



LJ2 INTERIORS

520 VERNON STREET
ROSEVILLE, CA 95678

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PLACER DETAILING

10612 INDUSTRIAL AVE, SUITE 150
ROSEVILLE, CA 95678

GENERAL NOTES

- GENERAL CONTRACTOR (GC) IS RESPONSIBLE FOR ANY & ALL WORK PROVIDED BY ANY & ALL SUBCONTRACTORS. GENERAL NOTES REFERRING TO "CONTRACTOR" INCLUDE ALL WORK PROVIDED BY SUBCONTRACTORS. CONTRACTOR & ALL SUBCONTRACTORS SHALL VERIFY ALL GRADES, DIMENSIONS, & CONDITIONS IN FIELD PRIOR TO START OF PROJECT & AT APPROPRIATE TIMES DURING THE COURSE OF CONSTRUCTION.
- UNLESS NOTED OTHERWISE IN DRAWINGS, ALL WORK & MATERIALS CALLED FOR ARE TO BE PROVIDED & INSTALLED BY CONTRACTOR AS PART OF CONTRACT FOR CONSTRUCTION.
- ALL CONSTRUCTION SHALL BE IN STRICT COMPLIANCE WITH ALL PROVISIONS OF APPLICABLE CODES. COMPLIANCE SHALL BE SOLE RESPONSIBILITY OF GENERAL CONTRACTOR. IN CASE OF CONFLICT WITH THE DRAWINGS & APPLICABLE CODES, OR CONFLICT WITHIN DRAWINGS, MOST STRINGENT REQUIREMENTS SHALL APPLY.
- CONTRACTOR SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS, IN THE EVENT THAT MANUFACTURERS SPECIFICATIONS CONFLICT WITH THE DRAWINGS, MANUFACTURERS SPECIFICATIONS PREVAIL.
- EXISTING SITE CONDITIONS MUST BE VERIFIED BY CONTRACTOR.
- THE CONTRACTOR SHALL PROVIDE ANY AND ALL TEMPORARY BRACING AND SHORING REQUIRE TO SUPPORT ALL LOADS TO WHICH THE EXISTING BUILDING AND BUILDING COMPONENTS AS WELL AS NEW CONSTRUCTION, SOILS, UTILITIES ETC. MAY BE SUBJECT TO DURING CONSTRUCTION.
- ALL DIMENSIONS, RELATING TO EXISTING CONDITIONS, SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL THE WORK OF OTHER TRADES. THE DESIGNER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
- THE CONTRACTOR SHALL NOT SCALE THE DRAWINGS BUT SHALL RELY ONLY ON THE WRITTEN DIMENSIONS GIVEN. IF A DISCREPANCY OCCURS OR DIMENSIONS ARE NOT GIVEN WHERE NEEDED THE CONTRACTOR SHALL NOTIFY THE DESIGNER FOR WRITTEN CLARIFICATION BEFORE PROCEEDING.
- ALL DIMENSIONS ARE TO FACE OF FINISH, UON.
- ALL CONDUCT OF WORK TO BE IN ACCORDANCE WITH THE LATEST SAFETY RULES AND REGULATIONS OF ALL AUTHORITIES AND AGENCIES HAVING JURISDICTION OVER THE WORK.
- ALL WORK SHALL BE IN ACCORDANCE WITH THESE DOCUMENTS, WHERE ADDITIONAL INFORMATION OR CLARIFICATION IS REQUIRED, SUBMIT A WRITTEN REQUEST FOR INFORMATION TO THE DESIGNER.
- ALL PERSONS OR ENTITIES PROVIDING GOODS OR SERVICES SHALL HOLD VALID LICENSES WHERE REQUIRED BY LAW. LICENSE SHALL REMAIN VALID THROUGHOUT THE PERIOD OF THEIR PERFORMANCE.

PROJECT DATA / AREA CALCULATIONS

SCOPE OF WORK & TENANT USE:	TENANT IMPROVEMENT IN AN EXISTING COLD SHELL OFFICE/WAREHOUSE BUILDING. THE CAR WASHING PROCESS IS A "WET WIPE" PROCESS IN WHICH THEY ARE USING DAMP SPONGES & TOWELS TO WIPE DOWN THE CARS. THEY ARE NOT SPRAYING DOWN CARS WITH HOSES. ON AVERAGE, THEY USE APPROXIMATELY 1 GALLON OF WATER PER CAR.
LOCATION:	10612 INDUSTRIAL AVE. ROSEVILLE
BUILDING TYPE:	TYPE V-B, FULLY AUTOMATIC SPRINKLERED, WITH NFPA 13 STANDARD
OCCUPANCY:	B / S-1
NO. OF STORIES:	1
BUILDING AREA:	26,685 SF
PROJECT AREA:	4,278 SF TOTAL 1,480 SF - B OCCUPANCY 2,798 SF - S1 OCCUPANCY
ADJACENT TENANTS:	JNCC ENTERPRISES, B/S-1 / B OR S-1 OCCUPANCY
APPLICABLE CODES:	2022 CALIFORNIA BUILDING CODE (CBC) 2022 CALIFORNIA PLUMBING CODE (CPC) 2022 CALIFORNIA MECHANICAL CODE (CMC) 2022 CALIFORNIA ELECTRICAL CODE (CEC) 2022 CALIFORNIA FIRE CODE (CFC) 2022 CALIFORNIA ENERGY CODE (CEC PART 6) 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSC)

ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS, INCLUDING ANY REQUIREMENTS BY PRIVATE AGENCIES HAVING JURISDICTION OVER THE WORK.

NOTE: MODIFICATIONS AND/OR ADDITIONS TO THE AUTOMATIC FIRE SPRINKLERS AND/OR FIRE ALARM SYSTEMS WILL REQUIRE SEPARATE, CITY OF ROSEVILLE, FIRE DEPARTMENT PERMITS. RFC SEC. 901.3.

AREA ANALYSIS/CODE INFORMATION

PER TABLE 1004.5 (B & S-1 OCCUPANCY)
OCCUPANCY LOAD = 35 OL (SEE SHEET A1.2 FOR BREAK DOWN AND EXITING INFORMATION)

TRAVEL DISTANCE REQUIREMENT PER TABLE 1017.2
B OCCUPANCY - SPRINKLERED 300 FEET
S-1 OCCUPANCY - SPRINKLERED 250 FEET

INDEX TO DRAWINGS

DESIGN DRAWINGS	
A0.1	COVER SHEET
A0.2	CAL GREEN
A0.3	CAL GREEN
A0.4	CAL GREEN
A1.0	ENLARGED SITE PLAN
A1.2	LIFE SAFETY PLAN
A3.0	FLOOR PLAN
A5.0	REFLECTED CEILING PLAN
A6.0	DOOR & WINDOW SCHEDULE
A6.1	ACCESSIBLE DETAILS
A7.0	INTERIOR DETAILS
A7.1	RATED CONSTRUCTION DETAILS

MECHANICAL DRAWINGS

M110	MECHANICAL LEGEND, NOTES & SCHEDULES
M210	MECHANICAL FLOOR PLAN
T241	ENERGY COMPLIANCE

PLUMBING DRAWINGS

P110	PLUMBING LEGEND, NOTES & SCHEDULES
P210	PLUMBING FLOOR PLAN - WASTE AND VENT
P220	PLUMBING FLOOR PLAN - WATER

ELECTRICAL DRAWINGS

E110	ELECTRICAL NOTES, LEGEND & ABBREVIATIONS
E120	ONE LINE DIAGRAM & SCHEDULES
E130	ELECTRICAL ENERGY COMPLIANCE
E210	ELECTRICAL PLAN
E310	ELECTRICAL DETAILS

PROJECT TEAM

OWNER	INDUSTRIAL PARK VENTURES LP 10608 INDUSTRIAL AVE. SUITE 100 ROSEVILLE, CA 95678 CONTACT: DAVE DOLAN 408.640.0050 DDOLAN@THOMASMANAGEMENTLLC.COM
DESIGNER	LJ2 INTERIORS, INC. 520 VERNON STREET ROSEVILLE, CALIFORNIA 95678 CONTACT: LESLIE REINKING 916.303.4343 LESLIE@LJ2INTERIORS.COM
GENERAL CONTRACTOR	THOMASTOWN BUILDERS INC. 10608 INDUSTRIAL AVE. SUITE 100 ROSEVILLE, CA 95678 CONTACT: DAVE DOLAN 408.640.0050 DDOLAN@THOMASMANAGEMENTLLC.COM
ELECTRICAL	PITMAN ENGINEERING, INC. 1050 OPPORTUNITY DRIVE, SUITE 120 ROSEVILLE, CA 95678 OFFICE: 916.789.7181
MECHANICAL	PITMAN ENGINEERING, INC. 1050 OPPORTUNITY DRIVE, SUITE 120 ROSEVILLE, CA 95678 OFFICE: 916.789.7181
PLUMBING	PITMAN ENGINEERING, INC. 1050 OPPORTUNITY DRIVE, SUITE 120 ROSEVILLE, CA 95678 OFFICE: 916.789.7181



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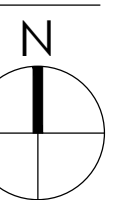
APPROVED FOR THE DESIGNER BY:

ISSUE	DESCRIPTION	DATE
1	PLAN CHECK COMMENTS	06.20.23

STAMP:



REF NORTH:



SCALE:

SEE SHEET

PROJECT NO: 231028

DRAWN BY: LR PLOT DATE: 04.14.23

SHEET NO:

COVER SHEET

A0.1



SYMBOLS

100	ROOM NUMBER	1	KEY NOTES
100.1	DOOR TYPE	(Clouded symbol)	REVISION (CLOUDED)
A	WINDOW TYPE	(Circle with dot)	ELEVATION/CONTROL POINT
A	GRID LINES	(Circle with dot)	MATCH LINE
		N	NORTH ARROW
		(A4.0)	WALL SECTION
		(A4.0)	BUILDING SECTION
		(A4.0)	EXTERIOR ELEVATION
		(A4.0)	INTERIOR ELEVATION
		(A4.0)	DETAIL ID SHEET NUMBER

@	AT	CONTR	CONTRACTOR	FRP	FIBERGLASS REINFORCED	KP	KICK PLATE	PNL	PANEL	STL	STEEL
AC	ACOUSTICAL CEILING	CPT	CARPET	GA	GALVANIZED	LAV	LAVATORY	FR	PAIR	STR	STAIR
ACC	ACCESSIBLE	CTR	CENTER	GALV	GALVANIZED	LT	LIGHT	POL	POLISHED	STR	STRUCTURAL
ADA	"AMERICANS WITH DISABILITIES ACT"	DBL	DOUBLE	GB	GRAB BAR	MATL	MATERIAL	PT	POINT	SUSP	SUSPENDED
ADJ	ADJACENT	DEMO	DEMOLITION	GL	GLASS	MAX	MAXIMUM	PSF	PER SQUARE FOOT	SV	SHEET VINYL
ADJU	ADJUSTABLE	DET	DETAIL	GLU LAM	GLUED LAMINATED	MECH	MECHANICAL	PTN	PARTITION	SYM	SYMMETRICAL
AFF	ABOVE FINISHED FLOOR	DF	DRINKING FOUNTAIN	W	WOOD	MFR	MANUFACTURER	QTY	QUANTITY	TB	TILE BASE
AL	ALUMINUM	DIA	DIAMETER	GSM	GALVANIZED SHEET	MIN	MINIMUM	RA	RETURN AIR	TEMP	TEMPERED
ALT	ALTERNATE	DIM	DIMENSION	METAL	METAL	MISC	MISCELLANEOUS	RB	RUBBER BASE	T&G	TONGUE & GROOVE
ARCH	ARCHITECTURAL	DISP	DISPENSER	GND	GROUND	MTD	MOUNTED	RCP	REFLECTED CEILING PLAN	TO	TOP OF
BD	BOARD	DW	DISHWASHER	GR	GRADE	MTL	METAL	RD	ROOF DRAIN	TYP	TYPICAL
BLDG	BUILDING	DWG	DRAWING	GYP BD	GYP SUM BOARD	(N)	NEW	REF	REFERENCE	UN	UNLESS OTHERWISE NOTED
BLK	BLOCK	E	EAST	HC	HOLLOW CORE	N	NORTH	REIN	REINFORCED	UR	URNAL
BO	BOTTOM OF	(E)	EXISTING	HDR	HEADER	NA	NOT APPLICABLE	REQ	REQUIRED	VCT	VINYL COMPOSITION TILE
C	CONCRETE	EA	EASCH	HDR	HANDRAIL	NIC	NOT IN CONTRACT	RESIL	RESILIENT	VERT	VERTICAL
C	CENTERLINE	ELEV	ELEVATION	HDWR	HARDWARE	NO/#	NUMBER	RM	ROOM	VG	VERTICAL GRAIN
CAB	CABINET	EQU	EQUAL	HM	HARDWOOD	NTS	NOT TO SCALE	RND	ROUND	VIF	VERTICAL GRAIN
CC	CENTER TO CENTER	EQUIP	EQUIPMENT	HORIZ	HOLLOW METAL	OA	OVERALL	RO	ROUGH OPENING	W	WEST
CC	CENTER TO CENTER	EXT	EXTERIOR	HT	HORIZONTAL	OC	ON CENTER	RUB	RUBBER	W/	WITH
CEM	CEMENT	EQ	EQUIPMENT	HT	HEIGHT	OC	ON CENTER	S	SOUTH/STONE	W/O	WITHOUT
CER	CERAMIC	FD	FLOOR DRAIN	HVAC	HEATING VENTILATING & AIR CONDITIONING	OCFI	OWNER FURNISHED CONTRACTOR INSTALLED	SF	SQUARE FEET	WC	WOOD COVERING
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED	FEC	FIRE EXTINGUISHER	HW	HOT WATER	OH	OVERHEAD	SHT	SHEET	WD	WOOD
CLG	CLEAR	FEC	FIRE EXTINGUISHER CABINET	INSUL	INSULATION	OPP	OPPOSITE	SIM	SIMILAR	WH	WATER HEATER
CLR	CLEAR	FF	FINISH FLOOR	IN/()	INCHES	P	PAINT	SPEC	SPECIFICATION	WIN	WINDOW
CMU	CONCRETE MASONRY UNIT	FIN	FINISH	INT	INTERIOR	PERF	PERFORATED	SQ	SQUARE	WSCOT	WAINSCOT
COL	COLUMN	FO	FACE OF	JST	JOIST	PL	PLASTIC LAMINATE	SS	STAINLESS STEEL/SOLID SURFACE		
CONC	CONCRETE	FOF	FACE OF FINISH	JT	JOINT	PLYWD	PLYWOOD	STD	STANDARD		
CONT	CONTINUOUS	FOS	FACE OF STUD								

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2023)



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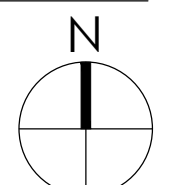
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SEE SHEET

PROJECT NO:

231028

DRAWN BY:

LR

SHEET NO:

PLOT DATE: 04.14.23

CAL GREEN

A0.2

Y	NA	RESPON PARTY	Y	NA	RESPON PARTY	Y	NA	RESPON PARTY

MAXIMUM ALLOWABLE GLARE RATING (G)					
MAXIMUM ALLOWABLE GLARE RATING (G)	N/A	G1	G2	G3	G4
MAXIMUM ALLOWABLE GLARE RATING (G)	N/A	G0	G1	G1	G2
MAXIMUM ALLOWABLE GLARE RATING (G)	N/A	G0	G0	G1	G1
MAXIMUM ALLOWABLE GLARE RATING (G)	N/A	G0	G0	G0	G1

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

- 5.106.8.1 Facing-Backlight**
Luminaires 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 5.106.8.2 based on the lighting zone and distance to the nearest point 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 point(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 5.106.8.2 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 AS.106.11.2.2 in Appendix AS shall be permitted in whole or in part in lieu of shade tree planting.
- 5.106.12.2 Landscape areas.** Shade tree 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 AS.106.11.2.2 in Appendix AS 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.

ALLOWABLE RATING	LIGHTING ZONE LZ0	LIGHTING ZONE LZ1	LIGHTING ZONE LZ2	LIGHTING ZONE LZ3	LIGHTING ZONE LZ4
MAXIMUM ALLOWABLE BACKLIGHT RATING 1					
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	N/A	U0	U0	U0	U0
For all other outdoor lighting including decorative luminaires	N/A	U1	U2	U3	UR

- 5.106.8 LIGHT POLLUTION REDUCTION. [N]** 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.

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 (ETAFA) [DSA-SS]. An adjustment factor when applied to reference evapotranspiration that adjusts for plant factors and irrigation efficiency, which are 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) [HCO]. 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 [HCO]. 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 [HCO 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).

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 EVCS 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 busways(s) and adequate capacity for transformers(s), service panel(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 off-street 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 equipment 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
	Greater than 90,000	3 or Greater	400
Retail	10,000 to 135,000	1 or 2	200
	Greater than 135,000	1 or Greater	400
Warehouse	20,000 to 256,000	3 or Greater	400
	Greater than 256,000	1 or Greater	400

5.106.6 LIGHT POLLUTION REDUCTION. [N] Outdoor lighting systems shall be designed and installed to comply with the following:
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 than 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 5.106.8 [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 1					
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	N/A	U0	U0	U0	U0
For all other outdoor lighting including decorative luminaires	N/A	U1	U2	U3	UR

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 conversion 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/stormwater. 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 20 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 vehicle 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:

- Covered, lockable enclosures with permanently anchored racks for bicycles;
- Lockable bicycle rooms with permanently anchored racks; or
- 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 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:

- Covered, lockable enclosures with permanently anchored racks for bicycles;
- Lockable bicycle rooms with permanently anchored racks; or
- 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 than 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 ³

- Where there is insufficient electrical supply.
- 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.

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.

30

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

Y	NA	RESPON. PARTY														
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
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: <ol style="list-style-type: none"> Makeup water for cooling towers where flow through is greater than 500 gpm (30 L/s). Makeup water for evaporative coolers greater than 6 gpm (0.04 L/s). 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 new building or within an addition that is projected to consume more than 1,000 gal/day.																
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
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.																
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
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 than 1.8 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 valve 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 border="1"> <thead> <tr> <th colspan="2">TABLE H-2</th> </tr> <tr> <th colspan="2">STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALVES MANUFACTURED ON OR AFTER JANUARY 28, 2019</th> </tr> <tr> <th>PRODUCT CLASS</th> <th>MAXIMUM FLOW RATE (gpm)</th> </tr> </thead> <tbody> <tr> <td>[spray force in ounce force (ozf)]</td> <td></td> </tr> <tr> <td>Product Class 1 (≥ 5.0 ozf)</td> <td>1.00</td> </tr> <tr> <td>Product Class 2 (> 5.0 ozf and ≤ 8.0 ozf)</td> <td>1.20</td> </tr> <tr> <td>Product Class 3 (> 8.0 ozf)</td> <td>1.28</td> </tr> </tbody> </table>			TABLE H-2		STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALVES MANUFACTURED ON OR AFTER JANUARY 28, 2019		PRODUCT CLASS	MAXIMUM FLOW RATE (gpm)	[spray force in ounce force (ozf)]		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
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
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-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.																
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
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: <ol style="list-style-type: none"> The Model Water Efficient Landscape Ordinance (MWELO) is located in the California Code of Regulations, Title 23, Chapter 2.7, Division 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.																

Y	NA	RESPON. PARTY
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SECTION 5.402 DEFINITIONS 5.402.1 DEFINITIONS. The following terms are defined in Chapter 2 (<i>and are included here for reference</i>)		
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 waste, 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: <ol style="list-style-type: none"> An installed awning at least 4 feet in depth. The door is protected by a roof overhang at least 4 feet in depth. The door is recessed at least 4 feet. 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: <ol style="list-style-type: none"> 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. Determines if construction and demolition waste materials will be sorted on-site (source-separated) or mixed (single stream). Identifies diversion facilities where construction and demolition waste material collected will be taken. 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: <ol style="list-style-type: none"> Excavated soil and land-clearing debris. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist. 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: <ol style="list-style-type: none"> 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. 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 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: <ol style="list-style-type: none"> 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. For a map of known pest and/or disease quarantine zones, consult with the California Department of Food and Agriculture. (www.cdafs.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) at 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.		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 by 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: <ol style="list-style-type: none"> Owner's or Owner representative's project requirements. Basis of design. Commissioning measures shown in the construction documents. Commissioning plan. Functional performance testing. Documentation and training. Commissioning report. 		
Exceptions: <ol style="list-style-type: none"> Unconditioned warehouses of any size. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses. Tenant improvements less than 10,000 square feet as described in Section 303.1.1. 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: <ol style="list-style-type: none"> 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 commissioning personnel. AC 476 does not certify individuals to conduct functional performance tests or to adjust and balance systems. 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: <ol style="list-style-type: none"> Environmental and sustainability goals. Building sustainable goals. Indoor environmental quality requirements. Project program, including facility functions and hours of operation, and need for after hours operation. Equipment and systems expectations. 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: <ol style="list-style-type: none"> Renewable energy systems. Landscape irrigation systems. 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: <ol style="list-style-type: none"> General project information. Commissioning goals. Systems to be commissioned. Plans to test systems and components shall include: <ol style="list-style-type: none"> An explanation of the original design intent. Equipment and systems to be tested, including the extent of tests. Functions to be tested. Conditions under which the test shall be performed. Measurable criteria for acceptable performance. Commissioning team information. 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: <ol style="list-style-type: none"> Site information, including facility description, history and current requirements. Site contact information. Basic operations and maintenance, including general site operating procedures, basic troubleshooting, recommended maintenance requirements, site events log. Major systems. Site equipment inventory and maintenance notes. A copy of verifications required by the enforcing agency or this code. 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: <ol style="list-style-type: none"> System/equipment overview (what it is, what it does and with what other systems and/or equipment it interfaces). Review and demonstration of servicing/preventive maintenance. Review of the information in the Systems Manual. 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) 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: <ol style="list-style-type: none"> Renewable energy systems. Landscape irrigation systems. 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.		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 guarantees/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 (<i>and are included here for reference</i>)		
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°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-posts 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-propelled 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) (EVC(S)). 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 hydrochlorofluorocarbon, 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 hundredths of a gram (g O ₃ /g ROG).		
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, gauge.		
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 project and 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.		

Y	NA	RESPON. PARTY
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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 by 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: <ol style="list-style-type: none"> Owner's or Owner representative's project requirements. Basis of design. Commissioning measures shown in the construction documents. Commissioning plan. Functional performance testing. Documentation and training. Commissioning report. 		
Exceptions: <ol style="list-style-type: none"> Unconditioned warehouses of any size. Areas less than 10,000 square feet used for offices or other conditioned accessory spaces within unconditioned warehouses. Tenant improvements less than 10,000 square feet as described in Section 303.1.1. 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.		



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PLACER DETAILING

10612 INDUSTRIAL AVE.
SUITE 150
ROSEVILLE, CA

APPROVED FOR THE OWNER BY:

APPROVED FOR THE DESIGNER BY:

ISSUE DESCRIPTION DATE

Table with 3 columns: ISSUE, DESCRIPTION, DATE. Row 1: 1 PLAN CHECK COMMENTS 06.20.23

STAMP:



REF NORTH: SEE SHEET

SCALE: PROJECT NO: 231028

DRAWN BY: LR PLOT DATE: 04.14.23

SHEET NO:

CAL GREEN

A0.4

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

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 state-wide 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. Columns: ARCHITECTURAL APPLICATIONS, CURRENT VOC LIMIT. Rows include INDOOR CARPET ADHESIVES, CARPET PAD ADHESIVES, OUTDOOR CARPET ADHESIVES, WOOD FLOORING ADHESIVES, RUBBER FLOOR ADHESIVES, SUBFLOOR ADHESIVES, CERAMIC TILE ADHESIVES, VCT & ASPHALT TILE ADHESIVES, DRYWALL & PANEL ADHESIVES, COVE BASE ADHESIVES, MULTIPURPOSE CONSTRUCTION ADHESIVES, STRUCTURAL GLAZING ADHESIVES, SINGLE-PLY ROOF MEMBRANE ADHESIVES, OTHER ADHESIVES NOT SPECIFICALLY LISTED, SPECIALTY APPLICATIONS, PVC WELDING, CPVC WELDING, ABS WELDING, PLASTIC CEMENT WELDING, ADHESIVE PRIMER FOR PLASTIC, CONTACT ADHESIVE, SPECIAL PURPOSE CONTACT ADHESIVE, STRUCTURAL WOOD MEMBER ADHESIVE, TOP & TRIM ADHESIVE, SUBSTRATE SPECIFIC APPLICATIONS, METAL TO METAL, PLASTIC FOAMS, POROUS MATERIAL (EXCEPT WOOD), WOOD, FIBERGLASS.

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/SCCURHTMLR1168.PDF

Table 5.504.4.2 - SEALANT VOC LIMIT. Columns: SEALANTS, CURRENT VOC LIMIT. Rows include ARCHITECTURAL, MARINE DECK, NONMEMBRANE ROOF, ROADWAY, SINGLE-PLY ROOF MEMBRANE, OTHER, SEALANT PRIMERS, ARCHITECTURAL, NONPOROUS, POROUS, MODIFIED BITUMINOUS, MARINE DECK, OTHER.

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 PNMIR Limits for VOC 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.

Table with 2 columns: COATING CATEGORY, CURRENT VOC LIMIT. Rows include ALUMINUM ROOF COATINGS, BASEMENT SPECIALTY COATINGS, BITUMINOUS ROOF COATINGS, BITUMINOUS ROOF PRIMERS, BOND BREAKERS, CONCRETE CURING COMPOUNDS, CONCRETE/MASONRY SEALERS, DRIVEWAY SEALERS, DRY FOG COATINGS, FAUX FINISHING COATINGS, FIRE RESISTIVE COATINGS, FLOOR COATINGS, FORM-RELEASE COMPOUNDS, GRAPHIC ARTS COATINGS (SIGN PAINTS), HIGH-TEMPERATURE COATINGS, INDUSTRIAL MAINTENANCE COATINGS, LOW SOLIDS COATINGS, MAGNESITE CEMENT COATINGS, MASTIC TEXTURE COATINGS, METALLIC PIGMENTED COATINGS, MULTICOLOR COATINGS, PRETREATMENT WASH PRIMERS, PRIMERS, SEALERS, & UNDERCOATERS, REACTIVE PENETRATING SEALERS, RECYCLED COATINGS, ROOF COATINGS, RUST PREVENTATIVE COATINGS, SHELLACS, CLEAR, OPAQUE, SPECIALTY PRIMERS, SEALERS & UNDERCOATERS, STAINS, STONE CONSOLIDANTS, SWIMMING POOL COATINGS, TRAFFIC MARKING COATINGS, TUB & TILE REFINISH COATINGS, WATERPROOFING MEMBRANES, WOOD COATINGS, WOOD PRESERVATIVES, ZINC-RICH PRIMERS.

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/DEOD/CEHLB/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/DEOD/CEHLB/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 (17CCR 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 17CCR, 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 EN 338 standards.
5. Other methods acceptable to the enforcing agency.

Table 5.504.4.5 - FORMALDEHYDE LIMITS. Columns: PRODUCT, CURRENT LIMIT. Rows include HARDWOOD PLYWOOD VENEER CORE, HARDWOOD PLYWOOD COMPOSITE CORE, PARTICLE BOARD, MEDIUM DENSITY FIBERBOARD, THIN MEDIUM DENSITY FIBERBOARD.

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/DEOD/CEHLB/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 Specifications 01350).
See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CCDPHP/DEOD/CEHLB/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 Specifications 01350).
See California Department of Public Health's website for certification programs and testing labs. https://www.cdph.ca.gov/Programs/CCDPHP/DEOD/CEHLB/IAQ/Pages/VOC.aspx#material

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

5.504.6.3 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.

5.504.6.3.1 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 (CO2) MONITORING. For buildings or additions equipped with demand control ventilation, CO2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the California Energy Code, Section 120C(4).

5.506.3 Carbon dioxide (CO2) monitoring in classrooms. (DSS-SS) Each public K-12 school classroom, as listed in Table 120.1A-4 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 through 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: [DSS-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. Lw or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
2. Lw 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 Lw 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 dBA, Lw, -1hr 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.toobase.org/PDF/CaseStudies/stc_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 (CO2), 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 refrigeration 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-fourth-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 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 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 over 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 that 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.

Exhibit B



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PLACER DETAILING

18642 INDUSTRIAL AVE.
SUITE 150
ROSEVILLE, CA

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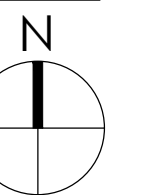
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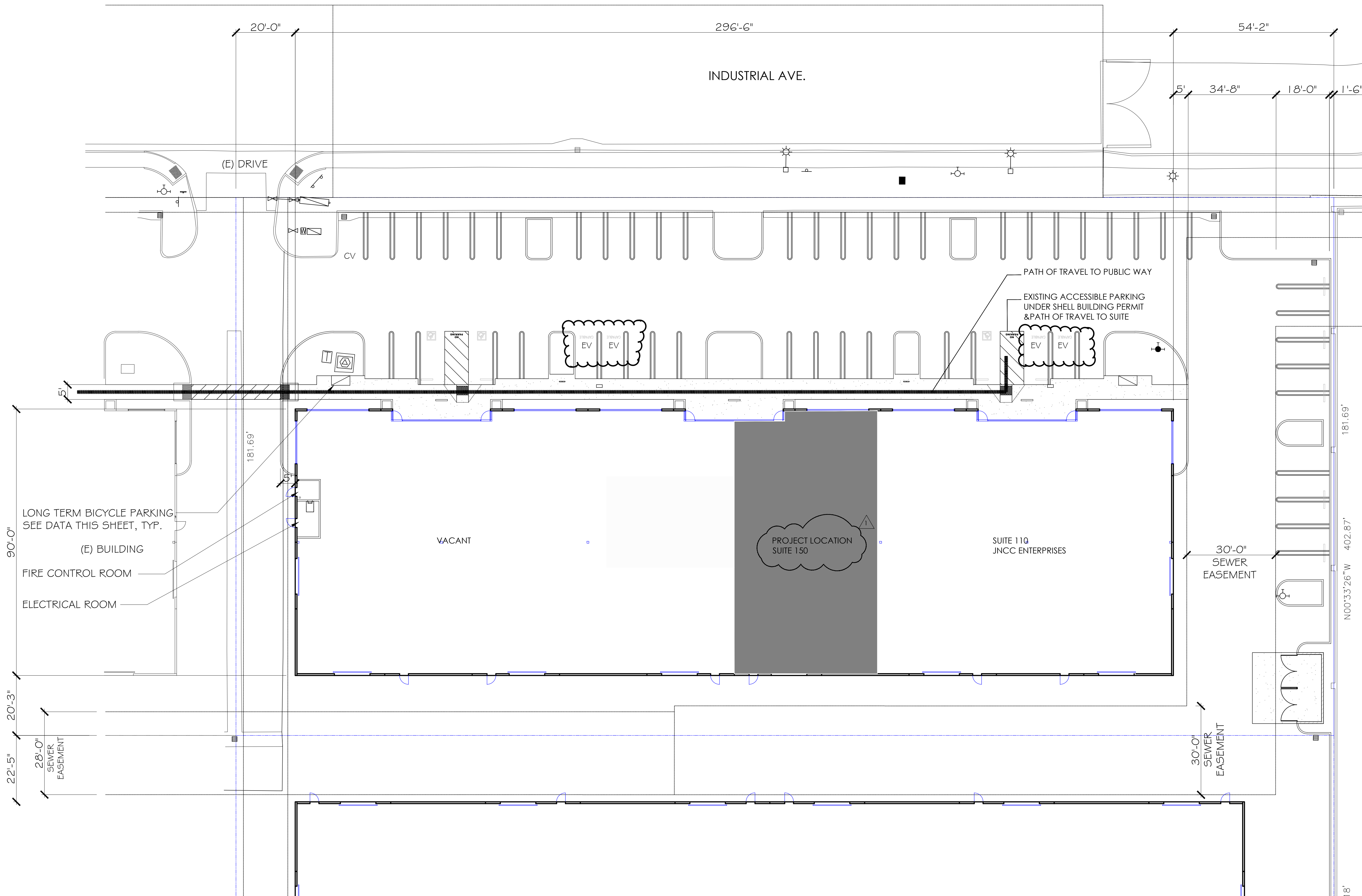
SCALE: SEE SHEET

PROJECT NO: 231028

DRAWN BY: LR PLOT DATE: 04.14.23

SHEET NO:

ENLARGED SITE
PLAN
A1.0



SITE PLAN - NO SCOPE OF WORK, REFERENCE ONLY

SCALE: 1/8" = 1'-0"

LEGEND

ACCESSIBLE PATH OF TRAVEL

*NOTE SITE IS 100% COMPLIANT WITH CURRENT 2022 ACCESSIBLE BUILDING CODE.

Exhibit B



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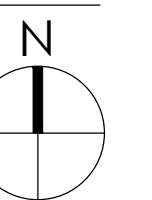
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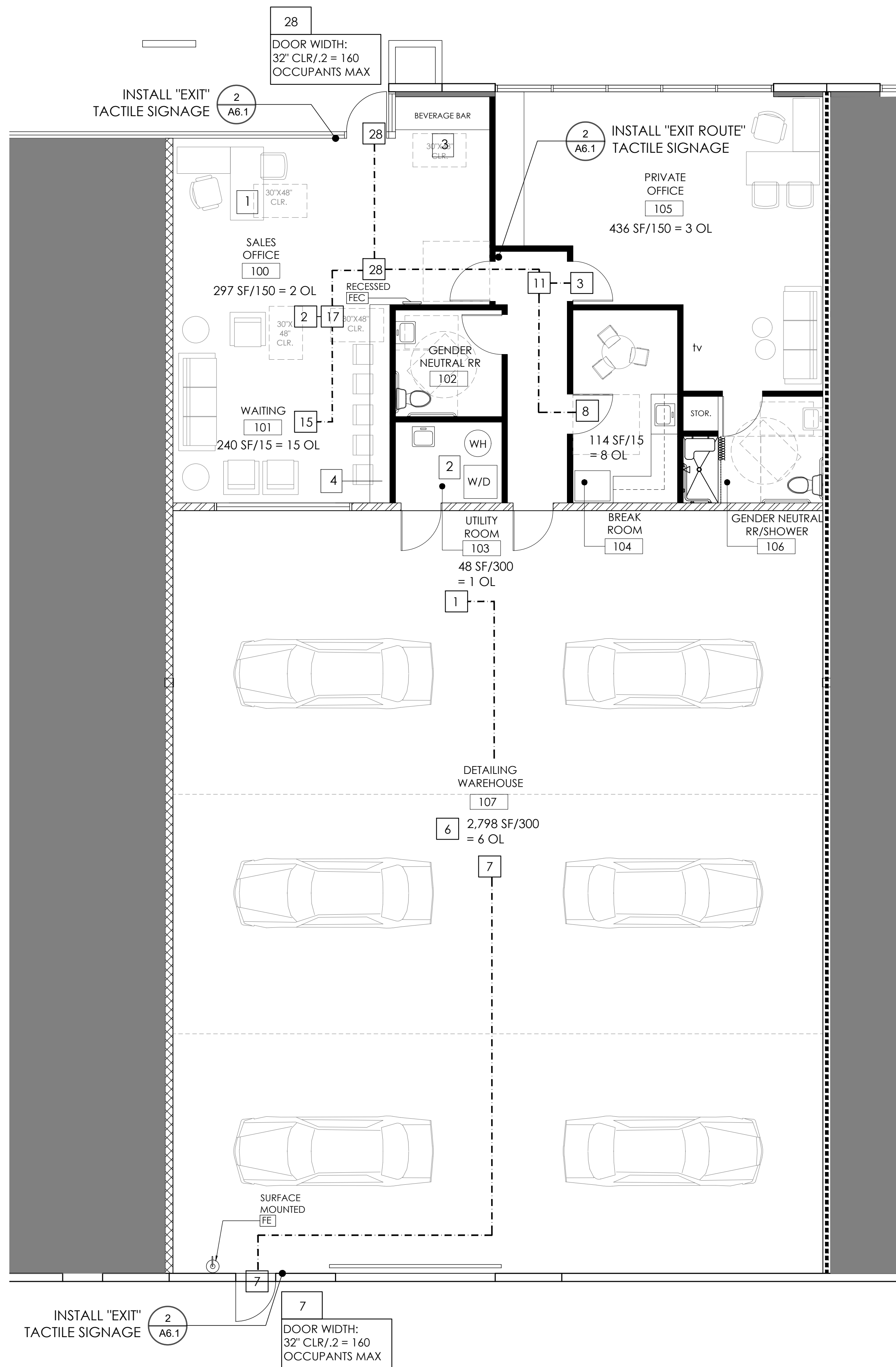
SCALE: SEE SHEET

PROJECT NO: 231028

DRAWN BY: LR PLOT DATE: 04.14.23

SHEET NO:

LIFE SAFETY PLAN A1.2



LEGEND

- (E) PARTITION TO REMAIN
- AREA NOT IN SCOPE
- (N) FULL HEIGHT 1HR FIRE RATED DEMISING WALL, 22 GA 6" METAL STUDS @ 24" OC WITH 5/8" TYPE "X" GYP BD ON EACH SIDE, PROVIDE SOUND INSULATION. SEE DETAILS. (10 A70 & 2 A70 & 8 A71)
- (N) FULL HEIGHT WALL, 22 GA 6" METAL STUDS @ 24" OC WITH 5/8" TYPE "X" GYP BD ON EACH SIDE, PROVIDE INSULATION, SEE DETAILS. (10 A70 & 2 A70)
- (N) THROUGH GRID PARTITION WALL, 25 GA 3 5/8" METAL STUDS @ 24" OC WITH 5/8" TYPE "X" GYP BD ON EACH SIDE, PROVIDE INSULATION, SEE DETAILS. (17 A70 & 2 A70)
- (N) THROUGH GRID FURRING WALL, 25 GA 3 5/8" METAL STUDS @ 24" OC WITH 5/8" TYPE "X" GYP BD ON ONE SIDE, PROVIDE INSULATION, SEE DETAILS. (1 A70 & 2 A70)
- FE PORTABLE FIRE EXTINGUISHER
- FEC RECESSED FIRE EXTINGUISHER
- NUMBER OF OCCUPANTS AT EXIT
- EXIT DOOR WITH CALCULATIONS
- DOOR WIDTH: 32" CLR/2 = 160 OCCUPANTS MAX

SHEET NOTES

- SEE 2/A6.1 FOR TACTILE EXIT SIGNAGE INFORMATION AND SCHEDULE FOR DOOR LOCATIONS
- PROVIDE PORTABLE FIRE EXTINGUISHER(S) WITH A MINIMUM RATING OF 2A-10BC. MAXIMUM FLOOR AREA PER UNIT SHALL BE 3,000 SQUARE FEET, OR PORTION THERE OF AND A MAXIMUM OF 75 FOOT TRAVEL DISTANCE TO ANY EXTINGUISHER. SEE TABLE 906.3(1). PORTABLE FIRE EXTINGUISHERS HAVING A GROSS WEIGHT NOT EXCEEDING 40 POUNDS SHALL BE INSTALLED SO THAT THEIR TOPS ARE NOT MORE THAN 5 FEET ABOVE THE FLOOR. CABINETS USED TO HOUSE PORTABLE FIRE EXTINGUISHERS SHALL NOT BE LOCKED. EXPECT WHERE THEY ARE SUBJECT TO MALICIOUS USE OR DAMAGE ARE PROVIDED WITH A MEANS OF READY ACCESS.

KEY NOTES

- ACCESSIBLE COUNTER AT CHECK-IN/ OUT, MAXIMUM HEIGHT OF 34" AND 28" MINIMUM ABOVE FINISHED FLOOR. MINIMUM OF 36" IN LENGTH. FURNITURE PROVIDED BY TENANT.
- WASHING MACHINE AND CLOTHES DRYER SHALL COMPLY WITH CBC 11B-611 PER CBCS 11B-214.2. SEE PROVIDED CLEAR SPACE, POSITIONED FOR PARALLEL APPROACH, CENTERED ON THE APPLIANCE. TOP LOADING MACHINES SHALL HAVE THE DOOR TO THE LAUNDRY COMPARTMENT LOCATED 36" MAXIMUM ABOVE THE FINISH FLOOR. FRONT LOADING MACHINES SHALL HAVE THE BOTTOM OF THE OPENING TO THE LAUNDRY COMPARTMENT LOCATED 15" MINIMUM AND 36" MAXIMUM ABOVE THE FINISH FLOOR. SEE ABOVE REACH HEIGHT REQUIREMENTS PER 11B-308. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5 LBS.
- BEVERAGE COUNTER, MAXIMUM HEIGHT OF 34" AFF. SIDE APPROACH.
- COUNTERTOP @ WAITING, MAXIMUM HEIGHT OF 34" AFF, OR PROVIDE 60" IN LENGTH AT 34" MAXIMUM HEIGHT FOR ACCESSIBLE COUNTER IF REST OF COUNTER IS AT 42" AFF.

AREA ANALYSIS/CODE INFORMATION

CONSTRUCTION TYPE:	V-8, FULLY SPRINKLERED
OCCUPANCY TYPE:	B & S-1
BUILDING AREA:	26,685 SF
PROJECT AREA:	4,278 SF
EXITS PROVIDED:	2
EXITS REQUIRED:	2
TOTAL OCCUPANT LOAD:	35

LIFE SAFETY PLAN
SCALE: 3/16" = 1'-0"



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PLACER DETAILING

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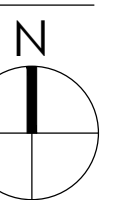
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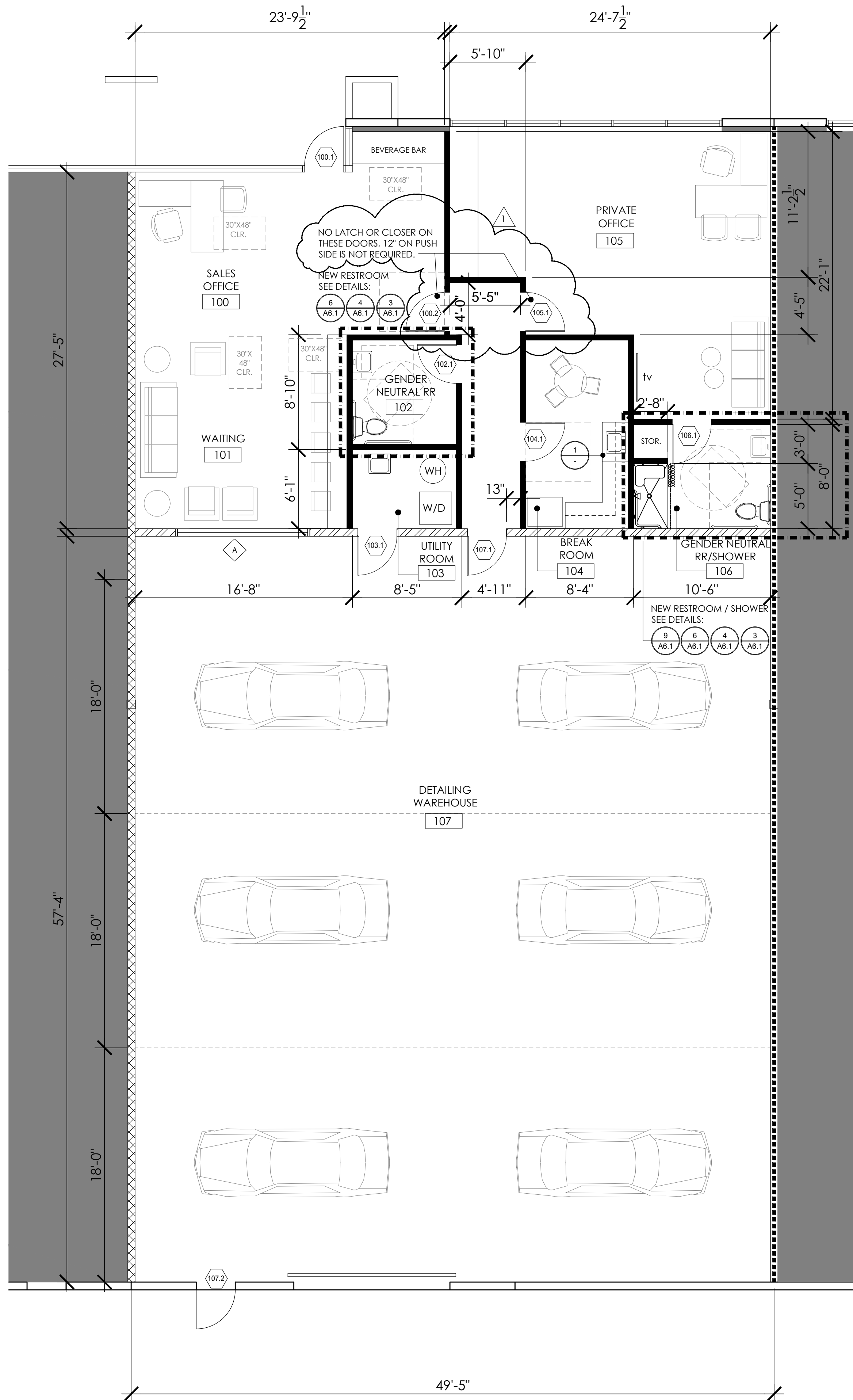
PROJECT NO: 231028

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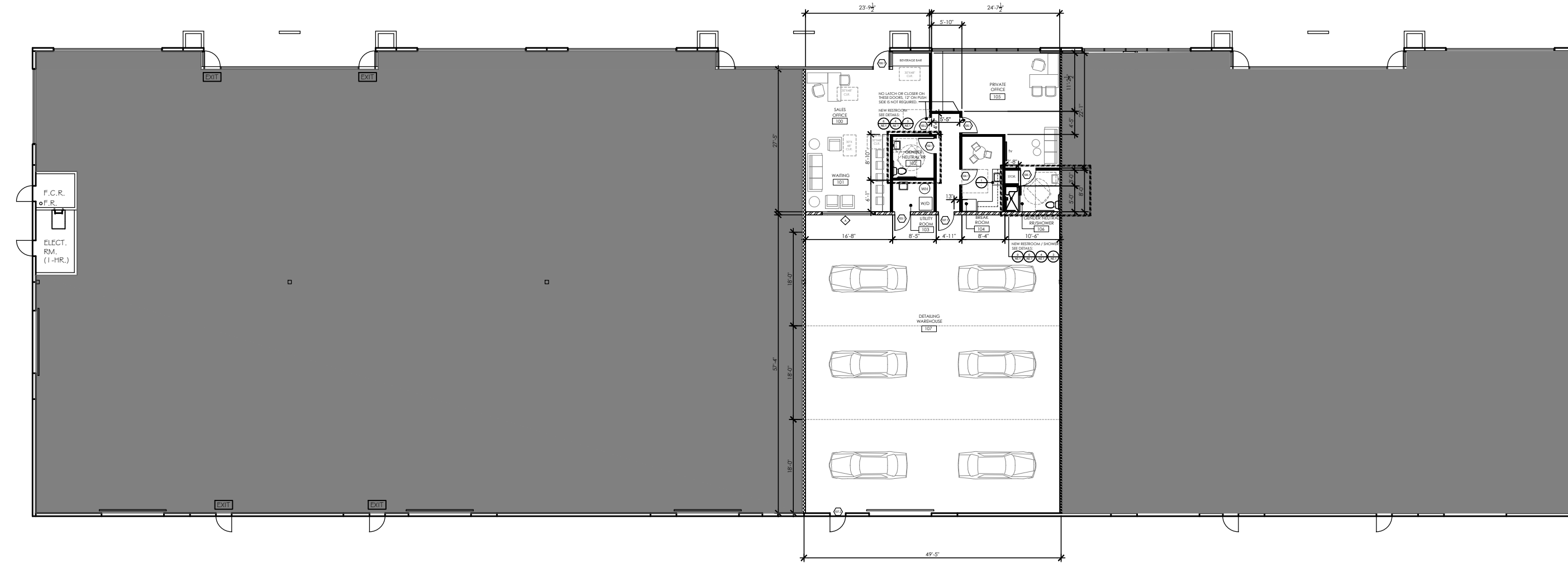
SHEET NO:

FLOOR PLAN

A3.0



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



OVERALL BUILDING PLAN

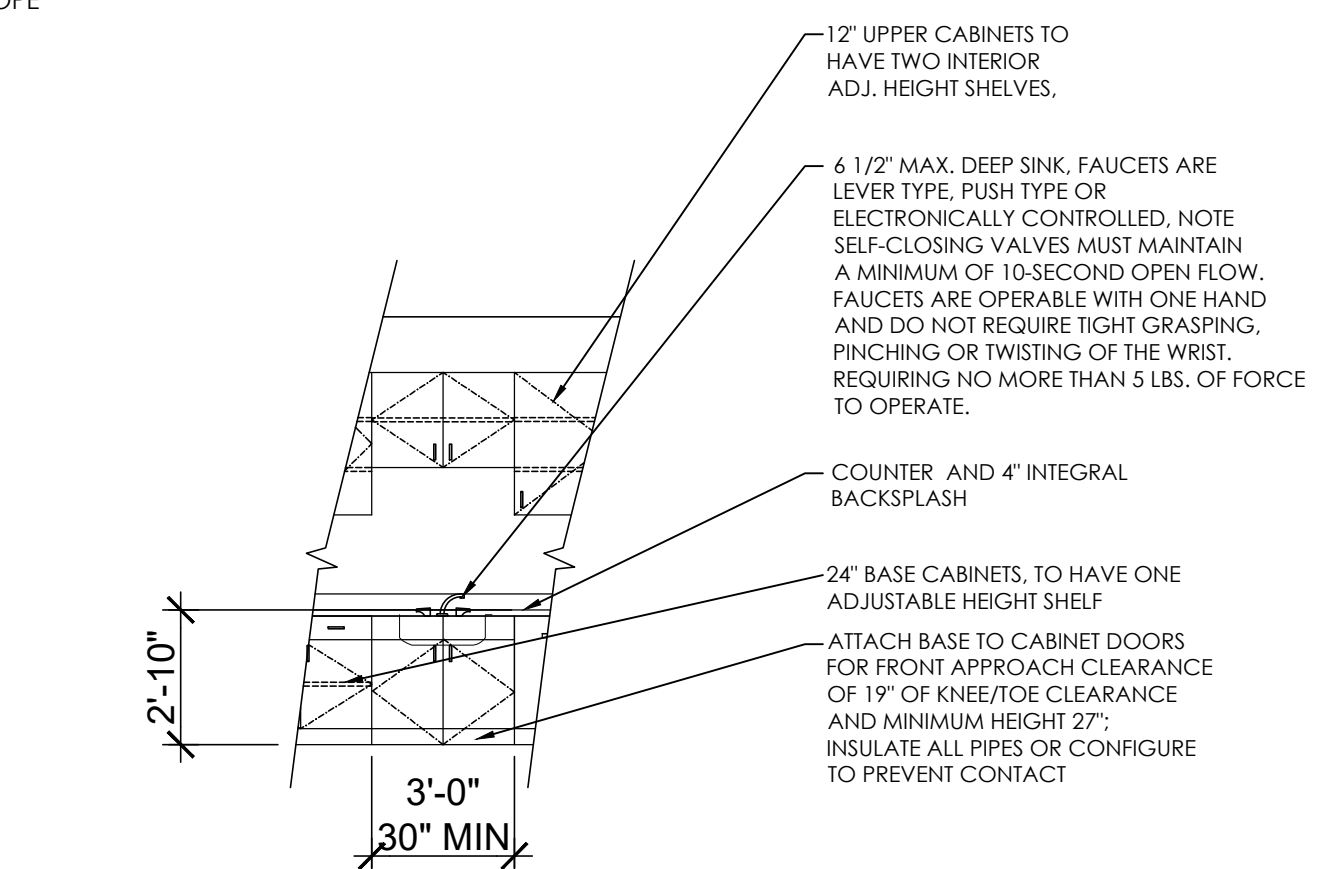
SCALE: NTS

SHEET NOTES

- REFER TO SHEET A6.0 FOR ALL DOOR AND WINDOW NOTES AND TYPES.
- INSTALL A SMOOTH, HARD, NONABSORBENT SURFACE ON RESTROOM FLOORS THAT EXTENDS UP ONTO THE WALLS AT LEAST 4". ALSO, SPECIFY A SMOOTH, HARD, NONABSORBENT SURFACE ON THE RESTROOM WALLS TO A HEIGHT OF 4'-0" ABOVE THE FLOOR WITHIN 2'-0" OF THE WATER CLOSET.
- 2022 CBC SECTION 118-308.2 FORWARD REACH:
118-308.2.1 UNOBSTRUCTED, WHERE FORWARD REACH IS UNOBSTRUCTED, THE HIGH FORWARD REACH SHALL BE 48" MAXIMUM AND THE LOW FORWARD REACH SHALL BE 15 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND.
118-308.2.2 OBSTRUCTED HIGH REACH: WHERE A HIGH FORWARD REACH IS OVER AN OBSTRUCTION, THE CLEAR FLOOR SPACE SHALL EXTEND BENEATH THE ELEMENT FOR A DISTANCE NOT LESS THAN THE REQUIRED REACH DEPTH OVER THE OBSTRUCTION. THE HIGH FORWARD REACH SHALL BE 48" MAX, WHERE THE REACH DEPTH IS 20" MAX, WHERE THE REACH DEPTH EXCEEDS 20", THE HIGH FORWARD REACH SHALL BE 44" MAX AND THE REACH DEPTH SHALL BE 25" MAX.
- PER 2022 CBC SECTION 118-904.4.1 PARALLEL APPROACH TO SALES & SERVICE COUNTERS: A PORTION OF THE COUNTER SURFACE THAT IS 36" LONG MIN AND 34" HIGH MAX ABOVE FINISH FLOOR SHALL BE PROVIDED. A CLEAR FLOOR OR GROUND SPACE COMPLYING WITH SECTION 118-305 SHALL BE POSITIONED FOR A PARALLEL APPROACH ADJACENT TO THE 36" MIN LENGTH OF COUNTER. PER 118-305.3 SIZE, THE CLEAR FLOOR OR GROUND SPACE SHALL BE 30" MIN BY 48" MIN.
- ALL INTERIOR WALL AND CEILING FINISH MATERIALS SHALL BE CLASSIFIED IN ACCORDANCE WITH ASTM E 84 OR UL 723 BASED ON THEIR FLAME SPREAD AND SMOKE-DEVELOPED INDEXES.

WALL LEGEND

- (E) PARTITION TO REMAIN
- AREA NOT IN SCOPE
- (N) FULL HEIGHT 1HR FIRE RATED DEMISING WALL, 22 GA 6" METAL STUDS @ 24" OC WITH 5/8" TYPE "X" GYP BD ON EACH SIDE, PROVIDE SOUND INSULATION SEE DETAILS 10/A70, 2/A70 & 8/A71
- (N) FULL HEIGHT WALL, 22 GA 6" METAL STUDS @ 24" OC WITH 5/8" TYPE "X" GYP BD ON EACH SIDE, PROVIDE INSULATION, SEE DETAILS 10/A70 & 2/A70
- (N) THROUGH GRID PARTITION WALL, 25 GA 3 5/8" METAL STUDS @ 24" OC WITH 5/8" TYPE "X" GYP BD ON EACH SIDE, PROVIDE INSULATION, SEE DETAILS 17/A70 & 2/A70
- (N) THROUGH GRID FURRING WALL, 25 GA 3 5/8" METAL STUDS @ 24" OC WITH 5/8" TYPE "X" GYP BD ON ONE SIDE, PROVIDE INSULATION, SEE DETAILS 1/A70 & 2/A70



1 ACCESSIBLE SINK DETAIL
SCALE: 3/4" = 1'-0"

Exhibit B



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PLACER DETAILING

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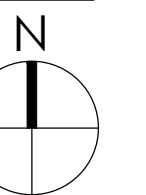
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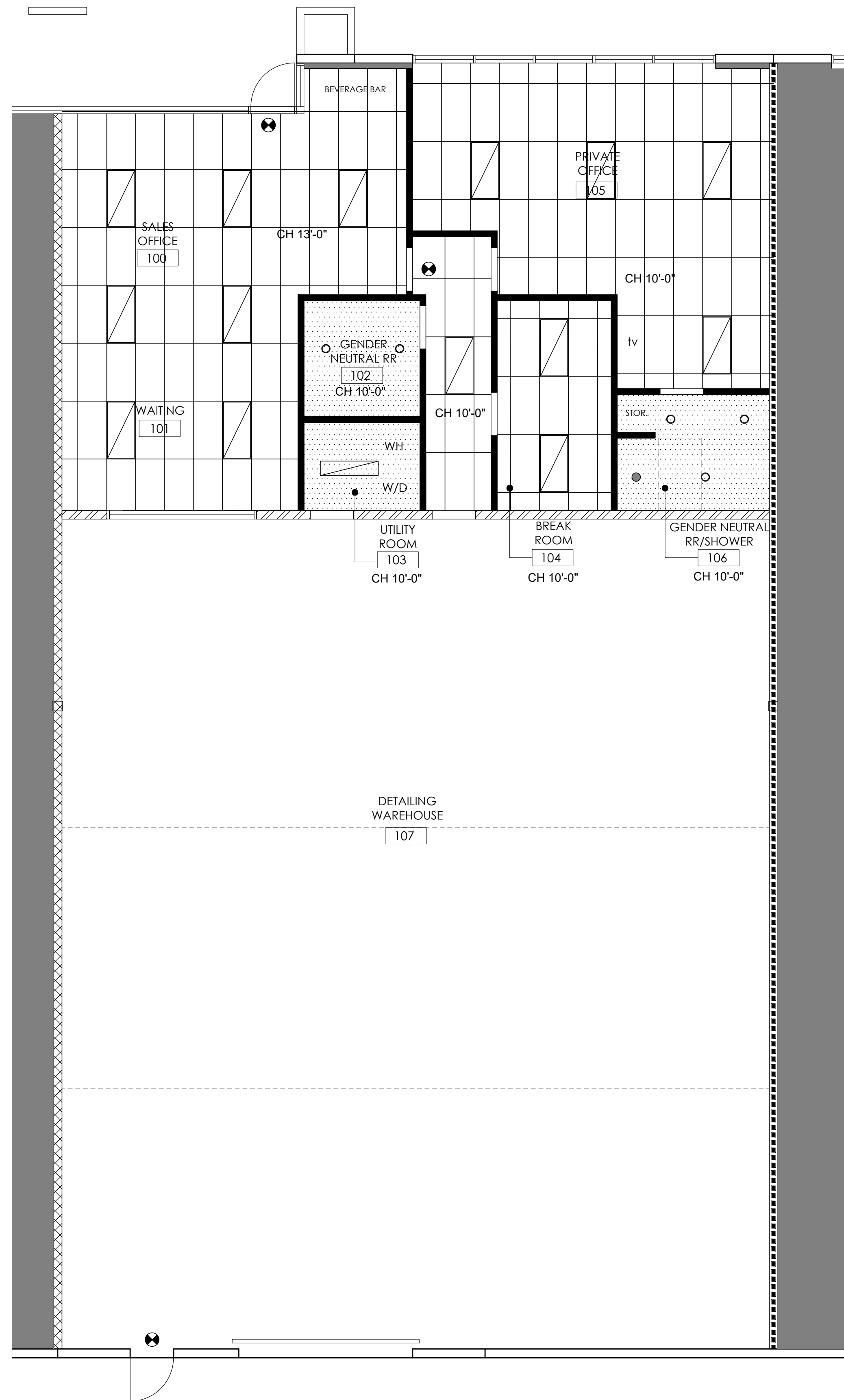
SCALE: SEE SHEET

PROJECT NO: 231028

DRAWN BY: LR PLOT DATE: 04.14.23

SHEET NO:

REFLECTED CEILING PLAN A5.0



REFLECTED CEILING PLAN

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

SHEET NOTES

1. REFER TO ELECTRICAL & MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION AND DESIGN LAYOUT.

LEGEND

(N) ACOUSTICAL CEILING SYSTEM: T-BAR GRID ONLY
SEE DETAILS

5 8 11 12
A7.0 A7.0 A7.0 & A7.0

GYP BD CEILING, SEE DETAILS

15 13
A7.0 & A7.0

2022 CBC SECTION 1013.6.3 POWER SOURCE . UL924
EXIT SIGNS SHALL BE ILLUMINATED AT ALL TIMES, TO ENSURE CONTINUED
ILLUMINATION FOR A DURATION OF NOT LESS THAN 90 MINUTES IN CASE
OF PRIMARY POWER LOSS, THE SIGN ILLUMINATION MEANS SHALL BE
CONNECTED TO AN EMERGENCY POWER SYSTEM PROVIDED FROM
STORAGE BATTERIES, UNIT EQUIPMENT OR AN ON-SITE GENERATOR.

2x4 RECESSED LED FIXTURE

6" RECESSED LED CAN LIGHT

6" RECESSED LED CAN LIGHT
WET RATED FIXTURE

LED SURFACE MOUNT 1X4



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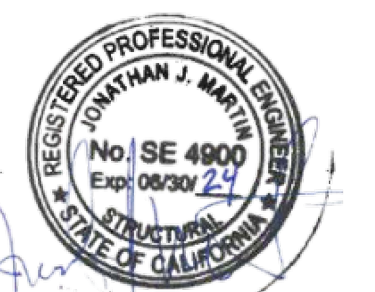
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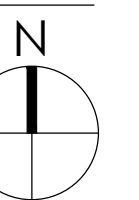
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1	PLAN CHECK COMMENTS	06.20.23

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SCALE:

SEE SHEET

PROJECT NO:

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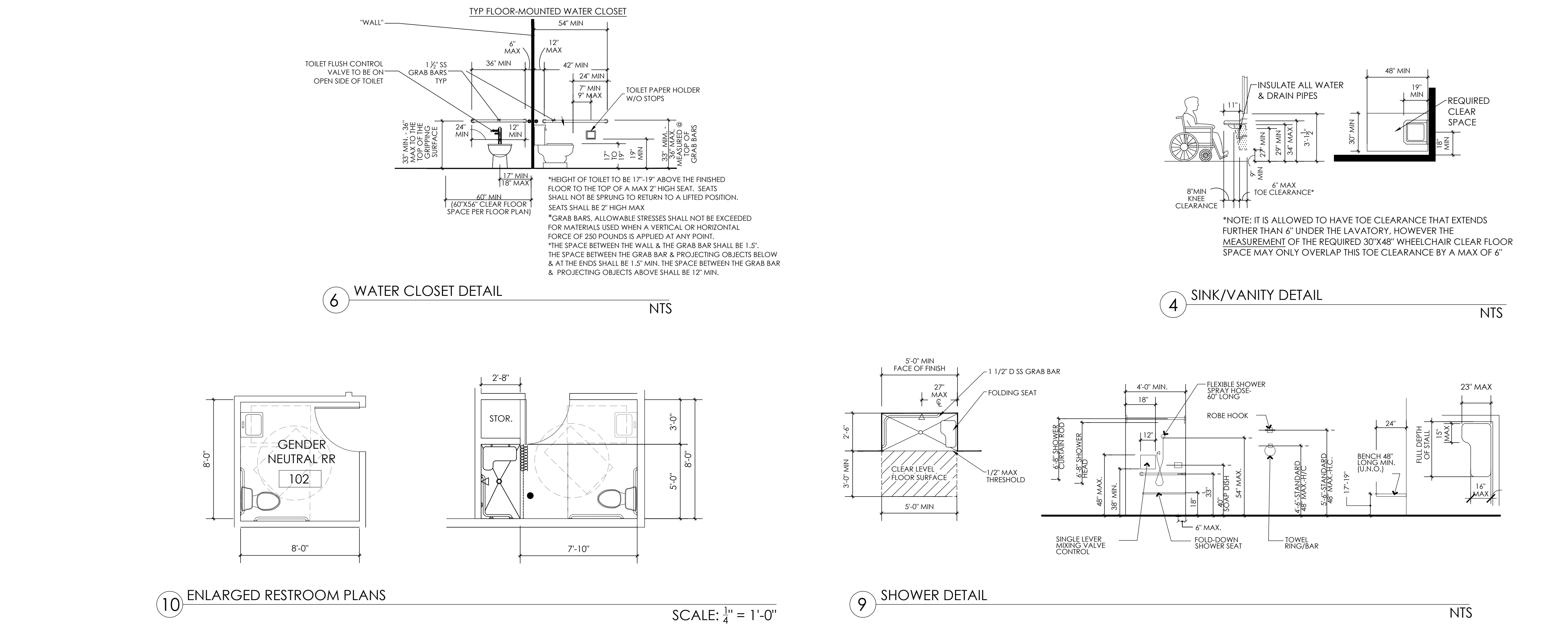
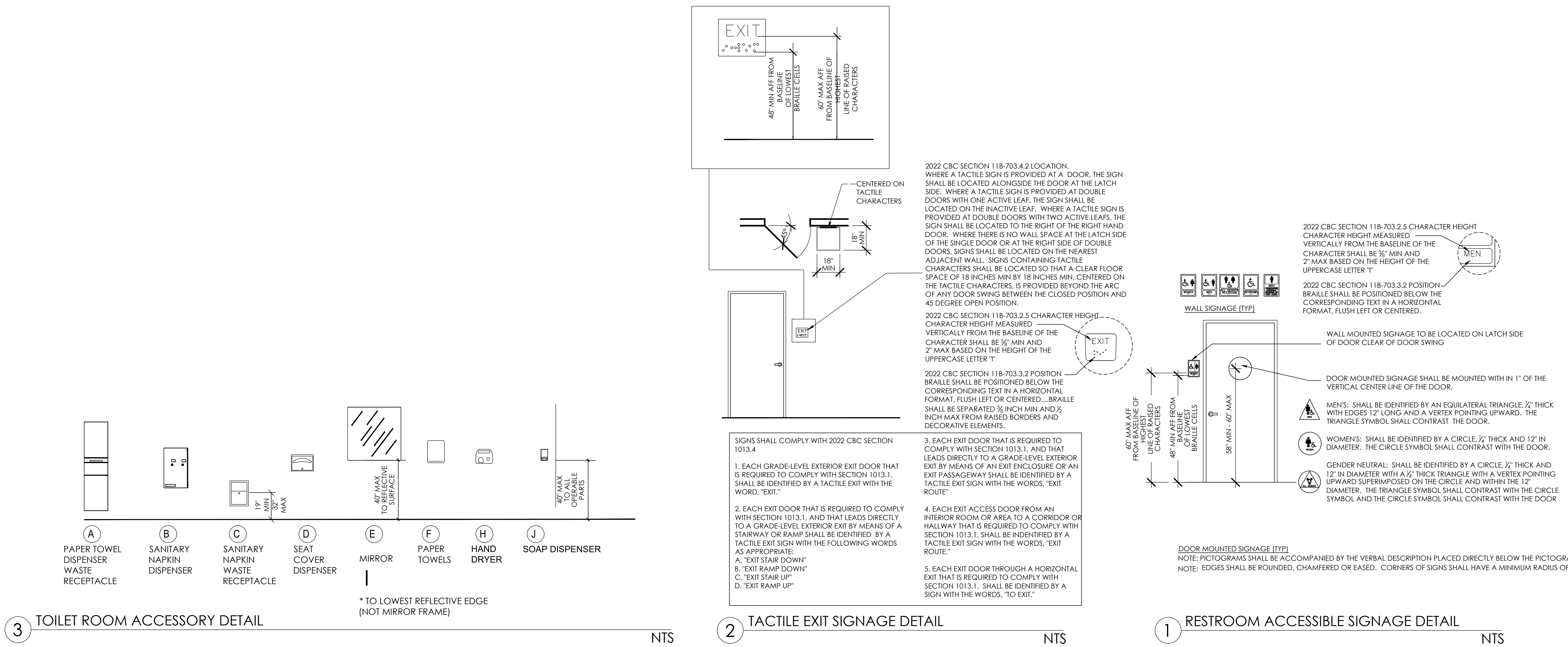
PLOT DATE:

04.14.23

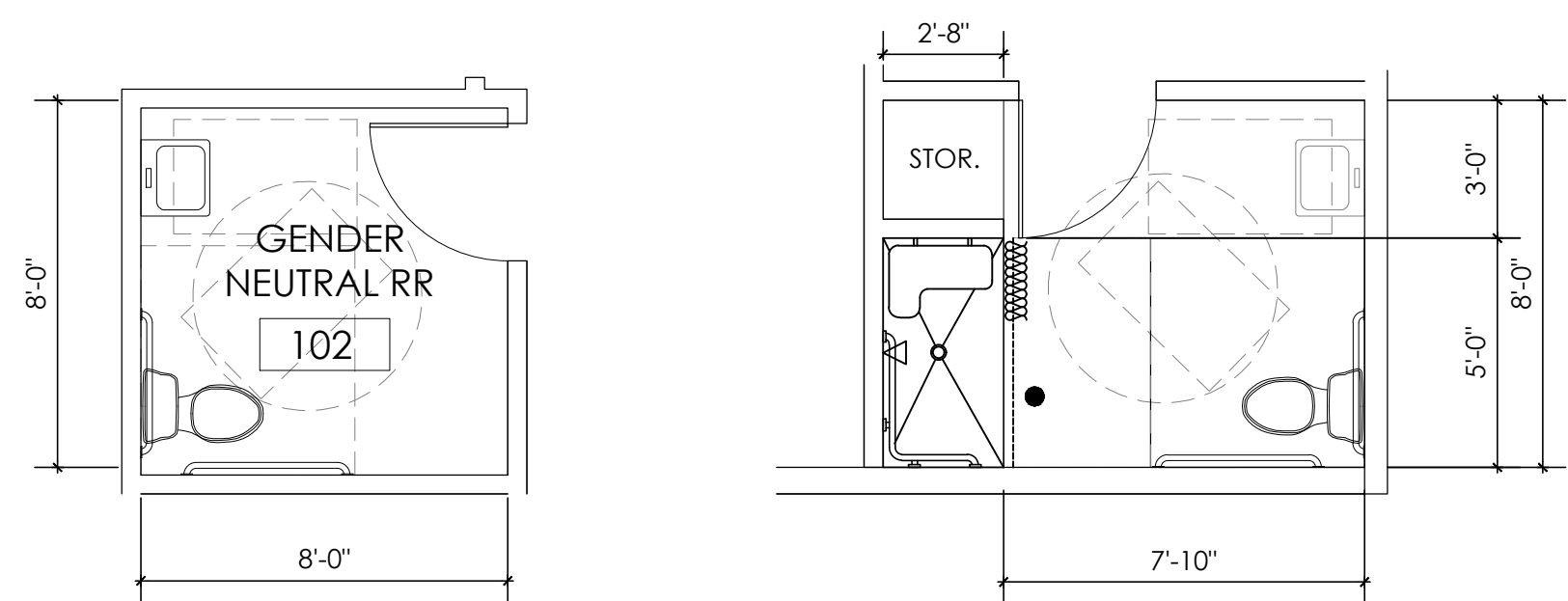
SHEET NO:

ACCESSIBLE DETAILS

A6.1



10 ENLARGED RESTROOM PLANS



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

NTS



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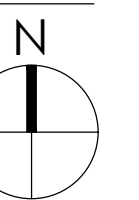
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SCALE:

SEE SHEET

PROJECT NO:

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DRAWN BY:

LR

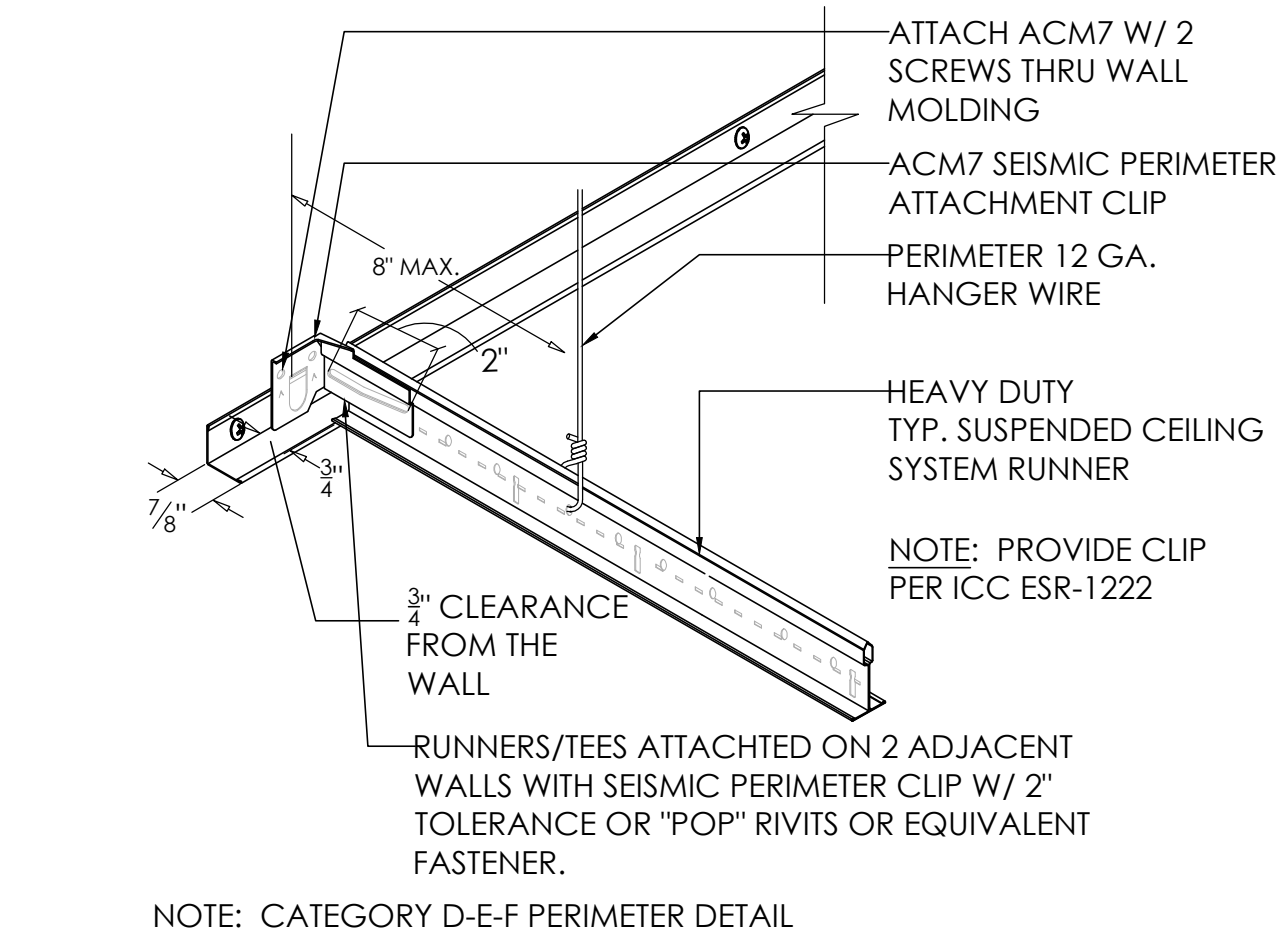
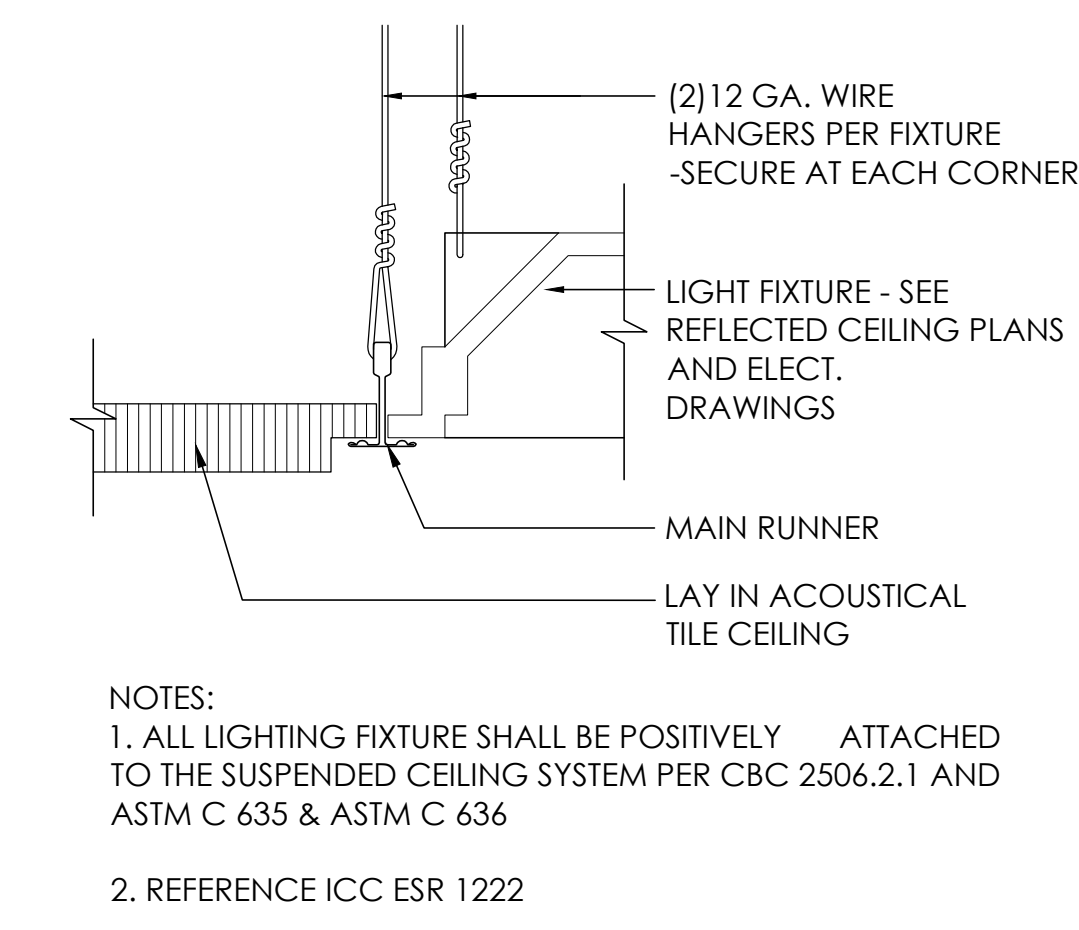
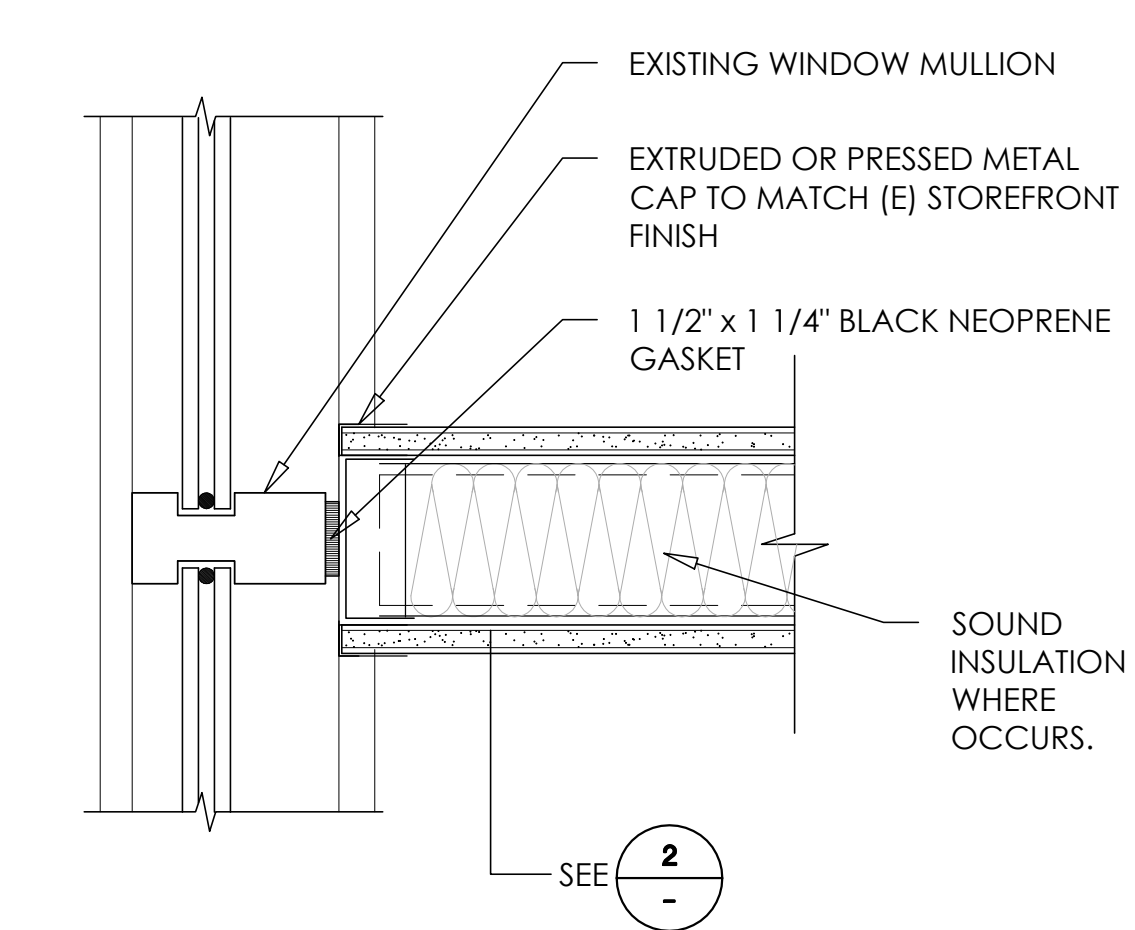
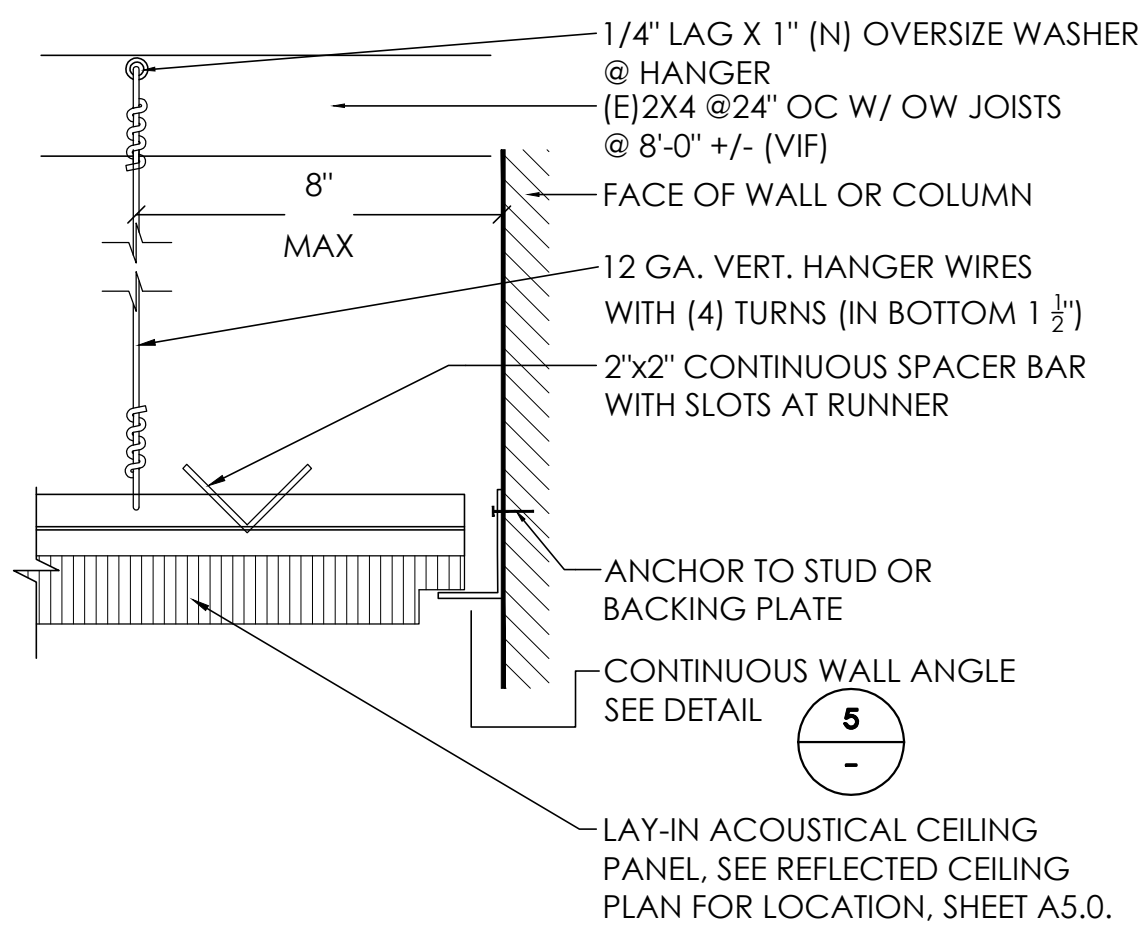
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PLOT DATE:

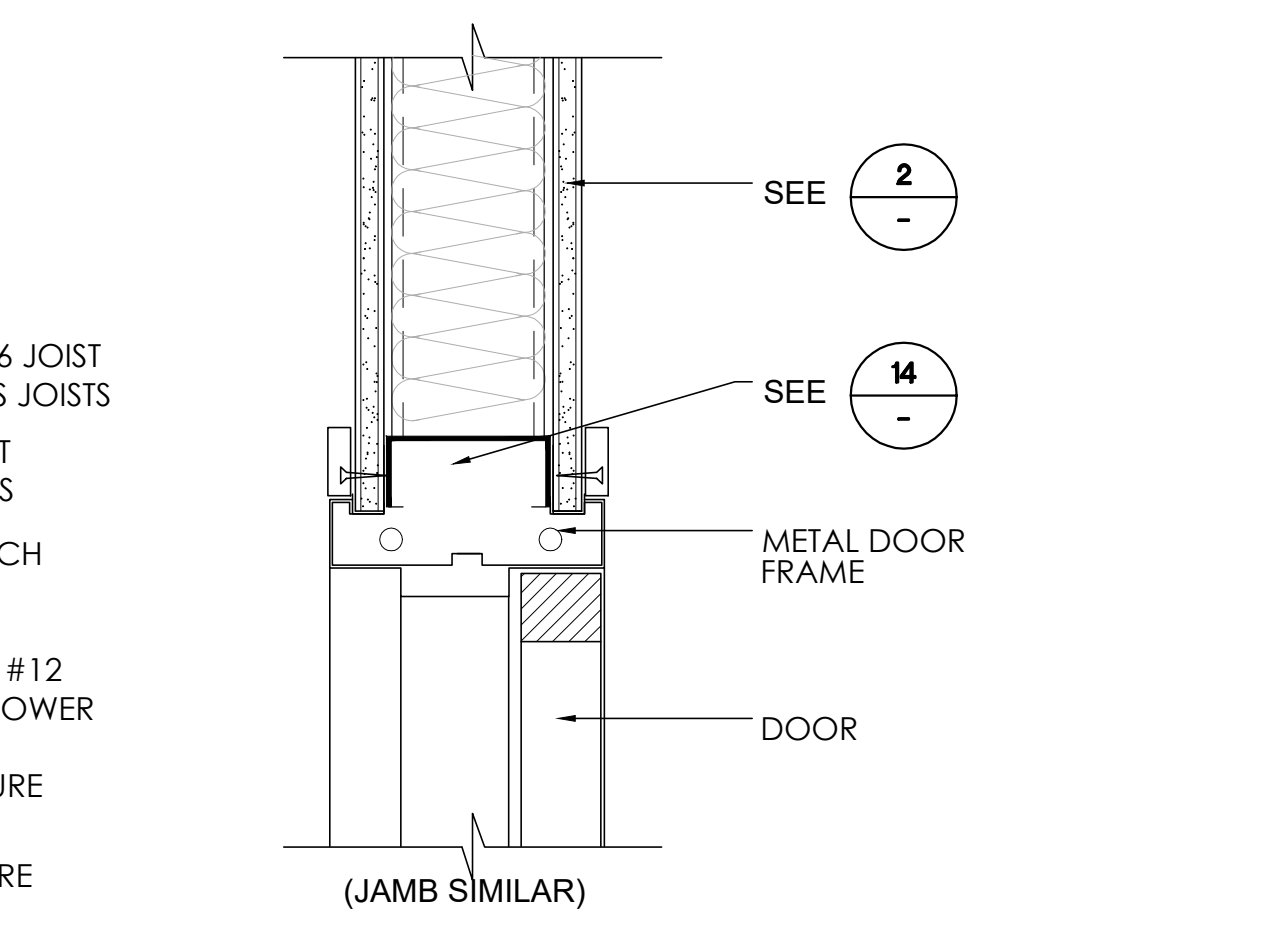
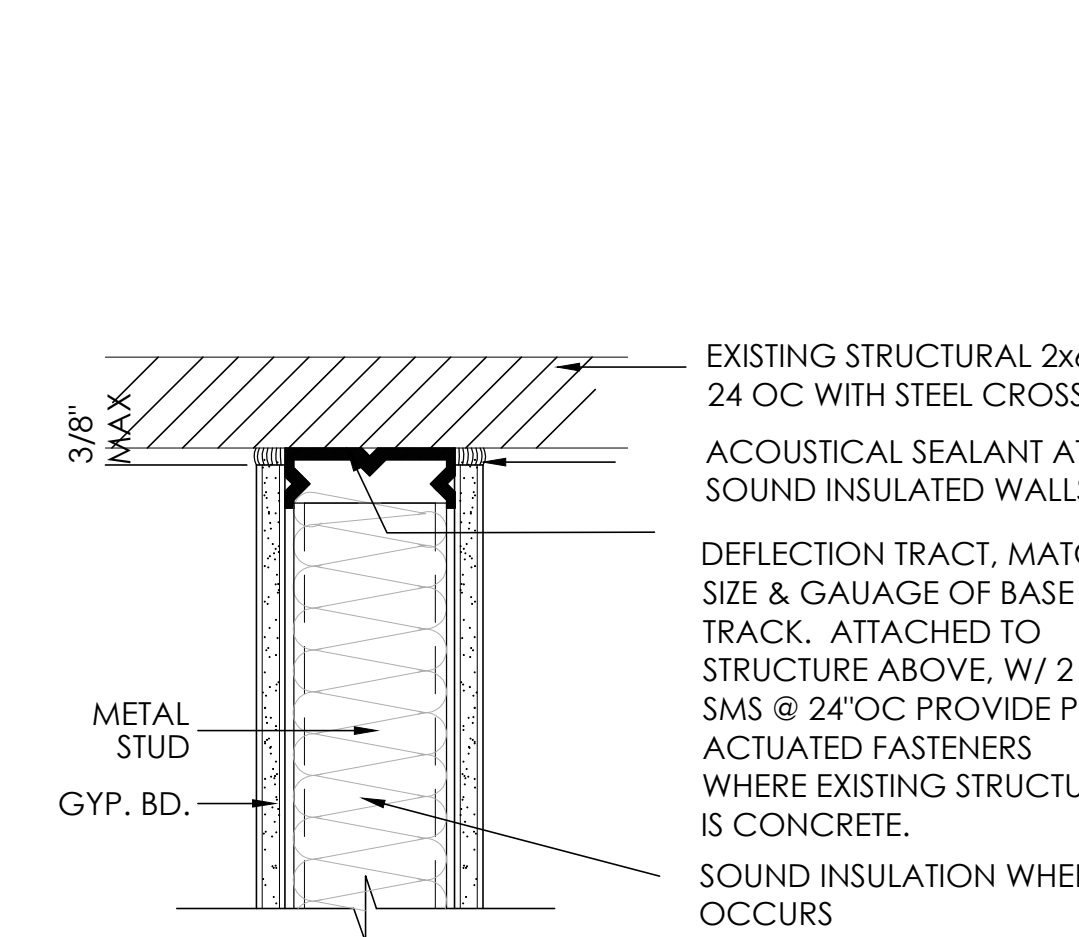
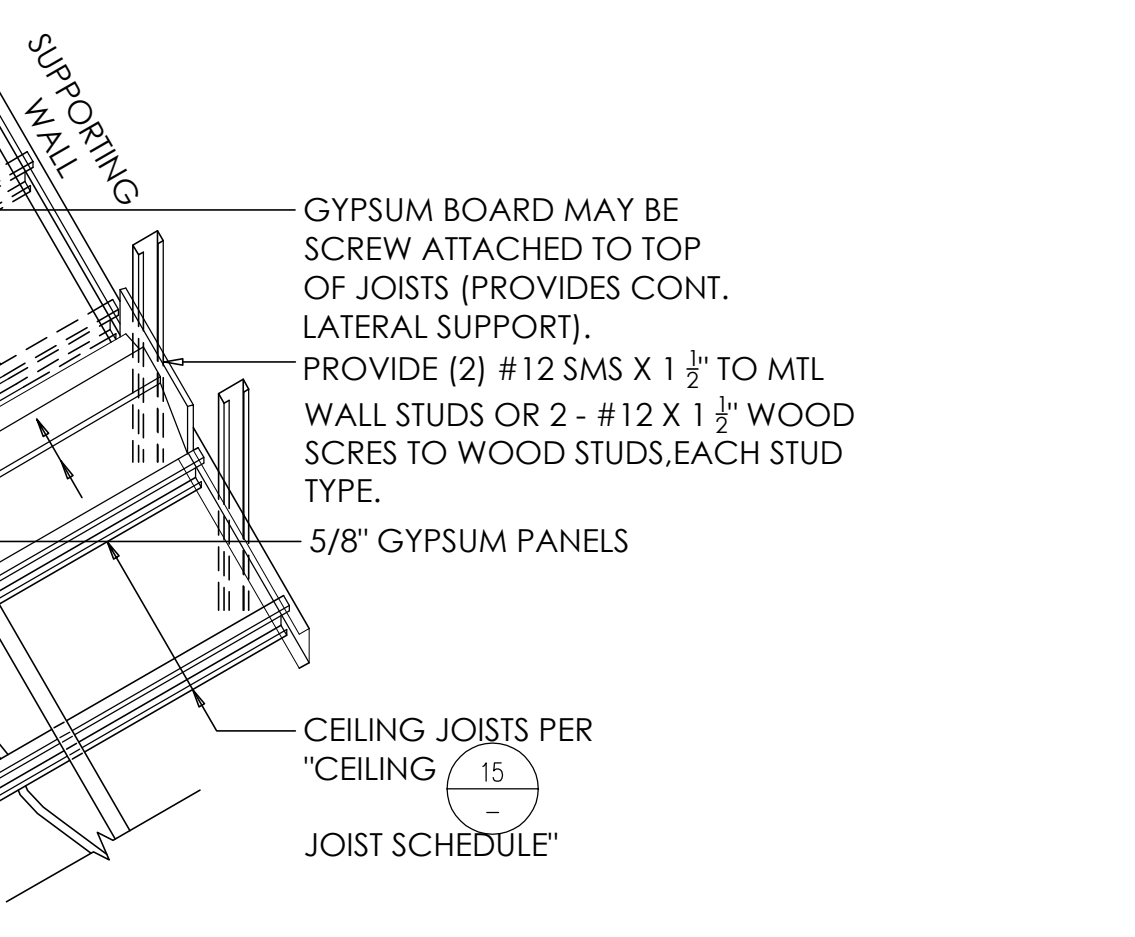
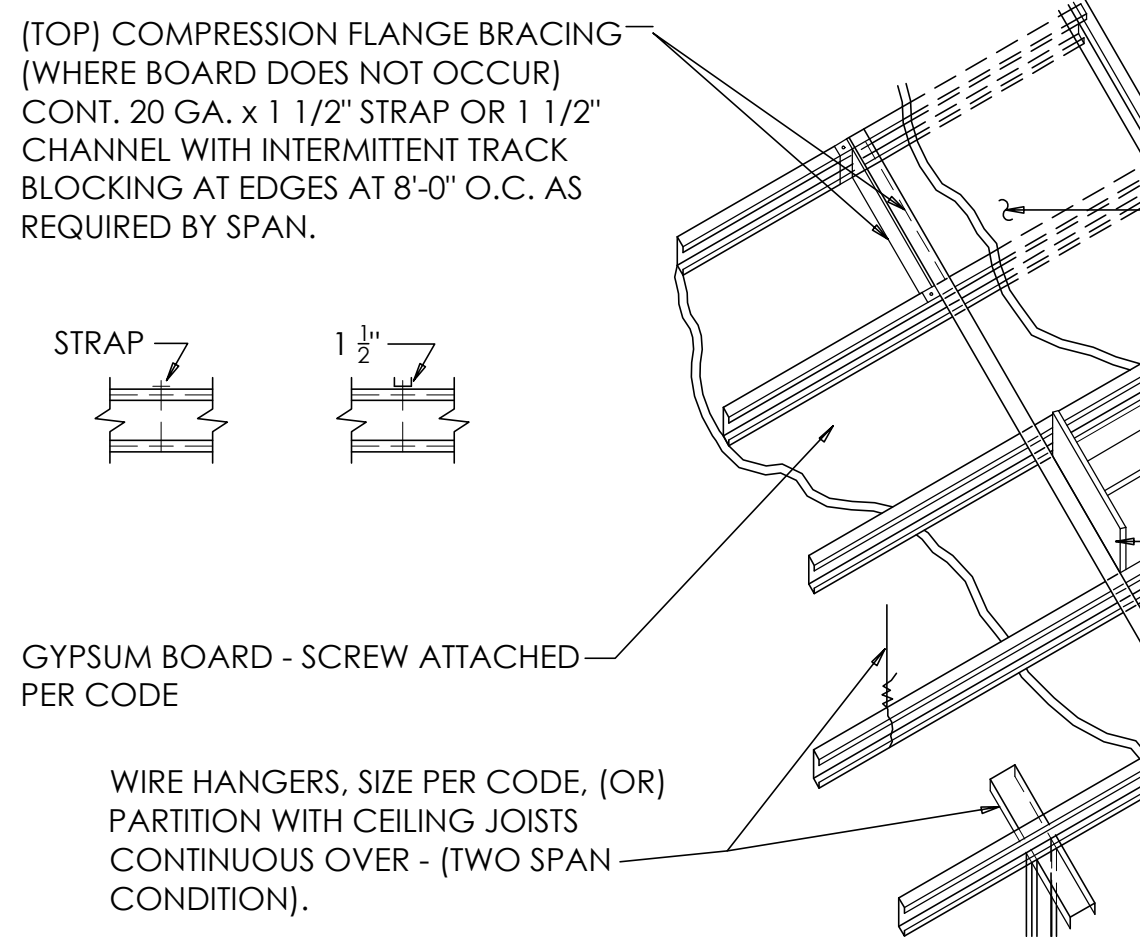
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INTERIOR DETAILS

A7.0



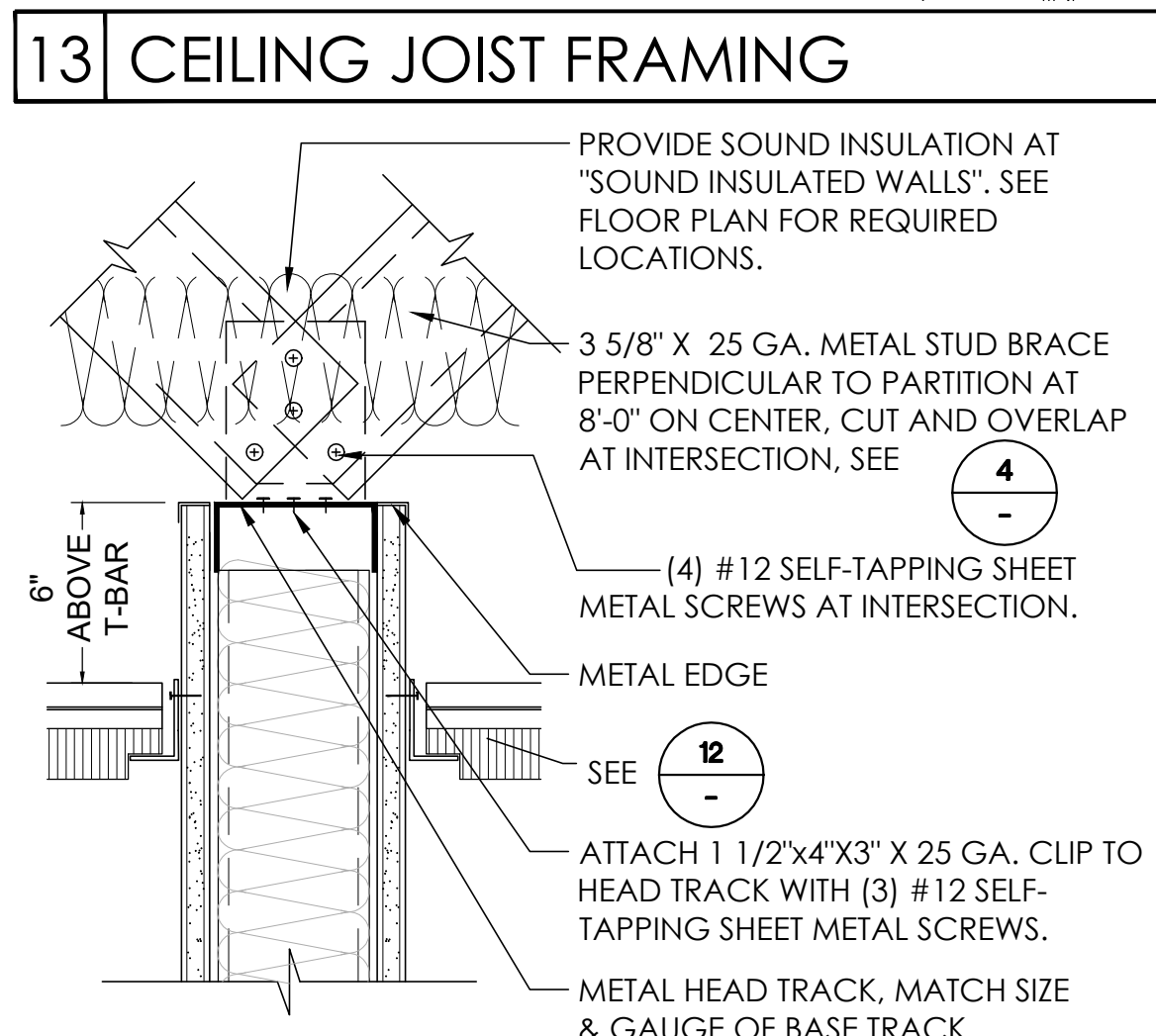
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16	WALL AT MULLION	3\"/>
9	SUSP. LIGHT FIXTURE	3\"/>
5	SEISMIC WALL ANGLE	3\"/>



WALL STUD SCHEDULE

NOTES: 1) NO AXIAL LOAD
2) INTERIOR WALLS ONLY, NO WIND LOAD

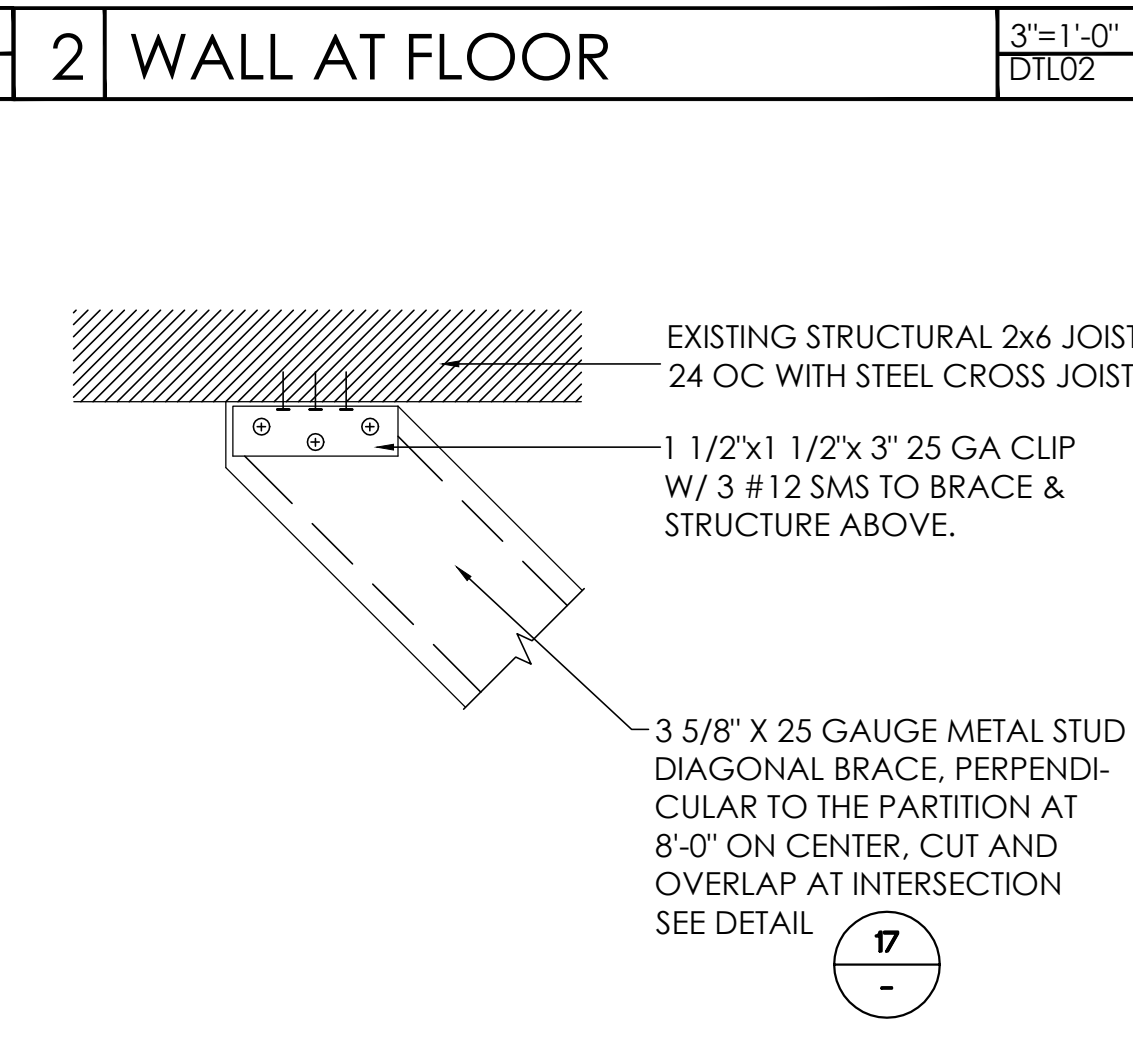
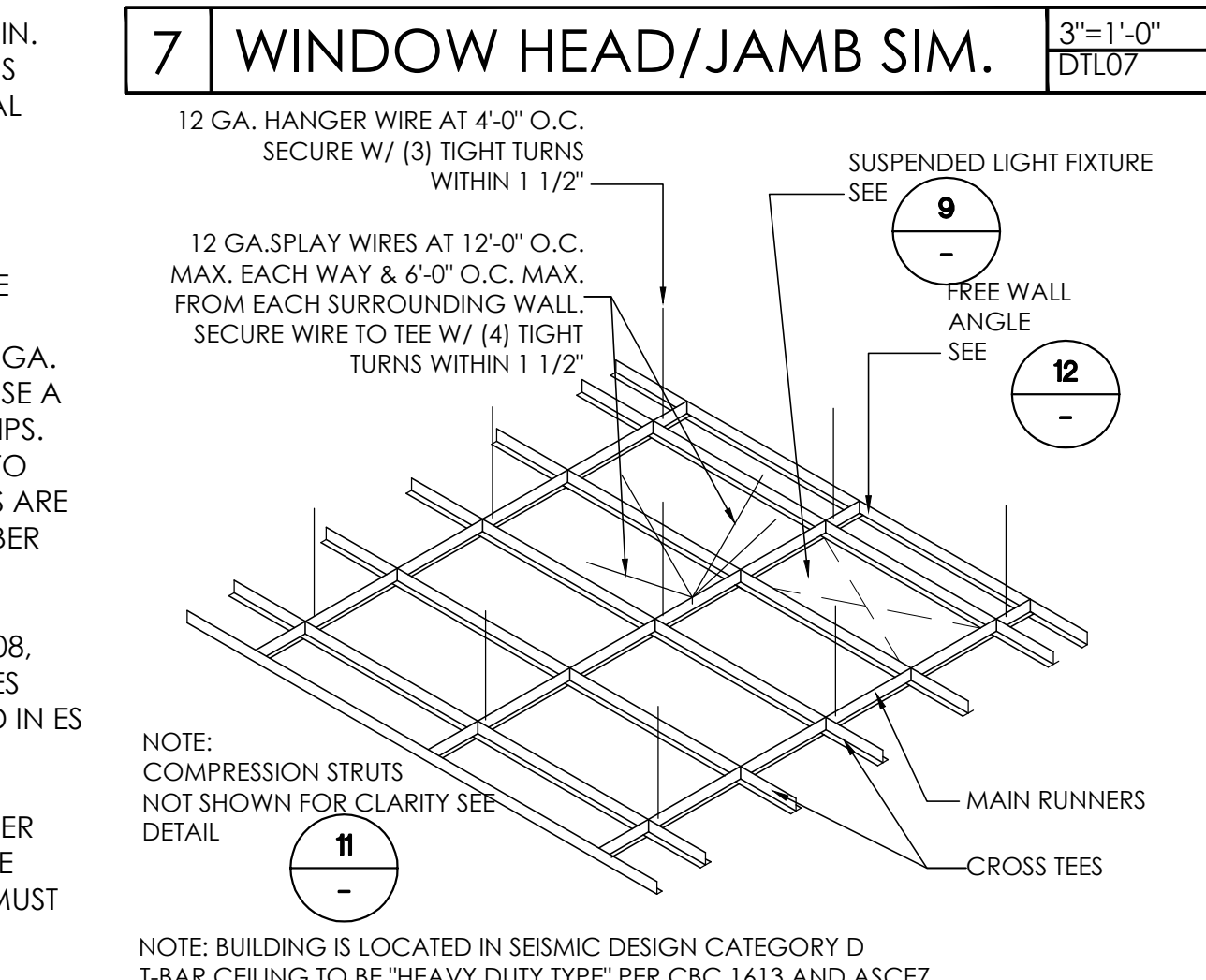
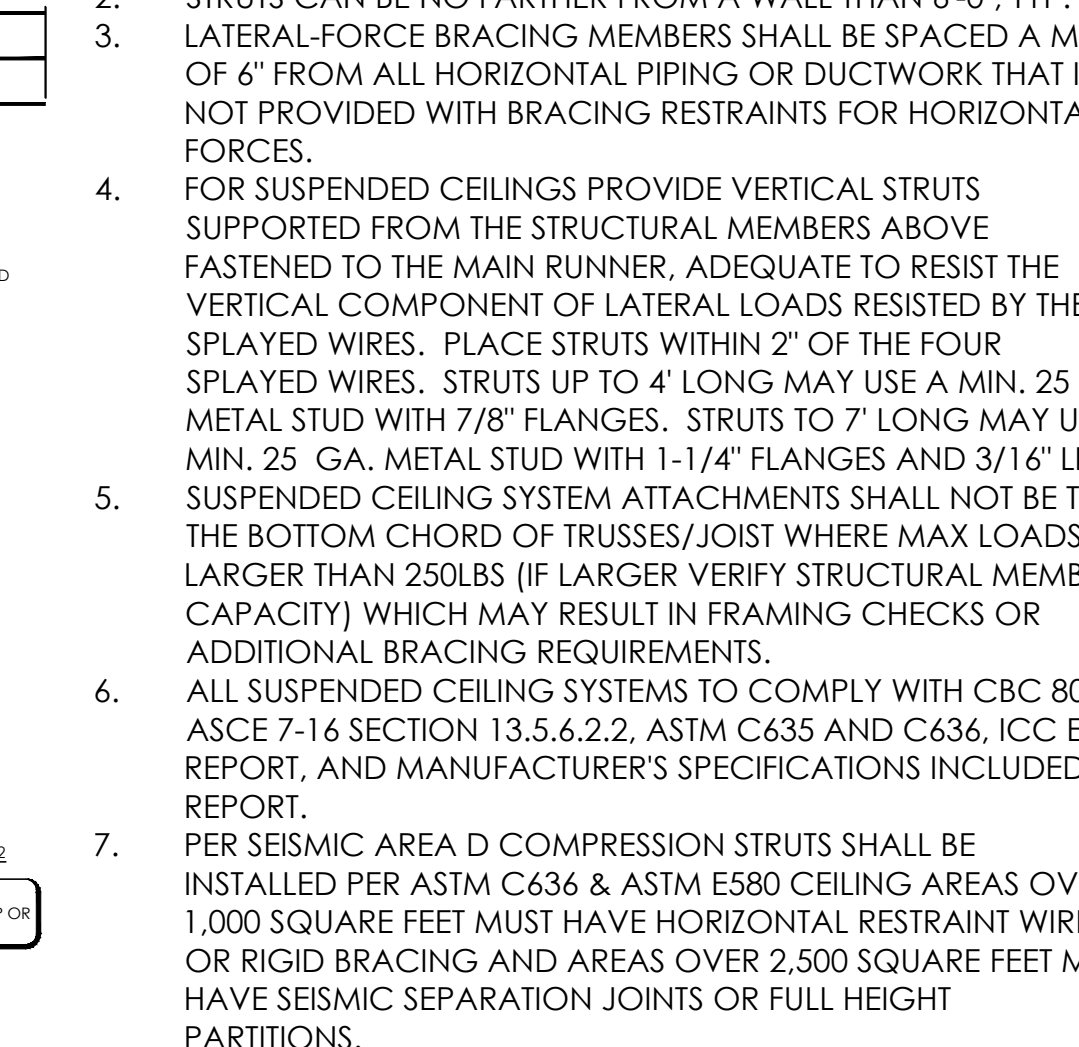
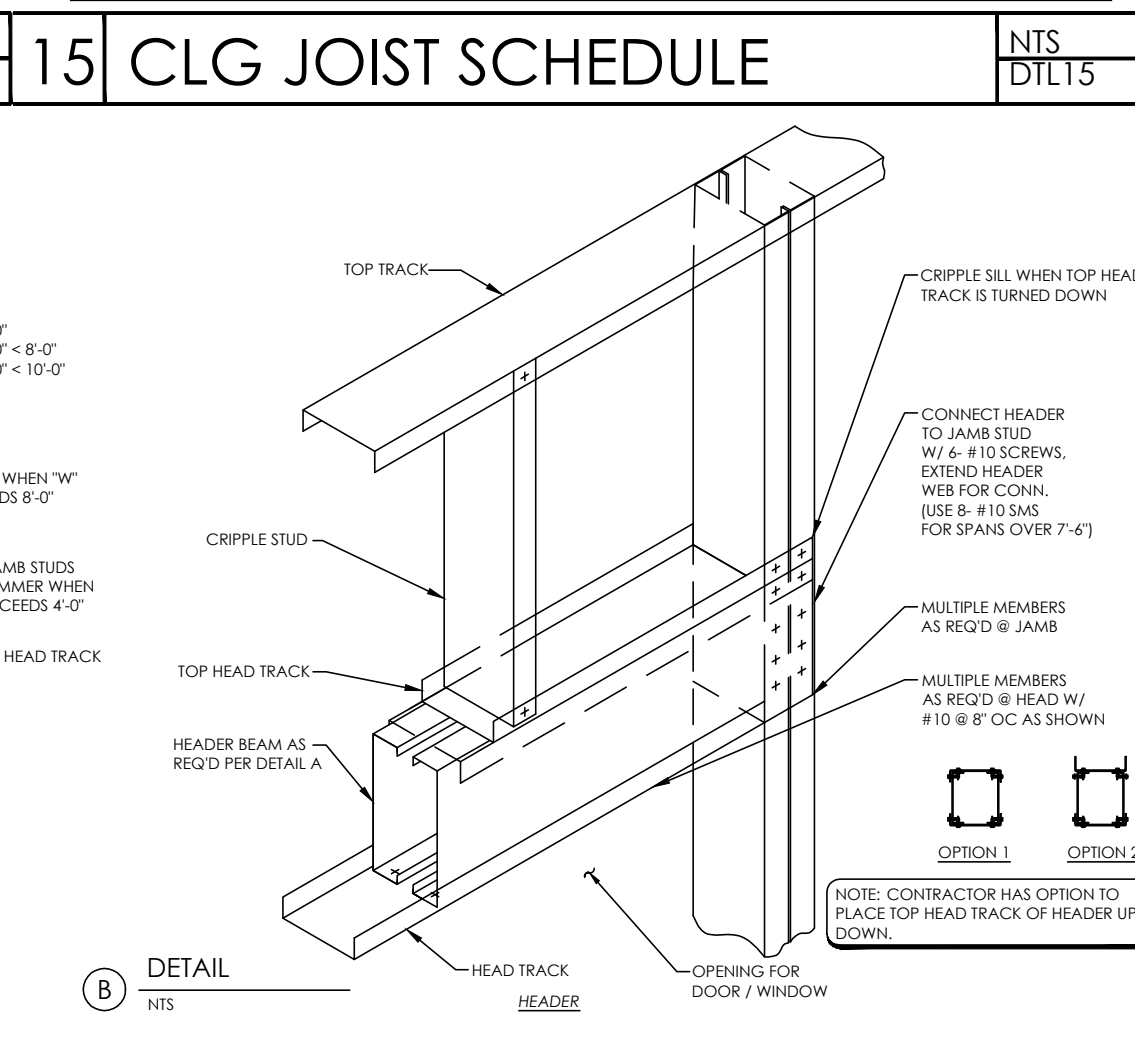
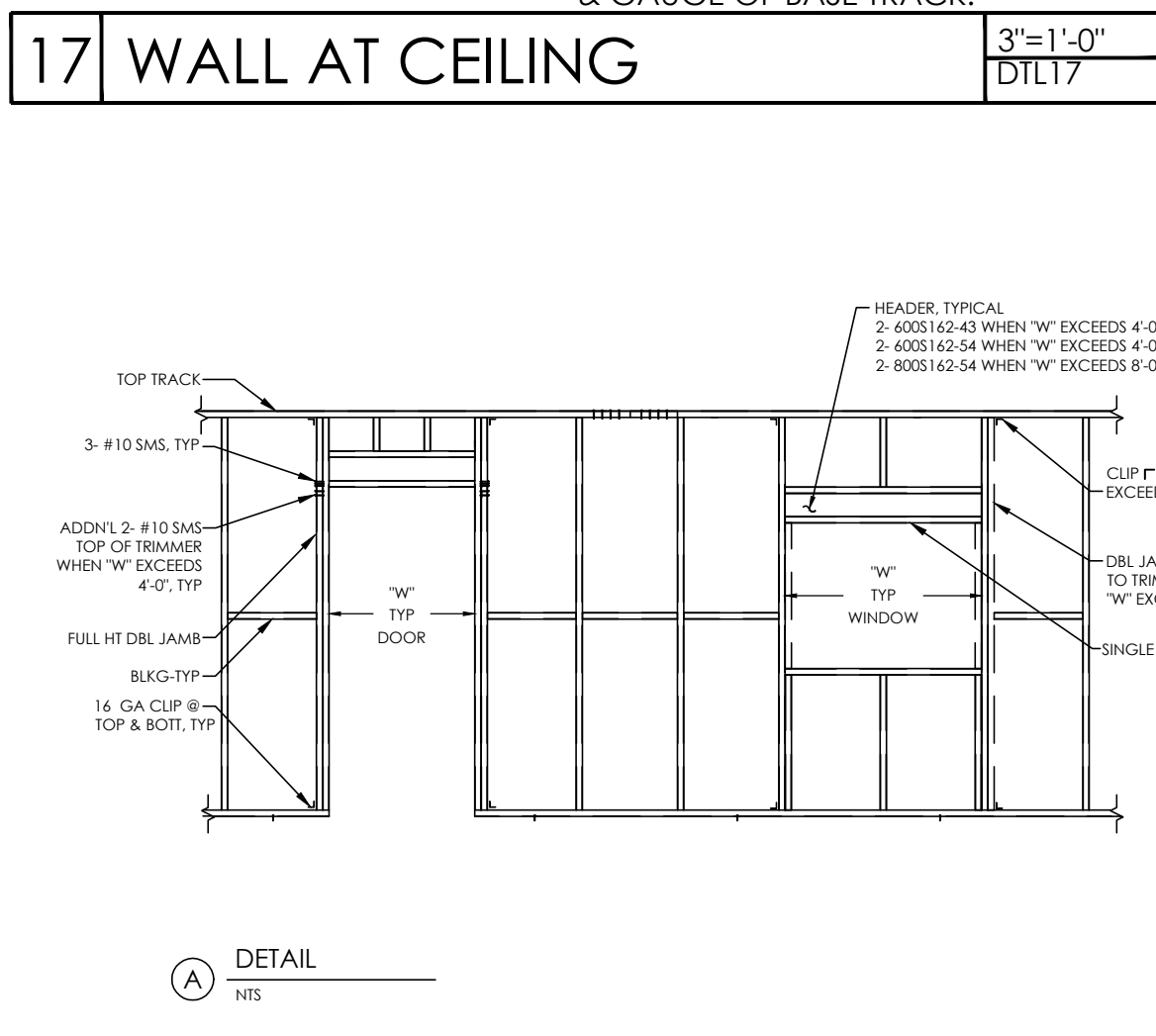
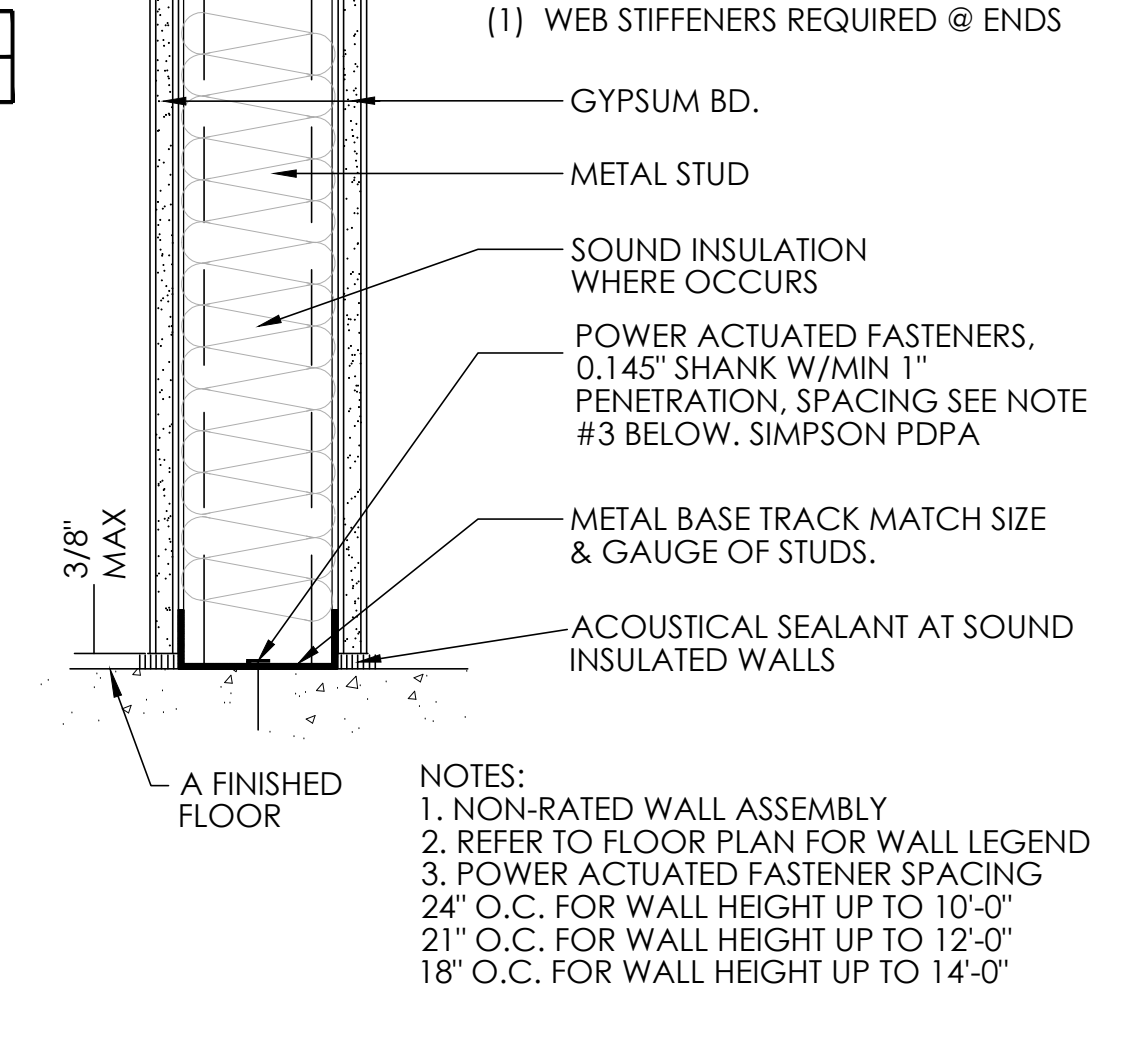
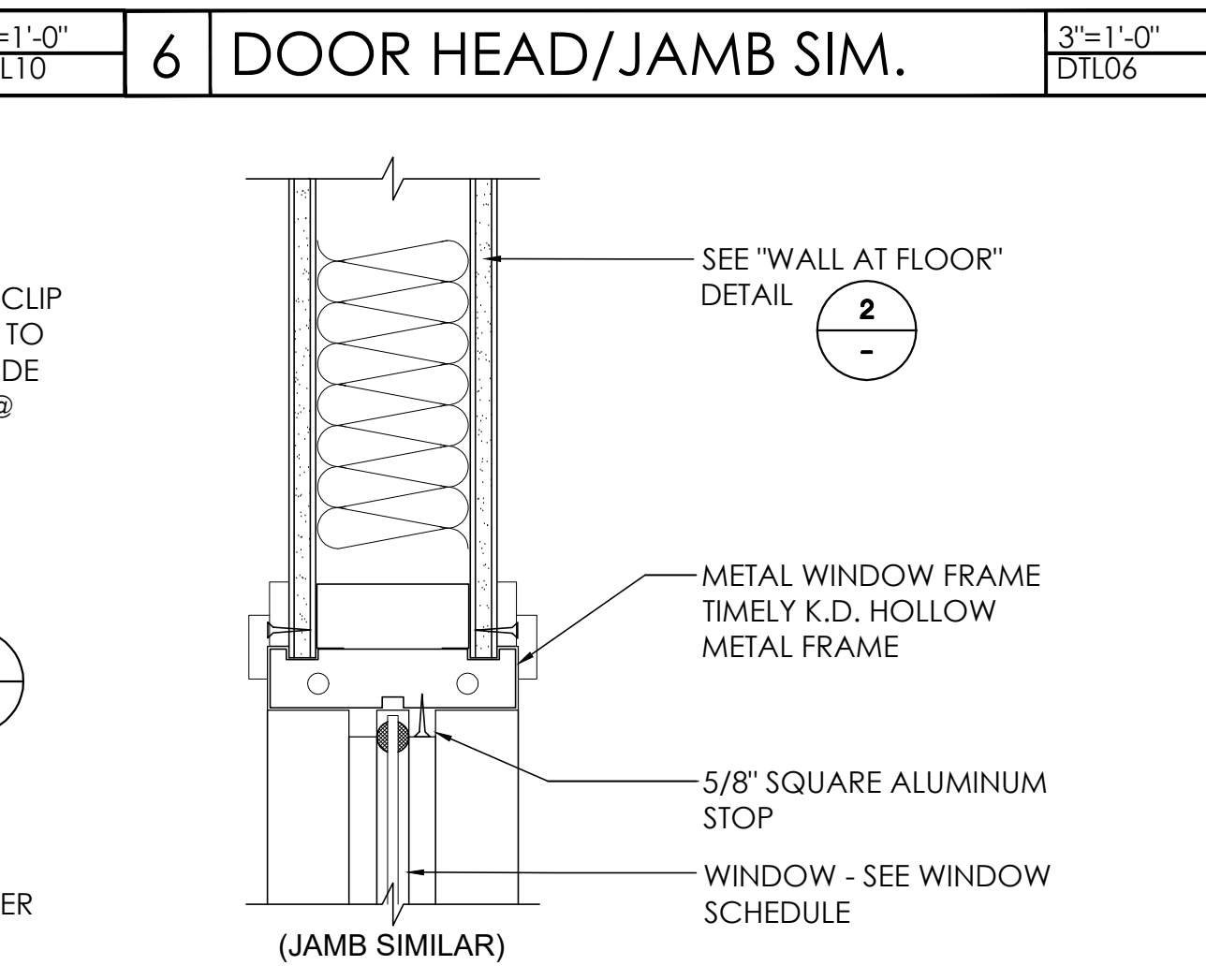
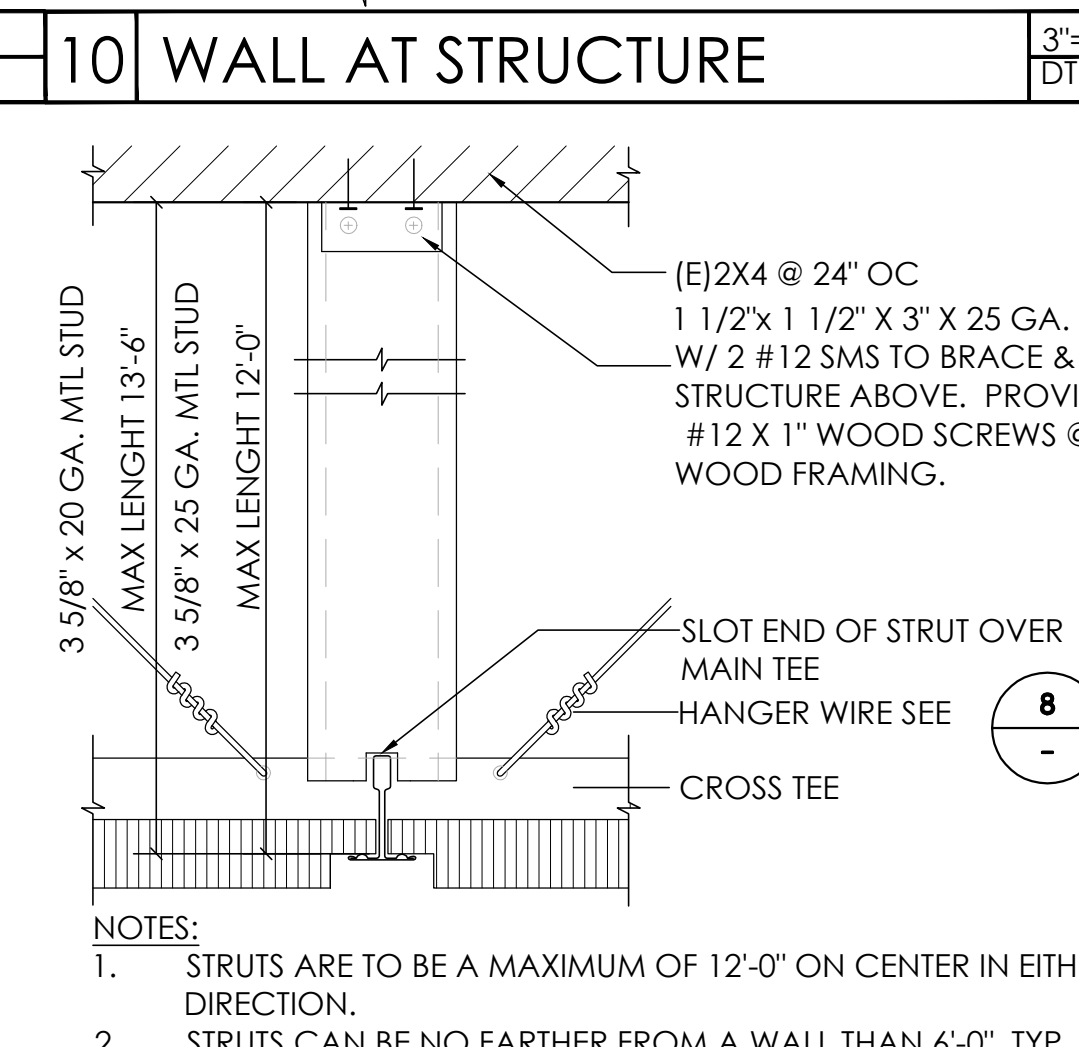
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362S125-18	25	24	1 1/2"	9'-3"
	25	16	1 1/2"	11'-4"
362S125-27	22	24	1 1/2"	12'-5"
	22	16	1 1/2"	15'-0"
362S125-30	20	24	1 1/2"	13'-4"
	20	16	1 1/2"	15'-6"
362S125-33	20	24	1 1/2"	14'-0"
	20	16	1 1/2"	16'-1"
600S125-27	22	24	1 1/2"	17'-6"
	22	16	1 1/2"	21'-5" (1)
600S125-30	20	24	1 1/2"	18'-10"
	20	16	1 1/2"	23'-0"
600S125-33	20	24	1 1/2"	20'-5"
	20	16	1 1/2"	23'-11"
600S125-43	18	24	1 1/2"	24'-3"
	18	16	1 1/2"	26'-2"



CLG JOIST SCHEDULE

NOTES:
1. NO STORAGE OR ANY OTHER USE ON CEILING.
2. VALUES ARE FOR SINGLE SPANS.
3. ALLOWABLE CEILING SPAN CALCULATIONS BASED ON 33 ksi YIELD STRENGTH STEEL (4psf - 1 LAYER OF GYP. BD)

SECTION	THICKNESS	JOIST SPACING (IN O.C.)
		12 16 24
362S125 - 3 5/8" X 1 1/4"	18 MIL - 25 GAUGE	9'-5" 8'-9" 7'-9"
	27 MIL - 22 GAUGE	10'-8" 9'-11" 8'-10"
	30 MIL - 20 GAUGE	11'-0" 10'-2" 9'-2"
	33 MIL - 20 GAUGE	11'-5" 10'-7" 9'-5"
362S137 - 3 5/8" X 1 3/8"	27 MIL - 22 GAUGE	12'-1" 11'-2" 10'-1"
	33 MIL - 20 GAUGE	12'-11" 11'-11" 10'-8"
	43 MIL - 18 GAUGE	14'-3" 13'-2" 11'-9"
	400S125 - 4" X 1 3/8"	27 MIL - 22 GAUGE
	30 MIL - 20 GAUGE	11'-4" 10'-6" 9'-5"
	33 MIL - 20 GAUGE	11'-9" 10'-10" 9'-8"
600S125 - 6" X 1 1/4"	27 MIL - 22 GAUGE	*12'-4" *11'-5" *10'-4"
	30 MIL - 20 GAUGE	12'-9" 11'-9" 10'-7"
	33 MIL - 20 GAUGE	13'-2" 12'-2" 10'-11"
	600S137 - 6" X 1 3/8"	33 MIL - 20 GAUGE
	43 MIL - 18 GAUGE	16'-2" 14'-11" 13'-4"
600S162 - 6" X 1 5/8"	33 MIL - 20 GAUGE	16'-10" 15'-7" 14'-0"
	43 MIL - 18 GAUGE	18'-4" 16'-11" 15'-2"



14	OPENINGS AT METAL FRAMINGS	3\"/>
11	COMPRESSION STRUT	3\"/>
8	CEILING GRID	1/4\"/>
4	DIAGONAL BRACING	3\"/>



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Signed on 6/15/2023

Ownership of Documents: This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of Pittman Engineering Inc. and is not to be used in whole or in part for any other project without the written authorization of Pittman Engineering Inc.

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APPROVAL STAMP

PROJECT
PLACER
DETAILING

10612 INDUSTRIAL AVE.
SUITE 120
ROSEVILLE, CA 95678

REVISIONS	
DESCRIPTION	DATE

DRAWING
MECHANICAL
LEGEND, NOTES
AND SCHEDULES

PROJECT NO.	23141
DATE	04-14-2023
DRAWN BY	ED/SP
CHECKED BY	RP/TG

M110

GENERAL MECHANICAL NOTES

- EQUIPMENT: ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND EQUAL IN QUALITY, TYPE, CAPACITY, EFFICIENCY, AND ACCESSORIES TO THE EQUIPMENT NOTED ON THE DRAWINGS. ADJUSTMENTS TO CONSTRUCTION AND ACCESSORIES ON SUBSTITUTED EQUIPMENT MAY BE REQUIRED TO ACHIEVE THIS EQUALITY, AND SHALL BE INCLUDED AT NO EXTRA COST TO THE OWNER. MAKE ANY CHANGES IN DUCTWORK, PIPING, FRAMING, ETC., AS REQUIRED TO ACCOMMODATE SUBSTITUTED EQUIPMENT.
- INSTALLATION: INSTALL ALL EQUIPMENT AND MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH EDITION APPLICABLE CODES INCLUDING BUT NOT LIMITED TO:
 - 2023 CALIFORNIA MECHANICAL CODE (CMC)
 - 2023 CALIFORNIA ENERGY CODE (CEC) INCLUDING LOCAL AMENDMENTS
 - CALIFORNIA CODE OF REGULATIONS (CCR)
 - 2023 CALIFORNIA BUILDING CODE (CALIFORNIA CODE OF REGULATIONS, TITLE 24)
 - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
 - 2023 CALIFORNIA FIRE CODE (CFC)
 - 2023 CALIFORNIA GREEN BUILDING STANDARDS CODE
 WHERE HEAVIER GAUGES OF MATERIAL, LARGER SIZES OR MORE STRINGENT REQUIREMENTS THAN THE CODES ARE REQUIRED BY THE CONTRACT DOCUMENTS, SUCH INCREASED REQUIREMENTS SHALL APPLY.
- SHEET METAL DUCTWORK: ALL SHEET METAL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH CMC STANDARDS AND SMACNA GUIDELINES WITH THE MORE STRINGENT BEING APPLIED. ALL DUCT JOINTS INCLUDING MECHANICAL FLANGED JOINTS SHALL BE SEALED WITH SILVER TAPE OR ARABOL AND CANVAS. SEAL THE JOINTS OF ALL DUCTS EXPOSED TO THE WEATHER WITH ARABOL AND CANVAS. PROVIDE ALL BRANCH DUCTS WITH VOLUME DAMPERS WITH LOCKING QUADRANTS LOCATED AT LEAST FIVE FEET (5') FROM THE GRILLE OR DIFFUSER SERVED, WITH LONG RADIUS ELBOWS. CONCEALED DAMPERS SHALL HAVE CABLE OPERATED MECHANISMS TO ALLOW ADJUSTMENTS WITH OUT DISTURBING THE STRUCTURE. ALL RECTANGULAR OR ROUND RIGID DUCTS SHALL BE OF SMACNA GAGE GALVANIZED STEEL OR ALUMINUM, UNLESS OTHERWISE NOTED ON THE DRAWINGS. PROVIDE FLAT SEAM CONSTRUCTION FOR ANY DUCTS EXPOSED IN OCCUPIED SPACE. NOTE: ALUMA-FLEX IS NOT ACCEPTABLE IN LIEU OF ROUND RIGID DUCTWORK. ALL DUCT OPENINGS SHALL BE SEALED AGAINST DUST AND DEBRIS UNTIL FINAL START-UP.
- DUCT SUPPORTS: ALL PIPING AND DUCTWORK SHALL BE SUPPORTED IN ACCORDANCE WITH CMC STANDARDS OR SMACNA SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS. CONTRACTOR SHALL PROVIDE CALCULATIONS FOR SEISMIC SUPPORTS AND RESTRAINTS THAT ARE ACCEPTABLE TO THE REVIEWING AUTHORITY.
- FLEXIBLE DUCT: FLEXIBLE DUCTS SHALL BE ATCO 30, GENFLEX F29, THERMAFLEX M-KE, OR APPROVED EQUAL. FLEXIBLE DUCTWORK SHALL NOT BE USED WHERE EXPOSED DUCTWORK OCCURS, FIRE RATED WALL, FLOOR OR CEILING ASSEMBLIES EXISTS, AND TEMPERATURES EXCEEDS 250F. FACTORY-MADE FLEX DUCTS AND CONNECTORS SHALL BE NOT MORE THAN 5 FEET AND SHALL NOT BE USED IN LIEU OF RIGID ELBOW OR FITTINGS. FLEXIBLE AIR DUCTS SHALL BE PERMITTED TO BE USED AS AN ELBOW AT A TERMINAL DEVICE. PER 2023 CMC 603.
- ALL DUCT SIZES ON PLANS ARE SIZED FOR HARD DUCT.
- AT THE TIME OF ROUGH INSTALLATION OR DURING STORAGE ON THE CONSTRUCTION SITE AND UNTIL FINAL STARTUP OF THE HEATING AND COOLING 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.
- INSULATION FOR INTERIOR DUCT: INSULATE ALL RIGID SUPPLY AND RETURN DUCTS WITH 1-1/2" THICK, 3/4 PCF DENSITY OWENS CORNING SOFTOR OR EQUAL, FIBERGLASS DUCT WRAP, TYPE 75, WITH FOIL REINFORCED KRAFT VAPOR RETARDER FACING, BUTT JOINT PIECES WITH 2" MINIMUM TAP FLAP OVERLAPPING. WHEN IN CONDITIONED SPACE, DUCTS SHALL HAVE R-4.2 INSULATION. WHEN IN UNCONDITIONED SPACE, DUCTS SHALL HAVE R-8.0 INSULATION.

INSULATION FOR EXTERIOR DUCT: SEAL ALL METAL JOINTS PER SMACNA & CEC, LINE WITH 2" CERTAINTED TOUGHGARD, RIGID LINER BOARD. TAPE ALL INSULATED INTERIOR JOINTS. INSULATION SHALL BE PROTECTED FROM DAMAGE BY MOISTURE, UV AND PHYSICAL ABRASION. INSULATION EXPOSED TO WEATHER SHALL BE SUITABLE FOR OUTDOOR SERVICE, PROTECTED BY ALUMINUM, SHEET METAL, PAINTED CANVAS, OR PLASTIC COVER. CELLULAR FOAM INSULATION SHALL BE PROTECTED AS ABOVE OR PAINTED WITH A COATING THAT IS WATER RETARDANT AND PROVIDES SHIELDING FROM SOLAR RADIATION. THIS APPLIES TO REFRIGERANT LINE SETS AS WELL. DUCTS SHALL HAVE R-8.0 INSULATION.
- DUCT LINER: LINE ALL RIGID SUPPLY AND RETURN DUCT DROPS FOR A MINIMUM OF 10' FROM THE UNIT WITH 1" THICK OWENS CORNING QUIETER ACOUSTICS OR EQUAL ACOUSTIC DUCT LINER. INSTALL WITH 100% COVERAGE ADHESIVE, COMPLYING WITH ASTM C 916, AND FURTHER APPLY TO BUTTED ENDS. MECHANICAL FASTENERS SHALL BE APPLIED 3" FROM CORNERS AND 12" OC BETWEEN CORNER FASTENERS. ALL DUCT DIMENSIONS ON PLANS ARE CLEAR DIMENSIONS. SEAL BUTT ENDS OF EXPOSED INSULATION IN THE DUCTS WITH MANUFACTURERS RECOMMENDED SEALANT OR ADHESIVE.
- CONTROLS: HEATING AND COOLING CONTROLS SHALL COMPLY WITH THE LATEST EDITION OF CEC, SUBCHAPTER 3, SECTION 120.2. ALL CONTROLS AND CONTROL WIRING ARE NOT SPECIFICALLY SHOWN BUT ARE REQUIRED FOR A COMPLETE AND WORKABLE SYSTEM AND SHALL BE SUPPLIED BY THE CONTRACTOR AND INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
- TESTING: ALL AIR SYSTEMS SHALL BE BALANCED BY A TRAINED MECHANICAL CONTRACTOR, USING AABC, SMACNA, OR NEBB PROCEDURES. AIR QUANTITIES SHALL BE ADJUSTED TO NOT MORE THAN 10% ABOVE OR 0% BELOW THE QUANTITIES SHOWN ON THE DRAWINGS. CONTRACTOR SHALL SUBMIT A COMPLETE AIR BALANCE REPORT INDICATING, AS A MINIMUM, THE AIR DELIVERY FOR EACH DIFFUSER, THE FINAL OPERATING DATA FOR THE SYSTEMS AND THE AIR CONDITIONING UNITS.
- SUBMITTALS: SUBMIT FOR APPROVAL COPIES OF COMPLETE SUBMITTAL DATA ON SPECIFIED AND PROPOSED EQUIPMENT AND MATERIALS. SUBMITTALS SHALL INCLUDE EQUIPMENT SIZES, CAPACITY, MOTOR LOCATIONS, PERFORMANCE CURVES AND OTHER PERTINENT DATA. EACH SUBMITTAL SHALL INCLUDE IDENTIFICATION TAGS OR SYMBOLS TO MATCH THOSE ON DRAWINGS. PARTIAL SUBMITTALS OR SUBMITTALS WHICH ARE NOT MARKED WITH EQUIPMENT TAGS OR PERFORMANCE DATA WILL BE REJECTED. EQUIPMENT THAT IS NOT SUBMITTED IS TO BE USED AT THE CONTRACTORS OWN RISK REGARDLESS OF BRAND OR MODEL USED.
- EQUIPMENT IDENTIFICATION: PROVIDE PERMANENT ENGRAVED PLASTIC NAME PLATED FOR ALL EQUIPMENT INSTALLED, INDICATING THE PLAN DESIGNATION OF THE UNIT (AC-1, REF, ETC.) AND ALSO THE BUILDING AREA SERVED (CLASSROOMS 2-4, CONFERENCE ROOM, ETC.). STAMPED METAL TAPES APPLIED WITH SELF-CONTAINED ADHESIVE WILL NOT BE ACCEPTABLE. GLUE TO THE INSIDE COVER OF THE COMPRESSOR ACCESS PANEL, A COPY OF THE EQUIPMENT NAMEPLATE SUBMITTAL DATA.
- CONTRACTOR SHALL VERIFY ALL WORK CONDITIONS PRIOR TO COMMENCING WORK, INCLUDING, BUT NOT LIMITED TO: DIMENSIONS, EQUIPMENT, STRUCTURAL ELEMENTS AND MATERIALS INDICATED AS EXISTING, AS WELL AS THE COORDINATED INSTALLATION OF ALL NEW WORK, MATERIALS, EQUIPMENT, ETC. COORDINATE THE LOCATION OF ALL ROOF MOUNTED EQUIPMENT WITH THE STRUCTURAL ENGINEER.
- CONTRACTOR SHALL FIELD COORDINATE AND INSTALL PACKAGED ROOFTOP EQUIPMENT TO MAINTAIN A MINIMUM OF 10'-0" CLEARANCE FROM OUTSIDE AIR INTAKE TO ALL EXHAUST OUTLETS AND VENT THRU ROOF (VTR), TYPICAL. EXTEND PLUMBING VENTS AS REQUIRED.
- SUBMITTAL NOTE: MECHANICAL SYSTEMS DESIGN REFLECT EQUIPMENT SPECIFIED. WHEN EQUIPMENT SUBSTITUTIONS OCCUR AND DUCT DESIGN, DUCT DROPS, GAS INPUT AND ELECTRICAL SERVICE VARIES FROM THAT SPECIFIED, THEN IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR FOR ALL ADDITIONAL ENGINEERING FEES WHEN SUBSTITUTED EQUIPMENT REFLECT A REVISION OR CHANGE ON OUR DRAWINGS.
- INSTALLATION INSTRUCTIONS FOR ALL LISTED EQUIPMENT SHALL BE MADE AVAILABLE TO THE BUILDING INSPECTOR AT THE TIME OF INSPECTION.
- ONLY PERMITTED PLANS SHALL BE USED FOR CONSTRUCTION OR BIDDING.

EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION
	COOLING CAPACITIES ARE BASED AT 105°F. AMB., 80°F. DB, 67°F. WB, ENTERING AIR TEMPERATURE. HEATING CAPACITIES ARE BASED AT 30°F. SUBSTITUTIONS ALLOWED FOR MANUFACTURERS AND MODELS SIMILAR IN QUALITY AND CAPACITY. PROVIDE MERV 13 FILTERS IN ALL COOLING AND HEATING EQUIPMENT. ***FAULT DETECTION AND DIAGNOSTIC CAPABILITY IS REQUIRED FOR ALL NEW DX EQUIPMENT PER CALIFORNIA TITLE 24 SECTION 120.2. TRANE MODEL NO.: 4THA040484 EQUAL, NOMINAL 4 TON HEAT PUMP, 14 SEER, 12 EER, 8.5 HSPF COOLING CAPACITY: 45,000 BTUH TOTAL HEATING CAPACITY: 34,636 BTUH ELECTRICAL SERVICE: 460 V/3 PH/60 HZ. COMPRESSOR: 1 AT 6.2 RLA, 41.0 LRA OUTDOOR FAN: 0.6 AMPS AT 1/8 HP MCA: 8 MOCP: 15 NOTE: PROVIDE AND INSTALL ANTI-SHORT CYCLE TIMER TAYASCT501A WEIGHT: 218 LBS
	TRANE MODEL NO.: TAM9AOC48 OR EQUAL NOMINAL 4 TON AIR HANDLER, FILTER: 22"x20"x1" ELECTRICAL SERVICE: 230 V/1 PH/60 HZ. MOTOR: 1 AT 3/4 HP 6.0. FL AMPS NOTE: PROVIDE AND INSTALL AUXILIARY HEAT, 240V: 7.68 KW, 48 MCA, 50 MOCP, BAYHTR1508+1 WEIGHT: 175 LBS
	GREENHECK MODEL NO.: SP-B90 OR EQUAL AIR FLOW SETTING: 75 CFM AT 0.325 S.P., 700 RPM ELECTRICAL SERVICE: 120 V/1 PH/60 HZ., 50 WATTS CONTROL WITH ROOM LIGHTS. WEIGHT: 10 LBS. FURNISH: BACKDRAFT DAMPER, INTERCONNECTING DUCT, INHERENT THERMAL MOTOR PROTECTION, ROOFCAP.
	GREENHECK MODEL NO.: SP-B150 OR EQUAL AIR FLOW SETTING: 150 CFM AT 0.325 S.P., 1050 RPM ELECTRICAL SERVICE: 120 V/1 PH/60 HZ., 128 WATTS CONTROL WITH ROOM LIGHTS (INTERLOCK WITH HP-1) WEIGHT: 10 LBS. FURNISH: BACKDRAFT DAMPER, INTERCONNECTING DUCT, INHERENT THERMAL MOTOR PROTECTION, ROOFCAP.
	VENTILATOR TURBINE: EMPIRE MODEL # TV10G, GRANGER ITEM #2C530, WIND DRIVEN WIND TURBINE, 10" THROAT, 16-1/4" HEIGHT, 16-1/4" WIDTH, 425 CFM @ 4 MPH WIND/ 212 CFM @ 2 MPH WIND, GALVANIZED STEEL WITH STEEL BRACING.

MECHANICAL LEGEND

SYMBOL / ABBREVIATION	DESCRIPTION	SYMBOL / ABBREVIATION	DESCRIPTION
	DUCT RISE		DUCT DEMO
	DUCT DROP		UNDERCUT DOOR
	OUTSIDE AIR		DOOR LOUVER
	SUPPLY AIR		OUTSIDE AIR
	RETURN AIR		DIAMETER OR PHASE
	EXHAUST AIR		ABOVE CEILING
	BALANCE DAMPER		CEILING
	DUCT (WxH)		ACCESS PANEL
	ACOUSTICAL LINED DUCTING		CUBIC FEET PER MINUTE
	DUCT TRANSITION		EXISTING TO BE FIELD VERIFIED BY CONTRACTOR
	SUPPLY, RETURN, EXHAUST RISER		FROM ABOVE, TO ABOVE
	THERMOSTAT, SENSOR, HUMIDISTAT, CO2		FROM BELOW, TO BELOW
	RELOCATE, EXTEND/SHORTEN DUCT AS REQUIRED		ABOVE FINISHED FLOOR
	POINT OF CONNECTION		FINISHED FLOOR
	MOTORIZED DAMPER		PER FOOT
	RADIATION FIRE DAMPER		NOT IN MECHANICAL CONTRACT
	FIRE SMOKE DAMPER		NOT TO SCALE
	DUCT SMOKE DETECTOR		OPPOSED BLADE DAMPER
	AIRFLOW (OUTLET ARROW)		REFERENCE
	AIRFLOW (INLET ARROW)		TYPICAL

GRILLE SCHEDULE

SYMBOL	DESCRIPTION
	SUPPLY GRILLE, TITUS, MODEL MCD, MODULAR CORE DIFFUSER WITH ROUND NECK. BORDER TYPE 1 FOR SURFACE MOUNT APPLICATIONS. BORDER TYPE 3 FOR LAY-IN/T-BAR MOUNT APPLICATIONS.
	RETURN GRILLE, TITUS, MODEL 50F, EGGRATE RETURN GRILLE. BORDER TYPE 1 FOR SURFACE MOUNT APPLICATIONS. BORDER TYPE 3 FOR LAY-IN/T-BAR MOUNT APPLICATIONS.

NECK SIZE (INCHES X INCHES)
 AIR FLOW (CFM)

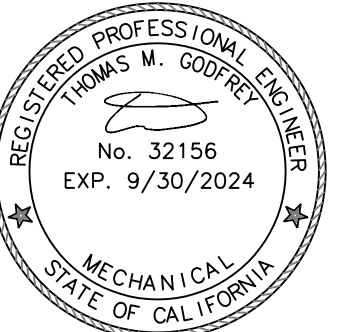
NOTE: SUBSTITUTIONS ALLOWED FOR MANUFACTURERS AND MODELS SIMILAR IN QUALITY AND PERFORMANCE. GRILLES SHALL BE SIZED FOR NOISE CRITERIA (NC) NOT TO EXCEED 20.

VENTILATION CALC.

0.06 CFM/SF - MIN REQUIRED VENTILATION PER TABE 402.1-CMC.2022

0.06 CFM X 2,800 SF = 168 CFM.

TV-1 - EXHAUST CAPACITY 212 CFM.



Signed on 6/15/2023

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APPROVAL STAMP

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**PLACER
DETAILING**

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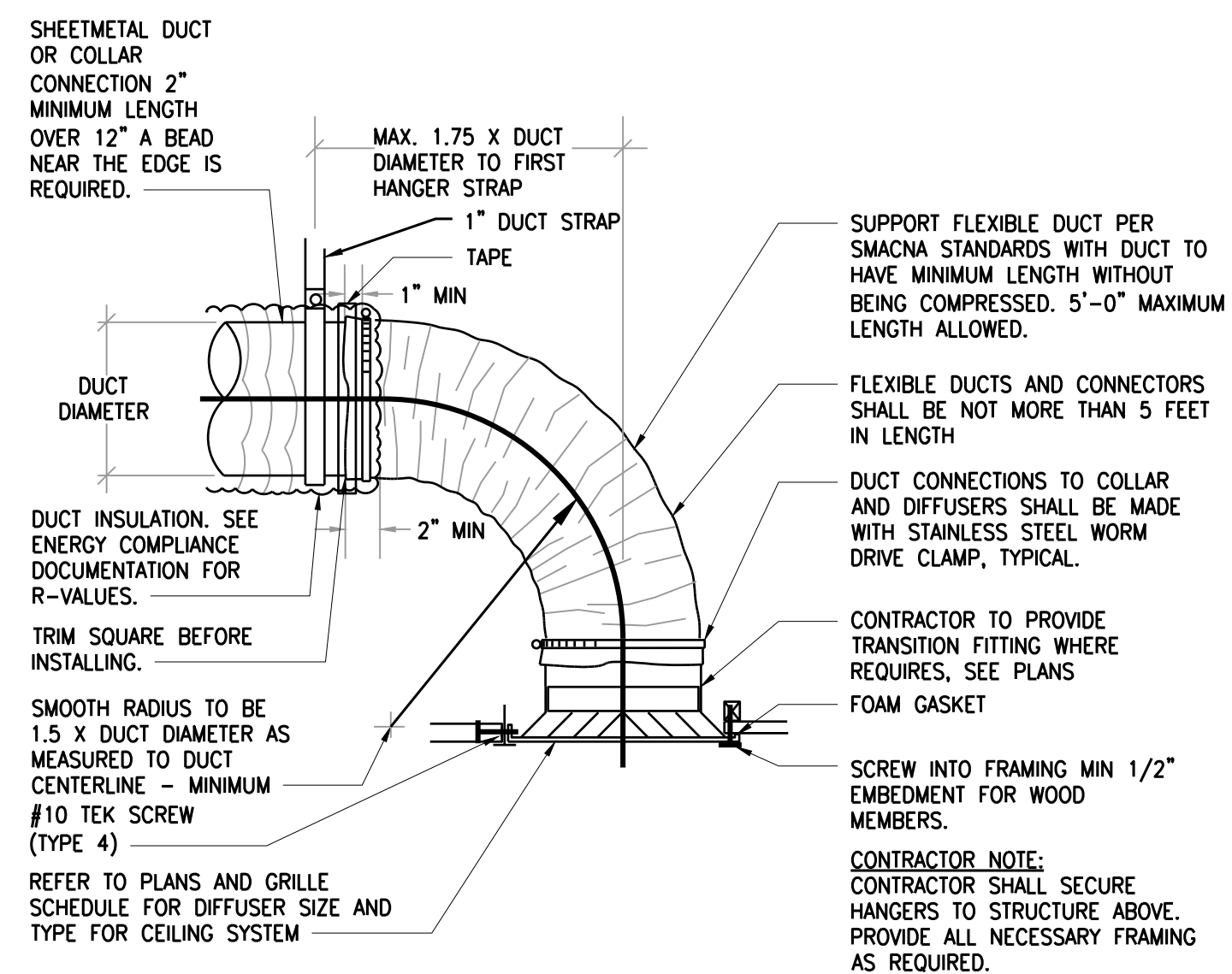
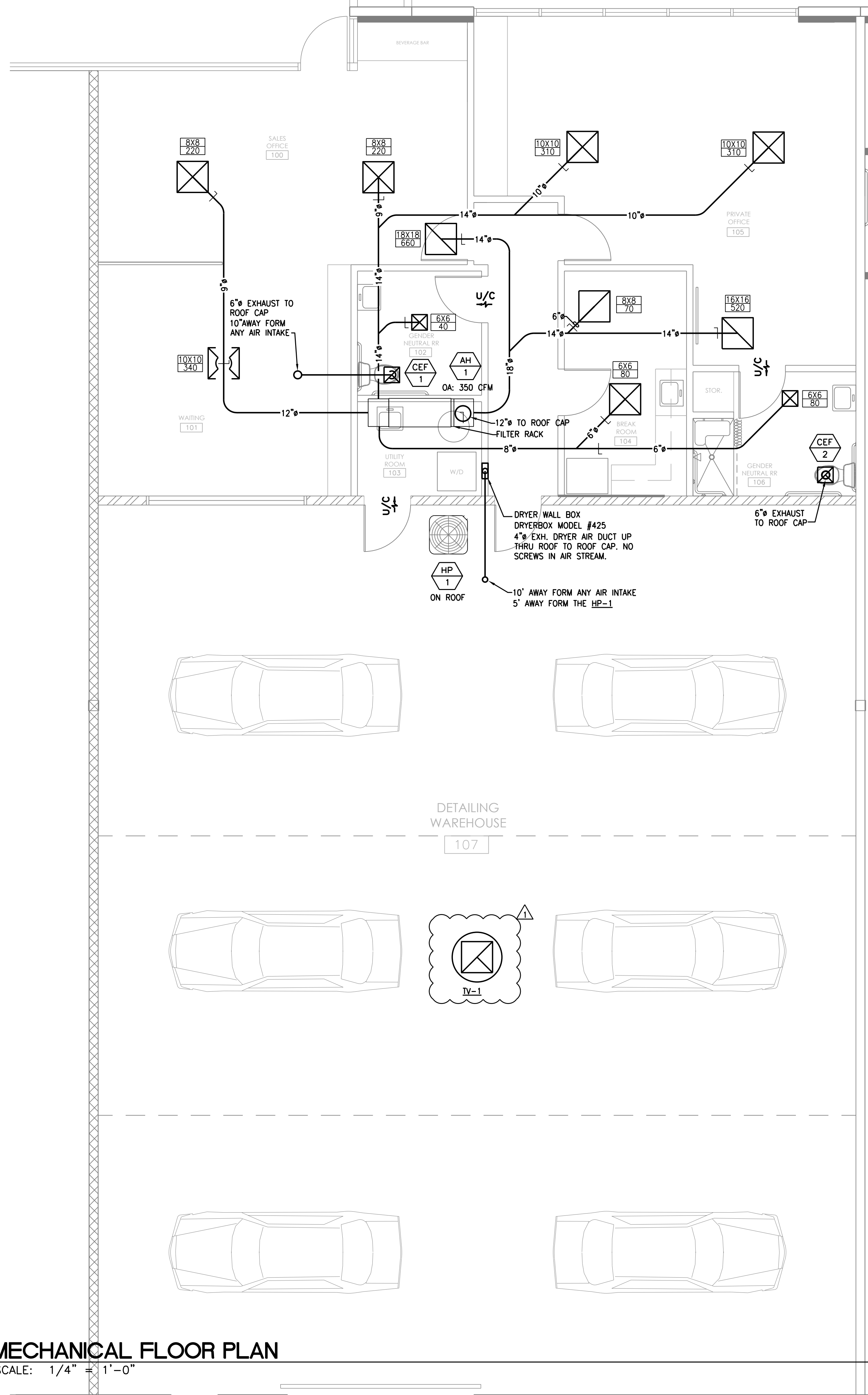
REVISIONS

DESCRIPTION	DATE

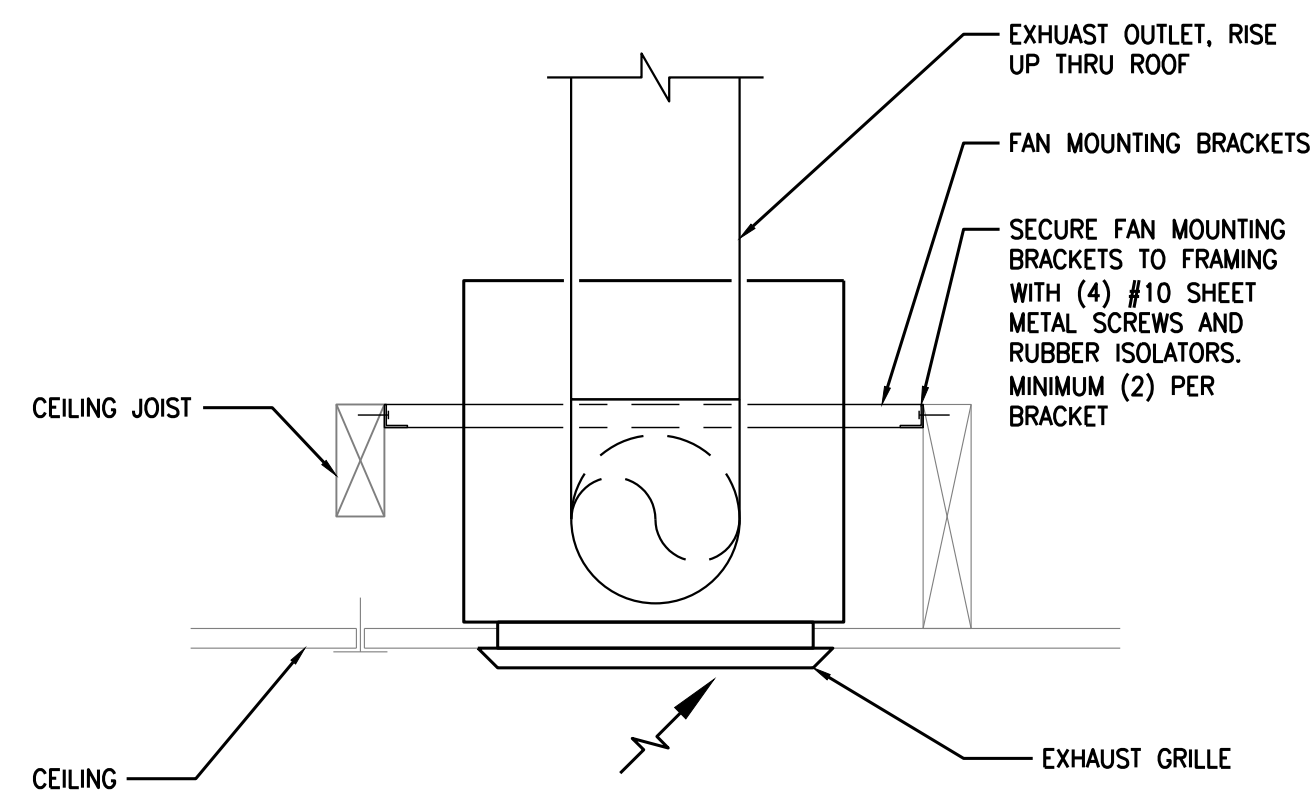
DRAWING
**MECHANICAL
FLOOR PLAN**

PROJECT NO. 23141
DATE 04-14-2023
DRAWN BY ED/SP
CHECKED BY RP/TG

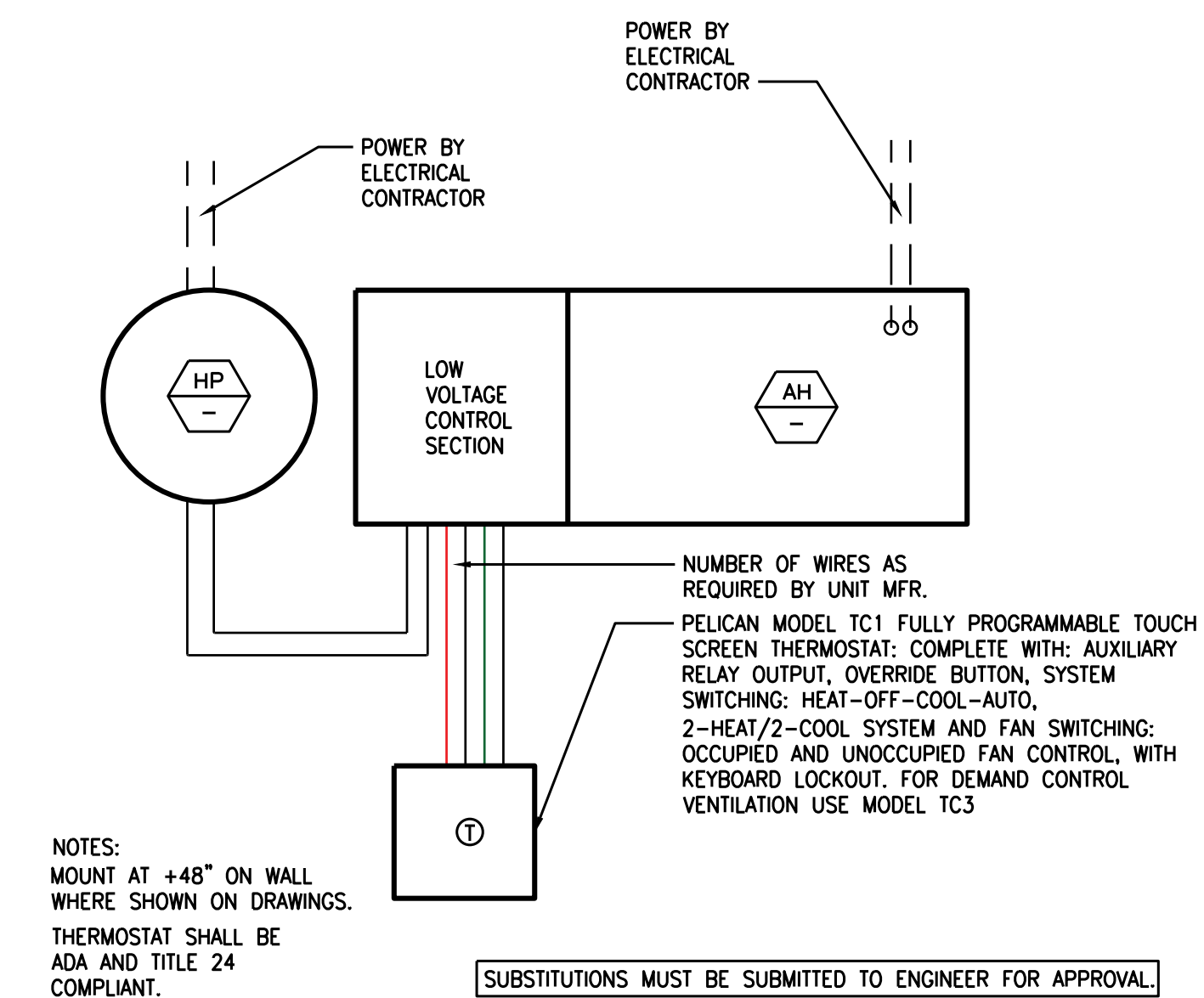
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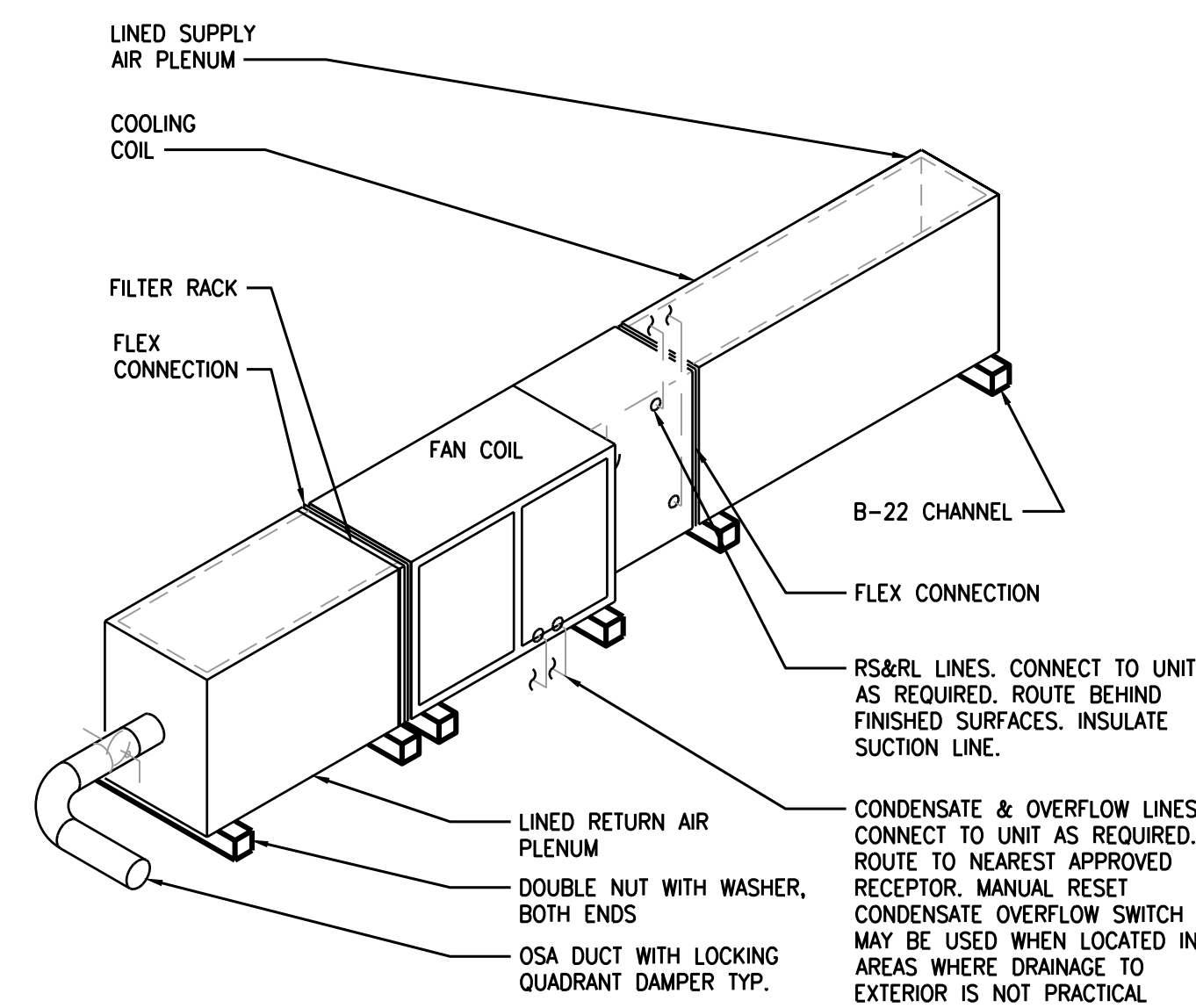
CEILING DIFFUSER DETAIL
SCALE: NTS



CEILING EXHAUST DETAIL
SCALE: NTS



THERMOSTAT DETAIL WIRING DIAGRAM
SCALE: NTS



HEAT PUMP MOUNTING DETAIL
SCALE: NTS

MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

1

GENERAL PLUMBING NOTES

1. GENERAL PLUMBING NOTES

ALL EQUIPMENT AND MATERIALS USED SHALL BE NEW AND SHALL BE EQUAL IN QUALITY, TYPE, CAPACITY AND ACCESSORIES TO THE EQUIPMENT NOTED ON THE DRAWINGS. ADJUSTMENTS TO CONSTRUCTION AND ACCESSORIES ON SUBSTITUTED EQUIPMENT MAY BE REQUIRED TO ACHIEVE THIS EQUALITY, AND SHALL BE INCLUDED AT NO EXTRA COST TO THE OWNER. MAKE ANY CHANGES IN PIPING, FRAMING, ETC., AS REQUIRED TO ACCOMMODATE SUBSTITUTED EQUIPMENT.

INSTALL ALL EQUIPMENT AND MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH ALL APPLICABLE CODES. APPLICABLE CODES SHALL INCLUDE, BUT NOT BE LIMITED TO THE LATEST EDITIONS OF THE CA MECHANICAL CODE, CA PLUMBING CODE, CALIFORNIA CODE OF REGULATIONS (CCR), UNIFORM FIRE REGULATIONS AND TITLE 24 ENERGY EFFICIENCY STANDARDS. WHERE HEAVIER GAGES OF MATERIAL, LARGER SIZES OR MORE STRINGENT REQUIREMENTS THAN THE CODES ARE REQUIRED BY THE CONTRACT DOCUMENTS, SUCH INCREASED REQUIREMENTS SHALL APPLY.

UNLESS SUBMITTED ELECTRONICALLY, PROVIDE SIX COPIES OF SUBMITTALS WITH MANUFACTURER'S OPERATING AND MAINTENANCE DATA FOR ALL ITEMS OF EQUIPMENT INSTALLED. INDICATE THE EXACT MODEL(S) OF EQUIPMENT WHERE THE MANUFACTURER'S DATA INCLUDES MODELS OTHER THAN THOSE INSTALLED. BIND THE INFORMATION IN 3 RING BINDERS, WITH DIFFERENT TYPES OF EQUIPMENT INDEXED. PROVIDE A SHEET INDICATING THE CONTRACTOR'S (AND SUBCONTRACTOR'S) NAMES, ADDRESSES AND TELEPHONE NUMBERS. INCLUDE ALSO THE PREFERRED SOURCES OF SPARE PARTS FOR THE EQUIPMENT INSTALLED, INCLUDING ADDRESSES, TELEPHONE NUMBERS, ETC.

CONTRACTOR SHALL VERIFY ALL WORK CONDITIONS, PRIOR TO COMMENCING WORK, INCLUDING, BUT NOT LIMITED TO: PIPING SIZES, INVERT ELEVATIONS, POINTS OF CONNECTION, FIXTURES AND EQUIPMENT, STRUCTURAL ELEMENTS AND MATERIALS INDICATED AS EXISTING, AS WELL AS THE COORDINATED INSTALLATION OF ALL NEW WORK, MATERIALS, EQUIPMENT, ETC. VERIFY THE LOCATION AND REQUIRED PIPING CONNECTIONS OF ALL HVAC OR OTHER MECHANICAL EQUIPMENT. NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO TRENCHING OR COMMENCING OTHER WORK. CONTRACTOR SHALL VERIFY SIZE OF EXISTING GAS METER IS ADEQUATE WITH PG&E BEFORE STARTING CONSTRUCTION.

MECHANICAL EQUIPMENT AND IDENTIFICATION TAGS SHOWN ON DRAWINGS ARE FOR THE COORDINATION OF UTILITIES ONLY, REFER TO MECHANICAL DRAWINGS FOR EQUIPMENT SPECIFICATIONS.

ALL FIELD TESTS SHALL BE OBSERVED BY THE AUTHORITY HAVING JURISDICTION.

2. GAS PIPING

MATERIALS:

BLACK STEEL, ASTM A-53, WITH MALLEABLE STEEL FITTINGS. PIPE SHALL BE COATED. PIPE SIZES 2½" AND OVER SHALL HAVE WELDED JOINTS; SIZES 2" AND SMALLER MAY BE THREADED OR WELDED, AT CONTRACTOR'S OPTION, EXCEPT THAT ALL PIPING UNDERGROUND SHALL BE WELDED REGARDLESS OF SIZE. CONTRACTOR MAY USE POLYETHYLENE PIPING WITH TRACE WIRE FOR UNDERGROUND PIPING ONLY.

INSTALLATION NOTES:

WRAP UNDERGROUND COUPLINGS IN 6ML TAPE. PAINT ALL EXPOSED PIPING WITH RUST INHIBITING PAINT. GAS PIPING BELOW GRADE SHALL BE WRAPPED AS DESCRIBED FOR WATER PIPING, OR, AT CONTRACTOR'S OPTION, MAY HAVE EXTRU-COAT OR SIMILAR COVERING. ALL FIELD JOINTS SHALL BE WRAPPED AS FOR BARE PIPING JOINTS. PLACE EXTRU-COAT GAS PIPING IN A SAND OR SIEVED EARTH BED, WITH SIMILAR COVERING TO A LEVEL OF 4" ABOVE TOP OF PIPE.

TESTING:

PRESSURE TEST ALL GAS PIPING FOR TWO HOURS AT 60 PSIG OR HIGHER. FIND LEAKS USING SOAP AND WATER OR SIMILAR MATERIALS AT ALL JOINTS. REPAIR ANY LEAKS FOUND BY REMAKING THE JOINT. DO NOT USE CAULKING OR SIMILAR METHODS TO CORRECT LEAKS. RESET AFTER REPAIRING LEAKS. UPON REPAIRING ANY LEAKS FOUND, RETEST THAT PORTION OF THE SYSTEM AS DESCRIBED ABOVE.

3. SANITARY SEWER, STORM WATER, VENT PIPING

MATERIALS:

SANITARY SEWER AND VENT: POLY VINYL CHLORIDE (PVC) OR ACRYLONITRILE-BUTADIENE-STYRENE (ABS) PLASTIC PIPE. ALL PIPE, COUPLINGS AND FITTINGS SHALL BE MANUFACTURED OF MATERIAL CONFORMING TO ASTM D1785, D2661, D2665, D2680, F628, SOLVENT CEMENT FOR PLASTIC PIPE SHALL CONFORM TO ASTM D2564, D2235, D3138. PLASTIC PIPING SHALL NOT BE USED IN PLENUMS PER CPC 701.2.

SANITARY SEWER AND VENT IN RETURN AIR PLENUM OR EXPOSED: CAST IRON SOIL PIPE AND FITTINGS, ASPHALTIC COATED, CONFORMING TO CAST IRON SOIL PIPE INSTITUTE STANDARD #301 AND SO STAMPED. JOINTS SHALL BE HUBLESS PIPE AND FITTINGS SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE CAST IRON SOIL PIPE INSTITUTE STANDARD 310 AND LOCAL CODE REQUIREMENTS. HUBLESS COUPLING GASKETS SHALL CONFORM TO ASTM STANDARD B302, B306, C564.

STORM WATER ABOVE GROUND SANITARY SEWER: SERVICE WEIGHT CAST IRON SOIL PIPE AND FITTINGS, NO-HUB OR EQUAL, OR SCHEDULE 40 GALVANIZED STEEL PIPE WITH BLACK CAST IRON DRAINAGE FITTINGS, SANITARY SEWER FROM URINALS SHALL BE CAST IRON.

INSTALLATION NOTES:

CAREFULLY GRADE ALL SANITARY SEWER PIPING TO ENSURE A UNIFORM SLOPE IS ACHIEVED, WITHOUT ANY DIPS OR HIGH POINTS IN THE PIPING. UNLESS OTHERWISE NOTED, UNDER SLAB SANITARY SEWER PIPING SHALL BE SLOPED AT ¼" PER FOOT.

CAREFULLY TRENCH FOR ALL UNDERGROUND PIPING, AVOID OTHER UTILITIES, AND REPAIR ANY DAMAGES CAUSED BY THE WORK OF THIS CONTRACT. PROVIDE PROPER SHORING FOR ALL DEEP TRENCHES, AS REQUIRED BY THE SAFETY REGULATIONS OF THE STATE, AND BY OSHA. PROVIDE ALL REQUIRED BARRICADES, WARNING SIGNS, ETC. CAP ALL PIPING ENDS AT THE CLOSE OF THE DAY'S WORK TO PREVENT ENTRY OF FOREIGN MATERIALS. FLUSH PIPING OF ALL DEBRIS BEFORE CONNECTING TO FIXTURES.

EMBED ALL UNDERGROUND PIPING, IN SIEVED EARTH FOR A DEPTH OF 4" ABOVE THE PIPE, 12" MIN. COVER. SMOOTH THE TRENCHING BELOW THE PIPING FREE FROM ANY ROCKS OR SIMILAR OBSTRUCTIONS AND PROVIDE SPACE FOR BELLS OR MECHANICAL JOINTS FOR ALL SANITARY SEWER PIPING. LATERALLY BRACE PIPING TO PREVENT PIPE MOTION DURING BACK FILLING OPERATION. PROVIDE TRAPS FOR ALL SANITARY SEWER PIPING. TRAPS FOR SINKS AND LAVATORIES SHALL BE BRASS, 17 GAGE MINIMUM THICKNESS WITH INTEGRAL CLEANOUT MODEL DEERBORN BRASS OR SIMILAR.

CLEANOUT FITTINGS SHALL BE NOT LESS IN SIZE: 1½" PIPE-1½" CLEANOUT, 2" PIPE-1½" CLEANOUT, 2½" PIPE-2½" CLEANOUT, 3" PIPE-2½" CLEANOUT, 4" & LARGER PIPE-3½" CLEANOUT. WALL CLEAN OUT: WADE 8480-C CLEANOUT TEE W/ WALL ACCESS COVER, DURA-COATED CAST IRON BODY, GAS AND WATER TIGHT BRONZE PLUG AND STAINLESS STEEL WALL ACCESS COVER WITH SECURING SCREW. FLOOR CLEAN OUT: WADE 6000-STD GAS AND WATER-TIGHT TAPERED THREADED PLUG AND ROUND POLISHED NICKEL BRONZE SCORATED ADJUSTABLE TOP.

PROVIDE WALL OR FLOOR CLEANOUT AT END OF ALL BRANCH FIXTURE RUNS.

PER CPC 906.2 EACH VENT SHALL TERMINATE NOT LESS THAN 10 FEET FROM, OR NOT LESS THAN 3 FEET ABOVE, AN OPENABLE WINDOW, DOOR OPENING, AIR INTAKE, OR VENT SHAFT, OR NOT LESS THAN 3 FEET IN EVERY DIRECTION FROM A LOT LINE, ALLEY AND STREET EXCEPTED. ABS AND PVC PIPING EXPOSED TO SUNLIGHT SHALL BE PROTECTED BY WATER BASED SYNTHETIC LATEX PAINT.

PROVIDE WRAP ON SANITARY PIPING UNDER ACCESSIBLE PLUMBING FIXTURES. PLUMBEREX "PRO-EXTREME" ONE-PIECE PROTECTOR WITH FULL ROTATION OPTION, AND 3-M DUAL LOCK FASTENERS SECURED WITH SELF LOCKING NYLON STRAPS. INSULATE RAIN WATER CONDUCTORS WHICH PASS THROUGH OCCUPIED AREAS WITH ½" THICK FIBERGLASS.

TESTING:

TEST ALL SANITARY SEWER PIPING FOR 8 HOURS BY CAPPING OR PLUGGING ALL JOINTS TO A LEVEL OF THE HIGHEST FIXTURE OR FITTING, FILLING THE SYSTEM WITH WATER, AND OBSERVING FOR LEAKS. TEST UNDERGROUND SECTION OF PIPE WITH A RISER TO ACHIEVE THE PRESSURE EQUIVALENT TO THE HIGHEST FIXTURE OR FITTING. REPAIR ANY LEAKS FOUND BY REMAKING THE JOINT. DO NOT USE CAULKING OR SIMILAR METHODS TO CORRECT LEAKS. UPON REPAIRING ANY LEAKS FOUND, RETEST THAT PORTION OF THE SYSTEM AS DESCRIBED ABOVE.

4. DOMESTIC WATER

DESCRIPTION:

TYPE K BELOW GRADE, TYPE L ABOVE GRADE, COPPER TUBING, HARD-TEMPER, WITH WROUGHT COPPER FITTINGS. SOLDERING / BRAZING MATERIAL SHALL BE LEAD FREE. SILVER SOLDER BELOW GRADE, 95-5 OR SIMILAR PLASTIC SLEEVE ALL UNDERGROUND PIPES. CAPPED OR PLUGGED OUTLETS SHALL BE SCHEDULE 40 SCREWED BRASS PIPING SHALL BE ASTM B42, B75, B88.

PEX PIPING: IF SUBSTITUTED, CONTRACTOR SHALL PROVIDE REVISED PIPING PLAN AND CALCULATIONS BASED UPON MANUFACTURERS RECOMMENDATIONS. PIPING SHALL BE PEX-A, ASTM F876, F877 PER TABLE 604.1.

CVC PIPING: IF SUBSTITUTED, CONTRACTOR SHALL PROVIDE REVISED PIPING PLAN AND CALCULATIONS BASED UPON MANUFACTURERS RECOMMENDATIONS. PIPING SHALL BE ASTM D1785, D2564, D2846, F441 AND F438 SCHEDULE 40 PER TABLE 604.1.

INSTALLATION NOTES:

SLOPE ALL WATER PIPING TO ELIMINATE AIR.

PROVIDE WATER HAMMER ARRESTORS, AT END OF HOT AND COLD WATER BRANCHES SERVING QUICK ACTION VALVES, I.E. FLUSH VALVES, CLOTHES WASHERS, ETC. FIXTURES. A MECHANICAL SHOCK ABSORBER MAY BE UTILIZED FOR A BATTERY OF FIXTURES, PROVIDED THE ABSORBER IS SIZED FOR THE MAIN LINE SERVING THE BATTERY OF FIXTURES, SIMILAR TO PPP MODEL SC750.

PER CPC 609.9.2 CHLORINATE ALL NEW WATER PIPING FOR A PERIOD OF 24 HOURS, BY CHARGING WITH A CHLORINE SOLUTION TO ACHIEVE A 50 PPM STRENGTH AT THE FIXTURE FURTHEST FROM THE POINT OF APPLICATION. UPON COMPLETION OF CHLORINATION, FLUSH ALL PIPING UNTIL NO CHLORINE CAN BE DETECTED BY TASTE. AFTER CHLORINATION AND ALL TESTING HAS BEEN COMPLETED, CLEAN ALL FIXTURE STRAINERS.

PROVIDE STOPS FOR ALL FIXTURES. STOPS SHALL HAVE THREADED INLETS, SIMILAR TO NIBCO 7155A. STOPS WITH BRAZED, SOLDERED OR COMPRESSION INLET CONNECTIONS WILL NOT BE ALLOWED. PROVIDE 3 WAY HW ANGLE STOP FOR DISHWASHER.

PROVIDE ELBOWS AT ALL PIPING PENETRATIONS OF WALLS TO STOPS. ELBOWS SHALL HAVE NAILING EARS AND SHALL BE SECURELY FASTENED TO THE STRUCTURE. NIPPLES THROUGH THE WALLS SHALL BE IPS WEIGHT THREADED COPPER OR BRASS.

PROVIDE WRAP ON HOT AND COLD WATER PIPING UNDER ACCESSIBLE PLUMBING FIXTURES. PLUMBEREX "PRO-EXTREME" ONE-PIECE PROTECTOR WITH FULL ROTATION OPTION AND 3-M DUAL LOCK FASTENERS SECURED WITH SELF LOCKING NYLON STRAPS. WRAP ALL HOT WATER SUPPLY AND RETURN PIPING WITH K-FLEX INSUL-TUBE, FLEXIBLE ELASTOMERIC CLOSED-CELL THERMAL INSULATION OR EQUAL. FOR THE WATER TEMPERATURE 100-200°F PIPE SIZES LESS THAN 1", INSULATION THICKNESS SHALL BE 1", R-7.7. FOR PIPE SIZES 1" AND LESS THAN OR EQUAL TO 1½", INSULATION THICKNESS SHALL BE 1½" R-12.5. FOR PIPE SIZES 1.5" AND GREATER, INSULATION THICKNESS SHALL BE 2", R-14. INSULATION HAS A FLAME-SPREAD INDEX OF LESS THAN 25 AND A SMOKE-DEVELOPED INDEX OF LESS THAN 50. TAPE ALL BUTTED JOINTS WITH TAPE AS RECOMMENDED BY THE MANUFACTURER. USE ENLARGED SECTIONS AT FITTINGS, WHERE REQUIRED, AND MITERED JOINTS AT ELBOWS, ETC.

TESTING:

TEST WATER PIPING WITH AIR AT 100 PSIG FOR EIGHT HOURS, OBSERVING FOR ANY VISIBLE LEAKS. TEST PIPING AGAIN WITH FIXTURES INSTALLED AT 60 PSIG. REPAIR ANY LEAKS FOUND BY REMAKING THE JOINT. DO NOT USE CAULKING, LEAD OR SIMILAR METHODS TO CORRECT LEAKS. UPON REPAIRING ANY LEAKS FOUND, RETEST.

5. CONDENSATE

DESCRIPTION:

TYPE DWV COPPER TUBING AND FITTINGS FOR ROOF APPLICATIONS (PVC PIPING WILL ONLY BE ACCEPTABLE INDOORS EXCEPT IN RETURN AIR PLENUMS)

INSTALLATION NOTES:

ROUTE CONDENSATE PIPING FROM EQUIPMENT TO NEAREST APPROVED RECEPTOR. CONNECT TO EQUIPMENT COMPLETE WITH VENTED P-TRAP.

6. ALL PIPING

INSTALLATION NOTES:

PROVIDE PERMANENT CLEVIS TYPE HANGERS FOR ALL PIPING. WIRE, ROPE, WOOD BLOCKING OR PERFORATED METAL TAPE WILL NOT BE ACCEPTED. PROVIDE PLASTIC WRAPPING OF PIPE WHERE DISSIMILAR METALS OCCUR, SUCH AS BETWEEN COPPER AND IRON PIPING AND SUPPORTS.

PROVIDE CHROME PLATED ESCUTCHEON PLATES ON ALL PIPES PASSING THROUGH WALLS OR CEILINGS. ALL EXPOSED PIPING SHALL BE CHROME PLATED.

CATHODIC PROTECTION: WRAP ALL COPPER OR STEEL WATER PIPING UNDER FLOOR OR BELOW GRADE WITH TWO LAYERS OF PABCO-WRAP, OR SIMILAR MATERIALS, INCLUDING ALL JOINTS. WRAP WATER, WASTE AND GAS PIPING THROUGH THE FLOOR SLAB WITH ½" THICK FIBERGLASS, 2" ABOVE AND BELOW THE SLAB SURFACES.

7. ONLY PERMITTED PLANS SHALL BE USED FOR CONSTRUCTION OR BIDDING.

EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION
	PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL FIXTURES IN THIS SCHEDULE OR THEIR APPROVED EQUIVALENT. REFER TO ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS OF FIXTURES. ALL WATER FIXTURES TO BE LEAD FREE.
	*FIXTURE COMPLIES WITH CALIFORNIA GREEN BUILDING STANDARDS DIVISION 5.3 FOR WATER EFFICIENCY AND CONSERVATION.
WCO	WALL CLEAN OUT: WADE #8304-75 CLEANOUT TEE W/ WALL ACCESS COVER, DURA-COATED CAST IRON BODY, GAS AND WATER TIGHT BRONZE PLUG AND STAINLESS STEEL WALL ACCESS COVER WITH SECURING SCREW.
*WC-1	ACCESSIBLE WATER CLOSET: AMERICAN STANDARD #215AA-104 CADET PRO, FLOOR MOUNTED, WHITE VITREOUS CHINA, 16.5" HIGH ELONGATED SIPHON ACTION BOWL, CLOSE-COUPLED TANK, 1.28 GPF, TRIP LEVER ON "OPEN" SIDE WITH BOLT CAPS AND BEAMS 1055555 OPEN FRONT SEAT LESS COVER. ALL COMPONENTS SHALL BE WHITE. UNIT SHALL CONFORM TO ADA AND TITLE 24 REQUIREMENTS FOR ACCESSIBLE INSTALLATIONS.
*L-1	LAVATORY: AMERICAN STANDARD #0355.012 LUCERNE, WALL HUNG VITREOUS CHINA, FRONT OVERFLOW, 4" CENTER THREE HOLE PUNCH WITH MOEN #8413F05 CHROME PLATED SINGLE LEVER HANDLE FAUCET, 0.5 GPM AERATOR AND METAL GRID DRAIN ASSEMBLY. INSULATE HOT WATER AND WASTE PIPING. UNIT SHALL CONFORM TO ADA AND TITLE 24 REQUIREMENTS FOR ACCESSIBLE INSTALLATIONS.
*SH-1	SHOWER: BESTBATH LES2633A75B "ACCESSIBLE", MOLDED, ONE PIECE FIBERGLASS SHOWER MODULE, BARRIER FREE, FIXTURE INSTALLED SYMMONS VALVE PACKAGE 9603-X-PLR-1.5 - 4-PORT MIXING VALVE, 36" x 1½" GRAB/GLIDE BAR WITH 1.5 GPM HAND SHOWER, VACUUM BREAKER, HOSE, & SUPPLY ELBOW, 24"x1½" & 39"x1½" GRAB BARS, 32"x15" FOLD DOWN SEAT WITH SWING DOWN LEGS, PHENOLIC. ADA COMPLIANT ROLL-IN SHOWER.
S-1	SINK: ELKAY #GECR25211, 20 GAUGE TYPE 304 STAINLESS STEEL, SELF-RIMMING, 25"x21½" OVERALL DIMENSIONS, 21"x15½"x8½" BOWL, REAR CENTER DRAIN, SINGLE COMPARTMENT UNIT WITH 3-HOLE PUNCH FOR MOEN #8701 CHROME PLATED SINGLE LEVER FAUCET PROVIDE WITH 1.8 GPM AERATOR AND COMPLETE WITH ELKAY MODEL LK-35 DUO STRAINER.
SS	SERVICE SINK: FLORESTONE #FM UTILITY SINK, FLOOR MOUNT, BACK DRILLED FOR FAUCET, 1-1/2" OUTLET, WITH FOUR HEAVY DUTY LEGS AND HARDWARE, MOEN #8230 FAUCET WITH TOP BRACE, STOPS AND VACUUM BREAKER.
HB	HOSE BIBB: ACORN #8121-CR BENT NOSE WITH FLANGE AND INTEGRAL VACUUM BREAKER, ROUGH CHROME FINISH WITH WHEEL HANDLE.
IM	ICE MAKER OUTLET BOX: SIOUX CHIEF OX BOX 1/2" CONNECTION, INCLUDES MINI-RSTER WATER HAMMER ARRESTER, ROUGH IN 4"WX5-1/2"x3-3/8"D.
FD	FLOOR DRAIN: ZURN #Z415-BZ1, 5" DIAMETER NICKEL BRONZE TOP WITH 2" PIPE, AND FLANGE
TP	TRAP PRIMER: SIOUX CHIEF 695 SERIES. INSTALL LEAD MINIMUM 12" ABOVE FINISHED FLOOR AND WITH VERTICAL LOOP THAT RISES ABOVE THE SUPPLY LINE TEE. PROVIDE SPLITTERS AND DISTRIBUTORS AS REQUIRED FOR THE NUMBER OF TRAPS SERVED AND 12"x12" ACCESS DOOR FOR CONCEALED UNIT.
	ELECTRIC WATER HEATER: BRADFORD WHITE, LE230S3-3, STORAGE TANK TYPE, 30 GALLON WATER HEATER WITH 208-230 V/1 PH/60HZ ELECTRICAL SERVICE. (2) 5000 WATT ELEMENT NON-SIMULTANEOUS OUTPUT, 34 GPH RECOVERY @ 60 F RISE. PROVIDE EXPANSION TANK, AMTROL #5T-5 "THERM-X-TROL", DIAPHRAGM TYPE, PREPRESSURIZED TANK. 18"X47"H.
	GARBAGE DISPOSER: INSINKERATOR BADGER 5, CONTINUOUS FEED WITH 1/2 HP MOTOR, GALVANIZED STEEL GRINDER AND DISHWASHER DRAIN CONNECTION. 120 V/1/PH/60 HZ, 6.9 AMP ELECTRICAL SERVICE.

WATER AND WASTE SERVICE CALCULATIONS

FIXTURE TYPE	NO.	WASTE		COLD WATER		HOT WATER		TOTAL WATER
		FU	TOTAL	FU	TOTAL	FU	TOTAL	
CLOTHES WASHER	1	3	3	4	4	3	3	4
HOSE BIBB (FIRST)	1	0	0	2.5	2.5	0	0	2.5
KITCHEN SINK, DOMESTIC	1	2	2	1.5	1.5	1.125	1.125	1.5
LAVATORY/HAND WASH SINK	2	1	2	1	2	0.75	1.5	2
FLOOR DRAIN	1	2	2	0	0	0	0	0
SHOWER	1	2	2	2	2	1.5	1.5	2
WATER CLOSET, TANK	2	4	8	2.5	5	0	0	5
MISC EQUIP (ICE, SODA, COFFEE)	1	0	0	0.5	0.5	0	0	0.5
TOTAL FU			19.0		17.5	0	7.1	17.5
EQUIVALENT COLD WATER FLOW RATE (GPM):								13
ADDITIONAL DEMAND LOAD (GPM)								0
PRESSURE AVAILABLE AT MAIN (PSI):								45
MINIMUM REQUIRED FIXTURE PRESSURE (PSI):								8
ELEVATION RISE (FT):								3
METER LOSS (PSI):								3
BACKFLOW PREVENTER LOSS (PSI):								10
ADDITIONAL LOSSES (PSI):								0
EQUIVALENT PIPE LENGTH FROM METER TO MOST REMOTE FIXTURE (FT):								220
FRICITION LOSS PRESSURE AVAILABLE (PSI):								22.70
MAXIMUM ALLOWABLE FRICTION LOSS (PSI/100 FT):								10.32
WATER FLOW VELOCITY (FPS):								5.05
CALCULATED FRICTION HEAD LOSS (PSI/100 FT):								5.66
MINIMUM REQUIRED WATER PIPE SIZE (INCHES):								1.0
MINIMUM REQUIRED WASTE PIPE SIZE (INCHES):								3.00
(CALCULATIONS PER THE 2022 CPC APPENDIX A)								

WATER PIPE SIZING CHART

PIPE SIZES CALCULATED BASED ON UPC/CPC APPENDIX A								
SIZE: TYPE L COPPER		CW MAX FLOW		CW FIXTURE UNIT VALUES		HW MAX FLOW		HWFU
NOMINAL DIAMETER	INTERNAL DIAMETER	GPM	FPS	FLUSH TANK	FLUSH VALVE	GPM	FPS	HOT WATER
1/2"	0.545	3.4	4.7	3	0	3.4	4.7	3
3/4"	0.785	8.9	5.9	10	0	7.5	5.0	8
1"	1.025	18.0	7.0	24	0	12.9	5.0	16

PLUMBING LEGEND

SYMBOL / ABBREVIATION	DESCRIPTION	SYMBOL / ABBREVIATION	DESCRIPTION
—	SANITARY SEWER BELOW GRADE/SLAB	BV	BALANCING VALVE
—	SANITARY SEWER ABOVE GRADE/SLAB	WHA	WATER HAMMER ARRESTOR
---	VENT PIPING	TP	TRAP PRIMER
----	COLD WATER PIPING	REDUCER	REDUCER
----	HOT WATER PIPING	FD	FLOOR DRAIN
----	HOT WATER RETURN PIPING	FS	FLOOR SINK
T	TEMPERED WATER PIPING	HB	HOSE BIBB
G	GAS PIPING - PRESSURE NOTED	POC	POINT OF CONNECTION
CA	COMPRESSED AIR PIPING	FF	FINISH FLOOR
FS	FIRE SPRINKLER PIPING	CLG	CEILING
SD	STORM DRAIN PIPING	US, UF, UG	UNDER SLAB/FLOOR/GROUND
CD	CONDENSATE DRAIN PIPING	ABC	ABOVE CEILING
P&TR	PRESSURE AND TEMPERATURE RELIEF PIPING	IE	INVERT ELEVATION
X X X	EXISTING PIPING OR FIXTURE TO BE REMOVED	TDL	TOTAL DEVELOPED LENGTH
—	UNION	(E), EXISTING	EXISTING TO BE FIELD VERIFIED BY CONTRACTOR
—	GATE VALVE, IN RISER/DROP	RD	ROOF DRAIN
—	GATE VALVE IN VALVE BOX	OD	OVERFLOW DRAIN
—	CHECK VALVE	W, WD	WASTE, WASTE DROP
—	CLEANOUT, WALL CLEANOUT	V, VR, VTR	VENT, VENT RISER, VENT THRU ROOF
—	GRADE OR FLOOR CLEAN OUT	CW, CWD, CWR	COLD WATER, COLD WATER DROP, COLD WATER RISER
—	PIPE DROP	HW, HWD, HWR	HOT WATER, HOT WATER DROP, HOT WATER RISER
—	PIPE RISER	NTS	NOT TO SCALE
—	PIPE TEE DROP	TYP	TYPICAL
—	PIPE TEE RISER	NIPC	NOT IN PLUMBING CONTRACT
—	STRAINER		

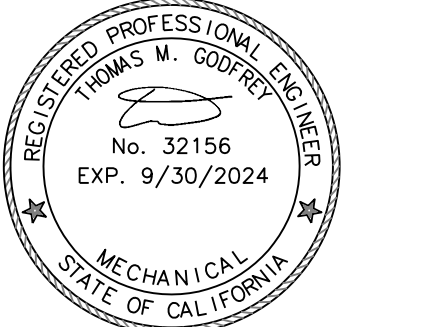
FIXTURE PIPING CHART

DESCRIPTION	SYMBOL	VENT (IN)	WASTE PIPE (IN)		CW PIPE (IN)		HW PIPE (IN)	
			BRANCH	OUTLET	BRANCH	OUTLET	BRANCH	OUTLET
WATER CLOSET, FT	WC	2	3	3	3/4	3/4	-	-
LAVATORY	L	1½	2	1½	3/4	½	3/4	½
SINK	S	1½	2	1½	3/4	½	3/4	½
SERVICE SINK, 2"	SS	1½	2	2	3/4	3/4	3/4	3/4
SHOWER	SH	1½	2	2	3/4	½	3/4	½
FLOOR DRAIN, 2"	FD	2	2	2	-	-	-	-
TRAP PRIMER	TP	-	-	-	½	½	-	-



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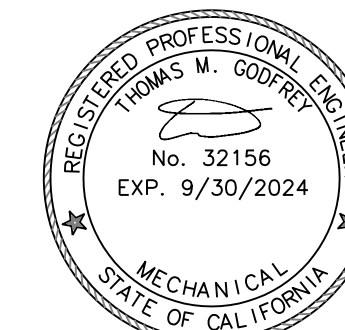
Signed on 6/15/2023

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Signed on 6/15/2023

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APPROVAL STAMP

PROJECT
**PLACER
DETAILING**

10612 INDUSTRIAL AVE.
SUITE 120
ROSEVILLE, CA 95678

REVISIONS

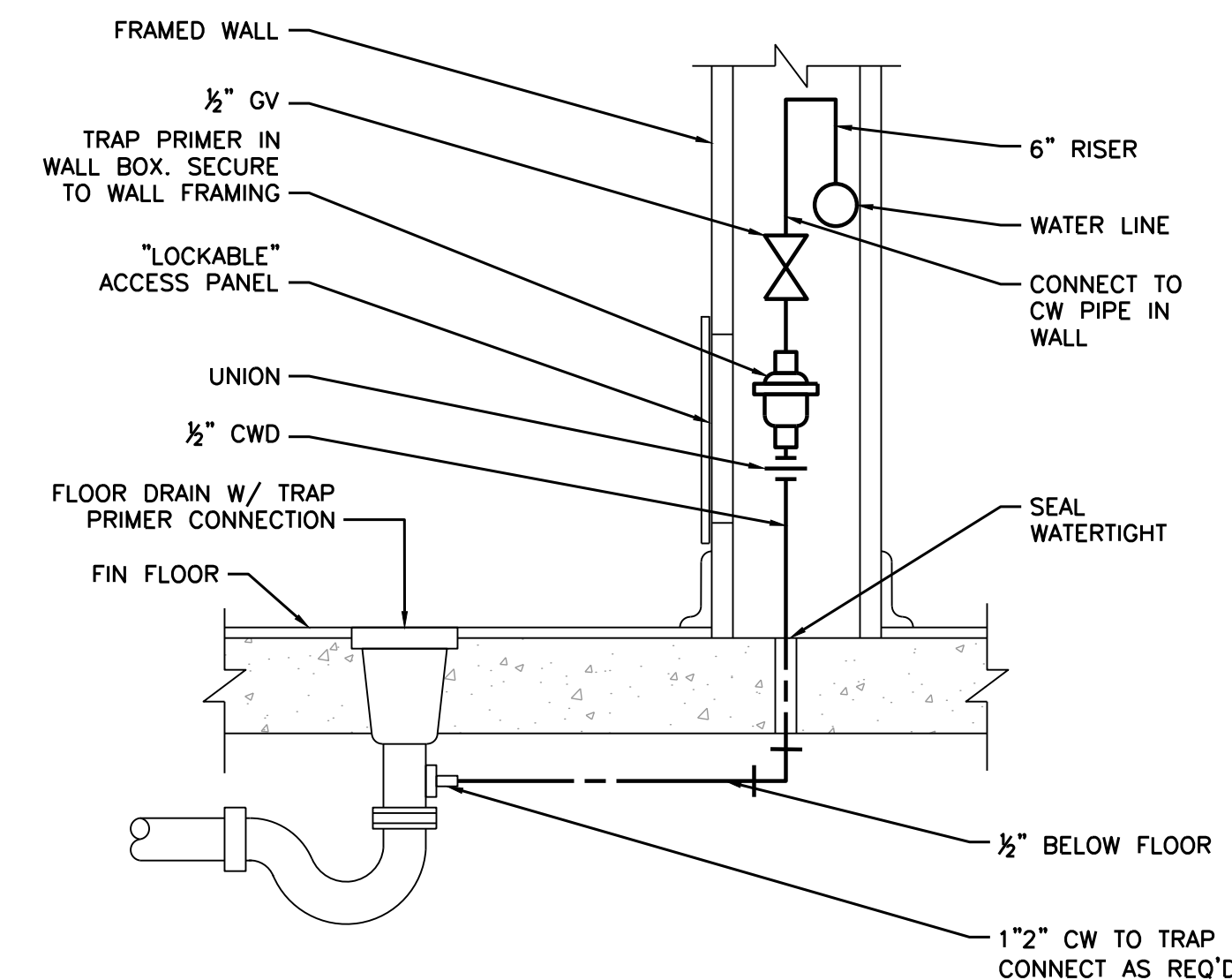
DESCRIPTION	DATE

DRAWING

**PLUMBING
FLOOR PLAN -
WASTE AND VENT**

PROJECT NO.	23141
DATE	04-14-2023
DRAWN BY	ED/SP
CHECKED BY	RP/TG

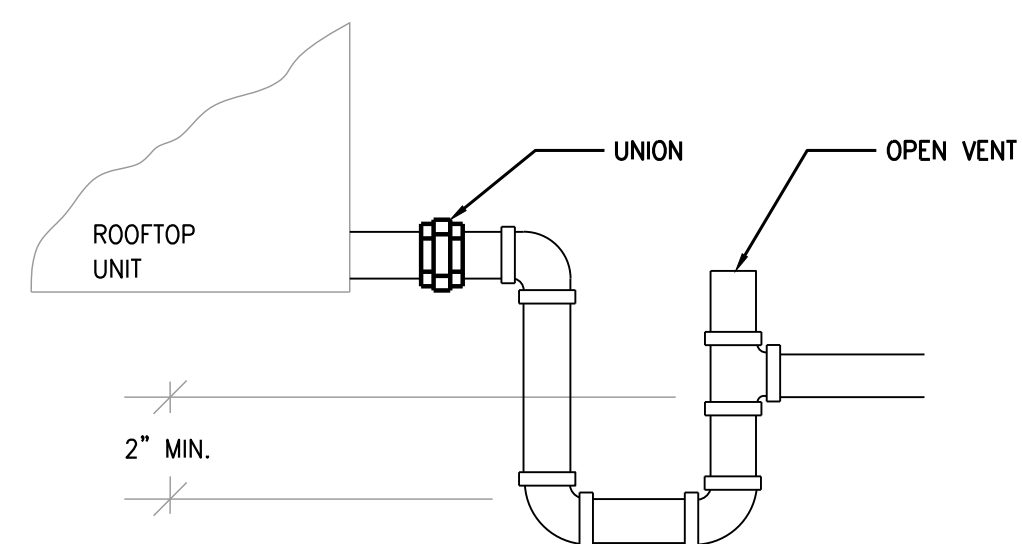
P210



TRAP PRIMER TO FLOOR DRAIN

SCALE: NTS

2

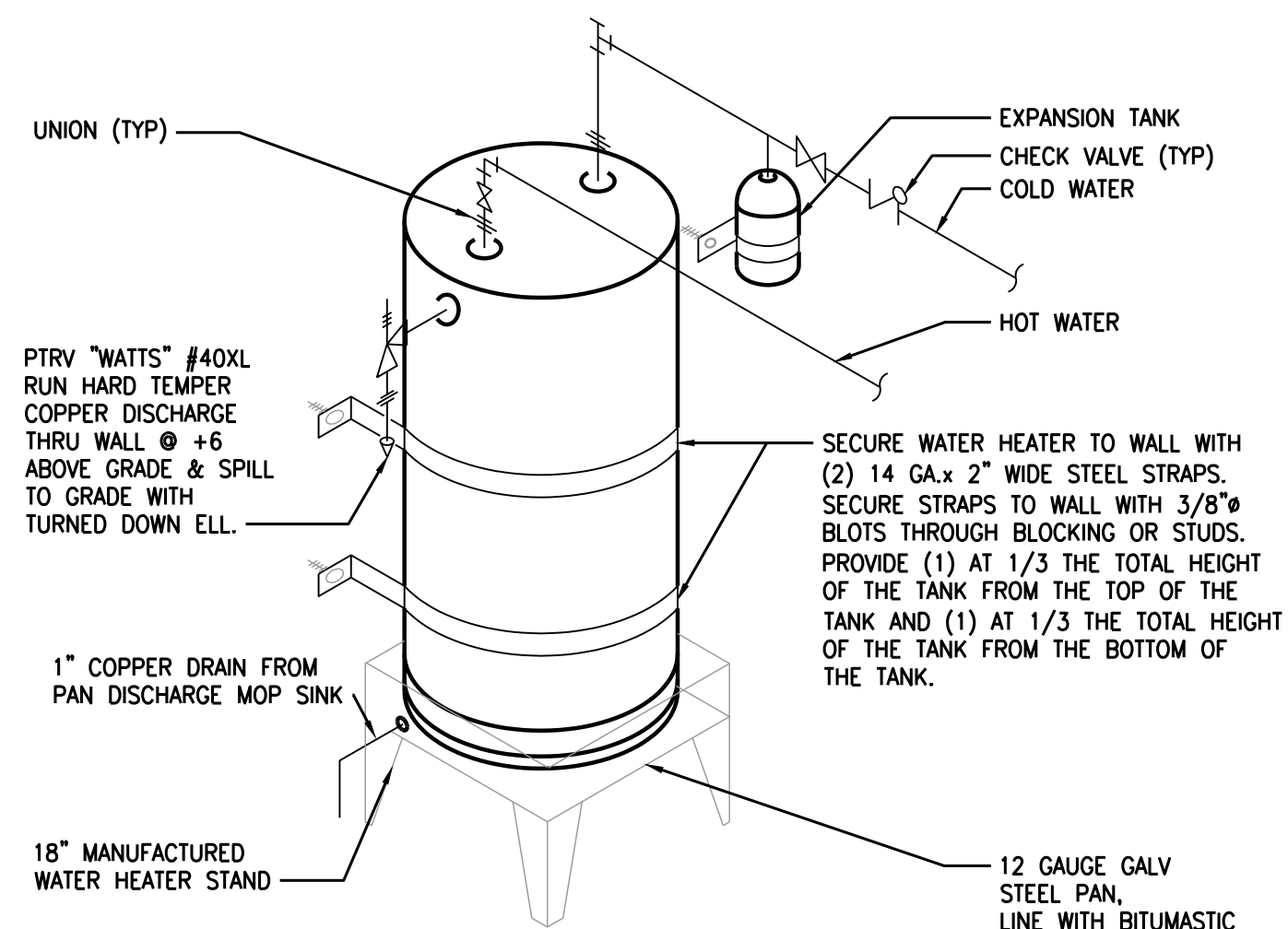


CONDENSATE DRAIN

TYPICAL AC UNIT PIPING DETAIL

SCALE: NTS

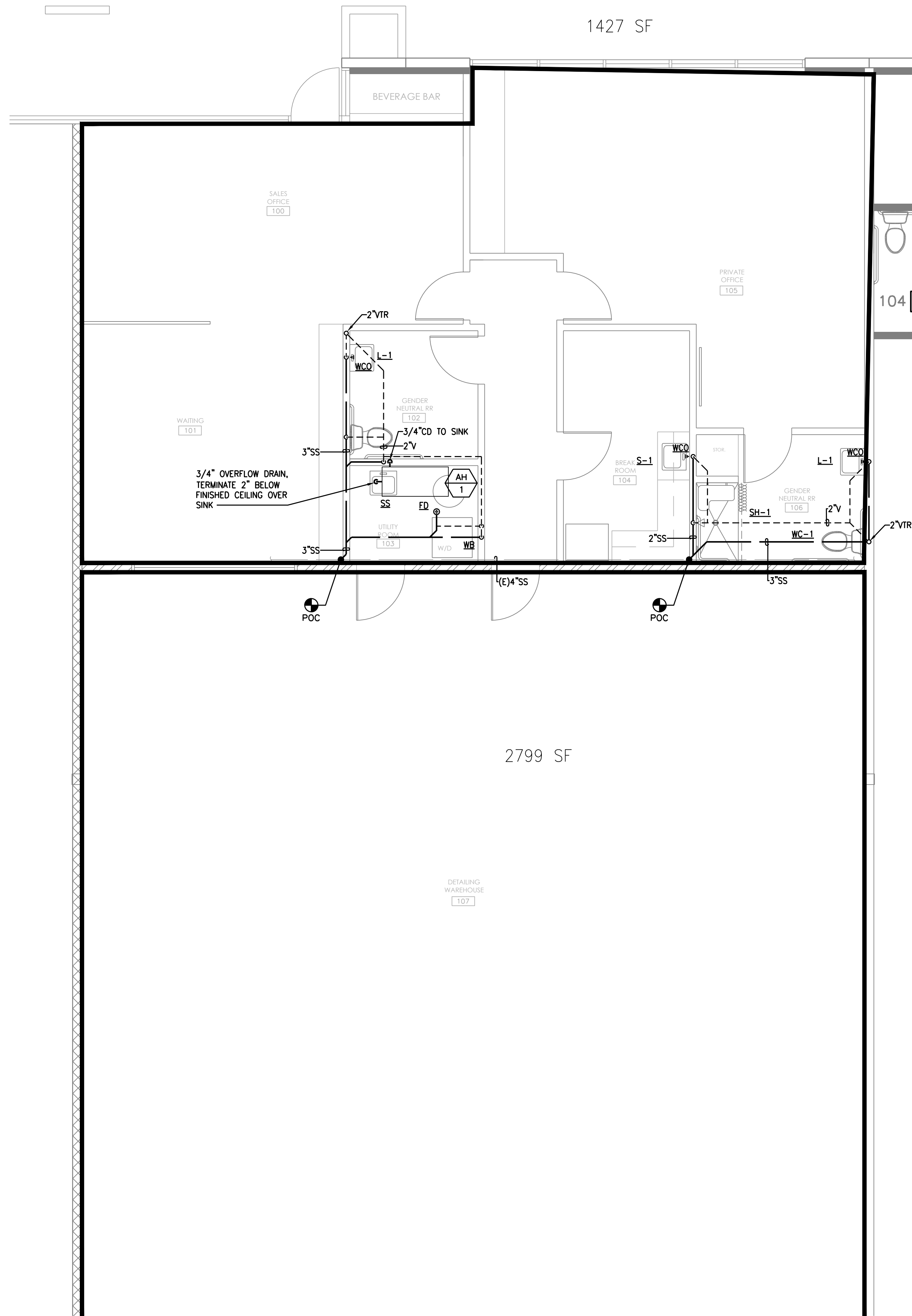
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ELECTRIC WATER HEATER DETAIL

SCALE: NTS

4



PLUMBING FLOOR PLAN - WASTE AND VENT

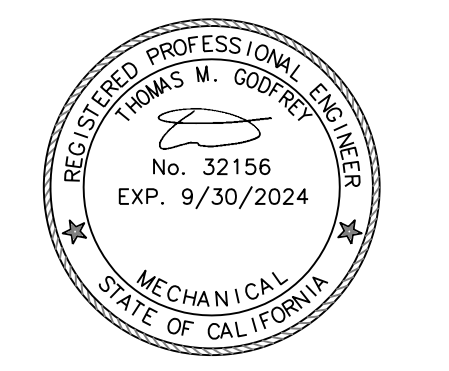
SCALE: 1/4" = 1'-0"

1



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Signed on 6/15/2023

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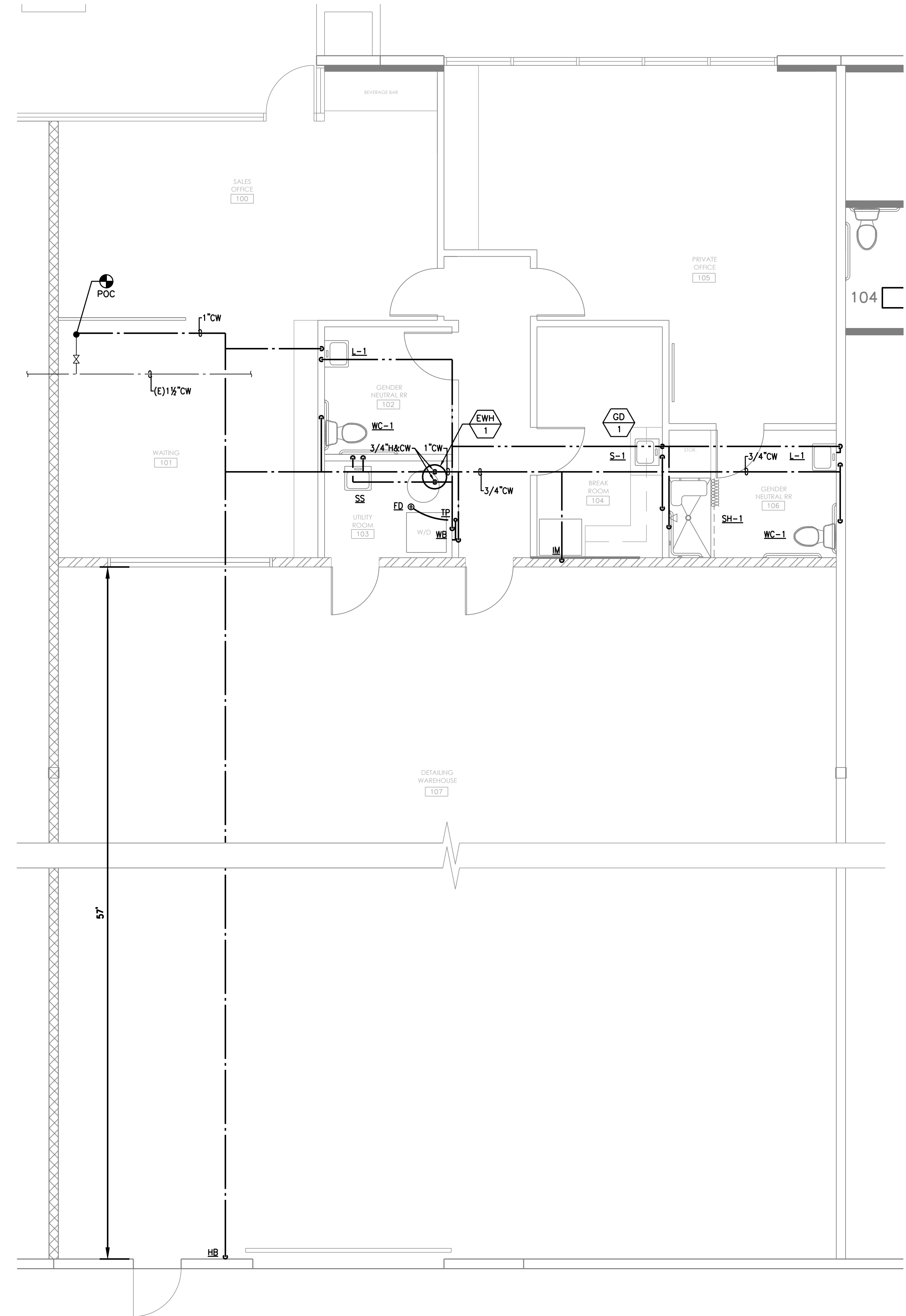
REVISIONS

△	DESCRIPTION	DATE

DRAWING

**PLUMBING
FLOOR PLAN -
WATER**

PROJECT NO.	23141
DATE	04-14-2023
DRAWN BY	ED/SP
CHECKED BY	RP/TG

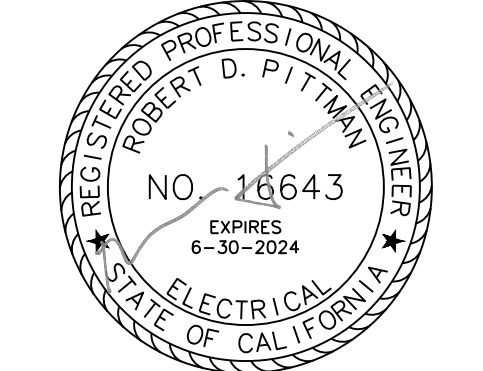


PLUMBING FLOOR PLAN - WATER
SCALE: 1/4" = 1'-0"



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**NOTES, LEGEND,
AND ABBREVIATIONS**

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E110

GENERAL ELECTRICAL NOTES

- ALL EQUIPMENT SHOWN IS NEW UNLESS OTHERWISE INDICATED, AND SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LAB.
- ALL ELECTRICAL WORK SHALL CONFORM WITH THE CURRENT EDITION OF THE CALIFORNIA ELECTRICAL CODE (CEC) AND ALL LOCAL ORDINANCES LEGALLY ADOPTED IN ACCORDANCE WITH CALIFORNIA HEALTH AND SAFETY CODE SECTION 17958.7.
- ALL OF THE CONSTRUCTION DOCUMENTS ARE WRITTEN FOR THE PERFORMANCE OF WORK BY THE BUSINESS ENTITY CONTRACTED TO PERFORM THE WORK, USUALLY THE GENERAL CONTRACTOR. A COMPLETE AND OPERATIONAL SYSTEM IS ALWAYS REQUIRED BY THE CONSTRUCTION DOCUMENTS. EVEN ATTEMPTS TO DELINEATE SEPARATION OF SCOPE INTO 'ELECTRICAL CONTRACTOR' OR 'MECHANICAL CONTRACTOR' SCOPES SHALL NOT RELEASE THE CONTRACTED ENTITY FROM PROVIDING A COMPLETE AND OPERATIONAL SYSTEM COORDINATED BETWEEN SCOPES AT BID TIME.
- WHEN USED, THE WORD "PROVIDE" SHALL HAVE AN ALL ENCOMPASSING MEANING WHICH INCLUDES "TO SUPPLY, MOUNT/SETUP, WIRE, TERMINATE, TEST, AND START-UP/COMMISSION" FOR ALL MATERIAL AND LABOR, BOTH DESCRIBED AND IMPLIED, IN THESE DOCUMENTS WHICH ARE ESSENTIAL TO A COMPLETE, FUNCTIONAL AND SAFE POWER SYSTEM, AUTOMATIC CONTROL SYSTEM, FIRE/SECURITY/VOICE/DATA SYSTEM. ALL EQUIPMENT AND MATERIAL MENTIONED AND/OR IMPLIED AS PART OF THE REQUIRED ELECTRICAL SYSTEM IN THESE DOCUMENTS SHALL BE CONSIDERED NEW (AND PROVIDED BY CONTRACTED ENTITY) UNLESS SPECIFICALLY INDICATED AS "EXISTING" OR "BY OTHERS".
- PROVIDE SUPPORT FOR ALL FIXTURES AND ELECTRICAL EQUIPMENT TO COMPLY WITH SEISMIC AND WINDSTORM REQUIREMENTS OF THE CALIFORNIA BUILDING CODE AND ALL LOCAL CODES.
- FOR PURPOSES OF CLEARNESS AND LEGIBILITY, THE ELECTRICAL DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC. THE SIZE AND LOCATION OF EQUIPMENT SHOWN IS TO SCALE WHEREVER POSSIBLE. VERIFY ALL POWER/CURRENT/VOLTAGE RATINGS AND CONTROL WIRING AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS SECTIONS WHERE ELECTRICAL WORK INTERFACES WITH OTHER TRADES. REVIEW SHOP DRAWINGS AND SUBMITTAL DATA AND PROVIDE THE SAME TO OTHER TRADES PRIOR TO BEGINNING OF CONDUIT INSTALLATION.
- CONDUIT RUNS ARE SCHEMATIC ONLY. CONDUIT SHALL RUN SO AS TO REDUCE CONFLICTS WITH OTHER TRADES AND REDUCE THE LIKELIHOOD OF BEING DAMAGED OR AFFECTED BY POTENTIAL REMODEL. UNDERGROUND CONDUIT SHALL BE PUT IN JOINT TRENCHES WHERE POSSIBLE PER UTILITY COMPANY REQUIREMENTS. ONE LINE DIAGRAM IS SCHEMATIC ONLY, SWITCHBOARD SHALL BE COORDINATED FOR SWITCHBOARD LINEUP DIRECTION.
- LOCATIONS OF HVAC SHOWN ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER THOSE SHOWN ON THE ELECTRICAL DRAWINGS.
- CONDUIT SHOWN ON THE PLANS IS EMT OR OTHER APPROVED RACEWAY INCLUDING MC ABOVE GRADE AND PVC OAN BELOW GRADE. INSTALL ALL RACEWAYS TO BE MECHANICALLY AND ELECTRICAL CONTINUOUS WITH RATED FITTINGS AT ALL POINTS TO BE PERMITTED AS AN EQUIPMENT GROUNDING CONDUCTOR IN ACCORDANCE WITH 250.118. ANY PVC CONDUIT OR ANY RACEWAY INSTALLED IN A PATIENT CARE AREA OF A HEALTHCARE FACILITY, SHALL HAVE A GROUND WIRE SIZED PER ARTICLE 250.122.
- ALL CONDUIT CONNECTIONS TO MACHINES AND EQUIPMENT SUBJECT TO VIBRATION SHALL BE FLEX CONDUIT. PROVIDE SUFFICIENT SLACK TO ELIMINATE VIBRATION. ARRANGE CONNECTION TO PREVENT THE ENTRANCE OF MOISTURE. PROVIDE CONTINUOUS GROUND WIRE THROUGH ALL FLEX TO ASSURE GROUND CONTINUITY.
- PROVIDE INSULATED CONNECTOR FITTINGS FOR RACEWAYS CONTAINING UNGROUNDED CONDUCTORS 4 AWG OR LARGER ENTER A CABINET, BOX ENCLOSURE, OR RACEWAY. PROVIDE A SUBSTANTIAL FITTING PROVIDING A SMOOTHLY ROUNDED INSULATING SURFACE IN COMPLIANCE WITH 300.4(G).
- ALL WIRE SHALL BE COPPER OAN. ALL WIRE SHALL BE LISTED, RATED FOR 600 VOLTS, TYPE THHN/THWN-2 INSULATION, AND #12 AWG MINIMUM SIZE EXCEPT FOR CONTROLS. INSULATION FOR ALUMINUM WIRE SHALL BE XHHW-2.
- ALL UNDERGROUND BONDING CONDUCTORS SHALL BE COPPER.
- PROVIDE HOME-RUN FOR UP TO 3 CIRCUITS PER HOME-RUN. COMBINED CIRCUITS SHARING A GROUNDED CIRCUIT CONDUCTOR (NEUTRAL) MUST THEN COMPLY WITH ARTICLE 210.4 BY PROVIDING CIRCUIT BREAKER HANDLE TIE CLIPS OR MULTI-POLE BREAKERS AS REQUIRED BY THE LOCAL AUTHORITY. INCREASE CONDUCTOR SIZE FOR RUNS OVER 100' TO PANEL.
- TERMINATION PROVISIONS OF EQUIPMENT SHALL BE LISTED AND IDENTIFIED FOR USE WITH CONDUCTORS RATED 75C, OR DUAL RATED TO INCLUDE 75C.
- ISOLATED GROUND OUTLETS: CONNECT ISOLATED GROUND WIRE TO SYSTEM GROUND AT MAIN SERVICE. RUN INSULATED GROUND WIRE IN SAME CONDUIT WITH CIRCUIT CONDUCTORS.
- COMPLETE SYSTEM SHALL BE GROUNDED PER ARTICLE 250.
- PROVIDE AN ENCLOSURE AND INSTALLATION METHOD OF EQUAL FIRE RESISTANT RATING AROUND ALL FIXTURES AND EQUIPMENT INSTALLED IN OR PENETRATING THROUGH FIRE RATED SEPARATIONS.
- ALL DEVICES INSTALLED OUTSIDE OR IN DAMP LOCATIONS SHALL BE APPROVED WEATHERPROOF. CONDUIT RUNS IN SUCH LOCATIONS SHALL BE INSTALLED WITH APPROVED FITTINGS. SURFACE TYPE ENCLOSURES SHALL BE NEMA 3R AND MOUNTED WITH A 1/4" AIRSPACE BETWEEN THE ENCLOSURE AND THE WALL PER ARTICLE 312.2. RECEPTACLES MARKED WP (WEATHERPROOF) SHALL BE INSTALLED WITH A WEATHERPROOF WHILE-IN-USE TYPE COVER.
- ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY RATED AND NEMA 3R WHERE INDICATED AS WP.
- FUSES FOR MOTOR PROTECTION SHALL BE PER NAMEPLATE RATING OF EQUIPMENT SUPPLIED.
- VERIFY FIXTURE TYPES AND QUANTITIES WITH OWNER PRIOR TO ORDERING. SUBMIT SHOP DRAWINGS FOR REVIEW. AN 'AS SPECIFIED' ORDER STILL REQUIRES A SUBMITTAL. UNDER NO CIRCUMSTANCES ARE ORDERS TO BE PLACED DIRECTLY FROM THE DRAWINGS WITHOUT ENGINEER REVIEW.
- LIGHTING SUBMITTAL MUST INCLUDE THE CONTROL COMPONENTS. INCLUDE WITH THE SUBMITTAL THE NAME OF THE MANUFACTURER'S REPRESENTATIVE THAT HAS CONFIRMED COMPATIBILITY OF ALL COMPONENTS AND BALLASTS/DRIVERS. AN 'AS SPECIFIED' ORDER STILL REQUIRES A SUBMITTAL. THE ENGINEER WILL NOT REVIEW A SUBMITTAL THAT DOES NOT HAVE A VERIFIED REVIEW BEYOND THE CONTRACTOR OR WHOLESALER HOUSE.
- VERIFY ALL OUTLET LOCATIONS AND HEIGHTS PRIOR TO ROUGH IN. COORDINATE OWNER/TENANT WALK-THROUGH PRIOR TO ALLOWING WALLS TO BE COVERED. ALLOW TWO DAYS IN THE SCHEDULE FOR THIS. THIS IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM.
- COORDINATE EXACT LOCATIONS PRIOR TO ROUGH IN FOR: a) FIXED EQUIPMENT CONNECTIONS. b) FURNITURE SYSTEMS POINT OF CONNECTION. c) MILLWORK, INCLUDING ELEVATIONS.
- PROVIDE COVERPLATES FOR ALL WIRING DEVICES. VERIFY FINISH COLOR. COVERPLATES SHALL BE EQUAL TO PASS & SEYMOUR.
- MAINTAIN ELECTRICAL CIRCUIT TO ALL EXISTING ELECTRICAL LIGHT FIXTURES, RECEPTACLES, HVAC, ETC. THAT REMAIN, WHETHER SHOWN OR NOT. PROVIDE NEW CONDUIT, CONDUCTORS, BOXES, ETC. TO REPAIR ANY DAMAGE DUE TO DEMOLITION WORK.
- COORDINATE DEMOLITION WORK WITH ARCHITECTURAL DRAWINGS. TRACE ALL EXISTING CIRCUITS TO CONFIRM THEY ARE STILL IN USE. ANY CIRCUIT THAT BECOMES UNUSED SHALL BE DISCONNECTED AND REMOVED. CHANGE THE PANEL SCHEDULE TO DENOTE THE CIRCUIT IS AVAILABLE.
- PROVIDE TYPEWRITTEN SCHEDULES INDICATING LOAD DESCRIPTIONS FOR ALL CIRCUITS IN PANELBOARDS, ON PANEL DOOR. USE ROOM DESCRIPTIONS AS THEY RELATE TO THE BUILDING, NOT THE TENANT.
- CONTRACTOR TO VERIFY UTILITY COMPANY REQUIREMENTS PRIOR TO ORDERING THE ELECTRICAL SERVICE. PROVIDE SHOP DRAWINGS AND SUBMITTALS OF ALL COMPONENTS. AN 'AS SPECIFIED' ORDER STILL REQUIRES A SUBMITTAL. UNDER NO CIRCUMSTANCES ARE ORDERS TO BE PLACED DIRECTLY FROM THE DRAWINGS WITHOUT ENGINEER REVIEW. ALL UTILITY COMPANY APPLICATIONS AND SUBMITTALS FOR SERVICE ARE THE CONTRACTOR RESPONSIBILITY.
- ALL METER SPACES TO BE PROVIDED WITH METER SOCKET. PROVISION FULLY FOR FUTURE TENANT.
- PROVIDE REAR LOAD WIREWAY WHERE REQUIRED FOR CONDUIT ROUTES FROM TOP OF SWITCHBOARD.
- INSTALL SERVICE, PANELBOARDS, AUXILIARY EQUIPMENT, AND ROUTE CONDUITS SO THAT FUTURE ACCESS TO SWITCHBOARD, OR EXPANSION OF SWITCHBOARD IS NOT INHIBITED. COORDINATE WITH OTHER TRADES AND VENDORS TO PREVENT ADJACENT EQUIPMENT FROM BLOCKING EXPANSION. DESIGNATE WALL SPACE FOR EXPANSION TO BE KEPT CLEAR. IF PLANS DO NOT INDICATE AREA OF FUTURE EXPANSION, COORDINATE WITH ARCHITECT OR OWNER.
- CONDUITS OR RACEWAYS THROUGH WHICH MOISTURE MAY CONTACT LIVE PARTS SHALL BE SEALED OR PLUGGED AT BOTH ENDS IN ACCORDANCE WITH ARTICLE 300.5(G). THIS INCLUDES PENETRATING MEMBRANES WHERE TEMPERATURE DIFFERENTIALS MAY CAUSE CONDENSATION SUCH AS PENETRATING WALK-IN REFRIGERATORS AND FREEZERS OR CLIMATE CONTROLLED ROOMS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSPECTION OF ELECTRICAL EQUIPMENT IN A DE-ENERGIZED STATE.
- COMMUNICATION CABLES AND LOW VOLTAGE WIRING SHALL BE PLENUM RATED UNLESS SPECIFICALLY NOTED OTHERWISE ON THESE PLANS.
- ONLY PERMITTED AND WET SIGNED PLANS SHALL BE USED FOR CONSTRUCTION OR BIDDING.
- ALL CIRCUIT BREAKERS TO BE DUAL LISTED 60/75 DEGREE WIRE RATED.
- TRANSFORMERS SHALL HAVE A CLASS 155 OR HIGHER INSULATION SYSTEM AND BE COMPLETELY ENCLOSED EXCEPT FOR VENTILATING OPENINGS.
- CONTRACTOR IS RESPONSIBLE FOR ALL SUBMISSIONS. UTILITY SUBMISSION, AHI SUBMISSION, HEALTH DEPARTMENT (AS REQUIRED), ETC.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FIRE ALARM SYSTEM BELL PROVIDED BY ALARM CONTRACTOR, CONNECTED BY ELECTRICAL CONTRACTOR; INSTALL ON ADDRESS SIDE OF BUILDING; VERIFY LOCATION WITH FIRE MARSHAL		TELEPHONE AND/OR DATA DROP LOCATION, PROVIDE ACCESSIBLE CHASEWAY FOR CABLE CONTRACTOR. WALL LOCATIONS MAY BE DONE WITH MUD RING AND STRING AT +18" AFF TO CENTER LINE OF DEVICE OAN
	FIRE ALARM SYSTEM FLOW AND TAMPER SWITCHES BY ALARM CONTRACTOR, CONNECTED BY ELECTRICAL CONTRACTOR TO ACTIVATE FIRE ALARM BELL AND/OR TROUBLE ALARM AS DIRECTED BY FIRE MARSHAL		SINGLE POLE TOGGLE SWITCH MOUNTED AT +42" AFF TO CENTER LINE OF DEVICE OAN
	DUCT SMOKE DETECTOR BY MECHANICAL CONTRACTOR, CONNECTED BY ELECTRICAL CONTRACTOR		3-WAY TOGGLE SWITCH MOUNTED AT +42" AFF TO CENTER LINE OF DEVICE OAN
	SMOKE DETECTOR		"M" INDICATES MOTOR RATED SWITCH
	JUNCTION BOX, SIZE AND TYPE AS INDICATED		DIMMER SWITCH, SEE CONTROLS DESCRIPTION AND WIRING DIAGRAMS. PROVIDE COMPATIBLE SYSTEM WITH BALLASTS AND DRIVERS.
	POWER POLE FURNISHED BY OWNER, INSTALLED AND CONNECTED BY ELECTRICAL CONTRACTOR		EMERGENCY LIGHT 'BUGEYES' WITH BATTERY BACK-UP AND POWER INDICATOR
	CONDUIT RUN ABOVE GRADE, NO CROSSBARS ON CONDUIT INDICATE 1/2" CONDUIT WITH TWO #12AWG CU CONDUCTORS		EXIT SIGN, SEE FIXTURE SCHEDULE FOR DETAILS
	CONDUIT RUN BELOW GRADE, AT LEVEL BELOW, OR BELOW RAISED COMPUTER FLOOR		SURFACE MOUNTED FIXTURE OVERHEAD, SEE FIXTURE SCHEDULE FOR DETAILS
	CROSSBARS DENOTE CONDUCTOR QUANTITY AND TYPE; TYPE THWN-2 OR AS NOTED		OPEN CHANNEL FIXTURE, SEE FIXTURE SCHEDULE FOR DETAILS
	EXAMPLE, THREE #10 AWG PHASE CONDUCTORS, ONE #10 AWG EQUIPMENT GROUNDING CONDUCTOR, IN 3/4" CONDUIT APPROPRIATE FOR THE INSTALLATION		LIGHTING FIXTURE, SEE FIXTURE SCHEDULE FOR INFORMATION
	DUPLEX NEMA 5-15R RECEPTACLE WITH PLASTIC IVORY COVER PLATE MOUNTED AT +18" AFF TO CENTER LINE OF DEVICE OAN		FACTORY LUMINAIRE WHIP FOR MASTER/SLAVE PAIRS SWITCHBOARD, SEE ONE LINE DIAGRAM
	DUPLEX NEMA 5-20R RECEPTACLE WITH PLASTIC IVORY COVER PLATE MOUNTED AT +18" AFF TO CENTER LINE OF DEVICE OAN		DISCONNECT, CIRCUIT BREAKER. SIZE AS NOTED
	DUPLEX NEMA 5-15R RECEPTACLE WITH DOUBLE PLASTIC IVORY COVER PLATE MOUNTED AT +18" AFF TO CENTER LINE OF DEVICE OAN		DISCONNECT, FUSED SWITCH. SIZE AS NOTED
	DOUBLE DUPLEX NEMA 5-15R RECEPTACLE WITH DOUBLE PLASTIC IVORY COVER PLATE MOUNTED AT +18" AFF TO CENTER LINE OF DEVICE OAN		PANELBOARD, SEE PANEL SCHEDULES FOR TYPE AND CIRCUITS
	DUPLEX RECEPTACLE WITH PLASTIC IVORY COVER PLATE OR AS NOTED, NEMA 5-15R MOUNTED AT +42" AFF TO CENTER LINE OF DEVICE OAN		DISCONNECT SWITCH SIZED AS APPROPRIATE FOR THE LOAD, NO LETTER DENOTES NON-FUSED
	SPECIAL RECEPTACLE WITH PLASTIC IVORY COVER PLATE MOUNTED AT +18" AFF TO CENTER LINE OF DEVICE OAN. TYPICALLY A TWIST-LOCK SIMPLEX WITH SPECIAL VOLTAGE (208V). CONFIRM WITH EQUIPMENT PRIOR TO INSTALLATION.		FRACTIONAL HORSE POWER EXHAUST FAN, FURNISHED AND INSTALLED BY MECHANICAL, CONNECTED BY ELECTRICAL; SEE MECHANICAL PLANS FOR DETAILS
	SPLIT WIRED NEMA 5-20R HALF CONTROLLED RECEPTACLE PER TITLE 24 SECTION 130.5(d) PERMANENT MARKING REQUIRED TO DIFFERENTIATE CONTROLLED RECEPTACLES FROM UN-CONTROLLED.		MECHANICAL EQUIPMENT INSTALLED BY OTHERS, CONNECTED BY ELECTRICAL CONTRACTOR
	NEMA 5-20R FULLY CONTROLLED RECEPTACLE PER TITLE 24 SECTION 130.5(d) PERMANENT MARKING REQUIRED TO DIFFERENTIATE CONTROLLED RECEPTACLES FROM UN-CONTROLLED.		PANEL DESIGNATION
	DUPLEX NEMA 5-15R FLOOR RECEPTACLE WITH METAL DOOR COVER PLATE		NUMBERED NOTE FLAG FOR SAME SHEET
	RECEPTACLE CONTROL, CONTACTOR, SEE WIRING DIAGRAMS		INDICATES DETAIL "2" FOR SAME SHEET
	ROOM CONTROLLER FOR PRIORITIZING DIMMING SIGNALS AND OUTPUTTING 0-10V CONTROL, SEE WIRING DIAGRAM		TITLE 24 COMPLIANT LIGHTING CONTROL CABINET - POLES AS REQUIRED FOR SYSTEM
	DAYLIGHT SENSOR FOR AUTOMATIC DIMMING, SEE WIRING DIAGRAM		LOW VOLTAGE CABLE, PLENUM RATED INSTALLED WITHOUT CONDUIT ABOVE ACCESSIBLE CEILING. FOR CONTROL AND COMMUNICATION PURPOSES
			OCCUPANCY SENSOR COMPATIBLE WITH CONTROL SCHEME DESIGNED. DUAL TECH FOR MOST APPLICATIONS, ULTRA SONIC FOR RESTROOMS, NARROW LONG BEAM FOR HALLWAYS, ROUND IS CEILING MOUNTED. DOS FOR DIMMING OCCUPANCY SENSOR.
			POWER AND DATA FLUSH FLOOR BOX, SEE INSTALLATION DETAIL AND COORDINATE EXACT LOCATION IN FIELD PRIOR TO BEGINNING WORK
			MOTION SENSOR COMPATIBLE WITH CONTROL SCHEME DESIGNED.

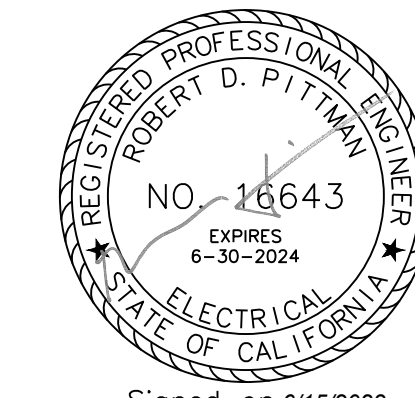
ELECTRICAL ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A, AMP	AMPERE	KVA	KILO VOLT-AMPERE
A/C	AMPERE INTERRUPTING CAPACITY	KCM	KILO CIRCULAR MILS
AFC	AVAILABLE FAULT CURRENT	LCC	TITLE 24 COMPLIANT LIGHTING CONTROL CABINET - POLES AS REQUIRED FOR SYSTEM
AFB	ABOVE FINISHED FLOOR	LV	LOW VOLTAGE
AIC, KAIC	AMPERE INTERRUPTING CAPACITY, KILO	MH	METAL HALIDE
AL	ALUMINUM	MLO	MAIN LUG ONLY
AWG	AMERICAN WIRE GAUGE	MSB	MAIN SWITCH BOARD
BC	BARE COPPER	NTS	NOT TO SCALE
BKR	CIRCUIT BREAKER	OAN	OR AS NOTED
C	CONDUIT	PFB	PROVISION FOR FUTURE BREAKER
CKT	CIRCUIT	PH	PHASE
CO	CONDUIT ONLY WITH PULL LINE	PVC	POLYVINYL CHLORIDE CONDUIT
CU	COPPER	(R)	EXISTING TO BE RELOCATED
(D)	DEMO	TTB	TELEPHONE TERMINAL BOARD
(E)	EXISTING TO REMAIN	TTC	TELEPHONE TERMINAL CABINET
EM	EMERGENCY	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	UG	UNDER GROUND
FACP	FIRE ALARM CONTROL PANEL	V	VOLT, VOLTS
FBO	FURNISHED BY OTHERS	W	WIRE
GFI	GROUND FAULT CIRCUIT INTERRUPTER (ALSO GFCI)	WP	WEATHERPROOF
GND,GRD	GROUND	(X)	EXISTING TO BE RELOCATED, NEW LOCATION
IG	ISOLATED GROUND	XFMR	TRANSFORMER
J-BOX	JUNCTION BOX		



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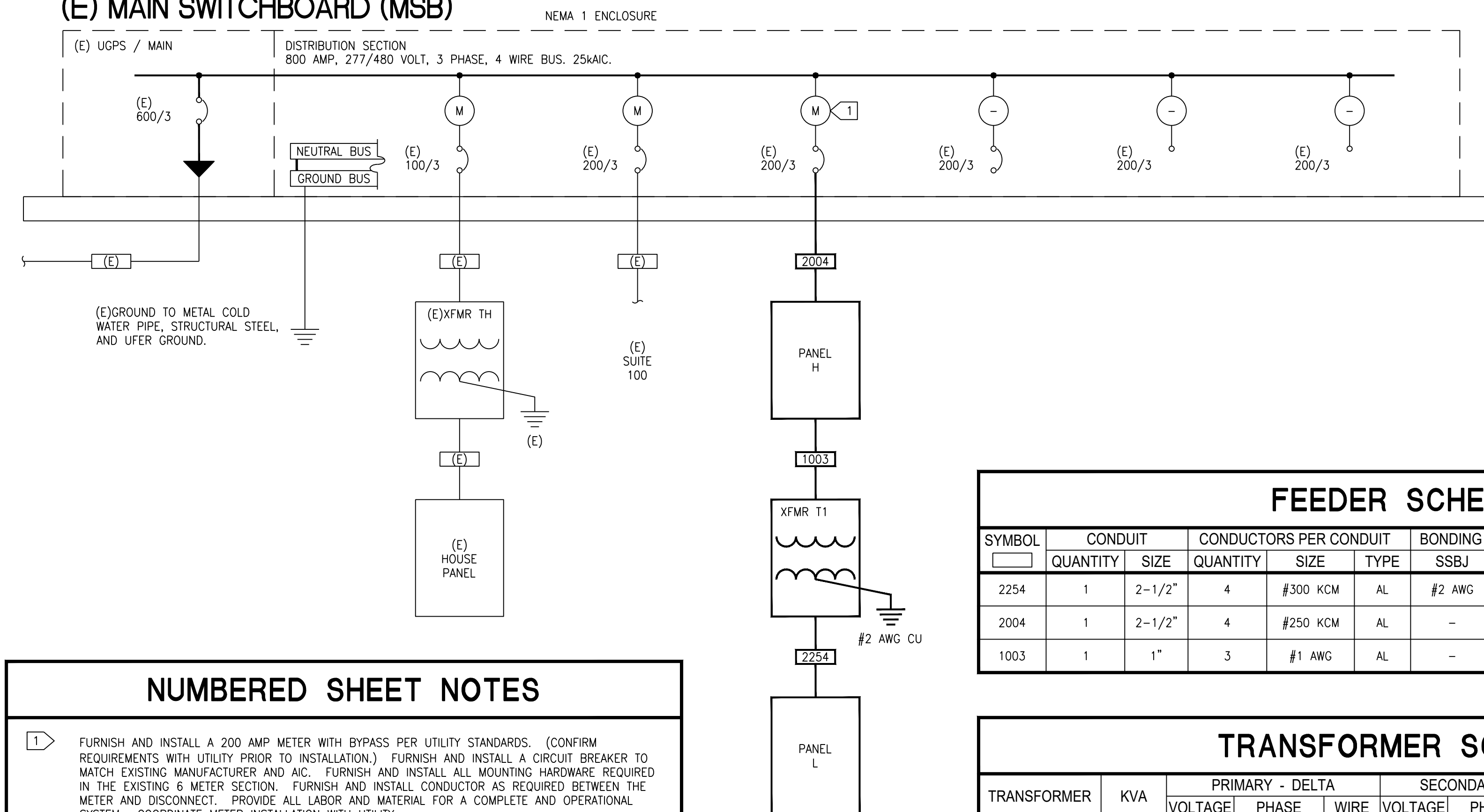
DRAWING

ONE LINE DIAGRAM
AND SCHEDULES

PROJECT NO. 23141
DATE 04-14-2023
DRAWN BY ED/SP
CHECKED BY RP/TG

E120

(E) MAIN SWITCHBOARD (MSB)



NUMBERED SHEET NOTES

1 FURNISH AND INSTALL A 200 AMP METER WITH BYPASS PER UTILITY STANDARDS. (CONFIRM REQUIREMENTS WITH UTILITY PRIOR TO INSTALLATION.) FURNISH AND INSTALL A CIRCUIT BREAKER TO MATCH EXISTING MANUFACTURER AND AIC. FURNISH AND INSTALL ALL MOUNTING HARDWARE REQUIRED IN THE EXISTING 6 METER SECTION. FURNISH AND INSTALL CONDUCTOR AS REQUIRED BETWEEN THE METER AND DISCONNECT. PROVIDE ALL LABOR AND MATERIAL FOR A COMPLETE AND OPERATIONAL SYSTEM. COORDINATE METER INSTALLATION WITH UTILITY.

FEEDER SCHEDULE

SYMBOL	CONDUIT		CONDUCTORS PER CONDUIT			BONDING CONDUCTOR (GND)			REMARKS
	QUANTITY	SIZE	QUANTITY	SIZE	TYPE	SSBJ	EGC	TYPE	
2254	1	2-1/2"	4	#300 KCM	AL	#2 AWG	-	CU	
2004	1	2-1/2"	4	#250 KCM	AL	-	#6 AWG	CU	
1003	1	1"	3	#1 AWG	AL	-	#8 AWG	CU	

TRANSFORMER SCHEDULE

TRANSFORMER	KVA	PRIMARY - DELTA			SECONDARY - WYE			REMARKS
		VOLTAGE	PHASE	WIRE	VOLTAGE	PHASE	WIRE	
T1	75	480	3	3	120/208	3	4	

GROUND THE DERIVED GROUND (NEUTRAL) CONDUCTOR AT THE SAME POINT THE SYSTEM BONDING JUMPER IS CONNECTED (OFTEN TERMINAL X0), TO THE BUILDING OR STRUCTURE GROUNDING ELECTRODE SYSTEM PER 250.30(A). ALSO BOND THE METAL WATER PIPING SYSTEM PER 250.104(D)(1).

ONE LINE DIAGRAM

VOLTAGE DROP CALCULATION

#	Panel Name	Voltage	Phase	KVA	Amps	Wire Size	Type	Dist (Ft)	Conduit Type	Runs	Vd = (Phase x R x I x Distance) / Runs	Volts Dropped	% Dropped
1	PANEL H	480	3	38	45.8	250KCM	AL	190	Steel	1	Vd = (1.732 x 0.086000 x 45.75 x 190) / 1 = 1.295	0.270	
2	PANEL L	208	3	29.7	82.5	300KCM	AL	10	Steel	1	Vd = (1.732 x 0.072000 x 82.39 x 10) / 1 = 0.103	0.048	
3	HP - 1	480	3	6.65	8.0	12AWG	CU	200	Steel	1	Vd = (1.732 x 2.000000 x 8.00 x 200) / 1 = 5.540	1.154	

AVAILABLE FAULT CURRENT CALCULATIONS & MINIMUM AIC RATINGS

XFMR	Voltage	Phase	XFMR %Z	XFMR KVA	XFMR FLA	XFMR I _{SCA}
(E)UTILITY	480	3	3.5	500	601	19092
T1	208	3	1.5	75	208	15421

Node	Voltage	Phase	Previous Node	AFC of Previous Node	Wire Size	Type	Dist (Ft)	Conduit Type	Runs	"F" Factor	M	Available Fault Current	Minimum AIC Rating
(E)MSB	480	3	(E)UTILITY	19092	500KCM	AL	50	Nonmetallic	2	0.081	0.925	17670	(E)25K
PANEL H	480	3	(E)MSB	17670	250KCM	AL	140	Metallic	1	0.736	0.576	10176	14K
PANEL L	208	3	T1	15421	300KCM	AL	3	Metallic	1	0.028	0.973	15005	22K

1: Estimated values based on worst case-scenario. Confirm available fault current from utility is equal or less.

PANEL: H
TYPE: NEMA 1
TRIM: SURFACE
225 AMPS
277/480 VOLT 3PH 4W
SEE AFC CALCULATIONS FOR AIC
MLO

DESCRIPTION	KVA	BKR	CKT	PHASE	CKT	BKR	KVA	DESCRIPTION
WHOUSE LIGHTING	1.7	20/1	1		2	15	2.2	
			3		4	2.2		
			5		6	3	2.2	HP - 1
			7		8			
			9		10			
			11		12			
			13		14			
			15		16			
			17		18			
			19		20			
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			27		28			
			29		30			
			31		32			
			33		34			
			35		36			
			37		38			
			39		40			
			41		42			

PANEL: L

DESCRIPTION	KVA	BKR	CKT	PHASE	CKT	BKR	KVA	DESCRIPTION
	11.9	100	37		38			
	9.7	39	39		40			
	8.1	3	41		42			

TOTAL PHASE A KVA: 15.8
TOTAL PHASE B KVA: 11.9
TOTAL PHASE C KVA: 10.3

CONNECTED LOAD: 38.0
25% CONTINUOUS LOAD: 0.4
25% LARGEST MOTOR: 1.7
TOTAL KVA: 40.1
40.1 KVA / 0.831 = 48.3 AMPS

PANEL: L
TYPE: NEMA 1
TRIM: SURFACE
225 AMPS
120/208 VOLT 3PH 4W
SEE AFC CALCULATIONS FOR AIC
225A MCB

DESCRIPTION	KVA	BKR	CKT	PHASE	CKT	BKR	KVA	DESCRIPTION
DRYER	2.2	30	1		2	20/1	0.4	OFFICE LIGHTING
WASHER	0.8	20/1	5		6	20/1	0.7	OFFICE RECEPETS
EW - 1	2.5	35	7		8	20/1	0.9	OFFICE RECEPETS
AH - 1	2.5	2	9		10	20/1	1.1	OFFICE RECEPETS
(LARGEST MOTOR 6A)	5.0	50	11		12	20/1	1.4	GD - 1/ FRIDGE
	5.0	2	13		14	20/1	0.9	OFFICE RECEPETS
			15		16	20/1	1.2	SIGN
			17		18	20/1	0.2	ROOF RECEPT
			19		20	20/1	0.0	SPARE
WAREHOUSE RECEPETS	0.9	20/1	21		22	20/1	0.9	WHOUSE RECEPETS
			23		24			
			25		26			
			27		28			
			29		30			
			31		32			
			33		34			
			35		36			
			37		38			
			39		40			
			41		42			

TOTAL PHASE A KVA: 11.9
TOTAL PHASE B KVA: 9.7
TOTAL PHASE C KVA: 8.1

CONNECTED LOAD: 29.7
25% CONTINUOUS LOAD: 1.4
25% LARGEST MOTOR: 0.3
TOTAL KVA: 31.3
31.3 KVA / 0.360 = 87.1 AMPS

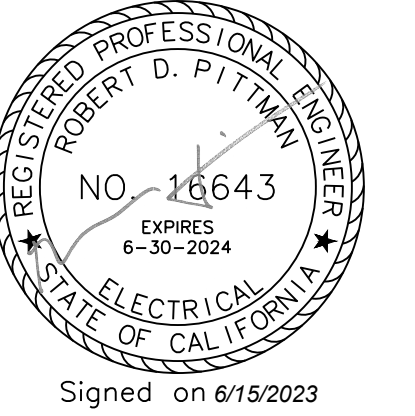
FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	VOLTAGE	LAMP	INPUT VOLT-AMP	MOUNTING	REMARKS
A	METALUX	24C22-50-UNV-L835-CD1-U	120	LED	39.6	RECESSED T-BAR	VOLUMETRIC 2X4 TROFFER, 5000 LUMENS, 3500K
B	PORTFOLIO	LD56C-08-90-35-D010	120	LED	10.15	RECESSED	6" DOWNLIGHT, 800 LUMENS
D	METALUX	4WP3040C	120	LED	31.4	SURFACE	4" SURFACE WRAP, 3,500 LUMENS, 4000K
G	METALUX	OHLB-12SE-W-277V-L740-CD-U	277	LED	70	SUSPENDED AT 18" A.F.F.	HIGH BAY, 12,400 LUMENS, 4000K, INTEGRATED OCCUPANCY/DAYLIGHT HARVESTING SENSOR, INTEGRAL EMERGENCY BATTERY BACKUP **
GE	METALUX	OHLB-12SE-W-277V-L740-EL20W-CD-U	277	LED	70	SUSPENDED AT 18" A.F.F.	HIGH BAY, 12,400 LUMENS, 4000K, INTEGRATED OCCUPANCY/DAYLIGHT HARVESTING SENSOR, INTEGRAL EMERGENCY BATTERY BACKUP **
⚡	LITHONIA	LHQM LED G	120-277	LED	4	UNIVERSAL	EMERGENCY LED EXIT WITH DUAL EGRESS HEADS, WITH 90 MIN. BATTERY

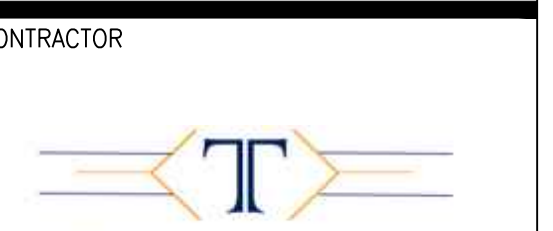
** EMERGENCY BATTERY BACKUP TO BE CAPABLE OF ILLUMINATING EGRESS PATHWAY FOR A MINIMUM OF 90 MINUTES PER CBC 1008.3.4.



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APPROVAL STAMP

PROJECT PLACER DETAILING

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Table with 2 columns: REVISIONS, DESCRIPTION, DATE

DRAWING ELECTRICAL ENERGY COMPLIANCE

PROJECT NO. 23141 DATE 04-14-2023 DRAWN BY ED/SP CHECKED BY RP/TG

E130

STATE OF CALIFORNIA Indoor Lighting CERTIFICATE OF COMPLIANCE NRCC-LTI-E Project Name: 23141 PLACER DETAILING Report Page: (Page 3 of 8) Date Prepared: 2023-04-24T14:29:03-04:00

F. INDOOR LIGHTING FIXTURE SCHEDULE Table with columns: Name or Item Tag, Complete Luminaire Description, Modular (Track) Fixture, Small Aperture & Color Change, Watts per luminaire, How is Wattage determined, Total Number of Luminaires, Excluded per 140.6(a)3 / 170.2(e)2C, Design Watts, Field Inspector Pass/Fail

STATE OF CALIFORNIA Indoor Lighting CERTIFICATE OF COMPLIANCE NRCC-LTI-E Project Name: 23141 PLACER DETAILING Report Page: (Page 6 of 8) Date Prepared: 2023-04-24T14:29:03-04:00

STATE OF CALIFORNIA Indoor Lighting CERTIFICATE OF COMPLIANCE NRCC-LTI-E Project Name: 23141 PLACER DETAILING Report Page: (Page 2 of 8) Date Prepared: 2023-04-24T14:29:03-04:00

C. COMPLIANCE RESULTS Table with columns: Lighting in conditioned and unconditioned spaces, Allowed Lighting Power per 140.6(b) / 170.2(e) (Watts), Adjusted Lighting Power per 140.6(a) / 170.2(e) (Watts), Compliance Results

STATE OF CALIFORNIA Indoor Lighting CERTIFICATE OF COMPLIANCE NRCC-LTI-E Project Name: 23141 PLACER DETAILING Report Page: (Page 7 of 8) Date Prepared: 2023-04-24T14:29:03-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT I certify that this Certificate of Compliance documentation is accurate and complete.

RESPONSIBLE PERSON'S DECLARATION STATEMENT I certify the following under penalty of perjury, under the laws of the State of California:

STATE OF CALIFORNIA Indoor Lighting CERTIFICATE OF COMPLIANCE NRCC-LTI-E Project Name: 23141 PLACER DETAILING Report Page: (Page 1 of 8) Date Prepared: 2023-04-24T14:29:03-04:00

STATE OF CALIFORNIA Indoor Lighting CERTIFICATE OF COMPLIANCE NRCC-LTI-E Project Name: 23141 PLACER DETAILING Report Page: (Page 4 of 8) Date Prepared: 2023-04-24T14:29:03-04:00

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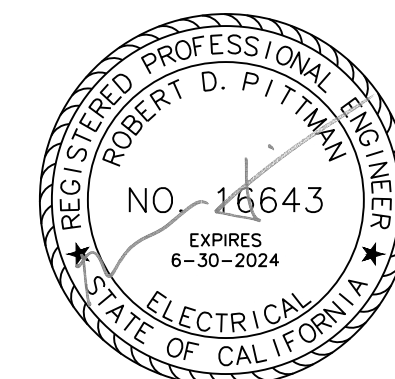
V. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE Selections have been made based on information provided in this document.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance



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Signed on 6/15/2023

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REVISIONS

DESCRIPTION	DATE

DRAWING

ELECTRICAL PLAN

PROJECT NO.	23141
DATE	04-14-2023
DRAWN BY	ED/SP
CHECKED BY	RP/TG

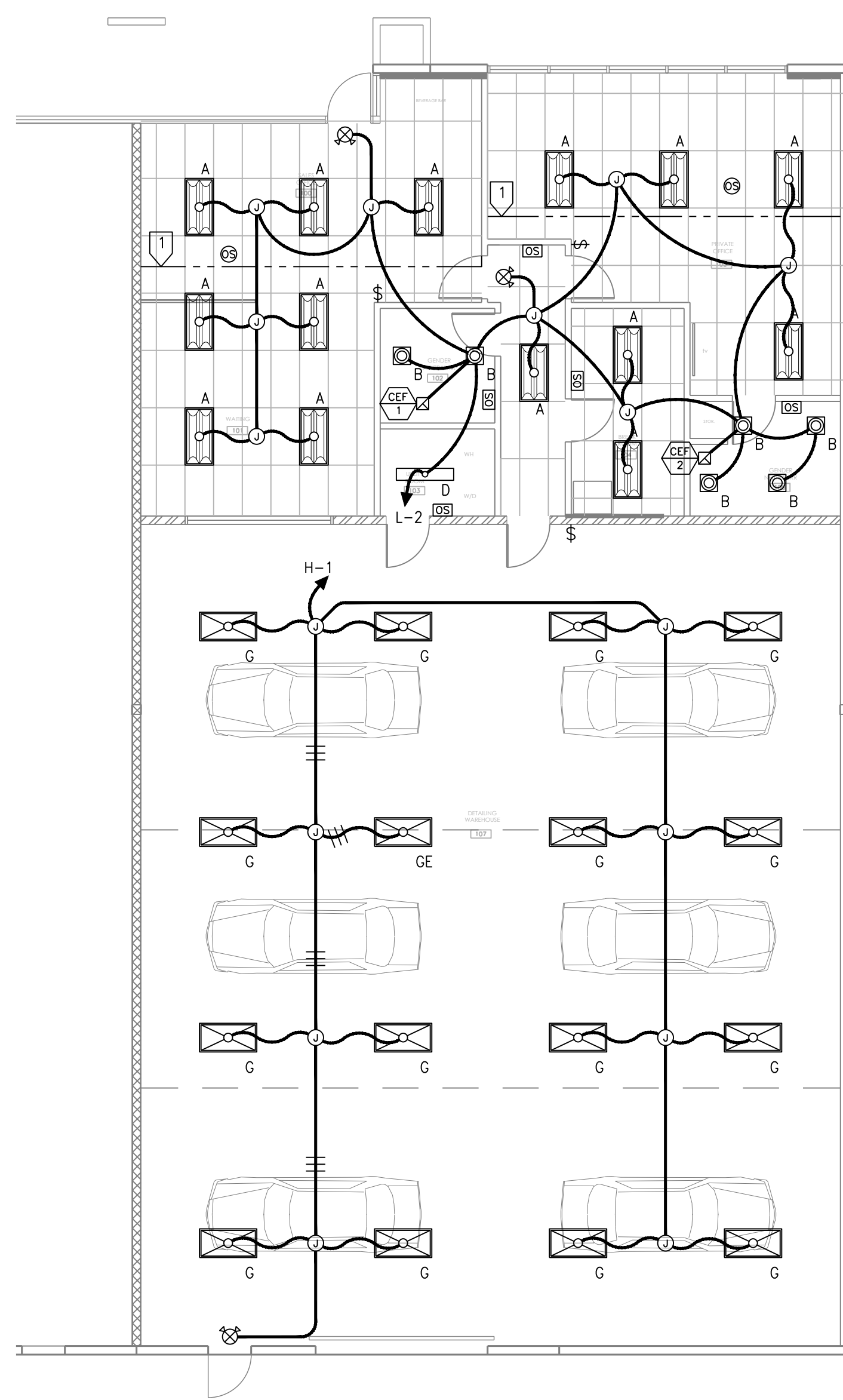
E210

GENERAL SHEET NOTES

- LIGHTING FIXTURE TYPES G AND GE HAVE AN INTEGRATED OCCUPANCY AND DAYLIGHTING HARVESTING SENSOR. CONTROLS ARE SPECIFIC TO EACH FIXTURE.
- DISCONNECT RATINGS SHALL MATCH BRANCH CIRCUIT DISCONNECT RATING SHOWN ON PANEL SCHEDULE. NAMEPLATE RATING OF EQUIPMENT TO BE INSTALLED SHALL TAKE PRECEDENCE OVER RATINGS SHOWN ON THESE PLANS. FUSES FOR MOTOR PROTECTION SHALL BE PER NAMEPLATE RATING OF EQUIPMENT SUPPLIED. RATINGS NOT SHOWN ON FLOOR PLANS FOR CLARITY OF SPACE.
- STEP-DOWN TRANSFORMER SHALL BE FLOOR-MOUNTED. REQUIRED CLEARANCE, AS DEMONSTRATED, SHALL BE CLEARLY MARKED. TRANSFORMER TOP SURFACES THAT ARE HORIZONTAL AND READILY ACCESSIBLE SHALL BE MARKED TO PROHIBIT STORAGE. REFER TO CEC SECTIONS 450.9 AND 110.26.
- SPACE IS NOT INTENDED TO HAVE CAR WASHING INDOORS, AND WILL NOT BE CONSIDERED A WET LOCATION. SEE ARCHITECTURAL SHEETS FOR SPACE INTENTIONS.

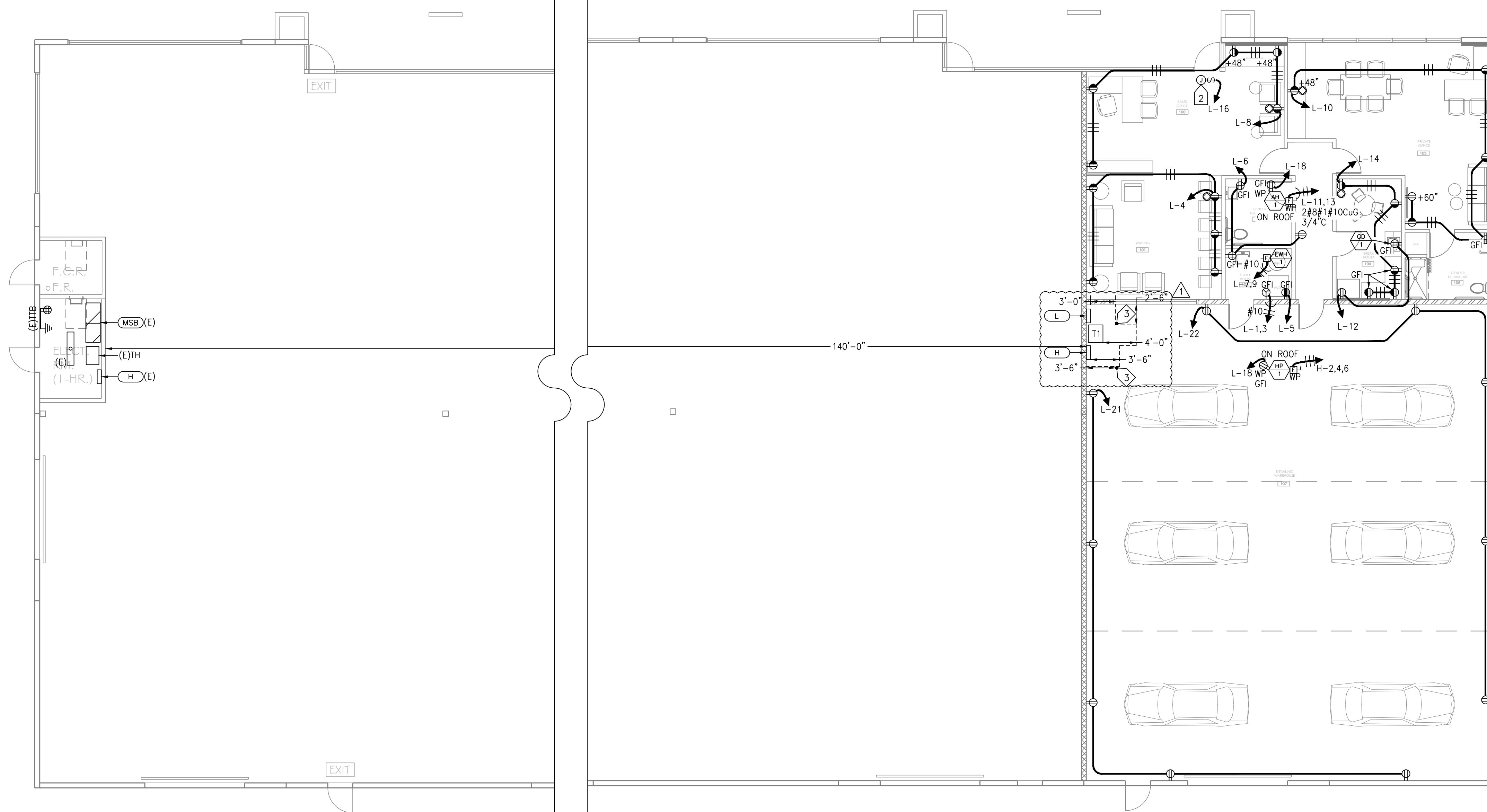
NUMBERED SHEET NOTES

- LIMIT OF CALIFORNIA ENERGY CODE PRIMARY DAYLIT ZONE.
- TERMINATE SIGN CIRCUIT POWER HERE. CAP CONDUCTORS FOR USE BY SIGN VENDOR. COORDINATE BOX LOCATION. PROVIDE BOX INSIDE WEATHER PROOF ENVELOPE OF THE BUILDING.
- PROTECTIVE BOLLARDS FOR ELECTRICAL EQUIPMENT. INSTALL SUCH THAT WORKING CLEARANCE IS MAINTAINED IN ACCORDANCE WITH 110.26. PROVIDE PROPER SIGNAGE TO INDICATE THAT SPACE SHALL NOT BE USED FOR STORAGE.



LIGHTING PLAN
SCALE: 1/8" = 1' - 0"

2

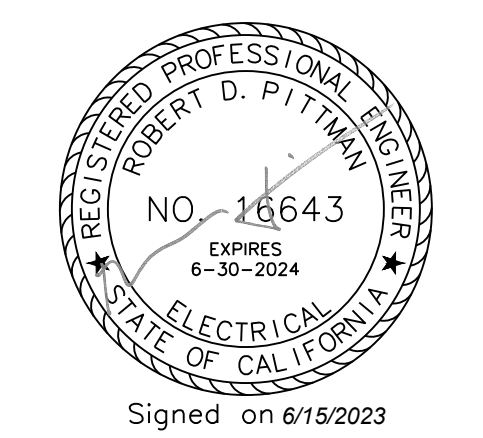


POWER FLOOR PLAN
SCALE: 1/8" = 1' - 0"

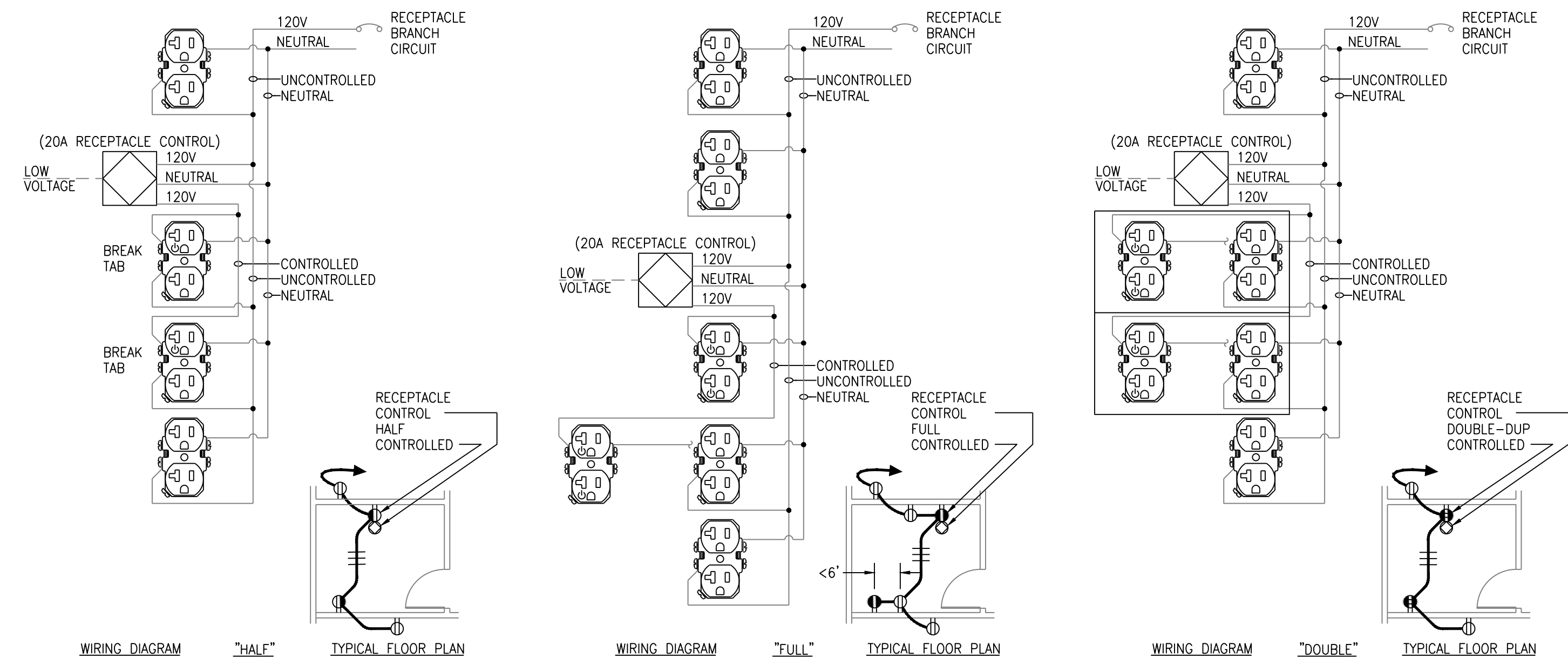
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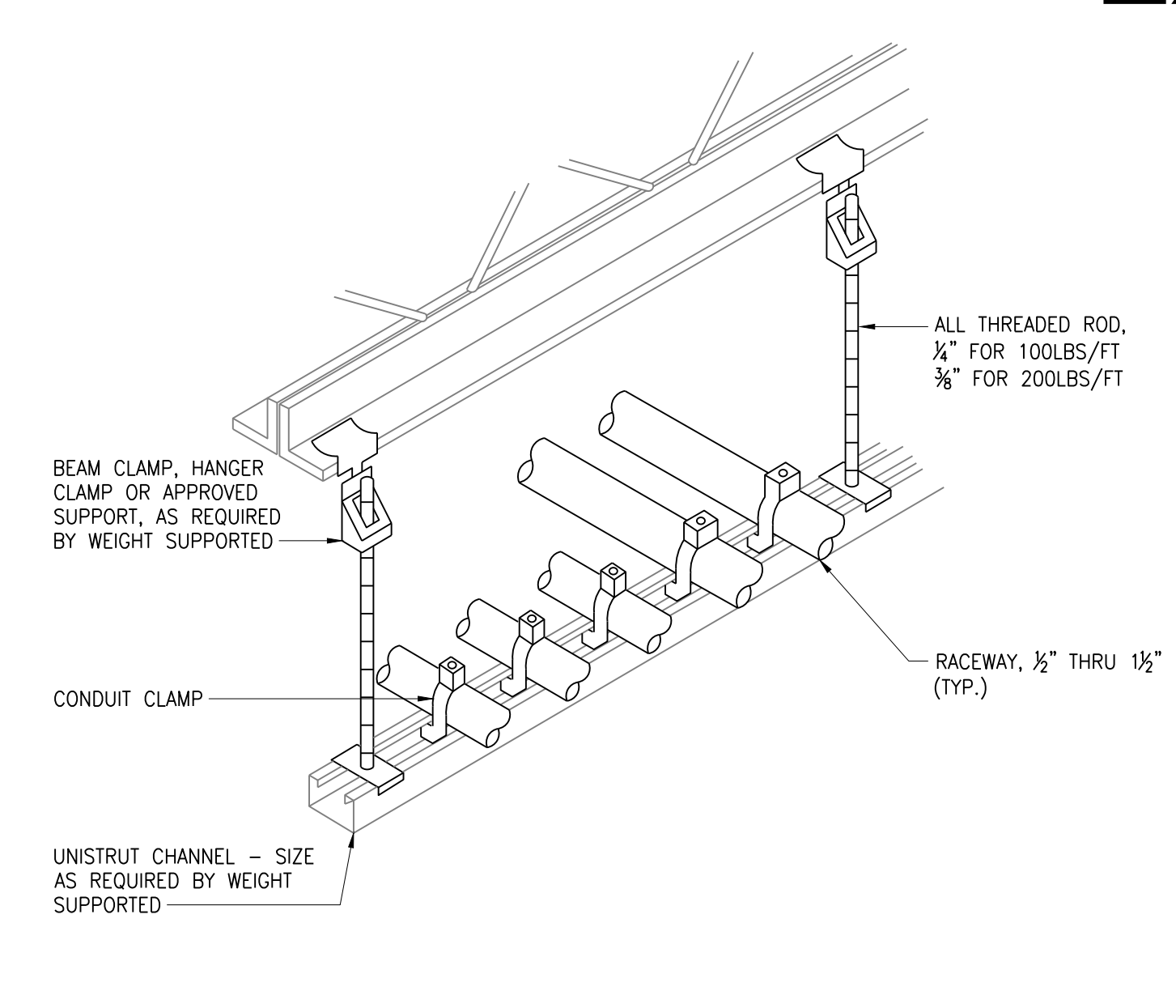
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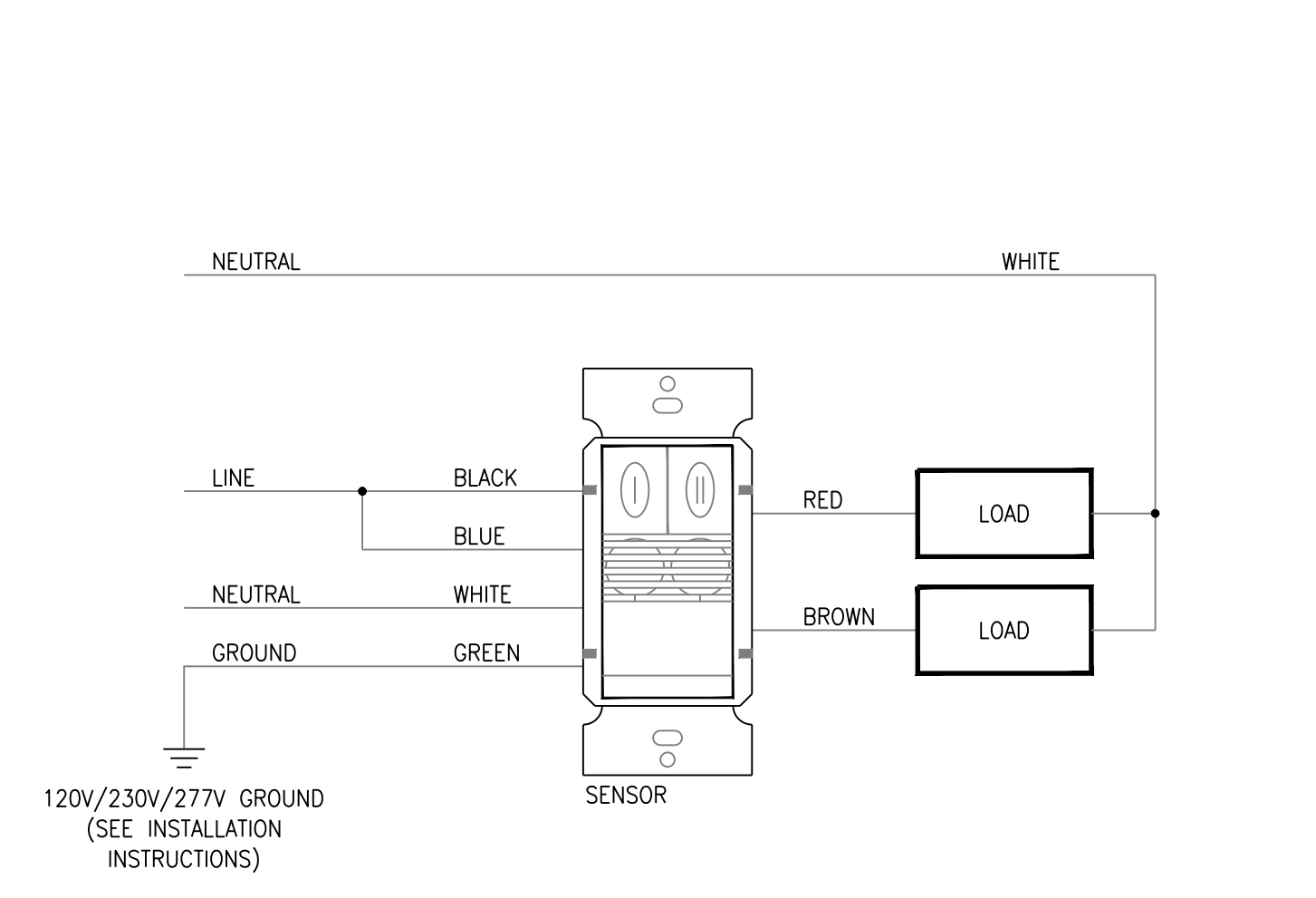
Signed on 6/15/2023



CONTROLLED RECEPTACLE WIRING DIAGRAMS
HALF CONTROLLED RECEPTACLE, CONTROLLED AND UNCONTROLLED, DOUBLE DUPLEX RECEPTACLE (CONTROLLED, UNCONTROLLED)

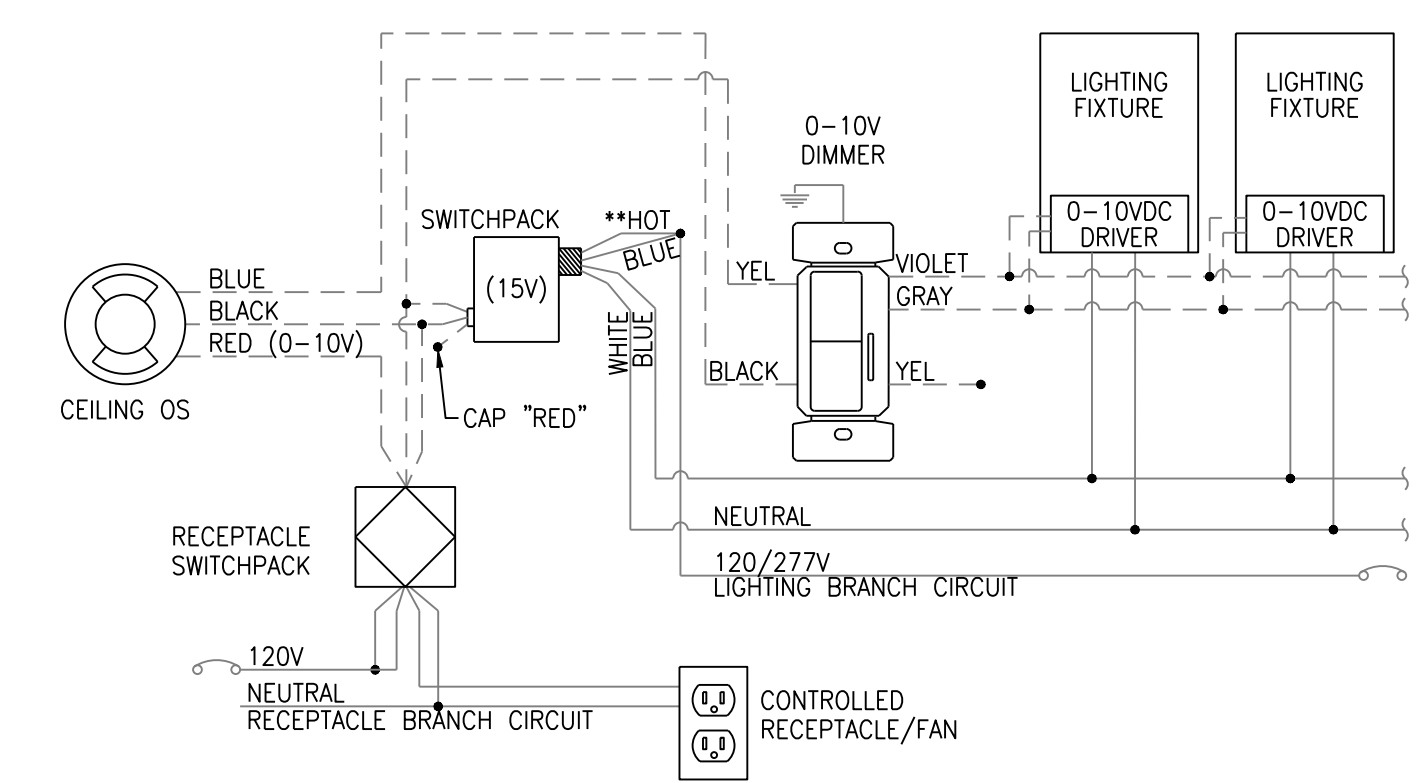


CONDUIT RACK DETAIL
SCALE: NTS



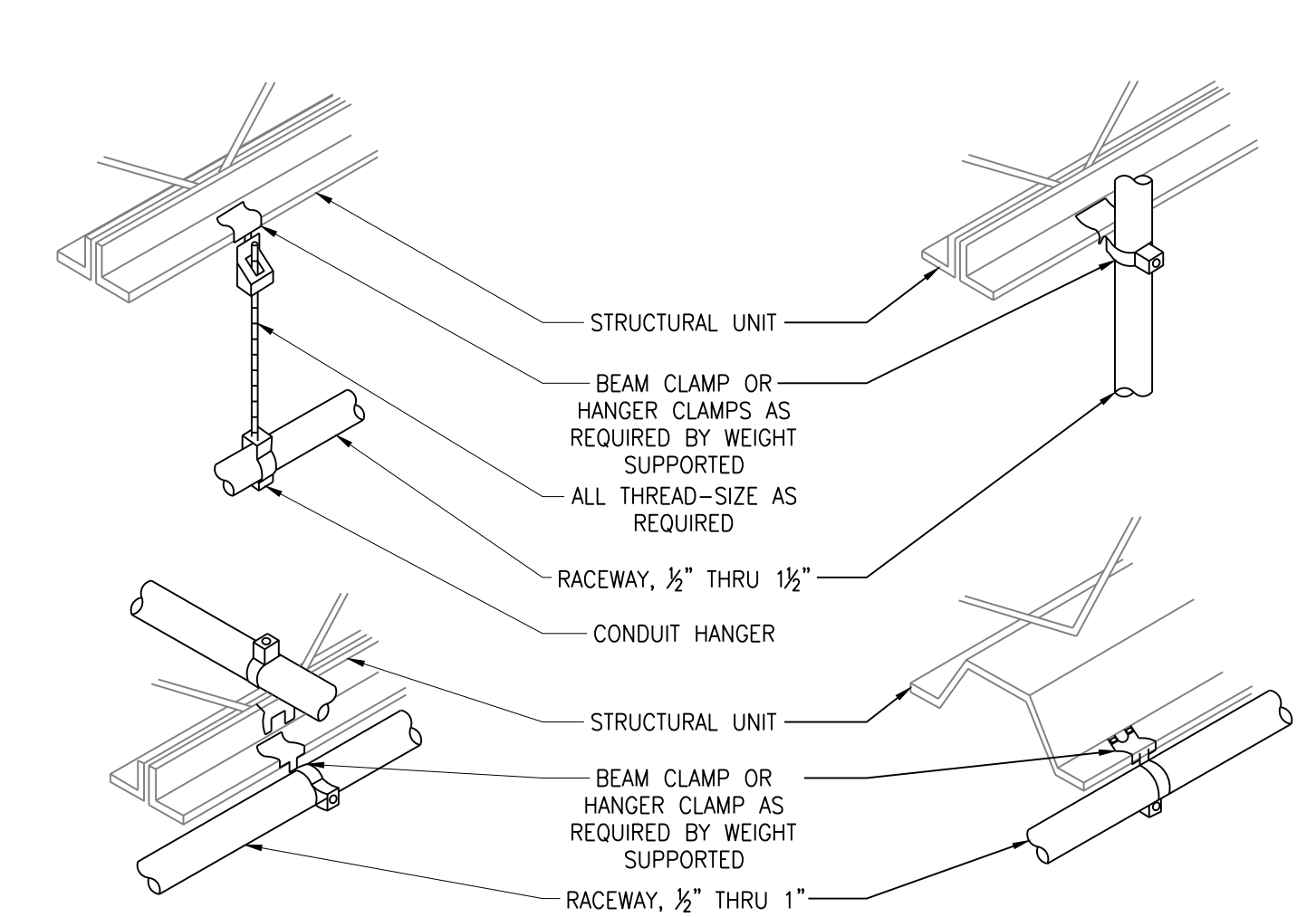
NOTES:
1. SENSOR TYPES ARE FOR ANY MANUFACTURER CEILING AND WALL LV OS.
2. 0-10V DIMMERS MUST BE CONFIRMED AS COMPATIBLE BY MANUFACTURER. SUBMITTALS ARE REQUIRED.
3. WIRING SYMBOLS: LINE VOLTAGE: _____ LOW VOLTAGE: - - - - -
4. **USE BLACK LEAD FOR 120VAC. USE ORANGE LEAD FOR 277VAC. CAP UNUSED LEAD.
5. ALTERNATE MODELS AND MANUFACTURERS THAT PROVIDE EQUAL OPERATION ARE ACCEPTABLE. CONFIRM WIRING DIAGRAMS.

LIGHTING CONTROL WIRING DIAGRAM
WALLBOX OCCUPANCY SENSOR FOR DUAL LEVEL CONTROL

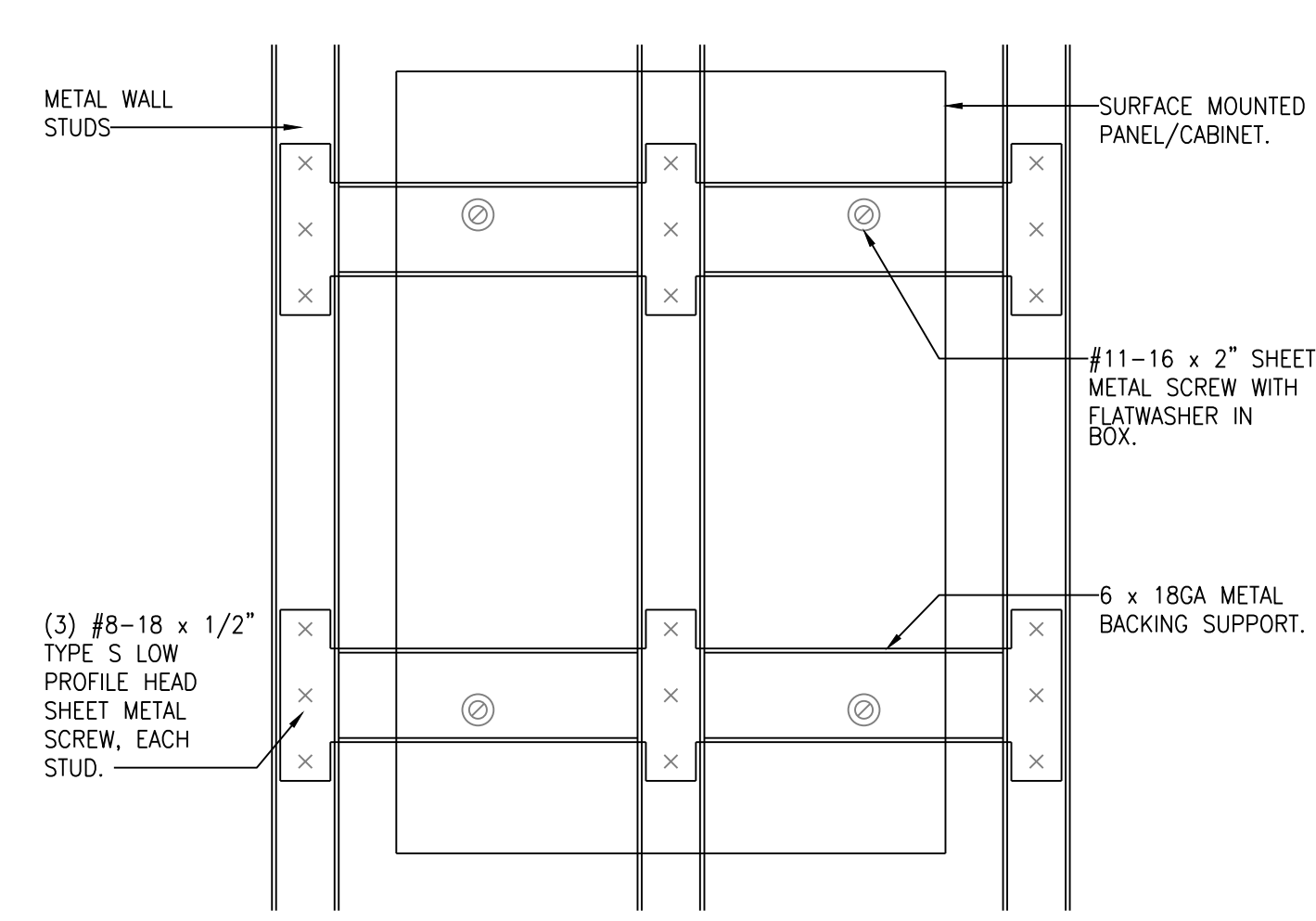


SEQUENCE OF OPERATION:
1. THE LIGHTING IS CONTROLLED BY THE STANDARD 15VDC SWITCHPACK RELAY. THE OS IS POWERED BY THE 24VDC RECEPTACLE SWITCHPACK (24V).
2. THE ISOLATED SWITCH WITHIN THE WALLBOX DIMMER BREAKS THE 24V OUTPUT OF THE OS TO TURN THE LIGHTS ON/OFF USING LOW VOLTAGE WIRING. THERE WILL BE NO LINE VOLTAGE SWITCH AND WIRING IN WALL.
3. WHEN THE DIMMER IS OFF, BOTH LIGHTS AND RECEPTACLES ARE SWITCHED OFF.

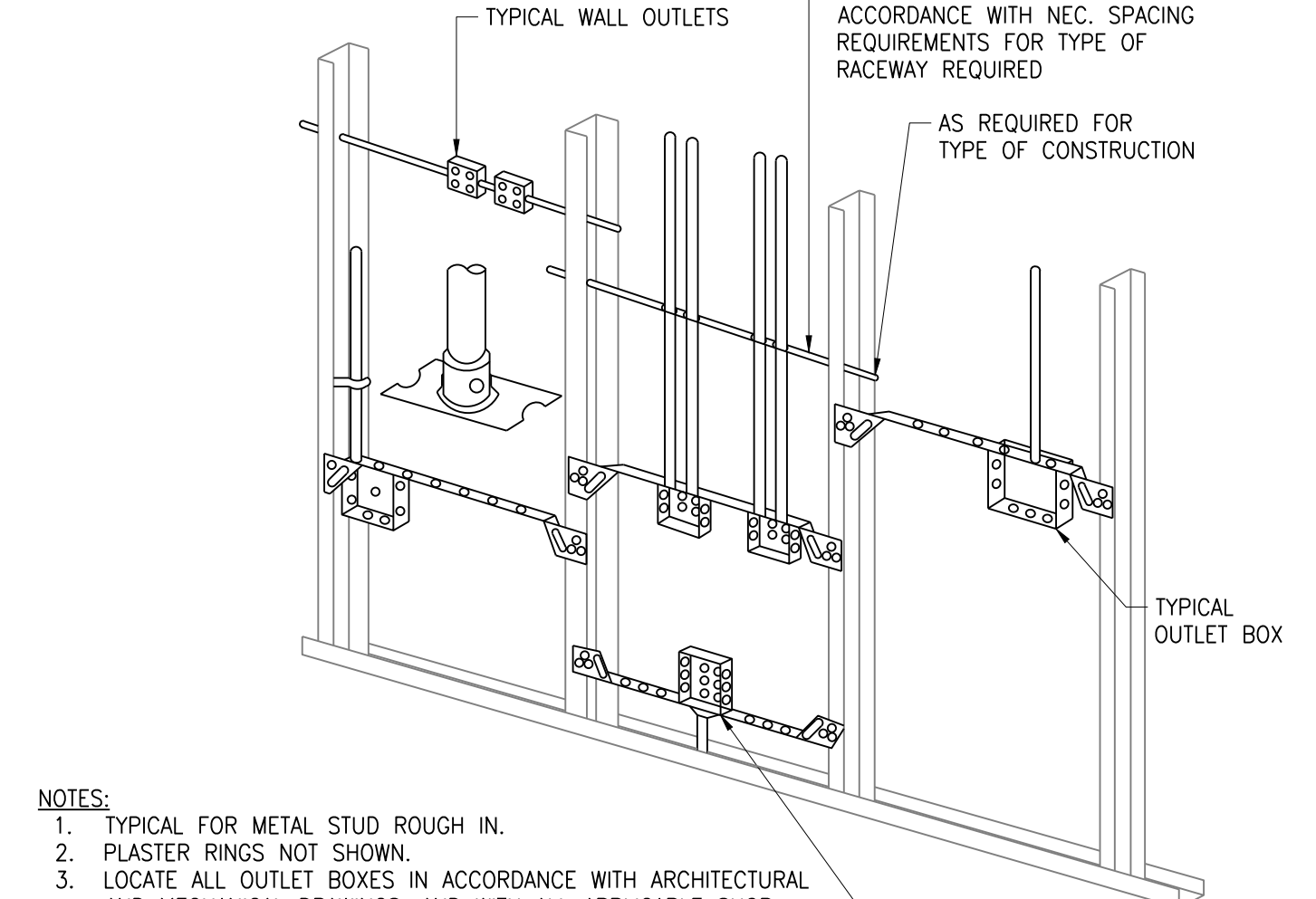
LIGHTING CONTROL WIRING DIAGRAM
OCCUPANCY SENSOR, WALLBOX DIMMING, RECEPTACLE CONTROL



TYPICAL RACEWAY SUPPORT DETAILS
SCALE: NTS



SURFACE BOX/PANEL MOUNTING
SCALE: NTS



TYPICAL WALL SUPPORT DETAILS
SCALE: NTS

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E310