I. DO NOT REMOVE ANY CONDUITS SERVING EXISTING TO REMAIN ITEMS, ESPECIALLY TO:
   1. FAN POWERED BOXES AND OTHER MECHANICAL EQUIPMENT TO REMAIN. REFER TO MECHANICAL DRAWINGS FOR SCOPE OF WORK.
   2. PANELS, DISTRIBUTION PANELS, TRANSFORMERS, ETC., UON.
   3. HVAC CONTROLS AND CONTROL PANELS, UNLESS THE PIECE OF HVAC EQUIPMENT IS TO BE REMOVED. REFER TO MECHANICAL DRAWINGS AND SPECS. FOR SCOPE OF WORK.
   4. CONDUITS AND J-BOXES TO FIRE ALARM DEVICES ON EXISTING TO REMAIN WALLS.
   5. BRANCH CIRCUIT WORK SERVING THE EXISTING CORE AND EXTERIOR LIGHTING.
   6. DOOR HOLDERS, ROLL-DOWN FIRE DOORS, ROLL-UP DOORS AND THEIR ASSOCIATED POWER AND CONTROL WIRING, UON.
   7. EXTERIOR LIGHTING AND ASSOCIATED LIGHTING CONTROL WIRING.
   8. CONTROL, POWER WIRING AND TELECOM WIRING ASSOCIATED WITH ALL ELEVATORS.
   9. SECURITY DEVICES, EQUIPMENT, CONDUIT AND WIRING, UON.
J. DO NOT REMOVE ANY TELECOM INFRASTRUCTURE, I.E. CONDUITS CONNECTING TELECOM CLOSETS, CABLE TRAYS, BRIDAL RINGS IN AREAS THAT WILL BE ABOVE SUSPENDED CEILINGS.
K. ALL SALVAGED 2'X4' LUMINAIRES IF NOT REUSED IN NEW CONSTRUCTION SHALL BECOME THE PROPERTY OF THE OWNER UNLESS OWNER DIRECTS OTHERWISE, IF NOT TO BE RETAINED THEN THEY SHALL BECOME THE CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM THE JOB SITE.
L. ALL REMOVED ELECTRICAL MATERIAL INCLUDING WIRING, RACEWAYS, OUTLETS, DEVICES, SUPPORTS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE JOB SITE.
M. ALL SALVAGED LUMINAIRES, EXIT SIGNS, PANELS, DISTRIBUTION PANELS, TRANSFORMERS, AND POWER BUSWAY SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER TO OWNER'S STORAGE SITE. IF NOT TO BE RETAINED THEN THEY SHALL BECOME THE PROPERTY OF THE OWNER UNLESS OWNER DIRECTS OTHERWISE.
N. COORDINATE STORAGE LOCATION AND PROTECTION OF SALVAGED LUMINAIRES THAT ARE TO BE REUSED WITH GENERAL CONTRACTOR.
O. DAMAGE TO OTHER TRADE'S WORK AS A RESULT OF THIS WORK IS TO BE PROMPTLY REPAIRED AT NO EXPENSE TO THE OWNER AND TO THE COMPLETE SATISFACTION OF THE OWNER.
P. CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO SUBMISSION OF BID AND FIELD VERIFY ALL EXISTING CONDITIONS AND THE EXTENT OF THE DEMOLITION WORK. ALL ASSOCIATED DEMOLITION COSTS SHALL BE INCLUDED IN THE BID PRICE. NO EXTRA PAYMENT WILL BE ALLOWED FOR WORK REQUIRED BECAUSE OF DISCERNIBLE CONDITIONS, WHETHER OR NOT SPECIFICALLY SHOWN ON THESE DRAWINGS.
Q. THE EXISTING BUILDING INCLUDING PORTIONS OF THE RENOVATED AREA SHALL REMAIN IN SERVICE DURING THE CONSTRUCTION PHASE OF THIS PROJECT. ANY MODIFICATIONS TO THE EXISTING ELECTRICAL SYSTEMS THAT MAY REQUIRE THE TEMPORARY INTERRUPTION OF EXISTING SERVICES SHALL BE COMPLETED AFTER NORMAL WORKING HOURS. PRE-SCHEDULE ANY SERVICE INTERRUPTIONS WITH THE OWNER PRIOR TO STARTING ANY WORK. DO NOT DISTURB THE EXISTING TENANTS IN THE EXISTING BUILDING WITHOUT WRITTEN AUTHORIZATION.
R. UTILITY OUTAGES: NOT LESS THAN TEN (10) WORKING DAYS PRIOR TO A REQUIRED UTILITY (POWER, TELE, NET)OUTAGE, NOTIFY AND OBTAIN APPROVAL IN WRITING OF SAID OUTAGE FROM THE FACILITY. NO OUTAGE SHALL BE ACCOMPLISHED PRIOR TO THE RECEIPT OF APPROVAL. CONTRACTOR SHALL LOCK-OUT AND RED-TAG THE APPROPRIATE CIRCUIT BREAKER, SWITCH, ETC. RED-TAG SHALL INDICATE WHEN THE OUTAGE WILL BE TERMINATED, AND A TELEPHONE NUMBER TO CONTACT REGARDING THIS OUTAGE. THE TAG SHALL ALSO WARN PEOPLE NOT TO RE-ENERGIZE THE CIRCUIT SYSTEM BECAUSE OF POTENTIAL DANGER TO PERSONNEL AND EQUIPMENT. ALL WORK ASSOCIATED WITH ANY POWER OUTAGES SHALL BE COMPLETED AFTER NORMAL WORKING HOURS.
S. EXISTING WIRING WHERE SHOWN ON THE DRAWINGS IS BASED ON AVAILABLE AS-BUILT DRAWINGS AND FIELD INFORMATION. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS.

KEYED NOTES (#)

1. EXISTING PANELBOARD TO BE REPLACED AT NEW LOCATION.
2. EXISTING TRANSFORMER TO BE REPLACED AT NEW LOCATION.

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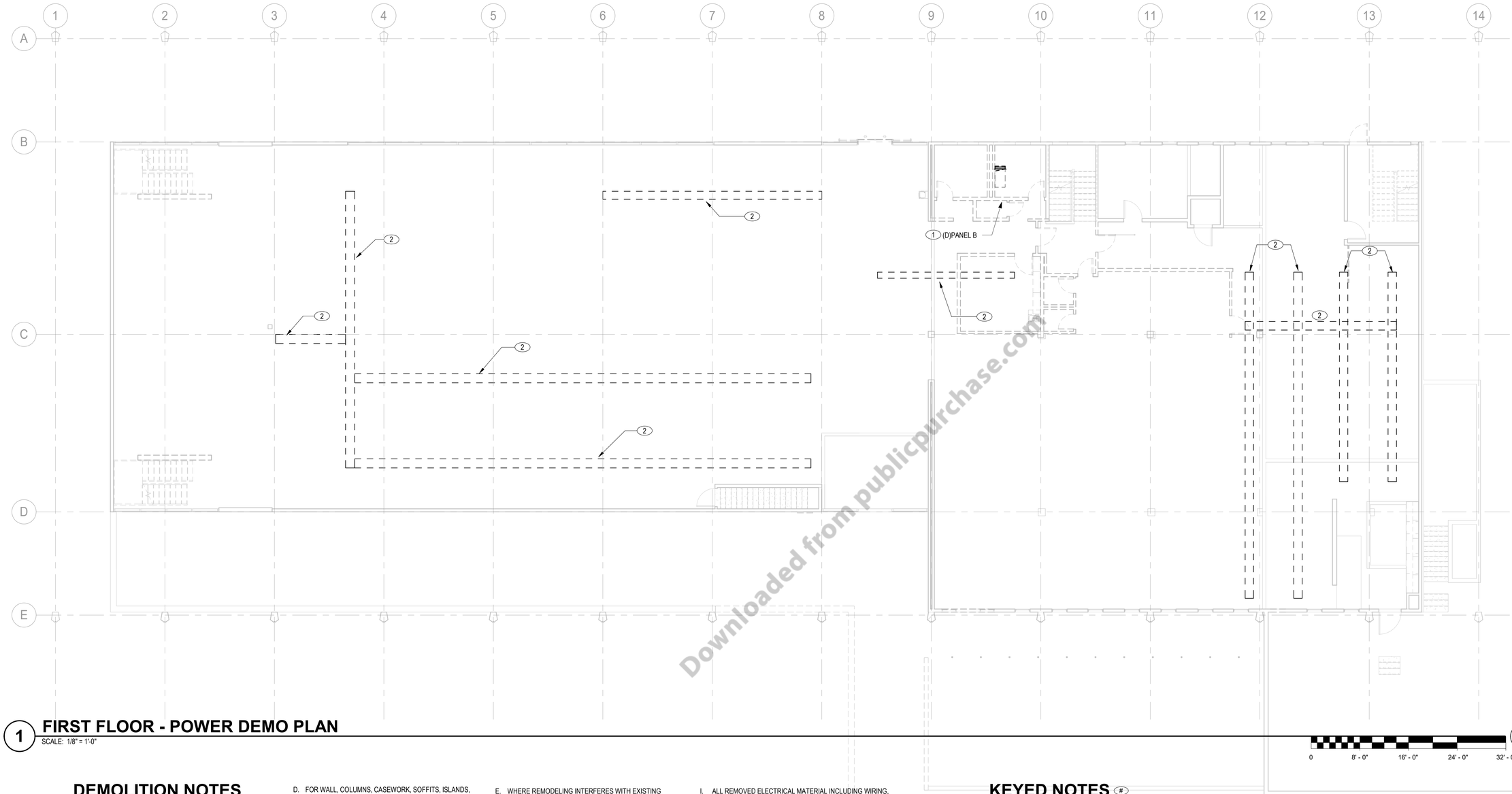
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BASEMENT - ELECTRICAL DEMO PLAN

E1.10

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1 FIRST FLOOR - POWER DEMO PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

DEMOLITION NOTES

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KEYED NOTES (#)

1. EXISTING PANEL B TO BE REPLACED AT NEW LOCATION.
2. EXISTING FLOOR DUCT SYSTEM FOR POWER AND LOW VOLTAGE WILL BE ABANDONED IN PLACE. REMOVE ALL WIRING BACK TO SOURCE.

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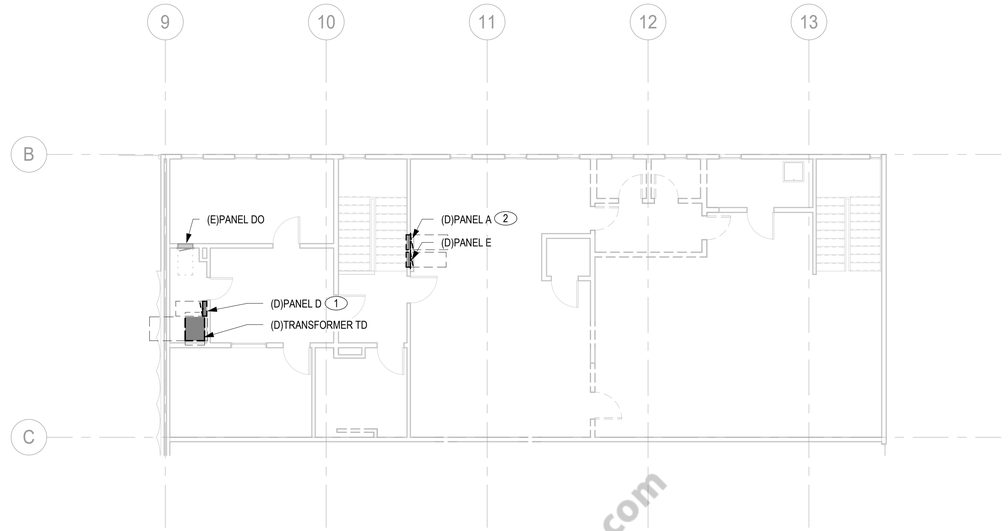
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FIRST FLOOR - ELECTRICAL DEMO PLAN

E1.11

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1 SECOND FLOOR - POWER DEMO PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

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KEYED NOTES (#)

1. EXISTING PANELBOARD TO BE REPLACED AT NEW LOCATION.
2. EXISTING PANEL TO BE REPLACED AT EXISTING LOCATION.

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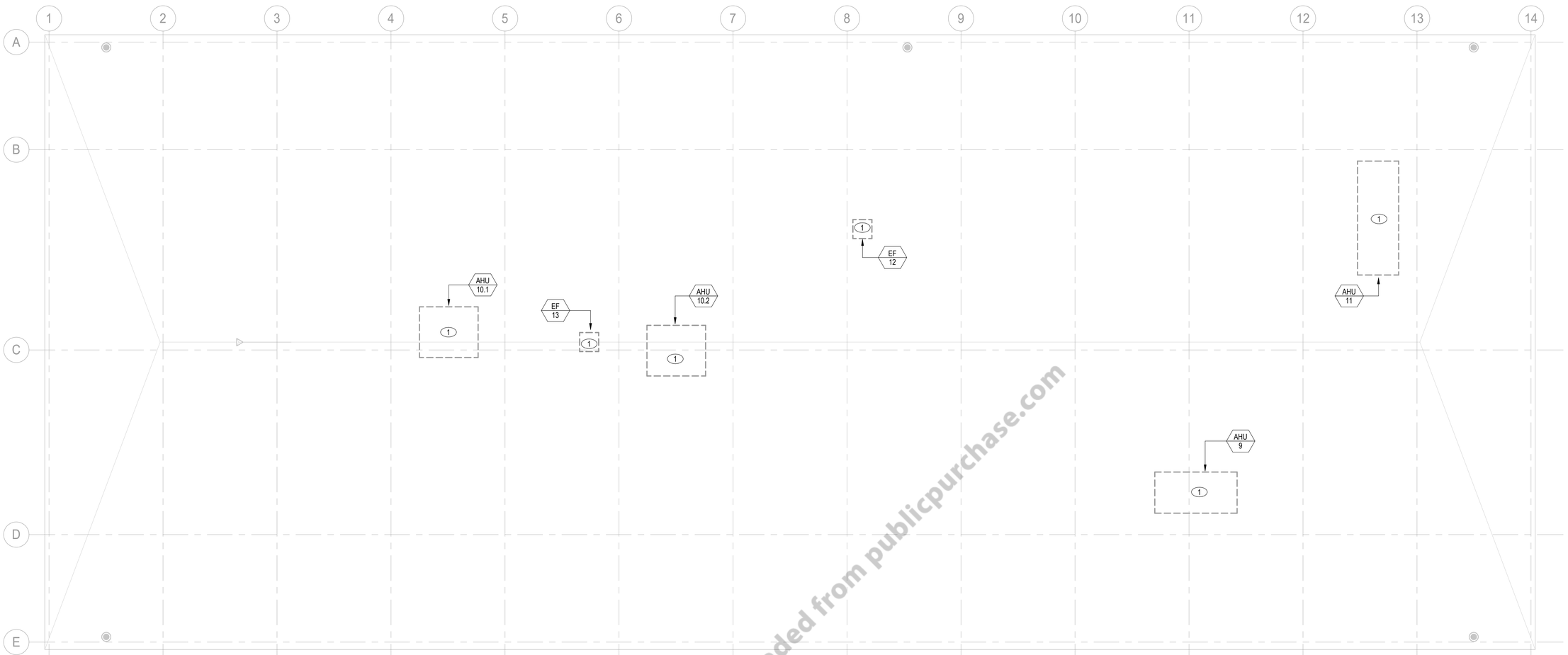
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SECOND FLOOR - ELECTRICAL DEMO PLAN

E1.12

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1 ROOF - POWER DEMO PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

KEYED NOTES (#)

1. DISCONNECT AND REMOVE POWER TO EXISTING HVAC EQUIPMENT. REMOVE FEEDER AND ASSOCIATED COMPONENTS BACK TO SOURCE.

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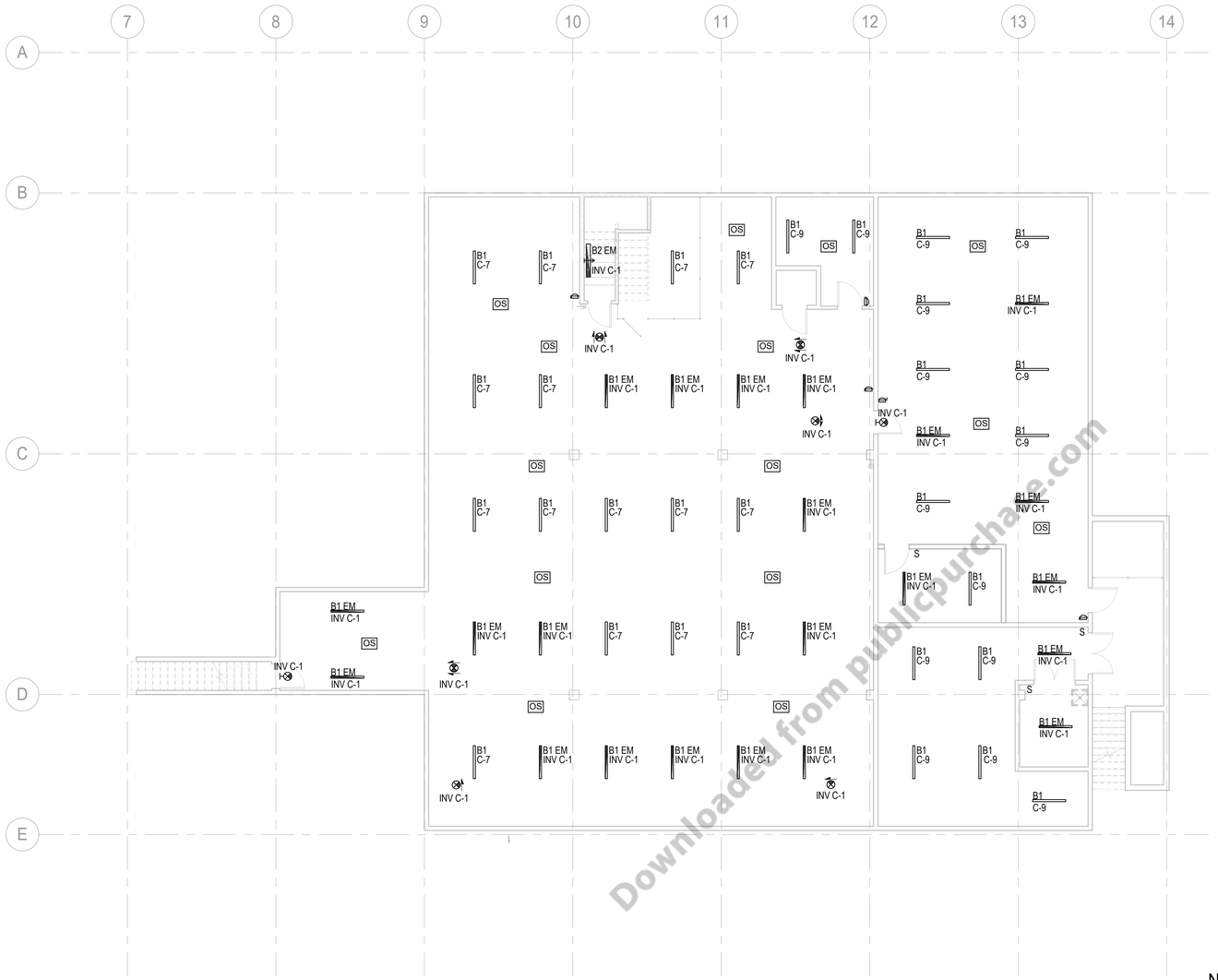
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ROOF - ELECTRICAL DEMO PLAN

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KEYED NOTES (#)

1. EXISTING TO REMAIN. NO LIGHTING SCOPE IN THIS AREA.

1 BASEMENT - LIGHTING PLAN
SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

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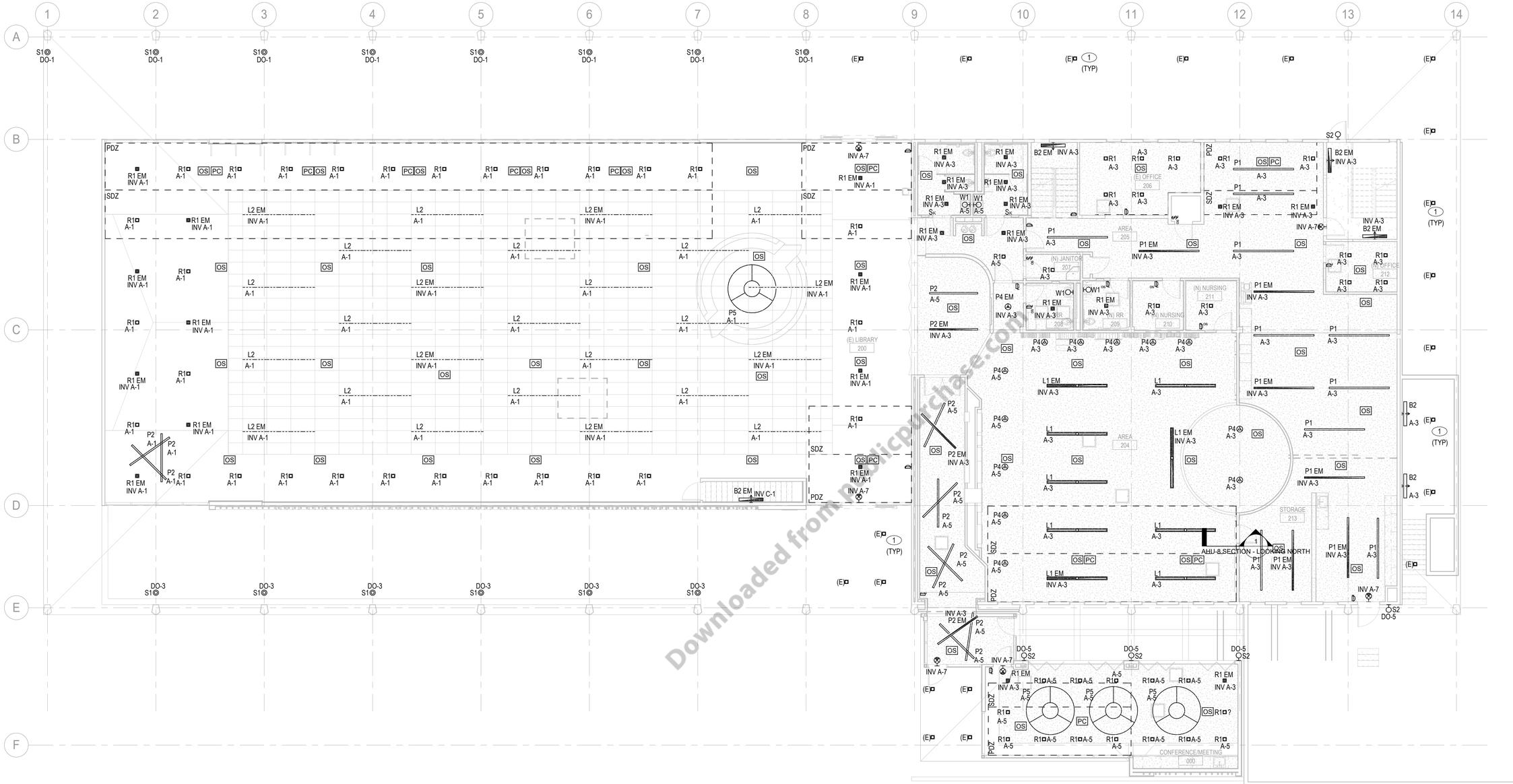
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BASEMENT - LIGHTING PLAN

E2.00

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1 FIRST FLOOR - LIGHTING PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

A. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LUMINAIRES. INFORM ENGINEER OF CONFLICTS. COORDINATE ALL LOCATIONS WITH DUCTWORK AND PIPING.
B. CEILING SENSOR SWITCHES IN SAME SPACE WITH SAME SWITCH DESIGNATION ARE TO BE PROGRAMMED SUCH THAT EITHER SENSOR WILL ACTIVATE ALL DESIGNATED LIGHTS.
C. SWITCHES SERVING SAME AREA AS OCCUPANCY SENSORS SHALL PROVIDE MANUAL OFF CONTROL OF LIGHTING.
D. TWO LIGHT SWITCHES SHOWN TOGETHER SERVING A SPACE INDICATE DUAL LEVEL SWITCHING OF EACH SWITCHED LIGHTING FIXTURE IN THE SPACE. REFER TO LIGHTING FIXTURE SCHEDULE NOTES FOR ADDITIONAL INFORMATION.
E. CONTRACTOR IS RESPONSIBLE TO REVIEW ARCHITECTURAL DRAWINGS TO CONFIRM CEILING TYPES IN ALL ROOMS (ACCESSIBLE, EXPOSED, OR "HARD") AND TO USE THE APPROPRIATE WIRING METHOD FOR EACH TYPE. ENSURE ALL J-BOXES ARE ACCESSIBLE AFTER ALL OTHER TRADE'S WORK IS COMPLETED. DO NOT LOCATE ANY J-BOXES ON "HARD" CEILINGS; ALL WIRING MUST BE ACCESSIBLE THROUGH LUMINAIRE ONLY IN "DAISY-CHAIN" METHOD OR WITH DEDICATED HOMERUNS TO EACH LUMINAIRE. J-BOXES MAY BE LOCATED ABOVE OTHER TRADE'S ACCESS DOORS IF FEASIBLE AND BOXES DO NOT INTERFERE WITH ACCESS.
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G. LUMINAIRES WITH "NL" ADJACENT TO IT INDICATES CONNECTION TO UNSWITCHED HOT CONDUCTOR. THIS IS ONLY SHOWN WHERE THERE IS A POSSIBLITY OF CONFUSION WHEN A GROUP OF LUMINAIRES ARE CONTROLLED TOGETHER EXCEPT FOR THE NIGHTLIGHT LUMINAIRE.
H. ALL LOW VOLTAGE CABLING TO LIGHTING FIXTURES AND CONTROL DEVICES SHALL BE PLENUM RATED.
I. EXIT SIGNS TO BE CIRCUITED TO NEAREST EMERGENCY CIRCUIT SERVING THE SPACE.
J. CONTRACTOR SHALL CONFIRM ALL EXIT SIGN LOCATIONS AND DIRECTIONAL CHEVRONS WITH THE ARCHITECTURAL EGRESS PLANS AND REFLECTED CEILING PLANS.

KEYED NOTES (#)

1. EXISTING LIGHTING THAT IS TO REMAIN, SHALL BE RELAMPED, REPAIRED, AND RESTORED TO PROPER WORKING ORDER VIA EXISTING CIRCUIT AND CONTROLS.

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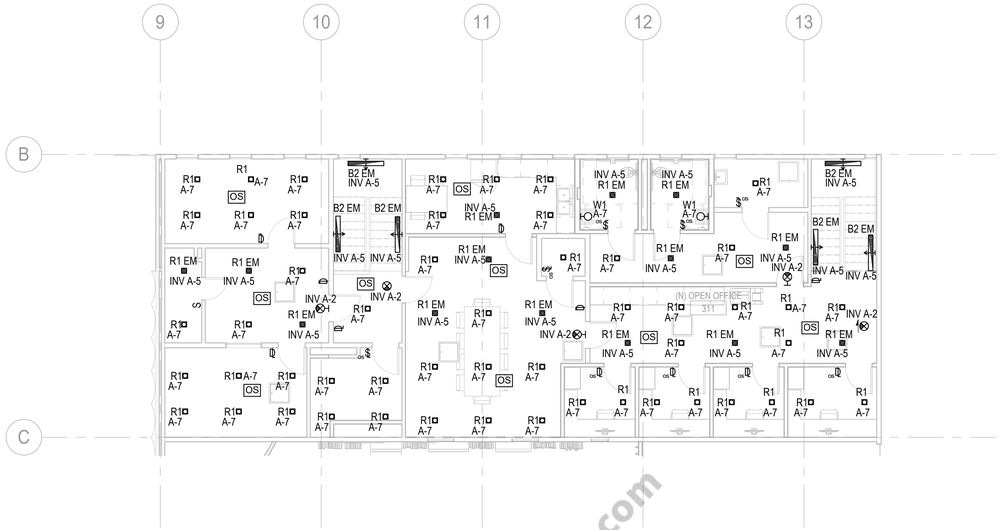
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FIRST FLOOR - LIGHTING PLAN

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1 **SECOND FLOOR - LIGHTING PLAN**
SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

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SECOND FLOOR - LIGHTING PLAN

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1 **BASEMENT - POWER & SIGNAL PLAN**
SCALE: 1/8" = 1'-0"

SHEET NOTES

A. WHERE POSSIBLE, BOXES SHALL BE IN SEPARATE STUD SPACES FROM BOXES SERVING OTHER ROOMS TO MINIMIZE SOUND TRANSFER.
B. COORDINATE EXACT MECHANICAL EQUIPMENT LOCATIONS AND REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. COORDINATE CONDUIT REQUIREMENTS FOR ALL HVAC EQUIPMENT WITH CONTROLS CONTRACTOR.
C. PROVIDE 4" HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
D. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION ON NAMED ELECTRICAL EQUIPMENT SHOWN.
E. REFER TO DETAIL DRAWINGS FOR ADDITIONAL INFORMATION. ALL DETAILS APPLY FOR ALL APPLICABLE SITUATIONS WHETHER REFERENCED OR NOT, UON.
F. REFER TO ARCHITECTURAL FLOOR PLANS, INTERIOR ELEVATIONS AND DETAIL DRAWINGS PRIOR TO ROUGH-IN FOR EXACT LOCATION OF RECEPTACLES, FLOOR BOXES AND OUTLETS. INFORM ENGINEER OF CONFLICTS.
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H. FLOOR PLANS ARE DIAGRAMMATIC. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS WITH ARCHITECTURAL DRAWINGS AND FIELD DETERMINE EXACT CONDUIT, PULL BOX, AND ROUTING REQUIREMENTS.
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J. PROVIDE #10 AWG NEUTRALS TO ALL 15A AND 20A RECEPTACLES THAT SHARE A COMMON NEUTRAL, UNLESS OTHERWISE NOTED.
K. PROVIDE SPECIAL RECEPTACLES THAT MATCH CORD AND CAP PROVIDED WITH EQUIPMENT, UON. USE ADJACENT NEMA CONFIGURATION NUMBER, IF ONE IS SHOWN.
L. ALL NEW RACEWAYS AND CONDUCTORS SHALL BE INSTALLED CONCEALED; CUT AND PATCH EXISTING WALLS TO ACCOMMODATE NEW RACEWAY INSTALLATION. ALL CONDUITS TO BE INSTALLED 90° TO BUILDING LINES.
M. FOR ELECTRICAL CONNECTIONS AND CIRCUITING TO MECHANICAL EQUIPMENT SHOWN ON THIS SHEET, REFER TO MECHANICAL AND PLUMBING EQUIPMENT - ELECTRICAL CONNECTION SCHEDULE.
N. PROVIDE BACK BOX AND 3/4" CONDUIT FROM EACH DATA/LOW VOLTAGE DEVICE SHOWN TO ACCESSIBLE CEILING LOCATION. VERIFY QUANTITIES, LOCATIONS, AND REQUIREMENTS WITH LOW VOLTAGE SYSTEM SUPPLIER PRIOR TO ROUGH-IN.
O. THE EXISTING BUILDING INCLUDING PORTIONS OF THE RENOVATED AREA SHALL REMAIN IN SERVICE DURING THE CONSTRUCTION PHASE OF THIS PROJECT. ANY MODIFICATIONS TO THE EXISTING ELECTRICAL SYSTEMS THAT MAY REQUIRE THE TEMPORARY INTERRUPTION OF EXISTING SERVICES SHALL BE COMPLETED AFTER NORMAL WORKING HOURS. PRE-SCHEDULE ANY SERVICE INTERRUPTIONS WITH THE OWNER PRIOR TO STARTING ANY WORK.
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KEYED NOTES (#)

1. FAN COIL UNIT (FCU) POWERED FROM ASSOCIATED CONDENSING UNIT (CU), CU-2 ON LEVEL 1. PROVIDE 2#12, 1#12G IN 3/4"C. PROVIDE 1" CONDUIT BETWEEN FCU AND CU FOR CONTROL WIRING.
2. RECEPTACLE FOR PLUG-IN POWER FOR CONDENSATE PUMP. VERIFY EXACT LOCATION OF PUMP PRIOR TO ROUGH-IN OF RECEPTACLE.
3. JUNCTION BOX FOR 120V POWER TO MOTORIZED DAMPER. VERIFY EXACT POINT OF CONNECTION AND EXACT REQUIREMENTS PRIOR TO ROUGH-IN.
4. JUNCTION BOX FOR 120V POWER TO BAS CONTROL PANEL.
5. JUNCTION BOX FOR 120V POWER TO VAV POWER SUPPLY.
6. JUNCTION BOX FOR 120V POWER TO VRF SYSTEM CONTROLLER.
7. PROVIDE CONCRETE PAD PER MANUFACTURER REQUIREMENTS OUTLINED IN SHOP DRAWINGS.

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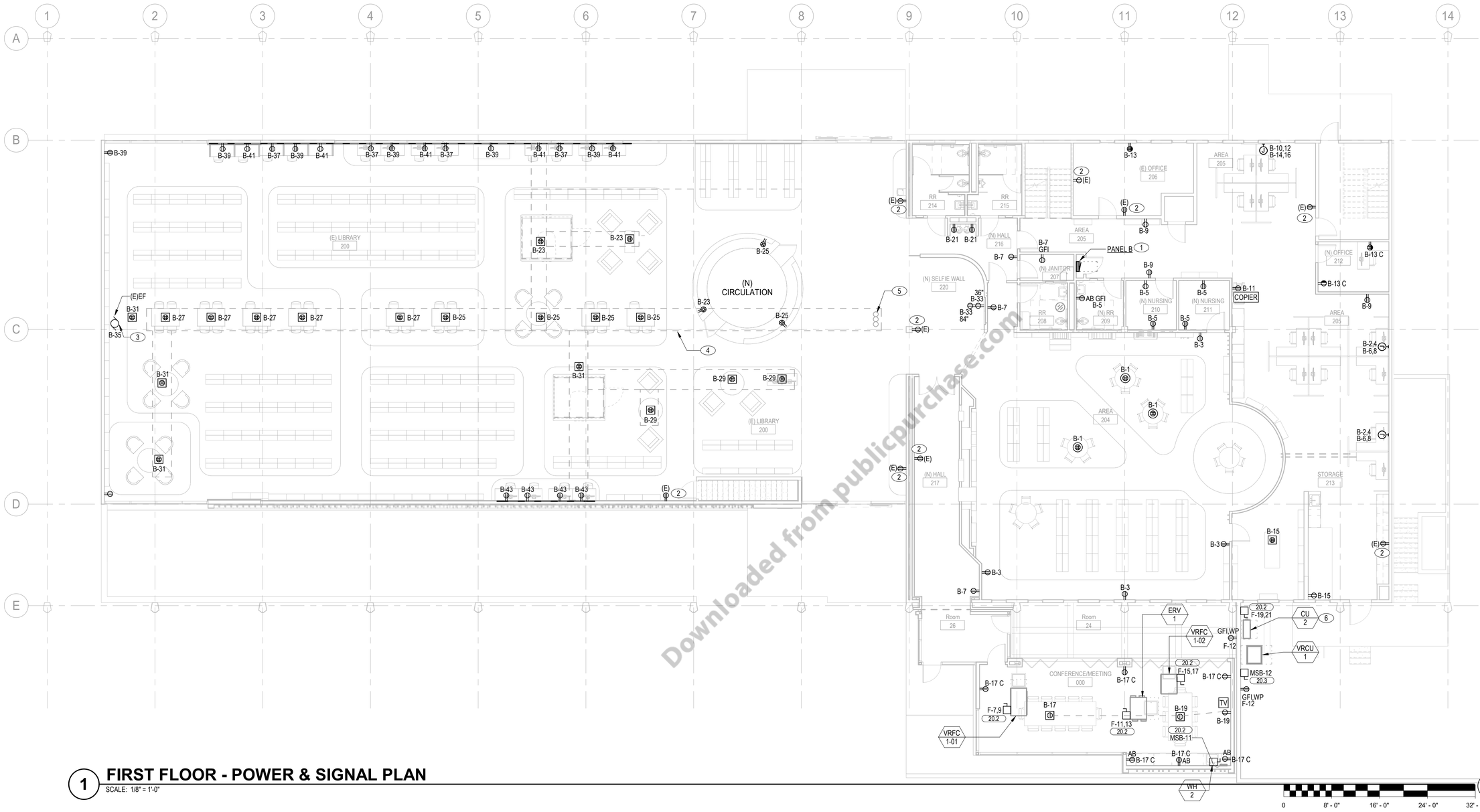
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BASEMENT - POWER PLAN

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1 FIRST FLOOR - POWER & SIGNAL PLAN

SCALE: 1/8" = 1'-0"

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KEYED NOTES (#)

1. LOCATION OF NEW PANEL B. INTERCEPT REMAINING BRANCH CIRCUITS AND EXTEND TO NEW PANEL LOCATION.
2. REPLACE EXISTING DEVICE AND COVERPLATE WITH NEW. VERIFY COLOR/FINISH WITH ARCHITECT.
3. INTERCEPT AND EXTEND FEEDER TO EXISTING IN-GRADE EXHAUST FAN AND RECONNECT COMPLETE TO PANEL B.
4. RUN CONDUITS TO FEED FLOOR RECEPTACLES, CIRCULATION DESK, AND COMPUTER STATIONS ALONG PERIMETER WALLS WITHIN PREDETERMINED TRENCH ROUTE. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF TRENCH ROUTE.
5. TURN CONDUITS DOWN AT THIS LOCATION AND RUN IN BASEMENT CEILING SPACE TO LOCATION OF PANEL B.
6. CONDENSING UNIT TO FEED ASSOCIATED FAN COIL UNIT, FCU-2 IN ELECTRICAL ROOM 100 ON BASEMENT LEVEL.

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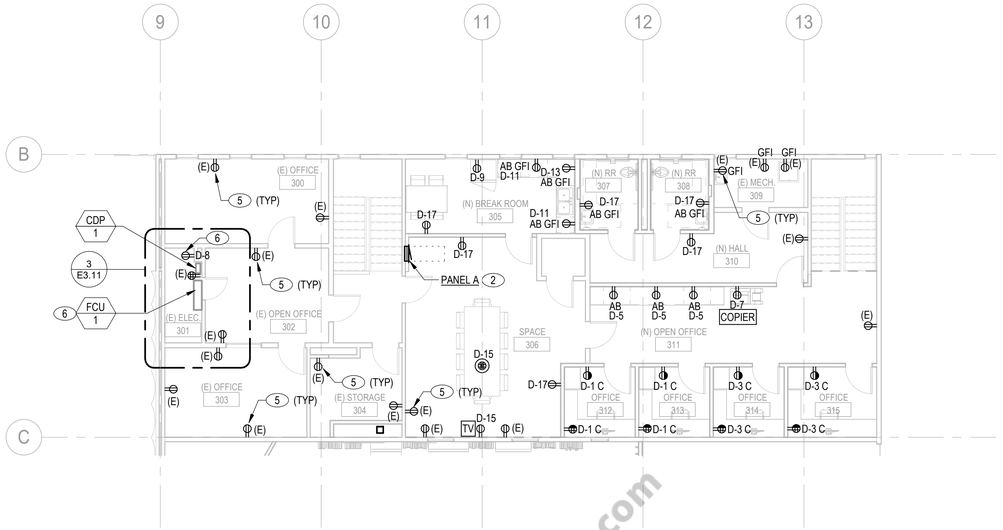
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FIRST FLOOR - POWER PLAN

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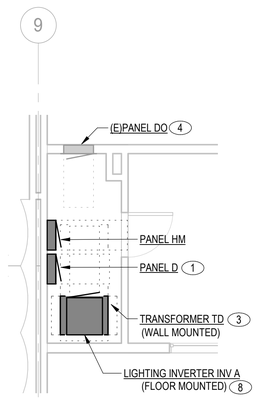
2 SECOND FLOOR - POWER & SIGNAL PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

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3 SECOND FLOOR ELECTRICAL ROOM ENLARGED PLAN

SCALE: 1/4" = 1'-0"

N

0 4' - 0" 8' - 0" 12' - 0" 16' - 0"

SHEET NOTES

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F. REFER TO ARCHITECTURAL FLOOR PLANS, INTERIOR ELEVATIONS AND DETAIL DRAWINGS PRIOR TO ROUGH-IN FOR EXACT LOCATION OF RECEPTACLES, FLOOR BOXES AND OUTLETS. INFORM ENGINEER OF CONFLICTS.
G. CONTRACTOR IS RESPONSIBLE TO REVIEW ARCHITECTURAL DRAWINGS TO CONFIRM CEILING TYPES IN ALL ROOMS (ACCESSIBLE, EXPOSED, OR "HARD") AND TO USE THE APPROPRIATE WIRING METHOD FOR EACH TYPE. ENSURE ALL J-BOXES ARE ACCESSIBLE AFTER ALL OTHER TRADE'S WORK IS COMPLETED. DO NOT LOCATE ANY J-BOXES ON "HARD" CEILINGS; ALL WIRING MUST BE ACCESSIBLE THROUGH DEVICE ONLY IN "DAISY-CHAIN" METHOD OR WITH DEDICATED HOMERUNS TO EACH DEVICE. J-BOXES MAY BE LOCATED ABOVE OTHER TRADE'S ACCESS DOORS IF FEASIBLE AND BOXES DO NOT INTERFERE WITH ACCESS.
H. FLOOR PLANS ARE DIAGRAMMATIC. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS WITH ARCHITECTURAL DRAWINGS AND FIELD DETERMINE EXACT CONDUIT, PULL BOX, AND ROUTING REQUIREMENTS.
I. CIRCUIT SIZES ARE NOT SHOWN ON THE PLANS. CONTRACTOR SHALL USE CIRCUIT SIZES INDICATED IN NOTES OR RESPECTIVE SCHEDULES (PNL, MCC, ETC.) AND INFORMATION IN THE FEEDER AND BRANCH CIRCUIT SCHEDULES.
J. PROVIDE #10 AWG NEUTRALS TO ALL 15A AND 20A RECEPTACLES THAT SHARE A COMMON NEUTRAL, UNLESS OTHERWISE NOTED.
K. PROVIDE SPECIAL RECEPTACLES THAT MATCH CORD AND CAP PROVIDED WITH EQUIPMENT, UON. USE ADJACENT NEMA CONFIGURATION NUMBER, IF ONE IS SHOWN.
L. ALL NEW RACEWAYS AND CONDUCTORS SHALL BE INSTALLED CONCEALED; CUT AND PATCH EXISTING WALLS TO ACCOMMODATE NEW RACEWAY INSTALLATION. ALL CONDUITS TO BE INSTALLED 90° TO BUILDING LINES.
M. FOR ELECTRICAL CONNECTIONS AND CIRCUITING TO MECHANICAL EQUIPMENT SHOWN ON THIS SHEET, REFER TO MECHANICAL AND PLUMBING EQUIPMENT - ELECTRICAL CONNECTION SCHEDULE.
N. PROVIDE BACK BOX AND 3/4" CONDUIT FROM EACH DATA/LOW VOLTAGE DEVICE SHOWN TO ACCESSIBLE CEILING LOCATION. VERIFY QUANTITIES, LOCATIONS, AND REQUIREMENTS WITH LOW VOLTAGE SYSTEM SUPPLIER PRIOR TO ROUGH-IN.
O. THE EXISTING BUILDING INCLUDING PORTIONS OF THE RENOVATED AREA SHALL REMAIN IN SERVICE DURING THE CONSTRUCTION PHASE OF THIS PROJECT. ANY MODIFICATIONS TO THE EXISTING ELECTRICAL SYSTEMS THAT MAY REQUIRE THE TEMPORARY INTERRUPTION OF EXISTING SERVICES SHALL BE COMPLETED AFTER NORMAL WORKING HOURS. PRE-SCHEDULE ANY SERVICE INTERRUPTIONS WITH THE OWNER PRIOR TO STARTING ANY WORK.
P. UTILITY OUTAGES: NOT LESS THAN TEN (10) WORKING DAYS PRIOR TO A REQUIRED UTILITY (POWER, TELE, NET) OUTAGE, NOTIFY AND OBTAIN APPROVAL IN WRITING OF SAID OUTAGE FROM THE FACILITY. NO OUTAGE SHALL BE ACCOMPLISHED PRIOR TO THE RECEIPT OF APPROVAL. CONTRACTOR SHALL LOCK-OUT AND RED-TAG THE APPROPRIATE CIRCUIT BREAKER, SWITCH, ETC. RED-TAG SHALL INDICATE WHEN THE OUTAGE WILL BE TERMINATED, AND A TELEPHONE NUMBER TO CONTACT REGARDING THIS OUTAGE. THE TAG SHALL ALSO WARN PEOPLE NOT TO RE-ENERGIZE THE CIRCUIT SYSTEM BECAUSE OF POTENTIAL DANGER TO PERSONNEL AND EQUIPMENT. ALL WORK ASSOCIATED WITH ANY POWER OUTAGES SHALL BE COMPLETED AFTER NORMAL WORKING HOURS.
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R. WHERE NOTED AS OWNER-SUPPLIED ON DRAWINGS, CONTRACTOR SHALL RECEIVE, INSTALL, AND CONNECT EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. PRIOR TO INSTALLATION OF OWNER-SUPPLIED EQUIPMENT, CONTRACTOR SHALL INSPECT/TEST EQUIPMENT AND INFORM PROJECT MANAGER OF ANY DEFECTS. FAILURE TO DO SO SHALL MEAN THAT THE EQUIPMENT IS IN GOOD WORKING CONDITION. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND TESTING OF SUCH EQUIPMENT.

KEYED NOTES (#)

1. LOCATION OF NEW PANEL D. INTERCEPT FEEDER AND BRANCH CIRCUITS AND EXTEND TO NEW PANEL LOCATION.
2. LOCATION OF NEW PANEL A. INTERCEPT FEEDER AND BRANCH CIRCUITS AND EXTEND TO NEW PANEL LOCATION.
3. LOCATION OF NEW 45KVA TRANSFORMER. INTERCEPT FEEDER AND EXTEND TO NEW LOCATION INDICATED.
4. EXISTING PANEL DO SERVES EXISTING OUTDOOR LIGHTING THAT SHALL REMAIN. EXISTING ASSOCIATED OUTDOOR LIGHTING CONTROLS LOCATED ABOVE AND INSIDE PANEL DO SHALL REMAIN.
5. REPLACE EXISTING DEVICE AND COVERPLATE WITH NEW. VERIFY COLOR/FINISH WITH ARCHITECT.
6. FAN COIL UNIT (FCU) POWERED FROM ASSOCIATED CONDENSING UNIT (CU), CU-1 ON ROOF. PROVIDE 2#12, 1#12G IN 3/4"C. PROVIDE 1" CONDUIT BETWEEN FCU AND CU FOR CONTROL WIRING.
7. RECEPTACLE FOR PLUG-IN POWER FOR CONDENSATE PUMP. VERIFY EXACT LOCATION OF PUMP PRIOR TO ROUGH-IN OF RECEPTACLE.
8. PROVIDE CONCRETE PAD PER MANUFACTURER REQUIREMENTS OUTLINED IN SHOP DRAWINGS.

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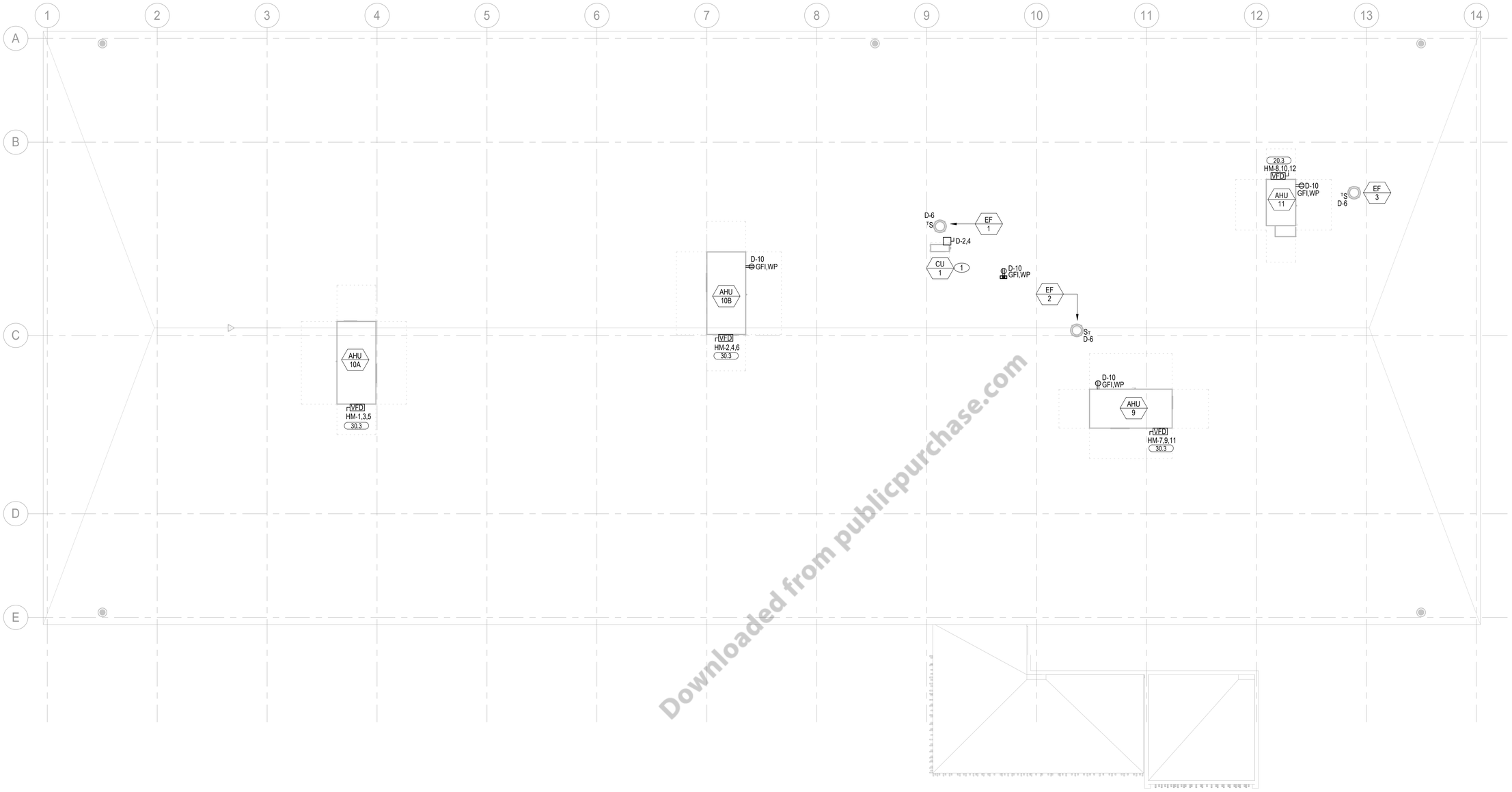
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SECOND FLOOR - POWER PLAN

E3.11

Please go to publicpurchase.com to make sure you have the latest information and any addendums released



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1 ROOF - POWER PLAN

SCALE: 1/8" = 1'-0"

N

0 8' - 0" 16' - 0" 24' - 0" 32' - 0"

SHEET NOTES

A. WHERE POSSIBLE, BOXES SHALL BE IN SEPARATE STUD SPACES FROM BOXES SERVING OTHER ROOMS TO MINIMIZE SOUND TRANSFER.
B. COORDINATE EXACT MECHANICAL EQUIPMENT LOCATIONS AND REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. COORDINATE CONDUIT REQUIREMENTS FOR ALL HVAC EQUIPMENT WITH CONTROLS CONTRACTOR.
C. PROVIDE 4" HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
D. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION ON NAMED ELECTRICAL EQUIPMENT SHOWN.
E. REFER TO DETAIL DRAWINGS FOR ADDITIONAL INFORMATION. ALL DETAILS APPLY FOR ALL APPLICABLE SITUATIONS WHETHER REFERENCED OR NOT, UON.
F. REFER TO ARCHITECTURAL FLOOR PLANS, INTERIOR ELEVATIONS AND DETAIL DRAWINGS PRIOR TO ROUGH-IN FOR EXACT LOCATION OF RECEPTACLES, FLOOR BOXES AND OUTLETS. INFORM ENGINEER OF CONFLICTS.
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KEYED NOTES (#)

1. CONDENSING UNIT TO FEED ASSOCIATED FAN COIL UNIT, FCU-1 IN ELECTRICAL ROOM 301 ON LEVEL 2.

Please go to publicpurchase.com to make sure you have the latest information and any addendums released

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ROOF - POWER PLAN

E3.12

BRANCH CIRCUIT SCHEDULE

CIRCUIT TAG	CONDUITS			CONDUCTORS PER SET		NOTES
	MET	SETS	RNC	PHASE/NEUTRAL	GROUND	
60.2N	0.75"	1	1.00"	(2) #6, (1) #6N	#10	_
60.2	0.75"	1	1.00"	(2) #6	#10	_
60.1	0.75"	1	1.00"	(1) #6, (1) #6N	#10	_
50.2N	0.75"	1	1.00"	(2) #6, (1) #6N	#10	_
50.2	0.75"	1	1.00"	(2) #6	#10	_
50.1	0.75"	1	1.00"	(1) #6, (1) #6N	#10	_
40.2N	0.75"	1	1.00"	(2) #8, (1) #8N	#10	_
40.2	0.75"	1	1.00"	(2) #8	#10	_
40.1	0.75"	1	1.00"	(1) #8, (1) #8N	#10	_
30.2N	0.75"	1	1.00"	(2) #10, (1) #10N	#10	_
30.2	0.75"	1	1.00"	(2) #10	#10	_
30.1	0.75"	1	1.00"	(1) #10, (1) #10N	#10	_
20.2N	0.50"	1	1.00"	(2) #12, (1) #12N	#12	7,8
20.2	0.50"	1	1.00"	(2) #12	#12	7,8
20.1	0.50"	1	1.00"	(1) #12, (1) #12N	#12	7,8

GENERAL NOTES:

A. CONDUCTORS AND CONDUITS SHOWN IN THIS SCHEDULE ARE BASED ON COPPER CONDUCTORS WITH THHN/THWN INSULATION.
B. THIS SCHEDULE SHALL BE USED ON ALL BRANCH CIRCUITS SERVING LOADS WHERE THE CIRCUIT BREAKER SIZE MATCHES THE AMPACITY OF ITS FEEDER. USE THE "MOTOR CIRCUIT SCHEDULE" FOR LOADS, SUCH AS MOTORS, PUMPS, FANS, CHILLERS, ETC., WHERE THE CIRCUIT BREAKER SIZE IS LARGER THAN THE AMPACITY OF ITS FEEDER.
C. PROVIDE GROUND WIRE NOTED ABOVE IN ALL BRANCH CIRCUITS.
D. NOT ALL BRANCH CIRCUITS SHOWN ABOVE ARE NECESSARILY USED ON THIS PROJECT.
E. "MET"= EMT, IMC, GRC, RAC, OR PVC COATED GRC TYPE CONDUITS. "RNC"= PVC 40, PVC 80 OR FIBERGLASS TYPE CONDUITS ROUTED UNDERGROUND. REFER TO SIZING ON DRAWINGS IF "RNC" CONDUITS ARE ROUTED ABOVEGROUND. CONDUIT SIZES NOTED ON SINGLE-LINE DIAGRAM OR ON PLANS SUPERSEDE SIZES NOTED ABOVE IF LARGER.
F. THIS SCHEDULE APPLIES TO STANDARD LENGTH CIRCUITS ONLY. CONTRACTOR TO UPSIZE WIRING AS REQUIRED TO MEET MINIMUM VOLTAGE DROP REQUIREMENTS INDICATED IN SPECIFICATIONS. GROUND CONDUCTOR WILL ALSO NEED TO BE INCREASED PROPORTIONATELY AS REQUIRED BY NEC.
G. ALL HOMERUNS SHALL USE 0.75" CONDUIT SIZE MINIMUM.

KEYED NOTES:

1. THESE BRANCH CIRCUITS TAGS ARE TYPICALLY NOT SHOWN ON PLANS FOR CLARITY REASONS. CONTRACTOR SHALL USE THIS INFORMATION AS IT APPLIES FOR ALL CONDUITS CONTAINING ONE OR MORE 20A/1P CIRCUITS.
2. CONTRACTOR MAY COMBINE 20A 1 AND 2-POLE CIRCUITS, UP TO A MAXIMUM OF (3) PHASE CONDUCTORS, IN ONE CONDUIT. ALL 3-PHASE AND CIRCUITS LARGER THAN 20A SHALL BE IN DEDICATED CONDUITS, UON. PROVIDE DEDICATED NEUTRALS FOR EACH 1-POLE CIRCUIT.

VOLTAGE DROP TABLE

		MAXIMUM ALLOWED RUN LENGTH (FT)				
VOLT	AMP	#12	#10	#8	#6	#4
120	2	500	800	1200	2000	3250
	4	250	400	600	1000	1625
	6	175	250	400	650	1100
	8	125	200	325	500	800
	10	100	150	250	400	650
	12	85	125	200	350	550
	14	75	110	175	300	450
	16	60	100	150	250	400
277	2	1100	1800	2750		
	4	550	900	1375		
	6	350	600	950		
	8	275	450	700		
	10	225	350	550		
	12	175	300	475		
	14	150	250	400		
	16	140	225	360		

NOTES:

1. THIS SCHEDULE APPLIES TO ALL BRANCH CIRCUITS. CONTRACTOR SHALL PROVIDE UPSIZED CONDUCTORS AND CONDUIT/ RACEWAYS AS REQUIRED FOR EACH SITUATION.
2. THIS SCHEDULE IS FOR 3% VOLTAGE DROP USING COPPER CONDUCTORS. ALUMINUM CONDUCTORS ARE NOT ALLOWED TO SERVE BRANCH CIRCUITS.
3. USE 12-AMPS FOR ALL CIRCUITS SERVING ONE OR MORE RECEPTACLES, UNLESS HIGHER AMPACITY IS APPROPRIATE OR REQUIRED. USE FULL LOAD AMPS (FLA) OF EQUIPMENT SERVED X 125% FOR ALL OTHER CIRCUITS THAT SERVE A DEDICATED LOAD WITH NO PLANS FOR ADDING FUTURE EQUIPMENT OR A RECEPTACLE TO THAT CIRCUIT.
4. WHENEVER BRANCH CIRCUIT CONDUCTORS ARE UPSIZED THE ASSOCIATED GROUND CONDUCTOR SHALL ALSO BE UPSIZED, PER NEC 250.122.

TRANSFORMER SCHEDULE - COPPER FEEDERS {1}

KVA	FEEDER TAG {2}	480V PRIMARY		208Y/120V SECONDARY			
		C.B.	FEEDER , EGC	C.B.	FEEDER, SSBJ {3}	GEC {4}	SBJ
15	XFR	30/3	30.3	50/3	(4)#6, (1)#8, 1"C.	(1)#8	(1)#8
30		50/3	50.3	100/3	(4)#2, (1)#8, 1.25"C.	(1)#8	(1)#8
45		70/3	70.3	150/3	(4)#1/0, (1)#6, 2"C.	(1)#6	(1)#6
75		125/3	125.3	225/3	(4)#4/0, (1)#2, 2.5"C.	(1)#2	(1)#2
112.5		175/3	175.3	400/3	(2) SETS OF [(4)#3/0, (1)#2, 2.5"C.]	(1)#2	(1)#2
150		225/3	225.3	500/3	(2) SETS OF [(4)#250, (1)#1/0, 2.5"C.]	(1)#1/0	(1)#1/0
225		350/3	350.3	800/3	(3) SETS OF [(4)#300, (1)#2/0, 3"C.]	(1)#2/0	(1)#2/0
300		450/3	450.3	1000/3	(3) SETS OF [(4)#400, (1)#3/0, 3"C.]	(1)#3/0	(1)#3/0
500		800/3	800.3	1600/3	(5) SETS OF [(4)#400, (1)#250, 3"C.]	(1)#3/0	(1)#250
750		1200/3	1200.3	2500/3	(7) SETS OF [(4)#500, (1)#500, 3.5"C.]	(1)#3/0	(1)#500
1000		1600/3	1600.3	3000/3 (5)	(8) SETS OF [(4)#500, (1)#500, 3.5"C.]	(1)#3/0	(1)#500

NOTES (#):

1. THIS SCHEDULE ONLY APPLIES TO 3-PHASE, 480:208Y/120V STEP-DOWN, NON FAN-COOLED TRANSFORMERS USING COPPER PRIMARY & SECONDARY FEEDERS WITH 100% RATED NEUTRALS.
2. ON ONE-LINE DIAGRAMS AND SCHEDULES WHERE FEEDERS AND CIRCUIT BREAKERS ARE SHOWN AS "XFR", PROVIDE FEEDERS, GROUND CONDUCTORS AND BREAKERS NOTED ABOVE. PROVIDE SECONDARY BREAKER NOTED ABOVE AS MAIN CIRCUIT BREAKER OF SERVED ELECTRICAL EQUIPMENT, UON. PROVIDE SEPARATE ENCLOSED CIRCUIT BREAKER IF DISTANCE FROM TRANSFORMER TO EQUIPMENT EXCEEDS NEC LIMITATIONS.
3. SUPPLY SIDE BONDING JUMPER (SSBJ) SIZED PER NEC 250.102(C)(1)
4. ROUTE GEC TO GROUNDING ELECTRODE PER SPECS AND GROUNDING DETAILS. COMMON LEAD OF LARGEST REQUIRED SIZE MAY BE EMPLOYED TO SERVE MULTIPLE TRANSFORMERS.
5. PROVIDE 100% RATED 3000A BREAKER ON SECONDARY SIDE OF 1000KVA TRANSFORMER.

ABBREVIATIONS:

SBJ	SYSTEM BONDING JUMPER
GEC	GROUNDING ELECTRODE CONDUCTOR
SSBJ	SUPPLY SIDE BONDING JUMPER
EGC	EQUIPMENT GROUNDING CONDUCTOR

COPPER FEEDER SCHEDULE

FEEDER TAG	CONDUITS			CONDUCTORS PER SET		NOTES
	MET	SETS	RNC	PHASE/NEUTRAL	GROUND	
4000.4	3.50"	11	4.00"	(4) 500 KCMIL	500 KCMIL	-
4000.3	3.00"	11	4.00"	(3) 500 KCMIL	500 KCMIL	-
3500.4	3.50"	10	4.00"	(4) 500 KCMIL	500 KCMIL	-
3500.3	3.00"	10	4.00"	(3) 500 KCMIL	500 KCMIL	-
3000.4	3.50"	8	4.00"	(4) 500 KCMIL	400 KCMIL	-
3000.3	3.00"	8	4.00"	(3) 500 KCMIL	400 KCMIL	-
2500.4	3.50"	7	4.00"	(4) 500 KCMIL	350 KCMIL	-
2500.3	3.00"	7	4.00"	(3) 500 KCMIL	350 KCMIL	-
2000.4	3.00"	6	4.00"	(4) 400 KCMIL	250 KCMIL	-
2000.3	3.00"	6	4.00"	(3) 400 KCMIL	250 KCMIL	-
1600.4	3.00"	5	4.00"	(4) 400 KCMIL	#4/0	-
1600.3	3.00"	5	4.00"	(3) 400 KCMIL	#4/0	-
1200.4	3.00"	4	4.00"	(4) 350 KCMIL	#3/0	-
1200.3	3.00"	4	3.00"	(3) 350 KCMIL	#3/0	-
1000.4	3.00"	3	4.00"	(4) 400 KCMIL	#2/0	-
1000.3	3.00"	3	4.00"	(3) 400 KCMIL	#2/0	-
800.4	3.00"	3	3.00"	(4) 300 KCMIL	#1/0	-
800.3	2.50"	3	3.00"	(3) 300 KCMIL	#1/0	-
700.4	3.50"	2	4.00"	(4) 500 KCMIL	#1/0	-
700.3	3.00"	2	4.00"	(3) 500 KCMIL	#1/0	-
600.4	3.00"	2	4.00"	(4) 350 KCMIL	#1	-
600.3	2.50"	2	3.00"	(3) 350 KCMIL	#1	-
500.4	2.50"	2	3.00"	(4) 250 KCMIL	#2	-
500.3	2.50"	2	2.50"	(3) 250 KCMIL	#2	-
450.4	2.50"	2	3.00"	(4) #4/0	#2	-
450.3	2.00"	2	2.50"	(3) #4/0	#2	-
400.4	2.00"	2	2.50"	(4) #3/0	#2	-
400.3	2.00"	2	2.50"	(3) #3/0	#2	-
350.4	3.50"	1	4.00"	(4) 500 KCMIL	#2	-
350.3	3.50"	1	4.00"	(3) 500 KCMIL	#2	-
300.4	3.00"	1	3.00"	(4) 350 KCMIL	#4	-
300.3	2.50"	1	3.00"	(3) 350 KCMIL	#4	-
250.4	2.50"	1	3.00"	(4) 250 KCMIL	#4	-
250.3	2.50"	1	3.00"	(3) 250 KCMIL	#4	-

FEEDER TAG	CONDUITS			CONDUCTORS PER SET		NOTES
	MET	SETS	RNC	PHASE/NEUTRAL	GROUND	
225.4	2.50"	1	3.00"	(4) #4/0	#4	-
225.3	2.00"	1	2.50"	(3) #4/0	#4	-
200.4	2.00"	1	2.50"	(4) #3/0	#6	-
200.3	2.00"	1	2.50"	(3) #3/0	#6	-
175.4	2.00"	1	2.50"	(4) #2/0	#6	-
175.3	1.50"	1	2.00"	(3) #2/0	#6	-
150.4	2.00"	1	2.00"	(4) #1/0	#6	-
150.3	1.50"	1	2.00"	(3) #1/0	#6	-
125.4	1.50"	1	1.50"	(4) #1	#6	-
125.3	1.25"	1	1.50"	(3) #1	#6	-
110.4	1.25"	1	1.50"	(4) #2	#6	-
110.3	1.25"	1	1.50"	(3) #2	#6	-
100.4	1.25"	1	1.50"	(4) #2	#8	-
100.3	1.25"	1	1.50"	(3) #2	#8	-
90.4	1.25"	1	1.50"	(4) #2	#8	-
90.3	1.25"	1	1.50"	(3) #2	#8	-
80.4	1.25"	1	1.50"	(4) #4	#8	-
80.3	1.00"	1	1.50"	(3) #4	#8	-
70.4	1.25"	1	1.50"	(4) #4	#8	-
70.3	1.00"	1	1.50"	(3) #4	#8	-
60.4	1.00"	1	1.00"	(4) #6	#10	-
60.3	0.75"	1	1.00"	(3) #6	#10	-
50.4	1.00"	1	1.00"	(4) #6	#10	-
50.3	0.75"	1	1.00"	(3) #6	#10	-
40.4	0.75"	1	1.00"	(4) #8	#10	-
40.3	0.75"	1	1.00"	(3) #8	#10	-
30.4	0.75"	1	1.00"	(4) #10	#10	-
30.3	0.75"	1	1.00"	(3) #10	#10	-
20.4	0.75"	1	1.00"	(4) #12	#12	-
20.3	0.75"	1	1.00"	(3) #12	#12	-
----K						1
XFR						2
SCHD						3

GENERAL NOTES:

A. CONDUCTORS AND CONDUITS SHOWN IN THIS SCHEDULE ARE BASED ON COPPER CONDUCTORS WITH THHN/THWN INSULATION.
B. THIS SCHEDULE SHALL BE USED ON ALL FEEDERS SERVING LOADS WHERE THE CIRCUIT BREAKER SIZE MATCHES THE AMPACITY OF ITS FEEDER. USE THE "MOTOR CIRCUIT SCHEDULE" FOR LOADS, SUCH AS MOTORS, PUMPS, FANS, CHILLERS, ETC., WHERE THE CIRCUIT BREAKER SIZE IS LARGER THAN THE AMPACITY OF ITS FEEDER.
C. PROVIDE GROUND WIRE NOTED ABOVE IN ALL FEEDERS AND BRANCH CIRCUITS. WHERE MULTIPLE CONDUITS ARE INDICATED PROVIDE NOTED GROUND WIRE IN EACH CONDUIT.
D. NOT ALL FEEDERS ARE NECESSARILY USED ON THIS PROJECT.
E. NOMINAL AMPACITIES GREATER THAN 100 AMPS ARE FOR 75 DEG..C TERMINALS.
F. "MET"= EMT, IMC, GRC, RAC, OR PVC COATED GRC TYPE CONDUITS. "RNC"= PVC 40, PVC 80 OR FIBERGLASS TYPE CONDUITS ROUTED UNDERGROUND. REFER TO SIZING ON DRAWINGS IF "RNC" CONDUITS ARE ROUTED ABOVEGROUND. CONDUIT SIZES NOTED ON SINGLE-LINE DIAGRAM OR ON PLANS SUPERSEDE SIZES NOTED ABOVE IF LARGER
G. NEUTRAL CONDUCTORS THAT CARRY UNBALANCED CURRENT ARE CONSIDERED NON-CURRENT CARRYING CONDUCTORS.

KEYED NOTES:

1. OVERSIZED (173% MIN.) NEUTRAL FOR FEEDERS CONNECTED TO A K-4 OR HIGHER RATED TRANSFORMER.
2. REFER TO TRANSFORMER SCHEDULE FOR STANDARD PRIMARY AND SECONDARY FEEDER SIZES.
3. REFER TO MCC OR PANEL SCHEDULES FOR FEEDER SIZES TO EQUIPMENT NOTED WITH THIS TAG.

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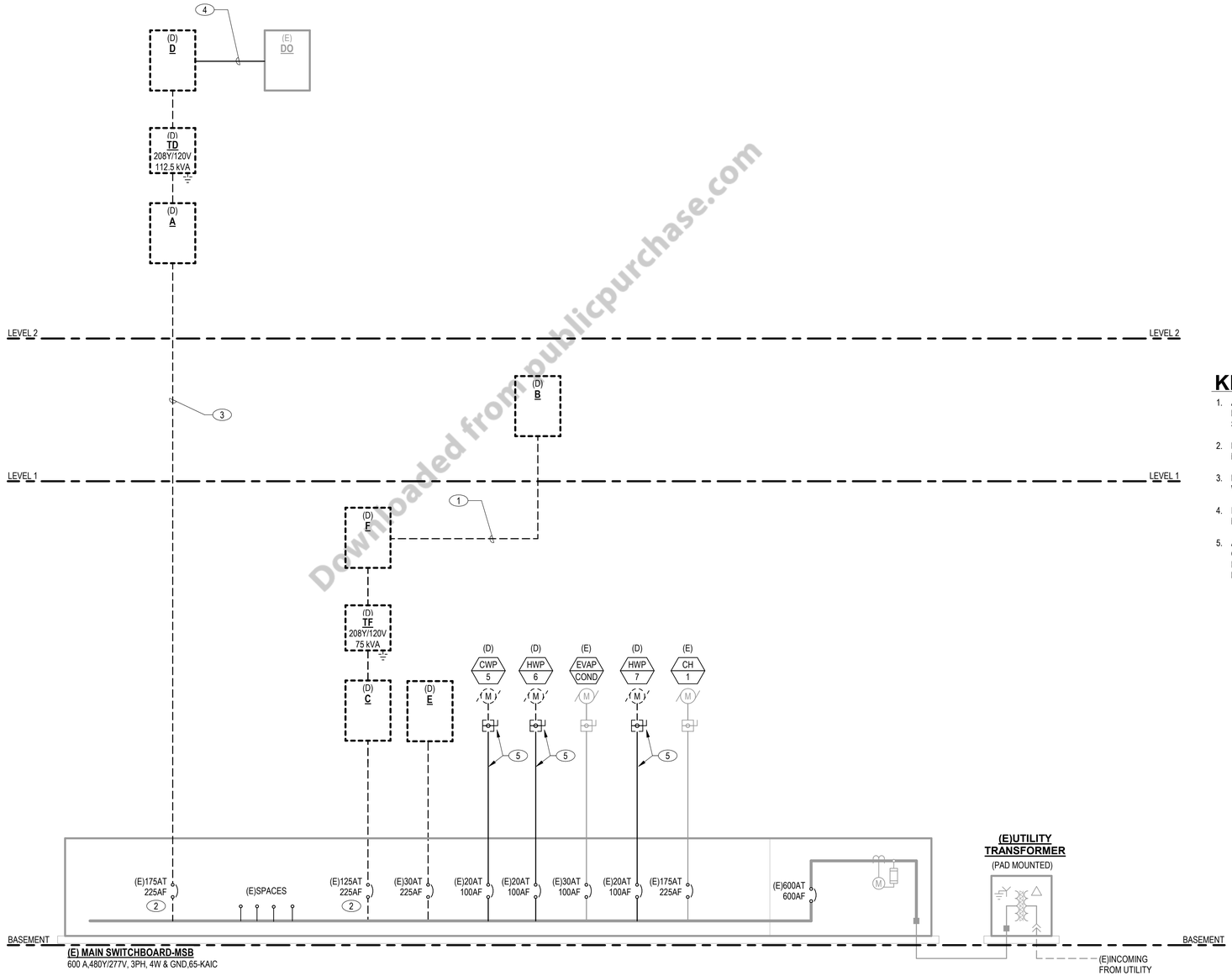
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ELECTRICAL SCHEDULES

E5.10

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1 SINGLE LINE DIAGRAM - DEMOLITION

SCALE: 12" = 1'-0"

KEYED NOTES

1. A PORTION OF EXISTING CONDUIT TO BE REUSED AS PART OF NEW WORK. REFER TO SHEET E5.12 FOR NEW SCOPE OF WORK.
2. EXISTING CIRCUIT BREAKER TO BE REUSED AS PART OF NEW WORK.
3. EXISTING CONDUIT TO BE REUSED AS PART OF NEW WORK.
4. INTERCEPT AND EXTEND EXISTING FEEDER AS PART OF NEW WORK.
5. A PORTION OF EXISTING FEEDER TO BE REUSED AS PART OF NEW WORK. DISCONNECT AND REMOVE FEEDER FROM HVAC EQUIPMENT TO DISCONNECT SWITCH. REMOVE ASSOCIATED DISCONNECT SWTICH.

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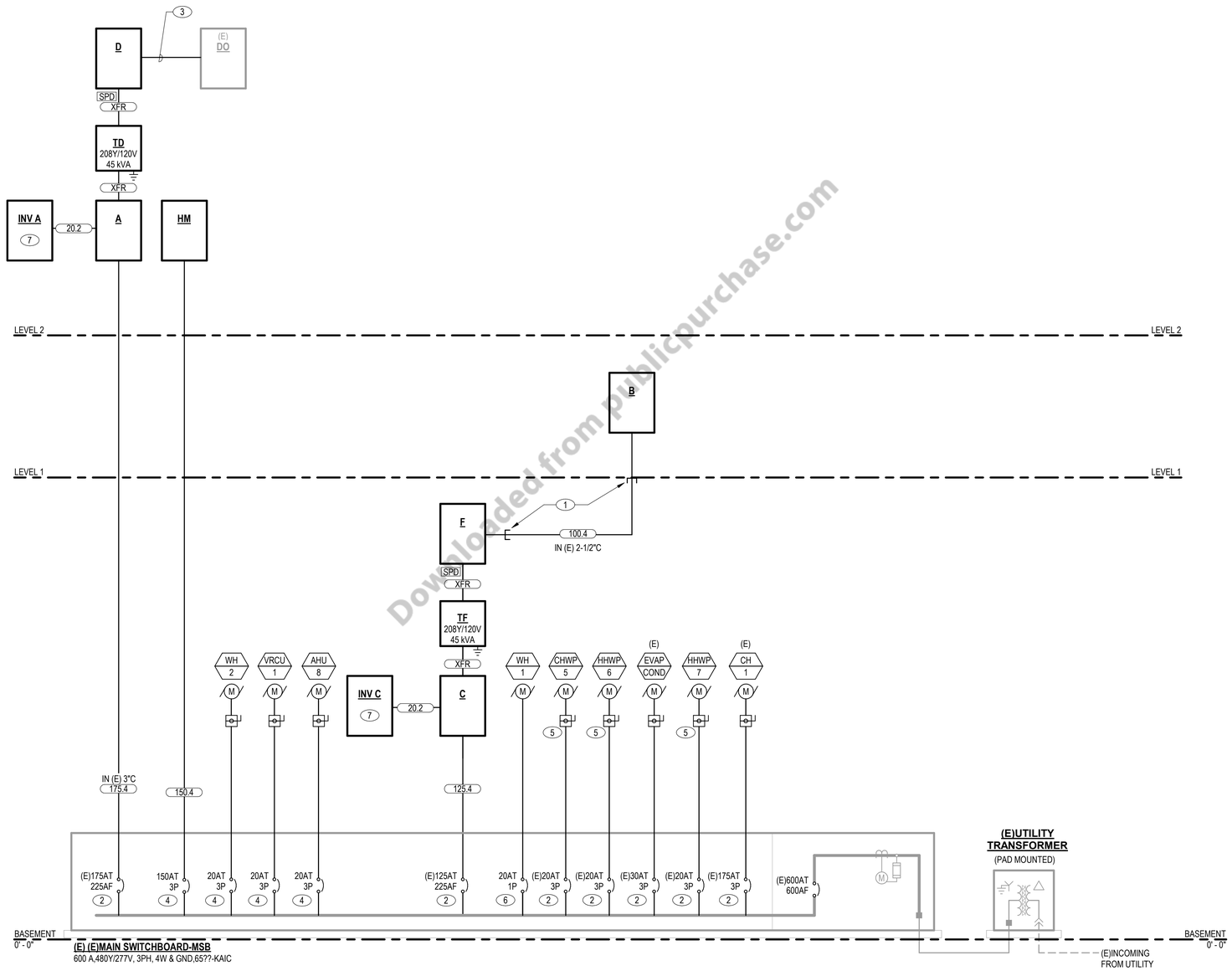
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ELECTRICAL SINGLE LINE DIAGRAM - DEMO

E5.11

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1 SINGLE LINE DIAGRAM - NEW

SCALE: 12" = 1'-0"

SHEET NOTES

A. REFER TO SCHEDULES FOR FEEDER SIZES.
B. VERIFY AVAILABLE FAULT CURRENT WITH UTILITY AND PROVIDE FAULT CURRENT STUDY BASED ON INSTALLED EQUIPMENT AND CONDUCTORS.
C. ALL COMPONENTS SHALL BE FULLY RATED. SERIES RATED IS NOT ALLOWED.
D. ALL TRANSFORMERS ARE 480V DELTA PRIMARY TO 208Y/120V SECONDARY, 115 DEGREE C. RISE, U.O.N.
E. LOCATE ALL 208/120V PANELS WITHIN TEN FEET OF ASSOCIATED TRANSFORMER. OTHERWISE, PROVIDE FUSED DISCONNECT OR MOUNTED CIRCUIT BREAKER WITHIN TEN FEET TO PROTECT SECONDARY CONDUCTORS PER NEC 240.21(C)(2).
F. PROVIDE CABLE SUPPORTS FOR CONDUCTORS IN VERTICAL RACEWAYS PER NEC 300.19.
G. PROVIDE SURGE PROTECTIVE DEVICES ON THE LOAD SIDE OF THE FIRST OVERCURRENT DEVICE IN EACH SEPARATELY DERIVED SYSTEM (INCLUDING ALL PANELS FED FROM A TRANSFORMER) PER NEC 242.14(C).
H. PROVIDE FUSED OCPD'S OR OVERSIZED CIRCUIT BREAKER FRAME SIZES, AS REQUIRED. SUBMIT COORDINATION STUDY FOR ENGINEER REVIEW PRIOR TO PURCHASING EQUIPMENT. REFER TO SPECIFICATIONS FOR ADDITIONAL SELECTIVE COORDINATION STUDY AND ARC FLASH ANALYSIS AND LABEL REQUIREMENTS.
I. PANELBOARD SUBMITTAL SHALL BE PREPARED USING THE RESULTS OF THE POWER SYSTEM STUDIES, INCLUDING APPROPRIATE BREAKER TYPES AND FRAME RATINGS. IF THE CONTRACTOR PURCHASES EQUIPMENT BEFORE THE ENGINEER HAS REVIEWED AND APPROVED THE STUDIES RESULTS, THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CORRECTING THE EQUIPMENT TO COMPLY WITH THE RESULTS OF THE FINAL STUDY.
J. FEEDER LENGTHS SHOWN ARE FOR CALCULATION PURPOSES ONLY. CONTRACTOR SHALL NOT USE FEEDER LENGTHS FOR PRICING OR QUANTITY PURPOSES.
K. VOLTAGE DROP VALUES SHOWN REPRESENT THE TOTAL VOLTAGE DROP PERCENT FROM THE VOLTAGE SOURCE TO THE EQUIPMENT LABELED.
L. WHERE FEEDER CONDUCTORS HAVE BEEN OVERSIZED FOR VOLTAGE DROP AND ARE LARGER THAN THE LANDING BLOCKS OF THE DESTINATION BREAKER, CONTRACTOR SHALL REDUCE THE FEEDER SIZE PRIOR TO LANDING ON THE BREAKER. ALL REDUCTIONS AND SPLICING SHALL OCCUR OUTSIDE OF THE PANEL ENCLOSURE AT THE NEAREST PRACTICAL LOCATION IN AN ENCLOSURE LISTED FOR THIS PURPOSE.
M. ALL VFD'S AND MOTOR CONTROLLERS, INCLUDING THOSE PROVIDED BY OTHER TRADES, SHALL BE SIZED FOR THE MOTOR BEING SERVED, RATED FOR AVAILABLE FAULT CURRENT, AND INCLUDE OVERLOAD PROTECTION FOR THE MOTOR HP AND CLASS BEING SERVED.
N. PROVIDE ARC-FLASH HAZARD ANALYSIS STUDY BASED ON INSTALLED EQUIPMENT AND CONDUCTORS PER NEC 110.16. INSTALL ARC-FLASH WARNING LABELS ON ALL ELECTRICAL EQUIPMENT INCLUDED IN STUDY.

KEYED NOTES (#)

1. INTERCEPT EXISTING CONDUIT AT BOTH ENDS ON BASEMENT LEVEL AND EXTEND ACCORDINGLY TO REUSE WITH NEW WIRING.
2. EXISTING CIRCUIT BREAKER TO BE REUSED AS PART OF NEW WORK.
3. INTERCEPT EXISTING FEEDER FOR PANEL DO AND EXTEND TO NEW LOCATION OF PANEL D. ASSUME 4#2, 1#8G IN 1-1/4"C.
4. PROVIDE NEW BREAKER IN EXISTING SPACE. NEW BREAKER TO MATCH EXISTING IN TYPE AND AIC RATING.
5. EXTEND EXISTING FEEDER FROM MAIN SWITCHBOARD TO NEW HVAC EQUIPMENT VIA NEW VFD. MAKE FINAL CONNECTION FROM VFD TO EQUIPMENT.
6. REPLACE EXISTING BREAKER WITH NEW BREAKER INDICATED. NEW BREAKER TO MATCH EXISTING IN TYPE AND AIC RATING.
7. LIGHTING INVERTER WITH 90 MINUTE BATTERY BACK-UP TO SERVE EGRESS LIGHTING: MYERS ILLUMINATOR SUPERNOVA SERIES 6-I-02-S-BD2008.

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ELECTRICAL SINGLE LINE DIAGRAM - NEW

E5.12

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PANEL: B

VOLTAGE: 208Y/120V, 3PH, 4W
MOUNTING: SURFACE
BUS RATING: 100 A
MAIN AMPS: 100 A MCB
AIC RATING: 10KAIC

NEMA RATING: Type 1
INTEGRAL SPD: No
ISOL GROUND BAR: No
FEED-THRU LUGS: No
DOUBLE-LUGS: No

LOCATION:
SUPPLY FROM: F

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	20 A	1	FLR BOX AREA 204	N	1.08	0.78					R	OPEN OFFICE 205	2	20 A	2
3	20 A	1	RCPT AREA 204	R			0.72	0.3							4
5	20 A	1	RCPT NURSING/RR	R					0.9	0.3	R	OPEN OFFICE 205	2	20 A	6
7	20 A	1	RCPT RR/HALLWAY	R	0.72	0.3									8
9	20 A	1	RCPT AREA 205	R			0.54	0.15			R	OPEN OFFICE 205	2	20 A	10
11	20 A	1	COPIER/PRINTER AREA 205	N					0.18	0.15					12
13	20 A	1	RCPT OFFICE	R	0.54	0.15					R	OPEN OFFICE 205	2	20 A	14
15	20 A	1	RCPTS STORAGE 213	R; N			0.54	0.15							16
17	20 A	1	RCPT CONFERENCE RM	R; N					1.26	0	--	SPARE	1	20 A	18
19	20 A	1	FLR BOX CONFERENCE RM	C; N	0.36	0					--	SPARE	1	20 A	20
21	20 A	1	DRINKING FOUNTAINS	K			0.36	0			--	SPARE	1	20 A	22
23	20 A	1	FLR BOX LIBRARY 200	R; N					0.9	0	--	(E) RCPTS	1	20 A	24
25	20 A	1	FLR BOX LIBRARY 200	R; N	1.8	0					--	(E) RCPTS	1	20 A	26
27	20 A	1	FLR BOX LIBRARY 200	N			1.8	0			--	(E) RCPTS	1	20 A	28
29	20 A	1	FLR BOX LIBRARY 200	N					1.08	0	--	(E) RCPTS	1	20 A	30
31	20 A	1	FLR BOX LIBRARY 200	N	1.44	0					--	(E) RCPTS	1	20 A	32
33	20 A	1	RCPT VIDEO WALL SELFIE WALL 220	R			0.36	--			--	SPACE	1	--	34
35	20 A	1	(E) EXHAUST FAN - IN-GRADE	M					0.53	--	--	SPACE	1	--	36
37	20 A	1	RCPT COMPUTERS LIBRARY 200	R	0.72	--					--	SPACE	1	--	38
39	20 A	1	RCPT COMPUTERS LIBRARY 200	R			1.08	--			--	SPACE	1	--	40
41	20 A	1	RCPT COMPUTERS LIBRARY 200	R					0.9	--	--	SPACE	1	--	42
43	20 A	1	RCPT COMPUTERS LIBRARY 200	R	0.72	--					--	SPACE	1	--	44
45	20 A	1	SPARE	--			0	--			--	SPACE	1	--	46
47	20 A	1	SPARE	--					0	--	--	SPACE	1	--	48
49	20 A	1	SPARE	--	0	--					--	SPACE	1	--	50
51	20 A	1	SPARE	--			0	--			--	SPACE	1	--	52
53	20 A	1	SPARE	--					0	--	--	SPACE	1	--	54
SPECIAL PANEL FEATURES					8.13 kVA		6 kVA		6.2 kVA						

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND...
C	0.18 kVA	125%	0.23 kVA
K	0.36 kVA	100%	0.36 kVA
N	8.46 kVA	100%	8.46 kVA
R	10.8 kVA	96%	10.4 kVA
Motor	0.53 kVA	125%	0.66 kVA

LOAD TYPE KEY
C = CONTINUOUS
K = KITCHEN
L = LIGHTING
M = MOTOR
N = NON-CONTINUOUS
R = RECEPTACLE

PANEL TOTALS	KVA	AMPS
TOTAL CONNECTED LOAD:	20.33 kVA	56.4 A
TOTAL DEMAND LOAD:	20.11 kVA	55.8 A
SPARE CAPACITY:	25%	25%
DESIGNED CAPACITY:	**25.13 kVA**	**70 A**

PANEL: C

VOLTAGE: 480Y/277V, 3PH, 4W
MOUNTING: SURFACE
BUS RATING: 125 A
MAIN AMPS: 125 A MLO
AIC RATING: 18KAIC

NEMA RATING: Type 1
INTEGRAL SPD: No
ISOL GROUND BAR: No
FEED-THRU LUGS: No
DOUBLE-LUGS: No

LOCATION: ELECTRICAL 100
SUPPLY FROM: MSB

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1				M; R;	10.33	0.9					L;...	LIGHTING INVERTER INV-C	1	20 A	2
3	70 A	3	PANEL F VIA TRANSFORMER TF	K; C;			8.06	0			--	SPARE	1	20 A	4
5				N;...					7.62	0	--	SPARE	1	20 A	6
7	20 A	1	LTG BASEMENT	L	0.54	0					--	SPARE	1	20 A	8
9	20 A	1	LTG BASEMENT	L			0.54	0			--	SPARE	1	20 A	10
11	20 A	1	SPARE	--					0	0	--	SPARE	1	20 A	12
13	20 A	1	SPARE	--	0	--					--	SPACE	1	--	14
15	20 A	1	SPARE	--			0	--			--	SPACE	1	--	16
17	20 A	1	SPARE	--					0	--	--	SPACE	1	--	18
19	20 A	1	SPARE	--	0	--					--	SPACE	1	--	20
21	20 A	1	SPARE	--			0	--			--	SPACE	1	--	22
23	--	1	SPACE	--					--	--	--	SPACE	1	--	24
25	--	1	SPACE	--	--	--					--	SPACE	1	--	26
27	--	1	SPACE	--			--	--			--	SPACE	1	--	28
29	--	1	SPACE	--					--	--	--	SPACE	1	--	30
31	--	1	SPACE	--	--	--					--	SPACE	1	--	32
33	--	1	SPACE	--			--	--			--	SPACE	1	--	34
35	--	1	SPACE	--					--	--	--	SPACE	1	--	36
37	--	1	SPACE	--	--	--					--	SPACE	1	--	38
39	--	1	SPACE	--			--	--			--	SPACE	1	--	40
41	--	1	SPACE	--					--	--	--	SPACE	1	--	42
SPECIAL PANEL FEATURES					11.78 kVA		8.6 kVA		7.62 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD
C	1.68 kVA	125%	2.1 kVA
K	0.36 kVA	100%	0.36 kVA
L	1.98 kVA	125%	2.48 kVA
M	2.13 kVA	100%	2.13 kVA
N	8.76 kVA	100%	8.76 kVA
R	11.52 kVA	93%	10.76 kVA
Motor	1.56 kVA	125%	1.96 kVA

LOAD TYPE KEY
C = CONTINUOUS
E = ELEVATOR
K = KITCHEN
L = LIGHTING
M = MOTOR
MOTOR = LARGEST MOTOR
N = NON-CONTINUOUS
R = RECEPTACLE

PANEL TOTALS	KVA	AMPS
TOTAL CONNECTED LOAD:	28 kVA	33.7 A
TOTAL DEMAND LOAD:	28.54 kVA	34.3 A
SPARE CAPACITY:	25%	25%
DESIGNED CAPACITY:	**35.68 kVA**	**43 A**

(E)SWBD MSB

VOLTAGE: 480Y/277V, 3PH, 4W
MOUNTING: PAD
MAIN AMPS/ TYPE: 600 A/
BUS AMPS: 600 A

INTEGRAL SPD: No
NEMA RATING:
AIC RATING: EXISTING

POWER SOURCE TYPE: NORMAL
LOCATION: (E) MECHANICAL 103
SUPPLY FROM:

CKT	CIRCUIT DESCRIPTION	NO.of POLES	LOAD TYPE	FRAME SIZE	TRIP RATING	FEEDER TAG	A	B	C	REMARKS
1	PANEL A	3	L; M;...	225 A	175 A		8.59 kVA	6.75 kVA	5.83 kVA	
2	PANEL C	3	L; M;...	225 A	125 A		11.78 kVA	8.6 kVA	7.62 kVA	
3	PANEL HM	3	M;...	225 A	150 A		17.63 kVA	17.63 kVA	17.63 kVA	
4	AHU-8	3	M	100 A	20 A		0.83 kVA	0.83 kVA	0.83 kVA	
5	HHWP-7	3	M	100 A	20 A		0.94 kVA	0.94 kVA	0.94 kVA	
6	HHWP-6	3	M	100 A	20 A		2.11 kVA	2.11 kVA	2.11 kVA	
7	CHWP-5	3	M	100 A	20 A		3.05 kVA	3.05 kVA	3.05 kVA	
8	WH-1	1	N	100 A	20 A		3 kVA			
9	(E) CHILLER	3	M	225 A	175 A		39.49 kVA	39.49 kVA	39.49 kVA	
10	(E) EVAP CONDENSER	3	M	100 A	30 A		4.25 kVA	4.25 kVA	4.25 kVA	
11	WH-2	1	N	100 A	20 A		4.15 kVA			
12	VRCU-1	3	M	100 A	20 A		2.75 kVA	2.75 kVA	2.75 kVA	
SPECIAL SWITCHBOARD FEATURES:					Total Connected Load:		98.57 kVA	86.4 kVA	84.49 kVA	
					Total Connected Amps:		356.9 A	313 A	305 A	

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND/ ADJUSTED
M	100.68 kVA	100%	100.68 kVA
R	16.38 kVA	81%	13.19 kVA
K	0.9 kVA	70%	0.63 kVA
C	1.86 kVA	125%	2.33 kVA
N	16.45 kVA	100%	16.45 kVA
L	14.71 kVA	125%	18.39 kVA
Motor	118.47 kVA	125%	148.09 kVA

LEGEND
C = CONTINUOUS
K = KITCHEN
L = LIGHTING
M=MOTOR
MOTOR = LARGEST MOTOR
N = NON-CONTINUOUS
R = RECEPTACLE

PANEL TOTALS	KVA	AMPS
TOTAL CONNECTED LOAD:	269.46 kVA	324.1 A
TOTAL DEMAND LOAD:	299.76 kVA	360.6 A
SPARE CAPACITY :		
REQUIRED CAPACITY:	**299.76 kVA**	**361 A**

PANEL: D

VOLTAGE: 208Y/120V, 3PH, 4W
MOUNTING: SURFACE
BUS RATING: 225 A
MAIN AMPS: 150 A MCB
AIC RATING: 10KAIC

NEMA RATING: Type 1
INTEGRAL SPD: No
ISOL GROUND BAR: No
FEED-THRU LUGS: No
DOUBLE-LUGS: No

LOCATION: (E) ELEC. 301
SUPPLY FROM: TD

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	20 A	1	RCPT OFFICE 312, 313	R	1.08	0.78					M	CU-1/FCU-1	2	20 A	2
3	20 A	1	RCPT OFFICE 314, 315	R			1.08	0.78							4
5	20 A	1	RCPT COUNTER OPEN OFFICE 311	R					0.54	0.76	M	EF-1, EF-2, EF-3	1	20 A	6
7	20 A	1	COPIER/PRINTER OPEN OFFICE 311	N	0.18	0.18					R	CONDENSATE PUMP	1	20 A	8
9	20 A	1	REFRIGERATOR BREAK ROOM 305	K			0.18	0.72			R	RCPT ROOF	1	20 A	10
11	20 A	1	RCPT BREAK ROOM COUNTER	R; K					0.36	0	--	SPARE	1	20 A	12
13	20 A	1	REFRIGERATOR BREAK ROOM 305	K	0.18	0					--	SPARE	1	20 A	14
15	20 A	1	FLR BOX CONFERENCE RM	C; N			0.54	0			--	SPARE	1	20 A	16
17	20 A	1	RCPTS RR, CONF, BREAK ROOM	R					1.08	0	--	SPARE	1	20 A	18
19	20 A	1	SPARE	--	0	0					--	SPARE	1	20 A	20
21	20 A	1	SPARE	--			0	0			--	SPARE	1	20 A	22
23	20 A	1	SPARE	--					0	--	--	SPACE	1	--	24
25	20 A	1	SPARE	--	0	--					--	SPACE	1	--	26
27	20 A	1	SPARE	--			0	--			--	SPACE	1	--	28
29	20 A	1	SPARE	--					0	--	--	SPACE	1	--	30
31	--	1	SPACE	--	--	--					--	SPACE	1	--	32
33	--	1	SPACE	--			--	--			--	SPACE	1	--	34
35	--	1	SPACE	--					--	--	--	SPACE	1	--	36
37	--	1	SPACE	--	--	2.7					L	(E)PANEL DO	3	90 A	38
39	--	1	SPACE	--			--	2.7							40
41	--	1	SPACE	--					--	2.7					42
SPECIAL PANEL FEATURES					5.1 kVA		6 kVA		5.44 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD
C	0.18 kVA	125%	0.23 kVA
K	0.54 kVA	90%	0.49 kVA
L	8.1 kVA	125%	10.13 kVA
M	0.76 kVA	100%	0.76 kVA
N	0.54 kVA	100%	0.54 kVA
R	4.86 kVA	100%	4.86 kVA
Motor	1.56 kVA	125%	1.96 kVA

LOAD TYPE KEY
C = CONTINUOUS
E = ELEVATOR
K = KITCHEN
L = LIGHTING
M = MOTOR
MOTOR = LARGEST MOTOR
N = NON-CONTINUOUS
R = RECEPTACLE

PANEL TOTALS	KVA	AMPS
TOTAL CONNECTED LOAD:	16.54 kVA	45.9 A
TOTAL DEMAND LOAD:	18.95 kVA	52.6 A
SPARE CAPACITY:	25%	25%
DESIGNED CAPACITY:	**23.68 kVA**	**66 A**

PANEL: F

VOLTAGE: 208Y/120V, 3PH, 4W
MOUNTING: SURFACE
BUS RATING: 225 A
MAIN AMPS: 150 A MCB
AIC RATING: 10KAIC

NEMA RATING: Type 1
INTEGRAL SPD: Yes
ISOL GROUND BAR: No
FEED-THRU LUGS: No
DOUBLE-LUGS: No

LOCATION: ELECTRICAL 100
SUPPLY FROM: TF

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1				M; R;	8.13	0.36					R	RCPT ELECT RM 100	1	20 A	2
3	100 A	3	PANEL B	K; C;			6	0.3			N	MOTORIZED DAMPERS MECH RM	1	20 A	4
5				N;...					6.2	0.5	C	BAS CONTROL PANEL	1	20 A	6
7	20 A	2	VRFC 1-01	M	0.24	0.5					C	VAV POWER SUPPLY	1	20 A	8
9							0.24	0.5			C	VRF SYSTEM CONTROLLER	1	20 A	10
11	20 A	2	ERV-1	M					0.32	0.36	R	RCPT COURTYARD	1	20 A	12
13					0.32	0					--	SPARE	1	20 A	14
15	20 A	2	VRFC 1-02	M			0.24	0			--	SPARE	1	20 A	16
17									0.24	0	--	SPARE	1	20 A	18
19	20 A	2	CU-2	M	0.78	0					--	SPARE	1	20 A	20
21							0.78	0			--	SPARE	1	20 A	22
23	20 A	1	SPARE	--					0	0	--	SPARE	1	20 A	24
25	20 A	1	SPARE	--	0	--					--	SPACE	1	--	26
27	20 A	1	SPARE	--			0	--			--	SPACE	1	--	28
29	20 A	1	SPARE	--					0	--	--	SPACE	1	--	30
31	20 A	1	SPARE	--	0	--					--	SPACE	1	--	32
33	20 A	1	SPARE	--			0	--			--	SPACE	1	--	34
35	--	1	SPACE	--					--	--	--	SPACE	1	--	36
37	--	1	SPACE	--	--	--					--	SPACE	1	--	38
39	--	1	SPACE	--			--	--			--	SPACE	1	--	40
41	--	1	SPACE	--					--	--	--	SPACE	1	--	42
SPECIAL PANEL FEATURES					10.33 kVA		8.06 kVA		7.62 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD
C	1.68 kVA	125%	2.1 kVA
K	0.36 kVA	100%	0.36 kVA
M	2.13 kVA	100%	2.13 kVA
N	8.76 kVA	100%	8.76 kVA
R	11.52 kVA	93%	10.76 kVA
Motor	1.56 kVA	125%	1.96 kVA

LOAD TYPE KEY
C = CONTINUOUS
E = ELEVATOR
K = KITCHEN
L = LIGHTING
M = MOTOR
MOTOR = LARGEST MOTOR
N = NON-CONTINUOUS
R = RECEPTACLE

PANEL TOTALS	KVA	AMPS
TOTAL CONNECTED LOAD:	26.01 kVA	72.2 A
TOTAL DEMAND LOAD:	26.06 kVA	72.3 A
SPARE CAPACITY:	25%	25%
DESIGNED CAPACITY:	**32.58 kVA**	**90 A**

PANEL: A

VOLTAGE: 480Y/277V, 3PH, 4W
MOUNTING: RECESSED
BUS RATING: 225 A
MAIN AMPS: 175 A MCB
AIC RATING: 18KAIC

NEMA RATING: Type 1
INTEGRAL SPD: No
ISOL GROUND BAR: No
FEED-THRU LUGS: No
DOUBLE-LUGS: No

LOCATION: SPACE 306
SUPPLY FROM: MSB

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	20 A	1	LTG (E) LIBRARY 200	L	1.38	1.57					L;...	LIGHTING INVERTER INV-A	1	20 A	2
3	20 A	1	LTG AREA 204, 205	L			0.75	0			--	SPARE	1	20 A	4
5	20 A	1	LTG CONF 218/HALL 216	L					0.39	0	--	SPARE	1	20 A	6
7	20 A	1	LTG SECOND FLOOR	L	0.54	0					--	SPARE	1	20 A	8
9	20 A	1	SPARE	--			0	0			--	SPARE	1	20 A	10
11	20 A	1	SPARE	--					0	0	--	SPARE	1	20 A	12
13	20 A	1	SPARE	--	0	--					--	SPACE	1	--	14
15	20 A	1	SPARE	--			0	--			--	SPACE	1	--	16
17	20 A	1	SPARE	--					0	--	--	SPACE	1	--	18
19	20 A	1	SPARE	--	0	--					--	SPACE	1	--	20
21	--	1	SPACE	--			--	--			--	SPACE	1	--	22
23	--	1	SPACE	--					--	--	--	SPACE	1	--	24
25	--	1	SPACE	--	--	--					--	SPACE	1	--	26
27	--	1	SPACE	--			--	--			--	SPACE	1	--	28
29	--	1	SPACE	--					--	--	--	SPACE	1	--	30
31	--	1	SPACE	--	--	--					--	SPACE	1	--	32
33	--	1	SPACE	--			--	--			--	SPACE	1	--	34
35	--	1	SPACE	--					--	--	--	SPACE	1	--	36
37	--	1	SPACE	--	--	5.1					L; M;				38
39	--	1	SPACE	--			--	6			R; K;	PANEL D VIA TRANSFORMER TD	3	70 A	40
41	--	1	SPACE	--					--	5.44	C; N...				42
SPECIAL PANEL FEATURES					8.59 kVA		6.75 kVA		5.83 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD
C	0.18 kVA	125%	0.23 kVA
K	0.54 kVA	90%	0.49 kVA
L	12.73 kVA	125%	15.91 kVA
M	0.76 kVA	100%	0.76 kVA
N	0.54 kVA	100%	0.54 kVA
R	4.86 kVA	100%	4.86 kVA
Motor	1.56 kVA	125%	1.96 kVA

LOAD TYPE KEY
C = CONTINUOUS
E = ELEVATOR
K = KITCHEN
L = LIGHTING
M = MOTOR
MOTOR = LARGEST MOTOR
N = NON-CONTINUOUS
R = RECEPTACLE

PANEL TOTALS	KVA	AMPS
TOTAL CONNECTED LOAD:	21.17 kVA	25.5 A
TOTAL DEMAND LOAD:	24.73 kVA	29.7 A
SPARE CAPACITY:	25%	25%
DESIGNED CAPACITY:	**30.91 kVA**	**37 A**

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PANELBOARD SCHEDULES

E5.13

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(E)PNL: DO

VOLTAGE: 208Y/120V, 3PH, 4W
MOUNTING: RECESSED
BUS RATING: 100 A
MAIN AMPS: 100 A MCB
AIC RATING: EXISTING
NEMA RATING: Type 1
INTEGRAL SPD: No
ISOL GROUND BAR: No
FEED-THRU LUGS: No
DOUBLE-LUGS: No
LOCATION: (E) ELEC. 301
SUPPLY FROM: D

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	20 A	1	COLUMN LIGHTING NORTH	L	0.28	0					--	(E)LOAD	1	20 A	2
3	20 A	1	COLUMN LIGHTING SOUTH	L			0.21	0			--	(E)LOAD	1	20 A	4
5	20 A	1	EXTERIOR LIGHTING COURTYARD	L					0.06	0	--	SPARE	1	20 A	6
7	20 A	1	EXTERIOR LIGHTING FRONT	L	0.14	0					--	SPARE	1	20 A	8
9	20 A	1	SPARE	--			0	0			--	SPARE	1	20 A	10
11	20 A	1	(E)LOAD	--					1.04	0	--	SPARE	1	20 A	12
13	20 A	1	SPARE	--	0	0					--	SPARE	1	20 A	14
15	20 A	1	SPARE	--			0	1			--	(E)LOAD	1	20 A	16
17	20 A	1	(E)LOAD	--					0	1.6	--	(E)LOAD	1	20 A	18
19	20 A	1	(E)LOAD	--	0.95	1					--	(E)LOAD	1	20 A	20
21	20 A	1	SPARE	--			0	1.49			--	(E)LOAD	1	20 A	22
23	--	1	SPACE	--					--	--	--	SPACE	1	--	24
25															26
27															28
29															30
31															32
33															34
35															36
37															38
39															40
41															42
SPECIAL PANEL FEATURES					2.37 kVA		2.7 kVA		2.7 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD
L	0.69 kVA	125%	0.86 kVA
Spare	7.08 kVA	100%	7.08 kVA

LOAD TYPE KEY
C = CONTINUOUS
E = ELEVATOR
K = KITCHEN
L = LIGHTING
M = MOTOR
MOTOR = LARGEST MOTOR
N = NON-CONTINUOUS
R = RECEPTACLE

PANEL TOTALS	KVA	AMPS
TOTAL CONNECTED LOAD:	7.77 kVA	21.6 A
TOTAL DEMAND LOAD:	7.94 kVA	22 A
SPARE CAPACITY:	25%	25%
DESIGNED CAPACITY:	**9.93 kVA**	**28 A**

PANEL: HM

VOLTAGE: 480Y/277V, 3PH, 4W
MOUNTING: SURFACE
BUS RATING: 225 A
MAIN AMPS: 150 A MCB
AIC RATING: 18KAIC
NEMA RATING: Type 1
INTEGRAL SPD: No
ISOL GROUND BAR: No
FEED-THRU LUGS: No
DOUBLE-LUGS: No
LOCATION: (E) ELEC. 301
SUPPLY FROM: MSB

CKT	TRIP	POLE	DESCRIPTION	TYPE	A (kVA)		B (kVA)		C (kVA)		TYPE	DESCRIPTION	POLE	TRIP	CKT
1					5.82	5.82									2
3	45 A	3	AHU-10A	M			5.82	5.82			M	AHU-10B	3	45 A	4
5									5.82	5.82					6
7					3.88	2.11									8
9	35 A	3	AHU-9	M			3.88	2.11			M	AHU-11	3	15 A	10
11									3.88	2.11					12
13	20 A	1	SPARE	--	0	0					--	SPARE	1	20 A	14
15	20 A	1	SPARE	--			0	0			--	SPARE	1	20 A	16
17	20 A	1	SPARE	--					0	0	--	SPARE	1	20 A	18
19	--	1	SPACE	--	--	--					--	SPACE	1	--	20
21	--	1	SPACE	--			--	--			--	SPACE	1	--	22
23	--	1	SPACE	--					--	--	--	SPACE	1	--	24
25	--	1	SPACE	--	--	--					--	SPACE	1	--	26
27	--	1	SPACE	--			--	--			--	SPACE	1	--	28
29	--	1	SPACE	--					--	--	--	SPACE	1	--	30
31	--	1	SPACE	--	--	--					--	SPACE	1	--	32
33	--	1	SPACE	--			--	--			--	SPACE	1	--	34
35	--	1	SPACE	--					--	--	--	SPACE	1	--	36
37	--	1	SPACE	--	--	--					--	SPACE	1	--	38
39	--	1	SPACE	--			--	--			--	SPACE	1	--	40
41	--	1	SPACE	--					--	--	--	SPACE	1	--	42
SPECIAL PANEL FEATURES					17.63 kVA		17.63 kVA		17.63 kVA		CIRCUIT NOTES				

LOAD TYPE	CONNECTED	DEMAND FACTOR	DEMAND LOAD
M	35.42 kVA	100%	35.42 kVA
Motor	17.46 kVA	125%	21.82 kVA

LOAD TYPE KEY
C = CONTINUOUS
E = ELEVATOR
K = KITCHEN
L = LIGHTING
M = MOTOR
MOTOR = LARGEST MOTOR
N = NON-CONTINUOUS
R = RECEPTACLE

PANEL TOTALS	KVA	AMPS
TOTAL CONNECTED LOAD:	52.88 kVA	63.6 A
TOTAL DEMAND LOAD:	57.24 kVA	68.9 A
SPARE CAPACITY:	25%	25%
DESIGNED CAPACITY:	**71.55 kVA**	**86 A**

PANEL: INV A

VOLTAGE: 277V,1PH, 2W
MOUNTING: SURFACE
BUS RATING: 225 A
MAIN AMPS: 150 A MCB
AIC RATING: 18KAIC
NEMA RATING: Type 1
INTEGRAL SPD: No
ISOL GROUND BAR: No
FEED-THRU LUGS: No
DOUBLE-LUGS: No
LOCATION: (E) ELEC. 301
SUPPLY FROM: A

CKT	TRIP	POLE	DESCRIPTION	TYPE	A		B		C		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	20 A	1	EM LIGHTING LEVEL 1	L	0.6	0.03					L	EM EXIT SIGNS LEVEL 2	1	20 A	2
3	20 A	1	EM LIGHTING LEVEL 1	L	0.55	0					--	SPARE	1	20 A	4
5	20 A	1	EM LIGHTING LEVEL 2	L	0.37	0					--	SPARE	1	20 A	6
7	20 A	1	EM EXIT SIGNS LEVEL 1	L	0.03	0					--	SPARE	1	20 A	8
SPECIAL PANEL FEATURES					1.57 kVA		0 kVA		0 kVA		CIRCUIT NOTES				

PANEL: INV C

VOLTAGE: 277V,1PH, 2W
MOUNTING: SURFACE
BUS RATING: 100 A
MAIN AMPS: 100 A MCB
AIC RATING: 18KAIC
NEMA RATING: Type 1
INTEGRAL SPD: No
ISOL GROUND BAR: No
FEED-THRU LUGS: No
DOUBLE-LUGS: No
LOCATION: ELECTRICAL 100
SUPPLY FROM: C

CKT	TRIP	POLE	DESCRIPTION	TYPE	A		B		C		TYPE	DESCRIPTION	POLE	TRIP	CKT
1	20 A	1	EM LIGHTING BASEMENT	L	0.9	0					--	SPARE	1	20 A	2
3						0					--	SPARE	1	20 A	4
5	20 A	1	SPARE	--	0	0					--	SPARE	1	20 A	6
7	20 A	1	SPARE	--	0	0					--	SPARE	1	20 A	8
SPECIAL PANEL FEATURES					0.9 kVA		0 kVA		0 kVA		CIRCUIT NOTES				

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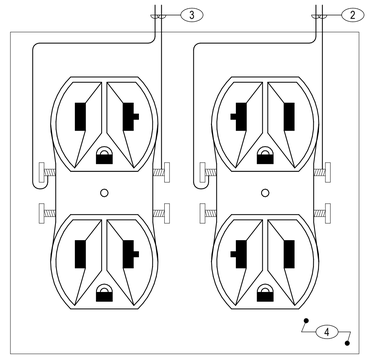
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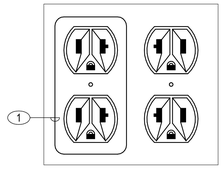
PANELBOARD SCHEDULES

E5.14

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WIRING



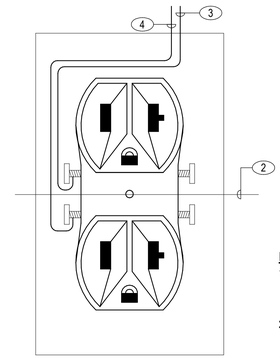
IDENTIFICATION

KEYED NOTES: (XX)

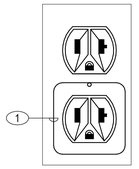
1. THIS PORTION OF RECEPTACLE TO BE OCCUPANCY SENSOR CONTROLLED.
2. TO UNSWITCHED POWER (HOT AND NEUTRAL SHOWN).
3. TO OCCUPANCY SENSOR CONTROLLED POWER. (HOT AND NEUTRAL SHOWN).
4. WHERE QUAD DEVICES ARE INDICATED TO HAVE OCCUPANCY SENSOR CONTROLLED POWER, PROVIDE (2) DUPLEXES WIRED IN THIS FASHION AT THE QUAD LOCATION.

3 OCC SENSOR CONTROLLED QUAD

SCALE: NONE



WIRING



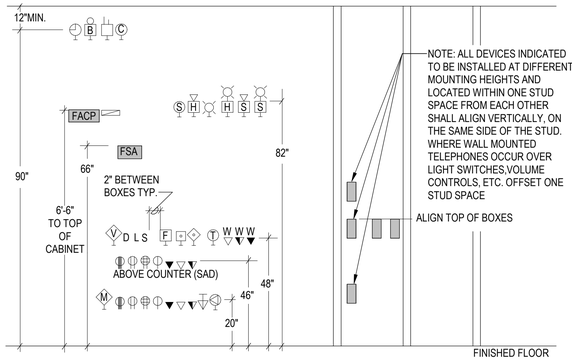
IDENTIFICATION

KEYED NOTES: (XX)

1. THIS PORTION OF RECEPTACLE TO BE OCCUPANCY SENSOR CONTROLLED. PROVIDE RECEPTACLE AS MANUFACTURED BY PASS & SEYMOUR WITH PRE-IDENTIFIED RECEPTACLE CONTROL. CAT#26352CHW BASE BUILDING STANDARD.
2. DEVICE CONDUCTIVELY BROKEN AT MIDPOINT BETWEEN WIRING TERMINALS. REMOVE ANY TABS THAT CONNECT UPPER AND LOWER PORTIONS.
3. TO UNSWITCHED POWER (HOT SHOWN).
4. TO OCCUPANCY SENSOR CONTROLLED POWER (HOT SHOWN).

2 OCC SENSOR CONTROLLED DUPLEX

SCALE: NONE

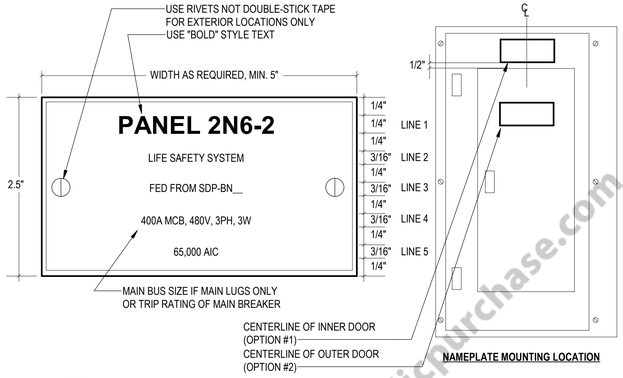


NOTES:

A. HEIGHTS SHOWN ARE TYPICAL TO TOP OF BOX, UNLESS OTHERWISE NOTED.
B. WHERE EVER DEVICES ARE INDICATED TO BE ABOVE DOORS, DEVICE SHALL BE CENTERED VERTICALLY BETWEEN TOP OF DOOR TRIM AND CEILING LINE AND CENTERED HORIZONTALLY ON DOOR OPENING, UNLESS OTHERWISE NOTED.
C. MOUNTING HEIGHTS SHOWN ON ARCHITECTURAL ELEVATIONS SHALL GOVERN OVER THOSE SHOWN ABOVE. CONTRACTOR SHALL ALWAYS REFER TO ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING J-BOXES AND BACKBOXES. INFORM ENGINEER AND ARCHITECT OF CONFLICTS.
D. DO NOT MOUNT THERMOSTATS OR TEMPERATURE SENSORS ABOVE DIMMERS. INFORM ENGINEER OF CONFLICTS.

1 ELECTRICAL, TELECOM & SIGNAL SYS. DEVICE MOUNTING HEIGHTS & ALIGNMENT

SCALE: NONE



NOTES

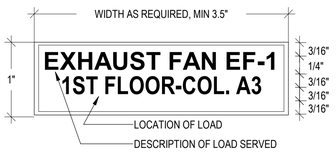
1. SEE DRAWINGS FOR ADDITIONAL NAMEPLATE INFORMATION AND COLORS OF NAMEPLATES FOR DIFFERENT SYSTEMS.
2. PROVIDE ONE NAMEPLATE FOR EACH PANEL OR MCC SECTION. WHERE SECTION NUMBER TWO AND ABOVE ARE WITHIN SAME ROOM AND WITHIN 10' OF EACH OTHER SMALLER SIZE NAMEPLATE CAN BE USED.
3. CENTER ALL TEXT HORIZONTALLY.
4. TEXT SHOWN ABOVE IS FOR EXAMPLE ONLY. MODIFY TEXT AS REQUIRED TO MATCH EQUIPMENT SPECIFICATIONS
5. DRILL HOLES ON EXTERIOR NAMEPLATES ONLY.
6. PROVIDE TYPED PANEL SCHEDULES IN DOOR SLEEVES FOR ALL PANELS. INDICATE LOAD DESCRIPTION AND BREAKER.
7. NAMEPLATES ARE NOT REQUIRED FOR APARTMENT AND CONDO PANELS.

5 BRANCH PANEL NAMEPLATE

SCALE: NONE



GENERAL EQUIPMENT



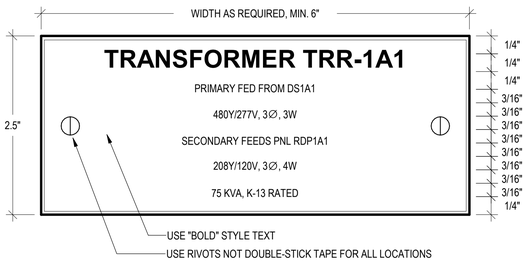
CIRCUIT BREAKERS IN DIST. PANELS

NOTES:

1. SEE DRAWINGS FOR ADDITIONAL NAMEPLATE INFORMATION AND COLORS OF NAMEPLATES FOR DIFFERENT SYSTEMS.
2. TEXT SHOWN ABOVE IS FOR EXAMPLE ONLY. MODIFY TEXT AS REQUIREDTO MATCH EQUIPMENT SPECIFICATIONS.
3. CENTER ALL TEXT HORIZONTALLY

6 EQUIPMENT IDENTIFICATION NAMEPLATES

SCALE: NONE



NOTES:

A. SEE DRAWINGS FOR ADDITIONAL NAMEPLATE INFORMATION AND COLORS OF NAMEPLATES FOR DIFFERENT SYSTEMS.
B. PROVIDE ONE NAMEPLATE FOR EACH TRANSFORMER.
C. CENTER ALL TEXT HORIZONTALLY.
D. TEXT SHOWN ABOVE IS FOR EXAMPLE ONLY. MODIFY TEXT AS REQUIRED TO MATCH EQUIPMENT SPECIFICATIONS.

4 TRANSFORMER NAMEPLATE

SCALE: NONE

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324 S SANTA FE
SUITE A
VISALIA, CA 93292
WEB: 4-Creeks.com
TEL: 559.802.3052
FAX: 559.802.3215

SUBMITTAL	DATE
ISSUE FOR BID	05/23/2025

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KINGS COUNTY LIBRARY HANFORD

401 N DOUTY ST
HANFORD, CA 93230
APN: 010-271-017-000

PLOT DATE: 04/11/25
JOB NO.: 24US00239

ELECTRICAL DETAILS

E9.10

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STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE CEC-NRCC-LTI-E

This document is used to demonstrate compliance with requirements in §110.9, §110.12(c), §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies in low-rise multifamily mixed-use buildings. It is also used to document compliance with requirements in §160.5, §170.2(e) and §180.2(b)4 for indoor lighting scopes using the prescriptive path for multifamily occupancies. Multifamily includes dormitory and senior living facilities.

Project Name:	King's County Library - Hanford	Report Page:	Page 3 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE
This Section Does Not Apply

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY
This Section Does Not Apply

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING
This Section Does Not Apply

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS
This Section Does Not Apply

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE
This Section Does Not Apply

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))
This Section Does Not Apply

Q. RATED POWER REDUCTION COMPLIANCE FOR ALTERATIONS
This Section Does Not Apply

R. 80% LIGHTING POWER FOR ALTERATIONS - CONTROLS EXCEPTIONS
This Section Does Not Apply

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)
This Section Does Not Apply

T. DWELLING UNIT LIGHTING
This Section Does Not Apply

U. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION
REFER TO CONTINUATION SHEET FOR TABLE U

V. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE
REFER TO CONTINUATION SHEET FOR TABLE V

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

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Project Name:	King's County Library - Hanford	Report Page:	Page 2 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

D. EXCEPTIONAL CONDITIONS
This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

No exceptional conditions apply to this project.

E. ADDITIONAL REMARKS
This table includes remarks made by the permit applicant to the Authority Having Jurisdiction

F. INDOOR LIGHTING FIXTURE SCHEDEULE
REFER TO CONTINUATION SHEET FOR TABLE F

G. MODULAR LIGHTING SYSTEMS
This Section Does Not Apply

H. INDOOR LIGHTING CONTROLS (Not Including PAFs)
REFER TO CONTINUATION SHEET FOR TABLE H

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS
REFER TO CONTINUATION SHEET FOR TABLE I

J. ADDITIONAL LIGHTING ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM
This Section Does Not Apply

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE CEC-NRCC-LTI-E

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Project Name:	King's County Library - Hanford	Report Page:	Page 4 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

F. INDOOR LIGHTING FIXTURE SCHEDEULE

This table includes all planned permanent and portable lighting other than dwelling unit/ hotel/ motel room lighting. Multifamily dwelling unit and hotel/motel room lighting is documented in Table T. If using Table T to document lighting in multifamily common use areas providing shared provisions for living, eating, cooking or sanitation, those luminaires are not included here.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular Track Fixture	Small Aperture & Color Change(1)	Watts per luminaire(2)	How Wattage is determined	Total number luminaires	Excluded per §140.6(a)3/ §170.2(e)2C	Design Watts	Field Inspector	
									Pass	Fail
L1	LED	☐	☐	68	Mfr. Spec[2]	9	☐	612	☐	☐
P1	LED	☐	☐	70	Mfr. Spec[2]	16	☐	1120	☐	☐
P2	LED	☐	☐	80	Mfr. Spec[2]	12	☐	960	☐	☐
P3	LED	☐	☐	30	Mfr. Spec[2]	11	☐	330	☐	☐
P4	LED	☐	☐	8	Mfr. Spec[2]	21	☐	168	☐	☐
P5	LED	☐	☐	56	Mfr. Spec[2]	3	☐	168	☐	☐
R1	LED	☐	☐	10	Mfr. Spec[2]	154	☐	1540	☐	☐
W1	LED	☐	☐	11	Mfr. Spec[2]	4	☐	44	☐	☐
B1	LED	☐	☐	36	Mfr. Spec[2]	48	☐	1728	☐	☐
L2	LED	☐	☐	60	Mfr. Spec[2]	25	☐	1500	☐	☐
S6	LED	☐	☐	32	Mfr. Spec[2]	13	☐	416	☐	☐
		☐	☐				☐		☐	☐
						Total Designed Watts CONDITIONED SPACES:		8586	Plus pgs	

1. FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per §140.6(a)4B/§170.2(e)2D is adjusted to be 75%/80% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.

2. Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §130.0(c)/§160.5(b). Wattage used must be the maximum rated for the luminaire, not the lamp.

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE CEC-NRCC-LTI-E

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Project Name:	King's County Library - Hanford	Enforcement Agency:	Page 1 of 8
Project Address:	401 N Douty St	Permit Number:	
City and Zip Code:	Hanford, CA 93230	Permit Application Date:	10/24/2024

A. GENERAL INFORMATION

01	Project Location (city)	Hanford	04	Total Conditioned Floor Area (sf)	2577
02	Climate Zone	13	05	Total Unconditioned Floor Area (sf)	0
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	

☒

B. PROJECT SCOPE

This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.6 / 170.2(e) or 141.0(b)2 / 180.2(b)4 for alterations.

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (sf)	Calculation Method	Area (sf)
☒ New Lighting System	Area Category	2577		
☐ New Lighting System - Parking Garage				
☐ Altered Lighting System				
Total Area of Work (sf)	2577			

ALERT! The Rated Power Reduction Method for alterations may only be used for one-for-one luminaire alterations within a building or tenant space of 5,000 ft2 or less per §141.0(b)2Iiii/§180.2(b)4.

C. COMPLIANCE RESULTS

Lighting in conditioned and unconditioned spaces must not be combined for compliance per §140.6(b)1/§170.2(e).
If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per 140.6(b)1/170.2(e)	Allowed Lighting Power per 140.6(b) (Watts)					Adjusted Lighting Power per 140.6(a) (Watts)				Compliance Results
	01	02	03	04	05	06	07		08	09
	Complete Building 140.6(c)1	Area Category §140.6(c)2/ §170.2(e)4	Area Category Additional §140.6(c)2G/ §170.2(e)4Av	Tailored §140.6(c)3/ §170.2(e)4B	Total Allowed (Watts)	Total Designed (Watts)	Adjustments PAF Lighting Control Credits §140.6(a)2/ §170.2(e)1B		Total Adusted (Watts) *Includes Adjustments	05 Must be >=08 §140.6/§170.2(e)
	(See Table I)	(See Table I)	(+) (See Table J)	(+) (See Table K)		(See Table F)	(See Table P)			
Conditioned:		18694			= 18694	>= 14840		=	14840	COMPLIES
Unconditioned:					=	>=		=		

Controls Compliance (See Table H for Details)	COMPLIES
Rated Power Reduction Compliance (See Table Q for Details)	NOT APPLICABLE

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ELECTRICAL T24 FORMS

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STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			CEC-NRCC-LTI-E
This document is used to demonstrate compliance with requirements in §110.9, §110.12(c), §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies in low-rise multifamily mixed-use buildings. It is also used to document compliance with requirements in §160.5, §170.2(e) and §180.2(b)4 for indoor lighting scopes using the prescriptive path for multifamily occupancies. Multifamily includes dormitory and senior living facilities.			
Project Name:	King's County Library - Hanford	Report Page:	Page 8 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	October 24, 2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	VALERIA BALDERRAMOS, P.E.	Documentation Author Signature:	
Company:	GLUMAC	Signature Date:	October 24, 2024
Address:	100 MONTGOMERY ST., SUITE 2050	CEA/HERS Certification Identification (if applicable):	
City/State/Zip:	SAN FRANCISCO, CA 94104	Phone:	(415) 398-7667

RESPONSIBLE PERSON'S DECLARATION STATEMENT

2. I certify the following under penalty of perjury, under the laws of the State of California:
   1. The information provided on this Certificate of Compliance is true and correct.
   2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
   3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
   4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
   5. I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections, and I will take the necessary steps to accomplish this requirement.
   6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy, and I will take the necessary steps to accomplish these requirements.

Responsible Designer Name:	VALERIA BALDERRAMOS, P.E.	Responsible Designer Signature:	
Company:	GLUMAC	Date Signed:	October 24, 2024
Address:	100 MONTGOMERY ST., SUITE 2050	License:	E21403
City/State/Zip:	SAN FRANCISCO, CA 94104	Phone:	(415) 398-7667

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			CEC-NRCC-LTI-E
Project Name:	King's County Library - Hanford	Report Page:	Page 6 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Each area complying using the Complete Building or Area Category Methods per §140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used.

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft2)	Area (ft2)	Allowed Wattage (Watts)	Additional Allowances / Adjustments: Area Category	Additional Allowances / Adjustments: PAF
LIBRARY STACKS AREAS	LIBRARY; STACKS AREA	1	11812	11812		
LIBRARY READING ROOMS	LIBRARY; READING AREA	0.8	168	134.4		
CONFERENCE ROOM	CONFERENCE	0.75	1140	855		
SMALL OFFICE	OFFICE; ≤ 250 SQUARE FEET	0.65	1178	765.7		
OTHER	ALL OTHER	0.4	6963	2785.2		
RESTROOMS	RESTROOMS	0.65	394	256.1		
LARGE OFFICE	OFFICE; > 250 SQUARE FEET	0.6	2410	1446		
ELEC/MECH/TELE ROOMS	ELECT, MECH, TELE ROOMS	0.4	334	133.6		
BREAK ROOM	LOUNGE, BREAKROOM, OR WAIT AREA	0.55	158	86.9		
CORRIDOR	CORRIDOR AREA	0.4	1048	419.2		
	TOTAL ALLOWANCE CONDITIONED SPACES:		25605	18694.1	N/A	

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Project Name:	King's County Library - Hanford	Report Page:	Page 7 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

U. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online.

YES	NO	Form/Title	Field Inspector: Pass	Field Inspector: Fail
☒	☐	NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐

V. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "-A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP).

YES	NO	Form/Title	Field Inspector: Pass	Field Inspector: Fail
☒	☐	NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐
☒	☐	NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	☐	☐
☐	☒	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	☐	☐
☐	☒	NRCA-LTI-05-A - Must be submitted for institutional tuning power adjustment factor (PAF).	☐	☐
☐	☒	NRCA-ENV-03-F - Must be submitted for daylighting design power adjustment factor (PAF).	☐	☐

STATE OF CALIFORNIA
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Project Name:	King's County Library - Hanford	Report Page:	Page 5 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

H. INDOOR LIGHTING CONTROLS (Not Including PAFs)

This table includes lighting controls for conditioned and unconditioned spaces. When a control having a * is shown, the notes section of this table provides more detail on how compliance is achieved. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.

Building Level Controls

01	02	03: Field Inspector Pass	03: Field Inspector Fail
Mandatory Demand Response §110.12(c)	Shut-Off Controls §130.1(c)		
NA; <= 80% LP (alt only)	See Area/Space Level Controls	☐	☐

Area Level Controls

04	05	06	07	08	09	10	11	12: Field Inspector Pass	12: Field Inspector Fail
Area Description	Complete Building or Area Category Primary Function Area	Manual Area Controls §130.1(a)/ §160.5(b)4A	Multi-Level Controls §130.1(b)/ §160.5(b)4B	Shuf-Off Controls §130.1(c)/ §160.5(b)4C	Primary/Skylit Daylighting §130.1(d)/ §160.5(b)4D	Secondary Daylighting §130.1(d)/ §160.5(b)4D	Interlocked Systems §140.6(a)1/ §170.5(e)2A		
LIBRARY STACKS AREAS	LIBRARY; STACKS AREA	Readily accessible	Dimmer	Occ. Sensor	Primary/Skylit Daylighting	Secondary Daylighting	☐	☐	☐
LIBRARY READING ROOMS	LIBRARY; READING AREA	Readily accessible	Dimmer	Occ. Sensor	NA:<=80%LP (alt only)	NA:General Ltg<120W	☐	☐	☐
CONFERENCE ROOM	CONFERENCE	Readily accessible	Dimmer	Occ. Sensor	NA:Not daylit zone	NA:Not daylit zone	☐	☐	☐
SMALL OFFICE	OFFICE; ≤ 250 SQUARE FEET	Readily accessible	Dimmer	Occ. Sensor	NA:Not daylit zone	NA:Not daylit zone	☐	☐	☐
LARGE OFFICE	OFFICE; > 250 SQUARE FEET	Readily accessible	Dimmer	Occ. Sensor	NA:Not daylit zone	NA:Not daylit zone	☐	☐	☐
ELEC/MECH/TELE ROOMS	ELECT, MECH, TELE ROOMS	Readily accessible	Dimmer	NA: Elec. Equip. rm	NA:Not daylit zone	NA:Not daylit zone	☐	☐	☐
OTHER	ALL OTHER	Readily accessible	Dimmer	Occ. Sensor	NA:Not daylit zone	NA:Not daylit zone	☐	☐	☐

13: Plan Sheet Showing Daylit Zones:	

	Explain here why item with asterisk complies

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ELECTRICAL T24 FORMS

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STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		CEC-NRCC-ELC-E
Project Name: King's County Library - Hanford	Report Page:	Page 6 of 6
Project Address: 401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: VALERIA BALDERRAMOS, P.E.	Documentation Author Signature:
Company: GLUMAC	Date Signed: October 24, 2024
Address: 100 MONTGOMERY ST., SUITE 2050	CEA/HERS Certification Identification (if applicable):
City/State/Zip: SAN FRANCISCO, CA 94104	Phone: (415) 398-7667

RESPONSIBLE PERSON'S DECLARATION STATEMENT

2. I certify the following under penalty of perjury, under the laws of the State of California:
   1. The information provided on this Certificate of Compliance is true and correct.
   2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
   3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
   4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
   5. I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections, and I will take the necessary steps to accomplish this requirement.
   6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy, and I will take the necessary steps to accomplish these requirements.

Responsible Designer Name: VALERIA BALDERRAMOS, P.E.	Responsible Designer Signature:
Company: GLUMAC	Date Signed: October 24, 2024
Address: 100 MONTGOMERY ST., SUITE 2050	License: E21403
City/State/Zip: SAN FRANCISCO, CA 94104	Phone: (415) 398-7667

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		CEC-NRCC-ELC-E
Project Name: King's County Library - Hanford	Report Page:	Page 5 of 6
Project Address: 401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

H. VOLTAGE DROP

This table includes entirely new or complete replacement electrical power distribution systems, or alterations that add, modify or replace both feeders and branch circuits to demonstrate compliance with §130.5(c)/§160.6(c). For alterations, only the altered circuits must demonstrate compliance per §141.0(b)2Piii/§180.2(b) 4Bviic.
NOTES If "Permitted by CA Elec Code" is selected under Compliance Method above, please indicate where the exception applies in the space provided below.

01	02		03	04	05	
Electrical Service Designation/ Description	Combined Voltage Drop on Installed Feeder/Branch Circuit Conductors Compliance Method		Location of Voltage Drop Calculations[1]	Sheet Number for Voltage Drop Calculations in Construction Documents	Field Inspector	
					Pass	Fail
EXISTING	☐ Voltage drop ≤ 5%	☐ Permitted by CA Elec Code (Exception to §130.5(c))*			☐	☐

NOTES If "Permitted by CA Elec Code" is selected under Compliance Method above, please indicate where the exception applies in the space provided below.

[1] FOOTNOTES: Voltage drop calculations may be attached to the permit application outside the construction documents if allowed by the Authority Having Jurisdiction. Select "attached" if applicable. If calculations will be the responsibility of the installing contractor, select "Contractor Responsible".

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		CEC-NRCC-ELC-E
Project Name: King's County Library - Hanford	Report Page:	Page 4 of 6
Project Address: 401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

I. CIRCUIT CONTROLS FOR 120-VOLT RECEPTACLES AND CONTROLLED RECEPTACLES

This table includes entirely new or complete replacement electrical power distribution systems to demonstrate compliance with §130.5(d)/§160.6(d). Both controlled and uncontrolled receptacles must be provided in office areas, lobbies, conference rooms, kitchen areas in office spaces, copy rooms and hotel/motel guest rooms.

01	02	03	04	05	06	07	
Room Name or Description	Location/ Type of Controlled Receptacles[1]	Shut-Off Controls	Demand Responsive Controls	Permanent Durable Marking Will be Used	Location of Requirements in Construction Documents	Field Inspector	
						Pass	Fail
OFFICES	Split-wired receptacle	Occupancy Sensor	Included with capabilities per 110.12(e)	☐	POWER PLANS	☐	☐
CONFERENCE ROOM	Split-wired receptacle	Occupancy Sensor	Included with capabilities per 110.12(e)	☐	POWER PLANS	☐	☐

NOTES: If "Other" is selected under Shut-Off Controls above, please indicate how compliance has been achieved in the space provided below.
*NOTES: For all spaces listed, please confirm permanently durable marking(s) will be used to differentiate controlled receptacles from uncontrolled receptacles or circuits.

1 FOOTNOTES: Receptacles dedicated to refrigerators and water dispensers in kitchens, located a minimum of 6ft above the floor specifically for clocks, network copiers, fax machines, A/V and data equipment other than personal computers in copy rooms, circuits rated more than 20 Amps, or connected to a UPS that are intended to be in continuous use and are marked to differentiate them from other receptacles or circuits are excepted from the requirements.

K. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online.

YES	NO	Form/Title	Field Inspector	
			Pass	Fail
☒	☐	NRCI-ELC-E - Must be submitted for all buildings	☐	☐

L. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no Certificates of Acceptance applicable to electrical power distribution requirements.

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		CEC-NRCC-ELC-E
Project Name: King's County Library - Hanford	Report Page:	Page 3 of 6
Project Address: 401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

F. SERVICE ELECTRICAL METERING

This table includes new or replacement electrical service systems OR equipment to demonstrate compliance with §130.5(a)/§160.6(a). For multifamily occupancies, submetered systems that provide power to common use areas must meet the following metering requirements. Submetered systems providing power to dwelling units do not.

01	02	03				04	05	
Electrical Service Designation/ Description	Rating [1] (kVA)	Required Metering Capabilities per Table 130.5-A				Location of Requirements in Construction Documents	Field Inspector	
		Instantaneous Demand (kW)	Historical Peak Demand (kW)	Tracking kWh for user-defined period	kWh per rate period		Pass	Fail
EXISTING		☐	☐	☐	☐		☐	☐

[1]FOOTNOTES: If common use areas in a multifamily occupancy are submetered, rating is for submeter size serving common use areas.

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		CEC-NRCC-ELC-E
Project Name: King's County Library - Hanford	Report Page:	Page 2 of 6

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through J.
Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see the applicable Table referenced below.

01		02		03		04		05	06
Service Electrical Metering §130.5(a)/ §160.6(a)	AND	Separation for Monitoring §130.5(b)/ §160.6(b)	AND	Voltage Drop §130.5(c)/ §160.6(c)	AND	Controlled Receptacles §130.5(d)/ §160.6(d)	AND	Electric Ready §160.9	Compliance Results
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)	
N/A	AND	N/A	AND	N/A	AND	N/A	AND	N/A	COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

No exceptional conditions apply to this project.

E. ADDITIONAL REMARKS

This table includes remarks made by the installer to the Authority Having Jurisdiction

F. SERVICE ELECTRICAL METERING

This Section Does Not Apply

G. SEPARATION OF ELECTRICAL CIRCUITS FOR ENERGY MONITORING

This Section Does Not Apply

H. VOLTAGE DROP

This Section Does Not Apply

I. CIRCUIT CONTROLS FOR 120-VOLT RECEPTACLES AND CONTROLLED RECEPTACLES

This Section Does Not Apply

J. ELECTRIC READY BUILDINGS

This Section Does Not Apply

K. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

REFER TO CONTINUATION SHEET FOR TABLE K

L. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

REFER TO CONTINUATION SHEET FOR TABLE L

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		CEC-NRCC-ELC-E
This document is used to demonstrate compliance with mandatory requirements in §130.5 for electrical systems in newly constructed nonresidential and hotel/motel occupancies and §160.6 and §160.9 for electrical systems in newly constructed multifamily occupancies. Additions and alterations to electrical service systems in nonresidential & hotel/motel occupancies will also use this document to demonstrate compliance per §141.0(a) or §141.0(b)2P for alterations. For multifamily addition or alterations compliance will be documented per §180.1(a) or §180.2(b)4Bvii.		
Project Name: King's County Library - Hanford	Enforcement Agency:	Page 1 of 6
Dwelling Address: 401 N Douty St	Permit Number:	
City and Zip Code: Hanford, CA 93230	Permit Application Date:	10/24/2024

A. GENERAL INFORMATION

01	Project Location (city)	Hanford	02	Climate Zone:	13
			03	Occupancy Types Within Project:	

B. PROJECT SCOPE

This table Includes any electrical service systems that are within the scope of the permit application.

01	02	03	04	05	06	07
Electrical Service Designation/ Description	Scope of Work[1]	Rating[2] (kVA)	Utility Provided Metering System Exception to §130.5(a)/§160.6(a)[3]	System subject to CA Elec Code Article 517 Exception to §130.5(a)&(b)	Demand Response Controls Where required, demand response controls must be specified which are capable of receiving and automatically responding to at least one standard based messaging protocol which enables demand response after receiving a demand response signal. Sections §120.2/§160.3, §130.1/§160.5 and §130.3/§160.5 and mechanical.	Provides power to dwelling units/common living areas only in multifamily occupancy
EXISTING			☐	☐		☐

[1] FOOTNOTES: Adding only new feeders and branch circuits triggers Voltage Drop 130.5(c)/160.6(c), no other requirements from 130.5/160.6 are required.
[2] If common use areas in a multifamily occupancy are submetered, rating is for submeter size serving common use areas.
[3] Applicable if the utility company is providing a metering system that indicates instantaneous kW demand and kWh for a utility-defined period.

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DATE 05/23/2025
SUBMITTAL ISSUE FOR BID

APPROVED BY:
DATE SIGNATURE

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GLUMAC
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T. 415.398.7667
Project Manager: GUIL ORIHUELA
Job. No.: 24US00239

KINGS COUNTY LIBRARY
HANFORD
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HANFORD, CA 93230
APN: 010-271-017-000

PLOT DATE: 04/11/25
JOB NO.: 24US00239

ELECTRICAL T24 FORMS

E9.13

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STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 01/2023) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — CEC-NRCC-LTO-E

Project Name:	King's County Library - Hanford	Report Page:	Page 5 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

I. LIGHTING POWER ALLOWANCE (per §140.7)

This table includes areas using the allowance calculations per §140.7/§170.2(e)6. General Hardscape Allowance is per Table 140.7-A/ Table 170.2-R while "Use it or lose it" Allowances are per Table 140.7-B/Table 170.2-S. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.
Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

	General Hardscape Allowance	"Use it or lose it" Allowances (select all that apply)			
	☒	☐ Per Application	☐ Sales Frontage	☐ Ornamental	☐ Per Specific Area
	Table I (below)	Table J	Table K	Table L	Table M

Calculated General Hardscape Lighting Power Allowance per Table 140.7-A for Nonresidential & Hotel/Motel

02	03	04	05	06	07	08	09
Area Description	Area Wattage Allowance (AWA)			Linear Wattage Allowance (LWA)			Total General AWA+LWA (Watts)
	Illuminated Area (sf)	Allowed Density (W/sf)	Area Allowance (W)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (W)	
NORTHERN AREA	5205	0.021	109	600	0.2	120	229
SOUTHERN AREA	5762	0.021	121	900	0.2	180	301
						Initial Wattage Allowance for Entire Site (Watts):	250
						Instances of Initial Wattage Allowance (LZ 0 only)[1] Total General Hardscape:	
						Total General Hardscape Allowance (Watts):	780

1 FOOTNOTES: Number of entrances to parking areas, trail heads, fee payment kiosks, outhouses and toilet facilities on site where lighting is within project scope.

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 01/2023) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — CEC-NRCC-LTO-E

Project Name:	King's County Library - Hanford	Report Page:	Page 4 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

H. OUTDOOR LIGHTING CONTROLS

This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (i.e., untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
Outdoor lighting for nonresidential buildings, parking garages and common service areas in multifamily buildings must be documented separately from outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit.

Mandatory Controls for Nonresidential Occupancies, Parking Garages & Common Service Areas in Multifamily Buildings

01	02	03	04	05	
Area Description	Shut-Off §130.2(c)1/§160.5(c)	Auto-Schedule §130.2(c)2/§160.5(c)	Motion Sensor §130.2(c)3/§160.5(c)	Field Inspector	
				Pass	Fail
NORTHERN AREA	Astronomical Tim-Switch Control	Yes	NA: Each Luminaires <=40 Watts	☐	☐
SOUTHERN AREA	Astronomical Tim-Switch Control	Yes	NA: Each Luminaires <=40 Watts	☐	☐

1 FOOTNOTE: Text has been abbreviated, please refer to Table 160.5-A to confirm compliance with the specific light source technologies listed.
2 Authority having jurisdiction may ask for cutsheets or other documentation to confirm compliance of light source.
3 Recessed luminaires marked for use in fire-rated installations, and recessed luminaires installed in non-insulated ceilings are excepted from ii and iii.

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 01/2023) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — CEC-NRCC-LTO-E

Project Name:	King's County Library - Hanford	Report Page:	Page 3 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

F. OUTDOOR LIGHTING FIXTURE SCHEDEULE

For new or altered lighting systems demonstrating compliance with §140.7/§170.2(e)6 all luminaires being installed, and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per §141.0(b)2L, only new luminaires being installed, and replacement luminaires being installed as part of the project scope are included (i.e., existing luminaires remaining, or existing luminaires being moved are not included).
Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire (1)(2)	How Wattage is determined	Total number luminaires	Luminaire Status(3)	Excluded per §140.7(a)/ 170.2(e)6A	Design Watts	Cutoff Req. ≥ 6,200 initial lumen output §130.2(b)/ §160.5(c)[4]	Field Inspector	
										Pass	Fail
S1	LED	☐ Linear	35	Mfr. Spec[2]	14	New	☐	490	NA:<6,200 lumen	☐	☐
S2	LED	☐ Linear	15	Mfr. Spec[2]	5	New	☐	75	NA:<6,200 lumen	☐	☐
S3	LED	☐ Linear	7	Mfr. Spec[2]	20	Existing to Remain	☐	140	NA:<6,200 lumen	☐	☐
S4	LED	☐ Linear	24.6	Mfr. Spec[2]	2	New	☐	49.2	NA:<6,200 lumen	☐	☐
S6	LED	☐ Linear	7	Mfr. Spec[2]	13	New	☐	91	NA:<6,200 lumen	☐	☐
							Total Designed Watts:	845.2			

[1] FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §130.0(c)/§160.5(b).

[2] For linear luminaires, wattage should be indicated as W/lf instead of Watts/luminaire. Total linear feet for the luminaire should be indicated in column 05 instead of number of luminaires.

[3] Select "New" for new luminaires in a new outdoor lighting project or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.

[4] Compliance with mandatory shielding requirements is required for luminaires with initial lumen output ≥ 6,200 unless exempted by §130.2(b)/§160.5(c).

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 01/2023) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — CEC-NRCC-LTO-E

Project Name:	King's County Library - Hanford	Report Page:	Page 2 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

No exceptional conditions apply to this project.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction

F. OUTDOOR LIGHTING FIXTURE SCHEDEULE
REFER TO CONTINUATION SHEET FOR OUTDOOR TABLE F

G. CUTOFF REQUIREMENTS (BUG)
This Section Does Not Apply

H. OUTDOOR LIGHTING CONTROLS
REFER TO CONTINUATION SHEET FOR OUTDOOR TABLE H

I. LIGHTING POWER ALLOWANCE (per §140.7/170.2(e))
REFER TO CONTINUATION SHEET FOR OUTDOOR TABLE I

J. LIGHTING ALLOWANCE: PER APPLICATION
REFER TO CONTINUATION SHEET FOR OUTDOOR TABLE J

K. LIGHTING ALLOWANCE: SALES FRONTAGE
This Section Does Not Apply

L. LIGHTING ALLOWANCE: ORNAMENTAL
REFER TO CONTINUATION SHEET FOR OUTDOOR TABLE L

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA
This Section Does Not Apply

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)
This Section Does Not Apply

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 01/2023) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — CEC-NRCC-LTO-E

This document is used to demonstrate compliance with requirements in §110.9, §130.0, §130.2, §140.7, and §141.0(b)2L for outdoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in §160.5, §170.2(e)6, §180.1(a) and §180.2(b)4Bv for outdoor lighting scopes using the prescriptive path for multifamily and mixed-use occupancies. Multifamily includes dormitory and senior living facilities.

Project Name:	King's County Library - Hanford	Enforcement Agency:	Page 1 of 8
Dwelling Address:	401 N Douty St	Permit Number:	
City and Zip Code:	Hanford, CA 93230	Permit Application Date:	10/24/2024

A. GENERAL INFORMATION

01	Project Location (city)	Hanford	04	Total Illuminated Hardscape Area (ft2)	10967
02	Climate Zone	13			
03	Outdoor Lighting Zone per Title 24, Part 1 §10-114 or as designated by Authority Having Jurisdiction (AHJ):				
☐	LZ-0: Very Low - Undeveloped Parkland	☐ LZ-2: Moderate - Urban Clusters	☐ LZ-4: High - Must be reviewed by CA Energy Commission for Approval		
☐	LZ-1: Low - Rural Areas	☒ LZ-3: Moderately High - Urban Areas			
05	Occupancy Types within Project:				
☒	Library				

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.7/§170.2(e)6 or §141.0(b)2L/§180.2(b)4Bv for alterations.

My Project consists of:

01	02
☒ New Lighting System	Must Comply with Allowances from §140.7/§170.2(e)6.
☐ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)? ☐ Yes ☐ No

03	04	05
% of Existing Luminaires Being Altered(1)	Sum total of Luminaires Being Added or Altered	Calculation Method
☐ <10% ☐ ≥ 10% and < 50% ☐ ≥ 50%	54	Calculated Allowance per 140.7/170.2(e) 6

Please proceed to Table F. Outdoor Lighting Fixture Schedule to define the project's luminaires.

(1) Foot Notes: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables G through N.
Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see the applicable Table referenced below.

Calculation of Total Allowed Lighting Power (Watts) §140.7/§170.2(e)6 or §141.0(b)2L/§180.2(b)4Bv										Compliance Results		
01		02		03		04		05	06	07		08	09
General Hardscape Allowance §140.7(d)1 / §170.2(e)6	+	Per Application §140.7(d)2 / §170.2(e)6	+	Sales Frontage §140.7(d) 2	+	Ornamental §140.7(d)2 / §170.2(e)6	+	Per Specific Area §140.7(d)2 / §170.2(e)6	OR Existing Power Allowance §141.0(b)2L/ §180.2(b)4Bv	= Total Allowed (Watts)	=>	Total Actual (Watts)	07 Must be >= 08
(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	(See Table N)			(See Table F)	
780.307	+	57	+	0	+	13	+	0	OR 0	= 850.307	=>	845.2	Complies
Shielding Compliance (See Table G for Details)												NOT APPLICABLE	
Controls Compliance (See Table H for Details)												COMPLIES	

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ELECTRICAL T24 FORMS

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Outdoor Lighting
NRCC-LTO-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE CEC-NRCC-LTO-E

Project Name:	King's County Library - Hanford	Report Page:	Page 8 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	VALERIA BALDERRAMOS, P.E.	Documentation Author Signature:	
Company:	GLUMAC	Signature Date:	October 24, 2024
Address:	100 MONTGOMERY ST., SUITE 2050	CEA/HERS Certification Identification (if applicable):	
City/State/Zip:	SAN FRANCISCO, CA 94104	Phone:	(415) 398-7667

RESPONSIBLE PERSON'S DECLARATION STATEMENT

2. I certify the following under penalty of perjury, under the laws of the State of California:
   1. The information provided on this Certificate of Compliance is true and correct.
   2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
   3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
   4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
   5. I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections, and I will take the necessary steps to accomplish this requirement.
   6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy, and I will take the necessary steps to accomplish these requirements.

Responsible Designer Name:	VALERIA BALDERRAMOS, P.E.	Responsible Designer Signature:	
Company:	GLUMAC	Date Signed:	October 24, 2024
Address:	100 MONTGOMERY ST., SUITE 2050	License:	E21403
City/State/Zip:	SAN FRANCISCO, CA 94104	Phone:	(415) 398-7667

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE CEC-NRCC-LTO-E

Project Name:	King's County Library - Hanford	Report Page:	Page 7 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online.

YES	NO	Form/Title	Field Inspector Pass	Field Inspector Fail
☒	☐	NRCI-LTO-E - Must be submitted for all buildings.	☐	☐

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included in table e. Additional remarks. These documents must be provided to the building inspector during construction and must be completed through an acceptance test technician certification provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html.

YES	NO	Form/Title	Field Inspector Pass	Field Inspector Fail
☒	☐	NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls area added to ≤ 20 luminaires.	☐	☐

STATE OF CALIFORNIA
Outdoor Lighting
NRCC-LTO-E (Created 01/2023) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE CEC-NRCC-LTO-E

Project Name:	King's County Library - Hanford	Report Page:	Page 6 of 8
Project Address:	401 N Douty St, Hanford, CA 93230	Date Prepared:	10/24/2024

J. LIGHTING ALLOWANCE: PER APPLICATION

This table includes areas using the wattage allowance per application from Table-140.7-B/Table 170.2-S.

01	02	03	04	05	06	07	08	09	10
		CALCULATED ALLOWANCE (Watts)			DESIGN WATTS				
Area Description	Application per Table 140.7-B[1]	# of Locations	Allowance per Location[2] (Watts)	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire[3]	# of Luminaires[3]	Design Watts	Additional Allowance (Watts)
Northern Area	Building Entrances/Exits	1	19	19	S1	35	8	280	
					S3	7	9	63	
								0	
							Total Design Watts for this Area:	343	19
Southern Area	Building Entrances/Exits	2	19	38	S1	35	6	210	
					S3	7	8	56	
					S2	15	3	45	
					S6	32	13	416	
							Total Design Watts for this Area:	727	38
								Total Additional Allowance (Watts)All Areas:	57

[1] FOOTNOTES: Primary entrance applications are only available for senior care facilities, healthcare facilities, police stations, hospitals, fire stations,and emergency vehicle facilities.
[2] The Allowance per Location for ATMs is 100W for the first ATM and 35W for each additional per Table 140.7-B/Table 170.2-S.
[3] For luminaires indicated in Table F as linear, wattage in column 07 is W/lf instead of Watts/luminaire. Total linear feet for the luminaire should be indicated in column 08 instead of number of luminaires.

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A TETRA TECH COMPANY
engineers for a sustainable future
100 Montgomery Street, Suite 2050
San Francisco, CA 94104
www.glumac.com
T. 415.398.7667
Project Manager: GUIL ORIHUELA
Job. No.: 24US00239

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ELECTRICAL T24 FORMS

E9.15

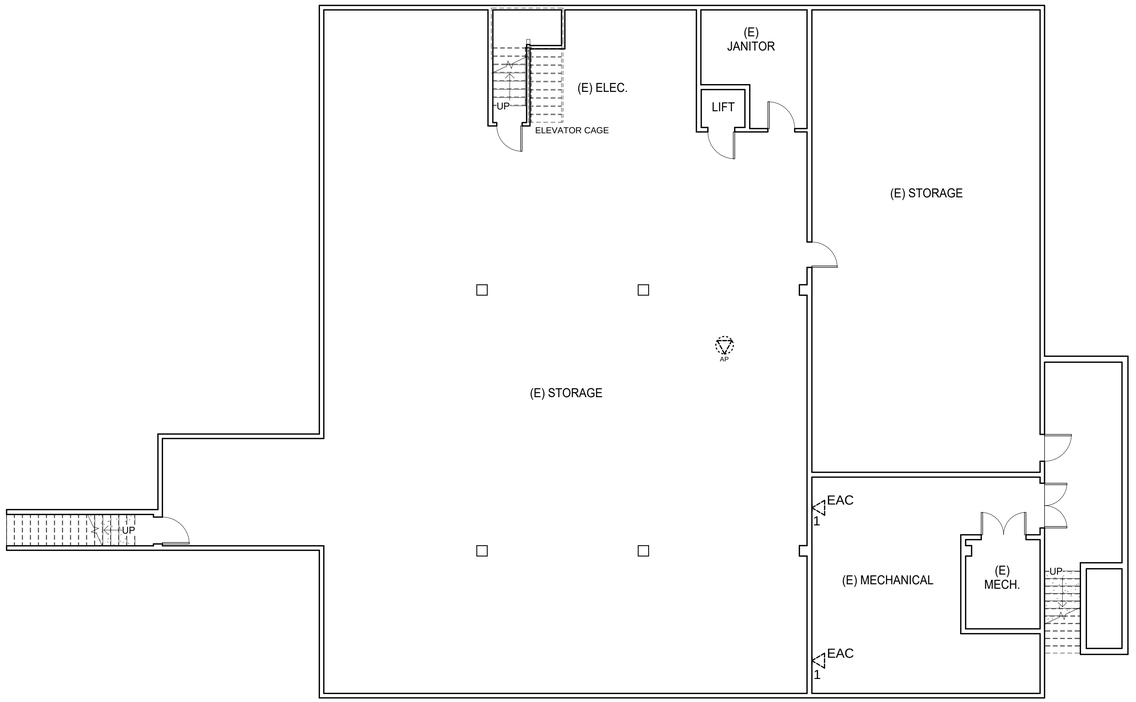
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TELECOM DEMO NOTES

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3. ANY EXISTING CABLING THAT CANNOT BE REUSED IS TO BE REMOVED COMPLETELY AND REPLACED WITH NEW.

TELECOM DEMO SYMBOLS

- DATA LOCATION (TYPICAL)
- AP — WIRELESS ACCESS POINT
- AP — WIRELESS ACCESS POINT - EXTERIOR (TO REMAIN IN PLACE)
- DATA FLOOR LOCATION
- P — DATA PHONE LOCATION



1 BASEMENT TELECOM DEMO PLAN
1/8" = 1'-0"

N

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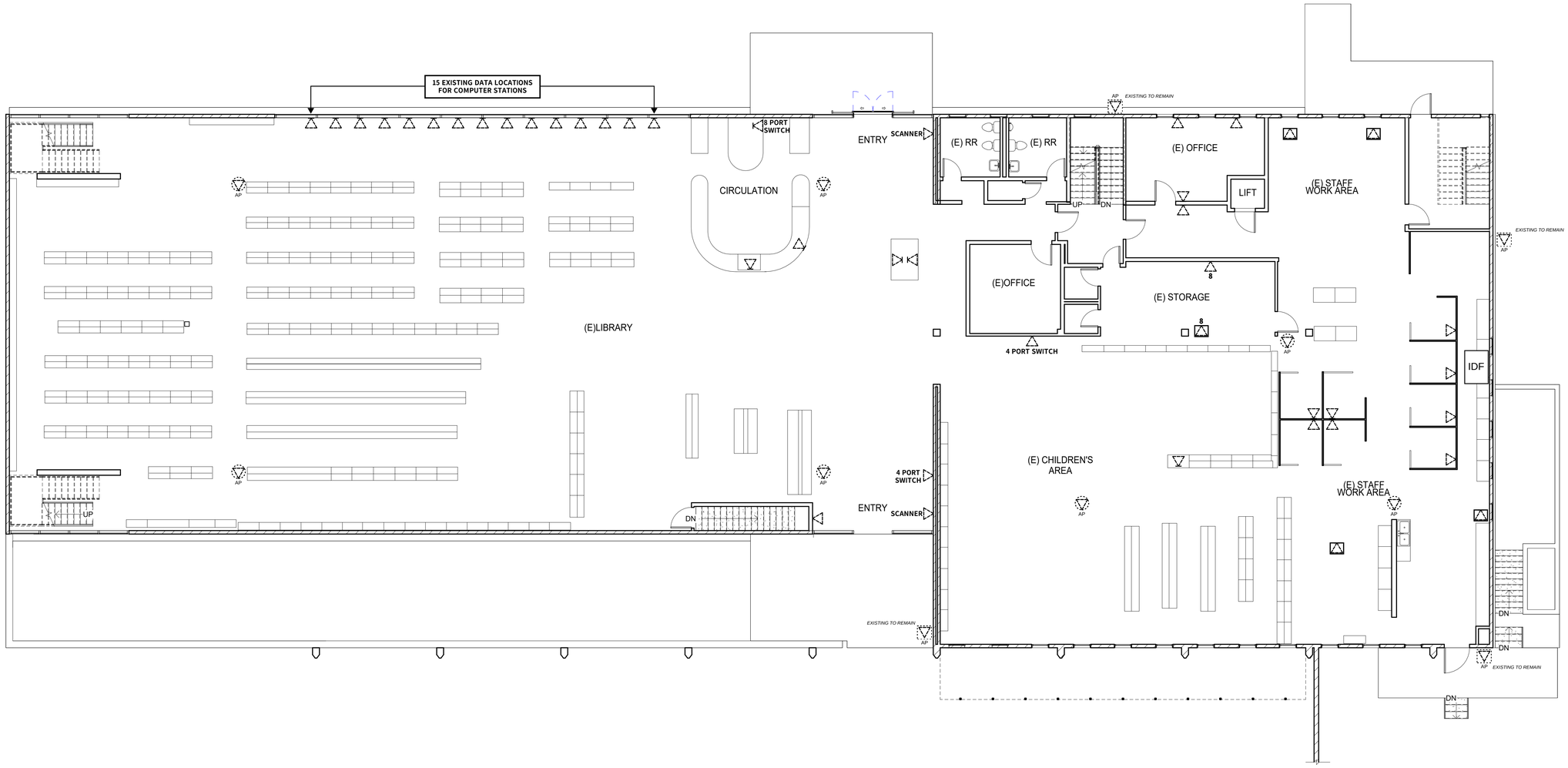
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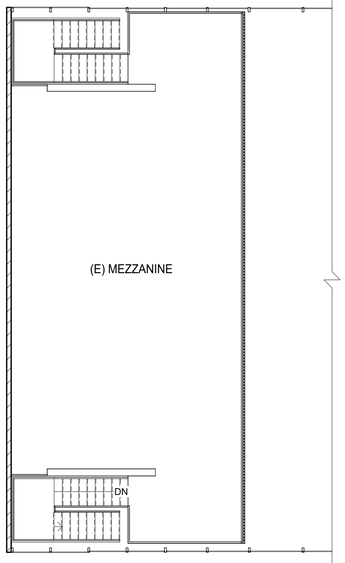
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TELECOM DEMO NOTES

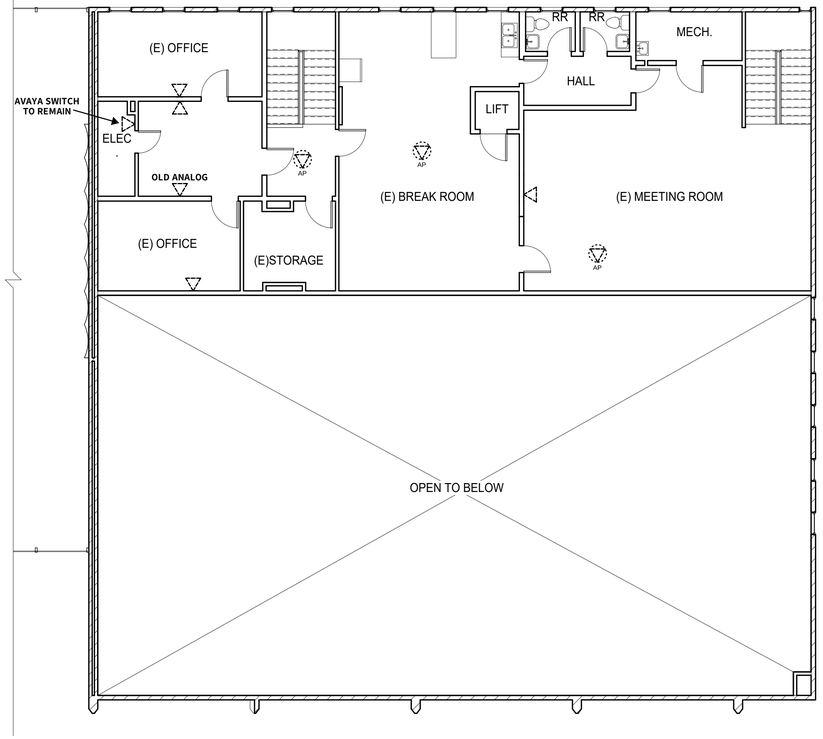
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- DATA LOCATION (TYPICAL)
- WIRELESS ACCESS POINT
- WIRELESS ACCESS POINT - EXTERIOR (TO REMAIN IN PLACE)
- DATA FLOOR LOCATION
- DATA PHONE LOCATION



1 MEZZANINE TELECOM DEMO PLAN
1/8" = 1'-0"



2 SECOND FLOOR TELECOM DEMO PLAN
1/8" = 1'-0"

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SECOND FLOOR
TELECOM DEMO PLAN

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TELECOM PLAN NOTES

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TELECOM PLAN SYMBOLS

- SINGLE DATA LOCATION (1 CABLE)
- DUAL DATA LOCATION (2 CABLES)
- HIGH DENSITY DATA LOCATION (4 CABLES UNLESS NOTED OTHERWISE)
- AP — WIRELESS ACCESS POINT (1 CABLE)
- DATA FLOOR LOCATION (PROVIDE AS NOTED)
- TV — DATA TV LOCATION (1 CABLE)
- CAMERA LOCATION (1 CABLE)
- PTP — POINT-TO-POINT CABLE (1 CAT6 SHIELDED, 1 HDMI)

NOTES:
1. DATA LOCATIONS TO HAVE 4-11/16" SQUARE, 2-1/2" DEEP BACK BOX WITH SINGLE GANG PLASTER RING AND 3/4" CONDUIT STUBS.
2. PROVIDE 1-1/2" CONDUIT FOR POINT TO POINT LOCATIONS.
3. COORDINATE SIZE OF BACK BOX, PLASTER RING, CONDUIT(S), CABLE, SUPPORT, AND ALL ACCESSORIES FOR EACH LOCATION.

KEY NOTES

A ACCESS CONTROL LOCATION
- CARD READER
- ELECTRIC DOOR STRIKE
- DOOR CONTACT
- MOTION TO EXIT
- PROVIDE 22/6C SHIELDED, 18/4C, 18/6C WIRING AT A MINIMUM

B CAMERA LOCATION
- PROVIDE A 4MP CAMERA AT A MINIMUM (OR AS NOTED)
- CAMERA HOUSING TO BE RATED FOR THE ENVIRONMENT IT IS INSTALLED IN
- REQUIRES DUAL-GANG BACKING BOX WITH CONDUIT PATHWAY TO NEAREST ACCESSIBLE CABLE PATH

C FIBER INFRASTRUCTURE
- PROVIDE 12-STRAND FIBER TO EXTEND CIRCUIT AT MPOE TO
- SERVER RACK. VERIFY TYPE WITH CLIENT AND PROVIDER

N

1 BASEMENT TELECOM PLAN
1/8" = 1'-0"

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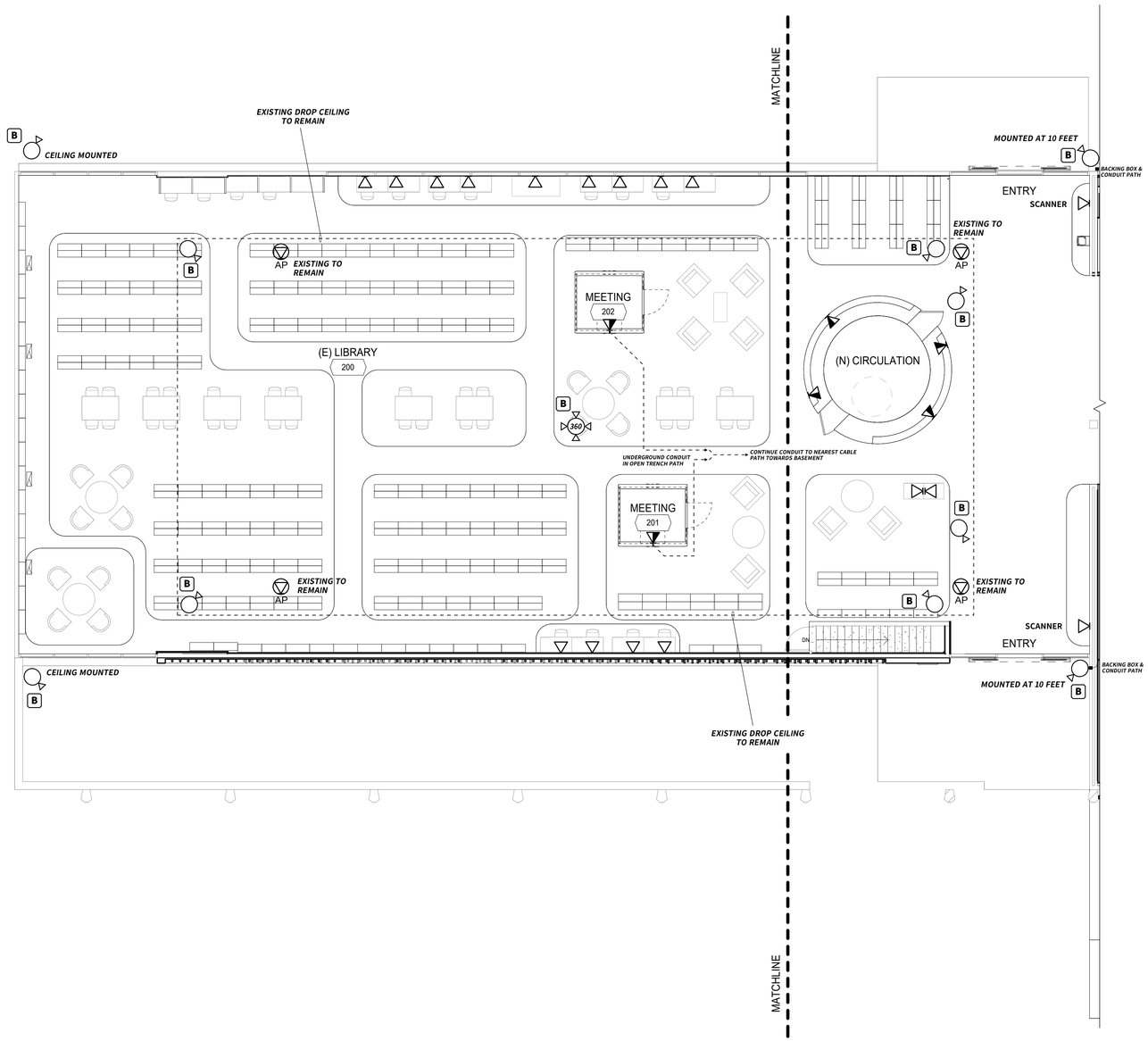
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BASEMENT TELECOM PLAN

T001-A



1 FIRST FLOOR TELECOM PLAN - A

1/8" = 1'-0"

N

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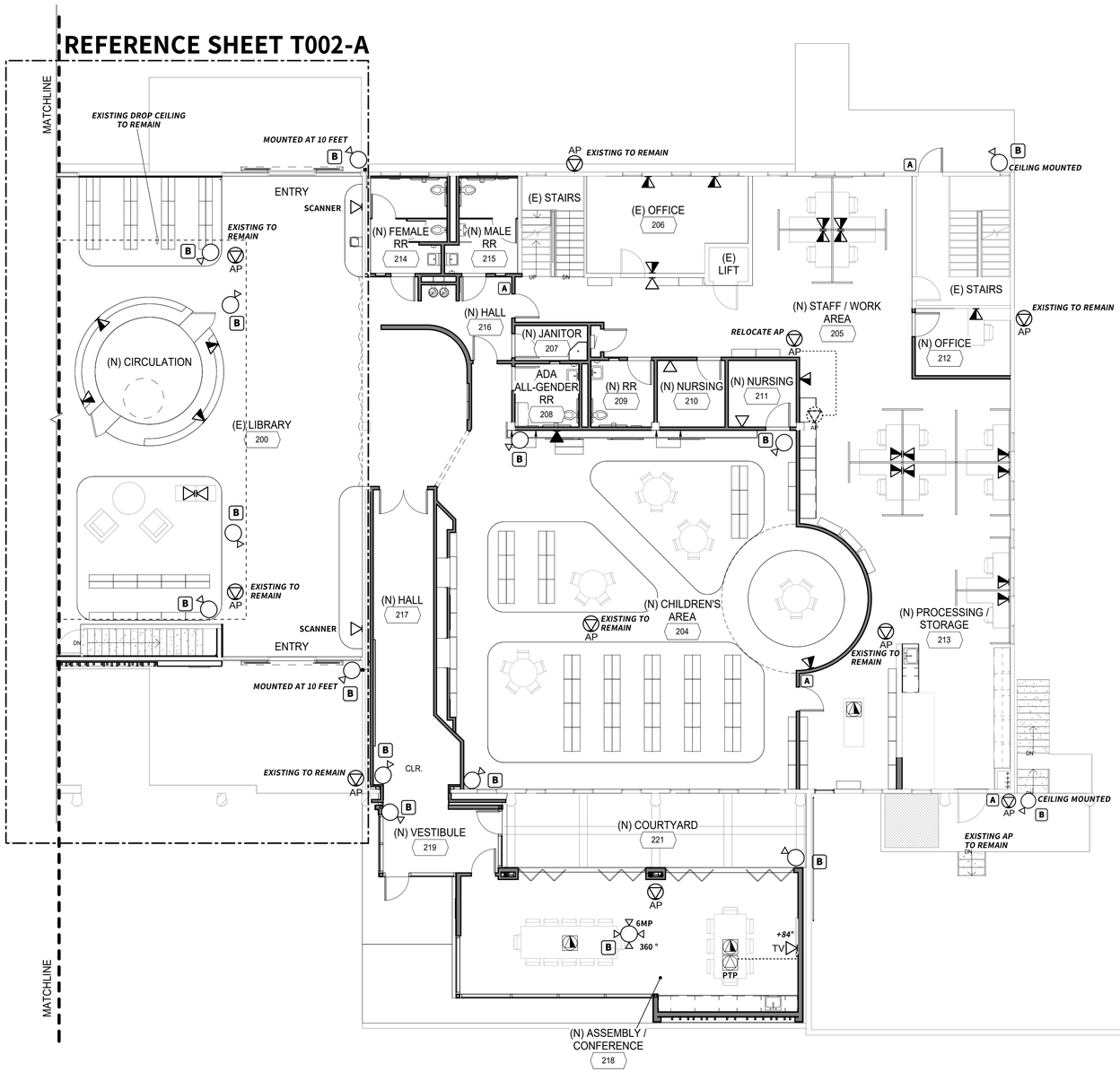
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FIRST FLOOR TELECOM PLAN - A

T002-A



1 FIRST FLOOR TELECOM PLAN - B

1/8" = 1'-0"

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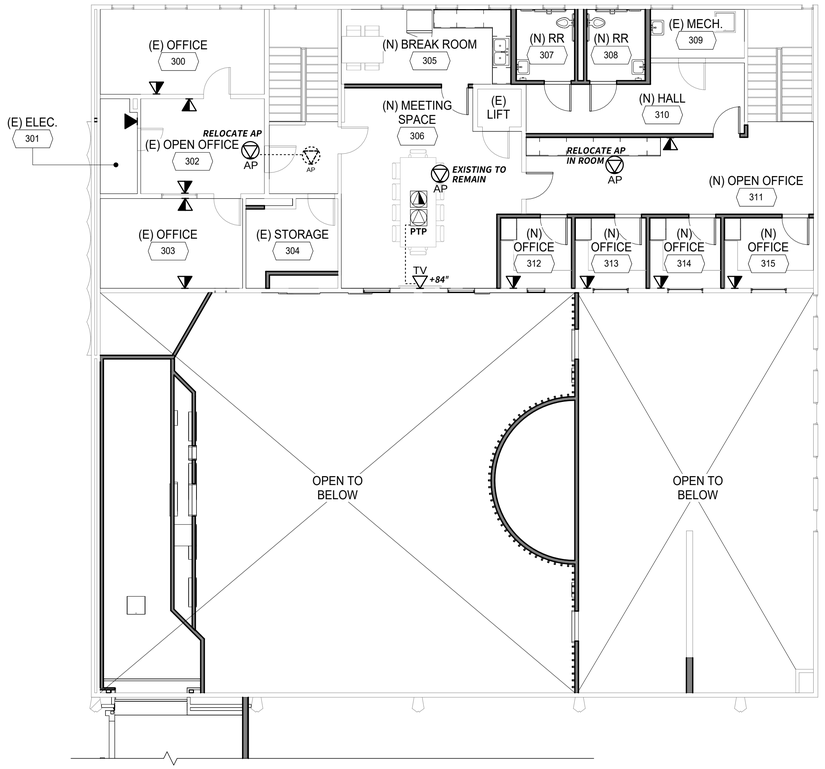
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FIRST FLOOR TELECOM PLAN - B

T002-B



2 SECOND FLOOR TELECOM PLAN
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N

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2. ALL REUSED CABLING WILL REQUIRE CERTIFICATION TESTING AND DOCUMENTATION PROVIDED AS PART OF CLOSEOUT. ANY EXISTING CABLING THAT DOES NOT PASS CERTIFICATION IS TO BE REPLACED.
3. ALL NEW CABLING TO BE CAT6 PLENUM RATED WITH MATCHING HARDWARE AND COMPONENTS.
4. ALL DATA PATHWAYS, EXISTING AND NEW, ARE TO BE SUPPORTED THROUGHOUT WITH J-HOOKS. J-HOOKS TO BE SECURELY MOUNTED TO A WALL OR CEILING HANGER SUPPORT. DO NOT USE EXISTING CEILING HANGERS TO SUPPORT CABLE RUNS. VISIBLE AND/OR EXPOSED CABLES ARE NOT ALLOWED.

TELECOM PLAN SYMBOLS

- SINGLE DATA LOCATION (1 CABLE)
- DUAL DATA LOCATION (2 CABLES)
- HIGH DENSITY DATA LOCATION (4 CABLES UNLESS NOTED OTHERWISE)
- AP — WIRELESS ACCESS POINT (1 CABLE)
- DATA FLOOR LOCATION (PROVIDE AS NOTED)
- TV — DATA TV LOCATION (1 CABLE)
- CAMERA LOCATION (1 CABLE)
- PTP — POINT-TO-POINT CABLE (1 CAT6 SHIELDED, 1 HDMI)

NOTES:
1. DATA LOCATIONS TO HAVE 4-11/16" SQUARE, 2-1/2" DEEP BACK BOX WITH SINGLE GANG PLASTER RING AND 3/4" CONDUIT STUBS.
2. PROVIDE 1-1/2" CONDUIT FOR POINT TO POINT LOCATIONS.
3. COORDINATE SIZE OF BACK BOX, PLASTER RING, CONDUIT(S), CABLE, SUPPORT, AND ALL ACCESSORIES FOR EACH LOCATION.

KEY NOTES

A ACCESS CONTROL LOCATION
- CARD READER
- ELECTRIC DOOR STRIKE
- DOOR CONTACT
- MOTION TO EXIT
- PROVIDE 22/6C SHIELDED, 18/4C, 18/6C WIRING AT A MINIMUM

B CAMERA LOCATION
- PROVIDE A 4MP CAMERA AT A MINIMUM (OR AS NOTED)
- CAMERA HOUSING TO BE RATED FOR THE ENVIRONMENT IT IS INSTALLED IN
- REQUIRES DUAL-GANG BACKING BOX WITH CONDUIT PATHWAY TO NEAREST ACCESSIBLE CABLE PATH

C FIBER INFRASTRUCTURE
- PROVIDE 12-STRAND FIBER TO EXTEND CIRCUIT AT MPOE TO
- SERVER RACK. VERIFY TYPE WITH CLIENT AND PROVIDER

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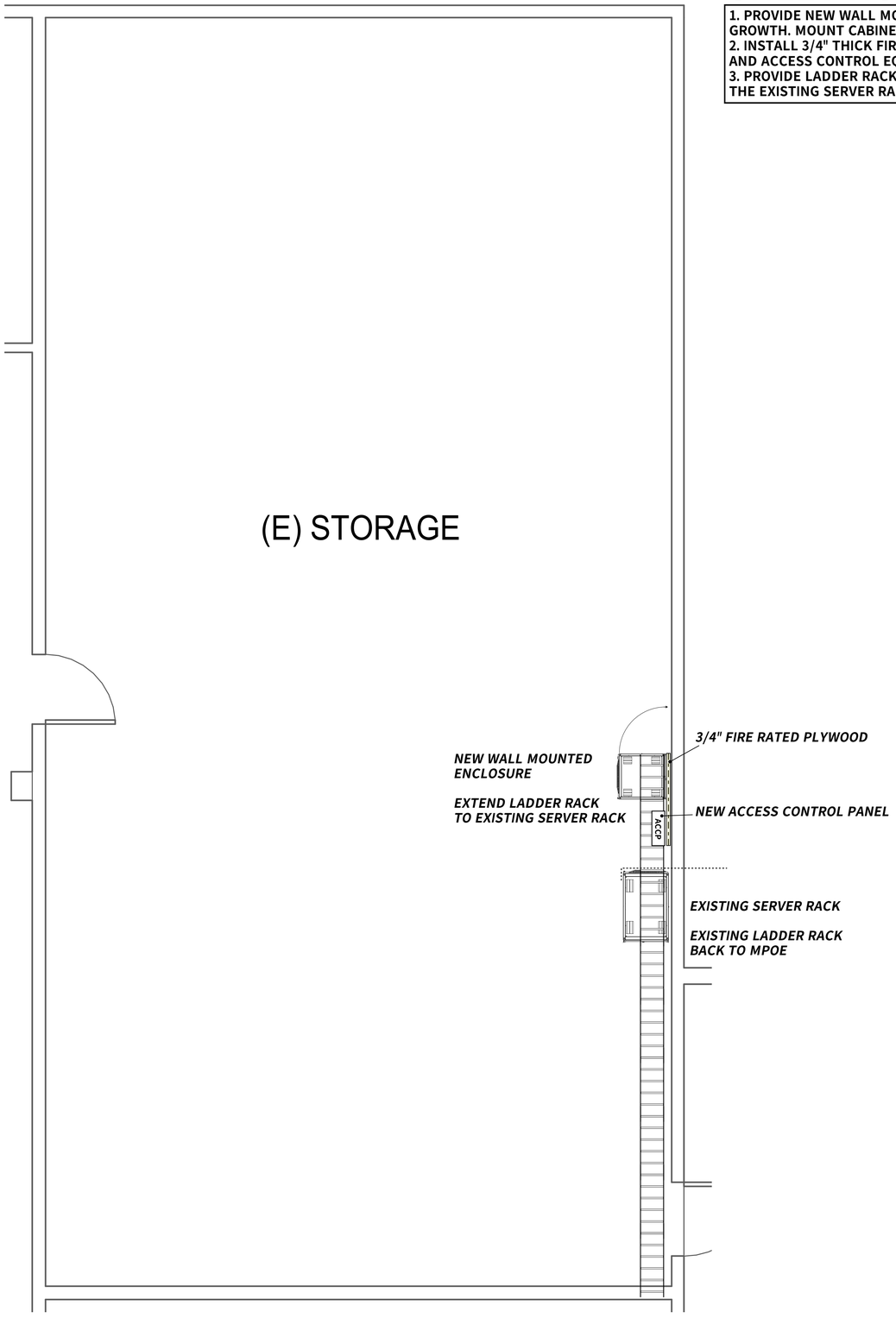
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SECOND FLOOR TELECOM PLAN

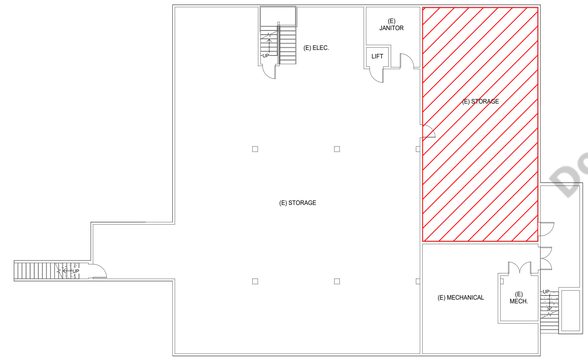
T003-A

SHEET NOTES

1. PROVIDE NEW WALL MOUNTED CABINET SIZED FOR 10% FUTURE GROWTH. MOUNT CABINET TO SWING AWAY FROM SERVER RACK.
2. INSTALL 3/4" THICK FIRE RATED PLYWOOD AS BACKING FOR CABINET AND ACCESS CONTROL EQUIPMENT.
3. PROVIDE LADDER RACK TO CONNECT NEW WALL MOUNTED CABINET TO THE EXISTING SERVER RACK.



1 IT ROOM LAYOUT
3/8" = 1'-0"



KEY PLAN
BASEMENT

N

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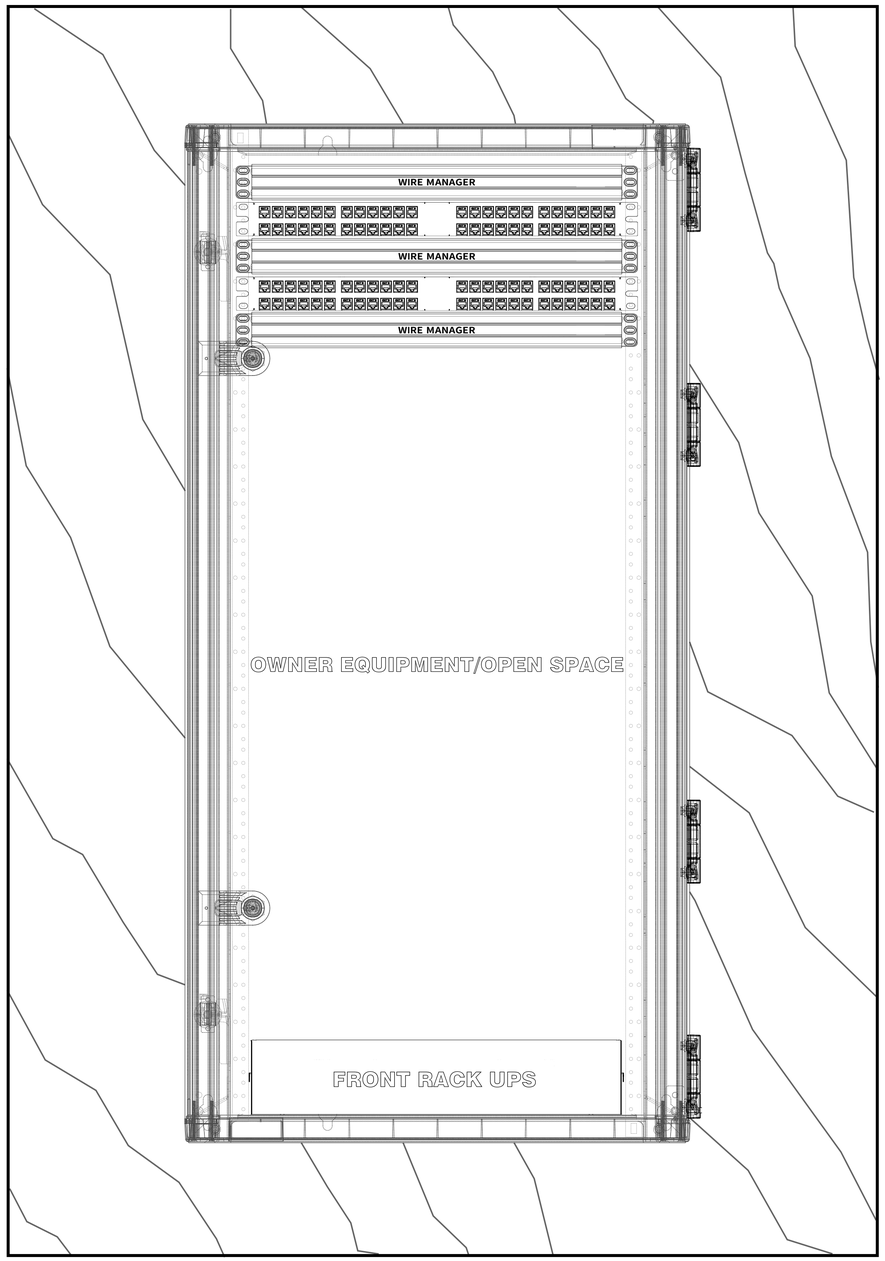
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IT ROOM LAYOUT

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3/4" FIRE RATED PLYWOOD

SHEET NOTES

1. RACK LAYOUT AND HARDWARE IS TYPICAL AND FOR REFERENCE.
2. PROVIDE WIRE MANAGEMENT BETWEEN ALL PATCH PANELS.
3. PROVIDE 48-PORT HIGH DENSITY PATCH PANELS
4. PROVIDE A UPS BACKUP BATTERY WITH MINIMUM 15-MINUTES RUNTIME AT 50% LOAD.
5. PROVIDE TWO (2) 1U RACK MOUNTED SHELVES
6. LEAVE A MINIMUM OF 6U OF OPEN SPACE FOR CLIENT PROVIDED HARDWARE.

1 RACK ELEVATIONS
1/8" = 1'-0"

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RACK ELEVATIONS

T005-A

CABLE LABELING DETAIL

ROOM NAME
MDF

UNIQUE IDENTIFIER FOR CABLE LOCATION
A-Z PATCH PANEL LABEL
01-48 SEQUENTIAL NUMBERING FOR DATA CABLE

FACEPLATE LABEL EXAMPLE:
1. CABLE IS FED FROM MDF ROOM NUMBER 100.
FACEPLATE LABEL WOULD READ "MDF-100"
2. CABLE IS TERMINATED TO PANEL A PORT 36.
JACK LABEL WOULD READ "A36"

CABLE LABEL EXAMPLE:
1. CABLE IS FED FROM MDF PATCH PANEL A.
CABLE LANDS ON PORT 36 OF THE PATCH PANEL.
CABLE WRAP AROUND LABEL WOULD READ "MDF-A36"

RACK LABEL EXAMPLE:
1. PATCH PANELS ARE LABELED IN ALPHABETICAL ORDER STARTING FROM THE TOP. FIRST PANEL AT THE TOP BEING LABELED "A".

FIBER LABELING DETAIL

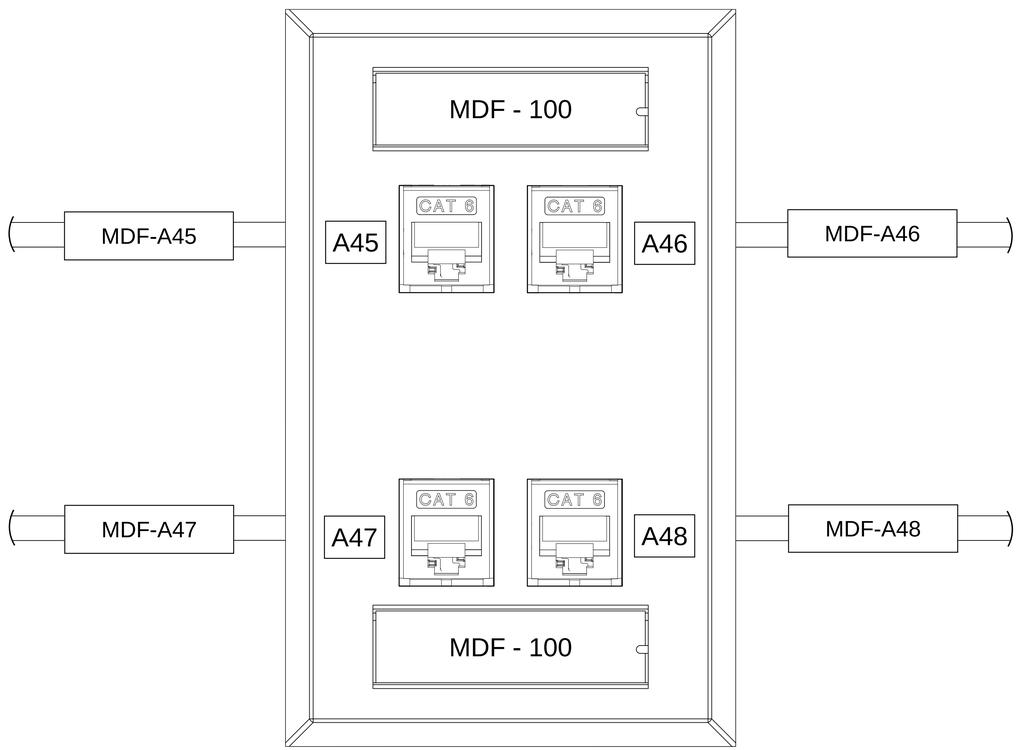
SOURCE DEST STRAND#
AAAA - B - CC

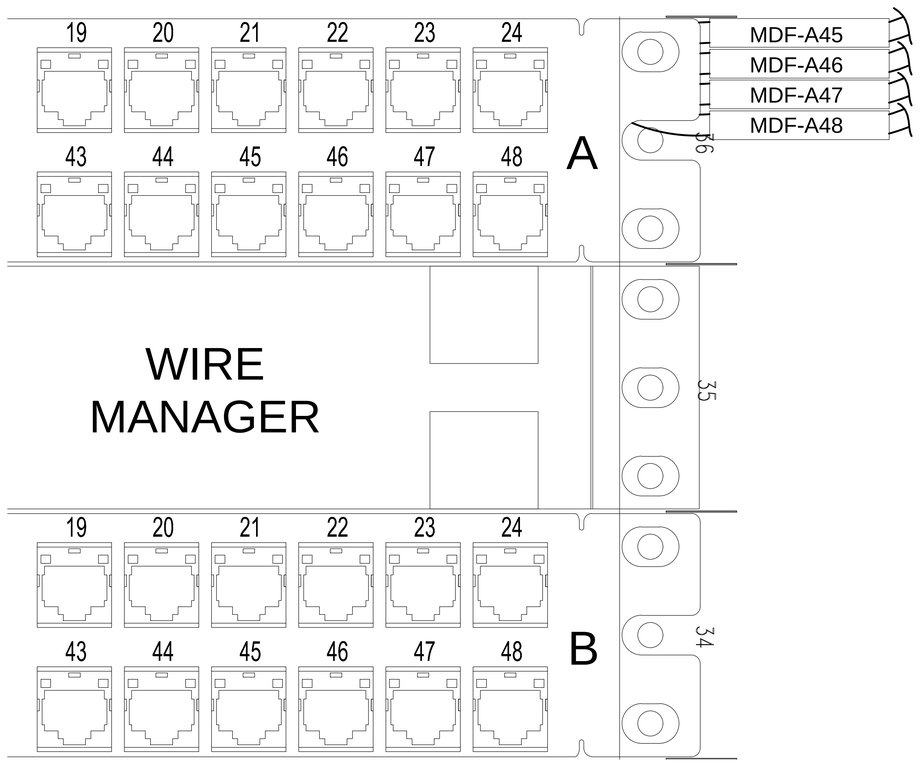
AAAA - SOURCE LOCATION
MPOE
MDF

B - CABLE DESTINATION
MPOE
MDF

CC - FIBER STRAND TOTAL
XX - IDENTIFIES SIZE OF FIBER CABLE TERMINATED

FIBER LABEL EXAMPLE
1. FIBER IS FED FROM THE MPOE AND IS TERMINATED IN THE MDF WITH 12 STRANDS OF FIBER AT THE PATCH PANEL. FIBER LABEL WOULD READ "MPOE-MDF-12"





1 LABELING SCHEME
1/8" = 1'-0"

N

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LABELING SCHEME

T006-A

SCOPE OF WORK

COSCO FIRE PROTECTION SHALL PROVIDE CONSULTATION, DESIGN, INSTALLATION, AND EQUIPMENT PER THE CONTRACTUAL AGREEMENTS OF THE PROJECT NAME AND PROJECT NUMBER IDENTIFIED WITHIN THE TITLE BLOCK; CONSISTING, BUT NOT LIMITED TO THE FOLLOWING:

REMOVE EXISTING FIRE ALARM DEVICES AND INSTALL A NEW MANUAL FIRE ALARM SYSTEM WITH REQUIRED NOTIFICATION DEVICES AND INITIATING DEVICES. INSTALLATION SHALL COMPLY WITH APPLICABLE CODES.

BUILDING AND PROJECT DATA

CBC BUILDING OCCUPANCY:	A-3 MAIN WITH B AND S-2
CONSTRUCTION TYPE:	VB
NUMBER OF STORIES:	2
PROJECT AREA:	15,068 SQ. FT.
OCCUPANCY LOAD:	243 PERSONS
AUTOMATIC SPRINKLERS:	YES
ADA COMPLIANT:	YES
TYPE OF SYSTEM:	MANUAL FIRE ALARM
SYSTEM DESIGNER:	RUBEN RAMIREZ SR.
	P: 559-275-3795
MONITORING STATION:	TBD

CODES

1) CALIFORNIA BUILDING CODE, (CBC) 2022 EDITION

2) CALIFORNIA FIRE CODE, (CFC) 2022 EDITION

3) CALIFORNIA ELECTRICAL CODE, (CEC) 2022 EDITION

4) NFPA CODES AND STANDARDS 72, 2022 EDITION

5) CALIFORNIA STATE FIRE MARSHAL LISTING

6) UNDERWRITERS LABORATORIES (UL)

7) CALIFORNIA MECHANICAL CODE, (CMC) 2022 EDITION

GENERAL NOTES

1. ALL FIRE ALARM WIRING AND CONDUIT SHALL BE IN ACCORDANCE WITH NFPA 70 AND 72, 2022 TITLE 24 BUILDING CODE, NEC, THE AUTHORITY HAVING JURISDICTION AND THE MANUFACTURERS REQUIREMENTS.
2. ALL FIRE ALARM EQUIPMENT SHALL BE C.S.F.M AND U.L. LISTED.
3. ALL JUNCTION BOXES SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL 120VAC POWER REQUIREMENTS FOR THE FIRE ALARM SYSTEM UNLESS OTHERWISE NOTED. DEDICATED BRANCH ELECTRICAL CIRCUIT PROVIDED.
5. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL FIRE ALARM TERMINAL CABINETS, JUNCTION BOXES, DEVICE BACKBOXES, UNLESS OTHERWISE NOTED.
6. ALL BACKBOXES PROVIDED BY COSCO FIRE SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR.
7. WIRING SHALL NOT BE LOOPED THROUGH DEVICES; ALL WIRING SHALL BE CUT FOR IN AND OUT.
8. ALL DEVICE WIRING, AND ANNUNCIATOR PANELS SHALL BE SUPERVISED TO THE PRINCIPAL POINT OF ANNUNCIATION.
9. THE FIRE ALARM CONTROL PANEL AND POWER SUPPLIES ARE NOT TO BE USED AS A TERMINAL CABINET OR WIREWAY.
10. ALL FIELD WIRING MUST ENTER AT THE TOP AND NO LOWER THAN 8" FROM BOTTOM ON THE SIDES OF THE FIRE ALARM CONTROL PANEL.
11. ALL FIRE ALARM WIRING MUST TEST FREE OF GROUNDS, SHORTS AND OPENS.
12. T-TAPPING IS PROHIBITED FOR ALL CLASS A CIRCUITS.
13. ALL INDICATING APPLIANCE CIRCUITS SHALL BE WIRED WITH #14 AWG WIRE MINIMUM.
14. ALL INITIATING DEVICES (ADDRESSABLE) SHALL BE WIRED WITH #18 AWG TP FPLP WIRE MINIMUM.
15. ALL AUDIO/VISUAL DEVICES TO ACTIVATE UPON GENERAL ALARM.
16. ALL DEVICES IN THE ALARM SYSTEM SHALL BE COMPATIBLE WITH THE FIRE ALARM CONTROL PANEL AND INSTALLED TO MANUFACTURERS SPECIFICATIONS.
17. AUDIBILITY OF ALARM SHALL BE NOT LESS THAN 15db ABOVE AMBIENT SOUND THROUGHOUT AREA OF ALARM. AND SHALL BE CODE 3 TEMPORAL SOUND.
18. FIRE ALARM SYSTEM WILL BE A LOCAL FIRE ALARM SYSTEM CENTRAL STATION MONITORING.
19. TWO PHONE LINES ARE REQUIRED, UNLESS SINGLE PATH COMMUNICATION IS USED. CELLULAR COMMUNICATOR PROVIDED.
20. ALL VISUAL DEVICES TO BE SYNCHRONIZED.
21. SMOKE DETECTORS SHALL NOT BE PLACED WITHIN 3 FEET OF AC REGISTERS OR WITHIN 1 FOOT OF FLORESCENT LIGHT FIXTURES AND SPRINKLER HEADS.
22. ALL EXTERIOR MOUNTED EQUIPMENT SHALL BE LISTED AS WEATHERPROOF INCLUDED BUT NOT LIMITED TO, VISUAL, AUDIO, SUPERVISORY AND INITIATING DEVICES. THEY SHALL BE NOTED ON THE PRINT WITH WP DESIGNATION FOR WEATHERPROOF. THEIR ELECTRICAL TERMINATION COUNTER PARTS SHALL ALSO BE LISTED AS SUCH AND ALSO NOTED IN THE JOB SPECIFICATIONS.

DEVICE LEGEND

SYMBOL	QTY	MANUFACTURER	PART NO	DESCRIPTION	CSFM	MOUNTING
FACU	1	SILENT KNIGHT	6808	INTELLIGENT FIRE ALARM CONTROL PANEL WITH COMMUNICATOR	7165-0559:0502	SURFACE
DOC	1	SPACE AGE ELECTRONICS	SSU00685	FIRE ALARM DOCUMENT CABINET W/BGB USB DRIVE (ACE-11), RED WITH CUSTOM LOGO	7300-0553:0110	SURFACE
CELL	1	NAPCO	SLE-LTEVI-FIRE	DUAL PATH COMMUNICATOR, CELLULAR &/OR IP, CONNECTED BY VERIZON LTE™, ABS.	7300-0992:0144	SURFACE
FAA	1	SILENT KNIGHT	6860	REMOTE ANNUNCIATOR, RED	7165-0559:0502	SURFACE
F	8	SILENT KNIGHT	SK-PULL-DA	DUAL ACTION PULL STATION	7150-0559:0161	4S BOX W/SINGLE GANG TRIM RING
S	1	SILENT KNIGHT	SK-PHOTO-W W/B300-6	WHITE, LOW-PROFILE PHOTOELECTRIC SENSOR W/BASE	7272-0559:0512	4S BOX W/3O TRIM RING
AM D	1	SILENT KNIGHT	SK-MONITOR-2	DUAL MONITORING MODULE	7300-0559:0155	4S BOX DEEP
S	1	SILENT KNIGHT	DNR W/SK-PHOTO-R-W	INTELLIGENT NON-RELAY PHOTOELECTRIC DUCT DETECTOR	3242-0559:0518 3240-1653:0209	DUCT MOUNTED
S	4	SILENT KNIGHT	DNRW W/SK-PHOTO-R-W	WATERTIGHT INTELLIGENT NON-RELAY PHOTOELECTRIC LOW FLOW DUCT SMOKE DETECTOR HOUSING W/DETECTOR	3242-0559:0518 3240-1653:0209	DUCT MOUNTED
AOM	5	SILENT KNIGHT	SK-RELAY	RELAY MODULE	7300-0559:0155	DUCT MOUNTED
C	33	SYSTEM SENSOR	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED	7135-1653:0526	4S BOX W/EXT RING
C	16	SYSTEM SENSOR	SCRLED	STROBE, CEILING, RED	7300-1653:0525	4S BOX W/EXT RING
WP	1	SYSTEM SENSOR	P2RK	2-WIRE HORN STROBE, STANDARD CD, RED, OUTDOOR	7125-1653:0188	PROVIDED SURFACE MOUNT BACK BOX
	1	GENERIC	WATERFLOW SWITCH	F.B.O.		
PAS	1	GENERIC	VALVE TAMPER SUPERVISORY SWITCH			

CABLE AND WIRE LEGEND

LABEL	PART NO	AWG	RESISTANCE (Ω/KFT)	DESCRIPTION	TOTAL LENGTH
A	16/2 FPLR (SLC)	16	4.89	2 COND. SOLID COPPER FPLR ADDRESSABLE	1345'
P	14/2 FPLP/R (AUX)	14	3.07	2 COND. SOLID COPPER FPLP/R UNSHIELDED	3'
T	RJ-11	22	16.14	4 COND. UNSHIELDED COMMUNICATIONS CABLE	7'
V	14/2 FPLP/R (NAC)	14	3.07	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	2331'
Z	18/2 FPLP/R (IDC)	18	7.77	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	1'
SBUS	18/4 FPLP/R (SBUS)	18	7.770	4 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	465'

SHEET INDEX

SHEET No.	SHEET DESCRIPTION
FA-01	FIRE ALARM TITLE PAGE AND MATRIX
FA-02	FIRE ALARM DEMO & NEW BASEMENT FLOOR PLAN
FA-03	FIRE ALARM DEMO & NEW FIRST FLOOR PLAN
FA-04	FIRE ALARM DEMO & NEW MEZZANINE & SECOND FLOOR PLAN
FA-05	FIRE ALARM ROOF PLAN
FA-06	FIRE ALARM SECTION DRAWING
FA-07	FIRE ALARM RISER DIAGRAM
FA-08	FIRE ALARM CALCULATIONS
FA-09	FIRE ALARM INSTALLATION DETAILS
FA-10	FIRE ALARM INSTALLATION DETAILS
FA-11	FIRE ALARM INSTALLATION DETAILS

OPERATION MATRIX

ITEM NO.	SYSTEM INPUTS	A	B	C	D	E	F	G	H	I	J	K
	SYSTEM OUTPUTS	ACTIVATE COMMON ALARM SIGNAL INDICATOR (RED LED)	ACTIVATE AUDIBLE ALARM SIGNAL (PIEZO BUZZER)	ACTIVATE COMMON SUPERVISORY SIGNAL INDICATOR (YELLOW LED)	ACTIVATE AUDIBLE SUPERVISORY SIGNAL (PIEZO BUZZER)	ACTIVATE COMMON TROUBLE SIGNAL INDICATOR (YELLOW LED)	ACTIVATE AUDIBLE TROUBLE SIGNAL (PIEZO BUZZER)	ACTIVATE EVACUATION SIGNAL THROUGHOUT THE BUILDING	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION	TRANSMIT FIRE SUPERVISORY SIGNAL TO SUPERVISING STATION	TRANSMIT FIRE TROUBLE SIGNAL TO SUPERVISING STATION	SHUT DOWN HVAC UNIT IN ALARM
01	AREA SMOKE DETECTOR	●	●					●	●			
02	MANUAL PULL STATION	●	●					●	●			
03	HVAC DUCT SMOKE DETECTOR			●	●					●		●
04	FIRE SPRINKLER WATERFLOW SWITCH	●	●					●	●			
05	FIRE SPRINKLER CONTROL VALVE			●	●					●		
06	FIRE ALARM SYSTEM AC POWER FAILURE					●	●				●	
07	FIRE ALARM SYSTEM LOW BATTERY					●	●				●	
08	OPEN CIRCUIT					●	●				●	
09	GROUND FAULT					●	●				●	
10	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●				●	
11	CELLULAR COMMUNICATOR TROUBLE					●	●				●	

TYPICAL MOUNTING HEIGHTS

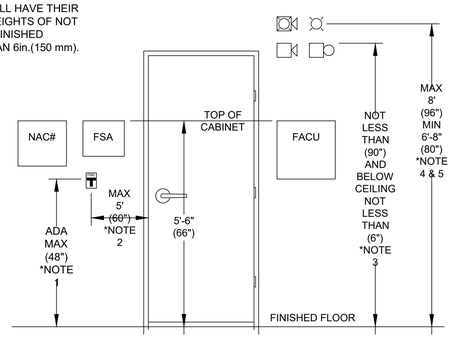
1. NFPA 72 2022 17.15.6 THE OPERABLE PART OF A MANUALLY ACTUATED ALARM INITIATING DEVICE SHALL BE NOT LESS THAN 42in (1.07 m) AND NOT MORE THAN 48in (1.22 m) FROM THE FINISHED FLOOR.

2. NFPA 72 2022 17.15.9.4 MANUAL FIRE ALARM BOXES SHALL BE LOCATED WITHIN 5 ft (1.5 m) OF EACH EXIT DOORWAY ON EACH FLOOR.

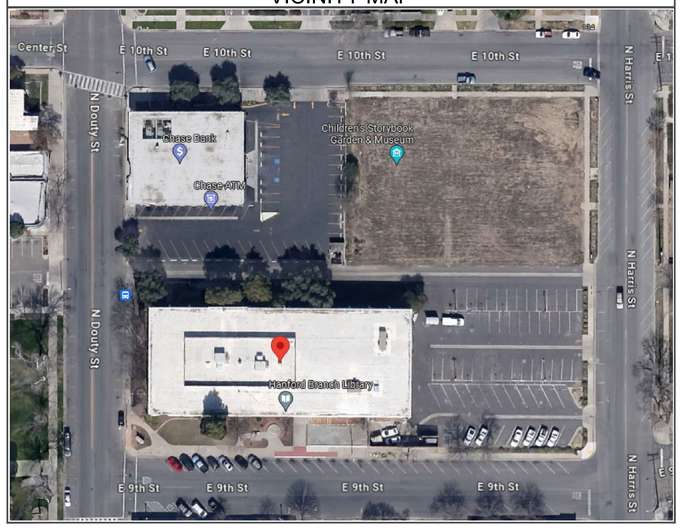
3. NFPA 72 2022 18.4.9.1 IF CEILING HEIGHTS ALLOW, AND UNLESS OTHERWISE PERMITTED BY 18.4.9.2 THROUGH 18.4.9.5, WALL-MOUNTED APPLIANCES SHALL HAVE THEIR TOPS ABOVE THE FINISHED FLOORS AT HEIGHTS OF NOT LESS THAN 90in (2.29 m) AND BELOW THE FINISHED CEILINGS AT DISTANCES OF NOT LESS THAN 6in.(150 mm).

4. NFPA 72 2022 18.4.9.3 IF COMBINATION AUDIBLE/ VISIBLE APPLIANCES ARE INSTALLED, THE LOCATION OF THE INSTALLED APPLIANCE SHALL BE DETERMINED BY THE REQUIREMENTS OF 18.5.5. (SEE NOTE 5).

5. NFPA 72 2022 18.5.5.1 WALL-MOUNTED APPLIANCES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80in. (2.03 m) AND NOT GREATER THAN 96in (2.44 m) ABOVE THE FINISHED FLOOR OR AT THE MOUNTING HEIGHT SPECIFIED USING THE PERFORMANCE BASED ALTERNATIVE OF 18.5.5.9.



VICINITY MAP



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AHJ APPROVAL AND NOTES

LICENSED FIRE PROTECTION CONTRACTOR
COSCO FIRE PROTECTION, INC.
CLASSIFICATION C16-C10
LICENSE NO. 577621
LOS ANGELES
STATE OF CALIFORNIA

REVISIONS

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FIRE PROTECTION AND LIFE SAFETY SPECIALISTS
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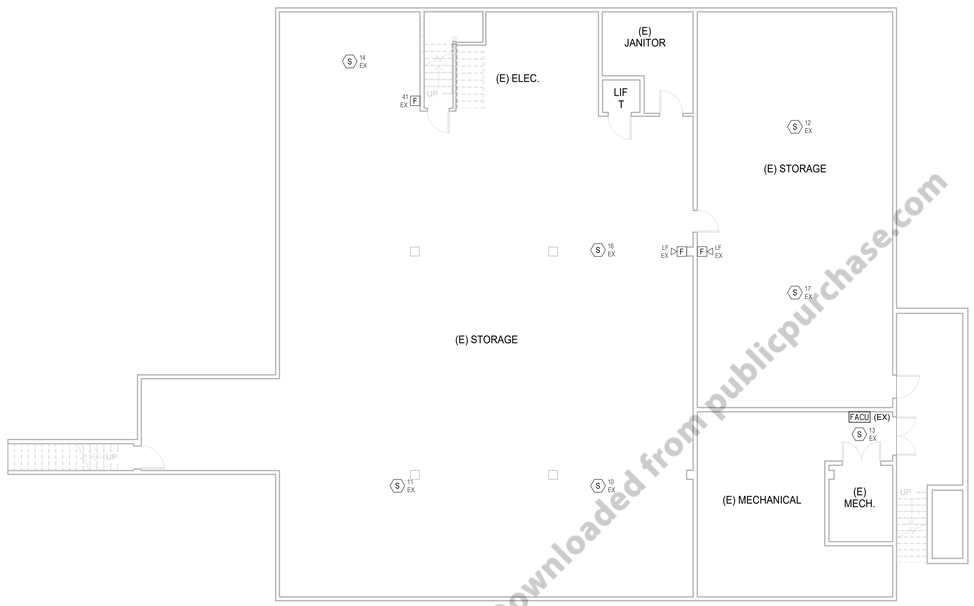
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CONTRACT WITH: STRATEGIC INDUSTRY, INC.
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KINGSBURG, CA 93631

DRAWING TITLE: FIRE ALARM TITLE PAGE

DATE : 07.26.2024
SCALE : AS NOTED
DRAWN BY : R.R.SR.
JOB NO. 2405-1599
SHEET NO. FA-01 (0)

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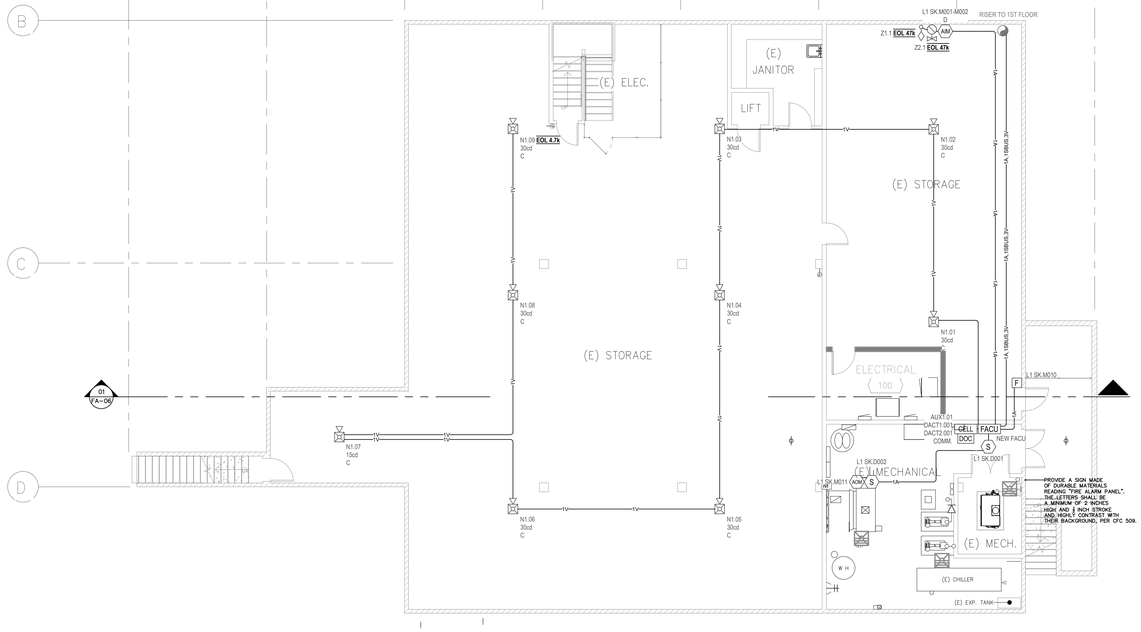
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1 FIRE ALARM DEMO BASEMENT FLOOR PLAN
1/8" = 1'-0"

N

7 8 9 10 11 12 13 14

B C D



N

2 FIRE ALARM BASEMENT FLOOR PLAN
1/8" = 1'-0"

DEMO NOTES

REMOVE EXITING DEVICES - EX

DEVICE LEGEND	
FACU	INTELLIGENT FIRE ALARM CONTROL PANEL WITH COMMUNICATOR
GELL	DUAL PATH COMMUNICATOR, CELLULAR &/OR IP, CONNECTED BY VERIZON LTE™, ABS.
FAA	REMOTE ANNUNCIATOR, RED
F	DUAL ACTION PULL STATION
S	WHITE, LOW-PROFILE PHOTOELECTRIC SENSOR W/BASE
C	2-WIRE, HORN STROBE, CEILING, RED
C	STROBE, CEILING, RED
WP	2-WIRE HORN STROBE, STANDARD CD, RED, OUTDOOR
S	INTELLIGENT NON-RELAY PHOTOELECTRIC DUCT DETECTOR
AOM	RELAY MODULE
	RISER WIRE PATH
	WATERFLOW SWITCH
	VALVE TAMPER SUPERVISORY SWITCH

CABLE AND WIRE LEGEND

LABEL	PART NO	AWG	RESISTANCE (Ω/KFT)	DESCRIPTION	TOTAL LENGTH
A	16/2 FPLR (SLC)	16	4.89	2 COND. SOLID COPPER FPLR ADDRESSABLE	1345'
P	14/2 FPLP/R (AUX)	14	3.07	2 COND. SOLID COPPER FPLP/R UNSHIELDED	3'
T	RJ-11	22	16.14	4 COND. UNSHIELDED COMMUNICATIONS CABLE	7'
V	14/2 FPLP/R (NAC)	14	3.07	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	2331'
Z	18/2 FPLP/R (IDC)	18	7.77	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	1'
SBUS	18/4 FPLP/R (SBUS)	18	7.770	4 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	465'

AHJ APPROVAL AND NOTES

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LICENSED FIRE PROTECTION CONTRACTOR
COSCO FIRE PROTECTION, INC.
CLASSIFICATION C16-C10
LICENSE NO. 577621
LOS ANGELES
STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE	BY
0	ISSUE FOR BID	5/23/2025	R.R.JR.

COSCO Fire Protection
FIRE PROTECTION AND LIFE SAFETY SPECIALISTS
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FRESNO, CALIFORNIA 93722
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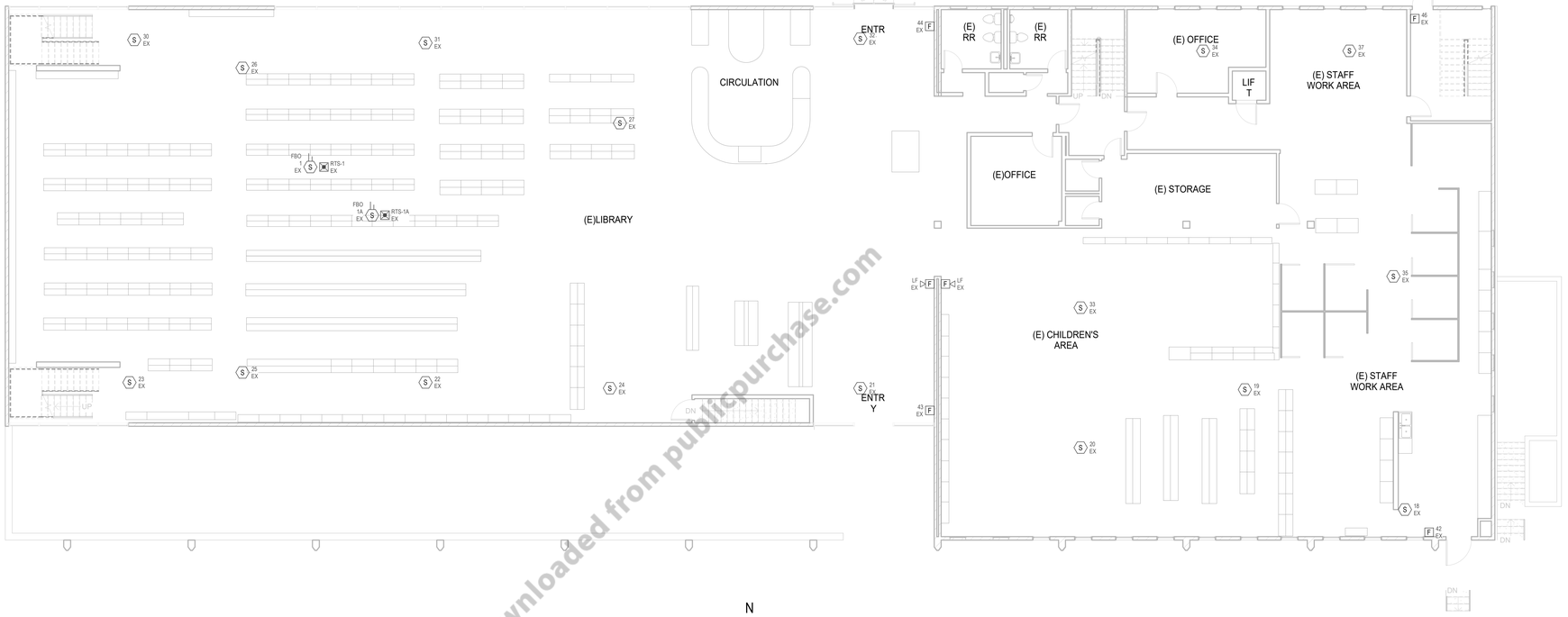
PROJECT:
KINGS CO LIBRARY HANFORD
401 N. DOUTY STREET
HANFORD, CA 93230

CONTRACT WITH:
STRATEGIC INDUSTRY, INC.
1440 DRAPER ST SUITE C
KINGSBURG, CA 93631

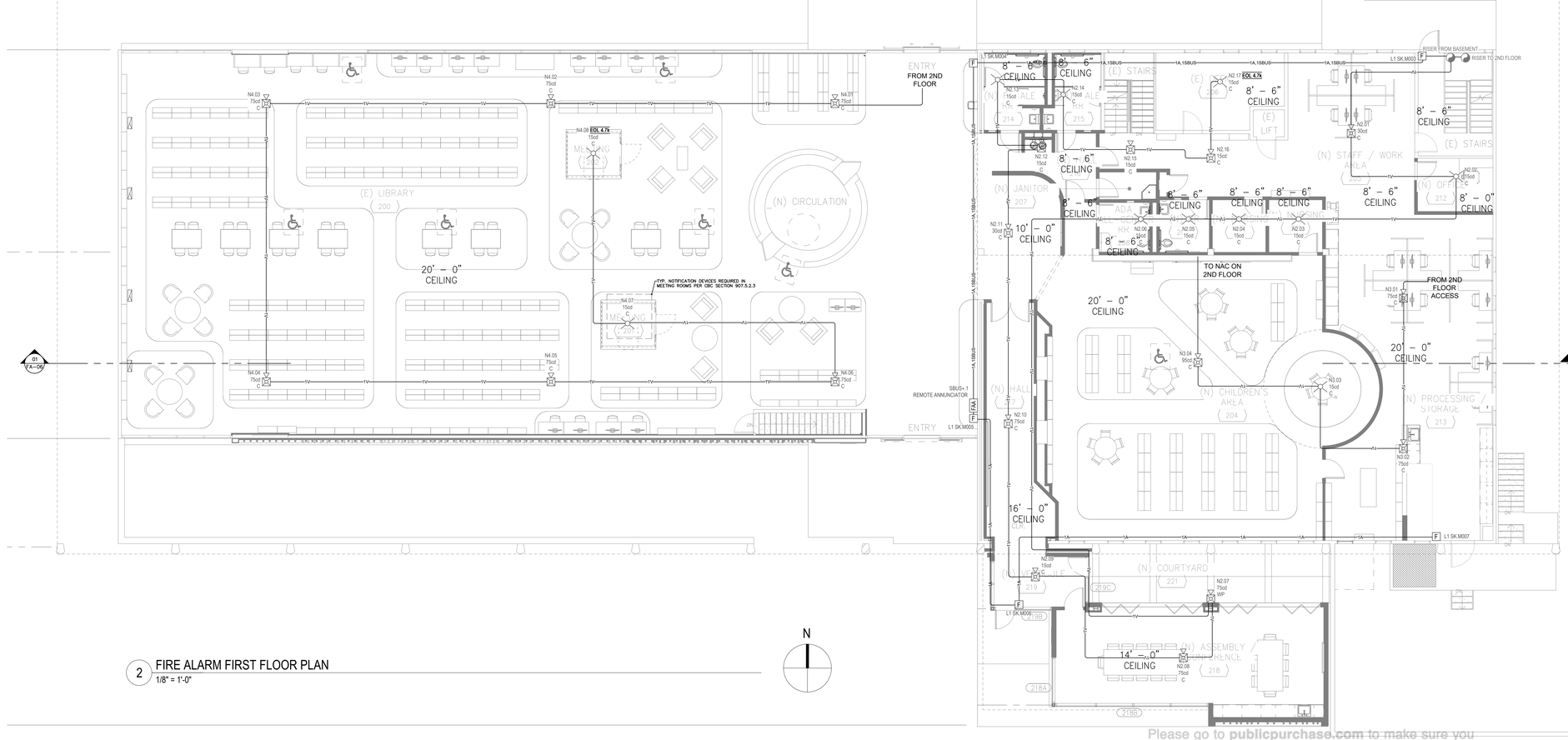
DRAWING TITLE:
FIRE ALARM DEMO & NEW BASEMENT FLOOR PLAN

DATE : 07.26.2024
SCALE : AS NOTED
DRAWN BY : R.R.SR.
JOB NO. 2405-1599
SHEET NO. FA-02
0

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1 FIRE ALARM DEMO FIRST FLOOR PLAN
1/8" = 1'-0"



2 FIRE ALARM FIRST FLOOR PLAN
1/8" = 1'-0"

DEMO NOTES

REMOVE EXITING DEVICES - EX

DEVICE LEGEND	
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CELL	DUAL PATH COMMUNICATOR, CELLULAR &/OR IP, CONNECTED BY VERIZON LTE™, ABS.
FAA	REMOTE ANNUNCIATOR, RED
F	DUAL ACTION PULL STATION
S	WHITE, LOW-PROFILE PHOTOELECTRIC SENSOR W/BASE
S C	2-WIRE, HORN STROBE, CEILING, RED
C	STROBE, CEILING, RED
WP	2-WIRE HORN STROBE, STANDARD CD, RED, OUTDOOR
S	INTELLIGENT NON-RELAY PHOTOELECTRIC DUCT DETECTOR
AOM	RELAY MODULE
	RISER WIRE PATH
	WATERFLOW SWITCH
	VALVE TAMPER SUPERVISORY SWITCH

CABLE AND WIRE LEGEND

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V	14/2 FPLP/R (NAC)	14	3.07	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	2331'
Z	18/2 FPLP/R (IDC)	18	7.77	2 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	1'
SBUS	18/4 FPLP/R (SBUS)	18	7.770	4 COND. SOLID COPPER FPLP/R ANALOG UNSHIELDED	465'

INSTALL NOTES

STROBE CIRCUIT TO MEETING CUBICLES 201 AND 202 SHALL CONNECT TO CIRCUIT N4 VIA BEST ROUTE POSSIBLE.

AHJ APPROVAL AND NOTES

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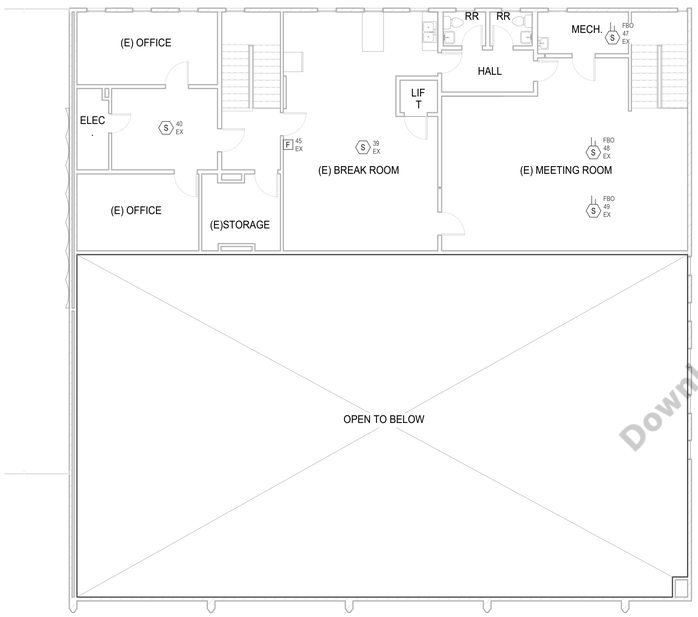
PROJECT: KINGS CO LIBRARY HANFORD
401 N. DOUTY STREET
HANFORD, CA 93230

CONTRACT WITH: STRATEGIC INDUSTRY, INC.
1440 DR KPER ST SUITE C
WOODLAND, CA 95351

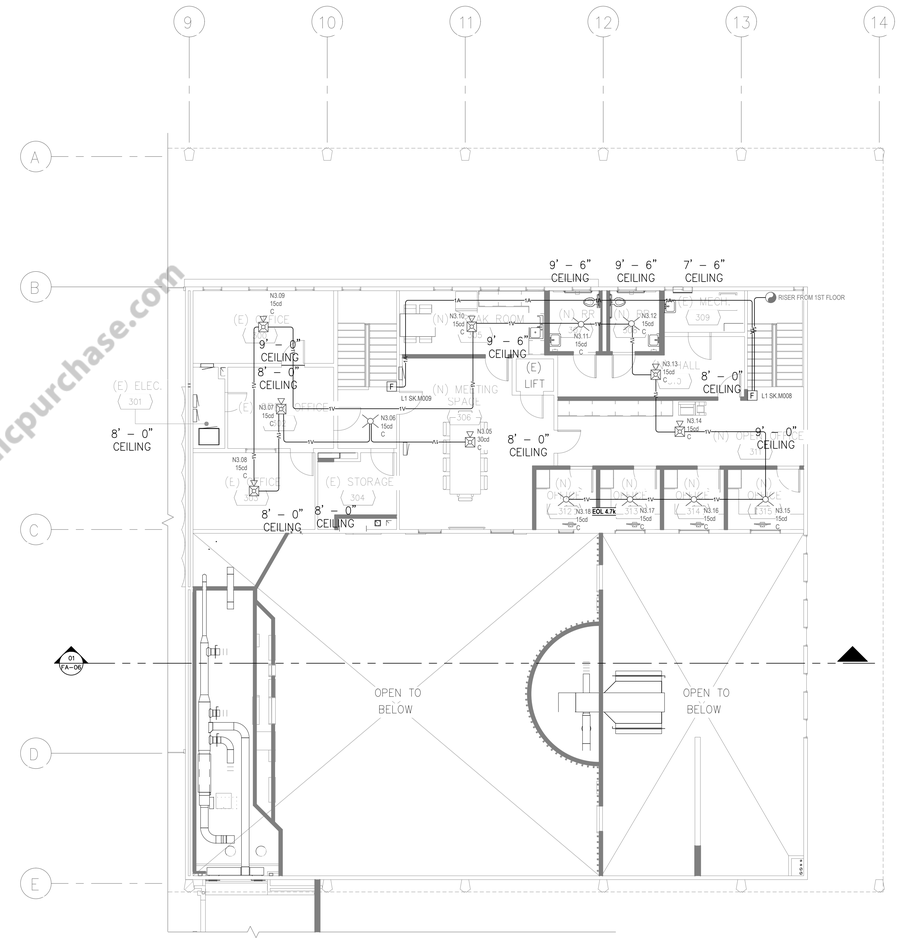
DRAWING TITLE: FIRE ALARM DEMO & NEW FIRST FLOOR PLAN

DATE :	07.26.2024
SCALE :	AS NOTED
DRAWN BY :	R.R.SR.
JOB NO.	2405-1599
SHEET NO.	FA-03 / 0

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1 FIRE ALARM DEMO SECOND FLOOR PLAN
1/8" = 1'-0"



2 FIRE ALARM SECOND FLOOR PLAN
1/8" = 1'-0"

DEMO NOTES

REMOVE EXITING DEVICES - EX

DEVICE LEGEND	
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C	STROBE, CEILING, RED
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AOM	RELAY MODULE
	RISER WIRE PATH
	WATERFLOW SWITCH
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CABLE AND WIRE LEGEND					
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AHJ APPROVAL AND NOTES

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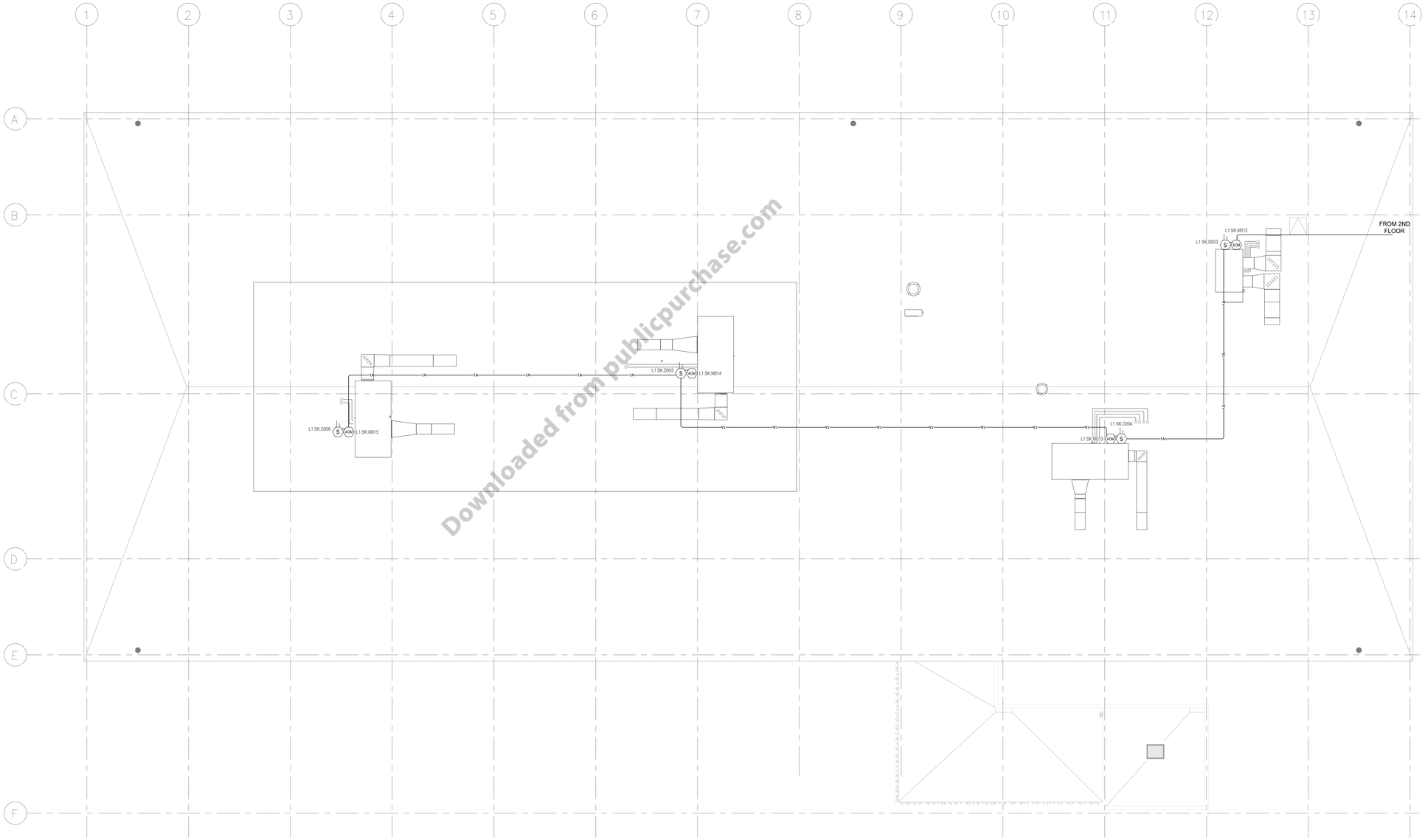
PROJECT:
KINGS CO LIBRARY HANFORD
401 N. DOUTY STREET
HANFORD, CA 93230

CONTRACT WITH:
STRATEGIC INDUSTRY, INC.
1440 DRAPER ST SUITE C
KINGSBURG, CA 93631

DRAWING TITLE:
FIRE ALARM DEMO & NEW MEZZANINE & SECOND FLOOR PLAN

DATE :	07.26.2024
SCALE :	AS NOTED
DRAWN BY :	R.R.S.R.
JOB NO.	2405-1599
SHEET NO.	FA-04
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1 FIRE ALARM ROOF PLAN
1/8" = 1'-0"

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DEVICE LEGEND	
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F	DUAL ACTION PULL STATION
S	WHITE, LOW-PROFILE PHOTOELECTRIC SENSOR W/BASE
WC	2-WIRE, HORN STROBE, CEILING, RED
C	STROBE, CEILING, RED
WP	2-WIRE HORN STROBE, STANDARD CD, RED, OUTDOOR
S	INTELLIGENT NON-RELAY PHOTOELECTRIC DUCT DETECTOR
AOM	RELAY MODULE
	RISER WIRE PATH
	WATERFLOW SWITCH
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CABLE AND WIRE LEGEND					
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INSTALL NOTED

DUCT DETECTORS SUPPLIED BY ALARM CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR.

FIRE ALARM WIRE ROUTE FOR DUCT DETECTOR CIRCUIT SHALL CONNECT TO CLOSEST SLC CIRCUIT LOCATED ON THE 2ND FLOOR.

WIRE ROUTE SHOWN AS BEST CASE SCENARIO.

AHJ APPROVAL AND NOTES

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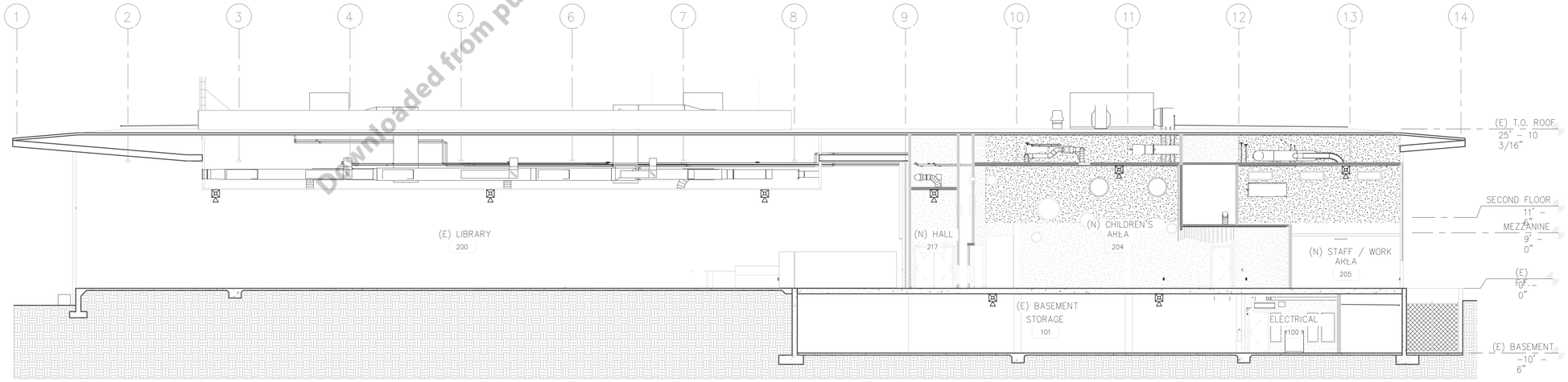
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1440 DR KPER ST SUITE C
HANFORD, CA 93631

DRAWING TITLE:
FIRE ALARM ROOF PLAN

DATE :	07.26.2024
SCALE :	AS NOTED
DRAWN BY :	R.R.S.R.
JOB NO.	2405-1599
SHEET NO.	FA-05
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1 SECTION DRAWING
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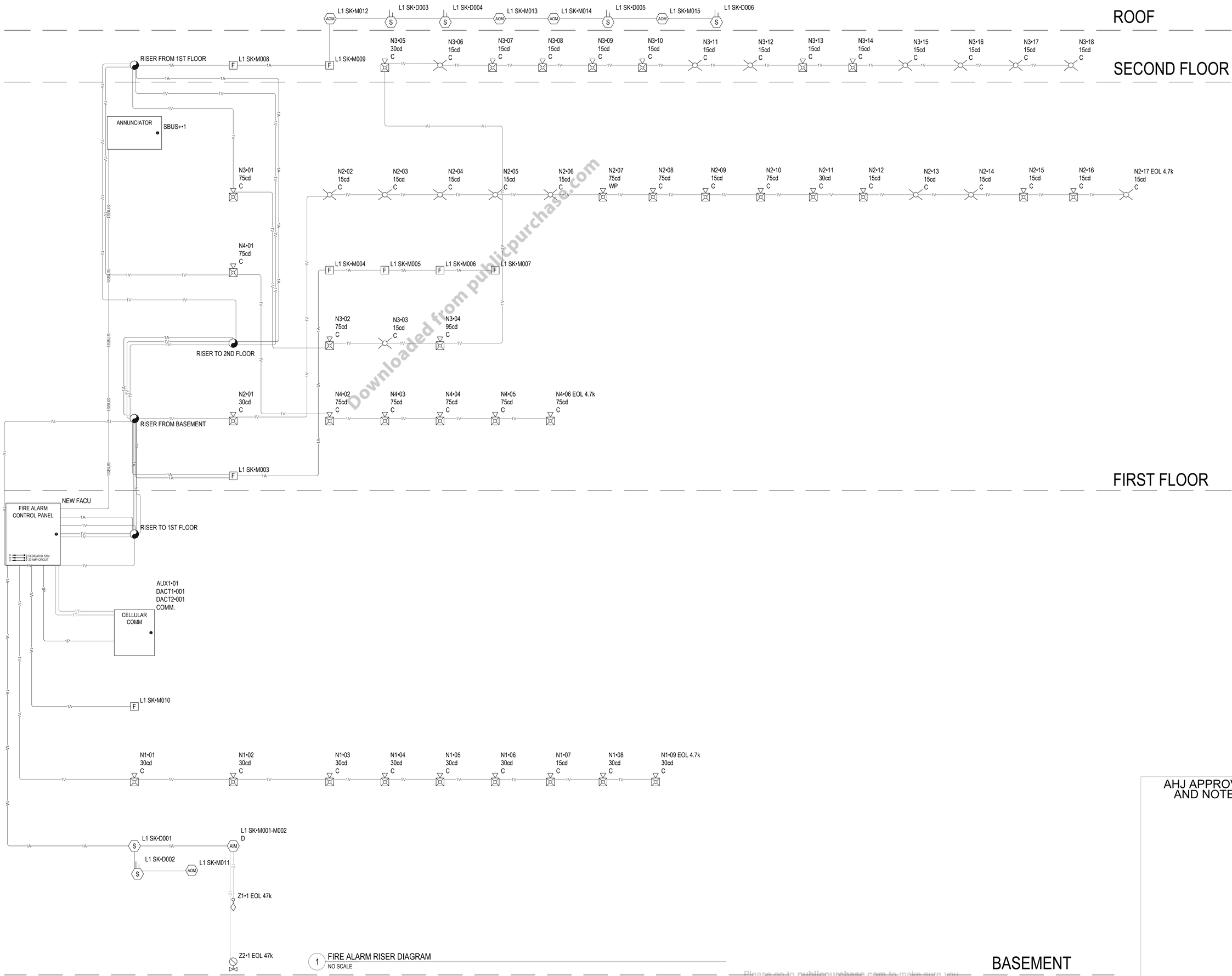
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STRATEGIC INDUSTRY, INC.
1440 DRAPER ST SUITE C
KINGSBURG, CA 93631

DRAWING TITLE:
FIRE ALARM SECTION DRAWING

DATE :	07.26.2024
SCALE :	AS NOTED
DRAWN BY :	R.R.S.R.
JOB NO.	2405-1599
SHEET NO.	FA-06
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1 FIRE ALARM RISER DIAGRAM
NO SCALE

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FIRE ALARM RISER DIAGRAM

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SHEET NO.	FA-07
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PANEL NEW FACU (6808) BATTERY CALCULATION							
(SECONDARY POWER SOURCE REQUIREMENTS)							
				STANDBY CURRENT		SECONDARY ALARM CURRENT	
PANEL COMPONENTS		QTY	PART NO.	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
		1	6808 MAIN BOARD	MAIN BOARD	0.190	0.190	0.250	0.250
CIRCUIT	SYMBOL	QTY	PART NO	DESCRIPTION	CURRENT DRAW (A)	TOTAL (A)	CURRENT DRAW (A)	TOTAL (A)
NEW FACU-AUX1	CELL	1	SLE-LTEVI-FIRE	DUAL PATH COMMUNICATOR, CELLULAR &/OR IP, CONNECTED BY VERIZON LTE™, ABS.	0.071	0.071	0.200	0.200
NEW FACU-L1 SK	S	1	DNR W/SK-PHOTO-R-W	INTELLIGENT NON-RELAY PHOTOELECTRIC DUCT DETECTOR	MAX STANDBY CURRENT	0.150	MAX ALARM CURRENT	0.150
	S	4	DNRW W/SK-PHOTO-R-W	WATERTIGHT INTELLIGENT NON-RELAY PHOTOELECTRIC LOW FLOW DUCT SMOKE DETECTOR HOUSING W/DETECTOR				
	AIM D	1	SK-MONITOR-2	DUAL MONITORING MODULE				
	S	1	SK-PHOTO-W W/B300-6	WHITE, LOW-PROFILE PHOTOELECTRIC SENSOR W/BASE				
	F	8	SK-PULL-DA	DUAL ACTION PULL STATION				
	ACM	5	SK-RELAY	RELAY MODULE				
NEW FACU-N1	C	1	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 15CD	0.000	0.000	0.035	0.035
	C	8	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 30CD	0.000	0.000	0.038	0.304
NEW FACU-N2	WP	1	P2RK-P	2-WIRE HORN STROBE, STANDARD CD, RED, OUTDOOR, PLAIN 75CD	0.000	0.000	0.176	0.176
	C	4	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 15CD	0.000	0.000	0.035	0.140
	C	2	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 30CD	0.000	0.000	0.038	0.076
	C	2	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 75CD	0.000	0.000	0.087	0.174
	C	8	SCRLED	STROBE, CEILING, RED 15CD	0.000	0.000	0.018	0.144
NEW FACU-N3	C	6	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 15CD	0.000	0.000	0.035	0.210
	C	1	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 30CD	0.000	0.000	0.038	0.038
	C	2	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 75CD	0.000	0.000	0.087	0.174
	C	1	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 95CD	0.000	0.000	0.092	0.092
	C	8	SCRLED	STROBE, CEILING, RED 15CD	0.000	0.000	0.018	0.144
NEW FACU-N4	C	6	PC2RLED	2-WIRE, HORN STROBE, CEILING, RED 75CD	0.000	0.000	0.087	0.522
	C	2	SCRLED	STROBE, CEILING, RED 15CD	0.000	0.000	0.018	0.036
NEW FACU-SBUS+	FAA	1	6860	REMOTE ANNUNCIATOR, RED	0.027	0.027	0.053	0.053
					TOTAL STANDBY (A)	0.438	TOTAL ALARM (A)	2.918
					REQUIRED STANDBY TIME (HOURS)		24	
					REQUIRED ALARM TIME (MINUTES)		5	
SECONDARY STANDBY LOAD (A)				0.438	24.000		10.512	
SECONDARY ALARM LOAD (A)				2.918	0.083		0.243	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)					10.755			
DERATING FACTOR					1.200			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)					12.906			
PROVIDE (2) 12V 18AH BATTERIES								

NEW FACU AUX1 LUMP SUM REPORT	CURRENT SUMMARY		POWER SUMMARY	
	Max. Circuit Current (A):	3	Starting Calc. Voltage:	20.40
	Total Circuit Current (A):	0.2	Max. Voltage Drop:	0
	Spare Circuit Current (A):	2.80	Voltage Drop %:	0.0002
	Spare Circuit Current %:	0.93330	Min. Operational Voltage:	16
	Max. Card Current (A):	6	End Of Line Voltage:	20.40
	Total Card Current (A):	2.55	Wire Resistance (Ω/kFt):	3.07
	Spare Card Current (A):	3.45	Total Circuit Length (Ft):	3
	Spare Card Current %:	0.5750	Total Circuit Resistance (Ω):	0.020735

Circuit Wiring Properties: "P" 14/2 FPLP/R (AUX) D980 14 AWG, 2 Cond. Solid Copper FPLP/R Unshielded

Distance measured using drawn segment lengths with 10.00 % additional length calculated

Symbol	Part No	Description	Quantity	Standby Current (A)	Alarm Current (A)	Total Current (A)
CELL	SLE-LTEVI-FIRE	Dual Path Communicator, Cellular &/or IP, connected by Verizon LTE™, ABS.	1	0.071	0.2	0.2

Calculation Methods:
Total Resistance (Ω) = Wire Resistance (Ω/Ft) x 2 x Total Circuit Length (Ft)
Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)

NEW FACU N1 LUMP SUM REPORT	CURRENT SUMMARY		POWER SUMMARY	
	Max. Circuit Current (A):	3	Starting Calc. Voltage:	20.40
	Total Circuit Current (A):	0.339	Max. Voltage Drop:	0.530
	Spare Circuit Current (A):	2.66	Voltage Drop %:	0.026
	Spare Circuit Current %:	0.8870	Min. Operational Voltage:	16
	Max. Card Current (A):	6	End Of Line Voltage:	19.87
	Total Card Current (A):	2.55	Wire Resistance (Ω/kFt):	3.07
	Spare Card Current (A):	3.45	Total Circuit Length (Ft):	255
	Spare Card Current %:	0.5750	Total Circuit Resistance (Ω):	1.56

Circuit Wiring Properties: "V" 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded

Distance measured using drawn segment lengths with 10.00 % additional length calculated

Symbol	Part No	Description	Quantity	Standby Current (A)	Alarm Current (A)	Total Current (A)
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	1	0	0.035	0.035
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	8	0	0.038	0.304

Calculation Methods:
Total Resistance (Ω) = Wire Resistance (Ω/Ft) x 2 x Total Circuit Length (Ft)
Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)

NEW FACU N2 LUMP SUM REPORT	CURRENT SUMMARY		POWER SUMMARY	
	Max. Circuit Current (A):	3	Starting Calc. Voltage:	20.40
	Total Circuit Current (A):	0.710	Max. Voltage Drop:	2.36
	Spare Circuit Current (A):	2.29	Voltage Drop %:	0.1157
	Spare Circuit Current %:	0.76330	Min. Operational Voltage:	16
	Max. Card Current (A):	6	End Of Line Voltage:	18.04
	Total Card Current (A):	2.55	Wire Resistance (Ω/kFt):	3.07
	Spare Card Current (A):	3.45	Total Circuit Length (Ft):	541
	Spare Card Current %:	0.5750	Total Circuit Resistance (Ω):	3.32

Circuit Wiring Properties: "V" 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded

Distance measured using drawn segment lengths with 10.00 % additional length calculated

Symbol	Part No	Description	Quantity	Standby Current (A)	Alarm Current (A)	Total Current (A)
WP	P2RK-P	2-Wire Horn Strobe, Standard cd, Red, Outdoor, Plain	1	0	0.176	0.176
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	4	0	0.035	0.14
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	2	0	0.038	0.076
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	2	0	0.087	0.174
C	SCRLED	Strobe, Ceiling, Red	8	0	0.018	0.144
	WIREPATH RISER		2	0	0	0

Calculation Methods:
Total Resistance (Ω) = Wire Resistance (Ω/Ft) x 2 x Total Circuit Length (Ft)
Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)

NEW FACU N3 LUMP SUM REPORT	CURRENT SUMMARY		POWER SUMMARY	
	Max. Circuit Current (A):	3	Starting Calc. Voltage:	20.40
	Total Circuit Current (A):	0.6580	Max. Voltage Drop:	2.18
	Spare Circuit Current (A):	2.34	Voltage Drop %:	0.1068
	Spare Circuit Current %:	0.78070	Min. Operational Voltage:	16
	Max. Card Current (A):	6	End Of Line Voltage:	18.22
	Total Card Current (A):	2.55	Wire Resistance (Ω/kFt):	3.07
	Spare Card Current (A):	3.45	Total Circuit Length (Ft):	539
	Spare Card Current %:	0.5750	Total Circuit Resistance (Ω):	3.31

Circuit Wiring Properties: "V" 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded

Distance measured using drawn segment lengths with 10.00 % additional length calculated

Symbol	Part No	Description	Quantity	Standby Current (A)	Alarm Current (A)	Total Current (A)
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	6	0	0.035	0.21
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	1	0	0.038	0.038
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	2	0	0.087	0.174
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	1	0	0.092	0.092
C	SCRLED	Strobe, Ceiling, Red	8	0	0.018	0.144
	WIREPATH RISER		4	0	0	0

Calculation Methods:
Total Resistance (Ω) = Wire Resistance (Ω/Ft) x 2 x Total Circuit Length (Ft)
Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)

NEW FACU N4 LUMP SUM REPORT	CURRENT SUMMARY		POWER SUMMARY	
	Max. Circuit Current (A):	3	Starting Calc. Voltage:	20.40
	Total Circuit Current (A):	0.5580	Max. Voltage Drop:	3.92
	Spare Circuit Current (A):	2.44	Voltage Drop %:	0.1919
	Spare Circuit Current %:	0.8140	Min. Operational Voltage:	16
	Max. Card Current (A):	6	End Of Line Voltage:	16.48
	Total Card Current (A):	2.55	Wire Resistance (Ω/kFt):	3.07
	Spare Card Current (A):	3.45	Total Circuit Length (Ft):	1143
	Spare Card Current %:	0.5750	Total Circuit Resistance (Ω):	7.02

Circuit Wiring Properties: "V" 14/2 FPLP/R (NAC) 14 AWG, 2 Cond. Solid Copper FPLP/R Analog Unshielded

Distance measured using drawn segment lengths with 10.00 % additional length calculated

Symbol	Part No	Description	Quantity	Standby Current (A)	Alarm Current (A)	Total Current (A)
C	PC2RLED	2-Wire, Horn Strobe, Ceiling, Red	6	0	0.087	0.5220
C	SCRLED	Strobe, Ceiling, Red	2	0	0.018	0.036
	WIREPATH RISER		4	0	0	0

Calculation Methods:
Total Resistance (Ω) = Wire Resistance (Ω/Ft) x 2 x Total Circuit Length (Ft)
Total Voltage Drop = Total Resistance (Ω) x Total Circuit Current (A)

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1 FIRE ALARM BATTERY CALCULATIONS

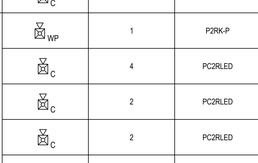
2 FIRE ALARM VOLTAGE DROP CALCULATIONS

WL 1054

System No. W-L-1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings —1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating at Ambient — Less Than 1 CFM/sq ft	FH Ratings —1 and 2 Hr (See Items 1 and 3)
L Rating at 400 F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 1 CFM/sq ft
	L Rating at 400 F — Less Than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.

The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.

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WL 1054

System No. W-L-1054

2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

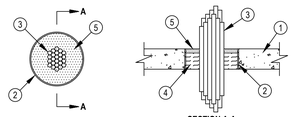
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CAJ 3095

System No. C-AJ-3095

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 3 Hr	F Rating — 3 Hr
T Ratings — 0, 1/2 and 3/4 Hr (See Item 3)	FT Ratings — 0, 1/2 and 3/4 Hr (See Item 3)
	FH Rating — 3 Hr
	FTH Ratings — 0, 1/2 and 3/4 Hr (See Item 3)



SECTION A-A

1. Floor or Wall Assembly — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 2400 kg/m3) concrete floor or min 3 in. (76 mm) thick reinforced lightweight or normal weight concrete wall. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 6 in. (152 mm).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Sleeve — (Optional) — Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max 3 in. (76 mm) above the floor or both surfaces of the wall. If the steel sleeve extends above the floor or both surfaces of the wall, the T Rating of the firestop system is 0 Hr.
3. Cables — Aggregate cross-sectional area of cables in opening to be min 25 percent to max 45 percent of the aggregate cross-sectional area of the opening. Cables to be rigidly supported on both sides of floor or wall assembly. Any combination of the following types and sizes of metallic conductor or fiber optic cable may be used:
   A. Max 500 kcmil single copper connector power cable with thermoplastic insulation and polyvinyl chloride (PVC) jacket. When single copper conductor power cable is used, T, FT and FTH Rating is 0 hr.
   B. Max 350 kcmil single conductor power cables with either aluminum or copper conductors and cross-linked polyethylene (XPLE) insulation. When single aluminum conductor power cable is used, T Rating is 0 hr. When single copper conductor power cable is used, T, FT and FTH Rating is 1/2 hr.
   C. Max 300 pair No. 24 AWG copper conductor telecommunication cables with polyvinyl chloride (PVC) insulation and jacket material. When telecommunication cable is used, T, FT and FTH Rating is 0 hr.
   D. Max three copper connector No. 6 AWG cable with polyvinyl chloride (PVC) insulation and jacket material. When multi-connector power cable is used, T Rating is 0 hr.
   E. Max 7/C copper conductor No. 12 AWG multiconductor power and control cables with PVC or cross-linked polyethylene (XLPE) insulation and PVC jacket. When multiconductor power and control cable is used, T, FT and FTH Rating is 3/4 hr.
   F. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 1/2 in. When fiber optic cable is used, T, FT and FTH Rating is 3/4 hr.
   G. Max 3/C copper conductor No. 12 AWG with Bare aluminum ground, polyvinyl chloride (PVC) insulated steel, Metal-clad cable+. When MC cable is used, T, FT and FTH Rating is 0 hr.
   AFC CABLE SYSTEMS INC

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CAJ 3095

System No. C-AJ-3095

H. Max 3/C with ground 2/0 AWG copper conductor SER cable with cross-linked polyethylene (XLPE) insulation and polyvinyl chloride (PVC) jacket. When SER cable is used, T, FT and FTH Rating is 0 hr.
I. Max RG/U coaxial cable with polyethylene (PE) insulation and polyvinyl chloride (PVC) jacket having a max outside diameter of ½ in. When coaxial cable is used, T Rating is 0 hr.
J. Fire Resistive Cables* - Max 1-1/4 in. (32 mm) diam single conductor or multi conductor Type MI cable. A min 1/8 in. (3 mm) separation shall be maintained between MI cables and any other type of cable. When Fire Resistive Cables *are used, T, FT and FTH Rating is 0 hr.
K. Through Penetrating Product* — Any Cables, Metal-Clad Cable+ or Armored Cable+ currently Classified under the Through Penetrating Products category.
   See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.
4. Packing Material — Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed 1/2 in. (13 mm) from top surface of floor or from both surfaces of wall to accommodate the fill material. If the steel sleeve (Item 2) extends above the top of the floor, the packing material shall be flush with the bottom surface of the floor.
5. Fill, Void or Cavity Material* — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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AHJ APPROVAL AND NOTES

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COSCO FIRE PROTECTION, INC. CLASSIFICATION C16-C10 LICENSE NO. 577421 LOS ANGELES STATE OF CALIFORNIA

REVISIONS

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FIRE PROTECTION AND LIFE SAFETY SPECIALISTS
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DRAWING TITLE: FIRE ALARM CALCULATIONS

DATE : 07.26.2024
SCALE : AS NOTED
DRAWN BY : R.R.SR.
JOB NO. 2405-1599
SHEET NO. FA-08 0

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INSTALLATION AND MAINTENANCE INSTRUCTIONS
ENGLISH

L-Series with LED Indoor Selectable-Output Horn Strobes and Strobes

SYSTEM SENSOR
3825 Ohio Avenue, St. Charles, Illinois 60174
800/736-7672, FAX: 630/377-6495
www.systemsensor.com

156-4022-000

Manual is for use with the following models:

Horn Strobes
Standard Wall Mount Horn Strobes: P2RLED, P2RLED-B, P2WLED, P2WLED-B, P2RLED-P, P2WLED-P, P2RLED-SP, P2WLED-SP
Compact Wall Mount Horn Strobes: P2GRLED, P2GRLED-B, P2GWLED, P2GWLED-B
Standard Ceiling Mount Horn Strobes: PC2RLED, PC2RLED-B, PC2WLED, PC2WLED-B

2-Wire Strobes
Standard Wall Mount Strobes: SRLED, SRLED-B, SWLED, SWLED-B, SRLED-P, SWLED-P, SRLED-SP, SWLED-CLR-ALERT, SWLED-ALERT*
Compact Wall Mount Strobes: SGRLED, SGRLED-B, SGWLED, SGWLED-B
Ceiling Mount Strobes: SCRLED, SCRLED-B, SCWLED, SCWLED-B, SCWLED-CLR-ALERT, SCRLED-P, SCWLED-P

Language designators: "-B" are bilingual (English/French). "-P" are plain versions (no wording). "-SP" are marked "FUEGO"
*Amber lenses are for use in UL applications.

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Section 3: Installation

3.1 Wiring and Mounting

All wiring must be installed in compliance with the National Electric Code (UL applications), (Canadian Electric Code (ULC applications), and local codes as well as the authority having jurisdiction. Wiring must not be of such length or wire size which would cause the notification appliance to operate outside of its published specifications. Improper connections can prevent the system from alerting occupants in the event of an emergency.

Wire sizes up to 12 AWG (2.5 mm²) may be used with the mounting plate. The mounting plate ships with the terminals set for 12 AWG field wiring.

Make wire connections by stripping about $^{3}/_{8}$" of insulation from the end of the field wire. Then slide the bare end of the wire under the appropriate clamping plate and tighten the clamping plate screw.

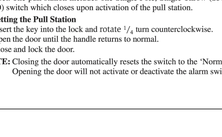
We provide a wire strip guide. See Figure 6 for wiring terminals and strip guide reference.

3.2 Wiring Diagrams

The 2-wire horn strobe and strobe only require two wires for power and supervision. (See Figure 7.)

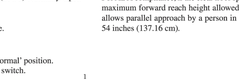
Shorting Spring Feature. These appliances enable system continuity checks of field wiring on the mounting plate before appliances are installed. The mounting plate has a shorting spring between terminals 2 and 3 that will automatically disengage when the product is installed, to enable supervision of the final system. (See Figure 6.)

Figure 6 Wiring Terminals, Shorting Spring, and Strip Guide



A0475-01

Figure 7 System Wiring



A0367-02

3.3 Install Back Box

1. Attach back box to wall or ceiling.
   – Junction boxes are mounted per industry standard. (See Figures 8, 9 and 12.)
   – The surface mount back box may be secured directly to the wall or ceiling. Use of grounding bracket with ground screw is optional. (See Figures 10, 11 and 13.)
   – ***Note for positioning:*** *Wall mount back boxes:* Mount with the up arrow pointing up. (See Figure 16.)
   – ***Note for positioning:*** *Ceiling mount back boxes:* Ceiling surface mount back box SBBCR/WL is a common back box for ceiling horn strobes, strobes, speakers, and speaker strobes. Use the top (SPK) mounting holes for ceiling speaker and speaker strobe products. Use the bottom (STR) mounting holes for ceiling horn strobe and strobe installation needs. (See Figure 15.)
2. Select appropriate knockouts and open as needed.
   – Threaded knockout holes are provided for the sides of the box for ½ inch and ½ inch conduit adapter. Knockout holes in the back of the box can be used for ¾ inch and ½ inch rear entry.
   – *If using the ¾ inch knockout:* To remove the ¾ inch knockout, place the blade of a flat-head screwdriver along the outer edge and work your way around the knockout as you strike the screwdriver. (See Figure 17a.)
   NOTE: Use caution not to strike the knockout near the top edge of the surface mount back box.
   – *V300 and V700 raceway knockouts* are also provided. Use V500 for low profile applications and V700 for high profile applications. To remove the knockout, turn pliers up. (See Figure 17b.)

3.4 Install Mounting Plate and Appliance

1. Attach mounting plate using the provided Philips head screws. Junction box uses 2 screws. Surface mount backbox uses 4 screws. (See Figures 8 – 13.)
2. Connect field wiring according to terminal designations. (See Figures 6 and 7.)
3. If the product is not to be installed at this point, use the protective dust cover to prevent contamination of the wiring terminals on the mounting plate.
4. To attach product to mounting plate:
   – Remove the protective dust cover.
   – Hook the tabs on the top of the product housing into the grooves on mounting plate.

   – Pivot the product into position to engage the terminals on the mounting plate. Make sure that the tabs on the back of the product housing fully engage with the mounting plate.
   – Hold product in place with one hand, and secure product by tightening the single mounting screw in the front of the product housing.

CAUTION:
The "hold in place" snaps are not intended to secure the product to the back box. The product must be secured to the back box using the screws provided

CAUTION:
Factory finish should not be altered: Do not paint!

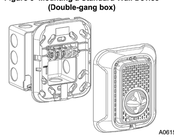
CAUTION:
Do not over tighten mounting plate screws; this may cause mounting plate to flex.

3.5 Remove a Ceiling Model Appliance

Ceiling models only: To remove the product from the mounting plate, loosen the captive mounting screw and press the locking button. (See Figure 14.)

3.5.1 Mounting Drawings

Figure 8 Mounting a Standard Wall Device (Double-gang box)



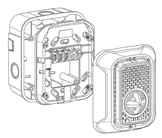
A0615-00

Figure 9 Mounting a Compact Wall Device (Single-gang box)



A0619-00

Figure 10 Surface Mounting a Standard Wall Device (SBBRL/SBBWL)



A0614-00

Figure 11 Surface mounting a Compact Wall Device (SBBGRL/SBBGRL/SBBGWL)



A0618-00

Installation *Remove a Ceiling Model Appliance*

   – Pivot the product into position to engage the terminals on the mounting plate. Make sure that the tabs on the back of the product housing fully engage with the mounting plate.
   – Hold product in place with one hand, and secure product by tightening the single mounting screw in the front of the product housing.

CAUTION:
The "hold in place" snaps are not intended to secure the product to the back box. The product must be secured to the back box using the screws provided

CAUTION:
Factory finish should not be altered: Do not paint!

CAUTION:
Do not over tighten mounting plate screws; this may cause mounting plate to flex.

3.5 Remove a Ceiling Model Appliance

Ceiling models only: To remove the product from the mounting plate, loosen the captive mounting screw and press the locking button. (See Figure 14.)

3.5.1 Mounting Drawings

Figure 8 Mounting a Standard Wall Device (Double-gang box)



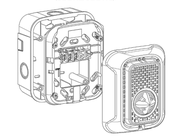
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Figure 9 Mounting a Compact Wall Device (Single-gang box)



A0619-00

Figure 10 Surface Mounting a Standard Wall Device (SBBRL/SBBWL)



A0614-00

Figure 11 Surface mounting a Compact Wall Device (SBBGRL/SBBGRL/SBBGWL)



A0618-00

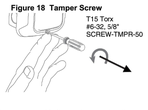
8 *LED L-series Indoor Horn Strobes and Strobes* — P/N I56-0022-000 8/25/2023

3.6 Tamper Screw

For tamper resistance, the standard captive screw may be replaced with a Torx screw, ordered separately.

To remove the captive screw, back out the screw and apply pressure to the back of the screw until it disengages from the housing. Replace with Torx screw. (See Figure 18.)

Figure 18 Tamper Screw



A0478-03

3.7 Test Points

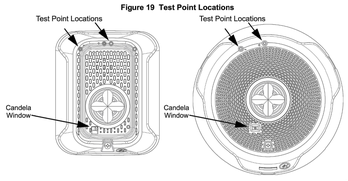
System Sensor L-Series with LED notification appliances come with diagnostic test points for ease of access with use of a digital voltage meter to measure device voltage without removing from the wall or ceiling.

1. Insert digital voltage meter positive probe into (+) test point.
2. Insert digital voltage meter negative probe into (-) test point.

NOTE: Marking indicates signal polarity when the circuit is active.

CAUTION:
Short circuiting of these test points may result in improper device operation.

Figure 19 Test Point Locations



A0624-00, A0625-00

Honeywell
SILENT KNIGHT

SK-PULL-DA Addressable Pull Station

Document 52149 I56-3447-005

Description
The SK-Pull-DA Addressable pull station is a non-coded, dual-action manual pull station with a key-lock reset feature. It provides Silent Knight intelligent fire alarm control panels (FACP) with one addressable alarm initiating input. The addressable module is housed inside the pull station. The SK-Pull-DA is compatible with all Silent Knight intelligent panels that use the Intelligent Device Protocol (IDP). Refer to the FACP Installation Manual to determine if Intelligent Device Protocol is supported. The SK-Pull-DA meets the ADAAG controls and operating mechanisms guidelines (section 4.1.3[13]), and the ADA requirement for a 5 lb. maximum pull force to activate the pull station. Operating instructions are molded into the pull station handle along with Braille text. Molded Terminal numbers are also present. Conforms to ANSI/UL Standard 38.

Ratings
Normal Operating Voltage: 24VDC.
Average Operating Current (LED Flash): 375 µA.
Maximum Operating Current (LED On): 5 mA.
Temperature Range: 32°F – 120°F (0°C – 49°C).
Relative Humidity Range: 10% - 93% non-condensing.

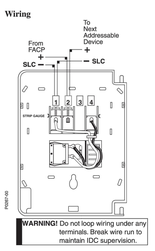
Installation
The SK-PULL-DA Addressable pull station can be surface mounted to a SB-I/O surface backbox or semi-flush mounted on a standard single-gang, double-gang or 4" (10.16 cm) square electrical box. The optional BG-TR trim ring can be used if the SK-PULL-DA is to be semi-flush mounted.

Operation
To activate the dual-action pull station, push in and pull down on the handle. The word 'ACTIVATED' appears after the handle is pulled down. This will remain until the pull station is reset. The pull station includes one Single Pole, Single Throw (SPST) Normally Open (N/O) switch which closes upon activation of the pull station.

Resetting the Pull Station
1. Insert the key into the lock and rotate $^{1}/_{4}$ turn counterclockwise.
2. Open the door until the handle returns to normal.
3. Close and lock the door.

NOTE: Closing the door automatically resets the switch to the 'Normal' position. Opening the door will not activate or deactivate the alarm switch.

Wiring



WARNING! Do not loop wiring under any terminals. Break wire run to maintain IDC supervision.

SK-PULL-DA Addressable Pull Station

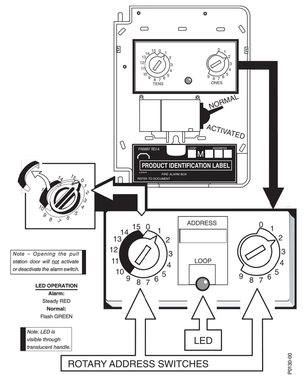


CAUTION!
Do not detach the door of the pull station during installation. The door of the pull station cannot be reattached to the backplate after the backplate has already been installed onto an electrical box.

CAUTION!
Install the Silent Knight SK-PULL-DA addressable pull station in accordance with these instructions, applicable NFPA standards, national and local Fire and Electrical codes and the requirements of the AHJ (Authority Having Jurisdiction). Regular testing of the devices should be conducted in accordance with the appropriate NFPA standards. Failure to follow these directions may result in failure of the device to report an alarm condition. Silent Knight is not responsible for devices that have been improperly installed, tested or maintained.

ADA Compliance
For ADA compliance, if the clear floor space only allows forward approach to an object, the maximum forward reach height allowed is 48 inches (121.92 cm). If the clear floor space allows parallel approach by a person in a wheelchair, the maximum side reach allowed is 54 inches (137.16 cm).

Setting the SK-PULL-DA Address
The SK-PULL-DA Addressable pull station is factory preset with address '00.' Set the address for the pull station by turning the rotary address switches on the addressable module mounted inside the pull station. Only one device per address is allowed. Multiple modules may not be set to the same address on the Signaling Line Circuit. Once the address is set, record it in the space provided on the product ID label located inside the pull station.



Honeywell
SILENT KNIGHT
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www.silentknight.com

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AHJ APPROVAL AND NOTES

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COSCO FIRE PROTECTION CONTRACTOR, INC. CLASSIFICATION C16-C10 LICENSE NO. 577421 LOS ANGELES STATE OF CALIFORNIA

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NO.	DESCRIPTION	DATE	BY
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KINGSBURG, CA 93631
DRAWING TITLE: INSTALLATION DETAILS

DATE :	07.26.2024
SCALE :	AS NOTED
DRAWN BY :	R.R.SR.
JOB NO.	2405-1599
SHEET NO.	FA-09
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INSTALLATION AND MAINTENANCE INSTRUCTIONS

I56-6529-001

SK-PHOTO-W
Intelligent Photoelectric Smoke Sensor

12 Clintonville Road, Northford, CT 06472-1610
Phone: 203-484-7161 Fax: 203-484-7118
www.silentknight.com

SPECIFICATIONS

Operating Voltage Range:	15 to 32 VDC
Operating Current @ 24 VDC:	200 uA (one communication every 5 seconds with green LED blink on communication)
Maximum Alarm Current:	2 mA @ 24 VDC (one communication every 5 seconds with red LED solid on)
Maximum Current:	4.5 mA @ 24 VDC (one communication every 5 seconds with amber LED solid on)
Operating Humidity Range:	10% to 93% Relative Humidity, Non-condensing
Operating Temperature Range:	32°F to 122°F (0°C to 50°C)
Air Velocity:	0 to 4000 ft./min. (0 to 1219.2 m/min.)
Height:	2.0" (51 mm) installed in B300-6 Base
Diameter:	6.2" (156 mm) installed in B300-6 Base; 4.1" (104 mm) installed in B501 Base
Weight:	3.4 oz. (95 g)
Isolator Load Rating:	0.0065*

*Please refer to your isolator base/module manual for isolator calculation instructions.

UL 268 listed for Open Air Protection.
UL268A listed for Duct Applications.

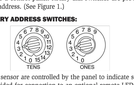
This sensor must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72.

GENERAL DESCRIPTION

Model SK-PHOTO-W is a plug-in type smoke sensor that combines a photoelectronic sensing chamber with addressable-analog communications.

The sensors transmit an analog representation of smoke density over a communication line to a control panel. Rotary dial switches are provided for setting the sensor's address. (See Figure 1.)

FIGURE 1. ROTARY ADDRESS SWITCHES:



C0162-00

Two LEDs on the sensor are controlled by the panel to indicate sensor status. An output is provided for connection to an optional remote LED annunciator (P/N RA100Z).

Silent Knight panels offer different feature sets across different models. As a result, certain features of the photoelectric sensors may be available on some control panels, but not on others. This device supports SK protocol mode. The possible features available if supported by the control panel include:

1. The sensor's LEDs can operate in three ways—on, off, and blinking–and they can be set to red, green, or amber. This is controlled by the panel.
2. The remote output may be synchronized to the LED operation or controlled independent of the LEDs.
3. Devices are point addressable up to 159 addresses.

Please refer to the operation manual for the UL listed control panel for specific operation. The photoelectric sensors require compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.

SPACING

Silent Knight recommends spacing sensors in compliance with NFPA 72. In low air flow applications with smooth ceilings, space sensors 30 feet apart (9.1 m). For specific information regarding sensor spacing, placement, and special applications, refer to NFPA 72 or the System Smoke Detector Application Guide, available from Silent Knight.

Duct Applications: SK-PHOTO-W is listed for use in ducts. See Duct Smoke Detectors Applications Guide I56623 for details on pendant mount applications.

NOTE: Intelligent photoelectric smoke sensors are also listed for use inside DNR(W) duct smoke detectors.

WIRING GUIDE

All wiring must be installed in compliance with the National Electrical Code, applicable local codes, and any special requirements of the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color-coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.

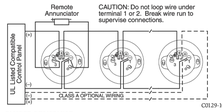
Remove power from the communication line before installing sensors.

1. Wire the sensor base (supplied separately) as shown in the wiring diagram. (See Figure 2.)
2. Set the desired address on the sensor address switches. (See Figure 1.)
3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place.
4. After all sensors have been installed, apply power to the control panel and activate the communication line.
5. Test the sensor(s) as described in the TESTING section of this manual.

⚠CAUTION

Dust covers provide limited protection against airborne dust particles during shipping. Dust covers must be removed before the sensors can sense smoke. Remove sensors prior to heavy remodeling or construction.

FIGURE 2. WIRING DIAGRAM:



TAMPER-RESISTANCE

Intelligent photoelectric smoke sensors include a tamper-resistant capability that prevents removal from the base without the use of a tool. Refer to the base manual for details on making use of this capability.

TESTING

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All sensors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72.

The sensor can be tested in the following ways:

A. Functional- Magnet Test (P/N M02-04-00 or M02-09-00)

This sensor can be functionally tested with a test magnet. The test magnet electronically simulates smoke in the sensing chamber, testing the sensor electronics and connections to the control panel.

1. Hold the test magnet in the magnet test area as shown in Figure 3.
2. The sensor should alarm the panel.

Two LEDs on the sensor are controlled by the panel to indicate sensor status. Coded signals, transmitted from the panel, can cause the LEDs to blink, latch on, or latch off. Refer to the control panel technical documentation for sensor LED status operation and expected delay to alarm.

B. Smoke Entry

Sensitivity readings are available through the FACP. Refer to the manufacturer's published instructions for proper use.

Additionally, canned aerosol simulated smoke (canned smoke agent) may be used for smoke entry testing of the smoke detector. Tested and approved aerosol smoke products are:

Manufacturer	Model
HSI Fire & Safety	25S, 30S (PURCHECK)
SDi	SMOKE CENTURIAN, SOLO#4, SMOKESABRE, TRUTEST
No Climb	TESTIFIRE 2000

When used properly, the canned smoke agent will cause the smoke detector to go into alarm. Refer to the manufacturer's published instructions for proper use of the canned smoke agent.

⚠CAUTION

Canned aerosol simulated smoke (canned smoke agent) formulas will vary by manufacturer. Misuse or overuse of these products may have long term adverse effects on the smoke detector. Consult the canned smoke agent manufacturer's published instructions for any further warnings or caution statements.

A sensor that fails any of these tests may need to be cleaned as described under CLEANING, and retested.

When testing is complete, restore the system to normal operation and notify the proper authorities that the system is back in operation.

CLEANING

Before removing the detector, notify the proper authorities that the smoke detector system is undergoing maintenance and will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

1. Remove the sensor to be cleaned from the system.
2. Remove the sensor cover by pressing firmly on each of the four removal tabs that hold the cover in place. (See Figure 4.)
3. Vacuum the screen carefully without removing it. If further cleaning is required continue with Step 4, otherwise skip to Step 7.
4. Remove the chamber cover/screen assembly by pulling it straight out.
5. Use a vacuum cleaner or compressed air to remove dust and debris from the sensing chamber.
6. Reinstall the chamber cover/screen assembly by sliding the edge over the sensing chamber. Turn until it is firmly in place.
7. Replace the cover using the LEDs to align the cover and then gently pushing it until it locks into place.
8. Reinstall the detector.
9. Test the detector as described in TESTING.
10. Reconnect disabled circuits.
11. Notify the proper authorities that the system is back on line.

SPECIAL NOTE REGARDING SMOKE DETECTOR GUARDS

Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

FIGURE 3: FEATURES OF THE PHOTO DETECTOR

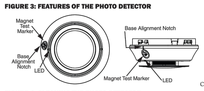
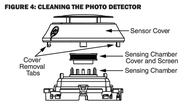


FIGURE 4: CLEANING THE PHOTO DETECTOR



SPECIAL APPLICATION

When configured at the fire alarm control panel, this detector is capable of operating in a special application mode such that it has a higher sensitivity than is normally allowed by UL 268 for areas where early warning is important. In this mode, the detector does not comply with the Cooking Nuisance Smoke Test. Detectors (Sampling ports) set to the special application mode are not suitable for use in areas where cooking appliances may be used. If cooking appliances are used within the protected space, a normal application detector or normal application mode must be used for that area.

Special application mode is not for general use and the detector may be more prone to false alarms if used in unsuitable environments. While no list is all-inclusive, some examples of unsuitable environments for special application mode are areas with airborne particulate or aerosols including welding, drilling, and grinding operations, textile or agricultural processing, or areas with engines that are not vented to the outside. A complete list of aerosol and particulate sources is available in the Annex of NFPA 72.

Suitable environments for special application mode could include early warning for hospitals, museums, assisted living and other areas that do not have airborne particulate or aerosols.

Refer to the fire alarm control panel documentation for information on how to configure the detector for special application mode.

Please refer to insert for the Limitations of Fire Alarm Systems

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates,uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

DEVICE AND SYSTEM SECURITY

Before installing this product ensure that the tamper seal on the packaging is present and unbroken and the product has not been tampered with since leaving the factory. Do not install this product if there are any indications of tampering. If there are any signs of tampering the product should not be used and should be returned to the factory. It is the responsibility of the system owner to ensure that all system components, i.e. devices, panels, wiring etc., are adequately protected to avoid tampering of the system that could result in information disclosure, spoofing, and integrity violation.

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INSTALLATION AND MAINTENANCE INSTRUCTIONS

I56-3435-004

SK-Monitor-2
Dual Monitor Module

12 Clintonville Road, Northford, CT 06472-1610
Phone: 203-484-7161 Fax: 203-484-7118
www.silentknight.com

SPECIFICATIONS

Normal Operating Voltage:	15 to 32 VDC
Maximum Current Draw:	6.4 mA (LED on)
Average Operating Current:	750 µA (LED flashing)
Max. SLC wiring Resistance:	40 Ω
EOL Resistance:	47 kΩ
Max. IDC wiring resistance:	1,500 Ω
Maximum IDC Voltage:	11.7 Volts
Maximum IDC Current:	240 µA
Temperature Range:	32°F to 120°F (0°C to 49°C)
Humidity:	10% to 93% Non-condensing
Dimensions:	4½" H x 4" W x 1¼" D (Mounts to a 4" square by 2⅛" deep box.)
Accessories:	SMB500 Electrical Box

BEFORE INSTALLING

This information is included as a quick reference installation guide. Refer to the control panel installation manual for detailed system information. If the modules will be installed in an existing operational system, inform the operator and local authority that the system will be temporarily out of service. Disconnect power to the control panel before installing the modules.

NOTICE: This manual should be left with the owner/user of this equipment.

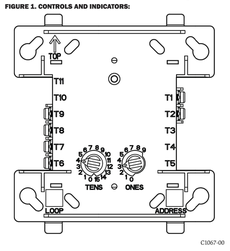
GENERAL DESCRIPTION

The Dual Monitor Module is intended for use in intelligent, two wire systems. It provides two independent 2-wire initiating device circuits (IDC), at two separate, consecutive addresses. It is capable of monitoring normally open contact fire alarm and supervisory devices, or either normally open or normally closed security devices. The module has a single panel controlled red LED.

COMPATIBILITY REQUIREMENTS

To ensure proper operation, this module shall be connected to a compatible Silent Knight system control panel (list available from Silent Knight).

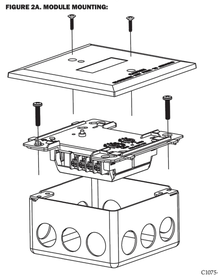
FIGURE 1. CONTROLS AND INDICATORS:



MOUNTING

Mounts directly to 4-inch square electrical boxes (see Figure 2). The box must have a minimum depth of 2⅛ inches. Surface mounted electrical boxes (SMB500) are available from Silent Knight.

FIGURE 2A. MODULE MOUNTING:



WIRING

NOTE: All wiring must conform to applicable local codes, ordinances, and regulations. This module is intended for power limited wiring only.

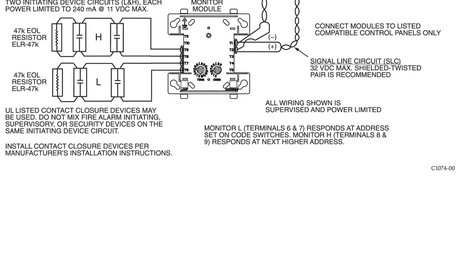
1. Install module wiring in accordance with the job drawings and appropriate wiring diagrams.
2. Set the address on the module per job drawings.

NOTE: Monitor module L (using terminals 6 and 7) responds at the address set on the code switches. Monitor module H (using terminals 8 and 9) will automatically respond at the next higher address. For example, if the code switches are set to 76, module L will respond at address 76 and module H will respond at address 77. Use caution to avoid duplicate addressing of modules on the system.

3. Secure module to electrical box (supplied by installer), as shown in Figure 2.

NOTE: All references to power limited represent "Power Limited (Class 2)".

FIGURE 3. TYPICAL 2-WIRE INITIATING CIRCUIT CONFIGURATION, NFPA STYLE B:



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INSTALLATION AND MAINTENANCE INSTRUCTIONS

I56-2769-021

SPECTRAlert ADVANCE

SYSTEM SENSOR®
3825 Ohio Avenue, St. Charles, Illinois 60174
800/736-7672, FAX: 630/377-6495
www.systemsensor.com

Selectable Output Strobes, Horns, and Horn/Strobes

For use with the following models: P2R, P2RH, P2RK, P2RHK, P2W, P2WK, P2WH, P2WHK, P6R, P6RH, P6RK, P6W, P6WH, P6WHK-F, SR, SRH, SRK, SRHK, SW, SWK, SWH, SWHK, SW-CLR-ALERT, PC2R, PC2RH,PC2RK, PC2RHK, PC2W, PC2WK, PC2WH, PC2WHK, PC6R, PC6RH, PC6RK, PC6WH, PC6WHK, SCR, SCRH, SCRK, SCRHK, SCW, SCWK, SCWH, SCWHK, SCW-CLR-ALERT, HR, HRK, HRF, HRFK, SRF, SWF, SRHF-F, SWHF-F,P2RH-F, P2RHF-F, P2WH-F, P2WHF-F, P6RH-F, P6RHF-F, P6WH-F, P6WHF-F, SRK-F, SRHK-F, SWHK-F, P2RK-F, P2RHK-F, P2WK-F, P2WHK-F, P6RK-F, P6RHK-F, P6WK-F, P6WHK-F, SRHF-F, SRHK-F.

NOTES: Refer to your panel documentation or models listed for use with specific panels.
NOTE: All -R models are specifically designed for use with the WTP Series of Weatherproof plates.
NOTE: When replacing outdoor units; device and back box must be replaced.
NOTE: Models SRHK, SRK-R are UL listed for General Signaling.

PRODUCT SPECIFICATIONS

Operating Temperature:	Standard Products	32°F to 120°F (0°C to 49°C)
	K Series	–40°F to 151°F
Humidity Range:	Standard Products	10 to 93% Non-condensing
	K Series	Meets NEMA 4X requirements
Strobe Flash Rate:		1 flash per second
Nominal Voltage:		Regulated 12VDC/FWR or regulated 24DC/FWR
Operating Voltage Range (includes fire alarm panels with built in sync):		8 to 17.5V (12V nominal) or 16 to 33V (24V nominal)
Operating Voltage with MDL3 Sync Module:		8.5 to 17.5V (12V nominal) or 16.5 to 33V (24V nominal)
Input terminal wire gauge:		12 to 18 AWG

NOTE : Strobes will operate at 12 V nominal for 15 & 15/75 candela settings only. Switching between ranges is automatic.

DIMENSIONS FOR PRODUCTS AND ACCESSORIES

WALL PRODUCTS	Length	Width	Depth
Strobe and Horn/Strobes (including lens)	5.6"	4.7"	2.5"
	142 mm	119 mm	64 mm
Horns	5.6"	4.7"	1.3"
	142 mm	119 mm	33 mm
SA-WBB Red Weatherproof Back Box	5.7"	5.1"	2.0"
SA-WBBW White Weatherproof Back Box	145 mm	130 mm	51 mm
SB8R Red Surface Mount Box	5.6"	4.7"	4.3"
SB8W White Surface Mount Box	142 mm	119 mm	109 mm

CEILING PRODUCTS (including lens)	DIAMETER	DEPTH
Strobes and Horn/Strobes	6.8"	2.5"
	173 mm	64 mm
SA-WBBC Red Weatherproof Back Box	7.1"	2.2"
SA-WBBCW White Weatherproof Back Box	180 mm	51 mm
SBBCR Red Surface Mount Box	6.9"	5.3"
SBBCW White Surface Mount Box	175 mm	135 mm
NOTE: SA-WBB, SA-WBBW, SA-WBBC and SA-WBBCW dimensions do not include the two mounting tabs		

MOUNTING BOX OPTIONS

2-Wire Indoor Products	4-Wire Indoor Products	4-Wire Outdoor Products
4 × 4 × 1²⁄₁₆, Single Gang, Double Gang, 4" Octagon SB8R/W (wall), SBBCR/W (ceiling)	4 × 4 × 1²⁄₁₆, Double Gang, 4" Octagon	SA-WBB/W (wall), SA-WBBC/CW (ceiling)

NOTICE: This manual shall be left with the owner/user of this equipment.

GENERAL DESCRIPTION

The SpectrAlert Advance series of notification appliances offers a wide range of horns, strobes, and horn/strobes, for wall and ceiling applications, indoors and outdoors. They are designed to be used on 12 or 24 volt, DC or FWR (full wave rectified) systems. These products are electrically backward compatible with the previous generation of SpectrAlert notification appliances. Horn/strobe products are available in two versions. The 2-wire products fit systems where a single NAC controls both horn and strobe. The 4-wire products are intended for systems which have separate wiring circuits for the horn and strobe. All SpectrAlert Advance products are suitable for use in synchronized systems. The System Sensor MDL3 module may be used to provide synchronization.

K Series products are designed to be used over a wider range of temperatures and are suitable for use in wet environments with outdoor backbox supplied with product.

Wall and ceiling products may be used interchangeably (wall products may be used on the ceiling and ceiling products may be used on the wall.)

FIRE ALARM SYSTEM CONSIDERATIONS

The National Fire Alarm Code, NFPA 72, requires that all horns, used for building evacuation produce temporal coded signals. Signals other than those used for evacuation purposes do not have to produce the temporal coded signal. System Sensor recommends spacing notification appliances in compliance with NFPA 72.

LOOP DESIGN AND WIRING

The system designer must make sure that the total current drawn by the devices on the loop does not exceed the current capability of the panel supply, and that the last device on the circuit is operated within its rated voltage. The current draw information for making these calculations can be found in the tables within this manual. For convenience and accuracy, use the voltage drop calculator on the System Sensor website (www.systemsensor.com).

When calculating the voltage available to the last device, it is necessary to consider the voltage drop due to the resistance of the wire. The thicker the wire, the smaller the voltage drop. Wire resistance tables can be obtained from electrical handbooks. Note that if Class A wiring is installed, the wire length may be up to twice as long as it would be for circuits that are not fault tolerant.

NOTE: The total number of strobes on a single NAC must not exceed 40 for 24 volt applications or 12 for 12 volt applications. Loop resistance on a single NAC should not exceed 120 ohms for 24 volt and 30 ohms for 12 volt systems.

TABLE 4. 2-WIRE HORN/STROBE CURRENT DRAW (mA) FOR P2 AND P2 STANDARD CANDELA SERIES

DC Input	8–17.5 Volts		16–33 Volts				
	15 cd	15/75 cd	15 cd	15/75 cd	30 cd	75 cd	95 cd	180 cd	115 cd
Temporal High	137	147	79	90	107	176	194	212	218
Temporal Medium	132	144	69	80	97	157	182	201	210
Temporal Low	132	143	66	77	93	154	179	198	207
Non-temporal High	141	152	91	100	116	176	201	221	229
Non-temporal Medium	133	145	75	85	102	163	187	207	216
Non-temporal Low	131	144	68	79	96	156	182	201	210
FWR Input									
Temporal High	136	155	88	97	112	168	190	210	218
Temporal Medium	129	152	78	88	103	160	184	202	206
Temporal Low	129	151	76	86	101	160	184	194	201
Non-temporal High	142	161	103	112	126	181	203	221	229
Non-temporal Medium	134	155	85	95	110	166	189	208	216
Non-temporal Low	132	154	80	90	105	161	184	202	211

TABLE 5. 2-WIRE HORN/STROBE CURRENT DRAW (mA) FOR P2 AND PC2 HIGH CANDELA RANGE SERIES

Sound Pattern	16–33 Volts Volts DC				16–33 Volts Volts FWR			
	135 cd	150 cd	177 cd	185 cd	135 cd	150 cd	177 cd	185 cd
Temporal High	245	259	290	297	215	231	258	265
Temporal Medium	235	253	288	297	209	224	250	258
Temporal Low	232	251	282	292	207	221	248	256
Non-temporal High	255	270	303	309	233	248	275	281
Non-temporal Medium	242	259	293	299	219	232	262	267
Non-temporal Low	238	254	291	295	214	229	256	262

TABLE 6. HORN OUTPUT (dBA) IN UL REVERBERANT ROOM

Switch Position	Sound Pattern	Volume Setting	8–17.5 Volts**		16–33 Volts**		24 V Nominal Measurements			
							Reverberant		Anechoic	
			DC	FWR	DC	FWR	DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	75	75	80	80	86	85	96	96
3	Temporal	Low	71	71	76	76	81	79	94	89
4	Non-temporal	High	82	82	88	88	93	92	100	100
5	Non-temporal	Medium	78	78	85	85	90	89	98	98
6	Non-temporal	Low	73	74	81	81	86	84	96	92
7*	Coded	High	82	82	88	88	93	92	101	101
8*	Coded	Medium	78	78	85	85	90	89	97	98
9*	Coded	Low	74	75	81	81	85	83	96	92

*Horn & 4-wire Horn/Strobe only. ** Minimum dBA rating for Operational Voltage Range as per UL 464.

FIGURE 4. WIRING 2-WIRE PRODUCTS

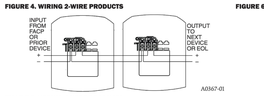


FIGURE 5. WIRING 4-WIRE PRODUCTS

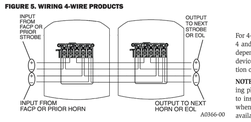
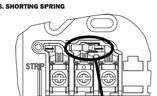


FIGURE 6. SHORTING SPRING



For 4-Wire installations, terminals 1, 2, and 3 connect to the strobe; terminals 4 and 5 connect to the horn. The horn and strobe circuits must be wired independently, and each circuit must be terminated with the appropriate EOL device. Removal of a notification device will result in an open circuit indication on the strobe loop.

NOTE: A shorting spring is provided between terminals 2 and 3 of the mounting plate to enable wiring checks after the system has been wired, but prior to installation of the final product. This spring will automatically disengage when the product is installed, to enable supervision of the final system. Only available on indoor products(non K-series).

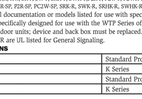
CANDELA SELECTION

Adjust the slide switch on the rear of the product to the desired candela setting in the small window on the front of the unit. All products meet the light output profiles specified in the appropriate UL Standards. **See Figures 1-3.** Use **Table 1** to determine the current draw for each candela setting. For K series products used outdoors at low temperatures, listed candela ratings must be reduced in accordance with **Table 2**.

NOTE: SpectrAlert products set at 15 and 15/75 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12V operating voltages when set to any other candela settings. For 4-Wire products, total current draw may be determined by adding current draw for the specific candela selection and the current draw for the specific horn selection use **Table 1** and **Table 3**.

FIGURE 1. LIGHT OUTPUT - VERTICAL DISPERSION, CEILING TO WALLS TO FLOOR

Degrees*	Percent of Rating
0	100
5-25	90
30-45	75
50	55
60	45
65	35
70	35
80	30
85	25
90	25



Figures 1-3 list the minimum light output requirements per UL1971.

FIGURE 2. LIGHT OUTPUT - HORIZONTAL DISPERSION



Degrees*	Percent of Rating
0	100
5-25	90
30-45	75
50	55
55	45
60	40
65	35
70	35
75	30
80	30
85	25
90	25
Compound 45 to the right	24
Compound 45 to the right	24

FIGURE 3. LIGHT OUTPUT - VERTICAL DISPERSION, WALL TO FLOOR



*Tolerance of ± 1 degree is permitted.

Degrees*	Percent of Rating
0	100
5-30	90
35	65
40	46
45	34
50	27
55	22
60	18
65	16
70	15
75	13
80	12
85	12
90	12

TABLE 1. STROBE CURRENT DRAW (mA) FOR S, SC, P4 & PC4 SERIES

	Candela	8–17.5 Volts		16–33 Volts	
		DC	FWR	DC	FWR
Standard Candela Range	15	123	128	66	73
	15/75	142	148	77	81
	30	NA	NA	94	96
	75	NA	NA	158	153
	95	NA	NA	181	176
	110	NA	NA	202	195
	115	NA	NA	210	205
High Candela Range	135	NA	NA	228	207
	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	286	258

TABLE 2. CANDELA DERATING

Listed Candela	Candela rating at –40°F (K Series Outdoor Applications Only)
15	Do not use below 32°F
15/75	
30	44
75	70
95	110
110	115
115	135
135	150
150	177
177	185
185	

HORN SELECTION

Turn the rotary switch on the back of the product to the desired setting. For horn and 4-wire horn/strobe products, the current draw for each setting is listed in **Table 3**. For 2-wire horn/strobe products (P2 series), current draws are listed in **Tables 4** and **5**. The sound output measurement for each horn setting is shown in **Table 6**.

TABLE 3. HORN CURRENT DRAW (mA) FOR H, P4 & PC4 SERIES

Pos	Sound Pattern	dA Out	8–17.5 Volts		16–33 Volts	
			DC	FWR	DC	FWR
1	Temporal	High	57	55	69	75
2	Temporal	Medium	44	49	58	69
3	Temporal	Low	38	44	44	48
4	Non-temporal	High	57	56	69	75
5	Non-temporal	Medium	42	50	60	69
6	Non-temporal	Low	41	44	50	50
7	Coded	High	57	55	69	75
8	Coded	Medium	44	51	56	69
9	Coded	Low	40	46	52	50

NOTE: In positions 7, 8, and 9, temporal coding must be provided by the NAC. If the NAC voltage is held constant, the horn output will remain constantly on. Positions 7, 8, and 9 are not available on 2-wire horn/strobe products.

MOUNTING INDOOR WALL OR CEILING PRODUCTS

1. Attach mounting plate to junction box as shown in Figure 7. The mounting plate is compatible with 4-inch square, double gang, and 4-inch octagon junction boxes (2-wire products may be used with a single gang box).
2. Connect field wiring to terminals, as shown in Figures 4 or 5.
3. If the product is not to be installed at this point, use the paint cover to prevent contamination of the mounting plate. (For indoor models only)
4. To attach product to mounting plate, remove the paint cover, then hook tabs on the product housing into the grooves on mounting plate.
5. Swing product into position to engage the pins on the product with the terminals on the mounting plate. Make sure that the tabs on the back of the product housing fully engage with the mounting plate.
6. Secure product by tightening the single mounting screw in the front of the product housing. For tamper resistance, the standard captivated mounting screw may be replaced with the enclosed Torx screw.

SURFACE MOUNT BACK BOX MOUNTING

1. The surface mount back box may be secured directly to the wall or ceiling. Grounding bracket provided if needed.
2. The wall mount box must be mounted with the up arrow pointing up.
3. Threaded knockout holes are provided for the sides of the box for ¾ inch and ½ inch conduit adapter. Knockout holes in the back of the box can be used for ¾ inch and ½ inch rear entry.
4. To remove the ½ inch knockout, we recommend you use a flat head screwdriver ,place the blade of the flat head screwdriver in the inner edge of the knockout. Strike the screwdriver as you work you way around as shown in Figure 9.
   To remove the ¾ inch knockout place the blade of the screwdriver along the outer edge and work your way around the knockout as you strike the screwdriver, as shown in Figure 9.
   NOTE: For both ½ in. and ¾ in. installation, use caution not to strike the knockout near the top edge of the wall version of the surface mount back box.
5. V500 and V700 raceway knockouts are also provided. Use V500 for low profile applications and V700 for high profile applications.
6. To remove the knockout turn pliers up, as shown in Figure 9.
7. Attach the mounting plate to the surface mount back box using the four unpainted screws, as shown in Figure 8.
8. Follow steps 2-6 of the mounting indoor wall or ceiling products to wire and attach the product.
   NOTE: For Outdoor Mounting Installation see included Outdoor Mounting Installation Document (I56-3222).

FIGURE 7. MOUNTING

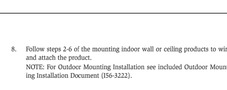


FIGURE 8. SURFACE MOUNT BACK BOX MOUNTING

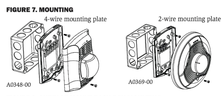
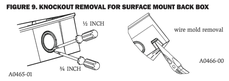


FIGURE 9. KNOCKOUT REMOVAL FOR SURFACE MOUNT BACK BOX



⚠WARNING

INSTALLATION AND MAINTENANCE INSTRUCTIONS

I56-3432-006

Honeywell

SILENT KNIGHT

12 Clintonville Road, Northford, CT 06472-1610
Phone: 203-484-7161 Fax: 203-484-7118
www.silentknight.com

SK-Duct
Air Duct Smoke Detector

SPECIFICATIONS

Operating Temperature:	-4° to 158°F (-20° to 70°C) 32° to 120°F (0° to 49°C) with module installed in the SK-Duct
Storage Temperature:	-22° to 158°F (-30° to 70°C)
Humidity:	0% to 93% Relative Humidity Non-condensing
Air Velocity:	100 to 4000 ft./min. (0.5 to 20.3 m/sec)
Rectangular Footprint Dimensions:	14.38 in L × 5 in W × 2.5 in D (37 cm L × 12.7 cm W × 6.36 cm D)
Square Footprint Dimensions:	7.75 in L × 9 in W × 2.5 in D (19.7 cm L × 22.9 cm W × 6.35 cm D)
Weight:	1.8 pounds; 0.82 kg
Operating Voltage Range:	15 to 32 VDC
Standby Current:	300 µA @ 24 VDC (one communication every 5 seconds with LED blink enabled)
Max. Alarm Current (LED on):	6.5 mA @ 24 VDC

ACCESSORY CURRENT LOADS AT 24 VDC		
DEVICE	STANDBY	ALARM
RA400Z/RA100Z	0 mA	12 mA Max.
RTS451/RTS151	0 mA	12 mA Max.
RTS451KEY/ RTS151KEY	12 mA	12 mA Max.

NOTE: The SK-Duct comes with the sensor head factory installed, part number SK-PHOTOR.

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[6] Measurement Tests 3
[7] Field Wiring 3
[8] Verification of Operation 4
[9] Detector Cleaning Procedures 4
[10] Sensor Replacement 5
[11] Optional Accessories 5
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BEFORE INSTALLING

Read System Sensor's *Applications Guide: Duct Smoke Detectors* (HVAC93), which provides detailed information on detector spacing, placement, zoning, wiring, and special applications. Copies of this manual are available online at www.systemsensor.com. NFPA Standards 72 and 90A should also be referenced for detailed information.

NOTICE: This manual shall be left with the owner/user of this equipment.

IMPORTANT: This detector must be tested and maintained regularly following NFPA 72 requirements. The detector must be tested an maintained regularly following NFPA 72 requirements. According to NFPA, the detector should be visually inspected semiannually and functionally tested at least once a year. This may need to be more frequent depending on the air quality of the duct supply air.

[1] LIMITATIONS OF DUCT SMOKE DETECTORS

⚠WARNING

The National Fire Protection Association has established that DUCT DETECTORS MUST NOT BE USED AS A SUBSTITUTE FOR OPEN AREA DETECTOR PROTECTION as a means of providing life safety. Nor are they a substitute for early warning in a building's regular fire detection system.

System Sensor supports this position and strongly recommends that the user read NFPA Standards 90A, 72, and 101. The SK-Duct Air Duct Smoke Detectors are listed per UL 268A.

This device will not operate without electrical power. Fire situations may cause an interruption of power. The system safeguards should be discussed with your local fire protection specialist.

This device will not sense smoke unless the ventilation system is operating and the cover is installed.

For this detector to function properly, it MUST be installed according to the instructions in this manual. Furthermore, the detector MUST be operated within ALL electrical and environmental specifications listed in this manual and the sensor head installation manual. Failure to comply with these requirements may prevent the detector from activating when smoke is present in the air duct.

[2] GENERAL DESCRIPTION

Smoke introduced into this air duct system will be distributed throughout the entire building. Smoke detectors designed for use in air duct systems are used to sense the presence of smoke in the duct.

Model SK-Duct Air Duct Smoke Detector utilizes photoelectric technology for the detection of smoke. This detection method, when combined with an efficient housing design, samples air passing through the duct and allows detection of a developing hazardous condition. When sufficient smoke is sensed, an alarm signal is initiated at the fire control panel monitoring the detector, and appropriate action can be taken to shut off fans, blowers, change over air handling systems, etc. These actions can facilitate the management of toxic smoke and fire gases throughout the areas served by the duct system.

The SK-Duct incorporates a new cover tamper feature that provides a trouble signal at the panel immediately if the cover is removed or improperly installed. Proper installation of the sensor cover removes the trouble condition.

If programmed with the system control panel, two LEDs on each duct smoke detector light to provide local visible indication.

The SK-Duct provides a remote alarm output for use with auxiliary devices, such as the RA400Z/RA100Z remote LED annunciator, as well as remote test capability with the RTS451/RTS151 or RTS451KEY/RTS151KEY Remote Test Stations.

[2.1] DETECTOR FEATURE SET

- Utilizes plug-in head, part number SK-PHOTOR
- Sampling tubes install from front and rear
- Compatible with existing accessories
- Able to address detector per code switches on sensor head.

[3] CONTENTS OF THE DUCT SMOKE DETECTOR KIT

1. Sensor/power board assembly and covers sensor head is factory installed
2. Three #10 sheet metal screws for mounting
3. Drilling template
4. One sampling tube end cap
5. One plastic exhaust tube

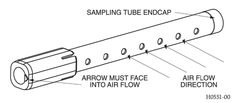
NOTE: A sampling tube must be ordered to complete the installation. It must be the correct length for the width of the duct where it will be installed. See Table 1 on page 3 to determine the inlet tube required for different duct widths.

[4] DETECTOR INSTALLATION

[4.1] VERIFY DUCT AIR FLOW DIRECTION AND VELOCITY

Model SK-Duct detectors are designed to be used in air handling systems having air velocities of 100 to 4000 feet per minute. Duct widths from 6 inches to 12 feet can be accommodated. Be sure to check engineering specifications to ensure that the air velocity in the duct falls within these parameters. If necessary, use a velocity meter (anemometer) to check the air velocity in the duct.

FIGURE 3. AIR DUCT DETECTOR SAMPLING TUBE:



I03551-00

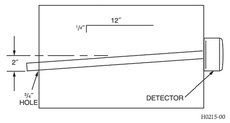
CAUTION: The sampling tube end cap, included with the detector, is critical to proper operation of the duct smoke detector. The end cap is needed to create the proper air flow to the sensor of the duct smoke detector. Once any sampling tube length adjustments are made, plug the end of the sampling tube with the provided end cap.

A plastic exhaust tube is included with the unit to be installed if needed. Install into the housing connection that is downstream from the sampling tube connection. The exhaust tube can be installed from the front of the detector or the back. A longer 1 foot exhaust tube, model ETX, is available as an accessory in cases where the molded exhaust tube does not extend at least 2 inches into the duct.

[5.2] SAMPLING TUBE INSTALLATION

1. For tubes shorter than the width of the duct, slide the sampling tube, with installed end cap, into the housing connection that meets the airflow first. Position the tube so that the arrow points into the airflow as shown in Figure 3. Per NFPA sampling tubes over 3 feet long should be supported at the end opposite of the duct detector. In ducts wider than 8 feet, work must be performed inside the duct to couple the other section of the sampling tube to the section already installed using the ½-inch conduit fitting supplied. Make sure that the holes on both sections of the air inlet sampling tube are lined up and facing into the airflow.
2. For tubes longer than the width of the air duct, the tube should extend out of the opposite side of the duct. Drill a ¾-inch hole in the duct opposite the hole already cut for the sampling tube. Ensure that the sampling tube is angled downward from the duct smoke detector to allow for moisture drainage away from the detector. The sampling tube should be angled at least ½" downward for every 12" of duct width per Figure 4. There should be 10 to 12 holes spaced as evenly as possible across the width of the duct. If there are more than 2 holes in the section of the tube extending out of the duct, select a shorter tube using Table 1. Otherwise, trim the tube to leave approximately 1 to 2 inches extending outside the duct. Plug the end with the end cap and tape closed any holes in the protruding section of the tube. Be sure to seal the duct where the tube protrudes.

FIGURE 4.



H03213-00

NOTE: Air currents inside the duct may cause excessive vibration, especially when the longer sampling tubes are used. In these cases, a 3-inch foor flange (available at most plumbing supply stores) may be used to fasten the sampling tube to the other side of the duct. When using the flange/connector mounting technique, drill a 1 to 1¼-inch hole where the flange will be used.

[5.3] MODIFICATIONS OF SAMPLING TUBES

There may be applications where duct widths are not what is specified for the installation. In such cases, it is permissible to modify a sampling tube that is longer than necessary to span the duct width.

Use a 0.193-inch diameter (#10) drill and add the appropriate number of holes so that the total number of holes exposed to the air flow in the duct is 10 to 12. Space the additional holes as evenly as possible over the length of the tube.

CAUTION: This procedure should only be used as a temporary fix. It is not intended as a permanent substitute for ordering the correct length tubes.

[5.4] REMOTE SAMPLING TUBE INSTALLATION

The detector arrangement can also incorporate the remote mounting of the sampling tube and/or exhaust tube. In this case both the detector, sampling tube and exhaust tube (if included) should be rigidly mounted to withstand the pressure and vibrations caused by the air velocity. The location of the detector's sampling tube should be such that there is uniform airflow in the cross section area.

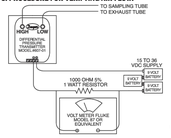
Pressure differential across the sampling and exhaust ports in the detector housing shall be verified to be between 0.01 and 1.11 inches of water. Do so by measuring the pressure difference between the inlet and outlet ports on the detector housing using a manometer as described in the Measurement Tests section of this manual.

[6] MEASUREMENT TESTS

[6.1] AIR FLOW

The SK-Duct is designed to operate over an extended air speed range of 100 to 4000 FPM. To verify sufficient sampling of ducted air, turn the air handler on and use a manometer to measure the differential pressure between the two sampling tubes. The differential pressure should measure at least 0.01 inches of water and no more than 1.11 inches of water. Because most commercially available manometers cannot accurately measure very low pressure differentials, applications with less than 500 FPM of duct air speed may require one of the following: 1) the use of a current-sourcing pressure transmitter (Dwyer Series 607) or 2) the use of aerosol smoke, see below for test descriptions.

FIGURE 5. PROCEDURE FOR VERIFYING AIR FLOW:



H01163-01

[6.2] LOW FLOW AIR FLOW TEST USING DWYER SERIES 607 DIFFERENTIAL PRESSURE TRANSMITTER

Verify the air speed of the duct using an anemometer. Air speed must be at least 100 FPM. Wire the Dwyer transmitter as shown in **Figure 5**. Connect the leads of the meter to either side of the 1000Ω resistor. Allow unit to warm up for 15 seconds. With both HIGH and LOW pressure ports open to ambient air, measure and record the voltage drop across the 1000Ω resistor (measurement 1), 4.00 volts is typical. Using flexible tubing and rubber stoppers, connect the HIGH side of the transmitter to the sampling tube of the duct smoke detector housing, and the LOW side of the transmitter to the exhaust tube of the duct smoke detector housing. Measure and record the voltage drop across the 1000Ω resistor (measurement 2). Subtract the voltage recorded in measurement 1 from the voltage recorded in measurement 2. If the difference is greater than 0.15 volts, there is enough air flow through the duct smoke detector for proper operation.

[9.2] REINSTALLATION

1. Reinstall the detector in its housing.
2. Restore system power.
3. Perform Detector Check.
4. Notify the proper authorities testing has been completed and the smoke detector system is back in operation.

[10] SENSOR REPLACEMENT

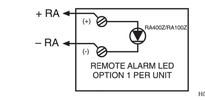
1. Remove the sensor head by rotating counterclockwise.
2. Pull gently to remove it.
3. To replace the sensor head, align the mounting features and rotate clockwise into place.

[11] OPTIONAL ACCESSORIES

Optional accessories include RA400Z/RA100Z, RTS451/RTS151 and RTS451KEY/RTS151KEY.

NOTE: Ensure blue wire always remains connected to RA + on the field connector side of the terminal block.

FIGURE 8. WIRING DIAGRAM FOR TO RA400Z/RA100Z:



H01570-03

Note: If using a RA400Z, the tab should be broken for use with the intelligent duct smoke detector. If using RA100Z, ensure that jumper is removed.

The RTS451/RTS151/RTS451KEY/RTS151KEY Remote Test Station facilitates test of the alarm capability of the duct smoke detector. These accessories provide the stimulus to initiate an alarm condition at the detector. The SK-Duct duct smoke detector must be reset by the system control panel.

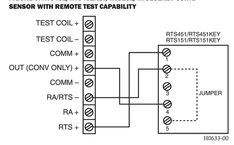
[11.1] OPTION 1:
REMOTE TEST USING SENSOR WITH REMOTE TEST CAPABILITY (WITHOUT A TEST COIL)

A sensor with suffix "R" is available for use inside the SK-Duct. Suffix "R" represents a head with Remote Test Capability. Using this head inside the SK-Duct eliminates the need for a test coil when wired to a RTS451/RTS151/RTS451KEY/RTS151KEY Remote Test Station.

To install the RTS451/RTS151/RTS451KEY/RTS151KEY, using the sensor with remote test capability connect the device as shown in **Figure 9**; wire runs must be limited to 25 Ω or less per interconnecting wire.

NOTE: Resistor assembly must be in place between RA + and OUT + inside the SK-Duct for Remote Test function to operate.

FIGURE 9. RTS451/RTS451KEY/RTS151/RTS151KEY USING SENSOR WITH REMOTE TEST CAPABILITY



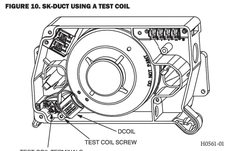
H0633-00

[11.2] OPTION 2:
REMOTE TEST USING A TEST COIL:
The use of a remote test station requires the installation of an accessory coil, part number DCOIL, sold separately.

1) Install DCOIL in housing pocket insuring that arrow is pointing toward detector.
2) Install DCOIL mounting screw.
3) Connect each DCOIL lead to a Test Coil Terminal.

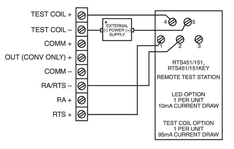
See **Figure 10** below for reference.

FIGURE 10. SK-DUCT USING A TEST COIL



H0561-01

FIGURE 11. WIRING DIAGRAM FROM SK-DUCT TO RTS451/RTS151/ RTS451KEY/RTS151KEY USING A TEST COIL:



H0571-07

NOTE: The RTS451/151, RTS451/151KEY test coil circuit requires an external 24 VDC power supply which must be UL listed.

[11.3] ADDITIONAL MODULE OPTION

The SK-Duct can also accommodate a relay or control module (sold separately) within the power board side of the housing. The relay or control module must be listed as compatible to the fire alarm control panel.

Physical Module Mounting

1) Remove the breakaway tabs at the four corners of the module
2) Locate the module at right most corner of the power board. The upper left corner mounting hole of the module will align with a screw boss in the housing.
3) Install a #8 × ½" Plastite screw at the screw boss location

Note: See the corresponding module Installation Instructions for general description, control panel compatibility, wiring and ratings.

INSTALLATION AND MAINTENANCE INSTRUCTIONS

I56-3438-004

Honeywell

SILENT KNIGHT

12 Clintonville Road, Northford, CT 06472-1610
Phone: 203-484-7161 Fax: 203-484-7118
www.silentknight.com

SK-Relay

SPECIFICATIONS

Normal Operating Voltage:	15 to 32 VDC
Maximum Current Draw:	6.5 mA (LED on)
Average Operating Current:	230 µA direct poll; 255 µA group poll
EOL Resistance:	Not used
Temperature Range:	32°F to 120°F (0°C to 49°C)
Humidity:	10% to 93% Non-condensing
Dimensions:	4.675" H x 4.275" W x 1.4" D (Mounts to a 4" square by 2⅛" deep box.)
Accessories:	SMB500 Electrical Box

RELAY CONTACT RATINGS:

CURRENT RATING	MAXIMUM VOLTAGE	LOAD DESCRIPTION	APPLICATION
2 A	25 VAC	PF = 0.35	Non-coded
3 A	30 VDC	Resistive	Non-coded
2 A	30 VDC	Resistive	Coded
0.46 A	30 VDC	(L/R = 20 ms)	Non-coded
0.7 A	70.7 VAC	PF = 0.35	Non-coded
0.9 A	125 VDC	Resistive	Non-coded
0.5 A	125 VAC	PF = 0.75	Non-coded
0.3 A	125 VAC	PF = 0.35	Non-coded

BEFORE INSTALLING

This information is included as a quick reference installation guide. Refer to the appropriate Silent Knight control panel installation manual for detailed system information. If the modules will be installed in an existing operational system, inform the operator and local authority that the system will be temporarily out of service. Disconnect power to the control panel before installing the modules.

NOTICE: This manual should be left with the owner/user of this equipment.

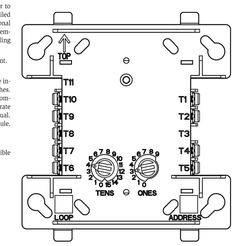
GENERAL DESCRIPTION

The SK-Relay is intended for use in intelligent, two-wire systems where the individual address of each module is selected using the built-in rotary switches. It allows a compatible control panel to switch discrete contacts by code command. The relay contains two isolated sets of Form-C contacts, which operate as a DPDT switch and are rated in accordance with the table in the manual. Circuit connections to the relay contacts are not supervised by the module. The module also has a panel controlled LED indicator.

COMPATIBILITY REQUIREMENTS

To ensure proper operation, this module shall be connected to a compatible Silent Knight system control panel (list available from Silent Knight).

FIGURE 1. CONTROLS AND INDICATORS:



C1071-00

[2.2] FOR SQUARE TOP-OVER-BOTTOM MOUNTING CONFIGURATION:

Center punch at (4) target centers: (2) "A" for sampling tubes and (2) "C" for the square configuration mounting tabs as shown on mounting template. Drill pilot holes at target "A" centers and cut two 1.375-inch diameter holes using a 1⅛-inch hole saw or punch. Drill 1.56-inch diameter holes using a 1½-inch drill at target "C" centers. If desired, drill an additional .156-inch hole at the location of one of the mounting tabs on the lower housing.

[4.4] SECURE THE DUCT DETECTOR TO THE DUCT

Use two (rectangular configuration) or three (square configuration) of the provided sheet metal screws to screw the duct detector to the duct.

CAUTION: Do not overtighten the screws.

[5] SAMPLING TUBE INSTALLATION

[5.1] SAMPLING TUBE SELECTION

The sampling tube must be purchased separately. Order the correct length, as specified in Table 1, for width of the duct where it will be installed. The sampling tube length must extend at least ½ across the duct width for optimal performance.

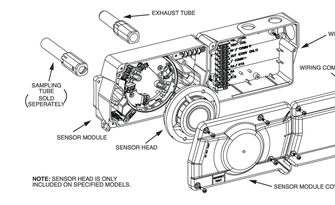
The sampling tube is always installed with the air inlet holes facing into the air flow. To assist proper installation, the tube's connector is marked with an arrow. Make sure the sampling tube is mounted so that the arrow points into the airflow as shown in Figure 3. Mounting the detector housing in a vertical orientation is acceptable provided that the air flows directly into the sampling tube holes as indicated in Figure 3. The sampling tube and exhaust tube can be mounted in either housing connection as long as the exhaust tube is mounted downstream from the sampling tube.

TABLE 1. SAMPLING TUBES RECOMMENDED FOR DIFFERENT DUCT WIDTHS:

Outside Duct Width	Sampling Tube Recommended*
Up to 1 ft.	DST1
1 to 2 ft.	DST1.5
2 to 4 ft.	DST3
4 to 8 ft.	DST5
8 to 12 ft.	DST10 (2-piece)

*Must extend a minimum of ½ the duct width.

FIGURE 2. EXPLODED VIEW OF DUCT SMOKE DETECTOR COMPONENTS:



NOTE: SENSOR HEAD IS ONLY INCLUDED ON SPECIFIED MODELS.

H03569-06

[4.2]] DETERMINE MOUNTING LOCATION AND CONFIGURATION

On ducts wider than 18 inches it is recommended that the detector be mounted downstream of a bend, obstruction in the duct, or the supply or return air inlet.

Exception: Installation of duct detectors can be on or within a commercial packaged rooftop heating and air-conditioning system, fire/smoke dampers and economizers. They may be mounted in either the supply and/or return air section as determined by local code.

Once a suitable location is selected, determine if the detector is to be mounted in a side-by-side "rectangular" configuration or a top-over-bottom "square" configuration as shown in Figure 2. If mounting in the square configuration, remove the rear attachment screw, rotate the unit at hinge, and replace the screw into the new attachment hole as shown in Figure 2. Do NOT remove the hinge screw during this process. Final installation approval shall be based upon passing differential pressure and smoke entry tests described in the Measurement Tests section.

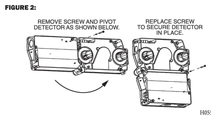
[4.3] DRILL THE MOUNTING HOLES

Remove the paper backing from the mounting template supplied. Affix the template to the duct at the desired mounting location. Make sure the template lies flat and smooth on the duct.

[4.3.1] FOR RECTANGULAR SIDE-BY-SIDE MOUNTING CONFIGURATION:

Center punch at (4) target centers: (2) "A" for sampling tubes and (2) "B" for the rectangular configuration mounting tabs as shown on mounting template. Drill pilot holes at target "A" centers and cut two 1.375-inch diameter holes using a 1⅛-inch hole saw or punch. Drill .156-inch diameter holes using a 7/32-inch drill at target "B" centers.

FIGURE 2:



H0550-00

[7] FIELD WIRING; INSTALLATION GUIDELINES

All wiring must be installed in compliance with the National Electrical Code and the local codes having jurisdiction. Proper wire gauges should be used. The conductors used to connect smoke detectors to control panels and accessory devices should be color-coded to prevent wiring mistakes. Improper connections can prevent a system from responding properly in the event of a fire.

For signal wiring (the wiring between detectors or from detector to auxiliary devices), it is usually recommended that single conductor wire be no smaller than 18 gauge. The duct smoke detector terminals accommodate wire sizes up to 12 gauge. Flexible conduit is recommended for the last foot of conduit; solid conduit connections may be used if desired.

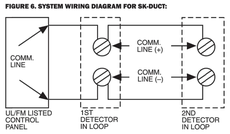
Duct smoke detectors and alarm system control panels have specifications for Signaling Line Circuit (SLC) wiring. Consult the control panel manufacturer's specifications for wiring requirements before wiring the detector loop.

[7.1] WIRING INSTRUCTIONS

Disconnect power from the communication line before installing the SK-Duct duct smoke detector.

The SK-Duct detectors are designed for easy wiring. The housing provides a terminal strip with clamping plates. Wiring connections are made by sliding the bare end under the plate, and tightening the clamping plate screw. See **Figure 6** below for system wiring.

FIGURE 6. SYSTEM WIRING DIAGRAM FOR SK-DUCT:

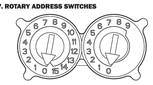


I03572-00

[7.2] SET THE ADDRESS

Set the desired address on the sensor head code wheel switches on the back of the sensor head.

FIGURE 7. ROTARY ADDRESS SWITCHES



H0112-01

[8] VERIFICATION OF OPERATION

[8.1] INSTALL THE COVER

Install the covers making sure that the cover fits into the base groove. Tighten the seven screws that are captured in the covers. Note that the cover must be properly installed for proper operation of the sensor.

[8.2] POWER THE UNIT

Activate the communication line on terminals COM + and COM –.

[8.3] DETECTOR CHECK

Standby – If programmed by the system control panel, look for the presence of the flashing LEDs through the transparent housing cover. The LED will flash with each communication.

Trouble – If programmed by the system control panel and the detector LEDs do not flash, then the detector lacks power (check wiring, missing or improperly placed cover, panel programming, or power supply), the sensor head is missing (replace), or the unit is defective (return for repair).

[8.4] DUCT SMOKE DETECTOR TEST & MAINTENANCE PROCEDURES

Test and maintain duct smoke detectors as recommended in NFPA 72. The tests contained in this manual were devised to assist maintenance personnel in verification of proper detector operation.

Before conducting these tests, notify the proper authorities that the smoke detection system will be temporarily out of service. Disable the zone or system under test to prevent unwanted alarms.

[8.4.1] TEST THE UNIT

1. M02-04-00 Magnet Test (not included) – This sensor can be functionally tested with a test magnet. The test magnet electronically simulates smoke in the sensing chamber, testing the sensor electronics and connections to the control panel.
2. Remote Test Accessory – The use of a remote accessory for visible indication of power and alarm is recommended.

   Verify system control panel alarm status and control panel execution of all installed auxiliary functions (i.e. fan shutdown, damper control, etc.).

   Two LEDs on the sensor are controlled by the panel to indicate sensor status. Coded signals, transmitted from the panel, can cause the LEDs to blink, latch on, or latch off. Refer to the control panel technical documentation for sensor LED operation and expected delay to alarm.

[8.4.2] THE DETECTOR MUST BE RESET BY THE SYSTEM CONTROL PANEL

[8.4.3] SMOKE ENTRY TEST USING AEROSOL SMOKE

This test is intended for low-flow systems (100-500 FPM). If the air speed is greater than 500 FPM, use a conventional manometer to measure differential pressure between the sampling tubes, as described under Measurement Tests on Page 3.

Drill a ¼-inch hole 3 feet upstream from the duct smoke detector. With the air handler on, measure the air velocity with an anemometer. Air speed must be at least 100 FPM. Spray aerosol smoke* into the duct through the ¼-inch hole for five seconds. Wait two minutes for the duct smoke detector to alarm. If the duct smoke detector alarms, air is flowing through the detector. Remove the duct smoke detector cover and blow out the residual aerosol smoke from the chamber and reset the duct smoke detector at the panel. Use duct tape to seal the aerosol smoke entry hole. Remember to replace the cover after the test or the detector will not function properly.

*Aerosol smoke can be purchased from Home Safeguard Industries at homesafeguard.com, model 25S Smoke Detector Tester, and Chekkit Smoke Detector Tester model CHEK02 and CHEK06 available from SDi. When used properly, the canned smoke agent will cause the smoke detector to go into alarm. Refer to the manufacturer's published instructions for proper use of the canned smoke agent.

⚠CAUTION

Canned aerosol simulated smoke (canned smoke agent) formulas will vary by manufacturer. Misuse or overuse to these products may have long term adverse effects on the smoke detector. Consult the canned smoke agent manufacturer's published instructions for any further warnings or caution statements.

[9] DETECTOR CLEANING PROCEDURES

Notify the proper authorities that the smoke detector system is undergoing maintenance, and that the system will temporarily be out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms and possible dispatch of the fire department.

[9.1] DETECTOR SENSOR

1. Remove the sensor to be cleaned from the system.
2. Remove the sensor cover by pressing firmly on each of the four removal tabs that hold the cover in place.
3. Vacuum the screen carefully without removing it. If further cleaning is required continue with Step 4, otherwise skip to Step 7.
4. Remove the chamber cover/screen assembly by pulling it straight out.
5. Use a vacuum cleaner or compressed air to remove dust and debris from the sensing chamber.
6. Reinstall the chamber cover/screen assembly by sliding the edge over the sensing chamber. Turn until it is firmly in place.
7. Replace the cover using the LEDs to align the cover and then gently pushing it until it locks into place.
8. Reinstall the detector.

Downloaded from publicpurchase.com

Please refer to Insert for the Limitations of Fire Alarm Systems

THREE-YEAR LIMITED WARRANTY

System Sensor warrants its enclosed product to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. System Sensor makes no other express warranty for the enclosed product. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company's obligation of this Warranty shall be limited to the replacement of any part of the product which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. After phoning System Sensor's toll free number 800-SENSOR2 (736-7672) for a Return Authorization number, send defective units postage prepaid to: Honeywell, 12220 Rojas Drive, Suite 700, El Paso TX 79936, USA. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company's negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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MOUNTING

The SK-Relay mounts directly to 4-inch square electrical boxes (see Figure 2A). The box must have a minimum depth of 2⅛ inches. Surface mounted electrical boxes (SMB500) are available from Silent Knight.

FIGURE 2A. MODULE MOUNTING WITH BARRIER:

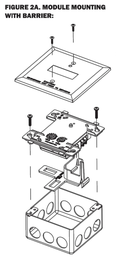


FIGURE 2B:



C1070-00

WIRING

NOTE: All wiring must conform to applicable local codes, ordinances, and regulations. When using control modules in nonpower-limited applications, the CB500 Module Barrier must be used to meet UL requirements for the separation of power-limited and nonpower-limited terminals and wiring. The barrier must be inserted into a 4" × 4" × 2⅛" junction box, and the control module must be placed into the barrier and attached to the junction box (Figure 2A). The power-limited wiring must be placed into the isolated quadrant of the module barrier (Figure 2B).

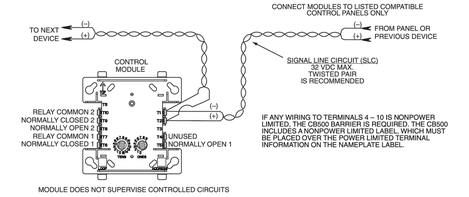
1. Install module wiring in accordance with the job drawings and appropriate wiring diagrams.
2. Set the address on the module per job drawings.
3. Secure module to electrical box (supplied by installer), as shown in Figure 2A.

NOTE: All references to power limited represent "Power Limited (Class 2)".

⚠WARNING

All relay switch contacts are shipped in the standby state (open) state, but may have transferred to the activated (closed) state during shipping. To ensure that the switch contacts are in their correct state, modules must be made to communicate with the panel before connecting circuits controlled by the module.

FIGURE 3. RELAY MODULE WIRING DIAGRAM:



C0946-00

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AHJ APPROVAL AND NOTES

Please go to publicpurchase.com to make sure you have the latest information and any addendums released

COSCO FIRE PROTECTION CONTRACTOR
CLASSIFICATION C16-C10
LICENSE NO. 577621
LOS ANGELES
STATE OF CALIFORNIA

REVISIONS

NO.	DESCRIPTION	DATE	BY
0	ISSUE FOR BID	5/23/2025	R.R.JR.

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FIRE PROTECTION AND LIFE SAFETY SPECIALISTS
FRESNO OFFICE
4233 W. SIERRA MADRE, SUITE 108
FRESNO, CALIFORNIA 93722
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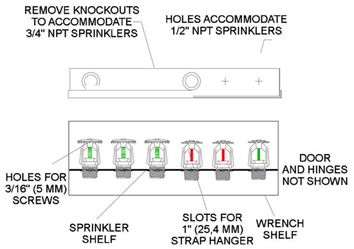
PROJECT:
KINGS CO LIBRARY HANFORD
401 N. DOUTY STREET
HANFORD, CA 93230

CONTRACT WITH:
STRATEGIC INDUSTRY, INC.
1440 DRAPER ST SUITE C
KINGSBURG, CA 93631

DRAWING TITLE:
INSTALLATION DETAILS

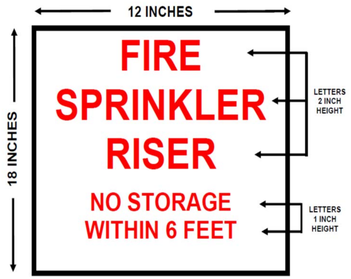
DATE :	07.26.2024
SCALE :	AS NOTED
DRAWN BY :	R.R.SR.
JOB NO.	2405-1599
SHEET NO.	FA-11
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6 COUNT SPRINKLER CABINET

PER NFPA 13, 2022 - 16.2.7 (1) A SPARE STOCK OF SPRINKLERS FOR PROTECTED FACILITIES HAVING 300-1000 SPRINKLERS SHALL HAVE A STOCK OF NO FEWER THAT 6 SPARE HEADS.



PIPE TABLE (WET)

PRODUCT	NOMINAL PIPE SIZE	
EDDY-FLOW	1 1/2"	1.728
EDDY-FLOW	2"	2.203
EDDY-FLOW	2 1/2"	2.703
EDDY-FLOW	3"	3.314
EDDY-FLOW	4"	4.310
EDDY-THREAD	1"	1.080
EDDY-THREAD	1 1/4"	1.408
EDDY-THREAD	1 1/2"	1.639
EDDY-THREAD	2"	2.104
SCHEDULE 10	2"	2.157
SCHEDULE 10	2 1/2"	2.635
SCHEDULE 10	3"	3.260
SCHEDULE 10	4"	4.260
SCHEDULE 10	6"	6.357
SCHEDULE 10	8"	8.249
SCHEDULE 40	1"	1.049
SCHEDULE 40	1 1/4"	1.380
SCHEDULE 40	1 1/2"	1.610

PROTECTION CRITERIA LEGEND BASED ON NFPA -13

OCCUPANCY	DENSITY	HOSE ALLOWANCE (GPM)	MAXIMUM SPRINKLER SPACING (SQ FT)	DESIGN BASIS
RESTROOM & OFFICE AREAS	.10/1500	100	225	LIGHT HAZARD PER CHAPTER 11, NFPA 13
ASSEMBLY AREAS	.10/1500	100	225	ORD GROUP 2 PER CHAPTER 11, NFPA 13
STORAGE ROOMS	.20/1500	250	130	ORD GROUP 2 PER CHAPTER 11, NFPA 13

BUILDING/PROJECT DATA

ADDRESS	401 N. DOUTY
APN	10-271-17
LAND AREA	1.25 ACRES
ZONE DISTRICT	PF / O
STORIES	1 W/ BASEMENT
BUILDING AREA	TOTAL = 17,150 SF
CONST. TYPE	II-B WITH FIRE SPRINKLER SYSTEMS
OCCUPANCY	A-3 LIBRARY

BUILDING CONSTRUCTION

BUILDING CONSTRUCTION:

THE BUILDING ROOF SYSTEM CONSISTS OF CONCRETE T- JOINTS.

SYMBOL LEGEND

SYMBOL	
2 5'-1½ CM3	BRANCHLINE TO BE INSTALLED
	MAIN LINE TO BE INSTALLED
	SEISMIC BRACING
	HYDRAULIC CALCULATION AREA
81	HYDRAULIC REFERENCE POINT
	HANGERS

SHEET INDEX

SHEET NUMBER	SHEET NAME
FS-1	COVER SHEET W/ SITE PLAN
FS-2	DETAILS
FS-3	BASEMENT & MEZZANINES
FS-4	MAIN FLOOR PLAN
FS-5	CROSS SECTIONS

SCHEDULE OF INSPECTIONS

1) PERFORM AN OVERHEAD HANGERS, BRACING, AND PRESSURE TEST TO ACCOMPLISH ROUGH INSPECTION.

2) ONCE PENDENT HEADS ARE PLACED IN NEW CEILINGS, CALL FOR OK TO COVER.

3) PERFORM A FIRE FINAL BY PERFORMING A FINAL RINGDOWN AND PROVIDING ABOVE GROUND TEST CERTIFICATES.

FDC NOTES

THE FIRE DEPARTMENT CONNECTION SHALL BE PLACED ON THE BACKFLOW PREVENTION DEVICE AND WITHIN A DISTANCE OF 75' FROM A NEW OR EXISTING FIRE HYDRANT.



APPLICABLE CODES

NFPA STANDARD:	EDITION:
NFPA 13	2022
NFPA 14	2022
NFPA 24	2022
CFC	2022

GENERAL U.G. NOTES:

ATTACH TO EXISTING WATER MAIN IN STREET AND RUN A NEW 4" LINE TO THE FACILITY TO SERVE A NEW FIRE HYDRANT AS WELL AS THE NEW WET TYPE FIRE SPRINKLER SYSTEM. THE INSTALLATION OF THE UNDERGROUND SERVICE TO BE BY OTHERS. DETAILS SHOWN FOR INSTALLERS AND REVIEW

WATER SUPPLY INFORMATION

THE WATER SUPPLY FOR THIS PROJECT IS PROVIDED BY ONSITE FLOW TEST

STATIC 56
RESIDUAL 44
FLOW 1575

STORAGE NOTES

NO HIGH PILED STORAGE IS ANTICIPATED OR CONSIDERED IN THE APPLICATION OF THE FIRE SPRINKLER DESIGN. SHELF STACK OF BOOKS IN A LIBRARY FUNCTION AS OUTLINED IN NFPA-13 9.3.7. 18" MINIMUM DISTANCE BETWEEN THE SPRINKLER DEFLECTOR AND THE TOP OF STORAGE

EARTHQUAKE BRACING

EARTHQUAKE BRACING REQUIRED ON SPRINKLER PIPING BY BUILDING CODE. CONTRACTOR TO VERIFY, AND ADD AS NECESSARY, EARTHQUAKE BRACING INSTALLATION MEETS, NFPA 13-2022 INCLUDING TIA 02-1 AND MANUFACTURERS RECOMMENDATIONS. ADDITIONAL BRACING MAY BE REQUIRED DUE TO FIELD ADJUSTMENTS, VARYING BRACING ANGLES, DISTANCES TO JOISTS, AUTHORITIES HAVING JURISDICTIONS, ETC.

GENERAL NOTES

1) COORDINATE LOCATIONS OF THE FIRE PROTECTION COMPONENTS INCLUDING PIPING, ALARMS, DRAINS, TEST POINTS, ETC. WITH ARCHITECTUAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS. OBSTRUCTIONS TO SPRINKLER DISCHARGE MUST BE CONSIDERED DURING SHOP DRAWING PRODUCTION AND INSTALLATION: ADDITIONAL SPRINKLERS MAY BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2) SINGLE SYSTEM APPLICATION, NO HOSE VALVES

3) PENETRATIONS OF "RATED ASSEMBLIES" SHALL BE FIRE STOPPED WITH AN APPROVED MATERIAL PER METHODS REQUIRED BY THE AHJ.

4) THE DESIGN AS SHOWN AND APPROVED BY THE AHJ SHALL NOT BE ALTERED. AS BUILTS TO BE MINIMAL

5) VERIFY ALL DROP DOWN LOCATIONS AT EXTERIOR WALLS WITH THE PROJECT MANAGER PRIOR TO INSTALLATION.

6)ALL PIPING MUST BE COORDINATED AROUND ALL FRAMING MEMBERS.

7) ROUTE PIPING AROUND ALL OBSTRUCTIONS AND PROVIDE SPRINKLER PROTECTION UNDER ALL OBSTRUCTIONS, AS DETAILED IN NFPA 13 STANDARDS AS PART OF THE FIELD COORDINATION AT NO ADDITIONAL COST TO THE OWNER.

8) ALL SPRINKLER DEFLECTOR REQUIREMENTS SHALL BE IN ACCORDANCE TO THE STANDARDS OUTLINED IN NFPA-13.

9) STORAGE LIMITED TO 12' WITH MINIMUM 18" FROM PENDENT SPRINKLER DEFLECTOR TO THE TOP OF STORAGE.

10) PROVIDE FLUSHING CONNECTIONS IN ACCORDANCE WITH THE STANDARDS OUTLINED IN NFPA-13.

11) PROVIDE ALL NECESSARY OFFSETS, RAISES, OR DROPS IN PIPING AND AUXILIARY DRAINS REQUIRED BY BUILDING CONDITIONS.

12)SPRINKLER SPACING TO BE PER NFPA-13

13) INTERFACE THE FIRE SPRINKLER SYSTEM WITH FIRE PROTECTION SUPERVISORY SYSTEM.

14) ALL MATERIALS SHALL BE UL LISTED AND FM APPROVED. SPRINKLER PIPE SHALL BE MANUFACTURED TO STANDARDS RECOGNIZED BY NFPA-13.THREADED PIPE SHALL HAVE A CORROSION RESISTANCE RATING OF 1.0 OR GREATER. CRIMP-STYLE COUPLINGS SHALL NOT BE USED. THREADABLE THINWALL PIPE WITH CORROSION RESISTANCE RATING OF LESS THAN 1.0 SHALL BE USED ONLY WITH ROLL GROOVED FITTINGS.

15) THE NEW 110VOLT BELL IS TO BE INSTALLED FACING THE FRONT OF THE PROPERTY

16) NO HIGH PILED STORAGE PERMITTED

SCOPE OF WORK:
1) DESIGN AND INSTALL A NEW SINGLE WET PIPE FIRE SPRINKLER SYSTEM.

2) NO ALTERATIONS TO PIPE SIZING, HEAD LOCATIONS, OR BRACING ARE TO BE MADE WITHOUT CONSULTING WITH THE PROJECT DESIGNER.

3) ALL TESTING TO BE DONE AND WITNESSED BY KINGS COUNTY FIRE. APPROVED PLANS AND PERMIT TO REMAIN ONSITE AT ALL TIMES.

4) AS BUILTS, SPARE HEADS, ALL SIGN AGE, AND ABOVE GROUND TEST CERTIFICATES TO BE ON SITE AND IN PLACE AT FINAL INSPECTION

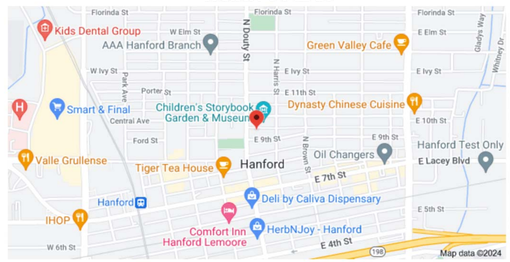
PROJECT DIRECTORY

OWNER: COUNTY OF KINGS HANFORD, CA	ARCHITECT: 4-CREEKS 324 S. SANTA FE ST, A VISALIA, CA 93292
FIRE PROTECTION: JOHNSON FIRE PROTECTION,INC VISALIA, CA 93291 (559)651-1882 CONTACT JOSH	GENERAL CONTRACTOR: TBD

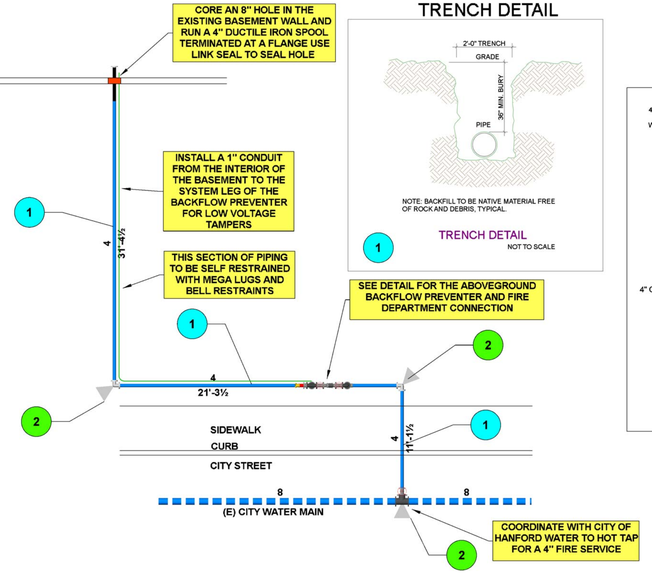
CONSTRUCTION DATA

AREA	ROOF/FLOOR JOIST	NFPA-13 DATA ON PROTECTION DYNAMICS	MAX SPACING	
ATTIC SPACES	CONCRETE T-JOINT	NONCOMBUSTIBLE, OBSTRUCTED	VARIES	

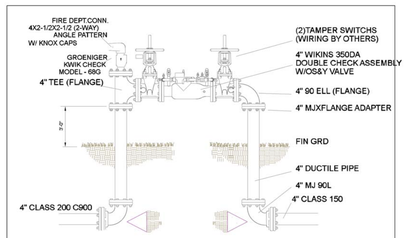
VICINITY PLAN



CORE AN 8" HOLE IN THE EXISTING BASEMENT WALL AND RUN A 4" DUCTILE IRON SPOOL TERMINATED AT A FLANGE USE LINK SEAL TO SEAL HOLE



TRENCH DETAIL



UNDERGROUND EQUIPMENT, NEW

DETAIL DCVA
SHOWN FOR REFERENCE ONLY

BACKFLOW PREVENTER

PRESSURE TESTING & FLUSHING NOTES:

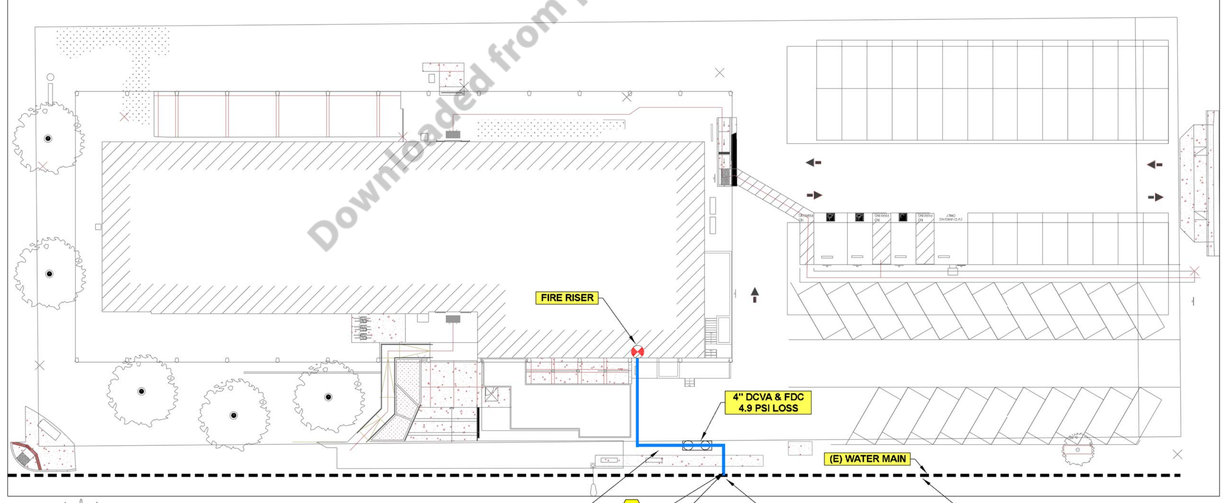
1) ALL PIPING AND ATTACHED APPURTENANCES SUBJECTED TO SYSTEM WORKING PRESSURE SHALL BE HYDROSTATICALLY TESTED AT GAUGE PRESSURE OF 200 PSI OR 50PSI ABOVE WORKING PRESSURE WHICHEVER IS GREATER, AND SHALL MAINTAIN THAT PRESSURE AT GAUGE PRESSURE OF +/-5PSI FOR 2 HOURS. (10.10.2.2.1)

2) ACCEPTABLE TEST RESULTS SHALL BE DETERMINED BY INDICATION OF EITHER PRESSURE LOSS LESS THAN GAUGE PRESSURE OF 5PSI OR BY NO VISUAL LEAKAGE. (10.10.2.2.2)

3) THE TRENCH SHALL BE BACKFILLED BETWEEN JOINTS BEFORE TESTING TO PREVENT MOVEMENT OF PIPE (10.10.2.2.4)

4) UNDERGROUND PIPING FROM THE WATER SUPPLY TO THE SYSTEM RISER AND LEAD IN CONNECTIONS TO THE SYSTEM RISER INCLUDING ALL HYDRANTS SHALL BE COMPLETELY FLUSHED BEFORE CONNECTION IS MADE TO DOWNSTREAM FIRE PROTECTION PIPING (10.10.2.1.1)

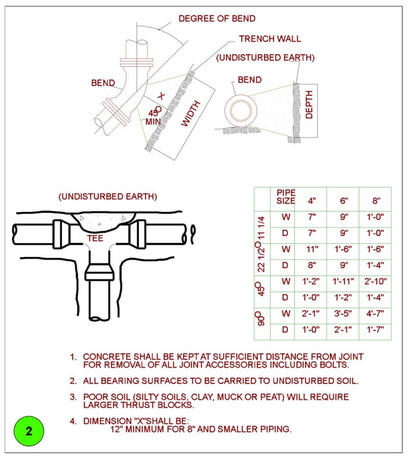
5) THE FLUSHING OPERATION SHALL CONTINUE UNTIL WATER FLOW IS VERIFIED TO BE CLEAR OF DEBRIS (THE MINIMUM FLOW RATE SHALL BE IN ACCORDANCE WITH TABLE BELOW.



SITE PLAN

NO SCALE

THRUST BLOCKS



	PIPE SIZE	4"	6"	8"
11 1/4	W	7"	9"	1'-0"
	D	7"	9"	1'-0"
22 1/2°	W	11"	1'-6"	1'-6"
	D	8"	9"	1'-4"
45°	W	1'-2"	1'-11"	2'-10"
	D	1'-0"	1'-2"	1'-4"
90°	W	2'-1"	3'-5"	4'-7"
	D	1'-0"	2'-1"	1'-7"

1. CONCRETE SHALL BE KEPT AT SUFFICIENT DISTANCE FROM JOINT FOR REMOVAL OF ALL JOINT ACCESSORIES INCLUDING BOLTS.
2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED SOIL.
3. POOR SOIL (SILTY SOILS, CLAY, MUCK OR PEAT) WILL REQUIRE LARGER THRUST BLOCKS.
4. DIMENSION "X"SHALL BE: 12" MINIMUM FOR 8" AND SMALLER PIPING.

2

DRAWING LOG

0	5/23/25 - ISSUED FOR BID
1	
2	
3	

SYMBOLS

- SYSTEM RISER
- 1 - REVISION NODE
- CEILING FAN
- DETAIL NODE
- 4-WAY BRACE
- 2-WAY BRACE
- STANDARD HANGER
- END LINE RESTRAINT
- TRAPEZE HANGER
- FDC
- 25 - SOURCE NODE

THESE PLANS HAVE BEEN PRESENTED FOR BASIC COORDINATION, AHJ REVIEW, AND DESIGN CONCEPT. THE INSTALLING AWARDED CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING FULL COORDINATED INSTALLATION AND FABRICATION DRAWINGS. THE PIPE ROUTES HAVE BEEN ESTABLISHED FOR SIZING AND INTENDED ROUTING ONLY. COORDINATE WITH FINAL DESIGNS AND EXISTING CONDITIONS

PROJECT NAME AND ADDRESS:	EXIST BLDG RETROFIT HANFORD BRANCH LIBRARY 401 N. DOUTY HANFORD, CA
AHJ: HANFORD FIRE DEPT	
GC: 4-CREEKS	
SCALE = AS NOTED	
DRAWN BY:	JOSH P JOHNSON
DRAWING DATE	7/15/24
SHEET NUMBER:	FS-1
CONTRACT #:	JFP 24-2403
DESIGN STANDARDS	NFPA-13 (2022) NFPA-24 (2022) CBC (2022) CFC (2022)

LICENSED FIRE PROTECTION CONTRACTOR — JOHNSON FIRE PROTECTION — JOSH.P LICENSE 945080 — STATE OF CALIFORNIA

CONTROL VALVE TYPE:	BACKFLOW O,S,&Y
CHECK VALVE TYPE:	ON BACKFLOW
FLOW SWITCH SIZE :	4"
MAIN DRAIN SIZE	2"
AIR-VENT TYPE:	AUTOMATIC
SYSTEM TYPE WET:	WET
EXTERIOR BELL TYPE	110 V ELEC
PRV SETTING	175 LBS

CA LICENSE# 945080

JOHNSON FIRE PROTECTION INC.

732 N. ELKO STREET
VISALIA, CA
93291

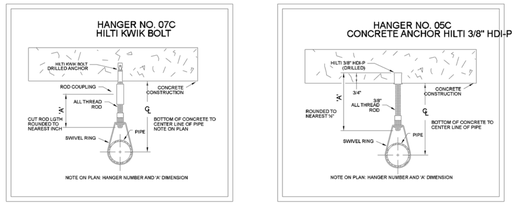
(559)651-1882
(559)627-1948 FAX
JOSH@JOHNSONFIREPRO.COM
WWW.JOHNSONFIREPRO.COM

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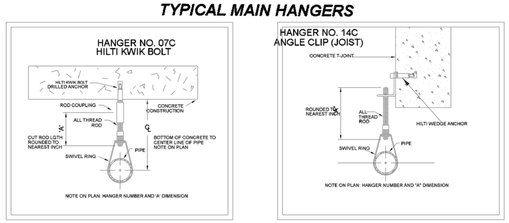
Please go to publicpurchase.com to ensure you have the latest information and any addendums released

PROJECT SPECIFIC HANGERS & BRACING DETAILS

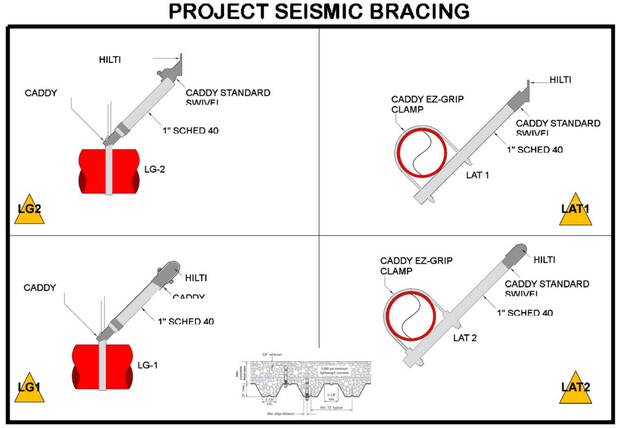
TYPICAL LINE HANGERS



TYPICAL MAIN HANGERS



PROJECT SEISMIC BRACING

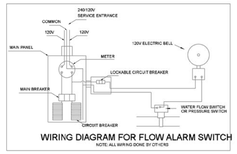


RISER AND EQUIPMENT DETAILS



PER NFPA-13 (2022) 8.1.2 A MINIMUM 1/2" RELIEF VALVE SHALL BE PLACED ON THE WET SYSTEM TO PREVENT PRESSURES FROM EXCEEDING 175 LBS

1/2" 175# PRV



WIRING DIAGRAM FOR FLOW ALARM SWITCH

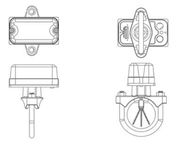
NOTE: ALL WIRING DONE BY OTHERS

WIRING DIAGRAM

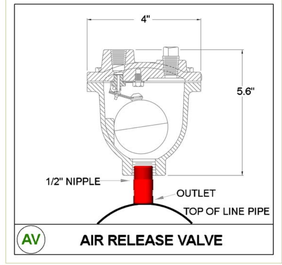


1/4" NPT

300# GAUGE

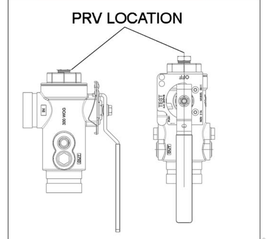


FLOW SWITCH



PER NFPA-13 (2022) 16.7 AN AUTOMATIC AIR VENT SHALL BE PLACED ON THE HIGHEST PIPELINE OF THE SYSTEM

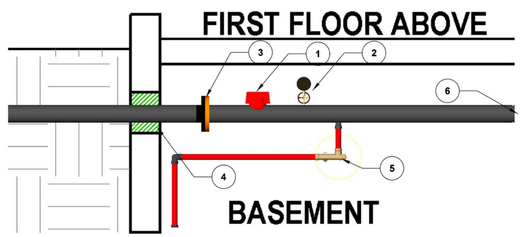
INSPECTORS TEST



AUXILLARY DRAIN

PER NFPA-13 (2022) 16.14.1 THE TEST CONNECTION MAY BE PLACED ANYWHERE ON THE SYSTEM THAT IS DOWNSTREAM FROM THE WATERFLOW ALARM COMPONENT (FLOW SWITCH) ORIFICE SHALL BE SMOOTH BORE AND EQUAL TO THE SMALLEST ORIFICE SPRINKLER ON THE SYSTEM.

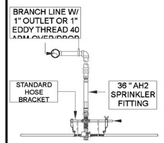
RISER DETAIL



1	FLOW SWITCH
2	300# GAUGE
3	FLANGE CONNECTION
4	SEALED PENETRATION
5	TEST & DRAIN
6	TO SYSTEM

SPRINKLER AND PLACEMENT DETAILS

VICTAULIC AH2 SPRINKLER CONNECTIONS
PENDENT SPRINKLER FLEXIBLE DROP HOSE DETAIL



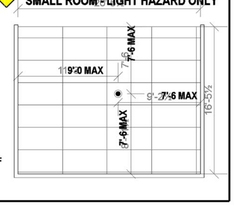
AH2 FLEX SPRINKLER CONNECTIONS			
LENGTH OF STAINLESS STEEL FLEXIBLE HOSE	OUTLET SIZE	EQUIVALENT LENGTH OF 1" SCH.40 PIPE (C120)	MAX. NUMBER OF 90° BENDS
INCHES	INCHES/TYPE	FEET	NUMBER OF BENDS
36	5.6 K FACTOR	17	5
	8.0 K FACTOR	23	5

MODEL AH2

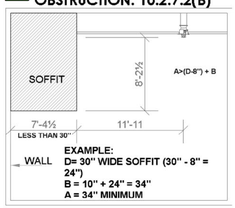
SMALL ROOM DETAIL

SR SMALL ROOM - LIGHT HAZARD ONLY

NFPA-13 2022 CHAPTER 10.2.5.2.3 - A ROOM OF LIGHT HAZARD OCCUPANCY CLASSIFICATION HAVING UNOBSTRUCTED CONSTRUCTION AND FLOOR AREA NOT EXCEEDING 800 SQ FT THAT ARE ENCLOSED BY WALLS AND A CEILING. OPENINGS IN WALLS NOT EXCEEDING 8 FT IN WIDTH TO ADJOINING SPACES ARE PERMITTED IF THE MINIMUM LINTEL DEPTH IS 8" FROM THE CEILING. A SINGLE OPENING OF 36 INCHES OR LESS IN WIDTH WITHOUT A LINTEL IS

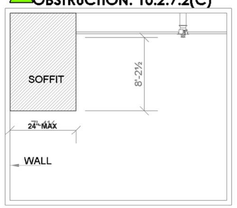


1 OBSTRUCTION: 10.2.7.2(B)



EXAMPLE:
D= 30" WIDE SOFFIT (30" - 8" = 24")
B = 10" + 24" = 34"
A = 34" MINIMUM

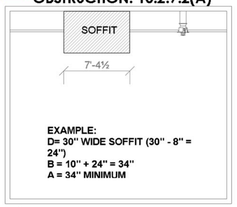
2 OBSTRUCTION: 10.2.7.2(C)



3 TABLE 10.2.7.2(A)

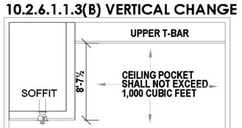
DISTANCE FROM SPRINKLERS TO SIDE OF OBSTRUCTION (A)	MAXIMUM ALLOWABLE DISTANCE OF DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION(B)
LESS THAN 1'	0
1' TO LESS THAN 1'-6"	2.5"
1'-6" TO LESS THAN 2'	3.5"
2' TO LESS THAN 2'-6"	5.5"
2'-6 TO LESS THAN 3'	7.5"
3' TO LESS THAN 3'-6"	9.5"
3'-6"TO LESS THAN 4'	12
4' TO LESS THAN 4'-6"	14
4'-6" TO LESS THAN 5'	16.5"
5' TO LESS THAN 5'-6"	18
5'-6 TO LESS THAN 6'	20
6' TO LESS THAN 6'-6"	24
6'-6" TO LESS THAN 7'	30
7' TO LESS THAN 7'-6"	35

4 OBSTRUCTION: 10.2.7.2(A)



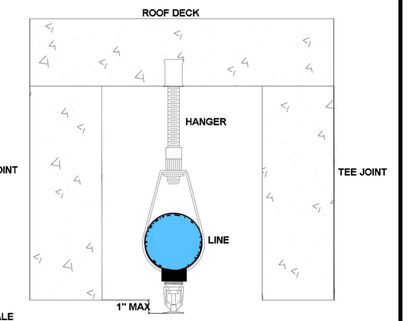
EXAMPLE:
D= 30" WIDE SOFFIT (30" - 8" = 24")
B = 10" + 24" = 34"
A = 34" MINIMUM

5 10.2.6.1.1.3(B) VERTICAL CHANGE



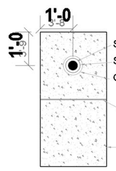
WHERE THE CEILING ELEVATION CHANGES HEADS CAN BE KEPT IN LOWER CEILING AND TREATED AS FLAT AS LONG AS THE VERTICAL DISTANCE DOES NOT EXCEED 36" AND 8.6.7 REQUIREMENTS ARE MET

CONCRETE T-JOINT CONSTRUCTION



NOT TO SCALE

A2 TYPICAL BRANCHLINE SECTION



SEMI RECESSED SPRINKLER
STANDARD TRIM RING
OVERSIZED "KYDEX" RING
SECOND-LOOK LINE
2' X 4' ACOUSTICAL LAY IN TILE

AN OVERSIZED RING WILL BE PLACED AROUND OUR FINISHED HEAD WHERE AN OVERSIZED HOLE (4" DIAMETER) IS REQUIRED. THE OVERSIZED HOLE IS REQUIRED WHEN A FLEXIBLE SPRINKLER DROP CONNECTION IS NOT USED AND THE CEILING SYSTEM IS NOT EQUIPED WITH LATERAL FORCE BRACING. LATERAL FORCE BRACING IS REQUIRED IN CEILINGS OVER 1,000 SQUARE FEET.

STANDARD TILE / T-BAR PLACEMENT

CONCEALED PENDENT	STANDARD UPRIGHT HEAD
HORIZONTAL SIDEWALL	STYLE "401"
SEMI-RECESSED SSP	150 DEGREE HEAD, 175 DEGREE HEAD, 200 DEGREE HEAD, 286 DEGREE HEAD

USE THIS EXTENDED TRIM ASSEMBLY WHERE CEILING FIXTURES SUCH AS SURFACE MOUNTED LIGHTS OCCUR

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PROJECT NAME AND ADDRESS:	
EXIST BLDG RETROFIT HANFORD BRANCH LIBRARY 401 N. DOUTY HANFORD, CA	
AHJ: HANFORD FIRE DEPT	
GC: 4-CREEKS	
SCALE = AS NOTED	
DRAWN BY: JOSH P JOHNSON	
DRAWING DATE 7/5/24	
SHEET NUMBER: FS-2	
CONTRACT #: JFP 24-2403	

DESIGN STANDARDS
NFPA-13 (2022)
NFPA-24 (2022)
CBC (2022)
CFC (2022)

LICENSED FIRE PROTECTION CONTRACTOR — JOHNSON FIRE PROTECTION — JOSH P — LICENSE 945080 — STATE OF CALIFORNIA

CONTROL VALVE TYPE:	BACKFLOW O,S,&Y
CHECK VALVE TYPE:	ON BACKFLOW
FLOW SWITCH SIZE :	4"
MAIN DRAIN SIZE	2"
AIR-VENT TYPE:	AUTOMATIC
SYSTEM TYPE WET:	WET
EXTERIOR BELL TYPE	110 V ELEC
PRV SETTING	175 LBS

DRAWING LOG

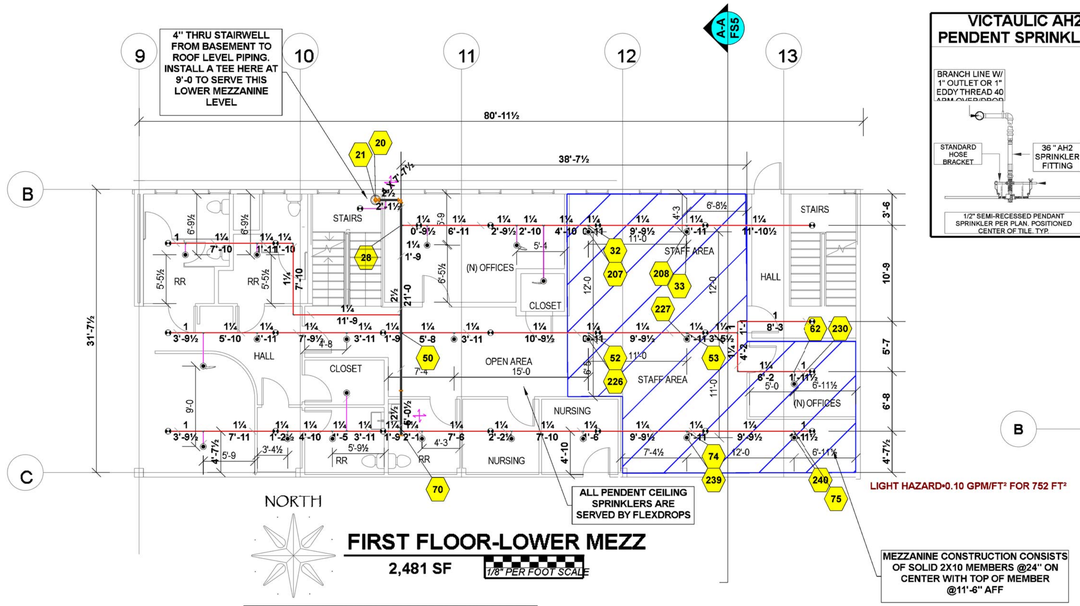
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3	

SYMBOLS

- SYSTEM RISER
- 1 - REVISION NODE
- CEILING FAN
- DETAIL NODE
- 4-WAY BRACE
- 2-WAY BRACE
- STANDARD HANGER
- END LINE RESTRAINT
- TRAPEZE HANGER
- FDC
- 25 - SOURCE NODE

THESE PLANS HAVE BEEN PRESENTED FOR BASIC COORDINATION, AHJ REVIEW, AND DESIGN CONCEPT. THE INSTALLING AWARDED CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING FULL COORDINATED INSTALLATION AND FABRICATION DRAWINGS. THE PIPE ROUTES HAVE BEEN ESTABLISHED FOR SIZING AND INTENDED ROUTING ONLY. COORDINATE WITH FINAL DESIGNS AND EXISTING CONDITIONS

JOHNSON FIRE PROTECTION INC.
CA LICENSE# 945080
732 N. ELKO STREET
VISALIA, CA
93291
(559)651-1882
(559)627-1948 FAX
JOSH@JOHNSONFIREPRO.COM
WWW.JOHNSONFIREPRO.COM



VICTAULIC AH2 SPRINKLER CONNECTIONS PENDENT SPRINKLER FLEXIBLE DROP HOSE DETAIL

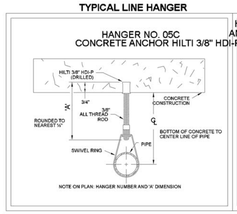
AH2 FLEX SPRINKLER CONNECTIONS			
LENGTH OF STAINLESS STEEL FLEXIBLE HOSE	OUTLET SIZE	EQUIVALENT LENGTH OF 1" SCH.40 PIPE (C120)	MAX. NUMBER OF 90° BENDS
INCHES	INCHES/TYPE	FEET	NUMBER OF BENDS
36	5.6 K FACTOR	21	5
	8.0 K FACTOR	23	5

MODEL AH2

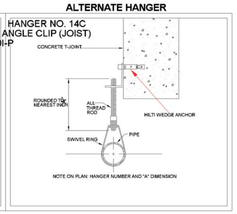
HYDRAULIC INFORMATION

REMOTE AREA 2	
OCCUPANCY CLASSIFICATION	LIGHT HAZARD
DENSITY (GPM/FT²)	0.10 FOR 1500 FT² (ACTUAL 752 FT²)
QUICK RESPONSE REDUCTION	10'-0 CEILING (40.0%) 900 FT²
TOTAL HOSE STREAMS	100.00
DRY CAPACITY	0.00 GAL
TOTAL HEADS FLOWING	7
K-FACTOR	5.6
TOTAL WATER REQUIRED	236.00
TOTAL PRESSURE REQUIRED	33.228
BASE OF RISER (GPM)	236.00
BASE OF RISER (PSI)	33.228
SAFETY MARGIN (PSI)	+22.542 (40.4%)

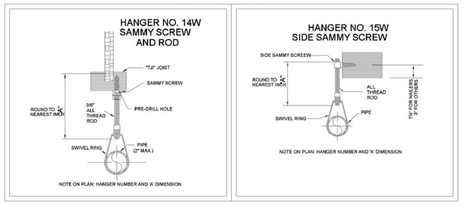
TYPICAL LINE HANGER



ALTERNATE HANGER

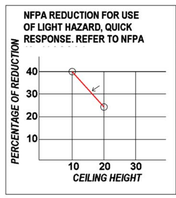


MEZZANINE HANGERS

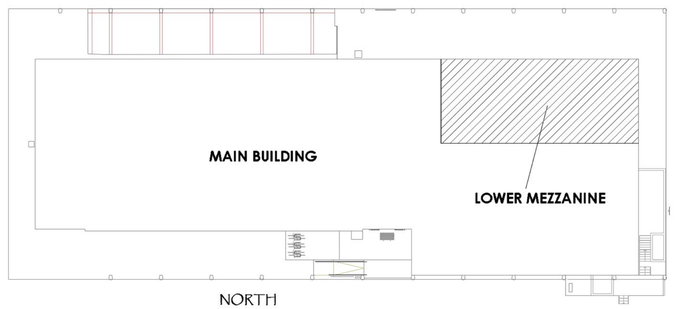


BRANCHLINE RESTRAINTS PER NFPA-13 (2022) 19.6.5 - WHERE BRANCHLINES ARE SUPPORTED BY RODS LESS THAN 0-6" MEASURED BETWEEN THE TOP OF PIPE AND THE POINT OF ATTACHMENT TO THE BUILDING STRUCTURE, ADDITIONAL RESTRAINT SHALL NOT BE REQUIRED

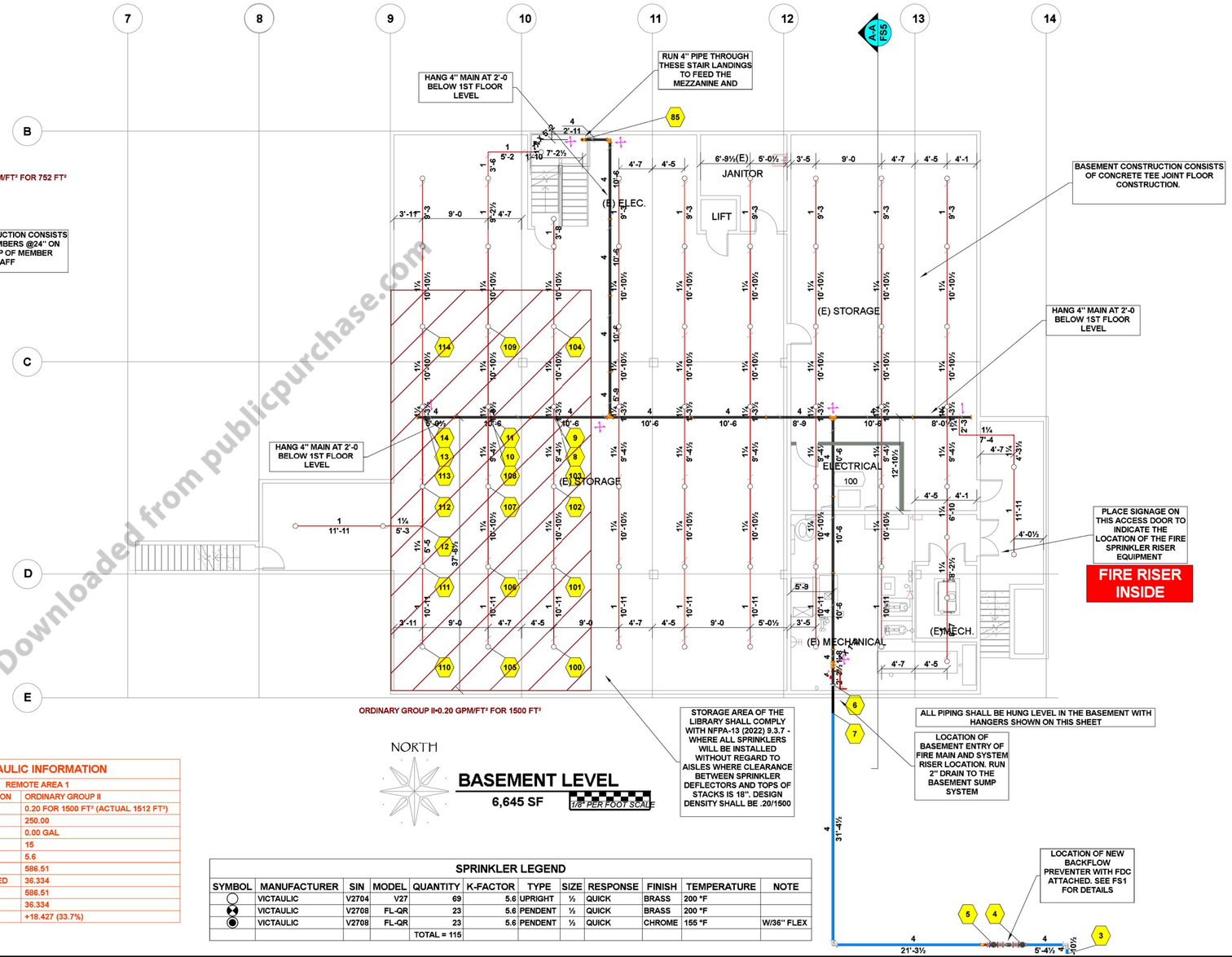
NFPA REDUCTION FOR USE OF LIGHT HAZARD, QUICK RESPONSE. REFER TO NFPA



REDUCTION DATA	
CEILING HEIGHT = 10-0	
STEP 1	$\frac{-3*10}{2} = \frac{-30}{2}$
STEP 2	$\frac{-30}{2} = -15$
STEP 3	-15 + 55 = 40
SOLUTION	40% REDUCTION
FINAL DESIGN AREA	1500 - 40% 900SF



AREA MAP



HYDRAULIC INFORMATION

REMOTE AREA 1	
OCCUPANCY CLASSIFICATION	ORDINARY GROUP II
DENSITY (GPM/FT²)	0.20 FOR 1500 FT² (ACTUAL 1512 FT²)
TOTAL HOSE STREAMS	250.00
DRY CAPACITY	0.00 GAL
TOTAL HEADS FLOWING	15
K-FACTOR	5.6
TOTAL WATER REQUIRED	586.51
TOTAL PRESSURE REQUIRED	36.334
BASE OF RISER (GPM)	586.51
BASE OF RISER (PSI)	36.334
SAFETY MARGIN (PSI)	+18.427 (33.7%)

SPRINKLER LEGEND

SYMBOL	MANUFACTURER	SIN	MODEL	QUANTITY	K-FACTOR	TYPE	SIZE	RESPONSE	FINISH	TEMPERATURE	NOTE
○	VICTAULIC	V2704	V27	69	5.6	UPRIGHT	½	QUICK	BRASS	200 °F	
◐	VICTAULIC	V2708	FL-QR	23	5.6	PENDENT	½	QUICK	BRASS	200 °F	
◉	VICTAULIC	V2708	FL-QR	23	5.6	PENDENT	½	QUICK	CHROME	155 °F	W/36" FLEX
				TOTAL = 115							

PROJECT NAME AND ADDRESS:	
EXIST BLDG RETROFIT HANFORD BRANCH LIBRARY 401 N. DOUTY HANFORD, CA	
AHJ: HANFORD FIRE DEPT	
GC: 4-CREEKS	
SCALE = AS NOTED	
DRAWN BY: JOSH P JOHNSON	
DRAWING DATE 7/26/24	
SHEET NUMBER: FS-3	
CONTRACT #: JFP 24-2403	
DESIGN STANDARDS	
NFPA-13 (2022)	
NFPA-24 (2022)	
CBC (2022)	
CFC (2022)	

LICENSED FIRE PROTECTION CONTRACTOR — JOHNSON FIRE PROTECTION — JOSH P LICENSE 945080 — STATE OF CALIFORNIA

CONTROL VALVE TYPE:	BACKFLOW O,S,&Y
CHECK VALVE TYPE:	ON BACKFLOW
FLOW SWITCH SIZE :	4"
MAIN DRAIN SIZE	2"
AIR-VENT TYPE:	AUTOMATIC
SYSTEM TYPE WET:	WET
EXTERIOR BELL TYPE	110 V ELEC
PRV SETTING	175 LBS

DRAWING LOG

0	5/23/25 - ISSUED FOR BID
1	
2	
3	

SYMBOLS

- SYSTEM RISER
- REVISION NODE
- CEILING FAN
- DETAIL NODE
- 4-WAY BRACE
- 2-WAY BRACE
- STANDARD HANGER
- END LINE RESTRAINT
- TRAPEZE HANGER
- FDC
- SOURCE NODE

THESE PLANS HAVE BEEN PRESENTED FOR BASIC COORDINATION, AHJ REVIEW, AND DESIGN CONCEPT. THE INSTALLING AWARDED CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING FULL COORDINATED INSTALLATION AND FABRICATION DRAWINGS. THE PIPE ROUTES HAVE BEEN ESTABLISHED FOR SIZING AND INTENDED ROUTING ONLY. COORDINATE WITH FINAL DESIGNS AND EXISTING CONDITIONS

CA LICENSE# 945080

JOHNSON FIRE PROTECTION INC.

732 N. ELKO STREET
VISALIA, CA
93291

(559)651-1882
(559)627-1948 FAX
JOSH@JOHNSONFIREPRO.COM
WWW.JOHNSONFIREPRO.COM

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Please go to publicpurchase.com to ensure you have the latest information and any addendums released

PER NFPA-13 2022 SECTION 9.2.3.2: EXTERIOR PROJECTIONS WITH A NON-COMBUSTIBLE OR LIMITED COMBUSTIBLE SURFACE SHALL NOT REQUIRE PENDENT FIRE SPRINKLERS PROVIDING THE AREA BELOW IS NON-STORAGE AND IF ATTACHED TO A CONSIDERED CONCEALED COMBUSTIBLE SPACE, THE SPACE IS ENTIRELY FILLED WITH INSULATION OR FULLY SPRINKLERED.

LIGHT HAZARD=0.10 GPM/FT² FOR 1500 FT²

4" DROPS DOWN HERE TO LOWER MEZZANINE AND BASEMENT

DROP DOWN 2-1/2" AT THIS POINT TO FEED LOWER MEZZANINE

LOCATION OF AIR VENT

PER NFPA-13 2022 SECTION 9.2.3.2: EXTERIOR PROJECTIONS WITH A NON-COMBUSTIBLE OR LIMITED COMBUSTIBLE SURFACE SHALL NOT REQUIRE PENDENT FIRE SPRINKLERS PROVIDING THE AREA BELOW IS NON-STORAGE AND IF ATTACHED TO A CONSIDERED CONCEALED COMBUSTIBLE SPACE, THE SPACE IS ENTIRELY FILLED WITH INSULATION OR FULLY SPRINKLERED.

PER NFPA-13 2022 SECTION 9.2.3.2: EXTERIOR PROJECTIONS WITH A NON-COMBUSTIBLE OR LIMITED COMBUSTIBLE SURFACE SHALL NOT REQUIRE PENDENT FIRE SPRINKLERS PROVIDING THE AREA BELOW IS NON-STORAGE AND IF ATTACHED TO A CONSIDERED CONCEALED COMBUSTIBLE SPACE, THE SPACE IS ENTIRELY FILLED WITH INSULATION OR FULLY SPRINKLERED.

LIBRARY AREA COMPLIES WITH NFPA-13 (2022) 4.3.2 / A.4.3.2 AS THE LIBRARY STACKS ARE NOT LARGE LIBRARY STACK. SEE EXHIBIT 4.2 PROTECT AS LIGHT HAZARD OCCUPANCY

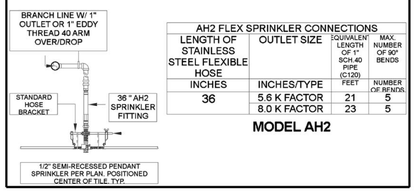
REDUCE TO 2-1/2" AT THIS POINT

INSTALL A 2-1/2" METRA-FLEX ASSEMBLY IN THE ATTIC SPACE NEAR THE BUILDING SEPARATION. A 4-WAY BRACE SHALL BE INSTALLED WITHIN 6' OF BOTH SIDES OF THE METRAFLEX - SEE FS5 FOR INSTALLATION DETAILS. THE INTENT OF THIS DEVICE IS TO HANG IN A HORIZONTAL FASHION WITH THE REQUIRED BREAK AWAY HANGER

SLOPE= 1 : 12

SLOPE = 1 : 12

VICTAULIC AH2 SPRINKLER CONNECTIONS PENDENT SPRINKLER FLEXIBLE DROP HOSE DETAIL



AH2 FLEX SPRINKLER CONNECTIONS				
LENGTH OF STAINLESS STEEL FLEXIBLE HOSE	OUTLET SIZE	EQUIVALENT LENGTH OF 1" SCH 40 PIPE (C120)	MAX. NUMBER OF 90° BENDS	
INCHES	INCHES/TYPE	FEET	NUMBER OF BENDS	
36	5.6 K FACTOR	21	5	
	8.0 K FACTOR	23	5	

MODEL AH2

BRANCHLINE RESTRAINTS PER NFPA-13 (2022) 19.6.5 - WHERE BRANCHLINES ARE SUPPORTED BY RODS LESS THAN 0-6" MEASURED BETWEEN THE TOP OF PIPE AND THE POINT OF ATTACHMENT TO THE BUILDING STRUCTURE, ADDITIONAL RESTRAINT SHALL NOT BE REQUIRED

HYDRAULIC INFORMATION

REMOTE AREA 3	
OCCUPANCY CLASSIFICATION	LIGHT HAZARD
DENSITY (GPM/FT²)	0.10 FOR 1500 FT² (ACTUAL 1728 FT²)
TOTAL HOSE STREAMS	100.00
DRY CAPACITY	0.00 GAL
TOTAL HEADS FLOWING	12
K-FACTOR	5.6
TOTAL WATER REQUIRED	318.32
TOTAL PRESSURE REQUIRED	38.741
BASE OF RISER (GPM)	318.32
BASE OF RISER (PSI)	38.741
SAFETY MARGIN (PSI)	+16.859 (30.3%)

SPRINKLER LEGEND

SYMBOL	MANUFACTURER	SIN	MODEL	QUANTITY	K-FACTOR	TYPE	SIZE	RESPONSE	FINISH	TEMPERATURE	NOTE
○	VICTAULIC	V2704	FL/QR	124	5.6	UPRIGHT	½	QUICK	BRASS	200 °F	
◉	VICTAULIC	V2708	FL-QR	62	5.6	PENDENT	½	QUICK	CHROME	155 °F	W/ 36" FLEX
				TOTAL = 186							

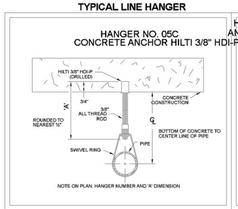
NORTH

MAIN FLOOR LEVEL

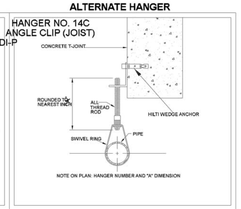
6,645 SF

1/8" PER FOOT SCALE

TYPICAL LINE HANGER



ALTERNATE HANGER



PROJECT NAME AND ADDRESS:	EXIST BLDG RETROFIT HANFORD BRANCH LIBRARY 401 N. DOUTY HANFORD, CA
AHJ: HANFORD FIRE DEPT	
GC: 4-CREEKS	

SCALE = AS NOTED	
DRAWN BY:	JOSH P JOHNSON
DRAWING DATE	7/26/24
SHEET NUMBER:	FS-4
CONTRACT #:	JFP 24-2403

DESIGN STANDARDS
NFPA-13 (2022)
NFPA-24 (2022)
CBC (2022)
CFC (2022)

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CHECK VALVE TYPE:	ON BACKFLOW
FLOW SWITCH SIZE :	4"
MAIN DRAIN SIZE	2"
AIR-VENT TYPE:	AUTOMATIC
SYSTEM TYPE WET:	WET
EXTERIOR BELL TYPE	110 V ELEC
PRV SETTING	175 LBS

DRAWING LOG

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SYMBOLS

- SYSTEM RISER
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