# DPH - FIRST FLOOR T.I.

451 E Vanderbilt Way, San Bernardino, CA 92408

## CITY SUBMITTAL
08/25/2025

## PCC-1
11/20/2025

LPA

ARCHITECTURE ENGINEERING INTERIORS
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

**LPADesignStudios.com**

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Irvine, California 92617

NOT FOR REGULATORY APPROVAL,
PERMITTING OR CONSTRUCTION

**JLee Engineering, Inc.**
**Approved**
**By Jae Lee**
04/06/2026

**This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinances or State law.**

**County of San Bernardino**
**BUILDING AND SAFETY**

THE PLANS AND DETAILS HAVE BEEN
**REVIEWED**
**FOR CODE COMPLIANCE**
THE REVIEW OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT OR ANY VIOLATION OF ANY CODE OR ORDINANCE OF THIS COUNTY.

By
Date 04/10/2026

**THESE PLANS SHALL BE ON THE JOB FOR ALL REQUESTED INSPECTIONS**

COUNTY REVIEWED
PLANS FOR 88 PAGES
FOR BUILDING CODE
COMPLIANCE ONLY.
TI-2025-00170

PROJECT NUMBER
32468

| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

☐ Approved
☐ Approved As Noted

Signature: Date:

TITLE SHEET

G0.00

## ABBREVIATIONS

| | | | |
|---|---|---|---|
| & | AND | ID | INSIDE DIAMETER |
| ∠ | ANGLE | INSUL | INSULATION |
| @ | AT | INT | INTERIOR |
| ℄ | CENTERLINE | | |
| ∅ | DIAMETER OR ROUND | JAN | JANITOR |
| # | POUND OR NUMBER | JT | JOINT |
| (E) | EXISTING | | |
| (P) | PAINT | KIT | KITCHEN |
| (R) | REMOVE | | |
| +/- | DIM TOLERANCE | LAB | LABORATORY |
| | | LAM | LAMINATE |
| AC | ASPHALTIC CONCRETE | LAND ARCH | LANDSCAPE ARCHITECT |
| ACC | ACCESSIBLE | LAV | LAVATORY |
| ACOUS | ACOUSTICAL | LKR | LOCKER |
| ACM | ALUM COMPOSITE MATERIAL | LT | LIGHT |
| ACT | ACOUS CLG TILE | | |
| AD | AREA DRAIN | MATL | MATERIAL |
| AED | AUTO EXT DEFIBRILLATOR | MAX | MAXIMUM |
| ADJ | ADJUSTABLE | MC | MEDICINE CABINET |
| AFF | ABOVE FINISH FLOOR | MECH | MECHANICAL |
| AGGR | AGGREGATE | MEMB | MEMBRANE |
| AHJ | AUTHORITY HAVING JURISDICTION | MET | METAL |
| | | MFR | MANUFACTURER |
| ALUM | ALUMINUM | MH | MANHOLE |
| APPROX | APPROXIMATE | MIN | MINIMUM |
| ARCH | ARCHITECTURAL | MIR | MIRROR |
| ASF | ASSIGNABLE SF | MISC | MISCELLANEOUS |
| ASPH | ASPHALT | MO | MASONRY OPENING |
| | | MTD | MOUNTED |
| BD | BOARD | MUL | MULLION |
| BITUM | BITUMINOUS | | |
| BLDG | BUILDING | N | NORTH |
| BLK | BLOCK | NIC | NOT IN CONTRACT |
| BLK'G | BLOCKING | NO# | NUMBER |
| BM | BEAM | NOM | NOMINAL |
| BOC | BACK OF CURB | NTS | NOT TO SCALE |
| BOT | BOTTOM | | |
| BO | BOTTOM OF | OA | OVERALL |
| BOC | BACK OF CURB | OA | OUTSIDE AIR |
| BOW | BOTTOM OF WALL | OBS | OBSCURE |
| BS | BOTTOM OF SLOPE | OC | ON CENTER |
| | | OD | OUTSIDE DIAMETER |
| CAB | CABINET | OFF | OFFICE |
| CB | CATCH BASIN | OPNG | OPENING |
| CEM | CEMENT | OPP | OPPOSITE |
| CER | CERAMIC | OSA | OUTSIDE AIR |
| CI | CAST IRON | | |
| CIP | CAST IN PLACE | PA | PLANTING AREA |
| CIV ENG | CIVIL ENGINEER | PRCST | PRECAST |
| CG | CORNER GUARD | PH | PANIC HARDWARE |
| CJ | CONTROL JOINT | PL | PLATE |
| CLG | CEILING | P LAM | PLASTIC LAMINATE |
| CLKG | CAULKING | PLAS | PLASTER |
| CLO | CLOSET | PLYWD | PLYWOOD |
| CLR | CLEAR | POT | PATH OF TRAVEL |
| CNTR | COUNTER | PR | PAIR |
| CO | CASED OPENING | PT | PAINT |
| COL | COLUMN | PTD | PAPER TOWEL DISPENSER |
| CONC | CONCRETE | PTD/R | COMBINATION PAPER TOWEL DISPENSER & RECEPTACLE |
| CONN | CONNECTION | | |
| CONSTR | CONSTRUCTION | PTN | PARTITION |
| CONT | CONTINUOUS | PTR | PAPER TOWEL RECEPTACLE |
| CORR | CORRIDOR | | |
| CT | CERAMIC TILE | | |
| CTR | CENTER | | |
| CTSK | COUNTERSUNK | | |
| DA | DISABLED ACCESS | QT | QUARRY TILE |
| DBL | DOUBLE | | |
| DEPT | DEPARTMENT | R | RISER |
| DESC | DESCRIPTION | RAD | RADIUS |
| DF | DRINKING FOUNTAIN | RD | ROOF DRAIN |
| DET | DETAIL | REF | REFERENCE |
| DIA | DIAMETER | REFR | REFRIGERATOR |
| DIM | DIMENSION | RGTR | REGISTER |
| DISP | DISPENSER | REINF | REINFORCED |
| DN | DOWN | REQD | REQUIRED |
| DO | DOOR OPENING | RESIL | RESILIENT |
| DR | DOOR | RM | ROOM |
| DWR | DRAWER | RO | ROUGH OPENING |
| DS | DOWNSPOUT | ROW | RIGHT OF WAY |
| DSP | DRY STANDPIPE | RWD | REDWOOD |
| DWG | DRAWING | RWL | RAIN WATER LEADER |
| E | EAST | S | SOUTH |
| EA | EACH | SC | SOLID CORE |
| EJ | EXPANSION JOINT | SCD | SEAT COVER DISPENSER |
| EL | ELEVATION | SCHED | SCHEDULE |
| ELEC | ELECTRICAL | SD | SOAP DISPENSER |
| ELEV | ELEVATOR | SECT | SECTION |
| EMER | EMERGENCY | SF | SQUARE FEET |
| ENCL | ENCLOSURE | SH | SHELF |
| EP | ELECTRICAL PANELBOARD | SHR | SHOWER |
| EQ | EQUAL | SHT | SHEET |
| EQUIP | EQUIPMENT | SIM | SIMILAR |
| EWC | ELECTRIC WATER COOLER | SND | SANITARY NAPKIN DISPENSER |
| EXIST | EXISTING | | |
| EXPO | EXPOSED | SNR | SANITARY NAPKIN RECEPTACLE |
| EXP | EXPANSION | | |
| EXT | EXTERIOR | SPEC | SPECIFICATION(S) |
| | | SQ | SQUARE |
| FA | FIRE ALARM | SS | STAINLESS STEEL |
| FB | FLAT BAR | S SK | SERVICE SINK |
| FD | FLOOR DRAIN | STA | STATION |
| FDN | FOUNDATION | STD | STANDARD |
| FE | FIRE EXTINGUISHER | STL | STEEL |
| FEC | FIRE EXTINGUISHER CABINET | STOR | STORAGE |
| | | STR | STRUCTURAL |
| FHC | FIRE HOSE CABINET | SUSP | SUSPENDED |
| FIN | FINISH | SYM | SYMMETRICAL |
| FLR | FLOOR | | |
| FLASH | FLASHING | T | TREAD |
| FLUOR | FLUORESCENT | TB | TOWEL BAR |
| FOC | FACE OF CONCRETE | TC | TOP OF CURB |
| FOF | FACE OF FINISH | TEL | TELEPHONE |
| FOM | FACE OF MASONRY | TER | TERRAZZO |
| FOS | FACE OF STUD | T&G | TONGUE & GROOVE |
| FOV | FACE OF VENEER (BRICK OR PRECAST) | THK | THICK |
| | | TOB | TOP OF BEAM |
| FOW | FACE OF WALL | TOC | TOP OF CONCRETE |
| FR | FIRE RETARDANT | TOW | TOP OF WALL |
| FPRF | FIREPROOF | TOP | TOP OF PARAPET |
| FS | FINISH SURFACE | TPD | TOILET PAPER DISPENSER |
| FT | FOOT OR FEET | | |
| FTG | FOOTING | TS | TOP OF SLOPE |
| FURR | FURRING | TV | TELEVISION |
| FUT | FUTURE | TYP | TYPICAL |
| GA | GAUGE | UNF | UNFINISHED |
| GALV | GALVANIZED | UNO | UNLESS NOTED OTHERWISE |
| GB | GRAB BAR | | |
| GC | GENERAL CONTRACTOR | UR | URINAL |
| GI | GALVANIZED IRON | | |
| GL | GLASS | VCT | VINYL COMPOSITION TILE |
| GND | GROUND | VERT | VERTICAL |
| GR | GRADE | VEST | VESTIBULE |
| GYP | GYPSUM | | |
| HB | HOSE BIB | W | WEST |
| HC | HOLLOW CORE | W/ | WITH |
| HDWD | HARDWOOD | WC | WATER CLOSET |
| HDW | HARDWARE | WD | WOOD |
| HM | HOLLOW METAL | W/O | WITHOUT |
| HORIZ | HORIZONTAL | WP | WATERPROOF |
| HR | HOUR | WR | WATER RESISTANT |
| HGT/HT | HEIGHT | WSCT | WAINSCOT |
| | | WT | WEIGHT |
| | | WWF | WELDED WIRE FABRIC |

## SYMBOLS

COLUMN LINES

SURFACE DRAINAGE ARROW INDICATES DIRECTION OF FLOW

NORTH ARROW

TRUE NORTH PROJECT NORTH

BUILDING SECTION
SECTION ID
SHEET NUMBER
1 / A101 TYP

WALL SECTION
SECTION ID
SHEET NUMBER
1 / A101 TYP

DETAIL CALLOUTS
DETAIL ID
SHEET NUMBER
1 / A101 SIM

DETAIL SECTION
DETAIL ID
SHEET NUMBER
1 / A101 SIM

DETAIL REFERENCE
DETAIL ID
SHEET NUMBER
1 / A101 SIM

INTERIOR ELEVATIONS
DETAIL ID
SHEET NUMBER
A / D / A101 / B / C SIM

ROOM DESIGNATION
ROOM NUMBER — Room 101
ROOM AREA — 150 SF

REVISION CLOUD & TAG (OPTIONAL) — 1

SHADED PORTION POINTS TO SIDE REFERENCED — MATCH LINE — SEE SHEET A101

DATUM POINT

KEYNOTE — ? TYP.

WALL TYPE — SA2U

DOOR DESIGNATION — ####

OPENNING DESIGNATION — 1i

EQUIPMENT TAG — 1i

FINISH TAG — ?

LEVEL LINE, CONTROL POINT
EL: 12'-8" = ELEVATION/SECTION — LEVEL NAME ELEVATION

STAIR DIRECTION — DN / UP

CENTER LINES, LEVEL LINES

HIDDEN CONSTRUCTION FEATURE

BREAK LINE

EXTERIOR ASSEMBLY
REFER TO A8.11 — R1

## ACCESSIBILITY NOTES

### ACCESSIBLE CONSTRUCTION SUPPORT FACILITIES

SEE "G" SERIES SHEETS FOR ACCESSIBLE REQUIREMENTS.

11B-201.4 CONSTRUCTION SUPPORT FACILITIES. These requirements shall apply to temporary or permanent construction support facilities for uses and activities not directly associated with the actual processes of construction, including but not limited to offices, meeting rooms, plan rooms, other administrative or support functions. When provided, toilet and bathing facilities serving construction support facilities shall comply with 11B-213. When toilet and bathing facilities serving construction support facilities are provided by portable units, at least one of each type shall be accessible and connected to the construction support facilities it serves by an accessible route.

EXCEPTION: During construction an accessible route shall not be required between site arrival points or the boundary of the area of construction and the entrance to the construction support facilities if the only means of access between them is a vehicular way not providing pedestrian access.

## CONSTRUCTION NOTES

1. ALL CONSTRUCTION & MATERIALS SHALL BE AS SPECIFIED & IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, LAWS, PERMITS & THE CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURATE PLACEMENT OF ALL NEW CONSTRUCTION ON THE SITE.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL EXG SURVEY MONUMENTS WHICH MAY BE DISTURBED THROUGH CONSTRUCTION ACTIVITIES DEEMED NECESSARY FOR PRESERVATION BY THE CIVIL ENGINEER. IF SUCH MONUMENTS WERE DISTURBED, THE APPLICANT SHALL HAVE A LICENSED LAND SURVEYOR QUALIFIED CIVIL ENGINEER REESTABLISH ANY SUCH MONUMENTATION DAMAGED OR DESTROYED DURING THE CONSTRUCTION OF THE PROJECT & SUBMIT "PRELIMINARY CORNER RECORDS" TO THE CIVIL ENGINEER AFTER REPLACEMENT. AFTER APPROVAL BY THE CIVIL ENGINEER, THE APPLICANT SHALL FILE THE CORNER RECORDS WITH THE COUNTY SURVEYOR. PRIOR TO THE EXONERATION OF ANY SECURITY, EVIDENCE OF SUCH FILING SHALL BE FURNISHED TO THE CIVIL ENGINEER.
4. THE CONTRACTOR IS RESPONSIBLE TO INSURE THAT TRUCK ROUTES SHALL BE STEERED AWAY FROM RESIDENTIAL AREAS.
5. THE CONTRACTOR SHALL ENSURE THAT TRUCKS HAULING DIRT ON PUBLIC ROADS TO & FROM THE SITE SHALL BE COVERED OR WILL MAINTAIN A 6" DIFFERENTIAL BETWEEN THE MAX HGT OF ANY HAULED MATERIAL & THE TOP OF THE HAUL TRAILER. HAUL TRUCK DRIVERS SHALL WATER THE LOAD PRIOR TO LEAVING THE SITE TO PREVENT SOIL LOSS DURING TRANSPORT.
6. THE CONTRACTOR SHALL ENSURE THAT GRADED SURFACES USED FOR OFF ROAD PARKING, MATERIALS LAY-DOWN, OR AWAITING FUTURE CONSTRUCTION SHALL BE STABILIZED FOR DUST CONTROL AS NEEDED. FREQUENTLY ACCESSED UNPAVED AREAS SHALL BE PAVED AS EARLY AS POSSIBLE TO MINIMIZE DIRT TRACKOUT TO PUBLIC RIGHTS-OF-WAY.
7. THE CONSTRACTOR SHALL COORDINATE ANY LANE CLOSURES OR DETOURS WITH THE CITY/COUNTY. FLAG PERSONS & APPROPRIATE TRAFFIC CONTROL DEVICES SHALL BE USED AS NEEDED TO MINIMIZE INCONSTRUCTION ACTIVITY INTERFERENCE WITH OFF-SITE TRAFFIC.
8. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS & SITE CONDITIONS BEFORE STARTING WORK. SHOULD A DISCREPANCY APPEAR IN THE CONTRACT DOCUMENTS OR BETWEEN THE CONTRACT DOCUMENTS & EXISTING CONDITIONS, NOTIFY THE ARCHITECT AT ONCE FOR INSTRUCTION ON HOW TO PROCEED.
9. SHOULD A CONFLICT OCCUR BETWEEN DWGS & SPECIFICATIONS, THE MORE COSTLY CONDITION SHALL TAKE PRECEDENCE, UNLESS A WRITTEN DECISION FROM THE ARCHITECT HAS BEEN OBTAINED WHICH DESCRIBES A CLARIFICATION OR ALTERNATE METHOD AND/OR MATERIALS.
10. THE CONTRACTOR SHALL CONFINE HIS OPERATION ON THE SITE TO AREAS PERMITTED BY OWNER.
11. THE JOBSITE SHALL BE MAINTAINED IN A CLEAN, ORDERLY CONDITION FREE OF DEBRIS & LITTER & SHALL NOT BE UNREASONABLY ENCUMBERED WITH ANY MATERIALS OR EQUIPMENT. EACH SUBCONTRACTOR IMMEDIATELY UPON COMPLETION OF EACH PHASE OF HIS WORK SHALL REMOVE ALL TRASH & DEBRIS AS A RESULT OF HIS OPERATION.
12. ALL MATERIAL STORED ON THE SITE SHALL BE PROPERLY STACKED & PROTECTED TO PREVENT DAMAGE & DETERIORATION. FAILURE TO PROTECT MATERIALS MAY BE CAUSE FOR REJECTION OF WORK.
13. THE CONTRACTOR SHALL DO ALL CUTTING, FITTING, AND/OR PATCHING OF HIS WORK THAT MAY BE REQ TO MAKE ITS SEVERAL PARTS FIT TOGETHER PROPERLY & SHALL NOT ENDANGER ANY OTHER WORK BY CUTTING, EXCAVATING, OR OTHERWISE ALTERING THE TOTAL WORK OR ANY PART OF IT. ALL PATCHING, REPAIRING AND REPLACING OF MATERIALS AND SURFACES, CUT OR DAMAGED IN EXECUTION OF WORK, SHALL BE DONE WITH APPLICABLE MATERIALS SO THAT SURFACES REPLACED WILL, UPON COMPLETION, MATCH SURROUNDING SIMILAR SURFACES.
14. STRUCTURAL OBSERVATION WILL BE PERFORMED BY THE STRUCTURAL ENGINEER. WHEN REQ, A STATEMENT IN WRITING SHALL BE GIVEN TO THE BUILDING OFFICIAL, STATING THAT THE SITE VISITS HAVE BEEN MADE & WHETHER OR NOT ANY OBSERVED DEFICIENCIES HAVE BEEN CORRECTED TO CONFORM TO THE APPROVED PLANS & SPECIFICATIONS.
15. SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD, WHO SHALL REVIEW THEM & RETURN THEM TO THE CONTRACTOR (WITH A NOTIFICATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED & THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING) FOR PLAN CHECK APPROVAL. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN & SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE AUTHORITY HAVING JURISDICTION.
16. PROVIDE ALL ACCESS PANELS AS REQ BY GOVERNING CODES TO ALL CONCEALED SPACES, VOIDS, ATTICS, ETC. VERIFY TYPE REQ WITH ARCHITECT PRIOR TO INSTALLATION.
17. NO PORTION OF WORK REQ A SHOP DWG OR SAMPLE SUBMISSION SHALL BE COMMENCED UNTIL THE SUBMISSION HAS BEEN REVIEWED BY THE ARCHITECT. ALL SUCH PORTIONS OF THE WORK SHALL BE IN ACCORDANCE WITH CORRECTED SHOP DWGS. AND SAMPLES.
18. DIMENSIONS:
    A. ALL DIMS SHALL TAKE PRECEDENCE OVER SCALE.
    B. ALL DIMS ARE TO FACE OF STUD / CONCRETE / MASONRY UNO
    C. CLG HGT DIMS ARE FROM FACE OF SLAB TO FACE OF FIN CLG MATERIAL UNO
19. DO NOT SCALE DRAWINGS
20. PROVIDE ALL NECESSARY BLOCKING, BACKING, & FRAMING FOR LIGHT FIXTURES, ELECTRIC UNITS, AC EQUIP, RECESSED ITEMS, AND ALL OTHER ITEMS AS REQ.
21. WHERE LARGER STUDS OR FURRING ARE REQ TO COVER PIPING AND CONDUITS, THE LARGER STUD SIZE OR FURRING SHALL EXTEND THE FULL SURFACE OF THE WALL WIDTH AND LENGTH WHERE THE FURRING OCCURS, UNO.
22. ALL DOORS SHALL BE OPERABLE FROM THE INSIDE W/O THE USE OF A KEY OR SPECIAL KNOWLEDGE OF EFFORT. EXIT SIGNS SHALL BE PROVIDED AT ALL EXITS AS REQ BY THE APPLICABLE CODES. ALL DOOR SWINGS SERVING AN OCCUPANT LOAD OF 50 OR GREATER SHALL SWING IN THE DIRECTION OF TRAVEL.
23. ALL GLASS AND GLAZING SHALL COMPLY WITH THE APPLICABLE CODES.
24. WALL AND CLG MATERIALS SHALL NOT EXCEED THE FLAME SPREAD CLASSIFICATIONS IN THE APPLICABLE CODES.
25. SURVEYORS CERTIFICATE REQ PRIOR TO FINAL COMPLETION.
26. THE CONTRACTOR SHALL COMPLY WITH THE APPLICABLE CODES FOR FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION.

## PROJECT SCOPE

TENANT IMPROVEMENTS OF EXISTING SUITE TO INCLUDE CONSTRUCTION OF NEW INTERIOR PARITIONS, AND CEILING PER LAYOUT AND RESTROOMS WITHING EXISTING SUITE. ASSOCIATED ELECTRICAL, MECHANICAL, AND PLUMBING INCLUDED AS WELL.

SCOPE IS LIMITED TO WITHIN EXISTING SUITE. SITE UPGRADES, BUILDING LOBBY, ELEVATOR LOBBY AND RESTROOMS IN THE LOBBY ARE NOT IN SCOPE.

## PROJECT INFORMATION

| | |
|---|---|
| PROJECT LOCATION: | 351 E VANDERBILT WAY, SAN BERNARDINO, CA 92408 |
| BUILDING OCCUPANCY: | B |
| TYPE OF CONSTRUCTION: | III - 1 HOUR |
| NUMBER OF STORIES: | 4 |
| AS-BUILT TOTAL BUILDING AREA: | 120,538 SF |
| AREA OF SCOPE (FIRST FLOOR): | 24,784 SF |

## FIRE AND LIFE SAFETY NOTES

1. PLANS FOR THE FIRE SPRINKLER SYSTEMS MUST BE APPROVED BY THE AUTHORITY HAVING JURISDICTION (AHJ) PRIOR TO INSTALLATION. SUBMIT PLANS IN A MANNER WHICH WILL NOT IMPEDE THE PROGRESS OF CONSTRUCTION.
2. FIRE SPRINKLER SYSTEMS & INSTALLATION SHALL CONFORM W/ THE APPLICABLE STANDARDS AND CODES.
3. FIRE SPRINKLER SYSTEMS TO BE TIED INTO THE ALARM SYSTEM PER THE APPLICABLE CODES.
4. AUTOMATIC SPRINKLER SYSTEM(S) SHALL BE SUPERVISED BY AN APPROVED CENTRAL OR REMOTE STATION SERVICE, AND/OR SHALL BE PROVIDED W/ A LOCAL ALARM WHICH WILL GIVE AN AUDIBLE SIGNAL.
5. FIRE SPRINKLER SYSTEM(S) & ALL CONTROL VALVES SHALL BE SUPERVISED BY A U.L. LISTED CENTRAL ALARM STATION OR PER THE APPLICABLE CODES.
6. FIRE HYDRANT & FIRE SPRINKLER SYSTEM(S) SHALL BE FLUSHED THOROUGHLY BEFORE CONNECTION IS MADE TO EXISTING SYSTEM STUBOUTS & WITNESSED BY THE PROJECT INSPECTOR.
7. A HYDROSTATIC TEST (200 PSI PRESSURE FOR 2 HRS. OR @ 50 PSI IN EXCESS OF THE MIN. STATIC PRESSURE WHEN IT IS IN EXCESS OF 150 PSI) SHALL BE WITNESSED BY THE PROJECT INSPECTOR PRIOR TO COVERING PIPING JOINTS.
8. A 3' CLR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS EXCEPT AS OTHERWISE REQ OR APPROVED PER THE APPLICABLE CODES.
9. THRUST BLOCKS SHALL BE PROVIDED WHEREVER PIPE CHANGES DIRECTION.
10. ALL PIPE SHALL BE UL LISTED FOR FIRE SERVICE SYSTEMS, CLASS 200 MIN.
11. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED W/I 100' FROM A PUBLIC FIRE HYDRANT PER THE APPLICABLE STANDARDS AND CODES.
12. FIRE SPRINKLER RISER SHALL BE LOCATED WITHIN 5 FT OF THE EXT WALL (OR AS REQ BY THE AHJ) AND TERMINATE 6" ABV FF
13. AN ALL-WEATHER FIRE ACCESS ROAD SHALL BE IN PLACE BEFORE ANY COMBUSTIBLE MATERIALS ARE PLACED ON THE SITE OR AS REQ BY THE AHJ.
14. STORAGE, DISPENSING, OR USE OF ANY FLAMMABLE & COMBUSTIBLE LIQUIDS, FLAMMABLE & COMPRESSED GASES & OTHER HAZARDOUS MATERIALS SHALL COMPLY W/ THE APPLICABLE CODES.
15. EXIT SIGNS SHALL BE POSTED OVER EXIT DOORS & DIRECTIONAL EXIT SIGNS SHALL BE LOCATED TO DIRECT PERSONS TOWARD EXIT DOORS.
16. EXIT SIGNS SHALL BE SELF-LUMINOUS TYPE OR ELECTRONICALLY ILLUMINATED & ENERGIZED FROM SEPARATE CIRCUITS, ONE OF WHICH SHALL BE FROM STORAGE BATTERIES OR AN ON-SITE GENERATOR, FOR A DURATION OF 90 MINUTES PER THE APPLICABLE CODES.
17. EXIT DOORS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
18. ACCESS GATE(S) SHALL BE OPENABLE W/ FIRE DEPT MASTER KEY FROM THE EXTERIOR.
19. CURBS ALONG FIRE LANES SHALL BE PAINTED SAFETY RED & MARKED "FIRE LANE NO PARKING" W/ 3" WHITE LETTERS ON THE TOP OF CURBING EVERY 30' AS INDICATED ON THE APPROVED DRAWINGS.
20. APPROVED NUMBERS OR ADDRESSES SHALL BE PROVIDED FOR ALL NEW & EXG BLDGS IN SUCH A POSITION AS TO BE PLAINLY VISIBLE & LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY PER THE APPLICABLE CODES.
21. PROVIDE PERMANENT OR TEMPORARY STANDPIPES WHILE BUILDING IS UNDER CONSTRUCTION PER THE APPLICABLE CODES.
22. PROVIDE FIRE EXTINGUISHERS PER THE REQ THE APPLICABLE STANDARDS AND CODES.
23. SPRINKLERS: ALL GYPSUM BOARD CEILINGS / SOFFITS AND SPECIALTY CEILING TILE [SEE LEGEND] TO HAVE FULLY RECESSED CONCEALED SPRINKLER HEADS WITH CAPS. ALL OTHER SPACES TO HAVE STANDARD SPRINKLER HEADS PER INDICATED CEILING CONDITION, U.N.O.
24. SPRINKLERS: PROVIDE NEW AS REQUIRED BY REMODEL. DO NOT REUSE SPRINKLER HEADS AT ALL LOCATIONS WHERE SPRINKLER/SPRINKLER PIPES CONFLICT WITH NEW WORK. REMOVE, RELOCATE, AND/OR REPLACE EXISTING SPRINKLER PIPING. NOTIFY ARCHITECT OF ANY FIELD CONFLICTS PRIOR TO PROJECT BID.
25. SPRINKLERS: PROVIDE FULLY RECESSED CONCEALED SPRINKLER HEADS WITH CAPS AT ALL SIDE WALL LOCATIONS.

## APPLICABLE CODES

| | |
|---|---|
| 2022 | CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR |
| 2022 | CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR |
| 2022 | CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR |
| 2022 | CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR |
| 2022 | CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR |
| 2022 | CALIFORNIA ENERGY CODE, PART 5 TITLE 24 CCR |
| 2022 | CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR |
| 2022 | CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR |
| 2022 | CALIFORNIA GREEN BUILING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR |
| 2022 | CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR |

TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
CURRENT CITY OF SAN BERNARDINO REGULATIONS AND ORDINANCES

APPLICABLE STANDARDS
FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

## CLIENT INFORMATION

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DIRECTOR OF FACILITY
TEL: (909) 387-5000
CONTACT: LILIANA AUBERT — E-MAIL: Liliana.Aubert@pfm.sbcounty.gov

## ARCHITECT

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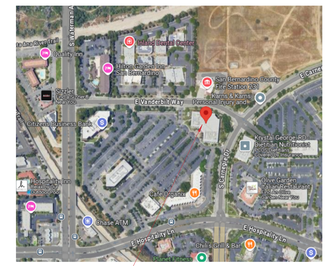
## DEFERRED APPROVALS

1.FIRE SPRINKLER / FIRE ALARM - FIRE SPRINKLER DRAWINGS TO BE SUBMITTED BY GENERAL CONTRACTOR ONCE AWARED.

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| G0.31 | ACCESSIBILITY DETAILS |
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| G0.40 | CAL GREEN (CA) |
| G0.41 | CAL GREEN (CA) |
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| G2.01 | 01 - FLOOR - CODE ANALYSIS |
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| A1.01 | 01 - FLOOR DEMO PLAN |
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## VICINITY MAP




PROJECT LOCATION

ADDRESS:
451 E Vanderbilt Way, San Bernardino, CA 92408

N N
TRUE NORTH PROJECT NORTH

**JLee Engineering, Inc.**
**Approved**
**By Jae Lee**
**04/06/2026**

**This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinances or State law.**

LP

## SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

**1.01 DEFINITIONS**
A. FOR PURPOSES OF CONTRACT DOCUMENTS AND THESE SPECIFICATIONS, 'OWNER' AND 'TENANT' ARE REFERENCED ENTITIES WITH CONTRACTUAL OBLIGATIONS BETWEEN THE TWO PARTIES SEPARATE FROM THESE SPECIFICATIONS. SAID CONTRACTUAL OBLIGATIONS TAKES PRECEDENCE OVER THESE SPECIFICATIONS WHEN THERE IS A CONFLICT BETWEEN THE CONTRACTUAL OBLIGATIONS AND THE SPECIFICATIONS. 'OWNER' IN THESE SPECIFICATIONS GENERALLY REFERS TO THE LANDLORD OR BUILDING OWNER. TENANT REFERS TO ENTITY LEASING THE PREMISES. IT IS POSSIBLE THEY ARE ONE IN THE SAME AND ANY CONFLICTS SHOULD BE ADDRESSED IN AN RFI.

**1.02 SUBSTITUTION PROCEDURES**
A. SUBMIT REQUEST FOR SUBSTITUTION FOR CAUSE WITHIN 5 DAYS OF DISCOVERY OF NEED FOR SUBSTITUTION AND / OR PRIOR TO BID AWARD, BUT NOT LATER THAN 5 DAYS PRIOR TO TIME REQUIRED FOR REVIEW AND APPROVAL BY ARCHITECT, IN ORDER TO STAY ON APPROVED PROJECT BID AND / OR CONSTRUCTION SCHEDULE.
B. DOCUMENT EACH REQUEST WITH COMPLETE DATA SUBSTANTIATING COMPLIANCE OF PROPOSED SUBSTITUTION WITH CONTRACT DOCUMENTS. BURDEN OF PROOF IS ON PROPOSER. INCLUDE:
   1. REASON WHY THE SPECIFIED ITEM CANNOT BE PROVIDED.
   2. DIFFERENCES BETWEEN PROPOSED SUBSTITUTION AND SPECIFIED ITEM.
   3. WARRANTIES.
   4. PRODUCT DATA/ DESCRIPTION, CERTIFICATES, TESTS OR SIMILAR QUALIFICATION DATA.
   5. SAVINGS TO OWNER FOR ACCEPTING SUBSTITUTION WHETHER COST, LEAD TIME OR ENERGY CONSERVATION.
   6. DOCUMENT MEANS OF COORDINATING OF SUBSTITUTION ITEM WITH OTHER PORTIONS OF THE WORK, INCLUDING WORK BY AFFECTED SUBCONTRACTORS.
   7. CHANGE TO CONTRACT TIME DUE TO ACCEPTING SUBSTITUTION.
C. OWNER / ARCHITECT WILL NOTIFY CONTRACTOR IN WRITING OF DECISION TO ACCEPT OR REJECT REQUEST UPON OWNER'S / TENANT REVIEW ACCEPTANCE.

**2.01 REQUESTS FOR INFORMATION (RFI)**
A. WHENEVER POSSIBLE, COMBINE RFI AND ITS ATTACHMENTS INTO A SINGLE ELECTRONIC FILE. PDF FORMAT IS PREFERRED.
B. REASON FOR THE RFI: PRIOR TO INITIATION OF AN RFI, CAREFULLY STUDY ALL CONTRACT DOCUMENTS TO CONFIRM THAT INFORMATION SUFFICIENT FOR THEIR INTERPRETATION IS DEFINITELY NOT INCLUDED IN RFI.
C. ARCHITECT RESERVES RIGHT TO RETURN RESPONSE UNANSWERED IF MISSING KEY INFORMATION REQUIRED TO RENDER AN ACTIONABLE RESPONSE OR REQUESTS REGARDING INFORMATION THAT IS CLEARLY INDICATED ON, OR REASONABLY INFERRED FROM CONTRACT DOCUMENTS, WITH NO ADDITIONAL INPUT REQUIRED TO CLARIFY THE QUESTION.
D. CONTENT: INCLUDE IDENTIFIERS NECESSARY FOR TRACKING THE STATUS OF EACH RFI, AND INFORMATION NECESSARY TO PROVIDE AN ACTIONABLE RESPONSE. PROJECT NAME, CONTRACTOR'S NAME, CONSECUTIVE RFI NUMBER, AND DESCRIPTIVE SUBJECT/TITLE. ISSUE DATE AND REQUESTED REPLY DATE, DRAWING AND DETAIL NUMBER, FIELD DIMENSIONS AND / OR DESCRIPTION OF CONDITIONS WHICH HAVE CAUSED THE REQUEST. INCLUDE SKETCHES, COORDINATION DRAWINGS, DESCRIPTIONS, PHOTOS, SUBMITTALS, AND OTHER INFORMATION NECESSARY TO SUBSTANTIATE THE REASON FOR THE REQUEST.
E. CONTRACTOR'S SUGGESTED RESOLUTION: WRITTEN AND / OR A GRAPHIC SOLUTION, IS REQUIRED IN CASES WHERE CLARIFICATION OF COORDINATION ISSUES IS INVOLVED. IF APPLICABLE, STATE THE LIKELY IMPACT OF THE SUGGESTED RESOLUTION ON CONTRACT TIME OR THE CONTRACT SUM.
F. REVIEW TIME: ARCHITECT WILL RESPOND AND RETURN RFIS TO CONTRACTOR WITHIN THREE (3) TO FIVE (5) CALENDAR DAYS OF RECEIPT. FOR THE PURPOSE OF ESTABLISHING THE START OF THE MANDATED RESPONSE PERIOD, RFIS RECEIVED AFTER 5:00 PM (FIVE O'CLOCK) WILL BE CONSIDERED AS HAVING BEEN RECEIVED ON THE FOLLOWING REGULAR WORKING DAY.
G. RESPONSES: CONTENT OF ANSWERED RFIS WILL NOT CONSTITUTE IN ANY MANNER A DIRECTIVE OR AUTHORIZATION TO PERFORM EXTRA WORK OR DELAY THE PROJECT. IF IN CONTRACTOR'S BELIEF IT IS LIKELY TO LEAD TO A CHANGE TO CONTRACT SUM OR CONTRACT TIME, PROMPTLY ISSUE A NOTICE TO THIS EFFECT, AND FOLLOW UP WITH AN APPROPRIATE CHANGE ORDER REQUEST TO OWNER.
   1. RESPONSE MAY INCLUDE A REQUEST FOR ADDITIONAL INFORMATION, IN WHICH CASE THE ORIGINAL RFI WILL BE DEEMED AS HAVING BEEN ANSWERED, AND AN AMENDED ONE IS TO BE ISSUED FORTHWITH. IDENTIFY THE AMENDED RFI WITH AN R SUFFIX TO THE ORIGINAL NUMBER.
   2. DO NOT EXTEND APPLICABILITY OF A RESPONSE TO SPECIFIC ITEM TO ENCOMPASS OTHER SIMILAR CONDITIONS, UNLESS SPECIFICALLY SO NOTED IN THE RESPONSE.
   3. NOTIFY ARCHITECT WITHIN THREE (3) CALENDAR DAYS IF AN ADDITIONAL OR CORRECTED RESPONSE IS REQUIRED BY SUBMITTING AN AMENDED VERSION OF THE ORIGINAL RFI, IDENTIFIED AS SPECIFIED ABOVE.

**3.01 SUBMITTAL SCHEDULE**
A. SUBMIT TO OWNER / ARCHITECT FOR REVIEW A SCHEDULE FOR SUBMITTALS IN TABULAR FORMAT, NUMBER, TITLE, CATEGORY, DATE SUBMITTED TO ARCHITECT AND ARCHITECT RESPONSE DUE DATE.
B. FOR ASSEMBLIES, EQUIPMENT, SYSTEMS COMPRISED OF MULTIPLE COMPONENTS AND / OR REQUIRING DETAILED COORDINATION WITH OTHER WORK, ALLOW FOR ADDITIONAL TIME TO MAKE CORRECTIONS OR REVISIONS TO INITIAL SUBMITTALS, AND TIME FOR THEIR REVIEW.
C. FOR EACH SUBMITTAL FOR REVIEW, ALLOW FIVE (5) TO SEVEN (7) DAYS EXCLUDING DELIVERY TIME TO AND FROM THE CONTRACTOR, FOR SEQUENTIAL REVIEWS INVOLVING ARCHITECT'S CONSULTANTS, OWNER, OR ANOTHER AFFECTED PARTY, ALLOW AN ADDITIONAL TWO (2) DAYS. FOR SEQUENTIAL REVIEWS INVOLVING APPROVAL FROM AUTHORITIES HAVING JURISDICTION (AHJ), IN ADDITION TO ARCHITECT'S APPROVAL, ALLOW AN ADDITIONAL 30 DAYS.

**3.02 SUBMITTAL PROCEDURES**
A. SUBMIT ELECTRONIC PDF FORMAT TO ARCHITECT FOR REVIEW FOR THE LIMITED PURPOSE OF CHECKING FOR COMPLIANCE WITH INFORMATION GIVEN AND THE DESIGN CONCEPT -AESTHETIC, COLOR, OR FINISH SELECTION - EXPRESSED IN CONTRACT DOCUMENTS. INCLUDE PRODUCT DATA, CERTIFICATES/TEST REPORTS, MANUFACTURER'S INSTRUCTIONS, SHOP DRAWINGS, AND THREE (3) HARD COPY SAMPLES FOR VERIFICATION.
B. USE A SINGLE TRANSMITTAL FOR RELATED ITEMS; SEQUENTIALLY IDENTIFY EACH ITEM. IDENTIFY PROJECT, CONTRACTOR; SUBCONTRACTOR OR SUPPLIER; PERTINENT DRAWING AND DETAIL NUMBER; AND CSI SPECIFICATION SECTION NUMBER AND ARTICLE/PARAGRAPH, AS APPROPRIATE ON EACH COPY.
C. APPLY CONTRACTOR'S STAMP, SIGNED OR INITIALED CERTIFYING THAT REVIEW, APPROVAL, VERIFICATION OF PRODUCTS REQUIRED, FIELD DIMENSIONS, ADJACENT CONSTRUCTION WORK, AND COORDINATION OF INFORMATION IS IN ACCORDANCE WITH THE REQUIREMENTS OF THE WORK AND CONTRACT DOCUMENTS.
D. CONTRACTOR TO SUBMIT RFI PRIOR TO SUBMITTING ANY DEVIATION FROM CONTRACT DOCUMENTS AND PRODUCT OR SYSTEM LIMITATIONS THAT MAY BE DETRIMENTAL TO SUCCESSFUL PERFORMANCE OF THE COMPLETED WORK. PROVIDE SPACE FOR CONTRACTOR AND ARCHITECT REVIEW STAMPS. WHEN REVISED FOR RESUBMISSION, IDENTIFY ALL CHANGES MADE SINCE PREVIOUS SUBMISSION.
E. SUBMIT ONLY INFORMATION REQUIRED BY INDIVIDUAL SPECIFICATION SECTIONS, COLLECT REQUIRED INFORMATION INTO A SINGLE SUBMITTAL, SUBMIT CONCURRENTLY WITH RELATED SHOP DRAWING SUBMITTAL AND DO NOT SUBMIT (MATERIAL) SAFETY DATA SHEETS FOR MATERIALS OR PRODUCTS.
F. SHOP DRAWING PROCEDURES: PREPARE ACCURATE, DRAWN-TO-SCALE, ORIGINAL SHOP DRAWING DOCUMENTATION BY INTERPRETING CONTRACT DOCUMENTS AND COORDINATING RELATED WORK. DO NOT REPRODUCE CONTRACT DOCUMENTS TO CREATE SHOP DRAWINGS.
G. SAMPLES PROCEDURES: TRANSMIT RELATED ITEMS TOGETHER AS SINGLE PACKAGE. IDENTIFY EACH ITEM TO ALLOW REVIEW FOR APPLICABILITY IN RELATION TO SHOP DRAWINGS SHOWING INSTALLATION LOCATIONS AND INCLUDE WITH TRANSMITTAL HIGH-RESOLUTION IMAGE FILES OF SAMPLES TO FACILITATE ELECTRONIC REVIEW AND APPROVAL ALONG WITH PHYSICAL SAMPLES.

**3.03 SUBMITTAL REVIEW**
A. SUBMITTALS FOR REVIEW: ARCHITECT WILL REVIEW EACH SUBMITTAL AND TAKE APPROPRIATE ACTION PER BELOW.
B. ARCHITECT'S ACTIONS WILL BE REFLECTED BY MARKING EACH RETURNED SUBMITTAL USING VIRTUAL STAMP ON ELECTRONIC SUBMITTALS. NOTATIONS MAY BE MADE DIRECTLY ON SUBMITTED ITEMS AND / OR LISTED ON APPENDED SUBMITTAL REVIEW COVER SHEET.
C. ARCHITECT'S AND CONSULTANTS' ACTIONS ON ITEMS SUBMITTED FOR REVIEW:
   1. 'REVIEWED', OR LANGUAGE WITH SAME LEGAL MEANING.
   2. 'MAKE CORRECTIONS NOTED', OR LANGUAGE WITH SAME LEGAL MEANING
      AT CONTRACTOR'S OPTION, SUBMIT CORRECTED ITEM, WITH REVIEW NOTATIONS ACKNOWLEDGED AND INCORPORATED.
   3. 'REVISE AND RESUBMIT'
      A. RESUBMIT REVISED ITEM, WITH REVIEW NOTATIONS ACKNOWLEDGED AND INCORPORATED.
      B. NON-RESPONSIVE RESUBMITTALS MAY BE REJECTED.
   4. 'SUBMIT SPECIFIED ITEM'
      SUBMITTAL WAS NON-COMPLIANT WITH PRODUCT OR INTENT OF CONTRACT DOCUMENTS SCOPE.
   5. 'REJECTED'
      SUBMITTED ITEM COMPLYING WITH REQUIREMENTS OF CONTRACT DOCUMENTS.

## SECTION 016000 - PRODUCT REQUIREMENTS

**1.01 EXISTING PRODUCTS**
A. DO NOT USE MATERIALS AND EQUIPMENT REMOVED FROM EXISTING PREMISES UNLESS SPECIFICALLY REQUIRED OR PERMITTED BY CONTRACT DOCUMENTS. SEE DEMOLITION SECTION 024100 FOR FURTHER CRITERIA.
B. EXISTING PRODUCT AS NOTED OR CONSIDERED FOR CONTRACTOR AND SUBCONTRACTOR FOR PRODUCT INTEGRITY AND APPLICATION. SITE PRODUCT TO BE PROTECTED, REFINISHED, REPAIRED TO 'LIKE NEW' APPEARANCE AND INCLUDED IN BID SCOPE.
C. IF CONTRACTOR AND SUB-CONTRACTOR DETERMINE THAT THE PRODUCT OR INSTALLATION IS NOT USEABLE, NOTIFY OWNER / ARCHITECT THROUGH RFI PROCESS FOR DIRECTION.

**1.02 NEW PRODUCTS**
A. PROVIDE NEW PRODUCTS UNLESS SPECIFICALLY REQUIRED OR PERMITTED BY CONTRACT DOCUMENTS.
B. USE OF PRODUCTS HAVING ANY OF THE FOLLOWING CHARACTERISTICS IS NOT PERMITTED: MADE USING OR CONTAINING CFC'S OR HCFC'S, MADE OF WOOD FROM NEWLY CUT OLD GROWTH TIMBER, CONTAINING LEAD, CADMIUM OR ASBESTOS. SUSTAINABLE PRODUCTS MAY BE REQUIRED TO MEET MORE STRINGENT ENVIRONMENTAL CODES, BASED ON PROJECT SCOPE IN CONTRACT DOCUMENTS.
C. INDOOR-EMISSIONS-RESTRICTED PRODUCTS: COMPLY WITH INDOOR EMISSIONS STANDARD AND TEST METHOD PER FEDERAL, STATE AND /OR LOCAL REQUIREMENTS, EXCEPT FOR:
   1. COMPOSITE WOOD, WOOD FIBER, AND WOOD CHIP PRODUCTS: COMPLY WITH COMPOSITE WOOD EMISSIONS STANDARD OR CONTAIN NO ADDED FORMALDEHYDE RESINS.
   2. INHERENTLY NON-EMITTING MATERIALS.
D. VOC-CONTENT-RESTRICTED PRODUCTS INCLUDE BUT NOT LIMITED TO ADHESIVES, INCLUDING FLOORING ADHESIVES, JOINT SEALANTS/CAULK, PAINTS AND COATINGS, CARPET AND RESILIENT FLOORING SYSTEMS AS MANDATED BY LOCAL STATE AND FEDERAL REQUIREMENTS.

**1.03 OWNER / TENANT-SUPPLIED PRODUCTS**
A. SEE CONTRACT DOCUMENTS FOR OWNER / TENANT SUPPLIED PRODUCTS / EQUIPMENT, WHERE REQUIRED.
B. OWNER / TENANT'S RESPONSIBILITIES: IF NOT SPECIFICALLY CALLED OUT ON CONTRACT DOCUMENTS, PROVIDE THE FOLLOWING SCOPE: ARRANGE FOR AND DELIVER OWNER / TENANT REVIEWED SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, TO CONTRACTOR. ARRANGE AND PAY FOR PRODUCT DELIVERY TO SITE. ON DELIVERY, INSPECT PRODUCTS JOINTLY WITH CONTRACTOR. SUBMIT CLAIMS FOR TRANSPORTATION DAMAGE AND REPLACE DAMAGED, DEFECTIVE, OR DEFICIENT ITEMS. ARRANGE FOR MANUFACTURERS' WARRANTIES, INSPECTIONS, AND SERVICE.
C. CONTRACTOR'S RESPONSIBILITIES: IF NOT SPECIFICALLY CALLED OUT ON CONTRACT DOCUMENTS, PROVIDE THE FOLLOWING SCOPE: REVIEW OWNER / TENANT REVIEWED SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES. RECEIVE AND UNLOAD PRODUCTS AT SITE; INSPECT FOR COMPLETENESS OR DAMAGE JOINTLY WITH OWNER. HANDLE, STORE, INSTALL AND FINISH PRODUCTS. REPAIR OR REPLACE ITEMS DAMAGED AFTER RECEIPT.

**2.01 EXAMINATION**
A. VERIFY THAT EXISTING SITE CONDITIONS, (OPENINGS, BACKING, PREP WORK AND SUBSTRATE SURFACES) ARE ACCEPTABLE FOR SUBSEQUENT WORK. START OF WORK MEANS ACCEPTANCE OF EXISTING CONDITIONS.
B. VERIFY THAT EXISTING SUBSTRATE IS CAPABLE OF STRUCTURAL SUPPORT OR ATTACHMENT OF NEW WORK BEING APPLIED OR ATTACHED.
C. TAKE FIELD MEASUREMENTS BEFORE CONFIRMING PRODUCT ORDERING OR BEGINNING FABRICATION. TO MINIMIZE WASTE DUE TO OVER-ORDERING OR MIS FABRICATION.
D. PRIOR TO CUTTING: EXAMINE EXISTING CONDITIONS PRIOR TO COMMENCING WORK, INCLUDING ELEMENTS SUBJECT TO DAMAGE OR MOVEMENT DURING CUTTING AND PATCHING. AFTER UNCOVERING EXISTING WORK, ASSESS CONDITIONS AFFECTING PERFORMANCE OF WORK. BEGINNING OF CUTTING OR PATCHING MEANS ACCEPTANCE OF EXISTING CONDITIONS.

**2.02 PREPARATION**
A. PREPARE SURFACES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. CLEAN SUBSTRATE SURFACES PRIOR TO APPLYING NEXT MATERIAL OR SUBSTANCE.
C. SEAL CRACKS OR OPENINGS OF SUBSTRATE PRIOR TO APPLYING NEXT MATERIAL OR SUBSTANCE.
D. APPLY MANUFACTURER REQUIRED OR RECOMMENDED SUBSTRATE PRIMER, SEALER, OR CONDITIONER PRIOR TO APPLYING ANY NEW MATERIAL OR SUBSTANCE IN CONTACT OR BOND.

**2.03 TRANSPORTATION AND HANDLING**
A. TRANSPORT AND HANDLE NEW PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PROMPTLY INSPECT SHIPMENTS TO ENSURE THAT PRODUCTS COMPLY WITH REQUIREMENTS, QUANTITIES ARE CORRECT, AND PRODUCTS ARE UNDAMAGED. ARRANGE FOR THE RETURN OF PACKING MATERIALS, SUCH AS WOOD PALLETS, WHERE ECONOMICALLY FEASIBLE.

**2.04 STORAGE AND PROTECTION**
A. PROVIDE PROTECTION, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND WARRANTIES, OF STORED MATERIALS AND PRODUCTS AGAINST CONSTRUCTION OPERATIONS, DUST, THEFT, CASUALTY, MOISTURE, CORROSION, DISCOLORATION, STAINING, OR DETERIORATION. DO NOT STORE DIRECTLY ON THE GROUND.
B. BASED ON PROJECT SCOPE AND AGENCY REGULATIONS LISTED IN CONTRACT DOCUMENTS, CONFIRM IF ANY ADDITIONAL STORAGE AND PROTECTION ENVIRONMENTAL REQUIREMENTS MAYBE REQUIRED.

**2.05 GENERAL INSTALLATION REQUIREMENTS**
A. IN ADDITION TO COMPLIANCE WITH REGULATORY REQUIREMENTS, CONDUCT CONSTRUCTION OPERATIONS IN COMPLIANCE WITH NFPA 241, INCLUDING APPLICABLE RECOMMENDATIONS IN APPENDIX A.
B. INSTALL PRODUCTS AS SPECIFIED IN INDIVIDUAL SECTIONS, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, AND SO AS TO AVOID WASTE DUE TO NECESSITY FOR REPLACEMENT.
C. MAKE VERTICAL ELEMENTS PLUMB AND HORIZONTAL ELEMENTS LEVEL, UNO.
D. INSTALL EQUIPMENT AND TRIM ATTAINS PLUMB AND LEVEL, NEATLY ALIGNED WITH ADJACENT VERTICAL AND HORIZONTAL LINES, UNLESS OTHERWISE INDICATED.
E. INSTALL PRODUCTS IN AMBIENT TEMPERATURES, ACCORDING TO MANUFACTURER'S REQUIREMENTS.
F. DO NOT INSTALL SOLVENT BASED PRODUCTS IN AN UNVENTILATED ENVIRONMENT.

## SECTION 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

**1.01 GENERAL**
A. IN THE EVENT OF CONFLICT BETWEEN THE CONTRACT FOR CONSTRUCTION (AGREEMENT, GENERAL AND SUPPLEMENTAL CONDITIONS) AND REQUIREMENTS HEREIN, THE CONTRACT FOR CONSTRUCTION WILL GOVERN.
B. ALL WORK PERFORMED BY THE CONTRACTOR AND THEIR SUBTRADES, SHALL CONFORM TO THE REQUIREMENTS OF MUNICIPAL, LOCAL, FEDERAL AND STATE LAWS, AS WELL AS OTHER GOVERNING REQUIREMENTS, WHETHER OR NOT SPECIFIED ON THE DRAWINGS.
C. ALL DRAWINGS AND CONSTRUCTION NOTES ARE COMPLEMENTARY, AND WHAT IS CALLED FOR BY EITHER, WILL BE BINDING AS IF CALLED FOR BY ALL. INCLUDING ENGINEERING DISCIPLINES. ANY WORK SHOWN OR REFERRED TO, ON ANY ONE SET OF DRAWINGS, SHALL BE PROVIDED AS THOUGH SHOWN ON ALL RELATED DRAWINGS.
D. THE CONTRACTOR SHALL NOTIFY OWNER / ARCHITECT IMMEDIATELY OF DISCREPANCIES OR OMISSIONS BETWEEN THE DRAWINGS, GENERAL NOTES HEREIN, AND FIELD CONDITIONS BEFORE COMMENCING ANY WORK AND REQUEST FOR CLARIFICATION.
E. EACH CONTRACTOR AND SUBTRADE SHALL CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS AT JOB SITE AS IT RELATES TO THEIR WORK AND NOTIFY THE ARCHITECT VIA RFI, IF THERE ARE OBSTRUCTIONS, AND WORK THAT CANNOT BE ACCOMPLISHED, AS REFLECTED IN THE CONTRACT DOCUMENTS. CONTRACTOR/SUBTRADE SHALL OBTAIN CLARIFICATION/DIRECTIVE FROM THE ARCHITECT PRIOR TO THE START OF ANY WORK.
F. THE CONTRACTOR AND THE SUBTRADES SHALL SUBMIT A LIST OF LONG LEAD ITEMS WITHIN THE FIRST TWO WEEKS THAT PREVENT COMPLETION OF THE PROJECT AT MOVE-IN DATE. PROPOSE AN AVAILABLE SUBSTITUTION, INCLUDING COST PER SUBSTITUTION PROCEDURES 013000 FOR APPROVAL BY OWNER / ARCHITECT.
G. THE USE OF THE WORDS 'PROVIDE' OR 'PROVIDED' IN CONNECTION WITH ANY ITEM SPECIFIED, IS INTENDED TO MEAN, UNO, THAT WHICH SHALL BE FURNISHED, INSTALLED AND CONNECTED WHERE SO REQUIRED.
H. THE CONTRACTOR SHALL MAINTAIN A COMPLETE AND CURRENT SET OF CONTRACT DOCUMENTS ON THE SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES AND OWNER / ARCHITECT DURING FIELD SITE WALK.
I. THE CONTRACTOR SHALL VERIFY SIZE, ELECTRICAL REQUIREMENTS, LOCATION AND CHARACTERISTICS OF ALL WORK AND / OR EQUIPMENT SUPPLIED BY THE OWNER OR TENANT, WITH THE MANUFACTURER OR SUPPLIER PRIOR TO THE START OF RELATED WORK.

**1.02 PROJECT CONDITIONS**
A. VENTILATE ENCLOSED AREAS TO ASSIST CURE OF MATERIALS, TO DISSIPATE HUMIDITY, AND TO PREVENT ACCUMULATION OF DUST, FUMES, VAPORS, OR GASES.
B. DUST CONTROL: PROVIDE A DUST PROOF BARRIER (S) BETWEEN CONSTRUCTION AREAS AND AREAS CONTINUING TO BE OCCUPIED BY TENANT TO PREVENT AIR-BORNE DUST FROM DISPERSING INTO INTERIOR ATMOSPHERE.
C. NOISE CONTROL: MINIMIZE NOISE PRODUCED BY CONSTRUCTION OPERATIONS. EXCESSIVELY NOISY TOOLS AND OPERATIONS WILL NOT BE TOLERATED INSIDE THE BUILDING AT ANY TIME OF DAY; INCLUDES JACKHAMMERS. COORDINATE AFTER HOURS APPROVAL WITH OWNER/ PROPERTY MANAGER. COORDINATE WITH LANDLORD BUILDING RULES / REGULATIONS.
D. POLLUTION CONTROL: PROVIDE METHODS, MEANS, AND FACILITIES TO PREVENT CONTAMINATION OF WATER AND ATMOSPHERE FROM DISCHARGE OF NOXIOUS, TOXIC SUBSTANCES, AND POLLUTANTS PRODUCED BY CONSTRUCTION OPERATIONS COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS.
E. DISPOSAL REGULATORY REQUIREMENTS: CONTRACTOR IS RESPONSIBLE FOR KNOWING AND COMPLYING WITH REGULATORY REQUIREMENTS, INCLUDING BUT NOT LIMITED TO FEDERAL, STATE AND LOCAL REQUIREMENTS GOVERNING LEGAL DISPOSAL OF ALL CONSTRUCTION AND DEMOLITION WASTE MATERIALS.
F. JOB SITE SAFETY : THESE PLANS AND SPECIFICATIONS DO NOT PROVIDE ANY DIRECTION OR INSTRUCTIONS TO THE CONTRACTOR OR SUBCONTRACTORS OR THEIR EMPLOYEES OR AGENTS RELATED TO CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS INCLUDING JOB SITE SAFETY AND PROGRAMS IN CONNECTION WITH THE WORK. THIS IS SOLELY THE CONTRACTOR'S RESPONSIBILITY UNDER THE CONTRACTOR'S CONTRACT FOR CONSTRUCTION. THE ARCHITECT HAS NOT CONDUCTED AN EVALUATION OF SAFETY PROCEDURES FOR THE PROPER MANNER OF ACCESSING THE JOB SITE DURING THE COURSE OF CONSTRUCTION AND HAS NOT UNDERTAKEN ANY RESPONSIBILITY ON WHETHER OR NOT THE USE OF EXISTING LADDERS, DOORS, RAILINGS, INGRESS AND INGRESS ROUTES OR THE LIKE ARE IN COMPLIANCE WITH OSHA REQUIREMENTS DURING THE COURSE OF CONSTRUCTION OF THE IMPROVEMENTS.

**1.03 COORDINATION**
A. COORDINATE SCHEDULING, SUBMITTALS, AND WORK OF THE VARIOUS SECTIONS OF THE PROJECT SPECIFICATIONS TO ENSURE EFFICIENT AND ORDERLY SEQUENCE OF INSTALLATION OF INTERDEPENDENT CONSTRUCTION ELEMENTS, WITH PROVISIONS FOR ACCOMMODATING ITEMS INSTALLED LATER.
B. NOTIFY AFFECTED UTILITY COMPANIES WHEN APPLICABLE AND COMPLY WITH THEIR REQUIREMENTS.
C. VERIFY THAT UTILITY REQUIREMENTS AND CHARACTERISTICS OF NEW OPERATING EQUIPMENT ARE COMPATIBLE WITH BUILDING UTILITIES. COORDINATE WORK OF VARIOUS SECTIONS HAVING INTERDEPENDENT RESPONSIBILITIES FOR INSTALLING, CONNECTING TO, AND PLACING IN SERVICE, SUCH EQUIPMENT.
D. COORDINATE SPACE REQUIREMENTS, SUPPORTS, AND INSTALLATION OF MECHANICAL, PLUMBING, AND ELECTRICAL WORK THAT ARE INDICATED DIAGRAMMATICALLY ON DRAWINGS. FOLLOW ROUTING INDICATED FOR PIPES, DUCTS, AND CONDUIT, AS CLOSELY AS PRACTICABLE. UTILIZE SPACES EFFICIENTLY TO MAXIMIZE ACCESSIBILITY FOR OTHER INSTALLATIONS, FOR MAINTENANCE, AND FOR REPAIRS.
E. COORDINATE LOCATIONS OF FIXTURES AND OUTLETS WITH FINISH ELEMENTS. IN FINISHED AREAS EXCEPT AS OTHERWISE INDICATED, CONCEAL PIPES, DUCTS, AND WIRING WITHIN THE CONSTRUCTION.
F. COORDINATE COMPLETION AND CLEAN-UP OF WORK OF SEPARATE SECTIONS.
G. AFTER OCCUPANCY OF PREMISES, COORDINATE ACCESS TO SITE FOR CORRECTION OF DEFECTIVE WORK AND WORK NOT IN ACCORDANCE WITH CONTRACT DOCUMENTS, TO MINIMIZE DISRUPTION OF OCCUPANT'S ACTIVITIES.

**2.01 ALTERATIONS**
A. FOR DEMOLITION, REFER TO SECTION 024100.
   1. WHERE NEW SURFACE FINISHES ARE TO BE APPLIED TO EXISTING WORK, PERFORM REMOVALS, PATCH, AND PREPARE EXISTING SURFACES AS REQUIRED TO RECEIVE NEW FINISH; REMOVE EXISTING FINISH IF NECESSARY, FOR SUCCESSFUL APPLICATION OF NEW FINISH.
B. SERVICES (INCLUDING BUT NOT LIMITED TO HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL AND TELECOMMUNICATIONS, WHERE OCCURS AND AS NOTED ON CONTRACT DOCUMENTS OR OWNER RFP DIRECTION, REMOVE, RELOCATE, AND EXTEND EXISTING SYSTEMS TO ACCOMMODATE NEW CONSTRUCTION.
   1. MAINTAIN EXISTING ACTIVE SYSTEMS THAT ARE TO REMAIN IN OPERATION; MAINTAIN ACCESS TO EQUIPMENT AND OPERATIONAL COMPONENTS; IF NECESSARY, MODIFY INSTALLATION TO ALLOW ACCESS OR PROVIDE ACCESS PANEL. COORDINATE LOCATIONS SIZE AND TYPE OF ACCESS PANEL WITH ARCHITECT PRIOR TO INSTALLATION.
   2. WHERE EXISTING ACTIVE SYSTEMS SERVE OCCUPIED FACILITIES BUT ARE TO BE REPLACED WITH NEW SERVICES, MAINTAIN EXISTING SYSTEMS IN SERVICE UNTIL NEW SYSTEMS ARE COMPLETE AND READY FOR SERVICE. MINIMIZE DURATION OF OUTAGES AND PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE WHERE REQUIRED.
   3. VERIFY THAT ABANDONED SERVICES SERVE ONLY ABANDONED FACILITIES. REQUEST DIRECTION THROUGH RFI PROCESS.
C. PROTECT EXISTING WORK TO REMAIN. IF NOT SECURE, PROVIDE SHORING/BRACING. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING REMOVAL.
D. ANY NEW REPAIR WORK OR ANY EXISTING SCOPE TO REMAIN THAT IS DISCOVERED TO BE NON CODE COMPLIANT, SHALL BE BROUGHT TO ARCHITECT/ENGINEER/CLIENTS ATTENTION TO RENDER A DECISION ON WHETHER UPGRADE IS REQUIRED TO LATEST CODE COMPLIANCE.
E. ADAPT EXISTING WORK TO FIT NEW WORK; MAKE AS NEAT AND SMOOTH OF A TRANSITION AS POSSIBLE.
   1. WHEN EXISTING FINISHED SURFACES ARE CUT SO THAT A SMOOTH TRANSITION WITH NEW WORK IS NOT POSSIBLE, TERMINATE EXISTING SURFACE ALONG A STRAIGHT LINE AT A NATURAL LINE OF DIVISION AND MAKE RECOMMENDATION TO ARCHITECT.
   2. WHERE A CHANGE OF PLANE OF 1/4 INCH (6 MM) OR MORE OCCURS IN EXISTING WORK, SUBMIT RECOMMENDATION FOR PROVIDING A SMOOTH TRANSITION FOR ARCHITECT REVIEW AND REQUEST INSTRUCTIONS.
F. REFINISH EXISTING SURFACES AS INDICATED:
   1. WHERE ROOMS OR SPACES ARE INDICATED TO BE REFINISHED, REFINISH ALL VISIBLE EXISTING SURFACES TO REMAIN TO THE SPECIFIED CONDITION FOR EACH MATERIAL, WITH A NEAT TRANSITION TO ADJACENT FINISHES.
   2. IF MECHANICAL OR ELECTRICAL WORK IS EXPOSED ACCIDENTALLY DURING THE WORK, RE-COVER AND REFINISH TO MATCH.

**2.02 CUTTING AND PATCHING**
A. PERFORM WHATEVER CUTTING AND PATCHING IS NECESSARY TO:
   1. COMPLETE THE WORK.
   2. FIT PRODUCTS TOGETHER TO INTEGRATE WITH OTHER WORK.
   3. PROVIDE OPENINGS FOR PENETRATION OF MECHANICAL, ELECTRICAL, AND OTHER SERVICES.
   4. MATCH WORK THAT HAS BEEN CUT TO ADJACENT WORK.
   5. REPAIR AREAS ADJACENT TO CUTS TO REQUIRED CONDITION.
   6. REPAIR NEW WORK DAMAGED BY SUBSEQUENT WORK.
   7. REMOVE AND REPLACE DEFECTIVE AND NON-CONFORMING WORK.
B. EXECUTE WORK BY METHODS THAT AVOID DAMAGE TO OTHER WORK AND THAT WILL PROVIDE APPROPRIATE SURFACES TO RECEIVE PATCHING AND FINISHING. IN EXISTING WORK, MINIMIZE DAMAGE AND RESTORE TO ORIGINAL CONDITION.
C. FIT WORK AIRTIGHT TO PIPES, SLEEVES, DUCTS, CONDUIT, AND OTHER PENETRATIONS THROUGH SURFACES.
D. AT PENETRATIONS OF FIRE RATED WALLS, PARTITIONS, CEILING, OR FLOOR CONSTRUCTION, COMPLETELY SEAL VOIDS WITH U.L. LISTED FIRE RATED MATERIAL TO FULL THICKNESS OF THE PENETRATED ELEMENT.
E. PATCHING:
   1. FINISH PATCHED SURFACES TO MATCH FINISH TEXTURE THAT EXISTED PRIOR TO PATCHING, UNLESS NOTED OTHERWISE. ON CONTINUOUS SURFACES, REFINISH TO NEAREST INTERSECTION OR NATURAL BREAK. FOR AN ASSEMBLY, REFINISH ENTIRE UNIT.
   2. REPAIR PATCHED SURFACES THAT ARE DAMAGED/ LIFTED, DISCOLORED, OR SHOWING OTHER IMPERFECTIONS DUE TO PATCHING WORK. IF DEFECTS ARE DUE TO CONDITION OF SUBSTRATE, REPAIR SUBSTRATE PRIOR TO REPAIRING FINISH.

**2.03 PROTECTION OF INSTALLED WORK**
A. PROTECT INSTALLED WORK FROM DAMAGE BY CONSTRUCTION OPERATIONS. CONTROL ACTIVITY IN IMMEDIATE WORK AREA TO PREVENT DAMAGE.
B. PROTECT FINISHED DOORS, FLOORS, STA

## SECTION 090561 - COMMON WORK RESULTS FOR FLOORING PREPARATION

**1.01 SECTION INCLUDES**

A. THIS SECTION APPLIES TO FLOORS IDENTIFIED IN CONTRACT DOCUMENTS THAT ARE RECEIVING THE FOLLOWING TYPES OF FLOOR COVERINGS: RESILIENT TILE AND SHEET ; BROADLOOM CARPET ; CARPET TILE. ON FIRST FLOOR CONDITIONS, LANDLORD / OWNER AGREEMENTS TAKE PRECEDENCE OVER THIS SCOPE OF WORK. IF THERE IS NO AGREEMENT, THEN THESE REQUIREMENTS SHOULD BE PROVIDED. IF MANUFACTURER'S REQUIREMENTS ARE IN CONFLICT, PROVIDE RFI TO RESOLVE SCOPE OF WORK PRIOR TO BIDDING.
B. REMOVAL OF EXISTING FLOOR COVERINGS.
C. PREPARATION OF NEW AND EXISTING CONCRETE FLOOR SLABS FOR INSTALLATION OF FLOOR COVERINGS.
D. TESTING OF CONCRETE FLOOR SLABS FOR MOISTURE AND ALKALINITY (PH).
E. REMEDIATION OF CONCRETE FLOOR SLABS DUE TO UNSATISFACTORY MOISTURE OR ALKALINITY (PH) CONDITIONS.
CONTRACTOR SHALL PERFORM ALL SPECIFIED REMEDIATION OF CONCRETE FLOOR SLABS. IF SUCH REMEDIATION IS INDICATED BY TESTING AGENCY'S REPORT AND IS DUE TO A CONDITION NOT UNDER CONTRACTOR'S CONTROL OR COULD NOT HAVE BEEN PREDICTED BY EXAMINATION PRIOR TO ENTERING INTO THE CONTRACT, A CONTRACT MODIFICATION WILL BE ISSUED.
F. PATCHING COMPOUND.
G. REMEDIAL FLOOR COATINGS.
H. REMEDIAL FLOOR SHEET MEMBRANE.

**1.02 REFERENCE STANDARDS**

A. ASTM C109 / C109M - STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF HYDRAULIC CEMENT MORTARS (USING 2-IN. OR (50-MM) CUBE SPECIMENS) 2016A.
B. ASTM F710 - STANDARD PRACTICE FOR PREPARING CONCRETE FLOORS TO RECEIVE RESILIENT FLOORING 2015.
C. ASTM F2170 - STANDARD TEST METHOD FOR DETERMINING RELATIVE HUMIDITY IN CONCRETE FLOOR SLABS USING IN SITU PROBES 2017.
D. RFCI (RWP) - RECOMMENDED WORK PRACTICES FOR REMOVAL OF RESILIENT FLOOR COVERINGS 2011.

**1.03 QUALITY ASSURANCE**

A. MOISTURE AND ALKALINITY (PH) TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING AGENCY EMPLOYED AND PAID BY CONTRACTOR, WHERE REQUIRED.

**1.04 DELIVERY, STORAGE, AND HANDLING**

A. DELIVER, STORE, HANDLE, AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
B. DELIVER MATERIALS IN MANUFACTURER'S PACKAGING; INCLUDE INSTALLATION INSTRUCTIONS.
C. KEEP MATERIALS FROM FREEZING.

**1.05 FIELD CONDITIONS**

A. MAINTAIN AMBIENT TEMPERATURE IN SPACES WHERE CONCRETE TESTING IS BEING PERFORMED, AND FOR AT LEAST 48 HOURS PRIOR TO TESTING, AT NOT LESS THAN 65 DEGREES F (18 DEGREES C) OR MORE THAN 85 DEGREES F (30 DEGREES C).
B. MAINTAIN RELATIVE HUMIDITY IN SPACES WHERE CONCRETE TESTING IS BEING PERFORMED, AND FOR AT LEAST 48 HOURS PRIOR TO TESTING, AT NOT LESS THAN 40 PERCENT AND NOT MORE THAN 60 PERCENT.

**2.01 MATERIALS**

A. PATCHING COMPOUND: FLOOR COVERING MANUFACTURER'S RECOMMENDED PRODUCT, SUITABLE FOR CONDITIONS, AND COMPATIBLE WITH ADHESIVE AND FLOOR COVERING. IN THE ABSENCE OF ANY RECOMMENDATION FROM FLOORING MANUFACTURER, PROVIDE A PRODUCT WITH THE FOLLOWING CHARACTERISTICS:
1. CEMENTITIOUS MOISTURE-, MILDEW-, AND ALKALI-RESISTANT COMPOUND, COMPATIBLE WITH FLOOR, FLOOR COVERING, AND FLOOR COVERING ADHESIVE, AND CAPABLE OF BEING FEATHERED TO NOTHING AT EDGES.
2. COMPRESSIVE STRENGTH: 3000 PSI, MINIMUM, AFTER 28 DAYS, WHEN TESTED IN ACCORDANCE WITH ASTM C109 / C109M OR ASTM C472, WHICHEVER IS APPROPRIATE.

B. ALTERNATE FLOORING ADHESIVE: FLOOR COVERING MANUFACTURER'S RECOMMENDED PRODUCT, SUITABLE FOR THE MOISTURE AND PH CONDITIONS PRESENT; LOW-VOC. IN THE ABSENCE OF ANY RECOMMENDATION FROM FLOORING MANUFACTURER, PROVIDE A PRODUCT RECOMMENDED BY ADHESIVE MANUFACTURER AS SUITABLE FOR SUBSTRATE AND FLOOR COVERING AND FOR CONDITIONS PRESENT.
C. REMEDIAL FLOOR COATING: SINGLE- OR MULTI-LAYER COATING OR COATING/SEALER COMBINATION INTENDED BY ITS MANUFACTURER TO RESIST WATER VAPOR TRANSMISSION TO DEGREE SUFFICIENT TO MEET FLOORING MANUFACTURER'S EMISSION LIMITS, RESISTANT TO THE LEVEL OF ALKALINITY (PH) FOUND, AND SUITABLE FOR ADHESION OF FLOORING WITHOUT FURTHER TREATMENT.
1. THICKNESS: AS REQUIRED FOR APPLICATION AND IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

D. REMEDIAL FLOOR SHEET MEMBRANE: PRE-FORMED MULTI-PLY SHEET MEMBRANE INSTALLED OVER CONCRETE SUBFLOOR AND INTENDED BY ITS MANUFACTURER TO RESIST WATER VAPOR TRANSMISSION TO DEGREE SUFFICIENT TO MEET FLOORING MANUFACTURER'S EMISSION LIMITS, RESISTANT TO THE LEVEL OF ALKALINITY (PH) FOUND, AND SUITABLE FOR ADHESION OF FLOORING WITHOUT FURTHER TREATMENT.
1. THICKNESS: 28 MIL (0.028 INCH) (0.711 MM).
2. TAPE: TYPES RECOMMENDED BY UNDERLAYMENT MANUFACTURER TO INSTALL MEMBRANE AND COVER SEAMS.

**2.02 CONCRETE SLAB PREPARATION**

A. PERFORM FOLLOWING OPERATIONS IN THE ORDER INDICATED:
1. EXISTING CONCRETE SLABS (ON-GRADE AND ELEVATED) WITH EXISTING FLOOR COVERINGS:
   a. VISUAL OBSERVATION OF EXISTING FLOOR COVERING, FOR ADHESION, WATER DAMAGE, ALKALINE DEPOSITS, AND OTHER DEFECTS.
   b. REMOVAL OF EXISTING FLOOR COVERING.
2. EXISTING CONCRETE SLABS WITH COATINGS OR PENETRATING SEALERS/HARDENERS/DUSTPROOFERS:
   a. DO NOT ATTEMPT TO REMOVE COATING OR PENETRATING MATERIAL.
   b. DO NOT ABRADE SURFACE.
3. PRELIMINARY CLEANING.
4. MOISTURE VAPOR EMISSION TESTS: 3 TESTS IN THE FIRST 1000 SQUARE FEET (100 SQUARE METERS) AND ONE TEST IN EACH ADDITIONAL 1000 SQUARE FEET (100 SQUARE METERS), UNLESS OTHERWISE INDICATED OR REQUIRED BY FLOORING MANUFACTURER.
5. INTERNAL RELATIVE HUMIDITY TESTS: IN SAME LOCATIONS AS MOISTURE VAPOR EMISSION TESTS, UNO.
6. ALKALINITY (PH) TESTS: IN SAME LOCATIONS AS MOISTURE VAPOR EMISSION TESTS, UNO.
7. SPECIFIED REMEDIATION, IF REQUIRED.
8. PATCHING, SMOOTHING, AND LEVELING, AS REQUIRED.
9. PROTECTION.

B. REMEDIATIONS:
1. ACTIVE WATER LEAKS OR CONTINUING MOISTURE MIGRATION TO SURFACE OF SLAB: CORRECT THIS CONDITION BEFORE DOING ANY OTHER REMEDIATION; RE-TEST AFTER CORRECTION.
2. EXCESSIVE MOISTURE EMISSION OR RELATIVE HUMIDITY: IF AN ADHESIVE THAT IS RESISTANT TO THE LEVEL OF MOISTURE PRESENT IS AVAILABLE AND ACCEPTABLE TO FLOORING MANUFACTURER, USE THAT ADHESIVE FOR INSTALLATION OF THE FLOORING; IF NOT, APPLY REMEDIAL FLOOR COATING OR REMEDIAL SHEET MEMBRANE OVER ENTIRE SUSPECT FLOOR AREA.
3. EXCESSIVE ALKALINITY (PH): IF REMEDIAL FLOOR COATING IS NECESSARY TO ADDRESS MOISTURE, NO ADDITIONAL REMEDIATION IS REQUIRED; IF NOT, IF AN ADHESIVE THAT IS RESISTANT TO THE LEVEL PRESENT IS AVAILABLE AND ACCEPTABLE TO THE FLOORING MANUFACTURER, USE THAT ADHESIVE FOR INSTALLATION OF THE FLOORING; OTHERWISE, APPLY A SKIM COAT OF SPECIFIED PATCHING COMPOUND OVER ENTIRE SUSPECT FLOOR AREA.

**2.03 REMOVAL OF EXISTING FLOOR COVERINGS**

A. COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS AND RECOMMENDATIONS OF RFCI RECOMMENDED WORK PRACTICES FOR REMOVAL OF RESILIENT FLOOR COVERINGS, AS APPLICABLE TO FLOOR COVERING BEING REMOVED.
B. DISPOSE OF REMOVED MATERIALS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS AND AS SPECIFIED.

**2.04 PRELIMINARY CLEANING**

A. CLEAN FLOORS OF DUST, SOLVENTS, PAINT, WAX, OIL, GREASE, ASPHALT, RESIDUAL ADHESIVE, ADHESIVE REMOVERS, FILM-FORMING CURING COMPOUNDS, SEALING COMPOUNDS, ALKALINE SALTS, EXCESSIVE LAITANCE, MOLD, MILDEW, AND OTHER MATERIALS THAT MIGHT PREVENT ADHESIVE BOND.
B. DO NOT USE SOLVENTS OR OTHER CHEMICALS FOR CLEANING.

**2.05 INTERNAL RELATIVE HUMIDITY TESTING**

A. WHERE THE FLOOR COVERING MANUFACTURER'S REQUIREMENTS CONFLICT WITH EITHER THE REFERENCED TEST METHOD OR THIS SPECIFICATION, COMPLY WITH THE MANUFACTURER'S REQUIREMENTS.
B. WHERE THIS SPECIFICATION CONFLICTS WITH THE REFERENCED TEST METHOD, COMPLY WITH THE REQUIREMENTS OF THIS SECTION.
C. TEST IN ACCORDANCE WITH ASTM F2170 PROCEDURE A AND AS FOLLOWS.
D. TESTING WITH ELECTRICAL IMPEDANCE OR RESISTANCE APPARATUS MAY NOT BE SUBSTITUTED FOR THE SPECIFIED ASTM TEST METHOD, AS THE VALUES DETERMINED ARE NOT COMPARABLE TO THE ASTM TEST VALUES AND DO NOT QUANTIFY THE MOISTURE CONTENT SUFFICIENTLY.
E. IN THE EVENT THAT TEST VALUES EXCEED FLOOR COVERING MANUFACTURER'S LIMITS, PERFORM REMEDIATION AS INDICATED. IN THE ABSENCE OF MANUFACTURER LIMITS, PERFORM REMEDIATION IF ANY TEST VALUE EXCEEDS 75 PERCENT RELATIVE HUMIDITY.
F. REPORT: REPORT THE INFORMATION REQUIRED BY THE TEST METHOD.

**2.06 ALKALINITY TESTING**

A. WHERE THE FLOOR COVERING MANUFACTURER'S REQUIREMENTS CONFLICT WITH EITHER THE REFERENCED TEST METHOD OR THIS SPECIFICATION, COMPLY WITH THE MANUFACTURER'S REQUIREMENTS.
B. THE FOLLOWING PROCEDURE IS THE EQUIVALENT OF THAT DESCRIBED IN ASTM F710, REPEATED HERE FOR THE CONTRACTOR'S CONVENIENCE.
1. USE A WIDE RANGE ALKALINITY (PH) TEST PAPER, PTS ASSOCIATED CHART, AND DISTILLED OR DEIONIZED WATER.
2. PLACE SEVERAL DROPS OF WATER ON A CLEAN SURFACE OF CONCRETE, FORMING A PUDDLE APPROXIMATELY 1 INCH (25 MM) IN DIAMETER. ALLOW THE PUDDLE TO SET FOR APPROXIMATELY 60 SECONDS, THEN DIP THE ALKALINITY (PH) TEST PAPER INTO THE WATER, REMOVE IT, AND COMPARE IMMEDIATELY TO CHART TO DETERMINE ALKALINITY (PH) READING.
3. USE OF A DIGITAL PH METER WITH PROBE IS ACCEPTABLE; FOLLOW METER MANUFACTURER'S INSTRUCTIONS.

C. IN THE EVENT THAT TEST VALUES EXCEED FLOOR COVERING MANUFACTURER'S LIMITS, PERFORM REMEDIATION AS INDICATED. IN THE ABSENCE OF MANUFACTURER LIMITS, PERFORM REMEDIATION IF ALKALINITY (PH) TEST VALUE IS OVER 10.

**2.07 PREPARATION**

A. COMPLY WITH REQUIREMENTS AND RECOMMENDATIONS OF FLOOR COVERING MANUFACTURER.
B. FILL AND SMOOTH SURFACE CRACKS, GROOVES, DEPRESSIONS, CONTROL JOINTS AND OTHER NON-MOVING JOINTS, AND OTHER IRREGULARITIES WITH PATCHING COMPOUND.
C. DO NOT FILL EXPANSION JOINTS, ISOLATION JOINTS, OR OTHER MOVING JOINTS.

**2.08 APPLICATION OF REMEDIAL FLOOR COATING**

A. COMPLY WITH REQUIREMENTS AND RECOMMENDATIONS OF COATING MANUFACTURER.

**2.09 INSTALLATION OF REMEDIAL FLOOR SHEET MEMBRANE**

A. INSTALL IN ACCORDANCE WITH SHEET MEMBRANE MANUFACTURER'S INSTRUCTIONS.

**2.10 PROTECTION**

A. COVER PREPARED FLOORS WITH BUILDING PAPER OR OTHER DURABLE COVERING.

## SECTION 092116 - GYPSUM BOARD ASSEMBLIES

**1.01 REFERENCE ST AND ARDS / QUALITY ASSURANCE: PROVIDE AND INSTALL PER THE FOLLOWING INDUSTRY STANDARDS.**

A. AISI S100-12 - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS 2012.
B. ANSI A108.11 - AMERICAN NATIONAL STANDARD SPECIFICATIONS FOR INTERIOR INSTALLATION OF CEMENTITIOUS BACKER UNITS 2010 (REAFFIRMED 2016).
C. ASTM A653 / A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANIZED) BY THE HOT-DIP PROCESS 2018.
D. ASTM C645 - STANDARD SPECIFICATION FOR NONSTRUCTURAL STEEL FRAMING MEMBERS 2018.
E. ASTM C754 - STANDARD SPECIFICATION FOR INSTALLATION OF STEEL FRAMING MEMBERS TO RECEIVE SCREW-ATTACHED GYPSUM PANEL PRODUCTS 2018.
F. ASTM C840 - STANDARD SPECIFICATION FOR APPLICATION AND FINISHING OF GYPSUM BOARD 2018B.
G. ASTM C1047 - STANDARD SPECIFICATION FOR ACCESSORIES FOR GYPSUM WALLBOARD AND GYPSUM VENEER BASE 2014A.
H. ASTM C1396 / C1396M - STANDARD SPECIFICATION FOR GYPSUM BOARD 2017.
I. ASTM D3273 - STANDARD TEST METHOD FOR RESISTANCE TO GROWTH OF MOLD ON THE SURFACE OF INTERIOR COATINGS IN AN ENVIRONMENTAL CHAMBER 2016.
J. ASTM E90 - STANDARD TEST METHOD FOR LABORATORY MEASUREMENT OF AIRBORNE SOUND TRANSMISSION LOSS OF BUILDING PARTITIONS AND ELEMENTS 2009 (REAPPROVED 2016).
K. ASTM E413 - CLASSIFICATION FOR RATING SOUND INSULATION 2016.
L. GA-216 - APPLICATION AND FINISHING OF GYPSUM PANEL PRODUCTS 2016.
M. GA-600 - FIRE RESISTANCE DESIGN MANUAL 2015 AND FIRE RESISTANCE RATED ASSEMBLIES ASTM E 119.
N. ICC (IBC) - INTERNATIONAL BUILDING CODE MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS.

**2.01 METAL FRAMING MATERIALS**

A. MANUFACTURERS - METAL FRAMING, CONNECTORS, AND ACCESSORIES: CEMCO, CLARK DIETRICH, MARINO, SCAFCO CORPORATION, STEEL CONSTRUCTION SYSTEMS, THE STEEL NETWORK, INC. OR EQ.
B. NON-STRUCTURAL FRAMING SYSTEM COMPONENTS: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 FOR THE SPACING INDICATED, WITH MAXIMUM DEFLECTION OF WALL FRAMING OF L / 240 AT 5 PSF ( L / 240 AT 240 PA ).
1. STUDS: C-SHAPED.
2. PAIRED STUDS FOR SOUND-RATED ASSEMBLIES: ENGINEERED SINGLE-PIECE ASSEMBLIES COMPRISED OF PAIRED STUDS COUPLED BY SOUND ISOLATORS, DESIGNED TO REPLACE CONVENTIONAL SIDE-BY-SIDE, PARALLEL, DOUBLE-WALL PARTITION FRAMING.
   a. PRODUCTS:
      - SCAFCO CORPORATION; SOUNDGUARD SILENT STEEL FRAMING SYSTEM: *WWW.SCAFCO.COM/SILER* EQUAL.
3. RUNNERS: U-SHAPED, SIZED TO MATCH STUDS.
4. CEILING CHANNELS: C-SHAPED.
5. FURRING MEMBERS: HAT-SHAPED SECTIONS, MINIMUM DEPTH OF 7/8 INCH ( 22 MM ).
6. RESILIENT FURRING CHANNELS: SINGLE OR DOUBLE LEG CONFIGURATION; 1/2 INCH ( 12 MM ) CHANNEL DEPTH.
   - PRODUCTS: CLARKDIETRICH; RC DELUXE RESILIENT CHANNEL; PHILLIPS MANUFACTURING CO; RC-2 RESILIENT SOUND CHANNEL OR EQUAL.
7. RESILIENT SOUND ISOLATION CLIPS: STEEL RESILIENT CLIPS WITH MOLDED RUBBER ISOLATORS, ATTACHES TO FRAMING; IMPROVES NOISE ISOLATION PERFORMANCE OF WALL AND FLOOR-CEILING ASSEMBLIES.
   - PRODUCTS: PAC INTERNATIONAL, INC; RSIC-1, OR EQUAL.
8. SHAFT WALL STUDS AND ACCESSORIES: ASTM C645, GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754.
9. PARTITION HEAD TO STRUCTURE CONNECTIONS: PROVIDE MECHANICAL ANCHORAGE DEVICES THAT ACCOMMODATE DEFLECTION USING SLOTTED HOLES, SCREWS, AND ANTI-FRICTION BUSHINGS, PREVENTING ROTATION OF STUDS WHILE MAINTAINING STRUCTURAL PERFORMANCE OF PARTITION.
   - STRUCTURAL PERFORMANCE: MAINTAIN LATERAL LOAD RESISTANCE AND VERTICAL MOVEMENT CAPACITY REQUIRED BY APPLICABLE CODE, WHEN EVALUATED IN ACCORDANCE WITH ASI S100-12.
   - MATERIAL: ASTM A653 / A653M STEEL SHEET, 55 GRADE 50 / 340, WITH G60 / 275 COATING DESIGNATION GALVANIZED.
   - PROVIDE COMPONENTS UL-LISTED FOR USE IN UL-LISTED FIRE-RESISTANCE-RATED HEAD OF PARTITION JOINT SYSTEMS INDICATED ON DRAWINGS.
   - PROVIDE MECHANICAL ANCHORAGE DEVICES AS DESCRIBED ABOVE THAT ACCOMMODATE DEFLECTION WHILE MAINTAINING THE FIRE-RESISTANCE RATING OF THE WALL ASSEMBLY.
     1. PRODUCTS: FIRETRAK CORPORATION: POSI-SHAFT; ETAL-LITE, INC; THE SYSTEM OR EQUAL.
     - GRID SUSPENSION SYSTEMS: STEEL GRID SYSTEM OF MAIN TEES AND SUPPORT BARS CONNECTED TO STRUCTURE USING HANGING WIRE.
     1. PRODUCTS: USG CORPORATION; DRYWALL SUSPENSION SYSTEM OR EQUAL.

**2.02 BOARD MATERIALS**

A. MANUFACTURERS - GYPSUM-BASED BOARD: CERTAINTEED CORPORATION, GEORGIA-PACIFIC GYPSUM, NATIONAL GYPSUM COMPANY, USG CORPORATION, OR EQUAL.
B. GYPSUM WALLBOARD: PAPER-FACED GYPSUM PANELS AS DEFINED IN ASTM C1396 / C1396M; SIZES TO MINIMIZE JOINTS IN PLACE; ENDS SQUARE CUT.
1. APPLICATION: USE FOR VERTICAL SURFACES, UNLESS OTHERWISE INDICATED.
2. AT ASSEMBLIES INDICATED WITH FIRE-RESISTANCE RATING: USE TYPE REQUIRED BY INDICATED TESTED ASSEMBLY; IF NO TESTED ASSEMBLY IS INDICATED, USE TYPE X BOARD, UL OR WH LISTED.
3. THICKNESS:
   - VERTICAL SURFACES: 5/8 INCH (16 MM) .
   - CEILINGS: 1/2 INCH (13 MM) .
   - MULTI-LAYER ASSEMBLIES: THICKNESSES AS INDICATED ON DRAWINGS.
4. PAPER-FACED PRODUCTS: CERTAINTEED CORPORATION; TYPE C AND TYPE X DRYWALL, GEORGIA-PACIFIC GYPSUM; TOUGHROCK, FIREGUARD X, FIREGUARD C, NATIONAL GYPSUM COMPANY; GOLD BOND BRAND FIRE-SHIELD GYPSUM BOARD OR EQUAL.

2. BACKING BOARD FOR WET AREAS: ONE OF THE FOLLOWING PRODUCTS:
   a. APPLICATION: SURFACES BEHIND TILE IN WET AREAS INCLUDING TUB AND SHOWER SURROUNDS, SHOWER CEILINGS, AND TOILET ROOMS.
   b. APPLICATION: HORIZONTAL SURFACES BEHIND TILE IN WET AREAS INCLUDING COUNTERTOPS.
   c. MOLD RESISTANCE: SCORE OF 10, WHEN TESTED IN ACCORDANCE WITH ASTM D3273.
   d. ANSI CEMENT-BASED BOARD: NON-GYPSUM-BASED; AGGREGATED PORTLAND CEMENT PANELS WITH GLASS FIBER MESH EMBEDDED IN FRONT AND BACK SURFACES COMPLYING WITH ANSI A118.9 OR ASTM C1325.
      - THICKNESS: 1/2 INCH (12.7 MM ).
      - PRODUCTS: CUSTOM BUILDING PRODUCTS, NATIONAL GYPSUM COMPANY; PERMABASE CEMENT BOARD, USG CORPORATION OR EQUAL.
   e. ASTM CEMENT-BASED BOARD: NON-GYPSUM-BASED, CEMENTITIOUS BOARD COMPLYING WITH ASTM C1288.
      - THICKNESS: 1/2 INCH (12.7 MM ).
      - PRODUCTS: JAMES HARDIE BUILDING PRODUCTS, INC.
   f. GLASS MAT FACED BOARD: COATED GLASS MAT WATER-RESISTANT GYPSUM BACKING PANEL AS DEFINED IN ASTM C1178 / C1178M.
      - REGULAR: THICKNESS 1/2 INCH ( 12.7 MM ).
      - FIRE-RESISTANCE-RATED TYPE: X CORE. THICKNESS 5/8 INCH ( 16 MM ).
      - PRODUCTS: CERTAINTEED CORPORATION; DIAMONDBACK 1/2" TILE BACKER, AND DIAMONDBACK 5/8" TYPE X TILE BACKER, GEORGIA-PACIFIC GYPSUM; DENS SHIELD TILE BACKER, NATIONAL GYPSUM COMPANY; GOLD BOND EXP TILE BACKER OR EQUAL.
3. CEILING BOARD; SPECIAL SAG RESISTANT GYPSUM CEILING BOARD AS DEFINED IN ASTM C1396 / C1396M; SIZES TO MINIMIZE JOINTS IN PLACE; ENDS SQUARE CUT.
   a. APPLICATION: CEILINGS, UNLESS OTHERWISE INDICATED.
   b. THICKNESS: 1/2 INCH ( 13 MM ).
   c. EDGES: TAPERED.
   d. PRODUCTS: CERTAINTEED CORPORATION; INTERIOR CEILING DRYWALL, CONTINENTAL BUILDING PRODUCTS; SAGCHECK, GEORGIA-PACIFIC GYPSUM; TOUGHROCK SPAN 24 CEILING BOARD, OR EQUAL.
4. ACOUSTICAL SOUND DAMPENING WALL AND CEILING BOARD: TWO LAYERS OF HEAVY PAPER-FACED, HIGH-DENSITY GYPSUM BOARD SEPARATED BY A VISCOELASTIC POLYMER LAYER AND CAPABLE OF ACHIEVING STC RATING OF 50 OR MORE IN TYPICAL STUD WALL ASSEMBLIES AS CALCULATED IN ACCORDANCE WITH ASTM E413 AND WHEN TESTED IN ACCORDANCE WITH ASTM E90.
   a. THICKNESS: 1/2 INCH ( 13 MM ) .
   b. LONG EDGES: TAPERED.
   c. PRODUCTS: CERTAINTEED CORPORATION; SILENTFX QUICK CUT GYPSUM BOARD, NATIONAL GYPSUM COMPANY; GOLD BOND SOUNDBREAK XP GYPSUM BOARD, QUIET ROCK, OR EQUAL.
5. SHAFTWALL AND CORE BOARD: TYPE X, 1 INCH ( 25 MM ) THICK BY 24 INCHES ( 610 MM ) WIDE, BEVELED LONG EDGES, ENDS SQUARE CUT.
   a. PAPER-FACED TYPE: GYPSUM SHAFTLINER BOARD OR GYPSUM COREBOARD AS DEFINED ASTM C1396 / C1396M; WATER-RESISTANT FACES.
   b. MOLD RESISTANCE: SCORE OF 10, WHEN TESTED IN ACCORDANCE WITH ASTM D3273.
   c. PAPER-FACED PRODUCTS: CERTAINTEED CORPORATION; MOTECH TYPE X SHAFTLINER, GEORGIA-PACIFIC GYPSUM; TOUGHROCK SHAFTLINER, NATIONAL GYPSUM COMPANY; GOLD BOND FIRE-SHIELD SHAFTLINER XP OR EQUAL.

**2.03 GYPSUM WALLBOARD ACCESSORIES**

A. FINISHING ACCESSORIES: ASTM C1047, GALVANIZED STEEL OR ROLLED ZINC, UNLESS NOTED OTHERWISE. TYPES: AS DETAILED OR REQUIRED FOR FINISHED APPEARANCE.
B. BEADS, JOINT ACCESSORIES, AND OTHER TRIM: ASTM C1047, GALVANIZED STEEL OR ROLLED ZINC, UNLESS NOTED OTHERWISE.
1. CORNER BEADS: LOW-PROFILE FOR 90 DEGREE OUTSIDE CORNERS.
2. L-TRIM WITH TEAR-AWAY STRIP: SIZED TO FIT 1/2 INCH ( 13 MM ) THICK GYPSUM WALLBOARD.
3. ARCHITECTURAL REVEAL BEADS: SHAPES: AS INDICATED ON DRAWINGS.
4. EXPANSION JOINTS: TYPE: ACCORDIAN PROFILE WITH FACTORY-INSTALLED PROTECTIVE TAPE.

C. DECORATIVE METAL TRIM:
1. MATERIAL: EXTRUDED ALUMINUM ALLOY 6063-T5 TEMPER.
2. FINISH: SEE CONTRACT DOCUMENTS.
3. TYPE: PROFILE AS SELECTED FROM MANUFACTURER'S STANDARD RANGE.

D. JOINT MATERIALS: ASTM C475 / C475M AND AS RECOMMENDED BY GYPSUM BOARD MANUFACTURER FOR PROJECT CONDITIONS.
1. PAPER TAPE: 2 INCH ( 50 MM ) WIDE, CREASED PAPER TAPE FOR JOINTS AND CORNERS.
2. JOINT COMPOUND: DRYING TYPE, VINYL-BASED, READY-MIXED.

E. FINISHING COMPOUND: SURFACE COAT AND PRIMER, TAKES THE PLACE OF SKIM COATING.
1. PRODUCTS: CERTAINTEED CORPORATION; QUICK PREP PLUS INTERIOR PREP COAT OR EQUAL.

F. HIGH BUILD DRYWALL SURFACER: VINYL ACRYLIC LATEX-BASED COATING FOR SPRAY APPLICATION, DESIGNED TO TAKE THE PLACE OF SKIM COATING AND SEPARATE PAINT PRIMER IN ACHIEVING LEVEL 5 FINISH.
1. PRODUCTS: CERTAINTEED CORPORATION; LEVEL 5 WALL AND CEILING PRIMER / SURFACER WITH MZTECH-DV EQUAL.

G. SCREWS FOR FASTENING OF GYPSUM PANEL PRODUCTS TO COLD-FORMED STEEL STUDS LESS THAN 0.033 INCHES (0.84 MM ) IN THICKNESS AND WOOD MEMBERS: ASTM C1002; SELF-PIERCING TAPPING SCREWS, CORROSION-RESISTANT.

H. SCREWS FOR FASTENING OF GYPSUM PANEL PRODUCTS TO STEEL MEMBERS FROM 0.033 TO 0.112 INCH ( 0.84 TO 2.84 MM ) IN THICKNESS: ASTM C954; STEEL DRILL SCREWS, CORROSION-RESISTANT.

**3.01 FRAMING INSTALLATION**

A. METAL FRAMING: INSTALL IN ACCORDANCE WITH ASTM C754 AND MANUFACTURER'S INSTRUCTIONS.
B. SUSPENDED CEILINGS AND SOFFITS: SPACE FURRING MEMBERS AS INDICATED; LEVEL CEILING SYSTEM TO A TOLERANCE OF 1 / 1200. LATERALLY BRACE ENTIRE SUSPENSION SYSTEM.
C. STUDS: EXTEND PARTITION FRAMING TO STRUCTURE WHERE INDICATED AND TO CEILING IN OTHER LOCATIONS. PARTITIONS TERMINATING AT CEILING RUNNER SECURELY TO CEILING TRACK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PARTITIONS TERMINATING AT STRUCTURE: ATTACH TOP RUNNER TO STRUCTURE, MAINTAIN CLEARANCE BETWEEN TOP OF STUDS AND STRUCTURE, AND CONNECT STUDS TO TRACK USING SPECIFIED MECHANICAL DEVICES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; VERIFY FREE MOVEMENT OF TOP OF STUD CONNECTIONS; DO NOT LEAVE STUDS UNATTACHED TO TRACK.
D. OPENINGS: REINFORCE OPENINGS AS REQUIRED FOR WEIGHT OF DOORS OR OPERABLE PANELS. USING NOT LESS THAN DOUBLE STUDS AT JAMBS.
E. BLOCKING: INSTALL HORIZONTAL FASTENED STEEL CHANNEL BLOCKING FOR SUPPORT OF FRAMED OPENINGS, WALL MOUNTED CABINETS, PLUMBING FIXTURES, TOILET PARTITIONS, TOILET ACCESSORIES, AND WALL MOUNTED DOOR HARDWARE.

**3.02 ACOUSTIC ACCESSORIES INSTALLATION**

A. WHERE NOTED ON CONTRACT DOCUMENTS, ACOUSTIC INSULATION: PLACE TIGHTLY WITHIN SPACES, AROUND CUT OPENINGS, BEHIND AND AROUND ELECTRICAL AND MECHANICAL ITEMS WITHIN PARTITIONS, AND TIGHT TO ITEMS PASSING THROUGH PARTITIONS.
B. WHERE NOTED ON CONTRACT DOCUMENTS, ACOUSTIC SEALANT: INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PLACE ONE BEAD CONTINUOUSLY ON SUBSTRATE BEFORE INSTALLATION OF PERIMETER FRAMING MEMBERS. PLACE CONTINUOUS BEAD AT PERIMETER OF EACH LAYER OF GYPSUM BOARD. SEAL AROUND ALL PENETRATIONS BY CONDUIT, PIPE, DUCTS AND ROUGH-IN BOXES, EXCEPT WHERE FIRESTOPPING IS PROVIDED.

**3.03 BOARD INSTALLATION**

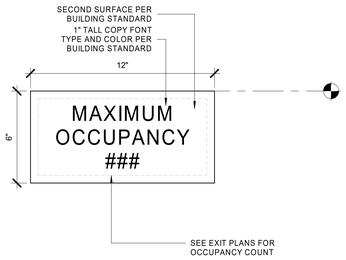
A. COMPLY WITH ASTM C840, GA-216 AND MANUFACTURER'S INSTRUCTIONS. INSTALL TO MINIMIZE BUTT END JOINTS, ESPECIALLY IN HIGHLY VISIBLE LOCATIONS. SINGLE-LAYER NON-RATED: INSTALL GYPSUM BOARD IN MOST ECONOMICAL DIRECTION. WITH ENDS AND EDGES OCCURRING OVER FIRM BEARING.
B. DOUBLE-LAYER NON-RATED: USE GYPSUM BOARD FOR FIRST LAYER. PLACED PARALLEL TO FRAMING OR FURRING MEMBERS. WITH ENDS AND EDGES OCCURRING OVER FIRM BEARING. USE GLASS MAT FACED GYPSUM BOARD AT EXTERIOR WALLS AND AT OTHER LOCATIONS INDICATED. PLACE SECOND LAYER PERPENDICULAR TO FRAMING OR FURRING MEMBERS. OFFSET JOINTS OF SECOND LAYER FROM JOINTS OF FIRST LAYER.
C. FIRE-RATED CONSTRUCTION: INSTALL GYPSUM BOARD IN STRICT COMPLIANCE WITH REQUIREMENTS OF ASSEMBLY LISTING.
D. EXPOSED GYPSUM BOARD IN INTERIOR WET AREAS: SEAL JOINTS, CUT EDGES, AND HOLES WITH WATER-RESISTANT SEALANT.
E. INSTALLATION ON METAL FRAMING: USE SCREWS FOR ATTACHMENT OF GYPSUM BOARD EXCEPT FACE LAYER OF NON-RATED DOUBLE-LAYER ASSEMBLIES, WHICH MAY BE INSTALLED BY MEANS OF ADHESIVE LAMINATION.
F. CURVED SURFACES: APPLY GYPSUM BOARD TO CURVED SUBSTRATES IN ACCORDANCE WITH GA-226.

**3.04 INSTALLATION OF TRIM AND ACCESSORIES**

A. CONTROL JOINTS: PLACE CONTROL JOINTS CONSISTENT WITH LINES OF BUILDING SPACES AND NOT MORE THAN 30 FEET (10 METERS) APART ON WALLS AND CEILINGS OVER 50 FEET (16 METERS) LONG.
B. CORNER BEADS: INSTALL AT EXTERNAL CORNERS, USING LONGEST PRACTICAL LENGTHS.
C. EDGE TRIM: INSTALL AT LOCATIONS WHERE GYPSUM BOARD ABUTS DISSIMILAR MATERIALS.
D. DECORATIVE TRIM: INSTALL AT LOCATIONS SHOWN ON DRAWINGS AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

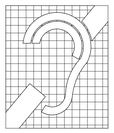
**3.05 JOINT TREATMENT**

A. PAPER FACED GYPSUM BOARD: USE PAPER JOINT TAPE, EMBED WITH DRYING TYPE JOINT COMPOUND AND FINISH WITH DRYING TYPE JOINT COMPOUND.
B. FINISH GYPSUM BOARD IN ACCORDANCE WITH LEVELS DEFINED IN ASTM C840 AS FOLLOWS:
1. LEVEL 5: WALLS AND CEILINGS TO RECEIVE SEMI-GLOSS OR GLOSS P



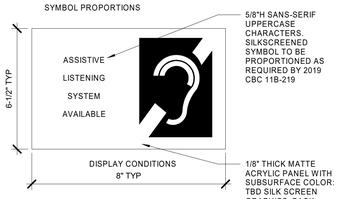

NOTE: SEE EXIT / CODE ANALYSIS SCHEDULE FOR OCCUPANCY COUNT

## MAXIMUM OCCUPANCY — 3" = 1'-0" — 20



SYMBOL PROPORTIONS

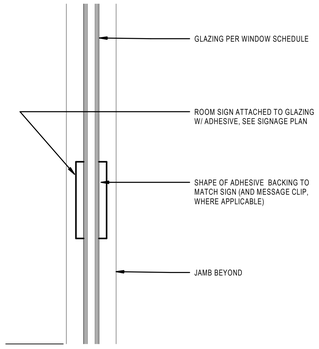
ALL SIGNAGE MATERIALS, COLORS, SYMBOLS, AND LETTERING TO MATCH BUILDING STANDARD. VERIFY WITH EXISTING SIGNAGE IN BUILDING. SIGNAGE DETAILS SHOW ON THESE PLANS ARE REPRESENTATIVE OF ACCESSIBILITY COMPLIANCE ONLY.



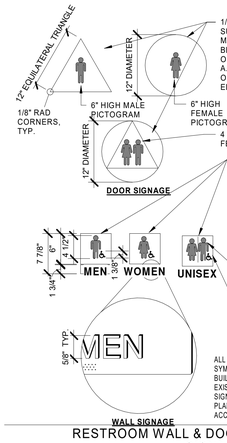

NOTE: CHARACTERS & BACKGROUND OF SIGNS TO BE NON-GLARE FINISH. COLOR & CONTRAST OF SIGN TO BE DISTINCTLY DIFFERENT THAN COLOR & CONTRAST OF WALL.

## ADA ASSISTIVE LISTENING SIGN — 12" = 1'-0" — 19

NOTE:
PROVIDE A BLANK MATCHING PANEL ON REVERSE SIDE WHERE THERE ARE NO BACK TO BACK SIGNAGE




## SIGN ATTACHMENT @ GLAZING — 3" = 1'-0" — G0.31 — 18

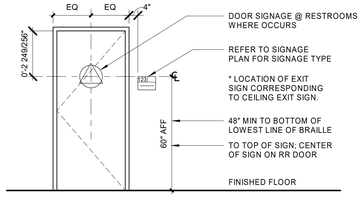



## RESTROOM WALL & DOOR SIGNAGE — 1" = 1'-0" — 16

**NOTE:**
STATE OF CALIFORNIA LAW PROVIDES THAT ALL BUILDING ENTRANCES THAT ARE ACCESSIBLE TO, AND USABLE BY PHYSICALLY DISABLED PERSONS SHALL BE IDENTIFIED WITH AT LEAST ONE STANDARD INTERNATIONAL SYMBOL OF ACCESSIBILITY ENTRANCE SIGN. STATE OF CALIFORNIA SENATE BILL NO. 1242 ALSO REQUIRES THAT ALL BUILDINGS, ROOMS, SPACES, ELEVATORS, ETC. BE PROVIDED WITH TACTILE IDENTIFICATION SIGNAGE PER CALIFORNIA BUILDING CODE.

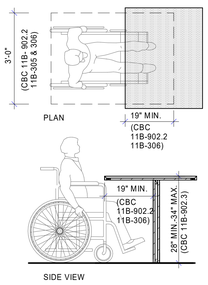
LOCATE SIGN OUTSIDE OF DOOR ENTERING ROOM ADJACENT TO THE LATCH SIDE OF THE DOOR PER PLAN, AT LOCATIONS WHERE GLASS OCCURS, SUCH AS A SIDELITE, PROVIDE SOLID COLOR PLATE (ASI COLOR T.B.D.) OF 1/8" ACRYLIC, CUT TO SAME SIZE AS SIGN, MOUNTED TO OPPOSITE SIDE OF GLASS TO OBSCURE BACK SIDE OF SIGN. SEE

WHERE THERE IS NO WALL SPACE ON THE LATCH SIDE, INCLUDING THE DOUBLE LEAF DOORS, SIGN SHALL BE PLACED ON THE NEAREST ADJACENT WALL, PREFERABLY ON THE RIGHT.



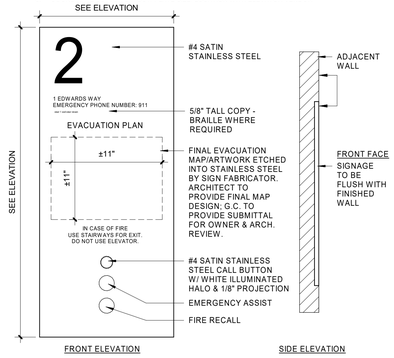

**NOTE:**
SIGNAGE MOUNTING LOCATION & HEIGHT SHALL COMPLY WITH CBC SECTION 1117B.5.7

## DOOR SIGN — 15



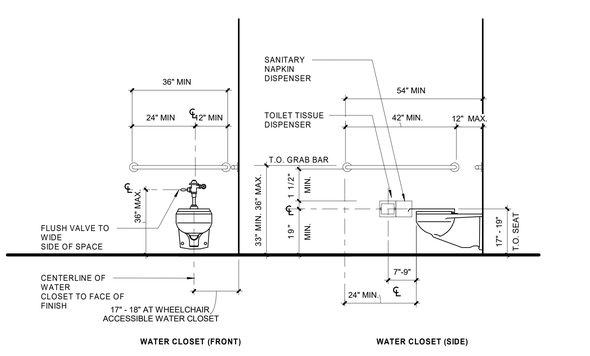

## KNEE AND TOE CLEARANCE — 12" = 1'-0" — G0.31 — 14

NOTES:
1. **FINISH:** #4 SATIN STAINLESS STEEL
2. **FONT TYPE:** TBD, FINAL DESIGN TO BE PROVIDED BY ARCHITECT
3. RAISED COPY & BRAILLE WHERE REQUIRED.
4. PROVIDE OWNER WITH DIGITAL TEMPLATE FOR ARTWORK LAYOUT
5. PROVIDE MOCK-UP.
6. COORDINATE BUTTON LAYOUT/ PLATE SIZE/ LOCATION WITH ELEVATOR VENDOR




ALL SIGNAGE MATERIALS, COLORS, SYMBOLS, AND LETTERING TO MATCH BUILDING STANDARD. VERIFY WITH EXISTING SIGNAGE IN BUILDING. SIGNAGE DETAILS SHOW ON THESE PLANS ARE REPRESENTATIVE OF ACCESSIBILITY COMPLIANCE ONLY.

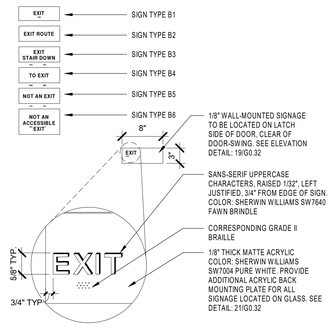
## EVACUATION SIGNAGE — 3" = 1'-0" — 21




CBC 11B-604.1/2/7

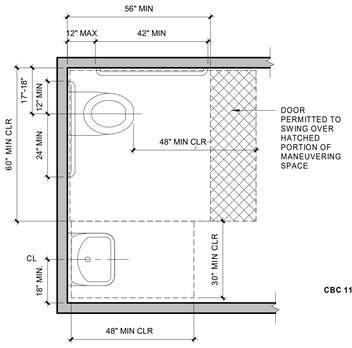
## ACCESSIBLE MOUNTING HEIGHTS — 1/2" = 1'-0" — 13

TYPICAL NOTE: CHARACTERS & BACKGROUND OF SIGNS TO BE NON-GLARE FINISH. COLOR & CONTRAST OF SIGN TO BE DISTINCTLY DIFFERENT THAN COLOR & CONTRAST OF WALL. COLORS: SHERWIN WILLIAMS SW7640 FAWN BRINDLE & SW7004 PURE WHITE. RAISED CHARACTERS ON SIGNS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60 PERCENT MINIMUM AND 110 PERCENT MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "I." STROKE THICKNESS OF THE UPPERCASE "I" SHALL BE 15 PERCENT MAXIMUM OF THE HEIGHT OF THE CHARACTER.



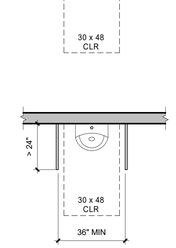

ALL SIGNAGE MATERIALS, COLORS, SYMBOLS, AND LETTERING TO MATCH BUILDING STANDARD. VERIFY WITH EXISTING SIGNAGE IN BUILDING. SIGNAGE DETAILS SHOW ON THESE PLANS ARE REPRESENTATIVE OF ACCESSIBILITY COMPLIANCE ONLY.

## TACTILE EXIT SIGNAGENAGE — 1" = 1'-0" — 12



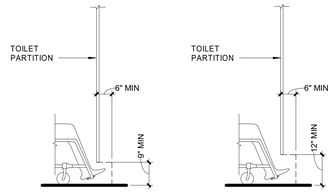

CBC 11B-604.3.1, CBC 11B-604.5.1, & CBC 11B-606.2

## ACCESSIBLE FIXTURES AT UNISEX RESTROOM — 11

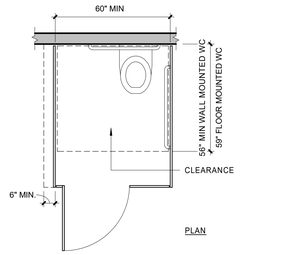



CBC 11B-305.7.1

## ACCESSIBLE URINAL PARTITIONS — 3/8" = 1'-0" — 10

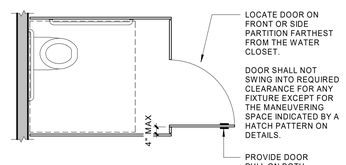



CBC 11B-604.8.1.4 & CBC 11B-604.8.1.1.3



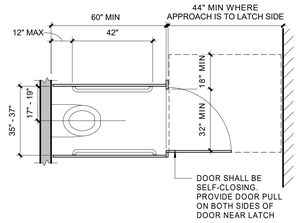

NOTE:
TOE CLEARANCE AT THE SIDE PARTITION IS NOT REQUIRED IN A COMPARTMENT GREATER THAN 66" WIDE

## WHEELCHAIR ACCESSIBLE TOILET COMPARTMENT TOE CLEARANCE — 3/8" = 1'-0" — 04



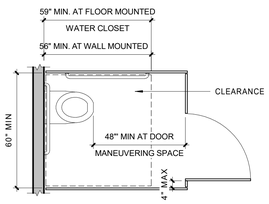

COMPARTMENT DOOR REQUIREMENTS

**NOTE:** TOILET COMPARTMENT DOORS INCLUDING HARDWARE, SHALL BE MIN. 32" CLR. AND COMPLY WITH CBC. TOILET COMPARTMENT DOORS IN THE SIDE OF THE PARITION SHALL BE MIN. 34" CLR.



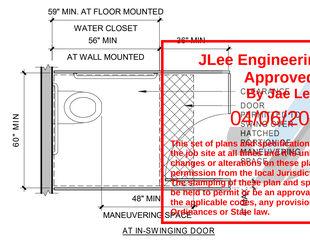

AT AMBULATORY STALL

CBC 11B-604.8.1.2



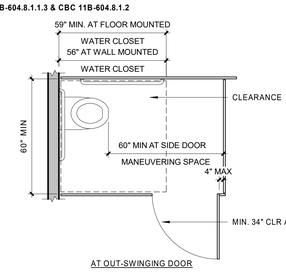

AT OUT-SWINGING DOOR

CBC 11B-604.2,CBC 11B-604.5.1, & CBC 11B-604.8.2



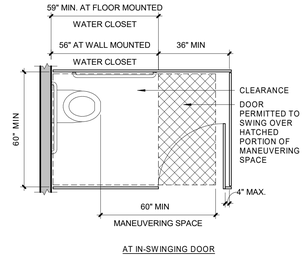

AT IN-SWINGING DOOR

CBC 11B-604.8.1.1.3 & CBC 11B-604.8.1.2



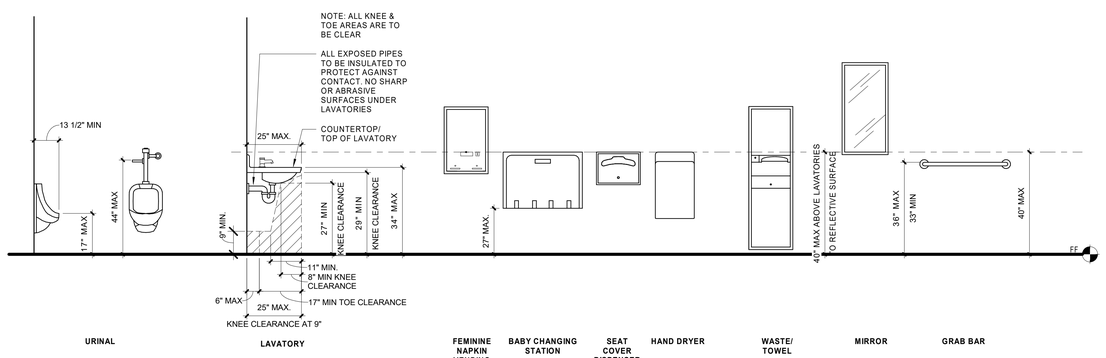

AT OUT-SWINGING DOOR

CBC 11B-604.8.1.1.2 & CBC 11B-604.8.1.2




AT IN-SWINGING DOOR

## ACCESSIBLE TOILET CLEARANCES — 3/8" = 1'-0" — 02




CBC 11B306.2, CBC 11B306.2.2, CBC 11B306.3, CBC 11B-603.3, CBC 11B603.5, CBC 11B-605.2, CBC 11B-606, & CBC 11B609.4

## ACCESSIBLE MOUNTING HEIGHTS — 1/2" = 1'-0" — 01


LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
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Approved
By: Jae Lee
04/06/2026
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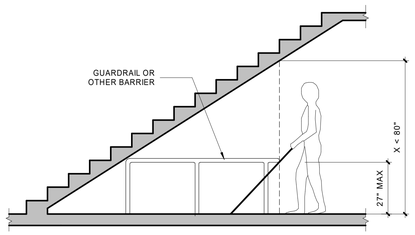
| Revision | Date |
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| Submittal | Date |
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| CITY SUBMITTAL | 08/25/2025 |

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| Checked By | SD/INF/KR |
| Scale | As indicated |

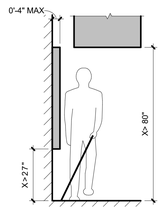
ACCESSIBILITY DETAILS

G0.31



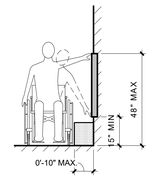

CBC 11B-307.4

## VERTICAL CLEARANCE | 20

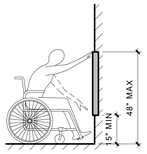



11B-307.2

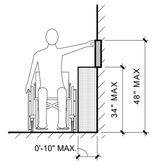
## ACCESSIBLE PATH OF TRAVEL PROTRUDING OBJECT LIMITS | 16



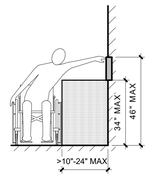

UNOBSTRUCTED SIDE REACH




UNOBSTRUCTED FORWARD REACH

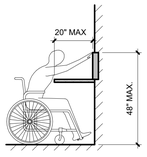



OBSTRUCTED HIGH SIDE REACH

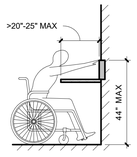



OBSTRUCTED HIGH SIDE REACH

CBC 11B-306.3.1 & CBC 11B-308.3.2




OBSTRUCTED HIGH FORWARD REACH

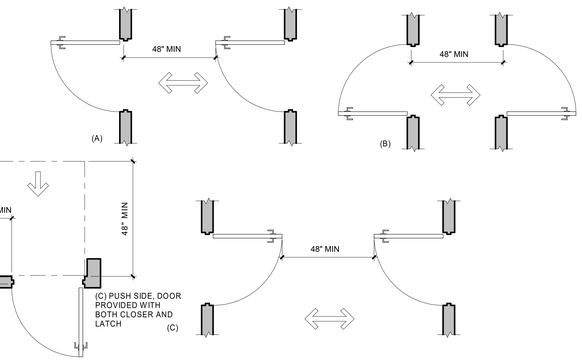



OBSTRUCTED HIGH FORWARD REACH

CBC 11B-308.2.1 & CBC 11B-308.2.2

## ACCESSIBLE SIDE REACH REQUIREMENTS | 19

## ACCESSIBLE FORWARD REACH REQUIREMENTS | 15

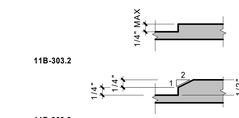



CBC 11B-404.2.4.3

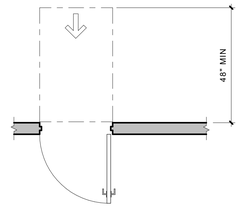
CBC 11B-404.2.6

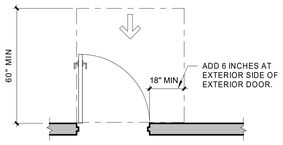
## RECESSED DOOR CLEARANCES | 3/8" = 1'-0" | 08

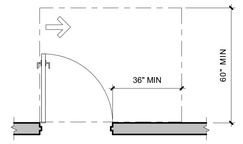
## DOOR CLEARANCES - DOORS IN SERIES | 3/8" = 1'-0" G0.32 | 04



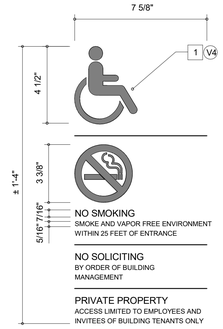

## CHANGES IN LEVEL | 11




## DOOR CLEARANCES | 3/8" = 1'-0" | 05




ALL SIGNAGE MATERIALS, COLORS, SYMBOLS, AND LETTERING TO MATCH BUILDING STANDARD VERIFY WITH EXISTING SIGNAGE IN BUILDING. SIGNAGE DETAILS SHOWN ON THESE PLANS ARE REPRESENTATIVE OF ACCESSIBILITY COMPLIANCE ONLY.

## EXISTING ACCESSIBILITY SIGNAGE AT ENTRY DOORS | 02

1. RAISED CHARACTER: CHARACTERS ON SIGNS SHALL BE RAISED 1/32 INCH (0.8MM) MINIMUM AND SHALL BE SANS SERIF UPPERCASE CHARACTERS ACCOMPANIED BY CALIFORNIA CONTRACTED (GRADE 2) BRAILLE. PER CBC 11B-703.2, 11B-703.3

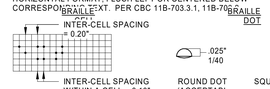
2. RAISED CHARACTER HEIGHT: CHARACTERS SHALL BE A MINIMUM OF 5/8 INCH (15.9MM) AND A MAXIMUM OF 2 INCHES BASED ON HEIGHT OF UPPERCASE LETTER "I". PER CBC 11B-703.5.1

3. RAISED CHARACTER PROPORTION: CHARACTERS ON SIGNS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60% MINIMUM AND 110% MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "I". STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 15% MAXIMUM OF THE HEIGHT OF THE CHARACTER. PER CBC 11B-703.2.4, 11B-703.2.6

4. VISUAL CHARACTER HEIGHT: PER CBC 11B-703.5.5 BASED ON HEIGHT OF UPPERCASE LETTER "I", UNLESS "EXCEPTION" IS USED.

5. VISUAL CHARACTERS PROPORTION: CHARACTERS ON SIGNS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60% MINIMUM AND 110% MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "I". STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 10% MINIMUM AND 20% MAXIMUM OF THE HEIGHT OF THE CHARACTER. PER CBC 11B-703.5.4, 11B-703.5.7

6. BRAILLE: CALIFORNIA CONTRACTED (GRADE 2) BRAILLE SHALL BE USED WHENEVER BRAILLE IS REQUIRED IN OTHER PORTIONS OF THESE STANDARDS. DISTANCE BETWEEN TWO DOTS SHALL BE 0.100 OF AN INCH (2.5MM) ON CENTER IN SAME CELL. DOTS SHALL BE RAISED A MINIMUM OF 0.025 OF AN INCH (0.6MM) TO A MAXIMUM OF 0.037 OF AN INCH (0.9MM) ABOVE BACKGROUND. DOTS SHALL BE ROUNDED OR DOMED CALIFORNIA BRAILLE DOTS. EACH DISTINCT AND SEPARATE BRAILLE SHALL BE IN HORIZONTAL FORMAT, FLUSH LEFT OR CENTERED BELOW CORRESPONDING TEXT. PER CBC 11B-703.3.1, 11B-703.5




7. PICTOGRAMS: SHALL HAVE A FIELD HEIGHT OF 6 INCHES MINIMUM. CHARACTERS AND BRAILLE SHALL NOT BE LOCATED IN THE PICTOGRAM FIELD AND SHALL BE LOCATED DIRECTLY BELOW PICTOGRAM FIELD. PER CBC 11B-703.6

8. FINISH AND CONTRAST: CHARACTERS / PICTOGRAMS / SYMBOLS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. CHARACTERS / PICTOGRAMS / SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND LIGHT OVER DARK FIELD, OR, DARK OVER LIGHT FIELD. PER CBC 11B-703.5.1, 11B-703.6.2, 11B-703.7.1

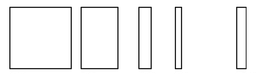
9. PROVIDE TACTILE EXIT SIGNS AT EACH FLOOR PER CBC 1011.4 AND AS INDICATED IN DRAWINGS.

10. LOCATION OF TACTILE SIGNS AT DOORS PER CBC 11B-703.4.2 AND AS INDICATED IN DETAILS.

11. MOUNTING HEIGHT PER CBC 11B-703.4, 11B-703.5 "EXCEPTION", 11B-703.5.6, 11B-703.7 AND AS INDICATED IN DETAILS.

12. EASE ALL EDGES AND CORNERS OF SIGNS.

TEMPLATE FOR CHECKING
CHARACTER AND STROKE WIDTH
TO HEIGHT PROPORTIONS




CHARACTER WIDTH
VISUAL AND RAISED
CHARACTERS

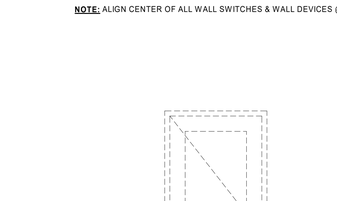
STROKE WIDTH
VISUAL
CHARACTERS

STROKE WIDTH
RAISED
CHARACTERS

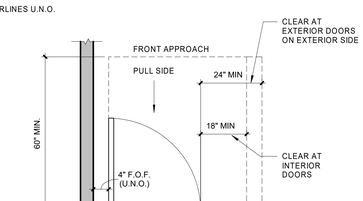
## SIGNAGE - ACCESSIBLE SIGNAGE GENERAL NOTES1 | 01




SIGNS MOUNTED TO GLASS



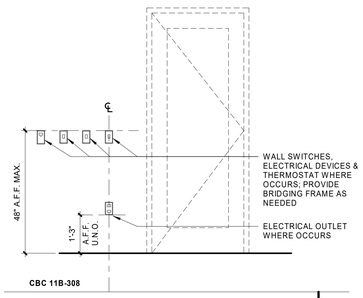

SIGNS AT DOUBLE DOORS




SIGNS AT SINGLE DOORS

NOTES:
1. SIGN MOUNTING LOCATION AND HEIGHT SHALL COMPLY WITH CBC 11B-703.4.1; CBC 11B-703.4.2; CBC 11B-703.7.2.6.
2. AT SINGLE DOORS, LOCATE SIGN ON LATCH SIDE OUTSIDE OF DOOR ENTERING ROOM THAT IS IDENTIFIED ON SIGN.
3. WHEN SIGNS ARE MTD TO GLASS, PROVIDE VINYL BACKING BETWEEN SIGN AND GLASS.
4. WHEN SIGNS ARE MTD ON BOTH SIDES OF GLASS, ALIGN SIGNS.

## SIGN MOUNTING | NTS | 13



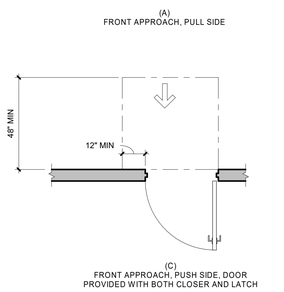

CBC 11B-308

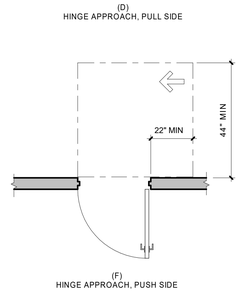
## TYPICAL DEVICE INSTALLATION | 18




CBC 11B-404.2.3 & CBC 11B-404.2.4.1

## TYPICAL CLEARANCES AT DOOR | 14




CBC 11B-404.2.4.1

## DOOR CLEARANCES | 3/8" = 1'-0" | 05

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SAN BERNARDINO COUNTY

| Submittal | Date |
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| CITY SUBMITTAL | 08/25/2025 |

| Revision | Date |
|---|---|

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | As indicated |

ACCESSIBILITY DETAILS

G0.32

# 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
## NONRESIDENTIAL MANDATORY MEASURES, SHEET 1 (July 2024 Supplement)

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

# CHAPTER 3
# GREEN BUILDING
## SECTION 301 GENERAL

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

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

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

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

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

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

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

## SECTION 302 MIXED OCCUPANCY BUILDINGS

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

## SECTION 303 PHASED PROJECTS

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

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

### ABBREVIATION DEFINITIONS:

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

# CHAPTER 5
# NONRESIDENTIAL MANDATORY MEASURES

## DIVISION 5.1 PLANNING AND DESIGN
## SECTION 5.101 GENERAL

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

## SECTION 5.102 DEFINITIONS

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

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

**ELECTRIC VEHICLE (EV). [BSC-CG, HCD]** 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 (EV) CAPABLE SPACE. [BSC-CG, DSA-SS and HCD]** A vehicle space with electrical panel space and load capacity to support a branch circuit and necessary raceways, both underground and/or surface mounted, to support EV charging.

**ELECTRIC VEHICLE (EV) CHARGER. [BSC-CG, HCD]** Off-board charging equipment used to charge an electric vehicle.

**ELECTRIC VEHICLE CHARGING SPACE (EV SPACE). [HCD]** A space intended for future installation of EV charging equipment and charging of electric vehicles.

**ELECTRIC VEHICLE CHARGING STATION (EVCS). [BSC-CG, DSA-SS, HCD]** One or more electric vehicle charging spaces served by EVSE or receptacle(s).

**ELECTRIC VEHICLE (EV) READY SPACE. [HCD]** A vehicle space which is provided with a branch circuit; any necessary raceways, both underground and/or surface mounted; to accommodate EV charging, terminating in a receptacle or a charger.

**ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE).[BSC-CG, DSA-SS and HCD]** The conductors, including the ungrounded, grounded and equipment grounding conductors and the electric vehicle connectors, attachment plugs, personnel protection system, 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.

## SECTION 5.105 DECONSTRUCTION AND REUSE OF EXISTING STRUCTURES

**5.105.1 Scope. [BSC-CG]** Effective July 1, 2024, alteration(s) to existing building(s) where the combined altered floor area is 100,000 square feet or greater shall comply with either Section 5.105.2, 5.409.2, or 5.409.3. Addition(s) to existing building(s) where the total floor area combined with the existing building(s) is 100,000 square feet or greater shall comply with either Section 5.105.2, Section 5.409.2, or Section 5.409.3. Effective January 1, 2026, the combined floor area shall be 50,000 square feet or greater.

**[DSA-SS]** Alteration(s) to existing building(s) where the combined altered floor area is 50,000 square feet or greater shall comply with either Section 5.105.2, 5.409.2, or 5.409.3. Addition(s) to existing building(s) where the total floor area combined with the existing building(s) is 50,000 square feet or greater shall comply with either Section 5.105.2, Section 5.409.2, or Section 5.409.3.

**Exception [BSC-CG, DSA-SS]:** Combined addition(s) to existing building(s) of two times the area or more of the existing building(s) is not eligible to meet compliance with Section 5.105.2.

**5.105.2 Reuse of existing building.** An alteration or addition to an existing building shall maintain at a minimum 45 percent combined of the existing building's primary structural elements (foundations; columns, beams, walls, and floors; and lateral elements) and existing building enclosure (roof framing, wall framing and exterior finishes). Window assemblies, insulation, portions of buildings deemed structurally unsound or hazardous, and hazardous materials that are remediated as part of the project shall not be included in the calculation.

**5.105.2.1 Verification of compliance.** Documentation shall be provided in the construction documents to demonstrate compliance with Section 5.105.2.

**Note:** Sample Worksheet WS-3 in Chapter 8 may be used to assist in documenting compliance with this section.

**5.105.3 Deconstruction (Reserved).**

## SECTION 5.106 SITE DEVELOPMENT

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**5.106.5.3 Electric vehicle (EV) charging. [N] [BSC-CG]** Construction to provide electric vehicle infrastructure and facilitate electric vehicle charging shall comply with Section 5.106.5.3.1 EV capable spaces, Section 5.106.5.3.2 Electric vehicle charging stations and associated Table 5.106.5.3.1, or Section 5.106.5.3.6 Electric vehicle charging stations (EVCS)—Power allocation method and associated Table 5.106.5.3.6 and shall be provided in accordance with regulations in the *California Building Code* and the *California Electrical Code*.

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

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

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

| TABLE 5.106.5.3.1 | | |
|---|---|---|
| **TOTAL NUMBER OF ACTUAL PARKING SPACES** | **NUMBER OF REQUIRED EV CAPABLE SPACES** | **NUMBER OF EVCS (EV CAPABLE SPACES PROVIDED WITH EVSE)[A,Z]** |
| 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 percent of actual parking spaces[1] | 25 percent of EV capable spaces[1] |

1. Calculation for spaces shall be rounded up to the nearest whole number.
2. The number of required EVCS (EV capable spaces provided with EVSE) in column 3 count toward the total number of required EV capable spaces shown in column 2.
3. At least one Level 2 EVSE shall be provided.

**5.106.5.3.2 Electric vehicle charging stations (EVCS)** EV capable spaces shall be provided with electric vehicle supply equipment (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 shall be provided with Level 2 EVSE or DCFC as permitted in Section 5.106.5.3.2.1. At least one Level 2 EVSE shall be provided.

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

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

**5.106.5.3.2.1** The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV capable spaces without EVSE or EVCS with Level 2 EVSE by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.

**5.106.5.3.2.2** The installation of two low power Level 2 EV charging receptacles shall be permitted to reduce the minimum number of required EV capable spaces without EVSE in Table 5.106.5.3.1 by one.

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

**5.106.5.3.4 Accessible EVCS.**
When EVSE is installed, accessible EVSC shall be provided in accordance with the *California Building Code*, Chapter 11B, Section 11B-228.3.

**Note:** For EVCS signs, refer to Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

**5.106.5.3.4 Accessible electric vehicle charging station (EVCS).** When EVSE is installed, accessible EVCS shall be provided in accordance with the *California Building Code*, Chapter 11B, Section 11B-228.3.

**5.106.5.3.5 Electric vehicle charging station signage.** Electric vehicle charging stations shall be identified by signage or pavement markings in compliance with Caltrans Traffic Operations Policy Directive 13-01 (Zero Emission Vehicle Signs and Pavement Markings) or its successor(s).

Power allocation method shall include the following:
1. Use any kVA combination of EV capable spaces, low power Level 2, Level 2 or DCFC EVSEs.
2. At least one Level 2 EVSE shall be provided.

**5.106.5.3.6 Electric vehicle charging stations (EVCS)—power allocation method.** The power allocation method may be used as an alternative to the requirements in Section 5.106.5.3.1, Section 5.106.5.3.2 and associated Table 5.106.5.3.1. Use Table 5.106.5.3.6 to determine the total power in kVA required based on the total number of actual parking spaces.

| TABLE 5.106.5.3.6 | | |
|---|---|---|
| **TOTAL NUMBER OF ACTUAL PARKING SPACES** | **MINIMUM TOTAL kVA @ 6.6 kVA** | **TOTAL kVA REQUIRED IN ANY COMBINATION OF EV CAPABLE,3,4 LOW POWER LEVEL 2, LEVEL 2, 1, 2 OR DCFC** |
| 0-9 | 0 | 0 |
| 10-25 | 26.4 | 26.4 |
| 26-50 | 52.8 | 52.8 |
| 51-75 | 85.8 | 85.8 |
| 76-100 | 112.2 | 112.2 |
| 101-150 | 165 | 165 |
| 151-200 | 231 | 231 |
| 201 AND OVER | 20 percent of actual parking spaces x 6.6 | Total required kVA = P × .20 × 6.6<br>Where P = Parking spaces in facility |

1. Level 2 EVSE @ 6.6 kVA minimum.
2. At least one Level 2 EVSE shall be provided.
3. Maximum allowed kVA to be utilized for EV capable spaces is 75 percent.
4. If EV capable spaces are utilized, they shall meet the requirements of Section 5.106.5.3.1 EV capable spaces.

**5.106.5.4 Additions or alterations to existing buildings or parking facilities [A]. [BSC-CG]** Existing buildings or parking facilities being modified by one of the following shall comply with Section 5.106.5.4.1 or 5.106.5.4.2. When EVSE is installed, accessible EVCS shall be provided in accordance with the *California Building Code*, Chapter 11B, Section 11B-228.3.

1. When the scope of construction work includes an increase in power supply to an electric service panel as part of a parking facility addition or alteration.
2. When a new photovoltaic system is installed covering existing parking spaces.
3. When additions or alterations to existing buildings are triggered pursuant to code Section 301.3 and the scope of work includes an increase in power supply to an electric service panel.

**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 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.
   d. Where demonstrated as impracticable excluding local utility service or utility infrastructure issues.
2. Remote parking facilities that do not have access to the building service panel.
3. Parking area lighting upgrades where no trenching is part of the scope of work.
4. Emergency repairs, including but not limited to water line break in parking facilities, natural disaster repairs, etc.

**5.106.5.4.1 Existing buildings or parking areas without previously installed EV capable infrastructure [A].** When EV capable infrastructure does not exist at an existing parking facility or building, and the parking facility or building undergoes an addition or alteration listed in Section 5.106.5.4, construction shall include electric vehicle charging in compliance with either Section 5.106.5.3 and associated Table 5.106.5.3.1, or Section 5.106.5.3.6 and associated Table 5.106.5.3.6 for the total number of actual parking spaces being added or altered.

**5.106.5.4.2 Existing buildings or parking areas with previously installed EV capable infrastructure [A].** When EV capable infrastructure is available at an existing parking facility or building, and the parking facility or building is undergoing an addition or alteration listed in Section 5.106.5.4, construction shall include electric vehicle charging in compliance with either Section 5.106.5.3 and associated Table 5.106.5.3.1, or Section 5.106.5.3.6 and associated Table 5.106.5.3.6 utilizing the existing EV capable allocated power and infrastructure for the total number of actual parking spaces being added or altered. If the area being added or altered exceeds the existing EV capable capacity, allocated power and infrastructure, provide additional EV charging as needed to comply with this section.

**5.106.5.5 Electric vehicle (EV) charging: medium-duty and heavy-duty. [N] [BSC-CG]** Construction shall comply with Section 5.106.5.5.1 to facilitate future installation of electric vehicle supply equipment (EVSE). Construction for warehouses, grocery stores and retail stores, office buildings, and manufacturing facilities with planned off-street loading spaces shall also comply with Section 5.106.5.5.1 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:

**5.106.5.5.1 Electric vehicle charging readiness requirements for warehouses, grocery stores, office buildings, and manufacturing facilities and retail stores with planned off-street loading spaces. [N]**

In order to avoid future demolition when adding EV supply and distribution equipment, spare raceway(s) or busway(s) and adequate capacity for transformer(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 subpanels shall meet the minimum power requirement in Table 5.106.5.5.1 to accommodate the dedicated branch circuits for the future installation of EVSE.

2. The construction documents shall indicate one 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 5.106.5.5.1.

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 of 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 5.106.5.5.1.

TABLE 5.106.5.5.1 RACEWAY CONDUIT AND PANEL POWER REQUIREMENTS FOR MEDIUM- AND HEAVY-DUTY EVSE [N]

| BUILDING TYPE | BUILDING SIZE (SQ. FT.) | NUMBER OF OFF-STREET LOADING SPACES | ADDITIONAL CAPACITY REQUIRED (KVA) FOR RACEWAY & BUSWAY AND TRANSFORMER & PANEL |
|---|---|---|---|
| Grocery | 10,000 to 90,000 | 1 or 2 | 200 |
| | | 3 or Greater | 400 |
| | Greater than 90,000 | 1 or Greater | 400 |
| Manufacturing Facilities | 10,000 to 50,000 | 1 or 2 | 200 |
| | 10,000 to 50,000 | 3 or Greater | 400 |
| | Greater than 50,000 | 1 or Greater | 400 |
| Office Buildings | 10,000 to 135,000 | 1 or 2 | 200 |
| | 10,000 to 135,000 | 3 or Greater | 400 |
| | Greater than 135,000 | 1 or Greater | 400 |
| Retail | 10,000 to 135,000 | 1 or 2 | 200 |
| | | 3 or Greater | 400 |
| | Greater than 135,000 | 1 or Greater | 400 |
| Warehouse | 20,000 to 256,000 | 1 or 2 | 200 |
| | | 3 or Greater | 400 |
| | Greater than 256,000 | 1 or Greater | 400 |

**5.106.5.6 Electric vehicle (EV) charging at public schools and community colleges. [DSA-SS]** Electric vehicle infrastructure and electric vehicle charging stations shall comply with Section 5.106.5.6 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 compliance with this section has been demonstrated to be not feasible based upon one of the following conditions,and with concurrence by the Division of the State Architect (DSA), compliance with Section 5.106.5.6 shall not be required.
   a. Where there is no local utility power supply.
   b. Where the local utility is unable to supply adequate power.
   c. The installation of EVCS is impracticable.
2. Parking spaces accessible only by automated mechanical car parking systems are not required to comply with Section 5.106.5.6.

**5.106.5.6.1 EV capable spaces.** EV capable spaces shall be provided in accordance with Table 5.106.5.6.1 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 space and into a suitable listed cabinet, box, enclosure or equivalent. A common raceway may be used to serve multiple EV capable 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 device space(s) as "EV CAPABLE." The raceway termination location shall be permanently and visibly marked as "EV CAPABLE."

| TABLE 5.106.5.6.1 | | |
|---|---|---|
| **TOTAL NUMBER OF ACTUAL PARKING SPACES** | **NUMBER OF REQUIRED EV CAPABLE SPACES** | **NUMBER OF REQUIRED EVCS[2]** |
| 0-9 | 0 | 0 |
| 10-25 | 4 | 1 |
| 26-50 | 8 | 2 |
| 51-75 | 13 | 3 |
| 76-100 | 17 | 4 |
| 101-150 | 25 | 6 |
| 151-200 | 35 | 9 |
| 201 AND OVER | 20 percent of total spaces[1] | 25 percent of EV capable spaces[1] |

1. Calculation for spaces shall be rounded up to the nearest whole number.
2. Each EVCS shall reduce the number of required EV capable spaces by the same number.

**5.106.5.6.2 Electric vehicle charging stations (EVCS).** EV capable spaces shall be provided with EVSE to create EVCS in the number indicated in Table 5.106.5.6.1 and shall comply with Section 5.106.5.6.2. EVCS shall be serviced by Level 2 or Direct Current Fast Charging (DCFC) EVSE, or with EVSE in any combination of Level 2 and DCFC. Accessible EVCS shall be provided in accordance with *California Building Code* Chapter 11B.

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451 E Vanderbilt Way, San Bernardino, CA 92408
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SAN BERNARDINO COUNTY

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CAL GREEN (CA)

G0.40

# 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE

## NONRESIDENTIAL MANDATORY MEASURES, SHEET 2 (July 2024 Supplement)

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

**5.106.5.6.2.1 Reduced number of EV capable spaces.** The installation of each DCFC EVSE shall be permitted to reduce the minimum number of required EV capable spaces indicated in Table 5.106.5.6.1 by five and reduce proportionally the required electrical load capacity to the service panel or subpanel.

**5.106.5.6.2.2 Multiple connectors.** EVSE with multiple vehicle connectors capable of charging multiple EVs simultaneously shall be permitted if the electrical load capacity required by Section 5.106.5.6.1 for each EV capable space is accumulatively supplied to the EVSE.

**5.106.5.6.2.3 Use of automatic load management systems (ALMS).** ALMS shall be permitted for EVCS installed in accordance with Section 5.105.5.6.2. When ALMS is installed, the required electrical load capacity specified in Section 5.106.5.6.1 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.

**5.106.5.6.3 EVCS alternative compliance.** In lieu of compliance with Section 5.106.5.6.2, EVCS shall be provided with Level 1, low power Level 2, or Level 2, or any combination of Level 1, low power Level 2 or Level 2 EVSE such that the total power supplied by the combination of EVSE meets the minimum power indicated in Table 5.106.5.6.3, based on the total number of actual parking spaces in each parking facility.

TABLE 5.106.5.6.3

| NUMBER OF PARKING SPACES IN A PARKING FACILITY | MINIMUM TOTAL POWER (KVA) REQUIRED FOR EVCS |
|---|---|
| 0-9 | 0 |
| 10-25 | 7 |
| 26-50 | 14 |
| 51-75 | 20 |
| 76-100 | 27 |
| 101-150 | 40 |
| 151-200 | 60 |
| 201 AND OVER | Total required KVA = P × .05 × 6.6<br>Where P = Parking spaces in facility |

**5.106.5.6.4 EVCS for alterations of or additions to parking facilities.** Alterations of or additions to parking facilities shall provide EVCS in compliance with Section 5.106.5.6.4. The installation of infrastructure for EV capable spaces required to be provided without EVSE shall not be required.

**5.106.5.6.4.1 Alterations of and additions to parking facilities.** EVCS shall be provided in accordance with the number indicated in Table 5.106.5.6.1 or minimum power indicated in Table 5.106.5.6.3 when the scope of work includes an increase in power supply to an electric panel serving light fixtures illuminating the parking area or when area containing parking spaces is added to a parking facility. The number of required EVCS shall be based on the total number of existing and new parking spaces in the parking facility.

**5.106.5.6.4.2 Alterations consisting of the installation of photovoltaic systems.** EVCS shall be provided in accordance with the number indicated in Table 5.106.5.6.1 or maximum power indicated in Table 5.106.5.6.3 when a new photovoltaic system is installed in an existing parking facility.

**5.106.5.6.5 Requirement to install EVSE.** Level 2 EVSE shall be provided in all existing EV capable spaces to create EVCS when a project is required by California Administrative Code Section 4-309 to be submitted for plan approval to the Division of the State Architect. When EVSE is installed in existing EV capable spaces, accessible EVCS shall be provided in accordance with *California Building Code* Chapter 11B.

**Exception:** Projects in which improvements in parking areas consist only of accessibility improvements are not required to comply with Section 5.106.5.6.5.

**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.

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

| ALLOWABLE RATING | LIGHTING ZONE LZ0 | LIGHTING ZONE LZ1 | LIGHTING ZONE LZ2 | LIGHTING ZONE LZ3 | LIGHTING ZONE LZ4 |
|---|---|---|---|---|---|
| **MAXIMUM ALLOWABLE BACKLIGHT RATING 3** | | | | | |
| Luminaire greater than 2 mounting heights (MH) from property line | N/A | No Limit | No Limit | No Limit | No Limit |
| Luminaire back hemisphere is 1-2 MH from property line | N/A | B2 | B3 | B4 | B4 |
| Luminaire back hemisphere is 0.5-1 MH from property line | N/A | B1 | B2 | B3 | B3 |
| Luminaire back hemisphere is less than 0.5 MH from property line | N/A | B0 | B0 | B1 | B2 |
| **MAXIMUM ALLOWABLE UPLIGHT RATING (U)** | | | | | |
| For area lighting 3 | N/A | U0 | U0 | U0 | U0 |
| For all other outdoor lighting,including decorative luminaires | N/A | U1 | U2 | U3 | UR |
| **MAXIMUM ALLOWABLE GLARE RATING 4 (G)** | | | | | |
| **MAXIMUM ALLOWABLE GLARE RATING 4 (G)** | N/A | G1 | G2 | G3 | G4 |
| **MAXIMUM ALLOWABLE GLARE RATING 4 (G)** | N/A | G0 | G1 | G1 | G2 |
| **MAXIMUM ALLOWABLE GLARE RATING 4 (G)** | N/A | G0 | G0 | G1 | G1 |
| **MAXIMUM ALLOWABLE GLARE RATING 4 (G)** | N/A | G0 | G0 | G0 | G1 |

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

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

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

**5.106.8.1 Facing- Backlight**
Luminaries within 2MH of a property line shall be oriented so that the nearest property line is behind the fixture, and shall comply with the backlight rating specified in Table 5.106.8 based on the lighting zone and distance to the nearest point of that property line.

**Exception: Corners.** If two property lines (or two segments of the same property line) have equidistant point to the luminaire, then the luminaire may be oriented so that the intersection of the two lines (the corner) is directly behind the luminaire. The luminaire shall still use the distance to the nearest points(s) on the property lines to determine the required backlight rating.

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

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

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

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

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

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

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

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

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

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

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

## DIVISION 5.2 ENERGY EFFICIENCY

### SECTION 5.201 GENERAL

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

## DIVISION 5.3 WATER EFFICIENCY AND CONSERVATION

### SECTION 5.301 GENERAL

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

### SECTION 5.302 DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

### SECTION 5.303 INDOOR WATER USE

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TABLE H-2

| STANDARDS FOR COMMERCIAL PRE-RINSE SPRAY VALUES MANUFACTURED ON OR AFTER JANUARY 28, 2019 | |
|---|---|
| **PRODUCT CLASS [spray force in ounce force (ozf)]** | **MAXIMUM FLOW RATE (gpm)** |
| Product Class 1 (≤ **5.0** ozf) | 1.00 |
| Product Class 2 (> 5.0 ozf and ≤ **8.0** ozf) | 1.20 |
| Product Class 3 (> 8.0 ozf) | 1.28 |

**5.303.4 COMMERCIAL KITCHEN EQUIPMENT.**

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

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

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

### SECTION 5.304 OUTDOOR WATER USE

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

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

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

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

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

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

## DIVISION 5.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

### SECTION 5.401 GENERAL

**5.401.1 SCOPE.** The provisions of this chapter specify the requirements of achieving material conservation, resource efficiency, and greenhouse gas (GHG) emission reduction through protection of buildings from exterior moisture, construction waste diversion, employment of techniques to reduce pollution through recycling of materials, the installation of products with lower GHG emissions and building commissioning or testing and adjusting.

### SECTION 5.402 DEFINITIONS

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

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

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

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

**BUY CLEAN CALIFORNIA ACT (BCCA).** The Buy Clean California Act (BCCA) (Public Contract Code Sections 3500-3505) targets carbon emissions associated with the production of structural steel (hot-rolled sections, hollow structural sections, and plate), concrete reinforcing steel, flat glass, and mineral wool board insulation. The maximum acceptable global warming potential (GWP) limits are established by the Department of General Services (DGS), in consultation with the California Air Resources Board (CARB).

**CRADLE-TO-GRAVE.** Activities associated with a product or building's life cycle from the extraction stage through disposal stage, and covering modules A1 through C4 in accordance with ISO Standards 14025 and 21930.

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

**REFERENCE STUDY PERIOD.** The period of use for the building, in years, that will be assumed for life cycle assessment.

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

**TYPE III ENVIRONMENTAL PRODUCT DECLARATION (EPD).** A third-party verified report that summarizes how a product impacts the environment. Type III EPDs can be either product-specific, factory-specific, or industry-wide EPDs. See "Cradle-to-Gate."

**FACTORY-SPECIFIC EPD.** A product-specific Type III EPD in which the environmental impacts can be attributed to a single manufacturer and manufacturing facility.

**INDUSTRY-WIDE EPD (IW-EPD).** A Type III EPD in which the environmental impacts are an average of the typical manufacturing impacts for a range of products within the same product category for a group of manufacturers.

**PRODUCT-SPECIFIC EPD.** A Type III EPD in which the environmental impacts can be attributed to a product design and manufacturer across multiple facilities.

### SECTION 5.407 WATER RESISTANCE AND MOISTURE MANAGEMENT

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

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

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

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

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

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

**5.407.2.2.2 Flashing.** Install flashings integrated with a drainage plane.

### SECTION 5.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

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

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

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

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

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

**Exceptions to Sections 5.408.1.1 and 5.408.1.2:**

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

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

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

**Notes:**

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

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

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

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

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

**Notes:**

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

### SECTION 5.409 LIFE CYCLE ASSESSMENT

**5.409.1 SCOPE. [BSC-CG]** Effective July 1, 2024, projects consisting of newly constructed building(s) with a combined floor area of 100,000 square feet or greater shall comply with either Section 5.409.2 or Section 5.409.3. Alteration(s) to existing building(s) where the combined altered floor area is 100,000 square feet or greater shall comply with either Section 5.105.2, 5.409.2, or 5.409.3. Addition(s) to existing building(s) where the total floor area combined with the existing building(s) is 100,000 square feet or greater shall comply with either Section 5.105.2, Section 5.409.2, or Section 5.409.3. Effective January 1, 2026, the combined floor area shall be 50,000 square feet or greater.

**[DSA-SS]** Projects consisting of newly constructed building(s) with a combined floor area of 50,000 square feet or greater shall comply with either Section 5.409.2 or Section 5.409.3. Alteration(s) to existing building(s) where the combined altered floor area is 50,000 square feet or greater shall comply with either Section 5.105.2, 5.409.2, or 5.409.3. Addition(s) to existing building(s) where the total floor area combined with the existing building(s) is 50,000 square feet or greater shall comply with either Section 5.105.2, Section 5.409.2, or Section 5.409.3.

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


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JLee Engineering, Inc.
Approved
By Jae Lee
04/06/2026
This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinances or State law.

DPH - FIRST FLOOR T.I.
451 E Vanderbilt Way, San Bernardino, CA 92408
CA 92408
Developed for
SAN BERNARDINO COUNTY

| | Date |
|---|---|
| Revision | |
| Submittal | 08/25/2025 CITY SUBMITTAL |

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| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | |

CAL GREEN (CA)

G0.41

# 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
## NONRESIDENTIAL MANDATORY MEASURES, SHEET 3 (July 2024 Supplement)

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

**5.409.2 Whole building life cycle assessment.** Projects shall conduct a cradle-to-grave whole building life cycle assessment performed in accordance with ISO 14040 and ISO 14044, excluding operating energy, and demonstrating a minimum 10-percent reduction in global warming potential (GWP) as compared to a reference baseline building of similar size, function, complexity, type of construction, material specification, and location that meets the requirements of the California Energy Code currently in effect. Software used to conduct the whole building life cycle assessment, including reference baseline building, shall have a data set compliant with ISO 14044, and ISO 21930 or EN 15804, and the software shall conform to ISO 21931 and/or EN 15978. The software tools and data sets shall be the same for evaluation of both the baseline building and the proposed building.

**Notes:**
1. Software for calculating whole building life cycle assessment is available for free at Athena Sustainable Materials Institute (https://calculatelca.com/software/impact-estimator/) and OneClick LCA-Planetary (www.oneclicklca.com/planetary). Paid versions include, but are not limited to, Sphera GaBi Solutions (gabi.sphera.com), SimaPro (simapro.com), One-Click LCA (www.oneclicklca.com) and Tally for Revit (apps.autodesk.com).

2. ASTM E2921-22 "Standard Practice for Minimum Criteria for Comparing Whole Building Life Cycle Assessments for Use with Building Codes, Standards, and Rating Systems" may be consulted for the assessment.

3. In addition to the required documentation specified in Section 5.409.2.3, Worksheet WS-9 may be required by the enforcing entity to demonstrate compliance with the requirements.

**5.409.2.1 Building components**. Building enclosure components included in the assessment shall be limited to glazing assemblies, insulation, and exterior finishes. Primary and secondary structural members included in the assessment shall be limited to footings and foundations, and structural columns, beams, walls, roofs, and floors.

**5.409.2.2 Reference study period.** The reference study period of the proposed building shall be equal to the reference baseline building and shall be 60 years.

**5.409.2.3 Verification of compliance.** A summary of the GWP analysis produced by the software and Worksheet WS-4 signed by the design professional of record shall be provided in the construction documents as documentation of compliance. A copy of the whole building life cycle assessment which includes the GWP analysis produced by the software, in addition to maintenance and training information, shall be included in the operation and maintenance manual and shall be provided to the owner at the close of construction. The enforcing agency may require inspection and inspection reports in accordance with Sections 702.2 and 703.1 during and at completion of construction to demonstrate substantial conformance. Inspection shall be performed by the design professional of record or third party acceptable to the enforcing agency.

**5.409.3 Product GWP compliance—prescriptive path.** Each product that is permanently installed and listed in Table 5.409.3 shall have a Type III environmental product declaration (EPD), either product-specific or factory-specific.

TABLE 5.409.3
PRODUCT GWP LIMITS

| BUY CLEAN CALIFORNIA MATERIALS PRODUCT CATEGORY[1] | MAXIMUM ACCEPTABLE GWP VALUE (unfabricated) ($GWP_{allowed}$) | UNIT OF MEASUREMENT |
|---|---|---|
| Hot-rolled structural steel sections | 1.77 | MT $CO_2e$/MT |
| Hollow structural sections | 3.00 | MT $CO_2e$/MT |
| Steel plate | 2.61 | MT $CO_2e$/MT |
| Concrete reinforcing steel | 1.56 | MT $CO_2e$/MT |
| Flat glass | 2.50 | MT $CO_2e$/MT [4] |
| Light-density mineral wool board insulation | 5.83 | kg $CO_2e$/MT |
| Heavy-density mineral wool board insulation | 14.28 | kg $CO_2e$/MT |
| **Concrete, Ready-Mixed[2, 3]** | | |
| **CONCRETE PRODUCT CATEGORY** | **MAXIMUM GWP ALLOWED VALUE ($GWP_{allowed}$)** | **UNIT OF MEASUREMENT** |
| up to 2499 psi | 450 | kg $CO_2e/m^3$ |
| 2500–3499 psi | 489 | kg $CO_2e/m^3$ |
| 3500–4499 psi | 566 | kg $CO_2e/m^3$ |
| 4500–5499 psi | 661 | kg $CO_2e/m^3$ |
| 5500–6499 psi | 701 | kg $CO_2e/m^3$ |
| 6500 psi and greater | 799 | kg $CO_2e/m^3$ |
| **Concrete, Lightweight Ready-Mixed[2]** | | |
| **CONCRETE PRODUCT CATEGORY** | **MAXIMUM GWP ALLOWED VALUE ($GWP_{allowed}$)** | **UNIT OF MEASUREMENT** |
| up to 2499 psi | 875 | kg $CO_2e/m^3$ |
| 2500–3499 psi | 956 | kg $CO_2e/m^3$ |
| 3500–4499 psi | 1039 | kg $CO_2e/m^3$ |

1. The GWP values of the products listed in Table 5.409.3 are based on 175 percent of Buy Clean California Act (BCCA) GWP values, except for concrete products which are not included in the BCCA.
2. For concrete, 175 percent of the National Ready Mixed Concrete Association (NRMCA) 2022 version 3 Pacific Southwest regional benchmark values are used for the GWP allowed, except for High Early Strength.
3. Concrete High Early Strength ready-mixed shall be calculated at 130 percent of the ready-mixed concrete GWP allowed values for each product category.
4. The GWP unit for flat glass has been adjusted to correct an error in the express terms. With the revised unit (MT CO2e/MT), reported GWP values will align with industry data as published in the CLF North American Material Baselines (2023).

**5.409.3.1** Products shall not exceed the maximum GWP value specified in Table 5.409.3.

**Exception:** Concrete may be considered one product category to meet compliance with this section. A weighted average of the maximum GWP for all concrete mixes installed in the project shall be less than the weighted average maximum GWP allowed per Table 5.409.3 using Exception Equation 5.409.3.1. Calculations shall be performed with consistent units of measurement for the material quantity and the GWP value.

For the purposes of this exception, industry-wide EPDs are acceptable.

**Exception EQUATION 5.409.3.1**

$GWP_n < GWP_{allowed}$
where
$GWP_n = \Sigma\ (GWP_n)(v_n)$
and
$GWP_{allowed} = \Sigma\ (GWP_{allowed})(v_n)$
and
$_n$ = each concrete mix installed in the project
$GWP_n$ = the GWP for concrete mix $_n$ per concrete mix EPD, in kg CO2e/m3
$GWP_{allowed}$ = the GWP potential allowed for concrete mix $_n$ per Table 5.409.3
$v_n$ = the volume of concrete mix $_n$ installed in the project, in m3

**5.409.3.2 Verification of compliance.** Calculations to demonstrate compliance, Type III EPDs for products required to comply, if included in the project, and Worksheet WS-5 signed by the design professional of record shall be provided on the construction documents. Updated EPDs for products used in construction shall be provided to the owner at the close of construction and to the enforcement entity upon request. The enforcing agency may require inspection and inspection reports in accordance with Sections 702.2 and 703.1 during and at completion of construction to demonstrate substantial conformance. Inspection shall be performed by the design professional of record or third party acceptable to the enforcing agency.

## SECTION 5.410 BUILDING MAINTENANCE AND OPERATIONS

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

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

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

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

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

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

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

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

**Exceptions:**

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

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

**Informational Notes:**

1. . Functional performance testing for heating, ventilation, air conditioning systems and lighting controls must be performed in compliance with the *California Energy Code*.

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

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

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

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

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

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

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

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

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

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

**5.410.4.2 (Reserved)**

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

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

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

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

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

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

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

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

## DIVISION 5.5 ENVIRONMENTAL QUALITY

### SECTION 5.501 GENERAL

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

### SECTION 5.502 DEFINITIONS

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

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

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

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

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

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

**Note:** See CCR, Title 17, Section 93120.1.

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

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

**ELECTRIC VEHICLE (EV).** An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For purposes of the *California Electrical Code*, off-road, self-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) (EVCS)).** One or more spaces intended for charging electric vehicles.

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

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

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

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

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

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

**HIGH-GWP REFRIGERANT.** A compound used as a heat transfer fluid or gas that is: (a) a chlorofluorocarbon, a 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 hundreths of a gram (g $O^3$/g ROC).

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

**PSIG.** Pounds per square inch, guage.

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

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

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

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

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

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

## SECTION 5.503 FIREPLACES

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

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

## SECTION 5.504 POLLUTANT CONTROL

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

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

**5.504.4 FINISH MATERIAL POLLUTANT CONTROL.** Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.8.

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

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

TABLE 5.504.4.1 - ADHESIVE VOC LIMIT[1,2]

Less Water and Less Exempt Compounds in Grams per Liter

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

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

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

TABLE 5.504.4.2 - SEALANT VOC LIMIT

Less Water and Less Exempt Compounds in Grams per Liter

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

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

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

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JLee Engineering, Inc.
Approved
By Jae Lee
04/06/2026
This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinances or State law.

DPH - FIRST FLOOR TI
451 E Vanderbilt Way, San Bernardino, CA 92408
CA 92408
Developed for
SAN BERNARDINO COUNTY

Date
Revision

Date 08/25/2025
Submittal CITY SUBMITTAL

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|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | |

CAL GREEN (CA)

G0.42

# 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
## NONRESIDENTIAL MANDATORY MEASURES, SHEET 4 (July 2024 Supplement)

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

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

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

TABLE 5.504.4.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2,3]

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

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

1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS
2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.
3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

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

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

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

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

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

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

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

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

TABLE 5.504.4.5 - FORMALDEHYDE LIMITS[1]

MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

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

1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIFORNIA CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.
2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16 INCHES (8 MM).

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

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

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

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

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

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

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

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

**Exceptions:** Existing mechanical equipment.

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

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

## SECTION 5.505 INDOOR MOISTURE CONTROL
**5.505.1 INDOOR MOISTURE CONTROL.** Buildings shall meet or exceed the provisions of California Building Code, CCR, Title 24, Part 2, Sections 1202 (Ventilation) and Chapter 14 (Exterior Walls). For additional measures, see Section 5.407.2 of this code.

## SECTION 5.506 INDOOR AIR QUALITY
**5.506.1 OUTSIDE AIR DELIVERY.** For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 120.1 (Requirements For Ventilation) of the *California Energy Code*, or the applicable local code, whichever is more stringent, and Division 1, Chapter 4 of CCR, Title 8.

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

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

## SECTION 5.507 ENVIRONMENTAL COMFORT
**5.507.4 ACOUSTICAL CONTROL.** Employ building assemblies and components with Sound Transmission Class (STC) values determined in accordance with ASTM E 90 and ASTM E 413, or Outdoor-Indoor Sound Transmission Class (OITC) determined in accordance with ASTM E 1332, using either the prescriptive or performance method in Section 5.507.4.1 or 5.507.4.2.

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

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

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

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

   **Exceptions:**

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

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

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

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

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

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

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

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

## SECTION 5.508 OUTDOOR AIR QUALITY
**5.508.1 Ozone depletion and greenhouse gas reductions.** Installations of HVAC, refrigeration and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

# CHAPTER 7
# INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS
## 702 QUALIFICATIONS
**702.1 INSTALLER TRAINING.** HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

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

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

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

**Notes:**

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

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

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

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

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


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JLee Engineering, Inc.
Approved
By Jae Lee
04/06/2026
This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codies, any provisions of any Local Ordinances or State law.

DPH - FIRST FLOOR T.I.
451 E Vanderbilt Way, San Bernardino, CA 92408
Developed for
SAN BERNARDINO COUNTY

Revision Date

Submittal Date
CITY SUBMITTAL 08/25/2025

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | |

CAL GREEN (CA)

G0.43




## KEYNOTES

| | |
|---|---|
| 10.01 | SIGNAGE: EXISTING BUILDING STANDARD ADA/T24 COMPLIANT TACTILE SIGN WITH THE WORD "EXIT" TO REMAIN. SEE DETAIL 12/G0.31 FOR ACCESSIBILITY REQUIREMENTS. |
| 10.02 | SIGNAGE: PROVIDE BUILDING STANDARD ADA/T24 COMPLIANT TACTILE SIGN WITH THE WORDS "EXIT ROUTE". SEE DETAIL 12/G0.31 FOR ACCESSIBILITY REQUIREMENTS. |
| 10.03 | SIGNAGE: PROVIDE BUILDING STANDARD ADA/T24 COMPLAINT ACCESSIBLE RESTROOM IDENTIFICATION DOOR AND WALL SIGNAGE. SEE DETAIL 16/G0.31 FOR ACCESSIBILITY REQUIREMENTS. |
| 10.04 | SIGNAGE: EXISTING BUILDING STANDARD ADA/T24 COMPLAINT ACCESSIBLE RESTROOM IDENTIFICATION DOOR AND WALL SIGNAGE TO REMAIN. SEE DETAIL 16/G0.31 FOR ACCESSIBILITY REQUIREMENTS. |
| 10.05 | SIGNAGE: PROVIDE BUILDING STANDARD ADA/T24 COMPLIANT TACTILE SIGN WITH THE WORD "EXIT". SEE DETAIL 12/G0.31 FOR ACCESSIBILITY REQUIREMENTS. |
| 10.06 | SIGNAGE: PROVIDE BUILDING STANDARD ADA/T24 COMPLIANT ACCESSIBLE MAXIMUM OCCUPANCY SIGN. SEE EGRESS PLAN FOR OCCUPANT LOAD. COORDINATE FINAL OCCUPANCY NUMBERS WITH ARCHITECT. VERIFY MOUNTING LOCATION IN FIELD WITH FIRE INSPECTOR. SEE DETAIL 20/G0.31 FOR ACCESSIBILITY REQUIREMENTS. |
| 10.07 | SIGNAGE: PROVIDE BUILDING STANDARD ADA/T24 COMPLIANT ASSISTIVE LISTENING SYSTEM SIGNAGE WITH THE WORDS: "ASSISTIVE LISTENING SYSTEMS AVAILABLE". VERIFY MOUNTING LOCATION IN FIELD WITH FIRE INSPECTOR. TENANT TO PROVIDE ASSISTIVE LISTENING SYSTEMS. SEE DETAIL 19/G0.31 FOR ACCESSIBILITY REQUIREMENTS. |
| 10.08 | SIGNAGE: EXISTING BUILDING STANDARD INTERNATIONAL SYMBOL OF ACCESSIBILITY AT ENTRY DOORS TO REMAIN. SEE 02/G0.32 FOR ACCESSIBILITY REQUIREMENTS. |
| 10.09 | SIGNAGE: EXISTING BUILDING STANDARD EVACUATION SIGNAGE TO REMAIN. GC TO VERIFY SIGNAGE IS EXISTING AND PROVIDE NEW AS REQUIRED. SEE DETAIL 21/G0.31 FOR ACCESSIBILITY REQUIREMENTS. |
| 10.10 | PANIC HARDWARE OR NON-LATCHING HARDWARE: EXISTING TO REMAIN |
| 10.11 | PANIC HARDWARE OR NON-LATCHING HARDWARE PROVIDED AT THIS DOOR(S), SEE PARTITION PLAN & DOOR AND HARDWARE SCHEDULES. |

## PLUMBING FIXTURE CALCULATIONS

PLUMBING FIXTURE CALCULATIONS (PER 2022 CPC TABLE 422.1)

| FUNCTION | OCC | MALE/ FEMALE | WC | | | URINAL | LAVATORY | | | DRINKING FOUNTAINS | SERVICE SINK |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MEN | WOMEN | UNISEX | MEN | MEN | WOMEN | UNISEX | PROVIDED | |
| **1ST FLOOR TOTAL** | | | | | | | | | | | |
| ASSEMBLY | 88 | 44 | 0.44 | 1.76 | - | 0.44 | 0.22 | 0.44 | - | 0.35 | 1 |
| BUSINESS | 283 | 142 | 2.42 | 5.66 | - | 1.42 | 1.89 | 2.83 | - | 1.89 | |
| Subtotal | | | 2.86 | 7.42 | - | 1.86 | 2.11 | 3.27 | - | 2.24 | |
| TOTAL REQUIRED | 371 | 186 | **3** | **8** | **-** | **2** | **3** | **4** | - | 3 | **1** |
| TOTAL PROVIDED | | | **3** | **6*** | **2** | **3** | **3** | **3*** | **2** | 3 | **1** |

NOTES:
*ADDITIONAL UNISEX FIXTURES PROVIDED TO MEET TOTAL REQURED FIXTURES

01 - FLOOR - CODE ANALYSIS FLOOR PLAN | 1/8" = 1'-0" | G2.01 | 05

## LEGEND

- CEILING EXIT SIGN
- ROOM NAME / ROOM NUMBER (e.g. 101)
- 150 SF — SQUARE FOOTAGE
- OL — OCCUPANT LOAD
- OLF — OCCUPANT LOAD FACTOR
- #Exit — NUMBER OF EXITS REQUIRED
- COMMON PATH OF TRAVEL (SPRINKLERED BLDG) : 75' - 0" MAX (A) 100' - 0" MAX (B)
- EXIT ACCESS TRAVEL DISTANCE (SPRINKLERED BLDG): 250' - 0" MAX (A) 300' - 0" MAX (B)
- FEC — FIRE EXTINGUISHER CABINET
- REQUIRED 0" / PROVIDED 0" — REQUIRED CAPACITY BASED ON OCCIPANT LOAD BASED ON CBC SECTION 1005.3. 0.3" X PER OCCUPANT = REQ'D STAIRWAY WIDTH 0.2" X PER OCCUPANT = REQ'D DOORWAY WIDTH
- 0 — COMBINED OCCUPANT LOAD
- PH — PANIC HARDWARE PROVIDED AT THIS DOOR OR NON-LATCHING HARDWARE SWINGING IN THE DIRECTION OF EGRESS
- (E) — EXISTING
- 1 HOUR RATED FIRE BARRIER WALL CONSTRUCTION
- 2 HOUR RATED FIRE BARRIER WALL CONSTRUCTION
- XX — AISLE WIDTH PER CBC 1018.3 AND TABLE 1020.3: >50 OCCUPANTS=36" MIN. 50 OR MORE OCCUPANTS = 44" MIN.
- UNCONCENTRATED ASSEMBLY (GROUP A-3): LOAD FACTOR = 15 OCCUPANT/SF NET
- BENCH SEATING (GROUP B): LOAD FACTOR = 1 OCCUPANT/18 LINEAR INCHES
- ACCESSORY UNCONCENTRATED ASSEMBLY (GROUP B): LOAD FACTOR = 15 OCCUPANT/SF NET
- UNCONCENTRATED BUSINESS USE (GROUP B): LOAD FACTOR = 150 OCCUPANT/SF GROSS
- ACCESSORY STORAGE (GROUP B): LOAD FACTOR = 300 OCCUPANT/SF GROSS

## FIRST FLOOR EGRESS ANALYSIS

**BUILDING INFORMATION:**

| | |
|---|---|
| BUILDING USE: | OFFICE |
| BUILDING OCCUPANCY: | B |
| TYPE OF CONSTRUCTION: | III - 1 HOUR |
| FIRE PROTECTION: | FULLY SPRINKLERED |

**OCCUPANT LOAD (1ST FLOOR):**

| GRP | OLF | GRS/NET | FUNCTION | SF | OCC |
|---|---|---|---|---|---|
| A-3 | 1:15 | NET | UNCONCENTRATED ASSEMBLY | 1,066 | 72 |
| A-3 | 1: 18" LINEAR | | BENCH SEATING | 45 | 16 |
| B | 1:15 | NET | UNCONCENTRATED ASSEMBLY | 1,066 | 72 |
| B | 1:150 | GROSS | UNCONCENTRATED BUSINESS | 2,740 | 19 |
| B | 1:300 | GROSS | ACCESSORY STORAGE | 2,740 | 10 |
| **TOTAL** | | | | 27,400 | 189 |

**NUMBER OF EXITS (1ST FLOOR):**

| | |
|---|---|
| REQUIRED: | 2 |
| PROVIDED: | 5 |

**EXIT DOOR WIDTH:**

| | |
|---|---|
| TOTAL REQUIRED: | 74.2" |
| PROVIDED: | 306" |

**A-3 ACCESSORY OCCUPANT JUSTICATION:**
2022 CALIFORNIA BUILDING CODE, SECTION 508.2: ACCESSORY OCCIPANT SHALL NOT OCCUPY MORE THAN 10 PERCENT (10%) OF THE GROSS 1ST FLOOR AREA.

| | |
|---|---|
| GROSS 1ST FLOOR AREA | 25,000 SF |
| 10% OF FLOOR AREA (MAX ALLOWABLE) | 2,500 SF |
| A-3 ACCESSORY OCCUPANCY (PROVIDED) | 1,111 SF |

PER 2022 CALIFORNIA BUILDING CODE, SECTION 508.2.4: NO SEPERATION IS REQUIRED BETWEEN ACCESSORY OCCUPANCIES AND THE MAIN OCCUOANCY.

## GENERAL CODE ANALYSIS NOTES

1. SEE SHEET "G" SHEETS FOR ADDITIONAL BUILDING INFORMATION.
2. BUILDING STANDARDS: ALL SIGNAGE TO COMPLY WITH BUILDING STANDARDS AND THE CURRENT CODE. SEE SIGNAGE DETAILS SHEETS G0.31 AND G0.32.
3. REFER TO DOOR SCHEDULE FOR NOTES REFERENCING CODE SECTIONS FOR DOOR TYPES AND HARDWARE SCHEDULES.
4. REFER TO DETAILS ON "G" SHEETS FOR ACCESSIBLE REQUIREMENTS.
5. A PERMANENT SINK, COMPLYING WITH APPLICABLE ACCESSIBILITY REQUIREMENTS TO CHAPTER 11B OF THE CALIFORNIA BUILDING CODE, SHALL BE PROVIDED AT EACH TENANT SINK AND SHALL BE MADE AVAILABLE TO THE GENERAL PUBLIC AS WELL AS EMPLOYEES IN LIEU OF DRINKING FOUNTAIN.
6. ALL WORKSTATION PARTITIONS THAT EXCEED 6 FEET IN HEIGHT SHALL COMPLY WITH (CBC 2022, SECTION 1607.15.1). THE TENANT'S FURNITURE CONSULTANT IS REQUIRED TO DOCUMENT AND PROVIDE PROPER STRUCTURAL SUPPORT AS REQUIRED PER CODE AND SUBMIT FOR A SEPARATE FURNITURE PERMIT IF REQUIRED BY THE GOVERNING JURISDICTION.
7. CONFERENCE ROOM TABLES SHALL MEET TABLE HEIGHT ADA CLEARANCE REQUIREMENTS FOR ACCESSIBLE SEATING.
8. THE TOPS OF DINING SURFACES AND WORK SURFACES COMPLIES PER 11B-305 AND KNEE TOE CLEARANCE PER 11B-306 (2022 CBC 11B-902.2 AND 3). 5 PERCENT OF DINING SURFACE WILL COMPLY WITH SECTION 11B- 226.1 OF CBC 2022.
9. AISLES AND AISLE ACCESSWAYS SERVING AS A PORTION OF THE EXIT ACCESS IN THE MEANS OF EGRESS SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF (CBC 2022 1018.1).
10. MAXIMUM EFFORT TO OPERATE EXTERIOR OR INTERIOR DOORS WITH CLOSERS SHALL NOT EXCEED 5 POUNDS. THIS MAY BE INCREASED TO 15 POUNDS FOR FIRE RATED DOORS. (CBC 2022 11B-404.2.9).
11. EXCEPT AS SPECIFICALLY PERMITTED BY CBC 1008.1.9, EGRESS DOORS SHALL BE READILY OPERABLE FROM THE EGRESS SIDE WITHOUT THE USE OF SPECIAL KEY OR SPECIAL KNOWLEDGE (2022 CBC 1010.1.9).
12. EGRESS DOORS SHALL NOT BE EQUIPPED WITH ANY LOCK OR LATCH OTHER THAN PANIC HARDWARE.
13. EXIT SIGNS SHALL BE ILLUMINATED AT ALL TIMES. TO ENSURE CONTINUED ILLUMINATION FOR 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. REFER TO ELECTRICAL DRAWINGS. (CBC 2022 - 1013.6.3).
14. THE MEANS OF EGRESS SERVING A ROOM OR SPACE SHALL BE ILLUMINATED AT ALL TIMES THAT THE ROOM OR SPACE IS OCCUPIED (CBC 2022 - 1008.2).
15. EXIT SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED. (CBC 2022 -1013.3)
16. ELECTRICALLY POWERED, SELF-LUMINOUS, AND PHOTOLUMINSCENT EXIT SIGNS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 924, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE CALIFORNIA ELECTRICAL CODE (CBC 2022 1013.5).
17. THE POWER SUPPLY FOR MEANS OF EGRESS ILLUMINATION SHALL NORMALLY BE PROVIDED BY THE PREMISES' ELECTRICAL SUPPLY. IN THE EVENT OF POWER SUPPLY FAILURE, AN EMERGENCY ELECTRICAL SYSTEM SHALL AUTOMATICALLY ILLUMINATE ALL OF THE FOLLOWING AREAS:
    A. AISLES, CORRIDORS, AND EXIT ACCESS STAIRWAYS AND RAMPS IN ROOMS AND SPACES REQUIRING TWO OR MORE MEANS OF EGRESS.
    B. INTERIOR EXIT ACCESS STAIRWAYS AND RAMPS, INTERIOR AND EXTERIOR EXIT STAIRWAYS AND RAMPS, EXIT PASSAGEWAYS, VESTIBULES AND AREAS ON THE LEVEL OF DISCHARGE USED FOR EXIT DISCHARGE, AND EXTERIOR LANDINGS FOR EXIT DOORWAYS THAT LEAD DIRECTLY TO THE EXIT DISCHARGE IN BUILDINGS THAT REQUIRE TWO OR MORE MEANS OF EGRESS.
    C. ELECTRICAL EQUIPMENT ROOMS, FIRE COMMAND CENTERS, FIRE PUMP ROOMS, GENERATOR ROOMS, AND PUBLIC RESTROOMS WITH AN AREA GREATER THAN 300 SQUARE FEET. (CBC 2022 1008.3).
18. THE BUILDING WILL BE EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM. AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH CBC 2022, SECTION 903.3.1 OR 903.3.1.2.
19. SEE ELECTRICAL DRAWINGS FOR MEANS OF EGRESS POWER SUPPLY SPECIFICATIONS AND ILLUMINATION PHOTOMETRIC PLANS.
20. PENETRATIONS INTO OR THROUGH INTERIOR EXIT STAIRWAYS AND RAMPS ARE PROHIBITED EXCEPT FOR EQUIPMENT AND DUCTWORK NECESSARY FOR INDEPENDENT VENTILATION OR PRESSURIZATION. SPRINKLER PIPING, STANDPIPES, ELECTRICAL RACEWAY FOR FIRE DEPARTMENT COMMUNICATION SYSTEMS, AND ELECTRICAL RACEWAY SERVING THE INTERIOR EXIT STAIRWAY OR RAMP. (CBC 1023.5).

J Lee Engineering, Inc.
Approved
By Jae Lee
04/06/2026

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LICENSED ARCHITECT — JONATHAN D. ARAMBERRI — C31441 — 12/31/2025 — RENEWAL DATE — STATE OF CALIFORNIA

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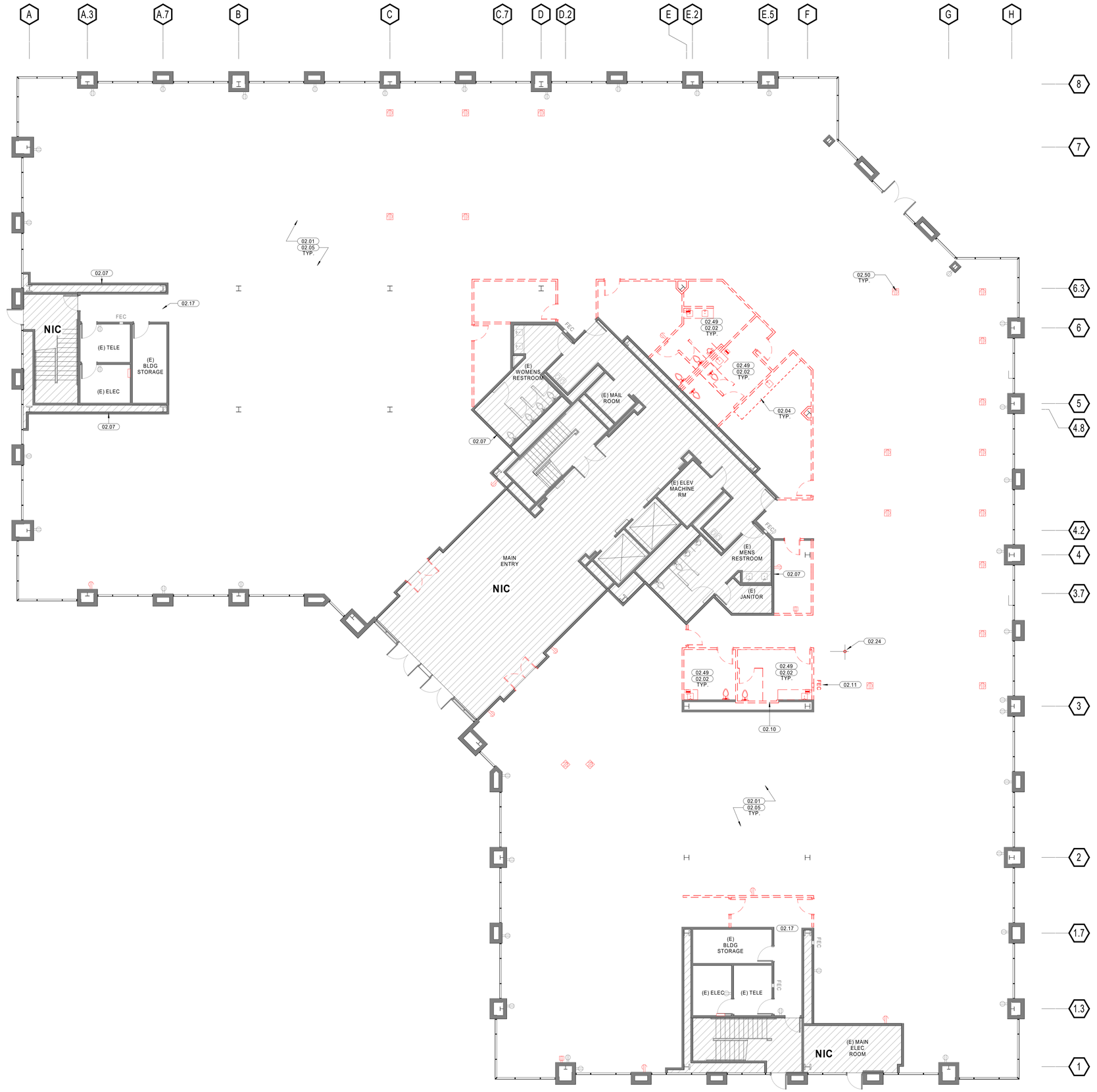
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|---|---|
| 1 POC1 | 11/20/2025 |
| CITY SUBMITTAL | 08/25/2025 |

Submittal Date

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | As indicated |

01 - FLOOR - CODE ANALYSIS

G2.01




PROJECT NORTH

DEMOLITION FLOOR PLAN | 1/8" = 1'-0" A1.01 | 05

## KEYNOTES

| | |
|---|---|
| 02.01 | REMOVE EXISTING MILLWORK AND ALL ASSOCIATED ELECTRICAL AND DATA. |
| 02.02 | REMOVE EXISTING PLUMBING FIXTURES, TOILET PARTITIONS AND ASSOCIATED RESTROOM ACCESSORIES AS NOTED. REMOVE EXISTING COUNTERTOP, SINKS, CASEWORK FLOOR AND WALL TILE AND LIGHTING. |
| 02.04 | REMOVE ALL BUILT-IN CABINETS (UPPERS AND LOWERS). REMOVE SINK, FAUCET, GARBAGE DISPOSAL AND ASSOCIATED PLUMBING. |
| 02.05 | REMOVE EXISTING WINDOW COVERS. |
| 02.07 | DEMO DRYWALL FOR FUTURE POWER |
| 02.10 | DEMO THE EXISTING WALL. REFER TO PARTITION PLAN FOR LAYOUT OF NEW WALL. |
| 02.11 | DEMO DOOR: REMOVE STOREFRONT DOOR / GLAZING. |
| 02.17 | DEMO CEILING AND LIGHTING ASSOCIATED IN HALLWAY, SEE RCP. |
| 02.24 | DEMO EXISTING PIPE. REFER TO PLUMBING DRAWINGS FOR PIPE MODIFICATIONS. |
| 02.49 | DEMO ALL RESTROOM PLUMBING - REFER TO PLUMBING SHEET P1.01 FOR MORE INFORMATION |
| 02.50 | DEMO ELECTRICAL: REMOVE FLOOR OUTLET(S). SAFE OFF CIRCUITS TO SOURCE. |

## LEGEND

- NOT IN SCOPE OF WORK
- SIDELIGHT TO BE REMOVED
- EXISTING PARTITION TO REMAIN
- PARTITION TO BE REMOVED
- DOOR AND FRAME TO BE REMOVED, U.O.N. SALVAGE FOR POTENTIAL REUSE OR STORAGE.
- FEC — EXISTING SURFACE MOUNTED FIRE EXTINGUISHER CABINET, G.C. TO REMOVE AND SALAVAGE FOR REINSTALL OF EXTINGUISHER PER PLAN.
- PLYWOOD BACKBOARD TO BE REMOVED
- D — DEMO

| CEILING | FLOOR | WALL | |
|---|---|---|---|
| | | | DUPLEX OUT TO BE REMOVED |
| | | | DEDICATED DUPLEX OUTLET TO BE REMOVED |
| | | | QUADRUPLEX OUTLET TO BE REMOVED |
| | | | DEDICATED QUADRUPLEX TO BE REMOVED |
| | | | TELEPHONE OUTLET TO BE REMOVED |
| | | | TELEPHONE/DATA OUTLET TO BE REMOVED |
| | | | DATA OUTLET TO BE REMOVED |
| | | | JUNCTION BOX TO BE REMOVED |
| | | | FLUSH MOUNTED FLOOR CORE WITH ELECTRICAL & TELEPHONE/ DATA TO BE REMOVED |
| | | | FLUSH MOUNTED FLOOR CORE FOR FURNITURE SYSTEM TO BE REMOVED |
| | | | FURNITURE FEED TO BE REMOVED |
| | | CR | JUNCTION BOX TO BE REMOVED (CARD READER TO BE REMOVED BY TENANT VENDOR) |

## GENERAL NOTES

1. REFER TO SPECIFICATIONS "G SERIES " SPECIFICATION SECTION 024100 FOR DEMOLITION SCOPE AND EXECUTION OF WORK.
2. CONFIRM WITH BUILDING OWNER / COUNTY FOR SALVAGE OF ANY PRODUCT.
3. CONSTRUCTION WASTE: CONSTRUCTION WASTE MATERIALS SHALL BE RECYCLED PER LOCAL JURISDICTION REQUIREMENTS.
4. REMAINING TENANT'S ITEMS: REMOVE ALL PREVIOUS CLIENT'S ITEMS FROM WALLS, FLOOR, CEILINGS. CONTRACTOR TO WALK THE SPACE PRIOR TO BID, U.N.O.
5. ELECTRICAL: IN EXISTING WALLS TO REMAIN, REMOVE EXISTING OUTLET COVERS AND SWITCH PLATES TO COMPLY WITH NEW SPECIFICATION. SEE ELECTRICAL DRAWINGS.
6. ELECTRICAL: REMOVE ALL OUTLETS NOT AT 18" A.F.F., U.O.N. SEE ELECTRICAL DEMO PLAN ON SHEET E1.01.
7. ELECTRICAL: SAFE OFF ALL ELECTRICAL CIRCUITS AFFECTED BY DEMOLITION TO SOURCE.
8. LOW VOLTAGE: REMOVE PREVIOUS COUNTY'S SECURITY DEVICES AND PANELS, DATA/PHONE CABLING BACK TO RACKS, HANGERS, ETC. U.N.O.
9. SAW CUTTING: ALLOW FOR STANDARDIZED SAW CUTTING AT SLAB FOR PLUMBING AND ELECTRICAL IF REQUIRED BY PLAN, SEE FLOOR PLAN FOR LOCATIONS. REFER TO ELECTRICAL AND PLUMBING FOR MORE INFORMATION.

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Approved
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04/06/2026
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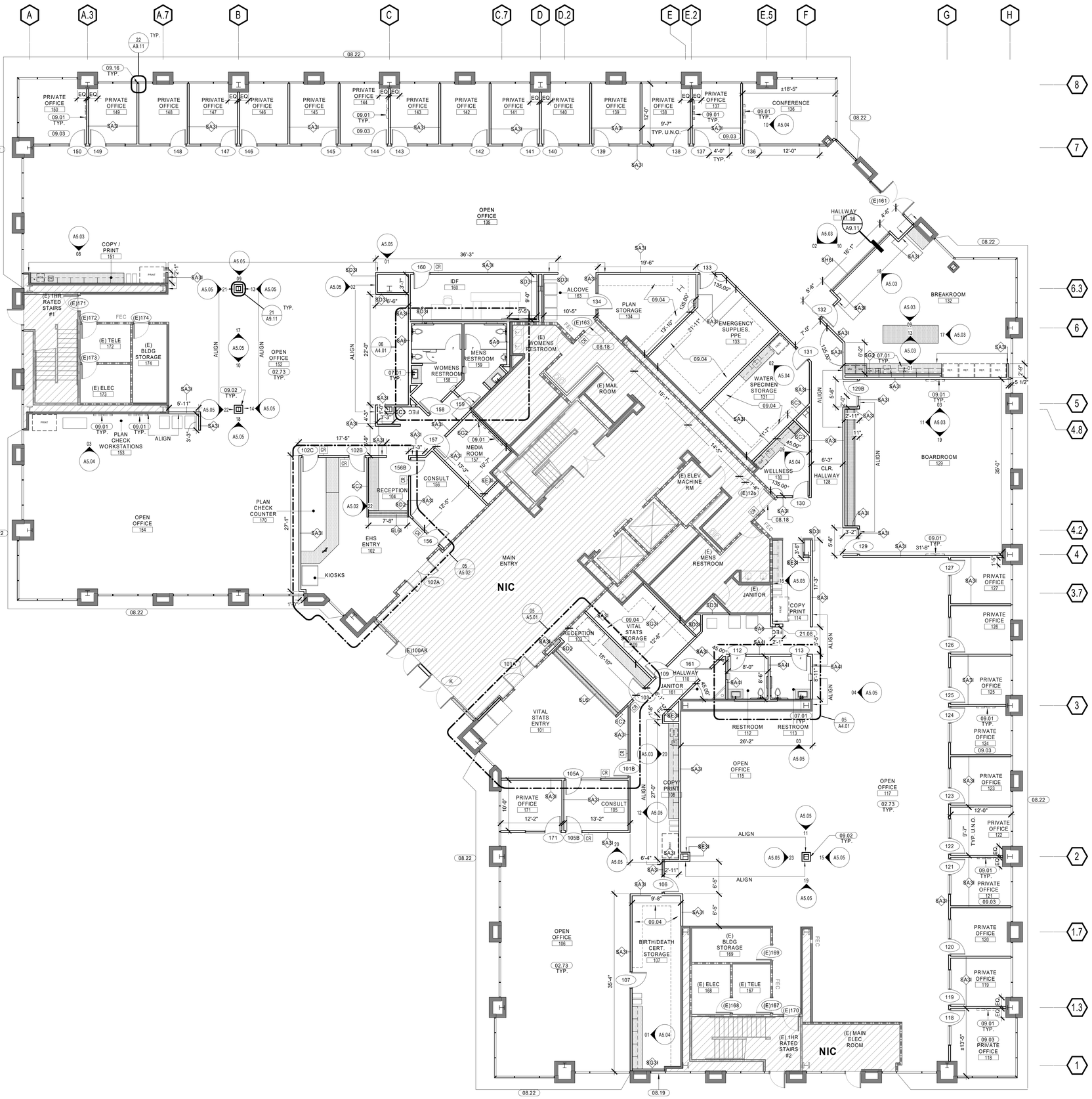
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| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | 1/8" = 1'-0" |

01 - FLOOR DEMO PLAN

A1.01




PROJECT NORTH

FLOOR PRICING PLAN | 1/8" = 1'-0" | A2.01 | 1

## KEYNOTES

| | |
|---|---|
| 02.73 | EXISTING DRYWALL BASE FINISH: PROVIDE SKIM COAT WHERE EXISTING 4" BASE WAS REMOVED AND NEW 4" BASE IS BEING UTILIZED. |
| 07.01 | INSULATION: BELOW SINKS, PROVIDE INSULATION ON ANY EXPOSED DRAIN OR WATER SUPPLY PIPES AND THERE SHALL BE NO SHARP OR ABRASIVE SURFACES. (CBC 2002 11B - 606.5) |
| 08.18 | GENERAL CONTRACTOR TO VERIFY THAT CORING EXISTS AT RATED DOOR TO RECEIVE SECURITY DEVICE BY CUSTOMER. IF NOT, CORE AND RE-CERTIFY DOORS OR PROVIDE NEW. MAINTAIN RATING. |
| 08.19 | EXTERIOR WINDOW FILM: PROVIDE BLACK OUT WINDOW FILM AT THIS WINDOW ONLY. |
| 08.22 | WINDOW COVERINGS: PROVIDE MARIAK CONTRACT DUEL FULL HEIGHT MANUAL ROLLER SHADES WITH 3% OPENNESS AND BLACK OUT. ROLLER SHADE TO BE MOUNTED INSIDE THE EXISTING MULLION, FASCIA COLOR TO MATCH EXISTING MULLION. SHADE COLOR: TBD |
| 09.01 | PROVIDE BACKING FOR TV MONITORS, SEE AUDIO VISUAL DRAWINGS FOR LOCATIONS, SIZES AND WEIGHTS. |
| 09.02 | PROVIDE GWB / MTL FRAMING TO 6" ABOVE CEILING SURROUNDING ALL COLUMNS. |
| 09.03 | G.C TO PROVIDE BACKING FOR CLIENT PROVIDED WHITE BOARD. SEE DETAIL 10/A9.11 |
| 09.04 | G.C TO PROVIDE BACKING FOR SHELVING. SEE DETAIL 10/A9.11 |
| 09.16 | WALL TO BE CENTERED ON THE MULLION. |
| 21.08 | EXISTING RELOCATED FIRE EXTINGUISHER CABINET. |

## PARTITION LEGEND

WALL TAG:

SA2U

**STUD TYPE.** S = STEEL, W = WOOD

**WALL TYPE.** LETTER INDICATES WALL TYPE. SEE WALL TYPE DETAIL.

**INSULATION TYPE.** I = BATT INSULATION, U = NO BATT INSULATION, Q = BATT INSULATION WITH INSUL-QUILT ABOVE

**STUD SIZE.** NUMBER INDICATES STUD SIZE. SEE WALL TYPE DETAIL. REFER TO A9.01 FOR INTERIOR STUD WALL SCHEDULE

NOTE:
SEE SHEET A9.01 FOR ALL WALL TYPE DETAILS. UNLESS OTHERWISE NOTED, ALL INTERIOR PARTITIONS INCLUDE ROCK WOOL INSULATION FULL HEIGHT OF STUDS

- EXISTING STUD WALL CONSTRUCTION
- NEW STUD WALL CONSTRUCTION, SEE SHEET A9.01
- 1 HOUR RATED FIRE BARRIER WALL CONSTRUCTION
- 2 HOUR RATED FIRE BARRIER WALL CONSTRUCTION
- HATCHED AREA INDICATES EXISTING SPACE TO REMAIN AND NOT BE INCLUDED IN THIS SCOPE OF WORK
- DENOTES NEW MILLWORK, SEE ENLARGED PLANS AND ELEVATIONS. SEE SHEETS A9.31 & A9.32 FOR DETAILS
- FEC — PROVIDE NEW WALL MOUNTED FIRE EXTINGUISHER CABINET TO MATCH EXISTING WALL MOUNTED. G.C. TO FURNISH AND INSTALL NEW EXTINGUISHER. SEE DETAIL 01 / A9.11
- ALIGN — ALIGN FINISHES
- 101 — DENOTES DOOR NUMBER - REFER TO DOOR SCHEDULE / DOOR TYPES, SHEET A6.00
- DOOR: SEE DOOR LEGEND SHEET A6.00
- 1/4" WATERLINE - SEE PLUMBING
- 05 H — NEW CARD READER LOCATION. SEE POWER / COMM. LEGEND FOR SCOPE
- NEW SINK - SEE PLUMBING
- 4x8 FIRE TREATED PLYWOOD BACKBOARD INSTALLED FROM 12" AFF. VERIFY INSTALLATION WITH CLIENT. PAINT TO MATCH WALL. DO NOT PAINT OVER RATING LABEL.

## FLOOR PLAN GENERAL NOTES

1. REFER TO DETAILS ON "G" SHEETS FOR ACCESSIBLE REQUIREMENTS ON PLAN DIMENSIONS AND DOOR REQUIREMENTS. DIMENSIONS THAT ARE NOT STATED AS "MINIMUM" OR "MAXIMUM" ARE ABSOLUTE.
2. REFER TO SPECIFICATIONS ON "G" SHEETS FOR MATERIAL PERFORMANCE AND EXECUTION OF WORK.
3. JOB SITE SAFETY: THESE PLANS AND SPECIFICATIONS DO NOT PROVIDE ANY DIRECTION OR INSTRUCTIONS TO THE CONTRACTOR OR SUBCONTRACTORS OR THEIR EMPLOYEES OR AGENTS RELATED TO CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS INCLUDING JOB SITE SAFETY AND PROGRAMS IN CONNECTION WITH THE WORK. THIS IS SOLELY THE CONTRACTOR'S RESPONSIBILITY UNDER THE CONTRACTOR'S CONTRACT FOR CONSTRUCTION. THE ARCHITECT HAS NOT CONDUCTED AN EVALUATION OF SAFETY PROCEDURES FOR THE PROPER MANNER OF ACCESSING THE JOB SITE DURING THE COURSE OF CONSTRUCTION AND HAS NOT UNDERTAKEN ANY RESPONSIBILITY ON WHETHER OR NOT THE USE OF ROOF/ OR CONSTRUCTION LADDERS, DOORS, RAILINGS, INGRESS AND INGRESS ROUTES OR THE LIKE ARE IN COMPLIANCE WITH OSHA REQUIREMENTS DURING THE COURSE OF CONSTRUCTION OF THE IMPROVEMENTS.
4. FRAMING: DOOR OPENING IN PARTITION NOT DIMENSIONED ARE TO BE LOCATED WITHIN 4" OF PERPENDICULAR/ADJOINING PARTITION.
5. FLOOR PREPARATION: PATCH AND REPAIR OPENINGS AT FLOOR WHERE ABANDONED CONDUITS, FLOOR CORES, ETC. HAVE BEEN REMOVED. SEE DETAIL 09/A9.11.
6. DRYWALL: PATCH AND REPAIR WALLS TO REMAIN WHERE CUT INTO FOR NEW CONSTRUCTION AND/OR WHERE DEVICES/EQUIPMENT HAVE BEEN REMOVED. MAINTAIN RATINGS WHERE OCCUR. PREPARE DRYWALL TO RECEIVE NEW FINISHES.
7. DRYWALL FINISH: MAINTAIN LEVEL FOUR (4) QUALITY AT ALL WALLS INCLUDING EXISTING, RESKIM AS REQUIRED FOR A CONSISTENT FINISH.
8. DOORS: FIELD VERIFY ALL WALL THICKNESS FOR THROAT DIMENSIONS PRIOR TO ORDERING DOOR FRAMES.
9. EXISTING DOORS TO REMAIN: SEE DOOR SCHEDULE FOR SPECIFIC SCOPE.
10. SAW CUTTING: ALLOW FOR STANDARDIZED SAW CUTTING AT SLAB FOR PLUMBING AND ELECTRICAL IF REQUIRED BY PLAN. SEE FLOOR PLAN FOR LOCATIONS. REFER TO ELECTRICAL AND PLUMBING FOR MORE INFORMATION. SEE DETAIL 09 / A9.11
11. FLOOR PREPARATION: PERFORM MOISTURE AND ALKALINITY (PH) FLOORING TEST THROUGHOUT AND REPORT FINDINGS AND MITIGATION METHOD OPTIONS TO ARCHITECT/LANDLORD/CLIENT, PRIOR TO ORDERING/ INSTALLATION OF MATERIALS. SEE SPECIFICATION SECTION 090561.
12. BACKING: PROVIDE AS REQ. SEE EQUIPMENT LEGEND. PROVIDE 6" X 20 GA. BACKING IN WALL TO SUPPORT COUNTY PROVIDED TV SCREEN, SEE EQUIPMENT SCHEDULE / POWER & COMM PLAN FOR LOCATIONS, G.C.C TO COORDINATE LOCATION AND MOUNTAIN HEIGHT WITH AV VENDOR. SEE DETAIL 10 / A9.11
13. PARTITION: GENERAL CONTRACTOR TO FIELD VERIFY ALL WALL THICKNESS FOR THROAT DIMENSIONS FOR DOOR FRAMS & STUD SIZES.
14. HARDWARE: GENERAL CONTRACTOR TO VERIFY THAT ALL DOOR HARDWARE TYPE IS CONSISTENT THROUGHOUT PROJECT. REPLACE ALL NON-MATCHING HARDWARE WITH BUILDING STANDARD SPECIFICATION. SEE DOOR SCHEDULE.
15. OPERABLE PART OF BUILT IN COFFEE MAKER OR BUILDING IN MICROWAVE SHALL COMPLY WITH SECTION 11B-309. (CBC 11B-205)
A. CLEAR FLOOR SPACE OF 30"X48" FOR FORWARD OR PARALLEL APPROACH. (CBC 11B-305)
B. OPERABLE PART SHALL BE PLACED WITHIN ONE OR MORE OF THE REACH RANGES SPECIFIED IN SECTION 11B-308.
C. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRSPING, PINCHING OR TWISTING OF THE WRIST.

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04/06/2026
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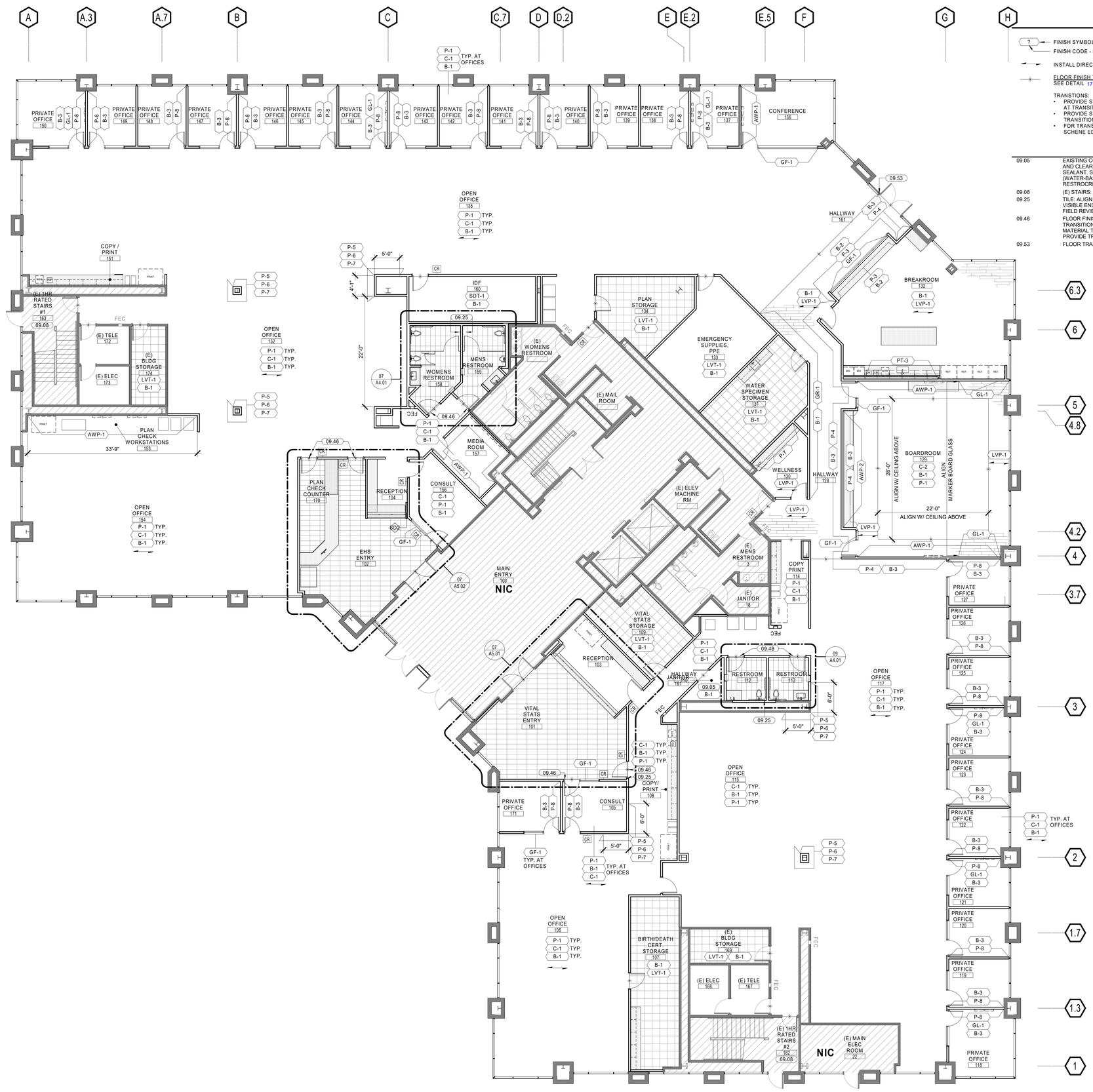
| Revision | Date |
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| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

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|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | 1/8" = 1'-0" |

01 - FLOOR FLOOR PLAN

A2.01




## LEGEND

- FINISH SYMBOL
- FINISH CODE - SEE FINISH SCHEDULE
- INSTALL DIRECTION OF FLOORING MATERIAL
- FLOOR FINISH TRANSITION: SEE DETAIL 17 / A9.11

TRANSTIONS:
- PROVIDE STAINLESS STEEL SCHLUTER STRIP EDGE TRANSITION AT TRANSITIONS 1/4" CHANGE IN ELEVATION OR LESS.
- PROVIDE STAINLESS STEEL SCHLUTER RENO-U TRANSITION AT TRANSITIONS GREATER THAN 1/4" UP TO 1/2".
- FOR TRANSITIONS GREATNER THAN 1/2", PROVIDE SCHUTER SCHENE EDGE TRIM AND RAMP UP AT POLISHED CONCRETE.

## KEYNOTES

09.05 EXISTING CONCRETE FLOORING TO BE THOROUGHLY CLEANED AND CLEARED OF ALL DEBRIS. PATCH, RESURFACE, AND APPLY SEALANT. SEAL WITH RESTOCRETE. RESTO-SEAL WB (WATER-BASED), SATIN FINISH, CONTACT MAURICO MARENCO, RESTROCRETE. MAURICIOM@RESTOCRETE.COM 714-763-0505

09.08 (E) STAIRS: ALL FINISHES TO REMAIN. PROTECT IN PLACE.

09.25 TILE: ALIGN FLOOR AND WALL TILE. AVOID SMALL PIECES AT VISIBLE ENDS. PRIOR TO INSTALLATION, CONTACT ARCHITECT FOR FIELD REVIEW.

09.46 FLOOR FINISH: WHERE TRANSITION HEIGHTS EXCEED ACCESSIBLE TRANSITION REQUIREMENT OF 1 /2" OR LESS, PROVIDE FLOOR MATERIAL TO RAMP UP LOWER SURFACE TO HIGHER SURFACE. PROVIDE TRANSITION PIECE AS NOTED ON DRAWINGS.

09.53 FLOOR TRANSITION STARTS AT THE EDGE OF THE MULLION.

## FINISHES SCHEDULE

| TAG | DESCRIPTION | MANUF. | NOTES |
|---|---|---|---|
| B-1 | VINYL BASE | TARKETT | 4" HIGH VINYL BASE. COVE AT RESILIENT FLOORING & STRAIGHT AT CARPET. COLOR: 460 COTTON W |
| B-2 | VINYL BASE | TARKETT | 4" HIGH VINYL BASE. COVE AT RESILIENT FLOORING & STRAIGHT AT CARPET. COLOR: HARVEST TIME CB VL1 |
| B-3 | VINYL BASE | TARKETT | 4" HIGH VINYL BASE. COVE AT RESILIENT FLOORING & STRAIGHT AT CARPET. COLOR: STORM CLOUD CG71 |
| B-4 | VINYL BASE | TARKETT | 4" HIGH VINYL BASE. COVE AT RESILIENT FLOORING & STRAIGHT AT CARPET. COLOR: MYSTIFY CG 469 |
| C-1 | GENERAL CARPET TILE | SHAWCONTRACT | STYLE: ENCLAVE TILE ST371 COLOR: STONE 71595 SIZE: 18" X 36" INSTALLATION PATTERN: MONOLITHIC CONTACT: TARA LOWMAN TARA.LOWMAN@SHAWCONTRACT.COM |
| C-2 | ACCENT CARPET TILE | PATCRAFT | STYLE: 10635 RUNNING STITCH COLOR: 00570 BRAID SIZE: 18" X 36" INSTALLATION PATTERN: STAGGARD CONTACT: SUE EWING SUE.EWING@PATCRAFT.COM |
| UP-1 | UPHOLSTERY | MOMENTUM TEXTILES | PATTERN: CANTER EPU COLOR: NIGHT BACKING: POLYESTER CONTACT: ELISE OZAWA EOZAWA@MOMTEX.COM |
| WD-1 | WOOD | JUNKERS | WOOD TYPE: OAK COLOR: DRIFTWOOK GREY TEXTURED SIZE: 20.5 X 140MM SOLID PLANK (3/4" THICK) INSTALLATION PATTERN: STAGGER... |
| LVP-1 | LUXURY VINYL PLANK | SHAWCONTRACT | STYLE: REPOSE 40889V COLOR: CANOE 89103 SIZE: 7.13" X 48" INSTALLATION PATTERN: STAGGER CONTACT: TARA LOWMAN TARA.LOWMAN@SHAWCONTRACT.COM |
| LVT-1 | LUXURY VINYL TILE | MANNINGTON COMMERCIAL | STYLE: GROOVE COLOR: LONDON FOG C119 SIZE: 18" X 18" CONTACT: JULIE KAESER... |
| SDT-1 | STATIC DISSIPATIVE | FLEXCO | STYLE: STATIC DISSIPATIVE (DISS) COLOR: GRAY/DARK GRAY 42 SIZE: 24" X 24" |
| PT-1 | PORCELAIN TILE (FLOOR TILE) | STONE SOURCE | STYLE: PAVIMENTI ARENA COLOR: MATRIX CINDER SIZE: 12" X 24" INSTALLATION PATTERN: MONOLITHIC GROUT: CUSTOM BUILDING PRODUCTS GROUT COLOR: #335 WINTER GRAY CONTACT: DAVID ALONZO DALONZO@STONESOURCE.COM |
| PT-2 | WALL TILE (RESTROOMS) | DALTILE | STYLE: ARTCRAFTED AC23 COLOR: COCONUT SIZE: 3" X 12" GROUT: CUSTOM BUILDING PRODUCTS GROUT COLOR: #643 WARM GRAY CONTACT: MIRA CLUTTER MIRA.CLUTTER@DALTILE.COM |
| PT-3 | WALL TILE (BREAKROOM) | EMSER | STYLE: ORNAMI COLOR: WASHI SIZE: 2" X 6" GROUT: CUSTOM BUILDING PRODUCTS GROUT COLOR: #645 STEEL BLUE CONTACT: JUAN CAMARILLO JUANCAMARILLO@EMSER.COM |
| P-1 | GENERAL PAINT | SHERWIN WILLIAMS | SW 7006 EXTRA WHITE, EGGSHELL FINISH AT WALLS & FLAT AT CEILINGS/SOFFITS |
| P-2 | ACCENT PAINT | SHERWIN WILLIAMS | SW 7643 PUSSYWILLOW, EGGSHELL FINISH AT WALLS. EGGSHELL FINISH AT RESTROOM CEILINGS ONLY. |
| P-3 | ACCENT PAINT | SHERWIN WILLIAMS | SW 9172 STUDIO CLAY, EGGSHELL FINISH & FLAT AT CEILINGS/SOFFITS. |
| P-4 | ACCENT PAINT | SHERWIN WILLIAMS | SW 6250 GRANITE PEAK, EGGSHELL FINISH & FLAT AT CEILINGS/SOFFITS. |
| P-5 | ACCENT PAINT | SHERWIN WILLIAMS | SW 9142 MOSCOW MIDNIGHT, EGGSHELL FINISH |
| P-6 | ACCENT PAINT | SHERWIN WILLIAMS | SW 9147 FAVORITE JEANS, EGGSHELL FINISH |
| P-7 | ACCENT PAINT | SHERWIN WILLIAMS | SW 9148 SMOKY INDIGO, EGGSHELL FINISH |
| P-8 | ACCENT PAINT | SHERWIN WILLIAMS | SW 9141, WATERLOO, EGGSHELL FINISH |
| SS-1 | QUARTZ SURFACE | CAESARSTONE | 5110 ALPINE MIST |
| SS-2 | QUARTZ SURFACE | CAESARSTONE | 1141 PURE WHITE |
| SS-3 | QUARTZ SURFACE | SILESTONE BY COSENTINO | STYLE:SILESTONE BASIC FINISH: POLISHED COLOR: MARENGO |
| PL-1 | PLASTIC LAMINATE | FORMICA | 5796-NO. GRAPHITE ELM NATURAL GRAIN |
| PL-2 | PLASTIC LAMINATE | FORMICA | 7220-58 BOLTON BLUE ANTIQUE MIRROR |
| PL-3 | PLASTIC LAMINATE | FORMICA | 8702-58 WINSOME FROM THE LOOM |
| AWP-1 | ACOUSTICAL WALL PANEL | ACOUFELT | SOUND ABSORBING OPTIONAL METAL PANEL SIZE: 48" X 48" COLOR: SEE PLANS FOR COLOR DESIGN. SEE ELEVATIONS. |
| AWP-2 | ACOUSTICAL PANEL W/ CUSTOM GRAPHIC | MDC INTERIOR SOLUTIONS | ZIPTEX CUSTOM IMAGE PRINT ON FROST WHITE CONTACT: JENNIFER HOLMES JHOLMES@MDCWALL.COM |
| GL-1 | BACK PAINTED MAGNETIC WHITEBOARD | CLARIDGE | MAGNETIC GLASS WHITEBOARD. COLOR: TBD. PROVIDE INVISI-MOUNT. SEE ELEVATIONS. |
| GR-1 | CUSTOM VINYL WALL GRAPHIC | ARC RIOT COLOR | CUSTOM DESIGN, FULL COLOR, SIZE: WIDTH OF WALL X 9'-0" HIGH, MATTE FINISH, PROVIDE SITE SURVEY, PROVIDE PDF PROOFS FOR ARCHITECT'S REIVEW. CONTACT: KERRI MENHAJI, kerri.menhaji@riotcolor.com, (949) 230-8457 |
| GF-1 | GLASS FILM | METWEST | 36" HIGH BAND AT OFFICES & CONF. ROOMS FRONTS. 60" HIGH AT BREAKROOM BANQUETTE GLASS. COLOR AND OPACITY TO MATCH DUSTED DUSTAL. PROVIDE OPAQUE WAVE LINEWORK, SEE ELEVATION. |

## GENERAL NOTES

1. REFER TO SPECIFICATIONS "G SERIES " FOR FINISH MATERIAL PERFORMANCE AND EXECUTION OF WORK.
2. FLOOR PREPARATION: PERFORM MOISTURE AND ALKALINITY (PH) FLOORING TEST THROUGHOUT AND REPORT FINDINGS AND MITIGATION METHOD OPTIONS TO ARCHITECT/LANDLORD/CLIENT, PRIOR TO ORDERING/INSTALLATION OF MATERIALS. SEE SPECIFICATION SECTION 090561.
3. TILE APPLICATION: SEAL ALL FLOOR AND WALL GROUT AROUND PLUMBING AND WET AREAS.
4. TILE APPLICATION: LAY TILE ACCORDING TO PATTERN INDICATED ON CONSTRUCTION DOCUMENTS. IF THERE IS A CONFLICT WITH THE MANUFACTURER'S RECOMMENDATIONS, THE MANUFACTURER'S RECOMMENDATIONS WILL GOVERN THE INSTALLATION METHOD. LARGE FORMAT TILES [ANY TILE WITH AN EDGE DIMENSION EQUAL OR GREATER THAN 15"] WILL HAVE A 30% OFFSET AS OPPOSED TO A 50% OFFSET. VERIFY TILE TO TILE JOINT RELATIONSHIP WITH MANUFACTURER TO AVOID "LIPPAGE". DO NOT INTERRUPT TILE PATTERN THROUGH OPENINGS.
5. FLOOR: CONTINUE FLOOR FINISH UNDER/INTO ACCESSIBLE SINK LOWER CABINET.
6. FLOOR: PROVIDE 'FEATHER UP' TRANSITION AT ALL DOORS WHEN THERE IS A DIFFERENCE OF 1/ 4" OR MORE TO MEET ACCESSIBLE REQUIREMENTS AT A MINIMUM.
7. MATERIAL DIRECTIONAL INSTALLATION: IF INSTALLATION DIRECTION IS NOT INDICATED ON PLANS, CONTACT ARCHITECT FOR CLARIFICATION PRIOR TO INSTALLATION. CONTRACTOR TO PROVIDE ON-SITE TILE MOCK-UP FOR ALL AREAS RECEIVING TILE. MOCK-UP TO BE REVIEWED WITH ARCHITECT TO CONFIRM GROUT LAYOUT, INCLUDING START AND STOP POINTS, AND TO AVOID TILE SLIVERS. CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HR NOTICE FOR MEETING.
8. ACCESS PANEL: PAINT TO MATCH ADJACENT WALL/SOFFIT COLOR, WHERE OCCURS OR UNLESS SPECIFIED AS A PREFINISHED MATERIAL SUCH AS STAINLESS STEEL.
9. CIRCULATION PATHS OF THE MEANS OF EGRESS SHALL HAVE A SLIP-RESISTANT SURFACE AND BE SECURELY ATTACHED. (2022 CBC 1003.4)
10. FLOOR AND GROUND SURFACES SHALL BE STABLE, FIRM, AND SLIP RESISTANT. (2022 CBC 11B-302)
11. CARPET SHALL BE SECURELY ATTACHED AND SHALL HAVE A FIRM CUSHION, PAD, OR BACKING, OR NO PAD. IT SHALL HAVE A LEVEL LOOP, TEXTURED LOOP, LEVEL CUT, OR LEVEL CUT/UNCUT PILE TEXTURE. PILE HEIGHT SHALL BE 1 /2 "" MAXIMUM. EXPOSED EDGES SHALL BE FASTENED TO FLOOR SURFACES AND SHALL HAVE A TRIM ON THE ENTIRE LENGTH OF THE EXPOSED EDGE. (2022 CBC 11B-302.2)
12. TRANSITIONS OF MATERIALS AND EDGES OF CARPET SHALL COMPLY WITH CHANGES IN LEVEL. (2022 CBC 11B-303)
13. INTERIOR FINISH MATERIALS APPLIED TO WALLS AND CEILINGS SHALL MEET THE FIRE PERFORMANCE AND SMOKE DEVELOPMENT LIMITATIONS PRESCRIBED IN CBC SECTION 803, INCLUDING "CLASSIFICATION" FLAME SPREAD RATING BY OCCUPANCY AND LOCATIONS TABLE. (2022 CBC 803.13)
14. INTERIOR FLOOR FINISH AND FLOORCOVERINGS SHALL COMPLY WITH CLASSIFICATION, TESTING AND IDENTIFICATION IN ACCORDANCE WITH ASTM E648 OR NFPA 253. (2022 CBC 804)
15. FLOOR COVERING MATERIALS SHALL COMPLY WITH ASTM E 648 AND HAVE A SPECIFIC OPTICAL SMOKE RATING NOT TO EXCEED 450 PER ASTM E 662. (2022 CBC 804.4.1)
16. FINISH MATERIALS SUBMITTED SHALL COMPLY WITH POLLUTANT CONTROLS - LOW V.O.C. PAINTS AND ADHESIVES. (2022 CALGreen 5.504.4)

FINISH PRICING PLAN | 1/8" = 1'-0" | A2.21 | 05

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By Jae Lee
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| Revision | Date |
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| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | 1/8" = 1'-0" |

01 - FLOOR FINISHES PLAN

A2.21




## KEYNOTES

| | |
|---|---|
| 02.06 | EXISTING CEILING AND LIGHTING TO REMAIN, PROTECT IN PLACE. |
| 09.15 | REFER TO FINISH SCHEDULE ON SHEET A2.21 AND ELEVATIONS ON SHEETS A5.01 & A5.02 FOR LOCATION AND FINISH INFORMATION FOR WD-1. |

## LEGEND

HATCHED AREA INDICATS EXISTING SPACE TO REMAIN AND NOT BE INCLUDED IN SCOPE OF WORK

**ACT-1:** 2 X 4 ARMSTRONG SUSPENDED ACOUSTICAL CEILING: CEILING TILE: DUNE 2x4 9/16" BEVELED TEGULAR EDGE. GRID: SILHOUETTE XL 9/16" SUSPENSION SYSTEM WITH 1/4" REVEAL WITH 4" AXIOM TRIM WITH VERTICAL RISER AT ALL FLOATING OPEN OFFICE CLOUDS -COLOR: BLIZZARD WHITE. SEE DETAIL 01 / A9.21

**GYP-1:** FRAMED GYPSUM BOARD CEILING, MOISTURE-RESISTANT AT RESTROOMS. SEE DETAIL 7 / A9.10

**ACP-1:** ACOUSTICAL 2X2 CEILING TILE, SPEC: ACOUFELT, COLLECTION: FRACTURE CEILING PANELS (PREMIER), DESIGN: ORNAMENTAL, COLOR: ME03 METAL, 12MM,

GRID: ARMSTRONG, 2X2 PRELUDE 15/16" FLAT T-GRID, COLOR: WHITE, SEE DETAIL 01 / A9.21

BORDER: ACOUFELT, COLOR: WINE BARREL WQ03. 1/2" THICK

REP CONTACT: JESSICA OSBORNE - jessica.osborne@acoufelt.com, (619)925-2060

**ACP-2:** 2X2 ACOUSTICAL CEILING TILE (ABOVE SPECIALITY BLADES): ARMSTRONG DUNE 2X2 9/16" BELVELED TEGULAR EDGE.

SPECIALITY BLADES (CLIPPED BELOW DUNE TILES): TURF DESIGNS, SWITCHBLADE, PROFILE TYPES: STANDARD 6" (B), SHALLOW 2.5" (C), ORGANIC 6" (BF), CONNECTION: BOLT SLOT FOR 9/16" SLOT FOR 9/16" SLOT TEE GRID, COLOR: LIGHT GREY 04. SEE RCP FOR DESIGN INTENT.

GRID: 2X2 ARMSTRONG SILHOUETTE XL 9/16" BOLT SLOT SUSPENSION SYSTEM WITH 1/4" REVEAL NOTE: 2X2 TILES TO BE TIED INTO 2X4 SYSTEM IN ROOM. SEE DETAIL 01 / A9.21

REP CONTACT: SHERYL GAYESKI - sgayeski@levellines.com, (630)258-4848

**OPEN CEILING:** SEE GENERAL NOTE 7.

9'-0" / XXX-1 — CEILING HEIGHT, TYPICAL U.O.N. / CEILING TYPE, SEE ABOVE

EXIT SIGN

(E) EXISTING

CEILING SEISMIC JOINT, SEE DETAIL 05 / A9.21

EQ EQ EQ EQ — CENTER DEVICES ON CLG TILE - TYP INCLUDED BUT NOT LIMITED TO THE FOLLOWING: SPRINKLER, FIRE STROBE, SPEAKERS, DAYLIGHT & OCCUPANCY SENSORS.

? — FINISH SYMBOL / FINISH CODE - SEE FINISH SCHEDULE A2.21

NOTE: SEE SHEET E6.10 FOR LIGHT FIXTURE SCHEDULE. REFER TO ELECTRICAL.

## GENERAL NOTES

1. REFER TO SPECIFICATIONS "G SERIES " FOR FINISH MATERIAL PERFORMANCE AND EXECUTION OF WORK. SEE FINISH SCHEDULE ON SHEET A2.21 FOR MATERIALS.
2. GENERAL CONTRACTOR AND ELECTRICAL SUBCONTRACTORS ARE RESPONSIBLE FOR ALL INFORMATION FOUND ON BOTH THIS SHEET AND THE ELECTRICAL NOTES.
3. CEILING: THE DESIGN AND INSTALLATION OF NEW SUSPENDED SEISMIC CEILING GRID TO BE IN ACCORDANCE WITH ASCE 7-05. SEE DETAILS ON ***A9.21.***
4. CEILING PENETRATIONS: WHERE PENETRATIONS OCCUR AT NEW SEISMIC CEILING LOCATIONS, PROVIDE OVERSIZED RING. SLEEVE, OR ADAPTER THROUGH THE CEILING TILE TO ALLOW FOR FREE MOVEMENT OF AT LEAST ONE INCH IN ALL HORIZONTAL DIRECTIONS, SEE DETAIL 11 / A9.21
5. CEILING: ALL ACCESS PANEL(S) IN GYP. BD. CEILING TO BE FLUSH, FRAMELESS, MUD-IN FIBERGLASS CEILING ACCESS PANELS, U.O.N. PAINT TO MATCH CEILING. CONFIRM LAYOUT/LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. SEE DETAIL 22 / A9.21
6. CEILING: CABLE TRAY, ELECTRICAL CONDUIT, AND CABLING SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING. CABLE MANAGEMENT IN EXPOSED CEILINGS SHALL BE BUNDLED, SLEEVED, & LOCATED ABOVE THE CEILING CLOUDS.
7. CEILING: WHERE INDICATED ON CEILING PLAN, EXPOSED TO STRUCTURE ABOVE SCOPE INCLUDES PREPARING ALL EXPOSED SURFACES (ALL EXPOSED DUCTWORK, PIPING, CONDUIT, CABLE TRAYS, BACKBOXES, ETC.) FOR PAINT. PROVIDE WALL MOUNTED DIFFUSERS WERE POSSIBLE, OR SIDE MOUNTED DIFFUSERS AT SPIRAL RIGID DUCT WHERE REQUIRED. DIFFUSERS AND DUCTS TO BE PAINTED, COLOR: P-1. REFER TO FINISH PLAN ON SHEETS FOR FULL SPECIFICATION.
8. CEILING: CONFIRM CEILING HEIGHTS AS INDICATED ON PLANS ARE ACHIEVABLE WITH EXISTING FIELD CONDITIONS. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
9. CEILING: ACT-1 HEIGHT IS SET AT 9'-0" U.O.N.
10. CEILING: COORDINATE MAIN RUNNER WITH RECESSED LINEAR LIGHT FIXTURE LOCATIONS.
11. HVAC: REFER TO MECHANICAL DRAWINGS FOR ALL DIFFUSER LOCATIONS, DUCTWORK, THERMOSTATS AND EQUIPMENT.
12. HVAC: COORDINATE LIGHT FIXTURE LOCATION AND HVAC DUCTWORK. LIGHTS TO BE INSTALLED UNDER DUCT IN AREAS WITH NOT LESS THAN 4" CLEARANCE BETWEEN DUCT AND FIXTURE. IF CONFLICT, ADVISE ARCHITECT AND USE LOW-PROFILE FIXTURES WHERE REQUIRED.
13. HVAC: PROVIDE NEW WHITE T-STATS THROUGHOUT AS REQUIRED BY REMODEL. SEE MECHANICAL NOTES FOR SPECIFICATIONS.
14. HVAC: PROVIDE ESCUTCHEONS AT HVAC DRIP LINES.
15. HVAC: AT ALL LOCATIONS WHERE DUCTWORK CONFLICTS WITH NEW WORK, REMOVE, RELOCATE, AND/OR REPLACE EXISTING DUCTWORK AS REQUIRED. NOTIFY ARCHITECT/ENGINEER OF ANY FIELD CONFLICTS PRIOR TO PROCEEDING.
16. ELECTRICAL: REFER TO ELECTRICAL ENGINEERING, AV AND SECURITY DRAWINGS FOR ADDITIONAL INFORMATION AND FULL SCOPE OF WORK.
17. LIGHTING CONTROLS: REFER TO ELECTRICAL ENGINEERING PLANS FOR ALL SWITCHING, MOTION SENSORS, LIGHT CONTROLS, AND SPECIFICATIONS.
18. LIGHTING: CONFIRM MOUNTING HEIGHTS OF ALL WALL MOUNT AND PENDANT MOUNT FIXTURES U. N. O. ON DRAWINGS, WITH ARCHITECT PRIOR TO INSTALLATION.
19. CEILING: PROVIDE SLIP THROUGH BRACKETS AS REQUIRED AT LIGHT FIXTURES CUTTING MAIN RUNNERS.
20. SPRINKLERS: ALL GYPSUM BOARD CEILING / SOFFITS AND SPECIALTY CEILINGS, TO HAVE FULLY RECESSED CONCEALED SPRINKLER HEADS WITH CAPS. ALL OPEN CEILING LOCATIONS TO HAVE STANDARD SPRINKLER HEADS PERS INDICATED CEILING CONDITION, U.N.O. AT SPECIALTY CEILING AND ACCENT PEINTED CEILING LOCATIONS, PROVIDE CUSTOM COLOR SPRINKLER CAPS TO MATCH ARCHITECH'S SAMPLE.
21. SPRINKLERS: PROVIDE NEW AS REQUIRED BY REMODEL. DO NOT REUSE SPRINKLER HEADS AT ALL LOCATIONS WHERE SPRINKLER/SPRINKLER PIPES CONFLICT WITH NEW WORK. REMOVE, RELOCATE, AND/OR REPLACE EXISTING SPRINKLER PIPING. NOTIFY ARCHITECT OF ANY FIELD CONFLICTS PRIOR TO PROJECT BID.
22. LINEAR LIGHTING: WHERE LINEAR LIGHTS BREAK THROUGH MAIN RUNNERS, PROVIDE CLIPS PER DETAIL 11 / A9.22

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| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | 1/8" = 1'-0" |

01 - FLOOR REFLECTED CEILING PLAN

A2.31




PROJECT NORTH

POWER PRICING PLAN | 1/8" = 1'-0" | A2.41 | 05

## KEYNOTES

| | |
|---|---|
| 12.01 | FULL HEIGHT INDUSTRIAL SHELVING PROVIDED BY OTHERS. |
| 12.02 | PROVIDE POWER FOR PRINTER AT ALL STAFF WORKSTATIONS. |
| 12.06 | FURNITURE: FURNITURE PROVIDED BY OTHERS. GC TO COORDINATE SCHEDULE TO COUNTY FOR FURNITURE INSTALLATION TIME FRAMES WITH ELECTRICAL SEQUENCING. FURNITURE VENDOR TO PROVIDE OUTLET LOCATIONS AND VERIFY IN FIELD. |

## LEGEND

CEILING | FLOOR | WALL (+TBD') | WALL (-18" AFF)

- DUPLEX OUTLET
- GFCI DUPLEX OUTLET
- DEDICATED DUPLEX OUTLET
- DUPLEX SPLIT SWITCHED OUTLET (18" AFF)
- SPECIAL OUTLET (18" AFF)
- QUADPLEX OUTLET (18" AFF TYP - WALL)
- GFCI QUADPLEX OUTLET (18" AFF TYP - WALL)
- DEDICATED QUADRUPLEX (18" AFF TYP - WALL)
- TELEPHONE OUTLET
- TELEPHONE/DATA OUTLET
- DATA OUTLET
- JUNCTION BOX
- AV — AUDIO/VISUAL FEED,PROVIDE 1 1/4" CONDUIT U.O.N.
- TV — PROJECTION SCREEN, PROVIDE J-BOX ABOVE CEILING AND BLANK SWITCH PLATE AT WALL.
- CR — CARD READER. LOW VOLTAGE WIRING BY TENANT. GENERAL CONTRACTOR TO PROVIDE FLUSH 4S BOX WITH SINGLE P_RING WITH CONDUIT AT EACH LOCATION, MOUNT AT +40" A.F.F. COORDINATE WITH CUSTOMER FOR ANY ADDITIONAL REQUIREMENTS - SEE ELECTRICAL.
- PROVIDE J-BOX FOR WORKSTATION BASE FEEDS AT WALLS/COLUMNS. 4 CIRCUIT, 8 WIRE CONFIGURATION ASSUMED U.O.N. (1) 400 WATT COMPUTER PER WORKSTATION, MAX. 8 WORKSTATIONS PER J-BOX, U.O.N. G.C. TO PROVIDE HARD-WIRE CONNECTION
- N_+TBD' — G.C. TO PROVIDE (1) DEDICATED FLUSH QUAD RECEPTACLE, PROVIDE CONDUIT FOR DATA/CABLING & AV WHERE NOTED, AND ADD 6" X 16 GA. METAL/PLYWOOD BACKING BRACING IN WALL FOR REINFORCEMENT. SEE TYPICAL WALL BRACING DETAIL. GENERAL CONTRACTOR TO COORDINATE LOCATIONS AND MOUNTING HEIGHT WITH CUSTOMER IN THE FIELD. SEE ELECTRICAL.
- FC — FLUSH MOUNTED FLOOR CORE WITH ELECTRICAL & TELEPHONE/ DATA
- FCX — PROVIDE J-BOX FOR FLUSH MOUNTED FLOOR FEED. 4 CIRCUIT, 8 WIRE CONFIGURATION ASSUMED U.O.N. (1) 400 WATT COMPUTER PER WORKSTATION, MAX 8 WORKSTATIONS PER J-BOX, U.O.N. G.C. TO PROVIDE HARD-WIRE CONNECTION
- AVD — FLUSH FLOOR MOUNTED COMBINATION ELECTRICAL DUPLEX, AV & TELEPHONE/DATA. SEE ELECTRICAL
- CR — NEW CARD READER LOCATION

TELEPHONE BACKBOARD. SEE FLOOR PLAN LEGEND FOR SCOPE

1i — EQUIPMENT TAG, SEE SHEET **A6.31** FOR EQUIPMENT SCHEDULE

HATCHED AREA INDICATES EXISTING SPACE TO NOT BE INCLUDED IN SCOPE OF WORK

## GENERAL NOTES

1. REFER TO SHEET A6.31 FOR EQUIPMENT SCHEDULE
2. REFER TO DETAILS ON "G" SHEETS FOR ACCESSIBLE REQUIREMENTS ON REACH RANGES. DIMENSIONS THAT ARE NOT STATED AS "MINIMUM" OR "MAXIMUM" ARE ABSOLUTE.
3. REFER TO SPECIFICATIONS ON "G" SHEETS FOR MATERIAL PERFORMANCE AND EXECUTION OF WORK.
4. DRAWING INTENT: ARCHITECTURAL POWER/COMMUNICATION PLAN IS TO REPRESENT SCOPE INTENT, AS COMMUNICATED TO US BY THE CLIENT FOR THE CLIENT'S FURNITURE, EQUIPMENT, POWER, AND LOW VOLTAGE. IT IS THE CLIENT'S REPRESENTATIVE, PROJECT MANAGER AND GENERAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE DIRECTLY WITH THE CLIENT'S VENDORS FOR FINAL INTENT OF ALL OF THESE ELEMENTS.
5. TRADE COORDINATION: GENERAL CONTRACTOR AND ELECTRICAL SUBCONTRACTOR ARE RESPONSIBLE FOR ALL INFORMATION FOUND ON BOTH THIS SHEET AND THE ELECTRICAL ENGINEERING SHEETS. IF IN CONFLICT, PROVIDE RFI FOR RESOLUTION.
6. CLIENT'S EQUIPMENT: U.N.O., ALL EQUIPMENT LISTED ON SCHEDULE IS TO BE PROVIDED BY CLIENT. PROVIDE AS NOTED IN DRAWINGS FRAMING, ELECTRICAL DATA AND/OR UTILITIES SUCH AS PLUMBING, HVAC OR STRUCTURE, PROVIDING FINAL EQUIPMENT SPECIFICATIONS, AMPERAGE AND NEMA CONFIGURATION WHERE APPLIES, IS THE RESPONSIBILITY OF THE CLIENT.
7. LOW VOLTAGE: COMMUNICATIONS/DATA, CABLING AND RELATED EQUIPMENT IS TO BE PROVIDED BY CLIENTS VENDOR'S. PROVIDE COORDINATION FOR SCHEDULE SEQUENCING, INFRASTRUCTURE PER PLANS AND FINAL LOCATIONS. ALL CABLING IS TO BE PLENUM RATED WHEN LOCATED IN RETURN AIR PLENUM.
8. SECURITY: U.N.O., SECURITY DEVICES SUCH AS CARD ACCESS, CAMERAS, GLASS BREAKS, ETC. ARE TO BE PROVIDED BY CLIENT'S VENDOR. PROVIDE COORDINATION FOR SCHEDULE SEQUENCING, FINAL LOCATIONS AND INFRASTRUCTURE INCLUDING DOOR PREP AS NOTED ON ALL PLANS.
9. AUDIO VISUAL: UNLESS NOTED OTHERWISE, AUDIO VISUAL INTEGRATION SUCH AS CABLING, FACE PLATES, TV MONITORS, WALL BRACKETS, RACKS AND EQUIPMENT IS TO BE PROVIDED BY CLIENT'S VENDOR. PROVIDE COORDINATION FOR SCHEDULE SEQUENCING, FINAL PRODUCT INFRASTRUCTURE LOCATIONS WITH CLIENT'S VENDOR.
10. FIRE RATING: MAINTAIN EXISTING RATING AT ALL RATED WALLS WITH NEW OUTLETS. SEE DETAIL 11 / A9.11
11. FIRE LIFE SAFETY SYSTEM: GENERAL CONTRACTOR TO PROVIDE FIRE LIFE SAFETY SYSTEMS (INCLUDING FIRE ALARM SYSTEM) COMPONENTS AND DEVICES SO THAT THEY ARE COMPATIBLE WITH ALL CURRENT JURISDICTIONAL CODES, LANDLORD'S REQUIREMENTS AND CONTENT ON CODE ANALYSIS PLAN, AS REQUIRED.
12. HARDWIRE ELECTRICAL CONNECTION: SYSTEMS FURNITURE IS BY CLIENT'S VENDOR. COORDINATE FINAL BASE INFEED OR POWER POLE LOCATION WITH CLIENT'S VENDOR. PROVIDE BUILDING ELECTRICAL CONNECTIONS. U.N.O. PROVIDE 4 CIRCUIT/8 WIRE CONFIGURATION. REFER TO ELECTRICAL ENGINEERING DRAWINGS.
13. FIELD CUT: U.N.O. ELECTRICAL SUBCONTRACTOR TO MAKE A RETURN VISIT AND CUT/SHORTEN CLIENT PROVIDED FURNITURE BASE FEED TO SHORTEST LENGTH AGREED UPON IN FIELD.
14. PLUG N PLAY OUTLETS: U.N.O. OUTLETS LOCATED WITHIN LOOSE FURNITURE SUCH AS TABLES AND LOUNGE CHAIRS, SHALL BE UL LISTED WITH CAPABILITY TO PLUG INTO A FLOOR OR WALL OUTLET AND NOT EXCEED 6'-0" IN LENGTH.
15. FLOOR CORE REPAIR: WHERE INDICATED IN DEMOLITION PLAN, OR AS NOTED ON PLANS, REPAIR ABANDONED FLOOR CORES WITH "CORPLUG" REPAIR KIT. ICC-AS-ESR# 3939 BY COREPLUG, INC.
16. DEVICE LOCATIONS: U.N.O., PROVIDE HORIZONTAL OUTLET LOCATIONS AS INDICATED ON DRAWING. VERTICAL LOCATIONS PER REACH RANGES ON "G" SERIES SHEETS. SEE DETAIL 06 / A9.11 FOR LOCATION OF MULTIPLE DEVICES IN A ROW.
17. REFER TO ELECTRICAL AND AV DRAWINGS FOR POWER AND DATA LOCATIONS.

JLee Engineering, Inc.
Approved
By Jae Lee
04/06/2026
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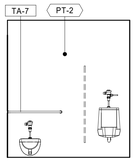
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451 E Vanderbilt Way, San Bernardino, CA 92408
Developed for SAN BERNARDINO COUNTY

| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |
| Revision | Date |

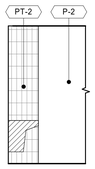
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| Checked By | SD/NF/KR |
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01 - FLOOR POWER & COMMUNICATION

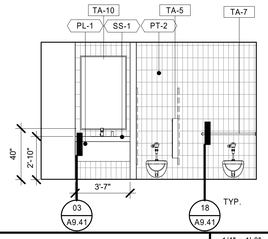
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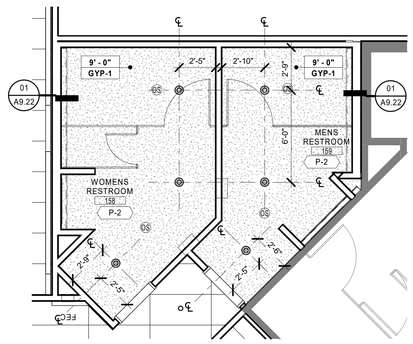

MENS RESTROOM 159 - EAST | 1/4" = 1'-0" A4.01 | 24



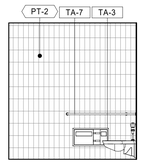

MENS RESTROOM 159 - SOUTH | 1/4" = 1'-0" A4.01 | 20



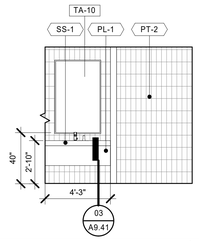

WOMENS RESTROOM 158 - WEST | 1/4" = 1'-0" A4.01 | 16



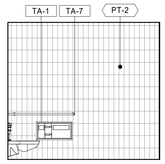

ENLARGED RESTROOM REFLECTED CEILING PLAN | 1/4" = 1'-0" A4.01 | 08



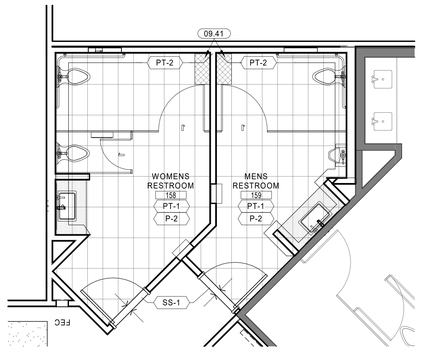

MENS RESTROOM 159 - NORTH | 1/4" = 1'-0" A4.01 | 23



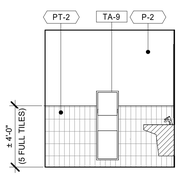

MENS RESTROOM 159 - SOUTH EAST | 1/4" = 1'-0" A4.01 | 19



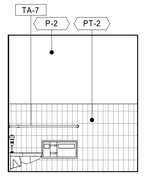

WOMENS RESTROOM 158 - NORTH | 1/4" = 1'-0" A4.01 | 15



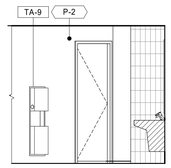

ENLARGED RESTROOM FINISH PLAN | 1/4" = 1'-0" A4.01 | 07



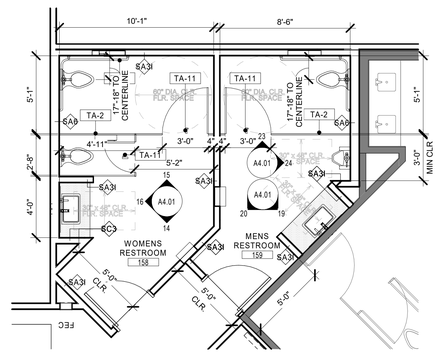

RESTROOM 113 - EAST | 1/4" = 1'-0" A4.01 | 22



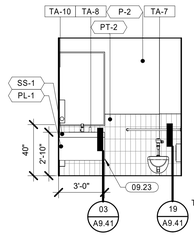

RESTROOM 113 - WEST | 1/4" = 1'-0" A4.01 | 18



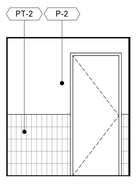

WOMENS RESTROOM 158 - SOUTH | 1/4" = 1'-0" A4.01 | 14



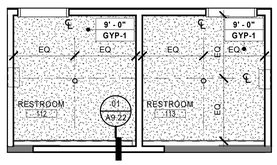

ENLARGED RESTROOM PLAN | 1/4" = 1'-0" A4.01 | 06



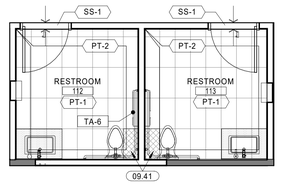

RESTROOM 113 - SOUTH | 1/4" = 1'-0" A4.01 | 21



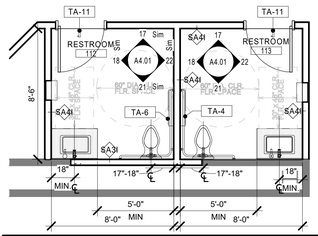

RESTROOM 113 - NORTH | 1/4" = 1'-0" A4.01 | 17




ENLARGED RESTROOM REFLECTED CEILING PLANS | 1/4" = 1'-0" A4.01 | 13




ENLARGED RESTROOM FINISH PLAN | 1/4" = 1'-0" A4.01 | 09




ENLARGED RESTROOM PLAN | 1/4" = 1'-0" A4.01 | 05

## KEYNOTES

| | |
|---|---|
| 09.23 | SKIRT WILL NEED TO BE WRAPPED TO THE WALL AT EXPOSED SIDE OF COUNTER. |
| 09.41 | TILE: START POINT OF TILE. GC TO COORDINATE TILE LAYOUT MEETING WITH ARCHITECT ON SITE PRIOR TO TILE INSTALLATION. MEETING TO REVIEW GROUT LOCATIONS IN FIELD. PROVIDE MINIMUM 48 HOUR NOTICE FOR MEETING. |

## LEGEND

| | |
|---|---|
| ? | MATERIAL FINISH, REFER TO FINISH PLAN FOR SPECIFICATION |
| 1i | TOILET ACCESSORY, REFER TO SCHEDULE |
| | ALIGN |
| | THRESHOLD, REFER TO DETAIL: **04/A9.41** |

## RESTROOM NOTES

1. REFER TO DETAILS ON "G" SHEETS FOR ACCESSIBLE REQUIREMENTS ON PLAN DIMENSIONS AND DOOR REQUIREMENTS. DIMENSIONS THAT ARE NOT STATED AS "MINIMUM" OR "MAXIMUM" ARE ABSOLUTE.
2. REFER TO SPECIFICATIONS ON "G" SHEETS FOR MATERIAL PERFORMANCE AND EXECUTION OF WORK.
3. REFER TO GENERAL NOTES ON FINISH PLANS FOR TILE AND FLOOR PREP NOTES.
4. FAUCET CONTROLS AND OTHER OPERATING MECHANISMS (OPERABLE WITH ONE HAND) SHALL BE OF THE TYPE NOT REQUIRING TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST (SUCH AS LEVER-OPERATED) AND AN OPERATING FORCE NOT EXCEEDING 5 LBS.
5. PROVIDE CODE COMPLIANT ACCESSIBLE DOOR AND WALL SIGNAGE AT RESTROOMS. ON DOORWAYS LEADING TO SANITARY FACILITIES THE SYMBOLS TO BE PROVIDED ARE 12" EQUILATERAL TRIANGLE FOR MEN, 12" DIAMETER CIRCLE FOR WOMEN, AND 1/4" THICK, CENTERED ON DOOR, 60" HIGH AND CONTRASTING COLOR. UNISEX SANITARY FACILITIES SHALL BE IDENTIFIED BY A CIRCLE 1/4" THICK, 12" DIAMETER WITH A TRIANGLE SUPERIMPOSED ON THE 12" DIAMETER CIRCLE.
6. HANDICAPPED COMPARTMENT DOOR IS TO BE EQUIPPED WITH AT AUTOMATIC CLOSING DEVICE (3 SECOND MINIMUM SWEEP TIME FROM OPEN POSITION OF 70 DEGREES TO A POINT 3" FROM LATCH). THE INSIDE AND OUTSIDE OF THE HANDICAPPED COMPARTMENT DOOR IS TO BE EQUIPPED WITH A LOOP OR U-SHAPED HANDLE IMMEDIATELY BELOW THE LATCH. THE LATCH IS FLIP-OVER STYLE, SLIDING, OR OTHER HARDWARE NOT REQUIRING TIGHT GRASPING OR TWISTING.
7. THE TILE MODULE REQUIREMENTS FOR THE RESTROOMS REQUIRE THAT THE WALLS BE LAID OUT ACCORDING TO THE TILE MODULE. COORDINATE AND REVIEW WITH ARCHITECT PRIOR TO INSTALLATION OF WALL FRAMING. WALL TILE MODULES MUST ALIGN WITH THE FLOOR MODULE. SEE DETAIL:
8. WALLS AND PARTITIONS WITHIN TWO FEET OF SERVICE SINKS, URINALS, AND WATER CLOSETS SHALL HAVE A SMOOTH, HARD, NON-ABSORBENT SURFACE TO HEIGHT OF NOT LESS THAN 4 FEET ABOVE THE FLOOR, AND THE MATERIALS IN SUCH WALLS SHALL NOT BE ADVERSELY AFFECTED BY MOISTURE (2022 CBC 1209.2.2)
9. A MINIMUM 48" LONG CLEAR SPACE IS REQUIRED IN FRONT OF ACCESSIBLE WATER CLOSETS. THERE SHALL BE A CLEAR FLOOR SPACE WITHIN THE ROOM OF AT LEAST 60 INCHES IN DIAMETER.
10. CONTROLS FOR THE FLUSH VALVES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS, NO MORE THAN 44" ABOVE THE FLOOR.
11. GRAB BAR FASTENERS AND MOUNTING SUPPORT SHALL BE ABLE TO WITHSTAND 250 LBS./FT. IN BENDING, SHEAR, AND TENSION.
12. MIRRORS SHALL BE MOUNTED WITH THE BOTTOM EDGE NO HIGHER THAN 40" FROM THE FLOOR.
13. INSULATE ALL EXPOSED HOT WATER AND DRAIN LINES UNDER SINK - SEE PLUMBING DRAWINGS.
14. FOR TYPICAL ACCESS PANEL AT TILE DETAIL, SEE DETAIL:
15. TILE AT FLOOR DRAIN.
16. GC TO VERIFY STUD DEPTH IS SUFFICIENT FOR SPECIFIED ACCESSORIES. PROVIDE SEMI-RECESSED ACCESSORIES AS REQUIRED. FOR FULLY RECESSED TOILET ACCESSORY AT TILE WALL, SEE DETAIL:
17. FOR TYPICAL TILE AT WALL CORNER DETAILS, SEE DETAIL:
18. FOR ALL ACCESSIBLE RESTROOM CLEARANCES, MOUNTING HEIGHTS AND REQUIREMENTS,, SEE SHEET G0.32

## RESTROOM ACCESSORY SCHEDULE

| TAG # | MANUF. | MODEL # | DESCRIPTION |
|---|---|---|---|
| TA-1 | BOBRICK | B-3091 | TOILET PAPER DISPENSER AND COVER COMBINATION. PROVIDE @ ALL DISPENSER LOCATIONS STAINLESS |
| TA-2 | BOBRICK | | NEW FLOOR MOUNT, NON-OVERHEAD BRACED SOLID POWDER COATED STEEL. cOLOR: tbd. PROVIDE VINYL SEALS FOR PRIVACY AT PARTITION DOORS AND PANEL JOINTS. |
| TA-3 | BOBRICK | B-3092 | ClassicSeries Recessed Toilet Seat-Cover Dispenser, Waste Disposal, and Toilet Tissue Dispenser |
| TA-4 | BOBRICK | B-30919 | ClassicSeries Toilet Seat-Cover Dispenser, Waste Disposal, and Toilet Tissue Dispenser |
| TA-5 | BOBRICK | B-3579 | Bobrick ClassicSeries® Surface-Mounted Seat-Cover Dispenser, Sanitary Napkin Disposal, and Toilet Tissue Dispenser |
| TA-6 | Bobrick | B-30929 | ClassicSeries Toilet Seat-Cover Dispenser, Waste Disposal, and Toilet Tissue Dispenser |
| TA-7 | BOBRICK | | NEW T24/ADA COMPLIANT GRAB BARS: CONCEALED MOUNTING, STAINLESS STEEL L-SHAPED 42"X54" |
| TA-8 | BRADLEY | 6315-KT 0000 | SOAP DISPENSER, COUNTER MOUNTED. |
| TA-9 | GEORGIA PACFIC PRO | PAPER TOWEL: 59466A; TRASH: 59453 | PAPER TOWEL DISPENSER AND WASTE RECEPTACLE COMBO UNIT |
| TA-10 | - | - | NEW FRAMLESS MIRRORR ABOVE COUNTERTOP. BOTTOM OF MIRROR 40" A.F.F. |
| TA-11 | BOBRICK | B-9542 | SURFACE MOUNTED COAT HOOK |

JLee Engineering, Inc.
Approved
By Jae Lee
04/06/2026
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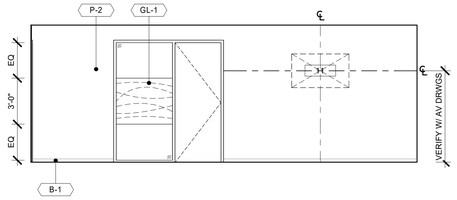
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| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

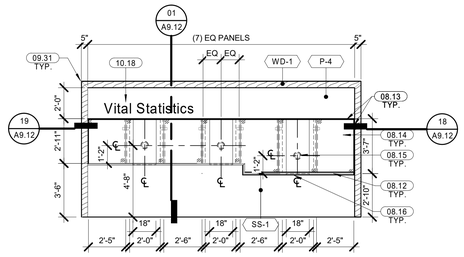
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| Checked By | SD/NF/KR |
| Scale | As indicated |

ENLARGED RESTROOM PLANS

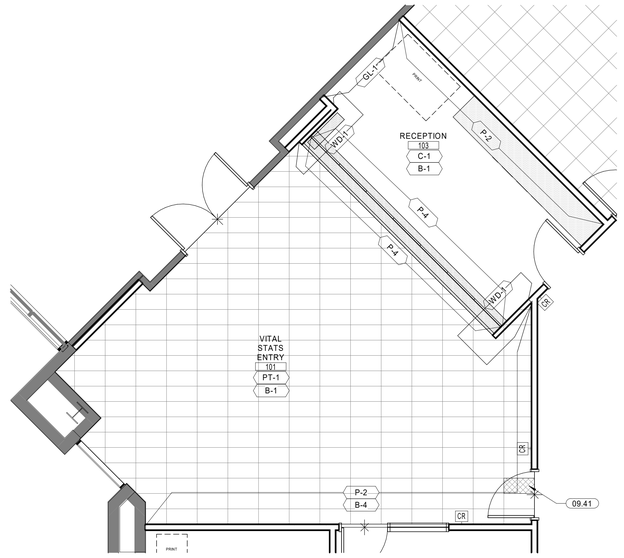
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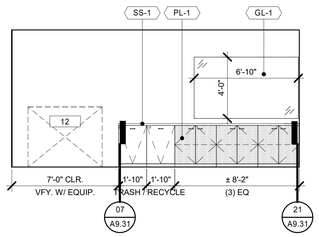

VITAL STATS ENTRY 101 - SOUTH | 1/4" = 1'-0" | A5.01 | 16



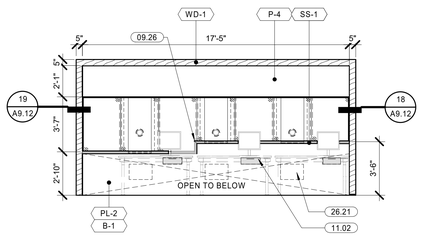

RECEPTION 103 - FRONT | 1/4" = 1'-0" | A5.01 | 15

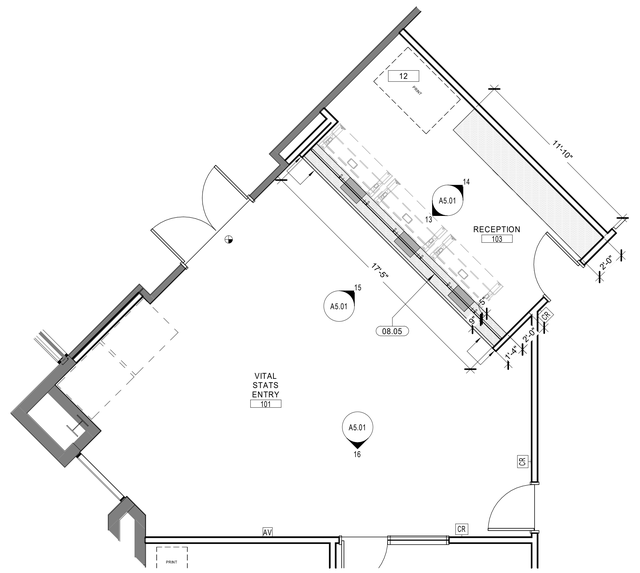



ENLARGED RECEPTION 101 FINISH PLAN | 1/4" = 1'-0" | A5.01 | 07




RECEPTION 103 - NORTHEAST | 1/4" = 1'-0" | A5.01 | 14




RECEPTION 103 - BACK | 1/4" = 1'-0" | A5.01 | 13

ENLARGED RECEPTION 101 PLAN | 1/4" = 1'-0" | A5.01 | 05

## KEYNOTES

| | |
|---|---|
| 08.05 | NEW 30" LOW WALL, BALLISTIC LEVEL 3 RATING UL 752, 36" DEEP COUNTER. |
| 08.12 | FRAMING: MANUFACTURER: TOTAL SECURITY SOLUTIONS SPEC: RATED ONE-PIECE U CHANNEL FOR FIXED SYSTEM (LEVEL 3) ALUMINUM FRAME PART #: BL2.5 FINISH: CLEAR ANODIZED |
| 08.13 | FRAMING: MANUFACTURER: TOTAL SECURITY SOLUTIONS SPEC: RATED TWO-PIECE U CHANNEL FOR FIXED SYSTEM (LEVEL 3) ALUMINUM FRAME PART #: BL2.5 FINISH: CLEAR ANODIZED |
| 08.14 | BALLISTIC LEVEL 3 PANELING. MANUFACTURE: TOTAL SECURITY SOLUTIONS<br>SPEC 1: BAFFLE WINDOW TRANSACTION LINE SYSTEM<br>PART#:TLS_BAFFLE<br>SPEC 2: LAMINATED POLYCARBONATE 1-1/4" POLY/ACRYLIC (LEVEL 3) PART #: LP1250-BR-L3 |
| 08.15 | HOLE AND BACKER VOICE PORT. MANUFACTURER: TOTAL SECURITY SOLUTIONS |
| 08.16 | PROVIDE RECESSED CURRENCY TRAY MANUFACTURER: TOTAL SECURITY SOLUTIONS SPEC: RECESSED_CURRENCY_TRAY, SIZE: 16"X10"X1 3/4" WITH BULLET TRAP AT COUNTERTOP AT EACH TRANSACTION WINDOW |
| 09.26 | MITER AT SOLID SURFACE COUNTER EDGE |
| 09.31 | MITER EDGE AT WD-1, TYP. |
| 09.41 | TILE: START POINT OF TILE. GC TO COORDINATE TILE LAYOUT MEETING WITH ARCHITECT ON SITE PRIOR TO TILE INSTALLATION. MEETING TO REVIEW GROUT LOCATIONS IN FIELD. PROVIDE MINIMUM 48 HOUR NOTICE FOR MEETING. |
| 10.18 | SIGNAGE: PROVIDE CUT ALUMINUM LETTERING ON STAND OFFS / SPACERS. |
| 11.02 | CASH DRAWERS: REFER TO EQUIPMENT PLAN AND SCHEDULE. |
| 26.21 | PROVIDE REMOVABLE PANELS FOR ELECTRICAL ACCESS. |

## LEGEND

- 1i — EQUIPMENT/TOILET ACCESSORY TAG, REFER TO - EQUIPMENT PLAN SHEETS: A2.41
- ? — FINISH SYMBOL
- FINISH CODE - SEE SHEET: A2.21
- ALIGN — ALIGN FINISHES

## GENERAL NOTES

1. REFER TO SPECIFICATIONS "G SERIES " FOR FINISH MATERIAL PERFORMANCE AND EXECUTION OF WORK.
2. REFER TO DETAILS ON "G" SHEETS FOR ACCESSIBLE REQUIREMENTS.
3. DOOR: SEE DOOR SCHEDULE ON FOR MORE INFORMATION REGARDING ELEVATED DOORS.
4. GLAZING: ALL GLAZING TO BE TEMPERED, REFER TO GLAZING SCHEDULE U.O.N.
5. MILLWORK: CONTRACTOR SHALL NOT FABRICATE ANY COMPONENT OF REQUIRED MILLWORK UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED BY THE ARCHITECT AND RETURNED TO THE CONTRACTOR.
6. MILLWORK: SHOP DRAWINGS SHALL INCLUDE: FIELD VERIFIED DIMENSIONS, CLEARLY MARKED FINISHES / LOCATIONS, HARDWARE CUTSHEETS, FABRICATION / JOINERY DETAILS, ACCESSORIES.
7. MILLWORK: ALL MILLWORK BASE TO MATCH CABINET FACE FINISH AND GRAIN DIRECTION, U.O.N.
8. MILLWORK: TOE KICK LAMINATE TO MATCH FINISH AND PATTERN DIRECTION OF CABINET FACE.
9. MILLWORK: CABINET DOOR WIDTH 18" MAX / 12" MIN. U.O.N. - EQ. SPACES REQUIRED, TYP.
10. FOR TYPICAL BACKING REQUIREMENTS, SEE DETAIL:

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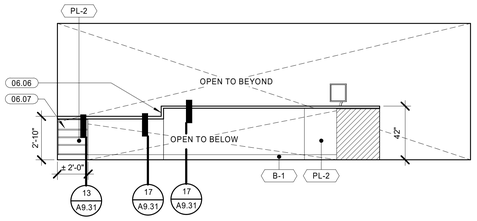
| Revision | Date |
|---|---|
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| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

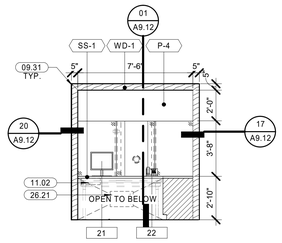
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|---|---|
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| Checked By | SD/NF/KR |
| Scale | As indicated |

ENLARGED PLANS AND INTERIOR ELEVATIONS

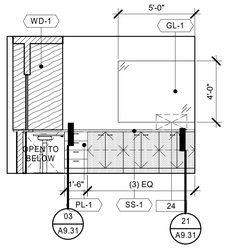
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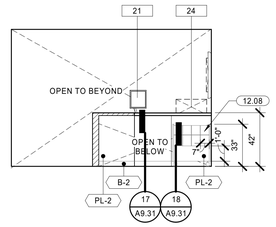

PLAN CHECK COUNTER - EAST | 1/4" = 1'-0" | A5.02 | 20



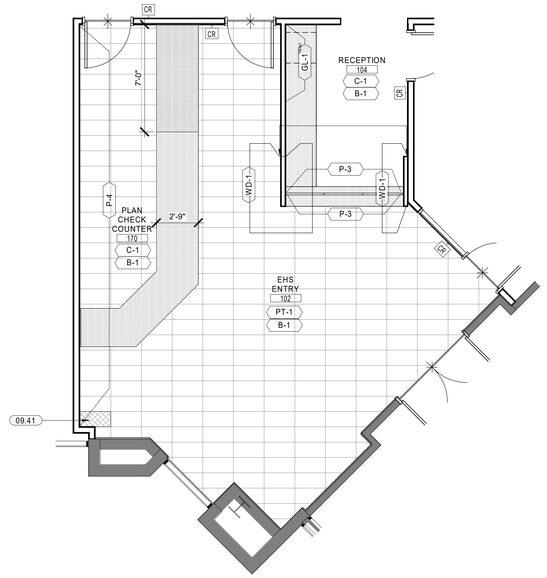

RECEPTION - SOUTH | 1/4" = 1'-0" | A5.02 | 16



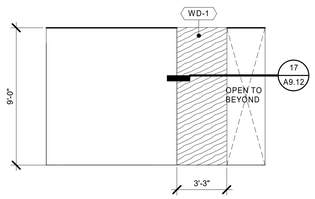

RECEPTION - WEST | 1/4" = 1'-0" | A5.02 | 19



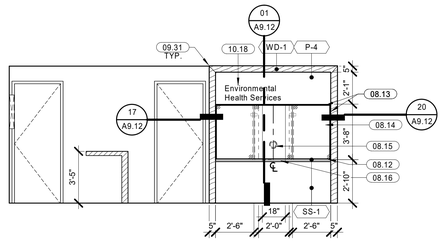

PLAN CHECK COUNTER - SOUTH | 1/4" = 1'-0" | A5.02 | 15



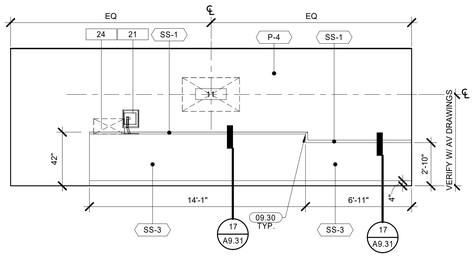

ENLARGED RECEPTION 102 FINISH PLAN | 1/4" = 1'-0" | A5.02 | 07



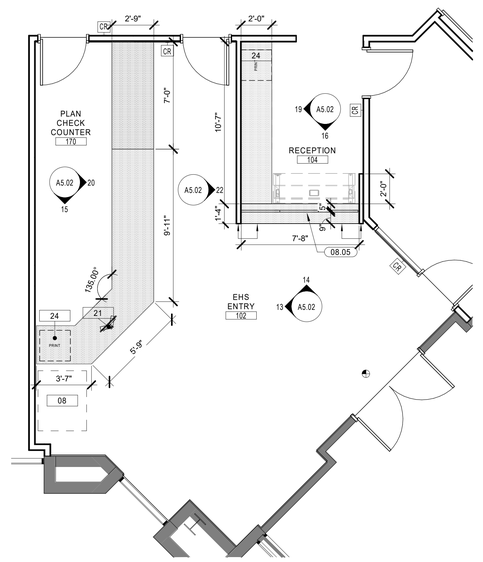

RECEPTION ENTRY 102 - EAST | 1/4" = 1'-0" | 22




RECEPTION ENTRY 102 - NORTH | 1/4" = 1'-0" | A5.02 | 14




RECEPTION ENTRY 102 - WEST | 1/4" = 1'-0" | A5.02 | 13




ENLARGED RECEPTION 102 PLAN | 1/4" = 1'-0" | A5.02 | 05

## KEYNOTES

| | |
|---|---|
| 06.06 | WATERFALL MILLWORK EDGE |
| 06.07 | CASEWORK: OPEN SHELVING |
| 08.05 | NEW 30" LOW WALL, BALLISTIC LEVEL 3 RATING UL 752, 36" DEEP COUNTER. |
| 08.12 | FRAMING: MANUFACTURER: TOTAL SECURITY SOLUTIONS SPEC: RATED ONE-PIECE U CHANNEL FOR FIXED SYSTEM (LEVEL 3) ALUMINUM FRAME PART #: BL2.5 FINISH: CLEAR ANODIZED |
| 08.13 | FRAMING: MANUFACTURER: TOTAL SECURITY SOLUTIONS SPEC: RATED TWO-PIECE U CHANNEL FOR FIXED SYSTEM (LEVEL 3) ALUMINUM FRAME PART #: BL2.5 FINISH: CLEAR ANODIZED |
| 08.14 | BALLISTIC LEVEL 3 PANELING. MANUFACTURE: TOTAL SECURITY SOLUTIONS<br>SPEC 1: BAFFLE WINDOW TRANSACTION LINE SYSTEM PART#:TLS_BAFFLE<br>SPEC 2: LAMINATED POLYCARBONATE 1-1/4" POLY/ACRYLIC (LEVEL 3) PART #: LP1250-BRL3 |
| 08.15 | HOLE AND BACKER VOICE PORT. MANUFACTURER: TOTAL SECURITY SOLUTIONS |
| 08.16 | PROVIDE RECESSED CURRENCY TRAY MANUFACTURER: TOTAL SECURITY SOLUTIONS SPEC: RECESSED_CURRENCY_TRAY, SIZE: 16"X10"X1 3/4" WITH BULLET TRAP AT COUNTERTOP AT EACH TRANSACTION WINDOW |
| 09.30 | MITER EDGE AT SOLID SURFACE, TYP. |
| 09.31 | MITER EDGE AT WD-1, TYP. |
| 09.41 | TILE: START POINT OF TILE. GC TO COORDINATE TILE LAYOUT MEETING WITH ARCHITECT ON SITE PRIOR TO TILE INSTALLATION. MEETING TO REVIEW GROUT LOCATIONS IN FIELD. PROVIDE MINIMUM 48 HOUR NOTICE FOR MEETING. |
| 10.18 | SIGNAGE: PROVIDE CUT ALUMINUM LETTERING ON STAND OFFS / SPACERS. |
| 11.02 | CASH DRAWERS: REFER TO EQUIPMENT PLAN AND SCHEDULE. |
| 12.08 | FRAMELESS GLASS SLIDING DOOR ASSEMBLY ON HEAVY DUTY CASTERS: SAFCO: #WDB197471 |
| 26.21 | PROVIDE REMOVABLE PANELS FOR ELECTRICAL ACCESS. |

## KEYNOTES, ALTERNATES

## LEGEND

- 1i — EQUIPMENT/TOILET ACCESSORY TAG, REFER TO - EQUIPMENT PLAN SHEETS: A2.41
- ? — FINISH SYMBOL
- FINISH CODE - SEE SHEET: A2.21
- ALIGN — ALIGN FINISHES

## GENERAL NOTES

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10. FOR TYPICAL BACKING REQUIREMENTS, SEE DETAIL:

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04/06/2026
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| Revision | Date |
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| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | As indicated |

ENLARGED PLANS AND INTERIOR ELEVATIONS

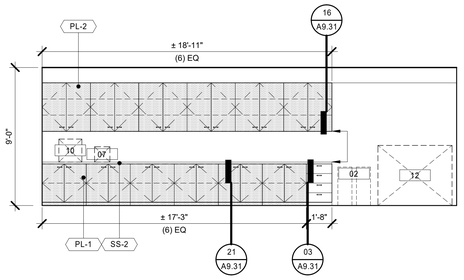
A5.02

## KEYNOTES

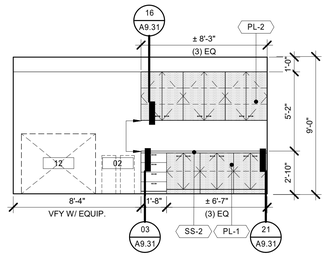
| | |
|---|---|
| 06.06 | WATERFALL MILLWORK EDGE |
| 08.17 | WINDOW FILM: INTERIOR METROPOLITAN WEST OR EQUAL. DESIGN TO INCLUDE WAVE LINEWORK. SEE FINISH SCHEDULE. |
| 09.17 | GYPSUM FINISH: PROVIDE LEVEL V FINISH THIS WALL. |
| 09.22 | PROVIDE FRY REGLET REVEAL AT END OF WALL GRAPHIC. DRYWALL REVEAL MOLDING - 1/2" REVEAL WIDTH - SATIN ANODIZED ALUMINUM. |
| 09.24 | ALL WALL DEVICES ARE TO BE FLUSH WITH ACOUSTICAL PANELS. |

## LEGEND

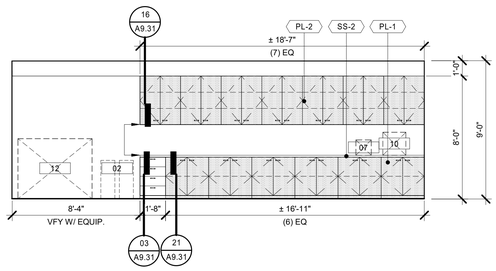
- 1i — EQUIPMENT/TOILET ACCESSORY TAG, REFER TO - EQUIPMENT PLAN SHEETS: A2.41
- ? — FINISH SYMBOL
- FINISH CODE - SEE SHEET: A2.21
- ALIGN — ALIGN FINISHES



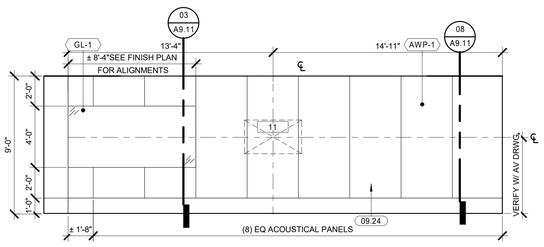

COPY / PRINT 108 - EAST | 1/4" = 1'-0" A5.03 | 20



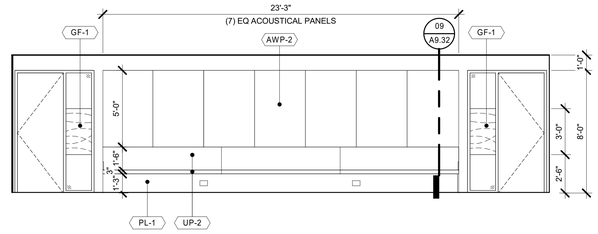

COPY / PRINT 114 - WEST | 1/4" = 1'-0" A5.03 | 16



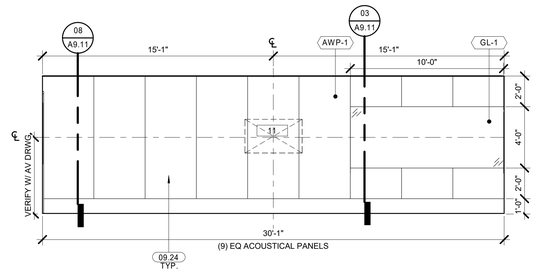

COPY / PRINT 151 - SOUTH | 1/4" = 1'-0" A5.03 | 08



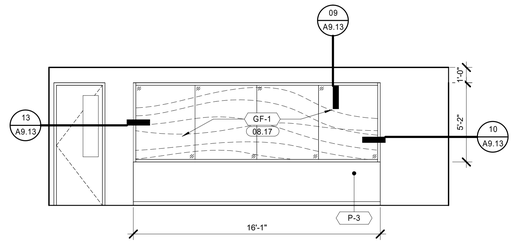

BOARDROOM 129 - SOUTH | 1/4" = 1'-0" A5.03 | 19



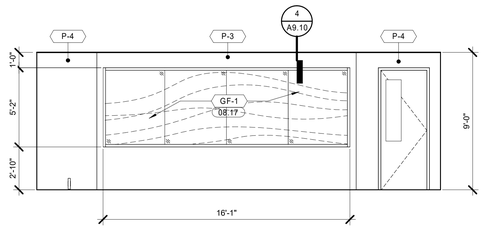

BOARDROOM 129 - WEST | 1/4" = 1'-0" A5.03 | 11



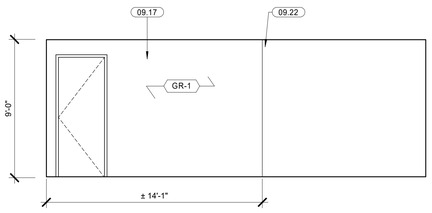

BOARDROOM 129 - NORTH | 1/4" = 1'-0" A5.03 | 03



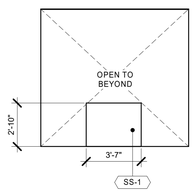

BREAKROOM BENCH 132 - NORTHWEST | 1/4" = 1'-0" A5.03 | 18



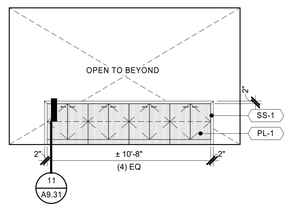

HALLWAY 161 - SOUTHEAST | 1/4" = 1'-0" A5.03 | 10



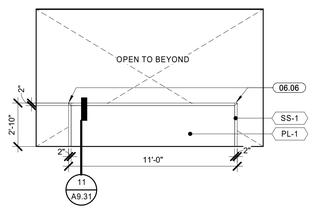

HALLWAY 161 - SOUTHWEST | 1/4" = 1'-0" A5.03 | 02



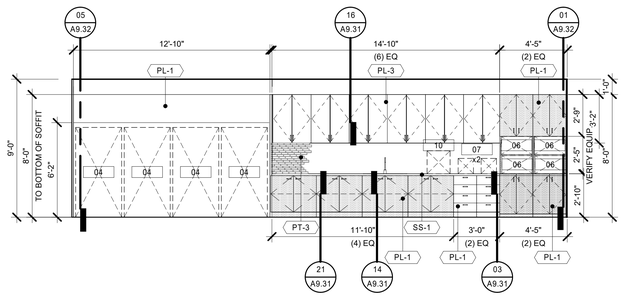

BREAKROOM ISLAND 132 - EAST | 1/4" = 1'-0" A5.03 | 17




BREAKROOM ISLAND 132 - SOUTH | 1/4" = 1'-0" A5.03 | 13




BREAKROOM ISLAND 132 - NORTH | 1/4" = 1'-0" A5.03 | 09




BREAKROOM 132 - SOUTH | 1/4" = 1'-0" A5.03 | 01


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**04/09/2026**

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|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | As indicated |

INTERIOR ELEVATIONS

A5.03

## KEYNOTES

| | |
|---|---|
| 08.17 | WINDOW FILM: INTERIOR METROPOLITAN WEST OR EQUAL. DESIGN TO INCLUDE WAVE LINEWORK. SEE FINISH SCHEDULE. |
| 09.24 | ALL WALL DEVICES ARE TO BE FLUSH WITH ACOUSTICAL PANELS. |
| 12.07 | INDUSTRIAL SHELVING PROVIDED BY OTHERS. |

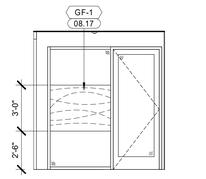
## LEGEND

1i — EQUIPMENT/TOILET ACCESSORY TAG, REFER TO - EQUIPMENT PLAN SHEETS: A2.41

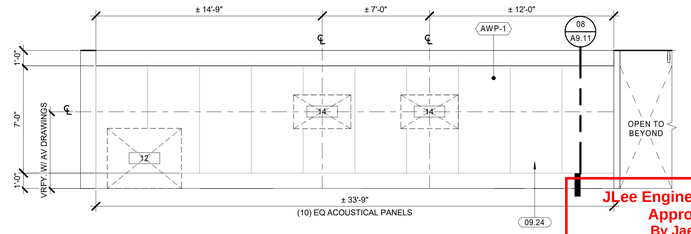
? — FINISH SYMBOL

FINISH CODE - SEE SHEET: A2.21

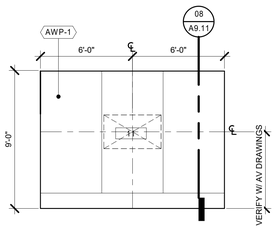
ALIGN — ALIGN FINISHES



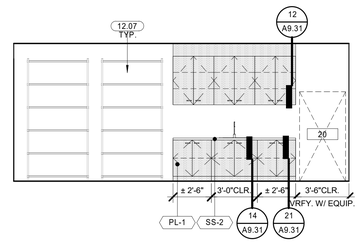

CONSULT 156 - NORTHEAST | 1/4" = 1'-0" A5.04 | 11



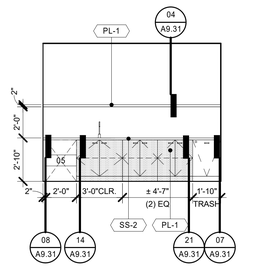

PLAN CHECK WORKSTATIONS 153 - NORTH | 1/4" = 1'-0" A5.04 | 03



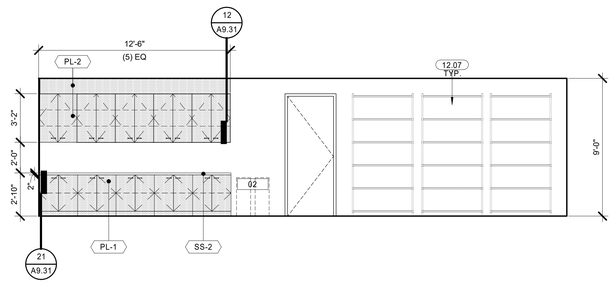

CONFERENCE 136 - WEST | 1/4" = 1'-0" A5.04 | 10




WATER SPECIMEN STORAGE 131 - NORTHWEST | 1/4" = 1'-0" A5.04 | 02




WELLNESS 130 - NORTHWEST | 1/4" = 1'-0" A5.04 | 09




BIRTH/DEATH CERTIFICATE STORAGE 107 - WEST | 1/4" = 1'-0" A5.04 | 01


LPA

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LANDSCAPE ARCHITECTURE PLANNING

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JLee Engineering, Inc.
Approved
By Jae Lee
04/06/2026

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DPH - FIRST FLOOR T.I.

451 E Vanderbilt Way, San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

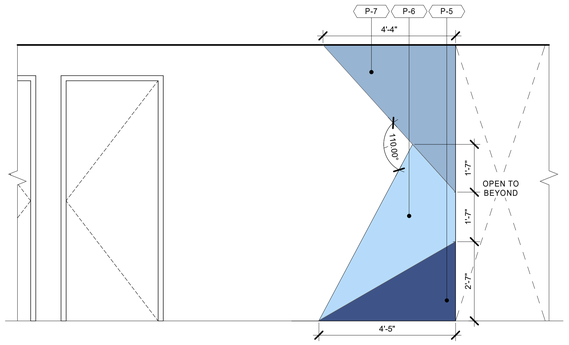
| Revision | Date |
|---|---|
| | |

| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

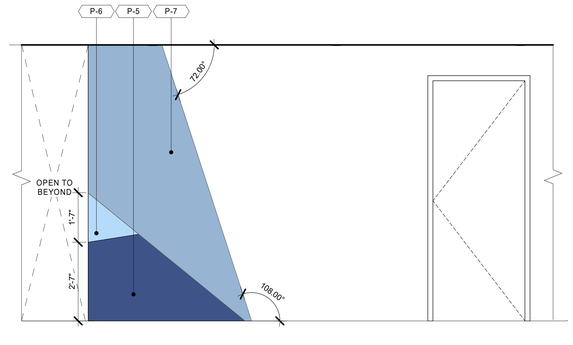
| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/INF/KR |
| Scale | As indicated |

INTERIOR ELEVATIONS

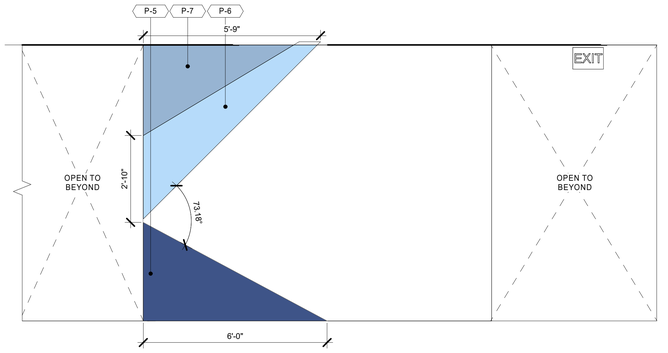
A5.04



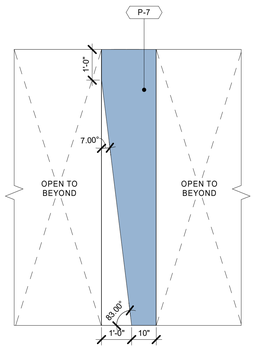

COPY/COFFEE 108 - NORTH WALL | 1/2" = 1'-0" | A5.05 | 20



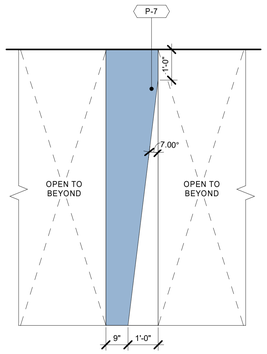

COPY/COFFEE 108 - WEST CORNER | 1/2" = 1'-0" | A5.05 | 12



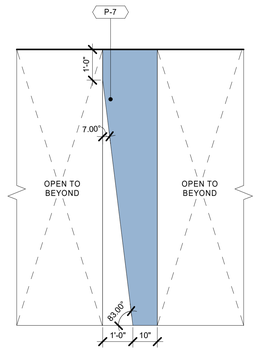

OPEN OFFICE 117 - WEST CORNER | 1/2" = 1'-0" | A5.05 | 04



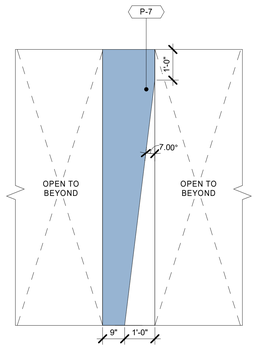

OPEN OFFICE 117 - COLUMN WEST | 1/2" = 1'-0" | A5.05 | 23



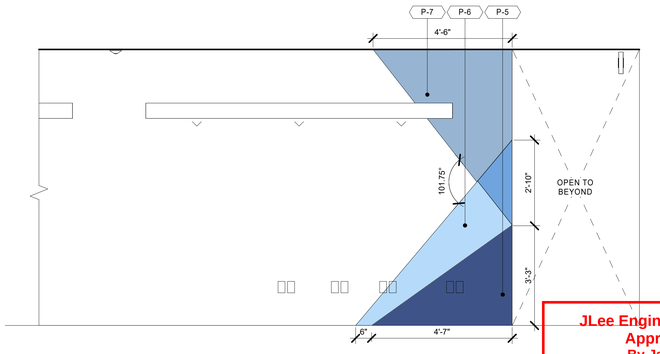

OPEN OFFICE 117 - COLUMN SOUTH | 1/2" = 1'-0" | A5.05 | 19



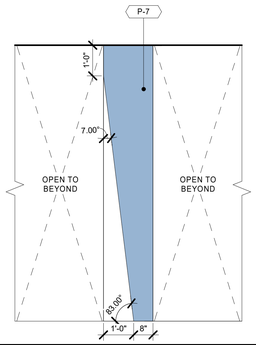

OPEN OFFICE 117 - COLUMN EAST | 1/2" = 1'-0" | A5.05 | 15



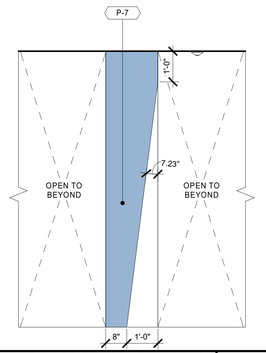

OPEN OFFICE 117 - COLUMN NORTH | 1/2" = 1'-0" | A5.05 | 11



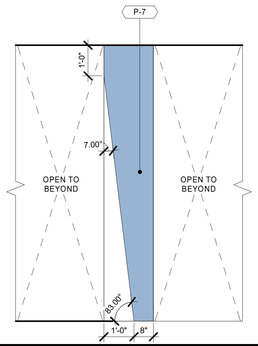

OPEN OFFICE 115 - NORTH CORNER | 1/2" = 1'-0" | A5.05 | 03



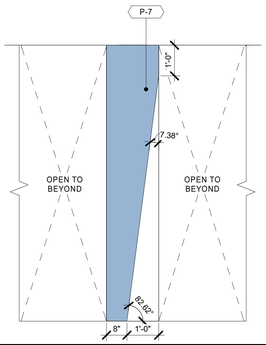

OPEN OFFICE 152 - COLUMN 2 WEST | 1/2" = 1'-0" | A5.05 | 22



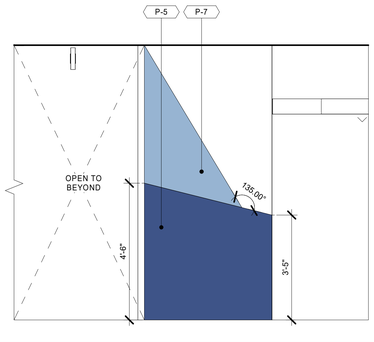

OPEN OFFICE 152 - COLUMN 2 SOUTH | 1/2" = 1'-0" | A5.05 | 18



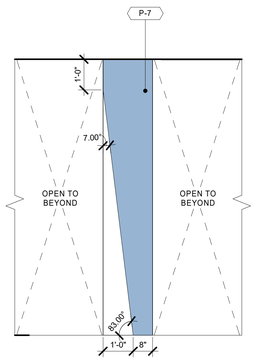

OPEN OFFICE 152 - COLUMN 2 EAST | 1/2" = 1'-0" | A5.05 | 14



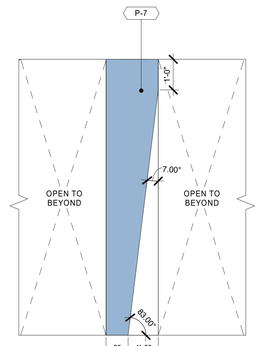

OPEN OFFICE 152 - COLUMN 2 NORTH | 1/2" = 1'-0" | A5.05 | 10



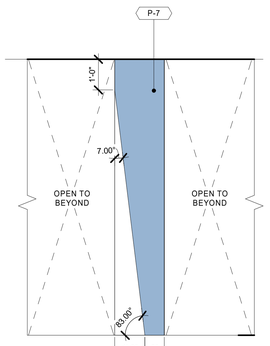

OPEN OFFICE 135 - EAST CORNER | 1/2" = 1'-0" | A5.05 | 02



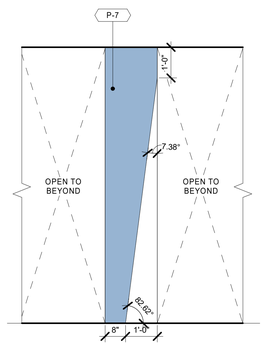

OPEN OFFICE 152 - COLUMN 1 WEST | 1/2" = 1'-0" | A5.05 | 21



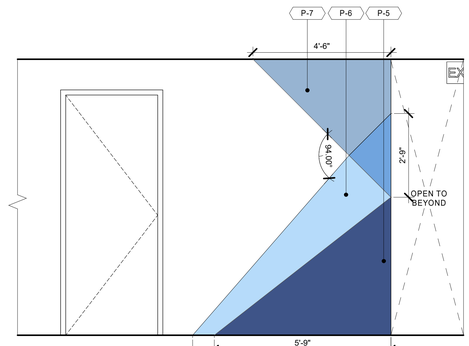

OPEN OFFICE 152 - COLUMN 1 SOUTH | 1/2" = 1'-0" | A5.05 | 17




OPEN OFFICE 152 - COLUMN 1 EAST | 1/2" = 1'-0" | A5.05 | 13




OPEN OFFICE 152 - COLUMN 1 NORTH | 1/2" = 1'-0" | A5.05 | 09




OPEN OFFICE 135 - SOUTH CORNER | 1/2" = 1'-0" | A5.05 | 01

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Approved
By Jae Lee
04/09/2026

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DPH - FIRST FLOOR T...
451 E Vanderbilt Way, San Bernardino, CA 92408
CA 92408
Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| | |

| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | 1/2" = 1'-0" |

INTERIOR ELEVATIONS

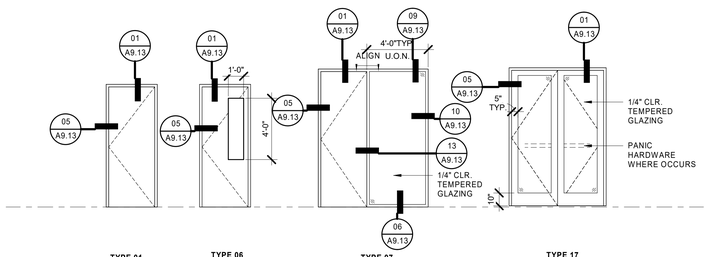
A5.05

# DOOR SCHEDULE

| DOOR NUMBER | ROOM NAME | DOOR TYPE | HARDWARE GROUP | OPENING WIDTH | OPENING HEIGHT | RATING | DOOR PANEL MATERIAL | DOOR FRAME MATERIAL | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| (E)128 | HALLWAY | 10 | S | 3'-0" | 7'-10" | 20 MIN. | WD | AL | CR,PH, VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| (E)163 | ALCOVE | 10 | S | 3'-0" | 7'-10" | 20 MIN. | WD | AL | CR,PH, VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| (E)167 | (E) TELE | 10 | EXISTING | 3'-0" | 7'-10" | 20 MIN. | WD | AL | VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| (E)168 | (E) TELE | 10 | EXISTING | 3'-0" | 7'-10" | 20 MIN. | WD | AL | VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| (E)169 | (E) BLDG STORAGE | 10 | EXISTING | 3'-0" | 7'-10" | 20 MIN. | WD | AL | VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| (E)170 | (E) 1HR RATED STAIRS #2 | 09 | EXISTING | 3'-0" | 7'-10" | 90 MIN. | WD | AL | VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| (E)171 | (E) 1HR RATED STAIRS #1 | 09 | EXISTING | 3'-0" | 7'-10" | 90 MIN. | WD | AL | VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| (E)172 | (E) TELE | 10 | EXISTING | 3'-0" | 7'-10" | 20 MIN. | WD | AL | VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| (E)173 | (E) TELE | 10 | EXISTING | 3'-0" | 7'-10" | 20 MIN. | WD | AL | VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| (E)174 | (E) BLDG STORAGE | 10 | EXISTING | 3'-0" | 7'-10" | 20 MIN. | WD | AL | VERIFY DOOR FRAME IS CLEAR ANODIZED ALUM. IF NOT, REPLACE WITH ALUM TO MATCH, STAIN EXISTING DOOR BOTH SIDES TO MATCH NEW DOORS WITH WD FINISH |
| 101A | VITAL STATS ENTRY | 17 | P | 6'-0" | 8'-10" | NR | AL | AL | GLASS INSET |
| 101B | VITAL STATS ENTRY | 01 | L | 3'-0" | 7'-10" | NR | WD | AL | CR |
| 102A | EHS ENTRY | 17 | P | 6'-0" | 8'-10" | NR | AL | AL | GLASS INSET |
| 102B | EHS ENTRY | 01 | L | 3'-0" | 7'-10" | NR | WD | AL | CR |
| 102C | PLAN CHECK COUNTER | 01 | L | 3'-0" | 7'-10" | NR | WD | AL | CR |
| 103 | RECEPTION | 01 | L | 3'-0" | 7'-10" | NR | WD | AL | CR |
| 105A | CONSULT | 07 | L | 3'-0" | 7'-10" | NR | WD | AL | CR |
| 105B | CONSULT | 01 | L | 3'-0" | 7'-10" | NR | WD | AL | CR |
| 106 | OPEN OFFICE | 01 | J | 3'-0" | 7'-10" | NR | WD | AL | PH |
| 107 | BIRTH/DEATH CERT. STORAGE | 01 | H | 3'-0" | 7'-10" | NR | WD | AL | |
| 109 | VITAL STATS STORAGE | 01 | H | 3'-0" | 7'-10" | NR | WD | AL | |
| 112 | RESTROOM | 01 | G | 3'-0" | 7'-10" | NR | WD | AL | |
| 113 | RESTROOM | 01 | G | 3'-0" | 7'-10" | NR | WD | AL | |
| 118 | PRIVATE OFFICE | 07 | C | 3'-0" | 7'-10" | NR | WD | AL | |
| 119 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 120 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 121 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 122 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 123 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 124 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 125 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 126 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 127 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 129 | BOARDROOM | 07 | J | 3'-0" | 7'-10" | NR | WD | AL | PH |
| 129B | BOARDROOM | 07 | J | 3'-0" | 7'-10" | NR | WD | AL | PH |
| 130 | WELLNESS | 01 | G | 3'-0" | 7'-10" | NR | WD | AL | |
| 131 | WATER SPECIMEN STORAGE | 01 | H | 3'-0" | 7'-10" | NR | WD | AL | |
| 132 | BREAKROOM | 06 | A | 3'-0" | 7'-10" | NR | WD | AL | GLAS VISION PANEL |
| 133 | EMERGENCY SUPPLIES, PPE | 01 | H | 3'-0" | 7'-10" | NR | WD | AL | |
| 134 | PLAN STORAGE | 01 | H | 3'-0" | 7'-10" | NR | WD | AL | |
| 136 | CONFERENCE | 08 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 137 | PRIVATE OFFICE | 07 | C | 3'-0" | 7'-10" | NR | WD | AL | |
| 138 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 139 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 140 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 141 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 142 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 143 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 144 | PRIVATE OFFICE | 07 | C | 3'-0" | 7'-10" | NR | WD | AL | |
| 145 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 146 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 147 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 148 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 149 | PRIVATE OFFICE | 07 | A | 3'-0" | 7'-10" | NR | WD | AL | |
| 150 | PRIVATE OFFICE | 07 | C | 3'-0" | 7'-10" | NR | WD | AL | |
| 156 | CONSULT | 07 | K | 3'-0" | 7'-10" | NR | WD | AL | CR |
| 156B | CONSULT | 01 | K | 3'-0" | 7'-10" | NR | WD | AL | CR |
| 157 | MEDIA ROOM | 01 | H | 3'-0" | 7'-10" | NR | WD | AL | |
| 158 | WOMENS RESTROOM | 01 | I | 3'-0" | 7'-10" | NR | WD | AL | |
| 159 | MENS RESTROOM | 01 | I | 3'-0" | 7'-10" | NR | WD | AL | |
| 160 | IDF | 01 | K | 3'-0" | 7'-10" | NR | WD | AL | CR |
| 161 | JANITOR | 01 | H | 3'-0" | 7'-10" | NR | WD | AL | |
| 171 | PRIVATE OFFICE | 07 | C | 3'-0" | 7'-10" | NR | WD | AL | |

## DOOR TYPES

**SEE DOOR SCHEDULE ON SHEET A6.31 FOR DOOR SIZES**
ALL GLASS TO BE CLEAR TEMPERED. THICKNESSES PER BELOW, UNO. SEE DOOR GENERAL NOTES FOR SAFETY GLAZING.
1/4" THICK MINIMUM = 4'-0" WIDE OR LESS, UP TO 9'-0" HIGH
3/8" THICK MINIMUM = WIDTHS > 4'-0" UP TO 5'-0" WIDE, UP TO 9'-0" HIGH
1/2" THICK MINIMUM = WIDTHS > 5'-0", UP TO 9'-0" HIGH, PROVIDE SILICON BUTT JOINT

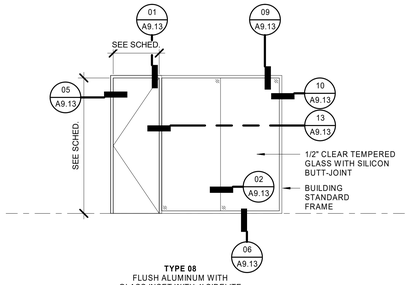



**TYPE 01** FLUSH

**TYPE 06** FLUSH WITH VISION PANEL

**TYPE 07** FLUSH WITH SIDELITE

**TYPE 17** DOUBLE FLUSH W/ GLASS INSET




**TYPE 08**
FLUSH ALUMINUM WITH GLASS INSET WITH 4' SIDELITE

## DOOR ABBREVIATIONS

| | | |
|---|---|---|
| AL | = | ALUMINUM - **CLR. ANODIZED** |
| AA | = | ANODIZED ALUMINUM |
| BG | = | BULLET-RESISTANT GLASS |
| C-OH | = | CONCEALED OVERHEAD |
| CR | = | CARD READER |
| FF | = | FACTORY FINISH - **CLR. ANODIZED** |
| FLR | = | FLOOR |
| FM | = | FILM ON DOOR AND SIDELIGHT GLAZING |
| GL | = | GLASS |
| HC | = | HOLLOW CORE |
| HCI | = | HOLLOW CORE INSULATED |
| HM | = | HOLLOW METAL |
| HO | = | HOLD OPEN |
| KP | = | KICK PLATE |
| OH | = | OVERHEAD |
| PH | = | PANIC HARDWARE |
| PL | = | PLASTIC LAMINATE **(TBD)** |
| PT | = | PAINT (SEMI-GLOSS) |
| SC | = | SOLID CORE |
| WD | = | WOOD **(1 3/4" THICK SOLID CORE PLAIN SLICED WALNUT, STAIN COLOR: RAVINE, RA18 TO MATCH ARCHITECTS SAMPLE)** |

## DOOR GENERAL NOTES

1. REFER TO THE "G" SERIES SHEETS FOR SECTIONS 081416 ALUMINUM FRAMES AND 081416 FLUSH WOOD DOORS SPECIFICATIONS U.O.N. SPECIES, FINISH AND MATERIAL IS CALLED OUT IN LEGEND.
2. REFER TO DETAILS ON "G" SHEETS FOR ACCESSIBLE REQUIREMENTS FOR DOOR ARRANGEMENTS AND REACH RANGES.
3. SECURITY HARDWARE: ALL DOORS INDICATED WITH SECURITY DEVICE SHALL BE COORDINATED WITH CLIENT AND GENERAL CONTRACTOR FOR HARDWARE TYPE AND VOLTAGE REQUIREMENTS. ELECTRONIC SECURITY HARDWARE SHALL COMPLY WITH CBC 2022 1010.1.9.9 AND 1010.1.9.10
4. DOOR /HARDWARE OPERATION: "DOOR AND GATE HARDWARE SHALL BE OPERABLE AS THE FOLLOWING: HANDLES, PULLS, LATCHES, LOCKS OR OTHER OPERABLE PARTS ON DOORS AND GATES AND MUST COMPLY WITH SECTION CBC 2022 11B-309.4. (CBC 2022 11B-404.2.7 AND 11B-309.4)
5. HARDWARE OPERATION: 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 POUNDS' MAXIMUM.(CBC 2022 SECTION 11B-309.4)
6. HARDWARE LOCATION: OPERABLE PARTS OF SUCH HARDWARE SHALL BE INSTALLED BETWEEN 34 INCHES MINIMUM AND 44 INCHES MAXIMUM ABOVE THE FINISHED FLOOR OR GROUND. (CBC 2022 11B-404.2.7) (CBC 1010.1.9.2)
7. PANIC HARDWARE: SWINGING DOORS SERVING ROOMS WITH AN OCCUPANT LOAD OF 50 OR MORE IN A GROUP 'A' ASSEMBLY AREA SHALL NOT BE PROVIDED WITH A LATCH OR LOCK OTHER THAN PANIC HARDWARE OR FIRE EXIT HARDWARE. PUSH/PULL HARDWARE IS NOT CONSIDERED LATCHING OR LOCKING AND DOES NOT IMPEDE EGRESS. PANIC HARDWARE OR PUSH/PULL HARDWARE SHALL OCCUR ON ALL DOORS ALONG THE PATH OF EGRESS THAT LEAD TO AND INCLUDING THE BUILDING EXITS FROM THE ASSEMBLY OCCUPANCY. (CBC 2022 1010.1.10)
8. EGRESS DOOR HARDWARE: EXCEPT AS SPECIFICALLY PERMITTED BY THIS SECTION, EGRESS DOORS, WHICH INCLUDE STAIRWELL DOORS, SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT. (CBC 2022 1010.1.9)
9. THRESHOLD HARDWARE: RAISED THRESHOLDS OCCURRING AT DOORS AND FLOOR LEVEL/MATERIAL CHANGES ARE ACCEPTABLE AT 1/4" VERTICAL TRANSITION ONLY. IF TRANSITION IS BETWEEN 1/4" MIN. AND 1/2" MAX. THIS TRANSITION SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2. OR ONE UNIT VERTICAL IN TWO UNITS HORIZONTAL (50 PERCENT SLOPE). (CBC 2022 1010.1.7) CBC 11B – 404.2.6 and 11b 303.2 AND 302.3)
10. DOOR OPERATION: DOOR AND GATE OPENING FORCE FOR PUSHING OR PULLING SHARE BE AS FOLLOWS: INTERIOR HINGED DOORS/GATES ,SLIDING OR FOLDING DOORS AND EXTERIOR HINGED DOORS NO GREATER THAN 5 POUNDS MAXIMUM FORCE. EXTERIOR FIRE DOORS - THE MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 POUNDS. (CBC 2022 11B- 404.2.9)
11. DOOR SURFACES: SWINGING AND GATE SURFACES WITHIN 10" OF THE FINISH FLOOR OR GROUND MEASURED VERTICALLY SHALL HAVE A SMOOTH SURFACE ON THE PUSH SIDE EXTENDING THE FULL WIDTH OF THE DOOR/GATE. NO SHARP OR ABRASIVE SURFACES AND SHALL NOT EXCEED 1 /16" OF THE SURFACE PLANES AND CAVITIES OR GAPS CREATED BY THRESHOLDS SHALL BE CAPPED. SLIDING DOORS AND HERCULITE DOORS WITH A 60 DEGREE TAPERED SHOE ARE EXCEPTIONS. (CBC 2022 11B-404.2.10)
12. DOOR VISIONLITES: DOORS, GATES AND SIDELIGHTS ADJACENT TO DOORS CONTAINING ONE OR MORE GLAZING PANELS THAT PERMIT VIEWING THROUGH THE PANELS SHALL HAVE THE BOTTOM GLAZED PANEL LOCATED STARTING AT NO HIGHER/GREATER THAN 43" MAX ABOVE FINISHED FLOOR. (CBC 2022 11B- 404.2.11)
13. SECURITY DOOR CONTROLS: MANUALLY OPERATED CONTROLS SUCH AS CARD READERS, SHALL PROVIDE A CLEAR FLOOR SPACE OF 30 X 48 IN FRONT OF THE DEVICE BEYOND THE ARC OF THE DOOR SWING. (CBC 2022 11B 404.3.5)
14. LEVEL LANDING: THERE SHALL BE A FLOOR OR LANDING ON EACH SIDE OF THE DOOR. SUCH FLOOR OR LANDING SHALL BE AT THE SAME ELEVATION ON EACH SIDE OF THE DOOR. LANDINGS SHALL BE LEVEL EXCEPT FOR EXTERIOR LANDINGS, WHICH ARE PERMITTED TO HAVE A SLOPE NOT TO EXCEED 0.25 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2% SLOPE) (CBC 2022 1010.1. 5)
15. FIRE DOOR /FRAME LABELS: FIRE DOOR AND FRAME ASSEMBLIES, WHERE INDICATED MUST BE LABELED BY AN APPROVED AGENCY. THE LABELS SHALL COMPLY WITH NFPA 80 AND BE PERMANENTLY AFFIXED TO THE DOOR OR FRAME.
16. HARDWARE: ALL DOOR WALL STOPS TO HAVE CONCEALED BACKING INSIDE WALL BEHIND THEM.
17. DOOR HARDWARE: DOOR CLOSER SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES THE TIME REQUIRED TO MOVE THE DOOR TO A POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS. (CBC 11B-404.2.8)

JLee Engineering, Inc.
Approved
By Jae Lee
02/06/2026
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DPH - FIRST FLOOR TI...

451 E Vanderbilt Way, San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Date | Revision |
|---|---|

| Date | Submittal |
|---|---|
| 08/25/2025 | CITY SUBMITTAL |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | As indicated |

DOOR TYPES & SCHEDULES

A6.00

## DOOR HARDWARE SCHEDULE

| TYPE | GROUP | FUNCTION | CR | PH | CLOSER | DESCRIPTION | HINGES / PIVOTS | STOPS | ADDITIONAL HARDWARE |
|---|---|---|---|---|---|---|---|---|---|
| INTERIOR SINGLE | A | PASSAGE LATCHSET | | | | SCHLAGE 'ND' SERIES CYLINDRICAL LATCHSET (ND10S SPARTA-626) | (2) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | B | PASSAGE LATCHSET & CONCEALED CLOSER | | PH | LCN 3130 SERIES CONCEALED CLOSER (626) | SCHLAGE 'ND' SERIES CYLINDRICAL LATCHSET (ND10S SPARTA-626), VON DUPRIN EXIT DEVICE WITH CONCEALED RODS | (2) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | C | ENTRANCE / OFFICE LOCKSET | | | | SCHLAGE 'ND' SERIES CYLINDRICAL LOCKSET (ND50PD SPARTA-626) | (2) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | D | ENTRANCE / OFFICE LOCKSET & SURFACE CLOSER | | | LCN 1461 SERIES (689) | SCHLAGE 'ND' SERIES CYLINDRICAL LOCKSET (ND50PD SPARTA-626) | (2) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | F | ENTRANCE / OFFICE LOCKSET & CONCEALED CLOSER | | | LCN 3130 SERIES CONCEALED CLOSER (626) | SCHLAGE 'ND' SERIES CYLINDRICAL LOCKSET (ND50PD SPARTA-626) | (2) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | G | PRIVACY LOCKSET W/ INDICATOR & SURFACE CLOSER | | | LCN 1461 SERIES (689) PLACE CLOSER ON INTERIOR SIDE OF ROOM UNO | SCHLAGE 'L' SERIES MORTISE INDICATOR PRIVACY LOCKSET - NON-KEYED W/ SECTIONAL ADA THUMB TURN (L9040,17A,626, L283-722). (OCCUPIED/VACANT) INDICATOR ON OUTSIDE (CYLINDER SIDE) OF DOOR | (2) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | H | STOREROOM LOCKSET & SURFACE CLOSER | | | LCN 1461 SERIES (689) PLACE CLOSER ON INTERIOR SIDE OF ROOM UNO | SCHLAGE 'ND' SERIES CYLINDRICAL LOCKSET (ND80PD, SPARTA, 626) | (2) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | I | LADDER PULL & CONCEALED CLOSER (RESTROOM PUSH/PULL) | | | LCN 3130 SERIES CONCEALED CLOSER (626) | ROCKWOOD 36" LADDER STYLE PULL (RM7212) (630), ON PULL SIDE OF DOOR, MOUNTING TYPE 8HD SURFACE CONCEALED HEAVY DUTY (INTERIOR), ASSA ABLOY ROCKWOOD RM1020 PUSH PLATE FLAT... | (2) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | J | PASSAGE LATCHSET, PANIC HARDWARE & CONCEALED CLOSER | | PH | LCN 3130 SERIES CONCEALED CLOSER (626) | SCHLAGE 'NG' SERIES CYLINDRICAL LATCHSET (ND10S SPARTA-626) & VON DUPRIN EXIT DEVICE WITH CONCEALED RODS | (2) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | K | ELECTRIFIED LOCKSET & SURFACE CLOSER | CR | | LCN 1461 SERIES (689) PLACE CLOSER ON INTERIOR SIDE OF ROOM UNO | SCHLAGE 'L' SERIES MORTISE ELECTRIFIED LOCKSET (INSIDE THUMB TURN) (L9092-EL, LEVER STYLE 17, 626) | (2) IVES 3CBI_TW (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | L | ELECTRIFIED LOCKSET & CONCEALED CLOSER | CR | | LCN 3130 SERIES CONCEALED CLOSER (626) | SCHLAGE 'L' SERIES MORTISE ELECTRIFIED LOCKSET (INSIDE THUMB TURN) (L9092-EL, LEVER STYLE 17, 626) | (2) IVES 3CBI_TW (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | M | ELECTRIFIED LOCKSET & CONCEALED CLOSER | CR | PH | LCN 3130 SERIES CONCEALED CLOSER (626) | SCHLAGE 'L' SERIES MORTISE ELECTRIFIED LOCKSET (INSIDE THUMB TURN) (L9092-EL, LEVER STYLE 17, 626), VON DUPRIN EXIT DEVICE WITH CONCEALED RODS | (2) IVES 3CBI_TW (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| INTERIOR PAIR | N | PASSAGE LATCHSET & CONCEALED CLOSER | | PH | LCN 3130 SERIES CONCEALED CLOSER (626) | SCHLAGE 'ND' SERIES CYLINDRICAL LATCHSET (ND10S SPARTA-626), VON DUPRIN EXIT DEVICE WITH CONCEALED RODS | (4) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | AUTO FLUSH BOLT DCI 942 X 626, DUST PROOF STRIKE DCI 82, COORDINATOR DCI 672. |
| | O | ENTRANCE / OFFICE LOCKSET & SURFACE CLOSER | | | LCN 1461 SERIES (689) | SCHLAGE 'ND' SERIES CYLINDRICAL LOCKSET (ND50PD SPARTA-626) | (4) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | AUTO FLUSH BOLT DCI 942 X 626, DUST PROOF STRIKE DCI 82, COORDINATOR DCI 672. |
| | P | ENTRANCE / OFFICE LOCKSET & CONCEALED CLOSER | | | LCN 3130 SERIES CONCEALED CLOSER (626) | SCHLAGE 'ND' SERIES CYLINDRICAL LOCKSET (ND50PD SPARTA-626) | (4) IVES 3CBI (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | AUTO FLUSH BOLT DCI 942 X 626, DUST PROOF STRIKE DCI 82, COORDINATOR DCI 672. |
| | Q | ELECTRIFIED LOCKSET & SURFACE CLOSER | CR | | LCN 1461 SERIES (689) | SCHLAGE 'L' SERIES MORTISE ELECTRIFIED LOCKSET (INSIDE THUMB TURN) (L9092-EL, LEVER STYLE 17, 626) | (4) IVES 3CBI_TW (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | AUTO FLUSH BOLT DCI 942 X 626, DUST PROOF STRIKE DCI 82, COORDINATOR DCI 672. |
| | R | ELECTRIFIED LOCKSET & CONCEALED CLOSER | CR | | LCN 3130 SERIES CONCEALED CLOSER (626) | SCHLAGE 'L' SERIES MORTISE ELECTRIFIED LOCKSET (INSIDE THUMB TURN) (L9092-EL, LEVER STYLE 17, 626), VON DUPRIN EXIT DEVICE WITH CONCEALED RODS | (4) IVES 3CBI_TW (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | AUTO FLUSH BOLT DCI 942 X 626, DUST PROOF STRIKE DCI 82, COORDINATOR DCI 672. |
| RATED | S | 20 MIN - SINGLE - ELECTRIFIED LOCKSET & SURFACE CLOSER & PANIC HARDWARE | CR | PH | LCN 1461 SERIES (689) REUSE EXISTING CLOSER IF POSSIBLE. PLACE CLOSER ON... | SCHLAGE 'L' SERIES MORTISE ELECTRIFIED LOCKSET (INSIDE THUMB TURN) (L9092-EL, LEVER STYLE 17, 626) & VON DUPRIN EXIT DEVICE WITH CONCEALED RODS | (2) IVES 3CBI_TW (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | |
| | T | 20 MIN - PAIR - ELECTRIFIED LOCKSET & SURFACE CLOSER | CR | | LCN 1461 SERIES (689) | SCHLAGE 'L' SERIES MORTISE ELECTRIFIED LOCKSET (INSIDE THUMB TURN) (L9092-EL, LEVER STYLE 17, 626) | (4) IVES 3CBI_TW (4 1/2" X 4 1/2") 626 | IVES FS436 (US26) | AUTO FLUSH BOLT DCI 942 X 626, DUST PROOF STRIKE DCI 82, COORDINATOR DCI 672, SEALS PEMKO HSS2000, ASTRAGAL PEMKO 355CV. |
| GLASS | U | PAIR - FRAMELESS HERCULITE - LADDER PULL & OVERHEAD CONCEALED CLOSER | | | DORMA OR RIXSON OVERHEAD CONCEALED CLOSER (630) W/ 90 DEGREE HOLD OPEN FUNCTION | TOP AND BOTTOM PATCH FITTING (630), ROCKWOOD 36" LADDER STYLE PULL (RM 7212, 630) QTY:4 | SINGLE ACTING OFFSET TOP PIVOTS | IVES FS436 (US26) | GENERAL CONTRACTOR TO PROVIDE COMPLETE GLASS DOOR AND HARDWARE ASSEMBLY. |
| | V | PAIR - FRAMELESS HERCULITE - LADDER PULL & ELECTRIFIED STRIKE & OVERHEAD CONCEALED CLOSER | CR | | DORMA OR RIXSON OVERHEAD CONCEALED CLOSER (630) W/ 90 DEGREE HOLD OPEN FUNCTION | TOP AND BOTTOM PATCH FITTING (630), ELECTRIC STRIKE, ROCKWOOD 36" LADDER STYLE PULL (RM 7212, 630), QTY:4 | SINGLE ACTING OFFSET TOP PIVOTS | IVES FS436 (US26) | GENERAL CONTRACTOR TO PROVIDE COMPLETE GLASS DOOR AND HARDWARE ASSEMBLY. |
| EXISTING | E | EXISTING TO REMAIN | | | | | | | |

NOTES

* ALL ELECTRIFIED HINGES, HARDWARE, AND CARD READERS TO BE PROVIDED BY TENANT VENDOR / G.C. (SELECT ONE) G.C. TO PREP ANY DOORS REQUIRING CARD READER WITH CONDUIT // BOXES.

* ALL DOORS WITH SECURITY ACCESS NEED TO BE IDENTIFIED BY LANDLORD / TENANT / OWNER (SELECT ONE) & HARDWARE REQUIREMENTS COORDINATED WITH G.C.

* TENANT APPROVAL OF SECURITY DEVICE TYPE AND COLOR BY LANDLORD / TENANT / OWNER (SELECT ONE) IS REQUIRED PRIOR TO INSTALLATION. LANDLORD / TENANT / OWNER (SELECT ONE) IS RESPONSIBLE FOR PROVIDING INFORMATION TO LPA FOR SUBMITTAL.

## EQUIPMENT SCHEDULE

| TAG # | TYPE | DESCRIPTION |
|---|---|---|
| | | <varies> |
| 01 | INSTA-HOT | (PROVIDED AND INSTALLED BY G.C.) *NEW SPEC, EEMAX #EX80TML-SL-SH (LAV), #MB00412OT-SH (LAV), & SPEX80T (KITCHEN SINK), SEE PLUMBING FOR EXACT SPEC. |
| 02 | TRASH CAN | (PROVIDED BY CLIENT) RUBBERMAID SLIM JIM TRASH CAN - 23 GALLON, BLACK. H-2894BL, 22"Lx11"Wx30"H |
| 04 | REFRIGERATOR - FULL SIZED | (PROVIDED AND INSTALLED BY G.C.) GC TO PROVIDE 110V, 20 AMP DEDICATED CIRCUIT. COPPER WATER LINE AS REQ'D. SPECIFICATION BY TENANT: T.B.D. **SPEC: LG LFX25991, 3 DOOR FRENCH DOOR COUNTER DEPTH. (WHEN PROVIDED BY G.C.)** |
| 05 | REFRIGERATOR - UNDERCOUNTER | (PROVIDED & INSTALLED BY G.C.) PROVIDE ADA REFRIGERATOR TO FIT UNDER ACCESSIBLE COUNTER (MARVEL MARE124SS31A 24" LOW PROFILE BUILT-IN ADA HEIGHT, STAINLESS STEEL DOOR WITH LOCK, REVERSIBLE HINGE). |
| 06 | MICROWAVE | (PROVIDED AND INSTALLED BY G.C.) EXISTING/PROVIDE 110V, 20 AMP DEDICATED CIRCUIT MOUNTED AT _____ A.F.F. SPECIFICATION BY TENANT: T.B.D. |
| 07 | COFFEE MAKER | (BY COUNTY) GC TO PROVIDE 110V, 20 AMP DEDICATED CIRCUIT WITH COPPER WATER LINE INSTALLED BY G.C., LOCATED BELOW MILLWORK. TENANT TO PROVIDE EXACT LOCATION. |
| 08 | KIOSK | (PROVIDED AND INSTALLED BY COUNTY) GC TO PROVIDE. |
| 10 | ABOVE COUNTER WATER DISPENSER | (BY COUNTY) GC TO PROVIDE 110V, 20 AMP DEDICATED CIRCUIT WITH COPPER WATER LINE INSTALLED BY G.C., LOCATED BELOW MILLWORK. TENANT TO PROVIDE EXACT LOCATION. |
| 11 | TV | (PROVIDED AND INSTALLED BY COUNTY) SPECIFICATION BY TENANT: T.B.D. G.C. TO PROVIDE BACKING, SEE ELECTRICAL LEGEND. |
| 12 | PRINTER | (BY COUNTY) GC TO PROVIDE 110V, 20 AMP DEDICATED CIRCUIT & TELEPHONE/DATA OUTLET WITH PULL STRING AT WALL LOCATIONS. PRINTER SPECIFICATION, INCLUDING AMPERAGE, BY TENANT: T.B.D. |
| 14 | PLAN CHECK MONITOR | (PROVIDED AND INSTALLED BY COUNTY) G.C. TO PROVIDE BACKING, SEE ELECTRICAL LEGEND. |
| 15 | EHS SAFE | RELOCATED AND PROVIDED BY COUNTY, NO POWER NEEDED |
| 16 | MOBILE CARTS | RELOCATED AND PROVIDED BY COUNTY, NO POWER NEEDED |
| 17 | VITAL STATS SAFE | RELOCATED AND PROVIDED BY COUNTY, NO POWER NEEDED |
| 18 | SHRED BINS | RELOCATED AND PROVIDED BY COUNTY, NO POWER NEEDED |
| 19 | PLOTTER | RELOCATED AND PROVIDED BY COUNTY |
| 20 | FREEZER | PROVIDED AND INSTALLED BY GC. PROVIDE DRAIN |
| 21 | COMPUTER/PC | (PROVIDED AND INSTALLED BY COUNTY) ASSUME 120V, 20AMP DEDICATED CIRCUIT & DATA, COORDINATE EXACT LOCATION W/ CLIENT AND ARCHITECT PRIOR TO INSTALLATION, SPEC: TBD |
| 22 | PHONE | (PROVIDED AND INSTALLED BY COUNTY) ASSUME POWER AND DATA, COORDINATE EXACT LOCATION W/ CLIENT AND ARCHITECT PRIOR TO INSTALLATION, SPEC: TBD |
| 23 | PANIC BUTTON | PROVIDED AND INSTALLED BY GC |
| 24 | DESK PRINTER | (PROVIDED BY COUNTY) GC TO PROVIDE 110V, 20 AMP DEDICATED CIRCUIT & TELEPHONE/DATA OUTLET WITH PULL STRING AT WALL LOCATIONS. PRINTER SPECIFICATION, INCLUDING AMPERAGE, BY TENANT: T.B.D. |
| 25 | CEILING SPEAKERS | (PROVIDED AND INSTALLED BY COUNTY) ASSUME DATA, COORDINATE EXACT LOCATION W/ CLIENT & ARCHITECT PRIOR TO INSTALLATION. SPEC SEE AV DRAWINGS. |
| 26 | VIDEO CONFERENCING CAMERAS | (PROVIDED AND INSTALLED BY COUNTY) ASSUME 120V OUTLET & DATA, COORDINATE EXACT LOCATION W/ CLIENT & ARCHITECT PRIOR TO INSTALLATION. SPEC: SEE AV DRAWINGS. |
| 27 | GARBAGE DISPOSAL | PROVIDED AND INSTALLED BY GC PROVIDE COUNTER MOUNTED FLUSH AIR SWITCH AT SINK. FINISH TO MATCH FAUCET. SEE ELECTRICAL. COORDINATE LOCATION WITH ARCHITECT BEFORE INSTALL |
| 28 | CASH DRAWER | PROVIDED AND INSTALLED BY GC. BUILT INTO MILLWORK DESK, MOUNTED TOP/BOTTOM OF COUNTER. SEE PLANS AND ELEVATIONS. |

JLee Engineering, Inc.
Approved
By Jae Lee
04/06/2026
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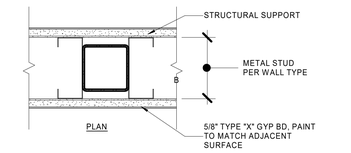
Revision Date

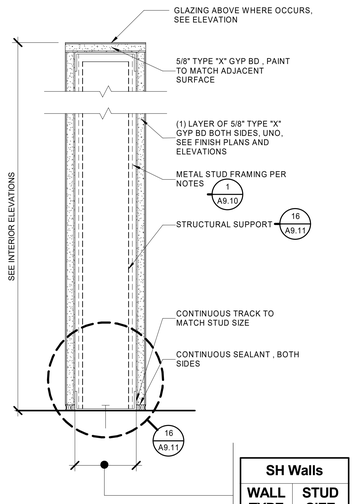
Submittal Date
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| Checked By | SD/NF/KR |
| Scale | |

SCHEDULES

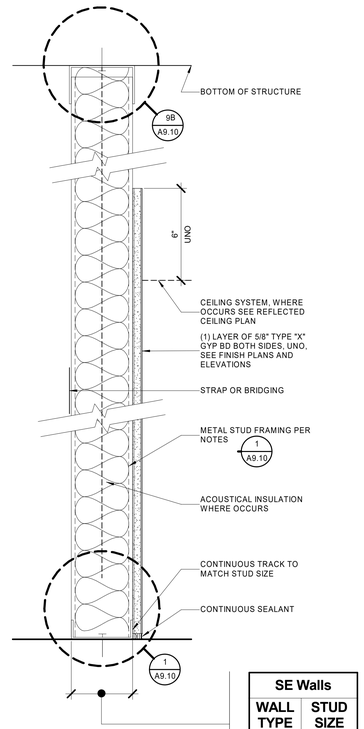
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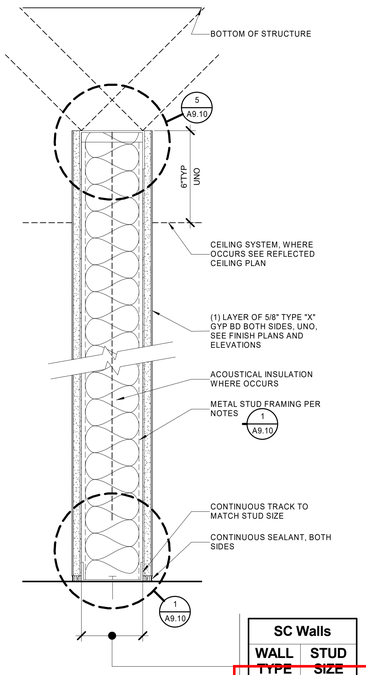

| SH Walls | |
|---|---|
| WALL TYPE | STUD SIZE |
| SH6I | 6" STUDS |

WALL TYPE "SH" 3" = 1'-0" 11



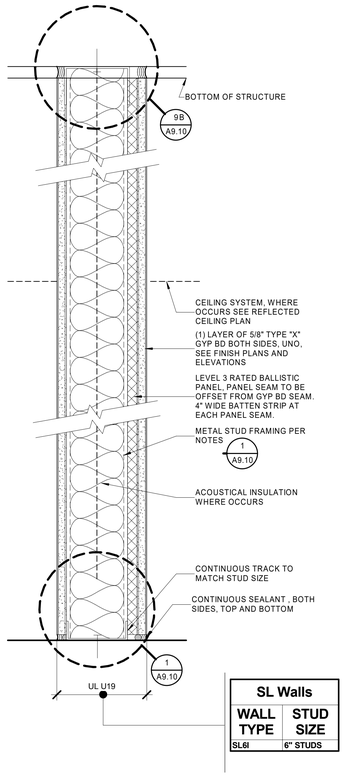

| SE Walls | |
|---|---|
| WALL TYPE | STUD SIZE |
| SE3I | 3 5/8" STUDS |

WALL TYPE "SE" 3" = 1'-0" A9.01 07



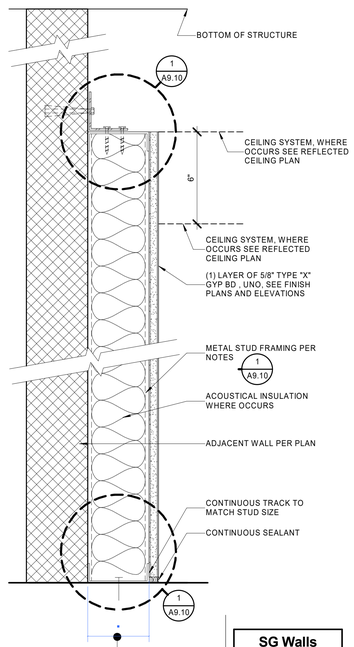

| SC Walls | |
|---|---|
| WALL TYPE | STUD SIZE |
| SC2 | 2 1/2" STUDS |
| SC3 | 3 5/8" STUDS |

WALL TYPE "SC" 3" = 1'-0" A9.01 01



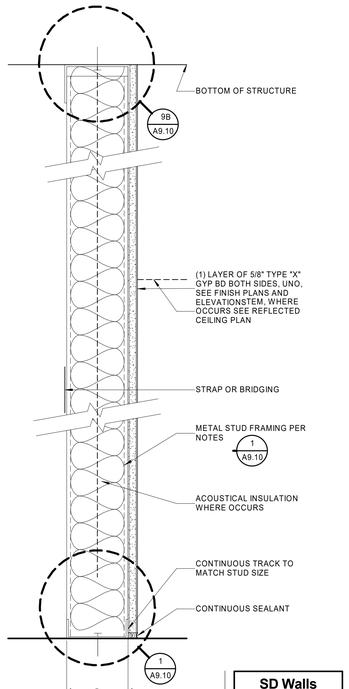

| SL Walls | |
|---|---|
| WALL TYPE | STUD SIZE |
| SL6I | 6" STUDS |

WALL TYPE "SL" (BALLISTIC) 3" = 1'-0" 13



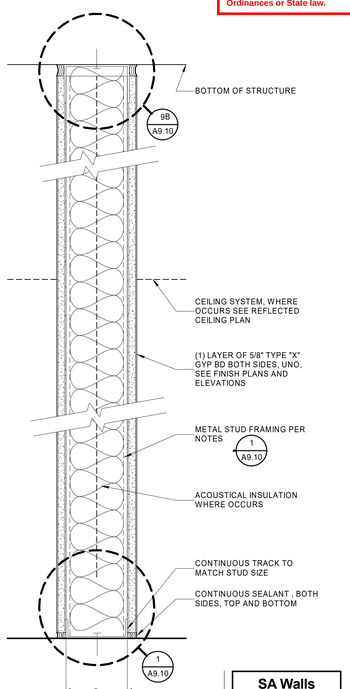

| SG Walls | |
|---|---|
| WALL TYPE | STUD SIZE |
| SG2 | 2 1/2" STUDS |
| SG3I | 3 5/8" STUDS |

WALL TYPE "SG" 3" = 1'-0" 09




| SD Walls | |
|---|---|
| WALL TYPE | STUD SIZE |
| SD2 | 2 1/2" STUDS |
| SD3I | 3 5/8" STUDS |

WALL TYPE "SD" 3" = 1'-0" 05




| SA Walls | |
|---|---|
| WALL TYPE | STUD SIZE |
| SA3I | 3 5/8" STUDS |
| SA4I | 4" STUDS |
| SA6 | 6" STUDS |

WALL TYPE "SA" 3" = 1'-0" A9.01 01

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By Jae Lee
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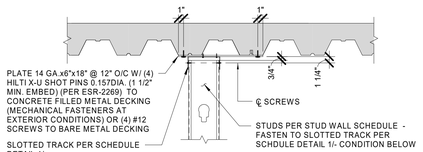
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| Submittal | Date |
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| CITY SUBMITTAL | 08/25/2025 |

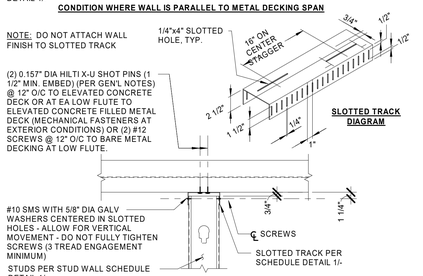
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| Checked By | SD/NF/KR |
| Scale | 3" = 1'-0" |

PARTITION DETAILS

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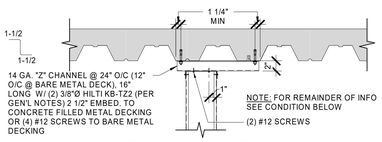



**CONDITION WHERE WALL IS PARALLEL TO METAL DECKING SPAN**

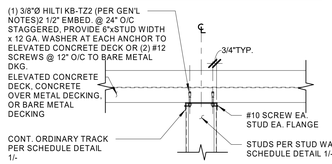



**CONDITION AT ELEVATED CONCRETE DECKS OR CONDITION WHERE WALL IS SKEWED OR PERPENDICULAR TO METAL DECKING SPAN**

## SLIP CONNECTION TO FLOOR/ROOF DECK (B)



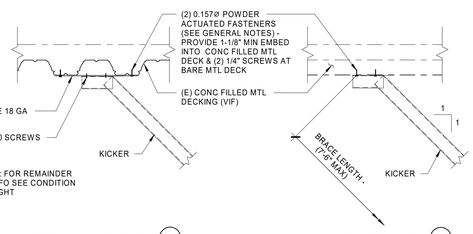

**CONDITION WHERE WALL IS PARALLEL TO METAL DECKING SPAN**

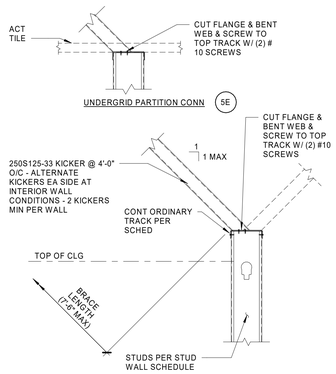



**CONDITION AT ELEVATED CONCRETE DECKS OR WHERE WALL IS SKEWED OR PERPENDICULAR TO METAL DECKING SPAN**

## RIGID CONNECTION TO FLOOR/ROOF DECK (A)

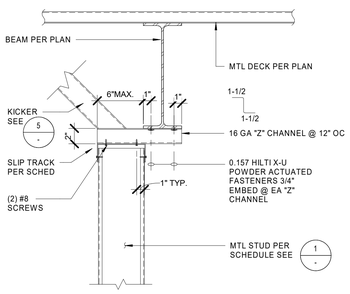
TYP RIGID & SLIP CONN @ TOP OF STUD WALL TO DECK.1 — 1" = 1'-0" — 9



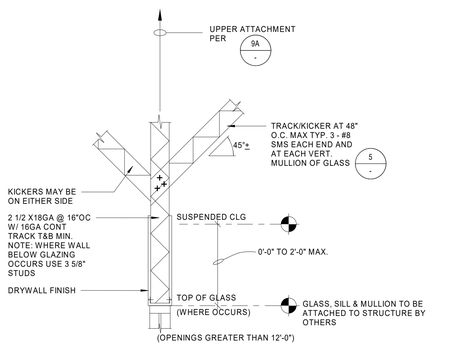




TYP CLG OR SOFFIT JOIST TO WALL CONNECTION DETAILS — 1" = 1'-0" — 6

KICKER CONNECTION — 1" = 1'-0" — 5

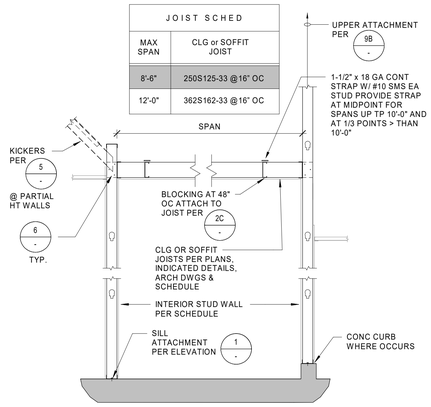



TYP STUD WALL CONSTRUCTION AT STL BEAM — 1 1/2" = 1'-0" — 8

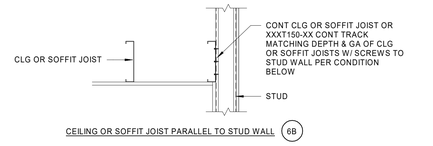


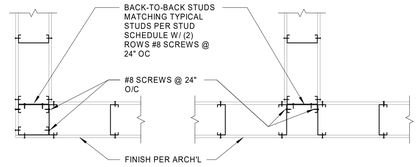

TYPICAL SEISMIC BRACING AT SOFFITS — 1" = 1'-0" — 4

| JOIST SCHED | |
|---|---|
| MAX SPAN | CLG or SOFFIT JOIST |
| 8'-6" | 250S125-33 @16" OC |
| 12'-0" | 362S162-33 @16" OC |

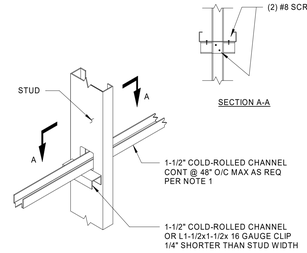


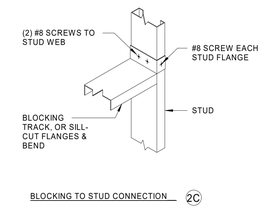

TYP CLG & SOFFIT FRAMING SECTION & SCHEDULE — 1/2" = 1'-0" — 7

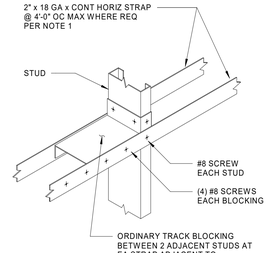



TYP NON-BEARING MTL STUDWALL @ CORNERS / INTERSEC. — 1" = 1'-0" — 3




NOTES:
1. PROVIDE STRAPS, OR OPTIONAL BRIDGING, AS SHOWN EXCEPT WHERE WALL FINISH OCCURS ON BOTH SIDES. PLACE STRAPS ON ONE SIDE IF FINISH OCCURS ONLY ON OTHER SIDE. PLACE STRAPS ON BOTH SIDES OF STUDS WHERE NO FINISH OCCURS ON EITHER SIDE.
2. PROVIDE DRYWALL SCREWS @ 4" OC TO TRACK BLOCKING WHEREVER BLOCKING OCCURS BEHIND DRYWALL FINISH.
3. DO NOT CUT OR DAMAGE VERTICAL STUDS DURING INSTALLATION OF CONNECTION ELEMENTS SUCH AS HEADERS, SILLS, BLOCKING, OR BRIDGING.

TYP MTL STUD STRAPPING OR BRIDGING DETAIL — 1" = 1'-0" — 2

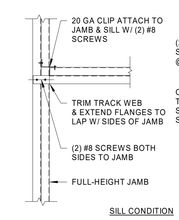
| INTERIOR STUD WALL SCHEDULE | | | | |
|---|---|---|---|---|
| MAX STUD HEIGHT "H" | METAL STUD (SSMA DESIGNATION) & SPACING | ORDINARY TRACK (SSMA DESIGNATION) | GAUGE TRACK SLOTTED | REMARKS |
| 10' - 6" | 250S125-18 @ 24" O/C | 250T125-18 | - | UNDERGRID WALL |
| 15' - 0" | 250S125-43 @ 16" O/C | 250T125-43 | 20 | FULL HT WALL |

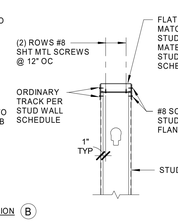
| INTERIOR HEADER SCHEDULE | |
|---|---|
| MAX OPNG LENGTH "L" | HEADER MATERIAL |
| 4'-0" | SEE (C) |
| 8'-0" | (2) 400S125-33 W/ ORDINARY TRACK TOP and BOTTOM PER STUD SCHEDULE |
| 12'-0" | (2) 600S125-33 W/ ORDINARY TRACK TOP and BOTTOM PER STUD SCHEDULE |
| 7'-0" | FLAT MEMBER MATCHING STUD MATERIAL W/ ORDINARY TRACK. SIM. TO SILL CONDITION "B". |

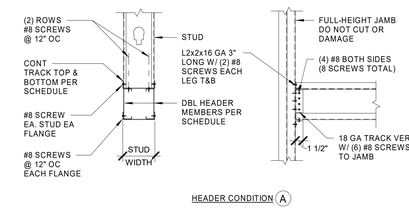
STUD WALL NOTES:
1. SEE ARCHITECTURAL PLANS FOR WALL TYPES AND LOCATION.
2. SEE LIGHT GA MTL FRAMING GENERAL NOTES.
3. PROVIDE HORIZ STRAPS (OR OPTIONAL BRIDGING) AT ALL STUD WALLS EXCEPT WHERE WALL FINISH OCCURS ON BOTH SIDES OF WALL. SEE DETAIL 2 / -
4. STUD SIZES INDICATED ON SCHEDULE IS MIN DESIGN WIDTH. REFER TO PLAN FOR SPECIAL SIZE STUDS WHERE INDICATED ON ARCHITECTURAL OR IN DETAILS. PROVIDE WIDER STUDS OF SAME GAUGE, FLANGE, & RETURN SIZES IF ARCHITECTURAL CONSTRAINTS REQ WIDER WALL THICKNESSES.
5. PROVIDE MULTIPLE STUDS AT CORNERS & INTERSECTIONS, CONN STUDS TOGETHER W/ #10 SMS @ 24" OC.

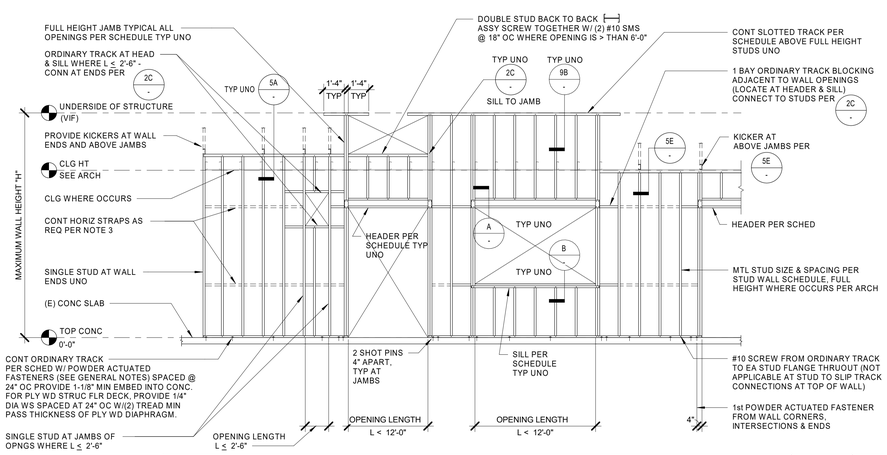
| INTERIOR SILL SCHEDULE | |
|---|---|
| MAX OPNG LENGTH "L" | SILL MATERIAL |
| 4'-0" | ORDINARY TRACK PER STUD WALL SCHEDULE |
| 12'-0" | FLAT MEMBER MATCHING STUD MATERIAL W/ ORDINARY TRACK BELOW PER STUD WALL SCHEDULE |
| | |

| INTERIOR JAMB SCHEDULE | | |
|---|---|---|
| MAX OPNG LENGTH "L" | JAMB MATERIAL | SECTION |
| 4'-0" | DOUBLE STUDS MATCHINGS STUD MATERIAL | DBL STUD BACK TO BACK; #8 SMS @18" O/C |
| 8'-0" | DOUBLE STUDS MATCHING STUD MATERIAL | |
| 12'-0" | DOUBLE STUDS 18 GAUGE MIN | |
| 16'-0" | DOUBLE STUDS 16 GAUGE MIN | |




TYP INTERIOR STUD WALL SCHEDULES AND ELEVATION — 1/4" = 1'-0" — 1




**LIGHT GAUGE METAL FRAMING GENERAL NOTES**

1. Applicable Standards: CBC Section 2210 and "Specification for the Design of Cold-Formed Steel Structural Members" of AISI, 2007 Edition including the latest Supplement, and the following standards. Minimum yield strength shall be as follows:
   A. 43 mils (18 gauge) and lighter (33 ksi):
      a. Carbon Sheet Steel to be Painted: ASTM A1003, Grade 33.
      b. Galvanized: ASTM A653, Grade A.
   B. 54 mils (16 gauge) and heavier (50 ksi):
      a. Carbon Sheet Steel to be Painted: ASTM A1003, Grade 50.
      b. Galvanized: ASTM A653, Grade D.
2. Manufacturer and Properties: Member of Steel Stud Manufacturer's Association (SSMA) complying with ICC-ESR 3064P or Cemco complying with ICC-ESR 3016. Provide punched studs as scheduled in these drawings with minimum effective section properties as indicated in referenced evaluation report.
3. Minimum Gauge Thicknesses: Indicated properties are based on the following thicknesses:
   12 ga. - 0.1017 inch, 97 mils 14 ga. - 0.0713 inch, 68 mils 16 ga. - 0.0566 inch, 54 mils
   18 ga. - 0.0451 inch, 43 mils 20 ga. - .0329 inch, 33 mils 25 ga. - .0179 inch, 18 mils
4. Track Material: Provide unpunched track of dimensions to ensure proper fit of studs with minimum effective section properties as indicated in referenced evaluation report.
5. Lateral Bridging for Studs: Required when rigid wall finish does not continue full height on either or both sides of studs. Install horizontal straps or cold-rolled channels as shown and in accordance with Section D3 of AISI specification. See typical details.
6. Lateral Blocking for Joists: Joists shall be braced by full depth blocking at all points of support. Joist blocking shall also be provided at the following locations: See typical details.
7. Joist Web Punch-Out Locations: Web punch-outs shall not be located closer than twice the member depth from edge of bearing support or concentrated loads, 12" minimum. Do not provide punchouts at tracks.
8. Securing Studs and Braces: Plumb, align and tightly nest in both upper and lower tracks with secure attachment to both flanges of tracks. Splices in axial loaded studs and braces are not permitted.
9. Welding: ANSI/AWS D1.3 and CBC Section 2210. Wire tying of framing components is not permitted.
   A. Welder Certification: Governing Code Authority.
   B. Electrodes: E60XX at 33 ksi members, E70XX at 50 ksi members.
   C. Touch-Up: Zinc-rich paint at galvanized members and regular paint at carbon sheet steel.

**PROPRIETARY ANCHORAGES and FASTENERS**

1. Anchorages:
   A. Drill and Epoxy Anchors: HILTI HIT-RE 500 V3 adhesive system using threaded steel rods
   B. conforming to ASTM F1554, grade 36, or reinforcing steel conforming to ASTM A615, grade 60, or ASTM A706, grade 60, complying with ICC-ES Evaluation Report No. 3814. Installers to be certified by manufacturer. Substituting drill and epoxy anchors for cast-in-place reinforcing embedments will not be accepted.
   C. Mechanical Anchors: Hilti Kwik Bolt TZ carbon steel expansion anchors complying with ICC-ES Evaluation Report No. 1917.
   D. Welded Shear Studs: Nelson S3L flux filled, headed stud anchors, 60,000 psi minimum ultimate tensile strength, automatically end welded in field conforming to ASTM A108 and complying with ICC-ES Evaluation Report No. 2856.
   E. Welded Deformed Anchors: Nelson D2L, cold rolled, deformed steel reinforcing bars conforming to ASTM A496 and complying with ICC-ES Evaluation Report No. 2907.
2. Fasteners:
   A. Powder Actuated Fasteners: Hilti Low-velocity Powder Actuated Drive, 0.157" diameter (X-U), complying with ICC ES Report No. 2269. Provide appropriate washer between fastener head and light gauge metal or wood surface. (All shot pins shall be of this kind) Shot pins shall not be used @ PT slab or beams.
   B. Self-Drilling Metal Screws (Indicated "Screws" on Drawings): HILTI Self-Drilling screw complying with current ICC ES Evaluation Report ESR-2196.
   C. Concrete screws: Simpson Titen HD complying with current ICC ES evaluation report ESR-2713.
3. Installation: See manufacturer's written instructions and referenced ICC-ES evaluation report.
   A. Drilling Holes in Existing Concrete or Masonry for Anchorages: Use non-pneumatic, rotary hammer tools with ANSI compliant non-rebar cutting drill bits to drill holes of proper tolerances. Locate existing rebar including prestressing and post-tensioning tendons using non-hazardous, non-destructive methods with accurate location tolerances (plus or minus 1/4-inch) prior to drilling holes to avoid cutting or damaging. Holes shall be thoroughly cleaned per manufacturer's written recommendations prior to installation of anchorages.
   B. Deleterious Materials: Keep anchorages, including holes for drill and epoxy anchors and mechanical anchors, free of dust, grease, and other materials that impair bond.

GENERAL NOTES — 1/4" = 1'-0" — A


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Approved
By Jae Lee
04/06/2026
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| Revision | Date |
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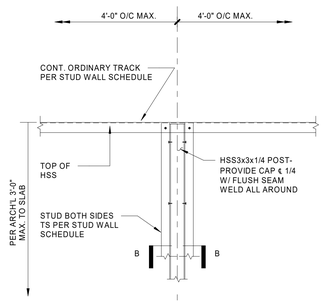
| Submittal | Date |
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| CITY SUBMITTAL | 08/25/2025 |

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|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | As indicated |

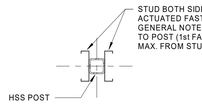
TYPICAL LIGHT GAUGE METAL STUD DETAIL

A9.10

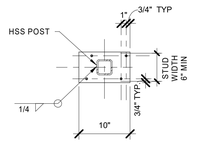
NOTE: GRADE OF STEEL TUBE SHALL BE ASTM A500 GRADE B 9'46 KSI)



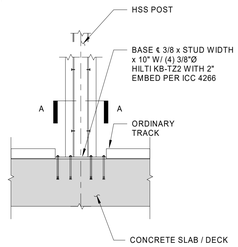

CONDITION AT SILL (16B)




SECTION B-B

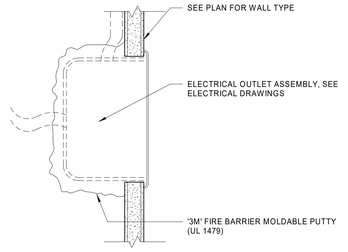



SECTION A-A



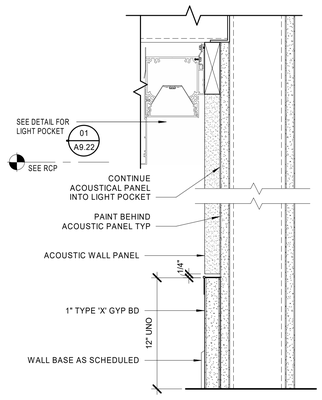

CONDITION AT CONCRETE SLAB (16A)

## TYPICAL HSS POST AT INTERIOR WALLS. — 1" = 1'-0" — A9.11 — 16

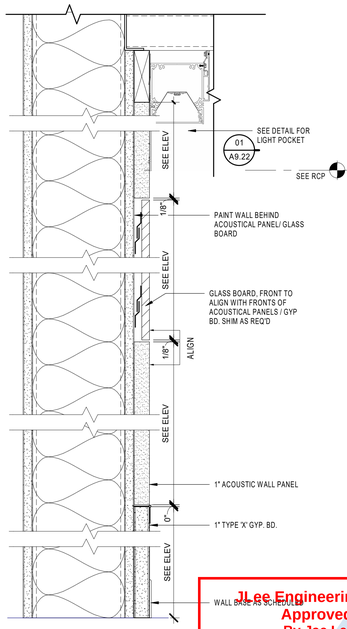


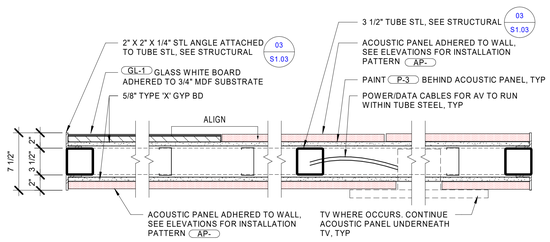

**NOTE:**
1. FOR OUTLET PLACEMENT AND REQUIRED FIRE AND ACOUSTICAL SEPARATION, REFER TO 06 / A9.11

## ELECT OUTLET @ RATED WALL. — 6" = 1'-0" — 11

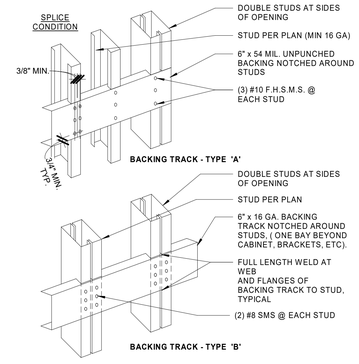



## ACOUSTIC PANEL EDGE AT BASE — 3" = 1'-0" — 08



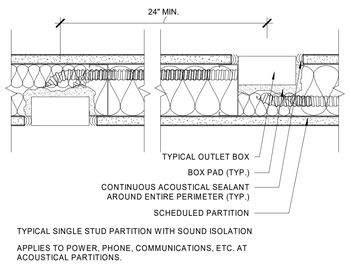

## FLOATING PIN-UP WALL SECTION — 1 1/2" = 1'-0" — 19




**BACKING TRACK NOTES:**

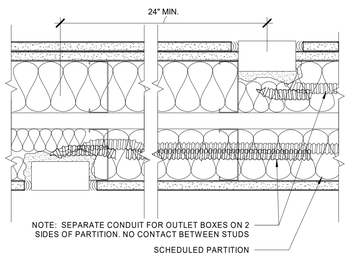
1. BACKING TRACK TYPE 'A' - FOR MISCELLANEOUS ITEMS I.E. SURFACE MOUNTED MIRRORS, WASTE RECEPTACLES, TOWEL DISPENSERS, ETC., MAXIMUM WEIGHT: 50 POUNDS.
2. BACKING TRACK TYPE 'B' - FOR UPPER WALL-HUNG CABINETS (UP TO 2 SHELVES), BASE CABINETS, FULL HEIGHT CABINETS, FILM VIEWING COUNTER, WALL-HUNG BENCHES, HANDRAILS, GUARDRAILS, GRAB BARS, WALL-HUNG EQUIPMENT, TOWEL BARS, ETC., MAXIMUM WEIGHT: 250 POUNDS.
3. VERIFY LENGTH, HEIGHT, LOCATION OF BACKING PLATE & NUMBER REQUIRED WITH EQUIPMENT ACCESSORY MANUFACTURERS.
4. USE #12 SELF TAPPING SHEET METAL SCREWS WHEN ATTACHING ITEMS TO METAL BACKING PLATE.
5. WALL STUD FLANGES ARE CONTINUOUS.
6. BACKING TRACKS SHALL BE LONGER THAN HUNG EQUIPMENT, ACCESSORY, CABINET BY ONE STUD SPACING AT EACH END (ALL CONDITIONS).

## BACKING TRACK AND SUPPORT (HEAVY DUTY) — 3/8" = 1'-0" — 10




TYPICAL SINGLE STUD PARTITION WITH SOUND ISOLATION

APPLIES TO POWER, PHONE, COMMUNICATIONS, ETC. AT ACOUSTICAL PARTITIONS.

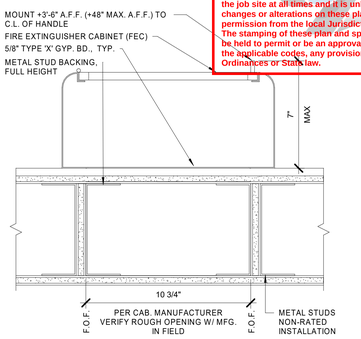



TYPICAL DOUBLE STUD PARTITION WITH SOUND ISOLATION (SIMILAR FOR STAGGERED STUDS)

APPLIES TO POWER, PHONE, COMMUNICATIONS, ETC. AT ACOUSTICAL PARTITIONS.

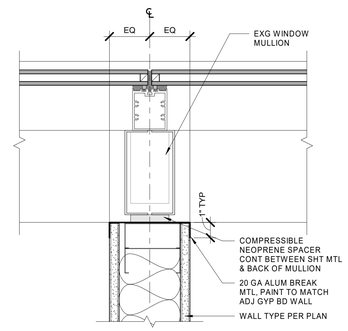
**NOTES:**
1. PLACE OUTLET BOXES IN SEPARATE STUD SPACES
2. BACK-TO-BACK OUTLETS NOT PERMITTED.
3. PLUG ALL UNUSED KNOCK-OUTS IN OUTLET BOXES WITH KNOCK-OUT CAPS.
4. PROVIDE BACKING
5. DEPTH OF OUTLET BOX MUST BE COMPATIBLE WITH STUD SIZE TO ACCOMMODATE BOX PAD.
6. ACOUSTICAL BOX PAD REQUIREMENT APPLIES TO ALL PARTITIONS WITH ACOUSTICAL INSULATION.

## OUTLET BOX PLAN. — 3" = 1'-0" — 06

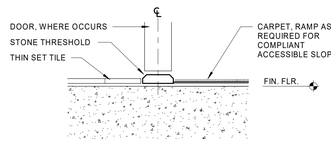



**NOTE:**
1. CONTRACTOR SHALL PROVIDE APPROPRIATE FIRE EXTINGUISHER CANISTER AS APPROVED BY THE STATE FIRE MARSHALL
2. ALL FIRE EXTINGUISHER SHALL HAVE A VALID STATE FIRE MARSHALL CERTIFICATION TAG AFFIXED.
3. MAINTAIN FIRE RATING OF PARTITION AT RATED WALL.

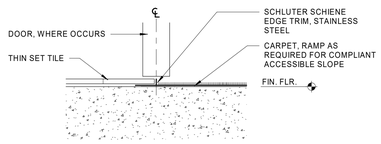
## SURFACE MOUNTED FIRE EXT. CABINET — 3" = 1'-0" — A9.11 — 02



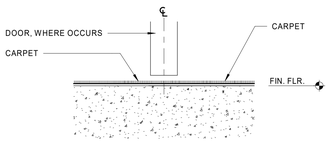

## 1 - COLUMN FURRING — 3" = 1'-0" — 21



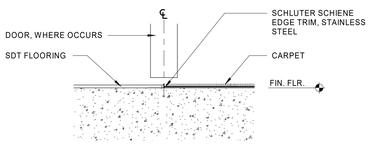

**RESTROOM THRESHOLD AT TILE TO CARPET**




**TILE TO CARPET**



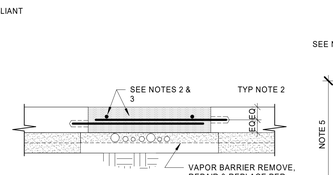

**CONTINUOUS FLOOR FINISH**



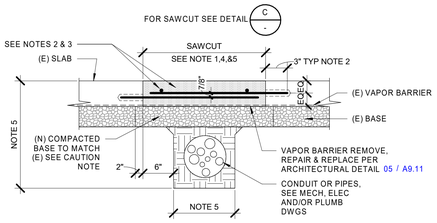

**LVP / SDT / LVT TO CARPET**

TRANSITIONS:
- PROVIDE STAINLESS STEEL SCHLUTER STRIP SCHENE EDGE TRANSITION AT TRANSITIONS 1/4" CHANGE IN ELEVATION OR LESS.
- PROVIDE STAINLESS STEEL SCHLUTER RENO-U TRANSITION AT TRANSITIONS GREATER THAN 1/4" UP TO 1/2".
- FOR TRANSITIONS GREATER THAN 1/2", PROVIDE SCHLUTER SCHENE EDGE TRIM AND RAMP UP AT POLISHED CONCRETE.

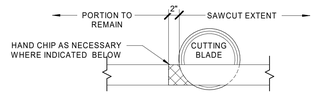
## FLOOR FINISH TRANSITIONS — 3" = 1'-0" — 17



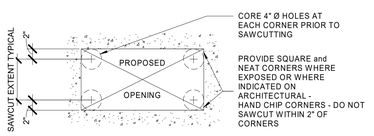

**ELECTRICAL TRENCH (VIF)** (B)




**PLUMBING TRENCH (VIF)** (A)




**SECTION**

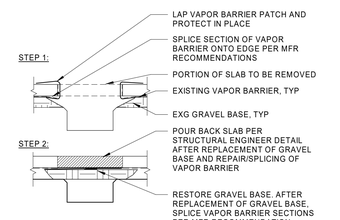



**PLAN**

TYPICAL SAWCUT DETAIL (C)

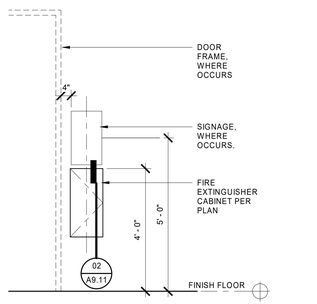
NOTES:
1. SAW-CUTTING SHALL BE AVOIDED NEAR ANY OF THE (E) PAD FOOTINGS, GRADE BEAMS, AND CONT FOOTINGS.
2. REBAR TO MATCH (E) SIZE AND SPACING IN BOTH DIRECTIONS (#4 @ 18" OC MIN), INSTALL REBAR IN SIMPSON "SET-XP" EPOXY ADHESIVE PER ICC EVALUATION REPORT NUMBER #ESR-2508. SPECIAL INSPECTION IS NOT REQUIRED UNLESS NOTED ON THE PLANS.
3. CONCRETE STRENGTH SHALL BE 4000 PSI. REBAR SHALL BE 60 KSI. SPECIAL INSPECTION IS NOT REQ.
4. REPLACE & RECOMPACT SOIL MATERIAL PER GEOTECHNICAL REPORT OR MATCH (E) COMPACTION.
5. FOR ANY SLAB ON GRADE SAW-CUTTING THAT IS NOT SHOWN ON THESE DWG, PRIOR TO CUTTING THE SLAB, THE CONTRACTOR SHALL SUBMIT SHOP DWG TO THE ARCHITECT SHOWING LOCATIONS, WIDTH, DEPTH, AND LENGTH OF TRENCH. SIZE OF TRENCH WILL BE AS REQ BY ELECTRICAL OR PLUMBING.
6. VERIFY IN FIELD ALL (E) INFO.
7. CONTRACTOR SHALL DETERMINE WHICH TRENCH DETAIL TO USE, EXCEPT WHERE A DETAIL IS SPECIFICALLY REFERENCED ON THE PLAN.
8. INSPECTION IS REQ WHEN CALLED OUT ON PLAN.

## TYPICAL SAW CUT SLAB TRENCH — 1" = 1'-0" — A9.11 — 09




NOTES:
1. VAPOR BARRIER REPAIR TO BE USED ONLY WHERE BARRIER HAS BEEN CUT IN SLAB. ALL VAPOR BARRIER MEMBRANE REPAIRS SHALL BE MADE WITH THE SAME MATERIALS AS ORIGINAL MEMBRANE WITH TAPE AND OTHER ACCESSORIES PROVIDED BY THE MEMBRANE MFR, NO OTHER MATERIALS MAY BE USED.
2. GENERAL CONTRACTOR TO COORDINATE WITH THE IRVINE COMPANY CONSTRUCTION MANAGER FOR APPROVAL OF VAPOR BARRIER REPAIR PRIOR TO POURING BACK SLAB.

## VAPOR BARRIER REPAIR — 1 1/2" = 1'-0" — 05




**GENERAL NOTE:**
NO CONDUIT OR ELECTRICAL FIRE ALARM BACK BOXES WHERE RECESSED FIRE EXTINGUISHER CABINETS ARE LOCATED

## FIRE EXTINGUISHER MOUNTING DETAIL. — 1/2" = 1'-0" — 01


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**By Jae Lee**
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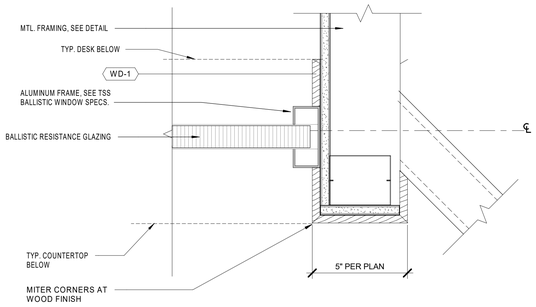
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| Date | Submittal |
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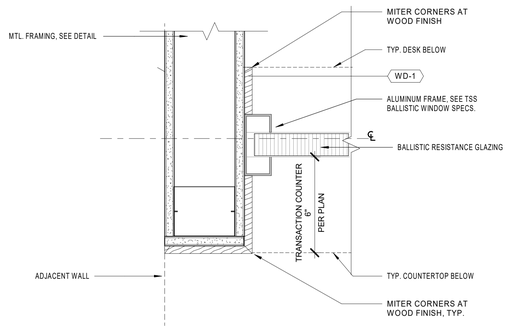
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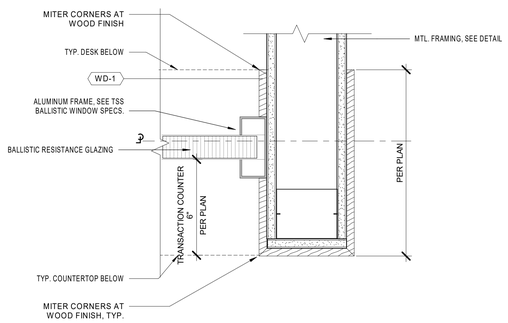
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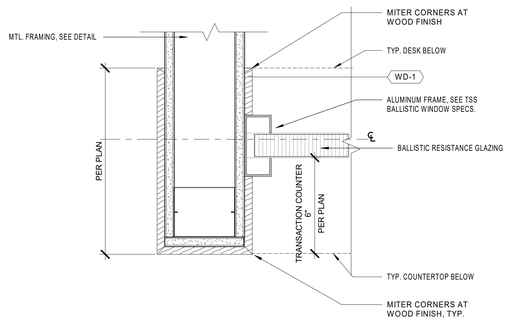

EHS ENTRY 102 - BALLISTIC WINDOW JAMB AT WD-1 - B | 3" = 1'-0" | 20



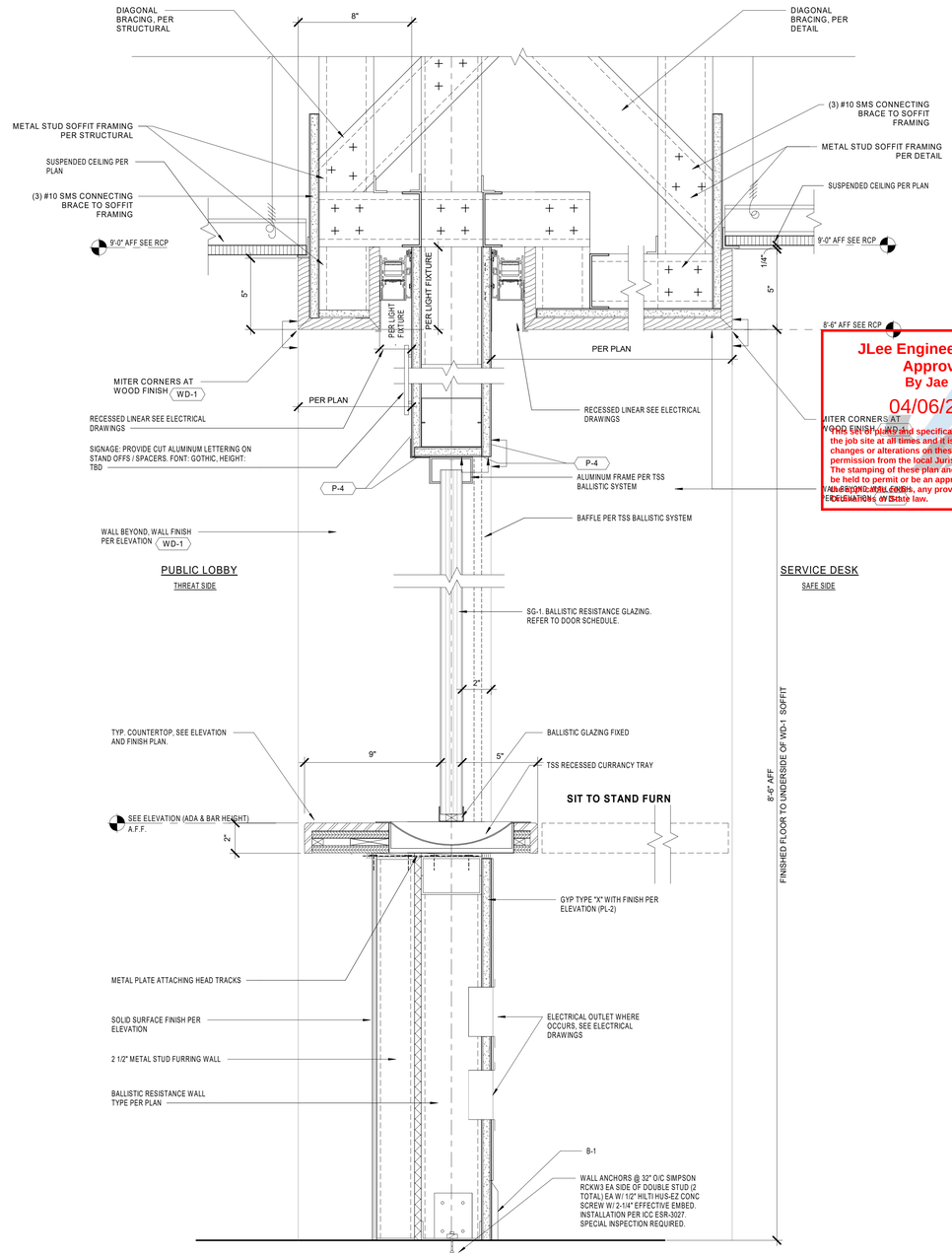

VITAL STATS ENTRY 101 - BALLISTIC WINDOW JAMB AT WD-1 - A | 3" = 1'-0" | 19




VITAL STATS ENTRY 101 - BALLISTIC WINDOW JAMB AT WD-1 - B | 3" = 1'-0" | 18




EHS ENTRY 102 - BALLISTIC WINDOW JAMB AT WD-1 - A | 3" = 1'-0" | 17




BALLISTIC TRANSACTION WINDOW | 3" = 1'-0" | 01

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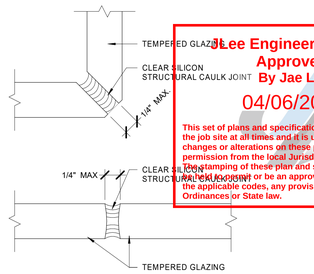
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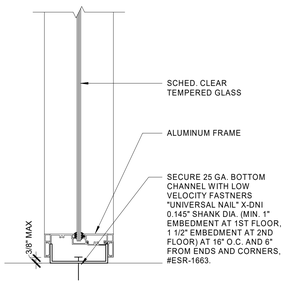
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INTERIOR DETAILS

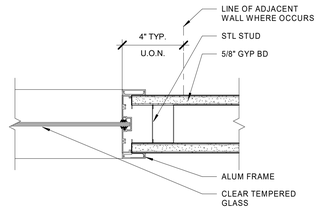
A9.12



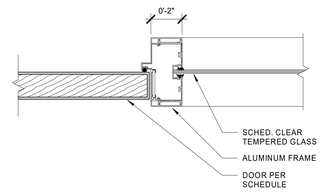

STD. BUTT GLAZING JOINT1 | 12" = 1'-0" | A9.13 | 02



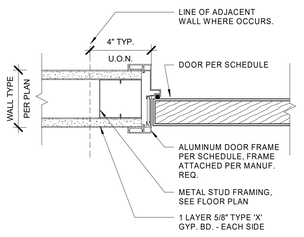

GLASS SILL | 3" = 1'-0" | A9.13 | 06



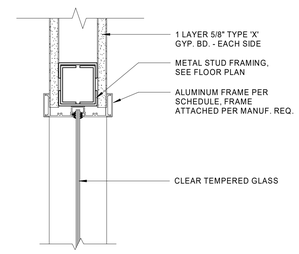

GLASS JAMB (HEAD SIM) | 3" = 1'-0" | A9.13 | 10




ALUM FRAME DOOR HEAD | 3" = 1'-0" | A9.13 | 01




ALUM FRAME DOOR JAMB1 | 3" = 1'-0" | A9.13 | 05




**NOTE:**
WHERE OPEN EXCEEDS HEADER,
SEE SCHEDULE ON 1/A9.10

ALUM FRAM GLASS HEAD | 3" = 1'-0" | A9.13 | 09




DOOR/GLASS JAMB | 3" = 1'-0" | A9.13 | 13

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**S Lee Engineering, Inc.**
**Approved**
**By Jae Lee**
04/06/2026

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DPH - FIRST FLOOR TI
INTERIOR TI

451 E Vanderbilt Way, San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

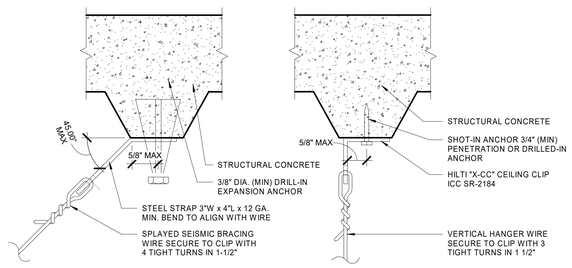
| Revision | Date |
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| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

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|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | As indicated |

DOOR DETAILS

A9.13

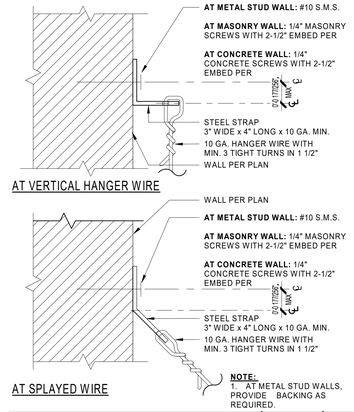



**NOTES:**
1. NO FASTENERS SHALL BE DRIVEN UNTIL CONCRETE HAS REACHED ITS FULL COMPRESSIVE STRENGTH.
2. SHOT IN ANCHORS NOT ALLOWED FOR BRACING WIRES.OUT OF 10 HANGER WIRE/ANCHOR ASSEMBLIES SHALL BE FIELD TESTED FOR 200 LBS. IN TENSION.
3. OUT OF 2 BRACING WIRE ASSEMBLIES SHALL BE FIELD TESTED FOR 400 LBS. IN TENSION IN THE DIRECTION OF THE WIRE.

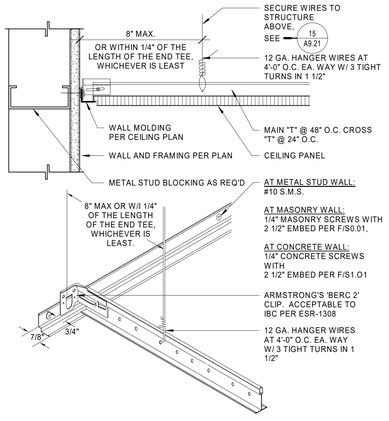
(A) SPLAYED BRACING WIRE CLIP ATTACHMENT

(B) VERTICAL HANGER WIRE CLIP ATTACHMENT

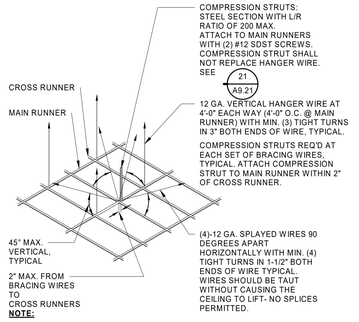
WIRE CONNECTION @ STEEL DECK WITH CONCRETE INFILL | 6" = 1'-0" | 16




SEISMIC BRACING CONNEC. TO WALL | 6" = 1'-0" | 12




OPP WALL OF STARTER WALL | 3" = 1'-0" | 08



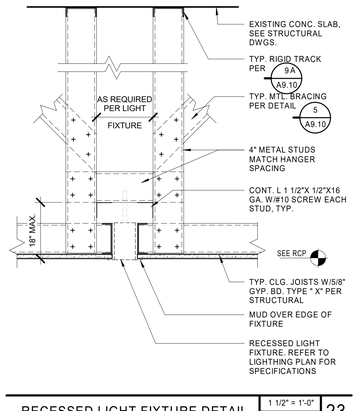

**NOTE:**
1. FOR CONNECTIONS OF BRACING & HANGER WIRES TO STRUCTURE ABOVE, SEE 15 A9.21
2. FOR CONNECTIONS OF BRACING & HANGER WIRES TO WALL, SEE 12 A9.21
3. FOR CONNECTIONS OF HANGER WIRES @ BARE MTL DECK, SEE 14 A9.21

SPLAY BRACING DETAIL | 12" = 1'-0" | 04

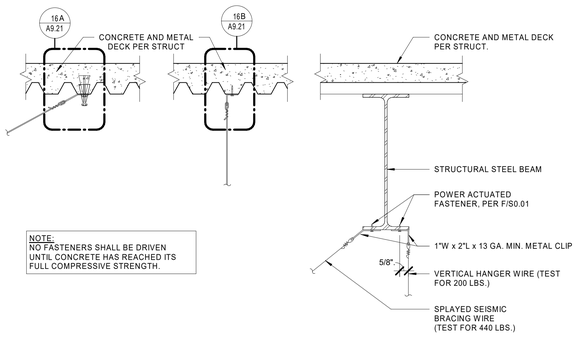

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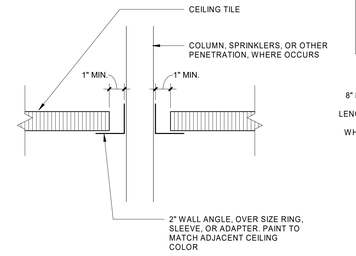




RECESSED LIGHT FIXTURE DETAIL | 1 1/2" = 1'-0" A9.21 | 23

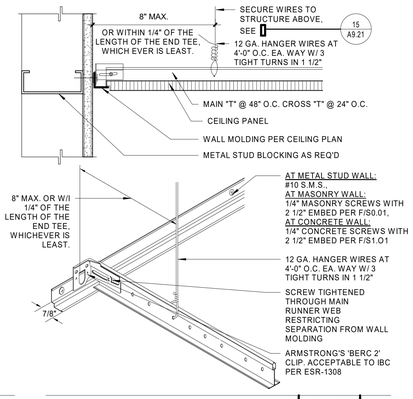



**AT STEEL DECK** **AT STEEL BEAMS**

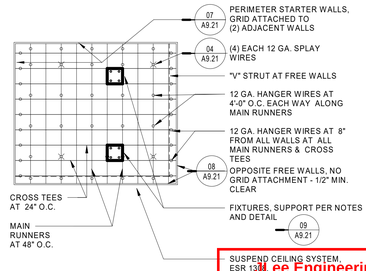
WIRE CONNECTIONS TO STEEL BEAMS & STEEL DECK | 1 1/2" = 1'-0" | 15




CEILING PENETRATION | 6" = 1'-0" | 11

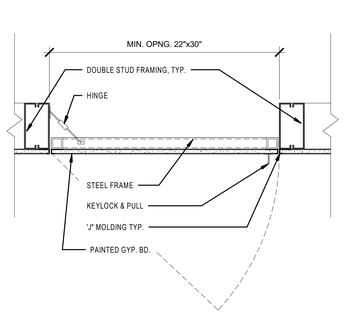



PERIMETER STARTER WALL | 3" = 1'-0" | 07

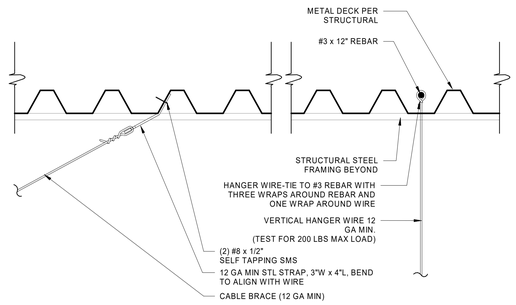



NOTES:
1. THESE PLANS AND SPECIFICATIONS ARE FOR FLAT AND LEVEL CEILING SYSTEMS, WHOSE TOTAL WEIGHT INCLUDING CEILING MOUNTED AIR TERMINALS, SERVICES AND LIGHT FIXTURES DO NOT EXCEED FOUR (4) PSF. HEAVIER SYSTEMS, SYSTEMS THAT ARE NOT FLAT AND LEVEL, AND/OR SUPPORTING LATERAL LOADS FROM PARTITIONS WILL REQUIRE SPECIAL DESIGN DETAILS.
2. SPLICES WILL NOT BE PERMITTED IN ANY HANGER WIRES.
3. CEILING PANELS SHALL NOT SUPPORT ANY LIGHT FIXTURES, AIR TERMINALS OR DEVICES.
4. PROVIDE TRAPEZE OR OTHER SUPPLEMENTARY SUPPORTING DEVICES AT OBSTRUCTIONS TO MAINTAIN HANGER SPACING, PROVIDE ADDITIONAL HANGERS, STRUTS OR BRACES AS REQUIRED AT ALL CEILING BREAKS, SOFFITS OR DISCONTINUOUS AREAS. HANGER WIRES THAT ARE MORE THAN 1 IN 6 OUT OF PLUMB SHALL HAVE COUNTER-SLOPING WIRES.
5. MAIN RUNNERS, CROSS RUNNERS, SPLICES, EXPANSION DEVICES, AND INTERSECTION CONNECTORS SHALL BE DESIGNED TO CARRY A MEAN ULTIMATE TEST LOAD OF NOT LESS THAN 180 LBS IN COMPRESSION AND TENSION.
6. PROVIDE SETS OF FOUR (4) 12 GA. SPLAYED BRACING WIRES ORIENTED 90 DEGREES FROM EACH OTHER AT THE FOLLOWING SPACING:
   A: PLACE SETS OF BRACING WIRES NOT MORE THAN 12'x12' O.C.
   B: PROVIDE BRACING WIRES AT LOCATIONS NOT MORE THAN 1/2 THE SPACING GIVEN IN 'A' ABOVE FROM EACH PERIMETER WALL AND AT THE EDGE OF VERTICAL CEILING OFFSETS.
7. FASTEN HANGER WIRES WITH NOT LESS THAN THREE (3) TIGHT TURNS. FASTEN BRACING WIRES WITH FOUR (4) TIGHT TURNS. MAKE ALL TIGHT TURNS WITHIN A DISTANCE OF 3". HANGER OR BRACING WIRE ANCHORED TO THE STRUCTURE SHALL BE INSTALLED IN SUCH A MANNER THAT THE DIRECTION OF THE WIRE ALIGNS AS CLOSELY AS POSSIBLE WITH THE DIRECTION OF THE FORCES ACTING ON THE WIRE.
8. SEPARATE ALL CEILING HANGER AND BRACING WIRES AT LEAST SIX (6) INCHES FROM ALL UNBRACED DUCTS, PIPES. CONDUIT, ETC. IT IS ACCEPTABLE TO ATTACH LIGHTWEIGHT ITEMS, SUCH AS STROBE LIGHTS, OCCUPANCY SENSORS, SPEAKERS, EXIT SIGNS, ETC. SHALL BE ATTACHED TO THE CEILING GRID. IN ADDITION DEVICES WEIGHING MORE THAN 10 LBS SHALL HAVE A #12 GAGE SLACK SAFETY WIRE ANCHORED TO THE STRUCTURE ABOVE. DEVICES WEIGHING MORE THAN 20 LB SHALL BE SUPPORTED INDEPENDENTLY FROM THE STRUCTURE ABOVE.
9. ATTACH ALL LIGHT FIXTURES TO THE CEILING GRID RUNNERS TO RESIST A HORIZONTAL FORCE EQUAL TO THE WEIGHT OF THE FIXTURES. ALL LIGHT FIXTURES SHALL BE ATTACHED SECURELY TO THE GRID WITH FOUR (4) SCREWS, ONE AT EACH CORNER OFTHE FIXTURE.
10. FLUSH OR RECESSED LIGHT FIXTURES AND AIR TERMINALS OR SERVICES WEIGHING LESS THAN OR EQUAL TO 20LB. SHALL HAVE ONE (1) #12 GA. SLACK SAFETY WIRE ATTACHED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE.
11. FLUSH OR RECESSED LIGHT FIXTURES AND AIR TERMINALS OR SERVICES WEIGHING MORE THAN 20LB. BUT LESS THAN 56 POUNDS MAY BE SUPPORTED DIRECLTY ON THE RUNNERS OF A HEAVY DUTY GRID SYSTEM BUT, IN ADDITION, THEY MUST HAVE A MINIMUM OF TWO (2) 12 GA. SLACK SAFETY WIRES ATTACHED TO THE FIXTURES AT DIAGONAL CORNERS AND ANCHORED TO THE STRUCTURE ABOVE. ALL 4'x4' LIGHT FIXTURES MUST HAVE SLACK SAFETY WIRES AT EACH CORNER.
12. ALL FLUSH OR RECESSED LIGHT FIXTURES AND AIR TERMINALS OR SERVICES WEIGHING 56 POUNDS OR MORE MUST BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN FOUR (4) TAUT 12 GA. WIRES EACH, ATTACHED TO THE FIXTURE AND TO THE STRUCTURE ABOVE REGARDLESS OF THE TYPE OF CEILING GRID SYSTEM USED. THE FOUR (4) TAUT 12 GA. WIRES INCLUDING THEIR ATTACHMENT TO THE STRUCTURE ABOVE MUST BE CAPABLE OF SUPPORTING FOUR (4) TIMES THE WEIGHT OF THE UNIT.
13. SUPPORT SURFACE MOUNTED LIGHT FIXTURES BY AT LEAST TWO (2) POSITIVE DEVICES WHICH SURROUND THE CEILING RUNNER AND WHICH ARE EACH SUPPORTED FROM THE STRUCTURE ABOVE BY A 12 GA. WIRE. SPRING CLIPS OR CLAMPS THAT CONNECT ONLY TO THE RUNNER ARE NOT ACCEPTABLE. PROVIDE ADDITIONAL SUPPORTS WHEN LIGHT FIXTURES ARE EIGHT (8) FEET OR LONGER.
14. SUPPORT PENDANT MOUNTED LIGHT FIXTURES DIRECTLY FROM THE STRUCTURE ABOVE WITH HANGER WIRES OR CABLES PASSING THROUGH EACH PENDANT HANGER AND CAPABLE OF SUPPORTING FOUR (4) TIMES THE WEIGHT OF THE FIXTURE. ATTACH ALL LIGHT FIXTURES TO THE CEILING GRID RUNNERS TO RESIST A HORIZONTAL FORCE EQUAL TO THE WEIGHT OF THE FIXTURES. SPECIAL DETAILS ARE NECESSARY FOR THIS CONDITION AT THE CEILING GRID.
15. EXPANSION JOINTS SHALL BE PROVIDED IN THE CEILING AT INTERSECTIONS OF CORRIDORS AND AT JUNCTIONS OF CORRIDORS AND LOBBIES OR OTHER SIMILAR AREAS.
16. FOR CEILING AREAS EXCEEDING 2,500 SQUARE FEET, A SEISMIC SEPARATION JOINT SHALL BE PROVIDED TO DIVIDE THE CEILING INTO AREAS NOT EXCEEDING 2,500 SQUARE FEET. CONFIRM LOCATIONS OF SEISMIC JOINTS WITH ARCHTECT PRIOR TO INSTALLATION. SEE DETAIL 05 / A9.21

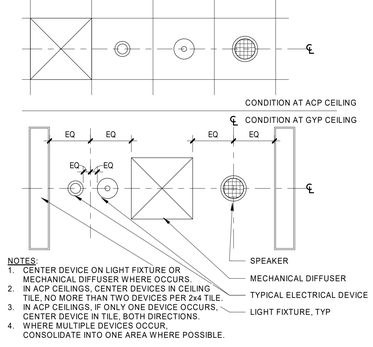
CEILING REQUIREMENTS | 01




HORIZONTAL ACCESS PANEL1 | 1 1/2" = 1'-0" | 22

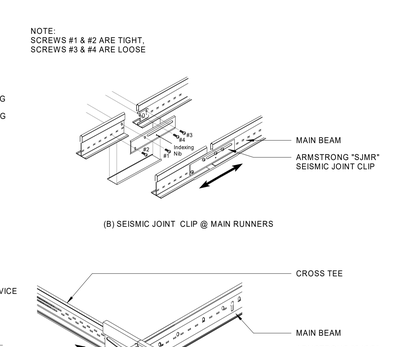



WIRE CONNECTION TO METAL DECK | 3" = 1'-0" | 14

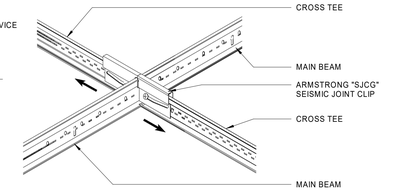



NOTES:
1. CENTER DEVICE ON LIGHT FIXTURE OR MECHANICAL DIFFUSER WHERE OCCURS.
2. IN ACP CEILINGS, CENTER DEVICES IN CEILING TILE, NO MORE THAN TWO DEVICES PER 2x4 TILE.
3. IN ACP CEILINGS, IF ONLY ONE DEVICE OCCURS, CENTER DEVICE IN TILE, BOTH DIRECTIONS.
4. WHERE MULTIPLE DEVICES OCCUR, CONSOLIDATE INTO ONE AREA WHERE POSSIBLE.

TYPICAL DEVICE LAYOUT1 | 1/2" = 1'-0" | 10

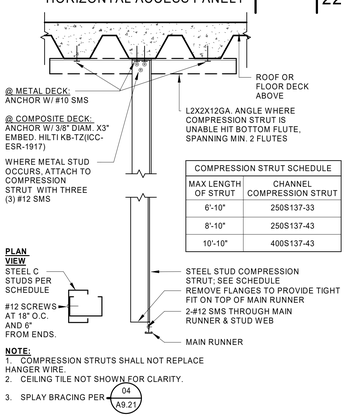



(B) SEISMIC JOINT CLIP @ MAIN RUNNERS




(A) SEISMIC JOINT CLIP @ CROSS TEES

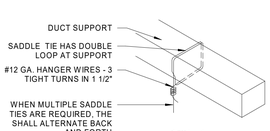
SEISMIC JOINTS | 6" = 1'-0" | 05



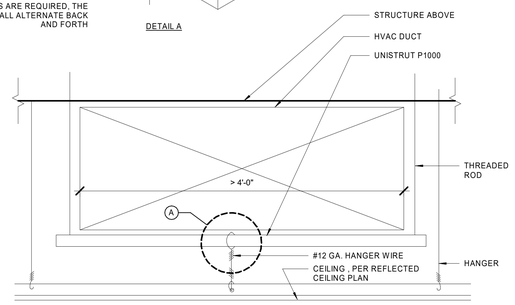

| COMPRESSION STRUT SCHEDULE | |
|---|---|
| MAX LENGTH OF STRUT | CHANNEL COMPRESSION STRUT |
| 6'-10" | 250S137-33 |
| 8'-10" | 250S137-43 |
| 10'-10" | 400S137-43 |

**NOTE:**
1. COMPRESSION STRUTS SHALL NOT REPLACE HANGER WIRE.
2. CEILING TILE NOT SHOWN FOR CLARITY.
3. SPLAY BRACING PER 04 A9.21

COMPRESSION STRUT @ DECK | 1 1/2" = 1'-0" | 21

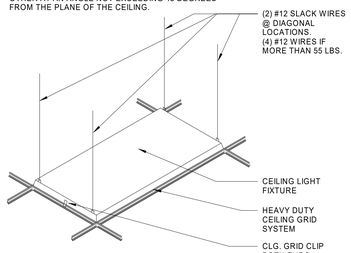



DETAIL A



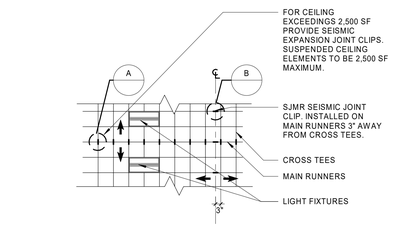

WIRE CONNECTION TO UNISTRUT1 | 1 1/2" = 1'-0" | 13

NOTE: (4) NO. 12 GAUGE WIRES MUST BE SECURED TO THE MAIN RUNNER WITHIN 2" OF THE CROSS RUNNER INTERSECTION & SPLAYED 90 DEGREES FROM EACH OTHER AT AN ANGLE NOT EXCEEDING 45 DEGREES FROM THE PLANE OF THE CEILING.




LATERAL FORCE BRACING MEMBERS MUST BE SPACED A MINIMUM OF 6" FROM ALL HORIZONTAL PIPING OR DUCT WORK THAT IS NOT PROVIDED WITH BRACING RESTRAINTS FOR HORIZONTAL FORCES. BRACING WIRES MUST BE ATTACHED TO THE GRID & TO THE STRUCTURE IN SUCH A MANNER THAT THEY CAN SUPPORT A DESIGN LOAD OF NOT LESS THAN 200 LBS OR THE ACTUAL LOADS, WHICHEVER IS GREATER, WITH A SAFETY FACTOR OF 2.

LIGHT FIXTURE AT ACT | 12" = 1'-0" | 09




CEILING SEISMIC JOINTS | 6" = 1'-0" | 05


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Approved
By Jae Lee
04/06/2026
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DPH - FIRST FLOOR T.I.

451 E Vanderbilt Way, San Bernardino, CA 92408

Developed for SAN BERNARDINO COUNTY

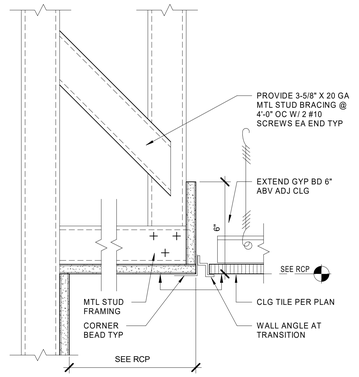
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| Date | Submittal |
|---|---|
| 08/25/2025 | CITY SUBMITTAL |

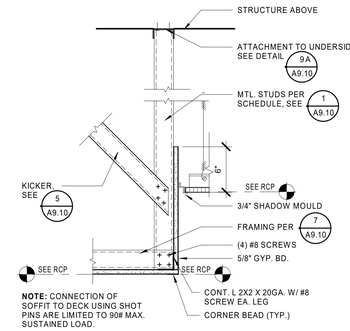
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| Checked By | SD/NF/KR |
| Scale | As indicated |

CEILING DETAILS

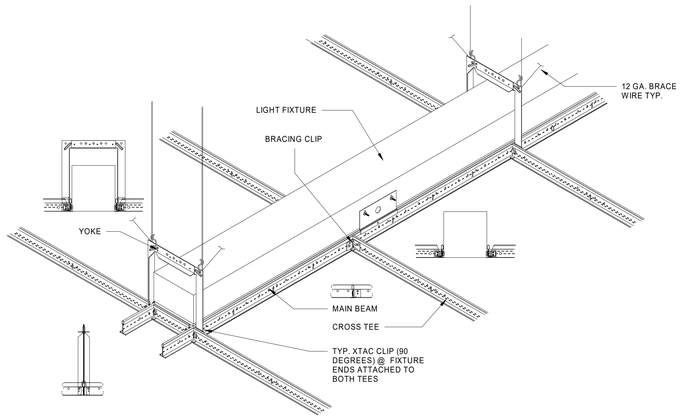
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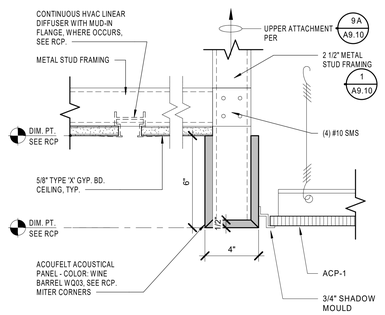

GYP. BD. CEILING AT ACT | 3" = 1'-0" A9.22 | 08



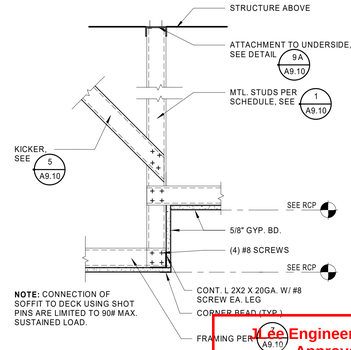

CLG TRANSITION GYP SOFFIT TO ACT | 1 1/2" = 1'-0" | 04



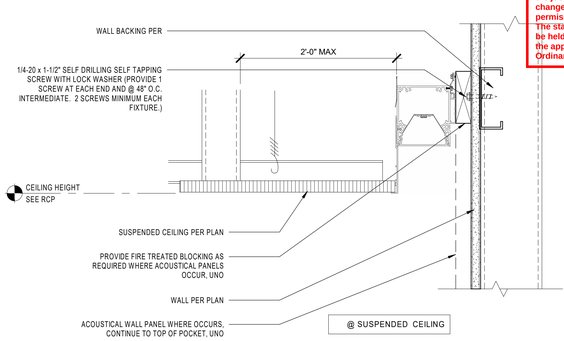

SUSPENDED CEILING BRACING CLIP1 | 1 1/2" = 1'-0" A9.22 | 11



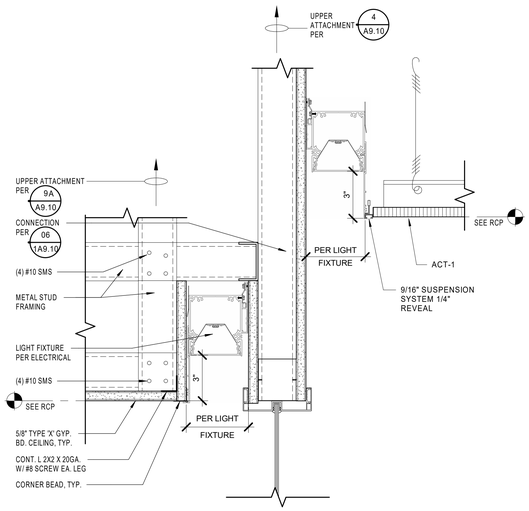

BOARDROOM CEILING TRANSITION | 3" = 1'-0" | 07




CLG TRANSITION GYP TO GYP. SOFFIT | 1 1/2" = 1'-0" | 02

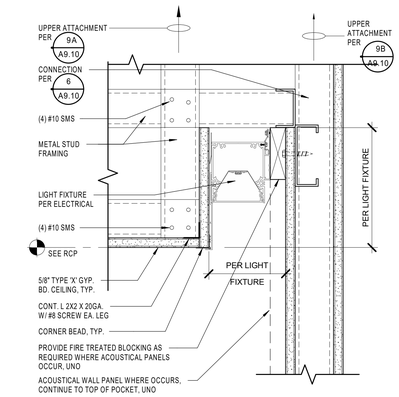



@ SUSPENDED CEILING




NOTE: VERIFY ACHIEVABLE POCKET. NOTIFY ARCHITECT OF ANY CONFLICTS.

LIGHT POCKET AT CEILING SOFFIT / GLASS | 3" = 1'-0" | 09




NOTE: VERIFY ACHIEVABLE POCKET. NOTIFY ARCHITECT OF ANY CONFLICTS.

@ FRAMED GYP. CEILING

RECESSED LINEAR WALL SLOT LIGHT | 3" = 1'-0" A9.22 | 01

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By Jae Lee
04/02/2026

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DPH - FIRST FLOOR T.I.
451 E Vanderbilt Way, San Bernardino, CA 92408
CA 92408
Developed for
SAN BERNARDINO COUNTY

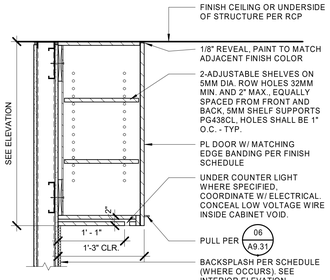
| Revision | Date |
|---|---|
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| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | As indicated |

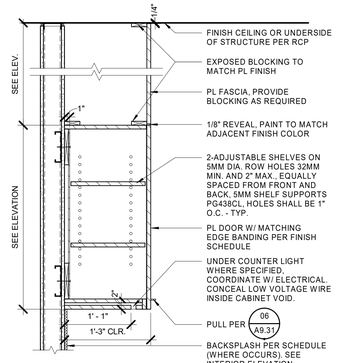
CEILING DETAILS

A9.22



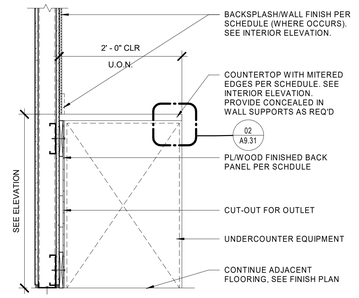

NOTE:
1. SEE FINISH PLAN AND ELEVATIONS FOR FINISHES
2. CONSTRUCTION SHALL BE 3/4" PARTICAL BD. WITH PLAM ON EXPOSED SURFACES, INT SURFACES SHALL BE WHITE MELAMINE UNO.

UPPER CABINET | 1" = 1'-0" | A9.31 | 16



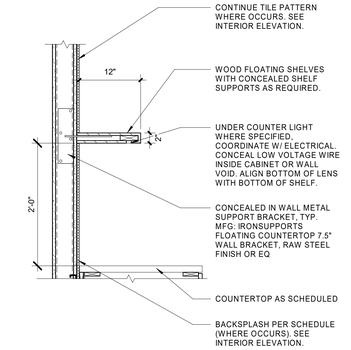

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UPPER CABINET W/ PL FASCIA | 1" = 1'-0" | A9.31 | 12

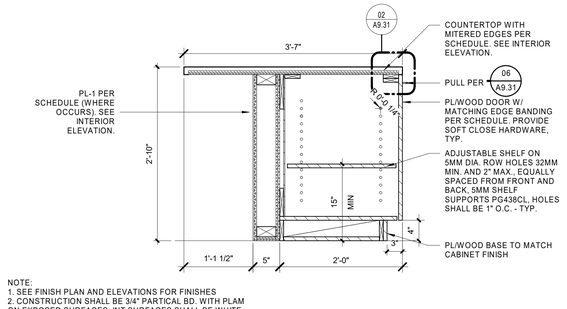



NOTE:
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2. CONSTRUCTION SHALL BE 3/4" PARTICAL BD. WITH PLAM ON EXPOSED SURFACES, INT SURFACES SHALL BE WHITE MELAMINE UNO.

LOWER CABINET WITH EQUIP. | 1" = 1'-0" | A9.31 | 08

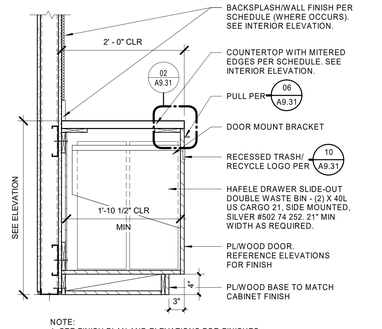



WELLNESS ROOM FLOATING SHELF | 1" = 1'-0" | 04



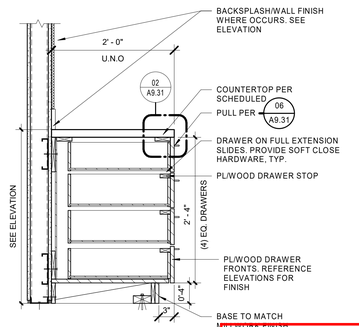

NOTE:
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LOWER CABINET AT ISLAND | 1" = 1'-0" | 11



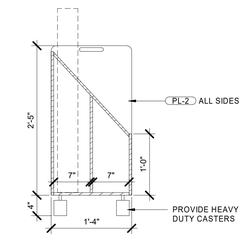

NOTE:
1. SEE FINISH PLAN AND ELEVATIONS FOR FINISHES
2. CONSTRUCTION SHALL BE 3/4" PARTICAL BD. WITH PLAM ON EXPOSED SURFACES, INT SURFACES SHALL BE WHITE MELAMINE UNO.

PULL - OUT TRASH/RECYCLE2 | 1" = 1'-0" | A9.31 | 07

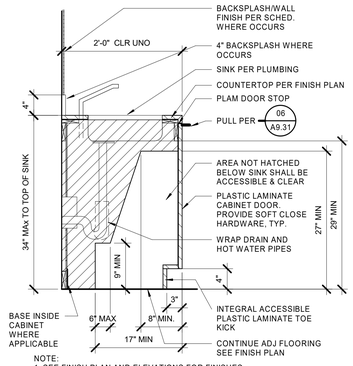



NOTE:
1. SEE FINISH PLAN AND ELEVATIONS FOR FINISHES
2. CONSTRUCTION SHALL BE 3/4" PARTICAL BD. WITH PLAM ON EXPOSED SURFACES, INT SURFACES SHALL BE WHITE MELAMINE UNO.

LOWER CABINET WITH (4) DRAWERS | 1" = 1'-0" | A9.31 | 09

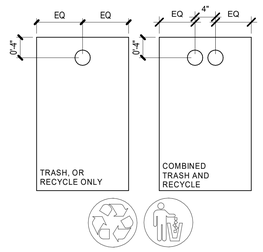



PAPER ROLLED PLAN ORGANIZER | 1" = 1'-0" | A9.31 | 18




NOTE:
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2. CONSTRUCTION SHALL BE 3/4" PARTICAL BD. WITH PLAM ON EXPOSED SURFACES, INT SURFACES SHALL BE WHITE MELAMINE UNO.

LOWER CABINET WITH SINK | 1" = 1'-0" | A9.31 | 14

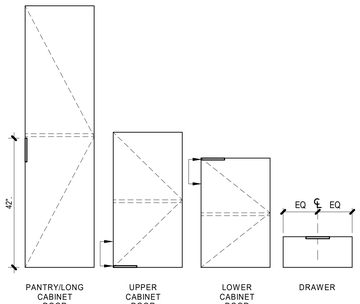



TRASH & RECYCLE LOGOS, UNO:

LOCATIONS PER DETAIL

1/8" X 1-1/2" DIAMETER ETCHED ANTIQUE BRONZE FINISH METAL DISKS TO BE RECESSED FLUSH WITH FACE OF CABINET DOOR. MFR: ARCHITECTURAL HARDWARE. PHONE: 951.351.1110 WEBSITE: WWW.ARCHHARDWARE.NET; RECYCLED PART #RC-10213, TRASH PART #TR-10113

TRASH/ RECYCLE EMBLE | 1" = 1'-0" | A9.31 | 10

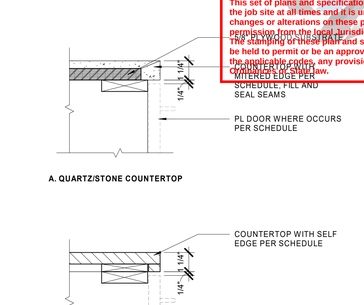



DOOR & DRAWER PULLS, UNO:

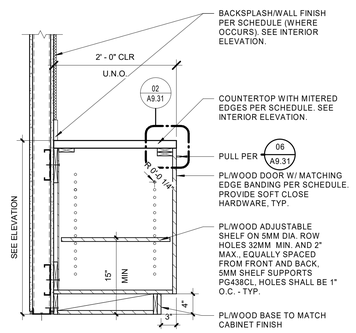
LOCATION PER DETAIL

SPEC: DOUG MOCKETT DP3 SERIES, FINISH: VENITIAN BRONZE (10V), 4" WIDE TYP, PROVIDE 6" WIDE AT FULL HEIGHT PANTRIES.

CABINET HORIZONTAL PULL (TYP) | 3/4" = 1'-0" | A9.31 | 06

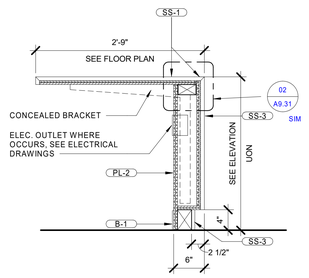



COUNTERTOP EDGE DETAILS | 3" = 1'-0" | A9.31 | 02

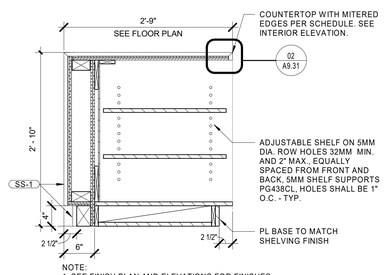



NOTE:
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2. CONSTRUCTION SHALL BE 3/4" PARTICAL BD. WITH PLAM ON EXPOSED SURFACES, INT SURFACES SHALL BE WHITE MELAMINE UNO.

LOWER CABINET | 1" = 1'-0" | A9.31 | 21

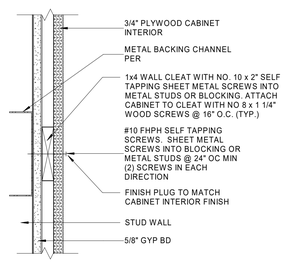



PLAN CHECK COUNTER | 1" = 1'-0" | A9.31 | 17

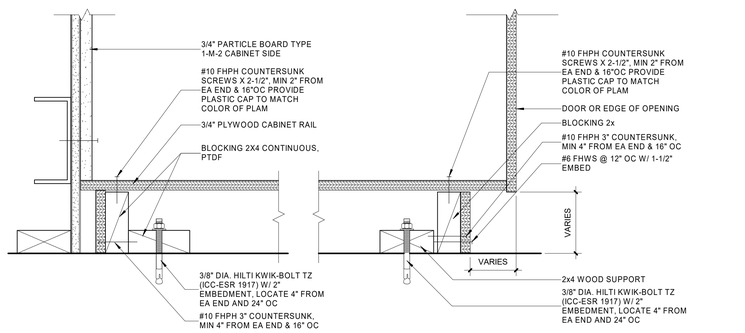



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PLAN CHECK COUNTER SHELVES | 1" = 1'-0" | A9.31 | 13




**DETAIL E**
(METAL ANCHORAGE)




**DETAIL D**
(BLOCKING)

CABINET ANCHORAGE - LEVEL 21 | 3" = 1'-0" | A9.31 | 01

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

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JLee Engineering, Inc.
Approved
By Jae Lee
04/09/2026
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| Scale | As indicated |

MILLWORK DETAILS

A9.31

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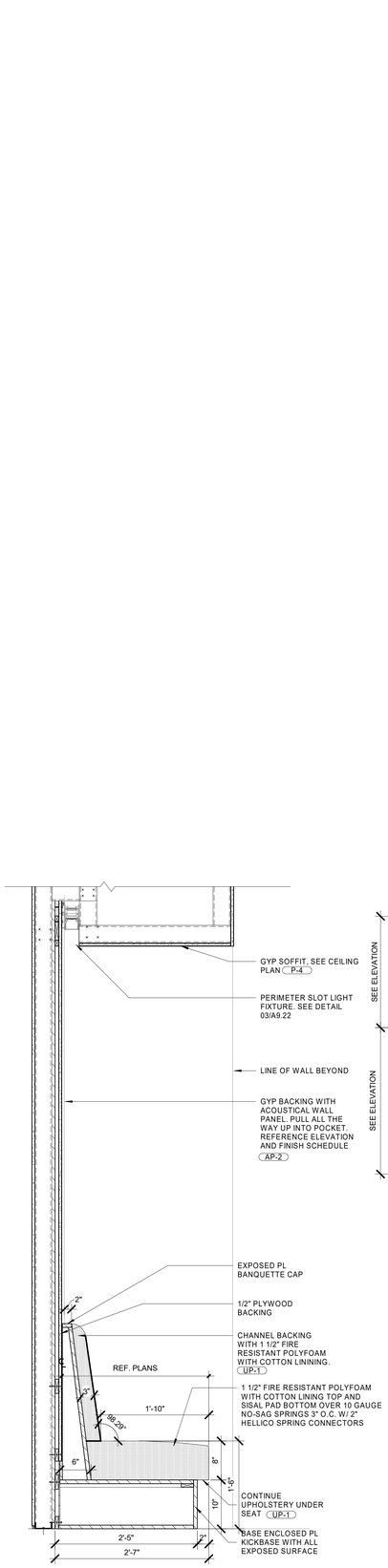
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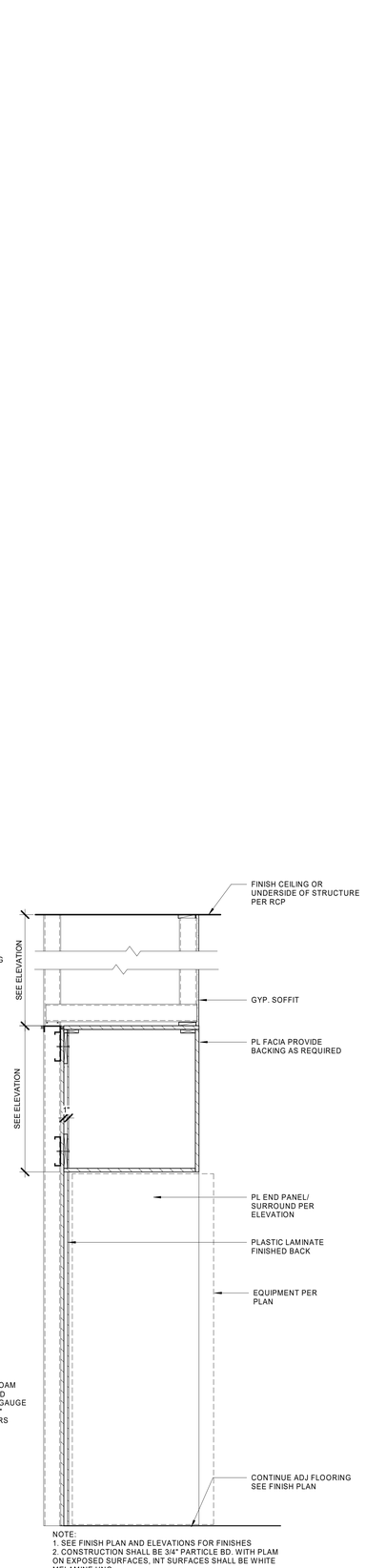
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**Approved**
**By Jae Lee**
04/06/2026

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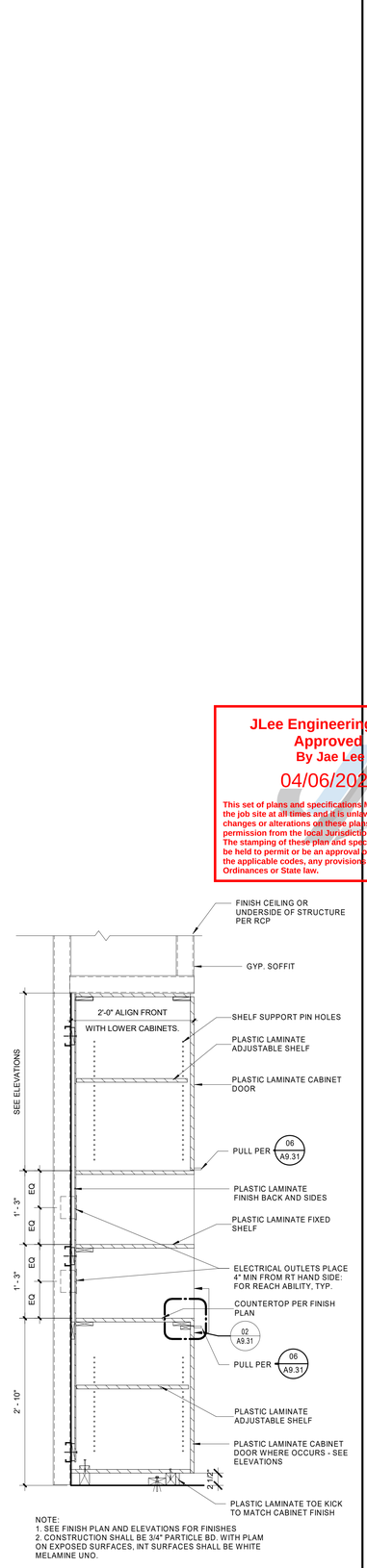



SECTION AT BANQUETTE | 1" = 1'-0" | A9.32 | 09




NOTE:
1. SEE FINISH PLAN AND ELEVATIONS FOR FINISHES
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UPPER/ ABOVE EQUIPMENT | 1" = 1'-0" | A9.32 | 05




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MICROWAVE CABINET | 1" = 1'-0" | A9.32 | 01

DPH - FIRST FLOOR T.I.

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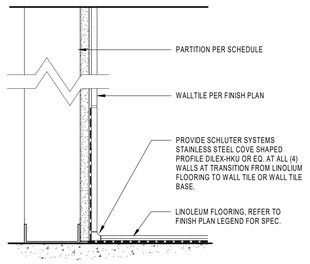
Date
Revision

Date
08/25/2025
CITY SUBMITTAL
Submittal

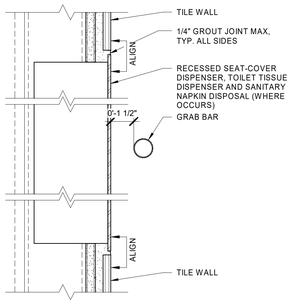
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|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | 1" = 1'-0" |

MILLWORK DETAILS

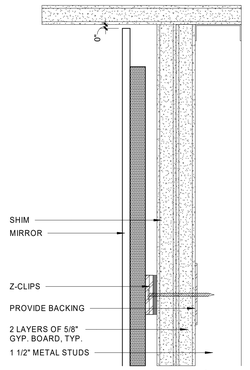
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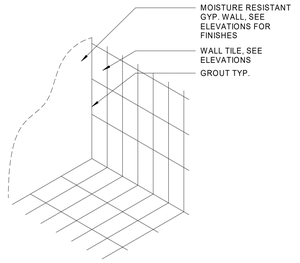

TILE WALL TRANSITION AT LINOLEUM FLOORING | 3" = 1'-0" | A9.41 | 20




RECESSED TOILET ACCESSORY | 3" = 1'-0" | 16



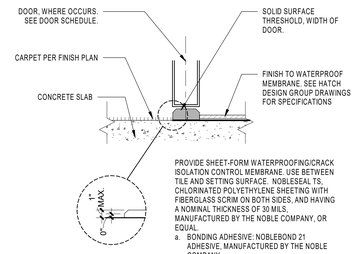

MIRROR AT LAVATORY WALL | 6" = 1'-0" | 12



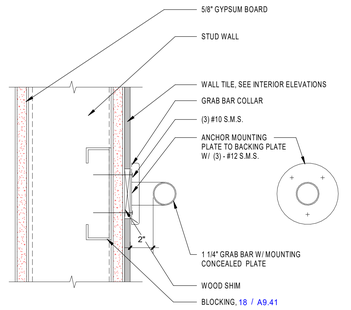

**NOTE**
PROVIDE SHEET-FORM WATERPROOFING/CRACK ISOLATION CONTROL MEMBRANE. USE BETWEEN TILE AND SETTING SURFACE. NOBLESEAL TS, CHLORINATED POLYETHYLENE SHEETING WITH FIBERGLASS SCRIM ON BOTH SIDES, AND HAVING A NOMINAL THICKNESS OF 30 MILS, MANUFACTURED BY THE NOBLE COMPANY, OR EQUAL.

a. BONDING ADHESIVE: NOBLEBOND 21 ADHESIVE, MANUFACTURED BY THE NOBLE COMPANY.

INSIDE CORNER WALL TILE1 | 1/4" = 1'-0" | 08

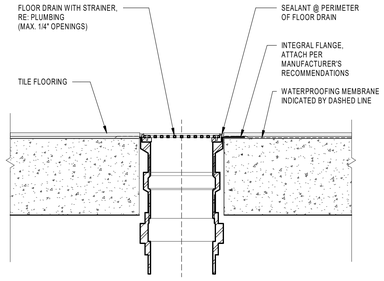



SECTION AT THRESHOLD | 3" = 1'-0" | A9.41 | 04

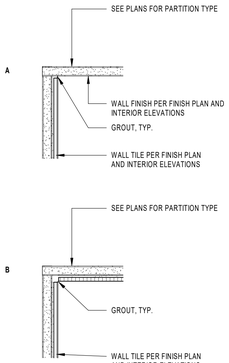


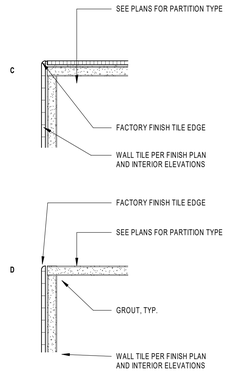

FOR PARTITION MNTD. GRAB BARS, USE MFR. PROVIDED FASTENERS

GRAB BAR @ METAL STUD (SECTION) | 3" = 1'-0" | 19

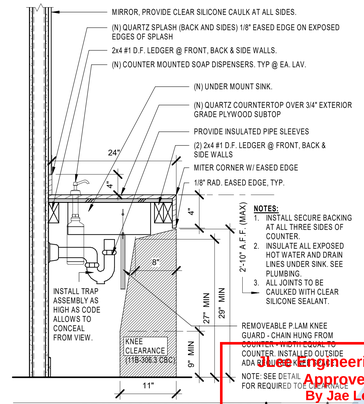



FLOOR DRAIN AT TILE FLOOR | 3" = 1'-0" | 15



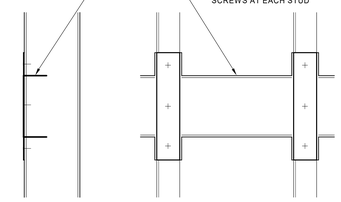

TILE CORNERS | 3" = 1'-0" | 07




**NOTES:**
1. INSTALL SECURE BACKING AT ALL THREE SIDES OF COUNTER.
2. INSULATE ALL EXPOSED HOT WATER AND DRAIN LINES UNDER SINK. SEE PLUMBING.
3. ALL JOINTS TO BE CAULKED WITH CLEAR SILICONE SEALANT.

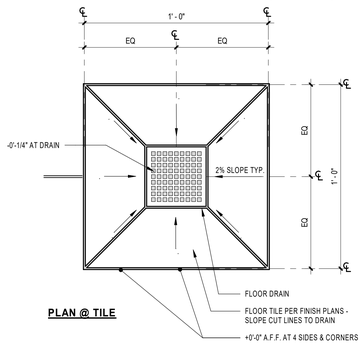
RESTROOM COUNTERTOP SECTION1 | 1" = 1'-0" | 10

NOTE: BACKING TRACKS SHALL BE LONGER THAN HUNG EQUIPMENT/ACCESSORY/CABINET BY ONE STUD SPACING AT EACH END
4" x 14 GA. TRACK
4" x 14 GA. CONT. TRACK BEHIND CABINET/GRAB BAR - CUT FLAGS AT STUD AND BEND AGAINST STUD CONN. TO STUD WITH 3 # 10-18 SELF-TAPPING SCREWS AT EACH STUD



SECTION ELEVATION

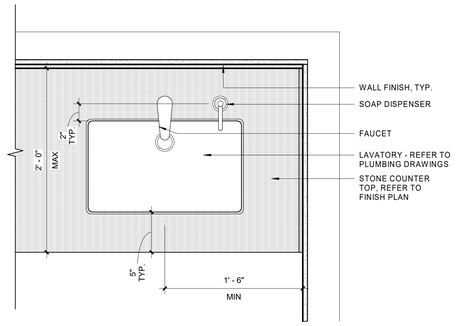
GRAB BAR BACKING | 3" = 1'-0" | 18



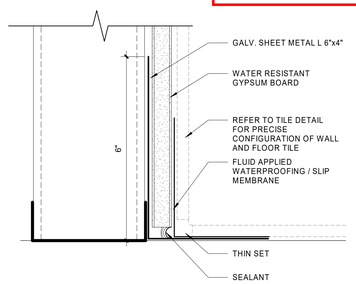

**PLAN @ TILE**

**NOTE:**
FLOOR TILE TO START AT CENTER OF DRAIN, CONFIRM WITH ARCHITECT PRIOR TO INSTALLATION.

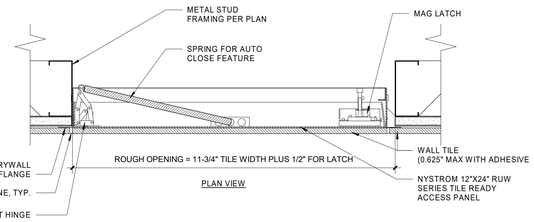
FLOOR DRAIN LOCAL DEPRESSION | 3" = 1'-0" | 14



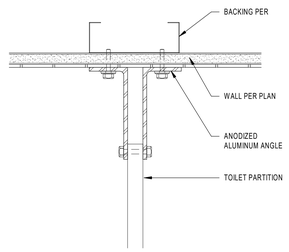

TYP. RESTROOM COUNTER PLAN | 1 1/2" = 1'-0" | A9.41 | 06



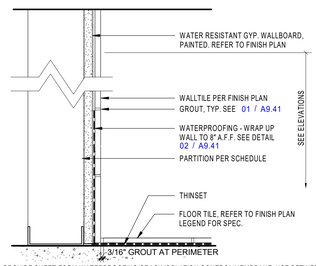

RESTROOM WATERPROOFING AT BASE | 6" = 1'-0" | 02




TILE ACCESS PANEL | 3" = 1'-0" | 17

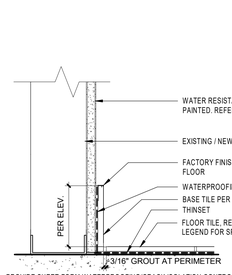



TOILET PARTITION DETAIL | 3" = 1'-0" | 13



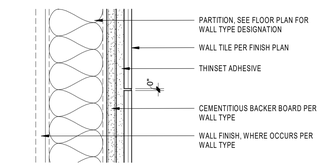

PROVIDE SHEET-FORM WATERPROOFING/CRACK ISOLATION CONTROL MEMBRANE. USE BETWEEN TILE AND SETTING SURFACE. NOBLESEAL TS, CHLORINATED POLYETHYLENE SHEETING WITH FIBERGLASS SCRIM ON BOTH SIDES, AND HAVING A NOMINAL THICKNESS OF 30 MILS, MANUFACTURED BY THE NOBLE COMPANY, OR EQUAL.
a. BONDING ADHESIVE: NOBLEBOND 21 ADHESIVE, MANUFACTURED BY THE NOBLE COMPANY.

TILE WALL | 3" = 1'-0" | 09




PROVIDE SHEET-FORM WATERPROOFING/CRACK ISOLATION CONTROL MEMBRANE. USE BETWEEN TILE AND SETTING SURFACE. NOBLESEAL TS, CHLORINATED POLYETHYLENE SHEETING WITH FIBERGLASS SCRIM ON BOTH SIDES, AND HAVING A NOMINAL THICKNESS OF 30 MILS, MANUFACTURED BY THE NOBLE COMPANY, OR EQUAL.
a. BONDING ADHESIVE: NOBLEBOND 21 ADHESIVE, MANUFACTURED BY THE NOBLE COMPANY.

TILE AT BASE | 3" = 1'-0" | 05




HORIZONTAL TILE JOINT | 3" = 1'-0" | 01

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J Lee Engineering, Inc.
Approved
By Jae Lee
04/09/2026
This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinances or State law.

DPH - FIRST FLOOR T.I.
451 E Vanderbilt Way, San Bernardino
CA 92408
Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| | |

| Submittal | Date |
|---|---|
| CITY SUBMITTAL | 08/25/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | SD/NF/KR |
| Scale | As indicated |

RESTROOM DETAILS

A9.41

## ABBREVIATIONS

| ABBREVIATION | DESCRIPTION |
|---|---|
| A | AIR, AMPS |
| AAV | AUTOMATIC AIR VENT |
| ABV | ABOVE |
| AC | AIR CONDITIONING |
| ACT | ACOUSTICAL CEILING TILE |
| AD | ACCESS DOOR |
| AFF | ABOVE FINISH FLOOR |
| AFUE | ANNUAL FUEL UTILIZATION EFFICIENCY |
| AHJ | AUTHORITY HAVING JURISDICTION |
| AHU | AIR HANDLING UNIT |
| AMB | AMBIENT |
| APD | AIR PRESSURE DROP |
| ASHRAE | AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS, INC. |
| ASSY | ASSEMBLY |
| ATM | ATMOSPHERE |
| B | BOILER |
| BFF | BELOW FINISHED FLOOR |
| BHP | BRAKE HORSE POWER |
| BEL | BELOW |
| BOD | BOTTOM OF DUCT |
| BOP | BOTTOM OF PIPE |
| BTUH | BRITISH THERMAL UNIT PER HOUR |
| BV | BALL VALVE |
| C | CONDENSATE PIPING |
| CA | COMPRESSED AIR |
| CAP | CAPACITY |
| CD | CEILING DIFFUSER, CONDENSATE DRAIN |
| CFD | CEILING FIRE DAMPER |
| CFM | CUBIC FEET PER MINUTE |
| CG | CEILING GRILLE |
| CH | CHILLER |
| CHR | CHILLED WATER RETURNED |
| CHS | CHILLED WATER SUPPLY |
| CV | CHECK VALVE |
| CLG | CEILING, COOLING |
| CO | CARBON MONOXIDE SENSOR |
| CO2 | CARBON DIOXIDE SENSOR |
| COMB | COMBINATION, COMBUSTION |
| COND | CONDENSER, CONDENSATE |
| CONT | CONTINUE, CONTROL |
| COP | COEFFICIENT OF PERFORMANCE |
| CR | CONDENSER WATER RETURN |
| CS | CONDENSER WATER SUPPLY |
| Cx | COMISSIONING |
| CxA | COMISSIONING AGENT |
| (D) | DEMOLISH |
| DB | DRY BULB |
| dB | DECIBEL |
| DDC | DIRECT DIGITAL CONTROL |
| DIA | DIAMETER |
| DN | DOWN |
| Ø | DIAMETER |
| EXIST | EXISTING |
| (E) | EXISTING |
| EA | EXHAUST AIR |
| EAT | ENTERING AIR TEMPERATURE |
| EER | ENERGY EFFICIENCY RATIO |
| EF | EXHAUST FAN |
| EG | EXHAUST GRILLE |
| ELEC | ELECTRICAL |
| EMS | ENERGY MANAGEMENT SYSTEM |
| EQUIV | EQUIVALENT |
| ESP | EXTERNAL STATIC PRESSURE |
| ET | EXPANSION TANK |
| EVAP | EVAPORATOR, EVAPORATIVE |
| EWT | ENTERING WATER TEMPERATURE |
| F | FAHRENHEIT |
| FC | FLUID COOLER |
| FCU | FAN COIL UNIT |
| FD | FIRE DAMPER |
| FLA | FULL LOAD AMPS |
| FLR | FLOOR |
| FLTR | FILTER |
| FPM | FEET PER MINUTE |
| FPS | FEET PER SECOND |
| FSD | COMBINATION FIRE SMOKE DAMPER |
| FT | FOOT, FEET |
| FV | FACE VELOCITY |
| GA | GAGE |
| GAL | GALLONS |
| GPM | GALLONS PER MINUTE |
| GRD | GRILLES, REGISTERS AND DIFFUSERS |
| GWR | GLYCOL WATER RETURN PIPING |
| GWS | GLYCOL WATER SUPPLY PIPING |
| H | HUMIDISTAT, HEIGHT |
| HD | HEAD |
| HORIZ | HORIZONTAL |
| HP | HORSE POWER, HEAT PUMP |
| HTG | HEATING |
| HVAC | HEATING VENTILATION AND AIR CONDITIONING |
| HHR | HEATING WATER RETURN |
| HHS | HEATING WATER SUPPLY |
| HZ | HERTZ |
| IAQ | INDOOR AIR QUALITY |
| IN | INCHES |
| IN WC | INCHES WATER COLUMN |
| KW | KILOWATT |
| LAT | LEAVING AIR TEMPERATURE |
| LBS | POUNDS |
| LRA | LOCKED ROTOR AMPS |
| LVR | LOUVER |
| LWT | LEAVING WATER TEMPERATURE |
| MAT | MIXED AIR TEMPERATURE |
| MBH | THOUSAND BRITISH THERMAL UNITS PER HOUR |
| MECH | MECHANICAL |
| MERV | MINIMUM EFFICIENCY REPORTING VALUE |
| MC | MECHANICAL CONTRACTOR |
| MCA | MINIMUM CIRCUIT AMPACITY |
| MOCP | MAXIMUM OVER CURRENT PROTECTION |
| NA | NOT APPLICABLE |
| NC | NORMALLY CLOSED, NOISE CRITERIA |
| NIC | NOT IN CONTRACT |
| NO | NORMALLY OPEN |
| NTS | NOT TO SCALE |
| OA | OUTSIDE AIR |
| OBD | OPPOSED BLADE DAMPER |
| OC | ON CENTER |
| OD | OUTSIDE DIAMETER |
| P | PUMP |
| PD | PRESSURE DROP |
| POC | POINT OF CONNECTION |
| POD | POINT OF DISCONNECTION |
| PRV | PRESSURE REDUCING VALVE |
| PSI | POUNDS PER SQUARE INCH |
| RA | RETURN AIR, RELIEF AIR |
| REF | REFRIGERANT |
| RG | RETURN GRILLE |
| RH | RELATIVE HUMIDITY |
| RL | REFRIGERANT LIQUID LINE |
| RLA | RATED LOAD AMPS |
| RPM | REVOLUTIONS PER MINUTE |
| RTU | ROOF TOP UNIT |
| S | SENSOR |
| SA | SUPPLY AIR, SOUND ATTENUATOR |
| SAT | SUPPLY AIR TEMPERATURE |
| SF | SUPPLY FAN, SQUARE FOOT |
| SG | SUPPLY GRILLE |
| SIM | SIMILAR |
| SL | REFRIGERANT SUCTION LINE |
| SMACNA | SHEET METAL AND AIR-CONDITIONING CONTRACTOR NATIONAL ASSOCIATION |
| SOO | SEQUENCE OF OPERATION |
| ST | SOUND TRAP |
| TD | TEMPERATURE DIFFERENCE |
| TDH | TOTAL DYNAMIC HEAD |
| TEMP | TEMPERATURE |
| TG | TRANSFER GRILLE |
| TOD | TOP OF DUCT |
| TOP | TOP OF PIPE |
| TOS | TOP OF STEEL / STRUCTURE |
| TSP | TOTAL STATIC PRESSURE |
| T'STAT | THERMOSTAT |
| TU | TERMINAL UNIT |
| TYP | TYPICAL |
| UH | UNIT HEATER |
| V | VOLT |
| VAV | VARIABLE AIR VOLUME |
| VD | VOLUME DAMPER |
| VEL | VELOCITY |
| VENT | VENTILATION, VENTILATOR |
| VFD | VARIABLE FREQUENCY DRIVE |
| W | WATT, WIDE, WATER |
| W/ | WITH |
| W/O | WITHOUT |
| WB | WET BULB TEMPERATURE |
| WT | WEIGHT |

## MECH LEGEND

| SYMBOL | DESCRIPTION (NOT TO SCALE) |
|---|---|
| | SUPPLY DIFFUSER |
| | RETURN GRILLE |
| | EXHAUST GRILLE |
| | FLEXIBLE CONNECTION |
| | TRANSITION - RECTANGULAR TO ROUND |
| 24x10 | DUCT SIZE (CLEAR INSIDE DIMENSION IN INCHES) |
| | SOUNDLINED DUCTWORK |
| | SUPPLY AIR DUCT UP AND DOWN |
| | RETURN AIR DUCT UP AND DOWN |
| | EXHAUST AIR DUCT UP AND DOWN |
| | SUPPLY DUCT ROOF PENETRATION |
| | RETURN DUCT ROOF PENETRATION |
| | EXHAUST DUCT ROOF PENETRATION |
| | RECTANGULAR DUCT UP |
| | RECTANGULAR DUCT DN |
| | ROUND OR OVAL DUCT UP |
| | ROUND OR OVAL DUCT DN |
| | DUCT RISE / DROP W/ 90° ELBOWS (RECTANGULAR DUCTS) |
| | DUCT RISE / DROP W/ 45° ELBOWS (RECTANGULAR DUCTS) |
| | DUCT RISE / DROP W/ 90° ELBOWS (ROUND AND / OR OVAL DUCT) |
| | DUCT RISE / DROP W/ 45° ELBOWS (ROUND AND / OR OVAL DUCTS) |
| | WYE AND 45° ELBOW W/ REDUCER (ROUND AND / OR OVAL DUCT) |
| | TRANSITION OR REDUCER |
| | TRANSITION - ECCENTRIC |
| | 45° ELBOW, R/D OR R/W=1.5 |
| | 90° ELBOW, R/D OR R/W=1.5 |
| | MITERED ELBOW WITH TURNING VANES |
| | 90° STRAIGHT TAP |
| | 90° CONICAL TAP |
| | 90° TAP WITH 45° BEVEL |
| | 45° TAP |
| | RADIUS TAP IN |
| | WYE FITTING |
| | RADIUS TEE |
| | SQUARE TEE W/ TURNING VANES |
| | BULLHEAD TEE |
| CHS | CHILLED WATER SUPPLY PIPING |
| CHR | CHILLED WATER RETURN PIPING |
| HHS | HEATING WATER SUPPLY PIPING |
| HHR | HEATING WATER RETURN PIPING |
| REF | REFRIGERANT PIPING |
| | SHUT-OFF VALVE ABOVE GRADE |
| | CONTINUATION OF PIPING |
| | CONTINUATION OF DUCT |
| SD | DUCT SMOKE DETECTOR |
| | SMOKE DAMPER |
| | FIRE DAMPER |
| | BACK DRAFT DAMPER |
| | FIRE / SMOKE DAMPER |
| | MANUAL VOLUME DAMPER |
| | ELECTRONIC REMOTE DAMPER |
| | MECHANICAL REMOTE DAMPER |
| RDCL | REMOTE DAMPER CONTROL LOCATION |
| | POINT OF CONNECTION |
| | POINT OF DISCONNECTION |

## ANNOTATION SYMBOLS

(NOT TO SCALE)

- S-1; 12" / 200 / TYP.3 — DIFFUSER IDENTIFICATION, NECK SIZE
- AIR FLOW, NUMBER OF OCCURRENCES
- 1 / M7.01 — DETAIL NUMBER
- SHEET NUMBER
- D/L — DOOR LOUVER
- T/L — TRANSOM LOUVER
- U/C — UNDERCUT DOOR
- SA — SUPPLY AIR FLOW DIRECTION
- OA — OUTSIDE AIR FLOW DIRECTION
- EA — EXHAUST AIR FLOW DIRECTION
- RA — RETURN AIR FLOW DIRECTION
- ? — KEYNOTE SYMBOL
- ? — EQUIPMENT TAG SYMBOL

## CONTROL DIAGRAM

- MD — MOTORIZED DAMPER
- SD — DUCT SMOKE DETECTOR
- T — TEMPERATURE TRANSMITTER
- A — AQUASTAT
- AF — AIRFLOW MEASURING UNIT
- SP — DUCT STATIC PRESSURE TRANSMITTER
- WC — OPERABLE WINDOW CONTACT
- DC — OPERABLE DOOR CONTACT
- BP — BUILDING PRESSURE TRANSMITTER
- DP — DIFFERENTIAL PRESSURE TRANSMITTER

## GENERAL STRUCTURAL NOTES

1. ALL EQUIPMENT, PIPING, UTILITIES, & THEIR CONNECTIONS SHALL BE SEISMICALLY BRACED PER LATEST CBC & LATEST EDITION OF SMACNA SEISMIC RESTRAINT MANUAL, BASED ON SEISMIC HAZARD LEVEL A. MAINTAIN A COPY OF SMACNA SEISMIC RESTRAINT MANUAL ON SITE.
2. LIMITS TO NON-STRUCTURAL ITEMS SUSPENDED FROM CONCRETE FILLED METAL DECKING: HANGERS SUPPORTED BY METAL DECKING W/ STRUCTURAL CONCRETE FILL MAY BE INSTALLED USING ICC-ES APPROVED ANCHORAGE SYSTEMS. DO NOT SUPPORT UTILITIES FROM METAL DECK W/O CONCRETE. HANGERS FROM CONCRETE FILLED DECK, WHERE OCCURS, ARE LIMITED TO 4" DIA PIPE MAX. LOCATE HANGERS TWO FLUTES APART ON SAME DECK SPAN. SUPPORT LARGER PIPING FROM STRUCTURAL BEAMS OR COLUMNS. ADD DOUBLE UNISTRUT SPREADERS AS NECESSARY.
3. PROVIDE SHOP DWG W/ LARGE SCALE PLANS & SECTIONS SHOWING HANGERS & BRACING LOCATIONS. SHOP DWG SHALL BE PREPARED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA & SHALL BE STAMPED & SIGNED. INDICATE HANGERS & BRACING LOADS ON STRUCTURAL FRAMING PLANS. REFERENCE RELEVANT DETAILS FROM SMACNA SEISMIC RESTRAINT MANUAL.
4. EXPANSION ANCHORS & EPOXY ANCHORS. WHERE USED, SHALL HAVE A MIN EMBEDMENT OF 8 TIMES THE ANCHOR DIA & A MIN EDGE DISTANCE OF 10 TIMES THE DIA. EXPANSION ANCHORS & EPOXY ANCHORS MUST HAVE CURRENT & VALID ICC REPORT. SHOT PINS ARE NOT ACCEPTABLE.
5. UNLESS SPECIFIED ON STRUCTURAL DWG, ANY ALTERATIONS OR MODIFICATIONS TO A STRUCTURAL ELEMENT BY CUTTING, DRILLING, BORING, BRACING, WELDING, ETC SHALL HAVE WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD & DSA PRIOR TO STARTING WORK.
6. SEE GENERAL NOTES ON STRUCTURAL DWG FOR ADDL REQUIREMENTS.

## CONTROL SYSTEM (PLAN VIEW)

| TYPE | DESCRIPTION |
|---|---|
| T | THERMOSTAT |
| Z | ZONE TEMPERATURE SENSOR - W/ LOCAL OVERRIDE / DISPLAY |
| S | SPACE TEMPERATURE SENSOR- STAINLESS STEEL FLAT PLATE |
| R | HUMIDISTAT OR HUMIDITY SENSOR |
| C | CARBON DIOXIDE SENSOR |
| CO | CARBON MONOXIDE SENSOR |

EXAMPLE

TCR = THERMOSTAT W/ CO2 & HUMIDISTAT SENSOR

DEFINITION:

THERMOSTAT - FACTORY PROVIDED W/ ON-BOARD CONTROL LOGIC & LOCAL USEABILITY CONTROLS. CONNECT TO EMS FOR MONITORING ONLY.

ZONE TEMPERATURE SENSOR W/ LOCAL OVERRIDES - FIELD PROVIDED SENSOR W/ WIRING TO CENTRAL EMS W/ LOCAL USER OVERRIDE CONTROLS. MOUNT FLUSH & AT EQ HEIGHT W/ LIGHT SWITCHES & OTHER DEVICES. SENSOR MODEL TO BE APPROVED BY THE ARCHITECT.

SPACE TEMPERATURE SENSOR W/O LOCAL OVERRIDES - FIELD PROVIDED SENSOR W/ WIRING TO CENTRAL EMS W/O LOCAL USER OVERRIDE CONTROLS EQ TO KELE ST-S. EXACT SENSOR TYPE TO MATCH ARCHITECTURAL FEATURES & TO BE APPROVED BY THE ARCHITECT.

- AUTOMATIC CONTROL VALVE, 3-WAY
- AUTOMATIC CONTROL VALVE, 2-WAY
- DDC — MAIN BUILDING DIRECT DIGITAL CONTROL PANEL
- VFD — VARIABLE FREQUENCY DRIVE

GENERAL CONTROL NOTES

1. BUILDING EMS TO INTERCONNECT W/ EXG CAMPUS EMS SYSTEM FOR FULL CONTROL & MONITORING.
2. BUILDING EMS TO CONNECT TO LIGHTING CONTROL PANELS THROUGH BACNET INTERFACE CARD.
3. BUILDING CONTROLS TO COMPLY W/ OWNER CONTROLS STANDARDS.
4. MOTOR STARTERS SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR. STARTERS SHALL BE EQ TO CERUS MODEL 'BAS'.

## GENERAL NOTES

1. ALL CONSTRUCTION & MATERIALS SHALL BE AS SPECIFIED & IN ACCORDANCE W/ ALL APPLICABLE CODES, ORDINANCES, LAWS, PERMITS, & THE CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURATE PLACEMENT OF ALL NEW CONSTRUCTION ON THE SITE.
3. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS & DIMENSIONS, & EXACT LOCATIONS & ELEVATIONS OF PIPING BEFORE STARTING WORK. SHOULD A DISCREPANCY APPEAR IN THE CONTRACT DOCUMENTS, OR BETWEEN THE CONTRACT DOCUMENTS & EXG CONDITIONS, NOTIFY THE ARCHITECT AT ONCE FOR INSTRUCTION ON HOW TO PROCEED.
4. THE MECHANICAL CONTRACTOR SHALL ACQUIRE & PAY FOR ALL PERMITS & FEES.
5. COORDINATE MECHANICAL WORK W/ ALL OTHER TRADES (ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL, & LANDSCAPE); REFER TO ELECTRICAL, ARCHITECTURAL,STRUCTURAL, CIVIL, & LANDSCAPE DWGS & SPECIFICATIONS FOR DETAILS. COORDINATION SHALL OCCUR PRIOR TO FABRICATION, PURCHASE, &/OR INSTALLATION OF ALL WORK.
6. COORDINATE MECHANICAL, ELECTRICAL, PLUMBING, & FIRE PROTECTION SYSTEM ROUTING PRIOR TO INSTALLATION. DUCTWORK ROUTING TAKES PRECEDENCE OVER OTHER DISCIPLINES INCLUDING FIRE PROTECTION. DWGS ARE DIAGRAMMATIC IN NATURE. PROVIDE ALL FITTINGS, TRANSITIONS &/OR OFFSETS AS REQ FOR A COMPLETE SYSTEM.
7. PRIOR TO COMMENCING ANY WORK VERIFY ALL EQUIPMENT LOCATIONS W/ THE GENERAL CONTRACTOR, OTHER TRADES, ARCHITECT & STRUCTURAL ENGINEER.
8. MECHANICAL SYSTEMS SEISMIC RESTRAINTS SHALL CONFORM TO "SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS" AS PUBLISHED BY SMACNA 3RD EDITION 2008, ANSI/SMACNA 001-2008.
9. THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR THE SAFE KEEPING OF HIS OWN PROPERTY ON THE JOB SITE. OWNER ASSUMES NO RESPONSIBILITY FOR THE PROTECTION OF PROPERTIES AGAINST, FIRE, SMOKE, THEFT, & ENVIRONMENTAL CONDITIONS.
10. MECHANICAL MATERIALS, EQUIPMENT, DUCTWORK & PIPING SHALL BE STORED IN ORDERLY PROFESSIONAL FASHION. ALL ITEMS SHALL BE COVERED & PROTECTED FROM RAIN & ALL OTHER ENVIRONMENTAL CONDITIONS.
11. VERIFY & COORDINATE THE MAINTENANCE ACCESS & CODE REQ CLEARANCES FOR ALL MECHANICAL EQUIPMENT. INSTALL ALL WORK & COORDINATE THE WORK OF OTHER TRADES TO MAINTAIN CODE REQ CLEARANCE & ACCESS FOR PROPER MAINTENANCE OF EQUIPMENT.
12. PROVIDE EQUIPMENT TAGS FOR ALL MECHANICAL EQUIPMENT. TAG SHALL BE MADE OF BAKELITE W/ ETCHED 1/2" HIGH LETTERS. LOCATE TAG ON EQUIPMENT NEAR MFRS NAMEPLATE.
13. PROVIDE DUCTWORK THAT CONFORMS TO THE "HVAC DUCT CONSTRUCTION STANDARDS - METAL & FLEXIBLE" AS PUBLISHED IN THE LATEST EDITION OF THE CALIFORNIA MECHANICAL CODE. ACOUSTICAL LINING SHALL CONFORM TO SMACNA 2006 EDITION (ANSI / SMACNA 006-2006) STANDARDS.
14. FLEXIBLE DUCTWORK SHALL BE USED FOR CONNECTIONS TO AIR TERMINAL DEVICES IN CONCEALED, LOW PRESSURE, ENVIRONMENTAL AIR DUCT SYSTEMS. FLEXIBLE DUCT CONNECTIONS SHALL BE 5'-0" MAX LENGTH & SHALL BE INSTALLED IN ACCORDANCE W/ SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
15. REFRIGERANT PIPING SHALL BE SIZED & ROUTED IN ACCORDANCE W/ MFR'S REQUIREMENTS. REFRIGERANT SYSTEM SHALL INCLUDE ALL ADDITIONAL TRAPS, VALVES, & ACCESSORIES REQ BY THE MFR FOR THE INSTALLED PIPE ROUTING. PROVIDE MIN 1" CLOSED CELL FOAM INSULATION FOR ALL REFRIGERANT PIPING, ARMACELL "ARMAFLEX" OR SIMILAR. REFER TO SPECIFICATIONS.
16. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING IN CONDUIT.
17. THERMOSTATS SHALL BE MOUNTED 48" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.
18. THE MECHANICAL CONTRACTOR SHALL PROVIDE AS-BUILT DWGS. DWGS SHALL BE SUBMITTED IN AUTO CAD FORMAT. AS-BUILT DWGS SHALL BE COMPLETED & SUBMITTED TO ENGINEER/ARCHITECT PRIOR TO SUBSTANTIAL COMPLETION. ENGINEER WILL NOT PERFORM PUNCH LIST UNTIL AS-BUILT DWGS ARE RECEIVED.
19. PROVIDE COMPLETE AIR & WATER BALANCE FOR ALL MECHANICAL SYSTEMS. BALANCING CONTRACTOR SHALL BE AN INDEPENDENT THIRD PARTY & A MEMBER OF "AABC" OR THE "NEBB". MECHANICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY BELTS SHEAVES & PULLEYS AS REQ BY THE BALANCING CONTRACTOR TO COMPLETE THE BALANCING OF THE SYSTEM.
20. DUCT SIZES INDICATED ON PLANS ARE THE "FREE" INSIDE DIMENSION OF THE DUCT. THE CONTRACTOR SHALL INCREASE THE SIZE OF THE DUCT TO ACCOMMODATE ACOUSTICAL &/OR PERFORATED LINERS.
21. SEAL ALL DUCT SYSTEMS AIRTIGHT USING MASTIC &/OR LIQUID ELASTIC SEALANT. "DUCT TAPE" SHALL NOT BE USED.
22. PROVIDE VOLUME DAMPERS FOR EA SUPPLY DIFFUSER AS WELL AS FOR RETURN & EXHAUST OPENINGS AS REQ BY THE BALANCING CONTRACTOR TO BALANCE THE SYSTEM. LOCATE DAMPER AS FAR UPSTREAM AS POSSIBLE. FOR ALL VOLUME DAMPERS LOCATED ABOVE CEILINGS PROVIDE 12" LONG 1/2" WIDE FLUORESCENT ORANGE TAPE TO MARK DAMPER LOCATIONS.
23. PROVIDE "PETE'S PLUG" TYPE TEST WELLS BEFORE & AFTER EA PIECE OF EQUIPMENT REQ BALANCING OR MONITORING IN THE HYDRONIC SYSTEMS INCL BUT NOT LIMITED TO COILS, HEAT EXCHANGERS, CONTROL VALVES, TEMPERATURE & / OR PRESSURE SENSORS, ETC. PROVIDE ADDL TEST WELLS AS REQ BY THE COMMISSIONING AGENT.
24. DUCT SYSTEMS USED W/ BLOWER TYPE EQUIPMENT WHICH ARE PORTIONS OF HEATING COOLING, ABSORPTION, EVAPORATIVE COOLING OR OUTDOOR AIR VENTILATION SYSTEM SHALL BE SIZED IN ACCORDANCE W/ CHAPTER 17 OF THE CALIFORNIA MECHANICAL CODE.
25. AIR-MOVING SYSTEMS SUPPLYING AIR IN EXCESS OF 2000 CFM SHALL BE INTERLOCKED TO & SHUTDOWN BY AREA WIDE FIRE ALARM SYSTEM SIGNAL. FOR BUILDINGS W/O AREA WIDE SYSTEM THE EQUIPMENT SHALL BE EQUIPPED W/ AN AUTOMATIC SHUTOFF ACTIVATED BY SMOKE DETECTOR LOCATED IN THE MAIN SUPPLY-AIR DUCT.
26. PROVIDE TURNING VANES IN ALL 90° MITERED ELBOWS
27. DUCT SYSTEMS SHALL BE LEAK TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF 2022 CALIFORNIA ENERGY CODE SECTION 120.4(g) AND SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL.
28. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED W/ ADEQUATE CLEARANCE FOR MAINTENANCE ACCESS, PER MFR'S REQUIREMENTS.
29. REFER TO ARCHITECTURAL PLANS FOR LOCATION OF FIRE &/OR SMOKE SEPARATION WALLS. THE MECHANICAL CONTRACTOR SHALL PROVIDE FIRE &/OR SMOKE DAMPERS FOR ALL RATED WALLS/CEILINGS/ASSEMBLIES.
30. ALL APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE IN ACCORDANCE WITH MANUFACTURER INSTALLATION REQUIREMENTS AND THE BUILDING CODE (CMC303.4)

## CALGREEN BUILDING STANDARDS NON-RESIDENTIAL MANDATORY MEASURES

- ■ 5.201.1 — COMPLY W/ REQ OF CALIFORNIA ENERGY CODE (CCR TITLE-24, PART 6, 2022)
- ■ 5.410.3 — PERFORM TESTING & ADJ PROCEDURES IN ACCORDANCE W/ INDUSTRY BEST PRACTICES & APPLICABLE NATIONAL STANDARDS ON EA SYSTEM.
- ■ 5.410.4 — TESTING & ADJUSTING OF SYSTEMS SHALL BE REQ FOR BUILDINGS LESS THAN 10,000 SQ FT OR NEW SYSTEMS TO SERVE AN ADDITION OR ALTERATION.
- ■ 5.410.4.3.1 — BEFORE A NEW SPACE-CONDITIONING SYSTEM SERVING A BUILDING OR SPACE IS OPERATED FOR NORMAL USE, THE SYSTEM SHALL BE BALANCED IN ACCORDANCE W/ THE PROCEDURES DEFINED BY THE TESTING, ADJUSTING, AND BALANCING BUREAU NATIONAL STANDARDS; THE NATIONAL ENVIRONMENTAL BALANCING BUREAU PROCEDURAL STANDARDS; OR ASSOCIATED AIR BALANCE COUNCIL NATIONAL STANDARDS.
- ■ 5.410.4.4 — AFTER COMPLETION OF TESTING, ADJUSTING & BALANCING, PROVIDE A FINAL REPORT OF TESTING SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.
- ■ 5.410.4.5 — BUILDING OWNER SHALL BE PROVIDED W/ DETAILED OPERATING & MAINTENANCE INSTRUCTIONS & COPIES OF GUARANTEES & WARRANTIES FOR EA SYSTEM PRIOR TO FINAL INSPECTION.
- ■ 5.504.4.1 — ADHESIVES, ADHESIVE BONDING PRIMERS, ADHESIVE PRIMERS, SEALANTS, SEALANT PRIMERS & CAULKS SHALL COMPLY W/ 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 & 5.504.4.2.
- ■ 5.504.3 — AEROSOL ADHESIVES & SMALLER UNIT SIZES OF ADHESIVES AND SEALANT OR CAULKING COMPOUNDS (IN UNITS OF PRODUCT, LESS PACKAGING, WHICH DO NOT WEIGH MORE THAN ONE LB & DO NOT CONSIST OF MORE THAN 16 FLUID OZ) SHALL COMPLY WITH STATEWIDE VOC STANDARDS & OTHER REQ INCL PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS, OF CALIFORNIA CODE OF REGULATIONS, TITLE 17, COMMENCING W/ SECTION 94507.
- ■ 5.504.5.3 — AT THE TIME OF ROUGH INSTALLATION & DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING, COOLING, & VENTILATION EQUIPMENT, ALL DUCT & OTHER AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED W/ TAPE, PLASTIC, SHEETMETAL, OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST, WATER, & DEBRIS WHICH MAY ENTER THE SYSTEM.
- ■ 5.504.5.3.1 — IN MECHANICALLY VENTILATED BUILDINGS, PROVIDE REGULARLY OCCUPIED AREAS OF THE BUILDINGS W/ AIR FILTRATION MEDIA FOR OUTSIDE & RETURN AIR THAT PROVIDES AT LEAST A MERV 13. MERV 13 FILTERS SHALL BE INSTALLED PRIOR TO OCCUPANCY & RECOMMENDATIONS FOR MAINTENANCE W/ FILTERS OF THE SAME VALUE SHALL BE INCLUDED IN THE M&O MANUAL.
- ■ 5.506.1 — INSTALLED FILTERS SHALL BE CLEARLY LABELED BY THE MANUFACTURER INDICATING THE MERV RATING.

  FOR MECHANICALLY OR NATURALLY VENTILATED SPACES IN BUILDINGS, MEET THE MIN REQ OF SECTION 120.1 OF THE CALIFORNIA ENERGY CODE, CCR TITLE 24, PART 6 & CHAPTER 4 OF CCR, TITLE 8 OR THE APPLICABLE LOCAL CODE WHICHEVER IS MORE STRINGENT.
- ■ 5.506.2 — FOR BUILDINGS EQUIPPED W/ DEMAND CONTROL VENTILATION, CO2 SENSORS & VENTILATION CONTROLS SHALL BE SPECIFIED & INSTALLED IN ACCORDANCE W/ THE REQ OF THE LATEST EDITION OF THE CALIFORNIA ENERGY CODE, CCR, TITLE 24, PART 6, SECTION 120.1(c).1.
- ■ 702.1 — HVAC SYSTEM INSTALLERS SHALL BE TRAINED & CERTIFIED IN THE PROPER INSTALLATION OF HVAC SYSTEMS INCL DUCTS & EQUIPMENT BY A NATIONALLY OR REGIONALLY RECOGNIZED TRAINING OR CERTIFICATION PROGRAM. UNCERTIFIED PERSONS MAY PERFORM HVAC INSTALLATIONS WHEN UNDER THE DIRECT SUPERVISION & RESPONSIBILITY OF A PERSON TRAINED & CERTIFIED TO INSTALL HVAC SYSTEMS OR CONTRACTOR LICENSED TO INSTALL HVAC SYSTEMS. ACCEPTABLE HVAC TRAINING & 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 MFR ORGANIZATIONS, 5) OTHER PROGRAMS ACCEPTABLE TO THE ENFORCING AGENCY.
- ■ 702.2 — SPECIAL INSPECTORS MUST BE QUALIFIED & ABLE TO DEMONSTRATE COMPETENCE IN THE DISCIPLINE THEY ARE INSPECTING.
- ■ 703.1 — THE BUILDING OWNER SHALL BE PROVIDED W/ THE FINAL REPORT OF ALL INSPECTION VERIFICATIONS & REPORTS REQ BY THE ENFORCING AGENCY.

## APPLICABLE CODES

BUILDING CODES: (APPLICABLE AS OF JANUARY 1, 2023)

2022 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.

2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.; (2021 INTERNATIONAL BUILDING CODE OF THE INTERNATIONAL CODE COUNCIL, WITH CALIFORNIA AMENDMENTS)

2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.; (2020 NATIONAL ELECTRICAL CODE OF THE NATIONAL FIRE PROTECTION ASSOCIATION, NFPA)

2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.; (2021 UNIFORM MECHANICAL CODE OF THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS, IAPMO)

2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.; (2021 UNIFORM PLUMBING CODE OF THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS, IAPMO)

2022 ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.;

2022 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.; (2021 INTERNATIONAL FIRE CODE OF THE INTERNATIONAL CODE COUNCIL)

2022 CALIFORNIA GREEN BUILDING CODE (CAL GREEN), PART 11, TITLE 24 C.C.R.

2022 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.

2022 TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

PARTIAL LIST OF APPLICABLE STANDARDS

| | | |
|---|---|---|
| ASHRAE 62.1 | VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY | VERSION 2022 |
| ASHRAE 55 | THERMAL COMFORT FOR HUMAN OCCUPANCY | VERSION 2020 |
| ASHRAE G36 | HIGH PERFORMANCE SEQUENCE OF OPERATIONS FOR HVAC SYSTEMS | VERSION 2021 |

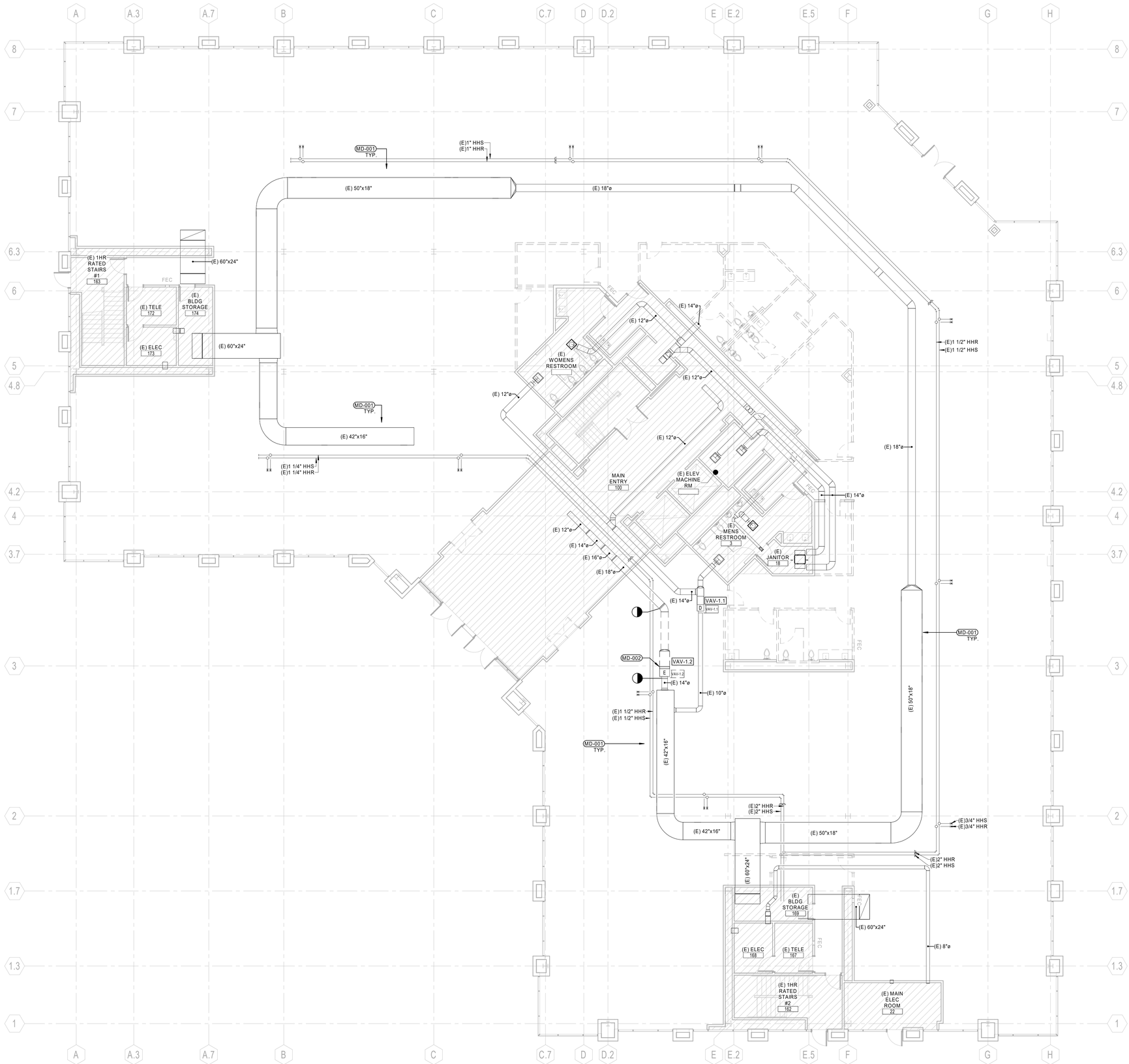
2019 CALIFORNIA BUILDING CODE (FOR SFM) REFERENCED STANDARDS CH. 35

| | | |
|---|---|---|
| NFPA 13 | AUTOMATIC SPRINKLER SYSTEMS (CALIFORNIA AMENDED) | 2022 EDITION |
| NFPA 14 | STANDPIPE SYSTEMS (CALIFORNIA AMENDED) | 2019 EDITION |
| NFPA 17 | DRY CHEMICAL EXTINGUISHING SYSTEMS | 2020 EDITION |
| NFPA 17A | WET CHEMICAL EXTINGUISHING SYSTEMS | 2020 EDITION |
| NFPA 20 | STATIONARY PUMPS | 2022 EDITION |
| NFPA 24 | PRIVATE FIRE SERVICE MAINS (CALIFORNIA AMENDED) | 2019 EDITION |
| NFPA 72 | NATIONAL FIRE ALARM AND SIGNALING CODE (CALIFORNIA AMENDED) (NOTE: SEE UL STANDARD 1971 FOR "VISUAL DEVICES") | 2022 EDITION |
| NFPA 80 | FIRE DOOR AND OTHER OPENING PROTECTIVES | 2019 EDITION |
| NFPA 253 | CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS | 2023 EDITION |
| NFPA 2001 | CLEAN AGENT FIRE EXTINGUISHING SYSTEMS (CALIFORNIA AMENDED) | 2018 EDITION |

## TITLE-24 MECHANICAL MANDATORY MEASURES

GENERAL

- ■ 110.1 — ANY APPLIANCE FOR WHICH THERE IS A CALIFORNIA STANDARD ESTABLISHED IN THE APPLIANCE EFFICIENCY REGULATIONS SHALL COMPLY WITH THE APPLIANCE STANDARD.
- □ 120.6 — COVERED PROCESS REFRIGERATED WAREHOUSES, COMMERCIAL REFRIGERATION, ENCLOSED PARKING GARAGES, PROC




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| MD-001 | DEMOLISH EXISTING VAV BOXES TAPPED INTO MAIN DUCT LOOP THAT ARE CURRENTLY NOT IN USE. CAP SUPPLY DUCT AT TAP CONNECTION AND CAP OFF HWS/R PIPES BACK AT BRANCH TAKE OFF. |
| MD-002 | CAREFULLY DISCONNECT EXISTING DUCTWORK AND HWS/R PIPING FROM EXISTING VAV BOX AND SAVE FOR RELOCATION |

## LEGEND

- EXISTING STUD WALL CONSTRUCTION
- STUD WALL CONSTRUCTION
- NOT IN SCOPE OF WORK
- AREA OF MECHANICAL DEMOLITION

## GENERAL NOTES

1. ALL DEMOLITION TO BE REMOVED AND PROPERLY DISPOSED OF OFFSITE. INFORM CLIENT OF ANY LARGE OR VALUABLE ITEMS THAT CAN BE SALVAGED.
2. CONTRACTOR TO HAVE ALL SALVAGE RIGHTS TO ALL DEMOLISHED COMPONENTS AND EQUIPMENT EXCEPT FOR VAV TERMIINAL BOXES. CONTRACTOR TO COORDINATE WITH CLIENT THE STORAGE LOCATION OF VAV TERMINAL BOXES THAT CANNOT BE REPURPOSED.
3. COORDINATE DEMOLITION WORK WITH ALL OTHER TRADES AND PROVIDE DEMOLITION/RE-LOCATION OF UTILITIES AS NECESSARY TO PROVIDE A COMPLETED BUILDING AS PER CONSTRUCTION DOCUMENTS.
4. VERIFY ANY MAJOR DISCREPANCIES ON THE DRAWINGS AND NOTIFTY THE ARCHITECT PRIOR TO DEMOLITION.
5. OBTAIN CLIENT APPROVAL OF SCHEDULED DOWN TIME DURATIONS PRIOR TO COMMENCING DEMOLITION.
6. PATCH AND REPAIR EXISTING WALL OR CEILING SURFACES CAUSED BY ANY DEMOLITION OF HVAC-RELATED EQUIPMENT, ACCESSORIES, OR PENETRATIONS.
7. COORDINATE WITH THE CLIENT IF THERE ARE ANY HAZARDOUS MATERIALS ABATEMENT REMOVAL TO TAKE PLACE PRIOR TO DEMOLITION.
8. ALL EQUIPMENT NOT INDICATED TO BE REMOVED SHALL BE PROTECTED IN PLACE, CLEANED AND REFRUBISH IF REQUIRED. THIS INCLUDES: EXHAUST FANS, HEAT PUMPS, VAV BOXES, AND DUCT.
9. ALL DUCTWORK IN SCOPE OF WORK NOT SHOWN AS DEMO SHALL BE CLEANED AND PRESSURE TESTED BEFORE REUSE. NEW DUCTWORK SHALL CONNECT TO EXISTING FOR NEW AIR DISTRIBUTION.
10. PRIOR TO BID, CONTRACTOR SHALL BE RESPONSIBLE TO FIELD-VERIFY ALL EXISTING CONDITIONS INCLUDING BUT ARE NOT LIMITED TO SIZES, LOCATIONS, CONDITIONS, OBSTRUCTIONS, AND ACCESS.
11. PRIOR TO DEMOLITION WORK, CONTACT CONTROLS CONTRACTOR TO IDENTIFY EXISTING EMS WIRING TO REMAIN.

1 - FLOOR - MECHANICAL DEMO 1/8" = 1'-0" 1

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By Maria Yepremian
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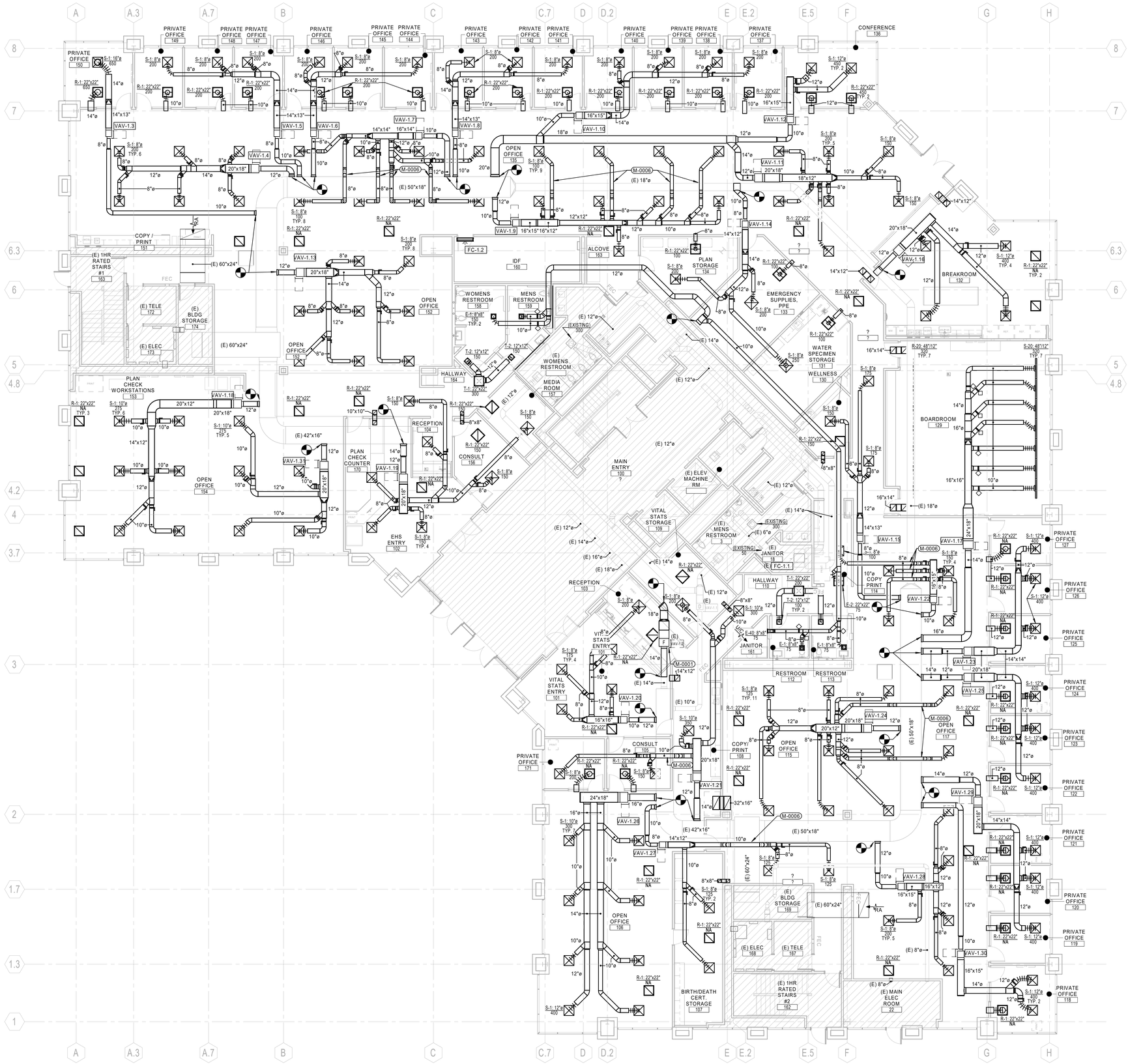
| Revision | Date |
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| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | 1/8" = 1'-0" |

MECHANICAL DEMOLITION PLANS

M1.01




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| M-0001 | RELOCATED VAV BOX |
| M-0006 | OFFSET DUCT UP INTO BEAM POCKET OVER DUCT MAIN |

## LEGEND

- EXISTING STUD WALL CONSTRUCTION
- STUD WALL CONSTRUCTION
- NOT IN SCOPE OF WORK

## GENERAL NOTES

1. PROVIDE ACCESS PANELS IN NON-ACCESSIBLE AREAS (RATED OR NON-RATED) MINIMUM 12"x12" SIZE FOR COMBINATION FIRE/SMOKE DAMPERS. INSTALL LARGER ACCESS PANELS FOR LARGER EQUIPMENT AS REQUIRED BY CODE. COORDINATE WITH ARCHITECT FOR FINAL APPROVAL OF FINAL LOCATIONS PRIOR TO INSTALLATION.
2. PROVIDE FIRESTOPPING AT PASS THROUGH DUCT PENETRATIONS THROUGH RATED WALLS. DUCTWORK SHALL BE A MINIMUM 26 GA SHEET METAL. COORDINATE WITH OTHER TRADES THAT MAY HAVE PENETRANTS AROUND THE SAME AREAS. REFER TO ARCHITECTURAL SHEETS FOR FIRE RATING ASSEMBLIES.
3. INSULATION MATERIALS APPLIED TO DUCTWORK SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND SMOKE DENSITY NOT EXCEEDING 50 WHEN TESTED AS A COMPOSITE PRODUCT IN ACCORDANCE WITH ASTM E84 OR UL 723 (CMC 602.2).
4. REQUIRED OFFSETS, COMPONENTS, ACCESSORIES, AND FITTINGS MAY NOT BE SHOWN BUT SHALL BE PROVIDED AS REQUIRED TO AVOID INTERFERENCES WITH UNFORSEEN COMPONENTS.
5. REFER TO PLUMBING DRAWINGS FOR CONDENSATE DRAIN PIPE ROUTING.
6. FLEXIBLE DUCT CONNECTION TO AIR TERMINAL SHALL BE MAXIMUM 5'-0"
7. THERE SHALL BE A CLEAR RETURN PATH BACK TO THE HVAC UNIT IN THE PLENUM SPACE FOR SYSTEMS WITH NO RETURN DUCTWORK. REPORT ANY OBSTRUCTIONS SUCH AS FULL HEIGHT WALLS NOT SHOWN ON THE DRAWINGS TO THE ARCHITECT.
8. PROVIDE A MINIMUM OF 3 FEET OF STRAIGHT DUCT INTO THE VARIABLE VOLUME BOXES OR AS REQUIRED BY THE MANUFACTURER. INSTALL BOXES AS LOW ABOVE THE CEILING AS POSSIBLE FOR EASIER ACCESS.
9. SET VARIABLE VOLUME BOX MINIMUM DAMPER SETTING ACCORDING TO THE MINIMUM AIRFLOW AS SCHEDULED ON SHEET E-M020
10. INSTALL DUCT SYSTEMS IN THE FOLLOWING ORDER FROM LOWEST TO HIGHEST REFERENCED FROM THE FINISHED CEILING HEIGHT UNLESS OTHERWISE NOTED:
    A. SUPPLY
    B. RETURN / RELIEF
    C. EXHAUST
11. ALL DUCTWORK IN EXPOSED CEILING AREAS TO BE PAINTED PER ARCHITECTURAL DIRECTION
12. HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS (INCLUDING HYDRONIC SYSTEMS) SHALL BE BALANCED IN ACCORDANCE WITH AN APPROVED METHOD PER CMC 314.14.

1 - FLOOR - MECHANICAL | 1/8" = 1'-0" | 1

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Developed for
SAN BERNARDINO COUNTY

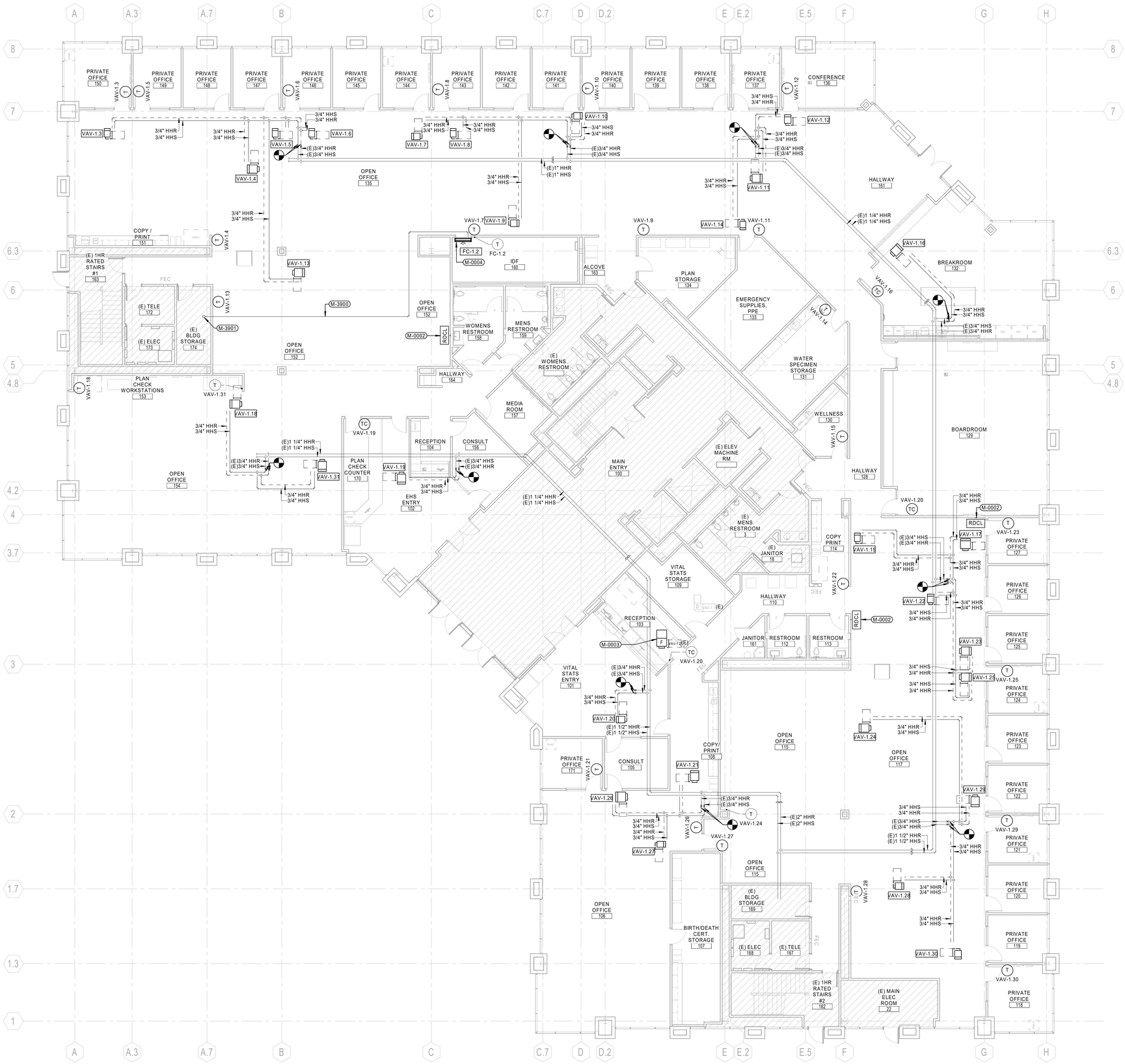
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| 1 POC1 | 11/20/2025 |

| Submittal | Date |
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| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 09/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | 1/8" = 1'-0" |

MECHANICAL HVAC PLANS

M2.01




1 - FLOOR - PIPING & CONTROLS | 1/8" = 1'-0" | 1

## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| M-0002 | MOUNT RDCL PANEL IN CEILING PLENUM ABOVE T-BAR CEILING PANELS. MOUNT PANEL CLOSE TO BACK SIDE OF CEILING FOR ACCESS |
| M-0003 | RECONNECT HWS/R PIPING TO RELOCATED VAV BOX |
| M-0004 | CONNECT FC-1.2 REFRIGERANT PIPING TO CU-1.2 MOUNTED ON ROOF ABOVE. CU-1.2 TO BE LOCATED IN EQUIPMENT WELL NEAR (E)AC-1 |
| M-3900 | PROVIDE INSULATED REFRIGERANT PIPING LIQUID AND SUCTION LINES |
| M-3901 | INSULATED REFRIGERANT PIPING LIQUID AND SUCTION LINES UP |

## LEGEND

- EXISTING STUD WALL CONSTRUCTION
- STUD WALL CONSTRUCTION
- NOT IN SCOPE OF WORK

## GENERAL NOTES

1. PROVIDE ACCESS PANELS IN NON-ACCESSIBLE AREAS (RATED OR NON RATED) MINIMUM 8"x8" SIZE FOR VALVES, METERS, OR DEVICES REQUIRING MAINTENANCE. INSTALL LARGER ACCESS PANELS FOR LARGER EQUIPMENT AS REQUIRED BY CODE. COORDINATE WITH ARCHITECT FOR FINAL APPROVAL OF FINAL LOCATIONS PRIOR TO INSTALLATION.
2. PROVIDE FIRESTOPPING AT PIPE PENETRATIONS THROUGH RATED WALLS. COORDINATE WITH OTHER TRADES THAT MAY HAVE PENETRANTS AROUND THE SAME AREAS. REFER TO ARCHITECTURAL SHEETS FOR FIRE RATING ASSEMBLIES.
3. INSULATION MATERIALS APPLIED TO PIPING SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND SMOKE DENSITY NOT EXCEEDING 50.
4. REQUIRED OFFSETS, COMPONENTS, ACCESSORIES, AND FITTINGS MAY NOT BE SHOWN BUT SHALL BE PROVIDED AS REQUIRED TO AVOID INTERFERENCES WITH UNFORSEEN COMPONENTS.
5. PROVIDE DIELECTRIC UNIONS, GASKETS, AND FASTENERS AT DISSIMILAR METAL CONNECTIONS OF CONTACT POITNS.
6. PROVIDE THERMAL EXPANSION JOINT AT EVERY 75 FEET ON PIPING MAIN.
7. ROUTE MECHANICAL PIPING PARALLEL TO PLUMBING DOMESTIC PIPING TO SHARE TRAPEZE SUPPORTS AS MUCH AS POSSIBLE. REFER TO PLUMBING DRAWINGS FOR REFERENCE.
8. ALIGN THERMOSTATS, TEMPERATURE SENSORS, AND CO2 SENSORS (IF APPLICABLE) WITH OTHER WALL DEVICES SUCH AS LIGHT SWITCHES. FIELD COORDINATE WITH OTHER TRADES PRIOR TO INSTALLATION.
9. HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS (INCLUDING HYDRONIC SYSTEMS) SHALL BE BALANCED IN ACCORDANCE WITH AN APPROVED METHOD PER CMC 314.14.

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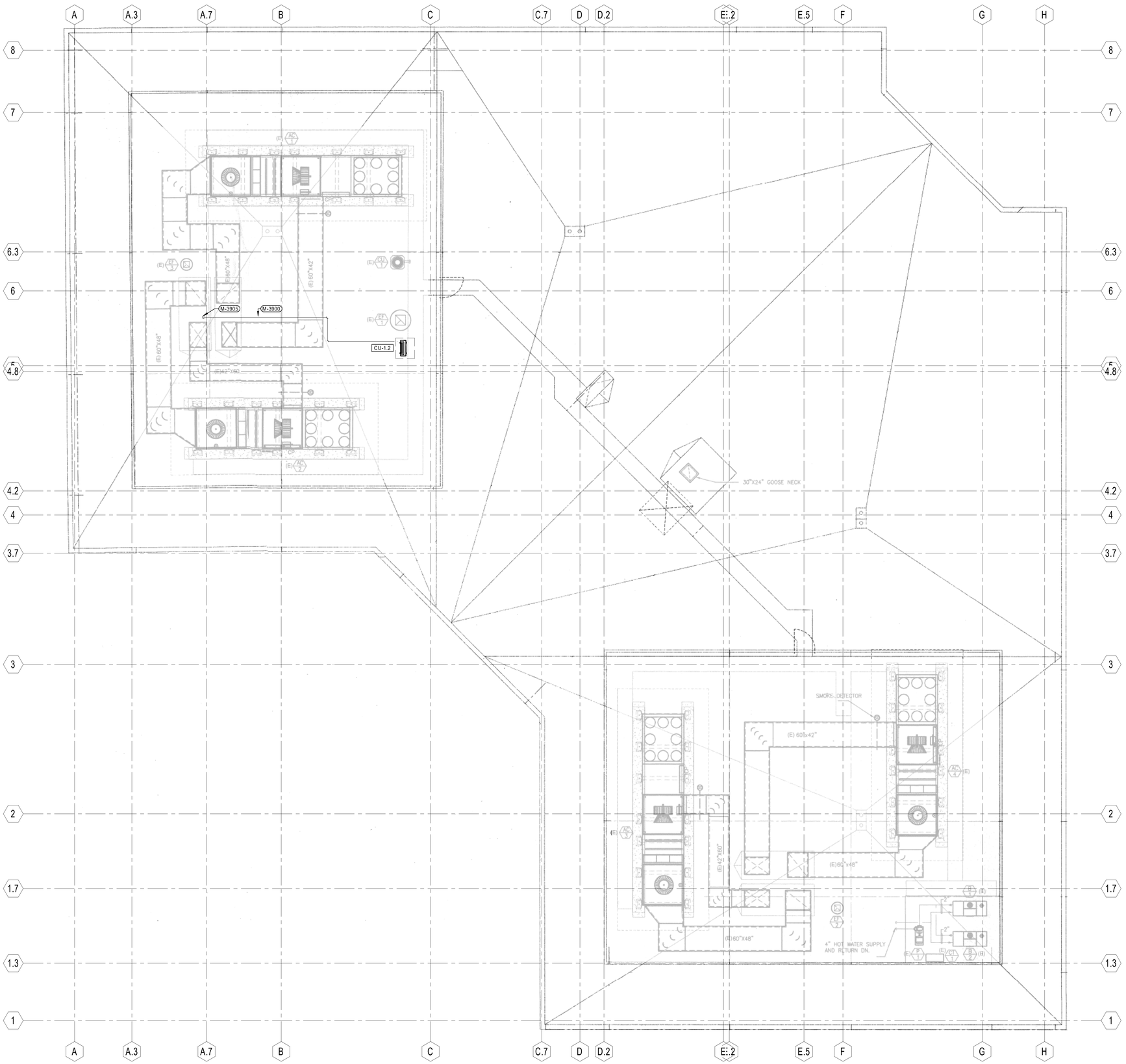
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| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 06/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

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|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | 1/8" = 1'-0" |

MECHANICAL PIPING & CONTROLS PLANS

M2.11




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| M-3900 | PROVIDE INSULATED REFRIGERANT PIPING LIQUID AND SUCTION LINES |
| M-3905 | INSULATED REFRIGERANT PIPING LIQUID AND SUCTION LINES DOWN THRU ROOF |

## LEGEND

- EXISTING STUD WALL CONSTRUCTION
- STUD WALL CONSTRUCTION
- NOT IN SCOPE OF WORK

## GENERAL NOTES

1. PROVIDE ACCESS PANELS IN NON-ACCESSIBLE AREAS (RATED OR NON RATED) MINIMUM 8"x8" SIZE FOR VALVES, METERS, OR DEVICES REQUIRING MAINTENANCE. INSTALL LARGER ACCESS PANELS FOR LARGER EQUIPMENT AS REQUIRED BY CODE. COORDINATE WITH ARCHITECT FOR FINAL APPROVAL OF FINAL LOCATIONS PRIOR TO INSTALLATION.
2. PROVIDE FIRESTOPPING AT PIPE PENETRATIONS THROUGH RATED WALLS. COORDINATE WITH OTHER TRADES THAT MAY HAVE PENETRANTS AROUND THE SAME AREAS. REFER TO ARCHITECTURAL SHEETS FOR FIRE RATING ASSEMBLIES.
3. INSULATION MATERIALS APPLIED TO PIPING SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND SMOKE DENSITY NOT EXCEEDING 50.
4. REQUIRED OFFSETS, COMPONENTS, ACCESSORIES, AND FITTINGS MAY NOT BE SHOWN BUT SHALL BE PROVIDED AS REQUIRED TO AVOID INTERFERENCES WITH UNFORSEEN COMPONENTS.
5. PROVIDE DIELECTRIC UNIONS, GASKETS, AND FASTENERS AT DISSIMILAR METAL CONNECTIONS OF CONTACT POITNS.
6. PROVIDE THERMAL EXPANSION JOINT AT EVERY 75 FEET ON PIPING MAIN.
7. ROUTE MECHANICAL PIPING PARALLEL TO PLUMBING DOMESTIC PIPING TO SHARE TRAPEZE SUPPORTS AS MUCH AS POSSIBLE. REFER TO PLUMBING DRAWINGS FOR REFERENCE.
8. ALIGN THERMOSTATS, TEMPERATURE SENSORS, AND CO2 SENSORS (IF APPLICABLE) WITH OTHER WALL DEVICES SUCH AS LIGHT SWITCHES. FIELD COORDINATE WITH OTHER TRADES PRIOR TO INSTALLATION
9. HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS (INCLUDING HYDRONIC SYSTEMS) SHALL BE BALANCED IN ACCORDANCE WITH AN APPROVED METHOD PER CMC 314.14.

R - ROOF - MECHANICAL | 1/8" = 1'-0" | 1

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LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

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By Maria Yepremian
04/06/2026

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451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

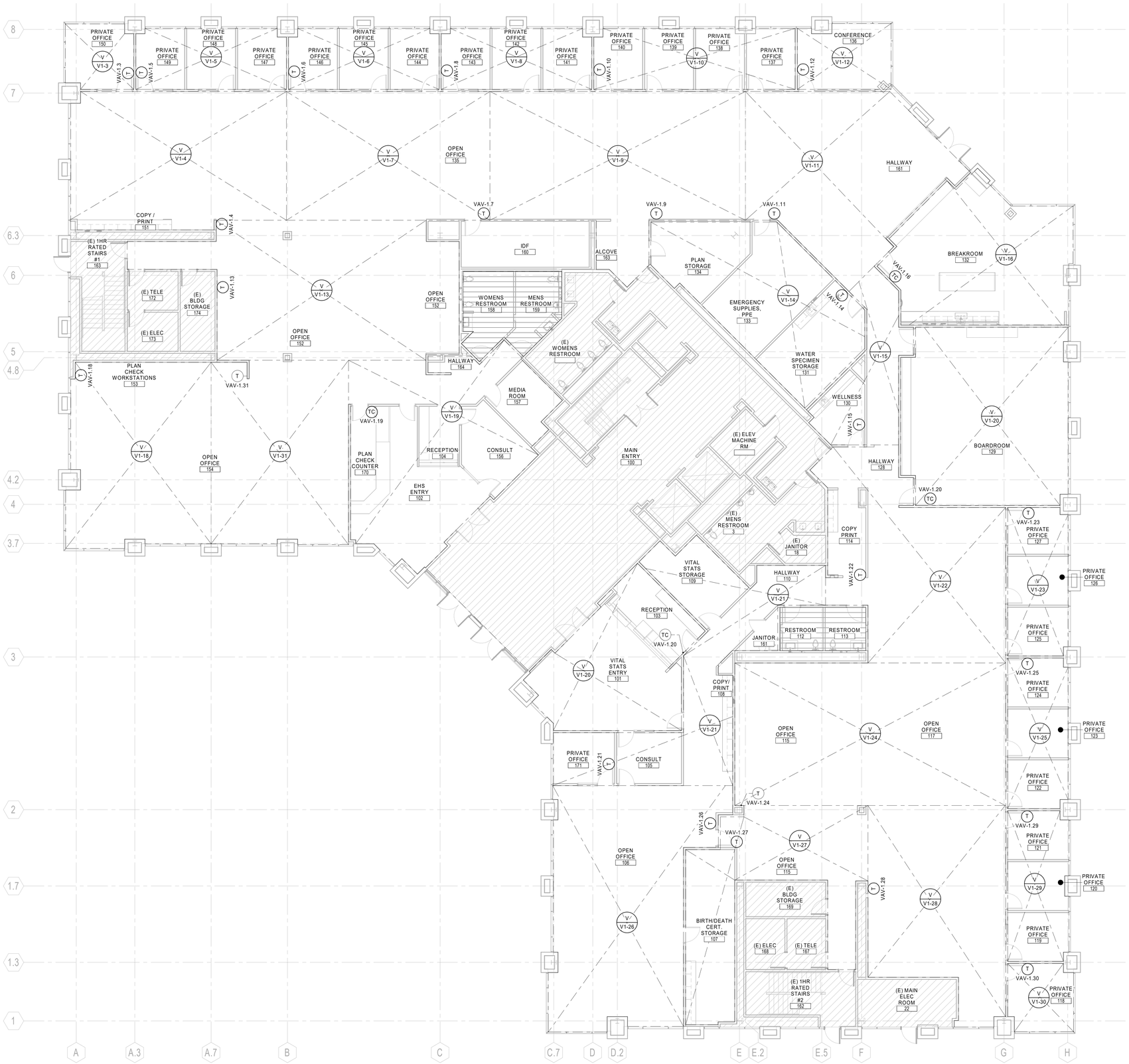
| Revision | Date |
|---|---|
| 1 PCC1 | 11/20/2025 |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | 1/8" = 1'-0" |

MECHANICAL PIPING & CONTROLS ROOF PLAN

M2.15




1 - FLOOR - ZONING | 1/8" = 1'-0" | 1

## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|

## LEGEND

- EXISTING STUD WALL CONSTRUCTION
- STUD WALL CONSTRUCTION
- INDIRECTLY CONDITIONED SPACES (EXHAUST ONLY)
- NOT IN SCOPE OF WORK

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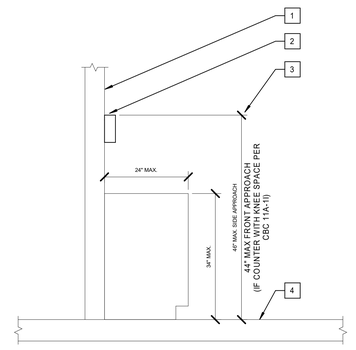
| Revision | Date |
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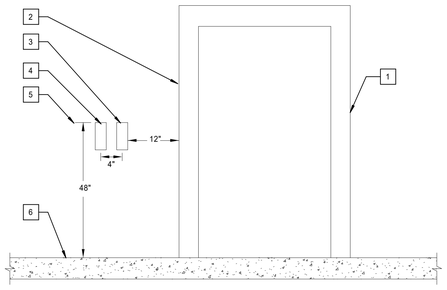
MECHANICAL ZONING PLANS

M5.01




1 WALL
2 THERMOSTAT OR ZONE TEMPERATURE SENSOR
3 TOP OF THERMOSTAT, SWITCH, OUTLET, OR CONTROL SENSOR
4 FINISHED FLOOR

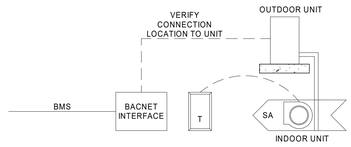
THERMOSTAT MOUNTING OVER OBSTRUCTION — NTS — 04




1 DOOR JAMB
2 STRIKE SIDE OF JAMB
3 CONTROL DEVICE
4 ADDITIONAL CONTROL DEVICE
5 CONTROL DEVICE
6 FINISHED FLOOR

NOTE:
1. PROVIDE MIN. 30"x48" CLEAR FLOOR SPACE FOR PERPENDICULAR APPROACH AT EACH LOCATION.

THERMOSTAT MOUNTING HEIGHT DETAIL — NTS — 03




**SEQUENCE OF OPERATION**

RUN CONDITIONS - ALL HOURS:
THE SYSTEM SHALL BE CONTROLLED BY BMS THROUGH BACNET INTERFACE.

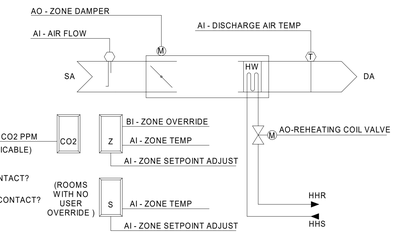
THE AIR CONDITIONING UNIT WILL BE OPERATED ON 24 HOURS PER DAY, 7 DAYS PER WEEK TIME SCHEDULE (ADJ.).

THE UNIT CONTROLLER THROUGH A BACNET TRANSLATOR SHALL MONITOR AND ALARM THE UNIT STATUS AND THE ZONE TEMPERATURE

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN 80°F (ADJ.)
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN 60°F (ADJ.)

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SPLIT SYSTEM COOLING UNIT, DDC — NTS — 09




RUN CONDITIONS - OCCUPIED MODE:
WHEN HVAC UNIT IS OPERATING, PRIOR TO 8:00 AM (ADJ.) OR WHEN OCCUPANCY SENSOR INDICATES ZONE OCCUPANCY, THE UNIT SHALL MAINTAIN:
- 74°F (ADJ.) COOLING SETPOINT
- 70°F (ADJ.) HEATING SETPOINT.

RUN CONDITIONS - UNOCCUPIED SETBACK MODE:
WHEN HVAC UNIT IS OPERATING, AFTER 8:00 AM (ADJ.) AND WHEN OCCUPANCY SENSOR INDICATES NO ZONE OCCUPANCY, THE UNIT SHALL MAINTAIN:
- 79°F (ADJ.) COOLING SETPOINT.
- 66°F (ADJ.) HEATING SETPOINT.

RUN CONDITIONS - OFF-HOURS:
WHEN HVAC UNIT IS NOT OPERATING, THE UNIT SHALL NOT BE ENABLED.

ZONE SETPOINT ADJUST:
THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR BY UP TO +/- 2°F (ADJ.). THIS SHALL ONLY OCCUR IN CLASSROOMS, COMPUTER LABS, OFFICES, AND CONFERENCE ROOMS.

ZONE MINIMUM AIRFLOW SETPOINT RESET:
WHEN THE ZONE CO2 CONCENTRATION IS BELOW THE ZONE CO2 SETPOINT OF 1000 PPM (ADJ.) THE ZONE MINIMUM AIRFLOW SETPOINT WILL BE 20% (ADJ.). WHEN ZONE C02 CONCENTRATION IS ABOVE THE SETPOINT, FROM 0 - 50% CONTROL LOOP SIGNAL (IE ZONE CO2 IS 0 TO 250 PPM (ADJ.) ABOVE THE ZONE CO2 SETPOINT) THE ZONE MINIMUM AIRFLOW SETPOINT WILL RESET PROPORTIONALLY UP TO THE ZONE COOLING MAXIMUM AIRFLOW SETPOINT (FOR ZONES WITH CO2 SENSORS).

VARIABLE VOLUME TERMINAL UNIT - FLOW CONTROL AND REHEAT COIL:
THE UNIT SHALL MAINTAIN ZONE SETPOINTS BY CONTROLLING THE AIRFLOW AND HEATING COIL:

- WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, FROM 0 - 100% CONTROL LOOP SIGNAL (IE ZONE TEMPERATURE 0°F TO 2°F (ADJ.) ABOVE THE COOLING SETPOINT) THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW SETPOINT (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.).
- WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT, THE ZONE DAMPER SHALL MAINTAIN THE MINIMUM AIRFLOW SETPOINT (ADJ.).
- WHEN ZONE TEMPERATURE IS LESS THAN ITS HEATING SETPOINT, FROM 0 - 50% CONTROL LOOP SIGNAL (IE ZONE TEMPERATURE 0°F TO 1°F (ADJ.) BELOW THE HEATING SETPOINT) THE ZONE DAMPER SHALL BE AT MINIMUM POSITION. THE REHEAT VALVE WILL MODULATE OPEN TO RESET THE SUPPLY AIR TEMPERATURE UP TO 90°F (ADJ.).
- IF SPACE TEMPERATURE IS NOT ABLE TO BE MAINTAINED, FROM 50-100% CONTROL LOOP SIGNAL (IE ZONE TEMPERATURE 1°F TO 2°F (ADJ.) BELOW THE HEATING SETPOINT) THE ZONE DAMPER WILL MODULATE TO THE HEATING MAXIMUM AIRFLOW (ADJ).

REHEATING - HIGH DISCHARGE AIR TEMPERATURE LIMIT:
THE CONTROLLER SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND LIMIT REHEATING IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 95°F (ADJ.).

DAMPER POSITION:
THE CONTROLLER SHALL MONITOR DAMPER POSITION TO ACCOMPLISH STATIC PRESSURE RESET PRESSURE REQUEST LOGIC.

ALARMS:
- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY 6°F (ADJ.).
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 6°F (ADJ.).
- HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 100°F (ADJ.).
- LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 50°F (ADJ.).

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VAV ZONE TERMINAL AIR UNIT, DDC — NTS — 01

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DRAFT

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451 E Vanderbilt Way,
San Bernardino, CA 92408
Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 09/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | NTS |

MECHANICAL CONTROL DIAGRAMS

M5.10

## MECHANICAL VENTILATION — MECH-3

PROJECT NAME: Vanderbilt Plaza — DATE: 10/3/2003

MECHANICAL VENTILATION

| A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| ZONE/SYSTEM | AREA BASIS | | | OCCUPANCY BASIS | | | REQ'D O.A (MAX OF D OR G) | DESIGN OUTDOOR AIR CFM | VAV MIN. RATIO | TRANS-FER AIR |
| | CONDI. AREA (SF) | CFM PER SF | MIN. CFM (B x C) | NO. OF PEOPLE | CFM PER PERSON | MIN. CFM (ExF) | | | | |
| 4th Floor | 28,919 | 0.15 | 4,338 | 289.2 | 20.0 | 5,784 | 5,784 | 5,784 | 30% | |
| 3rd Floor | 28,919 | 0.15 | 4,338 | 289.2 | 20.0 | 5,784 | 5,784 | 5,784 | 30% | |
| 2nd Floor | 28,140 | 0.15 | 4,221 | 281.4 | 20.0 | 5,628 | 5,628 | 5,628 | 30% | |
| 1st Floor | 28,919 | 0.15 | 4,338 | 289.2 | 20.0 | 5,784 | 5,784 | 5,784 | 30% | |
| AC-1 | | | | | | Total | 22,979 | 22,979 | | |

C. Minimum Ventilation Rate per Section 121, Table 1-F.
E. Based on Expected Number of Occupants or at least 50% of Chapter 10 1997 UBC Occupant Density.
I. Must be greater than or equal to H, or use Transfer Air. Design Outdoor Air includes ventilation from Supply Air System & Room Exhaust Fans.
K. Must be greater than or equal to (H minus I), and, for VAV, greater than or equal to (H÷J).

EnergyPro 3.1 By EnergySoft — User Number: 5029 — Job Number: 410-03 — Page 5 of 8

EXISTING MECH. VENTILATION T24 FORM (FOR REFERENCE ONLY) — NTS — 23/2

## EXISTING ROOFTOP VAV UNIT SCHEDULE (FOR REFERENCE ONLY)

| TAG | UNIT MFR | UNIT MODEL | SERVICE | LOCATION | AMBIENT (°F) | OUTSIDE AIR DESIGN (CFM) | SUPPLY FAN PERFORMANCE AIRFLOW (CFM) | SUPPLY FAN PERFORMANCE TSP (IN-WG) | SUPPLY FAN PERFORMANCE MOTOR DATA HP | EXHAUST FAN PERFORMANCE AIRFLOW (CFM) | EXHAUST FAN PERFORMANCE TSP (IN-WG) | EXHAUST FAN PERFORMANCE MOTOR DATA HP | COOLING TOTAL (MBH) | COOLING SENSIBLE (MBH) | COOLING EAT DB (°F) | COOLING EAT WB (°F) | COOLING LAT DB (°F) | COOLING LAT WB (°F) | FILTERS TYPE | ELECTRICAL VOLTAGE | ELECTRICAL PHASE | ELECTRICAL MCA | ELECTRICAL MOCP | OPERATING WEIGHT (LBS.) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (E) AC-1 | MCQUAY | RDT090C | LEVEL 1 & 2 | ROOF | 102 | 9,000 | 30,000 | 3.27 | 15 | 27,000 | 0.8 | 15 | 1025 | 780 | 80 | 67 | 57 | 56 | MERV 13 | 480 V | 3 | 234 A | 300 A | 15,000 | 1 |
| (E) AC-3 | MCQUAY | RDT090C | LEVEL 1 & 2 | ROOF | 102 | 9,000 | 30,000 | 3.27 | 15 | 27,000 | 0.8 | 15 | 1025 | 780 | 80 | 67 | 57 | 56 | MERV 13 | 480 V | 3 | 234 A | 300 A | 15,000 | 1 |

REMARKS:

1. REBALANCE OUTSIDE AIR FOR EXISTING UNIT TO DESIGN CONDITION INDICATED IF EXISTING CONDITION IS LOWER

2

## 23 - SINGLE DUCT VARIABLE AIR VOLUME TERMINAL UNITS (VAV)

| TAG | INLET NECK SIZE (Ø) | CASING DIMENSIONS (L"xW"xH") | MFR / MODEL NO. | BOX SERVICE NAME | COOLING AIRFLOW CONNECTED (CFM) | COOLING AIRFLOW MINIMUM (CFM) | HEATING AIRFLOW MAXIMUM (CFM) | REHEAT COIL MAX. COIL CAPACITY (MBH) | REHEAT COIL WATER FLOW RATE (GPM) | REHEAT COIL EWT (°F) | REHEAT COIL LAT (°F) | REHEAT COIL MAX. APD (IN WG) | REHEAT COIL MAX. WPD (FT WG) | REHEAT COIL ROWS | CO2 CONTROL | CONTROL VALVE TYPE | CRITICAL ZONE (Y/N) | ELECTRICAL VOLT. | ELECTRICAL PHASE | OPERATING WEIGHT (LBS.) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VAV-1.3 | 8 | 15.5"x14"x12.5" | TITUS / DESV | PRIVATE OFFICE - 150 | 650 | 130 | 325 | 14.4 | 0.6 | 190 | 95.8 | 0.27 | 0.10 | 2 | N | 3-WAY | N | 120 V | 1 | 50 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.4 | 12 | 15.5"x20"x17.5" | TITUS / DESV | OPEN OFFICE - 135 | 1200 | 400 | 600 | 26.1 | 0.9 | 190 | 95.2 | 0.23 | 0.11 | 2 | N | 3-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.5 | 8 | 15.5"x14"x12.5" | TITUS / DESV | PRIVATE OFFICE - 149, 148, 147 | 600 | 150 | 300 | 13.1 | 0.5 | 190 | 95.2 | 0.23 | 0.08 | 2 | N | 2-WAY | N | 120 V | 1 | 50 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.6 | 8 | 15.5"x14"x12.5" | TITUS / DESV | PRIVATE OFFICE - 146, 145, 144 | 600 | 150 | 300 | 13.1 | 0.5 | 190 | 95.2 | 0.23 | 0.08 | 2 | N | 2-WAY | N | 120 V | 1 | 50 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.7 | 10 | 15.5"x16"x15" | TITUS / DESV | OPEN OFFICE - 135 | 800 | 450 | 450 /2 | 17.3 | 0.7 | 190 | 94.9 | 0.20 | 0.07 | 2 | N | 2-WAY | N | 120 V | 1 | 60 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.8 | 8 | 15.5"x14"x12.5" | TITUS / DESV | PRIVATE OFFICE - 143, 142, 141 | 600 | 150 | 300 | 13.1 | 0.5 | 190 | 95.2 | 0.23 | 0.08 | 2 | N | 2-WAY | N | 120 V | 1 | 50 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.9 | 10 | 15.5"x16"x15" | TITUS / DESV | OPEN OFFICE - 135 | 900 | 450 | 450 | 19.5 | 0.8 | 190 | 94.9 | 0.25 | 0.08 | 2 | N | 2-WAY | N | 120 V | 1 | 60 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.10 | 10 | 15.5"x16"x15" | TITUS / DESV | PRIVATE OFFICE - 140, 139, 138 , 137 | 800 | 200 | 400 | 17.3 | 0.7 | 190 | 94.9 | 0.20 | 0.07 | 2 | N | 2-WAY | N | 120 V | 1 | 60 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.11 | 12 | 15.5"x20"x17.5" | TITUS / DESV | OPEN OFFICE - 135 | 1300 | 500 | 650 | 28.4 | 1.0 | 190 | 95.3 | 0.27 | 0.13 | 2 | N | 2-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.12 | 10 | 15.5"x16"x15" | TITUS / DESV | CONFERENCE - 136 | 900 | 300 | 450 | 19.5 | 0.8 | 190 | 94.9 | 0.25 | 0.08 | 2 | Y | 2-WAY | N | 120 V | 1 | 60 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.13 | 12 | 15.5"x20"x17.5" | TITUS / DESV | OPEN OFFICE - 152 | 1600 | 900 | 900 /2 | 34.8 | 1.3 | 190 | 95.1 | 0.37 | 0.19 | 2 | N | 3-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.14 | 8 | 15.5"x14"x12.5" | TITUS / DESV | PLAN STORAGE, EMERGENCY SUPPLIES, WATER SPECIMEN STORAGE | 650 | 605 | 605 /2 | 14.4 | 0.6 | 190 | 95.8 | 0.27 | 0.10 | 2 | N | 2-WAY | N | 120 V | 1 | 50 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.15 | 8 | 15.5"x14"x12.5" | TITUS / DESV | WELNESS, HALLWAY - 161 | 500 | 165 | 250 | 10.9 | 0.4 | 190 | 95.0 | 0.17 | 0.06 | 2 | N | 2-WAY | N | 120 V | 1 | 50 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.16 | 12 | 15.5"x20"x17.5" | TITUS / DESV | BREAKROOM - 132 | 1600 | 1000 | 1000 /2 | 34.8 | 1.3 | 190 | 95.1 | 0.37 | 0.19 | 2 | Y | 3-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.17 | 14 | 15.5"x24"x18" | TITUS / DESV | BOARDROOM - 129 | 2200 | 1100 | 1100 | 48.1 | 1.7 | 190 | 95.3 | 0.34 | 0.17 | 2 | Y | 3-WAY | N | 120 V | 1 | 84 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.18 | 12 | 15.5"x20"x17.5" | TITUS / DESV | OPEN OFFICE - 154 | 1650 | 400 | 825 | 35 | 1.4 | 190 | 95 | 0.37 | 0.19 | 2 | N | 3-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.19 | 12 | 15.5"x20"x17.5" | TITUS / DESV | EHS ENTRY, PLAN CHECK COUNTER, CONSULT, RECEPTION, MEDIA ROOM | 1050 | 1000 | 1000 /2 | 21.5 | 0.9 | 190 | 94.7 | 0.29 | 0.10 | 2 | N | 2-WAY | N | 120 V | 1 | 60 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.20 | 10 | 15.5"x16"x15" | TITUS / DESV | VITAL STATS ENTRY, RECEPTION | 900 | 900 | 900 /2 | 19.5 | 0.8 | 190 | 94.9 | 0.25 | 0.08 | 2 | Y | 2-WAY | N | 120 V | 1 | 60 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.21 | 12 | 15.5"x20"x17.5" | TITUS / DESV | PRIVATE OFFICE - 171, CONSULT - 105, HALLWAY - 110, VITAL STATS STORAGE, JANITOR - 161 | 1200 | 870 | 900 | 26.1 | 0.9 | 190 | 95.2 | 0.23 | 0.11 | 2 | N | 2-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.22 | 10 | 15.5"x16"x15" | TITUS / DESV | OPEN OFFICE - 117, COPY/PRINT | 700 | 370 | 400 | 16.0 | 0.7 | 190 | 94.8 | 0.18 | 0.06 | 2 | N | 2-WAY | N | 120 V | 1 | 60 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.23 | 12 | 15.5"x20"x17.5" | TITUS / DESV | PRIVATE OFFICE - 127, 126, 125 | 1200 | 450 | 600 | 26.1 | 0.9 | 190 | 95.2 | 0.23 | 0.11 | 2 | N | 2-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.24 | 12 | 15.5"x20"x17.5" | TITUS / DESV | OPEN OFFICE - 117, 115 | 1375 | 800 | 800 /2 | 28.5 | 1.0 | 190 | 95.3 | 0.27 | 0.13 | 2 | N | 3-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.25 | 12 | 15.5"x20"x17.5" | TITUS / DESV | OPEN OFFICE - 124, 123, 122 | 1200 | 450 | 600 | 26.1 | 0.9 | 190 | 95.2 | 0.23 | 0.11 | 2 | N | 3-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.26 | 16 | 15.5"x24"x18" | TITUS / DESV | OPEN OFFICE - 108 | 2500 | 400 | 1250 | 54.4 | 2.1 | 190 | 95.1 | 0.31 | 0.10 | 2 | N | 2-WAY | N | 120 V | 1 | 90 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.27 | 8 | 15.5"x14"x12.5" | TITUS / DESV | BIRTH/DEATH CERT. STORAGE, OPEN OFFICE - 116 | 500 | 315 | 400 /2 | 10.9 | 0.4 | 190 | 95.0 | 0.17 | 0.06 | 2 | N | 2-WAY | N | 120 V | 1 | 50 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.28 | 12 | 15.5"x20"x17.5" | TITUS / DESV | OPEN OFFICE - 117 | 1000 | 450 | 500 | 21.5 | 0.9 | 190 | 94.7 | 0.29 | 0.10 | 2 | N | 2-WAY | N | 120 V | 1 | 60 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.29 | 12 | 15.5"x20"x17.5" | TITUS / DESV | OPEN OFFICE - 121, 120, 119 | 1200 | 450 | 600 | 26.1 | 0.9 | 190 | 95.2 | 0.23 | 0.11 | 2 | N | 2-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.30 | 10 | 15.5"x16"x15" | TITUS / DESV | PRIVATE OFFICE - 118 | 800 | 250 | 400 | 17.3 | 0.7 | 190 | 94.9 | 0.20 | 0.07 | 2 | N | 2-WAY | N | 120 V | 1 | 60 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |
| VAV-1.31 | 12 | 15.5"x20"x17.5" | TITUS / DESV | OPEN OFFICE - 154 | 1375 | 500 | 680 | 28.5 | 1.0 | 190 | 95.3 | 0.27 | 0.13 | 2 | N | 3-WAY | N | 120 V | 1 | 74 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 |

2

REMARKS:

1. FACTORY PROVIDED DISCONNECT SWITCH
2. FACTORY PROVIDED 1" FIBER FREE DUCT LINER; 3 FEET LENGTH (SINGLE OR MULTI OUTLET - SEE PLANS FOR LOCATIONS)
3. FACTORY PROVIDED 120/24V TRANSFORMER. ELECTRICAL TO CONNECT
4. OVERSIZED CASING - DIMENSIONS AS SHOWN
5. FIELD PROVIDED CONTROLLER, BACNET
6. REHEAT COIL BASED ON 55F ENTERING AIR AND 95F LEAVING AIR TEMP
7. PRESSURE ULTRA-LOW FLOW TRANSDUCER
8. REFER TO SPECIFICATION SECTION ON M9.01
9. INSTALL DETAIL: 01/M7.01
10. CONTROL DETAIL: 01/M5.10

## 23 - SPLIT SYSTEM (MINI) INDOOR UNIT SCHEDULE

| TAG | UNIT MFR | UNIT MODEL | LOCATION | TYPE | NOMINAL CAPACITY (TONS) | AIRFLOW (CFM) | COOLING CAPACITY (MBH) | ELECTRICAL VOLTAGE | ELECTRICAL PHASE | UNIT SIZE (L"xW"xH") | OPERATING WEIGHT (LBS.) | POWERED FROM OUTDOOR UNIT | EM. POWER | CONTROLS DETAIL NO. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FC-1.2 | LG | KNSAP241A | IDF 160 | HIGH WALL | 2 | 600 | 22 | 208 V | 1 | 42"x11"x14" | 40 | CU-1 | N | 09/M5.10 | 1, 2, 3 |

REMARKS:

1. FIELD INSTALLED CONDENSATE PUMP WITH SAFETY SWITCH (GOBI II, OR SIMILAR)
2. FACTORY PROVIDED WIRED THERMOSTAT
3. COOLING ONLY UNIT

## EXISTING EXHAUST FAN SCHEDULE (FOR REFERENCE ONLY)

| TAG | UNIT MFR | UNIT MODEL | SERVICE | LOCATION | TYPE | AIRFLOW (CFM) | EXT STAIC PRESSURE (IN-WG) | MOTOR CONTROL | MOTOR DATA HP (WATT) | ELECTRICAL VOLTAGE | ELECTRICAL PHASE | OPERATING WEIGHT (LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (E) EF-1 | COOK | 210 ACEB | TOILETS, LOBBY & JANITOR CLOSET | ROOF | ROOF EXHAUSTER | 5,000 | 1.5 | VFD | 3 | 460 V | 3 | 250 |

## 23 - SPLIT SYSTEM (MINI) OUTDOOR UNIT SCHEDULE

| TAG | UNIT MFR | UNIT MODEL | SERVICE | LOCATION | NOMINAL CAPACITY (TONS) | AMBIENT (F) | COOLING CAPACITY (MBH) | COOLING EER / SEER2 | REFRIGERANT TYPE | REFRIGERANT FACTORY CHARGE (LBS) | REFRIGERANT ADD. CHARGE (LBS) | ELECTRICAL VOLTAGE | ELECTRICAL PHASE | ELECTRICAL MCA | ELECTRICAL MOCP | UNIT SIZE (L"xW"xH") | OPERATING WEIGHT (LBS.) | EM. POWER | CONTROLS DETAIL NO. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CU-1.2 | LG | KUSAP241A | FC-1.2 | ROOF | 2 | 100 | 22 | 13 / 22 | R-32 | 4.081 | | 208 V | 1 | 19.0 A | 30 A | 38"x13"x33" | 140 | N | 09/M5.10 | 1 |

REMARKS:

1. VERIFY REFRIGERANT PIPING SIZES AND ROUTING LIMITATIONS WITH MANUFACTURER

AIR MANAGEMENT INDUSTRIES

Job Name: DPH Vanderbilt 1st Floor T.I. — Page: 2

FAN TEST — Date: 3/20/2026 — Name: Garrett S. — Job # 2580082

| | | DESIGN | ACTUAL | | | | | |
|---|---|---|---|---|---|---|---|---|
| Fan Name | | EF -1 | | | | | | |
| Service | | 1st Floor | | | | | | |
| Location | | Roof | | | | | | |
| Manufacturer | | Cook | | | | | | |
| Model Number | | 210 ACEB | | | | | | |
| Serial Number | | 13943 | | | | | | |
| C F M | TOTAL - FAN | NS | NVL | | | | | |
| | TOTAL - OUTLETS | 1250 | 1752 (1) | | | | | |
| | RETURN AIR | - | - | | | | | |
| | OUTSIDE AIR | - | - | | | | | |
| S P T R A E T S | DISCHARGE | NS | NVL | | | | | |
| | SUCTION | NS | -0.485" (2) | | | | | |
| | TOTAL S.P. | NS | NVL | | | | | |
| | EXTERNAL S.P. | NS | NVL | | | | | |
| MOTOR | MANUFACTURER/FR | Marathon / 182T | | | | | | |
| | HORSEPOWER | 2 | 2 | | | | | |
| | VOLTAGE | 380 | 303 / 302 / 302 | | | | | |
| | PHASE | 3 | 3 | | | | | |
| | AMPERAGE | 3 | 2.4 / 2.5 / 2.4 | | | | | |
| | RPM/SPEED | 1460 | 1363 | | | | | |
| | SERVICE FACTOR | 1.15 | 1.15 | | | | | |
| DRIVE | MTR SHEAVE SIZE | 4" OD x 1 1/8" | | | | | | |
| | % CLOSED | 50% | | | | | | |
| | FAN SHEAVE SIZE | 2AK49- 3/4" | | | | | | |
| | FAN RPM | NS | 986 | | | | | |
| | BELT SIZE - # OF | AX25 - 2 | | | | | | |
| | CENTER TO CENTER | 7" | | | | | | |
| | TRAVEL IN/OUT | 1" in / 3" out | | | | | | |

(1) Pre-Read to verify unit is provided greater than or equal to design cfm.
(2) Down blast fan with no valid location for statics. Static taken on first floor main branch before going into ductwork shaft.

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9281 Utica Ave Suite 102
Rancho Cucamonga CA 91730

AIR MANAGEMENT INDUSTRIES

Job Name: DPH Vanderbilt 1st Floor T.I. — Page: 3

AIR DISTRIBUTION TEST — Date: 3/20/2026 — Name: Garrett S. — Job # 2580082

| ZONE NAME | # | TERMINAL TYPE | TERMINAL SIZE | EFF. AREA | DESIGN FPM | DESIGN CFM | FINAL FPM | FINAL CFM | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| EF -1 | | EXHAUST | | | | | | | (1)(2) |
| Women's RR 158 | 1 | CE | 8" x 8" | 1.0 | | 150 | | 391 | (3) |
| Men's RR 159 | 2 | CE | 8" x 8" | 1.0 | | 150 | | 292 | (3) |
| Women's RR 157 | 3 | CE | 24"/12" | 1.0 | | 300 | | 502 | |
| Men's RR 3 | 4 | CE | 24"/12" | 1.0 | | 300 | | 281 | |
| Janitor 18 | 5 | SWE | 6" Round | 0.196 | | 50 | 577.333 | 113 | |
| N/A | 6 | CE | - | - | | 75 | | - | (4) |
| Restroom 112 | 7 | CE | 8" x 8" | 1.0 | | 75 | | 92 | (3) |
| Restroom 113 | 8 | CE | 8" x 8" | 1.0 | | 75 | | 81 | (3) |
| N/A | 9 | CE | - | - | | 75 | | - | (4) |
| | | | | Total | | 1250 | | 1752 | |

Notes: (1) At time of testing Fire Smoke Dampers had no power and were opened manually.
All MVDs open 100%.
(2) Immeasurable leakage in system. Refer to prints attached from location.
(3) No access door to MVD.
(4) Grille doesn't exist.

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EXISTING LEVEL 1 EXHAUST TAB REPORT — NTS — 13/2

## 23 - AIR TERMINAL SCHEDULE

| TAG | QTY | UNIT MFR | UNIT MODEL | SERVICE | TYPE | MATERIAL | REMARKS |
|---|---|---|---|---|---|---|---|
| S-1: 8"ø | 97 | TITUS | PCS | 1-SUPPLY | 24x24 PERFORATED CURVED BLADE DEFLECTOR | STEEL | 1, 2, 3, 4, 5, 6, 7 |
| S-1: 10"ø | 20 | TITUS | PCS | 1-SUPPLY | 24x24 PERFORATED CURVED BLADE DEFLECTOR | STEEL | 1, 2, 3, 4, 5, 6, 7 |
| S-1: 12"ø | 18 | TITUS | PCS | 1-SUPPLY | 24x24 PERFORATED CURVED BLADE DEFLECTOR | STEEL | 1, 2, 3, 4, 5, 6, 7 |
| S-1: 16"ø | 1 | TITUS | PCS | 1-SUPPLY | 24x24 PERFORATED CURVED BLADE DEFLECTOR | STEEL | 1, 2, 3, 4, 5, 6, 7 |
| S-20: 48"/12" | 7 | TITUS | FL-25 | 1-SUPPLY | 2.5" SINGLE SLOT LINEAR DIFFUSER | ALUMINUM | 1, 2, 3, 4, 5, 6, 7, 8, 9 |
| R-1: 22"x22" | 59 | TITUS | PAR | 2-RETURN | 24x24 PERFORATED RETURN | STEEL | 1, 2, 3, 4, 5, 6, 7 |
| R-20: 48"/12" | 7 | TITUS | FBRI-25 | 2-RETURN | 2.5" SINGLE SLOT LINEAR FLOW BAR RETURN | ALUMINUM | 1, 2, 3, 4, 5, 6, 7, 9 |
| E-1: 8"x8" | 4 | TITUS | 350FL | 3-EXHAUST | SINGLE DEFLECTION GRILLE | ALUMINUM | 1, 2, 3, 4, 5, 6, 7 |
| E-2: 22"x22" | 1 | TITUS | 350FL | 3-EXHAUST | SINGLE DEFLECTION GRILLE | STEEL | 1, 2, 3, 4, 5, 6, 7 |
| T-1: 22"x22" | 2 | TITUS | PAR | 4-TRANSFER | 24x24 PERFORATED RETURN | STEEL | 1, 2, 3, 4, 5, 6, 7 |
| T-2: 12"x12" | 4 | TITUS | 350FL | 4-TRANSFER | SINGLE DEFLECTION GRILLE | ALUMINUM | 1, 2, 3, 4, 5, 6, 7 |

REMARKS:

1. CEILING AND WALL COMPATIBILITY: FURNISH WITH BORDER STYLES COMPATIBLE WITH ADJACENT CEILING AND WALL SYSTEMS SPECIFICALLY MANUFACTURERED TO FIT INTO CEILING MODULE WITH ACCURATE AND ADEQUATE SUPPORT. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR TYPES OF CEILING SYSTEMS.
2. MATERIAL VARIANCE: PROVIDE ALUMINUM GRILLES, REGISTERS, AND DIFFUSERS WHERE INDICATED ABOVE AND IN THE FOLLOWING AREAS - LOCKER ROOMS, RESTROOMS, AND SHOWERS.
3. COLOR COMPATIBILITY: PAINT AIR TERMINAL TO MATCH CEILING AND WALLS. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR TYPES OF COLORING SCHEME.
4. PROVIDE RECTANGULAR TO ROUND ADAPTOR AS REQUIRED, AND VICE VERSA.
5. REFER TO SPECIFICATION ON M9.01 FOR MORE INFORMATION
6. CONTRACTOR TO VERIFY EXACT QUANTITIES
7. PROVIDE VOLUME DAMPER (AND ACCESS PANEL, IF REQUIRED) AT DUCT BRANCH
8. PROVIDE WITH PLENUM BOX. LENGTH AND WIDTH TO MATCH LINEAR DIFFUSER.
9. PROVIDE WITH CONCEALED MUD FRAME (TYPE 22) FOR SURFACE MOUNT APPLICATION
10. LINEAR BLANK TYPE TO MATCH ADJACENT LINEAR SUPPLY OR RETURN. FIELD VERIFY LENGTH REQUIRED

### DUCT INSULATION SCHEDULE

| LOCATION | SERVICE | | | |
|---|---|---|---|---|
| | OSA | SA | RA | TA |
| INDOOR - CONCEALED | FIBERGLASS DUCT WRAP - 1.5" R=4.2, k-0.29, 0.75 LBS/CF | | NONE | |
| INDOOR - EXPOSED | NONE | | | |
| DUCT LINER (WHERE INDICATED) | POLYESTER - 1" R=4.2, k-0.23, 0.75 LBS/ CF | | | |

### PIPE INSULATION SCHEDULE

| | INSULATION | JACKET | REMARKS |
|---|---|---|---|
| HEATING WATER | | | |
| INTERIOR < 1.5 NPS | FIBERGLASS 1-1/2" THICK | ASJ | 1 |
| EXPOSED < 1.5 NPS | FIBERGLASS 1-1/2" THICK | PVC | 1 |

### PIPE MATERIAL SCHEDULE

| | MATERIAL | CONNECTION | REMARKS |
|---|---|---|---|
| HEATING WATER | | | |
| ABOVE GRADE 2" AND SMALLER | TYPE L COPPER | 3/4" AND SMALLER - SOLDER LARGER THAN 3/4" - BRAZED | 1 |

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REGISTERED PROFESSIONAL ENGINEER — ERIK WILLIAM RIVERA — M33731 — EXP. 6/30/2027 — MECHANICAL — STATE OF CALIFORNIA

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Approved
By Maria Yepremian
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DRAFT

DPH VANDERBILT-FIRST

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

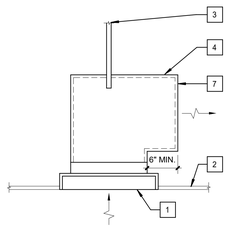
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| 2 POC2 | 03/27/2026 |

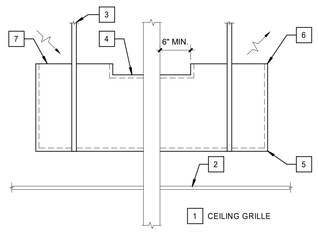
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|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 09/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | NTS |

MECHANICAL SCHEDULES

M6.01

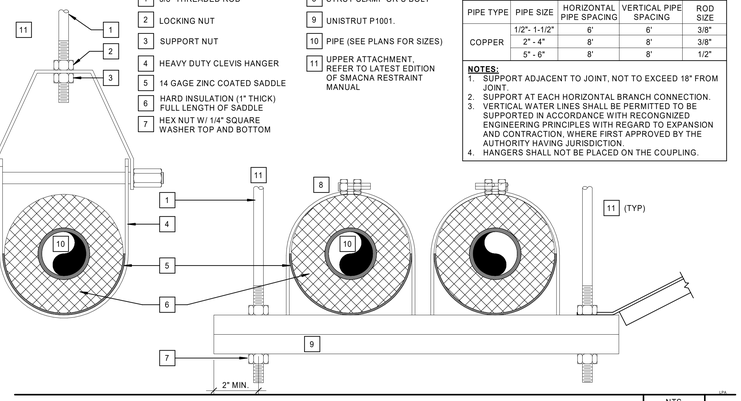



1. CEILING GRILLE
2. CEILING
3. HANGER STRAP SECURE TO STRUCTURE ABOVE.ATTACH STRAP WITH 2 - #12 SMS (SEE NOTE #1)
4. INTERNALLY LINED SHEET METAL SOUND BOOT (SEE NOTES #2 & #3)
5. RETURN BOOT
6. OPENING SHALL BE 8" MINIMUM FROM STRUCTURAL
7. WIRED MESH SCREEN AT TERMINATION

NOTE:
1. UPPER ATTACHMENT PER LATEST EDITION OF SMACNA RESTRAINT MANUAL.
2. CEILING GRILLE BOOT DIMENSION SHALL BE EQUAL TO THE TRANSFER AIR GRILLE. BOOT HEIGHT SHALL BE EQUAL TO 12". FOR RETURN BOOT DIMENSIONS, REFER TO MECHANICAL FLOOR PLANS.
3. SEE DUCT INSULATION SCHEDULE ON M6.01 FOR MATERIAL AND THICKNESS REQUIREMENTS.

## CEILING RETURN AND TRANSFER AIR PLENUM OR GRILLE — NTS — 12

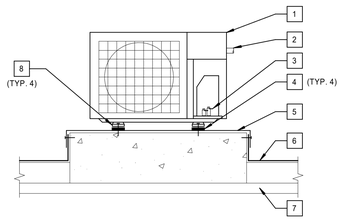



1. 3/8" THREADED ROD
2. LOCKING NUT
3. SUPPORT NUT
4. HEAVY DUTY CLEVIS HANGER
5. 14 GAGE ZINC COATED SADDLE
6. HARD INSULATION (1" THICK) FULL LENGTH OF SADDLE
7. HEX NUT W/ 1/4" SQUARE WASHER TOP AND BOTTOM
8. STRUT CLAMP OR U BOLT
9. UNISTRUT P1001.
10. PIPE (SEE PLANS FOR SIZES)
11. UPPER ATTACHMENT, REFER TO LATEST EDITION OF SMACNA RESTRAINT MANUAL

| HANGER ROD SIZES & SUPPORT SPACING (PER CMC 313.3&313.6) | | | | |
|---|---|---|---|---|
| PIPE TYPE | PIPE SIZE | HORIZONTAL PIPE SPACING | VERTICAL PIPE SPACING | ROD SIZE |
| COPPER | 1/2"- 1-1/2" | 6' | 6' | 3/8" |
| | 2" - 4" | 8' | 8' | 3/8" |
| | 5" - 6" | 8' | 8' | 1/2" |

**NOTES:**
1. SUPPORT ADJACENT TO JOINT, NOT TO EXCEED 18" FROM JOINT.
2. SUPPORT AT EACH HORIZONTAL BRANCH CONNECTION.
3. VERTICAL WATER LINES SHALL BE PERMITTED TO BE SUPPORTED IN ACCORDANCE WITH RECOGNIZED ENGINEERING PRINCIPLES WITH REGARD TO EXPANSION AND CONTRACTION, WHERE FIRST APPROVED BY THE AUTHORITY HAVING JURISDICTION.
4. HANGERS SHALL NOT BE PLACED ON THE COUPLING.

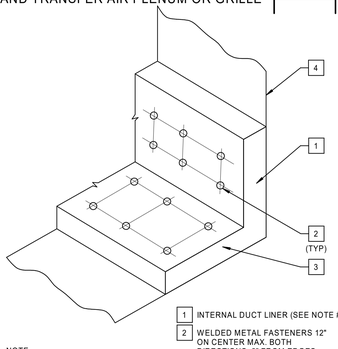
## PIPE HANGER — NTS — 04




1. CONDENSING UNIT (MAX WEIGHT 150 LBS)
2. ELECTRICAL INLETS
3. REFRIGERANT PIPING, ROUTING PER PLANS SIZE PER MANUFACTURER'S RECOMMENDATIONS
4. NEOPRENE ISOLATOR PADS, MODEL SUPER W MASONWEST OR EQUAL
5. LEVEL CONCRETE PAD WITH CAP (SEE NOTES #1 & #2)
6. ROOFING
7. ROOF DECK
8. ANCHORAGE TABS INTEGRAL TO CONDENSING UNIT. BOLT THRU TAB AND ISOLATOR PAD TO CONCRETE

NOTE:
1. SEE ARCHITECTURAL DETAIL X/AX.XX FOR FLASHING AND WEATHERPROOFING DETAILS.
2. SEE STRUCTURAL DETAIL X/SX.XX FOR PLATFORM AND ANCHORAGE DETAILS.

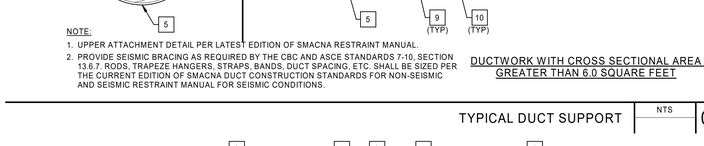
## SMALL CONDENSING UNIT ON CONCRETE PAD — NTS — 15




1. INTERNAL DUCT LINER (SEE NOTE #2)
2. WELDED METAL FASTENERS 12" ON CENTER MAX. BOTH DIRECTIONS, 2" FROM EDGES
3. ALL ENDS OF LINER TO BE COATED WITH ADHESIVE ("BUTIERED"). ENDS OF LINER SHALL BE BUTTED FIRMLY TOGETHER NO EXPOSED INSULATION SHALL BE VISIBLE
4. SHEET METAL DUCT

NOTE:
1. LINER TO BE ADHERED TO DUCT WITH ADHESIVE.
2. SEE DUCT INSULATION SCHEDULE ON DRAWING M0.20 FOR MATERIAL AND THICKNESS REQUIREMENTS

## ACOUSTICAL DUCT LINER — NTS — 11

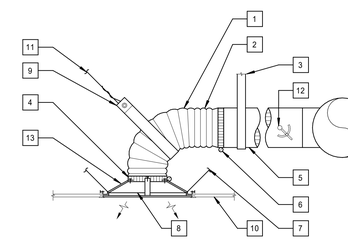



1. ROUND DUCT
2. RECTANGULAR DUCT
3. LOAD RATED FASTENER
4. SHEET METAL SCREW
5. 1" x 22 GA. METAL STRAP
6. SECURE TO STRUCTURE ABOVE (SEE NOTE # 1)
7. THREADED ROD
8. TRAPEZE HANGER
9. DOUBLE NUT
10. RIGID SEISMIC BRACE. AIR CRAFT CABLE ON BOTH SIDES CAN BE USED IN LIEU OF A RIGID SEISMIC BRACE. (SEE NOTE #2)

NOTE:
1. UPPER ATTACHMENT DETAIL PER LATEST EDITION OF SMACNA RESTRAINT MANUAL.
2. PROVIDE SEISMIC BRACING AS REQUIRED BY THE CBC AND ASCE STANDARDS 7-10, SECTION 13.6.7. RODS, TRAPEZE HANGERS, STRAPS, BANDS, DUCT SPACING, ETC. SHALL BE SIZED PER THE CURRENT EDITION OF SMACNA DUCT CONSTRUCTION STANDARDS FOR NON-SEISMIC AND SEISMIC RESTRAINT MANUAL FOR SEISMIC CONDITIONS.

DUCTWORK WITH CROSS SECTIONAL AREA GREATER THAN 6.0 SQUARE FEET

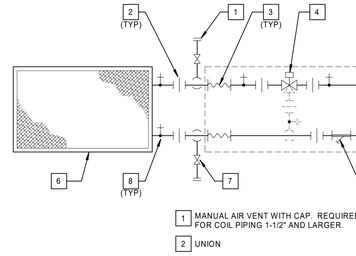
## TYPICAL DUCT SUPPORT — NTS — 03




1. FLEX DUCT
2. INSULATED FLEXIBLE DUCT INSTALLED WITH INNER DUCT STRETCHED TAUT (TAKE UP SLACK)
3. 1-1/2" X 18 GA. SHEETMETAL HANGER STRAP EVERY 8'-0" & AT TURN IN DIRECTION. SECURE STRAP TO STRUCTURE ABOVE (SEE NOTE #1)
4. DUCT COLLAR (SEE NOTE #3)
5. ROUND DUCT
6. 3/8" BAND ON DUCT COLLARS (TYP)
7. SECURE TO STRUCTURE ABOVE (SEE NOTES #1 & #2)
8. FACTORY MOUNTED SHEET METAL INLET COLLAR SECURE WITH CLAMPING DEVICE
9. 1-1/2" x 22 GA SHEETMETAL STRAP
10. CEILING
11. SECURE WIRE TO STRUCTURE ABOVE (SEE NOTE #2)
12. LOCKING QUADRANT VOLUME DAMPER
13. 1" 20 GAGE DUCT STRAP ONE PER SIDE (4 TOTAL). ATTACH TO GRID WITH 2 #8 SM SCREWS. PROVIDE RUBBER WASHER WHEN TAPPING INTO AIR TERMINAL DEVICE

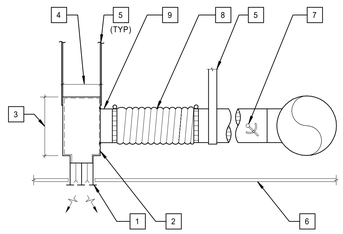
NOTE:
1. UPPER ATTACHMENT DETAIL PER LATEST EDITION OF SMACNA RESTRAINT MANUAL.
2. PULL BACK JACKET & INSULATION FROM CORE DUCT COLLECT EXCESS INNER DUCT PAST COLLAR BEAD UNTIL FULLY STRETCHED, THEN WRAP AT LEAST TWICE AROUND WITH APPROVED TAPE AND SECURE WITH APPROVED CLAMP. PULL JACKET & INSULATION BACK OVER THE CORE. SECURE JACKET WITH TWO WRAPS OF TAPE OR AN APPROVED CLAMP. TUCK IN EDGE OF JACKET OR TAPE. FIBERS SHALL NOT BE EXPOSED. FACTORY FLEX DUCT METAL COLLARS MAY BE USED FOR RIGIND CONNECTIONS IN LIEU OF BANDS.
3. CEILING MOUNTED AIR TERMINALS WEIGHING LESS THAN OR EQUAL TO 20 LBS SHALL HAVE ONE (1) #12 GA. SLACK SAFETY WIRE ATTACHED FROM THE TERMINAL TO THE STRUCTURE ABOVE.
4. IF GRILLE IS LESS THAN OR EQUAL TO 56 LBS, PROVIDE TWO #12 GAGE SLACK SAFETY WIRES AT DIAGONAL CORNERS. IF DIFFUSER IS MORE THAN 56 LBS, PROVIDE INDEPENDENT SUPPORT USING 4 TAUT #12 GAGE WIRES, ONE AT EACH CORNER, ATTACHED TO STRUCTURE ABOVE.

## DIFFUSER CONNECTION — NTS — 14




1. MANUAL AIR VENT WITH CAP. REQUIRED FOR COIL PIPING 1-1/2" AND LARGER.
2. UNION
3. FLEXIBLE CONNECTION
4. 2-WAY OR 3-WAY MODULATING AND PRESSURE-INDEPENDENT CONTROL VALVE AS IDENTIFIED ON MECHANICAL SCHEDULE. (PROVIDED BY CONTROLS CONTRACTOR)
5. FOR COIL PIPING 1-1/4" AND SMALLER, PROVIDE COIL PIPING PACKAGE PER SPECIFICATIONS AS AN ALTERNATIVE TO SEPARATE COMPONENTS
6. HEATING COIL
7. DRAIN VALVE WITH THREADED HOSE CONNECTION AND CAP. REQUIRED FOR COIL PIPING 1-1/2" AND LARGER.
8. P/T PORT (PETES PLUG)
9. STRAINER WITH FINE MESH SCREEN AND DRAIN CONNECTION
10. 1/4 TURN BALL VALVE

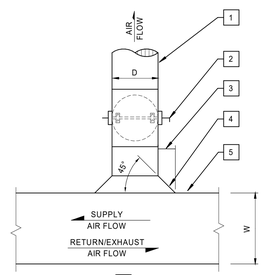
## REHEAT COIL WITH 2-WAY OR 3-WAY CONTROL VALVE — NTS — 02




1. LINEAR DIFFUSER
2. INTERNALLY LINED SHEET METAL PLENUM
3. 12" MIN (VERIFY HT. OF PLENUM IN FIELD)
4. WIDTH OF LINEAR DIFFUSER PLUS 2"
5. HANGER STRAP SECURE TO STRUCTURE ABOVE (SEE NOTE #1)
6. CEILING
7. LOCKING QUADRANT DAMPER
8. FLEXIBLE DUCT INSTALLED WITH INNER DUCT STRETCHED TIGHT
9. BEADED DUCT COLLAR (SEE NOTE #2)

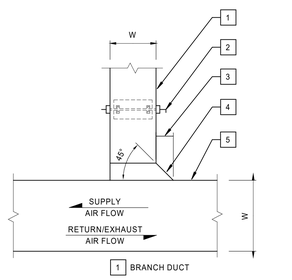
NOTE:
1. UPPER ATTACHMENT PER LATEST EDITION OF SMACNA RESTRAINT MANUAL.
2. PULL BACK JACKET & INSULATION FROM CORE DUCT COLLECT EXCESS INNER DUCT PAST COLLAR BEAD UNTIL FULLY STRETCHED, THEN WRAP AT LEAST TWICE AROUND WITH APPROVED TAPE AND SECURE WITH APPROVED CLAMP. PULL JACKET & INSULATION BACK OVER THE CORE. SECURE JACKET WITH TWO WRAPS OF TAPE OR AN APPROVED CLAMP. TUCK IN EDGE OF JACKET OR TAPE. FIBERS SHALL NOT BE EXPOSED.
3. LINEAR RETURN AIR SLOT SHALL BE SIMILAR TO LINEAR SUPPLY AIR DIFFUSER WITHOUT DIRECTIONAL BLADES.

## LINEAR BAR DIFFUSER — NTS — 17



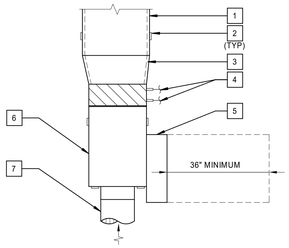

1. SHEET METAL DUCT AS SPECIFIED
2. LOCKING QUADRANT VOLUME DAMPER
3. 1/3W, 6" MINIMUM
4. CONICAL TAP
5. MAIN DUCT

## RECTANGULAR TO ROUND DUCT TAKEOFF — NTS — 13




1. BRANCH DUCT
2. LOCKING QUADRANT VOLUME DAMPER
3. 1/3W, 6" MINIMUM
4. CLINCH COLLAR
5. MAIN DUCT

## RECTANGULAR DUCT TAKEOFF — NTS — 09




1. SOUND LINE DISCHARGE (SEE NOTE #5)
2. 18 GA 1" DUCT STRAP HANGER. SECURE TO VAV BOX WITH MINIMUM 3 #10 TEK SCREWS PER STRAP TYPICAL OF 6 (SEE NOTE #3 AND #4)
3. PROVIDE TRANSITION TO SUIT ATTENUATOR (WHERE APPLICABLE) OR THE OUTLET DUCT SIZE PER FLOOR PLANS
4. 2 ROW REHEAT COIL (SEE NOTE #2)
5. CONTROL PANEL. PROVIDE MINIMUM 36" SERVICE CLEARANCE IN FRONT OF CONTROL PANEL
6. SINGLE DUCT VAV TERMINAL UNIT (SEE NOTE #1)
7. PRIMARY AIR INLET. STRAIGHT SOLID DUCT INLET LENGTH SHALL BE MIN. 3x INLET DIAMETER OF INLET TO EACH VAV BOX

**NOTE:**
1. BOX SHALL BE INSTALLED WITH IN 6" OF THE CEILING. COORDINATE EXACT PLACEMENT OF EACH BOX SO AS TO SUIT ACCESS AND SERVICE REQUIREMENTS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AHJ.
2. SEE MECHANICAL DETAIL 02/M7.00 FOR PIPING DETAIL.
3. UPPER ATTACHMENT PER LATEST EDITION OF SMACNA RESTRAINT MANUAL.
4. PROVIDE SEISMIC BRACING AS REQUIRED BY THE CBC AND ASCE STANDARDS 7-10, SECTION 13.6.7. RODS, TRAPEZE HANGERS, STRAPS, BANDS, DUCT SPACING, ETC. SHALL BE SIZED PER THE CURRENT EDITION OF SMACNA SEISMIC RESTRAINT MANUAL.
5. SEE DUCT INSULATION SCHEDULE ON DRAWING M0.20 FOR MATERIAL AND THICKNESS REQUIREMENTS.

## SINGLE DUCT VAV TERMINAL UNIT — NTS — 01


LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

**LPADesignStudios.com**

5301 California Avenue, Suite 100
Irvine, California 92617


REGISTERED PROFESSIONAL ENGINEER — ERIK WILLIAM BYRENHEIDE — M53731 — EXP. 6/30/2027 — MECHANICAL — STATE OF CALIFORNIA


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**JLee Engineering, Inc.**
**Approved**
**By Maria Yepremian**
**04/06/2026**

This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinance or State law.

COPY

DPH VANDERBILT-FIRST T

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| | |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 08/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | NTS |

MECHANICAL DETAILS

M7.01

| CERTIFICATE OF COMPLIANCE | NRCC-MCH-E |
|---|---|
| *This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0(b)2 for alterations.* | |
| **Project Name:** DPH 451 Vanderbilt | **Report Page:** **(Page 1 of 33)** |
| **Project Address:** | **Date Prepared:** 2025-07-30T00:47:47-04:00 |

## A. GENERAL INFORMATION

| | | | | | |
|---|---|---|---|---|---|
| 01 | Project Location (city) | San Bernardino, CA | 04 | Total Conditioned Floor Area | 24870 |
| 02 | Climate Zone | 10 | 05 | Total Unconditioned Floor Area | 1130 |
| 03 | Occupancy Types Within Project: | | 06 | # of Stories (Habitable Above Grade) | 1 |

● Office

## B. PROJECT SCOPE

*This table Includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, 170.2(b) or 141.0(b)2 and 180.2(b)2 for alterations.*

| 01 | 02 | 03 |
|---|---|---|
| Air System(s) | Wet System Components | Dry System Components |
| ☐ Heating Air System | ☐ Water Economizer | ☐ Air Economizer |
| ☐ Cooling Air System | ☐ Pumps | ☐ Electric Resistance Heat |
| Mechanical Controls | ☒ System Piping | ☐ Fan Systems |
| ☒ Mechanical Controls (existing to remain, altered or new) | ☐ Cooling Towers | ☒ Ductwork (existing to remain, altered or new) |
| | ☐ Chillers | ☒ Ventilation |
| | ☐ Boilers | ☒ Zonal Systems/ Terminal Boxes |





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## C. COMPLIANCE RESULTS

*Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance.*

| 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | 09 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| System Summary 110.1, 110.2, 140.4, 170.2(c) | AND | Pumps 140.4(k), 170.2(c)4I | AND | Fans/ Economizers 140.4(c), 140.4(e), 170.2(c) | AND | System Controls 110.2, 120.2, 140.4(f), 170.2(c) | AND | Ventilation 120.1, 160.2 | AND | Terminal Box Controls 140.4(d), 170.2(c)4B | AND | Distribution 120.3, 140.4(l), 160.2, 160.3 | AND | Cooling Towers 110.2(e)2 | Compliance Results |
| (See Table F) | | (See Table G) | | (See Table H) | | (See Table I) | | (See Table J) | | (See Table K) | | (See Table L) | | (See Table M) | |
| | AND | | AND | | AND | Yes | AND | Yes | AND | Yes | AND | Yes | AND | | COMPLIES |
| **Mandatory Measures Compliance (See Table Q for Details)** | | | | | | | | | | COMPLIES | | | | | |

## D. EXCEPTIONAL CONDITIONS

*This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.*

## E. ADDITIONAL REMARKS

*This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.*

## F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

*This section does not apply to this project.*

## G. PUMPS

*This section does not apply to this project.*





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|---|---|
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## H. FAN SYSTEMS & AIR ECONOMIZERS

*This section does not apply to this project.*

## I. SYSTEM CONTROLS

*This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (n), 170.2(c)4D 170.2(c)4L or requirements in 141.0(b)2E 180.2(b)2 for altered space conditioning systems.*

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| System Name | System Zoning | Conditioned Floor Area Being Served ($ft^2$) | Thermostats 110.2(b) & (c)[1], 120.2(a) 160.3(a)2A or 141.0(b)2E & 180.2(b)2 | Shut-Off Controls 120.2(e) & 160.3(a)2D | Isolation Zone Controls 120.2(g) & 160.3(a)2F | Demand Response 110.12 120.2(b) & 160.3(a)2B | Supply Air Temp. Reset 140.4(f) & 170.2(c)4D | Window Interlocks per 140.4(n) & 170.2(c)4D | Direct Digital Control (DDC) per 120.2 |
| Existing Controls System | Multi-zone w/ DDC to zone | NA: Altered per 141.0(b)2E | Setback + DR Tstat per 110.12 | EMCS | EMCS | DR Tstat per 110.12 | NA: Alteration | NA: Alteration Project | Provided |

[1]*FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.*

## J. VENTILATION AND INDOOR AIR QUALITY

*This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1 120.2(e)38 140.4(p) and 140.4(q) for all nonresidential and hotel/motel and d:\24refnolink\[160.2, 160.3(a)3D, 170.2(a)4N, 170.2(a)4O for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.*

| | | |
|---|---|---|
| 01 | ☐ | Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table. |
| 02 | ☒ | Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces |
| | ☐ | |
| 03 | ☐ | Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)2. |
| **Nonresidential and Hotel/ Motel Multifamily Common Use Ventilation Systems** | | |





| CERTIFICATE OF COMPLIANCE | NRCC-MCH-E |
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## J. VENTILATION AND INDOOR AIR QUALITY

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | V-1.3 | System Design OA CFM Airflow[1] | | 195 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Private Office 150 | Office space | 165 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 15 | 18 | Ventilation for this System Complies? | | Yes |
| 04 | | 05 | | | 06 | | | 07 | |
| System Name | VAV-1.4 | System Design OA CFM Airflow[1] | | 360 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |





| CERTIFICATE OF COMPLIANCE | NRCC-MCH-E |
|---|---|
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## J. VENTILATION AND INDOOR AIR QUALITY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Open Office | Office space | 1072 | | 8 | 120 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 120 | 18 | Ventilation for this System Complies? | | Yes |
| 04 | | 05 | | | 06 | | | 07 | |
| System Name | VAV-1.5 | System Design OA CFM Airflow[1] | | 180 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Private Office 149 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 148 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |





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## J. VENTILATION AND INDOOR AIR QUALITY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Private Office 147 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 45 | 18 | Ventilation for this System Complies? | | Yes |
| 04 | | 05 | | | 06 | | | 07 | |
| System Name | VAV-1.6 | System Design OA CFM Airflow[1] | | 180 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Private Office 146 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 145 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |





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## J. VENTILATION AND INDOOR AIR QUALITY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Private Office 144 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 45 | 18 | Ventilation for this System Complies? | | Yes |
| 04 | | 05 | | | 06 | | | 07 | |
| System Name | VAV-1.7 | System Design OA CFM Airflow[1] | | 315 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Open Office 135 | Office space | 1000 | | 9 | 135 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 135 | 18 | Ventilation for this System Complies? | | Yes |
| 04 | | 05 | | | 06 | | | 07 | |
| System Name | VAV-1.8 | System Design OA CFM Airflow[1] | | 180 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |





| CERTIFICATE OF COMPLIANCE | NRCC-MCH-E |
|---|---|
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## J. VENTILATION AND INDOOR AIR QUALITY

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Private Office 143 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 142 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 141 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 45 | 18 | Ventilation for this System Complies? | | Yes |
| 04 | | 05 | | | 06 | | | 07 | |
| System Name | VAV-1.9 | System Design OA CFM Airflow[1] | | 180 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |





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## J. VENTILATION AND INDOOR AIR QUALITY

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Open Office 135 | Office space | 1010 | | 9 | 135 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 135 | 18 | Ventilation for this System Complies? | | Yes |
| 04 | | 05 | | | 06 | | | 07 | |
| System Name | VAV-1.10 | System Design OA CFM Airflow[1] | | 240 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
| | Occupancy Type[4] | Conditioned Floor Area ($ft^2$) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | | |
| Private Office 140 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150$ft^2$ or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |



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REGISTERED PROFESSIONAL ENGINEER ERIK WILLIAM BERGER M32731 EXP. 6/30/2027 MECHANICAL STATE OF CALIFORNIA

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Approved
By Maria Yepremian
04/06/2026

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DPH VANDERBILT-FIRST FLOOR
451 E Vanderbilt Way,
San Bernardino, CA 92408
Developed for
SAN BERNARDINO COUNTY

Date
Revision

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | |

MECHANICAL ENERGY COMPLIANCE DOCUMENTATION

M8.01

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### J. VENTILATION AND INDOOR AIR QUALITY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Private Office 139 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 138 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 137 | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 60 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.11 | System Design OA CFM Airflow[1] | | 390 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |



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### J. VENTILATION AND INDOOR AIR QUALITY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Open Office 135 | Office space | 1157 | | 8 | 120 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Hallway | Corridor | 185 | | | 27.75 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 147.75 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.12 | System Design OA CFM Airflow[1] | | 270 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Conference 136 | Office space | 220 | | 6 | 90 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | Provided per §120.1(d)5 |
| 17 | Total System Required Min OA CFM | | | | 90 | 18 | Ventilation for this System Complies? | | Yes |



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| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.13 | System Design OA CFM Airflow[1] | | 480 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Open Office 152 | Office space | 1370 | | 18 | 270 | | | DCV | NA: Not required per §120.1(d)3 |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 270 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.14 | System Design OA CFM Airflow[1] | | 195 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Plan Storage | Occupiable storage rooms for dry materials | 227 | | | 34.05 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |



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### J. VENTILATION AND INDOOR AIR QUALITY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Emergency Supplies, PPE | Occupiable storage rooms for dry materials | 343 | | | 51.45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Emergency Supplies, PPE | Occupiable storage rooms for dry materials | 343 | | | 51.45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Water Specimen Storage | Occupiable storage rooms for dry materials | 290 | | | 43.5 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 180.45 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.15 | System Design OA CFM Airflow[1] | | 150 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |



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### J. VENTILATION AND INDOOR AIR QUALITY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hallway | Corridor | 225 | | | 33.75 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Wellness | Office space | 115 | | 1 | 15 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 48.75 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.16 | System Design OA CFM Airflow[1] | | 480 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Breakroom | Break room | 853 | | 20 | 300 | | | DCV | Provided per §120.1(d)4 |
| | | | | | | | | Occ Sensor | Provided per §120.1(d)5 |
| 17 | Total System Required Min OA CFM | | | | 300 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.17 | System Design OA CFM Airflow[1] | | 670 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |



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| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Boardroom | Conference/ meeting | 1100 | | 22 | 330 | | | DCV | Provided per §120.1(d)4 |
| | | | | | | | | Occ Sensor | Provided per §120.1(d)5 |
| 17 | Total System Required Min OA CFM | | | | 330 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.18 | System Design OA CFM Airflow[1] | | 420 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Open Office 154 | Office space | 894 | | 8 | 120 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 120 | 18 | Ventilation for this System Complies? | | Yes |



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| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.31 | System Design OA CFM Airflow[1] | | 495 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Open Office 154 | Office space | 1060 | | 10 | 150 | | | DCV | Provided per §120.1(d)4 |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 150 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.19 | System Design OA CFM Airflow[1] | | 300 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| EHS Entry | Lobbies | 330 | | 11 | 165 | | | DCV | Provided per §120.1(d)4 |
| | | | | | | | | Occ Sensor | Provided per §120.1(d)5 |



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### J. VENTILATION AND INDOOR AIR QUALITY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Reception | Reception area | 87 | | 1 | 15 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | Provided per §120.1(d)5 |
| Alcove | Corridor | 275 | | | 41.25 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Consult | Office space | 170 | | | 25.5 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Media Room | Media Center | 127 | | | 19.05 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Plan Check Counter | Reception area | 215 | | | 32.25 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | Provided per §120.1(d)5 |
| 17 | Total System Required Min OA CFM | | | | 298.05 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.20 | System Design OA CFM Airflow[1] | | 270 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |



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|---|---|---|---|---|---|---|---|---|
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Vital Stats Entry | Main Entry Lobby | 522 | | 15 | 225 | | | DCV | Provided per §120.1(d)4 |
| | | | | | | | | Occ Sensor | Provided per §120.1(d)5 |
| Reception 103 | Reception area | 175 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | Provided per §120.1(d)5 |
| 17 | Total System Required Min OA CFM | | | | 270 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | 05 | | | | 06 | | | 07 |
|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.21 | System Design OA CFM Airflow[1] | | 360 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] |
| | | | | | | | | Provided |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D |
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |




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EXP. 6/30/2027
MECHANICAL
STATE OF CALIFORNIA


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By Maria Yepremian
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DPH VANDERBILT-FIRST FLOOR T.I.
451 E Vanderbilt Way,
San Bernardino, CA 92408
Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| | |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 06/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | |

MECHANICAL ENERGY COMPLIANCE DOCUMENTATION

M8.02

**J. VENTILATION AND INDOOR AIR QUALITY**

| Space Name or Item Tag | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Exh. Vent per 120.1(c)4 & 160.2(c)4 Required Min CFM | Exh. Vent per 120.1(c)4 & 160.2(c)4 Provided per Design CFM | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|---|
| Private Office 171 | Office space | 120 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Consult 105 | Office space | 125 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Hallway 110 | Corridor | 130 | | | 19.5 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Copy/Coffee | Coffee station | 213 | | | 106.5 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Alcove 111 | Corridor | 97 | | | 14.55 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Vital Stats Storage | Occupiable storage rooms for dry materials | 196 | | | 29.4 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 259.95 | 18 | Ventilation for this System Complies? | | Yes |





**J. VENTILATION AND INDOOR AIR QUALITY**

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.22 | System Design OA CFM Airflow[1] | | 215 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Copy Print 114 | Copy/ printing room | 138 | | | 20.7 | 69 | 100 | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Open Office 117 | Office space | 1039 | | 6 | 90 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 110.7 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.23 | System Design OA CFM Airflow[1] | | 360 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |





**J. VENTILATION AND INDOOR AIR QUALITY**

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Private Office 127 | Office space | 108 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 126 | Office space | 115 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 125 | Office space | 110 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 135 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.24 | System Design OA CFM Airflow[1] | | 300 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |





**J. VENTILATION AND INDOOR AIR QUALITY**

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Open Office 115 | Office space | 630 | | 12 | 180 | | | DCV | Provided per §120.1(d)4 |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Open Office 117 | Office space | 650 | | 4 | 60 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 240 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.25 | System Design OA CFM Airflow[1] | | 360 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Private Office 124 | Office space | 112 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |





**J. VENTILATION AND INDOOR AIR QUALITY**

| Private Office 123 | Office space | 115 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 122 | Office space | 110 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 135 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.26 | System Design OA CFM Airflow[1] | | 750 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Open Office 106 | Office space | 1315 | | 8 | 120 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 120 | 18 | Ventilation for this System Complies? | | Yes |





**J. VENTILATION AND INDOOR AIR QUALITY**

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.27 | System Design OA CFM Airflow[1] | | 225 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Birth/Death Cert. Storage | Occupiable storage rooms for dry materials | 330 | | | 49.5 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Open Office 116 | Office space | 594 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 94.5 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.28 | System Design OA CFM Airflow[1] | | 360 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |





**J. VENTILATION AND INDOOR AIR QUALITY**

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Open Office 117 | Office space | 1106 | | 9 | 135 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 135 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.29 | System Design OA CFM Airflow[1] | | 360 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Private Office 121 | Office space | 113 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |





**J. VENTILATION AND INDOOR AIR QUALITY**

| Private Office 120 | Office space | 112 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Occ Sensor | NA: Not required space type |
| Private Office 119 | Office space | 114 | | 3 | 45 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 135 | 18 | Ventilation for this System Complies? | | Yes |

| 04 | | 05 | | | 06 | | | 07 | |
|---|---|---|---|---|---|---|---|---|---|
| System Name | VAV-1.30 | System Design OA CFM Airflow[1] | | 240 | System Design Transfer Air CFM | | 0 | Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21 [2] | |
| | | | | | | | | Provided | |
| 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |

| Space Name or Item Tag | Mechanical Ventilation Required per 120.1(c)[3] & 160.2(c)3 | | | | Exh. Vent per 120.1(c)4 & 160.2(c)4 | | DCV or Sensor Controls per 120.1(d)3, 120.1(d)5, and 120.1(e)[3] 160.2(c)5D 160.2(c)5E 160.2(c)5D | |
|---|---|---|---|---|---|---|---|---|
| | Occupancy Type[4] | Conditioned Floor Area (ft²) | # of Shower heads/ toilets | # of people [5] | Required Min OA CFM | Required Min CFM | Provided per Design CFM | |
| Private Office 118 | Office space | 166 | | 5 | 75 | | | DCV | NA: Area < 150ft² or design occupancy < 10 people |
| | | | | | | | | Occ Sensor | NA: Not required space type |
| 17 | Total System Required Min OA CFM | | | | 75 | 18 | Ventilation for this System Complies? | | Yes |

[1] *FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system*



**J. VENTILATION AND INDOOR AIR QUALITY**

[2] *Air filtration requirements apply to the following three system types per 120.1(c)1A: space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.*

[3] *Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.*

[4] *See Standards Tables 120.1-A and 120.1-B.*

[5] *For lecture halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code.*

[6] *120.2(e)3 requires systems serving rooms that are required by 130.1(c) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation. Examples of spaces which require lighting occupancy sensors include offices 250ft² or smaller, multipurpose rooms less than 1,000 ft², classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by 130.1(c).*

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**By Maria Yepremian**
**04/06/2026**

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DPH VANDERBILT-FIRST FLOOR
451 E Vanderbilt Way,
San Bernardino, CA 92408
Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| | |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | |

MECHANICAL ENERGY COMPLIANCE DOCUMENTATION

M8.03

## K. TERMINAL BOX CONTROLS

*This table is used to demonstrate compliance with prescriptive zone control requirements in 140.4(d) & 170.2(c)4B.*

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Design | | | Deadband Compliance | | | Reheated, Recooled, Mixed Air Compliance | | | |
| Zone/System/VAV Box Name or Item Tag | Zonal Control Strategy per 140.4(d) | Peak Primary Airflow CFM | Primary Air in Deadband CFM | Reheated Recooled Mixed Airflow CFM | Outside Air CFM | 30% of Peak Primary Airflow CFM | Max Deadband Airflow CFM | 50% of Peak Primary Airflow | 1st Stage Modulates <=95°F and Maintains DB Rate? | 2nd Stage Modulates from DB Flow to Heating Max Flow? | Complies |
| VAV-1.3 | VAV with DDC @ zone | 650 | 130 | 325 | 195 | | 195 | 325 | Yes | Yes | Yes |
| VAV-1.4 | VAV with DDC @ zone | 1200 | 240 | 325 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.5 | VAV with DDC @ zone | 600 | 120 | 300 | 180 | | 180 | 300 | Yes | Yes | Yes |
| VAV-1.6 | VAV with DDC @ zone | 600 | 120 | 300 | 180 | | 180 | 300 | Yes | Yes | Yes |
| VAV-1.7 | VAV with DDC @ zone | 800 | 160 | 400 | 240 | | 240 | 400 | Yes | Yes | Yes |
| VAV-1.8 | VAV with DDC @ zone | 600 | 120 | 300 | 180 | | 180 | 300 | Yes | Yes | Yes |
| VAV-1.9 | VAV with DDC @ zone | 900 | 180 | 450 | 270 | | 270 | 450 | Yes | Yes | Yes |
| VAV-1.10 | VAV with DDC @ zone | 800 | 160 | 400 | 240 | | 240 | 400 | Yes | Yes | Yes |
| VAV-1.11 | VAV with DDC @ zone | 1300 | 260 | 650 | 390 | | 390 | 650 | Yes | Yes | Yes |
| VAV-1.12 | VAV with DDC @ zone | 900 | 180 | 450 | 270 | | 270 | 450 | Yes | Yes | Yes |
| VAV-1.13 | VAV with DDC @ zone | 1600 | 320 | 800 | 480 | | 480 | 800 | Yes | Yes | Yes |
| VAV-1.14 | VAV with DDC @ zone | 650 | 130 | 325 | 195 | | 195 | 325 | Yes | Yes | Yes |
| VAV-1.15 | VAV with DDC @ zone | 500 | 100 | 250 | 150 | | 150 | 250 | Yes | Yes | Yes |
| VAV-1.16 | VAV with DDC @ zone | 1600 | 320 | 800 | 480 | | 480 | 800 | Yes | Yes | Yes |
| VAV-1.17 | VAV with DDC @ zone | 2200 | 440 | 1100 | 660 | | 660 | 1100 | Yes | Yes | Yes |
| VAV-1.18 | VAV with DDC @ zone | 1650 | 330 | 825 | 495 | | 495 | 825 | Yes | Yes | Yes |
| VAV-1.19 | VAV with DDC @ zone | 1000 | 200 | 500 | 300 | | 300 | 500 | Yes | Yes | Yes |
| VAV-1.20 | VAV with DDC @ zone | 900 | 180 | 450 | 270 | | 270 | 450 | Yes | Yes | Yes |
| VAV-1.21 | VAV with DDC @ zone | 1200 | 240 | 600 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.22 | VAV with DDC @ zone | 700 | 140 | 350 | 210 | | 210 | 350 | Yes | Yes | Yes |
| VAV-1.23 | VAV with DDC @ zone | 1200 | 240 | 600 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.24 | VAV with DDC @ zone | 1375 | 275 | 680 | 412 | | 412 | 687.5 | Yes | Yes | Yes |
| VAV-1.25 | VAV with DDC @ zone | 1200 | 240 | 600 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.26 | VAV with DDC @ zone | 2500 | 500 | 1250 | 750 | | 750 | 1250 | Yes | Yes | Yes |
| VAV-1.27 | VAV with DDC @ zone | 500 | 100 | 250 | 150 | | 150 | 250 | Yes | Yes | Yes |
| VAV-1.28 | VAV with DDC @ zone | 1000 | 200 | 500 | 300 | | 300 | 500 | Yes | Yes | Yes |
| VAV-1.29 | VAV with DDC @ zone | 1200 | 240 | 600 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.30 | VAV with DDC @ zone | 800 | 160 | 400 | 240 | | 240 | 400 | Yes | Yes | Yes |
| VAV-1.31 | VAV with DDC @ zone | 1375 | 275 | 680 | 412 | | 412 | 687.5 | Yes | Yes | Yes |

## L. DISTRIBUTION (DUCTWORK and PIPING)

*This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.*

| 01 | ☒ | Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed. |
|---|---|---|

**Mandatory Pipe Insulation**

| 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 10a |
|---|---|---|---|---|---|---|---|---|---|
| System Type | Nominal Pipe Diameter (in) | Fluid Temperature Range (°F) | Conductivity Range (Btu-in per hr per ft² per °F) | Insulation Mean Rating Temp. (°F) | Min. Insulation Thickness Required per Table 120.3-A (in) | Min. Insulation Thickness Required per 120.3(c)2 & 160.3(c)1dii (in) | Insulation Thickness per Design (in) | Exception to 120.3 & 160.3(c) (if applicable) | Serving Res or NR Space? |
| Space heating | <1 | 141-200 | 0.25 - 0.29 | 125 | 1.5 | | 1.5 | No exception taken | Nonresidential |

**Duct Leakage Testing**

| The answers to the questions below apply to the following duct systems: | Supply Ductwork | **NR/ Common Use:** Duct leakage testing shall not exceed 15% per NA7.5.3 required for these systems? | No |
|---|---|---|---|

## L. DISTRIBUTION (DUCTWORK and PIPING)

| | | | |
|---|---|---|---|
| | | **Dwelling Units:** Total duct leakage of duct system shall not exceed 15% or duct system to outside shall not exceed 10% per RA3.1.4 required for systems? | --- |
| | | Duct leakage testing per CMC Section 603.9.2 required for these systems? | No |

| | | |
|---|---|---|
| 11 | No | The scope of the project includes only duct systems serving healthcare facilities |
| 12 | No | Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system. |
| 13 | No | The space conditioning system serves less than 5,000 ft² of conditioned floor area. |
| 14 | No | The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system: |
| 15 | No | The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos. |
| 16 | Yes | The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2. |
| 17 | Yes | All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A |
| 18 | Yes | All ductwork is an extension of an existing duct system |
| 19 | No | Ductwork serving individual dwelling unit |
| 20 | No | < 25 ft of new or replacement space conditioning ducts installed in multifamily occupancy |
| 21 | R-4.2 | Duct Insulation R-value |
| 22 | Yes | Ductwork Existing To Remain |
| 23 | No | Duct System Connected To Altered Space Conditioning System |

## M. COOLING TOWERS

*This section does not apply to this project.*





## K. TERMINAL BOX CONTROLS

*This table is used to demonstrate compliance with prescriptive zone control requirements in 140.4(d) & 170.2(c)4B.*

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Design | | | Deadband Compliance | | | Reheated, Recooled, Mixed Air Compliance | | | |
| Zone/System/VAV Box Name or Item Tag | Zonal Control Strategy per 140.4(d) | Peak Primary Airflow CFM | Primary Air in Deadband CFM | Reheated Recooled Mixed Airflow CFM | Outside Air CFM | 30% of Peak Primary Airflow CFM | Max Deadband Airflow CFM | 50% of Peak Primary Airflow | 1st Stage Modulates <=95°F and Maintains DB Rate? | 2nd Stage Modulates from DB Flow to Heating Max Flow? | Complies |
| VAV-1.3 | VAV with DDC @ zone | 650 | 130 | 325 | 195 | | 195 | 325 | Yes | Yes | Yes |
| VAV-1.4 | VAV with DDC @ zone | 1200 | 240 | 325 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.5 | VAV with DDC @ zone | 600 | 120 | 300 | 180 | | 180 | 300 | Yes | Yes | Yes |
| VAV-1.6 | VAV with DDC @ zone | 600 | 120 | 300 | 180 | | 180 | 300 | Yes | Yes | Yes |
| VAV-1.7 | VAV with DDC @ zone | 800 | 160 | 400 | 240 | | 240 | 400 | Yes | Yes | Yes |
| VAV-1.8 | VAV with DDC @ zone | 600 | 120 | 300 | 180 | | 180 | 300 | Yes | Yes | Yes |
| VAV-1.9 | VAV with DDC @ zone | 900 | 180 | 450 | 270 | | 270 | 450 | Yes | Yes | Yes |
| VAV-1.10 | VAV with DDC @ zone | 800 | 160 | 400 | 240 | | 240 | 400 | Yes | Yes | Yes |
| VAV-1.11 | VAV with DDC @ zone | 1300 | 260 | 650 | 390 | | 390 | 650 | Yes | Yes | Yes |
| VAV-1.12 | VAV with DDC @ zone | 900 | 180 | 450 | 270 | | 270 | 450 | Yes | Yes | Yes |
| VAV-1.13 | VAV with DDC @ zone | 1600 | 320 | 800 | 480 | | 480 | 800 | Yes | Yes | Yes |
| VAV-1.14 | VAV with DDC @ zone | 650 | 130 | 325 | 195 | | 195 | 325 | Yes | Yes | Yes |
| VAV-1.15 | VAV with DDC @ zone | 500 | 100 | 250 | 150 | | 150 | 250 | Yes | Yes | Yes |
| VAV-1.16 | VAV with DDC @ zone | 1600 | 320 | 800 | 480 | | 480 | 800 | Yes | Yes | Yes |
| VAV-1.17 | VAV with DDC @ zone | 2200 | 440 | 1100 | 660 | | 660 | 1100 | Yes | Yes | Yes |
| VAV-1.18 | VAV with DDC @ zone | 1650 | 330 | 825 | 495 | | 495 | 825 | Yes | Yes | Yes |
| VAV-1.19 | VAV with DDC @ zone | 1000 | 200 | 500 | 300 | | 300 | 500 | Yes | Yes | Yes |
| VAV-1.20 | VAV with DDC @ zone | 900 | 180 | 450 | 270 | | 270 | 450 | Yes | Yes | Yes |
| VAV-1.21 | VAV with DDC @ zone | 1200 | 240 | 600 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.22 | VAV with DDC @ zone | 700 | 140 | 350 | 210 | | 210 | 350 | Yes | Yes | Yes |
| VAV-1.23 | VAV with DDC @ zone | 1200 | 240 | 600 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.24 | VAV with DDC @ zone | 1375 | 275 | 680 | 412 | | 412 | 687.5 | Yes | Yes | Yes |
| VAV-1.25 | VAV with DDC @ zone | 1200 | 240 | 600 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.26 | VAV with DDC @ zone | 2500 | 500 | 1250 | 750 | | 750 | 1250 | Yes | Yes | Yes |
| VAV-1.27 | VAV with DDC @ zone | 500 | 100 | 250 | 150 | | 150 | 250 | Yes | Yes | Yes |
| VAV-1.28 | VAV with DDC @ zone | 1000 | 200 | 500 | 300 | | 300 | 500 | Yes | Yes | Yes |
| VAV-1.29 | VAV with DDC @ zone | 1200 | 240 | 600 | 360 | | 360 | 600 | Yes | Yes | Yes |
| VAV-1.30 | VAV with DDC @ zone | 800 | 160 | 400 | 240 | | 240 | 400 | Yes | Yes | Yes |
| VAV-1.31 | VAV with DDC @ zone | 1375 | 275 | 680 | 412 | | 412 | 687.5 | Yes | Yes | Yes |

## L. DISTRIBUTION (DUCTWORK and PIPING)

*This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.*

| 01 | ☒ | Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed. |
|---|---|---|

**Mandatory Pipe Insulation**

| 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 10a |
|---|---|---|---|---|---|---|---|---|---|
| System Type | Nominal Pipe Diameter (in) | Fluid Temperature Range (°F) | Conductivity Range (Btu-in per hr per ft² per °F) | Insulation Mean Rating Temp. (°F) | Min. Insulation Thickness Required per Table 120.3-A (in) | Min. Insulation Thickness Required per 120.3(c)2 & 160.3(c)1dii (in) | Insulation Thickness per Design (in) | Exception to 120.3 & 160.3(c) (if applicable) | Serving Res or NR Space? |
| Space heating | <1 | 141-200 | 0.25 - 0.29 | 125 | 1.5 | | 1.5 | No exception taken | Nonresidential |

**Duct Leakage Testing**

| The answers to the questions below apply to the following duct systems: | Supply Ductwork | **NR/ Common Use:** Duct leakage testing shall not exceed 15% per NA7.5.3 required for these systems? | No |
|---|---|---|---|





## L. DISTRIBUTION (DUCTWORK and PIPING)

| | | | |
|---|---|---|---|
| | | **Dwelling Units:** Total duct leakage of duct system shall not exceed 15% or duct system to outside shall not exceed 10% per RA3.1.4 required for systems? | --- |
| | | Duct leakage testing per CMC Section 603.9.2 required for these systems? | No |

| | | |
|---|---|---|
| 11 | No | The scope of the project includes only duct systems serving healthcare facilities |
| 12 | No | Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system. |
| 13 | No | The space conditioning system serves less than 5,000 ft² of conditioned floor area. |
| 14 | No | The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system: |
| 15 | No | The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos. |
| 16 | Yes | The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2. |
| 17 | Yes | All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A |
| 18 | Yes | All ductwork is an extension of an existing duct system |
| 19 | No | Ductwork serving individual dwelling unit |
| 20 | No | < 25 ft of new or replacement space conditioning ducts installed in multifamily occupancy |
| 21 | R-4.2 | Duct Insulation R-value |
| 22 | Yes | Ductwork Existing To Remain |
| 23 | No | Duct System Connected To Altered Space Conditioning System |

## M. COOLING TOWERS

*This section does not apply to this project.*





## N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

*Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4*

| Form/Title |
|---|
| NRCI-MCH-01-E - Must be submitted for all buildings |

## O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

*Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-4*

| Form/Title | Systems/Spaces To Be Field Verified |
|---|---|
| NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap. | V-1.3; VAV-1.4; VAV-1.5; VAV-1.6; VAV-1.7; VAV-1.8; VAV-1.9; VAV-1.10; VAV-1.11; VAV-1.12; VAV-1.13; VAV-1.14; VAV-1.15; VAV-1.16; VAV-1.17; VAV-1.18; VAV-1.31; VAV-1.19; VAV-1.20; VAV-1.21; VAV-1.22; VAV-1.23; VAV-1.24; VAV-1.25; VAV-1.26; VAV-1.27 ; VAV-1.28; VAV-1.29 ; VAV-1.30 |
| NRCA-MCH-06-A Demand Control Ventilation Systems must be submitted for all systems required to employ demand controlled ventilation (refer to 120.1(c)3) can vary outside ventilation flow rates based on maintaining interior carbon dioxide ($CO_2$) concentration setpoints. | Breakroom; Boardroom; Open Office 154; EHS Entry ; Vital Stats Entry ; Open Office 115 |
| NRCA-MCH-18-A Energy Management Control Systems | Existing Controls System |





## P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

*There are no NRCV forms required for this project.*

## Q. MANDATORY MEASURES DOCUMENTATION LOCATION

*This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.*

| 01 | | 02 |
|---|---|---|
| Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block | No | Plan sheet or construction document location |
| 03 | | 04 |
| **Mandatory Measure** | | **Plan sheet or construction document location** |
| Duct Insulation per 120.4 | | M6.01 |
| Pipe Insulation per 120.3(b) | | M6.01 |
| The air duct and plenum system is designed per 120.4(a)-(f) | | M0.01 |
| Kitchen range hoods shall be rated for sound in accordance with Section 7.2 of ASHRAE 62.2 | | N/A |





## DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

**I certify that this Certificate of Compliance documentation is accurate and complete.**

| | |
|---|---|
| Documentation Author Name: Kristy Nelson | Documentation Author Signature: |
| Company: LPA | Signature Date: 2024-04-16 |
| Address: 5301 California Ave, Suite 100 | CEA/ HERS Certification Identification (if applicable): |
| City/State/Zip: Irvine / CA / 92617 | Phone: (949) 261-1001 |

## RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

| | |
|---|---|
| Responsible Designer Name: Erik Ring | Responsible Designer Signature: |
| Company: LPA | Date Signed: 2024-04-16 |
| Address: 5301 California Ave, Suite 100 | License: M31731 |
| City/State/Zip: Irvine / CA / 92617 | Phone: (949) 261-1001 |



LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
**LPADesignStudios.com**
5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER ERIK WILLIAM M RING M31731 EXP. 6/30/2027 MECHANICAL STATE OF CALIFORNIA

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Project documents describe the design intent of the work and are not a representation of as-built or existing conditions. LPA is not responsible for any discrepancies between the project documents and the existing conditions.

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JLee Engineering, Inc.
Approved
By Maria Yepremian
04/06/2026
This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to imply or be an approval of the violations of the applicable codes, any provisions of any Local Ordinance or State law.

DPH VANDERBILT-FIRST FLOOR
451 E Vanderbilt Way,
San Bernardino, CA 92408
Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| | |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | |

MECHANICAL ENERGY COMPLIANCE DOCUMENTATION

M8.04

## 23 00 00 HVAC SYSTEM REQUIREMENTS

1.01 **PROJECT DOCUMENTS**

A. IT IS THE INTENT OF THE SPECIFICATIONS AND DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATIONS.

B. ANY APPARATUS, APPLIANCE, MATERIAL ON WORK NOT SHOWN ON DRAWINGS, BUT MENTIONED IN THE SPECIFICATIONS OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE PROVIDED WITHOUT ADDITIONAL EXPENSE TO THE OWNER. SHOULD THERE APPEAR TO BE DISCREPANCIES OR QUESTIONS OF INTENT IN THE CONTRACT DOCUMENTS, REFER THE MATTER TO THE OWNER FOR HIS DECISION, BEFORE ORDERING ANY MATERIALS OR EQUIPMENT OR BEFORE THE START OF ANY RELATED WORK. THE DECISION OF THE OWNER SHALL BE FINAL, CONCLUSIVE AND BINDING.

C. DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC. OFFSETS, BENDS, SPECIAL FITTINGS AND EXACT LOCATIONS MAY NOT BE INDICATED. CONTRACTOR TO REVIEW DRAWINGS AND EXISTING CONDITIONS IN ORDER TO DETERMINE BEST INSTALLATION METHODS.

D. DRAWINGS ARE BASED ON EQUIPMENT SPECIFIED. MAKE ADJUSTMENTS, MODIFICATIONS, OR CHANGES REQUIRED, DUE TO USE OF OTHER EQUIPMENT.

1.02 **SUBMITTALS:**

A. WITHIN 14 DAYS AFTER AWARD OF THE CONTRACT AND BEFORE THEIR PURCHASE, SUBMIT TO THE OWNER A COMPLETE LIST OF MATERIALS, SPECIALTIES AND EQUIPMENT TO FURNISH FOR THE INSTALLATION.

B. EACH ITEM SHALL BE IDENTIFIED BY MANUFACTURER, MODEL, NUMBER, SIZE, RATING AND WHATEVER OTHER DATA ARE NECESSARY TO PROPERLY IDENTIFY AND CHECK THE MATERIALS AND EQUIPMENT.

C. PREPARE AND SUBMIT A SET OF SHOP DRAWINGS COMPLETE WITH DUCTWORK AND EQUIPMENT LAYOUT FOR APPROVAL PRIOR TO FABRICATION OR INSTALLATION. INDICATE DUCT SIZES ON SHOP DRAWINGS.

1.03 **REGULATORY REQUIREMENTS:**

A. CONFORM TO APPLICABLE CALIFORNIA ADMINISTRATIVE CODE TITLE 24, AND ALL OTHER CITY AND STATE REQUIREMENTS.

B. FIRE PROTECTION: CONFORM TO CURRENT NFPA

1.04 **FEES AND PERMITS**

A. OBTAIN AND PAY ALL FEES FOR PERMITS, LICENSES, INSPECTIONS, ETC., WHICH ARE REQUIRED BY ANY AUTHORITY HAVING JUSRISDICTION.

1.05 **PROJECT/SITE CONDITIONS**

A. EXAMINE THE JOB SITE AND BECOME FAMILIAR WITH THE EXISTING WORKING CONDITIONS PRIOR TO THE START OF WORK. NOTIFY THE OWNER OF ANY DISCREPANCIES FOUND.

1.06 **DELIVERY, STORAGE, AND HANDLING**

A. ACCEPT PRODUCTS AND COMPONENTS ON SITE IN FACTORY PROTECTIVE CONTAINERS. INSPECT FOR DAMAGE.

B. PROTECT PRODUCTS AND COMPONENTS FROM WEATHER AND CONSTRUCTION TRAFFIC BY STORING IN DRY LOCATION.

1.07 **WORK IN EXISTING BUILDING:**

A. RELOCATE, REMOVE OR ABANDON MECHANICAL EQUIPMENT AND SYSTEMS REQUIRED IN CONJUNCTION WITH THE WORK IN THE EXISTING BUILDING.

B. IF REQUIED, PROVIDE TEMPORARY PROVISIONS FOR ALL EXISTING AND/OR NEW HVAC AIR HANDLING SYSTEMS TO MAINTAIN CONDITIONED OCCUPANCY IN SPACE.

C. EXECUTE CUTTING AND DEMOLITION BY METHODS WHICH PREVENT DAMAGES TO OTHER WORK AND WILL PROVIDE PROPER SURFACES TO INSTALLATION OF REPAIRS. RESTORE WORK WHICH HAS BEEN CUT OR REMOVED.

D. FIT WORK AIRTIGHT TO PIPE, SLEEVES, DUCTS AND OTHER PENETRATIONS THROUGH SURFACES. FOR FIRE-RATED PENETRATIONS, PROVIDE ASSEMBLIES IN ACCORDANCE WITH UL-1479 AND ASTM-E184 UTILIZING PRODUCTS AND MATERIALS EQUAL TO RATING OF SURFACES PENETRATED.

E. COORDINATE DISPOSAL OF ALL REMOVED EQUIPMENT WITH OWNER.

1.08 **INTERRUPTION OF SERVICES:**

A. INTERRUPTION OF ANY EXISTING SERVICES SHALL BE KEPT TO A MINIMUM. SHUTDOWNS SHALL BE MADE ONLY WITH APPROVAL OF AND AT TIMES DESIGNATED BY THE OWNER.

1.09 **COORDINATION**

A. VERIFY LOCATIONS AND SIZES OF EXISTING EQUIPMENT AND DUCTWORK PRIOR TO BIDDING AND INFORM THE OWNER OF DISCREPANCIES.

B. COORDINATE THE LOCATION AND ELEVATION OF NEW EQUIPMENT, AND DUCTWORK WITH OTHER TRADES TO AVOID INTERFERENCES.

C. COORDINATE FRAMED OPENINGS IN WALLS, FLOOR AND ROOF FOR DUCTWORK, IN ADVANCED OF THE WORK. FURNISH ANY ADDITIONAL DRAWINGS REQUIRED SHOWING THE CORRECT DIMENSIONS AND LOCATIONS OF THE REQUIRED OPENINGS.

1.10 **DEMOLITION:**

A. DISCONNECT, DEMOLISH, AND REMOVE HVAC SYSTEMS, EQUIPMENT, AND COMPONENTS INDICATED TO BE REMOVED.

1. PIPING TO BE REMOVED: REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP OR PLUG REMAINING PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL.
2. DUCTS TO BE REMOVED: REMOVE PORTION OF DUCTS INDICATED TO BE REMOVED AND CAP OR PLUG REMAINING DUCTS WITH SAME OR COMPATIBLE DUCTWORK MATERIAL.
3. EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT.

B. OWNER SHALL HAVE FIRST RIGHT-OF REFUSAL FOR SALVAGE OF ALL ITEMS TO BE REMOVED. ALL ITEMS ACCEPTED FOR SALVAGE BY THE OWNER SHALL BE PROTECTED FROM DAMAGE AND DELIVERED TO THE OWNER'S REPRESENTATIVE. ALL ITEMS REFUSED FOR SALVAGE BY THE OWNER SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

C. FOR PIPING TO REMAIN, CONTRACTOR SHALL SUBMIT SAMPLES OF EXISTING PIPING TO REMAIN FROM LOCATIONS AS DETERMINED BY THE ENGINEER. BASED ON THE RESULTS OF DESTRUCTIVE TESTING REPLACEMENT OF PIPING MAY BE CONSIDERED.

D. IF PIPE, INSULATION, OR EQUIPMENT TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY.

1.11 **GENERAL INSTALLATION REQUIREMENTS:**

A. INSTALL NEW MECHANICAL EQUIPMENT, PIPES, AND DUCTWORK TO ALLOW MAXIMUM POSSIBLE HEADROOM.

B. INSTALL MECHANICAL EQUIPMENT TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS.

C. ARRANGE FOR MECHANICAL EQUIPMENT, PIPE AND DUCT SPACES, CHASES, SLOTS, AND OPENINGS IN BUILDING STRUCTURE AND INTERIOR PARTITIONS DURING PROGRESS OF CONSTRUCTION.

D. COORDINATE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SLEEVES IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.

E. COORDINATE REQUIREMENTS FOR ACCESS PANELS AND DOORS FOR MECHANICAL ITEMS REQUIRING ACCESS THAT ARE CONCEALED BEHIND FINISHED SURFACES.

F. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT.

G. THE LOCATION OF EQUIPMENT AND DUCTWORK INDICATED ON THE DRAWINGS IS APPROXIMATE AND SHALL BE CHANGED TO MEET THE ARCHITECTURAL AND STRUCTURAL CONDITIONS AS REQUIRED.

H. INSTALL ALL EQUIPMENT, DUCTS, AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER WRITTEN INSTRUCTIONS.

I. PROVIDE SEISMIC BRACING ON MECHANICAL SYSTEMS PER SMACNA "SEISMIC RESTRAINT MANUAL - GUIDELINE FOR MECHANICAL SYSTEMS" LATEST EDITION AND CURRENT STATE AND LOCAL CODES. FURNISH AND INSTALL SUPPORTS, BRACING AND CONNECTIONS TO SMACNA SEISMIC HAZARD LEVEL, SHL-A.

J. UNDER NO CIRCUMSTANCES SHALL ANY CUTTING OR BURNING OFF OF THE STRUCTURAL PARTS OF A BUILDING BE UNDERTAKEN WITHOUT AUTHORITY OF THE STRUCTURAL ENGINEER.

1.12 **IDENTIFICATION**

A. INSTALL EQUIPMENT NAMEPLATES, PRE-FORMED DUCTWORK LABELS AND PRE-FORMED PIPING LABELS WITH ADHESIVE.

1. COLOR: CONFORM TO ASME A13.1.
2. CONTENT: MINIMUM INFORMATION INDICATING EQUIPMENT DESIGNATION OR IDENTIFICATION OF AIR OR FLUID SERVICE AND FLOW DIRECTION ARROW.

1.13 **TEST, ADJUST AND BALANCE**

A. PERFORM HVAC SYSTEM AIR AND WATER BALANCE IN ACCORDANCE WITH ONE OF THE FOLLOWING:

1. AABC MN-1, AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE
2. NEBB PROCEDURAL STANDARDS FOR TESTING ADJUSTING BALANCING OF ENVIRONMENTAL SYSTEMS.

B. PERFORM THE TESTING, ADJUSTING AND BALANCING SERVICES WITH AABC OR NEBB CERTIFIED PERSONNEL.

C. BEGIN WORK AFTER COMPLETION OF SYSTEMS TO BE TESTED, ADJUSTED, OR BALANCED AND COMPLETE WORK PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT.

D. ADJUST AIR AND WATER FLOW RATES TO WITHIN PLUS OR MINUS 10 PERCENT OF DESIGN.

E. SUBMIT TEST AND BALANCE REPORT INDICATING ANY DEFICIENCIES IN SYSTEMS THAT PREVENT PROPER TESTING, ADJUSTING, AND BALANCING OF SYSTEMS AND EQUIPMENT TO ACHIEVE SPECIFIED PERFORMANCE.

1.14 **CLEAN UP**

A. DURING THE PROGRESS OF THE WORK, KEEP THE PREMISES CLEAN AND FREE OF DEBRIS.

B. THOROUGHLY CLEAN ALL PARTS OF THE EQUIPMENT. WHERE EXPOSED PARTS ARE TO BE PAINTED, THOROUGHLY CLEAN OFF ANY SPLATTERED CONSTRUCTION MATERIALS AND REMOVE ALL OIL AND GREASE SPOTS. WIPE THE SURFACE CAREFULLY AND SCRAPE OUT ALL CRACKS AND CORNERS.

C. CLEAN DUCT SYSTEM WITH HIGH POWERED VACUUM. PRIOR TO STAR-UP. PROTECT EQUIPMENT THAT MAY BE HARMED BY EXCESSIVE DIRT WITH TEMPORARY FILTERS, OR BYPASS DURING CLEANING.

D. FLUSH PIPE SYSTEM WITH CLEAN WATER. CLEAN STRAINERS.

1.15 **DUCT INSULATION**

A. REFER TO SCHEDULES.

B. FLEXIBLE GLASS FIBER EXTERNAL (DUCT WRAP) INSULATION:

1. FLAME SPREAD/SMOKE DEVELOPED INDEX OF 25/50, MAX (NFPA 255).
2. 'K' VALUE: 0.29 AT 75 F (ASTM C518).
3. DENSITY: 0.75 LBS/CU. FT.
4. THICKNESS: 1.5 INCHES, OR AS INDICATED.
5. VAPOR BARRIER JACKET: FSK OR PSK, 0.02 PERMEABILITY (ASTM E96).

C. POLYESTER FIBER INTERNAL (DUCT LINER) INSULATION:

1. NON-CORROSIVE, INCOMBUSTIBLE POLYESTER FIBER COMPLYING WITH ASTM C1071 WEBBED INTO A THERMAL BLANKET WHICH IS THEN BONDED WITH A FSK FACING.
2. THICKNESS: 1.0 INCHES, OR AS INDICATED.
3. DUCTMATE POLYARMOR POLYESTER DUCT LINER, OR APPROVED SUBSTITUTION.

D. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT SURFACES ARE CLEAN, FOREIGN MATERIAL REMOVED, AND DRY. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

1.16 **PIPE INSULATION**

A. REFER TO SCHEDULES.

B. GLASS FIBER INSULATION (PIPE WRAP): SEMI-RIGID, ADHERED TO JACKET.
1. FLAME SPREAD/SMOKE DEVELOPED INDEX OF 25/50, MAX (NFPA 255).
2. 'K' VALUE: 0.24 AT 75 F (ASTM C177).
3. THICKNESS: 1.5 INCHES, OR AS INDICATED.
4. VAPOR BARRIER ALL SERVICE JACKET (ASJ, 0.02 PERMEABILITY (ASTM E96).

C. FLEXIBLE ELASTOMERIC INSULATION: PREFORMED FLEXIBLE ELASTOMERIC CELLULAR RUBBER INSULATION; USE MOLDED TUBULAR MATERIAL WHEREVER POSSIBLE.

D. VERIFY THAT PIPES HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT SURFACES ARE CLEAN, FOREIGN MATERIAL REMOVED, AND DRY. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

1.17 **HVAC INSTRUMENTATION AND CONTROLS**

A. REFER TO DRAWINGS.

B. INTERCONNECT NEW HVAC SYSTEMS TO EXISTING HVAC CONTROLS, AS REQUIRED FOR A FULLY OPERATIONAL HVAC SYSTEM.

## 23 20 00 HVAC PIPING

1.01 **HYDRONIC PIPING**

A. REFER TO SCHEDULES AND DRAWINGS.

B. NPS 3" AND LARGER: STEEL PIPE: SCHEDULE 40, BLACK, WITH WELDED JOINTS (ASTM A53).

C. NPS 2.5" AND SMALLER: COPPER TUBE: TYPE L, DRAWN, WITH LEAD-FREE SOLDER JOINTS: (ASTM B88).

D. PROVIDE PIPE HANGERS AND SUPPORTS THAT COMPLY WITH MSS SP-58.

E. SLEEVE PIPE PASSING THROUGH PARTITIONS, WALLS AND FLOORS.

F. INSTALL DIELECTRIC FITTINGS BETWEEN COPPER AND STEEL PIPING SYSTEM COMPONENTS.

1.02 **VALVES**

A. BALL VALVES: BRONZE WITH TWO PIECE BODY, STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE, SOLDER OR THREADED ENDS FOR OPERATION TO 200 PSIG. PROVIDE BALL VALVES AS MANUFACTURED BY NIBCO, MILWAUKEE, OR WATTS.

B. BUTTERFLY VALVES: IRON BODY, ALUMINUM BRONZE DISC, RESILIENT REPLACEABLE SEAT FOR SERVICE TO 200 PSIG WORKING PRESSURE, 250 DEGREES F LUGGED BODY, 10 POSITION LEVER HANDLE. PROVIDE BUTTERFLY VALVES AS MANUFACTURED BY BRAY. WAFER VALVES ARE NOT PERMITTED.

## 23 30 00 HVAC AIR DISTRIBUTION

1.01 **DUCTWORK**

A. REFER TO SCHEDULES AND DRAWINGS.

B. DUCTWORK TO BE HOT DIPPED GALVANIZED STEEL (ASTM A653 FS TYPE B) WITH G60/Z180 COATING, UNLESS OTHERWISE NOTED.

C. DUCT PRESSURE CLASS:

1. LOW PRESSURE SUPPLY: UP TO 2 INCH WG.
2. MEDIUM PRESSURE SUPPLY: UP TO 3 INCH WG.
3. RETURN AND RELIEF: UP TO 2 INCH WG.
4. GENERAL EXHAUST: UP TO 2 INCH WG.

D. FABRICATE DUCTWORK AND SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND AS INDICATED.

E. DUCT SIZES SHOWN ON DRAWINGS ARE INSIDE CLEAR DIMENSION. WHERE DUCT LINER IS INSTALLED IN DUCT, INCREASE DUCT SIZE TO PROVIDE INSIDE CLEAR DIMENSIONS SHOWN ON DRAWING.

F. VERIFY SIZES OF EQUIPMENT DUCT CONNECTIONS BEFORE FABRICATING TRANSITIONS.

G. CONSTRUCT TEES, BENDS AND ELBOWS WITH RADIUS OF NOT LESS THAN 1-1/2 TIMES WIDTH OF DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE DOUBLE THICKNESS TURNING VANES.

1.02 **FIRE SMOKE DAMPERS**

A. FABRICATE IN ACCORDANCE WITH NFPA 90A AND UL 555.

1. FIRE RATING: 1-1/2 HOURS OR 3-HOURS IN ACCORDANCE WITH UL-555.
2. SMOKE RATING: CLASS-2 (20 CFM/SF AT 4 IN WG) LEAKAGE IN ACCORDANCE WITH UL-555S.
3. AIR FLOW RATING: 2000 FPM.
4. DIFFERENTIAL PRESSURE RATING: 4 INCH WG.

B. PROVIDE FACTORY SLEEVE AND COLLAR FOR EACH DAMPER.

C. DAMPER SHALL BE CONTROLLED BY AREA WIDE SMOKE AND FIRE DETECTION AND ALARM SYSTEM.

1.03 **MANUAL VOLUME CONTROL DAMPERS**

A. PROVIDE MANUAL VOLUME CONTROL DAMPERS FOR ANY BALANCING DAMPER LOCATED IN AN ACCESSIBLE LOCATION. FABRICATE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS.

B. FABRICATE SINGLE BLADE DAMPERS FOR DUCT SIZES TO 12-INCHES HIGH BY 30-INCHES WIDE.

C. FABRICATE MULTI-BLADE DAMPERS OF OPPOSED BLADE PATTERN FOR DUCT SIZES TO 12-INCHES HIGH BY 48-INCHES WIDE.

1.04 **REMOTE ACTUATED VOLUME CONTROL DAMPERS**

A. PROVIDE BATTERY POWERED, LOW-VOLTAGE REMOTE ACTUATED VOLUME CONTROL DAMPERS FOR ANY BALANCING DAMPER LOCATED IN HARD CEILING OR INACCESSIBLE LOCATIONS

1.05 **FLEXIBLE DUCTS**

A. TWO PLY VINYL, POLYETHLYENE, OR NYLON FILM SUPPORTED BY HELICALLY WOUND SPRING STEEL WIRE.

1. INSULATION: FIBERGLASS INSULATION WITH ALUMINIZED VAPOR BARRIER FILM.
2. PRESSURE RATING: 2 INCHES WG POSITIVE AND 0.5 INCHES WG NEGATIVE.
3. MAXIMUM VELOCITY: 400 FPM.

B. CASCO SILENT FLEX II, OR APPROVED SUBSTITUTION.

1.06 **VAV TERMINAL AIR UNITS**

A. REFER TO SCHEDULES AND DRAWINGS.

B. EQUIPMENT

1. CASINGS: MINIMUM 22 GAGE GALVANIZED STEEL.
2. LINING: 1 INCH THICK CLOSED CELL FOAM OR OTHER 'FIBER FREE' LINING, MEETING NFPA 90A REQUIREMENTS AND UL 181 EROSION REQUIREMENTS.
3. AIR VOLUME DAMPER ASSEMBLY INSIDE UNIT CASING.
4. LOCATE CONTROL COMPONENTS INSIDE PROTECTIVE METAL SHROUD.
5. HOT WATER HEATING COIL: 1/2 INCH COPPER TUBE MECHANICALLY EXPANDED INTO ALUMINUM PLATE FINS, FACTORY INSTALLED.
6. AUTOMATIC DAMPER ACTUATOR: 24 VOLT.
7. PNEUMATIC VELOCITY RESET CONTROLLER AND PROBE: CALIBRATION PRESSURE TAPS FOR PRESSURE INDEPENDENT CONTROL TO COMPENSATE FOR VARYING INLET STATIC PRESSURE.

C. INSTALLATION

1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. PROVIDE CEILING ACCESS DOORS OR LOCATE UNITS ABOVE EASILY REMOVABLE CEILING COMPONENTS.
3. SUPPORT UNITS INDIVIDUALLY FROM STRUCTURE. DO NOT SUPPORT FROM ADJACENT DUCTWORK.
4. PROVIDE MINIMUM OF 4 FT OF 1 INCH THICK LINED DUCTWORK DOWNSTREAM OF UNITS.

D. TITUS DESV TO ALIGN WITH COUNTY STANDARDS.

1.07 **AIR OUTLETS AND INLETS**

A. REFER TO SCHEDULES AND DRAWINGS.

B. CHECK LOCATION OF OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM TO ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT.

C. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFF TO SUPPLY DIFFUSERS.

D. INSTALL DIFFUSERS TO DUCTWORK WITH AIR TIGHT CONNECTION.

E. PAINT WALL MOUNTED DIFFUSERS TO MATCH WALL FINISH, UNLESS OTHERWISE INDICATED.

F. PAINT DUCTWORK VISIBLE BEHIND AIR OUTLETS AND INLETS MATTE BLACK.

## 23 50 00 HVAC EQUIPMENT

1.01 **NEW HVAC EQUIPMENT**

A. REFER TO SCHEDULES AND DRAWINGS.

B. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

C. INSTALL IN ACCORDANCE WITH NFPA 90A.

D. PROVIDE SERVICES OF AUTHORIZED REPRESENTATIVES OF MANUFACTURER TO ENSURE THAT THE EQUIPMENT IS INSTALLED PROPERLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, IS OPERATING PROPERLY, AND TO INSTRUCT OWNER'S OPERATING PERSONNEL DURING START-UP.

END OF SECTION

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REGISTERED PROFESSIONAL ENGINEER ERIK WILLIAM BIVENS M53731 EXP. 6/30/2027 MECHANICAL STATE OF CALIFORNIA

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JLee Engineering, Inc.
Approved
By Maria Yepremian
04/06/2026

This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinance or State law.

DPH VANDERBILT-FIRE STATION

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
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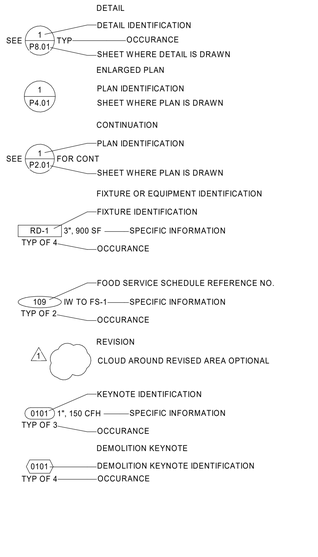
| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | KN |
| Scale | |

MECHANICAL SPECIFICATIONS

M9.01

## PLUMB ANNOTATION SYMBOLS1




## PLUMBING LEGEND

| SYMBOL | ABBREVIATION | DESCRIPTION |
|---|---|---|
| | AV | ACID VENT PIPING |
| | AW | ACID WASTE PIPING ABOVE FINISHED FLOOR |
| | AW-U | ACID WASTE PIPING UNDERGROUND |
| | GV | GREASE VENT PIPING |
| | GW | GREASE WASTE PIPING ABOVE FINISHED FLOOR |
| | GW-U | GREASE WASTE PIPING UNDERGROUND |
| | V | SANITARY VENT PIPING |
| | SS | SANITARY SOIL OR WASTE PIPING ABOVE FINISHED FLOOR |
| | SS-U | SANITARY SOIL OR WASTE PIPING UNDERGROUND |
| | OD | OVERFLOW DRAIN PIPING |
| | SD | STORM DRAIN PIPING ABOVE FINISHED FLOOR |
| | SD-U | STORM DRAIN PIPING UNDERGROUND |
| | SSD | SUBSOIL DRAINAGE PIPING |
| | CD | CONDENSATE DRAIN PIPING |
| | OCD | OVERFLOW CONDENSATE DRAIN PIPING |
| | HBD | HOSE BIBB DRAINAGE PIPING |
| | RW | RECLAIMED WATER PIPING |
| | IRR | IRRIGATION PIPING |
| | ICW | INDUSTRIAL COLD WATER PIPING |
| | RO | REVERSE OSMOSIS BLENDED WATER PIPING |
| | CW | DOMESTIC COLD WATER PIPING |
| | HW | DOMESTIC HOT WATER PIPING |
| | HWR | DOMESTIC HOT WATER RETURN PIPING |
| | TW | DOMESTIC TEMPERED WATER PIPING |
| | TWR | DOMESTIC TEMPERED WATER RETURN PIPING |
| | SCW | DOMESTIC SOFT COLD WATER PIPING |
| | SHWR | DOMESTIC SOFT HOT WATER RETURN PIPING |
| | VAC | VACUUM PIPING |
| | CA | COMPRESSED AIR PIPING |
| | G | STANDARD PRESSURE GAS PIPING (8" W.C.) |
| | MPG | MEDIUM PRESSURE GAS PIPING (5 PSI) |
| | MPG-U | MEDIUM PRESSURE GAS PIPING UNDERGROUND (5 PSI) |
| | COMB. AIR | WATER HEATER COMBUSTION AIR |
| | EXH. AIR | WATER HEATER EXHAUST AIR |
| | CVTR | WATER HEATER CONCENTRIC VENT THRU ROOF |
| | | SHUT-OFF VALVE IN CEILING ACCESS PANEL |
| | | SHUT-OFF VALVE BELOW FINISHED GRADE IN YARD BOX |
| | | SHUT-OFF VALVE ABOVE FINISHED GRADE |
| | | SHUT-OFF VALVE / SHUT-OFF COCK IN WALL ACCESS PANEL |
| | | SHUT-OFF COCK ABOVE FINISHED GRADE |
| | | SHUT-OFF COCK IN CEILING ACCESS PANEL |
| | | SHUT-OFF COCK BELOW FINISHED GRADE IN YARD BOX |
| | | WATER HAMMER ARRESTOR IN WALL ACCESS PANEL |
| | | TRAP PRIMER WITH SOV IN WALL ACCESS PANEL |
| | RHB | RECESSED HOSE BIBB |
| | HB | HOSE BIBB |
| | AP | ACCESS PANEL |
| | WB | WASHING MACHINE OUTLET BOX WITH 1/4 TURN VALVES |
| | IB | ICE MAKER OUTLET BOX WITH 1/4 TURN VALVE |
| | SV | SOLENOID VALVE |
| | GT | GAS TURRET |
| | GPR | GAS PRESSURE REGULATOR |
| | MV / TMV | MIXING VALVE / THERMOSTATIC MIXING VALVE |
| | WCO | WALL CLEANOUT |
| | FCO | FLOOR CLEANOUT |
| | COTG | CLEANOUT TO GRADE |
| | FD | FLOOR DRAIN OR AREA DRAIN |
| | FD | FLOOR DRAIN OR AREA DRAIN |
| | FS | FLOOR SINK |
| | DW | DRYWELL |
| | RR | ROOF RECEPTOR |
| | OD | OVERFLOW DRAIN SPILL TO GRADE |
| | | PIPE RISER DOWN (ELBOW) |
| | | PIPE RISER UP (ELBOW) |
| | | PIPE RISE OR DROP |
| | | BRANCH LINE TOP CONNECTION |
| | | BRANCH LINE BOTTOM CONNECTION |
| | | CAP ON END OF PIPE |
| | | UNION |
| | | SLEEVE |
| | | SEISMIC JOINT |
| | | FLOW IN DIRECTION OF ARROW |
| | | CONTINUATION OF PIPING |
| | BLV | BALANCING VALVE |
| | PRV | PRESSURE REDUCING VALVE |
| | TPV | TEMPERATURE AND PRESSURE RELIEF VALVE |
| | CV | CHECK VALVE |
| RPBP | RPBP | REDUCED PRESSURE BACKFLOW PREVENTER |
| [CS] | | CONTROL STATION |
| | | STRAINER |
| | | PUMP |
| P1 | | PRESSURE GAUGE |
| T1 | | TEMPERATURE GAUGE |
| FS | | FLOW SWITCH |
| PS | | PRESSURE SWITCH |
| | | AQUASTAT |
| | | HATCH INDICATES ITEM(S) TO BE DEMOLISHED |

## GENERAL STRUCTURAL NOTES

1. ALL EQUIPMENT, PIPING, UTILITIES, AND THEIR CONNECTIONS SHALL BE SEISMICALLY BRACED PER LATEST CBC AND EQUIPMENT ANCHORAGE FOR PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTES PER STRUCTURAL DRAWINGS.
2. LIMITS TO NON-STRUCTURAL ITEMS SUSPENDED FROM CONCRETE FILLED METAL DECKING: HANGERS SUPPORTED BY METAL DECKING WITH STRUCTURAL CONCRETE FILL MAY BE INSTALLED USING ICC-ES APPROVED ANCHORAGE SYSTEMS. DO NOT SUPPORT UTILITIES FROM METAL DECK WITHOUT CONCRETE. HANGERS FROM CONCRETE FILLED DECK, WHERE OCCURS, ARE LIMITED TO 4-INCH DIAMETER PIPE MAXIMUM. LOCATE HANGERS TWO FLUTES APART ON SAME DECK SPAN. SUPPORT LARGER PIPING FROM STRUCTURAL BEAMS OR COLUMNS. ADD DOUBLE UNISTRUT SPREADERS AS NECESSARY.
3. PROVIDE SHOP DRAWINGS WITH LARGE SCALE PLANS AND SECTIONS SHOWING HANGERS AND BRACING LOCATIONS. SHOP DRAWINGS SHALL BE PREPARED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA AND SHALL BE STAMPED AND SIGNED. INDICATE HANGERS AND BRACING LOADS ON STRUCTURAL FRAMING PLANS.
4. EXPANSION ANCHORS AND EPOXY ANCHORS, WHERE USED, SHALL HAVE A MINIMUM EMBEDMENT OF EIGHT TIMES THE ANCHOR DIAMETER AND A MINIMUM EDGE DISTANCE OF 10 TIMES THE DIAMETER. EXPANSION ANCHORS AND EPOXY ANCHORS MUST HAVE CURRENT AND VALID ICC REPORT. SHOT PINS ARE NOT ACCEPTABLE.
5. UNLESS SPECIFIED ON STRUCTURAL DRAWINGS, ANY ALTERATIONS OR MODIFICATIONS TO A STRUCTURAL ELEMENT BY CUTTING, DRILLING, BORING, BRACING, WELDING, ETC. SHALL HAVE WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO STARTING WORK.
6. SEE GENERAL NOTES ON STRUCTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

## APPLICABLE CODES

BUILDING CODES: (APPLICABLE AS OF JANUARY 1, 2023)

2022 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.

2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.;
(2021 INTERNATIONAL BUILDING CODE OF THE INTERNATIONAL CODE COUNCIL, WITH CALIFORNIA AMENDMENTS)

2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.;
(2023 NATIONAL ELECTRICAL CODE OF THE NATIONAL FIRE PROTECTION ASSOCIATION, NFPA)

2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.;
(2021 UNIFORM MECHANICAL CODE OF THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS, IAPMO)

2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.;
(2021 UNIFORM PLUMBING CODE OF THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS, IAPMO)

2022 ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.;

2022 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.;
(2021 INTERNATIONAL FIRE CODE OF THE INTERNATIONAL CODE COUNCIL)

2022 CALIFORNIA GREEN BUILDING CODE (CAL GREEN), PART 11, TITLE 24 C.C.R.

2022 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.

TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

PARTIAL LIST OF APPLICABLE STANDARDS

2022 CALIFORNIA BUILDING CODE (FOR SFM) REFERENCED STANDARDS CH. 35

| | | |
|---|---|---|
| NFPA 13 | AUTOMATIC SPRINKLER SYSTEMS (CALIFORNIA AMENDED) | 2022 EDITION |
| NFPA 14 | STANDPIPE SYSTEMS (CALIFORNIA AMENDED) | 2019 EDITION |
| NFPA 17 | DRY CHEMICAL EXTINGUISHING SYSTEMS | 2021 EDITION |
| NFPA 17A | WET CHEMICAL EXTINGUISHING SYSTEMS | 2021 EDITION |
| NFPA 20 | STATIONARY PUMPS | 2019 EDITION |
| NFPA 22 | STANDARD FOR WATER TANKS FOR PRIVATE FIRE PROTECTION | 2016 EDITION |
| NFPA 24 | PRIVATE FIRE SERVICE MAINS (CALIFORNIA AMENDED) | 2019 EDITION |
| NFPA 72 | NATIONAL FIRE ALARM AND SIGNALING CODE (CALIFORNIA AMENDED) (NOTE: SEE UL STANDARD 1971 FOR "VISUAL DEVICES") | 2022 EDITION |
| NFPA 80 | FIRE DOOR AND OTHER OPENING PROTECTIVES | 2019 EDITION |
| NFPA 253 | CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS | 2019 EDITION |
| NFPA 2001 | CLEAN AGENT FIRE EXTINGUISHING SYSTEMS (CALIFORNIA AMENDED) | 2018 EDITION |

## GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE AS SPECIFIED AND IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, LAWS, PERMITS, AND THE CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURATE PLACEMENT OF ALL NEW CONSTRUCTION ON THE SITE.
3. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS AND DIMENSIONS, AND EXACT LOCATIONS AND ELEVATIONS OF PIPING BEFORE STARTING WORK. SHOULD A DISCREPANCY APPEAR IN THE CONTRACT DOCUMENTS, OR BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS, NOTIFY THE ARCHITECT AT ONCE FOR INSTRUCTION ON HOW TO PROCEED.
4. TRAPS FOR ALL LAVATORIES AND SINKS SHALL TRAP STRAIGHT BACK TO WALL WITH ALL REQUIRED OFFSETS HAPPENING WITHIN THE WALL.
5. HORIZONTAL SOIL, WASTE AND TRAP PRIMER PIPING WITHIN THE BUILDING SHALL BE INSTALLED CONCEALED WITHIN WALLS, BELOW FINISH FLOOR, OR BELOW FINISH SLAB AS APPLICABLE UNLESS NOTED OTHERWISE. ALL OTHER HORIZONTAL PIPING WITHIN THE BUILDING SHALL BE INSTALLED CONCEALED ABOVE CEILING OR WITHIN WALLS AS APPLICABLE UNLESS NOTED OTHERWISE. ALL VERTICAL PIPING SHALL BE INSTALLED CONCEALED WITHIN WALLS UNLESS NOTED OTHERWISE. NO PIPING SHALL BE INSTALLED IN EXPOSED LOCATIONS UNLESS SPECIFICALLY NOTED AS SUCH ON PLANS.
6. HORIZONTAL SOIL AND WASTE PIPING 4" AND GREATER IN SIZE SHALL SLOPE AT 1/8" PER FOOT UNLESS OTHERWISE NOTED. ALL SUCH PIPING 3" AND LESS IN SIZE SHALL SLOPE AT 1/4" PER FOOT UNLESS NOTED OTHERWISE.
7. HORIZONTAL STORM DRAIN AND OVERFLOW PIPING SHALL SLOPE AT 1/8" PER FOOT UNLESS NOTED OTHERWISE.
8. HORIZONTAL CONDENSATE PIPING SHALL SLOPE AT 1/8" PER FOOT UNLESS NOTED OTHERWISE.
9. PRIOR TO COMMENCING ANY WORK VERIFY ALL EQUIPMENT LOCATIONS WITH THE GENERAL CONTRACTOR, OTHER TRADES, ARCHITECT AND STRUCTURAL ENGINEER. EXACT ROUGH-IN LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED IN THE FIELD.
10. PIPING BETWEEN EACH PLUMBING FIXTURE AND THE NEAREST BRANCH OR MAIN PIPING RUN SHALL BE SIZED TO MATCH THE CORRESPONDING FIXTURE SCHEDULE CONNECTION SIZE AT A MINIMUM UNLESS NOTED AS A LARGER SIZE ON PLANS. PIPE HEADERS IN WALLS SERVING BANKS OF FIXTURES SHALL BE FULL LINE SIZE FROM THE UPSTREAM END OF THE BRANCH LINE TO THE END TERMINAL UNLESS NOTED OTHERWISE.
11. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS, ROUGH IN DIMENSIONS, AND MOUNTING HEIGHTS OF ALL FIXTURES, EQUIPMENT, ACCESS PANELS, HOSE BIBBS, RECESSED HOSE BIBBS, OVERFLOW DRAIN TERMINATION POINTS, AND OTHER EXPOSED PLUMBING ELEMENTS. WHERE DIMENSIONS ARE NOT INDICATED, SEEK ARCHITECT'S DIRECTION AND/OR APPROVAL PRIOR TO INSTALLATION.
12. ACCESS PANELS
A. WHERE POSSIBLE, USE SAME ACCESS PANEL FOR SHUT-OFF VALVES, MIXING VALVES, TRAP PRIMERS AND WATER HAMMER ARRESTORS AND/OR OTHER INTERIOR WALL COMPONENTS WHEN LOCATED DIRECTLY ADJACENT IN SAME IMMEDIATE VICINITY. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
B. SEE SPECIFICATIONS FOR ACCESS PANEL REQUIREMENTS.
13. CLEANOUTS.
A. INTERIOR CLEANOUTS SHALL BE WALL CLEANOUTS RATHER THAN FLOOR CLEANOUTS UNLESS OTHERWISE INDICATED, SHALL BE READILY ACCESSIBLE, AND SHALL BE CAREFULLY COORDINATED WITH CASEWORK, EQUIPMENT, AND OTHER ITEMS TO AVOID CONFLICT. NOT ALL REQUIRED CLEANOUTS ARE INDICATED ON PLANS. WALL CLEANOUTS IN FINISHED SPACES SHALL BE INSTALLED IN ACCESS PANELS.
B. SEE SPECIFICATIONS FOR ACCESS PANEL REQUIREMENTS.
C. REFER TO SECTION 707.0 & 719.0 OF THE CALIFORNIA PLUMBING CODE FOR ALL INSTALLATION REQUIREMENTS.
14. VERIFY EXACT LOCATIONS OF ALL MECHANICAL AND/OR OTHER EQUIPMENT INSTALLED BY OTHERS AND REQUIRING PLUMBING CONNECTIONS PRIOR TO ORDERING OF MATERIALS OR INSTALLATION. COORDINATE EXACT ROUGH-IN LOCATIONS AND REQUIREMENTS WITH OTHER INSTALLING CONTRACTORS AS APPLICABLE PRIOR TO INSTALLATION.
15. ADA LAVATORIES AND SINKS SHALL BE PROVIDED WITH ASME A112.18.9 COMPLIANT ADA INSULATED TRAP AND SUPPLY COVERS AS SPECIFIED.
16. ADA WATER CLOSETS SHALL BE INSTALLED WITH FLUSH VALVE ACTUATOR HANDLE LOCATED ON THE WHEEL CHAIR ACCESS SIDE.
17. ALL VALVES, UNIONS, CLEANOUTS, ETC. TO BE SAME SIZE AS PIPE UNLESS NOTED OTHERWISE.
18. REFER TO MECHANICAL DRAWINGS FOR MECHANICAL MANDATORY MEASURES AND ASSOCIATED REQUIREMENTS.
19. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL FIRE RATED ASSEMBLIES. PROVIDE FIRESTOPPING AT PENETRATIONS THROUGH FIRE RETARDANT CONSTRUCTION IN ACCORDANCE WITH SPECIFICATIONS. PIPING THROUGH FIRE RATED WALLS SHALL BE PER U.L. FIRE RESISTANCE SYSTEM NO. W-L-1001. SEE ARCHITECTURAL PLANS FOR WALL LOCATIONS.
20. NO PIPING SHALL BE INCASED IN THE CONCRETE SLAB.
21. ALL VALVES, TRAP PRIMERS, WATER HAMMER ARRESTERS OR OTHER EQUIPMENT SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED BEHIND AN ACCESS PANEL.
22. ALL PLUMBING FIXTURES AND EQUIPMENT SHALL BE CERTIFIED BY THE CALIFORNIA STATE ENERGY COMMISSION TO COMPLY WITH EFFICIENCY STANDARDS PER SECTION 2-5314(A) OF THE TITLE-24 REGULATIONS.
23. ALL EXISTING PIPING DAMAGED DURING EXCAVATION SHALL BE REPAIRED WITH MATERIALS TO MATCH EXISTING BY THE CONTRACTOR.
24. ALL UNDERGROUND IRON, COPPER OR STEEL PIPING LOCATED BOTH INSIDE AND OUTSIDE OF BUILDING SHALL BE ENCASED WITHIN A MINIMUM 10 MIL POLYETHYLENE PLASTIC SLEEVE SEALED WATER TIGHT WITH POLYVINYL CHLORIDE TAPE.
25. ALL POINTS OF CONNECTION SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR PRIOR TO BID.
26. ALL HORIZONTAL PIPING LINES EXTENDED AND CONNECTED TO EQUIPMENT SHALL BE RUN AT THE HIGHEST POSSIBLE ELEVATIONS AND NOT LESS THAN 6" ABOVE THE FLOOR TO PROVIDE CLEARANCE FOR CLEANING. AT WALL OR COLUMN LOCATIONS, PIPING ROUGH-IN SHALL BE STUBBED IN WALLS WHENEVER POSSIBLE.
27. ALL CUTTING OF EXISTING PAVINGS, WALKS AND/OR FLOORS SHALL BE BY MACHINE SAW CUTTING. HOLES FOR PIPES IN CONCRETE WALLS OR FLOORS SHALL BE DONE BY CORE DRILLING EQUIPMENT.
28. ABOVE GROUND PIPING SYSTEMS SHALL BE MARKED IN ACCORDANCE WITH ASME A13.1.
29. UNLESS SPECIFICALLY SHOWN ON THESE PLANS NO STRUCTURAL MEMBERS SHALL BE CUT, DRILLED OR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL.
30. ALL CONCEALED CONDENSATE DRAIN PIPING ABOVE CEILING SHALL BE INSULATED WITH 3/4" CLOSED CELL FOAM. INSULATION SHALL BE EQUAL TO ARMACELL "ARMAFLEX".
31. VENT PIPING 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.
32. NEW NEW OR REPAIRED POTABLE WATER SYSTEMS SHALL BE DISINFECTED PRIOR TO USE ACCORDING TO SECTION 609.9 (1-3) OF THE CALIFORNIA PLUMBING CODE. CONTRACTOR SHALL PROVIDE A SIGNED WRITTEN DECLARATION TO THE INSPECTOR AT TIME OF INSPECTION THAT POTABLE WATER SYSTEM HAS BEEN DISINFECTED PER SECTION 609.9.

## ABBREVIATIONS

| ABBREVIATION | DESCRIPTION |
|---|---|
| & | AND |
| @ | AT |
| ABV | ABOVE |
| A/C | AIR CONDITIONING |
| ACT | ACOUSTICAL CEILING TILE |
| ADA | AMERICANS WITH DISABILITIES ACT |
| AFF | ABOVE FINISH FLOOR |
| AHJ | AUTHORITY HAVING JURISDICTION |
| AP | ACCESS PANEL |
| APPROX | APPROXIMATELY |
| ARCH | ARCHITECT |
| ASD | AUTOMATIC SPRINKLER DRAIN |
| ASTM | AMERICAN SOCIETY FOR TESTING AND MATERIALS |
| AVTR | ACID VENT THRU ROOF |
| BEL | BELOW |
| BFF | BELOW FINISHED FLOOR |
| BFG | BELOW FINISHED GRADE |
| BFP | BACKFLOW PREVENTER |
| BLDG | BUILDING |
| BTUH | BRITISH THERMAL UNIT PER HOUR |
| CA | COMPRESSED AIR |
| CBC | CALIFORNIA BUILDING CODE, CURRENT EDITION |
| CD | CONDENSATE DRAIN |
| CEC | CALIFORNIA ELECTRICAL CODE, CURRENT EDITION |
| CFC | CALIFORNIA FIRE CODE, CURRENT EDITION |
| CFM | CUBIC FEET PER MINUTE |
| CFH | CUBIC FEET PER HOUR |
| CLG | CEILING |
| CMC | CALIFORNIA MECHANICAL CODE, CURRENT EDITION |
| CO | CLEANOUT |
| COMB | COMBUSTION |
| CONT | CONTINUATION |
| CONTR | CONTRACTOR |
| CPC | CALIFORNIA PLUMBING CODE, CURRENT EDITION |
| CVTR | CONCENTRIC VENT THRU ROOF |
| CWD | CAN WASH DRAIN |
| (D) | DEMOLISH |
| DET | DETAIL |
| DEPT | DEPARTMENT |
| DIA | DIAMETER |
| DN | DOWN |
| DWG | DRAWING |
| Ø | DIAMETER |
| E | EAST |
| EA | EACH |
| EXIST | EXISTING |
| (E) | EXISTING |
| ELEC | ELECTRICAL |
| ENGR | ENGINEER |
| EOR | ENGINEER ON RECORD |
| ET | EXPANSION TANK |
| EXH | EXHAUST |
| F | FAHRENHEIT |
| FD | FLOOR DRAIN |
| FFE | FINISH FLOOR ELEVATION |
| FIN FLR | FINISH FLOOR |
| FIN GR | FINISH GRADE |
| FLR | FLOOR |
| FM | FACTORY MANUAL |
| FPS | FEET PER SECOND |
| FT | FOOT, FEET |
| FV | FLUSH VALVE |
| GA | GAUGE |
| GAL | GALLONS |
| GPM | GALLONS PER MINUTE |
| GVTR | GREASE VENT THRU ROOF |
| HDR | HEADER |
| HORIZ | HORIZONTAL |
| HBD | HOSE BIBB DRAINAGE |
| HP | HORSE POWER |
| HVAC | HEATING VENTILATION AND AIR CONDITIONING |
| HZ | HERTZ |
| ICW | INDUSTRIAL COLD WATER |
| IE | INVERT ELEVATION |
| IN | INCHES |
| IN WC | INCHES WATER COLUMN |
| INT | INTEGRAL |
| IRR | IRRIGATION |
| KW | KILOWATT |
| LBS | POUNDS |
| MAX | MAXIMUM |
| MBH | THOUSAND BRITISH THERMAL UNITS PER HOUR |
| MC | MECHANICAL CONTRACTOR |
| MECH | MECHANICAL |
| MFR | MANUFACTURER |
| MIN | MINIMUM |
| N | NORTH |
| NA | NOT APPLICABLE |
| NIC | NOT IN CONTRACT |
| NFPA | NATIONAL FIRE PROTECTION ASSOCIATION |
| NO | NUMBER |
| NTS | NOT TO SCALE |
| OC | ON CENTER |
| OCD | OVERFLOW CONDENSATE DRAIN |
| OD | OVERFLOW DRAIN, OUTSIDE DIAMETER |
| P | PUMP |
| PCD | PUMPED CONDENSATE DRAIN |
| PH | PHASE |
| PLBG | PLUMBING |
| POC | POINT OF CONNECTION |
| POD | POINT OF DISCONNECTION |
| PRV | PRESSURE REDUCING VALVE |
| PSI | POUNDS PER SQUARE INCH |
| RO | REVERSE OSMOSIS |
| RPM | REVOLUTIONS PER MINUTE |
| RW | RECLAIMED WATER |
| S | SOUTH |
| SD | STORM DRAIN |
| SF | SQUARE FOOT |
| SHD | SHOWER DRAIN |
| SIM | SIMILAR |
| SPKLR | SPRINKLER |
| SCW | SOFT COLD WATER |
| SS | SANITARY SEWER |
| SST | STAINLESS STEEL |
| STD | STANDARD |
| STRUCT | STRUCTURAL |
| SYS | SYSTEM |
| TD | TRENCH DRAIN |
| TEMP | TEMPERATURE |
| THRU | THROUGH |
| TSTAT | THERMOSTAT |
| TYP | TYPICAL |
| UL | UNDERWRITER'S LABORATORY |
| UNO | UNLESS NOTED OTHERWISE |
| VA | VACUUM |
| V | VOLT |
| VBF | VENT BELOW FLOOR |
| VBG | VENT BELOW GRADE |
| VTR | SANITARY VENT THRU ROOF |
| W | WEST |
| W/ | WITH |
| W/O | WITHOUT |
| WCO | WALL CLEANOUT |
| WC | WATER COLUMN |
| WT | WEIGHT |
| YB | YARD BOX |


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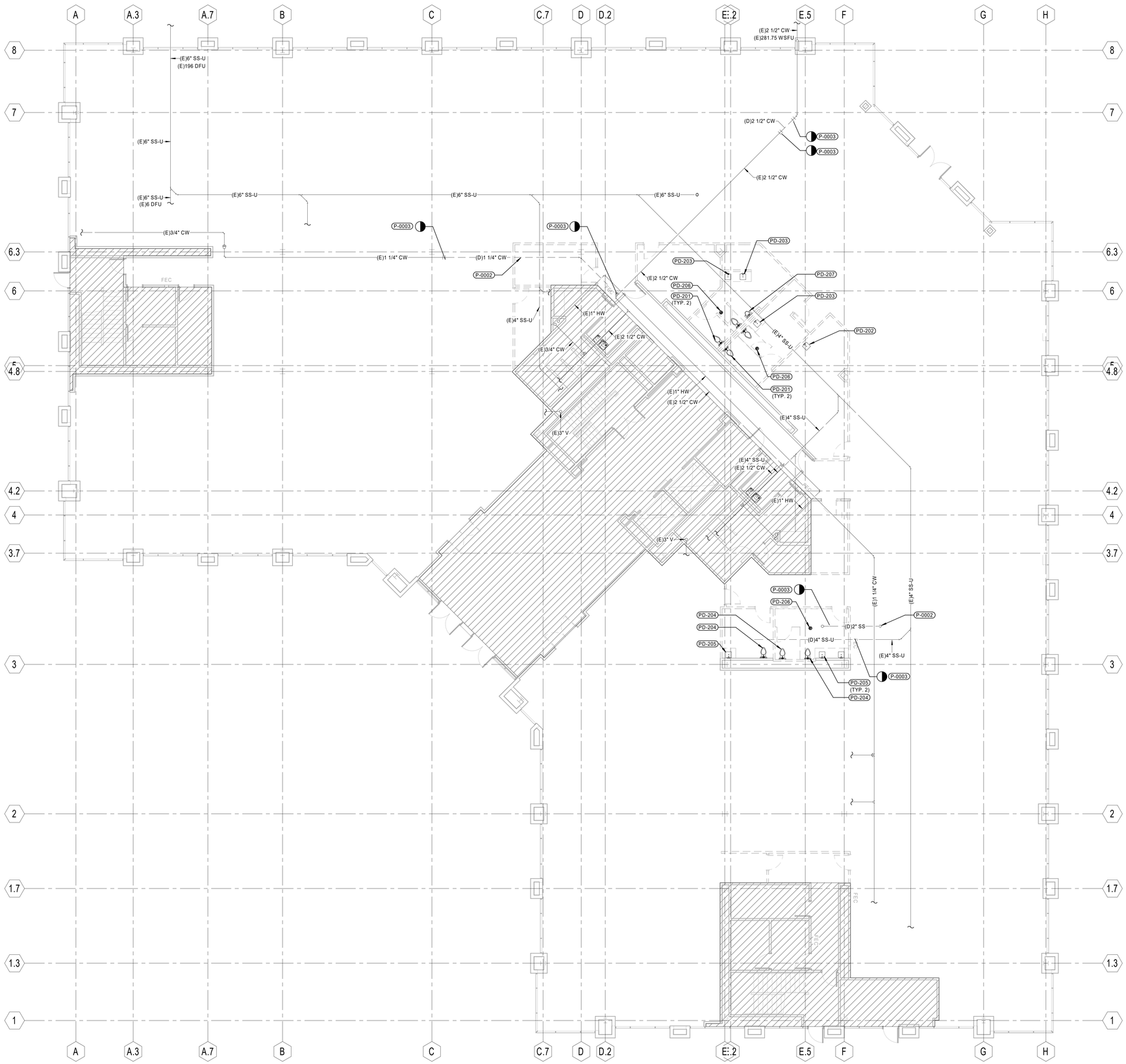
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| SCHEMATIC DESIGN | 03/14/2025 |
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| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | Checker |
| Scale | As indicated |

PLUMBING LEGENDS AND GENERAL NOTES

P0.10




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| P-0002 | DEMOLISH PIPING BACK TO POINT OF DISCONNECTION. |
| P-0003 | POINT OF DISCONNECTION. FIELD TO VERIFY EXISTING CONDITION AND DEMOLISH PIPE. CAP EXISTING FOR FUTURE RECONNECTION. |
| PD-201 | REMOVE EXISTING WATER CLOSET, FLUSH VALVE AND ASSOCIATED PIPING. CAP WASTE PIPING BELOW SLAB AND PATCH CONCRETE TO MATCH EXISTING. REMOVED VENT AND WATER PIPING ABOVE CEILING BACK TO NEAREST BRANCH PIPE AND CAP. |
| PD-202 | REMOVE EXISTING SINK, FAUCET AND ASSOCIATED PIPING. CAP WASTE PIPING BELOW SLAB AND PATCH CONCRETE TO MATCH EXISTING. REMOVED VENT AND WATER PIPING ABOVE CEILING BACK TO NEAREST BRANCH PIPE AND CAP. |
| PD-203 | REMOVE EXISTING LAVATORY, FAUCET AND ASSOCIATED PIPING. CAP WASTE PIPING BELOW SLAB AND PATCH CONCRETE TO MATCH EXISTING. REMOVED VENT AND WATER PIPING ABOVE CEILING BACK TO NEAREST BRANCH PIPE AND CAP. |
| PD-204 | REMOVE EXISTING WATER CLOSET, FLUSH VALVE AND ASSOCIATED PIPING. CAP WASTE PIPING AT SLAB; VENT AND WATER SUPPLY PIPING AT WALL FOR RECONNECTION DURING NEW CONSTRUCTION. DIMENSION EXISTING AND NEW FIXTURE LOCATION ON ARCHITECTURAL PLANS AND REUSE EXISTING UTILITIES WHERE POSSIBLE. IF A CONFLICT EXISTS CONTACT ARCHITECT/ENGINEER FOR FURTHER DIRECTION. |
| PD-205 | REMOVE EXISTING LAVATORY, FAUCET AND ASSOCIATED PIPING. CAP WASTE PIPING AT SLAB; VENT AND WATER SUPPLY PIPING AT WALL FOR RECONNECTION DURING NEW CONSTRUCTION. DIMENSION EXISTING AND NEW FIXTURE LOCATION ON ARCHITECTURAL PLANS AND REUSE EXISTING UTILITIES WHERE POSSIBLE. IF A CONFLICT EXISTS CONTACT ARCHITECT/ENGINEER FOR FURTHER DIRECTION. |
| PD-206 | REMOVE EXISTING FLOOR DRAIN AND ASSOCIATED PIPING. CAP WASTE PIPING BELOW SLAB AND PATCH CONCRETE TO MATCH EXISTING. REMOVED VENT AND WATER PIPING ABOVE CEILING BACK TO NEAREST BRANCH PIPE AND CAP. |
| PD-207 | REMOVE EXISTING URINAL, FLUSH VALVE AND ASSOCIATED PIPING. CAP WASTE PIPING BELOW SLAB AND PATCH CONCRETE TO MATCH EXISTING. REMOVED VENT AND WATER PIPING ABOVE CEILING BACK TO NEAREST BRANCH PIPE AND CAP. |

## LEGEND

- NOT IN SCOPE OF WORK
- SIDELIGHT TO BE REMOVED
- EXISTING PARTITION TO REMAIN
- PARTITION TO BE REMOVED

## DEMOLITION NOTES

1. EXISTING PIPING ABOVE CEILING AND IN EXISTING WALLS BEING DEMOLISHED, THAT IS NOT BEING REUSED, SHALL BE REMOVED. COORDINATE EXTENT OF DEMOLITION WITH THE ARCHITECT AND THE GENERAL CONTRACTOR.
2. ALL EXISTING PIPING DAMAGED DURING EXCAVATION SHALL BE REPAIRED WITH MATERIALS TO MATCH EXISTING BY THE CONTRACTOR.
3. ALL EXISTING PIPING DAMAGED DURING EXCAVATION SHALL BE REPAIRED WITH MATERIALS TO MATCH EXISTING BY THE CONTRACTOR.
4. COORDINATE DEMOLITION WORK WITH ALL OTHER TRADES AND PROVIDE DEMOLITION/RE-LOCATION OF UTILITIES AS NECESSARY TO PROVIDE A COMPLETED BUILDING AS PER CONSTRUCTION DOCUMENTS.
5. VERIFY ANY MAJOR DEISCREPANCIES ON THE DRAWINGS AND NOTIFY THE ARCHITECT PRIOR TO DEMOLITION.
6. OBTAIN CLIENT APPROVAL OF SCHEDULED DOWN TIME DURATIONS PRIOR TO COMMENCING DEMOLITION.
7. PATCH AND REPAIR EXISTING WALL OR CEILING SURFACES CAUSED BY ANY DEMOLITION OF PLUMBING-RELATED EQUIPMENT, ACCESSORIES, OR PENETRATIONS.
8. ALL CUTTING OF EXISTING PAVINGS, WALKS AND/OR FLOORS SHALL BE BY MACHINE SAW CUTTING. HOLES FOR PIPES IN CONCRETE WALLS OR FLOORS SHALL BE DONE BY CORE DRILLING EQUIPMENT.
9. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL OF ANY FIXTURES AND MATERIALS REMOVED.

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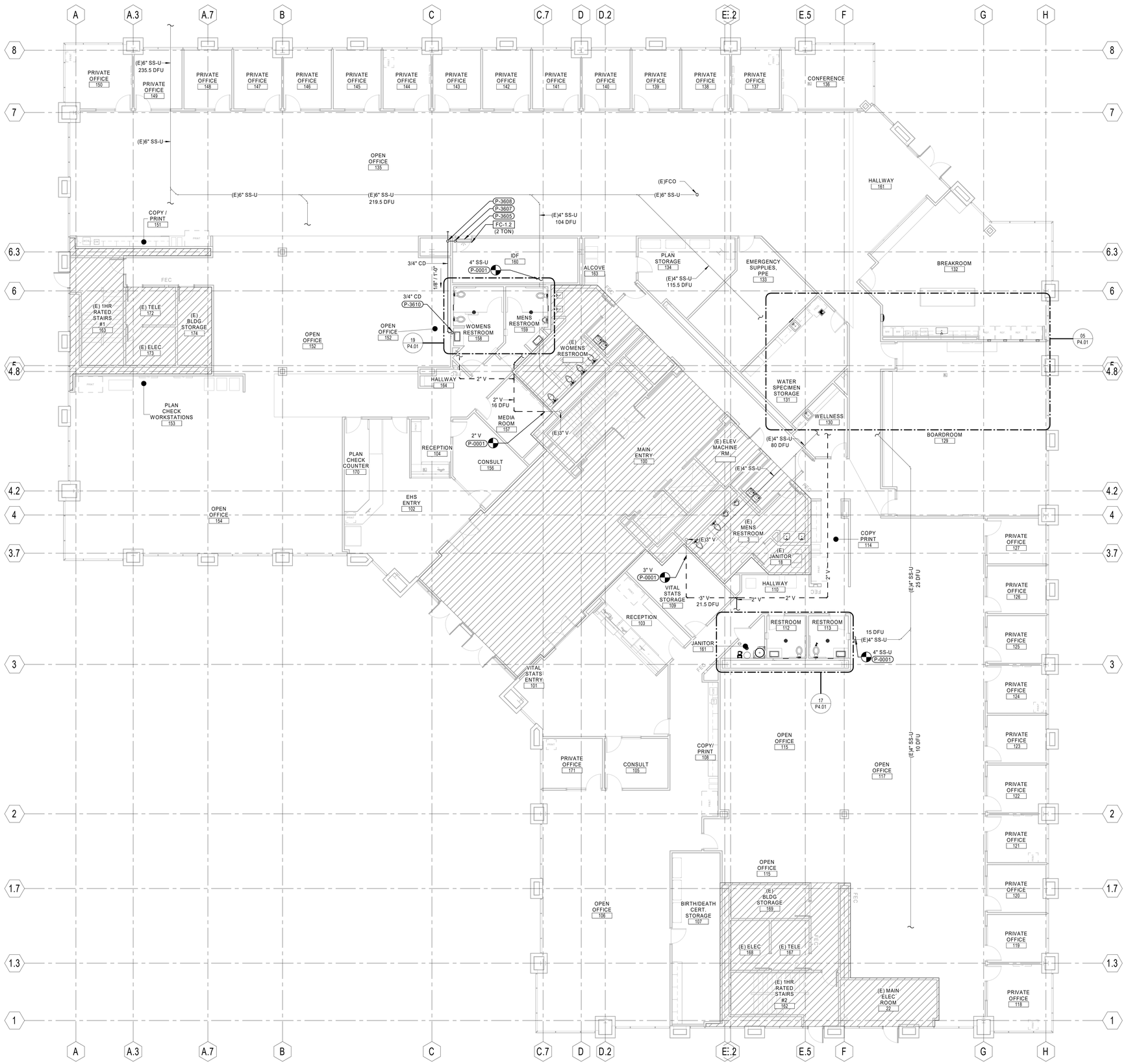
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| CITT SUBMITTAL | 08/22/2025 |

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|---|---|
| Job Number | 32468 |
| Checked By | Checker |
| Scale | 1/8" = 1'-0" |

PLUMBING DEMOLITION PLANS

P1.01




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| P-0001 | POINT OF CONNECTION. FIELD TO VERIFY EXISTING CONDITION. |
| P-3605 | CONDENSATE DRAIN CONNECTION TO MECHANICAL UNIT - PROVIDE CONDENSATE DRAIN PUMP ON UNIT AS REQUIRED - SEE MECHANICAL DRAWINGS FOR ADDITIONAL |
| P-3607 | ROUTE 1/2" PUMPED CONDENSATE DRAIN FROM FAN COIL UNIT UP TO ABOVE CEILING SPACE. |
| P-3608 | 1/2" PUMPED CONDENSATE DRAIN IN CEILING SPACE, DOWN TO CONNECT TO THE TOP QUADRANT OF GRAVITY FED CONDENSATE DRAIN - SIZE AS NOTED. |
| P-3610 | CONDENSATE DOWN IN WALL WITH INDIRECT WASTE CONNECTION TO LAVATORY TAILPIECE. SEE DETAIL 10/P7.01. |

## FLOOR PLAN LEGEND

- EXISTING STUD WALL CONSTRUCTION
- STUD WALL CONSTRUCTION
- NOT IN SCOPE OF WORK
- DENOTES MILLWORK

## GENERAL NOTES

1. REFER TO THE GENERAL NOTES SECTION OF SHEET P0.10 FOR OVERALL GENERAL NOTES REGARDING THIS PROJECT.
2. ALL PLUMBING WORK SHALL BE INSTALLED SO AS TO AVOID INTERFERENCE WITH ELECTRICAL AND MECHANICAL EQUIPMENT AND STRUCTURAL FRAMING.
3. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL ACCESS PANELS WITH ARCHITECTURAL PLANS, ARCHITECTURAL SECTIONS AND THE ELECTRICAL LIGHTING LAYOUT.
4. BEFORE FABRICATION OR INSTALLATION, THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT AND EQUIPMENT PROVIDED UNDER ANOTHER SECTION OF SPECIFICATIONS. EXACT ROUGH-IN LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED FIELD.
5. ALL EXISTING PIPING SHOWN FOR REFERENCE IS PER RECORD DOCUMENTS. CONTRACTOR TO VERIFY.

1 - FLOOR - PLUMBING DRAINAGE 1/8" = 1'-0" 05

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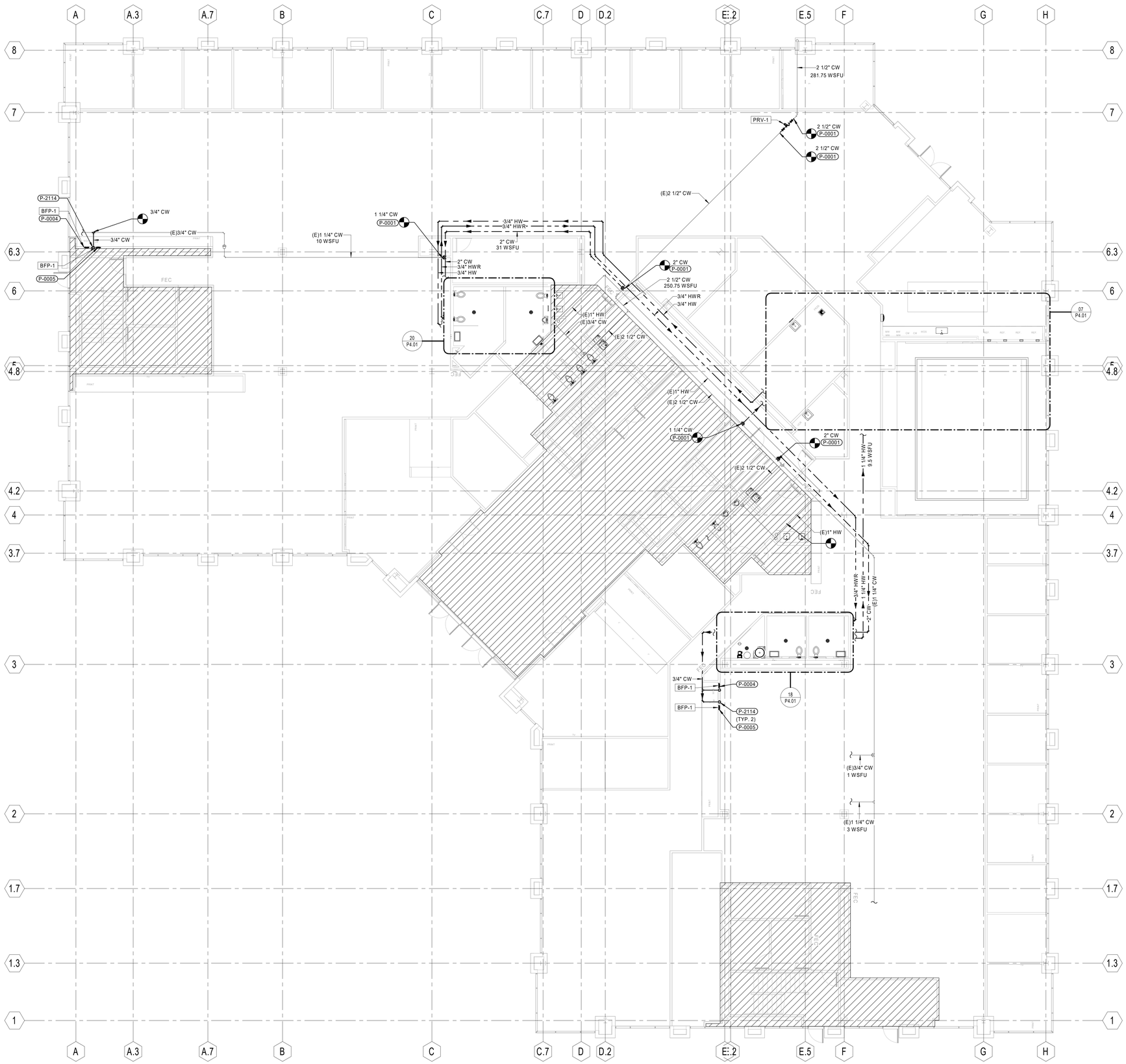
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| Job Number | 32468 |
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PLUMBING DRAINAGE PLANS

P2.01




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| P-0001 | POINT OF CONNECTION. FIELD TO VERIFY EXISTING CONDITION. |
| P-0004 | PROVIDE BFP-1 TO THE WATER DISPENSER EQUIPMENT. REFER TO INSTALLATION MANUAL FOR CONNECTION. |
| P-0005 | PROVIDE BFP-1 TO THE COFFEE MACHINE EQUIPMENT. REFER TO INSTALLATION MANUAL FOR CONNECTION. |
| P-2114 | 3/4" COLD WATER DOWN TO FIXTURE WITH SHUT-OFF VALVE ON DROP. ROUGH-IN AND CONNECT. |

## FLOOR PLAN LEGEND

- EXISTING STUD WALL CONSTRUCTION
- STUD WALL CONSTRUCTION
- NOT IN SCOPE OF WORK
- DENOTES MILLWORK

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4. BEFORE FABRICATION OR INSTALLATION, THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT AND EQUIPMENT PROVIDED UNDER ANOTHER SECTION OF SPECIFICATIONS. EXACT ROUGH-IN LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED FIELD.
5. ALL EXISTING PIPING SHOWN FOR REFERENCE IS PER RECORD DOCUMENTS. CONTRACTOR TO VERIFY.

1 - FLOOR - PLUMBING WATER 1/8" = 1'-0" 05

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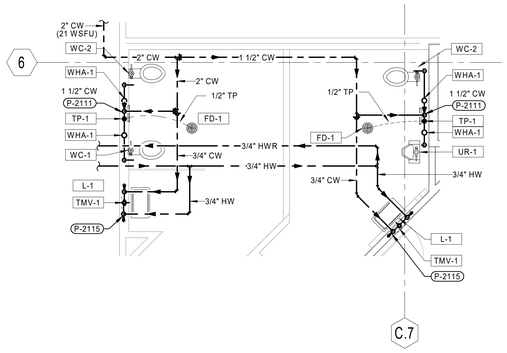
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| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 09/22/2025 |

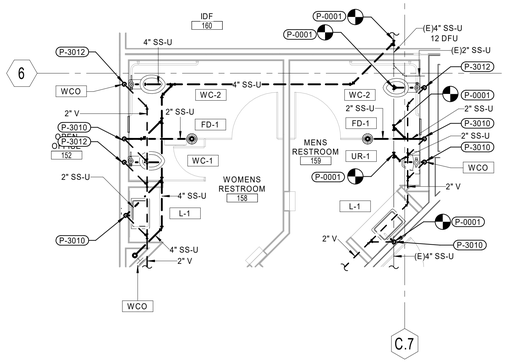
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|---|---|
| Job Number | 32468 |
| Checked By | Checker |
| Scale | 1/8" = 1'-0" |

PLUMBING DOMESTIC WATER PLANS

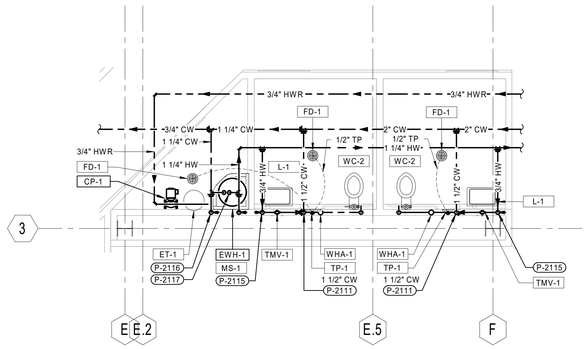
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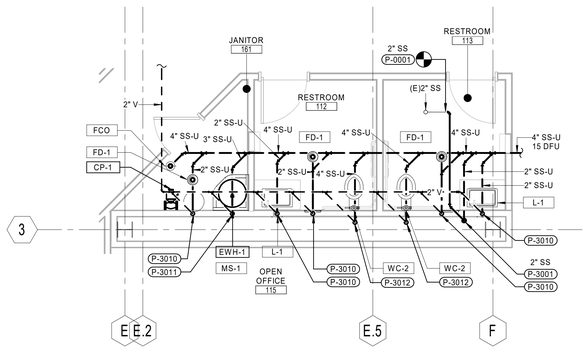

1 - ENLARGED - MEN AND WOMEN RESTROOM WATER | 1/4" = 1'-0" | 20



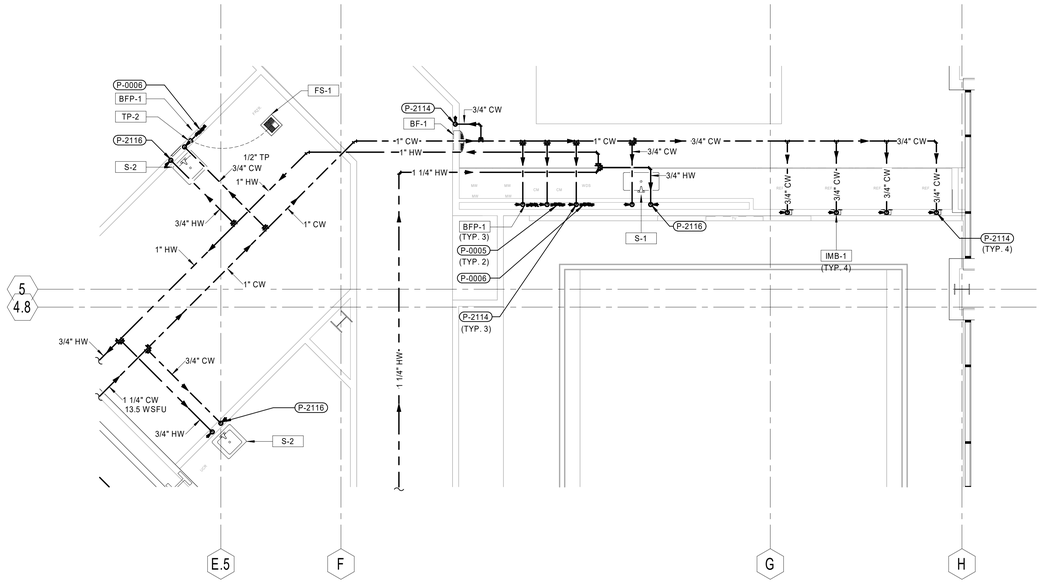

1 - ENLARGED - MEN AND WOMEN RESTROOM DRAINAGE | 1/4" = 1'-0" | 19



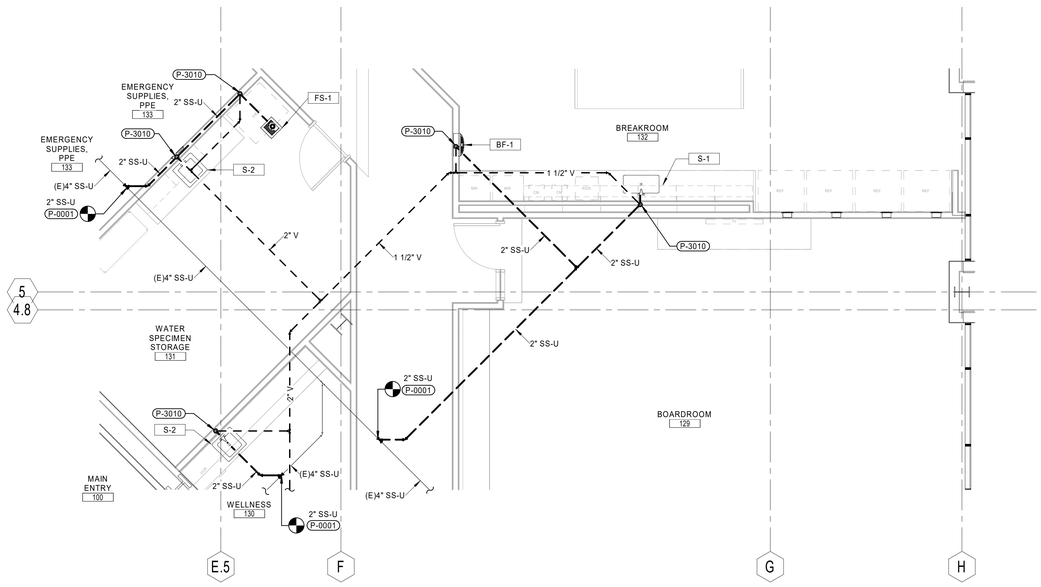

1 - ENLARGED - JANITOR WATER | 1/4" = 1'-0" | 18




1 - ENLARGED - JANITOR DRAINAGE | 1/4" = 1'-0" | 17




1 - ENLARGED - BREAKROOM WATER | 1/4" = 1'-0" | 07




1 - ENLARGED - BREAKROOM DRAINAGE | 1/4" = 1'-0" | 05

## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| P-0001 | POINT OF CONNECTION. FIELD TO VERIFY EXISTING CONDITION. |
| P-0005 | PROVIDE BFP-1 TO THE COFFEE MACHINE EQUIPMENT. REFER TO INSTALLATION MANUAL FOR CONNECTION. |
| P-0006 | PROVIDE BFP-1 TO THE FREEZER. REFER TO INSTALLATION MANUAL FOR CONNECTION. |
| P-2111 | COLD WATER DOWN IN WALL TO FULL SIZE HEADER WITH SHUT OFF VALVE BEHIND ACCESS PANEL. |
| P-2114 | 3/4" COLD WATER DOWN TO FIXTURE WITH SHUT-OFF VALVE ON DROP. ROUGH-IN AND CONNECT. |
| P-2115 | 3/4" COLD AND HOT WATER DOWN TO WITH SHUT-OFF VALVE ON DROP THERMOSTATIC MIXING VALVE. ROUTE TEMPERED WATER TO FIXTURE. |
| P-2116 | 3/4" COLD AND HOT WATER DOWN TO FIXTURE WITH SHUT-OFF VALVE ON DROP. ROUGH-IN AND CONNECT. |
| P-2117 | 1-1/4" COLD WATER DOWN TO ELECTRIC WATER HEATER WITH SHUT-OFF VALVE ON DROP. 1-1/4" HOT WATER UP TO CEILING ROUGH-IN AND CONNECT. |
| P-3001 | SANITARY SOIL/WASTE DOWN TO FLOOR BELOW. |
| P-3010 | 2" WASTE DOWN, 1-1/2" VENT UP. |
| P-3011 | 3" WASTE DOWN, 2" VENT UP. |
| P-3012 | 4" WASTE DOWN, 2" VENT UP. |

## FLOOR PLAN LEGEND

- EXISTING STUD WALL CONSTRUCTION
- STUD WALL CONSTRUCTION
- NOT IN SCOPE OF WORK
- DENOTES MILLWORK

## GENERAL NOTES

1. REFER TO THE GENERAL NOTES SECTION OF SHEET P0.10 FOR OVERALL GENERAL NOTES REGARDING THIS PROJECT.
2. ALL PLUMBING WORK SHALL BE INSTALLED SO AS TO AVOID INTERFERENCE WITH ELECTRICAL AND MECHANICAL EQUIPMENT AND STRUCTURAL FRAMING.
3. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL ACCESS PANELS WITH ARCHITECTURAL PLANS, ARCHITECTURAL SECTIONS AND THE ELECTRICAL LIGHTING LAYOUT.
4. BEFORE FABRICATION OR INSTALLATION, THE CONTRACTOR SHALL VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT AND EQUIPMENT PROVIDED UNDER ANOTHER SECTION OF SPECIFICATIONS. EXACT ROUGH-IN LOCATIONS AND REQUIREMENTS SHALL BE COORDINATED FIELD.
5. ALL EXISTING PIPING SHOWN FOR REFERENCE IS PER RECORD DOCUMENTS. CONTRACTOR TO VERIFY.

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Approved
By Maria Yepremian
04/06/2026
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DRAFT

DPH VANDERBILT-FIRE

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| 1 POC1 | 11/20/2025 |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 09/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | Checker |
| Scale | As indicated |

PLUMBING ENLARGED PLANS

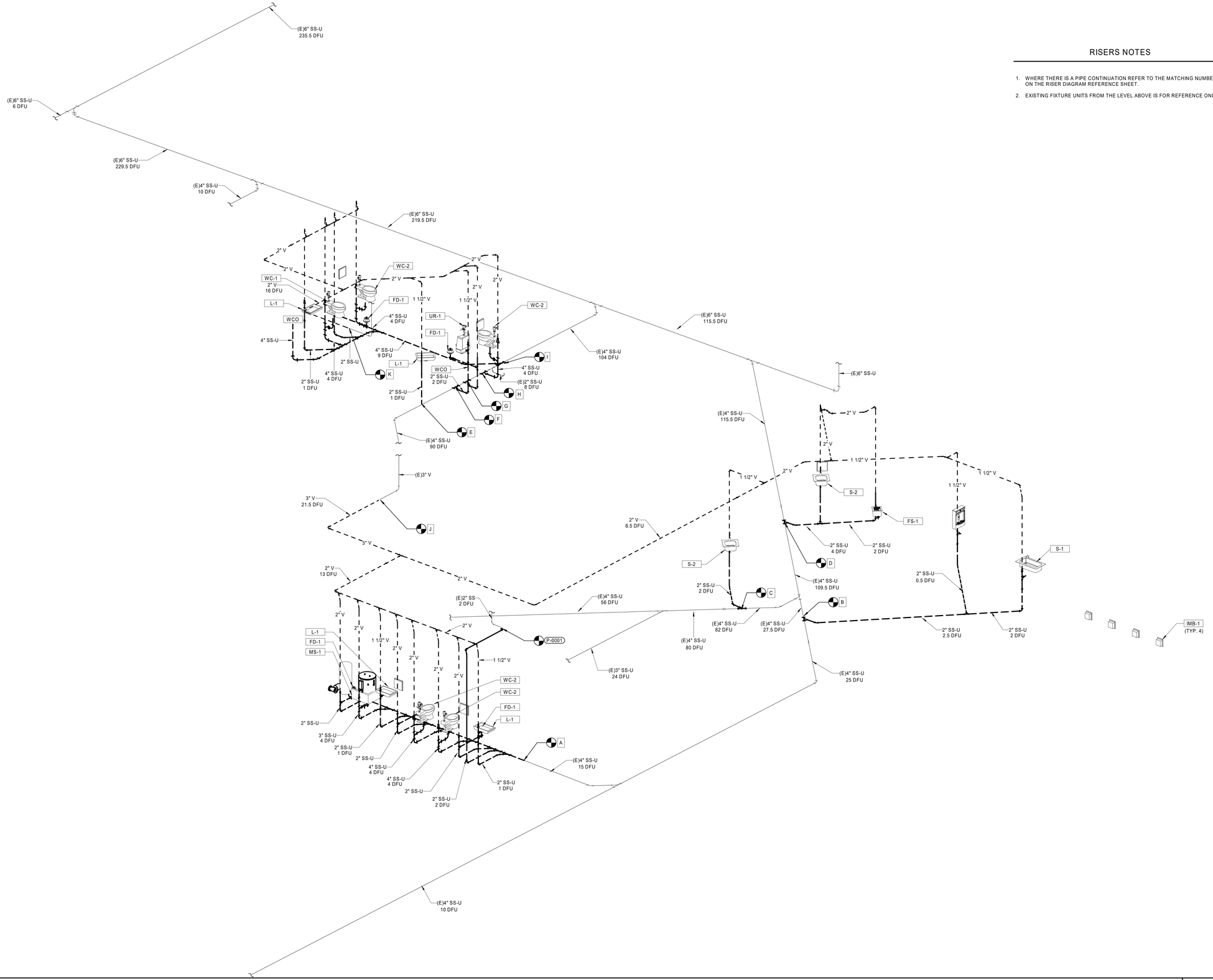
P4.01

## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| P-0001 | POINT OF CONNECTION. FIELD TO VERIFY EXISTING CONDITION. |

## RISERS NOTES

1. WHERE THERE IS A PIPE CONTINUATION REFER TO THE MATCHING NUMBER X ON THE RISER DIAGRAM REFERENCE SHEET.
2. EXISTING FIXTURE UNITS FROM THE LEVEL ABOVE IS FOR REFERENCE ONLY.





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Developed for
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| Revision | Date |
|---|---|
| 1 PCC1 | 11/20/2025 |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | Checker |
| Scale | 1/8" = 1'-0" |

PLUMBING SANITARY AND WASTE PIPING DIAGRAMS

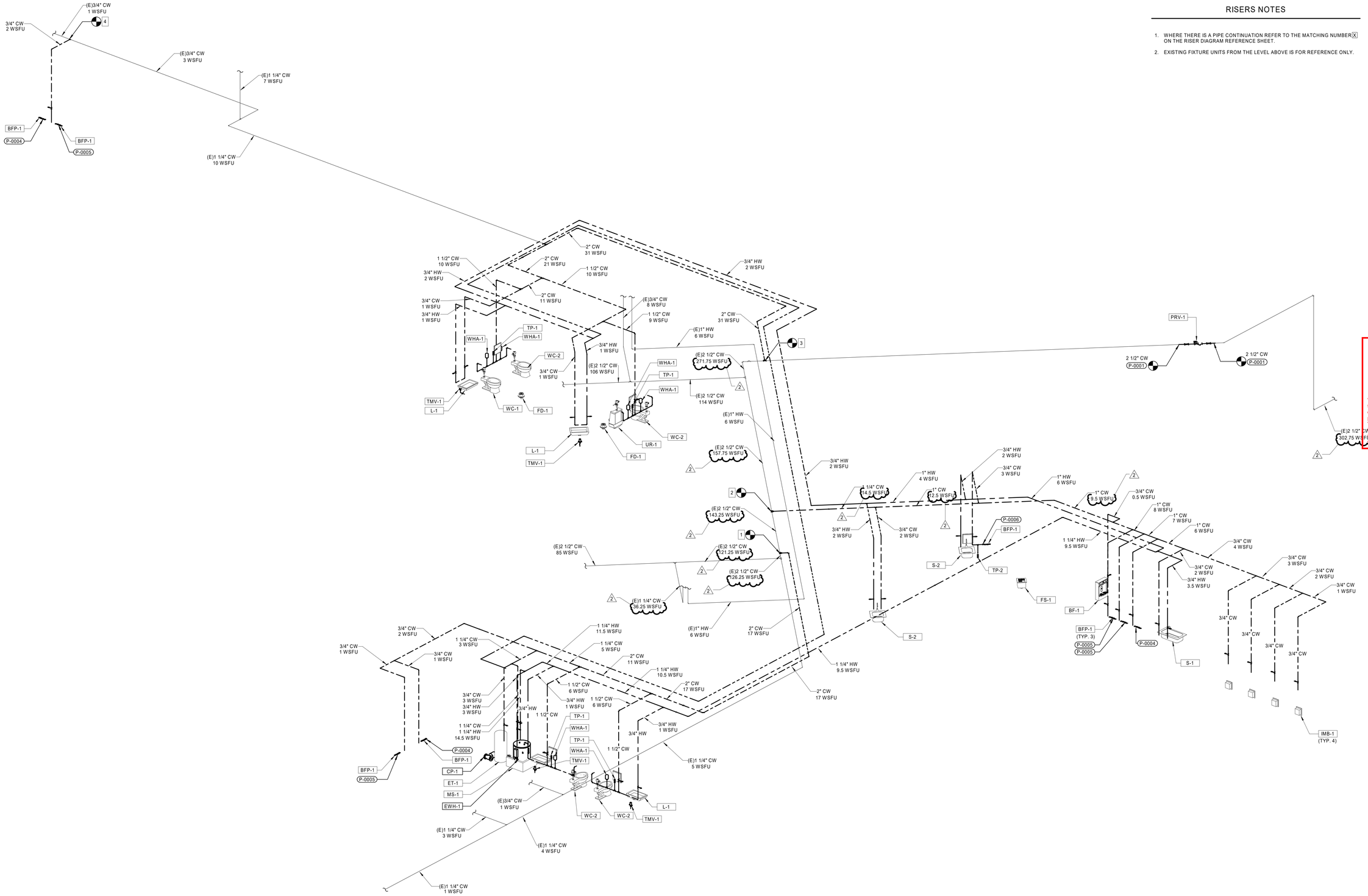
P5.01

## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| P-0001 | POINT OF CONNECTION. FIELD TO VERIFY EXISTING CONDITION. |
| P-0004 | PROVIDE BFP-1 TO THE WATER DISPENSER EQUIPMENT. REFER TO INSTALLATION MANUAL FOR CONNECTION. |
| P-0005 | PROVIDE BFP-1 TO THE COFFEE MACHINE EQUIPMENT. REFER TO INSTALLATION MANUAL FOR CONNECTION. |
| P-0006 | PROVIDE BFP-1 TO THE FREEZER. REFER TO INSTALLATION MANUAL FOR CONNECTION. |

## RISERS NOTES

1. WHERE THERE IS A PIPE CONTINUATION REFER TO THE MATCHING NUMBER X ON THE RISER DIAGRAM REFERENCE SHEET.
2. EXISTING FIXTURE UNITS FROM THE LEVEL ABOVE IS FOR REFERENCE ONLY.




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Approved
By Maria Yepremian
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| Revision | Date |
|---|---|
| 1 PCC1 | 11/20/2025 |
| 2 PCC2 | 03/27/2026 |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 09/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | Checker |
| Scale | 1/8" = 1'-0" |

PLUMBING DOMESTIC WATER PIPING DIAGRAMS

P5.02

## PLUMBING FIXTURE SCHEDULE

| ITEM | MANUFACTURER | MODEL NO. | FIXTURE TYPE | GPM/GPF | ROUGH-IN CONNECTION SIZES (in) | | | | MOUNT | HARDWARE TYPE | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | WASTE | VENT | COLD WATER | HOT WATER | | | |
| BF-1 | ELKAY | LBWDC00BKC | BOTTLE FILLER | | 2" | 1 1/2" | 3/4" | | WALL MOUNT | WATERSENTRY 51300C FILTER | Recessed Bottle Filling Station |
| BFP-1 | WATTS | 4A-104-A2F | BACKFLOW PREVENTER | | | | 3/4" | | | | ASSE 1022 LEAD-FREE DOUBLE ACHECK VALVE "A SERIES", TOP ACCESS MODULAR CHECK VALVE CARTRIDGES, PROVIDE CAPTURED SPRINGS, REPLACEABLE SEATS AND REVERSIBLE SILICONE SEAT DISCS, BALL VALVE SHUT-OFF'S WITH STAINLESS STEEL HANDLES & NUTS. |
| ET-1 | WILKINS | XT-8 | THERMAL EXPANSION TANK | | | | 3/4" | | WALL MOUNT | MAPA PRODUCTS MODEL No. MXC-8 EXPANSION TANK CAGE. | BLADDER TYPE, WELDED HIGH GRADE STEEL SHELL WITH EXTERIOR COATING, SHRADER VALVE W/ ADJUSTABLE AIR PRECHARGE, AND LEAD FREE BRONZE SYSTEM CONNECTION. COMPLETE W/ EXPANSION TANK CAGE. |
| FCO | ZURN | Z1400-BZ1 | FLOOR CLEANOUT | | | | | | FLOOR MOUNT | | DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, WITH GAS AND WATER TIGHT THREADED ABS TAPERED PLUG, AND TOP ASSEMBLY. LIGHT DUTY SCORIATED COVER WITH ROUGH-IN COVER FOR PROTECTION DURING CONCRETE POUR. |
| FD-1 | ZURN | Z415S | FLOOR DRAIN, SQUARE STRAINER | | 2" | 1 1/2" | | | FLOOR MOUNT | | FLOOR DRAIN WITH 2" OUTLET, DURA-COATED CAST IRON DRAIN BODY WITH FLASHING COLLAR AND 5" SQUARE NICKEL-BRONZE ADJUSTABLE STRAINER WITH 1/2" TRAP SEAL PRIMER CONNECTION. |
| FS-1 | ZURN | Z1900 | FLOOR SINK | | 2" | 1 1/2" | | | FLOOR MOUNT | | SANI-FLOOR RECEPTOR 12"x12"x6" DEEP CAST IRON BODY AND SQUARE, LIGHT-DUTY GRATE WITH 1/2" SLOTTED OPENINGS, WHITE ACID RESISTANT PORCELAIN ENAMEL COATED INTERIOR & TOP, COMPLETE WITH WHITE ABS ANTI-SPLASH INTERIOR BOTTOM DOME STRAINER. |
| IMB-1 | GUY GRAY | MIB1AB | ICE MAKER SUPLY BOX, FIRE RATED | | | | 3/4" | | WALL MOUNT | | WHITE POWER COATED METAL ICE MAKER OUTLET BOX 1/4 TURN VALVE - 1/2" SWEAT CONX, RECESSED WALL TYPE. INSTALL IN ACCORDANCE WITH MFR'S RECOMMENDATIONS. |
| L-1 | TOTO | LT191(G) | LAVATORY, UNDERMOUNT ADA | 0.5 | 2" | 1 1/2" | 3/4" | 3/4" | COUNTER, UNDERMOUNT | SLOAN EBF-187 - BATTERY SENSOR FAUCET | UNDERMOUNT LAVATORY, ADA COMPLIANT, WHITE VITREOUS CHINA W/ OVERFLOW, COMPLETE W/ CHROME FINISH DECK MOUNTED FAUCET WITH 4" CENTERS AND COVER PLATE, McGUIRE MODEL No. 155A 1-1/4" CAST BRASS CHROME PLATED OPEN GRID P.O. PLUG, McGUIRE "PROWRAP VANDAL TRAP" MODEL No. PWV8090NC0 1-1/4" L.A. PATTERN P-TRAP WITH PRE-WRAPPED TRAP AND SUPPLY COVERS, GALVANIZED NIPPLE TRAP ARM W/ CHROMIUM PLATED BRASS CASING, CHICAGO "ECAST" MODEL No. 1017-ABCP LOOSE KEY STOPS WITH RIGID SUPPLIES. INSTALL IN ACCORDANCE WITH ADA ACCESSIBILITY REQUIREMENTS. |
| MS-1 | KOHLER | K-6710 | SERVICE SINK - CORNER | | 3" | 2" | 3/4" | 3/4" | FLOOR MOUNT | T&S BRASS B-0665-BSTR | SERVICE SINK, ACID RESISTANT ENAMELED CAST IRON, CORNER FLOOR MOUNTED, 28" X 28" X 8" DEEP, COMPLETE W/ CHROME FINISH WALL MOUNTED FAUCET W/ VACUUM BREAKER, W/ BUILT-IN SHUT-OFF STOPS, WALL BRACE, PAIL HOOK, AND 3/4" MALE HOSE THREAD OUTLET, KOHLER MODEL No. K-8940 COATED WIRE RIM GUARD & HOSE, & 3" DIAMETER DRAIN WITH FLAT CHROME STRAINER. |
| PRV-1 | WILKINS | 2-1/2" 500XL3 | PRESSURE REDUCING VALVE | | | | 2 1/2" | | INLINE / PIPE MOUNT | ZURN 1-500XL3BPK BY-PASS KIT- ZURN "Y" STRAINER | 2-1/2" BALANCED PISTON TYPE WATER PRESSURE REDUCING VALVE WITH DIRECT ACTING INTEGRAL BY-PASS, AND CHECK VALVE. 400 PSI MAXIMUM PRESSURE RATING, FACTORY SET AT 50 PSI, FIELD RESET TO 80 PSI, FLANGED CONNECTIONS, COMPLETE W/ BRONZE "Y" STRAINER W/ 20 MESH STAINLESS STEEL SCREEN, GATE VALVES, CHECK VALVE AND UNIONS. |
| S-1 | ELKAY | LRAD312255 | SINGLE BOWLSINK | 1.5 | 2" | 1 1/2" | 3/4" | 3/4" | COUNTER, UNDERMOUNT | KOHLER K-22972 | ADA SINGLE COMPARTMENT, 18 GAUGE TYPE 304 STAINLESS STEEL, COMPLETE W/ DECK MOUNTED FAUCET, INSINKERATOR "BADGER 1" GARBAGE DISPOSAL, McGUIRE MODEL No. 151 BRASS BASKET STRAINER, McGUIRE MODEL No. PW8089NC0 1-1/2" L.A. PATTERN P-TRAP WITH PRE-WRAPPED TRAP AND SUPPLY COVERS, GALVANIZED NIPPLE TRAP ARM W/ CHROMIUM PLATED BRASS CASING, & CHICAGO "ECAST" MODEL No. 1017-ABCP LOOSE KEY STOPS WITH RIGID SUPPLIES, CALIF AB 1953 COMPLIANT. INSTALL IN ACCORDANCE WITH ADA ACCESSIBILITY REQUIREMENTS. |
| S-2 | ELKAY | LRAD221955 | SINGLE COMP. STAINLESS SINK | 1.5 | 2" | 1 1/2" | 3/4" | 3/4" | COUNTER, UNDERMOUNT | SLOAN EAF-750-BAT-ISM-CP-1.5GPM-LAM -IR-IQ-FCT | NEW SINGLE BOWL UNDERMOUNT ADA SINK,STAINLESS STEEL SIZE: 21 1/2" X 18 1/2" X 5 3/8", McGUIRE MODEL No. 151 BRASS BASKET STRAINER, McGUIRE MODEL No. PW8089NC0 1-1/2" L.A. PATTERN P-TRAP WITH PRE-WRAPPED TRAP AND SUPPLY COVERS, GALVANIZED NIPPLE TRAP ARM W/ CHROMIUM PLATED BRASS CASING |
| TMV-1 | LEONARD VALVE | 270-LF-BRKT | POINT OF USE THERMOSTATIC MIXING VALVE | | | | 3/4" | 3/4" | WALL MOUNT | | ASSE-1070 POINT OF USE THERMOSTATIC MIXING VAVLE WITH INTEGRAL CHECK VALVES ON HOT AND COLD INLETS, 1/2" INLETS & 1/2" OUTLET, 0.25 GPM MIN FLOW CAPACITY, 12 GPM MAX FLOW CAPACITY, INSTALL WITH SHUT OFF VALVES AND WALL MOUNTING BRACKET. SET OUTPUT TEMPERATURE TO 105 DEGREES. |
| TP-1 | PPP | PR-500 | TRAP PRIMER | | | | 3/4" | | WALL MOUNT | | PRESSURE DROP ACTIVATED (3 psi), 1/2" MALE NPT INLET AND 1/2" FEMALE NPT OUTLET & STAINLESS STELL MESH SCREEN. INSTALL COMPLETE W/ WALL ACCESS PANEL, SHUT-OFF VALVE, & 1/2" TYPE "L" COPPER DRAIN LINE FROM TRAP SEAL PRIMER OUTLET TO RECEPTOR CONNECTION POINT. SERVES UP TO 2 FLOOR DRAIN TRAPS. |
| TP-2 | PPP | PRO1-500 | TRAP PRIMER | | | | 3/4" | | WALL MOUNT | | FLOW ACTIVATED (0.25 GPM), 1/2" MALE NPT INLET AND 1/2" FEMALE NPT OUTLET. INSTALL COMPLETE W/ WALL ACCESS PANEL, SHUT-OFF VALVE, & 1/2" TYPE "L" COPPER DRAIN LINE FROM TRAP SEAL PRIMER OUTLET TO RECEPTOR CONNECTION POINT. SERVES UP TO 2 FLOOR DRAIN TRAPS. |
| UR-1 | KOHLER | K-4991-ET | URINAL, ADA | 0.125 | 2" | 1 1/2" | 3/4" | | WALL MOUNT | SLOAN 186 SFSM-0.125-TMO | WALL MOUNTED, WHITE VITREOUS CHINA URINAL, WASHOUT ACTION, COMPLETE W/ BATTERY SENSOR ACTUATION FLUSHOMETER VALVE, & MIFAB MODEL No. MC-32 CARRIER. INSTALL IN ACCORDANCE WITH ADA ACCESSIBILITY REQUIREMENTS. |
| WC-1 | KOHLER | K-96053 - WELLCOMME | WATER CLOSET | 1.28 | 4" | 2" | 1" | | FLOOR MOUNT | SLOAN ROYAL 111 SFSM-1.28-TMO | WATER CLOSET, SIPHON JET ACTION, ELONGATED BOWL, WHITE VITREOUS CHINA, COMPLETE W/ BATTERY SENSOR ACTUATION FLUSHOMETER VALVE WITH TRUE MECHANICAL OVERRIDE, & OLSONITE MODEL No. 95SSCT "STA-TITE" (AS MANUFACTURED BY BEMIS) WHITE ELONGATED OPEN FRONT SEAT LESS COVER W/ STAINLESS STEEL CHECK HINGE. |
| WC-2 | KOHLER | K-96057 - HIGHCLIFF | WATER CLOSET, ADA | 1.28 | 4" | 2" | 1" | | FLOOR MOUNT | SLOAN ROYAL 111 SFSM-1.28-TMO | WATER CLOSET (ADA COMPLIANT), SIPHON JET ACTION, ELONGATED BOWL, WHITE VITREOUS CHINA, COMPLETE W/ BATTERY SENSOR ACTUATION FLUSHOMETER VALVE WITH TRUE MECHANICAL OVERRIDE, & OLSONITE MODEL No. 95SSCT "STA-TITE" (AS MANUFACTURED BY BEMIS) WHITE ELONGATED OPEN FRONT SEAT LESS COVER W/ STAINLESS STEEL CHECK HINGE. INSTALL IN ACCORDANCE WITH ADA ACCESSIBILITY REQUIREMENTS. |
| WCO | ZURN | Z1446 | WALL CLEANOUT | | | | | | WALL MOUNT | | WALL CLEANOUT, DURA-COATED CAST IRON BODY WITH GAS & WATER TIGHT ABS TAPERED THREAD PLUG, AND ROUND, SMOOTH STAINLESS STEEL ACCESS COVER WITH SECURING SCREW. SEE PLANS FOR SIZE. |
| WHA-1 | PPP | SC SERIES | WATER HAMMER ARRESTOR | | | | 3/4" | | WALL MOUNT | | PISTON OPERATED WATER HAMMER ARRESTOR, HARD DRAWN SEAMLESS TYPE "K" COPPER BODY, MPT BRASS CONNECTION. INSTALL COMPLETE W/ WALL ACCESS PANEL. WATER HAMMER ARRESTORS SHALL BE SIZED IN ACCORDANCE W/ MFR'S SIZING CRITERIA PER FIXTURE UNIT CAPACITY SERVED AT EACH LOCATION/OCCURRANCE. |

## ELECTRIC WATER HEATER SCHEDULE

| ITEM | MANUFACTURER | MODEL NO. | LOCATION | STORAGE CAPACITY (GAL.) | INCOMING CW TEMP (DEG. F.) | OUTGOING HW TEMP (DEG. F.) | TEMP RISE (DEG. F.) | RECOVERY (GAL/HR) | OPERATING WEIGHT (LBS) | ELECTRICAL | | | | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | VOLTAGE | AMPS | PHASE | kW | |
| EWH-1 | A.O. SMITH | DEL-30 | JAN. 161 | 30 | 60 | 140 | 80 | 51 | 350 | 208 V | | 3 | 10 | COMMERCIAL ELECTRIC TANK TYPE WATER HEATER WITH DRAIN PAN. MOUNT ON HOLDRITE QUICK STAND WATER HEATER STAND, DRAIN TO MOP SINK. |

## CIRCULATING PUMP SCHEDULE

| ITEM | MANUFACTURER | MODEL NO. | LOCATION | TYPE | CAPACITY | | ELECTRICAL | | | | | | OPERATING WEIGHT (LBS) | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | GPM | HEAD | VOLTAGE | AMPS | PHASE | kW | HP | RPM | | |
| CP-1 | GRUNDFOS | UPS 26-99 FC | JAN. 161 | | 0.377 | 24 | 115 V | | 1 | | 0.2012 | | 10.2 | DOMESTIC HOT WATER CIRCULATION PUMP |

## PIPE MATERIALS SCHEDULE

| SERVICES | LOCATION | MATERIAL |
|---|---|---|
| DOMESTIC WATER | COLD WATER | HARD COPPER TUBE, ASTM B88, TYPE L WATER TUBE, DRAWN TEMPER. WROUGHT-COPPER SOLDER-JOINT FITTINGS (VIEGA PRESS FITTINGS ARE AN ACCEPTABLE SUBSTITUTION FOR SOLDER JOINTS), ASME B16.22, WROUGHT-COPPER PRESSURE FITTINGS. |
| | BELOW FLOOR | SOFT COPPER TUBE, ASTM B88, TYPE K WATER TUBE, ANNEALED TEMPER. COPPER SOLDER-JOINT FITTINGS, ASME B16.22, WROUGHT-COPPER PRESSURE FITTINGS. ENCASE WITHIN A HIGH DENSITY CROSS LAMINATED POLYETHYLENE FILM, MINIMUM 10 MIL THICK, TUBE FORM, ASTM 1674 OR AWWA C105, FOR PROTECTION AGAINST CORROSION. |
| | HOT WATER | SAME AS COLD WATER ABOVE COMPLETE WITH 1" THICK ONE-PIECE PRE-FORMED GLASS FIBER MOLDED PIPE INSULATION WITH ALL PURPOSE FIRE RETARDANT VAPOR BARRIER JACKET FOR 3/4" DIAMETER PIPES AND SMALLER, 1-1/2" THICK INSULATION FOR 1" TO 1-1/2" DIAMETER PIPES AND 2" THICK INSULATION FOR 2" DIAMETER PIPES AND LARGER. (VIEGA PRO PRESS FITTINGS ARE AN ACCEPTABLE SUBSTITUTION FOR SOLDER JOINTS). |
| CONDENSATE DRAIN | ON ROOF | HARD DRAWN COPPER DWV TUBE, ASTM B 306, DRAINAGE TUBE, DRAWN TEMPER. COPPER DRAINAGE DWV FITTINGS, ASME B16.23, CAST COPPER OR ASME B16.29, WROUGHT COPPER, SOLDER-JOINT FITTINGS. |
| | WITHIN BUILDING | SAME AS ABOVE EXCEPT WITH 1-INCH THICK FLEXIBLE ELASTOMERIC, COMPLYING WITH ASTM C534/C534M GRADE 1; USE TUBULAR MATERIAL WHEREVER POSSIBLE. |
| SANITARY WASTE | ABOVE FLOOR | HUBLESS CAST IRON PIPE AND FITTINGS, ASTM A 888 OR CISPI 301, SHIELDED COUPLINGS ASTM C 1540, HEAVY-DUTY, 4-BAND SHIELDED, STAINLESS-STEEL COUPLINGS AND ASTM C 564 RUBBER SLEEVE. |
| | BELOW FLOOR | SAME AS ABOVE ENCASED WITHIN A MINIMUM OF 10 MIL POLYETHYLENE PLASTIC SLEEVE SEALED WATER TIGHT WITH POLYVINYL CHLORIDE TAPE. |
| SANITARY VENT | ABOVE FLOOR | HUBLESS CAST IRON PIPE AND FITTINGS, ASTM A 888 OR CISPI 301, SHIELDED COUPLINGS ASTM C 1277, STANDARD-DUTY, 2-BAND SHIELDED, STAINLESS-STEEL COUPLINGS AND ASTM C 564 RUBBER SLEEVE. |
| | BELOW FLOOR | SAME AS ABOVE ENCASED WITHIN A MINIMUM OF 10 MIL POLYETHYLENE PLASTIC SLEEVE SEALED WATER TIGHT WITH POLYVINYL CHLORIDE TAPE. |

NOTES:
1. ALL BRAZED AND SOLDERED JOINTS SHALL BE LEAD FREE. EXPOSED VENT PIPE SHALL BE GALVANIZED PER SPECIFICATIONS.
2. ALL METALLIC PIPING BELOW GRADE SHALL BE ENCASED WITH 10 MIL MINIMUM POLYETHYLENE PLASTIC SLEEVE. ALL FITTINGS, VALVES, ETC. THAT ARE NOT ABLE TO BE ENCASED WITHIN SLEEVE SHALL PROVIDE HEAVY OF "HENRY'S" OIL BASE ROOF MASTIC OVER ENTIRE SURFACE AND WRAPPED ENTIRE COMPONENT BY 10 MIL FERGUSON POLYETHYLENE WRAP WITH OVERLAPPED 50% OF THE CIRCUMFERENCE. SECURE ENDS AND SEAMS BY 3M SCOTCH, 10 MIL, 2" WIDE PIPE WRAP SEALING TAPE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

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REGISTERED PROFESSIONAL ENGINEER WILLIAM M. MUTH EXP. 6/30/2027 MECHANICAL STATE OF CALIFORNIA

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DRAFT

DPH VANDERBILT-FIRST

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| 1 POC1 | 11/20/2025 |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | LPA |
| Scale | |

PLUMBING SCHEDULES

P6.01

## DOMESTIC WATER GPM LOAD CALCULATION (CPC TABLE A 103.1)

| FIXTURE TYPE (PUBLIC) | QUA. | X | DWSFU | DFU | WSFU SUB-TOTAL | DFU SUB-TOTAL |
|---|---|---|---|---|---|---|
| WATER CLOSET, 1.28 GPF F.V. | 5 | X | 5.0 | 4.0 | 25.0 | 20.0 |
| URINAL, 0.125 GPF F.V. | 1 | X | 4.0 | 2.0 | 4.0 | 2.0 |
| LAVATORY | 4 | X | 1.0 | 1.0 | 4.0 | 4.0 |
| MOP BASIN | 1 | X | 3.0 | 3.0 | 3.0 | 3.0 |
| HOSE BIBB | 0 | X | 2.5 | 0.0 | 0.0 | 0.0 |
| HOSE BIBB, EACH ADDITIONAL | 0 | X | 1.0 | 0.0 | 0.0 | 0.0 |
| BOTTLE FILLER | 1 | X | 0.5 | 0.5 | 0.5 | 0.5 |
| ICE MACHINE | 5 | X | 1.0 | 0.0 | 5.0 | 0.0 |
| ... | 0 | X | 0.0 | 0.0 | 0.0 | 0.0 |
| SINK | 3 | X | 2.0 | 2.0 | 6.0 | 6.0 |
| COFFEE MAKER | 4 | X | 1.0 | 0.0 | 4.0 | 0.0 |
| WATER DISPENSER | 3 | X | 1.0 | 0.0 | 3.0 | 0.0 |
| FLOOR SINK | 1 | X | 0.0 | 2.0 | 0.0 | 2.0 |
| EXISTING FIXTURES | 1 | X | 248.3 | 196.0 | 248.25 | 196.0 |
| TOTAL FIXTURE UNITS | | | | = | 302.75 | 233.5 |
| CONVERT TO GPM | | | | = | 110 | - |

GPM Calculations based on Flush Valves

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| STREET PRESSURE | STATIC | 93 | PSI | RESIDUAL | 83 | PSI | TEST DATE | 8/30/2025 |
| METER INFO | SIZE | 2 | IN | PIPE MATERIAL | COPPER | | | |
| PRV | REQUIR... | Y | SET PRESSURE | 76 | PSI | | | |

## DOMESTIC COLD WATER PRESSURE CALCULATION - BUILDING SIDE OF PRV

| INFORMATION NEEDED FOR WATER SERVICE SIZING | | |
|---|---|---|
| BUILDING WATER DEMAND | 110 | GPM |
| SIZE OF WATER SERVICE (DIAMETER) | 2.5 | IN |
| DIFFERENCE IN ELEVATION FROM MAIN TO BUILDING INLET | -0.5 | FT |
| DIFFERENCE IN ELEVATION FROM PRV ELEVATION TO CONTROLLING FIXTURE | 55 | FT |
| DEVELOPED LENGTH OF WATER SERVICE FROM MAIN TO BUILDING (SITE WATER) | 50 | FT |
| FLOW RATE IN WATER SERVICE MAIN TO BUILDING INLET (SITE WATER) | 110 | GPM |
| STATIC PRESSURE AT STREET MAIN | 93 | PSI |
| PRESSURE AVAILABLE AT BUILDING INLET | | |
| PRESSURE LOSS DUE TO FRICTION IN A 2.5-INCH DIAMETER SERVICE | -2 | PSI |
| PRESSURE GAIN/LOSS DUE TO ELEVATION, MAIN TO BUILDING | 0 | PSI |
| PRESSURE LOSS THROUGH EXISTING METER (PER SITE GPM) | -1.5 | PSI |
| PRESSURE LOSS THROUGH ADDITIONAL EQUIPMENT | -9 | PSI |
| TOTAL PRESSURE AT BUILDING INLET (OVER 80 REQUIRES PRV) | 80.5 | PSI |
| WATER DISTRIBUTION SIZING | | |
| PRESSURE REDUCING VALVE SET POINT | 76 | |
| PRESSURE REQUIRED AT CONTROLLING FIXTURE - (E) MECH MAKE UP WATER ON ROOF | - 24 | PSI |
| PRESSURE LOSS DUE TO ELEVATION, BUILDING INLET TO CONTROLLING FIXTURE | - 24 | PSI |
| PRESSURE LOSS THROUGH ADDITIONAL EQUIPMENT (PRV, MV, BFP OR OTHER) | - 3.7 | PSI |
| PRESSURE AVAILABLE FOR PIPE SIZING | 24.3 | PSI |
| DEVELOPED LENGTH OF HORIZONTAL WATER PIPING WITHIN THE BUILDING | 306 | FT |
| PRSSURE AVAILABLE FOR UNIFORM LOSS | 7.9 | PSI/100FT |
| PRESSURE SELECTED FOR UNIFORM LOSS | 5 | PSI/100FT |

## DOMESTIC COLD WATER PIPE SIZING (PER CPC TABLE A-2 & CHART A-4)

FRICTION LOSS 5 PSI PER 100 FEET, MAXIMUM VELOCITY OF 8 FEET/SECOND

| PIPE SIZE (IN) | GPM | FU (FT) | FU (FV) | VELOCITY (FT/S) |
|---|---|---|---|---|
| 1/2 | 2 | 1 | 0 | 2.8 |
| 3/4 | 6 | 7 | 0 | 4 |
| 1 | 13 | 18 | 0 | 5.1 |
| 1 1/4 | 22 | 34 | 5 | 5.6 |
| 1 1/2 | 35 | 66 | 20 | 6.3 |
| 2 | 74 | 245 | 124 | 7.7 |
| 2 1/2 | 115 | 455 | 329 | 7.7 |
| 3 | 165 | 719 | 666 | 7.8 |
| 4 | 290 | 1668 | 1668 | 7.8 |

## DOMESTIC HOT WATER PIPE SIZING (PER CPC TABLE A-2 & CHART A-4)

FRICTION LOSS 7.9 PSI PER 100 FEET, MAXIMUM VELOCITY OF 5 FEET/SECOND

| PIPE SIZE (IN) | GPM | FU (FT) | FU (FV) | VELOCITY (FT/S) |
|---|---|---|---|---|
| 1/2 | 2 | 1 | - | 3.3 |
| 3/4 | 6 | 7 | - | 4.4 |
| 1 | 12 | 16 | - | 4.9 |
| 1 1/4 | 19 | 28 | - | 5 |
| 1 1/2 | 27 | 46 | - | 4.9 |
| 2 | 48 | 119 | - | 4.9 |
| 2 1/2 | 74 | 245 | - | 4.8 |
| 3 | 105 | 406 | - | 4.8 |
| 4 | 185 | 840 | - | 4.7 |

## DOMESTIC WATER GPM LOAD CALCULATION (CPC TABLE A 103.1)

| FIXTURE TYPE (PUBLIC) | QUA. | X | DWSFU | DFU | WSFU SUB-TOTAL | DFU SUB-TOTAL |
|---|---|---|---|---|---|---|
| WATER CLOSET, 1.28 GPF F.V. | 5 | X | 5.0 | 4.0 | 25.0 | 20.0 |
| URINAL, 0.125 GPF F.V. | 1 | X | 4.0 | 2.0 | 4.0 | 2.0 |
| LAVATORY | 4 | X | 1.0 | 1.0 | 4.0 | 4.0 |
| MOP BASIN | 1 | X | 3.0 | 3.0 | 3.0 | 3.0 |
| HOSE BIBB | 0 | X | 2.5 | 0.0 | 0.0 | 0.0 |
| HOSE BIBB, EACH ADDITIONAL | 0 | X | 1.0 | 0.0 | 0.0 | 0.0 |
| BOTTLE FILLER | 1 | X | 0.5 | 0.5 | 0.5 | 0.5 |
| ICE MACHINE | 5 | X | 1.0 | 0.0 | 5.0 | 0.0 |
| ... | 0 | X | 0.0 | 0.0 | 0.0 | 0.0 |
| SINK | 3 | X | 2.0 | 2.0 | 6.0 | 6.0 |
| COFFEE MAKER | 4 | X | 1.0 | 0.0 | 4.0 | 0.0 |
| WATER DISPENSER | 3 | X | 1.0 | 0.0 | 3.0 | 0.0 |
| FLOOR SINK | 1 | X | 0.0 | 2.0 | 0.0 | 2.0 |
| EXISTING FIXTURES | 1 | X | 248.3 | 196.0 | 248.25 | 196.0 |
| TOTAL FIXTURE UNITS | | | | = | 302.75 | 233.5 |
| CONVERT TO GPM | | | | = | 110 | - |

GPM Calculations based on Flush Valves

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| STREET PRESSURE | STATIC | 93 | PSI | RESIDUAL | 83 | PSI | TEST DATE | 8/30/2025 |
| METER INFO | SIZE | 2 | IN | PIPE MATERIAL | COPPER | | | |
| PRV | REQUIR... | Y | SET PRESSURE | 76 | PSI | | | |

## DOMESTIC COLD WATER PRESSURE CALCULATION - SITE PIPING VERIFICATION

| INFORMATION NEEDED FOR WATER SERVICE SIZING | | |
|---|---|---|
| BUILDING WATER DEMAND | 110 | GPM |
| SIZE OF WATER SERVICE (DIAMETER) | 2.5 | IN |
| DIFFERENCE IN ELEVATION FROM MAIN TO BUILDING INLET | -0.5 | FT |
| DIFFERENCE IN ELEVATION FROM PRV ELEVATION TO CONTROLLING FIXTURE | 65 | FT |
| DEVELOPED LENGTH OF WATER SERVICE FROM MAIN TO BUILDING (SITE WATER) | 50 | FT |
| FLOW RATE IN WATER SERVICE MAIN TO BUILDING INLET (SITE WATER) | 110 | GPM |
| STATIC PRESSURE FROM FIRE FLOW TEST | 93 | PSI |
| PRESSURE AVAILABLE AT BUILDING INLET | | |
| PRESSURE LOSS DUE TO FRICTION IN A 2.5-INCH DIAMETER SERVICE | -2 | PSI |
| PRESSURE GAIN/LOSS DUE TO ELEVATION, MAIN TO BUILDING | 0 | PSI |
| PRESSURE LOSS THROUGH EXISTING METER (PER SITE GPM) | -1.5 | PSI |
| PRESSURE LOSS THROUGH ADDITIONAL EQUIPMENT | -9 | PSI |
| TOTAL PRESSURE AT BUILDING INLET | 80.5 | PSI |
| WATER DISTRIBUTION SIZING | | |
| PRESSURE REQUIRED AT CONTROLLING FIXTURE - (E) MECH MAKE UP WATER ON ROOF | - 24 | PSI |
| PRESSURE LOSS DUE TO ELEVATION, BUILDING INLET TO CONTROLLING FIXTURE | - 28 | PSI |
| PRESSURE LOSS THROUGH ADDITIONAL EQUIPMENT (PRV, MV, BFP OR OTHER) | - 3.7 | PSI |
| PRESSURE AVAILABLE FOR PIPE SIZING | 24.8 | PSI |
| DEVELOPED LENGTH OF HORIZONTAL WATER PIPING WITHIN THE BUILDING | 306 | FT |
| PRSSURE AVAILABLE FOR UNIFORM LOSS | 8.1 | PSI/100FT |
| PRESSURE SELECTED FOR UNIFORM LOSS | 5 | PSI/100FT |

## DOMESTIC COLD WATER PIPE SIZING (PER CPC TABLE A-2 & CHART A-4)

FRICTION LOSS 5 PSI PER 100 FEET, MAXIMUM VELOCITY OF 8 FEET/SECOND

| PIPE SIZE (IN) | GPM | FU (FT) | FU (FV) | VELOCITY (FT/S) |
|---|---|---|---|---|
| 1/2 | 2 | 1 | 0 | 2.8 |
| 3/4 | 6 | 7 | 0 | 4 |
| 1 | 13 | 18 | 0 | 5.1 |
| 1 1/4 | 22 | 34 | 5 | 5.6 |
| 1 1/2 | 35 | 66 | 20 | 6.3 |
| 2 | 74 | 245 | 124 | 7.7 |
| 2 1/2 | 115 | 455 | 329 | 7.7 |
| 3 | 165 | 719 | 666 | 7.8 |
| 4 | 290 | 1668 | 1668 | 7.8 |

## DOMESTIC HOT WATER PIPE SIZING (PER CPC TABLE A-2 & CHART A-4)

FRICTION LOSS 8.1 PSI PER 100 FEET, MAXIMUM VELOCITY OF 5 FEET/SECOND

| PIPE SIZE (IN) | GPM | FU (FT) | FU (FV) | VELOCITY (FT/S) |
|---|---|---|---|---|
| 1/2 | 2 | 1 | - | 3.3 |
| 3/4 | 6 | 7 | - | 4.4 |
| 1 | 12 | 16 | - | 4.9 |
| 1 1/4 | 19 | 28 | - | 5 |
| 1 1/2 | 27 | 46 | - | 4.9 |
| 2 | 48 | 119 | - | 4.9 |
| 2 1/2 | 74 | 245 | - | 4.8 |
| 3 | 105 | 406 | - | 4.8 |
| 4 | 185 | 840 | - | 4.7 |


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EXP. 6/30/2027
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STATE OF CALIFORNIA


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**By Maria Yepremian**
**04/06/2026**

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DRAFT

DPH VANDERBILT-FIRE

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

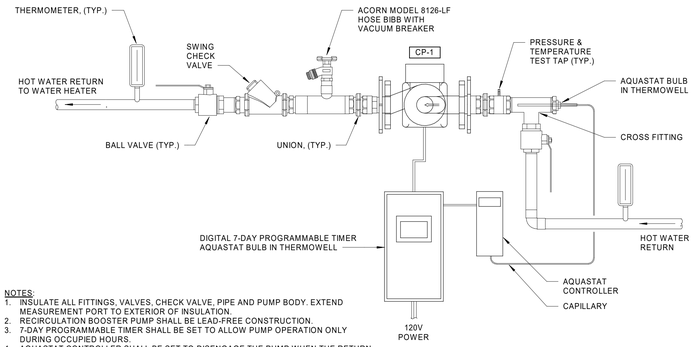
| Revision | Date |
|---|---|
| 1 PCC1 | 11/20/2025 |
| 2 PCC2 | 03/27/2026 |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

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|---|---|
| Job Number | 32468 |
| Checked By | LPA |
| Scale | |

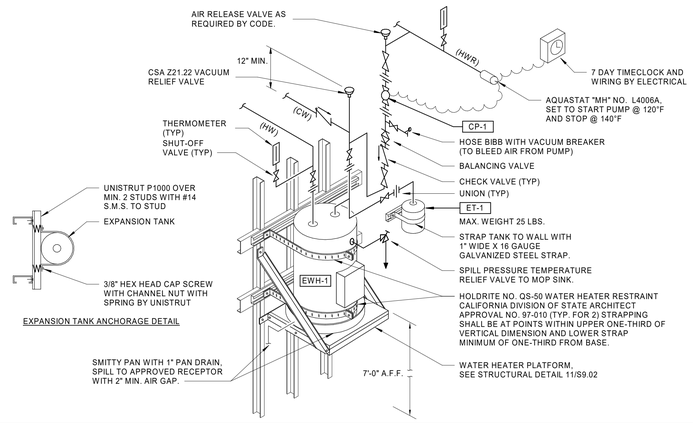
PLUMBING SCHEDULES

P6.02

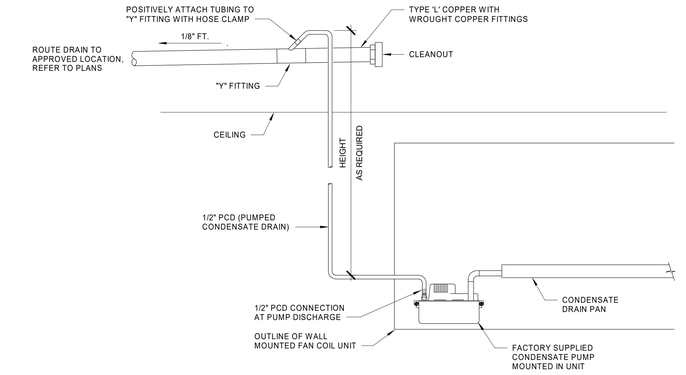



NOTES:
1. INSULATE ALL FITTINGS, VALVES, CHECK VALVE, PIPE AND PUMP BODY. EXTEND MEASUREMENT PORT TO EXTERIOR OF INSULATION.
2. RECIRCULATION BOOSTER PUMP SHALL BE LEAD-FREE CONSTRUCTION.
3. 7-DAY PROGRAMMABLE TIMER SHALL BE SET TO ALLOW PUMP OPERATION ONLY DURING OCCUPIED HOURS.
4. AQUASTAT CONTROLLER SHALL BE SET TO DISENGAGE THE PUMP WHEN THE RETURN WATER TEMPERATURE IS ABOVE 105 F OR AS ALLOWED BY LOCAL ENERGY CODE.
5. PROVIDE AUTOMATIC AIR VENT AS REQUIRED BY LOCAL ENERGY CODE TO REDUCE CAVITATION. ROUTE DRAIN LINE TO APPROVED DRAINAGE RECEPTOR. INSTALL AIR VENT WITHIN 48" OF PUMP INLET AS REQUIRED TO REDUCE AIR POCKETS.

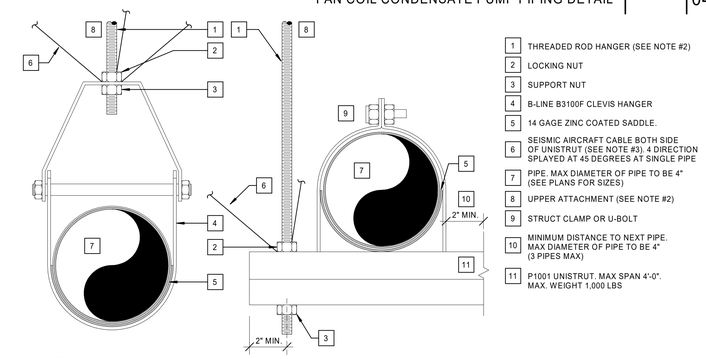
## CIRCULATION PUMP INSTALLATION SCHEMATIC — NTS — 20




## ELECTRIC WATER HEATER WITH C.P. DETAIL (M.S.) — NTS — 12

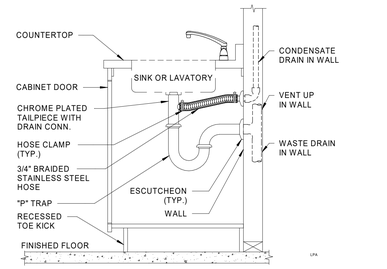



## FAN COIL CONDENSATE PUMP PIPING DETAIL — NTS — 04

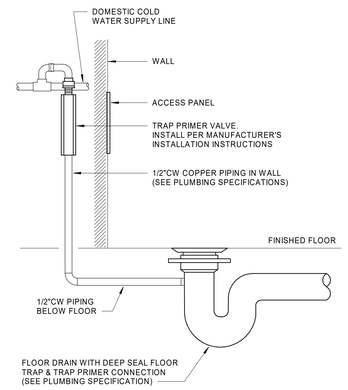



NOTES:
1. MAXIMUM HORIZONTAL HANGER SPACING FOR 1-1/4" PIPING AND SMALLER TO BE 5'-0" AND 1-1/2" PIPING AND LARGER TO BE 8'-0".
2. SEE STRUCTURAL HANGER DETAILS FOR METAL CHANNEL STRUT FRAMING & ROD HANGER DETAILS.
3. 1/4" DIA AIRCRAFT CABLE. PROVIDE CABLE BRACING ON EACH SIDE OF UNISTRUT/HANGER.
   - PROVIDE TRANSVERSE BRACING AT 16'-0" MAX, O.C. EACH DIRECTION. MINIMUM (2) ON EACH STRAIGHT RUN.
   - PROVIDE LONGITUDINAL BRACING AT 24'-0" MAX. O.C. EACH SIDE OF UNISTRUT/HANGER, EACH DIRECTION. MINIMUM (1) ON EACH STRAIGHT RUN.

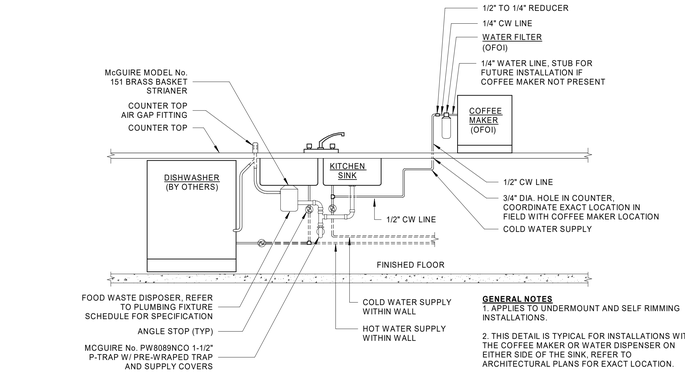
## SINGLE PIPE AND TRAPEZE HANGER DETAIL — NTS — 03




## CONDENSATE DRAIN TO TRAP DETAIL — NTS — 11

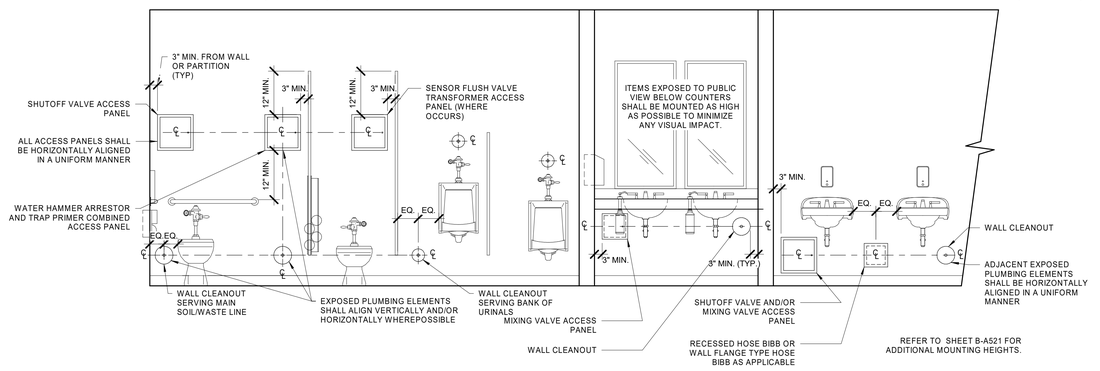



## TRAP PRIMER CONNECTION DETAIL — NTS — 10




**GENERAL NOTES**
1. APPLIES TO UNDERMOUNT AND SELF RIMMING INSTALLATIONS.
2. THIS DETAIL IS TYPICAL FOR INSTALLATIONS WITH THE COFFEE MAKER OR WATER DISPENSER ON EITHER SIDE OF THE SINK, REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION.

## TYPICAL BREAKROOM SINK LAYOUT — N.T.S. — 02




NOTES:

A. GENERAL.
1. EXAMPLES SHOWN ARE TO ILLUSTRATE TYPICAL INSTALLATION CRITERIA FOR EXPOSED PLUMBING COMPONENTS IN RESTROOMS. SEE PLANS FOR SPECIFIC LOCATIONS, QUANTITIES, AND TYPES OF ITEMS AS APPLICABLE TO EACH RESTROOM. REFER TO CONTRACT DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS NOT ADDRESSED IN THIS DETAIL.
2. PROVIDE SHOP DRAWINGS INDICATING LOCATIONS OF ALL EXPOSED PLUMBING ELEMENTS IN RESTROOMS, INCLUDING BUT NOT LIMITED TO ACCESS PANELS, WALL CLEANOUTS, HOSE BIBBS, INSTANTANEOUS ELECTRIC WATER HEATERS, TEHRMOSTATIC MIXING VALVES, TRANSFORMERS, AND OTHER EXPOSED PLUMBING ELEMENTS AS APPLICABLE. INDICATE ALL SUCH ITEMS USING THE ARCHITECTURAL INTERIOR ELEVATIONS AS A BACKGROUND, WITH ALL ITEMS DIMENSIONALLY LOCATED AND DRAWN TO SCALE.
3. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS, ROUGH IN DIMENSIONS, AND MOUNTING HEIGHTS OF FIXTURES, EQUIPMENT, AND OTHER EXPOSED PLUMBING ELEMENTS.
   a. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
   b. IN THE EVENT OF A CONFLICT BETWEEN ARCHITECTURAL AND PLUMBING DOCUMENTS, SEEK ARCHITECT'S DIRECTION AND/OR APPROVAL PRIOR TO INSTALLATION.
4. WHERE A COMMON PLUMBING WALL SERVES BOTH MEN'S AND WOMEN'S RESTROOMS, ASSOCIATED ACCESS PANELS AND CLEANOUTS SHALL BE LOCATED ON THE MEN'S RESTROOM SIDE OF THE WALL.
5. ITEMS EXPOSED TO PUBLIC VIEW BELOW COUNTERS (I.E.: COUNTER-MOUNTED LAVATORY LOCATIONS) SHALL BE MOUNTED AS HIGH AS POSSIBLE TO MINIMIZE ANY VISUAL IMPACT.

B. CLEANOUTS
1. CLEANOUTS SHALL BE MOUNTED AS LOW AS POSSIBLE WHILE MAINTAINING ALIGNMENT WITH ADJACENT EXPOSED PLUMBING ELEMENTS, BUT NOT LESS THAT 12" ABOVE FINISHED FLOOR.

C. WALL ACCESS PANELS.
1. WHERE POSSIBLE, USE SAME ACCESS PANEL FOR PLUMBING COMPONENTS LOCATED WITHIN WALL DIRECTLY ADJACENT IN SAME IMMEDIATE VICINITY (I.E.: WATER HAMMER ARRESTORS INSTALLED DIRECTLY ADJACENT TO TRAP PRIMERS).
2. TYPICAL ACCESS PANELS SHALL BE 12"X12" SIZE, OR AS NECESSARY FOR PROPER OPERATION AND MAINTENANCE OF ITEMS INSTALLED WITHIN. WHERE ACCESS PANELS LARGER THAN 12"X12" ARE REQUIRED, CONTRACTOR SHALL SEEK ARCHITECT'S APPROVAL PRIOR TO INSTALLATION.
3. ACCESS PANELS SHALL BE INSTALLED IN A MANNER SUCH THAT DOOR SWING IS NOT IMPEDED BY ANY ADJACENT BUILDING ELEMENT. EXCEPTION: AT UNDER-COUNTER LOCATIONS, ACCESS PANELS SHALL BE MOUNTED AS HIGH AS POSSIBLE TO MINIMIZE VISUAL IMPACT. IN SUCH CASES, IT IS ACCEPTABLE FOR THE ACCESS PANEL TO BE LOCATED BEHIND A REMOVABLE PORTION OF SOAP DISPENSER BOTTLE IF CONDITION OCCURS.
4. ACCESS PANELS SHALL NOT OVERLAP PAINTED AND NON-PAINTED SURFACES SUCH AS TILE OR TERRAZO, AND SHALL BE MOUNTED SUCH THAT THE EDGE OF THE ACCESS PANEL IS MINIMUM 3" FROM THE EDGE OF ANY SUCH SURFACE.
5. CAREFULLY COORDINATE ALL ACCESS PANEL LOCATIONS WITH OTHER TRADES PRIOR TO INSTALLATION. PLUMBING COMPONENTS INSTALLED WITHIN ACCESS PANELS SHALL BE COORDINATED WITH THE FINALIZED ACCESS PANEL LOCATION SUCH THAT ITEMS ARE CENTERED WITHIN OPENING AND ARE FULLY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR.

D. ELECTRONIC SENSOR OPERATED FLUSH VALVES, FAUCETS, AND SOAP DISPENSERS
1. TRANSFORMERS SERVING MULTIPLE TOILETS AND URINALS SHALL BE LOCATED BEHIND ONE CENTRAL ACCESS PANEL.
2. TRANSFORMERS SERVING SENSOR FAUCETS AND SOAP DISPENSERS SHALL BE MOUNTED IN CONCEALED LOCATION AT THE REAR UNDERSIDE OF COUNTER WITH ALL WIRING CONCEALED AND RUN WITHIN CONDUIT IN ORDER TO MINIMIZE ANY VISUAL IMPACT OR EXPOSURE TO VANDALISM.

## TYPICAL EXPOSED PLUMBING ELEMENTS IN RESTROOMS — 1/2" = 1'-0" — 01

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JLee Engineering, Inc.
Approved
By Maria Yepremian
04/06/2026
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DPH VANDERBILT-FIRST FLOOR
451 E Vanderbilt Way,
San Bernardino, CA 92408
Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| 1 PCC1 | 11/20/2025 |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/22/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | Checker |
| Scale | As indicated |

PLUMBING DETAILS

P7.01

**22 00 00 PLUMIBNG PART 1 - GENERAL**

1.01 DESCRIPTION

A. PROVIDE PLUMBING AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED FOR A COMPLETE OPERATING SYSTEM, TESTED AND READY FOR OPERATION. REFER TO SCHEDULES IN PLUMBING DRAWINGS FOR PLUMBING FIXTURE SPECIFICATIONS AND ADDITIONAL INFORMATION.

1.02 **LOCATION AND ACCESSIBILITY**

A. VALVES, MOTORS AND OTHER DEVICES REQUIRING SERVICE, MAINTENANCE AND ADJUSTMENT SHALL BE PLACED IN FULLY ACCESSIBLE POSITIONS AND LOCATIONS.

B. DRAWINGS: DRAWINGS ARE DIAGRAMMATIC. COORDINATE ALL SPACE REQUIREMENTS WITH OTHER TRADES. ALL OFFSETS AND INTERFERENCES MAY NOT BE INDICATED. CONTRACTOR TO REVIEW DRAWINGS AND EXISTING CONDITIONS IN ORDER TO DETERMINE THE BEST INSTALLATION METHODS.

C. DRAWINGS ARE BASED ON EQUIPMENT SPECIFIED. MAKE ADJUSTMENTS, MODIFICATIONS, OR REQUIRED CHANGES, DUE TO USE OF OTHER EQUIPMENT NOT SPECIFIED.

1.03 **SUBMITTALS**

A. PRODUCT DATA: PROVIDE MANUFACTURER 'S CATALOG INFORMATION FOR FIXTURES AND EQUIPMENT, SIZES, ROUGH-IN DIMENSIONS, UTILITY SIZES, TRIM, FINISHES, ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS. PROVIDE DATA ON PIPE MATERIALS, PIPE FITTINGS, VALVES, AND ACCESSORIES.

B. OTHER SUBMITTALS: SUBMIT SHOP DRAWINGS PRIOR TO FABRICATION OR INSTALLATION. SUBMIT STERILIZATION TEST REPORTS, TEST DATA, OPERATIONS AND MAINTENANCE MATERIALS AND RECORD DRAWINGS.

1.04 **QUALITY ASSURANCE**

A. CONFORM TO THE CURRENT EDITION OF ALL GOVERNING CODES, ORDINANCES, AGENCIES, CALIFORNIA CODES, NFPA, CITY AND STATE REQUIREMENTS.

B. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE TYPE OF PRODUCTS SPECIFIED IN THIS SECTION, WITH MINIMUM THREE YEARS OF DOCUMENTED EXPERIENCE.

1.05 **DELIVERY, STORAGE, AND HANDLING**

A. ACCEPT FIXTURES, EQUIPMENT AND PIPING ON SITE IN FACTORY PACKAGING. INSPECT FOR DAMAGE.

B. PROTECT INSTALLED FIXTURES, EQUIPMENT AND PIPING FROM DAMAGE BY SECURING AREAS AND BY LEAVING FACTORY PACKAGING IN PLACE TO PROTECT FIXTURES AND PREVENT USE.

1.06 **WARRANTY**

A. SEE DIVISION 1 FOR ADDITIONAL WARRANTY REQUIREMENTS.

B. THE CONTRACTOR SHALL SUBMIT MANUFACTURER WARRANTY FOR EQUIPMENT AND ENSURE FORMS HAVE BEEN COMPLETED IN OWNER 'S NAME AND REGISTERED WITH MANUFACTURER.

1.07. **DEMOLITION**

A. NOTES REFER TO DIVISION 01 SECTION "CUTTING AND PATCHING" AND DIVISION 02 SECTION "SELECTIVE STRUCTURE DEMOLITION" FOR GENERAL DEMOLITION REQUIREMENTS AND PROCEDURES.

B. DISCONNECT, DEMOLISH, AND REMOVE PLUMBING SYSTEMS, EQUIPMENT, AND COMPONENTS INDICATED TO BE REMOVED.

C. PIPING TO BE REMOVED: REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP OR PLUG REMAINING PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL.

D. EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT.

E. OWNER SHALL HAVE FIRST RIGHT-OF REFUSAL FOR SALVAGE OF ALL ITEMS TO BE REMOVED. ALL ITEMS ACCEPTED FOR SALVAGE BY THE OWNER SHALL BE PROTECTED FROM DAMAGE AND DELIVERED TO THE OWNER'S REPRESENTATIVE. ALL ITEMS REFUSED BY OWNER SHALL BE PROPERLY DISPOSE OF BY THE CONTRACTOR.

F. IF PIPE, INSULATION, OR EQUIPMENT TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY.

G. IF SUSPECTED ASBESTOS, LEAD OR OTHER TOXIC MATERIALS ARE DISCOVERED DURING THE DEMOLITION PROCESS, WORK SHALL BE HALTED AND THE OWNER'S REPRESENTATIVE SHALL BE NOTIFIED.

**PART 2 - PRODUCTS**

2.01 **GENERAL**

A. POTABLE WATER SUPPLY SYSTEMS: PROVIDE PIPING, FITTINGS, SOLDER, FLUX, FIXTURES, PRODUCTS AND EQUIPMENT THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT; LABEL PIPE AND FITTINGS.

B. PIPE ESCUTCHEONS: PROVIDE POLISHED CHROME PLATED AND BRASS SET SCREW ESCUTCHEONS WHERE PLUMBING PIPES PASS THROUGH WALLS, CEILINGS, AND PARTITIONS IN FINISHED PORTIONS OF THE BUILDING INCLUDING PIPES AT FIXTURES.

C. PIPE IDENTIFICATION

1. PROVIDE PIPING IDENTIFICATION PER CALIFORNIA PLUMBING CODE REQUIREMENTS. PIPES NOT COVERED BY THE PLUMBING CODE SHALL BE PER ANSI STANDARDS. EACH INDIVIDUAL PIPELINE SHALL BE MARKED FOR QUICK AND EASY IDENTIFICATION AS TO CONTENTS, DIRECTION OF FLOW, AND CHARACTER OF MATERIAL CARRIED IN THE PIPES BY SETON SNA OR STR MARKERS.
2. MARKERS SHALL BE INSTALLED AND SPACED AT NOT MORE THAN 20 FT. INTERVALS, BUT NOT LESS THAN ONCE PER ROOM AND SO LOCATED THAT MARKERS SHALL BE VISIBLE FROM FLOOR LEVEL.
   a. ONE MARKER SHALL BE INSTALLED AT EACH SIDE OF THE VALVE, SPECIAL FITTINGS, AND AT BRANCH TAKE-OFFS. IN FURRED SPACES INSTALL ONE BAND 2 FEET ABOVE THE FLOOR AND 19 INCHES BELOW THE CEILING LINE.
   b. FURNISH TWO IDENTIFICATION CHARTS COMPLETE WITH GLASS AND ALUMINUM FRAME SHOWING LIST OF MATERIALS CARRIED IN THE PIPING SYSTEM, CLASSIFIED BY NATURE OF ITS CONTENTS AND RESPECTIVE IDENTIFYING COLORS.
1. COLOR SCHEME SHALL BE APPROVED. BASE COLOR FOR MARKERS SHALL BE AS FOLLOWS:
   a. DOMESTIC HOT WATER – YELLOW WITH BLACK LETTERS
   b. DOMESTIC COLD WATER – GREEN WITH WHITE LETTERS
   c. SANITARY SEWER – GREEN WITH WHITE LETTERS
   d. SANITARY VENT- GREEN WITH WHITE LETTERS
   e. PUMPED CONDENSATE – YELLOW WITH BLACK LETTERS
   f. CONDENSATE – YELLOW WITH BLACK LETTERS

A. VALVE IDENTIFICATION

1. VALVE CHARTS: TWO COMPUTER GENERATED CHARTS NOT LESS THAN 8 IN. X 10 IN. SHALL BE MADE SHOWING ASSIGNED NUMBER CONTROLLED IN EACH SYSTEM BY EACH VALVE IN MECHANICAL ROOMS ONLY. CHARTS SHALL BE MOUNTED BEHIND GLASS WITH ALUMINUM FRAME.
2. VALVE TAGS: PROVIDE A TAG CONSISTING OF A 2 INCH DIAMETER, 20 GAUGE STAINLESS STEEL OR BRASS DISK FOR EACH MAIN AND BRANCH LINE SHUT-OFF VALVE OR COCK. FASTEN TAGS IN PLACE WITH CONTINUOUS STEEL RING OR CHAIN AROUND THE STEM OF THE VALVES AND AROUND THE PIPE FOR SHUT-OFF COCKS. TWO INCH LETTERS AND FIGURES STENCILED IN CONTRASTING COLORS ON PIPE OR PIPE COVERING MAY BE SUBSTITUTED FOR TAGS ON OS&Y VALVES. DISKS SHALL BE STAMPED WITH A NUMBER CORRESPONDING TO IDENTIFICATION (OR LOCATION) NUMBER SHOWN ON VALVE CHART AND WITH SERVICE DESIGNATION, WITH ¼ INCH HIGH LETTERS.

A. MATERIALS: MATERIALS WHEN NOT OTHERWISE DEFINITELY SPECIFIED SHALL CONFORM TO THE APPLICABLE STANDARDS.

B. EQUAL MATERIALS AND SUBSTITUTIONS: IN ADDITION TO MANUFACTURERES SPECIFIED MODELS, CORRESPONDING MODELS MEETING SPECIFIED REQUIREMENTS SHALL BE CONSIDERED EQUAL. EQUAVALENT SUBSTITUTED EQUIPMENT SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL. SUBMIT ALTERNATE SELECTIONS AT TIME OF BID, LISTING MAJOR EQUIPMENT.

2.02 **PIPE AND FITTINGS**

A. SOIL, WASTE, AND VENT: CAST IRON SOIL PIPE AND FITTINGS THAT COMPLIES TO THE REQUIREMENTS OF CISPI 301. PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE OR RECEIVE PRIOR APPROVAL FROM THE ENGINEER. WRAP ALL UNDERGROUND PIPE PER PARAGRAPH 3.10 HEREIN.

B. DOMESTIC HOT AND COLD WATER PIPING ABOVE GROUND: TYPE L HARD-DRAWN COPPER TUBE, ASTM B88, AND WROUGHT COPPER SOLDER-JOINT FITTINGS, ASME B16.22, BRONZE FLANGES ASME B16.24, CLASS 150, WITH SOLDER-JOINT ENDS. COPPER UNIONS MSS SP-123, CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY, WITH BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACES, AND SOLDER-JOINT OR THREADED ENDS.

C. DOMESTIC COLD WATER PIPING BELOW GROUND: TYPE K SOFT COPPER TUBE, ASTM B 88, ANNEALED TEMPER. COPPER SOLDER-JOINT FITTINGS ASME B16.22. WRAP ALL UNDERGROUND PIPE PER PARAGRAPH 3.09 HEREIN.

**D.** INDIRECT AND CONDENSATE DRAINS: TYPE M HARD DRAWN COPPER DWV TUBE, ASTM B 306, DRAINAGE TUBE, DRAWN TEMPER. ASME B16.23, CAST COPPER OR ASME B16.29, WROUGHT COPPER, SOLDER-JOINT FITTINGS. COORDINATE CONDENSATE TRAP INSTALLATION WITH AIR CONDITIONING UNIT MANUFACTURER. ALL INTERIOR CONDENSATE DRAIN PIPING SHALL BE INSULATED.

2.03 **MATERIALS FOR JOINTS AND FITTINGS**

A. SOIL, WASTE AND VENT CAST-IRON PIPE:

1. ABOVE GROUND: TYPE 300 SERIES STAINLESS STEEL, NO-HUB HEAVY DUTY FOR SOIL & WASTE, STANDARD DUTY FOR VENT, SHIELDED COUPLINGS AS APPROVED BY THE CAST IRON SOIL PIPE INSTITUTE, CISPI-310 WITH STAINLESS STEEL CORRUGATED SHIELD, STAINLESS STEEL BANDS AND TIGHTENING DEVICES AND ASTM C64 RUBBER SLEEVE.
2. BELOW GROUND: TYPE 300 SERIES STAINLESS STEEL, NO-HUB HEAVY DUTY, SHIELDED COUPLINGS, ASTM C1540, WITH STAINLESS STEEL CORRUGATED SHIELD, STAINLESS STEEL BANDS AND TIGHTENING DEVICES AND ASTM C 564 RUBBER SLEEVE.

A. SOLDER AND FLUX:

1. WATER PIPING: EQUIVALENT TO HARRIS BRIDGIT LEAD-FREE SOLDER ALLOY. ASTM B813 LIQUID AND PASTE FLUX. 95-5 SOLDERS ARE NOT APPROVED. BELOW GROUND PIPING SHALL HAVE BRAZED JOINTS WITH SILVER SOLDER.
2. COPPER INDIRECT AND CONDENSATE DRAINAGE PIPING: LEAD-FREE SOLDER WITH NON-CORROSIVE PASTE FLUX.

A. WELDED JOINTS: WELDING SHALL BE PERFORMED ONLY BY QUALIFIED WELDERS, AND SHALL COMPLY WITH ASME BOILER CONSTRUCTION CODE, ANSI CODE FOR PRESSURE PIPING, AND STATE REQUIREMENTS.

B. UNIONS AND GASKETS:

1. UNIONS FOR COPPER TUBING: CAST BRONZE, GROUND JOINT PATTERN, SOLDERED JOINT CONNECTION, ASTM B62 AND ANSI B16.18.
2. DIELECTRIC UNIONS: EPCO, COMPLETE WITH ISOLATORS AND GASKETS OF SAME SIZE AS PIPE, GALVANIZED OR BLACK STEEL TO SUIT SERVICE.
3. DIELECTRIC FLANGES: F.H. MALONEY CO., TYPE E FLANGES FOR CATHODIC INSULATION.
4. GASMETS: 1/16-INCH GARLOCK #17022.

A. STRAINERS: LEAD-FREE Y-TYPE WITH STAINLESS STEEL MESH SCREEN WITH PERFORATIONS SUITABLE FOR SERVICE REQUIREMENTS.

1. 3-INCH AND SMALLER: WILKINS MODEL YBS-XL, 125 PSI AT 400 DEGREES F STEAM, CAST BRONZE, THREADED ENDS WITH SCREWED BRASS CLOSURE PLUG.

2.04 **VALVES**

A. VALVES SHALL BE LEAD-FREE AND THE SAME MANUFACTURER OR EQUIVALENT APPROVED MANUFACTURERS. PROVIDE ADAPTERS FOR VALVES IN COPPER TUBING WHERE NECESSARY.

1. BALL VALVES, DOMESTIC WATER 2-1/2 " AND SMALLER: LEAD-FREE BRONZE, BODY AND BRASS MATERIALS FULLPORT, SOLID BALL CLASS 150, MPTFE SEATS AND STEM PACKING. MSSSP-110, ANSI/NSF 61-8. APOLLO 77CLF-100 SERIES, NIBCO S/T 685-80-LF OR WATTS B6080 SERIES (THREADED) AND B601 SERIES (SOLDERED).
2. GATE VALVES, 3-INCHES AND LARGER, DOMESTIC WATER: LEAD-FREE 200 PSI WOG, SOLID WEDGE DISC, UNION BONNET, RISING STEM, FLANGED. MSS-SP-70. NIBCO F617-O, WATTS LFGV-3 OR 4.
3. BALANCING VALVE: BELL & GOSSETT CIRCUIT SETTER PLUS, BRONZE, SCREWED. WATTS CSM-61 SERIES.

A. THERMOSTATIC MIXING VALVES:

1. THE THERMOSTATIC MIXING VALVE SHALL CONTROL THE DELIVERED WATER TEMPERATURE TO ALL LAVATORY FAUCETS TO A MAXIMUM OF 110 DEGREES F AT 0.5 GPM MINIMUM PUBLIC USE FLOW RATE. THE TMV SHALL PROVIDE FULL SHUT-OFF IN THE EVENT OF FAILURE. ASSE 1070. BRADLEY CORPORATION, LEONARD VALVE COMPANY OR EQUAL. REFER TO SCHEDULES IN PLUMBING DRAWINGS FOR PLUMBING FIXTURE SPECIFICATIONS AND ADDITIONAL INFORMATION.

A. CHECK VALVES:

1. DRAINAGE SYSTEMS: HORIZONTAL SWING CHECK, DUCTILE IRON BODY, ONE-PIECE ALLOW STEEL DISC, 250 PSI, FLANGED, FUSION BONDED EPOXY COATED INTERIOR AND EXTERIOR, DOMED ACCESS COVER. VALMATIC SWING-FLEX VM-502A, OR EQUAL.
2. DOMESTIC WATER SYSTEMS:
   a. DUAL CHECK VALVE, 1-INCH AND SMALLER, LEAD-FREE COMPOSITE BODY WITH CORROSION RESISTANT CHECKS. WILKINS MODEL 705-XL.
   b. IN-LINE CHECK VALVE, 3-INCH AND SMALLER, LEAD-FREE BRONZE BODY, THREADED, STAINLESS STEEL SPRING. APOLLO MODEL CVB-LF, NIBCO T-480-Y-LF. INTERNAL PARTS, TWO INDEPENDENTLY OPERATED IN-LINE SPRING LOADED MODULAR.

2.05 **HOSE BIBBS**

A. PROVIDE VACUUM BREAKER AND LOOSE TEE KEY. REFER TO SCHEDULES IN PLUMBING DRAWINGS FOR PLUMBING FIXTURE SPECIFICATIONS AND ADDITIONAL INFORMATION.

2.06 **PIPE HANGERS**

A. HANGERS SHALL BE SUPPLIED WITH FACTORY INSTALLED ISOLATION AND DI-CHROMATE FINISH.

1. 2-INCH AND SMALLER: GRINNELL F69
2. 2-1/2-INCH AND LARGER: GRINNELL F65
3. CONCRETE INSERTS: GRINNELL 281 AND 282
4. RISER CLAMPS FOR COPPER PIPING: GRINNELL 261P, PLASTIC COATED.
5. RISER CLAMPS FOR OTHER PIPING: GRINNELL 261

2.07 **PIPE SLEEVES**

A. PROVIDE AT CONCRETE OR MASONRY EXTERIOR BEARING WALLS, ADJUST-TO-CRETE, PARAMONT, OOR SPERZEL CRETESLEEVE. WALL SLEEVES SHALL BE FLUSH WITH FINISHED SURFACE. SLEEVES SHALL BE SIZED TO ALLOW ½-INCH CLEARANCE AROUND PIPE OR INSULATION. INSULATION AND COVERING SHALL BE CONTINUOUS THROUGH SLEEVES.

B. AT EXTERIOR WALLS BELOW GRADE PROVIDE A MODULAR MECHANICAL SEAL CONSISTING OF INTER-LOCKING EPDM RUBBER LINKS SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND THE WALL OPENING WITH A MOLDED HIGH DENSITY POLYETHYLENE SLEEVE WATER-STOP RING, END CAPS AND REINFORNINC RIBS. ASTM B117, ISO 9002. MECHANICAL SEALS SHALL BE "THUNDERLINE" LINK SEAL, OR APPROVED EQUAL.

2.08 **ACCESS PANELS**

A. ACCESS PANELS IN ACOUSTIC TILE CEILINGS: KARP #DSC-210, ELMDOR PW, 24 X 24-INCH WITH METAL ACCESS DOOR AND FRAME, PRIME COATED STEEL AND PAINTED TO MATCH ADJACENT SURFACES. FOR FIRE RATED AREAS, USE KARP #FRP-150 FR 1-1/2 HOUR "B" LABEL ACCESS PANELS, U.L. LISTED. ACCESS DOOR AND FRAME, 24 X 24-INCH MINIMUM SIZE, PRIME COATED STEEL, RECESSED TO ACCEPT STANDARD TILE IN FULL OPENING DOOR.
B. ACCESS PANELS IN CERAMIC TILE WALLS: KARP #DSC214M, SMITH 4730, CHROME-PLATED COVER AND FRAME OF SUITABLE SIZE FOR PURPOSE INTENDED, BUT NOT LESS THAN 12 X 12-INCH SIZE. FOR FIRE RATED AREAS USE KARP #FRP-150 FR 1-1/2 HOUR "B" LABEL ACCESS PANELS, U.L. LISTED.

2.09 **CLEANOUTS**

A. FOR CAST-IRON SOIL PIPE, IRON BODY WITH EXTRA HEAVY BRONZE PLUGS SCREWED INTO CAULKING FERRULES; FOR STEEL PIPE, EXTRA HEAVY BRONZE PLUGS. WHERE CLEANOUTS OCCUR IN FINISHED INTERIOR WALLS, PROVIDE ACCESS PANELS, PLATES, AND FRAMES FOR FLUSH MOUNTING. EXPOSED PARTS OF FLOOR CELANOUTS SHALL HAVE ADJUSTABLE TOP. ALL CLEANOUTS AND CLEANOUT PLUGS SHALL BE ACCESSIBLE. CLEANOUTS FOR DRAIN PIPES THAT PASS THROUGH A BACKWATER VALVE SHALL BE IDENTIFIED WITH A PERMANENT LABEL STATING "BACKWATER VALVE DOWNSTREAM. " CLEANOUTS FOR DRAIN PIPES THAT DRAIN TO A GREASE INTERCEPTOR SHALL BE INDENTIFIED WITH A PERMANENT LABEL STATING "GREASE INTERCEPTOR DOWNSTREAM. " CLEANOUTS SHALL BE AS NOTED IN THE PLUMBING FIXTURE SCHEDULE.

2.10 **WATER HAMMER ARRESTORS**

A. PRECISION PLUMBING PRODUCTS (PPP) OR EQUAL MAINTENANCE FREE WATER HAMMER ARRESTORS, INSTALLED AS INDICATED OR AS RECOMMENDED BY PDI PANPHLET WH-201. IN NO CASE SHALL A FLUSH VALVE FIXTURE OR A QUICK CLOSING FAUCET OR VALVE BE INSTALLED WITHOUT SHOCK PROTECTION.

2.11 **PRESSURE TEMPERATURE RELIEF VALVE**

A. PROVIDE DOMESTIC WATER HEATER WITH ASME RATED PRESSURE/TEMPERATURE RELIEF VALVE SET TO RELIEVE AT 125 PSI PRESSURE AND AT 188 DEGREES TO 208 DEGREES F TEMPERATURE RANGE.

2.12 **THERMOMETERS**

A. ADJUSTABLE ANGLE: RED OR BLUE APPEARING NON-TOXIC LIQUID IN GLASS; ASTM E1; LENS FRONT TUBE, CAST ALUMINUM CASE WITH ENAMEL FINISH, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE; ADJUSTABLE 360 DEGREES IN HORIZONTAL PLANE;180 DEGREES IN VERTICAL PLANE; 9-INCH SCALE, CLEAR WINDOW; ¼-INCH NPT BRASS STEM; 2 PERCENT ACCURACY; DEGREES F CALIBRATION; SCALE 30 DEGREES TO 240 DEGREES F.

2.13 **TRAP PRIMER ASSEMBLIES**

A. PROVIDE FOR DRAINS AND FLOOR SINKS WHERE TRAP PRIMER IS NOT PROVIDED FROM A WATER CLOSET AND AS INDICATED AND SPECIFIED, EACH INCLUDING TRAP PRIMER VALVE, STANDPIPE, AND DISTRIBUTION UNIT(S) REQUIRED FOR THE SPECIFIED DISTRIBUTION. PROVIDE EACH CONCEALED ASSEMBLY WITH ACCESS PANEL, 8 X 8-INCH SIZE WHEN DISTRIBUTION UNITS ARE NOT REQUIRED AND 12 X 12-INCH SIZE WHEN ONE OR TWO DISTRIBUTION UNITS ARE REQUIRED. RECESS BOX FLUSH IN WALL FOR ELECTRONIC MODELS. EXPOSED TRAP PRIMERS AND PIPING IS NOT ACCEPTABLE EXCEPT WHERE NOTED ON PLANS. PROVIDE PIPE WRAPPING ON BURIED TRAP PRIMER LINES. TRAP PRIMER MODEL AS NOTED ON THE DRAWINGS.

2.14 **PRESSURE GAUGES**

A. ASME B40.100, UL 393 DRAWN STEEL CASE, PHOSPHOR BRONZE BOURDON TUBE, ROTARY BRASS MOVEMENT, BRASS SOCKET, WITH FRONT RECALIBRATION ADJUSTMENT, BLACK SCALE ON WHITE BACKGROUND, STEEL CASE WITH BRASS BOURDON TUBE, 4-1/2 " DIAMETER, ONE PERCENT MID-SCALE ACCURACY, PSI SCALE. INSTALL PRESSURE GAUGES WHERE INDICATED AND REQUIRED.

2.15 **INSULATION**

A. ALL PIPE INSULATION SHALL COMPLY WITH THE STATE OF CALIFORNIA ENERGY CONSERVATION STANDARDS AND CALIFORNIA PLUMBING CODE. INSULATION THICKNESSES INDICATED ARE BASED ON INSULATION HAVING THERMAL RESISTANCES IN THE RANGE OF R-4.0 TO R-4.6 PER INCH OF THICKNESS ON A FLAT SURFACE AT A MEAN TEMPERATURE OF 75 DEGREES F. THICKNESSES INDICATED ARE MINIMUM AND SHALL BE INCREASED PROPORTIONALTELY FOR MATERIALS HAVING R VALUES LESS THAN 4.0 PER INCH OF THICKNESS OR MAY BE REDUCED FOR MATERIALS HAVING R VALUES GREATER THAN 4.6 PER INCH THICKNESS. INSTALL PIPE INSULATION AFTER PIPING IS INSTALLED, TESTED AND APRPOVED AND IS IN CLEAN, DRY CONDITION. FIRMLY BUTT INSULATION JOINTS.

B. INSULATE ALL HOT WATER AND INTERIOR CONDENSATE DRAIN PIPING WITH GLASS FIBER PIPE INSULATION WITH FACTORY APPLIED WHITE JACKET, J-M MICRO-LOK 650 AP, THICKNESS AS NOTED ON THE DRAWING. INSULATE FITTINGS AND VALVES WITH PREFORMED INSULATION WITH PVC PREMOLDED ONE PIECE FITTING COVER, J.M. ZESTON COVER. ADHERE LONGITUDINAL LAPS AND BUTTS OF STRIPS OF JACKET WITH FACTORY APPLIED PRESSURE SENSITIVE TAPE SYSTEM, J-M AP-T. FLANGES AND UNIONS SHALL NOT BE COVERED.

**C.** INSULATE ALL PIPING UNDER LAVATORIES AND SINKS ACCESSIBLE TO THE PHYSICALLY DISABLED WITH TRUEBRO LAVGUARD2 OR PLUMBEREX PRO-EXTREME, HOT AND COLD WATER SUPPLY AND P-TRAP FORM FITTED INSULATION.

2.16 **PLUMBING FIXTURES**

A. GENERAL: PLUMBING FIXTURES, TRIM AND EXPOSED SUPPLIES AND WASTES SHALL BE BRASS WITH POLISHED CHROME PLATED FINISH. PROVIDE INDIVIDUAL LOOSE KEY STOP OR, IF SO SPECIFIED, SCREW DRIVER STOPS FOR SUPPLIES AND, UNLESS INTEGRAL WITH VALVES OR FAUCETS, MOUNTED UNDER FIXTURE. SEPARATELY TRAP ALL WASTES. PROVIDE EXPOSED SUPPLIES AND WASTES TO WALL WITH POLISHED CHROME-PLATED CAST BRASS WALL ESCUTCHEONS.

B. WALL HUNG FIXTURES: FIXTURES SPECIFIED WITH HANGERS OR SUPPORTING ARMS SHALL HAVE HANGERS OR ARMS SECURELY MOUNTED ON A ¼-INCH THICK BY 6-INCH WIDE STEEL WALL PLATE WHICH EXTENDS AT LEAST ONE STUD BEYOND FIRST AND LAST FIXTURE MOUNTING POINTS, OR A TOTAL OF THREE STUDS MINIMUM. ATTACH WALL PLATE TO EACH STRUCTURAL STUD IT CROSSES BY TACK WELDING EACH SIDE OF STUD FLANGE AT TOP AND BOTTOM OF PLATE. FIXTURE OR SUPPORTING ARMS SHALL BE SECURELY AND FIRMLY ATTACHED TO STEEL WALL PLATE IN ACCORDNACE WITH MANUFACTURER 'S INSTRUCTIONS. IF STRUCTURAL STUDS ARE NOT BEING INSTALLED BEHIND WALL HUNG FIXTURES, PLUMBING CONTRACTOR SHALL NOTIFY ARCHITECT AND MECHANICAL ENGINEER IMMEDIATELY.

C. WATER CLOSETS: VITREOUS CHINA, ASME A112.19.2, WALL HUNG AND/OR FLOOR MOUNTED, SIPHON JET FLUSH ACTION. FLUSH VALVE ASME A112.18.1 EXPOSED (TOP SPUD) DIAPHRAGM TYPE, COMPLETE WITH VACUUM BREAKER, STOPS AND ACCESSORIES. SEAT, SOLID PLASTIC, OPEN FRONT, EXTENDED BACK, SELF-SUSTAINING HINGE, BRASS BOLTS, WITHOUT COVER. COLOR PER ARCHITECTURAL DRAWINGS. REFER TO SCHEDULES IN PLUMBING DRAWINGS FOR PLUMBING FIXTURE SPECIFICATIONS AND ADDITIONAL INFORMATION.

D. URINALS: VITREOUS CHINA, ASME A112.19.2, WALL HUNG WITH SIDE SHIELDS. FLUSH VALVE ASME A112.18.1 DIAPHRAGM TYPE, COMPLETE WITH VACUUM BREAKER, STOPS AND ACCESSORIES. CONCEALED CARRIER ASME A112.6.1M, STEEL FRAME WITH TUBULAR LEGS AND LOWER BEARING PLATE, MOUNTING FASTERNERS AND HARDWARE, SECURELY ANCHOR TO FLOOR WITH BOLTS AND ANCHORS PER MANUFACTURER 'S INSTALLATION GUIDELINES. INSTALL AT HEIGHTS INDICATED ON ARCHITECTURAL DRAWINGS. COLOR PER ARCHITECTURAL DRAWINGS. REFER TO SCHEDULES IN PLUMBING DRAWINGS FOR PLUMBING FIXTURE SPECIFICATIONS AND ADDITIONAL INFORMATION.

E. LAVATORIES: VITREOUS CHINA, ASME A112.19.2. UNDERCOUNTER MOUNTED, WALL HUNG, AND/OR COUNTER MOUNTED. ADA COMPLIANT. FAUCET, ASME A112.18.1, LEAD FREE, CHROME PLATED, SENSOR OPERATED, BATTERY POWERED, ADA COMPLIANT. CAST BRASS CHROME PLATED OPEN GRID STRAINER AND TAILPIECE; SEAMLESS VINYL PREWRAPPED CAST BRASS P-TRAP WITH CLEANOUT. LOOSE KEY ANGLE STOPS AND SUPPLIES WITH SEAMLESS SUPPLY RISER TUBE COVERS AND SUPPLY ANGLE STOP COVERS FOR HOT AND COLD WATER. THERMOSTATIC MIXING VALVE SET AT 105 DEGREES F, ASSE 1070 COMPLIANT, LEAD FREE, BEHIND ACCESS PANEL. COLOR PER ARCHITECTURAL DRAWINGS. REFER TO SCHEDULES IN PLUMBING DRAWINGS FOR PLUMBING FIXTURE SPECIFICATIONS AND ADDITIONAL INFORMATION.

F. SINKS: UNDERCOUNTER MOUNTED AND/OR COUNTER MOUNTED, REAR CENTER DRAIN, ADA COMPLIANT. FAUCET, ASME A112.18.1, LEAD FREE, ADA COMPLIANT. CAST BRASS CHROME PLATED OPEN GRID STRAINER AND TAILPIECE OR GARBAGE DISPOSER; SEAMLESS VINYL PREWRAPPED CAST BRASS P- TRAP WITH CLEANOUT. LOOSE KEY ANGLE STOPS AND SUPPLIES WITH SEAMLESS SUPPLY RISER TUBE COVERS AND SUPPLY ANGLE STOP COVERS FOR HOT AND COLD WATER. THERMOSTATIC MIXING VALVE SET AT 120 DEGREES F, ASSE 1070 COMPLIANT, LEAD FREE, BEHIND ACCESS PANEL. REFER TO SCHEDULES IN PLUMBING DRAWINGS FOR PLUMBING FIXTURE SPECIFICATIONS AND ADDITIONAL INFORMATION.

1. COUNTER MOUNTED SINKS: FAUCET DRILLING CENTERS PER PLAN.

G. DRAINS: WHERE INSTALLED IN CONSTRUCTION WITH WATERPROOF MEMBRANE, PROVIDE DRAINS WITH FLASHING CLAMP DEVICE WITH CORROSION RESISTANT CLAMPING BOLTS. REFER TO SCHEDULES IN PLUMBING DRAWINGS FOR PLUMBING FIXTURE SPECIFICATIONS AND ADDITIONAL INFORMATION.

H. FIXTURE SEALER: INSTALL WALL HUNG FIXTURES WITH WHITE SILICONE SEALER BETWEEN FIXTURE AND WALL, APPLIED SMOOTH AND EVEN.

**I.** FIXTURES, TRIM AND ACCESSORIES SHALL BE EQUAL, UNLESS OTHERWISE NOTED. REFER TO THE PLUMBING FIXTURE SCHEDULE FOR FIXTURE SPECIFICATIONS.

2.17 **SPECIALTY ITEMS**

A. FIRE SAFING: SAFE ALL PIPE PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS WITH U.L. LISTED PROSET, HILTI OR NELSON FIRE SAFING. INSTALL PER MANUFACTURER 'S DIRECTIONS.

B. INSTANEOUS ELECTRIC WATER HEATERS. POINT-OF-USE ELECTRIC INSTANTANEOUS WATER HEATER, MICRO-PROCESSOR CONTROLLED, U.L. LISTED, FIELD SERVICEABLE HEATING ELEMENT, HIGH TEMPERATURE LIMIT SWITCH, TURN-ON FLOW RATE OF 0.2 GPM. REFER TO WATER HEATER SCHEDULE ON THE DRAWINGS FOR CHARACTERISTICS.

C. DOMESTIC ELECTRIC WATER HEATERS: ELECTRIC WATER HEATERS, OF STORAGE CAPACITY AND RECOVERY AS SCHEDULED ON THE DRAWINGS, COMPLETE WITH INSULATED STEEL JACKET, GLASS-LINED TANK, DRAIN VALVE WITH HOSE CONNECTION, TEMPERATURE CONTROLS. MANUFACTURER 'S CERTIFICATION OF COMPLIANCE FOR TITLE 24 SHALL BE INCLUDED WITH EQUIPMENT SUBMITTALS. PROVIDE GALVANIZED SHEET METAL DRAIN PAN AND PRE-ASSEMBLED GALVANIZED STEEL STAND WITH SEISMIC CLIPS UNDER THE WATER HEATER OR AS INDICATED ON THE PLANS. PROVIDE EXPANSION TANKS EQUIVALENT TO AMTROL AND SIZED IN ACCORDANCE WITH THE MANUFACTURER 'S DIRECTIONS. STRAP WATER HEATER TO WALL WITH HEAVY DUTY RESTRAINT SYSTEM AS DETAILED ON THE DRAWINGS. REFER TO WATER HEATER SCHEDULE FOR SPECIFICATION.

**PART 3 – EXECUTION**

3.01 **SURFACE CONDITIONS**

A. INSPECTION: ALL PLUMBING SHALL BE INSTALLED IN ACCORDNACE WITH THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES, THE ORIGINAL DESIGN, AND THE REFERENCED STANDARDS.

B. DISCREPANCIES:

1. IN THE EVENT OF A DISCREPANCY, IMMEDIATELY NOTIFY THE ARCHITECT.
2. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANIES HAVE BEEN FULLY RESOLVED.
3. INTERFERENCES BETWEEN INSTALLED WORK OF VAROIUS TRADES DUE TO LACK OF COORDINATION SHALL BE RESOLVED BY THE ARCHITECT WHOSE DECISION IS FINAL. RELOCATE OR OFFSET ANY WORK AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES AT NO EXTRA COST OF THE OWNER WHEN SO DIRECTED BY THE ARCHITECT.

3.02 **LOCATIONS AND SPACE REQUIREMENTS**

A. CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACES AVAILABLE FOR INSTALLATION OF WORK UNDER THIS DIVISION. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT AND OTHER ITEMS AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. WORK SPECIFIED AND NOT CLEARLY DEFINED BY DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY TO THE ARCHITECT. IN THE EVENT

## ABBREVIATIONS

| | |
|---|---|
| 4S/DP | 4" SQUARE BY 2 1/8" DEEP BOX |
| ACT | ACOUSTICAL CEILING TILE |
| ADA | AMERICAN WITH DISABILITIES ACT |
| AFF | ABOVE FINISH FLOOR |
| AFG | ABOVE FINISH GRADE |
| AWG | AMERICAN WIRE GAUGE |
| AMP, A | AMPERE |
| AIC | AMPERES INTERRUPTING CAPACITY (SYMMETRICAL) |
| AF/AT | AMP FRAME, AMP TRIP |
| AH-J | AUTHORITY HAVING JURISDICTION |
| AS/AF | AMP SWITCH, AMP FUSE |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AVG | AVERAGE |
| BDF | BUILDING DISTRIBUTION FRAME |
| BR | BRANCH |
| BLDG | BUILDING |
| CEC | CALIFORNIA ELECTRICAL CODE |
| CIRC., CKT | CIRCUIT |
| CB | CIRCUIT BREAKER |
| CSFD | COMBINATION SMOKE FIRE DAMPER |
| C | CONDUIT |
| CO | CONDUIT ONLY, COMPLETE WITH PULLSTRING |
| CONN | CONNECTED |
| CPT | CONTROL POWER TRANSFORMER |
| CLCB | CURRENT LIMITING CIRCUIT BREAKER |
| CLF | CURRENT LIMITING FUSE |
| CT | CURRENT TRANSFORMER |
| (D) | EXISTING TO BE DEMOLISHED |
| DIA | DIAMETER |
| DISC | DISCONNECT |
| DIST | DISTRIBUTION |
| EC | ELECTRICAL CONTRACTOR |
| EMS | ENERGY MANAGEMENT CONTROL SYSTEM |
| EMT | ELECTRICAL METALLIC TUBING |
| ENT | ELECTRICAL NON-METALLIC TUBING |
| EWC | ELECTRIC WATER COLLER |
| EPO | EMERGENCY POWER OFF |
| E-O-L | END-OF-LINE CIRCUIT TERMINATOR |
| EF | EXHAUST FAN |
| E/G | EQUIPMENT GROUND (GREEN) |
| EP | EXPLOSION PROOF |
| (E) | EXISTING EQUIP TO REMAIN |
| (ER') | EXISTING EQUIP TO BE RELOCATED (*CORRESPONDS TO NEW LOCATION) |
| FT or ' | FEET |
| FA | FIRE ALARM |
| FLA | FULL LOAD AMPS |
| GRD | GROUND |
| GFCI | GROUND FAULT CIRCUIT INTERRRUPTER |
| GFP | GROUND FAULT PROTECTION |
| GEC | GROUNDING ELECTRODE CONDUCTOR |
| JBOX | JUNCTION BOX |
| K | DEGREE KELVIN |
| KCMIL | THOUSAND CIRCULAR MILS |
| KVA | KILOVOLT AMPERES |
| KW | KILOWATT |
| KWH | KILOWATT HOUR |
| HACR | HEATING AIR CONDITIONING REFRIGERATION |
| HOA | HAND-OFF-AUTO |
| HVAC | HEATING, VENTILATING AND AIR CONDITIONING |
| H, W, D, L | HEIGHT, WIDTH, DEPTH, LENGTH |
| HID | HIGH INTENSITY DISCHARGE |
| HP | HORSEPOWER |
| HPS | HIGH PRESSURE SODIUM |
| IN or " | INCHES |
| I/G | OSOLATED GROUND |
| IDF | INTERMEDIATE DISTRIBUTION FRAME |
| LCL | LONG CONTINUOUS LOAD |
| LF | LINEAR FEET |
| LTG, LTS | LIGHTING |
| LPS | LOW PRESSURE SODIUM |
| MAX | MAXIMUM |
| MDF | MAIN DISTRIBUTION FRAME |
| MOCP | MAXIMUM OVERCURRENT PROTECTION |
| MCB | MAIN CIRCUIT BREAKER |
| MLO | MAIN LUGS ONLY |
| MC | MECHANICAL CONTRACTOR |
| M | METER |
| M/M | METER MAIN |
| MV | MERCURY VAPOR |
| MH | METAL HALIDE |
| MIN | MINIMUM |
| MCA | MINIMUM CIRCUIT AMPS |
| MCC | MOTOR CONTROL CENTER |
| MCM | THOUSAND CIRCULAR MILS |
| MCP | MOTOR CIRCUIT PROTECTOR |
| MFR | MANUFACTURER |
| MTD | MOUNTED |
| MW | MICROWAVE |
| (N) | NEW |
| NATS | NON AUTOMATIC DISCONNECT |
| NEC | NATIONAL ELECTRICAL CODE |
| NEMA | NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION |
| NC | NORMALLY CLOSED |
| NO | NORMALLY OPENED |
| NF | NON-FUSED |
| NIC | NOT IN CONTRACT |
| NTS | NOT TO SCALE |
| NL | NIGHT LIGHT |
| NO or # | NUMBER |
| OFCI | OWNER FURNISHED, CONTRACTOR INSTALLED |
| %Z | PERCENT IMPEDANCE |
| PH or ~ | PHASE |
| PC | PHOTOCELL |
| PC | PLUMBING CONTRACTOR |
| P | POWER |
| PVC | POLY VINYL CHLORIDE |
| PDU | POWER DISTRIBUTION UNIT |
| PRIMARY | OVER 600 VOLTS |
| PROVIDE | FURNISH, INSTALL AND CONNECT |
| PT | POTENTIAL TRANSFORMER |
| PA | PUBLIC ADDRESS |
| RE | REPLACE EXISTING (IN-PLACE) |
| REC, RECEPT | RECEPTACLE |
| REF | REFRIGERATOR |
| RGS | RIGID GALVANIZED STEEL |
| RMS | ROOT MEAN SQUARE |
| SCC | SHORT CIRCUIT CURRENT |
| SCS | STRUCTURED CABLING SYSTEM |
| SFD | SMOKE FIRE DAMPER |
| SECONDARY | 600 VOLTS AND LESS |
| SMACNA | SHEET MTL & AIR COND. CONTRACTORS' NATIONAL ASSOC. |
| SPD | SURGE PROTECTION DEVICE |
| SQ | SQUARE |
| TC | TIMECLOCK |
| TEL/DATA | TELEPHONE AND DATA |
| TV | TELEVISION |
| TVSS | TRANSIENT VOLTAGE SURGE SUPPRESSION |
| TYP | TYPICAL |
| UGPS | UNDERGROUND PULL SECTION |
| UNO | UNLESS OTHERWISE NOTED |
| UPS | UNINTERRUPTABLE POWER SYSTEM |
| VAV | VARIABLE AIR VOLUME |
| V | VOLTS |
| VA | VOLT AMPERES |
| VD | VOLTAGE DROP |
| VFD | VARIABLE FREQUENCY DRIVE |
| WP | WEATHERPROOF |
| W | WIRE |
| XFMR | TRANSFORMER |
| XX | EXISTING EQUIP TO BE DEMO'D |

## FLOOR BOX / SPECIALTY WALL BOX SYMBOLS

- SINGLE SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE SPECIFICATIONS FOR MORE INFO.
- TWO SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE SPECIFICATIONS FOR MORE INFO.
- THREE SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE SPECIFICATIONS FOR MORE INFO.
- FOUR SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE SPECIFICATIONS FOR MORE INFO.
- SIX SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE SPECIFICATIONS FOR MORE INFO.

## ANNOTATIONS

- AC-2 — MECHANICAL EQUIPMENT CALLOUT, "AC" INDICATES UNIT TYPE & "2" INDICATES UNIT NUMBER. REFER TO MECHANICAL DWG FOR EXACT LOCATION & ELECTRICAL REQ.
- 3 / E-1 — DETAIL CALLOUT, "3" INDICATES DETAIL NUMBER "E-1" INDICATES SHEET NUMBER.
- XXXXXXXX — FEEDER SIZE DESIGNATION
- XXX-X — LIGHTING FIXTURE DESIGNATION
- XXX — KEYNOTE REFERENCE, REFER TO NOTES ON SHEETS, OR AS DIRECTED
- 1 — REVISION REFERENCE
- WYE CONFIGURATION
- GROUND
- DELTA CONFIGURATION

## BRANCH CIRCUIT SYMBOLS

- A-1,3,5 / 3/#12 — HOME RUN TO PANEL, LETTER DESIGNATES PANEL, NUMBERS INDICATE CIRCUITS, PROVIDE DEDICATED NEUTRAL WIRE FOR EA 'HOT' CIRCUIT IN CONDUIT RUN, #12 AWG MIN UNO
- CONCEALED CONDUIT OR BRANCH CIRCUIT UNO, 1/2" CONDUIT MIN, (2) #12 AWG CONDUCTORS MIN
- CONCEALED CONDUIT OR BRANCH CIRCUIT ROUTED IN FLOOR SLAB OR CONCRETE. COORDINATE INSTALLATION W/ GENERAL CONTRACTOR & SUPPORT AS REQ 1/2" CONDUIT (2) #12 AWG CONDUCTORS MIN
- CONDUIT OR BRANCH CIRCUIT CONCEALED BELOW GRADE. 3/4" CONDUIT MIN W/ (2) 12 AWG CONDUCTORS MIN & A CODE SIZED EQUIPMENT GROUND
- SURFACE-MTD CONDUIT OR BRANCH CIRCUIT UNO, 1/2" CONDUIT MIN, (2) #12 AWG CONDUCTORS MIN. CONDUIT SHALL BE PAINTED TO MATCH ADJ SURFACE. COORDINATE COLOR W/ ARCHITECT INTERIORS
- CONDUIT STUB OUT, CAP, MARK & RECORD ON AS-BUILT DWG
- CONDUIT CONTINUATION
- FLEXIBLE CONNECTION AS REQ. NUMBER OF CONDUCTORS AS REQ, VERIFY CONNECTION REQ W/ MFR PRIOR TO ROUGH-IN
- CONDUIT/ BRANCH CIRCUIT/FEEDER CONTINUATION DOWN WALL TO FLOOR BELOW
- CONDUIT/ BRANCH CIRCUIT/FEEDER CONTINUATION UP WALL TO FLOOR ABOVE
- X X — EXG FEEDER, CONDUIT, WIRE TO BE DEMOLISHED
- LV — LOW VOLTAGE DUCTBANK BELOW GRADE
- P — POWER DUCTBANK BELOW GRADE, SEE FEEDER TAG(s) FOR QUANTITY & SIZE OF CONDUIT & WIRE
- 12KV — MEDIUM - HIGH VOLTAGE DUCTBANK BELOW GRADE, W/ VOLTAGE INDICATED. SEE FEEDER TAG(s) FOR QTY & SIZE OF CONDUIT & WIRE
- FLUSH MTD, LOCKABLE TERMINAL CABINET W/ TERMINAL STRIPS AS REQ
- SURFACE MTD, LOCKABLE TERMINAL CABINET W/ TERMINAL STRIPS AS REQ
- TELEPHONE TERMINAL BACKBOARD SIZED AS NOTED, REFER TO SYSTEM GROUND DETAIL

## LIGHTING SYMBOLS

- DECORATIVE PENDANT
- STRIP LIGHT (B.O.H.)
- DECORATIVE SURFACE MOUNTED LIGHT.
- SURFACE MOUNTED WRAPAROUND.
- RECESSED LENSED TROFFER
- RECESSED ARCHITECTURAL TROFFER
- RECESSED LINEAR OR PERIMETER WALLSLOT.
- PENDANT MOUNTED LINEAR.
- RECESSED LINEAR WALLWASH.
- RECESSED DOWNLIGHT.
- RECESSED WALLWASHER.
- RECESSED ADJUSTABLE ACCENT LIGHT.
- SURFACE MOUNTED DOWNLIGHT.
- WALL MOUNTED FIXTURE.
- TRACK LIGHT.
- SURFACE MOUNTED ADJUSTABLE LINEAR WALLWASHER.
- CONCEALED LINEAR LIGHT STRIP.
- RECESSED MULTI-LAMP ADJUSTABLE DOWNLIGHT.
- WALL STEP LIGHT.
- BOLLARD LIGHT.
- ABOVE-GRADE MOUNTED ADJUSTABLE ACCENT LIGHT.
- POLE MOUNTED LIGHT.
- EXIT SIGN.
- SURFACE MOUNTED EMERGENCY BATTERY PACK.
- "EM" SHADED OR HALF-SHADED CONNECTION POINT INDICATES FIXUTRE ON EMERGENCY POWER.

## LIGHTING CONTROLS

- xx / ab — WALL MTD OCCUPANCY SENSOR. MTG HEIGHT PER ADA - UNO OR REQ. "xx" INDICATES THE FOLLOWING:
  - IO: INFRARED OCCUPANCY SENSOR
  - UO: ULTRASONIC OCCUPANCY SENSOR
  - DO: DUAL TECHNOLOGY OCCUPANCY SENSOR.
  - P: PHOTOCELL
  - OP: COMBINATION PHOTOCELL & DUAL TECHNOLOGY OCCUPANCY SENSOR

  LETTERS "ab" INDICATE ZONES CONTROLLED.
- XX / ab — CLG MTD SENSOR. PROVIDE W/ POWER PACK & RELAYS FOR PLUG LOAD & HVAC CONTROL. LETTERS "ab" INDICATE ZONES CONTROLLED. "xx" INDICATES THE FOLLOWING:
  - OS: DUAL TECHNOLOGY OCCUPANCY SENSOR
  - P: PHOTOCELL
  - OP: COMBINATION PHOTOCELL AND DUAL TECHNOLOGY OCCUPANCY SENSOR.
- WALL MTD COMBINATION OCCUPANCY SENSOR & DIMMER SWITCH, MTG HEIGHT PER ADA - UNO OR REQ. LETTERS "ab" INDICATE ZONES CONTROLLED.
- WALL MTD COMBINATION VACANCY SENSOR & DIMMER SWITCH, MTG HEIGHT PER ADA - UNO OR REQ. LETTERS "ab" INDICATES ZONES CONTROLLED. BOTH SWITCH LEGS TO BE CONFIGURED IN A "MANUAL ON" CONFIGURATION.
- SZ — LOW VOLTAGE MANUAL ON/OFF & SINGLE ZONE DIMMING CONTROL.
- MS - # / ab — LOW VOLTAGE MANUAL ON/OFF, DIMMING & MULTI BUTTON SCENE SELECT CONTROL STATION. "#" DENOTES NUMBER OF SCENE. LETTERS "ab" INDICATE ZONES CONTROLLED.
- MZ - # / ab — LOW VOLTAGE MANUAL ON/OFF, DIMMING & MULTI BUTTON ZONE SELECT CONTROL STATION. "#" DENOTES NUMBER OF ZONES. LETTERS "ab" INDICATE ZONES CONTROLLED.
- $x — SINGLE POLE SWITCH, MTG HEIGHT PER ADA, SUBSCRIPT "K" INDICATES KEY OPERATED SWITCH.
- G — MANUAL ON/OFF, DIMMING & GRAPHIC SCENE SELECT CONTROL STATION.

## POWER SYMBOLS

- DUPLEX RECEPTACLE - MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED. "C" INDICATES CONTROLLED RECEPTACLE, MUST BE WITHIN 6'-0" OF UNCONTROLLED RECEPTACLE PER TITLE 24 REQ.
- DOUBLE DUPLEX RECEPTACLE, MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED.
- DUPLEX, GFCI RECEPTACLE, MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED. WP INDICATES WEATHERPROOF, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.
- DOUBLE DUPLEX, GFCI RECEPTACLE, MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED. WP INDICATES WEATHERPROOF, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.
- DEDICATED 20A DUPLEX RECEPTACLE, MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED.
- DUPLEX RECEPTACLE WITH USB CONNECTORS - MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED.
- DOUBLE DUPLEX RECEPTACLE WITH USB CONNECTORS, MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED.
- EMERGENCY DUPLEX RECEPTACLE - MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED. NOTE: TICK MARKS SHOWN ON ANY DEVICE REPRESENTS RECEPTACLE CONNECTED TO EMERGENCY CIRCUIT (RED DEVICE) TYPICAL FOR ANY DEVICE IN LEGEND.
- SIMPLEX RECEPTACLE, MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED.
- SPECIAL RECEPTACLE, MTG HEIGHT PER ADA DETAIL 02/E7.01 OR AS NOTED. REFER TO PLAN NOTES.
- DUPLEX RECEPTACLE FLUSH IN CLG - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- DOUBLE DUPLEX RECEPTACLE FLUSH IN CLG - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- SIMPLEX RECEPTACLE FLUSH IN CLG - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- SPECIAL RECEPTACLE FLUSH IN CLG - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- DUPLEX RECEPTACLE MTD ABOVE COUNTER, MTG HEIGHT PER ADA DETAIL 02/E7.01 - UNO OR REQ.
- DOUBLE DUPLEX RECEPTACLE MTD ABOVE COUNTER, MTG HEIGHT PER ADA DETAIL 02/E7.01 - UNO OR REQ.
- DUPLEX, GFCI RECEPTACLE MTD ABOVE COUNTER, MTG HEIGHT PER ADA DETAIL 02/E7.01 - UNO OR REQ. WP INDICATES WEATHERPROOF, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.
- DOUBLE DUPLEX, GFCI RECEPTACLE MTD ABOVE COUNTER, MTG HEIGHT PER ADA DETAIL 02/E7.01 - UNO OR REQ. WP INDICATES WEATHERPROOF, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.
- DUPLEX SPLIT SWITCHED RECEPTACLE. MTG HEIGHT PER ADA DETAIL 02/E7.01.
- SIMPLEX RECEPTACLE MTD ABOVE COUNTER, MTG HEIGHT PER ADA DETAIL 02/E7.01 - UNO OR REQ.
- SPECIAL RECEPTACLE MTD ABOVE COUNTER, MTG HEIGHT PER ADA DETAIL 02/E7.01 - UNO OR REQ.
- WALL MOUNTED JUNCTION BOX. MTG HEIGHT AS NOTED. 4S/DP MIN OR AS REQ BY NEC.
- JUNCTION BOX, MTD IN ACCESSIBLE CLG FOR APPLICATION DENOTED ON PLAN. 4S/DP MIN OR AS REQ BY NEC.
- SURFACE MTD MULTI-OUTLET ASSEMBLY. REFER TO GENERAL PRODUCT SPECIFICATIONS. PROVIDE ALL COMPONENTS NECESSARY FOR A COMPLETE INSTALLATION.
- 3 — EXHAUST FAN, OR MOTOR LOAD. REFER TO MECHANICAL, PLUMBING OR KITCHEN DWG FOR SPECIFIC LOAD REQ OR AS NOTED.
- FLUSH MTD ELECTRICAL PANELBOARD OR LOAD CENTER. REFER TO PANEL SCHEDULE.
- SURFACE MTD ELECTRICAL PANELBOARD OR LOAD CENTER. REFER TO PANEL SCHEDULE.
- DISTRIBUTION SWITCHBOARD. REFER TO SINGLE LINE DIAGRAM.
- T — TRANSFORMER, REFER TO SINGLE LINE DIAGRAM.
- F — FUSED DISCONNECT SWITCH, HP RATED, OR COMBINATION MOTOR STARTER/DISCONNECT SWITCH W/ FUSES PER EQUIPMENT MFR & WEATHERPROOF AS REQ. PROVIDE FINAL CONNECTION TO UNIT EQUIPMENT. SEE MOTORIZED EQUIPMENT SCHEDULE FOR DISCONNECT & STARTER SIZES.
- MOTOR STARTER COMBINATION SWITCH W/ HOA SELECTOR SWITCH, ON "RUNNING LIGHT" RESET & OVERLOAD PROTECTION.
- NON-FUSED DISCONNECT SWITCH, HP RATED & WEATHERPROOF AS REQ. PROVIDE FINAL CONNECTION TO UNIT EQUIPMENT. SEE MOTORIZED EQUIPMENT SCHEDULE FOR DISCONNECT SIZES.
- M / CT — UTILITY COMPANY METER. PROVIDE "CT's" & "PT's" AS REQ, REFER TO SINGLE LINE DIAGRAM.
- 1 / 150AF 150AT 3P — CIRCUIT BREAKER, LINE 1 REPRESENTS FRAME SIZE/RATING; LINE 2 REPRESENTS TRIP SIZE/RATING; LINE 3 REPRESENTS NUMBER OF POLES & LINE 4 REPRESENTS MISC BREAKER INFO. (SEE BELOW):
  - SHUNT = PROVIDE SHUNT TRIP MECHANISM.
  - HACR = PROVIDE HACR-RATED BREAKER.
  - GFP = GROUND FAULT PROTECTION
  - CLCB = CURRENT LIMITING CIRCUIT BREAKER
  - SS = PROVIDE SOLID STATE CIRCUIT BREAKER
- 60AS 3P / 50AF CLASS J — FUSIBLE SWITCH: LINE 1 REPRESENTS SWITCH SIZE/RATING; LINE 2 REPRESENTS NUMBER OF POLES; LINE 3 REPRESENTS FUSE SIZE/RATING; LINE 4 REPRESENTS FUSE TYPE; LINE 5 REPRESENTS MISC FUSE INFO. (SEE BELOW):
  - SHUNT= PROVIDE SHUNT TRIP MECHANISM.
  - GFP = GROUND FAULT PROTECTION
  - CLF = CURRENT LIMITING FUSE
- GROUND CONNECTION, SIZE AS INDICATED OR AS REQ.
- T — LOW VOLTAGE TRANSFORMER
- PB OR P — PULLBOX, SIZED PER NEC OR AS NOTED.
- RECESSED COMBINATION POWER OUTLET IN FLOOR BOX PER PLAN FOR FLEXIBLE CONNECTION TO FURNITURE SYSTEM. 4 CIRCUIT, 8 WIRE CONFIGURATION ASSUMED U.O.N. (1) 400 WATT COMPUTER PER WORKSTATION, MAX 8 WORKSTATIONS PER J-BOX, U.O.N. G.C. TO PROVIDE HARD-WIRED CONNECTION. VERIFY CONNECTION REQ W/ MFR PRIOR TO ROUGH-IN - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- POWER OUTLET IN WALL FOR FLEXIBLE CONNECTION TO FURNITURE SYSTEM, MTG HEIGHT PER ADA DEVICE MT REQ. 4 CIRCUIT, 8 WIRE CONFIGURATION ASSUMED U.O.N. (1) 400 WATT COMPUTER PER WORKSTATION, MAX 8 WORKSTATIONS PER J-BOX, U.O.N. G.C. TO PROVIDE HARD-WIRED CONNECTION. FOR FLEXIBLE CONNECTION TO FURNITURE SYSTEM PROVIDE THE FOLLOWING:
  - IN A NON-RATED INSULATED WALL, OR NON-RATED UNINSULATED WALL, PROVIDE A 2-GANG MUD RING OR CADDY #RBS SERIES BOX MTG BRACKET (EQUAL BY B-LINE OR RAYCO) W/ (2) 1-1/4"CO W/ PULL STRING TO ACCESSIBLE CLG. PROVIDE 1-1/4" BUSHINGS @ CONDUIT ENDS. REFER TO ARCHITECTURAL PLANS FOR WALL CONSTRUCTION/TYPE & CLG CONDITIONS.
  - IN A RATED WALL, PROVIDE (1) 4S/DP BOX W/ (2) 1-1/4" CO & (1) 4S/DP BOX W/ (1) 1-1/4" CO W/ PULL STRINGS IN EA CONDUIT TO ACCESSIBLE CLG. PROVIDE 1-1/4" BUSHINGS @ CONDUIT ENDS. UTILIZE CADDY #RBS SERIES BOX MTG BRACKET TO MAINTAIN BOX ALIGNMENT. (EQUAL BY B-LINE OR RAYCO) UTILIZE FIRESTOPPING SYSTEM PADS RATED FOR USE ON THE INSIDE OR OUTSIDE OF THE BOX (STI OR EQ) AS REQ TO MAINTAIN RATING OF WALL OR MEMBRANE. REFER TO ARCHITECTURAL PLANS FOR WALL CONSTRUCTION/TYPE & CLG CONDITIONS.
- GROUND BUS BAR


LPA

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REGISTERED PROFESSIONAL ENGINEER — ALDOR GERARDO BARRETT — E22285 — 3/31/26 — ELECTRICAL — STATE OF CALIFORNIA


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**JLee Engineering, Inc.**
**Approved**
**By Mostafa Kashe**
04/06/2026

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451 E Vanderbilt Way,
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Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|

| Submittal | Date |
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| SCHEMATIC DESIGN | 03/14/2025 |
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| Job Number | 32468 |
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| Scale | 1/8" = 1'-0" |

ELECTRICAL LEGEND & GENERAL NOTES

E0.01

## LIGHTING GENERAL NOTES

1. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION & ELEVATION OF ALL LIGHTING FIXTURES & ALL DEVICES. ALL WALL-MTD DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH-IN. IF ANY WALL MTD FIXTURES ARE PLACED WITHOUT VERIFICATION FROM THE ARCHITECT, CONTRACTOR SHALL RELOCATE FIXTURE TO APPROVED LOCATION AT NO ADDITIONAL COST.
2. VERIFY EXACT CLG CONSTRUCTION W/ ARCHITECTURAL REFLECTED CLG PLAN & PROVIDE LIGHTING FIXTURES W/ ALL NECESSARY MTG HARDWARE.
3. ALL RECESSED FIXTURES SHALL BE PROVIDED W/ ALL REQ STRUCTURAL SUPPORTS AS REQ BY THE CURRENTLY ADOPTED ISSUE OF THE UNIFORM BUILDING CODE, AS WELL AS ANY LOCAL CODES.
4. ALL COVE MTD FIXTURES SHALL EXTEND THE FULL LENGTH OF THE COVE. CONTRACTOR TO FIELD MEASURE COVE LENGTH & ORDER QTY OF FIXTURES AS REQ.
5. ALL DIMMING BRANCH CIRCUITS SHALL BE PROVIDED W/ A DEDICATED NEUTRAL CONDUCTOR FOR EACH ZONE/CHANNEL.
6. REFER TO ARCHITECTURAL REFLECTED CLG PLANS FOR EXIT SIGN CHEVRONS & NUMBER OF FACES PER EXIT SIGN,AND/ANY DISCREPANCIES BETWEEN EXIT SIGNS SHOWN ON THE ELECTRICAL & ARCHITECTURAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO ORDERING EXIT SIGNS.
7. WHEN EXPOSED CLG OR OPEN GRID CONDITIONS OCCUR, THE CONTRACTOR WILL NEED TO PROVIDE THE FOLLOWING ITEMS:
   A. ALL BRANCH CIRCUITS SHALL BE IN EMT.
   B. ALL BRANCH CIRCUITS SHALL BE ROUTED NEATLY TRAINED & IN PARALLEL TO STRUCTURES OR DUCT WORK. THE TERM "TRAINED" MEANS ALL PARALLEL CONDUITS SHALL MAINTAIN THE SAME SPATIAL RELATIONSHIP W/ EA OTHER FOR ENTIRE RUN TO INCLUDE RADIUS BENDS & SWEEPS.
   C. VISUALLY OBJECTIONABLE BRANCH CIRCUITS WILL BE REROUTED AT THE REQUEST OF THE ARCHITECT AT NO ADDL COST.
   D. SHOP DWG SHOWING LOCATION & PLACEMENT OF ALL CONDUITS.
8. RECESSED FIXTURES LOCATED IN A FIRE-RATED CLG OR WALL SHALL BE PROVIDED WITH A 5-SIDED RATED ENCLOSURE SO CONSTRUCTED AS TO ALLOW CODE & MFR-REQ CLEARANCES BETWEEN THE FIXTURE & THE ENCLOSURE.
9. REFER TO GENERAL POWER PLAN NOTES & COMMUNICATIONS PATHWAYS GENERAL NOTES FOR ADDITIONAL REQ WHEN POWER AND/OR DATA DEVICES ARE SHOWN ON THIS PLAN.
10. CONTRACTOR TO INCLUDE AN ALLOWANCE TO CORE & SEAL PENETRATIONS THROUGH STRUCTURAL CONCRETE WALLS. COORDINATE LOCATIONS & REQ W/ ARCHITECTURAL & STRUCTURAL DWGS.
11. COORDINATE ALL PENETRATIONS W/ STRUCTURAL PLANS & DETAILS. NO PENETRATIONS ARE PERMITTED UNLESS SPECIFICALLY NOTED ON STRUCTURAL DWGS.

## ROOF GENERAL NOTES

1. ELECTRICAL CONTRACTOR SHALL REFER TO MECHANICAL/PLUMBING & ARCHITECTURAL DWG FOR EXACT LOCATIONS & CHARACTERISTICS OF ALL EQUIPMENT LISTED IN SCHEDULE. ANY MODIFICATIONS AND/OR ADDITIONAL WORK NECESSARY SHALL BE INCLUDED IN THE BASE BID.
2. ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL CONNECTION POINTS W/ THE EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE LOCAL REMOTE DISCONNECTING MEANS FOR ALL ELECTRIC HEATING EQUIPMENT IF REQ BY THE LOCAL ELECTRICAL CODE.
4. ELECTRICAL CONTRACTOR SHALL COORDINATE THE ROUTING OF CONDUIT/WIRING TO ROOF-MTD EQUIPMENT W/ EQUIPMENT INSTALLER PRIOR TO ROUGH-IN. WHERE ROOF-MTD EQUIPMENT IS MFR TO BE FED FROM WITHIN MECHANICAL CURB ASSEMBLY - SEPARATE ROOF PENETRATIONS FOR WIRING CONNECTIONS SHALL NOT BE PERMITTED. ALL WIRING SHALL BE BELOW THE ROOF IN AN ACCESSIBLE CLG SPACE LOCATION.
5. ALL ROOF MTD EQUIPMENT SHALL BE NEMA 3R RATED.

## LOW VOLTAGE GENERAL NOTES

1. CONDUITS SHALL, (a) CONTAIN NO CONTINUOUS SECTIONS LONGER THAN 30M (98 FT.), AND, (b) CONTAIN NO MORE THAN (2) 90° BENDS OR (1) REVERSE BEND WITHOUT INSTALLING A PULLBOX. CONDUITS IN PLACE OF PULLBOXES ARE UNACCEPTABLE.
2. CONDUITS SHALL CONTAIN PLASTIC OR NYLON PULL TAPE RATED AT 200 LBS. WITH A MINIMUM OF 5 FEET OF EXTRA PULL TAPE COILED AT EACH END.
3. CONDUIT BEND RADIUS SHALL BE (a) A MINIMUM OF 6 TIMES THE INTERNAL CONDUIT DIAMETER FOR CONDUITS 2" IN DIAMETER OR LESS, AND, (b) 10 TIMES THE INTERNAL CONDUIT DIAMETER FOR CONDUITS MORE THAN 2" IN DIAMETER.
4. TERMINATE CONDUITS AND SLEEVES THAT PROTRUDE THROUGH STRUCTURAL FLOORS 2"-3" ABOVE THE FLOOR SURFACE.
5. INSTALL BUSHINGS AND BELL ENDS AS REQUIRED ON ALL CONDUITS.
6. FLEX CONDUIT IS GENERALLY UNACCEPTABLE FOR USE AS A COMMUNICATIONS CONDUIT EXCEPT AT SEISMIC JOINTS AND AS APPROVED IN WRITING BY THE ENGINEER.
7. ALL UNDER SLAB OR IN-SLAB CONDUITS SHALL BE INSTALLED IN A MANNER THAT PREVENTS WATER INFILTRATION OF THE CONDUIT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROUND WATER, RAIN WATER OR CONSTRUCTION WATER IS PREVENTED FROM ENTERING AND/OR REMOVED FROM THE CONDUITS PRIOR TO PLACEMENT OF COMMUNICATIONS CABLES. SEE SITE UTILITY PLAN NOTES FOR ADDITIONAL UNDERGROUND COMMUNICATIONS CONDUIT SEALING REQUIREMENTS.
8. CONDUIT(S) SHALL EXIT A PULLBOX ON THE WALL OPPOSITE THE WALL ENTERED.
9. PROVIDE LABELING OF EACH CONDUIT PER GENERAL ELECTRICAL SPECIFICATIONS.
10. PROVIDE INTERNAL/EXTERNAL GAS AND WATER TIGHT MECHANICAL SEALING/PLUGGING OF EACH BUILDING ENTRY CONDUIT AS SPECIFIED ELSEWHERE IN THE DRAWINGS AND SPECIFICATIONS.
11. COORDINATE ALL MOUNTING DIMENSIONS FOR ELECTRICAL DEVICES AND SWITCHES WITH ARCHITECTURAL INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
12. COORDINATE ALL PENETRATIONS WITH STRUCTURAL PLANS AND DETAILS. NO PENETRATIONS ARE PERMITTED UNLESS SPECIFICALLY NOTED ON STRUCTURAL DRAWINGS.
13. ALL PULLBOXES SHALL BE SIZED AND INSTALLED PER ANSI/TIA/EIA-569B. PULLBOXES FOR UNDER FLOOR CONDUIT RUNS ARE NOT PERMITTED UNLESS OTHERWISE NOTED. PULLBOXES FOR OVERHEAD CONDUIT RUNS SHALL BE LOCATED ABOVE ACCESSIBLE CEILINGS WITHIN THE ACCESSIBLE CEILING SPACE AND SUPPORTED INDEPENDENTLY FROM THE STRUCTURE AND CONDUIT SUPPORTS. PULLBOXES FOR ROOF MOUNTED OR EXTERIOR ABOVE GRADE APPLICATIONS SHALL BE NEMA 3 RATED. PULLBOXES SHALL BE SIZED ACCORDING TO THE FOLLOWING CHART:

| CONDUIT SIZE | LENGTH | WIDTH | DEPTH | WIDTH INCREASE PER ADDITIONAL CONDUIT |
|---|---|---|---|---|
| 1" | 4" | 16" | 3" | 2" |
| 2" | 8" | 36" | 4" | 5" |
| 3" | 12" | 48" | 5" | 6" |
| 4" | 15" | 60" | 8" | 8" |

## DEMOLITION NOTES

1. THE ELECTRICAL DWG ARE DIAGRAMMATIC ONLY. DO NOT SCALE THE ELECTRICAL DWG TO DETERMINE THE LOCATION OF EQUIPMENT OR OUTLETS. SEE ARCHITECTURAL PLANS, WHERE PROVIDED ON PROJECT, FOR EXTENT OF DEMOLITION.
2. THE EXG CONDITIONS SHOWN ARE FROM AVAILABLE RECORD DWGS & SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXG CONDITIONS @ SITE PRIOR TO SUBMITTING BID. ALL DEMOLITION, ALTERATION, EXTENSION, RELOCATION, REHABILITATION WORK SHALL BE INCLUDED IN CONTRACT. NO ADDITIONAL ALLOWANCE OR CHANGE ORDERS WILL BE ACCEPTED.
3. CONTRACTOR IS RESPONSIBLE TO RELOCATE OR REMOVE FROM WALLS, CLGS, FLOOR SPACES, ETC. ANY EXG CONDUITS, WIRES, BOXES, FITTINGS, FIXTURES OR OTHER ELECTRICAL EQUIPMENT WHICH INTERFERES WITH PLANNED REMODEL WORK. PROVIDE CIRCUIT CONTINUATION REQ FOR ALL EXG OUTLETS, FIXTURES, EQUIPMENT, ETC SCHEDULED TO REMAIN.
4. NOTIFY THE ENGINEER IMMEDIATELY WHEREVER EXG EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, OR NOT INDICATED ON "AS-BUILT" DWGS OR WAS BURIED UNDERGROUND OR EMBEDDED IN STRUCTURE WALLS.
5. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT, UTILITY LINES & MATERIALS, WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE SMALLER AREA IF POSSIBLE & RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.
6. EQUIPMENT, MATERIALS & SUPPLIES TEMPORARILY REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND & QUALITY.
7. DEMOLITION WORK SHALL BE DONE IN A MANNER WHICH WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO USERS OF THE PREMISES & ADJACENT SITE, & NOT INTERFERE WITH ITS OPERATION. ANY DEMOLITION WORK TO BE PERFORMED MUST BE PLANNED IN ADVANCE.
8. DO ALL DRILLING, CUTTING, ETC REQ TO DEMOLISH ELECTRICAL WORK AS INDICATED OR PROVIDE BLANK COVER PLATE ON ALL OUTLETS EXPOSED BY REMOVAL OF FIXTURE OF DEVICES.
9. RESEAL ALL PENETRATIONS OR OPENING THROUGH WALLS, CLG, FLOORS, ETC, TO MAINTAIN THE RATING OF STRUCTURE.
10. CONTRACTOR SHALL VERIFY EXG CONDUIT/CONDUCTOR RUNS ON CIVIL DEMOLITION PLAN, SHEET C1.01. REUSE AS REQ & REMOVE ALL UNUSED CONDUIT/CONDUCTORS. REMOVE CONDUIT BACK TO SCOPE OF WORK LIMIT LINE. AT EACH END OF FEEDER, TAG & LABEL CONDUIT. DOCUMENT DETAILED DIMENSIONS ON AS-BUILTS. REMOVE CONDUCTORS BACK TO SOURCE (VERIFY WITH OWNER). UNUSED CONDUIT IN INACCESSIBLE LOCATIONS (WALLS TO REMAIN) CAN BE ABANDONED IN PLACE.
11. CONTRACTOR SHALL FIELD VERIFY EXG CONDUIT/WIRING RUNS, REUSE AS REQ & REMOVED ALL UNUSED CONDUIT/WIRING. UNUSED CONDUIT IN INACCESSIBLE LOCATIONS (WALLS TO REMAIN) CAN BE ABANDONED IN PLACE. REMOVE UNUSED WIRING.
12. CONTRACTOR TO VERIFY CIRCUIT NUMBER & LOADS FOR ALL EXG EQUIPMENT PRIOR TO INSTALLATION OF NEW OR RELOCATED ELECTRICAL EQUIPMENT. REASSIGN CIRCUITS & LOADS ACCORDINGLY. PROVIDE COMPLETE "AS BUILT" DWGS & TYPEWRITTEN DIRECTORIES FOR PANELS.
13. WHERE NECESSARY TO SHUT OFF UTILITY SERVICES OR CAUSE INTERRUPTION TO POWER OR SIGNAL SYSTEMS WHILE A BUILDING IS OCCUPIED OR THAT EFFECT ADJACENT BUILDINGS, SCHEDULE OUTAGES OR INTERRUPTIONS WITH THE OWNER, BUILDING OCCUPANTS AND/OR ADJACENT BUILDING OWNER(S) & OCCUPANTS PRIOR TO CONDUCTING OUTAGE(S) OR INTERRUPTIONS.

## POWER GENERAL NOTES

1. ALL RECEPTACLES ON COMMON WALLS SHALL BE SEPARATE BOXES & OFFSET 24" MIN.
2. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE W/ AN APPROVED FIRESTOP SYSTEM EQ OR GREATER THAN THE FIRE RATING OF THE WALL.
3. COORDINATE ALL MTG DIMENSIONS FOR ELECTRICAL DEVICES & SWITCHES W/ ARCHITECTURAL INT ELEVATIONS PRIOR TO ROUGH-IN.
4. ALL FURNITURE FEED LOCATIONS TO BE VERIFIED W/ ARCHITECT & FURNITURE VENDOR PRIOR TO ROUGH IN..
5. ALL FURNITURE WHIPS SHALL BE TRIMMED TO REDUCE EXCESS WHIP LENGTH
6. WHEN EXPOSED CLG OR OPEN GRID CONDITIONS OCCUR, THE CONTRACTOR WILL NEED TO PROVIDE THE FOLLOWING ITEMS:
   A. ALL BRANCH CIRCUITS SHALL BE IN EMT.
   B. ALL BRANCH CIRCUITS SHALL BE ROUTED NEATLY & IN PARALLEL TO STRUCTURES OR DUCT WORK.
   C. VISUALLY OBJECTIONABLE BRANCH CIRCUITS WILL BE REROUTED AT THE REQUEST OF THE ARCHITECT @ NO ADDITIONAL COST.
7. EXPOSED CABLE/CONDUCTORS INSTALLED IN A PLENUM SPACE SHALL CONFORM TO CEC WHERE ADOPTED, ARTICLE 300.22(C.
8. PROVIDE GFCI TYPE RECEPTACLE(S) WITHIN 6 FT OF ANY SINK.
9. CONTRACTOR TO INCLUDE AN ALLOWANCE TO CORE & SEAL PENETRATIONS THROUGH STRUCTURAL CONCRETE WALLS. COORDINATE LOCATIONS & REQ W/ ARCHITECTURAL & STRUCTURAL DWG.
10. COORDINATE ALL PENETRATIONS W/ STRUCTURAL PLANS & DETAILS. NO PENETRATIONS ARE PERMITTED UNLESS SPECIFICALLY NOTED ON STRUCTURAL DWG.
11. COORDINATE ALL KITCHEN CONDUIT & EQUIPMENT ROUGH-IN ON KITCHEN DWG

## GENERAL NOTES

1. THE ELECTRICAL CONTRACTOR (EC) SHALL INCLUDE & PROVIDE IN BID ALL LABOR & MATERIALS NECESSARY FOR A COMPLETE & OPERATIONAL INSTALLATION OF ALL ELECTRICAL SYSTEMS.
2. EC SHALL COORDINATE & OBTAIN ALL APPROVALS, PERMITS, & DOCUMENTS FROM REGULATORY AGENCIES & UTILITY COMPANIES.
3. ALL CONDUIT RACEWAY SYSTEMS ARE TO BE INSTALLED AS FOLLOWS:
   A. RIGID GALVANIZED STEEL IS TO BE INSTALLED IN ALL AREAS WHICH ARE EXPOSED TO WEATHER AND/OR PHYSICAL DAMAGE.
   B. FLEXIBLE METALLIC CONDUIT I S PERMITTED FOR SHORT CONNECTIONS TO LIGHT FIXTURES (6'-0" MAX).
   C. FLEXIBLE CONDUIT SHALL ALSO BE INSTALLED FOR EQUIPMENT REQ VIBRATION ISOLATION & HORIZONTAL RUNS IN WOODEN STUD WALLS. ELECTRICAL METALLIC TUBING (EMT) W/ COMPRESSION TYPE FITTINGS SHALL BE USED FOR BUILDING INTERIOR WORK.
   D. PVC CONDUIT SHALL BE USED FOR UNDERGROUND CONDUITS. ROUTE CODE SIZED GROUND WIRE INSIDE OF CONDUIT. CONDUIT RISERS & STUBS ABOVE GRADE SHALL BE IMC WITH HALF-LAPPED TAPE COVERING OR PVC COATING & UTILITY COMPANIES.
4. UNO OR REFERENCED ON THE DWG ALL NEW ELECTRICAL WIRING IS TO BE 600V RATED COPPER W/ TYPE "THHN/THWN" INSULATION.
5. ALL MTG HEIGHTS REFERENCED ON DWG ARE MEASURED FROM FINISHED FLOOR UNLESS OTHERWISE REFERENCED OR INDICATED ON THE DRAWINGS.
6. ALL ELECTRICAL EQUIPMENT LOCATIONS (LIGHTING, RECEPTACLE, FLOOR BOX, ETC) ARE TO BE VERIFIED WITH THE ARCHITECT AND/OR EQUIPMENT SUPPLIER PRIOR TO BEGINNING ANY ROUGH-IN.
7. ALL LIGHTING FIXTURES SHALL BE MTD & SUPPORTED IN ACCORDANCE W/ OSHA STANDARDS, & ALL STATE, LOCAL, SEISMIC, & CALIFORNIA ELECTRIC CODES.
8. THE DWG INCLUDED IN THIS DOCUMENT SET ARE DIAGRAMMATIC. THEY ARE REPRESENTATIVE OF THE ENGINEER OF RECORDS DESIGN INTENT FOR ALL ELECTRICAL DEVICES/EQUIPMENT & THE INDIVIDUAL POWER FEEDS THEY ARE TO BE CONNECTED TO. THE SELECTED EC SHALL BE RESPONSIBLE FOR PROVIDING ALL J-BOXES, CONDUIT, WIRING/CABLING, ETC AS REQ FOR A COMPLETE & OPERATIONAL ELECTRICAL INSTALLATION.
9. ALL ELECTRICAL EQUIPMENT (PANELS, RECEPTACLES, J-BOXES, ETC.) SHALL BE WEATHERPROOF AND/OR INSTALLED IN A NEMA 3R ENCLOSURE WHERE APPLICABLE OR INSTALLED OUTDOORS.
10. ALL ELECTRICAL WORK SHALL BE PERFORMED ACCORDING TO STATE, LOCAL, NATIONAL, & DISTRICT STANDARDS & CODES. COORDINATE SPECIFIC REQ W/ DISTRICT STANDARDS & AUTHORITY HAVING JURISDICTION.
11. ALL ELECTRICAL EQUIPMENT SHALL BE NEW & IS TO BE CLEARLY LABELED/IDENTIFIED AS UNDERWRITER LABORATORIES (UL) COMPLIANT UNO OR REFERENCED IN THE DWG OR SPECIFICATIONS.
12. EC IS RESPONSIBLE FOR SECURING ALL REQ BUILDING PERMITS & SHALL INCLUDE THE COST TO SECURE BUILDING PERMITS IN THEIR FINAL BID.
13. UNLESS OTHERWISE WRITTEN, STATED, OR REFERENCED IN DWG OR SPECIFICATIONS CONTRACTOR SHALL GUARANTEE THE COMPLETE ELECTRICAL INSTALLATION FOR A PERIOD OF 1-YEAR.
14. ALL ELECTRICAL DISTRIBUTION EQUIPMENT (PANELS, DISTRIBUTION BOARDS, TRANSFORMERS, ETC), FEEDERS (CONDUIT, CONDUCTOR SIZE, & QUANTITY), MECHANICAL EQUIPMENT, ELEVATORS, VARIABLE FREQUENCY DRIVES (VFD'S), ETC. MAY ONLY BE REFERENCED ON THE SINGLE-LINE DWG & NOT INDIVIDUAL PLAN SHEETS. EC SHALL REVIEW & VERIFY ALL REFERENCED INFORMATION ON THE SINGLE-LINE DWG.
15. EC SHALL BE RESPONSIBLE FOR ALL REQ SAW-CUTTING, CORE DRILLING, PATCHING, REFINISHING, ETC AS REQ FOR INSTALLATION OF ELECTRICAL EQUIPMENT & SYSTEMS. ANY PENETRATIONS OR OPENINGS MADE IN WALLS OR STRUCTURES SHALL BE PATCHED AND/OR SEALED AS REQ TO MAINTAIN THE INTEGRITY AND/OR RATING OF THE WALL OR STRUCTURE.
16. EC SHALL VISIT THE SITE PRIOR TO SUBMISSION OF THEIR FINAL BID TO VERIFY ALL EXG SITE CONDITIONS WHICH MAY AFFECT THE COMPLETION OF THE ELECTRICAL INSTALLATION. ALL METHODS & REQUIREMENTS FOR INSTALLATION SHALL BE DETERMINED PRIOR TO BID DATE. ELECTRICAL EC SHALL NOTIFY THE ENGINEER OF RECORD OF ANY REQ MODIFICATIONS WHICH ARE NOT REFERENCED ON THESE ELECTRICAL PLANS. SUBMITTAL OF THE EC'S BID DEMONSTRATES THE CONTRACTOR'S AWARENESS OF ALL SITE CONDITIONS & REQ WORK TO BE PERFORMED.
17. ALL CLGS & CLG SYSTEMS AS A RULE ARE CONSIDERED TO BE INACCESSIBLE. ALL ELECTRICAL DEVICES & EQUIPMENT INSTALLED ABOVE CLGS ARE TO BE MTD IN A LOCATION WHICH IS ACCESSIBLE. IN SITUATIONS WHERE ELECTRICAL DEVICES & EQUIPMENT MUST BE INSTALLED IN AN AREA WHICH IS INACCESSIBLE, EC SHALL INSTALL AN ADEQUATELY SIZED, CODE COMPLIANT ACCESS PANEL AS REQ BY CURRENT CODES - LOCATION OF THE REQ ACCESS PANEL SHALL BE COORDINATE W/ THE ARCHITECT & INTERIOR DESIGNER PRIOR TO ROUGH-IN.
18. EC IS RESPONSIBLE FOR COMPLETING ALL FINAL ELECTRICAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT & SHALL PROVIDE ALL MOTOR START SWITCHES, DISCONNECTS, ETC AS REQ.
19. ALL ELECTRICAL EQUIPMENT CONNECTIONS, MOUNTING LOCATIONS, ELECTRICAL REQUIREMENTS, ETC ARE TO BE COORDINATED & VERIFIED PRIOR TO COMMENCEMENT OF ELECTRICAL ROUGH-IN.
20. EC TO SUBMIT SHOP DWG FOR THE APPROVAL OF THE ELECTRICAL ENGINEER OF RECORD FOR ALL ELECTRICAL EQUIPMENT & MATERIALS TO BE UTILIZED IN THE ELECTRICAL INSTALLATION. ALL APPROVALS BY THE ENGINEER OF RECORD MUST BE SECURED PRIOR TO COMPLETION OF ANY PURCHASE ORDERS OR ROUGH-IN WORK.
21. THESE ELECTRICAL DWG & ASSOCIATED SPECIFICATIONS ARE TO BE CONSIDERED CONTRACT DOCUMENTS FOR AGENCY REVIEW/APPROVAL & EC BIDDING PURPOSES.
22. THE COMPLETE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH CEC ARTICLE 250. ALL POWER & LIGHTING CIRCUITS SHALL BE INSTALLED WITH A MIN #12AWG CU GROUND WIRE UNO OR REFERENCED.
23. EC TO PROVIDE ENGRAVED PHENOLIC NAMEPLATES ON ALL DISCONNECT SWITCHES, DISTRIBUTION EQUIPMENT, J-BOXES ETC. W/ METALLIC COVERS. SEE GENERAL NOTES ON SINGLE-LINE DIAGRAM FOR SPECIFIC INFORMATION REGARDING NAME PLATE REQ.
24. ELECTRICAL & LIGHTING COVER PLATE COLOR, ENGRAVING & LABELING PER SPECIFICATIONS.
25. AT THE COMPLETION OF THE PROJECT THE EC SHALL PROVIDE THE OWNER WITH A COMPLETE SET OF AS-BUILT ELECTRICAL DWG.
26. ANY & ALL WORK THAT REQ AN INTERRUPTION TO A BUILDING(S) ELECTRICAL SERVICE MUST BE COORDINATED W/ THE DISTRICT A MIN OF 48 HOURS IN ADVANCE. ANY SERVICE DOWNTOWN SHALL NOT OCCUR DURING SCHOOL HOURS.
27. EC SHALL BE RESPONSIBLE FOR FOR ENSURING THAT ALL LOW VOLTAGE SYSTEMS ARE COMPATIBLE & ARE COMPLETE & OPERATIONAL.
28. EC SHALL PERMANENTLY TAG ALL CONDUCTORS IN EA ELECTRICAL & LOW VOLTAGE SYSTEM AS REFERENCED IN THE SPECIFICATIONS.
29. ANY SURFACE MTD EXPOSED CONDUIT IN VIEW OF THE PUBLIC SHALL BE PAINTED TO MATCH THE FINISH OF THE SURFACE TO WHICH IT IS MTD WITH TWO (2) COATS OF PAINT. ALL EXT SURFACE MTD EXPOSED CONDUITS ARE TO BE PAINTED W/ TWO (2) COATS OF WEATHERPROOF LATEX PAINT.
30. EC TO PROVIDE ALL CONDUIT ONLY (CO) INFRASTRUCTURE WITH A 3/16" NYLON PULL ROPE. LABEL PULL ROPE AT EACH END W/ THE LOCATIONS OF ORIGIN & TERMINATION.
31. IN INSTANCES WHERE A CONFLICT BETWEEN THE ELECTRICAL DWG & THE SPECIFICATIONS FOR THE PROJECT EXISTS, THE EC SHALL ADHERE TO THE MORE STRINGENT REQ.
32. ELECTRICAL DWG ARE DIAGRAMMATIC. AS SUCH, ALL ELECTRICAL EQUIPMENT LOCATIONS, CONDUIT ROUTING, ETC ARE NOT PRECISE & SHALL BE COORDINATED, VERIFIED, & DETERMINED IN THE FIELD. EC TO INSTALL ALL ELECTRICAL EQUIPMENT & ROUTE ALL CONDUITS IN LOCATIONS WHICH MEET CODE REQ FOR ACCESSIBILITY/MOUNTING & DO NOT INTERFERE W/ ANY BUILDING STRUCTURES, UTILITIES, OR OTHER TRADE EQUIPMENT.
33. ALL EXG SITE RELATED ELECTRICAL EQUIPMENT (I.E. UNDERGROUND UTILITIES, DUCTS, STRUCTURES, PULL BOXES, ETC.) LOCATIONS ARE DIAGRAMMATIC IN NATURE & ONLY REFLECT APPROXIMATE LOCATIONS, QUANTITIES, &/OR ROUTING INFORMATION. ALL REFERENCED INFO HAS EITHER BEEN SURVEYED, REPORTED BY THE OWNER/OWNERS REP, AND/OR REFERENCED ON AN AS-BUILT RECORD DOCUMENTS. ALL EXG ELECTRICAL EQUIPMENT REFERENCED ON THESE DWG IS TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF BY ACCEPTING THESE PLANS OR PROCEEDING WITH ELECTRICAL SCOPE OF WORK, AGREES TO ACCEPT LIABILITY & SHALL RENDER THE ENGINEER OF RECORD HARMLESS FOR ANY ELECTRICAL EQUIPMENT NOT REPORTED TO THE ENGINEER DURING THE DESIGN PROCESS. THE CONTRACT TO TAKE THE REQ PRECAUTIONARY MEASURES TO ENSURE ALL EXG ELECTRICAL EQUIPMENT IS PROTECTED IN PLACE.
34. ANY EXG BUILDING STRUCTURES OR SURFACES DAMAGED BY DEMOLITION OR DURING INSTALLATION ACTIVITIES SHALL BE REPAIRED, PATCHED, AND/OR REFINISHED TO THE SATISFACTION OF THE OWNER.
35. ALL EXG ELECTRICAL EQUIPMENT INDICATED TO BE DEMOLISHED SHALL BE REMOVED ENTIRELY & ALL AFFECTED SURFACES OR STRUCTURES SHALL BE REPAIRED, REPLACED, AND/OR REFINISHED TO MATCH THE ADJACENT SURFACES OR DAMAGED ITEM(S).
36. FOR CLARITY ONLY RECONSTRUCTION OR NEW WORK RELATED ELEMENTS & SELECT EXISTING FACILITIES SPECIFICALLY REQ COORDINATION W/ ANY NEW WORK.
37. ALL CONDUITS, BOXES, SURFACE MTD RACEWAYS, SUPPORT DEVICES, & ASSOCIATED FITTINGS SHALL BE MTD IN CONCEALED LOCATIONS ABOVE CLG, DUCTS, TRUSSES, BEAMS, ETC IN AREAS WHERE A CONCEALED MTG LOCATION IS NOT AVAILABLE EQUIPMENT SHALL BE PAINTED TO MATCH THE ADJACENT SURFACES.
38. ANY PENETRATIONS BY CONDUITS OR OTHER ELECTRICAL EQUIPMENT THROUGH A FIRE RATED WALL - WHETHER EXG OR NEW - SHALL MAINTAIN THE APPROPRIATE FIRE RATING BY SEALING THE PENETRATION W/ THE APPROPRIATE UL-LISTED FIRE-STOP MATERIAL/SYSTEM.
39. ELECTRICAL CONTRACTOR SHALL PREPARE & SUBMIT THE FOLLOWING CALIFORNIA ENERGY COMMISSION T-24 CERTIFICATE OF ACCEPTANCE LTG-1-1, PARTS 1, 2, & 3; LIGHTING CONTROL LTG-2-A: AND/OR AUTOMATIC DAYLIGHTING CONTROL LTG-3-A, AS THEY APPLY TO THE BUILDING DEPARTMENT PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
40. LEED COMMISSIONING NOTE: ELECTRICAL CONTRACTOR TO COORDINATE & PROVIDE ASSISTANCE FOR COMPLETE COMMISSIONING OF ALL SYSTEMS IDENTIFIED IN COMMISSIONING AGENT'S DOCUMENTS, INCL BUT NOT LIMITED TO LIGHTING CONTROLS, ELECTRONIC METERING, ETC.

## ADDITIONAL NOTES

1. ALL INFO REFERENCED IS PRELIMINARY IN NATURE & DOES NOT REPRESENT FINAL DESIGN DOCUMENTS. ALL INFO & REQ RELATIVE TO UTILITY INFRASTRUCTURE SHALL BE COORDINATED, VERIFIED, & INSTALLED PER FINAL UTILITY COMPANY DESIGN DOCUMENTS.
2. ROUTING OF ALL CONDUIT SHALL BE COORDINATED IN THE FIELD & CONFIRMED BY ENGINEER & ARCHITECT.
3. COORDINATE ALL CONDUIT ROUTING, ELECTRICAL DEVICE LOCATIONS, PULL BOX LOCATIONS, ETC W/ LANDSCAPE PLANTING PLANS TO AVOID CONFLICTS W/ TREES, SHRUBS, ETC.
4. ALL CONDUCTOR & CABLE RUNS ARE TO BE CONTINUOUS. NO CONDUCTORS OR LOW VOLTAGE CABLING TO BE INSTALLED AS PART OF INCREMENT ONE. ALL CONDUCTORS & LOW VOLTAGE CABLING TO BE INSTALLED AS PART OF INCREMENT TWO & TERMINATED INSIDE OF THE BUILDING.
5. ALL CONDUIT SHALL BE PROVIDED W/ PROPERLY SIZED PULL STRING PER UTILITY COMPANY STANDARDS.
6. ALL EQUIPMENT MTD OUTDOORS SHALL BE INSTALLED IN A WEATHERPROOF NEMA 3R ENCLOSURE.
7. SEE ARCHITECTURAL/LANDSCAPE ARCHITECTURAL PLANS FOR EXACT LOCATIONS OF FIXTURES, PULL BOXES, MANHOLES, OTHER ELECTRICAL DEVICES, ETC. COORDINATE ALL UNDERGROUND STRUCTURES & CONDUIT ROUTING W/ LANDSCAPE ARCHITECT PRIOR TO ROUGH-IN TO ENSURE THAT SUCH ITEMS ARE NOT PLACED IN CRITICAL LANDSCAPE PLANTING/HARDSCAPE AREAS.
8. PROVIDE CONCRETE ENCASEMENT FOR ALL TRENCHES W/ MORE THAN THREE (3) CONDUITS. ALL UTILITY CONDUIT SHALL BE ENCASED PER UTILITY COMPANY REQUIREMENTS.


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This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinance or State law.

DPH VANDERBILT-FIRST

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
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| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
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| | |
|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | 1/8" = 1'-0" |

ELECTRICAL LEAD SHEET

E0.02

SECTION 16010

GENERAL ELECTRICAL SPECIFICATIONS

1.0 WORK INCLUDED:

A. THIS SPECIFICATION SHALL APPLY TO ALL PHASES OF WORK HEREINAFTER SPECIFIED, SHOWN ON DRAWINGS, OR AS REQUIRED TO PROVIDE A COMPLETE INSTALLATION OF ELECTRICAL SYSTEMS FOR THIS PROJECT. WORK REQUIRED UNDER THIS SPECIFICATION, IS NOT LIMITED TO JUST THE ELECTRICAL DRAWINGS - REFER TO ARCHITECTURAL, STRUCTURAL, LANDSCAPE, AND MECHANICAL / PLUMBING DRAWINGS, AS WELL AS ALL OTHER DRAWINGS APPLICABLE TO THIS PROJECT, WHICH DESIGNATE THE SCOPE OF WORK TO BE ACCOMPLISHED. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO PROVIDE A COMPLETE AND OPERABLE ELECTRICAL SYSTEM THAT INCLUDES ALL DOCUMENTS THAT ARE A PART OF THE CONTRACT.

1. WORK INCLUDED: FURNISH LABOR, MATERIAL, SERVICES AND SKILLED SUPERVISION NECESSARY FOR THE CONSTRUCTION, ERECTION, INSTALLATION, CONNECTIONS, TESTING, AND ADJUSTMENT OF ALL CIRCUITS AND ELECTRICAL EQUIPMENT SPECIFIED HEREIN, OR SHOWN OR NOTED ON DRAWINGS, AND ITS DELIVERY TO THE OWNER COMPLETE IN ALL RESPECTS READY FOR USE.

2. THE ELECTRICAL WORK INCLUDES INSTALLATION OR CONNECTION OF CERTAIN MATERIALS AND EQUIPMENT FURNISHED BY OTHERS. VERIFY INSTALLATION DETAILS, INSTALLATION AND ROUGH-IN LOCATIONS FROM THE ACTUAL EQUIPMENT OR FROM THE EQUIPMENT SHOP DRAWINGS.

B. ELECTRICAL DRAWINGS. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC, AND ARE INTENDED TO CONVEY THE SCOPE OF WORK, INDICATING INTENDED GENERAL ARRANGEMENT OF EQUIPMENT, CONDUIT AND OUTLETS. FOLLOW DRAWINGS IN LAYING OUT WORK AND VERIFY SPACES FOR INSTALLATION OF MATERIALS AND EQUIPMENT BASED ON ACTUAL DIMENSIONS OF EQUIPMENT FURNISHED.

1.1 QUALITY ASSURANCE

A. DESIGN, MANUFACTURE, TESTING AND METHOD OF INSTALLATION OF ALL APPARATUS AND MATERIALS FURNISHED UNDER REQUIREMENTS OF THESE SPECIFICATIONS SHALL CONFORM TO LATEST PUBLICATIONS OR STANDARD RULES OF THE FOLLOWING.

- INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS - IEEE
- NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION - NEMA
- UNDERWRITERS' LABORATORIES, INC. - UL
- NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
- FEDERAL SPECIFICATIONS - FED. SPEC.
- AMERICAN SOCIETY FOR TESTING AND MATERIALS - ASTM
- AMERICAN NATIONAL STANDARDS INSTITUTE - ANSI
- NATIONAL ELECTRICAL CODE - NEC
- NATIONAL ELECTRICAL SAFETY CODE - NESC
- INSULATED CABLE ENGINEERS ASSOCIATION - ICEA
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION - AISC
- STATE AND MUNICIPAL CODES IN FORCE IN THE SPECIFIC PROJECT AREA
- OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
- ELECTRONICS INDUSTRIES ASSOCIATION/ TELECOMMUNICATIONS INDUSTRY ASSOCIATION (EIA/TIA)
- CALIFORNIA ELECTRICAL CODE (WHERE ADOPTED)
- LOCAL AUTHORITY HAVING JURISDICTION PUBLISHED ELECTRICAL STANDARDS & CODES (AS APPLICABLE)

B. PERFORM WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, APPLICABLE BUILDING ORDINANCES, AND OTHER APPLICABLE CODES, HEREINAFTER REFERRED TO AS THE "CODE." THE CONTRACTOR SHALL COMPLY WITH THE CODE INCLUDING LOCAL AMENDMENTS AND INTERPRETATIONS WITHOUT ADDED COST TO THE OWNER. WHERE CONTRACT DOCUMENTS EXCEED MINIMUM REQUIREMENTS, THE CONTRACT DOCUMENTS TAKE PRECEDENCE. WHERE CODE CONFLICTS OCCUR, THE MOST STRINGENT SHALL APPLY UNLESS VARIANCE IS APPROVED.

1. COMPLY WITH ALL REQUIREMENTS FOR PERMITS, LICENSES, FEES AND CODES. THE CONTRACTOR, AT CONTRACTOR'S EXPENSE, SHALL OBTAIN ALL PERMITS, LICENSES, FEES, SPECIAL SERVICE COSTS, INSPECTIONS AND ARRANGEMENTS REQUIRED FOR WORK UNDER THIS CONTRACT, UNLESS OTHERWISE SPECIFIED.

2. COMPLY WITH REQUIREMENTS OF THE APPLICABLE UTILITY COMPANIES SERVING THIS PROJECT. MAKE ALL ARRANGEMENTS WITH UTILITY COMPANIES FOR PROPER COORDINATION OF WORK.

1.2 GENERAL REQUIREMENTS

A. GUARANTEE: FURNISH A WRITTEN GUARANTEE FOR A PERIOD OF ONE-YEAR FROM DATE OF ACCEPTANCE.

B. WHEREVER A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT, DEVICES, CIRCUIT BREAKERS, ETC., (ALL MATERIALS), ARISES ON THE DRAWINGS AND/OR IN THE SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITION NOTED ON DRAWINGS AND/OR IN SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER AND ENGINEER.

C. ALL CORE CUTTING, DRILLING, AND PATCHING:

1. FOR THE INSTALLATION OF WORK UNDER THIS SECTION, THE AFOREMENTIONED SHALL BE PERFORMED UNDER THIS SECTION OF THE SPECIFICATIONS AND THE CONCRETE SECTION OF THE SPECIFICATIONS.

2. NO HOLES WILL BE ALLOWED IN ANY STRUCTURAL MEMBERS WITHOUT THE WRITTEN APPROVAL OF THE PROJECT'S STRUCTURAL ENGINEER.

3. FOR PENETRATIONS OF CONCRETE SLABS OR CONCRETE FOOTINGS, THE WORK SHALL BE AS DIRECTED IN THE CONCRETE SECTION OF SPECIFICATIONS.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING AND REPAIRING SURFACES WHERE HE IS REQUIRED TO PENETRATE FOR WORK UNDER THIS CONTRACT.

5. PENETRATIONS SHALL BE SEALED TO MEET THE RATED INTEGRITY OF THE SURFACE REQUIRED TO BE PATCHED AND REPAIRED. THE PATCHED SURFACE SHALL BE PAINTED OR FINISHED TO MATCH THE EXISTING SURFACE.

D. VERIFYING DRAWINGS AND JOB CONDITIONS:

1. THIS CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS IN A MANNER TO BE FULLY COGNIZANT OF ALL WORK REQUIRED UNDER THIS SECTION.

2. THIS CONTRACTOR SHALL VISIT THE SITE AND VERIFY EXISTING CONDITIONS. WHERE EXISTING CONDITIONS DIFFER FROM DRAWINGS, ADJUSTMENT(S) SHALL BE MADE AND ALLOWANCES INCLUDED FOR ALL NECESSARY EQUIPMENT TO COMPLETE ALL PARTS OF THE DRAWINGS AND SPECIFICATIONS.

1.3 WORK IN COOPERATION WITH OTHER TRADES

A. EXAMINE THE DRAWINGS AND SPECIFICATIONS AND DETERMINE THE WORK TO BE PERFORMED BY THE ELECTRICAL, MECHANICAL AND OTHER TRADES. PROVIDE THE TYPE AND AMOUNT OF ELECTRICAL MATERIALS AND EQUIPMENT NECESSARY TO PLACE THIS WORK IN PROPER OPERATION, COMPLETELY WIRED, TESTED AND READY FOR USE. THIS SHALL INCLUDE ALL CONDUIT, WIRE, DISCONNECTS, RELAYS, AND OTHER DEVICES FOR THE REQUIRED OPERATION SEQUENCE OF ALL ELECTRICAL, MECHANICAL AND OTHER SYSTEMS OR EQUIPMENT.

B. PROVIDE CONDUIT ONLY FOR LOW VOLTAGE WIRING REQUIRED FOR CONTROL OF MECHANICAL AND PLUMBING EQUIPMENT DESCRIBED IN THIS OR OTHER PARTS OF THE CONTRACT DOCUMENTS. INSTALL ALL CONTROL HOUSINGS AND BACKBOXES REQUIRED FOR INSTALLING CONDUIT AND WIRE TO THE CONTROLS.

C. INSTALL SEPARATE CONDUITS BETWEEN EACH HEATING, VENTILATING AND AIR CONDITIONING SENSING DEVICE AND ITS CONTROL PANEL AND/OR CONTROL MOTOR. BEFORE INSTALLING ANY CONDUIT FOR HEATING, VENTILATING AND AIR CONDITIONING CONTROL WIRING, VERIFY THE EXACT REQUIREMENTS FROM THE CONTROL DIAGRAMS PROVIDED WITH THE EQUIPMENT MANUFACTURER'S SHOP DRAWINGS.

1.4 TESTING AND ADJUSTMENT

A. UPON COMPLETION OF ALL ELECTRICAL WORK, THIS CONTRACTOR SHALL TEST ALL CIRCUITS, SWITCHES, LIGHT FIXTURES, LIGHTING CONTROL & DIMMING SYSTEMS INCLUDING DISTRIBUTED SYSTEMS, UPSS, GENERATORS, TVSSS, LIGHTING INVERTERS, TRANSFER SWITCHES, MOTORS, CIRCUIT BREAKERS, MOTOR STARTER(S) AND THEIR AUXILIARY CIRCUITS AND ANY OTHER ELECTRICAL ITEMS TO ENSURE PERFECT OPERATION OF ALL ELECTRICAL EQUIPMENT.

B. EQUIPMENT AND PARTS IN NEED OF CORRECTION, AND DISCOVERED DURING SUCH TESTING, SHALL BE IMMEDIATELY REPAIRED OR REPLACED WITH ALL NEW EQUIPMENT AND THAT PART OF THE SYSTEM SHALL THEN BE RETESTED. ALL SUCH REPLACEMENT OR REPAIR SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.

C. ALL CIRCUIT(S) SHALL BE TESTED FOR CONTINUITY AND CIRCUIT INTEGRITY. ADJUSTMENTS SHALL BE MADE FOR CIRCUITS NOT COMPLYING WITH TESTING CRITERIA.

D. ALL TEST REPORTS, INCLUDING COPIES OF ANY REQUIRED ENERGY CODE ACCEPTANCE FORMS (E.G. CA TITLE 24 ACCEPTANCE FOR CODE COMPLIANCE FORMS) SHOULD BE SUBMITTED TO THE ENGINEER AT COMPLETION OF PROJECT.

1.5 IDENTIFICATION

A. NAMEPLATES SHALL BE PROVIDED FOR UNIT SUBSTATIONS, SWITCHGEAR, SWITCHBOARDS, DISTRIBUTION BOARDS, DISTRIBUTION PANELS, PANEL BOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, TRANSFER SWITCHES, CONTACTORS, STARTERS, DISCONNECT SWITCHES, ENCLOSED CIRCUIT BREAKERS/SWITCHES, INVERTERS, UPSS, PDUS, RDCS, LIGHTING CONTROL PANELS, DIMMING PANELS, DOOR RELEASING SYSTEM PANELS, FIRE ALARM / CENTRAL MONITORING TERMINAL CABINETS/POWER SUPPLIES/CONTROL PANELS, AND ALL LOW VOLTAGE SYSTEM TERMINAL & CONTROL CABINETS. NAMEPLATE INSCRIPTIONS SHALL BE IDENTICAL TO THE EQUIPMENT DESIGNATIONS INDICATED IN PLANS AND SPECIFICATIONS.

ALL CIRCUIT BREAKERS/FUSES IN SWITCHGEAR, SWITCHBOARDS, DISTRIBUTION BOARDS, DISTRIBUTION PANELS, UPS OUTPUT CIRCUIT BREAKERS, PDU OUTPUT CIRCUIT BREAKERS AND MOTOR CONTROL CENTERS SHALL HAVE INDIVIDUAL NAMEPLATES LOCATED IMMEDIATELY ADJACENT TO THE RESPECTIVE DEVICE. NAMEPLATE INSCRIPTION SHALL IDENTIFY THE DOWNSTREAM EQUIPMENT OR DEVICE SERVED BY THE CIRCUIT BREAKER OR FUSE.

NAMEPLATES FOR CONTACTORS, STARTERS, DISCONNECT SWITCHES, AND ENCLOSED CIRCUIT BREAKERS SHALL BE ENGRAVED WITH THE DEVICE DESIGNATION/IDENTIFICATION ON THE TOP LINE, SOURCE IDENTIFICATION FOR THE DEVICE ON THE 2ND LINE AND LOAD DESIGNATION FOR THE DEVICE ON THE BOTTOM LINE. WHERE DEVICE DESIGNATION IS NOT INDICATED ON PLANS/SPECIFICATIONS, CONTRACTOR SHALL SUBMIT A WRITTEN CLARIFICATION REQUEST TO THE ENGINEER.

B. IDENTIFICATION NAMEPLATES, UON, SHALL BE LAMINATED 1/8" THICK MICARTA WITH BEVELED EDGES AND ENGRAVED WHITE LETTERS 3/8" HIGH, MINIMUM, ON 1-1/2" HIGH BLACK BACKGROUND FOR SINGLE LINE OF TEXT. WHERE TWO LINES OF TEXT ARE REQUIRED, PROVIDE MIN. 2" HIGH NAMEPLATE. WHERE THREE LINES OF TEXT ARE REQUIRED, PROVIDE MIN. 2.5" HIGH NAMEPLATE.

C. IDENTIFICATION NAMEPLATES FOR NEW SWITCHGEAR, SWITCHBOARDS, DISTRIBUTION BOARDS, DISTRIBUTION PANELS, PANEL BOARDS & MOTOR CONTROL CENTERS SHALL BE ATTACHED WITH SWITCHGEAR MANUFACTURER-PROVIDED SCREWS VIA SWITCHGEAR MANUFACTURER FACTORY PRE-DRILLED HOLES. A FACTORY OPTION TO RIVET IDENTIFICATION NAMEPLATES TO THE EQUIPMENT IS ONLY ACCEPTABLE IF SCREW-FASTENED NAMEPLATES ARE NOT AN AVAILABLE OPTION FROM THE SWITCHGEAR MANUFACTURER. FIELD DRILLING OR OTHER MECHANICAL ATTACHMENT METHODS THAT CHANGE/VOID THE NEMA OR NTRL RATING OF THE ENCLOSURE ARE STRICTLY FORBIDDEN.

D. IDENTIFICATION NAMEPLATES FOR TRANSFORMERS, TRANSFER SWITCHES, DISCONNECT SWITCHES, ENCLOSED CIRCUIT BREAKERS/SWITCHES, INVERTERS, UPSS, PDUS, RDCS, LIGHTING CONTROL PANELS, DIMMING PANELS, DOOR RELEASING SYSTEM PANELS, TERMINAL CABINETS AND ALL CIRCUIT BREAKERS/FUSES IN SWITCHGEAR, SWITCHBOARDS, DISTRIBUTION BOARDS, DISTRIBUTION PANELS, UPS OUTPUT CIRCUIT BREAKERS, PDUS, PDU OUTPUT CIRCUIT BREAKERS, AND MOTOR CONTROL CENTERS SHALL BE ATTACHED TO THE EQUIPMENT BY SELF-ADHESIVE BACKING INTEGRAL TO THE NAMEPLATES. WHEN EQUIPMENT IS LOCATED OUTDOORS, PROVIDE NAMEPLATES WITHOUT SELF-ADHESIVE BACKING AND ATTACH TO EQUIPMENT USING WEATHER-RATED, UV-RESISTANT EPOXY. IN ALL CASES, CLEAN SURFACES BEFORE APPLYING IDENTIFICATION NAMEPLATES PARALLEL TO EQUIPMENT LINES.

E. WARNING PLACARDS, AS REQUIRED BY GENERAL SINGLE LINE DIAGRAM NOTES FOR MULTIPLE POWER SOURCES, OR INSTRUCTION PLACARDS, AS REQUIRED FOR ALL KIRK-KEY INTERLOCK SCHEMES, ALL UPS BYPASS PROCEDURES OR AS REQUIRED ELSEWHERE IN THE PLANS/SPECIFICATIONS SHALL BE SELF-ADHESIVE, 1/8" THICK MICARTA WITH BEVELED EDGES, ENGRAVED 1/2" HIGH WHITE LETTERING ON A RED BACKGROUND. WARNING/INSTRUCTION PLACARDS SHALL BE ATTACHED TO THE FACE OF THE EQUIPMENT DIRECTLY RELATED TO THE PLACARDS. PROVIDE A FORMAL PLACARD SUBMITTAL FOR REVIEW BY THE ENGINEER PRIOR TO ORDERING ANY WARNING/INSTRUCTION PLACARDS. IN ALL CASES, CLEAN SURFACES BEFORE APPLYING WARNING/INSTRUCTION PLACARDS PARALLEL TO EQUIPMENT LINES.

F. RECEPTACLES THAT ARE PART OF A UL-LISTED UNDER FLOOR COMPUTER ROOM WHIP ASSEMBLY, CEILING AND/OR CABLE LADDER TRAY-MOUNTED RECEPTACLES USED IN LAB, MANUFACTURING, COMMERCIAL KITCHEN ENVIRONMENTS OR THAT ARE SERVING TELCOM/DATA/AV RACKS & CABINETS SHALL HAVE IDENTIFICATION NAMEPLATES LOCATED ON THE WIRING DEVICE PLATE COVER. NAMEPLATES SHALL BE SELF-ADHESIVE, 1/8" THICK MICARTA WITH BEVELED EDGES, ENGRAVED 1/4" HIGH WHITE LETTERING ON BLACK BACKGROUND WITH SERVING POWER SOURCE, CIRCUIT IDENTIFICATION AND NEMA/IEC RECEPTACLE TYPE. USE OF TWO (2) SEPARATE NAMEPLATES PER DEVICE PLATE COVER IS ACCEPTABLE. AFFIX NAMEPLATES TO BE VISIBLE WHEN PLUGS ARE OCCUPYING RECEPTACLES.

G. SEE WIRING DEVICE SECTION OF THIS SPECIFICATION FOR ADDITIONAL WIRING DEVICE PLATE COVER LABELING REQUIREMENTS.

H. SEE DRAWINGS FOR PANEL BOARD SCHEDULE DIRECTORY INSTALLATION REQUIREMENTS.

I. SEE CONDUIT INSTALLATION SECTION OF THIS SPECIFICATION FOR CONDUIT LABELING REQUIREMENTS.

1.6 FINAL INSPECTION AND ACCEPTANCE

A. AFTER ALL REQUIREMENTS OF THE SPECIFICATIONS AND/OR THE DRAWINGS HAVE BEEN FULLY COMPLETED, REPRESENTATIVES OF THE OWNER WILL INSPECT THE WORK. CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION OF EACH REPRESENTATIVE.

B. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.

1.7 RECORD DRAWINGS

A. DRAWINGS OF RECORD: THE CONTRACTOR SHALL PROVIDE AND KEEP UP-TO-DATE, A COMPLETE RECORD SET OF DRAWINGS. THESE SHALL BE CORRECTED DAILY AND SHOW EVERY CHANGE FROM THE ORIGINAL DRAWINGS. THIS SET OF PRINTS SHALL BE KEPT ON THE JOB SITE AND SHALL BE USED ONLY AS A RECORD SET. THIS SHALL NOT BE CONSTRUED AS AUTHORIZATION FOR THE CONTRACTOR TO MAKE CHANGES IN THE LAYOUT WITHOUT DEFINITE INSTRUCTION IN EACH CASE. UPON COMPLETION OF THE WORK, A SET OF REPRODUCIBLE CONTRACT DRAWINGS SHALL BE OBTAINED FROM THE GENERAL CONTRACTOR AND ALL CHANGES AS NOTED ON THE RECORD SET OF PRINTS SHALL BE INCORPORATED THEREON WITH BLACK INK IN A NEAT, LEGIBLE, UNDERSTANDABLE AND PROFESSIONAL MANNER. REFER TO THE SUPPLEMENTARY GENERAL CONDITIONS FOR COMPLETE REQUIREMENTS.

1.8 APPROVALS, EQUALS, SUBSTITUTIONS, ALTERNATIVES, NO KNOWN EQUAL

A. APPROVALS: WHERE THE WORDS (OR SIMILAR TERMS) "APPROVED", "APPROVAL", "ACCEPTABLE", AND "ACCEPTANCE" ARE USED, IT SHALL BE UNDERSTOOD THAT ACCEPTANCE BY THE OWNER, ARCHITECT AND ENGINEER ARE REQUIRED.

B. EQUAL: WHERE THE WORDS (OR SIMILAR TERMS) "EQUAL", "APPROVED EQUAL", "EQUAL TO", "OR EQUAL BY", "OR EQUAL" AND "EQUIVALENT" ARE USED, IT SHALL BE UNDERSTOOD THAT THESE WORDS ARE FOLLOWED BY THE EXPRESSION "IN THE OPINION OF THE OWNER, ARCHITECT, AND ENGINEER". FOR THE PURPOSES OF SPECIFYING PRODUCTS, THE ABOVE WORDS SHALL INDICATE THE SAME SIZE, MADE OF THE SAME CONSTRUCTION MATERIALS, MANUFACTURED WITH EQUIVALENT LIFE EXPECTANCY, HAVING THE SAME AESTHETIC APPEARANCE / STYLE (INCLUDES CRAFTSMANSHIP, PHYSICAL ATTRIBUTES, COLOR AND FINISH), AND THE SAME PERFORMANCE".

C. SUBSTITUTION: FOR THE PURPOSES OF SPECIFYING PRODUCTS "SUBSTITUTION" SHALL REFER TO THE SUBMITTAL OF A PRODUCT NOT EXPLICITLY APPROVED BY THE CONSTRUCTION DOCUMENTS / SPECIFICATIONS.

1. SUBSTITUTIONS OF SPECIFIED EQUIPMENT SHALL BE SUBMITTED AND RECEIVED BY THE ENGINEER TEN (10) DAYS PRIOR TO THE BID DATE FOR REVIEW AND WRITTEN APPROVAL. REGULATORY AGENCY APPROVAL FOR ALL SUBSTITUTIONS WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. TO RECEIVE CONSIDERATION, REQUESTS FOR SUBSTITUTIONS MUST BE ACCOMPANIED BY DOCUMENTARY PROOF OF ITS EQUALITY WITH THE SPECIFIED MATERIAL. DOCUMENTARY PROOF SHALL BE IN LETTER FORM AND IDENTIFY THE SPECIFIED VALUES/MATERIALS ALONGSIDE PROPOSED EQUAL VALUES/MATERIALS. IN ADDITION, CATALOG BROCHURES AND SAMPLES, IF REQUESTED, MUST BE INCLUDED IN THE SUBMITTAL. ONLY PRE-BID APPROVED PRODUCTS, ISSUED VIA A FORMAL BID ADDENDUM TO ALL BIDDERS, WILL BE ALLOWED ON THE PROJECT, REGARDLESS OF THE APPROVAL ON ANY SUBSTITUTION. ALL BIDS SHALL BE BASED ON THE PRODUCTS EXACTLY AS SPECIFIED. PRICING FOR EACH APPROVED SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.

2. IN THE EVENT THAT WRITTEN AUTHORIZATION IS GIVEN FOR A SUBSTITUTION, AFTER AWARD OF CONTRACT, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER QUOTATIONS FROM SUPPLIERS / DISTRIBUTORS OF BOTH THE SPECIFIED AND PROPOSED EQUAL MATERIAL FOR PRICE COMPARISON, AS WELL AS A VERIFICATION OF DELIVERY DATES THAT CONFORM TO THE PROJECT SCHEDULE.

3. IN THE EVENT OF COST REDUCTION, THE OWNER WILL BE CREDITED WITH 100 PERCENT OF THE REDUCTION, ARRANGED BY CHANGE ORDER.

4. THE CONTRACTOR WARRANTS THAT SUBSTITUTIONS PROPOSED FOR SPECIFIED ITEMS WILL FULLY PERFORM THE FUNCTIONS REQUIRED.

D. ALTERNATES \ ALTERNATIVES: FOR THE PURPOSES OF SPECIFYING PRODUCTS, "ALTERNATIVES / ALTERNATES" MAY BE ESTABLISHED TO ENABLE THE OWNER / ARCHITECT / ENGINEER TO COMPARE COSTS WHERE ALTERNATIVE MATERIALS OR METHODS MIGHT BE USED. AN ALTERNATE PRICE SHALL BE SUBMITTED IN ADDITION TO THE BASE BID FOR CONSIDERATION. IF THE ALTERNATE IS DEEMED ACCEPTABLE, WRITTEN AUTHORIZATION WILL BE ISSUED.

E. NO KNOWN EQUAL: FOR THE PURPOSES OF SPECIFYING PRODUCTS, "NO KNOWN EQUAL" SHALL MEAN THAT THE OWNER / ARCHITECT / ENGINEER IS NOT AWARE OF AN EQUIVALENT PRODUCT. THE CONTRACTOR WILL NEED TO SUBMIT A "SUBSTITUTION" ITEM, PER THE REQUIREMENTS LISTED ABOVE, IF A DIFFERENT PRODUCT IS PROPOSED TO BE UTILIZED.

1.9 SHOP DRAWINGS / SUBMITTALS

A. SHOP DRAWINGS / SUBMITTALS SHALL BE SUBMITTED IN SIX (6) BOUND SETS ACCOMPANIED BY LETTER OF TRANSMITTAL, WHICH SHALL GIVE A LIST OF THE NUMBER AND DATES OF THE DRAWINGS SUBMITTED. DRAWINGS SHALL BE COMPLETE IN EVERY RESPECT AND BOUND IN SETS.

B. THE SHOP DRAWINGS / SUBMITTALS SUBMITTED SHALL BE MARKED WITH THE NAME OF THE PROJECT, NUMBERED CONSECUTIVELY AND BEAR THE APPROVAL OF THE CONTRACTOR AS EVIDENCE THAT THE CONTRACTOR HAS CHECKED THE DRAWINGS. ANY DRAWINGS SUBMITTED WITHOUT THIS APPROVAL WILL BE RETURNED TO THE CONTRACTOR FOR RESUBMISSION.

C. IF THE SHOP DRAWINGS SHOW VARIATIONS FROM THE REQUIREMENTS OF THE CONTRACT BECAUSE OF STANDARD SHOP PRACTICE OR OTHER REASONS, THE CONTRACTOR SHALL MAKE SPECIFIC MENTION OF SUCH VARIATIONS IN THE CONTRACTOR'S LETTER OF TRANSMITTAL. IF THE SUBSTITUTION IS ACCEPTED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER ADJUSTMENT THAT MAY BE CAUSED BY THE SUBSTITUTION. SAMPLES SHALL BE SUBMITTED WHEN REQUESTED.

D. ONLY PRODUCTS LISTED AS "EQUAL" WITHIN THE CONTRACT DOCUMENTS, ALONG WITH FORMALLY APPROVED "SUBSTITUTIONS" WILL BE REVIEWED. PRODUCTS NOT CONFORMING TO THESE ITEMS WILL NOT BE REVIEWED AND WILL BE RETURNED TO THE CONTRACTOR FOR RE-SUBMITTAL.

E. REVIEW COMMENTS USED IN RESPONSE TO SHOP DRAWINGS / SUBMITTALS ARE:

| | |
|---|---|
| - "NO EXCEPTION TAKEN" | PRODUCT APPROVED AS SUBMITTED. |
| - "FURNISH AS CORRECTED" | RE-SUBMITTAL NOT REQUIRED, ALTHOUGH THE CONTRACTOR SHALL PROVIDE THE SUBMITTED PRODUCT WITH CORRECTIONS AS NOTED. |
| - "REVISE AND RESUBMIT" | RE-SUBMITTAL REQUIRED WITH CORRECTIONS AS NOTED. |
| - "REJECTED" | RE-SUBMITTAL REQUIRED BASED UPON THE ORIGINALLY SPECIFIED PRODUCT. |

F. SHOP DRAWINGS SHALL BE SUBMITTED ON THE FOLLOWING BUT NOT LIMITED TO:

- LIGHTING FIXTURES, LAMPS AND BALLASTS
- SWITCHGEAR, SWITCHBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, PANELBOARDS, AND BUS DUCTS; COMPLETE WITH OVERCURRENT DEVICE INFORMATION.
- TRANSFORMERS
- FIRE ALARM SYSTEM/CENTRAL MONITORING SYSTEM
- WIRING DEVICES.
- LIGHTING CONTROL PRODUCTS/DIMMING SYSTEM PRODUCTS
- PULLBOXES AND UNDERGROUND VAULTS
- TERMINAL CABINETS
- LIGHTING INVERTERS, UPSS, RDCS, PDUS, GENERATORS, TRANSFER SWITCHES, TVSS SYSTEMS
- CABLE TRAY, FLEXIBLE CABLE TRAY AND CABLE RUNWAY
- POWER POLES AND FLOOR BOXES
- ARC FLASH, SHORT-CIRCUIT & COORDINATION STUDIES
- ALL OTHER PRODUCTS CALLED OUT ON DRAWINGS THAT CALL FOR SHOP DRAWING SUBMITTAL.

1.10 MAINTENANCE, SERVICING, INSTRUCTION MANUALS AND WIRING DIAGRAMS

A. PRIOR TO FINAL ACCEPTANCE OF THE JOB, THE ELECTRICAL CONTRACTOR SHALL FURNISH TO THE OWNER AT LEAST FOUR (4) COPIES OF OPERATING AND MAINTENANCE AND SERVICING INSTRUCTIONS, AS WELL AS FOUR (4) COMPLETE WIRING DIAGRAMS FOR THE FOLLOWING ITEMS OR EQUIPMENT:

- LIGHTING CONTROL SYSTEMS/DIMMING SYSTEMS
- FIRE ALARM SYSTEM.
- TRANSFORMERS.
- SWITCHGEAR, SWITCHBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, PANELBOARDS, AND BUS DUCTS; COMPLETE WITH OVERCURRENT DEVICE INFORMATION.
- LIGHTING INVERTERS, UPS'S, PDU'S, GENERATORS, TRANSFER SWITCHES, TVSS SYSTEMS

B. ALL WIRING DIAGRAMS SHALL SPECIFICALLY COVER THE SYSTEM SUPPLIED. TYPICAL DRAWINGS WILL NOT BE ACCEPTED. FOUR (4) COPIES SHALL BE PRESENTED TO THE OWNER.

1.11 INTERRUPTION OF SERVICES/SERVICE SHUTDOWN

A. ANY INTERRUPTION OF ELECTRICAL SERVICES, ELECTRICAL CIRCUITS, ELECTRICAL FEEDERS, SIGNAL SYSTEMS, COMMUNICATION SYSTEMS, FIRE ALARM SYSTEMS, ETC. REQUIRED TO PERFORM WORK SHALL MEET THE SPECIFIC PRIOR-APPROVAL REQUIREMENTS OF THE OWNER. SUCH WORK SHALL BE SCHEDULED WITH THE OWNER TO BE PERFORMED AT THE OWNER'S CONVENIENCE.

B. INTERRUPTIONS/OUTAGES OF ANY OF THE OWNER'S SYSTEMS AND SERVICES MENTIONED ABOVE SHALL BE SCHEDULED TO OCCUR DURING OTHER THAN THE OWNER'S NORMAL BUSINESS HOURS. ANY OVERTIME COSTS SHALL BE BORNE BY THE CONTRACTOR.

C. SEE DRAWINGS FOR ANY ADDITIONAL REQUIREMENTS REGARDING OUTAGES, INTERRUPTION AND ANY TEMPORARY SERVICES REQUIRED.

PART 2 - PRODUCTS

2.1 MATERIALS

A. MATERIALS AND EQUIPMENT: ALL ELECTRICAL MATERIALS AND EQUIPMENT, INCLUDING CUSTOM-MADE EQUIPMENT, SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) AND BEAR THEIR LABEL OR BE LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LAB (NTRL) THAT IS ALSO RECOGNIZED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).

B. LIGHTING FIXTURES:

1. SEE DRAWINGS FOR LIGHTING FIXTURE AND LAMP SCHEDULES AND ADDITIONAL SPECIFICATIONS. FURNISH, INSTALL AND CONNECT A LIGHTING FIXTURE AT EACH OUTLET WHERE A LIGHTING FIXTURE TYPE SYMBOL (DESIGNATED ON PLANS) IS SHOWN AS BEING INSTALLED. EACH FIXTURE SHALL BE COMPLETE WITH ALL REQUIRED ACCESSORIES INCLUDING SOCKETS, GLASSWARE, BOXES, SPACERS, MOUNTING DEVICES, FIRE RATING ENCLOSURE AND LAMPS.

2. BALLASTS: SEE LIGHTING FIXTURE SCHEDULE NOTES. ALL NOISY BALLASTS SHALL BE REPLACED AT NO COST TO THE OWNER.

3. LAMPS: SEE LAMP / FIXTURE SCHEDULE AND LAMP / LIGHTING FIXTURE SCHEDULE NOTES.

C. WIRING DEVICES:

1. PROVIDE WIRING DEVICES INDICATED PER PLAN. DEVICES SHALL BE SPECIFICATION GRADE. ACCEPTABLE MANUFACTURES ARE LEVITON, PASS & SEYMOUR AND HUBBELL. PROVIDE ALL SIMILAR DEVICES OF SAME MANUFACTURER, UNLESS INDICATED OTHERWISE. ALL DEVICE COLORS SHALL BE SELECTED FROM THE FULL RANGE OF MANUFACTURER STANDARD COLOR OPTIONS AS SELECTED BY THE ARCHITECT. THIS DIRECTION WILL BE PROVIDED IN THE SHOP DRAWING REVIEW PROCESS.

WIRING DEVICES (DECORA)

| | |
|---|---|
| CONVENIENCE RECEPTACLE | #16252-??? |
| DEDICATED RECEPTACLE | #16352-??? |
| CONVENIENCE I.G. RECEPTACLE | #16262-IG-??? |
| DEDICATED IG RECEPTACLE | #16362-IG-??? |
| CONVENIENCE G.F.C.I. RECEPTACLE | #6599-??? |
| DEDICATED G.F.C.I. RECEPTACLE | #6899-??? |
| CONVENIENCE SIMPLEX RECEPTACLE | #16251-??? |
| DEDICATED SIMPLEX RECEPTACLE | #16351-??? |
| RECESSED CLOCK RECEPTACLE | #5361-CH-??? (Non-Decora) |
| SINGLE POLE SWITCH | #5621-2-??? |
| DOUBLE POLE SWITCH | #5622-2-??? |
| THREE WAY SWITCH | #5623-2-??? |
| FOUR WAY SWITCH | #5624-2-??? |
| PILOT LIGHT SWITCH "ON" | #5628-2-??? |
| PILOT LIGHT SWITCH "OFF" | #5631-2-??? |
| PROJECTION SCREEN SWITCH | #5657-2-??? |
| LOW VOLTAGE MOMENTARY SWITCH | #5657-2-??? |
| KEYED SWITCH | #1221-2L-??? (Non-Decora) |
| DOOR JAM SWITCH | #1865-??? |

2. I.G. (ISOLATED GROUND) RECEPTACLE BODIES SHALL BE OF A BASIC COLOR SPECIFIED ABOVE WITH AN ORANGE TRIANGLE TO SYMBOLIZE ISOLATED GROUND.

3. WHEN SHOWN CIRCUITED WITH AN I.G. CONDUCTOR, ALL RECEPTACLES SHALL BE OF THE I.G. TYPE. AS AN EXAMPLE, A NEMA L6-30R DENOTED ON THE PLANS AND SHOWN CIRCUITED WITH AN I.G. CONDU

10. FIRE-RATED MC CABLE:

a. 2-HOUR FIRE-RATED, POLYMER INSULATED 600V MC CABLE LISTED AND CONFORMING TO UNDERWRITERS LABORATORIES, INC. (U.L.) 2196 & UL 1569 REQUIREMENTS FOR INSTALLATION AS AN ELECTRICAL CIRCUIT PROTECTIVE SYSTEM FOR USE IN COMPLYING WITH NEC, OR CEC WHERE ADOPTED, ARTICLES 695 AND 700. CABLE SHEATH SHALL BE SUITABLE FOR USE AS A NEC OR CEC WHERE ADOPTED, EQUIPMENT GROUNDING CONDUCTOR AND SHALL BE LISTED FOR USE IN WET LOCATIONS TO 90 DEGREES C. (RAYCHEM OR EQUAL)

b. CABLE CONNECTORS SHALL BE BRASS MC CONNECTORS.

S. FITTINGS:

1. CONDULET TYPE FITTINGS SHALL BE SMOOTH INSIDE AND OUT, TAPER THREADED WITH INTEGRAL INSULATING BUSHING AND OF THE SHAPES, SIZES AND TYPES REQUIRED TO FACILITATE INSTALLATION OR REMOVAL OF WIRES AND CABLES FROM THE CONDUIT AND TUBING SYSTEM. THESE FITTINGS SHALL BE OF METAL, SMOOTH INSIDE AND OUT, THOROUGHLY GALVANIZED, AND SHERARDIZED CADMIUM PLATED.

2. METALLIC CONDULET COVERS SHALL HAVE THE SAME FINISH AS THE FITTING AND SHALL BE PROVIDED FOR THE OPENING OF EACH FITTING WHERE CONDUCTORS DO NOT PASS THROUGH THE COVER.

3. CONNECTOR, COUPLING, LOCKNUT, BUSHINGS AND CAPS USED WITH RIGID CONDUIT SHALL BE STEEL, THREADED AND THOROUGHLY GALVANIZED. BUSHINGS SHALL BE INSULATED.

4. U.O.N. ALL INTERIOR EMT FITTINGS, CONNECTORS AND COUPLINGS INSTALLED IN CONCEALED LOCATIONS, AREAS NOT CONSIDERED TO BE WET OR DAMP LOCATIONS BY THE AHJ, OR AREAS NOT SUBJECT TO PHYSICAL DAMAGE, SHALL BE STEEL, ZINC OR CADMIUM PLATED, THREADLESS, COMPRESSION, STEEL LOCKING RING TYPE WITH INSULATED THROAT. WHERE SUITABLE FOR USE, STEEL SET SCREW FITTINGS ARE ALLOWED FOR TRADES SIZES OF 2" AND SMALLER. INSULATED THROAT IS NOT REQUIRED FOR FITTINGS, CONNECTORS AND COUPLINGS 1" AND SMALLER.

5. ALL INTERIOR AND EXTERIOR EMT FITTINGS, CONNECTORS AND COUPLINGS, 2" AND SMALLER, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS THAT ARE CONSIDERED BY THE AHJ TO BE WET OR DAMP LOCATIONS, SHALL BE RAINTITE-LISTED, STEEL, ZINC OR CADMIUM PLATED, THREADLESS, COMPRESSION, STEEL LOCKING RING TYPE WITH INSULATED THROAT. IF RAINTITE-LISTED, EMT FITTINGS, CONNECTORS AND COUPLINGS ARE UNAVAILABLE FOR A GIVEN TRADE SIZE OR IF CONDUIT IS INSTALLED IN AN AREA SUBJECT TO DAMAGE - PROVIDE RIGID METALLIC OR INTERMEDIATE METALLIC CONDUITS, FITTINGS, CONNECTORS AND COUPLINGS AS REQUIRED.

6. FLEXIBLE STEEL CONDUIT CONNECTORS SHALL BE A MALLEABLE IRON CLAMP OR SQUEEZE TYPE OR STEEL TWIST-IN TYPE WITH INSULATED THROAT. THE FINISH SHALL BE ZINC OR CADMIUM PLATING.

7. CONDUIT UNIONS SHALL BE "ERICKSON" COUPLINGS, OR APPROVED EQUAL. THE USE OF RUNNING THREADS WILL NOT BE PERMITTED.

T. 600 VOLT CONDUCTORS - WIRE AND CABLE:

1. ALL CONDUCTORS SHALL BE COPPER. PROVIDE STRANDED CONDUCTOR FOR #10 AWG AND LARGER OR WHEN MAKING FLEXIBLE CONNECTIONS TO VIBRATING MACHINERY. USE COMPRESSION "FORK" TYPE CONNECTORS OR TRANSITION TO SOLID CONDUCTORS WHEN CONNECTING TO SWITCHES, RECEPTACLES, ETC.

2. TYPE THHN/THWN-2 THERMOPLASTIC, 600 VOLT, UL APPROVED, DRY AND WET LOCATIONS RATED AT 90 DEGREES CELSIUS, FOR CONDUCTORS OF ALL SIZES FROM #12 AWG UP TO AND INCLUDING 1000 KCMIL. RHW/RHW INSULATION IS ALLOWED ONLY TO PROVIDE AN ELECTRICAL CIRCUIT PROTECTIVE SYSTEM TO COMPLY WITH NEC, OR CEC WHERE ADOPTED, ARTICLES 695 AND 700.

3. WIRE AND CABLE SHALL BE NEW, MANUFACTURED NOT MORE THAN SIX (6) MONTHS PRIOR TO INSTALLATION, SHALL HAVE SIZE, TYPE OF INSULATION, VOLTAGE RATING AND MANUFACTURER'S NAME PERMANENTLY MARKED ON OUTER COVERING AT REGULAR INTERVALS.

4. WIRE AND CABLE SHALL BE FACTORY COLOR-CODED BY INTEGRAL PIGMENTATION WITH A SEPARATE COLOR FOR EACH PHASE AND NEUTRAL. EACH SYSTEM SHALL BE COLOR-CODED AND IT SHALL BE MAINTAINED THROUGHOUT.

5. SYSTEMS CONDUCTOR COLOR CODING:

a. Power 208/120V, 3PH, 4W:

| | | | |
|---|---|---|---|
| (1) | PHASE A | = | BLACK |
| (2) | PHASE B | = | RED |
| (3) | PHASE C | = | BLUE |
| (4) | NEUTRAL | = | WHITE |
| (5) | SWITCHLEGS | = | PURPLE (SWITCHLEGS SHALL ALSO BE IDENTIFIED SEPARATELY BY NUMERICAL TAGS). |
| (6) | TRAVELERS | = | PURPLE WITH BLACK STRIPE. |

b. Power 480/277V, 3PH, 4W:

| | | | |
|---|---|---|---|
| (1) | PHASE A | = | BROWN |
| (2) | PHASE B | = | ORANGE |
| (3) | PHASE C | = | YELLOW |
| (4) | NEUTRAL | = | GREY |
| (5) | SWITCHLEGS | = | PURPLE (SWITCHLEGS SHALL ALSO BE IDENTIFIED SEPARATELY BY NUMERICAL TAGS). |
| (6) | TRAVELERS | = | PURPLE WITH BLACK STRIPE. |

c. GROUND CONDUCTORS: GREEN

d. ISOLATED GROUND CONDUCTORS: GREEN WITH CONTINUOUS YELLOW STRIPE.

e. FIRE ALARM SYSTEM: AS RECOMMENDED BY THE MANUFACTURER.

6. ALL COLOR-CODING FOR #12 THRU #6 AWG CONDUCTOR SHALL BE AS IDENTIFIED ABOVE. CONDUCTORS #4 AWG AND LARGER SHALL BE IDENTIFIED WITH UTILIZING PHASE TAPE AT EACH TERMINATION.

7. NO CONDUCTORS CARRYING 120 VOLT OR MORE SHALL BE SMALLER THAN #12 AWG.

8. ALUMINUM CONDUCTORS SHALL NOT BE USED.

9. WIRE-PULLING COMPOUNDS USED AS LUBRICANTS IN INSTALLING CONDUCTORS IN RACEWAYS SHALL ONLY BE "POLYWATER J". NO OIL, GREASE, GRAPHITE, OR SIMILAR SUBSTANCES MAY BE USED. PULLING OF #1/0 OR LARGER CONDUCTORS SHALL BE DONE WITH AN APPROVED CABLE PULL MACHINE. OTHER METHODS; E.G. USING VEHICLES, AND BLOCK AND TACKLE TO INSTALL CONDUCTORS ARE NOT ACCEPTABLE.

U. JUNCTION AND PULLBOXES:

1. FOR INTERIOR DRY LOCATIONS, BOXES SHALL BE GALVANIZED ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE, WITH REMOVABLE, MACHINE SCREW SECURED COVERS.

2. FOR OUTSIDE, DAMP OR SURFACE LOCATIONS, BOXES SHALL BE HEAVY CAST ALUMINUM OR CAST IRON WITH REMOVABLE, GASKETED, NON-FERROUS MACHINE SCREW SECURED COVERS.

3. FOR IN-GRADE APPLICATIONS, JUNCTION AND PULL BOXES SHALL BE PRE-CAST CONCRETE OR MOLDED FIBERGLASS MANUFACTURED BY CHRISTY, BROOKS-JENSEN, OR UTILITY VAULT CO. FIBERGLASS BOXES SHALL:

a. BE USED ONLY IN LANDSCAPE PLANTER AREAS THAT ARE NOT SUBJECT TO DAMAGE FROM LAWNMOWERS, TRACTORS AND OTHER MACHINERY.

b. NOT BE USED IN LAWN OR TURF AREAS.

c. NOT EXCEED 11"W X 17"L IN SIZE UNLESS REQUIRED TO BE LARGER TO MEET CODE REQUIREMENTS.

4. ALL BOXES SHALL BE SIZED FOR THE NUMBER AND SIZES OF CONDUCTORS AND CONDUITS ENTERING THE BOX AND EQUIPPED WITH PLASTER RINGS WHERE REQUIRED.

5. ALL BOXES LOCATED IN TRAFFIC AREAS SHALL BE TRAFFIC RATED.

V. OUTLET BOXES:

1. FOR FIXTURES, BOXES SHALL BE GALVANIZED, ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE EQUIPPED WITH 3/8" FIXTURE STUDS AND PLASTER RINGS WHERE REQUIRED.

2. FOR CONVENIENCE OUTLETS, WALL SWITCHES, OR OTHER DEVICES, OUTLET BOXES SHALL BE GALVANIZED ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE 4" X 4"X 2-1/8" MINIMUM SIZE WITH PLASTER RINGS AS REQUIRED.

3. FOR LOCATIONS WHERE STANDARD BOXES ARE NOT SUITABLE DUE TO NUMBER AND SIZE OF CONDUIT TO BE TERMINATED, SPECIAL BOXES SHALL BE DESIGNED TO FIT SPACE OR MEET OTHER REQUIREMENTS AND SUBMITTED FOR APPROVAL.

4. FOR EXPOSURE TO WEATHER, DAMP LOCATIONS, OR SURFACE MOUNTING, OUTLET BOXES SHALL BE HEAVY CAST ALUMINUM OR CAST IRON WITH THREADED HUBS; COVERS SHALL BE WATERTIGHT WITH GASKETS AND NON-FERROUS SCREWS.

5. OUTLET BOXES USED FOR SUPPORT OF CEILING FANS SHALL BE GALVANIZED, ONE-PIECE DRAWN STEEL, KNOCKOUT TYPE EQUIPPED WITH BRACING BARS & PLASTER RINGS WHERE REQUIRED AND LISTED FOR CEILING FAN SUPPORT USE. SUCH BOXES SHALL BE LABELED AND CAPABLE OF SUPPORTING CEILING FAN WEIGHTS UP TO 70 POUNDS.

6. SEE DRAWINGS FOR FLOOR BOX INSTALLATION NOTES AND SPECIFICATIONS.

W. PLYWOOD BACKBOARDS: WHERE INDICATED FOR TELEPHONE OR COMMUNICATIONS SYSTEM TERMINALS OR OTHER EQUIPMENT ASSEMBLIES, PROVIDE BACKBOARDS OF SIZE INDICATED. USE 3/4" THICK X 8' TALL (LENGTH PER PLANS), DOUGLAS FIR, VOID-FREE, KILN-DRIED, FIRE-RATED PLYWOOD FINISHED ON ONE SIDE AND PRIME COAT PAINTED ON ALL SURFACES WITH FINISH COAT OF ENAMEL PAINT, COLOR BY ARCHITECT. LEAVE ONE (1) FIRE-RATING STAMP/SHEET EXPOSED FOR INSPECTION.

X. TERMINAL CABINETS:

1. TERMINAL CABINETS SHALL BE FABRICATED OF HOT DIPPED GALVANIZED CODE GAUGE SHEET METAL FOR FLUSH OR SURFACE MOUNTING, COMPLETE WITH BARRIERED SECTIONS, A DOOR FOR EACH VERTICALLY BARRIERED SECTION AND ISSUES AS INDICATED ON PLAN. DOORS SHALL BE HINGED AND LOCKABLE. LOCKS SHALL BE KEYED TO MATCH THE BRANCH CIRCUIT PANELBOARDS. TERMINAL CABINET TRIMS SHALL MATCH THE BRANCH CIRCUIT PANELS.

2. PROVIDE EACH TERMINAL CABINET WITH A FULL SIZE PLYWOOD BACKBOARD.

3. TERMINAL CABINETS SHALL BE INSTALLED COMPLETE WITH FULL-LENGTH SKIRTS OF THE SAME CONSTRUCTION AND FINISH AS THE TERMINAL CABINET.

4. WHERE MOUNTED OUTDOORS, TERMINAL CABINETS SHALL BE NEMA 3R, WEATHERPROOF COMPLETE WITH GASKETS AND REQUIRED SEALANT TO PREVENT MOISTURE FROM ENTERING THE TERMINAL CABINET.

5. ALL TERMINAL CABINETS AND TERMINAL CABINET BARRIERED SECTIONS SHALL BE LABELED BY THE CABINET OR CABINET SECTION USE (I.E. CATV, SECURITY, ETC). LABELS SHALL BE MICARTA TYPE AS SPECIFIED ELSEWHERE IN THESE SPECIFICATIONS. UNLESS OTHERWISE NOTED, ALL TERMINATION BLOCKS AND CABLES SHALL BE LABELED PER ANSI/EIA 606 STANDARD.

Y. PAINTING: TERMINAL CABINETS, PANELS, JUNCTION BOXES, PULL BOXES, ETC., AND CONDUIT INSTALLED IN PUBLIC VIEW SHALL BE PAINTED WITH COLORS SELECTED BY THE ARCHITECT TO MATCH THE SUBJECT SURFACE. REFER TO PAINTING SECTION OF THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

Z. SEISMIC DESIGN AND ANCHORING OF ELECTRICAL EQUIPMENT:

1. SEISMIC PROTECTION CRITERIA: ALL ELECTRICAL AND MECHANICAL MACHINERY INSTALLATIONS PROVIDED, AS PART OF THIS CONTRACT LOCATED IN ANY SEISMIC RISK ZONE OF THE UNIFORM BUILDING CODE SEISMIC RISK MAP SHALL BE PROTECTED FROM EARTHQUAKES IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE AND, AS APPLICABLE, THE STATE AND LOCAL BUILDING CODES AND REGULATIONS. PROTECTION CRITERIA FOR THESE ZONES SHALL BE A HORIZONTAL FORCE FACTOR AS PRESCRIBED BY THE IBC, OR LOCALLY ADOPTED BUILDING CODES, MULTIPLIED BY THE MACHINERY WEIGHT CONSIDERED PASSING THROUGH THE MACHINERY CENTER OF GRAVITY IN ANY HORIZONTAL DIRECTION. UNLESS VIBRATION ISOLATION IS REQUIRED TO PROTECT MACHINERY AGAINST UNACCEPTABLE STRUCTURE TRANSMITTED NOISE AND/OR VIBRATION, MACHINERY SHALL BE PROTECTED FROM EARTHQUAKES BY RIGID STRUCTURALLY SOUND ATTACHMENT TO THE LOAD SUPPORTING STRUCTURE. THE FORCE FACTOR AND ANCHORAGE SHALL BE DETERMINED BY CALCULATIONS PERFORMED AND SUBMITTED TO THE ARCHITECT BY A PROFESSIONAL ENGINEER REGISTERED IN STATE WHERE THE WORK IS BEING PERFORMED (CIVIL OR STRUCTURAL) HIRED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF SEISMIC RESTRAINT SYSTEMS FOR ALL PIECES OF EQUIPMENT WEIGHING OVER 50 POUNDS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

a. SWITCHGEAR, SWITCHBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS AND PANELBOARDS

b. CONDUITS/CONDUIT SUPPORT TRAPEZES

c. TRANSFORMERS

d. LIGHT FIXTURES

e. INVERTERS, UPSS, RDCS, PDUS, GENERATORS AND TRANSFER SWITCHES

f. CABLE TRAY, FLEXIBLE CABLE TRAY, LADDER TRAY

g. BUS DUCT

2. SEISMIC PROTECTION, LABOR, MATERIALS AND DESIGN SHALL BE INCLUDED IN THE CONTRACT SUM.

AA. TRENCHING AND BACKFILLING: CONTRACTOR SHALL BE RESPONSIBLE FOR TRENCHING AND BACKFILLING. REFER TO APPLICABLE TRENCHING AND BACKFILLING SPECIFICATIONS FOR COMPLETE REQUIREMENTS.

PART 3 - EXECUTION

3.1 PREPARATION AND INSTALLATION

A. INSTALLATION OF CONDUIT AND OUTLET BOXES:

1. ALL CONDUIT INSTALLED IN THE DRY WALLS OR CEILINGS OF A BUILDING SHALL BE STEEL TUBE (EMT), ALUMINUM TUBE (EMT), OR INTERMEDIATE METAL CONDUIT (IMC). FLEXIBLE CONDUIT SHALL NOT BE USED IN LIEU OF EMT, IMC OR RIGID CONDUIT EXCEPT AS NOTED HEREIN. EMT SHALL NOT BE INSTALLED IN AREAS EXPOSED TO WEATHER.

2. GALVANIZED RIGID CONDUIT (GRC) OR INTERMEDIATE METAL CONDUIT (IMC) SHALL BE USED AS FOLLOWS:

- WHEN NOTED ON THE DRAWINGS.
- WHEN CONSIDERED EXPOSED TO DAMAGE BY THE LOCAL AHJ.
- WHEN INSTALLED IN WET OR DAMP LOCATIONS AND OF A TRADE SIZE WHERE LISTED-RAINTITE FITTINGS, CONNECTORS, COUPLINGS ETC ARE UNAVAILABLE
- WHEN REQUIRED BY NEC OR CEC ARTICLE 517.13
- WHEN INSTALLED IN CONCRETE AND MASONRY. THE USE OF ENT IN CMU WALLS AND PARKING STRUCTURES MAY BE ALLOWED ONLY AS DIRECTED IN WRITING BY THE ENGINEER. REQUEST FOR ENT SUBSTITUTION MUST BE MADE PRIOR TO BID AND IN ACCORDANCE WITH PRE-BID SUBSTITUTION REQUEST REQUIREMENTS OF THESE SPECIFICATIONS.

3. INTERMEDIATE METAL CONDUIT (IMC), IS APPROVED FOR USE IN ALL LOCATIONS AS APPROVED FOR GRC OR EMT AND IN ACCORDANCE WITH NEC, OR CEC WHERE ADOPTED, ARTICLE 342.

4. FLEXIBLE STEEL CONDUIT SHALL ONLY BE PERMITTED TO BE USED AT LIGHT FIXTURE OUTLETS AND CONNECTIONS TO VIBRATING ELECTRICAL EQUIPMENT. ALL FLEXIBLE STEEL CONDUIT RUNS SHALL BE LESS THAN 6'-0". ALL OUTDOOR INSTALLATION SHALL BE MADE USING LIQUID-TIGHT FLEX WITH APPROVED FITTINGS. INCLUDE A SEPARATE INSULATED GREEN GROUND CONDUCTOR SIZED PER NEC IN EACH CONDUIT. OTHER USES OF FLEXIBLE CONDUIT SHALL BE ALLOWED ONLY AS APPROVED IN WRITING BY THE ENGINEER.

5. FLEXIBLE LIQUIDTIGHT CONDUIT SHALL BE INSTALLED IN LIEU OF THE FLEXIBLE STEEL; WHERE REQUIRED BY NEC, OR CEC WHERE ADOPTED, IN DAMP AND WET LOCATION, WHERE EXPOSED TO WEATHER, IN REFRIGERATED AREA (65 DEG. F OR LESS), AND/OR BETWEEN SEISMIC JOINTS. ALL ROTATING ELECTRICAL EQUIPMENT SHALL BE SUPPLIED WITH FLEXIBLE, LIQUID-TIGHT CONDUIT WITH APPROPRIATE SLACK AND SHALL NOT EXCEED THIRTY-SIX (36) INCHES. INCLUDE A SEPARATE INSULATED GREEN GROUND CONDUCTOR SIZED PER NEC IN EACH CONDUIT. OTHER USES OF LIQUIDTIGHT FLEXIBLE CONDUIT SHALL BE ALLOWED AS APPROVED IN WRITING BY THE ENGINEER ON A CASE BY CASE BASIS.

6. RIGID METALLIC CONDUIT INSTALLED UNDERGROUND OR EMBEDDED IN CONCRETE SHALL BE 1" TRADE SIZE MINIMUM AND SHALL BE WRAPPED WITH 20 MIL POLYVINYL CHLORIDE PLASTIC TAPE. PVC CONDUIT INSTALLED UNDERGROUND OR IMBEDDED IN CONCRETE SHALL BE 3/4" MINIMUM TRADE SIZE.

7. WHERE REQUIRED FOR PROVIDING AN ELECTRICAL CIRCUIT PROTECTIVE SYSTEM TO COMPLY WITH NEC, OR CEC WHERE ADOPTED, ARTICLES 695 AND 700, UTILIZE UL LISTED 2-HOUR FIRE-RATED, MC CABLE OR UL LISTED 2-HOUR FIRE-RATED RHW/RHW CONDUCTORS IN CONDUIT.

8. CONDUIT SHALL BE RUN SO AS NOT TO INTERFERE WITH OTHER PIPING, FIXTURES OR EQUIPMENT.

9. THE ENDS OF ALL CONDUITS SHALL BE CUT SQUARE, CAREFULLY REAMED OUT TO FULL SIZE AND SHALL BE SHOULDERED IN FITTINS.

10. NO RUNNING THREADS WILL BE PERMITTED IN LOCATIONS EXPOSED TO THE WEATHER, IN CONCRETE OR UNDERGROUND. SPECIAL UNION FITTINGS SHALL BE USED IN THESE LOCATIONS.

11. WHERE CONDUIT IS UNDERGROUND, UNDER SLABS OR GRADE, EXPOSED TO THE WEATHER, OR IN WET LOCATIONS, MAKE JOINTS LIQUID TIGHT AND GAS TIGHT.

12. ALL METAL CONDUIT IN MASONRY AND CONCRETE AND WHERE CONCEALED UNDER FLOOR SLABS SHALL HAVE JOINTS PAINTED WITH THREAD COMPOUND PRIOR TO MAKEUP.

13. PVC CONDUIT SHALL NOT BE RUN IN WALLS.

14. WHERE CONDUCTORS ENTER A RACEWAY OR A RACEWAY IN A CABINET, PULL BOX, JUNCTION BOX, OR AUXILIARY GUTTER, THE CONDUCTORS SHALL BE PROTECTED BY A PLASTIC BUSHING TYPE FITTING PROVIDING A SMOOTHLY ROUNDED INSULATING SURFACE.

15. WHERE CONDUIT EXTENDS THROUGH ROOF TO EQUIPMENT ON ROOF AREA, THIS CONTRACTOR SHALL PROVIDE FLASHING MATERIAL COMPATIBLE WITH THE ROOFING SYSTEM AS REQUIRED BY THE ROOFING SPECIFICATIONS OR AS REQUIRED BY THE OWNER'S ROOF WARRANTY. THIS FLASHING SHALL BE DELIVERED TO THE ROOFING CONTRACTOR FOR INSTALLATION. THE ACTUAL LOCATION OF ALL SUCH ROOF PENETRATIONS AND OUTLETS SHALL BE VERIFIED WITH ARCHITECT/OWNER. CONTRACTOR SHALL VERIFY TYPE OF FLASHING PRIOR TO BID AND INCLUDE ALL COSTS.

16. ALL CONDUIT SHALL BE SUPPORTED AT INTERVALS NOT LESS THAN 6'-0" AND WITHIN 12" FROM ANY OUTLET AND AT EACH SIDE OF BENDS AND ELBOWS. CONDUIT SUPPORTS SHALL BE GALVANIZED, HEAVY STAMPED, TWO-HOLE CONDUIT CLAMP PROPERLY SECURED.

17. WHERE CONDUIT RACKS ARE USED THE RACK SHALL CONSIST OF TWO PIECE CONDUIT CLAMPS ATTACHED TO GALVANIZED STEEL SLOTTED CHANNELS, PROPERLY SECURED VIA THREADED RODS ATTACHED DIRECTLY TO THE BUILDING STRUCTURE.

18. NAIL-IN CONDUIT SUPPORTS, ONE-PIECE SET SCREW TYPE CONDUIT CLAMPS OR PERFORATED IRON FOR SUPPORTING CONDUIT SHALL NOT BE USED.

19. SEISMIC CONDUIT SUPPORT:

a. ALL CONDUIT SHALL BE SUPPORTED IN SUCH A MANNER THAT IT IS SECURELY ATTACHED TO THE STRUCTURE OF THE BUILDING. ATTACHMENT IS TO BE CAPABLE OF SUPPORTING THE TRIBUTARY WEIGHT OF CONDUIT AND CONTENTS IN ANY DIRECTION. MAXIMUM SPACING OF SUPPORT AND BRACES ARE TO BE AS FOLLOWS:

| CONDUIT SIZE | MAXIMUM SPACING |
|---|---|
| 1/2" to 3" | 6'-0" |
| 3-1/2" to 4" | 8'-0" |

20. ALL CONDUIT RUNS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS, OR INTERSECTION OF VERTICAL PLANES AND CEILINGS. FIELD MADE BENDS AND OFFSET SHALL BE AVOIDED WHERE POSSIBLE. CRUSHED OR DEFORMED RACEWAY SHALL NOT BE INSTALLED.

21. OPEN KNOCKOUTS IN OUTLET BOXES ONLY WHERE REQUIRED FOR INSERTING CONDUIT.

22. LOCATE WALL OUTLET OF THE SAME TYPE AT SAME LEVEL IN ALL ROOMS, EXCEPT WHERE OTHERWISE NOTED.

23. OUTLET BOXES ON METAL STUDS SHALL BE ATTACHED TO METAL HANGERS, TACK WELDED OR BOLTED TO STUDS. NO WOOD ATTACHMENT SHALL BE WITH WOOD SCREWS, NAILS NOT ACCEPTABLE.

24. RECESSED BOXES SHALL NOT BE MOUNTED BACK-TO-BACK IN ANY WALL; MINIMUM OFFSET SHALL BE 24 INCHES.

25. JUNCTION BOXES THAT DO NOT CONTAIN ANY DEVICE(S) SHALL BE LOCATED IN STORAGE ROOMS, ELECTRICAL CLOSETS, OR ABOVE ACCESSIBLE CEILINGS, NOT IN HARD LID CEILINGS OR OTHER FORMS OF INACCESSIBLE CEILINGS. PLACE BOXES WHICH MUST BE EXPOSED TO PUBLIC VIEW IN A LOCATION APPROVED BY THE OWNER'S PROJECT MANAGER. PROVIDE COVERS OR PLATES TO MATCH ADJACENT SURFACES AS APPROVED BY THE OWNER'S PROJECT MANAGER.

26. SURFACE MOUNTED PULL BOXES, TERMINAL CABINETS, JUNCTION BOXES, PANEL BOARDS ETC., SHALL BE ATTACHED TO WALLS USING APPROPRIATE SCREWS, FASTENERS, BACKING PLATES, STUD BLOCKING ETC., AS DETAILED ON ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS. IF ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS ARE NOT PROVIDED ON THE PROJECT, CONTRACTOR SHALL PROVIDE ALL NECESSARY MOUNTING HARDWARE AND BACKING SUPPORT TO COMPLY WITH LOCAL BUILDING CODE REQUIREMENTS AND ANY ADDITIONAL REQUIREMENTS IMPOSED BY THE LOCAL AUTHORITY-HAVING-JURISDICTION.

27. EXCEPT WHERE BELOW GRADE, SLEEVES SHALL BE INSTALLED WHERE CONDUIT PASSES THROUGH MASONRY OR CONCRETE WALLS AND SHALL BE 24 GAUGE GALVANIZED STEEL NO MORE THAN 1/2" GREATER IN DIAMETER THAN THE OUTSIDE DIAMETER OF THE CONDUIT. WHEN LOCATED IN NON-RATED STRUCTURES, CAULK CONDUIT SLEEVE WITH STONE WOOL. WHEN LOCATED IN FIRE RATED STRUCTURES, PROVIDE U.L. LISTED FIRE STOPPING SYSTEM. SEE FIRE STOPPING SECTION OF THIS SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

28. ALL BOXES SHALL BE COVERED WITH OUTLET BOX PROTECTOR, APPLETON SB-CK, OR SIMILAR DEVICE / METHOD TO KEEP DIRT / DEBRIS FROM ENTERING BOX, CONDUIT OR PANELS. IF DIRT / DEBRIS DOES GET IN, IT SHALL BE REMOVED PRIOR TO PULLING WIRES.

29. ALL BOXES INSTALLED OUTDOORS SHALL BE SUITABLE FOR OUTDOOR INSTALLATIONS, GASKETED, SCREW COVER AND PAINTED AS DIRECTED BY THE ARCHITECT WITH WEATHERPROOF PAINT TO MATCH BUILDING.

30. ALL CONDUIT ENTRIES TO OUTDOOR MOUNTED PANELS, CABINETS, BOXES, ETC., SHALL BE MADE USING MYERS "SCRU-TITE" HUBS SERIES ST.

31. PROVIDE NYLON OR A 1/8-INCH O.D. POLYETHYLENE ROPE, RATED AT 250 POUNDS TENSILE STRENGTH, IN ALL CONDUITS MORE THAN 5 FEET IN LENGTH LEFT EMPTY FOR FUTURE USE. NOT LESS THAN 5 FEET OF ROPE SHALL BE LEFT AT EACH END OF THE CONDUIT. TAG ALL LINES WITH A PLASTIC TAG AT EACH END INDICATING THE TERMINATION/STUB LOCATION OF THE OPPOSITE END OF THE CONDUIT.

32. ALL MULTIPLE CONDUIT RUNS WITHIN SUSPENDED CEILINGS SHALL BE SUSPENDED FROM BUILDING STRUCTURE BY MEANS OF UNISTRUT HANGERS/RACK. CONDUIT SHALL NOT BE ALLOWED TO LAY ON CEILING OR BE SUPPORTED FROM CEILING SUSPENSION WIRES OR OTHER SUSPENSION SYSTEM. SUPPORT CONDUIT TO STRUCTURE ABOVE SUSPENDED CEILINGS 8" MINIMUM ABOVE CEILING TO ALLOW REMOVAL OF CEILING TILE. MAINTAIN TWO INCH CLEARANCE ABOVE RECESSED LIGHT FIXTURES

33. ALL EXPOSED CONDUITS AND SUPPORT HARDWARE SHALL BE PAINTED TO MATCH THE FINISH OF THE WALL OR CEILING TO WHICH IT IS SUPPORTED.

34. WHERE CONDUITS OR WIREWAYS CROSS SEISMIC JOINTS, PROVIDE APPROVED FLEXIBLE CONDUIT CONNECTION OR APPROVED EXPANSION/DEFLECTION FITTING TO ALLOW FOR DISPLACEMENT OF CONDUIT IN ALL THREE AXES. CONNECTION SHALL ALLOW FOR MOVEMENT IN ACCORDANCE WITH DESIGN OF SEISMIC JOINT. NON-FLEXIBLE RACEWAYS CROSSING EXPANSION JOINTS OR OTHER AREAS OF POSSIBLE STRUCTURAL MOVEMENT SHALL MAKE PROVISION FOR 3-WAY MOVEMENT AT SUCH POINTS BY MEANS OF EXPANSION/DEFLECTION FITTINGS. FITTINGS SHALL BE INSTALLED IN THE CENTER OF THEIR AXES OF MOVEMENT AND SHALL NOT BE DEFLECTED TO MAKE PART OF A CONDUIT BEND. OR COMPRESSED OR EXTENDED TO COMPENSATE FOR INCORRECT CONDUIT LENGTH. INSTALL FLEXIBLE CONDUIT CONNECTION(S) OR APPROVED EXPANSION/DEFLECTION FITTING(S) COMPLETE WITH GROUND JUMPERS. WHERE NECESSARY, PROVIDE APPROVED EXPANSION JOINTS TO ALLOW FOR THERMAL EXPANSION AND CONTRACTION OF CONDUIT(S). INSTALL EXPANSION JOINTS COMPLETE WITH GROUND JUMPERS.

35. SEAL ALL CONDUITS WHERE TERMINATION IS SUBJECT TO MOISTURE OR WHERE CONDUIT PENETRATES EXTERIOR WALL, FLOOR OR ROOF, IN REFRIGERATED AREAS, CLASSIFIED (HAZARDOUS AREAS) AND AS INDICATED ON THE DRAWINGS.

36. EXCEPT AS OTHERWISE INDICATED ON THE DRAWINGS OR ELSEWHERE IN THESE SPECIFICATIONS, BENDS IN FEEDER AND BRANCH CIRCUIT CONDUIT 2 INCHES OR LARGER SHALL HAVE A RADIUS OR CURVATURE OF THE INNER EDGE, EQUAL TO NOT LESS THAN TEN (10) TIMES THE INTERNAL DIAMETER OF THE CONDUIT. EXCEPT WHERE SWEEPING VERTICALLY INTO A BUILDING WHERE SWEEP RADIUS EQUALS TEN (10) TIMES CONDUIT DIAMETER, UNDERGROUND COMMUNICATIONS AND BUILDING INTERCONNECT CONDUITS 3 INCHES OR LARGER SHALL HAVE A MINIMUM 12'-6" RADIUS OR CURVATURE OF THE INNER EDGE. FOR THE SERVING UTILITIES, RADIUS BENDS SHALL BE MADE PER THEIR RESPECTIVE SPECIFICATIONS.

37. TAG ALL EMPTY CONDUITS AT EACH ACCESSIBLE END WITH A PERMANENT TAG IDENTIFYING THE PURPOSE OF THE CONDUIT, FOOTAGE END-TO-END, AND THE LOCATION OF THE OTHER END. IN WET, CORROSIVE OUTDOOR OR UNDERGROUND LOCATIONS, USE BRASS, BRONZE, OR COPPER 16 GAUGE TAGS SECURED TO CONDUIT ENDS WITH #16 OR LARGER GALVANIZED WIRE. INSCRIBE ON THE TAGS, WITH STEEL PUNCH DIES, CLEAR AND COMPLETE IDENTIFYING INFORMATION.

38. THE FOLLOWING ADDITIONAL REQUIREMENTS SHALL APPLY TO UNDERGROUND CONDUITS:

a. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC (POLYVINYL CHLORIDE) UNLESS OTHERWISE INDICATED ELSEWHERE IN THESE SPECIFICATIONS OR AS REQUIRED PER NEC, OR CEC WHERE ADOPTED, ARTICLE 517.13.

b. FOR ALL COMMUNICATIONS CONDUITS 2" AND LARGER AND FEEDERS 100 AMPS OR GREATER, PROVIDE WITH A MINIMUM 3" INCH, (2,000 LB) CONCRETE ENVELOPE, 2" INCH MINIMUM SEPARATION BETWEEN CONDUITS, INSTALLED AT DEPTH OF NOT LESS THAN 24" BELOW GRADE. (PROVIDE CONCRETE ENCASEMENT AND/OR GREATER MINIMUM CONDUIT DEPTH AS REQUIRED BY THE UTILITY COMPANIES.) CONDUIT SEPARATION WITHIN A DUCT BANK SHALL BE MAINTAINED USING PLASTIC SPACERS LOCATED AT 5'-0" INTERVALS. WHERE POWER AND COMMUNICATION CONDUITS ARE RUN IN A COMMON TRENCH, A 12" INCH MINIMUM SEPARATION SHALL BE MAINTAINED BETWEEN POWER AND COMMUNICATION CONDUITS OR AS REQUIRED BY UTILITY COMPANIES.

c. IN ALL CASES, WHERE ANY CONDUIT(S) PASS UNDER A BUILDING SLAB OR FOOTING, THE ELECTRICAL CONTRACTOR WILL PROVIDE A BENTONITE CLAY OR CONCRETE BARRIER THAT CONFORMS TO THE HEIGHT AND WIDTH OF THE TRENCH EXCAVATION AND IS A MINIMUM OF 18" THICK. IN ALL CASES, WHERE CONDUIT(S) PASS THRU A SLEEVE IN A FOOTING OR OTHER FOUNDATION ELEMENT, THE ELECTRICAL CONTRACTOR WILL PROVIDE A BENTONITE CLAY OR CONCRETE BARRIER BETWEEN THE SLEEVE AND THE CONDUIT(S) SURROUNDING THE CONDUIT(S) FOR THE ENTIRE DEPTH OF THE SLEEVE. THE BARRIER IS REQUIRED TO PREVENT PASSAGE OF MOISTURE UNDER OR THRU THE SLAB OR FOOTING VIA THE TRENCH OR SLEEVE.

d. WHERE UND




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| E-1801 | ELECTRICAL EQUIPMENT TO BE DEMOLISHED BACK TO SOURCE. |
| E-1802 | DEMOLISH RECEPTACLES WITH THE LETTER "D" AS SHOWN ON PLANS. PULL WIRES BACK TO SOURCE OR TO THE NEAREST EXISTING RECEPTACLE TO REMAIN. U.N.O. |
| E-1803 | DEMOLISH RECEPTACLES, JUNCTION BOXES, DATA OUTLETS AND SWITCHES IN SPACE. PULL WIRES BACK TO SOURCE OR TO THE NEAREST EXISTING RECEPTACLE TO REMAIN. U.N.O. |
| E-1805 | FIELD VERIFY EXISTING RECEPTACLE IS NOT CONFLICTING WITH NEW WORK. COORDINATE RELOCATION WITH ARCHITECT/ENGINEER AS NEEDED. |
| E-1806 | FLOOR BOXES TO BE DEMOLISHED. SAW CUT AND REMOVE EXISTING CONDUIT AND PULL WIRES BACK TO SOURCE. DEMOLITION LINES ARE APPROXIMATE. VERIFY EXACT SAW CUT ROUTING IN FIELD. |

## FLOOR PLAN GENERAL NOTES

1. EXISTING LIGHTING FIXTURES, EXIT SIGNS AND LIGHTING CONTROLS TO BE REMOVED AND REPLACED. PULL ALL WIRES BACK TO SOURCE.

01 - FLOOR - POWER DEMO 1/8" = 1'-0" 1

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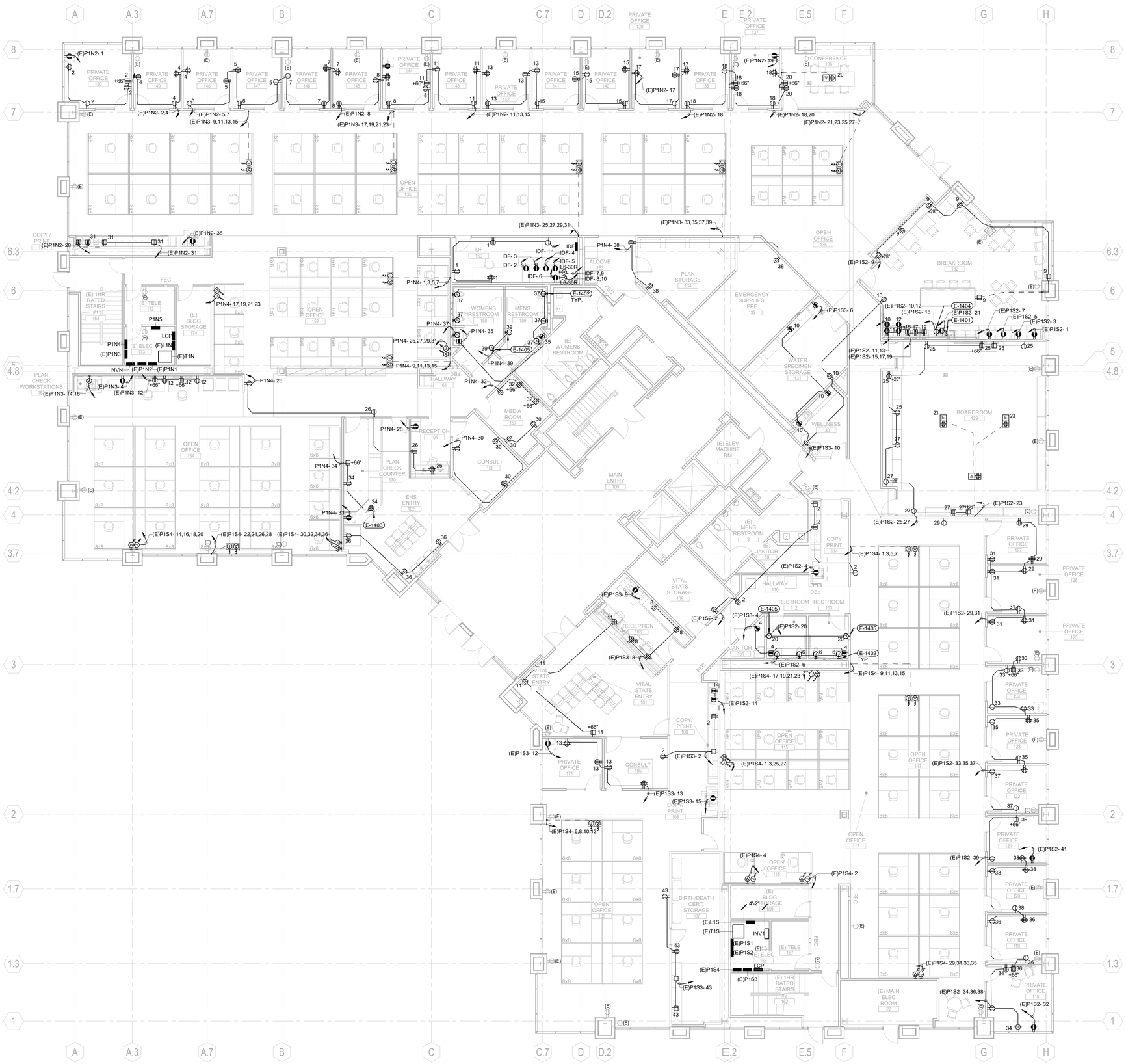
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|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | 1/8" = 1'-0" |

ELECTRICAL
DEMOLITION PLAN

E1.01




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| E-1401 | PROVIDE 120V CONNECTION TO GARBAGE DISPOSAL. INTERCONNECT TO PUSH-BUTTON CONTROL PER MANUFACTURERS SPECIFICATION. |
| E-1402 | PROVIDE 120V CONNECTION TO AUTO FLUSH VALVES AND AUTO SINK FAUCET IN RESTROOMS. |
| E-1403 | ROUTE CONDUIT AND CONDUCTOR THROUGH FURNITURE CASE WORK FROM WALL TO CONNECT TO OUTLET FLUSH IN CASEWORK. |
| E-1404 | PROVIDE POWER CONNECTION TO INSTA-HOT. |
| E-1405 | PROVIDE 120V CONNECTION TO AUTOMATIC TOWEL DISPENSER. POWER TO BE TRANSFORMED WITH 24V AC CONVERSION KIT. INSTALL PER MANUFACTURER INSTALLATION INSTRUCTIONS. |

FLOOR PLAN GENERAL NOTES

01 - FLOOR - POWER 1/8" = 1'-0" 1

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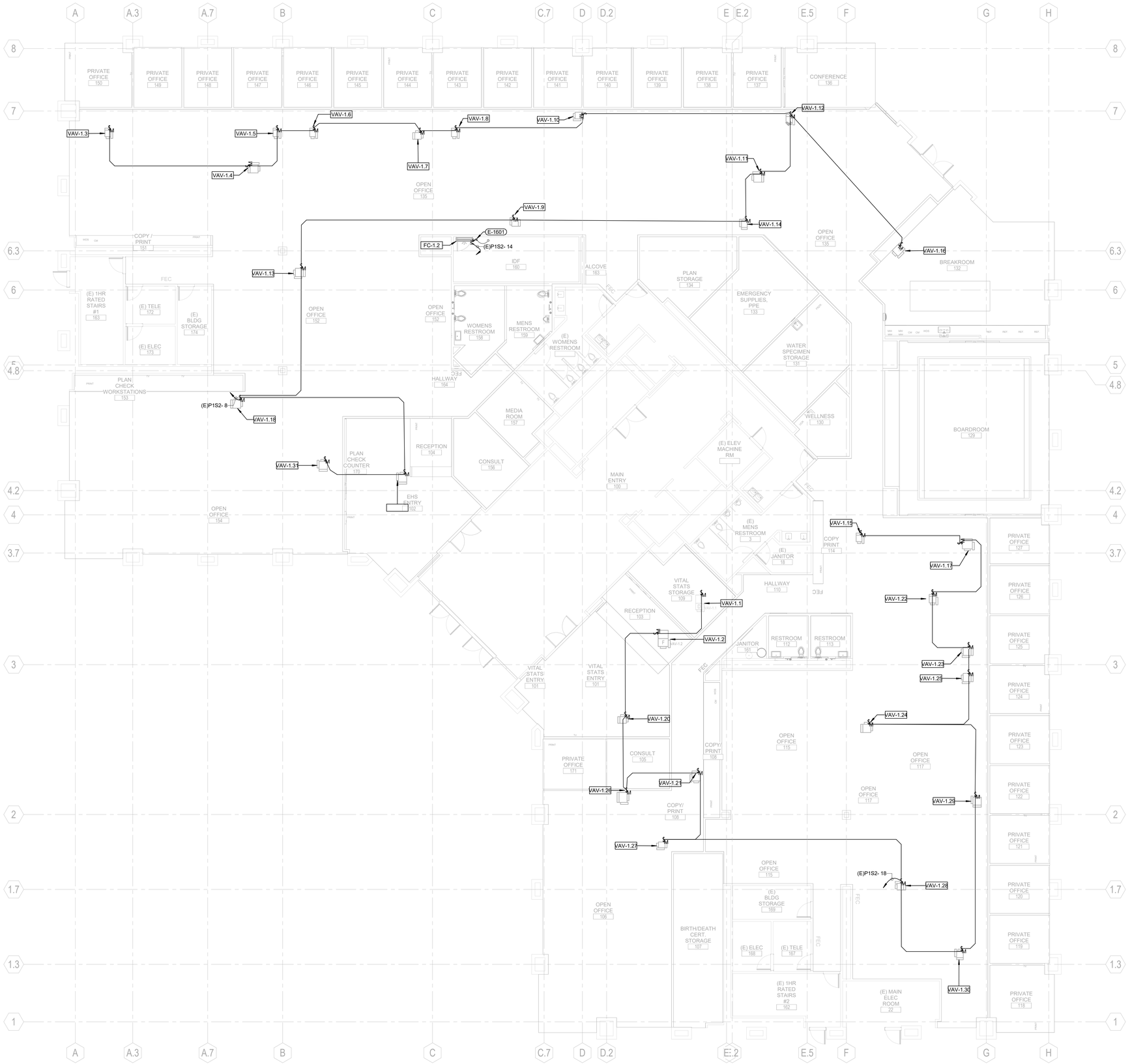
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ELECTRICAL POWER PLAN

E2.01




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| E-1601 | FC-1.2 TO BE POWERED FROM ROOFTOP CONDENSING UNIT. PROVIDE 208V 1PH 30A POWER CONNECTION TO ROOFTOP CONDENSING UNIT FROM (N) 30A BREAKER ON EXISTING 120/208V PANELBOARD IN NORTH 4TH FLOOR ELECTRICAL ROOM |

## FLOOR PLAN GENERAL NOTES

01 - FLOOR - POWER/MECH | 1/8" = 1'-0" | 05


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|---|---|
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| Scale | 1/8" = 1'-0" |

ELECTRICAL POWER/MECH PLAN

E2.11




## KEYNOTES

| ITEM | DESCRIPTION |
|---|---|
| E-1301 | FIXTURE TO BE CONCEALED BEHIND LIP OF UPPER CABINET. LOCATE REMOTE DRIVER FOR TYPE C1 ABOVE TILE CEILING THAT IS TO BE ACCESSIBLE FOR MAINTENANCE. RUN WIRING BEHIND WALL AND EXIT WHERE FIXTURE MEETS WALL. HOLE IN WALL TO BE CLEAN, MINIMAL, AND HIDDEN BEHIND LIP OF CABINET SUCH THAT IT IS NOT VISIBLE FROM VIEW. PROVIDE SMALLEST DIAMETER CABLE GROMMET THAT IS APPROPRIATE WHERE WIRING PASSES THROUGH MILLWORK. GROMMET FINISH TO MATCH AS CLOSE TO WALL FINISH. ALL WIRING SHOULD BE INSTALLED CLEAN, NEAT, CONCEALED AND RUN TIGHT TO BUILDING ELEMENTS/MILLWORK WHERE POSSIBLE. |
| E-1302 | BOTTOM OF FIXTURE TO BE MOUNTED AT 6'-6" A.F.F. |
| E-1303 | LESS THAN 120W OF INSTALLED GENERAL LIGHTING POWER IN PRIMARY DAYLIGHT ZONE; THEREFORE AUTOMATIC DAYLIGHTING CONTROLS ARE NOT REQUIRED IN THIS AREA. |

## FLOOR PLAN GENERAL NOTES


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| Scale | 1/8" = 1'-0" |

LIGHTING PLAN

E2.21

01 - FLOOR - LIGHTING 1/8" = 1'-0" 1

## GENERAL NOTES - LIGHTING FIXTURE/SCHEDULE

1. ALL LIGHTING FIXTURES SHALL BE LABELED WITH THE APPROPRIATE UL LABEL (DAMP, WET, ETC.) AS REQ BY CODES & LOCAL ORDINANCES.
2. SHOP DRAWING SUBMITTALS SHALL INCLUDE ALL FIXTURES, & DRIVERS/DIMMING INFORMATION. ANY SHOP DRAWINGS WHICH ARE SUBMITTED WITHOUT ANY ONE OF THESE ITEMS WILL BE REJECTED AS INCOMPLETE & WILL BE REQ TO BE RESUBMITTED WITH THE REQ INFORMATION.
3. ALL LIGHTING FIXTURE SPECIFIC INFORMATION (TYPE, OUTPUT/LUMEN LEVEL, DRIVER, COLOR, MTG, ETC.) HAS BEEN SPECIFIED WITH THE CONSIDERATION OF SPECIFIC PERFORMANCE & AESTHETIC REQUIREMENTS. ANY SUBSTITUTION OF THE SPECIFIED FIXTURES IS SUBJECT TO THE ARCHITECT & ENGINEER OF RECORD'S FINAL APPROVAL & ARE SUBJECT TO THE FOLLOWING CRITERIA:
   a. SUBMIT AN OPERABLE SAMPLE OF THE SPECIFIED FIXTURE & A 120V CORD & PLUG (& DRIVER TO OPERATE SAMPLE IF NECESSARY).
   b. PROVIDE COMPLETE PHOTOMETRIC REPORT(S) FOR THE SITE AND/OR FLOOR PLAN CONFIRMING SUBSTITUTE FIXTURE(S) MEET OR EXCEED DESIGNED ILLUMINANCE LEVELS IN SPACES IDENTIFIED. CLEARLY IDENTIFY ILLUMINANCE LEVELS (IN FOOT-CANDLES), & ALL INPUT DATA UTILIZED IN THE CALCULATION (LUMEN OUTPUTS, LIGHT LOSS FACTORS, ETC.). IN SITUATIONS WHERE SUBSTITUTIONS AFFECT FIXTURES EQUIPPED WITH EMERGENCY BATTERY PACKS OR OTHER EMERGENCY SOURCES OF POWER, PROVIDE ADDITIONAL PHOTOMETRIC REPORT(S) THAT CLEARLY IDENTIFY A MIN OF 1 FOOT-CANDLE ALONG THE PATH(S) OF EGRESS, ALL INPUT DATA UTILIZED IN THE CALCULATION, & THE LUMEN RATING & QUANTITY OF FIXTURES FOR THE EMERGENCY BATTERY PACK. SEE BELOW FOR PHOTOMETRIC PLAN GUIDELINES:
      1. POINT BY POINT SPACING IS NOT TO EXCEED 10'-0" IN ANY DIRECTION ON SITE PLANS; SPACING IS NOT TO EXCEED 4'-0"IN ANY DIRECTION ON INTERIOR FLOOR PLANS.
      2. PHOTOMETRIC STUDY IS TO BE BASED ON MAINTAINED ILLUMINANCE LEVELS (IN FOOT-CANDLES) USING MEAN FIXTURE LUMENS & THE SAME LIGHT LOSS FACTORS USED IN THE ORIGINAL DESIGN CALCULATIONS PERFORMED BY THE ENGINEER OF RECORD.
      3. ASSOCIATED REPORT TO INCLUDE AN ENERGY COST MODEL WHICH IDENTIFIES ADDITIONAL ENERGY OR ENERGY COSTS FOR A 10-YEAR PERIOD AS COMPARED TO THE ORIGINAL ITEM SPECIFIED. ALL ADDITIONAL EXPENSES WILL BE SUBTRACTED FROM THE CONTRACT COST.
   c. WHERE APPLICABLE, TEST SWITCH MOUNTING (INTEGRAL OR REMOTE) SHALL MATCH THE MOUNTING AS SPECIFIED ON THE DESIGN DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL COVER PLATES, TRIMS, REFLECTORS, ETC. NECESSARY FOR THE SPECIFIC TEST SWITCH MOUNTING.
   d. MANUFACTURER'S CATALOG CUT SHEET WHICH INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING INFORMATION: LUMEN LEVEL, DRIVER/TRANSFORMER OPTIONS, VOLTAGES, OPTICS, EPA RATING (WHERE APPLICABLE), FIXTURE DIMENSIONS, EMERGENCY OPTIONS (WHERE APPLICABLE), & FIXTURE FINISHES.
   e. FOR ALL SITE LIGHTING FIXTURES, PROVIDE POLE SPECIFICATIONS WITH SUPPLEMENTAL DOCUMENTATION IDENTIFYING POLE SIZE IS RATED ACCORDINGLY BASED ON FIXTURE(S) EPA & WIND RATING FOR THE PROJECT ZONE.
   f. A SIGNED COPY OF THE "SUBSTITUTION COMPLIANCE FORM" LOCATED IN THE DIVISION 1 SPECIFICATION WHICH STATES THAT IF THE PROPOSED SUBSTITUTION IS ACCEPTED, THEN THE PROJECT SCHEDULE WILL NOT BE NEGATIVELY AFFECTED. IF THE COMPLETION OF THE PROJECT IS DELAYED DUE TO THE PROPOSED SUBSTITUTION, THEN THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR ANY & ALL ESTABLISHED LIQUIDATED DAMAGES.
   g. CONTRACTOR TO PROVIDE ARCHITECT & ENGINEER OF RECORD WITH ALL SUBSTITUTE INFORMATION REFERENCED ABOVE NO LATER THAN TWO WORKING WEEKS PRIOR TO THE BID DEADLINE.
4. CATALOG NUMBERS AS REFERENCED ON THE FIXTURE SCHEDULE PROVIDE GENERAL FIXTURE INFORMATION. CONTRACTOR SHALL REVIEW LIGHTING PLANS & SPECIFICATIONS TO VERIFY ALL FIXTURE ASSOCIATED DESIGN INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS & PIECES REQ FOR A COMPLETE & OPERATIONAL INSTALLATION. ANY DISCREPANCIES BETWEEN DESCRIPTIONS, SPECIFICATIONS, & CATALOG NUMBERS ARE TO BE PRESENTED TO THE ENGINEER OF RECORD PRIOR TO COMPLETION OF THE BID PROCESS FOR CLARIFICATION.
5. ALL COLOR SPECIFIC INFORMATION WHICH RELATES TO LIGHTING FIXTURES AND/OR THEIR RELATED PARTS ARE TO BE REVIEWED & COMMENTED ON BY THE ARCHITECT. FIXTURES WHICH REQUIRE A CUSTOM COLOR WILL HAVE A CUSTOM COLOR PAINT WHICH WILL BE INCLUDED IN THE ARCHITECT'S SHOP DRAWING REVIEW COMMENTS.
6. ALL LIGHTING EQUIPMENT LOCATIONS ARE TO BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO ORDERING & INSTALLING.
7. ENSURE COMPATIBILITY OF ALL DIMMING SYSTEMS & INDIVIDUAL LIGHTING CONTROLS WITH FIXTURES, & DRIVERS. ALL COMPONENTS TO BE FACTORY CERTIFIED COMPATIBLE FOR A FULL RANGE OF DIMMING.
8. LIGHTING FIXTURE CLEARANCES FROM COMBUSTIBLE MATERIALS ARE TO BE A MIN OF ½" (OTHER THAN AT POINTS OF SUPPORT) & 3" FROM INSULATION FOR NON-IC RATED RECESSED LIGHTING FIXTURES.
9. ALL LIGHTING FIXTURES WHICH ARE TO BE MOUNTED IN FOOD SERVICE AREAS SHALL BE PROVIDED WITH THE FOLLOWING CHARACTERISTICS: DOOR TO FRAME GASKETS, LENS TO FRAME GASKETS, INVERTED LENS, & A FOOD SERVICE RATING.
10. ALL LIGHTING FIXTURES TO BE MOUNTED IN A SUSPENDED CEILING ARE TO BE SUPPORTED BY T-BAR CLIPS & (2) #12 SUPPORT WIRES ATTACHED TO THE BUILDING FRAME. IN ADDITION, LIGHTING FIXTURE ARE TO BE SECURED TO THE CEILING GRID WITH (4) SHEET METAL SCREWS ((1) AT EACH CORNER OF THE FIXTURE) – SCREWS SHALL BE NEITHER VISIBLE NOR IMPEDE THE INSTALLATION OF CEILING TILES; UNO. WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
11. CONTRACTOR TO FOLLOW COLOR TEMPERATURE GUIDELINES LISTED BELOW UNLESS OTHERWISE NOTED OR SPECIFIED:
    a. 3500K FOR ALL INTERIOR ENVIRONMENTS
    b. 3000K FOR ALL EXTERIOR ENVIRONMENTS
12. CONTRACTOR TO FOLLOW CRI & TM30 VALUES GUIDELINES LISTED BELOW UNLESS OTHERWISE NOTED OR SPECIFIED:
    a. CRI 80 FOR INTERIOR
    b. TM30 RF VALUE ≥ 78 FOR INTERIOR
    c. TM30 RG VALUE ≥ 98 FOR INTERIOR
    d. CRI 70 FOR EXTERIOR
13. ALL FIXTURES, TRIMS, & MODULES/LAMPS SHALL BE CLEANED & FREE FROM DIRT, DUST, LABEL/ADHESIVE, & FINGER PRINTS.
14. IN THE EVENT OF THE FAILURE OF NORMAL POWER SUPPLIES, EMERGENCY LIGHTING FIXTURES SHALL BE AUTOMATICALLY POWERED BY AN EMERGENCY POWER SYSTEM. THE FIXTURE SHALL BE EITHER:
    a. CIRCUITED TO AN EMERGENCY POWER SYSTEM, OR
    b. EMERGENCY BATTERY PACKS ARE TO BE PROVIDED. WHERE EMERGENCY BATTERY PACKS ARE PROVIDED, EMERGENCY LIGHTING FIXTURES & BATTERY PACKS ARE TO MEET THE FOLLOWING CRITERIA:
       1. FIXTURES SPECIFIED WITH INTEGRAL EMERGENCY BATTERY PACKS ARE TO BE FED WITH/PROVIDED WITH A CONSTANT HOT CONNECTION TO THE CHARGING LEAD.
       2. APPROVED EMERGENCY BATTERY PACKS SHALL BE PROVIDED AS FOLLOWS: BODINE #BSL23 OR #BSL722 OR EQUAL IF AVAILABLE.
       3. ALL LED FIXTURES EQUIPPED WITH EMERGENCY BATTERY PACKS SHALL HAVE THE BATTERY PACKS FACTORY INSTALLED & TESTED AT THE FIXTURE MANUFACTURER'S FACILITY TO ENSURE UL LISTING OF THE FIXTURE IS MAINTAINED. FIELD INSTALLATION OF LED EMERGENCY BATTERY PACKS IS STRICTLY PROHIBITED. NOTIFY ENGINEER OF RECORD SHOULD SPECIFIED FIXTURE NOT HAVE ADEQUATE SPACE TO ACCOMMODATE THE EMERGENCY BATTERY PACK. CONTRACTOR TO MODIFY BASE BID TO INCLUDE ALL NECESSARY EQUIPMENT FOR A COMPLETE OPERATIONAL, ADEQUATELY SIZED MINIATURE INVERTER SYSTEM TO BE MOUNTED IN NEAREST ELECTRICAL ROOM IN THE EVENT THE BATTERY PACK CAN NOT BE INSTALLED IN THE FIXTURE.
       4. ALL BATTERY PACKS ARE TO BE FACTORY INSTALLED IN FIXTURE ASSEMBLIES WHEN APPLICABLE. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR CONTACTING FIXTURE MANUFACTURERS TO VERIFY SPECIFIED (OR APPROVED SUBSTITUTE) FIXTURE HAS ADEQUATE SPACE WITHIN THE FIXTURE TO MOUNT THE EMERGENCY BATTERY PACK. IF IT IS DETERMINED THE BATTERY PACK CANNOT BE MOUNTED IN THE FIXTURE, THEN CONTRACTOR SHALL INCLUDE ALL COSTS REQ FOR REMOTE MOUNTING THE EMERGENCY BATTERY PACK ABOVE NEAREST ACCESSIBLE CEILING. ENSURE DISTANCE FROM FIXTURE TO REMOTE BATTERY PACK LOCATION DOES NOT EXCEED THE MANUFACTURER'S RECOMMENDED DISTANCES. COORDINATE ALL ACCESS PANELS WITH ARCHITECT OF RECORD PRIOR TO INSTALL.
       5. ALL LIGHTING FIXTURES WITH EMERGENCY BATTERY PACKS ARE TO BE PROVIDED WITH INTEGRAL TEST SWITCHES & CHARGE LIGHTS UNLESS OTHERWISE NOTED OR REQ BY THE AUTHORITY HAVING JURISDICTION (AHJ). IN THE EVENT INTEGRAL TEST SWITCHES ARE NOT ALLOWED, NOTIFY THE ENGINEER OF RECORD PRIOR TO INSTALLATION OF REMOTE TEST SWITCHES. TEST SWITCHES TO BE INSTALLED IN FIXTURES WITH A MIN OF 18" OF ADDITIONAL WIRING TO ALLOW FOR GENERAL FIXTURE MAINTENANCE.
       6. SHUNT UL 924 WILL BE PROVIDED IN CONTROL SYSTEM OR WITHIN FIXTURE TO RAISE EMERGENCY LIGHT FIXTURE TO 100% AT TIME OF EMERGENCY.
15. EMERGENCY ILLUMINATION UNITS SHALL BE ARRANGED TO PROVIDE AT LEAST AN AVERAGE OF 1 FOOT-CANDLE & A MIN OF 0.1 FOOT-CANDLE MEASURED ALONG THE PATH OF EGRESS. A MAXIMUM-TO-MIN ILLUMINATION UNIFORMITY RATIO OF 40-TO-1 SHALL NOT BE EXCEEDED. WHERE LOCAL CODES OR ORDINANCES REQUIRE MORE STRINGENT ILLUMINATION OR CONTRAST RATIOS, EMERGENCY ILLUMINATION UNITS SHALL MEET OR EXCEED LOCAL CODE OR ORDINANCE REQUIREMENTS.
16. INSTALL ALL EXIT SIGNS IN ACCORDANCE WITH THE LOCAL AHJ & FIRE AUTHORITY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQ PARTS, PIECES, & MOUNTING HARDWARE FOR EXIT SIGNS, AS WELL AS ENSURING THE EXIT SIGNS ARE MOUNTED IN AN APPROVED VISIBLE LOCATION. VERIFY ALL REQ CHEVRONS, MIRRORS, & FACES ARE PROVIDED AS REFERENCED ON THE ARCHITECTURAL REFLECTED CEILING PLAN. NOTIFY ARCHITECT & ENGINEER OF RECORD OF ANY DISCREPANCIES BETWEEN ARCHITECTURAL & ELECTRICAL DRAWINGS PRIOR TO ORDERING OF EQUIPMENT.
17. TRACK LIGHTING FIXTURE SPECIFICATIONS ARE TO BE COORDINATED, VERIFIED, & CONFIRMED WITH EQUIPMENT MANUFACTURER AND/OR DISTRIBUTOR PRIOR TO ORDERING & INSTALLING. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS & PIECES FOR A COMPLETE, FUNCTIONAL, & OPERATIONAL INSTALLATION. TRACK LENGTHS ARE AS SPECIFIED ON THE FIXTURE SCHEDULE.
18. CONTRACTOR SHALL INSTALL ALL LIGHTING FIXTURES PER LOCAL & NATIONAL BUILDING, ELECTRICAL, & SEISMIC CODES. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQ MOUNTING HARDWARE & BRACING MATERIALS FOR COMPLETE & CODE COMPLIANT INSTALLATION. COORDINATE REQUIREMENTS WITH AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION.
19. CONTRACTOR TO INCLUDE IN BASE BID A MIN OF 2-HOURS FOR A ONE TIME AIMING & ADJUSTMENT TIME OF ALL MULTI-HEAD & DIRECTIONAL FIXTURE ASSEMBLIES. AIMING & ADJUSTMENT TO BE SCHEDULED FOR A NIGHT & AFTER HOURS WITH THE ARCHITECT, ENGINEER, & OWNER PRESENT. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AN APPROPRIATE TIME PRIOR TO ORDERING THE FINAL PUNCH WALK FOR THE PROJECT.
20. SUPPLEMENTARY OVERCURRENT PROTECTION PANEL FOR TRACK LIGHTING SYSTEMS TO BE PROMINENTLY LABELED AS FOLLOWS:

    NOTICE: THIS PANEL FOR TRACK LIGHTING ENERGY CODE COMPLIANCE ONLY. THE OVERCURRENT PROTECTION DEVICES IN THIS PANEL SHALL ONLY BE REPLACED WITH THE SAME OR LOWER AMPERAGE. NO OTHER OVERCURRENT PROTECTIVE DEVICE(S) SHALL BE ADDED TO THIS PANEL. ADDING TO, OR REPLACEMENT OF EXISTING OVERCURRENT PROTECTIVE DEVICE(S) WITH HIGHER CONTINUOUS AMPERE RATING, WILL VOID THE PANEL LISTING & REQUIRE RESUBMITTAL & RE-CERTIFICATION OF CALIFORNIA TITLE 24, PART 6 COMPLIANCE DOCUMENTATION.
21. LED DRIVERS SHALL CONFORM TO IEEE P1789 STANDARDS. ALTERNATIVELY, MANUFACTURERS MUST DEMONSTRATE CONFORMANCE WITH PRODUCT LITERATURE & TESTING WHICH DEMONSTRATES THIS PERFORMANCE. SYSTEM THAT DO NOT MEET IEEE P1789 WILL NOT BE CONSIDERED.
22. LED DRIVERS WILL NOT HAVE VOLTAGE LEAK OR CONTAIN A FILTER WITHIN THE CONTROL MODULE TO CONTROL THE VOLTAGE LEAK & REDUCE THE CHANCES OF FLICKERING.
23. LED DIODES SHALL BE SOURCED WITHIN 3 MACADAMS ELLIPSE ALONG THE BLACK BODY CURVE.

## LIGHTING CONTROL SYSTEM REQUIREMENTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING OF ALL MATERIAL, LABOR, EQUIPMENT, & SERVICES, IN CONNECTION W/ THE INSTALLATION OF A COMPLETE & FULLY FUNCTIONING & CODE COMPLIANT INSTALLATION.
2. IT IS THE INTENT OF THE CONTRACT DOCUMENTS, WHICH ARE PRESENTED IN A DIAGRAMMATIC FORMAT, TO PROVIDE CONTRACTOR INFORMATION THAT SUPPLEMENTS & ENHANCES THE GENERALLY ACCEPTED CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES & PROCEDURES EMPLOYED IN CONNECTION WITH INSTALLATION OF THIS TYPE OF PRODUCT / SYSTEM.
3. THE CONTRACTOR SHALL ALSO INCORPORATE THE REQ OF THE MFR INSTALLATION INSTRUCTIONS / WARRANTY REQ AS PART OF THE REQ OF THE CONSTRUCTION DOCUMENTS. IN THE EVENT OF A CONFLICT BETWEEN THE CONTRACT DOCUMENT REQ & THE MFR INSTALLATION REQ, THE MORE STRINGENT REQ SHALL APPLY - UNLESS THE MORE STRINGENT REQ VOIDS APPLICABLE WARRANTIES OR VIOLATES THE REQ OF THE LOCAL AUTHORITY HAVING JURISDICTION. ANY SUCH CONFLICT SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING THROUGH THE FORMAL RFI PROCESS.
4. REFER TO THE ASSOCIATED SCHEDULES, SCHEMATICS, DWG, & SPECIFICATIONS FOR DETAILED INFORMATION / REQ ON THIS PRODUCT / SYSTEM.
5. LIGHTING CONTROL SYSTEM MUST INTEGRATE WITH DISTRICT APPROVED AUTOMATED LOGIC ENERGY MANAGEMENT SYSTEM.
6. PROVIDE (6) "SPARE" ADDITIONAL RELAYS.

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**JLee Engineering, Inc.**
**Approved**
**By Mostafa Kashe**
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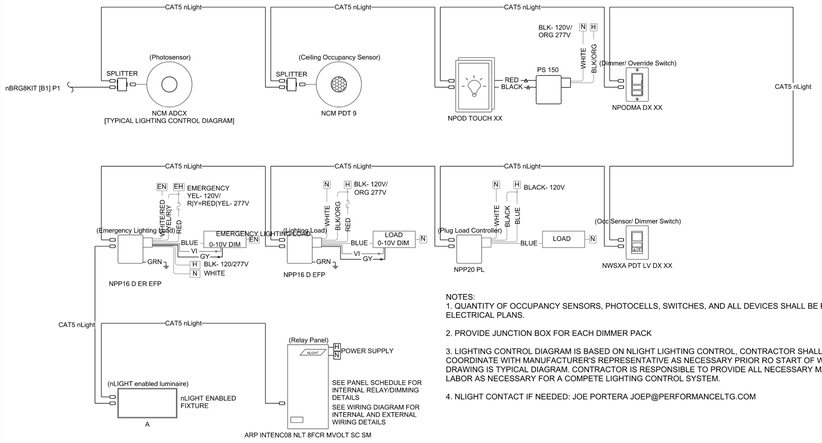
| Revision | Date |
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| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/05/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | 1/8" = 1'-0" |

LIGHTING FIXTURE & CONTROL NOTES

E5.10




NOTES:
1. QUANTITY OF OCCUPANCY SENSORS, PHOTOCELLS, SWITCHES, AND ALL DEVICES SHALL BE PER ELECTRICAL PLANS.

2. PROVIDE JUNCTION BOX FOR EACH DIMMER PACK

3. LIGHTING CONTROL DIAGRAM IS BASED ON NLIGHT LIGHTING CONTROL. CONTRACTOR SHALL CONTACT AND COORDINATE WITH MANUFACTURER'S REPRESENTATIVE AS NECESSARY PRIOR RO START OF WORK. DETAIL DRAWING IS TYPICAL DIAGRAM. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL NECESSARY MATERIAL AND LABOR AS NECESSARY FOR A COMPETE LIGHTING CONTROL SYSTEM.

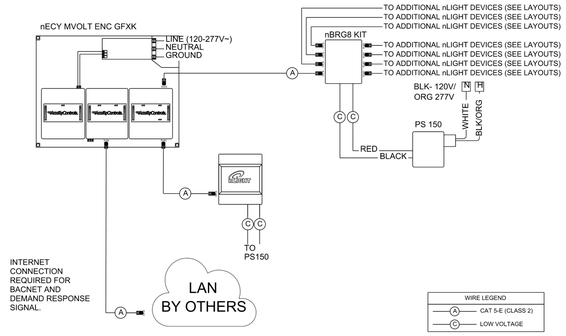
4. NLIGHT CONTACT IF NEEDED: JOE PORTERA JOEP@PERFORMANCELTG.COM

## 1 Design 1 - BG1 B1 Port 1 TYPICAL LIGHTING CONTROL DIAGRAM

NOT TO SCALE

For questions regarding nLight controls please contact:
Joe Portera with Performance Lighting
joep@performanceltg.com
714-595-2158

FOR NETWORKED SYSTEM REQUIRING TIME CONTROL, BACNET, AUTOMATIC DEMAND RESPONSE, OR SOFTWARE CONTROL.




## TYPICAL WIRING DIAGRAM: nECY MVOLT ENC GFXK

N.T.S.

## A Design 3

nLight System Notes

EVERY NLIGHT ENABLED DEVICE (INCLUDING NLIGHT EANABLED FIXTURES) IS FURNISHED WITH (1) PERMANENTLY ADHERED ID TAG AND (1) MATCHING, PARTIALLY ADHERED ID TAG TO BE PLACED ON THE RISER DIAGRAM SHEET, OR THE LIGHTING CONTROL LAYOUT SHEET, PROVIDED AS PART OF AN NLIGHT SUBMITTAL. THIS SHALL BE DONE DURING INSTALLATION AND PRIOR TO FACTORY STARTUP. FAILURE TO COMPLY MAY RESULT IN STARTUP DELAYS AND ADDITIONAL COSTS AT THE CONTRACTOR'S EXPENSE. DO NOT PLACE DEVICE ID STICKERS ON FLOOR PLAN UNLESS REQUIRED TO EXECUTE NFLOORPLAN SERVICES. REFERENCE NFLOORPLAN SERVICE NOTES ON THIS SHEET FOR SPECIFIC REQUIREMENTS.

ONE RELAY PACK OR NLIGHT ENABLED FIXTURE IS NEEDED PER CIRCUIT/ZONE TO BE CONTROLLED AND CAN RESIDE WITHIN SENSORS, WALLPODS, OR RELAY PACKS. POWER PACK PLACEMENT ON DRAWINGS IS FOR COUNTING ONLY; FINAL PLACEMENT IS UP TO DISCRETION OF CONTRACTOR/ENGINEER. PLEASE RECHECK COUNTS TO VERIFY THE NUMBER OF RELAYS NEEDED TO SWITCH ALL DESIRED LOADS.

BRIDGES, RELAYS, POWER PACKS, WALLPODS, AND SENSORS ON DRAWINGS WERE PLACED WITH INFORMATION PROVIDED AT TIME OF DESIGN. ADDITIONAL BRIDGES AND/OR SENSORS MAY BE REQUIRED DEPENDING ON BUILDING CHANGES, FINAL PARTITION HEIGHT/PLACEMENT, FURNITURE PLACEMENT, EQUIPMENT HEIGHT/PLACEMENT AND SHELVING HEIGHT/PLACEMENT.

THE LAYOUT OF THE NETWORK BACKBONE (BRIDGES AND GATEWAYS) HAS BEEN PLACED IN A SEPARATE TREE DIAGRAM AND NOT ON THE ACTUAL LAYOUT. FINAL PLACEMENT OF THE BRIDGE(S) AND GATEWAY(S) DEVICES SHALL BE AT THE CONTRACTOR/ENGINEER DISCRETION.

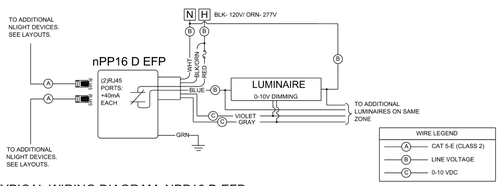
ALL DEVICES HAVE RJ-45 FEMALE PORTS. MAKING NETWORK CONTROL CABLES IS REQUIRED. T568B TERMINATIONS ARE RECOMMENDED. IT IS IMPERATIVE THAT ALL NETWORK CONTROL CABLES BE TESTED WITH A LAN CABLE TESTER TO VERIFY PROPER TERMINATIONS.

DAISY-CHAINED DEVICES SHOULD BE POWERED UP AND WORKING ON DEFAULT PROGRAMMING PRIOR TO CONNECTION TO BRIDGE OR GATEWAYS.

LOW VOLTAGE NETWORK CONTROL CABLE (CAT5/5E/6) RUNS FOR LOCAL ZONES, HOMERUNS AND BACKBONE SHOULD BE WHITE WITH CABLES LABELED.

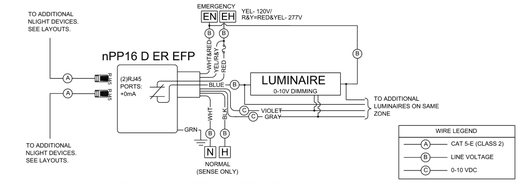
CONTRACTOR TO VERIFY BLINK/DIAGNOSTIC CODES (VISIT HTTP://NLIGHTCONTROLS.COM/WP-CONTENT/UPLOADS/NLIGHT_POCKET_GUIDE.PDF) WHEN CONNECTING GATEWAYS/BRIDGES TO ZONES.

MAXIMUM CABLE LENGTH FROM START DEVICE TO END DEVICE IS 1500' INCLUDING HOMERUN TO BRIDGE DEVICE, IF PRESENT. MANUFACTURER IS NOT RESPONSIBLE FOR SYSTEMS EXCEEDING CABLING PARAMETERS.



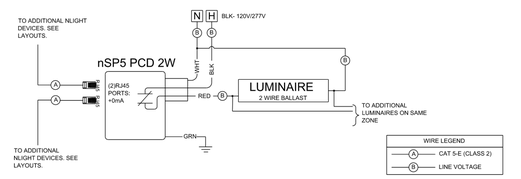

## TYPICAL WIRING DIAGRAM: NPP16 D EFP

N.T.S.




## TYPICAL WIRING DIAGRAM: NPP16 D ER EFP

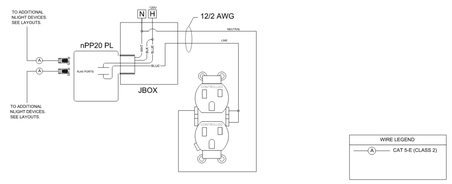
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## TYPICAL WIRING DIAGRAM: NSP5 PCD 2W

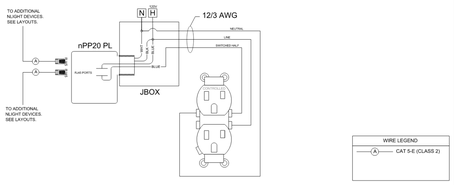
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N.T.S.




## TYPICAL WIRING DIAGRAM: PLUG LOAD CONTROLLER FULL SWITCHED

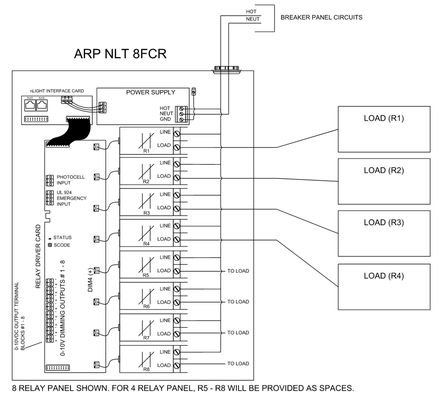
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## TYPICAL WIRING DIAGRAM: PLUG LOAD CONTROLLER HALF SWITCHED

N.T.S.

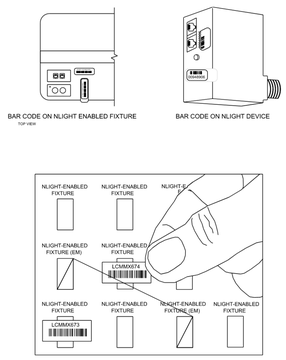
N.T.S.




8 RELAY PANEL SHOWN. FOR 4 RELAY PANEL, R5 - R8 WILL BE PROVIDED AS SPACES.

## TYPICAL DIAGRAM: ARP NLT 4FCR/8FCR

N.T.S.




NOTES:

EVERY NLIGHT ENABLED DEVICE (INCLUDING NLIGHT ENABLED FIXTURES) IS FURNISHED WITH (1) PERMANENTLY ADHERED ID TAG AND (1) MATCHING, PARTIALLY ADHERED ID TAG TO BE PLACED ON THE RISER DIAGRAM OR BARCODE TEMPLATE SHEET PROVIDED AS PART OF AN NLIGHT SUBMITTAL. DURING INSTALLATION AND PRIOR TO FACTORY STARTUP, CONTRACTOR SHALL PLACE EACH ID TAG BELOW EACH CORRESPONDING DEVICE SHOWN ON RISER DIAGRAM TO FACILITATE FACTORY STARTUP. FAILURE TO COMPLY MAY RESULT IN STARTUP DELAYS AND ADDITIONAL COSTS AT THE CONTRACTOR'S EXPENSE. DO NOT PLACE DEVICE ID STICKERS ON FLOOR PLAN UNLESS REQUIRED TO EXECUTE NFLOORPLAN SERVICES. REFERENCE NFLOORPLAN SERVICE NOTES ON THIS SHEET FOR SPECIFIC REQUIREMENTS.

THE SMALL BARCODE LABELS INCLUDED WITH ALL NLIGHT DEVICES AND NLIGHT ENABLED FIXTURES MUST BE PLACED ON A PRINTED PLAN SHEET BY THE INSTALLER PRIOR TO ONSITE SYSTEM STARTUP.

THE BARCODE INDICATES THE UNIQUE ID OF EACH NLIGHT DEVICE. THIS ID IS USED DURING SYSTEM STARTUP TO PAIR PLANNED DEVICES WITH THE CORRECT GROUPINGS AND SETTINGS. WITHOUT THIS, SYSTEM STARTUP WILL REQUIRE ADDITIONAL DAYS ON THE JOB TO LOCATE DEVICE IDS.

BARCODE INSTRUCTIONS:

1. * PRINT A PLAN SHEET OF THE INSTALLATION AREA TO A MINIMUM D SIZE (24i ···X 36i ···). THE PLAN MAY BE A RISER SHEET OR BARCODE TEMPLATE (EITHER ARE PREFERRED), FLECTED CEILING PLAN, LIGHTING PLAN, A ELECTRICAL PLAN, SO LONG AS ALL DEVICES CAN BE LOCATED BY THE FIELD SUPPORT ENGINEER.
2. PLACE THE SMALL BARCODE LABEL (0.875i ··· LONG) FROM EACH LUMINAIRE AND DEVICE ON THE FLOORPLAN. THE LARGE BARCODE LABEL (1.25i ··· LONG) CAN BE USED ON THE OUTSIDE OF ANY HOUSING OR JUNCTION BOX THAT OBSCURES THE ID NUMBER SHOWN ON THE DEVICE ITSELF.
3. SAVE THE PLAN AT THE JOB SITE, AND HAND OVER TO ACUITY FIELD SUPPORT ENGINEER OR PROJECT MANAGER DURING STARTUP. ALTERNATIVELY, IT IS ALSO ACCEPTABLE TO PROVIDE THE BARCODE PLAN AS SCANNED PDF FILES, EMAILED TO CONTROLS.STARTUPS@ACUITYBRANDS.COM, WITH PROJECT NAME AND PROJECT ADDRESS IN SUBJECT LINE AND A COPY OF THE ONSITE STARTUP REQUEST FORM.
4. DRAW ON PLAN ANY LOCATION CHANGES FOR A FIXTURE OR DEVICES, IF DIFFERENT THAN SHOWN ON PLAN.

## NLIGHT BARCODE INSTRUCTIONS

N.T.S.

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By Mostafa Kashe
04/06/2026
This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinance or State law.

FOR T.I.

DPH VANDERBILT-FIRST FLOOR

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/08/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | |

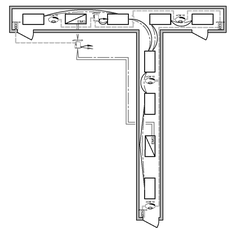
LIGHTING CONTROL DIAGRAMS

E5.11

## CA TITLE 24 2022 DESIGN GUIDE

CORRIDOR WITH 0-10V DIMMING FIXTURES

AcuityControls™ nLIGHT



**SEQUENCE OF OPERATION:**

LIGHTS
- ALL LIGHTS ARE DIMMABLE
- ALL FIXTURES CONTROLLED TOGETHER OR INDEPENDENTLY
- MAXIMUM LEVEL CAN BE TASK TUNED TO ANY PERCENTAGE VIA PROGRAMMING

OCCUPANCY
- FIXTURES AUTOMATICALLY TURN OFF OR OPTIONALLY CAN BE CONFIGURED TO DROP TO LOW DIM SETTING OF AT LEAST 50% WHEN SPACE BECOMES VACANT

DAYLIGHT
- NOT REQUIRED IF ROOM HAS <24 FT2. OF GLAZING OR LIGHTING LOAD < 120W IN THE SKYLIT AND THE SIDELIT DAYLIT ZONE
- SMOOTH CONTINUOUS DIMMING
- CUSTOM GROUPING OF FIXTURES INTO SEPARATE DAYLIGHT ZONES (MAX. NUMBER OF ZONES = NUMBER OF FIXTURES)

MANUAL
- MASTER ON/OFF & RAISE /LOWER CONTROL OF ENTIRE SPACE

ADDITIONAL OPTIONS:
- SURFACE OR RECESSED MOUNT SENSORS ALSO AVAILABLE
- SPACE / ZONE CAN BE CONNECTED TO NLIGHT BACKBONE TO ENABLE NET-WORK CONTROL OR ADR (AUTOMATIC DEMAND RESPONSE)
- CONTROL HVAC SYSTEMS via AN OPTIONAL RELAY "AR" OR THROUGH THE BACNET ECLYPSE CONTROLLER.

**DIAGRAM LEGEND**

- CAT-5e CABLE
- LINE VOLTAGE WIRES
- 0-10VDC WIRES
- LINE POWER
- EM LINE POWER

**BILL OF MATERIAL**

| QTY | PRODUCT # | DESCRIPTION |
|---|---|---|
| 1 | nPP16 D EFP | RELAY PACK WITH 0-10V DIMMING OUTPUT |
| 1 | nPP16 D ER EFP | EMERGENCY RELAY PACK WITH 0-10V DIMMING OUTPUT |
| 4 | nCM10 RJB | EXTENDED RANGE PIR OCCUPANCY SENSOR |
| 3 | nPODMA DX | ON/OFF & RAISE/LOWER WALL POD |

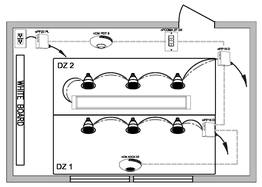
**SUPPORTS THE FOLLOWING REQUIREMENTS:**

- FULL/ PARTIAL AUTO-OFF VIA OCCUPANCY SENSOR (SECTION 130.1c)
- AREA CONTROL (SECTION 130.1a)
- AUTOMATIC OFF via PROGRAMMABLE TIME CLOCK (SECTION130.1c)
- AUTOMATIC DEMAND RESPONSE (ADR) READY (SECTION 130.1e)

## CA TITLE 24 2022 DESIGN GUIDE

CONFERENCE ROOM WITH 0-10V DIMMING FIXTURES

AcuityControls™ nLIGHT


nPP16 D
nPP16 D
nPP16 D

# LIGHTING CONTROLS SEQUENCE OF OPERATIONS

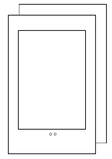
| SPACE TYPE | MANUAL ON | MANUAL OFF | OCCUPANCY SENSOR ON | OCCUPANCY SENSOR OFF | TIMECLOCK TIME ON | TIMECLOCK TIME OFF | DIMMING CONTINUOUS RAISE/LOWER | DIMMING MULTIZONE | PHOTOCELL AUTO DIMMING @ TARGET FC | PHOTOCELL TARGET | SCENE/ZONE CONTROL BUTTON | SCENE/ZONE CONTROL FUNCTION | SYSTEM NETWORKED | SYSTEM DEMAND RESPONSE LOAD SHED | SYSTEM USER DEVICE | SYSTEM AFTER HOURS | WIRING DIAGRAM REFERENCE | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Corridors/Stairways | • | • | • | 50% | 6AM | 11PM | • | | • | 10 FC @ 0' AFF | | | • | • | KEYSWITCH, U.N.O. | AFTER TWO HOURS OF AN OVERRIDE, LIGHTS RETURN TO NORMALLY SCHEDULED OPERATION | | |
| Electrical Rooms | • | • | | | | | | | | | | | • | | TOGGLE SWITCH | | | |
| Custodial & Storage | • | • | | • | | | • | | • | | | | • | • | DIMMER SWITCH | | | |
| Lobby/Reception | • | • | • | 50% | 6AM | 11PM | • | • | • | 30 FC @ 0' AFF | | | • | • | KEYSWITCH, U.N.O. | AFTER TWO HOURS OF AN OVERRIDE, LIGHTS RETURN TO NORMALLY SCHEDULED OPERATION | | |
| Open Offices | • | • | Individual Zone: 100%* / All Other Zones: 20%* | 80%/OFF* | | | • | • | • | 50 FC @ 30" AFF | | | • | • | ZONE CONTROLLER/ PUSHBUTTON STATION | | | *Controls shall comply with Title 24 Section 130.1(c)6.D as follows:<br><br>1. Space shall have individual "control zones", as indicated in plans, not to exceed 6005F.<br>2. When any individual "control zone" is unoccupied for 15min, the vacancy sensor shall reduce output to 80% for that "control zone" only.<br>3. When entire Open Office is unoccupied for 15min, the vacancy sensor shall turn off all open office lighting.<br>4. When any individual "control zone" becomes occupied, the lighting in that individual zone shall turn on to 100%; all other zones shall be triggered on to 20% output. |
| Private Offices | • | • | | • | | | • | | • | 50 FC @ 30" AFF | | | • | • | DIMMER SWITCH | | | |
| Conference Rooms | • | • | • | • | | | • | • | • | 50 FC @ 30" AFF | | | • | • | DIMMER SWITCH | | | |
| Multi User Restrooms | • | • | • | • | | | • | • | • | 25 FC @ 30" AFF | | | • | • | KEYSWITCH, U.N.O. | | | |
| Single User Restrooms | • | • | | • | | | • | • | | | | | • | • | DIMMER SWITCH | | | |

**NOTES:**
1. WHERE OCCUPANCY SENSORS TRIGGER AN "ON" FUNCTION, PROGRAM LIGHTS TO COME ON TO 100% UNLESS NOTED OTHERWISE.
2. ALL OCCUPANCY SENSOR "OFF" FUNCTIONS TO OCCUR AFTER 15 MIN OF VACANCY U.N.O.
3. ALL ON/OFF TRANSITIONS & SCENE TRANSITIONS IN LIGHITNG TO INCLUDE A 3 SECOND FADE RATE
4. ALL DAYLIGHT HARVESTING TRANSITIONS SHALL INCLUDE A 5-MINUTE FADE RATE
5. ALL TIME CLOCK ON/OFF TIMES OR "NORMAL HOURS" TO BE CONFIRMED BY END USER

## LIGHTING CONTROL LEGEND / BASIS OF DESIGN SPECIFICATIONS

| SYMBOL | DESCRIPTION | MFG | MODEL | DESCRIPTION | NOTES |
|---|---|---|---|---|---|
| $_K | KEYSWITCH | ACUITY BRANDS, INC. (NLIGHT) | #nPOD KEY | MOMENTARY KEYSWITCH WITH ON/OFF/RAISE/LOWER CAPABILITY | 1 |
| $ | SINGLE POLE SWITCH | ACUITY BRANDS, INC. (NLIGHT) | #nPODMA | ON/OFF SWITCH | 1 |
| SZ-3B | SINGLE ZONE ON/OFF/DIM | ACUITY BRANDS, INC. (NLIGHT) | #nPODMA DX | PUSHBUTTON STATION WITH ON/OFF/DIM CAPABILITY | 1,2 |
| MZ2-6B | 2-ZONE ON/OFF/DIM | ACUITY BRANDS, INC. (NLIGHT) | #nPODMA 2P DX | PUSHBUTTON STATION WITH ON/OFF/DIM CAPABILITY, 2 ZONES | 1,2 |
| MZ3-8B | 3-ZONE ON/OFF/DIM | ACUITY BRANDS, INC. (NLIGHT) | #nPODMA 4P DX | PUSHBUTTON STATION WITH ON/OFF/DIM CAPABILITY, 3 ZONES | 1,2 |
| MZ4-8B | 4-ZONE ON/OFF/DIM | ACUITY BRANDS, INC. (NLIGHT) | #nPODMA 4P DX | PUSHBUTTON STATION WITH ON/OFF/DIM CAPABILITY, 4 ZONES | 1,2 |
| TS | MULTI-ZONE ON/OFF/DIM + SCENE CONTROL TOUCHSCREEN | ACUITY BRANDS, INC. (NLIGHT) | #nPOD TOUCH | PUSHBUTTON STATION WITH ON/OFF/DIM CAPABILITY, 16 ZONES | 1,2 |
| G | TOUCHSCREEN | ACUITY BRANDS, INC. (FRESCO) | #FCS 7TSN | 7" FULL-COLOR CAPACITIVE TOUCHSCREEN W/ ON/OFF/DIM CAPABILITY, 72 ZONES | 1,2 |
| V | WALL SWITCH SENSOR (VACANCY) | ACUITY BRANDS, INC. (NLIGHT) | #nWSXA-PDT-LV-DX | WALL SWITCH SENSOR WITH DUAL TECH PIR/MICROPHONICS AND DIMMING CONTROL | 1 |
| O | WALL SWITCH SENSOR (OCCUPANCY) | ACUITY BRANDS, INC. (NLIGHT) | #nWSXA-PDT-LV-DX | WALL SWITCH SENSOR WITH DUAL TECH PIR/MICROPHONICS AND DIMMING CONTROL | 1 |
| OP | CEILING OC/PHOTO SENSOR | ACUITY BRANDS, INC. (NLIGHT) | #nCM-PDT-9-ADCX | CEILING MOUNTED OCCUPANCY AND DAYLIGHT SENSOR WITH DUAL TECH PIR/MICROPHONICS | |
| OS | CEILING OC SENSOR (TYPICAL) | ACUITY BRANDS, INC. (NLIGHT) | #nCM-PDT-9 | CEILING MOUNTED OCCUPANCY WITH DUAL TECH PIR/ MICROPHONICS, SMALL MOTION | |
| | CEILING OC SENSOR (EXTERIOR LOCATIONS) | ACUITY BRANDS, INC. (NLIGHT) | #nCM-PDT-10 | CEILING MOUNTED OCCUPANCY WITH DUAL TECH PIR/ MICROPHONICS, LARGE MOTION | |
| | CEILING OC SENSOR (HIGH VOLUME LOCATIONS) | ACUITY BRANDS, INC. (NLIGHT) | #nCM-6 | HIGH MOUNT, CEILING MOUNTED OCCUPANCY SENSOR | |

**NOTES:**
1. CONFIRM PRODUCT FINISH/COLOR WITH ARCHITECT PRIOR TO ORDER
2. PUSHBUTTON STATIONS SHALL BE CUSTOM ENGRAVED AS SHOWN IN DETAIL 01/E6.01. COORDINATE PRIOR TO ORDER.

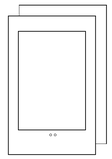


TS-1
nPOD TOUCH

### TOUCH SCREEN (HALLWAY 161)

| PAGE: OVERALL CONTROL | |
|---|---|
| ALL | TOGGLE & SLIDER: (m,n,o,p,q,r) TO 100% |
| 75% | SCENE: (m,n,o,p,q,r) TO 75% |
| 50% | SCENE: (m,n,o,p,q,r) TO 50% |
| PAGE: LOBBY/OPEN OFFICE 135 (SLIDERS) | |
| ZONE NAME | ASSIGNMENT |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (m) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (n) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (o) |
| DOWNLIGHTS | TOGGLE & SLIDER: (p) |
| PERIMETER SLOT | TOGGLE & SLIDER: (q) |
| GRAPHIC WALL | TOGGLE & SLIDER: (r) |

Note: Provide password protected lock screen such that only authorized personnel can access controls.
Note: Integrate with AC controls if applicable.

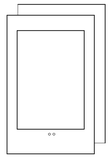


TS-2
nPOD TOUCH

### TOUCH SCREEN (OPEN OFFICE 152 & 135)

| PAGE: OVERALL CONTROL | |
|---|---|
| ALL | TOGGLE & SLIDER: (d,e,f,g,h,i,j,k) |
| 75% | SCENE: (d,e,f,g,h,i,j,k) TO 75% |
| 50% | SCENE: (d,e,f,g,h,i,j,k) TO 50% |
| PAGE: OPEN OFFICE 152 (SLIDERS) | |
| ZONE NAME | ASSIGNMENT |
| OPEN OFFICE - WALL MOUNTED LINEARS | TOGGLE & SLIDER: (d) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (e) |
| OPEN OFFICE - WALL MOUNTED LINEARS | TOGGLE & SLIDER: (f) |
| HALLWAY DOWNLIGHTS | TOGGLE & SLIDER: (g) |
| PAGE: OPEN OFFICE 135 (SLIDERS) | |
| ZONE NAME | ASSIGNMENT |
| UNDERCABINET LIGHT | TOGGLE & SLIDER: (h) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (i) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (j) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (k) |

Note: Provide password protected lock screen such that only authorized personnel can access controls.
Note: Integrate with AC controls if applicable.

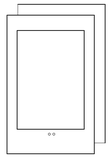


TS-3
nPOD TOUCH

### TOUCH SCREEN (OPEN OFFICE 106 & HALLWAY 110)

| PAGE: OVERALL CONTROL | |
|---|---|
| ALL | TOGGLE & SLIDER: (jj,kk,mm,nn) TO 100% |
| 75% | SCENE: (jj,kk,mm,nn) TO 75% |
| 50% | SCENE: (jj,kk,mm,nn) TO 50% |
| PAGE: OPEN OFFICE 106 & HALLWAY 110 (SLIDERS) | |
| ZONE NAME | ASSIGNMENT |
| UNDERCABINET LIGHT | TOGGLE & SLIDER: (jj) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (kk) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (mm) |
| DOWNLIGHTS | TOGGLE & SLIDER: (nn) |

Note: Provide password protected lock screen such that only authorized personnel can access controls.
Note: Integrate with AC controls if applicable.

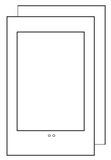


TS-4
nPOD TOUCH

### TOUCH SCREEN (OPEN OFFICE 115, 116, 117 & HALLWAY 161 - TYP. of 2)

| PAGE: OVERALL CONTROL | |
|---|---|
| ALL | TOGGLE & SLIDER: (t,u,v,w,x,y,aa,bb,cc,dd,ee) TO 100% |
| 75% | SCENE: (u,v,w,x,y,aa,bb,cc,dd) TO 75% |
| 50% | SCENE: (u,v,w,x,y,aa,bb,cc,dd) TO 50% |
| PAGE: OPEN OFFICE 115 & 116 (SLIDERS) | |
| ZONE NAME | ASSIGNMENT |
| OPEN OFFICE - WALL MOUNTED LINEARS | TOGGLE & SLIDER: (aa) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (bb) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (cc) |
| OPEN OFFICE - WALL MOUNTED LINEARS | TOGGLE & SLIDER: (dd) |
| DOWNLIGHT AT DOOR | TOGGLE & SLIDER: (ee) |
| PAGE: OPEN OFFICE 117 (SLIDERS) & HALLWAY 161 | |
| ZONE NAME | ASSIGNMENT |
| CONFERENCE ROOM ENTRY DOWNLIGHTS | TOGGLE & SLIDER: (t) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (u) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (v) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (w) |
| OPEN OFFICE - LINEARS | TOGGLE & SLIDER: (x) |
| OPEN OFFICE - WALL MOUNTED LINEARS | TOGGLE & SLIDER: (y) |

Note: Provide password protected lock screen such that only authorized personnel can access controls.
Note: Integrate with AC controls if applicable.

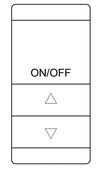


TS-5
nPOD TOUCH

### TOUCH SCREEN (BOARDROOM 129)

| PAGE: OVERALL CONTROL | |
|---|---|
| ALL | TOGGLE & SLIDER: (a,b,c,d) TO 100% |
| 75% | SCENE: (a,b,c,d) TO 75% |
| 50% | SCENE: (a,b,c,dn) TO 50% |
| 25% | SCENE: (a,b,c,d) TO 25% |
| AV MODE | SCENE: (a,c,d) TO OFF, (b) TO 10% |
| PAGE: OPEN OFFICE 106 & HALLWAY 110 (SLIDERS) | |
| ZONE NAME | ASSIGNMENT |
| SURFACE MOUNTED DECORATIVES | TOGGLE & SLIDER: (a) |
| DOWNLIGHTS | TOGGLE & SLIDER: (b) |
| PERIMETER SLOT LIGHTS | TOGGLE & SLIDER: (c) |
| BANQUETTE LIGHT | TOGGLE & SLIDER: (d) |

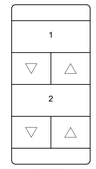
Note: Provide password protected lock screen such that only authorized personnel can access controls.
Note: Integrate with AC controls if applicable.




SZ-3B
nPODMA DX

### SINGLE ZONE - 3-BUTTON WALL STATION (TYP.)

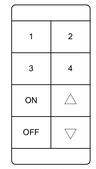
| ENGRAVING | FUNCTION | ASSIGNMENT |
|---|---|---|
| ON/OFF | ON/OFF | CONTROLLED ZONE(S) FADE ON/OFF (3 SECOND FADE RATE) |
| △ | RAISE | CONTROLLED ZONE(S) RAISE INCREMENTALLY |
| ▽ | LOWER | CONTROLLED ZONE(S) LOWER INCREMENTALLY |




MZ2-6B
nPODMA 2P DX

### 2 ZONES - 6-BUTTON WALL STATION (TYP.)

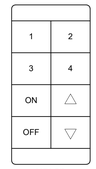
| ENGRAVING | FUNCTION | ASSIGNMENT |
|---|---|---|
| 1 | ON/OFF | ZONE (a) FADE ON/OFF |
| △ | RAISE | ZONE (a) RAISE INCREMENTALLY |
| ▽ | LOWER | ZONE (a) LOWER INCREMENTALLY |
| 2 | ON/OFF | ZONE (b) FADE ON/OFF |
| △ | RAISE | ZONE (b) RAISE INCREMENTALLY |
| ▽ | LOWER | ZONE (b) LOWER INCREMENTALLY |




MZ3-8B
nPODMA 4P DX

### 3 ZONES - 8-BUTTON WALL STATION (TYP.)

| ENGRAVING | FUNCTION | ASSIGNMENT |
|---|---|---|
| 1 | ZONE | ZONE (a) |
| 2 | ZONE | ZONE (b) |
| 3 | ZONE | ZONE (c) |
| Not Used | -- | *ZONE NOT USED.* |
| ON | ON | MASTER ON 100% (ALL ZONES) |
| OFF | OFF | MASTER OFF (ALL ZONES) |
| △ | RAISE | SELECTED ZONE RAISES INCREMENTALLY |
| ▽ | LOWER | SELECTED ZONE LOWERS INCREMENTALLY |




MZ4-8B
nPODMA 4P DX

### 4 ZONES - 8-BUTTON WALL STATION (TYP.)

| ENGRAVING | FUNCTION | ASSIGNMENT |
|---|---|---|
| 1 | ZONE | ZONE (a) |
| 2 | ZONE | ZONE (b) |
| 3 | ZONE | ZONE (c) |
| 4 | ZONE | ZONE (d) |
| ON | ON | MASTER ON 100% (ALL ZONES) |
| OFF | OFF | MASTER OFF (ALL ZONES) |
| △ | RAISE | SELECTED ZONE RAISES INCREMENTALLY |
| ▽ | LOWER | SELECTED ZONE LOWERS INCREMENTALLY |


LPA
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LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
**LPADesignStudios.com**
5301 California Avenue, Suite 100
Irvine, California 92617


REGISTERED PROFESSIONAL ENGINEER — ALDO GERARDO BALDUCCI — E22205 — 3/31/26 — ELECTRICAL — STATE OF CALIFORNIA


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JLee Engineering, Inc.
Approved
By Mostafa Kashe
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FOR T.I.

DPH VANDERBILT-FIRST FLOOR

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

Date
Revision

Submittal
SCHEMATIC DESIGN 03/14/2025
DESIGN DEVELOPMENT 05/22/2025
CITY SUBMITTAL 08/08/2025

| | |
|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | N.T.S. |

LIGHTING CONTROL BUTTON ENGRAVING DIAGRAMS

E5.13

# Branch Panel: (E)L1N

**Location:** (E) ELEC 165
**Supply From:**
**Mounting:** SURFACE
**Enclosure:** NEMA 1

**Volts:** 277/480V
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** EXISTING
**Mains Type:** MCB
**Mains Rating:** 400 A
**MCB Rating:** 400 A

**Notes:**

| CKT | Circuit Description | Trip | Poles | A | B | C | Poles | Trip | Circuit Description | CKT |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spare | 20 A | 1 | 0 VA 1600... | | | 1 | 20 A | EXISTING LOADS | 2 |
| 3 | EXISTING LOADS | 20 A | 1 | | 1600... 1600... | | 1 | 20 A | EXISTING LOADS | 4 |
| 5 | EXISTING LOADS | 20 A | 1 | | | 1600... 1600... | 1 | 20 A | EXISTING LOADS | 6 |
| 7 | EXISTING LOADS | 20 A | 1 | 1600... 1600... | | | 1 | 20 A | EXISTING LOADS | 8 |
| 9 | EXISTING LOADS | 20 A | 1 | | 1600... 1600... | | 1 | 20 A | EXISTING LOADS | 10 |
| 11 | EXISTING LOADS | 20 A | 1 | | | 1600... 2375... | 1 | 20 A | **LIGHTING LOADS NORTH** | 12 |
| 13 | EXISTING LOADS | 20 A | 1 | 1600... 2533... | | | 1 | 20 A | **LIGHTING LOADS NORTH** | 14 |
| 15 | Space | -- | 1 | | -- 1600... | | 1 | 20 A | EXISTING LOADS | 16 |
| 17 | Space | -- | 1 | | | -- 0 VA | 1 | 20 A | Spare | 18 |
| 19 | Space | -- | 1 | -- -- | | | 1 | -- | Space | 20 |
| 21 | Space | -- | 1 | | -- -- | | 1 | -- | Space | 22 |
| 23 | Space | -- | 1 | | | -- -- | 1 | -- | Space | 24 |
| 25 | Space | -- | 1 | -- -- | | | 1 | -- | Space | 26 |
| 27 | Space | -- | 1 | | -- -- | | 1 | -- | Space | 28 |
| 29 | Space | -- | 1 | | | -- -- | 1 | -- | Space | 30 |
| 31 | Space | -- | 1 | -- -- | | | 1 | -- | Space | 32 |
| 33 | Space | -- | 1 | | -- -- | | 1 | -- | Space | 34 |
| 35 | Space | -- | 1 | | | -- -- | 1 | -- | Space | 36 |
| 37 | Space | -- | 1 | -- 9492... | | | 3 | 100 A | (E)L2N | 38 |
| 39 | Space | -- | 1 | | -- 1832... | | -- | -- | -- | 40 |
| 41 | Space | -- | 1 | | | -- 1594... | -- | -- | -- | 42 |
| | | **Total Load:** | | 54165 VA | 62385 VA | 60060 VA | | | | |
| | | **Total...** | | 196 A | 228 A | 220 A | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated... | Panel Totals | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Load:** | 176610 VA |
| LIGHTING LOADS | 120 VA | 125.00% | 150 VA | **Total Est. Demand:** | 160315 VA |
| MOTOR LOADS | 6000 VA | 100.00% | 6000 VA | **Total Conn. Current:** | 212 A |
| NON CONTINUOUS LOADS | 8850 VA | 100.00% | 8850 VA | **Total Est. Demand...** | 193 A |
| RECEPTACLE LOADS | 42300 VA | 61.82% | 26150 VA | | |

**Notes:**

# Branch Panel: (E)P1N2

**Location:** (E) ELEC 165
**Supply From:** (E)P1N1
**Mounting:** SURFACE
**Enclosure:** NEMA 1

**Volts:** 120/208V
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** EXISTING
**Mains Type:** MCB
**Mains Rating:** 125 A
**MCB Rating:** 100 A

**Notes:**

| CKT | Circuit Description | Trip | Poles | A | B | C | Poles | Trip | Circuit Description | CKT |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **PRINTER - PRIVATE OFFICE 150** | 20 A | 1 | 1200 VA 1080 VA | | | 1 | 20 A | **RECEPTS. - PRIVATE OFFICE 150** | 2 |
| 3 | EXISTING LOADS | 20 A | 1 | | 800 VA 1080 VA | | 1 | 20 A | **RECEPTS. - PRIVATE OFFICE 149, 148** | 4 |
| 5 | **RECEPTS. - PRIVATE OFFICE 148** | 20 A | 1 | | | 1080 VA 800 VA | 1 | 20 A | EXISTING LOADS | 6 |
| 7 | **RECEPTS. - PRIVATE OFFICE 146, 145** | 20 A | 1 | 1080 VA 1080 VA | | | 1 | 20 A | **RECEPTS. - PRIVATE OFFICE 145** | 8 |
| 9 | **PRINTER - PRIVATE OFFICE 144** | 20 A | 1 | | 1200 VA 800 VA | | 1 | 20 A | EXISTING LOADS | 10 |
| 11 | **RECEPTS. - PRIVATE OFFICE 144** | 20 A | 1 | | | 1080 VA 800 VA | 1 | 20 A | EXISTING LOADS | 12 |
| 13 | **RECEPTS. - PRIVATE OFFICE 142** | 20 A | 1 | 1080 VA 800 VA | | | 1 | 20 A | EXISTING LOADS | 14 |
| 15 | **RECEPTS. - PRIVATE OFFICE 141** | 20 A | 1 | | 1080 VA 800 VA | | 1 | 20 A | EXISTING LOADS | 16 |
| 17 | **RECEPTS. - PRIVATE OFFICE 139, 138** | 20 A | 1 | | | 1080 VA 1440 VA | 1 | 20 A | **RECEPTS. - PRIVATE OFFICE 138** | 18 |
| 19 | **PRINTER - OFFICE 137** | 20 A | 1 | 1200 VA 900 VA | | | 1 | 20 A | **RECEPTS. - CONFERENCE 136** | 20 |
| 21 | **RECEPTS - FURNITURE OPEN OFFICE 135** | 20 A | 1 | | 800 VA 800 VA | | 1 | 20 A | EXISTING LOADS | 22 |
| 23 | **RECEPTS - FURNITURE OPEN OFFICE 135** | 20 A | 1 | | | 800 VA 800 VA | 1 | 20 A | EXISTING LOADS | 24 |
| 25 | **RECEPTS - FURNITURE OPEN OFFICE 135** | 20 A | 1 | 800 VA 800 VA | | | 1 | 20 A | Spare | 26 |
| 27 | **RECEPTS - FURNITURE OPEN OFFICE 135** | 20 A | 1 | | 800 VA 180 VA | | 1 | 20 A | **PRINTER - COPY / PRINT 151** | 28 |
| 29 | EXISTING LOADS | 20 A | 1 | | | 800 VA 800 VA | 1 | 20 A | EXISTING LOADS | 30 |
| 31 | **RECEPTS. - COPY / PRINT 151** | 20 A | 1 | 540 VA 800 VA | | | 1 | 20 A | EXISTING LOADS | 32 |
| 33 | EXISTING LOADS | 20 A | 1 | | 800 VA 800 VA | | 1 | 20 A | EXISTING LOADS | 34 |
| 35 | **COPIER - COPY / PRINT 151** | 20 A | 1 | | | 1200 VA 800 VA | 1 | 20 A | EXISTING LOADS | 36 |
| 37 | Spare | 20 A | 1 | 0 VA 800 VA | | | 1 | 20 A | EXISTING LOADS | 38 |
| 39 | Spare | 20 A | 1 | | 0 VA 800 VA | | 1 | 20 A | EXISTING LOADS | 40 |
| 41 | Spare | 20 A | 1 | | | 0 VA 800 VA | 1 | 20 A | EXISTING LOADS | 42 |
| | | **Total Load:** | | 12160 VA | 10740 VA | 12280 VA | | | | |
| | | **Total...** | | 103 A | 90 A | 104 A | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated... | Panel Totals | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Load:** | 35180 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **Total Est. Demand:** | 34710 VA |
| MOTOR LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Current:** | 98 A |
| NON CONTINUOUS LOADS | 4800 VA | 100.00% | 4800 VA | **Total Est. Demand...** | 96 A |
| RECEPTACLE LOADS | 10940 VA | 95.70% | 10470 VA | | |

**Notes:**

# Branch Panel: (E)P1N3

**Location:** (E) ELEC 165
**Supply From:** (E)P1N1
**Mounting:** SURFACE
**Enclosure:** NEMA 1

**Volts:** 120/208V
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** EXISTING
**Mains Type:** MCB
**Mains Rating:** 100 A
**MCB Rating:** 100 A

| CKT | Circuit Description | Trip | Poles | A | B | C | Poles | Trip | Circuit Description | CKT |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **Spare** | **20 A** | 1 | **0 VA** **0 VA** | | | 1 | 20 A | **Spare** | 2 |
| 3 | **Spare** | **20 A** | 1 | | **0 VA** **1200...** | | 1 | 20 A | **COPIER - PLAN CHECK WORKSTATION...** | 4 |
| 5 | **Spare** | **20 A** | 1 | | | **0 VA** **800...** | 1 | 20 A | **EXISTING LOAD** | 6 |
| 7 | **EXISTING LOAD** | **20 A** | 1 | **800...** **800...** | | | 1 | 20 A | **EXISTING LOAD** | 8 |
| 9 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | **800...** **800...** | | 1 | 20 A | **EXISTING LOAD** | 10 |
| 11 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | | **800...** **1080...** | 1 | 20 A | **RECEPTS. - PLAN CHECK...** | 12 |
| 13 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | **800...** **0 VA** | | | 2 | 30 A | **PRINTER - PLAN CHECK WORKSTATIO...** | 14 |
| 15 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | **800...** **0 VA** | | -- | -- | -- | 16 |
| 17 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | | **800...** **800...** | 1 | 20 A | **EXISTING LOAD** | 18 |
| 19 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | **800...** **800...** | | | 1 | 20 A | **EXISTING LOAD** | 20 |
| 21 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | **800...** **800...** | | 1 | 20 A | **EXISTING LOAD** | 22 |
| 23 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | | **800...** **800...** | 1 | 20 A | **EXISTING LOAD** | 24 |
| 25 | **RECEPTS - FURNITURE OPEN OPEN...** | **20 A** | 1 | **800...** **800...** | | | 1 | 20 A | **EXISTING LOAD** | 26 |
| 27 | **RECEPTS - FURNITURE OPEN OPEN...** | **20 A** | 1 | | **800...** **800...** | | 1 | 20 A | **EXISTING LOAD** | 28 |
| 29 | **RECEPTS - FURNITURE OPEN OPEN...** | **20 A** | 1 | | | **800...** **800...** | 1 | 20 A | **EXISTING LOAD** | 30 |
| 31 | **RECEPTS - FURNITURE OPEN OPEN...** | **20 A** | 1 | **800...** **800...** | | | 1 | 20 A | **EXISTING LOAD** | 32 |
| 33 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | **800...** **800...** | | 1 | 20 A | **EXISTING LOAD** | 34 |
| 35 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | | **800...** **800...** | 1 | 20 A | **EXISTING LOAD** | 36 |
| 37 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | **800...** **800...** | | | 3 | 20 A | **EXISTING LOAD** | 38 |
| 39 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | **800...** **800...** | | -- | -- | -- | 40 |
| 41 | **Spare** | **20 A** | 1 | | | **0 VA** **800...** | -- | -- | -- | 42 |
| | | **Total Load:** | | 8800 VA | 10000 VA | 9980 VA | | | | |
| | | **Total...** | | 73 A | 85 A | 84 A | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated... | Panel Totals | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Load:** | 28680 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **Total Est. Demand:** | 26740 VA |
| MOTOR LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Current:** | 80 A |
| NON CONTINUOUS LOADS | 1200 VA | 100.00% | 1200 VA | **Total Est. Demand...** | 74 A |
| RECEPTACLE LOADS | 13880 VA | 86.02% | 11940 VA | | |

**Notes:**

# Branch Panel: P1N4

**Location:** (E) ELEC 165
**Supply From:** (E)P1N1
**Mounting:** SURFACE
**Enclosure:** NEMA 1

**Volts:** 120/208V
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** 10K
**Mains Type:** MCB
**Mains Rating:** 100 A
**MCB Rating:** 100 A

| CKT | Circuit Description | Trip | Poles | A | B | C | Poles | Trip | Circuit Description | CKT |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | **800...** **0 VA** | | | 1 | 20 A | **Spare** | 2 |
| 3 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | **800...** **0 VA** | | 1 | 20 A | **Spare** | 4 |
| 5 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | | **500...** **0 VA** | 1 | 20 A | **Spare** | 6 |
| 7 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | **800...** **0 VA** | | | 1 | 20 A | **Spare** | 8 |
| 9 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | **800...** **0 VA** | | 1 | 20 A | **Spare** | 10 |
| 11 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | | **900...** **0 VA** | 1 | 20 A | **Spare** | 12 |
| 13 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | **800...** **0 VA** | | | 1 | 20 A | **Spare** | 14 |
| 15 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | **800...** **0 VA** | | 1 | 20 A | **Spare** | 16 |
| 17 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | | **800...** **0 VA** | 1 | 20 A | **Spare** | 18 |
| 19 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | **800...** **0 VA** | | | 1 | 20 A | **Spare** | 20 |
| 21 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | **800...** **0 VA** | | 1 | 20 A | **Spare** | 22 |
| 23 | **RECEPTS - FURNITURE OPEN OFFICE...** | **20 A** | 1 | | | **800...** **0 VA** | 1 | 20 A | **Spare** | 24 |
| 25 | **RECEPTS - FURNITURE HOTELING:FIEL...** | **20 A** | 1 | **800...** **900...** | | | 1 | 20 A | **RECEPTS. - OPEN OFFICE 152,...** | 26 |
| 27 | **RECEPTS - FURNITURE HOTELING:FIEL...** | **20 A** | 1 | | **800...** **1200...** | | 1 | 20 A | **COPIER - RECEPTION 104** | 28 |
| 29 | **RECEPTS - FURNITURE HOTELING:FIEL...** | **20 A** | 1 | | | **800...** **1080...** | 1 | 20 A | **RECEPTS. - CONSULT 156** | 30 |
| 31 | **RECEPTS - FURNITURE HOTELING:FIEL...** | **20 A** | 1 | **800...** **900...** | | | 1 | 20 A | **RECEPTS. - TVS MEDIA ROOM 157** | 32 |
| 33 | **COPIER - PLAN CHECK COUNTER 170** | **20 A** | 1 | | **1200...** **900...** | | 1 | 20 A | **RECEPTS. - PLAN CHECK COUNTER 170** | 34 |
| 35 | **RECEPTS. - MENS / WOMENS RR 158, 159** | **20 A** | 1 | | | **360...** **540...** | 1 | 20 A | **RECEPTS. - EHS ENTRY 102** | 36 |
| 37 | **AUTO SINK / FLUSH - MENS / WOMENS...** | **20 A** | 1 | **300...** **540...** | | | 1 | 20 A | **RECEPTS. - HALLWAY 161** | 38 |
| 39 | **PAPER TOWEL DISP. - MENS / WOMEN...** | **20 A** | 1 | | **200...** **0 VA** | | 1 | 20 A | **Spare** | 40 |
| 41 | **Spare** | **20 A** | 1 | | | **0 VA** **0 VA** | 1 | 20 A | **Spare** | 42 |
| | | **Total Load:** | | 7440 VA | 7500 VA | 5980 VA | | | | |
| | | **Total...** | | 64 A | 64 A | 50 A | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated... | Panel Totals | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Load:** | 20920 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **Total Est. Demand:** | 17450 VA |
| MOTOR LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Current:** | 58 A |
| NON CONTINUOUS LOADS | 2850 VA | 100.00% | 2850 VA | **Total Est. Demand...** | 48 A |
| RECEPTACLE LOADS | 16940 VA | 79.52% | 13470 VA | | |

**Notes:**

# Branch Panel: (E)P1N1

**LOCATION:** (E) ELEC 165
**SUPPLY FROM:** (E)T1N
**MOUNTING:** SURFACE
**ENCLOSURE:** NEMA 1

**VOLTS:** 120/208V
**PHASES:** 3
**WIRES:** 4

**A.I.C. RATING:** EXISTING
**MAINS TYPE:**
**BUS RATING:** 400 A
**MCB RATING:**

**NOTES:**

| CKT | CIRCUIT DESCRIPTION | TRIP | P | A | B | C | P | TRIP | CIRCUIT DESCRIPTION | CKT |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | EXISTING CONV. OUTLETS | 20 A | 1 | 800 VA 800 VA | | | 1 | 20 A | EXISTING EXTERIOR RECEPT. | 2 |
| 3 | EXISTING DRINKING FOUNTAINS | 20 A | 1 | | 360 VA 800 VA | | 1 | 20 A | EXISTING EXTERIOR RECEPT. | 4 |
| 5 | EXISTING TELEPHONE ROOM | 20 A | 1 | | | 800 VA 800 VA | 1 | 20 A | EXISTING EDH | 6 |
| 7 | EXISTING CSFD | 20 A | 1 | 360 VA 800 VA | | | 1 | 20 A | EXISTING LOADS | 8 |
| 9 | EXISTING FC-1 | 20 A | 2 | | 800 VA 300 VA | | 1 | 20 A | EXISTING EXT. BOLLARDS | 10 |
| 11 | -- | -- | -- | | | 800 VA 800 VA | 1 | 20 A | EXISTING LOADS | 12 |
| 13 | EXISTING FRONT BOLLARDS | 20 A | 1 | 300 VA 180 VA | | | 1 | 20 A | EXISTING IRRIGATION CONTROLLER | 14 |
| 15 | EXISTING LOADS | 20 A | 1 | | 800 VA 360 VA | | 1 | 20 A | EXISTING LOBBY DIRECTORY | 16 |
| 17 | EXISTING LOADS | 20 A | 1 | | | 800 VA 800 VA | 1 | 20 A | EXISTING LOADS | 18 |
| 19 | P1N4 | 100 A | 3 | 7440... 800 VA | | | 1 | 20 A | EXISTING LOADS | 20 |
| 21 | -- | -- | -- | | 7500... 800 VA | | 1 | 20 A | EXISTING LOADS | 22 |
| 23 | -- | -- | -- | | | 5980... 800 VA | 1 | 20 A | EXISTING LOADS | 24 |
| 25 | IDF | 100 A | 3 | 2100... 1200... | | | 2 | 25 A | EXISTING LOADS | 26 |
| 27 | -- | -- | -- | | 2400... 1200... | | -- | -- | -- | 28 |
| 29 | -- | -- | -- | | | 2400... 800 VA | 1 | 20 A | EXISTING LOADS | 30 |
| 31 | (E)P1N3 | 100 A | 3 | 8800... 1216... | | | 3 | 100 A | (E)P1N2 | 32 |
| 33 | -- | -- | -- | | 1000... 1074... | | -- | -- | -- | 34 |
| 35 | -- | -- | -- | | | 9880... 1228... | -- | -- | -- | 36 |
| | | **Total...** | | 35740 VA | 36060 VA | 36940 VA | | | | |
| | | **Total...** | | 298 A | 301 A | 308 A | | | | |

**LEGEND:**

| LOAD CLASSIFICATION | CONNECTED... | DEMAND... | ESTIMATED... | PANEL TOTALS | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 0 VA | 0.00% | 0 VA | **TOTAL CONN. LOAD:** | 108740 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **TOTAL EST. DEMAND** | 92415 VA |
| MOTOR LOADS | 6000 VA | 100.00% | 6000 VA | **TOTAL CONN....** | 302 A |
| NON CONTINUOUS LOADS | 8850 VA | 100.00% | 8850 VA | **TOTAL EST. DEMAN...** | 257 A |
| RECEPTACLE LOADS | 42300 VA | 61.82% | 26150 VA | | |

**NOTES:**

# Branch Panel: IDF

**LOCATION:** IDF 160
**SUPPLY FROM:** (E)P1N1
**MOUNTING:** SURFACE
**ENCLOSURE:** NEMA 1

**VOLTS:** 120/208V
**PHASES:** 3
**WIRES:** 4

**A.I.C. RATING:** 10K
**MAINS TYPE:**
**BUS RATING:** 100 A
**MCB RATING:**

**NOTES:**

| CKT | CIRCUIT DESCRIPTION | TRIP | P | A | B | C | P | TRIP | CIRCUIT DESCRIPTION | CKT |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | RECEPTS. - IDF 160 | 20 A | 1 | 900 VA 1200... | | | 1 | 20 A | RECEPTS. - IDF 160 | 2 |
| 3 | RECEPTACLE LOADS IDF 160 | 20 A | 1 | | 1200... 1200... | | 1 | 20 A | RECEPTS. - IDF 160 | 4 |
| 5 | RECEPTACLE LOADS IDF 160 | 20 A | 1 | | | 1200... 1200 VA | 1 | 20 A | RECEPTS. - IDF 160 | 6 |
| 7 | RECEPTS. - IDF 160 | 20 A | 2 | 0 VA 0 VA | | | 2 | 20 A | RECEPTS. - IDF 160 | 8 |
| 9 | -- | -- | -- | | 0 VA 0 VA | | -- | -- | -- | 10 |
| 11 | | | | | | | | | | 12 |
| 13 | | | | | | | | | | 14 |
| 15 | | | | | | | | | | 16 |
| 17 | | | | | | | | | | 18 |
| 19 | | | | | | | | | | 20 |
| 21 | | | | | | | | | | 22 |
| 23 | | | | | | | | | | 24 |
| 25 | | | | | | | | | | 26 |
| 27 | | | | | | | | | | 28 |
| 29 | | | | | | | | | | 30 |
| | | **TOTAL...** | | 2100 VA | 2400 VA | 2400 VA | | | | |
| | | **TOTAL...** | | 18 A | 20 A | 20 A | | | | |

**LEGEND:**

| LOAD CLASSIFICATION | CONNECTED... | DEMAND... | ESTIMATED... | PANEL TOTALS | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 0 VA | 0.00% | 0 VA | **TOTAL CONN. LOAD:** | 6900 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **TOTAL EST. DEMAND** | 6725 VA |
| MOTOR LOADS | 6000 VA | 100.00% | 6000 VA | **TOTAL CONN....** | 19 A |
| NON CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | **TOTAL EST. DEMAN...** | 19 A |
| RECEPTACLE LOADS | 540 VA | 100.00% | 540 VA | | |

**NOTES:**

**SHORT CIRCUIT CALCULATIONS:**

**The following calculations are based on the "Point-by-Point" Method where:**

$I_{s.c.} = I_{s.c.} * M$

$M = \frac{1}{(1+f)}$

$f = \frac{1.732 * L * I}{C * E_{LG}}$

**Transformer Calcs:**

$I_{FLT(L-L)} = \frac{(I_{TX(L-L)} * V_P * 2)}{(100000 * KVA)}$

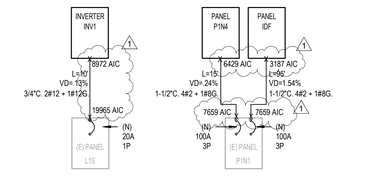
$I_{SEC(L-L)} = \frac{(I_{SEC(L-L)} * V_P * M)}{V_S}$

| Fault Point | Panel Transformer | Source (Fault Point) | Source I (amps) | Conductor/ Conduit Type | | Wire/Bus Size | 'C' Value | E (Volts) | Length (ft.) | Transformer KVA | Transformer Z | f | M | Motor Contribution (lx.c.) | $I_{s.c.}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MSB | | 47125 | | | | | | | | | | | | 47125 |
| 2 | L1S | 1 | 47125 | CU/MET | 1 | Set(s) of 2 AWG | 5000 | 480 | 40 | | | 1.360 | 0.42 | | 19965 |
| 3 | INV1 | 2 | 19965 | CU/MET | 1 | Set(s) of 10 AWG | 588 | 480 | 10 | | | 1.225 | 0.45 | | 8972 |
| 4 | | | | AL/MET | 1 | Set(s) of 250 KCMIL | 12122 | 480 | 120 | | | #VALUE! | #VALUE! | | #VALUE! |
| 5 | L1N | 1 | 47125 | CU/MET | 1 | Set(s) of 500 KCMIL | 20000 | 480 | 193 | | | 1.641 | 0.38 | | 17844 |
| 6 | T1N | 5 | 17844 | CU/MET | 1 | Set(s) of 4/0 | 12500 | 480 | 10 | | | 0.052 | 0.95 | | 16970 |
| 7 | T1N SEC | 6 | 16970 | AL/NON | | Set(s) of #N/A | 208 | | | 150 | 4.2 | 3.950 | 0.20 | | 7911 |
| 8 | P1N1 | 7 | 7911 | CU/MET | 1 | Set(s) of 500 KCMIL | 20000 | 208 | 10 | | | 0.033 | 0.97 | | 7659 |
| 9 | P1N4 | 8 | 7659 | CU/MET | 1 | Set(s) of 2 AWG | 5000 | 208 | 15 | | | 0.191 | 0.84 | | 6429 |
| 10 | IDF | 9 | 6429 | CU/MET | 1 | Set(s) of 2 AWG | 5000 | 208 | 99 | | | 1.02 | 0.50 | | 3187 |

NOTE: EQUIPMENT TO BE FIELD MARKED "CAUTION SERIES RATED SYSTEM _____ AMPS AVAILABLE. IDENTIFIED REPLACEMENT COMPONENT REQUIRED." INDICATE AMPS PER AIC VALUE ON SINGLE LINE DIAGRAM BELOW.

1 UTILITY DEMAND NOTES

1. MAXIMUM DEMAND FROM UTILITY FOR BUILDING IN LAST 12 MONTHS IS **536KW** DURING OCTOBER 2024 READ FROM MAIN SWITCHGEAR SCE METER V349N-010390.
2. EXISTING + NEW DEMAND CALCULATION:
   A. MAIN SWITCHGEAR RATING: 277Y/480V 3000A, 2,120KW
   B. 536KW X 1.25 = 670KW
   C. 670KW + ADDITIONAL 337.34KW = 1,007.34 KW < 2,120KW
   D. (EXISTING DEMAND * 1.25) + NEW DEMAND < RATING OF EXISTING SERVICE
3. SEE SHEET E7.03 FOR UTILITY BILL DOCUMENTATION




SINGLE LINE DIAGRAM | 12" = 1'-0" | 02

## GENERAL PANEL SCHEDULE NOTES:

1. WHERE PANEL IS INDICATED TO INCLUDE FEED THRU LUGS, PROVIDE FEED THROUGH LUGS AT THE OPPOSITE END OF THE PANELBOARD FROM THE PANELBOARD MAIN LUGS.
2. WHERE PANEL IS INDICATED TO INCLUDE DOUBLE LUGS, PROVIDE A DOUBLE LUG KIT AT THE SAME END OF THE PANELBOARD AS THE PANELBOARD MAIN LUGS.
3. WHERE PANEL IS INDICATED TO INCLUDE 200% NEUTRAL, PROVIDE PANELBOARDS UL LISTED AS HAVING NEUTRAL BUSSES RATED TO CARRY 200 PERCENT OF THE CURRENT CARRYING CAPACITY OF THE PHASE BUSSING. OTHERWISE, NEUTRAL BUSSING TO BE FULL SIZE AND RECTANGULAR.
4. WHERE PANEL IS INDICATED TO INCLUDE AN I/G BUS, PROVIDE PANELBOARDS WITH AN ISOLATED GROUND BUS, DRILLED AND TAPPED FOR NUMBER OF ISOLATED GROUND CONDUCTORS SHOWN, AS WELL AS FOR ALL SPARES AND SPACES SHOWN ON THE PANELBOARD.
5. ALL CIRCUIT BREAKERS SHALL BE FULLY RATED.
6. WHERE PANEL IS INDICATED AS RECESSED OR FLUSH MOUNTED, PROVIDE SPARE CONDUITS STUBBED UP INTO THE ACCESSIBLE CEILING SPACE. PROVIDE ONE (1) 3/4" CONDUIT ONLY FOR EACH THREE (3) SPARES OR SPACES, MINIMUM OF TWO (2). EACH CONDUIT SHALL BE TAGGED, CAPPED AND MARKED FOR FUTURE USE.
7. ALL BUSSING SHALL BE COPPER.
8. ALL CIRCUIT BREAKERS USED AS SWITCHES SHALL BE UL LISTED AND LABELED "SWD" FOR SWITCHING DUTY.
9. ALL CIRCUIT BREAKERS USED TO SERVE MECHANICAL OR HEATING EQUIPMENT SHALL BE UL LISTED AND LABELED "HACR" FOR USE WITH THESE LOADS, WHERE REQUIRED.
10. ALL CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE AND SHALL BE SUITABLE FOR 75 DEGREE AMPACITY CONDUCTORS.
11. PANELS SHALL BE OF THE DEAD FRONT SAFETY TYPE. PANELS SHALL BE MINIMUM 20" WIDE AND 5 3/4" DEEP UNLESS OTHERWISE NOTED ON PLAN.
12. COORDINATE WITH APPLICABLE TRADE TO INSURE RECESSED MOUNTED PANELBOARDS WILL SEAT FLUSH IN THE WALLS PROVIDED. PANEL TRIMS SHALL HAVE CONCEALED DOORS AND FASTENERS WITH FLUSH TYPE COMBINATION LOCK AND CATCH, TWO MILLED TYPE KEYS SUPPLIED WITH EACH PANEL. ALL LOCKS SHALL BE KEYED ALIKE AND EACH DOOR SHALL HAVE A PLASTIC COVERED DIRECTORY FRAME WITH A TYPED IDENTIFICATION CARD OF ALL CIRCUIT AND PANEL NUMBERS FOR BRANCH CIRCUIT PANELBOARDS.
13. UPON PROJECT COMPLETION, CONTRACTOR SHALL INSTALL TYPED AS-BUILT PANEL DIRECTORIES IN EACH PANEL WITHIN THE MFGR-PROVIDED DIRECTORY HOLDER. DIRECTORIES SHALL CONSIST OF LOAD DESCRIPTION AND CIRCUIT NUMBER FOR EACH CIRCUIT BASED ON AS-BUILT PANEL SCHEDULES. HANDWRITTEN DIRECTORIES ARE UNACCEPTABLE. LOCAL AHJ MAY REQUIRE COPIES OF ENGINEERED PANEL SCHEDULES BE PLACED IN PANEL DIRECTORIES. E.C. TO VERIFY REQUIREMENTS PRIOR TO BID AND INCLUDE ALL COSTS REQUIRED FOR LARGER-THAN-STANDARD CUSTOM PANEL DIRECTORY HOLDERS TO ACCOMMODATE COPIES OF ENGINEERED PANEL SCHEDULES.
14. PANELBOARDS SHALL BE MANUFACTURED BY G.E., CUTLER-HAMMER, SIEMENS, OR SQUARE "D".
15. PROVIDE SHOP DRAWING SUBMITTAL PER THE ELECTRICAL SPECIFICATION SUBMITTAL REQUIREMENTS FOR EACH PANEL DEPICTING CONFORMANCE WITH THE ABOVE NOTES AND SCHEDULES.

**SPECIFIC PANEL SCHEDULE NOTES:**

"A" PROVIDE LOCK-ON DEVICE
"B" PROVIDE LOCK-OFF DEVICE
"C" PROVIDE SHUNT TRIP DEVICE
"D" PROVIDE GFCI TYPE DEVICE.
"E" PROVIDE A RED CIRCUIT FIRE ALARM BREAKER. SEE SHEET FA0.03, KEYNOTE #6.
"F" PROVIDE A NEW BREAKER TO MATCH THE EXISTING IN PANEL
"G" PROVIDE BREAKER INTERLOCK WITH ADJACENT BREAKER. BREAKER INTERLOCK GROUPING SHALL BE BY BRANCH CIRCUIT GROUP (i.e. MULTIPLE CIRCUITS ON A COMMON YOKE NEC 210.4(B) FURNITURE SYSTEM NEC 605.7)
"H" PROVIDE HACR BREAKER
"J" EXISTING BREAKER WITH NEW LOAD

| | | | |
|---|---|---|---|
| | (E)L1N | (E)P1N2 | |
| | (E)P1N3 | P1N4 | |
| | (E)P1N1 | IDF | NOTES |


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# Branch Panel: (E)L1S

**Location:** (E) ELEC 168
**Supply From:**
**Mounting:** SURFACE
**Enclosure:** NEMA 1

**Volts:** 277/480V
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** EXISTING
**Mains Type:** MCB
**Mains Rating:** 400 A
**MCB Rating:** 400 A

**Notes:**

| | CKT | Circuit Description | Trip | Poles | A | B | C | Poles | Trip | Circuit Description | CKT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | EXISTING WEST LIGHTS | 20 A | 1 | 1600 VA | 1600 VA | | 1 | 20 A | EXISTING ELEC. RM / STH. STAIR | 2 | |
| | 3 | EXISTING WEST LIGHTS | 20 A | 1 | | 1600 VA | 1600 VA | | | | | |
| | 5 | EXISTING OPEN AREA LIGHTS | 20 A | 1 | | | 1600 VA | 1600 VA | 1 | 20 A | EXISTING LOBBY AND CORRIDOR | 6 |
| | 7 | EXISTING OPEN AREA LIGHTS | 20 A | 1 | 1600 VA | 1600 VA | | | | | | |
| | 9 | EXISTING LIGHTS | 20 A | 1 | | 1600 VA | 1600 VA | | | | | |
| | 11 | EXISTING EAST HALL LIGHTING | 20 A | 1 | | | 1600 VA | 1600 VA | 1 | 20 A | EXISTING PARKING LOT LIGHTS | 12 |
| | 13 | EXISTING EAST HALL LIGHTING | 20 A | 1 | 1600 VA | 1600 VA | | | | | | |
| J | 15 | **LIGHTING LOADS SOUTH** | **20 A** | **1** | 2696 VA | 2400 VA | | 1 | 30 A | EXISTING WH-1 | 16 | |
| J | 17 | **LIGHTING LOADS SOUTH** | **20 A** | **1** | | | 2184 VA | 2400 VA | 1 | 30 A | EXISTING WH-2 | 18 |
| | 19 | **INV1** | **20 A** | **1** | 2386 VA | 0 VA | | 1 | 30 A | Spare | 20 | |
| | 21 | Space | -- | 1 | | -- | 0 VA | | | | | |
| | 23 | Space | -- | 1 | | | | -- | -- | 1 | -- | Space |
| | 25 | Space | -- | 1 | -- | -- | | | | 1 | -- | Space |
| | 27 | Space | -- | 1 | | -- | -- | | | 1 | -- | Space |
| | 29 | Space | -- | 1 | | | | -- | -- | 1 | -- | Space |
| | 31 | Space | -- | 1 | -- | -- | | | | 1 | -- | Space |
| | 33 | Space | -- | 1 | | -- | -- | | | 1 | -- | Space |
| | 35 | Space | -- | 1 | | | | -- | -- | 1 | -- | Space |
| | 37 | Space | -- | 1 | -- | -- | | | | 1 | -- | Space |
| | 39 | Space | -- | 1 | | -- | -- | | | 1 | -- | Space |
| | 41 | Space | -- | 1 | | | | -- | -- | 1 | -- | Space |
| | | | **Total Load:** | | 11986 VA | 11496 VA | 10984 VA | | | | | |
| | | | **Total...** | | 44 A | 42 A | 40 A | | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated... | Panel Totals | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Load:** | 34467 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **Total Est. Demand:** | 34467 VA |
| MOTOR LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Current:** | 41 A |
| NON CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | **Total Est. Demand...** | 41 A |
| RECEPTACLE LOADS | 0 VA | 0.00% | 0 VA | | |

**Notes:**

# Branch Panel: (E)P1S1

**Location:** (E) ELEC 168
**Supply From:**
**Mounting:** SURFACE
**Enclosure:** NEMA 1

**Volts:** 120/208V
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** EXISTING
**Mains Type:** MCB
**Mains Rating:** 400 A
**MCB Rating:** 400 A

**Notes:**

| | CKT | Circuit Description | Trip | Poles | A | B | C | Poles | Trip | Circuit Description | CKT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | EXISTING CONVENIENT OUTLETS | 20 A | 1 | 0 VA | 0 VA | | 1 | 20 A | EXISTING ELEVATOR MACH. ROOM | 2 | J |
| | 3 | EXISTING DRINKING FOUNTAIN | 20 A | 1 | | 0 VA | 0 VA | | | | | J |
| | 5 | EXISTING TELE. ROOM | 20 A | 1 | | | 0 VA | 0 VA | 1 | 20 A | EXISTING ELEVATOR CONTROLLER | 6 | J |
| | 7 | EXISTING CSFD | 20 A | 1 | 0 VA | 0 VA | | | | | | J |
| | 9 | EXISTING EXT. OUTLETS | 20 A | 1 | | 0 VA | 0 VA | | | | | J |
| | 11 | EXISTING EXT. OUTLETS | 20 A | 1 | | | 0 VA | 0 VA | 1 | 20 A | EXISTING ELEVATOR PIT | 12 | J |
| | 13 | EXISTING EXT. BOLLARDS | 20 A | 1 | 0 VA | 0 VA | | | | | | J |
| | 15 | EXISTING DDCP | 20 A | 1 | | 0 VA | 0 VA | | | | | J |
| | 17 | EXISTING FACP | 20 A | 1 | | | 0 VA | 0 VA | 1 | 20 A | EXISTING PARKING LOT LTS | 18 | J |
| | 19 | Spare | 20 A | 1 | 0 VA | 0 VA | | | | | | J |
| | 21 | Spare | 20 A | 1 | | 0 VA | 0 VA | | | | | J |
| | 23 | EXISTING SEC. PANEL | 20 A | 1 | | | 0 VA | 0 VA | 1 | 20 A | Spare | 24 | J |
| | 25 | EXISTING LOAD | 20 A | 2 | 0 VA | 0 VA | | | | | | J |
| | 27 | -- | -- | -- | | 0 VA | 0 VA | | | | | J |
| | 29 | Space | -- | 1 | | | -- | 0 VA | 1 | 20 A | EXISTING LOADS | 30 | J |
| | 31 | (E)P1S3 | 100 A | 3 | 14180... | 0 VA | | | | | | J |
| | 33 | -- | -- | -- | | | 15040... | 0 VA | 1 | 20 A | Spare | 34 | J |
| | 35 | -- | -- | -- | | | | 12500... | 0 VA | 1 | 20 A | EXISTING LOADS | 36 | J |
| | 37 | Space | -- | 1 | -- | 10300... | | | | 3 | 100 A | (E)P1S2 | 38 | J |
| | 39 | Space | -- | 1 | | | -- | 9920 VA | | -- | -- | -- | 40 | J |
| | 41 | Space | -- | 1 | | | | -- | 9395 VA | -- | -- | -- | 42 | J |
| | | | **Total Load:** | | 24480 VA | 24960 VA | 21895 VA | | | | | |
| | | | **Total...** | | 207 A | 211 A | 182 A | | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated... | Panel Totals | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 13740 VA | 74.17% | 10191 VA | **Total Conn. Load:** | 71335 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **Total Est. Demand:** | 50146 VA |
| MOTOR LOADS | 515 VA | 100.00% | 515 VA | **Total Conn. Current:** | 198 A |
| NON CONTINUOUS LOADS | 6400 VA | 100.00% | 6400 VA | **Total Est. Demand...** | 139 A |
| RECEPTACLE LOADS | 45280 VA | 61.04% | 27640 VA | | |

**Notes:**

# Branch Panel: (E)P1S2

**Location:** (E) ELEC 168
**Supply From:** (E)P1S1
**Mounting:** SURFACE
**Enclosure:** NEMA 1

**Volts:** 120/208V
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** EXISTING
**Mains Type:** MCB
**Mains Rating:** 125 A
**MCB Rating:** 100 A

**Notes:**

| | CKT | Circuit Description | Trip | Poles | A | B | C | Poles | Trip | Circuit Description | CKT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J | 1 | **REFRIGERATOR - BREAKROOM 132** | 20 A | 1 | 1200 VA | 1080 VA | | 1 | 20 A | **RECEPTS. - COPY/PRINT 114, HALLWAY** | 2 | J |
| J | 3 | **REFRIGERATOR - BREAKROOM 132** | 20 A | 1 | | | 1200 VA | 1200 VA | | | | J |
| J | 5 | **REFRIGERATOR - BREAKROOM 132** | 20 A | 1 | | | | | 1200 VA | 200 VA | 1 | 20 A | **RECEPTS. - RESTROOM 112** | 6 | J |
| J | 7 | **REFRIGERATOR - BREAKROOM 132** | 20 A | 1 | 1200 VA | 80 VA | | | | | | J |
| J | 9 | **RECEPTS. - BREAKROOM 132** | 20 A | 1 | | | 1080 VA | 1200 VA | | | | J |
| J | 11 | **MICROWAVE - BREAKROOM 132** | 20 A | 1 | | | | | 1200 VA | 1200 VA | 1 | 20 A | **MICROWAVE - BREAKROOM 132** | 12 | J |
| J | 13 | **MICROWAVE - BREAKROOM 132** | 20 A | 1 | 1200 VA | 360 VA | | | | | | J |
| J | 15 | **COFFEE MAKER - BREAKROOM 132** | 20 A | 1 | | | 180 VA | 800 VA | 1 | 20 A | **INSTA-HOT - BREAKROOM 132** | 16 | J |
| J | 17 | **COFFEE MAKER - BREAKROOM 132** | 20 A | 1 | | | | | 180 VA | 75 VA | 1 | 20 A | **VAV 1.15,1.17,1.22** | 18 | J |
| J | 19 | **WATER DISPENSER - BREAKROOM 132** | 20 A | 1 | 180 VA | 200 VA | | | | | | J |
| J | 21 | **GARBAGE DISPOSAL - BREAKROOM 132** | 20 A | 1 | | | 1200 VA | 0 VA | | | | J |
| J | 23 | **RECEPTS. - BOARDROOM 129 (FLOOR)** | 20 A | 1 | | | | | 1080 VA | 0 VA | 1 | 20 A | Spare | 24 | J |
| J | 25 | **RECEPTS. - BOARDROOM 129** | 20 A | 1 | 1080 VA | 0 VA | | | | | | J |
| J | 27 | **RECEPTS. - BOARDROOM 129** | 20 A | 1 | | | 900 VA | 0 VA | | | | J |
| J | 29 | **RECEPTS. - PRIVATE OFFICE 127, 126** | 20 A | 1 | | | | | 1080 VA | 0 VA | 1 | 20 A | Spare | 30 | J |
| J | 31 | **RECEPTS. - PRIVATE OFFICE 126, 125** | 20 A | 1 | 1080 VA | 1200 VA | | | | | | J |
| J | 33 | **RECEPTS. - PRIVATE OFFICE 124** | 20 A | 1 | | | 1080 VA | 720 VA | | | | J |
| J | 35 | **RECEPTS. - PRIVATE OFFICE 123** | 20 A | 1 | | | | | 1080 VA | 900 VA | 1 | 30 A | **RECEPTS. - PRIVATE OFFICE 119, TV** | 36 | J |
| J | 37 | **RECEPTS. - PRIVATE OFFICE 122** | 20 A | 1 | 360 VA | 1080 VA | | | | | | J |
| J | 39 | **RECEPTS. - PRIVATE OFFICE 121, TV** | 30 A | 1 | | 360 VA | 0 VA | | | | | J |
| J | 41 | **PRINTER - PRIVATE OFFICE 121** | 20 A | 1 | | | | | 1200 VA | 0 VA | 1 | 20 A | Spare | 42 | J |
| | | | **Total Load:** | | 10300 VA | 9920 VA | 9395 VA | | | | | |
| | | | **Total...** | | 87 A | 83 A | 78 A | | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated... | Panel Totals | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 12140 VA | 75.38% | 9151 VA | **Total Conn. Load:** | 29615 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **Total Est. Demand:** | 26346 VA |
| MOTOR LOADS | 515 VA | 100.00% | 515 VA | **Total Conn. Current:** | 82 A |
| NON CONTINUOUS LOADS | 2800 VA | 100.00% | 2800 VA | **Total Est. Demand...** | 73 A |
| RECEPTACLE LOADS | 10560 VA | 97.35% | 10280 VA | | |

**Notes:**

# Branch Panel: (E)P1S3

**Location:** (E) ELEC 168
**Supply From:** (E)P1S1
**Mounting:** SURFACE
**Enclosure:** NEMA 1

**Volts:** 120/208V
**Phases:** 3
**Wires:** 4

**A.I.C. Rating:** EXISTING
**Mains Type:** MCB
**Mains Rating:** 125 A
**MCB Rating:** 400 A

**Notes:**

| | CKT | Circuit Description | Trip | Poles | A | B | C | Poles | Trip | Circuit Description | CKT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J | 1 | **RECEPTS. - FURNITURE OPEN OFFICE 115** | 20 A | 1 | 800 VA | 540 VA | | 1 | 20 A | **RECEPTS. - RECEPTION 103** | 2 | J |
| J | 3 | **RECEPTS. - FURNITURE OPEN OFFICE 115** | 20 A | 1 | | 800 VA | 540 VA | | | | | J |
| | 5 | Spare | 20 A | 1 | | | 0 VA | 800 VA | 1 | 20 A | **RECEPTS. - WELLNESS 130** | 6 | J |
| | 7 | Spare | 20 A | 1 | 0 VA | 1080 VA | | | | | | J |
| | 9 | **PRINTER - RECEPTION 103** | 20 A | 1 | | 1200 VA | 1700 VA | | | | | J |
| | 11 | **RECEPTS. - RECEPTION 103, TV** | **30 A** | **1** | | | 900 VA | 1200 VA | 1 | 20 A | **PRINTER - PRIVATE OFFICE 171** | 12 | J |
| J | 13 | **RECEPTACLE LOADS PRIVATE OFFICE 171** | 20 A | 1 | 1080 VA | 360 VA | | | | | | J |
| J | 15 | **PRINTER - COPY / COFFEE 108** | 20 A | 1 | | | 1200 VA | -- | 1 | -- | Space | 16 | J |
| | 17 | Spare | 20 A | 1 | | | | 0 VA | -- | 1 | -- | Space | 18 | J |
| | 19 | EXISTING LOAD | 20 A | 2 | 0 VA | -- | | | | 1 | -- | Space | 20 | J |
| | 21 | -- | -- | -- | | 0 VA | -- | | | 1 | -- | Space | 22 | J |
| | 23 | EXISTING LOAD | 20 A | 2 | | | | 0 VA | -- | 1 | -- | Space | 24 | J |
| | 25 | -- | -- | -- | 0 VA | 0 VA | | | | 1 | 20 A | Spare | 26 | J |
| | 27 | EXISTING LOAD | 20 A | 2 | | | 0 VA | 0 VA | | 1 | 20 A | Spare | 28 | J |
| | 29 | -- | -- | -- | | | | | 0 VA | 0 VA | 1 | 20 A | Spare | 30 | J |
| | 31 | Space | -- | 1 | -- | 0 VA | | | | 1 | 20 A | EXISTING PBA SIGN | 32 | |
| | 33 | Space | -- | 1 | | | -- | -- | | 1 | -- | Space | 34 | |
| | 35 | Space | -- | 1 | | | | | -- | -- | 1 | -- | Space | 36 | |
| | 37 | Space | -- | 1 | -- | 9600 VA | | | | | 3 | 60 A | (E)P1S4 | 38 | |
| | 39 | Space | -- | 1 | | | -- | 9600 VA | | | -- | -- | -- | 40 | |
| | 41 | Space | -- | 1 | | | | | -- | 9600 VA | -- | -- | -- | 42 | |
| | | | **Total Load:** | | 14180 VA | 15040 VA | 12500 VA | | | | | |
| | | | **Total...** | | 120 A | 127 A | 104 A | | | | | |

**Legend:**

| Load Classification | Connected Load | Demand Factor | Estimated... | Panel Totals | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 1600 VA | 100.00% | 1600 VA | **Total Conn. Load:** | 41720 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **Total Est. Demand:** | 29360 VA |
| MOTOR LOADS | 0 VA | 0.00% | 0 VA | **Total Conn. Current:** | 116 A |
| NON CONTINUOUS LOADS | 3600 VA | 100.00% | 3600 VA | **Total Est. Demand...** | 81 A |
| RECEPTACLE LOADS | 34720 VA | 64.40% | 22360 VA | | |

**Notes:**

# Branch Panel: (E)P1S4

**LOCATION:** (E) ELEC 168
**SUPPLY FROM:** (E)P1S3
**MOUNTING:** SURFACE
**ENCLOSURE:** NEMA 1

**VOLTS:** 120/208V
**PHASES:** 3
**WIRES:** 4

**A.I.C. RATING:** EXISTING
**MAINS TYPE:** MCB
**BUS RATING:** 60 A
**MCB RATING:**

**NOTES:**

| CKT | CIRCUIT DESCRIPTION | TRIP | P | A | B | C | P | TRIP | CIRCUIT DESCRIPTION | CKT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | FURNITURE RECEPTS. - OPEN OFFICE 117 | 20 A | 1 | 800 VA | 800 VA | | 1 | 20 A | RECEPTS. - FURNITURE OPEN OFFICE 116 | 2 | J |
| 3 | FURNITURE RECEPTS. - OPEN OFFICE 117 | 20 A | 1 | | 800 VA | 800 VA | | | | | J |
| 5 | FURNITURE RECEPTS. - OPEN OFFICE 117 | 20 A | 1 | | | 800 VA | 800 VA | 1 | 20 A | RECEPTS. - FURNITURE HALLWAY 110 | 6 | |
| 7 | FURNITURE RECEPTS. - OPEN OFFICE 117 | 20 A | 1 | 800 VA | 800 VA | | | | | | J |
| 9 | RECEPTS. - FURNITURE OPEN OFFICE 117 | 20 A | 1 | | 800 VA | 800 VA | | | | | J |
| 11 | RECEPTS. - FURNITURE OPEN OFFICE 117 | 20 A | 1 | | | 800 VA | 800 VA | 1 | 20 A | RECEPTS. - FURNITURE HALLWAY 110 | 12 | |
| 13 | RECEPTS. - FURNITURE OPEN OFFICE 117 | 20 A | 1 | 800 VA | 800 VA | | | | | | J |
| 15 | RECEPTS. - FURNITURE OPEN OFFICE 117 | 20 A | 1 | | 800 VA | 800 VA | | | | | J |
| 17 | RECEPTS. - FURNITURE OPEN OFFICE 115 | 20 A | 1 | | | 800 VA | 800 VA | 1 | 20 A | RECEPTS - FURNITURE OPEN OFFICE 154 | 18 | J |
| 19 | RECEPTS. - FURNITURE OPEN OFFICE 115 | 20 A | 1 | 800 VA | 800 VA | | | | | | J |
| 21 | RECEPTS. - FURNITURE OPEN OFFICE 115 | 20 A | 1 | | 800 VA | 800 VA | | | | | J |
| 23 | RECEPTS. - FURNITURE OPEN OFFICE 115 | 20 A | 1 | | | 800 VA | 800 VA | 1 | 20 A | RECEPTS - FURNITURE OPEN OFFICE 154 | 24 | J |
| 25 | RECEPTS. - FURNITURE OPEN OFFICE 115 | 20 A | 1 | 800 VA | 800 VA | | | | | | J |
| 27 | RECEPTS. - FURNITURE OPEN OFFICE 115 | 20 A | 1 | | 800 VA | 800 VA | | | | | J |
| 29 | RECEPTS. - FURNITURE OPEN OFFICE 117 | 20 A | 1 | | | 800 VA | 800 VA | 1 | 20 A | RECEPTS - FURNITURE OPEN OFFICE 154 | 30 | J |
| 31 | RECEPTS. - FURNITURE OPEN OFFICE 117 | 20 A | 1 | 800 VA | 800 VA | | | | | | J |
| 33 | RECEPTS. - FURNITURE OPEN OFFICE 117 | 20 A | 1 | | 800 VA | 800 VA | | | | | J |
| 35 | RECEPTS. - FURNITURE OPEN OFFICE 117 | 20 A | 1 | | | 800 VA | 800 VA | 1 | 20 A | RECEPTS - FURNITURE OPEN OFFICE 154 | 36 | J |
| 37 | Space | -- | 1 | -- | -- | | | 1 | -- | Space | 38 | |
| 39 | Space | -- | 1 | | -- | -- | | 1 | -- | Space | 40 | |
| | | **Total...** | | 9600 VA | 9600 VA | 9600 VA | | | | | |
| | | **Total...** | | 80 A | 80 A | 80 A | | | | | |

**LEGEND:**

| LOAD CLASSIFICATION | CONNECTED... | DEMAND... | ESTIMATED... | PANEL TOTALS | |
|---|---|---|---|---|---|
| CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | | |
| KITCHEN LOADS | 0 VA | 0.00% | 0 VA | **TOTAL CONN. LOAD:** | 28800 VA |
| LIGHTING LOADS | 0 VA | 0.00% | 0 VA | **TOTAL EST. DEMAND** | 19400 VA |
| MOTOR LOADS | 0 VA | 0.00% | 0 VA | **TOTAL CONN....** | 80 A |
| NON CONTINUOUS LOADS | 0 VA | 0.00% | 0 VA | **TOTAL EST. DEMAN...** | 54 A |
| RECEPTACLE LOADS | 28800 VA | 67.36% | 19400 VA | | |
| | | | | | |

**NOTES:**

# Branch Panel: INV1

**LOCATION:** (E) ELEC 168
**SUPPLY FROM:** (E)L1S
**MOUNTING:** FLOOR-MOUNTED
**ENCLOSURE:** NEM A 1

**VOLTS:** 277V
**PHASES:** 1
**WIRES:** 2

**A.I.C. RATING:**
**MAINS TYPE:**
**BUS RATING:**
**MCB RATING:**

**NOTES:**

| CKT | CIRCUIT DESCRIPTION | TRIP | P | A | P | TRIP | CIRCUIT DESCRIPTION | CKT |
|---|---|---|---|---|---|---|---|---|
| 1 | EM LIGHTING NORTH | 20 A | 1 | 1124 VA 1152 VA | 1 | 20 A | EM LIGHTING SOUTH | 2 |
| 3 | EXIT SIGNS NORTH | 20 A | 1 | 50 VA 60 VA | 1 | 20 A | EXIT SIGNS SOUTH | 4 |
| 5 | | | | | | | | 6 |
| 7 | | | | | | | | 8 |
| 9 | | | | | | | | 10 |
| 11 | | | | | | | | 12 |
| | | **TOTAL...** | | 2386 VA | | | | |
| | | **TOTAL...** | | 9 A | | | | |

**LEGEND:**

| LOAD CLASSIFICATION | CONNECTED... | DEMAND... | ESTIMATED... | PANEL TOTALS | |
|---|---|---|---|---|---|
| | | | | | |
| | | | | **TOTAL CONN. LOAD:** | 2386 VA |
| | | | | **TOTAL EST. DEMAND** | 2386 VA |
| | | | | **TOTAL CONN....** | 9 A |
| | | | | **TOTAL EST. DEMAN...** | 9 A |
| | | | | | |

**NOTES:**

## GENERAL PANEL SCHEDULE NOTES:

1. WHERE PANEL IS INDICATED TO INCLUDE FEED THRU LUGS, PROVIDE FEED THROUGH LUGS AT THE OPPOSITE END OF THE PANELBOARD FROM THE PANELBOARD MAIN LUGS.
2. WHERE PANEL IS INDICATED TO INCLUDE DOUBLE LUGS, PROVIDE A DOUBLE LUG KIT AT THE SAME END OF THE PANELBOARD AS THE PANELBOARD MAIN LUGS.
3. WHERE PANEL IS INDICATED TO INCLUDE 200% NEUTRAL, PROVIDE PANELBOARDS UL LISTED AS HAVING NEUTRAL BUSSES RATED TO CARRY 200 PERCENT OF THE CURRENT CARRYING CAPACITY OF THE PHASE BUSSING. OTHERWISE, NEUTRAL BUSSING TO BE FULL SIZE AND RECTANGULAR.
4. WHERE PANEL IS INDICATED TO INCLUDE AN I/G BUS, PROVIDE PANELBOARDS WITH AN ISOLATED GROUND BUS, DRILLED AND TAPPED FOR NUMBER OF ISOLATED GROUND CONDUCTORS SHOWN, AS WELL AS FOR ALL SPARES AND SPACES SHOWN ON THE PANELBOARD.
5. ALL CIRCUIT BREAKERS SHALL BE FULLY RATED.
6. WHERE PANEL IS INDICATED AS RECESSED OR FLUSH MOUNTED, PROVIDE SPARE CONDUITS STUBBED UP INTO THE ACCESSIBLE CEILING SPACE. PROVIDE ONE (1) 3/4" CONDUIT ONLY FOR EACH THREE (3) SPARES OR SPACES, MINIMUM OF TWO (2). EACH CONDUIT SHALL BE TAGGED, CAPPED AND MARKED FOR FUTURE USE.
7. ALL BUSSING SHALL BE COPPER.
8. ALL CIRCUIT BREAKERS USED AS SWITCHES SHALL BE UL LISTED AND LABELED "SWD" FOR SWITCHING DUTY.
9. ALL CIRCUIT BREAKERS USED TO SERVE MECHANICAL OR HEATING EQUIPMENT SHALL BE UL LISTED AND LABELED "HACR" FOR USE WITH THESE LOADS, WHERE REQUIRED.
10. ALL CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE AND SHALL BE SUITABLE FOR 75 DEGREE AMPACITY CONDUCTORS.
11. PANELS SHALL BE OF THE DEAD FRONT SAFETY TYPE. PANELS SHALL BE MINIMUM 20" WIDE AND 5 3/4" DEEP UNLESS OTHERWISE NOTED ON PLAN.
12. COORDINATE WITH APPLICABLE TRADE TO INSURE RECESSED MOUNTED PANELBOARDS WILL SEAT FLUSH IN THE WALLS PROVIDED. PANEL TRIMS SHALL HAVE CONCEALED DOORS AND FASTENERS WITH FLUSH TYPE COMBINATION LOCK AND CATCH, TWO MILLED TYPE KEYS SUPPLIED WITH EACH PANEL. ALL LOCKS SHALL BE KEYED ALIKE AND EACH DOOR SHALL HAVE A PLASTIC COVERED DIRECTORY FRAME WITH A TYPED IDENTIFICATION CARD OF ALL CIRCUIT AND PANEL NUMBERS FOR BRANCH CIRCUIT PANELBOARDS.
13. UPON PROJECT COMPLETION, CONTRACTOR SHALL INSTALL TYPED AS-BUILT PANEL DIRECTORIES IN EACH PANEL WITHIN THE MFGR-PROVIDED DIRECTORY HOLDER. DIRECTORIES SHALL CONSIST OF LOAD DESCRIPTION AND CIRCUIT NUMBER FOR EACH CIRCUIT BASED ON AS-BUILT PANEL SCHEDULES. HANDWRITTEN DIRECTORIES ARE UNACCEPTABLE. LOCAL AHJ MAY REQUIRE COPIES OF ENGINEERED PANEL SCHEDULES BE PLACED IN PANEL DIRECTORIES. E.C. TO VERIFY REQUIREMENTS PRIOR TO BID AND INCLUDE ALL COSTS REQUIRED FOR LARGER-THAN-STANDARD CUSTOM PANEL DIRECTORY HOLDERS TO ACCOMMODATE COPIES OF ENGINEERED PANEL SCHEDULES.
14. PANELBOARDS SHALL BE MANUFACTURED BY G.E., CUTLER-HAMMER, SIEMENS, OR SQUARE "D".
15. PROVIDE SHOP DRAWING SUBMITTAL PER THE ELECTRICAL SPECIFICATION SUBMITTAL REQUIREMENTS FOR EACH PANEL DEPICTING CONFORMANCE WITH THE ABOVE NOTES AND SCHEDULES.

**SPECIFIC PANEL SCHEDULE NOTES:**

"A" PROVIDE LOCK-ON DEVICE
"B" PROVIDE LOCK-OFF DEVICE
"C" PROVIDE SHUNT TRIP DEVICE
"D" PROVIDE GFCI TYPE DEVICE.
"E" PROVIDE A RED CIRCUIT FIRE ALARM BREAKER. SEE SHEET FA0.03, KEYNOTE #6.
"F" PROVIDE A NEW BREAKER TO MATCH THE EXISTING IN PANEL.
"G" PROVIDE BREAKER INTERLOCK WITH ADJACENT BREAKER. BREAKER INTERLOCK GROUPING SHALL BE BY BRANCH CIRCUIT GROUP (i.e. MULTIPLE CIRCUITS ON A COMMON YOKE NEC 210.4(B) FURNITURE SYSTEM NEC 605.7)
"H" PROVIDE HACR BREAKER
"J" EXISTING BREAKER WITH NEW LOAD

| | | | |
|---|---|---|---|
| | (E)L1S | (E)P1S1 | (E)P1S2 |
| | (E)P1S3 | (E)P1S4 | INV1 |
| | | | NOTES |


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REGISTERED PROFESSIONAL ENGINEER ALDOR ERRADO BALDOVINO E22285 3/31/26 ELECTRICAL STATE OF CALIFORNIA


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**Approved**
**By Mostafa Kashe**
**04/06/2026**
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DPH VANDERBILT-FIRST

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| | |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/08/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | |

ELECTRICAL PANEL SCHEDULES

E6.02

## 23 - SINGLE DUCT VARIABLE AIR VOLUME TERMINAL UNI...

| TAG | BOX SERVICE NAME | CONDUIT / WIRE |
|---|---|---|
| VAV-1.3 | PRIVATE OFFICE - 150 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.4 | OPEN OFFICE - 135 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.5 | PRIVATE OFFICE - 149, 148, 147 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.6 | PRIVATE OFFICE - 146, 145, 144 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.7 | OPEN OFFICE - 135 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.8 | PRIVATE OFFICE - 143, 142, 141 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.9 | OPEN OFFICE - 135 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.10 | PRIVATE OFFICE - 140, 139, 138 , 137 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.11 | OPEN OFFICE - 135 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.12 | CONFERENCE - 136 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.13 | OPEN OFFICE - 152 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.14 | PLAN STORAGE, EMERGENCY SUPPLIES, WATER SPECIMEN STORAGE | 3/4" C. 2#12 + 1#12G. |
| VAV-1.15 | WELNESS, HALLWAY - 161 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.16 | BREAKROOM - 132 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.17 | BOARDROOM - 129 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.18 | OPEN OFFICE - 154 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.19 | EHS ENTRY, PLAN CHECK COUNTER, CONSULT, RECEPTION, MEDIA ROOM | 3/4" C. 2#12 + 1#12G. |
| VAV-1.20 | VITAL STATS ENTRY, RECEPTION | 3/4" C. 2#12 + 1#12G. |
| VAV-1.21 | PRIVATE OFFICE - 171, CONSULT - 105, HALLWAY - 110, VITAL STATS STORAGE, JANITOR - 161 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.22 | OPEN OFFICE - 117, COPY/PRINT | 3/4" C. 2#12 + 1#12G. |
| VAV-1.23 | PRIVATE OFFICE - 127, 126, 125 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.24 | OPEN OFFICE - 117, 115 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.25 | OPEN OFFICE - 124, 123, 122 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.26 | OPEN OFFICE - 106 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.27 | BIRTH/DEATH CERT. STORAGE, OPEN OFFICE - 116 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.28 | OPEN OFFICE - 117 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.29 | OPEN OFFICE - 121, 120, 119 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.30 | PRIVATE OFFICE - 118 | 3/4" C. 2#12 + 1#12G. |
| VAV-1.31 | OPEN OFFICE - 154 | |

## 23 - SPLIT SYSTEM (MINI) INDOOR UNIT SCHEDULE - ELECTRICAL

| TAG | UNIT MFR | UNIT MODEL | LOCATION | POWERED FROM OUTDOOR | ELECTRICAL VOLTAGE | ELECTRICAL PHASE | DISCONNECT | CONDUIT / WIRE |
|---|---|---|---|---|---|---|---|---|
| FC-1.2 | LG | KNSAP241A | IDF 160 | YES | 208 V | 1 | 1P MOTOR RATED TOGGLE SWITCH | 3/4"C. 2#12 + 1#12G. |

## 23 - SPLIT SYSTEM (MINI) OUTDOOR UNIT SCHEDULE - ELECTRICAL

| TAG | UNIT MFR | UNIT MODEL | LOCATION | HP | ELECTRICAL VOLTAGE | ELECTRICAL PHASE | ELECTRICAL MCA | ELECTRICAL MOCP | DISCONNECT | CONDUIT / WIRE |
|---|---|---|---|---|---|---|---|---|---|---|
| CU-1.2 | LG | KUSAP241A | ROOF | | 208 V | 1 | 19.0 A | 30 A | 30AS/1P/30AF NEMA 3R | 3/4"C. 3#10 + 1#10G. |


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3/31/26
ELECTRICAL
STATE OF CALIFORNIA


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**Approved**
**By Mostafa Kashe**
04/06/2026

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DPH VANDERBILT-FIRST FLOOR T.I.

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| | |

| Submittal | Date |
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| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/05/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | |

ELECTRICAL
MECHANICAL
SCHEDULES

E6.03

# LIGHTING FIXTURE SCHEDULE (BUILDING)

| | | | Electrical | | | Source | | | | | Manufacturer | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | Name | Description | Apparent Load | Voltage | Driver | Source | Lumens | CCT | CRI | Condition | Manufacturer | Model Number | Equal 1 | Equal 2 | Finish | Mounting Details/ Mounting Height | Location |
| C1 | Concealed Tapelight w/ Frosted Lens in Continuous Channel | "Kendo M" series, concealed tape light, with extrusion/channel, frosted lens, 4.8w/ft. Contractor to coordinate final length with plans and millwork shop drawings prior to purchase and installation. Include all hardware necessary for a complete installation, including mounting clips, drivers, and jumpers. Coordinate location of remote driver with millworker and interior designer prior to installation. Contractor to provide sketch for LPA to review. | 4.8 VA/ft | UNV | Remote 0-10V dimming driver to 1% | LED | 361lm/ft | 3500K | 90 | Interior | LUMINII | Fixture: #KM-[Length per plan]-72HO-FF-FC-SA-[Wire Leads]-[Feed position]<br>Power Supply: #PS-UNI-D-[Wattage]-24<br>Provide all appropriate 0-10V dimmable drivers, mounting hardware, feed connectors, and endcaps as required. | Aluz "Zigy Standard" | Acclaim "Flex One SO Interior + Flex Mini Channel" | Silver Anodized | Undercabinet: 02/A9.22; 01/E7.02 | Undercabinet Lighting Throughout |
| DP1 | 12" Dia. Pendant Mounted Decorative | "Aperture 4256" series, 12" dia. decorative pendant, high output, round screwless canopy, aircraft mounting and clear cable, field adjustable | 32.6 VA | 277V | Integral 0-10V dimming | LED | 1,166lm | 3500K | 90+ | Interior | EUREKA | #4256-12-LEDHO-35-90-277-DV-AC-60-RC1-RCA-WHM-WHM-WHM | Unknown | Unknown | Canopy: Matte White<br>Exterior Shade: Matte White<br>Interior Shade: Matte White | Bottom of fixture at 6'-6" A.F.F. | Plan Checker Counter |
| DP2 | 24" Dia. Pendant Mounted Decorative | "Aperture 4256" series, 24" dia. decorative pendant, regular output, round screwless canopy, aircraft mounting and clear cable, field adjustable | 40.5 VA | 277V | Integral 0-10V dimming | LED | 1,533lm | 3500K | 90+ | Interior | EUREKA | #4256-24-LED-35-90-277-DV-AC-60-RC1-RCA-WHM-WHM-WHM | Unknown | Unknown | Canopy: Matte White<br>Exterior Shade: Matte White<br>Interior Shade: Matte White | Bottom of fixture at 6'-6" A.F.F. | Break Room<br>Colab adjacent to Private Office 118 |
| DS1 | 24" Dia. Surface Mounted Decorative | "Barrel Shallow Surface" series, 15.5" dia. x 5" high shade, barrel surface mounted decorative | 23 VA | UNV | Integral 0-10V dimming | LED | 2,200lm | 3500K | 90 | Interior | BROWNLEE | #2470-16-BL-R22-BL-35K-90R | Unknown | Unknown | Outer Shade: Black<br>Inner Shade: Black | Per manufacturer installation instructions. | Boardroom 129 |
| P1-8DI | 8'-0" Pendant Mounted Linear (Direct/Indirect) | "Profile Suspended PF1" series, 8'-0" pendant mounted linear direct/indirect, 40% up/60% down, grid ceiling mounting, 3' cable suspension | 38 VA | UNV | Integral 0-10V dimming driver to 1% | LED | 575lm/ft | 3500K | 90 | Interior | FLUXWERX | #PF1-B-A-A-90-W-08-G-F2-M-03-N1 | Focal Point "Nera" | Selux "M36 Pendant" | White | No additional bracing needed per exception in note #2 20/E7.02. | Conference Room 136 |
| P2-4 | 4'-0" Pendant Mounted Striplight | "CLX" series, pendant-hung industrial striplight, round diffuse lens with wide distribution, white finish, adjustable 10' aircraft cable with Y-hanger. | 25.5 VA | UNV | Integral 0-10V dimming driver to 10% | LED | 4,118lm | 3500K | 80 | Interior | LITHONIA | #CLX-L48-4000L-SEF-RDL-MVOLT-GZ10-35K-80CRI-N100-ZACVH-M100 | Metalux "SNLED" | HE Williams "75R" | White | 20/E7.02; If required provide horizontal bracing per 10/E7.02. | BOH |
| R1 | Recessed 2" Round Downlight (MWD 1500lm) | "EVO 2" Round Downlight" series, self-flange trim, clear matte diffuse reflector, medium wide beam, high CRI, ceiling grid mounting | 21VA | UNV | Integral, 0-10V dimming to 1% | LED | 1,500lm | 3500K | 90+ | Interior | GOTHAM | #EVO2-35/15-AR-LD-MWD-MVOLT-UGZ-NLT-90CRI | Portfolio "LD2B" | DMF "X 2" Series" | Clear Matte-Diffuse | 03/E7.02 | General Throughout |
| R2 | Recessed 4" Round Downlight (MWD 1500lm) | "EVO 4" Round Downlight" series, self-flange trim, clear matte diffuse reflector, medium wide beam, high CRI, gyp. ceiling mounting | 21VA | UNV | Integral, 0-10V dimming to 1% | LED | 1,500lm | 3500K | 90+ | Interior | GOTHAM | #EVO4-35/15-AR-LD-MWD-MVOLT-GZ1-NLT | Portfolio "LD4D" | DMF "M 4" Series" | Clear Matte-Diffuse | 03/E7.02 | General Throughout |
| R3 | Recessed 2x2 Architectural Troffer | "Whisper LED" series, recessed 2x2 light fixture, fully luminous, "soft white acrylic" center shielding, grid mounting, 1 circuit, universal voltage. | 32 VA | UNV | Integral 0-10V dimming to 1% | LED | 4,000lm | 3500K | 90 | Interior | LITHONIA | #WHSPR-2X2-90CRI-35K-4000LM-MIN1-MVOLT-SWC-NLIGHT-LATC | Focal Point "Equation" | Lite Control "RYVL 55L" | White | 04/E7.02; 09/A9.21 | Offices |
| R4-G | Regressed Perimeter Slot Light (Gyp.) | "Beam 3 Perimeter Linear Recessed" series, lengths per plan, 3" regress, "spotless" frosted lens, additional emergency circuits per plan, drywall spackle flange mounting. | 4.8 VA/ft | UNV | Integral, 0-10V dimming to 1% | LED | 600lm/ft | 3500K | 90 | Interior | AXIS | #BMPRLED-600-90-35-SO-RG3-[Length per plan]-W-UNV-DP-1+E(#)-NL(#)-DS | ALW "Lightplane 2" | Selux "M36 Recessed Perimeter" | White | 17/A9.22<br>09/A9.22 @ Ceiling Soffit/Glass Condition at Breakroom 132 | General Throughout |
| R5-T | Regressed Perimeter Slot Light (Tile) | "Beam 3 Perimeter Linear Recessed" series, lengths per plan, 3" regress, "spotless" frosted lens, additional emergency circuits per plan, tbar ceiling | 4.8 VA/ft | UNV | Integral, 0-10V dimming to 1% | LED | 600lm/ft | 3500K | 90 | Interior | AXIS | #BMPRLED-600-90-35-SO-RG3-[Length per plan]-W-UNV-DP-1+E(#)-+NL(#)-[GRID MOUNTING] | ALW "Lightplane 2" | Selux "M36 Recessed Perimeter" | White | 17/A9.22 | General Throughout |
| R6-16T | 16'-0" Recessed Linear (Tile) | "Beam 3 Recessed" series, continuous linear with flush surroundlite lens (no visible seams), 16'-0" in length, additional emergency circuits per plan, grid ceiling mounting, 6w/ft, provide separate wiring every 4'-0" section for occupancy sensors per T24. | 96 VA | UNV | Integral, 0-10V dimming to 1% | LED | 750lm/ft | 3500K | 90 | Interior | AXIS | #BMRLED-SL-750-90-35-FL-16-W-UNV-DP-1+E(#)-NL(#)-[GRID MOUNTING] | ALW "Lightplane 2" | Selux "M36 Recessed" | White | 11/A9.22 | Open Office |
| R6-20T | 20'-0" Recessed Linear (Tile) | Same as R6-16T, except 20'-0" in length. | 120 VA | UNV | Integral, 0-10V dimming to 1% | LED | 750lm/ft | 3500K | 90 | Interior | AXIS | #BMRLED-SL-750-90-35-FL-20-W-UNV-DP-1+E(#)-NL(#)-[GRID MOUNTING] | ALW "Lightplane 2" | Selux "M36 Recessed" | White | 11/A9.22 | Open Office |
| R6-24T | 24'-0" Recessed Linear (Tile) | Same as R6-24T, except 24'-0" in length. | 144 VA | UNV | Integral, 0-10V dimming to 1% | LED | 750lm/ft | 3500K | 90 | Interior | AXIS | #BMRLED-SL-750-90-35-FL-24-W-UNV-DP-1+E(#)-NL(#)-[GRID MOUNTING] | ALW "Lightplane 2" | Selux "M36 Recessed" | White | 11/A9.22 | Open Office |
| R7-WD | Regressed Perimeter Slot Light (Millwork) | "Sculpt Regressed Mount" series, 2" regressed perimeter slot with 2" wide aperture, drywall flange, 5.55w/ft | 5.55 VA/ft | UNV | Integral, 0-10V dimming to 1% | LED | 600lm/ft | 3500K | 90+ | Interior | AXIS | #SCPLED-600-90-35-RG2-[Length per plan from wall to wall]-C-UNV-DP-1-DF | ALW "Lightplane 2" | Selux "M36 Recessed Perimeter" | Silver | 01/A9.02 | Vital Stats 101 - Reception<br>EHS 102 - Reception |
| R8-PAT | Regressed Perimeter Slot Light in Pattern (Tile) | "Beam 3 Recessed" series, continuous linear with flush frosted lens (no visible seams), additional emergency circuits per plan, 4.8w/ft. Start of fixture to align with wall and floor graphics and continue to wrap around wall down corridor. Provide shop drawings for review. | 4.8 VA/ft | UNV | Integral, 0-10V dimming to 1% | LED | 600lm/ft | 3500K | 90 | Interior | AXIS | #BMPRLED-600-90-35-SO-RG3-[Pattern per plan]-W-UNV-DP-1+E(#)-NL(#)-TG9-ECR3-TS(#)-EF | ALW "Lightplane 2" | Selux "M36 Recessed Perimeter" | White | 17/A9.22 @ Graphic Wall<br>09/A9.22 @ Ceiling Soffit/Glass Condition at Breakroom 132 | Hallway 161 - Graphic Wall<br>Breakroom 132 - Soffit/Glass Condition |
| R9 | Recessed 2" Round Adjustable Downlight (MWD 1500lm) | "Incito 2" Round Adjustable Downlight" series, self-flange trim, clear matte diffuse reflector, medium wide beam, high CRI, ceiling grid mounting | 21VA | UNV | Integral, 0-10V dimming to 1% | LED | 1,500lm | 3500K | 90+ | Interior | GOTHAM | #ICO2ADJ-35/15-AR-TFC-LD-SOL-45D-MVOLT-UGZ-NLT-90CRI | Portfolio "LD2A3B" | DMF "X 2" Series" | Clear Matte-Diffuse | 03/E7.02 | Entry - Accent Lights |
| W1-6DI | 6'-0" Wall Mounted Linear (Direct/Indirect) | "Beam 3" series, wall mounted linear, direct lambertian /indirect asymmetric distribution,6'-0" in length, 4.71w/ft direct/ 2.88w/ft indirect, 1-circuit, universal voltage | 45.54 VA | UNV | Integral, 0-10V dimming to 1% | LED | 600lm/ft direct 400lm/ft indirect | 3500K | 90 | Interior | AXIS | #TB3WDILED-400-600-90-35-SLA-SO-6-W-UNV-DP-1+NL(#) | ALW "Lightplane 2" | Selux "M36 Wall" | White | 02/E7.02 | Laundry, Staff Lounge, Workstation 161 |
| W1-8DI | 8'-0" Wall Mounted Linear (Direct/Indirect) | Same as W1-6DI, except 8'-0" in length. | 61 VA | UNV | Integral, 0-10V dimming to 1% | LED | 600lm/ft direct 400lm/ft indirect | 3500K | 90 | Interior | AXIS | #TB3WDILED-400-600-90-35-SLA-SO-8-W-UNV-DP-1+NL(#) | ALW "Lightplane 2" | Selux "M36 Wall" | White | 02/E7.02 | Workshop 166 |
| W1-10DI | 10'-0" Wall Mounted Linear (Direct/Indirect) | Same as W1-6DI, except 10'-0" in length. | 76 VA | UNV | Integral, 0-10V dimming to 1% | LED | 600lm/ft direct 400lm/ft indirect | 3500K | 90 | Interior | AXIS | #TB3WDILED-400-600-90-35-SLA-SO-10-W-UNV-DP-1+NL(#) | ALW "Lightplane 2" | Selux "M36 Wall" | White | 02/E7.02 | Workshop 166 |
| W2-4 | 4'-0" Wall Mounted Striplight | "CLX" series, wall mounted industrial striplight, round diffuse lens with wide distribution, white finish. | 25.5 VA | UNV | Integral 0-10V dimming driver to 10% | LED | 4,118lm | 3500K | 80 | Interior | LITHONIA | #CLX-L48-SEF4000L-RDL-WD-MVOLT-GZ10-35K-80CRI-N100-WH-ZACVH-M100 | Metalux "SNLED" | HE Williams "75R" | White | 02/E7.02 | BOH |
| XR1 | Recessed Ceiling Mounted Exit Sign | "LRP" series, recessed ceiling mounted exit sign, faces/background and arrows per plan | 5 VA | UNV | n/a | GREEN LED | | GREEN | | Interior | LITHONIA | #LRP-W-1-[GC for single face/GMR for double face]-[Faces/Background per plan]-[Install arrows per plan]-120/277 | Isolite "ELT2" | Evenlite "Sovereign II" | White | | General Throughout |


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ARCHITECTURE ENGINEERING INTERIOR DESIGN
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ALDO VERARDO BASILIO
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3/31/26
ELECTRICAL
STATE OF CALIFORNIA


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**Approved**
**By Mostafa Kashe**
04/06/2026

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DPH VANDERBILT-FIRST FLOOR T.I.

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/05/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | |

LIGHTING FIXTURE SCHEDULE

E6.10

PLAN VIEW INTERIOR MOUNTING

PLAN VIEW EXTERIOR MOUNTING




AT SLAB ON GRADE

## TYPICAL ELEVATION

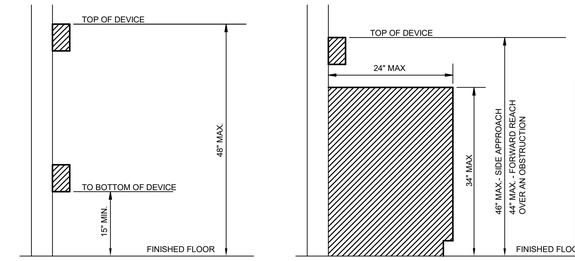
ANCHORAGE SCHEDULE - FLOOR MOUNTED EQUIPMENT

| EQUIPMENT | WEIGHT (lbs) | HEIGHT (in) | WIDTH (in) | DEPTH (in) | MECHANICAL ANCHORS (PER GENERAL NOTES) - SEE NOTE 1 & 2 | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | MECH'L ANCH. Ø | QUANTITY OF ANCHOR ROWS | QUANTITY OF ANCHOR POINTS PER ROW | QUANTITY OF ANCHS. PER POINT |
| INV-1 | 603 | 55 | 24.25 | 10.5 | 1/2" | 2 | 3 | 1 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

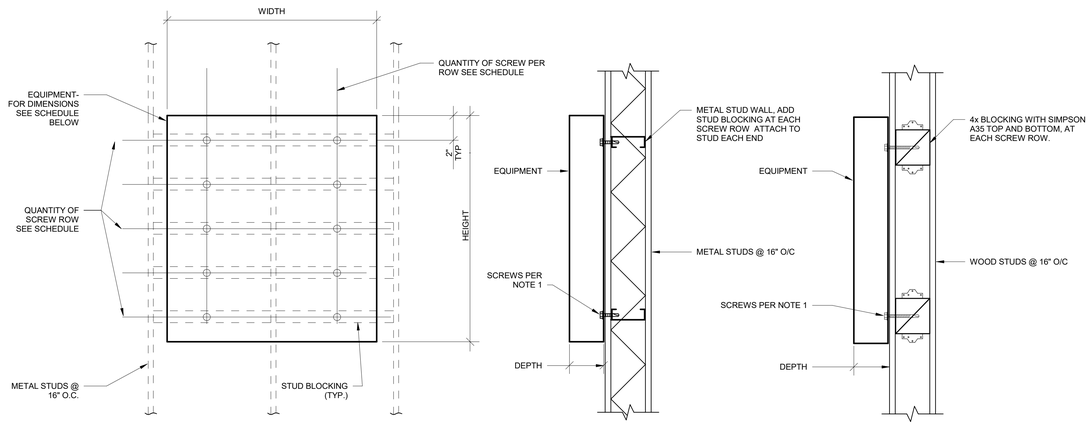
NOTES:

1. INSTALL PER ICC ESR-1917 WITH SPECIAL INSPECTION. FOR 1/2" DIA. HILTI KB-TZ, PROVIDE 3 1/4" EFFECTIVE EMBED. FOR 5/8" DIA. HILTI KB-TZ, PROVIDE 4" EFFECTIVE EMBED. MIN. 6" THICK CONCRETE, MIN. 3" EDGE DISTANCE, AND MIN 12" SPACING, U.N.O., IN 4,000 psi NORMAL WT. CONCRETE.
2. ALL OTHER UNITS (150# MAX.) ARE PERMITTED TO USE 3/8" DIA. x 1 5/8" LONG HILTI KWIK HUS-EZ PER ICC ESR-3027. PROVIDE A MIN. OF 3" EDGE DISTANCE ON A 4" NORMAL WT. CONCRETE HOUSE KEEPING PAD (f'c = 4,000 psi)

TYPICAL BOTTOM MOUNTED EQUIPMENT SCHEDULE AND DETAILS | N.T.S. | 3




ADA DEVICE MOUNTING | 12" = 1'-0" | 02




FRONT ELEVATION

SIDE ELEVATION

ANCHORAGE SCHEDULE - WALL MOUNTED ELECTRICAL EQUIPMENT

| EQUIPMENT | LOCATION (ROOM NO.) | WEIGHT (lbs) | HEIGHT (in) | WIDTH (in) | DEPTH (in) | SCREWS - SEE NOTE 1 & 2 | |
|---|---|---|---|---|---|---|---|
| | | | | | | QTY OF SCREW ROWS | QTY OF SCREWS PER ROWS |
| SUB-PANELS | VARIOUS | 80 | 60 | 20 | 6 | 6 | 2 |
| CONTRACTOR PANELS | VARIOUS | 80 | 30 | 20 | 6 | 2 | 2 |
| LIGHT FIXTURES | VARIOUS | 25 | - | - | - | 2 | 2 |
| IDF WALL RACK | IDF | 200 | 36 | 24 | 23 | 2 | 2 |

NOTE:

1. AT METAL STUDS SCREWS SHALL BE HILTI #12 SELF-DRILLING SCREWS (ICC ESR-2196).

TYPICAL WALL MOUNTED EQUIPMENT SCHEDULE AND DETAILS | N.T.S. | 01

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451 E Vanderbilt Way,
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| Revision | Date |
|---|---|

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| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/08/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | As indicated |

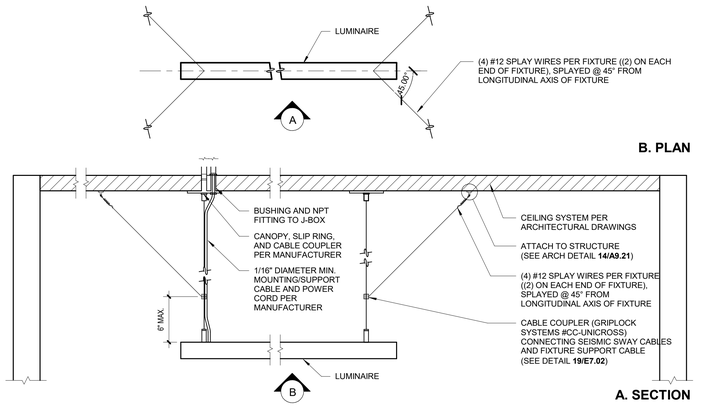
ELECTRICAL DETAILS

E7.01

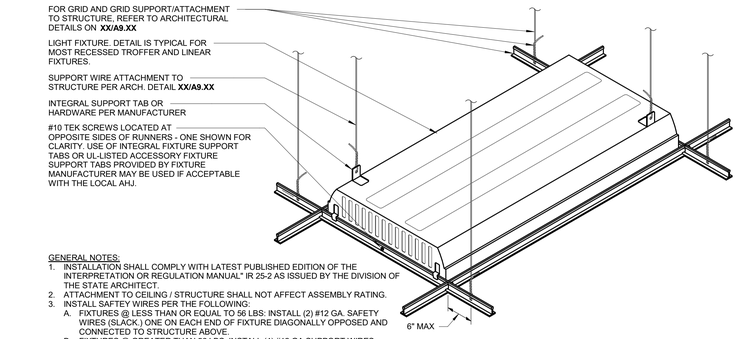
NOTES:

1. SUSPENSION SYSTEMS FOR LIGHT FIXTURES WHICH, AS INSTALLED, ARE FREE TO SWING A MINIMUM OF 45° FROM THE VERTICAL IN ALL DIRECTIONS BELOW THE CEILING WITHOUT CONTACTING OBSTRUCTIONS SHALL BE ASSUMED TO COMPLY WITH THE LATERAL-FORCE REQUIREMENTS OF 2025 CBC SECTION 1617A.1.18-21. ASCE 7-13 **DO NOT PROVIDE ADDITIONAL SEISMIC BRACING IF FIXTURES MEET SWING REQUIREMENT.**
2. IF FIXTURES CANNOT SWING A MINIMUM OF 45° FROM THE VERTICAL IN ALL DIRECTIONS WITHOUT CONTACTING OBSTRUCTIONS, PROVIDE ALL COMPONENTS NECESSARY FOR CABLE SEISMIC BRACING SYSTEM TO LIMIT MOVEMENT OF CABLE HUNG FIXTURES. WHERE APPLICABLE, PROVIDE HORIZONTAL BRACING PER DETAIL **10/E7.02** WHERE POSSIBLE. PROVIDE SPLAY BRACING PER DETAILS **11 & 12/E-7.02** ELSEWHERE.
3. ALL COMPONENTS SHALL BE APPROVED FOR A COMPLETE CODE-COMPLIANT SEISMIC BRACING SYSTEM TO LIMIT MOVEMENT OF CABLE HUNG FIXTURES. CABLE BRACING SYSTEM SHALL NOT BE DRAWN TAUT TO AVOID DAMAGING THE BRACING SYSTEM DURING WALL MOVEMENT CAUSED BY EARTHQUAKES. ADJUST TENSION PER BRACING SYSTEM MFGR RECOMMENDATIONS.
4. SUPPORT TYPICAL FOR FEED & NON FEED POINT (WITHOUT J-BOX AND FLEX).
5. SHOULD A CONFLICT OCCUR BETWEEN FIXTURE SUPPORT DETAIL AND HVAC DUCT ROUTING, EC SHALL INCLUDE ALL COSTS IN BASE BID TO PROVIDE A UNISTRUT "TRAPEZE" WITH 3/8" DIA THREADED ROD HANGERS AROUND THE HVAC DUCT OR OTHER OBSTRUCTION. TRAPEZE SHALL BE SUBMITTED TO PROJECT STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION OR OF ORDERING TRAPEZE MATERIAL.

PENDANT FIXTURE - BRACING | N.T.S. | 20



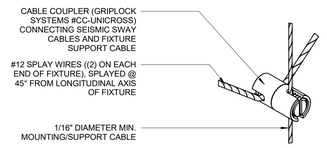

PENDANT FIXTURE - SPLAY BRACING (LINEAR) | N.T.S. | 12



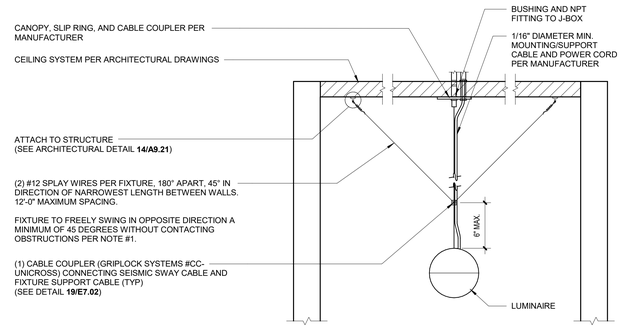

GENERAL NOTES:

1. INSTALLATION SHALL COMPLY WITH LATEST PUBLISHED EDITION OF THE INTERPRETATION OR REGULATION MANUAL" IR 25-2 AS ISSUED BY THE DIVISION OF THE STATE ARCHITECT.
2. ATTACHMENT TO CEILING / STRUCTURE SHALL NOT AFFECT ASSEMBLY RATING.
3. INSTALL SAFTEY WIRES PER THE FOLLOWING:
   A. FIXTURES @ LESS THAN OR EQUAL TO 56 LBS: INSTALL (2) #12 GA. SAFETY WIRES (SLACK.) ONE ON EACH END OF FIXTURE DIAGONALLY OPPOSED AND CONNECTED TO STRUCTURE ABOVE.
   B. FIXTURES @ GREATER THAN 56 LBS: INSTALL (4) #12 GA SUPPORT WIRES (TAUT). ONE ON EACH CORNER OF FIXTURE CONNECTED TO STRUCTURE. WIRES SHALL SUPPORT (4) TIMES THE WEIGHT OF THE FIXTURE.
   C. FIXTURES @ LESS THAN OR EQUAL TO 56 LBS AND GREATER THAN 2'x4' IN SIZE: INSTALL (4) #12 GA. SAFETY WIRES (SLACK) AT EACH CORNER OF THE FIXTURE.

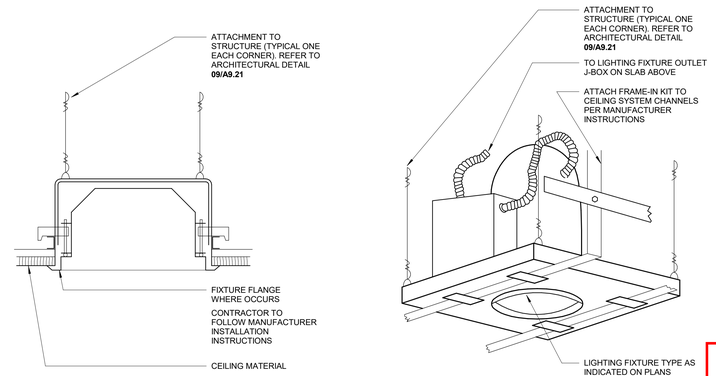
RECESSED FIXTURE - GRID CEILING | 1" = 1'-0" | 04




CC-UNICROSS CABLE COUPLER | N.T.S. | 19



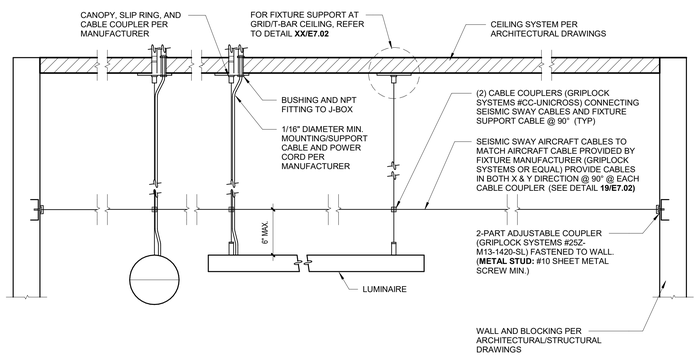

PENDANT FIXTURE - SPLAY BRACING (SINGLE DIRECTION) | N.T.S. | 11



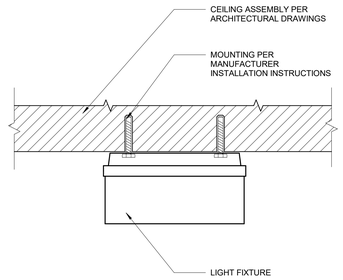

RECESSED FIXTURE - HARD CEILING | N.T.S. | 07



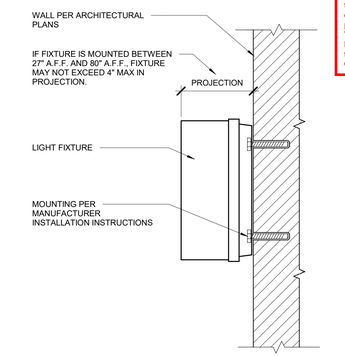

RECESSED DOWNLIGHT | N.T.S. | 03



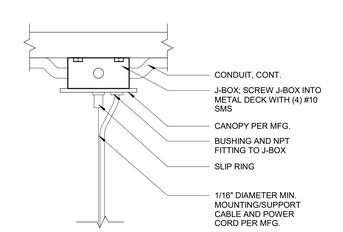

PENDANT FIXTURE - HORIZONTAL BRACING | N.T.S. | 10



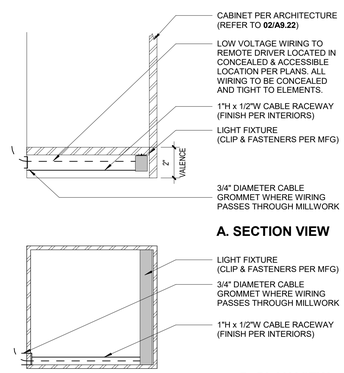

SURFACE MOUNTED LIGHT FIXTURE | N.T.S. | 06




WALL MOUNTED LIGHT FIXTURE | N.T.S. | 02




JBOX AT METAL DECK | N.T.S. | 05




UNDER CABINET MOUNTING DETAIL | N.T.S. | 01


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REGISTERED PROFESSIONAL ENGINEER ALDO V. SERRADO BASILIO E22285 3/31/26 ELECTRICAL STATE OF CALIFORNIA


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| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/05/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | |
| Scale | As indicated |

LIGHTING DETAILS

E7.02

| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| On peak | 22686 kWh | x $0.15966 | = | $3,622.04 | |
| Mid peak | 11591 kWh | x $0.13544 | = | $1,569.84 | |
| Off peak | 108627 kWh | x $0.11284 | = | $12,256.99 | |
| Super off peak | 9751 kWh | x $0.07887 | = | $769.06 | |
| | 152655 kWh | | | $18,217.93 | Energy Charges |
| | | | | $31,662.13 | Demand Charges |
| | | | | $5,494.88 | Other credits/charges |
| | | | | **$55,374.94** | **Total** |

Costs are rounded and include delivery and generation charges. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges.**

**Summer and Winter season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 536 kW<br>*Your reactive demand is 281 kVar* | *Maximum Summer demand reached by price period :*<br>On peak 490 kW 09/09/24 04:45pm-05:00pm<br>Mid Peak 282 kW 09/07/24 04:15pm-04:30pm<br>Off peak 536 kW 09/09/24 12:00pm-12:15pm<br>*Maximum Winter demand reached by price period :*<br>Mid Peak 504 kW 10/01/24 04:15pm-04:30pm<br>Off peak 278 kW 10/03/24 07:45am-08:00am<br>Super off peak 505 kW 10/01/24 03:00pm-03:15pm |

To view your demand charges, please refer to the **Details of your new charges**.

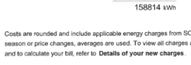
## Your past and current electricity usage

For meter V349N-010390 from 09/05/24 to 10/03/24
**Total electricity you used this month in kWh** **152,655**

*Your next billing cycle will end on or about 11/03/24.*

*Reactive usage is 107,587 kVarh*

**Your daily average electricity usage (kWh)**




* No data available

**Usage comparison**

| | Oct '22* | Oct '23* | Nov '23* | Dec '23* | Jan '24 | Feb '24 | Mar '24 | Apr '24 | May '24 | Jun '24 | Jul '24 | Aug '24 | Sep '24 | Oct '24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | | | | | 80,792 | 91,016 | 100,962 | 112,489 | 115,872 | 156,023 | 169,446 | 164,149 | 152,655 |
| Number of days | | | | | | 27 | 30 | 30 | 31 | 30 | 33 | 29 | 30 | 29 |
| Appx. average kWh used/day | | | | | | 3,066 | 3,033 | 3,365 | 3,628 | 3,862 | 4,727 | 5,842 | 5,471 | 5,263 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| Mid peak | 33425 kWh | x $0.11638 | = | $3,890.00 | |
| Off peak | 47710 kWh | x $0.11539 | = | $5,505.25 | |
| Super off peak | 67838 kWh | x $0.07887 | = | $5,350.39 | |
| | 148973 kWh | | | $14,745.64 | Energy Charges |
| | | | | $16,893.06 | Demand Charges |
| | | | | $4,078.37 | Other credits/charges |
| | | | | **$35,717.07** | **Total** |

Costs are rounded and include delivery and generation charges. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges.**

**Winter season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 490 kW<br>*Your reactive demand is 276 kVar* | *Maximum Winter demand reached by price period :*<br>Mid Peak 474 kW 10/04/24 04:00pm-04:15pm<br>Off peak 314 kW 10/28/24 07:30am-07:45am<br>Super off peak 490 kW 10/04/24 03:00pm-03:15pm |

To view your demand charges, please refer to the **Details of your new charges**.

## Your past and current electricity usage

For meter V349N-010390 from 10/04/24 to 11/03/24
**Total electricity you used this month in kWh** **148,973**

*Your next billing cycle will end on or about 12/04/24.*

*Reactive usage is 109,385 kVarh*

**Your daily average electricity usage (kWh)**




* No data available

**Usage comparison**

| | Nov '22* | Nov '23* | Dec '23* | Jan '24 | Feb '24 | Mar '24 | Apr '24 | May '24 | Jun '24 | Jul '24 | Aug '24 | Sep '24 | Oct '24 | Nov '24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | | | | 80,792 | 91,016 | 100,962 | 112,489 | 115,872 | 156,023 | 169,446 | 164,149 | 152,655 | 148,973 |
| Number of days | | | | | 27 | 30 | 30 | 31 | 30 | 33 | 29 | 30 | 29 | 30 |
| Appx. average kWh used/day | | | | | 3,066 | 3,033 | 3,365 | 3,628 | 3,862 | 4,727 | 5,842 | 5,471 | 5,263 | 4,965 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| Mid peak | 23953 kWh | x $0.11638 | = | $2,787.65 | |
| Off peak | 35583 kWh | x $0.11539 | = | $4,105.92 | |
| Super off peak | 58914 kWh | x $0.07887 | = | $4,646.55 | |
| | 118450 kWh | | | $11,540.12 | Energy Charges |
| | | | | $12,076.98 | Demand Charges |
| | | | | $3,225.22 | Other credits/charges |
| | | | | **$26,842.32** | **Total** |

Costs are rounded and include delivery and generation charges. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges.**

**Winter season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 357 kW<br>*Your reactive demand is 252 kVar* | *Maximum Winter demand reached by price period :*<br>Mid Peak 318 kW 11/13/24 04:00pm-04:15pm<br>Off peak 262 kW 11/04/24 07:30am-07:45am<br>Super off peak 357 kW 11/13/24 01:30pm-01:45pm |

To view your demand charges, please refer to the **Details of your new charges**.

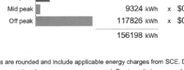
## Your past and current electricity usage

For meter V349N-010390 from 11/04/24 to 12/04/24
**Total electricity you used this month in kWh** **118,450**

*Your next billing cycle will end on or about 01/05/25.*

*Reactive usage is 81,607 kVarh*

**Your daily average electricity usage (kWh)**




* No data available

**Usage comparison**

| | Dec '22* | Dec '23* | Jan '24 | Feb '24 | Mar '24 | Apr '24 | May '24 | Jun '24 | Jul '24 | Aug '24 | Sep '24 | Oct '24 | Nov '24 | Dec '24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | | | 80,792 | 91,016 | 100,962 | 112,489 | 115,872 | 156,023 | 169,446 | 164,149 | 152,655 | 148,973 | 118,450 |
| Number of days | | | | 27 | 30 | 30 | 31 | 30 | 33 | 29 | 30 | 29 | 30 | 31 |
| Appx. average kWh used/day | | | | 3,066 | 3,033 | 3,365 | 3,628 | 3,862 | 4,727 | 5,842 | 5,471 | 5,263 | 4,965 | 3,820 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| Mid peak | 21072 kWh | x $0.11702 | = | $2,465.79 | |
| Off peak | 33443 kWh | x $0.11602 | = | $3,880.16 | |
| Super off peak | 49449 kWh | x $0.07992 | = | $3,951.84 | |
| | 103964 kWh | | | $10,297.79 | Energy Charges |
| | | | | $11,998.44 | Demand Charges |
| | | | | $3,020.45 | Other credits/charges |
| | | | | **$25,316.68** | **Total** |

Costs are rounded and include delivery and generation charges. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges.**

**Winter season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 347 kW<br>*Your reactive demand is 245 kVar* | *Maximum Winter demand reached by price period :*<br>Mid Peak 331 kW 12/18/24 04:30pm-04:45pm<br>Off peak 189 kW 12/19/24 07:30am-07:45am<br>Super off peak 347 kW 12/17/24 02:30pm-02:45pm |

To view your demand charges, please refer to the **Details of your new charges**.

## Your past and current electricity usage

For meter V349N-010390 from 12/05/24 to 01/05/25
**Total electricity you used this month in kWh** **103,964**

*Your next billing cycle will end on or about 02/03/25.*

*Reactive usage is 65,470 kVarh*

**Your daily average electricity usage (kWh)**




* No data available

**Usage comparison**

| | Jan '23* | Jan '24* | Feb '24 | Mar '24 | Apr '24 | May '24 | Jun '24 | Jul '24 | Aug '24 | Sep '24 | Oct '24 | Nov '24 | Dec '24 | Jan '25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | | 80,792 | 91,016 | 100,962 | 112,489 | 115,872 | 156,023 | 169,446 | 164,149 | 152,655 | 148,973 | 118,450 | 103,964 |
| Number of days | | | 27 | 30 | 30 | 31 | 30 | 33 | 29 | 30 | 29 | 30 | 31 | 32 |
| Appx. average kWh used/day | | | 3,066 | 3,033 | 3,365 | 3,628 | 3,862 | 4,727 | 5,842 | 5,471 | 5,263 | 4,965 | 3,820 | 3,248 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| Mid peak | 18305 kWh | x $0.12061 | = | $2,207.76 | |
| Off peak | 30524 kWh | x $0.11956 | = | $3,649.45 | |
| Super off peak | 43612 kWh | x $0.08594 | = | $3,748.02 | |
| | 92441 kWh | | | $9,605.23 | Energy Charges |
| | | | | $10,749.92 | Demand Charges |
| | | | | $2,820.21 | Other credits/charges |
| | | | | **$23,175.36** | **Total** |

Costs are rounded and include delivery and generation charges. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges.**

**Winter season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 304 kW<br>*Your reactive demand is 220 kVar* | *Maximum Winter demand reached by price period :*<br>Mid Peak 288 kW 02/03/25 04:15pm-04:30pm<br>Off peak 195 kW 01/29/25 07:30am-07:45am<br>Super off peak 304 kW 01/06/25 12:00pm-12:15pm |

To view your demand charges, please refer to the **Details of your new charges**.

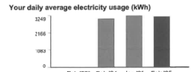
## Your past and current electricity usage

For meter V349N-010390 from 01/06/25 to 02/03/25
**Total electricity you used this month in kWh** **92,441**

*Your next billing cycle will end on or about 03/05/25.*

*Reactive usage is 54,654 kVarh*

**Your daily average electricity usage (kWh)**




* No data available

**Usage comparison**

| | Feb '23* | Feb '24 | Mar '24 | Apr '24 | May '24 | Jun '24 | Jul '24 | Aug '24 | Sep '24 | Oct '24 | Nov '24 | Dec '24 | Jan '25 | Feb '25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | 80,792 | 91,016 | 100,962 | 112,489 | 115,872 | 156,023 | 169,446 | 164,149 | 152,655 | 148,973 | 118,450 | 103,964 | 92,441 |
| Number of days | | 27 | 30 | 30 | 31 | 30 | 33 | 29 | 30 | 29 | 31 | 31 | 32 | 29 |
| Appx. average kWh used/day | | 3,066 | 3,033 | 3,365 | 3,628 | 3,862 | 4,727 | 5,842 | 5,471 | 5,263 | 4,805 | 3,820 | 3,248 | 3,187 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| Mid peak | 25405 kWh | x $0.12053 | = | $3,062.09 | |
| Off peak | 40139 kWh | x $0.11948 | = | $4,795.75 | |
| Super off peak | 52145 kWh | x $0.08587 | = | $4,477.74 | |
| | 117689 kWh | | | $12,335.58 | Energy Charges |
| | | | | $13,225.90 | Demand Charges |
| | | | | $3,422.93 | Other credits/charges |
| | | | | **$28,984.41** | **Total** |

Costs are rounded and include delivery and generation charges. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges.**

**Winter season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 382 kW<br>*Your reactive demand is 225 kVar* | *Maximum Winter demand reached by price period :*<br>Mid Peak 336 kW 02/04/25 04:00pm-04:15pm<br>Off peak 248 kW 02/26/25 07:30am-08:00am<br>Super off peak 382 kW 02/18/25 03:15pm-03:30pm |

To view your demand charges, please refer to the **Details of your new charges**.

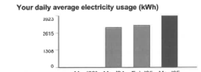
## Your past and current electricity usage

For meter V349N-010390 from 02/04/25 to 03/05/25
**Total electricity you used this month in kWh** **117,689**

*Your next billing cycle will end on or about 04/03/25.*

*Reactive usage is 75,451 kVarh*

**Your daily average electricity usage (kWh)**




* No data available

**Usage comparison**

| | Mar '23* | Mar '24 | Apr '24 | May '24 | Jun '24 | Jul '24 | Aug '24 | Sep '24 | Oct '24 | Nov '24 | Dec '24 | Jan '25 | Feb '25 | Mar '25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | 91,016 | 100,962 | 112,489 | 115,872 | 156,023 | 169,446 | 164,149 | 152,655 | 148,973 | 118,450 | 103,964 | 92,441 | 117,689 |
| Number of days | | 30 | 30 | 31 | 30 | 33 | 29 | 30 | 29 | 31 | 31 | 32 | 29 | 30 |
| Appx. average kWh used/day | | 3,033 | 3,365 | 3,628 | 3,862 | 4,727 | 5,842 | 5,471 | 5,263 | 4,805 | 3,820 | 3,248 | 3,187 | 3,922 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| Mid peak | 29000 kWh | x $0.12017 | = | $3,484.93 | |
| Off peak | 45672 kWh | x $0.11914 | = | $5,441.36 | |
| Super off peak | 50948 kWh | x $0.08553 | = | $4,357.58 | |
| | 125620 kWh | | | $13,283.87 | Energy Charges |
| | | | | $12,592.25 | Demand Charges |
| | | | | $3,504.08 | Other credits/charges |
| | | | | **$29,380.20** | **Total** |

Costs are rounded and include applicable energy charges from SCE. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges**.

**Winter season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 357 kW<br>*Your reactive demand is 215 kVar* | *Maximum Winter demand reached by price period :*<br>Mid Peak 351 kW 03/24/25 04:00pm-04:15pm<br>Off peak 212 kW 03/31/25 07:30am-07:45am<br>Super off peak 357 kW 03/25/25 02:00pm-02:15pm |

To view your demand charges, please refer to the **Details of your new charges**.

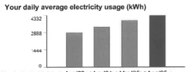
## Your past and current electricity usage

For meter V349N-010390 from 03/06/25 to 04/03/25
**Total electricity you used this month in kWh** **125,620**

*Your next billing cycle will end on or about 05/05/25.*

*Reactive usage is 78,248 kVarh*

**Your daily average electricity usage (kWh)**




**Usage comparison**

| | Apr '23* | Apr '24 | May '24 | Jun '24 | Jul '24 | Aug '24 | Sep '24 | Oct '24 | Nov '24 | Dec '24 | Jan '25 | Feb '25 | Mar '25 | Apr '25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | 91,016 | 100,962 | 112,489 | 115,872 | 156,023 | 169,446 | 164,149 | 152,655 | 148,973 | 118,450 | 103,964 | 92,441 | 125,620 |
| Number of days | | 30 | 30 | 31 | 30 | 33 | 29 | 30 | 29 | 31 | 31 | 32 | 29 | 30 |
| Appx. average kWh used/day | | 3,033 | 3,365 | 3,628 | 3,862 | 4,727 | 5,842 | 5,471 | 5,263 | 4,805 | 3,820 | 3,248 | 3,187 | 4,187 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| Mid peak | 36779 kWh | x $0.12017 | = | $4,419.73 | |
| Off peak | 58962 kWh | x $0.11914 | = | $7,024.73 | |
| Super off peak | 61822 kWh | x $0.08553 | = | $5,287.63 | |
| | 157563 kWh | | | $16,732.09 | Energy Charges |
| | | | | $13,162.60 | Demand Charges |
| | | | | $4,069.12 | Other credits/charges |
| | | | | **$33,963.81** | **Total** |

Costs are rounded and include applicable energy charges from SCE. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges**.

**Winter season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 374 kW<br>*Your reactive demand is 233 kVar* | *Maximum Winter demand reached by price period :*<br>Mid Peak 364 kW 04/09/25 04:30pm-04:45pm<br>Off peak 239 kW 04/11/25 09:00pm-09:15pm<br>Super off peak 374 kW 04/09/25 02:45pm-03:00pm |

To view your demand charges, please refer to the **Details of your new charges**.

## Your past and current electricity usage

For meter V349N-010390 from 04/04/25 to 05/05/25
**Total electricity you used this month in kWh** **157,563**

*Your next billing cycle will end on or about 06/04/25.*

*Reactive usage is 110,510 kVarh*

***Your monthly usage may be higher than usual...***
*Based on your historical usage pattern, your monthly usage is trending higher than normal. As a result, you may notice an increase in your bill. If you would like information on tips and programs that can help you lower your energy usage and your bill, please visit www.sce.com/billhelper.*

**Usage comparison**

| | May '23* | May '24 | Jun '24 | Jul '24 | Aug '24 | Sep '24 | Oct '24 | Nov '24 | Dec '24 | Jan '25 | Feb '25 | Mar '25 | Apr '25 | May '25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | 96,197 | 112,489 | 115,872 | 156,023 | 169,446 | 164,149 | 152,655 | 148,973 | 118,450 | 103,964 | 92,441 | 125,620 | 157,563 |
| Number of days | | 29 | 31 | 30 | 33 | 29 | 30 | 29 | 31 | 31 | 32 | 29 | 30 | 32 |
| Appx. average kWh used/day | | 3,314 | 3,628 | 3,862 | 4,727 | 5,842 | 5,471 | 5,263 | 4,805 | 3,820 | 3,248 | 3,187 | 3,922 | 4,331 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| On peak | 4154 kWh | x $0.14477 | = | $601.38 | |
| Mid peak | 33540 kWh | x $0.12063 | = | $4,046.08 | |
| Off peak | 67237 kWh | x $0.11598 | = | $7,796.11 | |
| Super off peak | 53883 kWh | x $0.08553 | = | $4,608.61 | |
| | 158814 kWh | | | $17,054.18 | Energy Charges |
| | | | | $15,206.77 | Demand Charges |
| | | | | $4,259.88 | Other credits/charges |
| | | | | **$36,520.83** | **Total** |

Costs are rounded and include applicable energy charges from SCE. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges**.

**Summer and Winter season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 396 kW<br>*Your reactive demand is 242 kVar* | *Maximum Winter demand reached by price period :*<br>Mid Peak 387 kW 05/09/25 04:15pm-04:30pm<br>Off peak 246 kW 05/09/25 09:00pm-09:15pm<br>Super off peak 396 kW 05/21/25 03:30pm-03:45pm<br>*Maximum Summer demand reached by price period :*<br>On peak 350 kW 06/02/25 04:30pm-04:45pm<br>Mid Peak 225 kW 06/01/25 06:00pm-06:15pm<br>Off peak 361 kW 06/03/25 02:15pm-02:30pm |

To view your demand charges, please refer to the **Details of your new charges**.

## Your past and current electricity usage

For meter V349N-010390 from 05/06/25 to 06/04/25
**Total electricity you used this month in kWh** **158,814**

*Your next billing cycle will end on or about 07/07/25.*

*Reactive usage is 112,555 kVarh*

**Your daily average electricity usage (kWh)**




* No data available



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| On peak | 29872 kWh | x $0.14477 | = | $4,324.57 | |
| Mid peak | 11175 kWh | x $0.13490 | = | $1,507.51 | |
| Off peak | 128881 kWh | x $0.10634 | = | $13,705.21 | |
| | 169928 kWh | | | $19,537.29 | Energy Charges |
| | | | | $27,342.40 | Demand Charges |
| | | | | $5,464.43 | Other credits/charges |
| | | | | **$52,344.12** | **Total** |

Costs are rounded and include applicable energy charges from SCE. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges**.

**Summer season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 432 kW<br>*Your reactive demand is 216 kVar* | *Maximum Summer demand reached by price period :*<br>On peak 431 kW 06/30/25 04:15pm-04:30pm<br>Mid Peak 327 kW 06/29/25 06:45pm-07:00pm<br>Off peak 432 kW 06/30/25 03:30pm-03:45pm |

To view your demand charges, please refer to the **Details of your new charges**.

## Your past and current electricity usage

For meter V349N-010390 from 06/05/25 to 07/07/25
**Total electricity you used this month in kWh** **169,928**

*Your next billing cycle will end on or about 08/05/25.*

*Reactive usage is 108,517 kVarh*

**Your daily average electricity usage (kWh)**




* No data available

**Usage comparison**

| | Jul '23* | Jul '24 | Aug '24 | Sep '24 | Oct '24 | Nov '24 | Dec '24 | Jan '25 | Feb '25 | Mar '25 | Apr '25 | May '25 | Jun '25 | Jul '25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | 156,023 | 169,446 | 164,149 | 152,655 | 148,973 | 118,450 | 103,964 | 92,441 | 117,689 | 125,620 | 157,563 | 158,814 | 169,928 |
| Number of days | | 33 | 29 | 30 | 29 | 31 | 31 | 32 | 29 | 30 | 30 | 32 | 30 | 33 |
| Appx. average kWh used/day | | 4,727 | 5,842 | 5,471 | 5,263 | 4,805 | 3,820 | 3,248 | 3,187 | 3,922 | 4,331 | 4,923 | 5,293 | 5,149 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| On peak | 29048 kWh | x $0.14477 | = | $4,205.28 | |
| Mid peak | 9324 kWh | x $0.13490 | = | $1,257.81 | |
| Off peak | 117826 kWh | x $0.10634 | = | $12,529.61 | |
| | 156198 kWh | | | $17,992.70 | Energy Charges |
| | | | | $25,297.72 | Demand Charges |
| | | | | $5,077.26 | Other credits/charges |
| | | | | **$48,367.68** | **Total** |

Costs are rounded and include applicable energy charges from SCE. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges**.

**Summer season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 399 kW<br>*Your reactive demand is 217 kVar* | *Maximum Summer demand reached by price period :*<br>On peak 399 kW 07/09/25 04:45pm-05:00pm<br>Mid Peak 302 kW 07/13/25 04:15pm-04:30pm<br>Off peak 392 kW 07/10/25 03:45pm-04:00pm |

To view your demand charges, please refer to the **Details of your new charges**.

## Your past and current electricity usage

For meter V349N-010390 from 07/08/25 to 08/05/25
**Total electricity you used this month in kWh** **156,198**

*Your next billing cycle will end on or about 09/04/25.*

*Reactive usage is 100,466 kVarh*

**Your daily average electricity usage (kWh)**




**Usage comparison**

| | Aug '23* | Aug '24 | Sep '24 | Oct '24 | Nov '24 | Dec '24 | Jan '25 | Feb '25 | Mar '25 | Apr '25 | May '25 | Jun '25 | Jul '25 | Aug '25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | 169,446 | 164,149 | 152,655 | 148,973 | 118,450 | 103,964 | 92,441 | 117,689 | 125,620 | 157,563 | 158,814 | 169,928 | 156,198 |
| Number of days | | 29 | 30 | 29 | 31 | 31 | 32 | 29 | 30 | 30 | 32 | 30 | 33 | 29 |
| Appx. average kWh used/day | | 5,842 | 5,471 | 5,263 | 4,805 | 3,820 | 3,248 | 3,187 | 3,922 | 4,187 | 4,923 | 5,293 | 5,149 | 5,386 |



| Usage kWh | | Avg. cost | | Total cost | |
|---|---|---|---|---|---|
| On peak | 33239 kWh | x $0.14477 | = | $4,812.01 | |
| Mid peak | 8758 kWh | x $0.13490 | = | $1,181.46 | |
| Off peak | 131613 kWh | x $0.10634 | = | $13,995.72 | |
| | 173610 kWh | | | $19,989.19 | Energy Charges |
| | | | | $28,961.96 | Demand Charges |
| | | | | $5,654.21 | Other credits/charges |
| | | | | **$54,605.36** | **Total** |

Costs are rounded and include applicable energy charges from SCE. During season or price changes, averages are used. To view all charges and credits and to calculate your bill, refer to **Details of your new charges**.

**Summer season demand (kW)**

| | |
|---|---|
| Your maximum demand reached this billing period is 459 kW<br>*Your reactive demand is 271 kVar* | *Maximum Summer demand reached by price period :*<br>On peak 455 kW 08/21/25 04:30pm-04:45pm<br>Mid Peak 318 kW 08/31/25 04:15pm-04:30pm<br>Off peak 459 kW 08/21/25 02:30pm-02:45pm |

To view your demand charges, please refer to the **Details of your new charges**.

## Your past and current electricity usage

For meter V349N-010390 from 08/06/25 to 09/04/25
**Total electricity you used this month in kWh** **173,610**

*Your next billing cycle will end on or about 10/05/25.*

*Reactive usage is 117,812 kVarh*

**Your daily average electricity usage (kWh)**




* No data available

**Usage comparison**

| | Sep '23* | Sep '24 | Oct '24 | Nov '24 | Dec '24 | Jan '25 | Feb '25 | Mar '25 | Apr '25 | May '25 | Jun '25 | Jul '25 | Aug '25 | Sep '25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total kWh used | | 164,149 | 152,655 | 148,973 | 118,450 | 103,964 | 92,441 | 117,689 | 125,620 | 157,563 | 158,814 | 169,928 | 156,198 | 173,610 |
| Number of days | | 30 | 29 | 31 | 31 | 32 | 29 | 30 | 30 | 32 | 30 | 33 | 29 | 30 |
| Appx. average kWh used/day | | 5,471 | 5,263 | 4,805 | 3,820 | 3,248 | 3,187 | 3,922 | 4,331 | 4,923 | 5,293 | 5,149 | 5,386 | 5,787 |

LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

**LPADesignStudios.com**

5301 California Avenue, Suite 100
Irvine, California 92617

REGISTERED PROFESSIONAL ENGINEER ALDRIN GERARD BAUTISTA E22205 3/31/26 ELECTRICAL STATE OF CALIFORNIA

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**JLee Engineering, Inc.**
**Approved**
**By Mostafa Kashe**
04/06/2026

This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinance or State law.

DPH VANDERBILT-FIRST ST.

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| 1 PCC 1 | 11/20/2025 |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/22/2025 |
| CITY SUBMITTAL | 08/08/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | |
| Scale | |

UTILITY DEMAND RECORDS

E7.03

| CERTIFICATE OF COMPLIANCE | | NRCC-LTI-E |
|---|---|---|
| Project Name: DPH Vanderbilt | Report Page: | (Page 1 of 11) |
| Project Address: 451 E Vanderbilt Way | Date Prepared: | 8/6/2025 |

*This document is used to demonstrate compliance with requirements in 110.9, 110.12(c), 130.0, 130.1, 140.6 and 141.0(b)2 for indoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in 160.5, 170.2(e) and 180.2(b)4 for indoor lighting scopes using the prescriptive path for multifamily occupancies. Multifamily includes dormitory and senior living facilities.*

**A. GENERAL INFORMATION**

| | | | |
|---|---|---|---|
| 01 Project Location (city) | San Bernardino | 04 Total Conditioned Floor Area (ft²) | 24,870 |
| 02 Climate Zone | 10 | 05 Total Unconditioned Floor Area (ft²) | 0 |
| 03 Occupancy Types Within Project (select all that apply): | | 06 # of Stories (Habitable Above Grade) | 1 |

★ Office

**B. PROJECT SCOPE**

*This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.6 / 170.2(e) or 141.0(b)2 / 180.2(b)4 for alterations.*

| Scope of Work | Conditioned Spaces | | Unconditioned Spaces | |
|---|---|---|---|---|
| 01 | 02 | 03 | 04 | 05 |
| My Project Consists of (check all that apply): | Calculation Method | Area (ft²) | Calculation Method | Area (ft²) |
| ☐ New Lighting System | | | | |
| ☐ New Lighting System - Parking Garage | | | | |
| ☒ Altered Lighting System | Complete Building Method | 24870 | Complete Building Method | 0 |
| **Total Area of Work (ft²)** | 24870 | | 0 | |





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**C. COMPLIANCE RESULTS**

*If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.*

| *Lighting in conditioned and unconditioned spaces must not be combined for compliance per 140.6(b)1 / 170.2(e)* | Allowed Lighting Power per 140.6(b) / 170.2(e) (Watts) | | | | | Adjusted Lighting Power per 140.6(a) / 170.2(e) (Watts) | | | | Compliance Results |
|---|---|---|---|---|---|---|---|---|---|---|
| | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | |
| | Complete Building 140.6(c)1 | Area Category 140.6(c)2 / 170.2(e)4 | Area Category Additional 140.6(c)2G / 170.2(e)4Aiv ( + ) | Tailored 140.6(c)3 / 170.2(e)4B ( + ) | **Total Allowed** (Watts) | Total Designed (Watts) | Adjustments PAF Lighting Control Credits 140.6(a)2 / 170.2(e)1B ( - ) | **Total Adjusted** (Watts) *Includes Adjustments | | **05 must be >= 08 140.6 / 170.2(e)** |
| | (See Table I) | (See Table I) | (See Table J) | (See Table K) | | (See Table F) | (See Table P) | | | |
| **Conditioned** | 14,922 | | | | 14,922 | 12,074 | 881 | 11193 | | COMPLIES |
| **Unconditioned** | | | | | | | | | | |
| **Controls Compliance (See Table H for Details)** | | | | | | | | | | COMPLIES |
| **Rated Power Reduction Compliance (See Table Q for Details)** | | | | | | | | | | |

**D. EXCEPTIONAL CONDITIONS**

*This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.*

**E. ADDITIONAL REMARKS**

*This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.*





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**F. INDOOR LIGHTING FIXTURE SCHEDULE**

*This table includes all planned permanent and portable lighting other than dwelling unit/ hotel/ motel room lighting. Multifamily dwelling unit and hotel/motel room lighting is documented in Table I. If using Table T to document lighting in multifamily common use areas providing shared provisions for living, eating, cooking or sanitation, those luminaires are not included here.*

**Designed Wattage: Conditioned Spaces**

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Name or Item Tag | Complete Luminaire Description | Modular (Track) Fixture | Small Aperture & Color Change[1] | Watts per luminaire[2] | How is Wattage determined | Total Number of Luminaires | Excluded per 140.6(a)3 / 170.2(e)2C | Design Watts | Field Inspector | |
| | | | | | | | | | Pass | Fail |
| C1-12 | C1-12 | No | NA | 58 | Mfr. Spec | 1 | No | 58 | ☐ | ☐ |
| C1-14 | C1-14 | No | NA | 114 | Mfr. Spec | 1 | No | 114 | ☐ | ☐ |
| C1-18 | C1-18 | No | NA | 86.4 | Mfr. Spec | 1 | No | 86.4 | ☐ | ☐ |
| C1-19 | C1-19 | No | NA | 91.2 | Mfr. Spec | 1 | No | 91.2 | ☐ | ☐ |
| C1-R | C1-R | No | NA | 38.4 | Mfr. Spec | 1 | No | 38.4 | ☐ | ☐ |
| DP1 | DP1 | No | NA | 32.6 | Mfr. Spec | 4 | No | 130.4 | ☐ | ☐ |
| DP-2 | DP2 | No | NA | 40.5 | Mfr. Spec | 2 | No | 81 | ☐ | ☐ |
| DS1 | DS1 | No | NA | 23 | Mfr. Spec | 8 | No | 184 | ☐ | ☐ |
| P2-4 | P2-4 | No | NA | 25.5 | Mfr. Spec | 8 | No | 204 | ☐ | ☐ |
| R1 | R1 | No | NA | 21 | Mfr. Spec | 49 | No | 1,029 | ☐ | ☐ |
| R2 | R2 | No | NA | 21 | Mfr. Spec | 34 | No | 714 | ☐ | ☐ |
| R3 | R3 | No | NA | 32 | Mfr. Spec | 92 | No | 2,944 | ☐ | ☐ |
| R4-12G | R4-12G | No | NA | 58 | Mfr. Spec | 1 | No | 58 | ☐ | ☐ |
| R4-16G | R4-16G | No | NA | 76.8 | Mfr. Spec | 1 | No | 76.8 | ☐ | ☐ |
| R4-23G | R4-23G | No | NA | 110 | Mfr. Spec | 1 | No | 110 | ☐ | ☐ |
| R4-28G | R4-28G | No | NA | 134 | Mfr. Spec | 1 | No | 134 | ☐ | ☐ |
| R4-30G | R4-30G | No | NA | 144 | Mfr. Spec | 1 | No | 144 | ☐ | ☐ |
| R4-33G | R4-33G | No | NA | 158 | Mfr. Spec | 1 | No | 158 | ☐ | ☐ |
| R4-4G | R4-4G | No | NA | 20 | Mfr. Spec | 1 | No | 20 | ☐ | ☐ |
| R4-8G | R4-8G | No | NA | 39 | Mfr. Spec | 3 | No | 117 | ☐ | ☐ |





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**F. INDOOR LIGHTING FIXTURE SCHEDULE**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| R5-11T | R5-11T | No | NA | 53 | Mfr. Spec | 2 | No | 106 | ☐ | ☐ |
| R5-13T | R5-13T | No | NA | 63 | Mfr. Spec | 1 | No | 63 | ☐ | ☐ |
| R5-18T | R5-18T | No | NA | 87 | Mfr. Spec | 1 | No | 87 | ☐ | ☐ |
| R5-26T | R5-26T | No | NA | 125 | Mfr. Spec | 1 | No | 125 | ☐ | ☐ |
| R5-8T | R5-8T | No | NA | 24 | Mfr. Spec | 2 | No | 48 | ☐ | ☐ |
| R6-16T | R6-16T | No | NA | 96 | Mfr. Spec | 25 | No | 2,400 | ☐ | ☐ |
| R6-20T | R6-20T | No | NA | 120 | Mfr. Spec | 3 | No | 360 | ☐ | ☐ |
| R6-24T | R6-24T | No | NA | 144 | Mfr. Spec | 8 | No | 1,152 | ☐ | ☐ |
| R7-17WD | R7-17WD | No | NA | 93.5 | Mfr. Spec | 2 | No | 187 | ☐ | ☐ |
| R7-7WD | R7-7WD | No | NA | 39 | Mfr. Spec | 2 | No | 78 | ☐ | ☐ |
| R8-17PAT | R8-17PAT | No | NA | 81.6 | Mfr. Spec | 1 | No | 81.6 | ☐ | ☐ |
| R8-41PAT | R8-41PAT | No | NA | 197 | Mfr. Spec | 1 | No | 197 | ☐ | ☐ |
| R9 | R9 | No | NA | 21 | Mfr. Spec | 3 | No | 63 | ☐ | ☐ |
| W1-10DI | W1-10DI | No | NA | 76 | Mfr. Spec | 3 | No | 228 | ☐ | ☐ |
| W1-6DI | W1-6DI | No | NA | 45.5 | Mfr. Spec | 3 | No | 136.5 | ☐ | ☐ |
| W1-8DI | W1-8DI | No | NA | 61 | Mfr. Spec | 4 | No | 244 | ☐ | ☐ |
| W2-4 | W2-4 | No | NA | 25.5 | Mfr. Spec | 1 | No | 25.5 | ☐ | ☐ |
| **Total Designed Watts: CONDITIONED SPACES** | | | | | | | | 12,074 | | |

[1]*FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per 140.6(a)4B / 170.2(e)2D is adjusted to be 75% /80% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.*

[2]*Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b). Wattage used must be the maximum rated for the luminaire, not the lamp.*

**G. MODULAR LIGHTING SYSTEMS**

*This section does not apply to this project.*





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**H. INDOOR LIGHTING CONTROLS (Not including PAFs)**

*This table includes lighting controls for conditioned and unconditioned spaces.*

**Building Level Controls**

| 01 | 02 | 03 | |
|---|---|---|---|
| | | Field Inspector | |
| Mandatory Demand Response 110.12(c) | Shut-off controls 130.1(c) / 160.5)4C | Pass | Fail |
| Required >= 4,000W subject to multilevel | See Area/Space Level Controls | ☐ | ☐ |

**Area Level Controls**

| 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | |
|---|---|---|---|---|---|---|---|---|---|
| Area Description | Complete Building or Area Category Primary Function Area | Manual Area Controls 130.1(a) / 160.5)4A | Multi-Level Controls 130.1(b) / 160.5)4B | Shut-Off Controls 130.1(c) // 160.5)4C | Primary/Sky lit Daylighting 130.1(d) / 160.5)4D | Secondary Daylighting 130.1(d) / 160.5)4D | Interlocked Systems 140.6(a)1/ 170.2(e)2A | Field Inspector | |
| | | | | | | | | Pass | Fail |
| Office | Office | Readily Accessible | Dimmer | Occupancy Sensor | Included | Included | No | ☐ | ☐ |
| | | | | | | | 1 | | |
| | | | | | | | | Plan Sheet Showing Daylit Zones: | |

**I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS**

*Each area complying using the Complete Building or Area Category Methods per 140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per 140.6(c) or adjustments per 140.6(a) are being used .*

**Conditioned Spaces**

| 01 | 02 | 03 | 04 | 05 | 06 | |
|---|---|---|---|---|---|---|
| Area Description | Complete Building or Area Category Primary Function Area | Allowed Density (W/ft²) | Area (ft²) | Allowed Wattage (Watts) | Additional Allowance / Adjustment | |
| | | | | | Area Category | PAF |
| Whole Building | Office | 0.6 | 24,870 | 14,922 | No | Yes |
| | | **TOTALS:** | 24,870 | 14,922 | See Tables J, or P for detail | |





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**J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM**

*This section does not apply to this project.*

**K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE**

*This section does not apply to this project.*

**L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY**

*This section does not apply to this project.*

**M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING**

*This section does not apply to this project.*

**N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED DECORATIVE /SPECIAL EFFECTS**

*This section does not apply to this project.*

**O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE**

*This section does not apply to this project.*





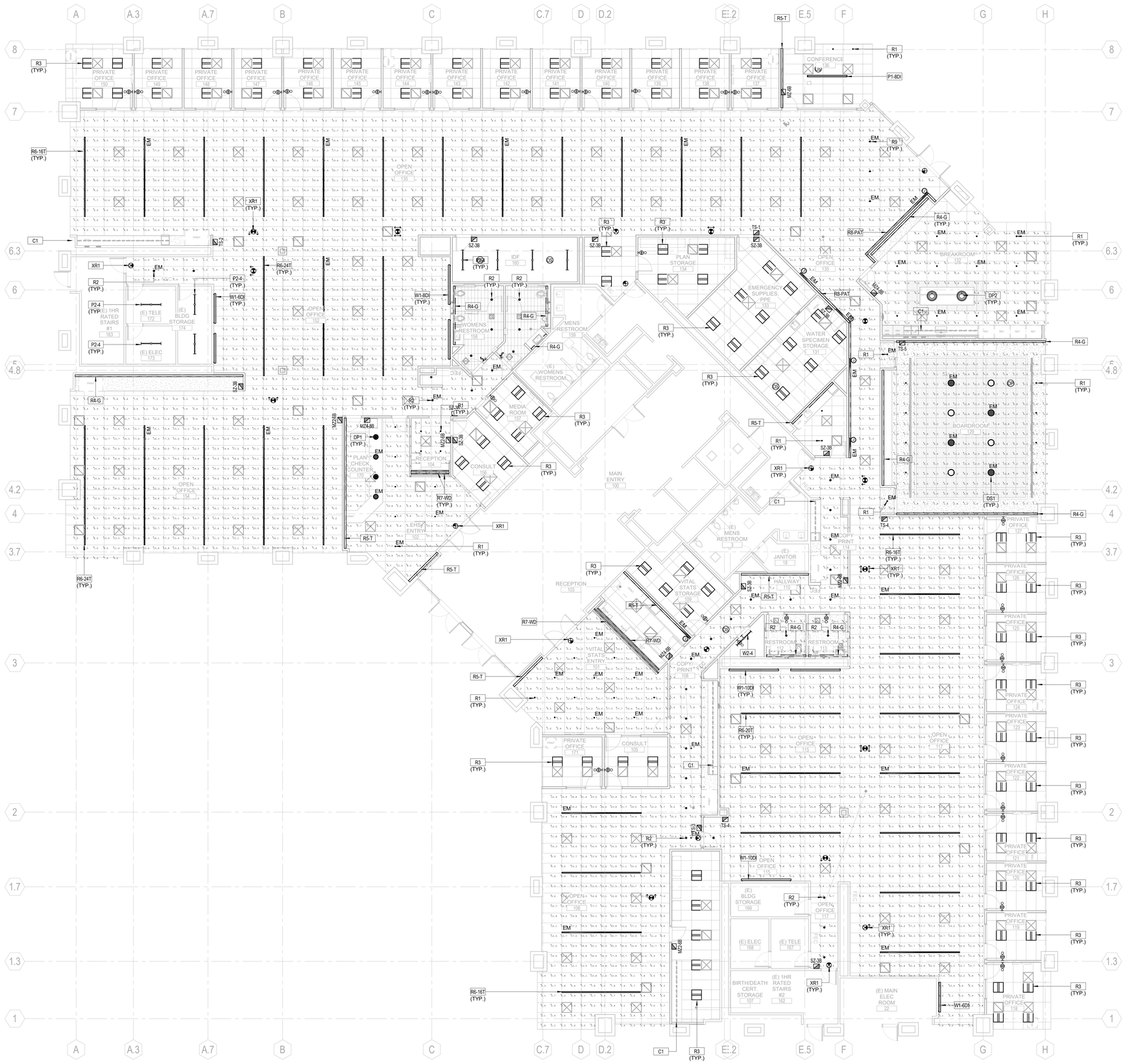
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**P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))**

*This table includes all areas indicated in Table I or Table K as using a PAF credit described in 140.6(a)2 / 170.2(e)2B.*

**Conditioned Spaces**

| 01 | 02 | | | | | | | 03 | 04 | 05 | 06 | 07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area Description | PAF per 140.6(a)2 / 170.2(e)2B[1] (*Can be used in conjunction with other PAF's) | | | | | | | Luminaires Controlled for PAF Credit | | | | Additional Control Credit Allowance (Watts) |
| | 1 | 2A | 2B | 3A* | 3B* | 4* | 5* | 6* | 7* | Luminaire Name or Item Tag | Luminaire Design Watts | Number of Luminaires | Lighting Controlled (Watts) | |
| | | | | Pick up to one | Pick up to one | | Pick up to one² | Pick up to one² | | | | | | |
| Office Building | ☐ | ☐ | ☒ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | R3 | 32 | 4 | 128 | 38.4 |
| Office Building | ☐ | ☐ | ☒ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | R3 | 32 | 2 | 64 | 19.2




## LIGHTING ILLUMINANCE (FC) SUMMARY

| Label | LLF | Avg | Max | Min | Max/Min |
|---|---|---|---|---|---|
| OPEN OFFICE 135, 152, & 154 | 0.9 | 10.0 fc | 25.5 fc | 1.1 fc | 23.1:1 |
| BREAKROOM 132 | 0.9 | 7.6 fc | 12.7 fc | 0.7 fc | 18.1:1 |
| BOARDROOM 129 | 0.9 | 5.6 fc | 14.7 fc | 0.5 fc | 29.4:1 |
| HALLWAY 161/ COPY PRINT 114/ HALLWAY 110 | 0.9 | 7.9 fc | 17.9 fc | 0.5 fc | 35.8:1 |
| OPEN OFFICE 115, 116, & 117/ HALLWAY 128 | 0.9 | 9.4 fc | 23.0 fc | 0.7 fc | 32.8:1 |
| OPEN OFFICE 106 | 0.9 | 11.9 fc | 24.0 fc | 0.9 fc | 26.6:1 |
| VITAL STATS ENTRY 101 | 0.9 | 3.4 fc | 8.1 fc | 08 fc | 10.1:1 |
| EHS ENTRY 102/ PLAN CHECK COUNTER 170 | 0.9 | 6.5 fc | 17.1 fc | 0.6 fc | 28.5:1 |

## FLOOR PLAN GENERAL NOTES

01 - FLOOR - LIGHTING EM PHOTOMETRIC | 1/8" = 1'-0" | 1


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LANDSCAPE ARCHITECTURE PLANNING

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ELECTRICAL
STATE OF CALIFORNIA


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**JLee Engineering, Inc.**
**Approved**
**By Mostafa Kashe**
**04/06/2026**

**This set of plans and specifications MUST be kept on the job site at all times and it is unlawful to make any changes or alterations on these plans without written permission from the local Jurisdictions or Agencies. The stamping of these plan and specifications shall NOT be held to permit or be an approval of the violations of the applicable codes, any provisions of any Local Ordinance or State law.**

DPH VANDERBILT-FIRST CLINIC

451 E Vanderbilt Way,
San Bernardino, CA 92408

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|
| | |

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 09/22/2025 |
| CITY SUBMITTAL | 08/08/2025 |

| | |
|---|---|
| Job Number | 32468 |
| Checked By | MM |
| Scale | 1/8" = 1'-0" |

LIGHTING EM PHOTOMETRIC PLAN

E9.01

## CONTRACTOR(S) GUIDELINES:

28. ALL SPLICES SHALL UTILIZE 3M 710 MODULES. ALL CABLES MUST BE EQUIPPED TO PROVIDE A CONTINUOUS BOUND OF CABLE SHIELDS THROUGH ALL SPLICES.

29. PULL ROPES SHALL BE PLACED IN ALL VACANT CONDUITS.

30. ALL WORK MUST BE COMPLETED IN A NEAT AND PROFESSIONAL MANNER. THE WORK SITE SHALL BE KEPT CLEAN AND ALL DAMAGE TO OWNER'S PROPERTY REPAIRED.

31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING A FINAL CLEANUP OF THE WORK SITE PRIOR TO FINAL SYSTEM ACCEPTANCE.

32. CONTRACTOR SHALL REMOVE ALL COPPER, FIBER AND COAXIAL CABLES ABANDONED IN CONDUIT, CEILINGS AND WALLS PER CEC. CABLE SHALL INCLUDE ALL INTRABUILDING, RISER SYSTEMS AND STATION CABLES FOR ALL LOW VOLTAGE/TECHNOLOGY/STRUCTURED CABLING SYSTEMS.

33. CONTRACTOR(S) SHALL VERIFY ALL SITE CONDITIONS PRIOR TO BID.

34. IN ACCESSIBLE CEILING SPACES;

a. THE CONTRACTOR SHALL PROVIDE THE REQUIRED STUB UP(S) / OUT(S) AND BOXES WITH MUD-RINGS TO THE NEAREST ACCESSIBLE CEILING SPACE AND / OR NEAREST TECHNOLOGY PATHWAY INFRASTRUCTURE, REFERENCE PLANS AND SPECIFICATION FOR MORE INFORMATION.

b. THE DESIGNATED SCS / TECHNOLOGY CONTRACTOR(S) SHALL PROVIDE A J-HOOK PATHWAY SYSTEM AND REQUIRED SLEEVES. DO NOT USE CEILING TILE WIRE HANGERS, WATER OR ELECTRICAL PIPES, OR LIGHT FIXTURES TO HANG CABLE. CABLE MUST BE A MINIMUM OF 6 INCHES ABOVE THE CEILING TILE AND MUST NOT COME WITHIN TWELVE INCHES OF A LIGHT FIXTURE.

- THE SCS / TECHNOLOGY CONTRACTOR WILL PROVIDE THE PATHWAY REQUIRED FOR THE STRUCTURE CABLING SYSTEMS.
- THE DESIGNATED LOW VOLTAGE / TECHNOLOGY CONTRACTOR(S) FOR EACH "SUB-SYSTEM WILL PROVIDE THE PATHWAY REQUIRED FOR THE SYSTEMS, OUTSIDE WHAT IS CONSIDERED THE STRUCTURED CABLING SYSTEM.

35. IN INACCESSIBLE AND HARDLID CEILING SPACES;

a. THE CONTRACTOR SHALL PROVIDE ALL CONDUIT PATHWAYS, BOXES ETC. FOR A COMPLETE SYSTEM FROM THE MDF ROOM, IDF ROOM(S), IDF CABINET(S), AND ALL OTHER LOW VOLTAGE / TECHNOLOGY SYSTEMS HEADEND, CABINETS, TERMINAL CABINETS, ETC. TO THE POINT OF TERMINATION AT THE STATION END LOCATION PER PLANS AND SPECIFICATION.

## TECHNOLOGY PENETRATION NOTES:

1. UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL MAKE NO PENETRATION OF FLOORS, WALLS OR CEILING WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNERS REPRESENTATIVE.

2. WALL PENETRATIONS:

a. THE SCS AND/OR LV CONTRACTOR SHALL PROVIDE FIRE STOPPING FOR ALL COMMUNICATIONS RATED (AND IN SOME CASES NON-RATED, THAT WILL BE DESCRIBED BELOW THIS SECTION) PATHWAYS AND SPACES. THESE FIRE STOPPING DEVICES SHALL CONFORM TO (BUT NOT LIMITED TO) UL 1479, ASTM E814, BICSI TDMM, FIRE STOPPING ANSI/TIA-568-C, STANDARD FOR INSTALLING COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING, SECTION 5, CLAUSE 5.1 THROUGH 5.2.3, MANUFACTURES GUIDELINES OR OTHER PREVAILING CODE AND MUST BE AN APPROVED UL LISTED SYSTEM

b. CABLE TRAY FIRE-STOPPING SHALL UTILIZE THE MULTI GANG FIRE-STOPPING SYSTEM THAT WILL BE ABLE TO STACK THE UNITS HORIZONTALLY AND/OR VERTICALLY IF REQUIRED DUE TO CURRENT AND/OR FUTURE CABLING DESIGNS.

c. THE CONTRACTOR SHALL INSTALL PENETRATION FIRE-STOP SEAL MATERIALS IN ACCORDANCE WITH DESIGN REQUIREMENTS, AND MANUFACTURER'S INSTRUCTIONS.

d. THE CONTRACTOR'S INSTALLER SHALL BE CERTIFIED, LICENSED OR OTHERWISE QUALIFIED BY THE FIRE-STOPPING MANUFACTURER AS HAVING BEEN PROVIDED THE NECESSARY TRAINING TO INSTALL MANUFACTURER'S PRODUCTS PER SPECIFIED REQUIREMENTS.

e. ALL THROUGH-PENETRATION SHALL BE A MANUFACTURED, UL CLASSIFIED, FIRE-STOP DEVICE / SYSTEM DESIGNED TO ALLOW CABLES TO PENETRATE FIRE-RATED WALLS WITH A BUILT-IN FIRE SEALING SYSTEM THAT AUTOMATICALLY ADJUSTS TO THE AMOUNT OF CABLES INSTALLED. THE FIRE-STOPPING DEVICE SHALL BE CAPABLE OF INSTALLATION IN NEW CONSTRUCTION OR RETROFIT IN EXISTING STRUCTURES.

f. THE CONTRACTOR MUST NOT USE CONCRETE OR OTHER NON-REMOVABLE SUBSTANCE FOR FIRE STOPPING ON CABLE TRAYS, WIREWAYS OR CONDITS. CONTRACTORS WHO USE THIS METHOD WILL BE REQUIRED TO REPLACE ALL CABLES AFFECTED AND PROVIDE THE ORIGINAL SPECIFIED ACCESS TO EACH EFFECTED AREA. THIS REQUIREMENT ALSO APPLIES TO MAINTAINING FIRE RATINGS OF ALL FLOORS PENETRATED BY CONDUITS OR DEVICES DESIGNATED FOR USE BY VOICE AND DATA CABLING.

g. ANY PENETRATIONS THROUGH FIRE-RATED WALLS FOR CABLE PATHWAYS / CABLES SHALL BE SEALED BY USE OF A NON-PERMANENT FIRE BLANKET OR OTHER METHOD IN COMPLIANCE. THE CONTRACTOR MUST USE FIRE STOPPING ON CABLE TRAYS, WIREWAYS AND CONDUITS EITHER VERTICAL OR HORIZONTAL. FOUR DIFFERENT METHODS OF FIRE-STOPPING HAVE BEEN IDENTIFIED FOR THE HORIZONTAL THROUGH PENETRATIONS BETWEEN WALLS, RATED, RATED WITH ACOUSTIC PROPERTIES, NON-RATED, AND NON-RATED WITH ACOUSTIC PROPERTIES.

BELOW ARE METHODS TO ACCOMPLISH THESE DIFFERENT TYPES;

- SEALING OF RATED OPENINGS BETWEEN FLOORS OR THROUGH RATED WALLS, WHETHER EXISTING OR CREATED BY THE CONTRACTOR FOR PLACEMENT OF CABLE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEALING MATERIAL AND APPLICATION SHALL BE AN APPROVED UL LISTED SYSTEM AND SHALL BE ACCOMPLISHED IN SUCH A MANNER THAT IS ACCEPTABLE TO THE LOCAL FIRE AND BUILDING AUTHORITIES HAVING JURISDICTION OVER THIS WORK. CREATION OF SUCH OPENINGS AS ARE NECESSARY FOR CABLE PASSAGE BETWEEN LOCATIONS AS SHOWN ON THE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY OPENINGS CREATED BY OR FOR THE CONTRACTOR AND LEFT UNUSED SHALL ALSO BE SEALED AS PART OF THIS WORK.
- RATED WALLS WITH THROUGH-PENETRATIONS WITH ACOUSTIC PROPERTIES SHALL BE INSTALLED WITH FACTORY MANUFACTURED DEVICE. SUCH AS A STI "EZ PATH" OR WIREMOLD "FLAMESTOPPER" OR EQUAL. THE TYPICAL STC RATING IS TO BE EQUAL TO OR GREATER THAN THE WALL PENETRATED. (AVG IS A RATING OF 44 STC PER UBC RATINGS).
- NON-RATED PATHWAY, ALTHOUGH NOT REQUIRED TO BE FIRE-STOPPED, SHALL BE A MANUFACTURED DEVICE THAT WILL ALLOW FIRE-STOPPING TO BE INSTALLED IN THE FUTURE IF REQUIRED, (I.E. WIREMOLD "FLAMESTOPPER" OR EQUAL)
- A NON-RATED PATHWAY WITH ACOUSTIC PROPERTIES CAN BE FOUND IN AREAS SUCH AS, CONFERENCE ROOMS, HUMAN RESOURCE OFFICES, MEDICAL EXAMINATION ROOMS ETC. THESE ROOMS REQUIRE TO LIMIT THE AMOUNT OF AMBIENT NOISE THAT CAN TRAVEL FROM ONE ROOM TO THE OTHER THROUGH THE CEILING GRID. IF THIS WALL IS PENETRATED, INSTALL A SYSTEM THAT WILL RE-ESTABLISH THE STC RATING OF THE WALL. THE TYPICAL STC RATING IS AN AVERAGE OF 44 STC PER UBC RATINGS.

## CONTRACTOR(S) GUIDELINES:

1. ALL TECHNOLOGY WORK SHALL COMPLY WITH DESIGN GUIDELINES AS WELL AS APPLICABLE FEDERAL, STATE, AND LOCAL CODES. WHERE THE CONSTRUCTION DOCUMENTS INDICATE MORE RESTRICTIVE REQUIREMENTS, THE DOCUMENTS SHALL GOVERN BUT THE CONSTRUCTION DOCUMENTS SHALL NOT BE INTERPRETED AS AUTHORITY TO VIOLATE ANY CODE OR REGULATION.

2. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS AND/OR SPECIFICATIONS OR WITH CODE REQUIREMENTS, THE NOTE, CODE OR SPECIFICATION WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR THE HIGHER STANDARD SHALL PREVAIL.

3. OMISSIONS FROM THE DRAWINGS, SPECIFICATIONS OR THE MIS-DESCRIPTION OF DETAILS FROM WORK WHICH ARE CLEAR AND NECESSARY TO CARRY OUT THE INTENT OF THE DRAWINGS, SPECIFICATIONS, OR WHICH ARE CUSTOMARILY PERFORMED, SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH OMITTED OR MIS-DESCRIBED DETAILS OF THE WORK BUT THEY SHALL BE PERFORMED AS IF FULLY AND CORRECTLY SET FORTH AND DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS.

4. THE CONTRACTOR SHALL CHECK ALL DRAWINGS FURNISHED, IMMEDIATELY UPON THEIR RECEIPT AND SHALL PROMPTLY NOTIFY THE OWNER OF ANY DISCREPANCIES.

5. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BEAR THE UNDERWRITERS LABEL (UL) AND SHALL BE INSTALLED IN THE MANNER FOR WHICH THEY ARE DESIGNED AND APPROVED.

6. THE CONTRACTOR SHALL NOT BORE, NOTCH OR IN ANY WAY CUT INTO ANY STRUCTURAL MEMBER WITHOUT WRITTEN APPROVAL FROM THE ARCHITECT OR STRUCTURAL ENGINEER.

7. ALL CHANGES TO STRUCTURES (BUILDING, DRILLING, CORING, ETC.) NOT SHOWN ON THE DRAWINGS SHALL BE APPROVED IN WRITING BY STRUCTURAL ENGINEER.

8. FOR PURPOSES OF CLEARNESS AND LEGIBILITY, THE TELECOM DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC. THE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS, DATA INFORMATION AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION SECTIONS WHERE SCS AND LOW VOLTAGE WORK INTERFACES WITH OTHER TRADES.

9. THE CONTRACTOR SHALL MAINTAIN AS-BUILT DRAWINGS TO REFLECT ALL CHANGES MADE DURING CONSTRUCTION AND ANY DEVIATIONS FROM THE ELECTRICAL AND TECHNOLOGY DRAWINGS. THIS INCLUDES DEVIATIONS FROM OUTLET NUMBERS AND ANY ADDITION, DELETION OR RELOCATION OF OUTLETS SHOWN ON WORKING DRAWINGS, PATHWAY ADDITIONS, DELETIONS OR RELOCATIONS. THE CONTRACTOR SHALL AFTER COMPLETION OF JOB, PROVIDE THE OWNER AN ELECTRONIC AND HARD COPY OF AS-BUILT WORK.

10. ANY DEVIATIONS FROM PLANS OR SPECS MUST BE APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.

11. ALL FOOTAGES ON DRAWINGS ARE ESTIMATED AND MUST BE VERIFIED BY CONTRACTOR PRIOR TO ORDERING MATERIAL.

12. ALL STATION CABLES SHALL BE NEATLY DRESSED AND SECURED EVERY FIVE FEET AT A MINIMUM.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILING TILE INCLUDING REPLACEMENT OF BROKEN OR DAMAGED TILES.

14. ALL LOCATIONS PASSING THROUGH A FIRE OR A SMOKE BARRIER MUST BE FIRE STOPPED USING APPROVED (UL CLASSIFIED) FIRE STOP SYSTEM, INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS AND PROPERLY LABELED.

15. CONDUIT SHALL BE FILLED TO MAXIMUM CAPACITY (PER CODE, STANDARDS, AND NORMS) BEFORE UTILIZING ANOTHER VACANT CONDUIT.

16. ALL STATION OUTLETS AND TERMINALS SHALL BE PROPERLY IDENTIFIED USING THE OWNER'S STANDARD INTERNAL DISTRIBUTION NUMBERING SCHEME. ALL LABELS SHALL BE PREPRINTED OR TYPED.

17. EACH BACKBONE RISER AND/OR OSP CABLE SHALL BE EQUIPPED WITH A PERMANENT LABEL INDICATING CABLE TYPE, PAIR OR OPTIC COUNTS, DISTANT ENDS, AND CABLE LENGTH. BOTH ENDS OF EACH CABLE AND AT EVERY MAINTENANCE HOLE, HAND HOLE, AND PULL BOX, SHALL BE SO LABELED.

18. FIBER BACKBONE CABLE SHALL BE PLACED WITH 6 FOOT MAINTENANCE LOOP AT BOTH ENDS OF THE RUN. THE MAINTENANCE LOOP SHALL BE SECURED IN SUCH A MANNER TO PROVIDE PROTECTION DURING SUBSEQUENT CABLE PULLS.

19. ALL STATION CABLES/OUTLETS SHALL BE TESTED AND DOCUMENTED USING A PAIR SCANNER SPECIFICALLY DESIGNED TO TEST THE TYPE OF CABLE INSTALLED (E.G. CATEGORY 6A). TEST RESULTS SHALL BE ONE PAGE PER AND NOTED WITH THE STATION/JACK NUMBERING SCHEME THAT IS STANDARDIZED FOR THE OWNER.

20. ALL FIBER OPTIC STATION AND RISER CABLE SHALL BE TESTED END-TO-END AND THE RESULTS (LOSS IN dB) NOTED ON A SEPARATE TYPED SHEET.

21. AFTER STATION CABLE IS TESTED AND DOCUMENTED, ONE PAIR FROM EACH VOICE STATION SHALL BE CROSS CONNECTED THROUGH EACH CLOSET BACK TO THE MAIN DISTRIBUTION FRAME. TELEPHONE NUMBER ASSIGNMENTS FOR EACH JACK MUST BE APPROVED BY THE TELECOM STAFF PRIOR TO IMPLEMENTATION. A WRITTEN RECORD OF ALL CROSS CONNECT ASSIGNMENTS WILL BE PROVIDED TO THE OWNER BY THE SCS CONTRACTOR.

22. FIBER CABLES SHALL BE SPLICED TOGETHER USING A FUSION SPLICE AND PLACED IN A FIBER SPLICE CASE THAT IS RE-ENTERABLE, FULLY DRESSED AND ENCLOSED TO FIT THE NUMBER AND TYPE OF CABLES TERMINATED.

23. CABLE TRAY SHALL BE PLACED IN MDF AND IDF(S) AS SHOWN ON DRAWINGS AND AS REQUIRED TO PROPERLY SECURE CABLES AND WIRE.

24. A BACKBONE CABLE ASSIGNMENT RECORD SHEET SHALL BE PREPARED (TYPED) PRIOR TO START OF ACCEPTANCE TESTING. ALL FLOOR PLANS SHALL BE NEATLY HAND NOTED WITH STATION JACK NUMBER AND CABLE LENGTH.

25. ALL CABLES SHALL BE CLEARLY LABELED WITH CABLE NUMBERS, PAIR ASSIGNMENTS AND DESIGNATION.

26. ALL CABLE TRAYS, LADDER RACKS, CONDUITS, EQUIPMENT RACKS, PROTECTOR PANELS, AND CABLE SHEATHS SHALL BE BONDED & GROUNDED TO EQUIPMENT GROUND WITH #6 WIRE (MIN.)

27. ALL SPLICES SHALL BE CONTAINED WITHIN AN APPROVED SPLICE CASE DESIGNED FOR MULTIPLE CLOSURE.

## TECHNOLOGY CABLING NOTES:

1. THE USE OF LUBRICANTS SUCH AS CLEAR GLIDE, TO FACILITATE THE INSTALLATION OF CABLES IN CONDUITS IS ENCOURAGED FOR FRICTION REDUCTION AND TO MAINTAIN THE REQUIRED PULL TENSION. YELLOW 77 AND POLYWATER "F" IS PERMISSIBLE FOR USE AS A LUBRICANT FOR ISP TECHNOLOGY CABLING. THE USE OF OSP, LOW TEMPERATURE CABLE LUBRICANTS SHALL NOT BE ACCEPTABLE IN AN INDOOR PLENUM ENVIRONMENT. UNDER NO CIRCUMSTANCES SHALL CABLE PULLING LUBRICANT BE ALLOWED TO ACCUMULATE ON WALLS, FLOORS, BACKBOARDS, OR OTHER SURFACES OUTSIDE THE CONDUIT.

2. ANY CABLE DAMAGED OR EXCEEDING RECOMMENDED INSTALLATION PARAMETERS DURING INSTALLATION SHALL BE REPLACED BY THE CONTRACTOR BEFORE FINAL ACCEPTANCE AT NO COST TO THE OWNER.

3. EACH RUN OF CABLE BETWEEN THE TERMINATION BLOCK OR PATCH PANEL AND THE STATION CONNECTOR SHALL BE CONTINUOUS WITHOUT ANY JOINTS OR SPLICES.

4. ALL STATION CABLE SHALL BE PLACED IN THE INTERIOR OF WALLS UNLESS OTHERWISE NOTED OR OBSTRUCTED.

5. PROVIDE BUSHINGS, GROMMETS AND STRAIN-RELIEF FOR CABLES TERMINATING AT WALL-MOUNTED OUTLETS AND PATCH PANELS TO ENSURE DURABLE AND ROBUST CONNECTIONS. THE BUSHINGS AND GROMMETS ARE INTENDED TO PROTECT THE CABLES FROM ANY SHARP EDGES THAT PRESENT A RISK TO THE CABLES. ENSURE THAT ALL SHARP EDGES ARE SMOOTHED OR COVERED TO PROTECT THE CABLES FROM DAMAGE.

6. ALL CABLE BUNDLES EXITING FLOOR OR WALL PENETRATIONS AND RUNNING INTO FURNITURE OR CASEWORK SHALL BE WRAPPED IN SPIRAL WRAP OR SPLIT-LOOM TUBING TO PROTECT THE CABLING AND PROVIDE A NEAT INSTALLATION.

7. ALL CABLE OR INNERDUCT SHALL RUN PARALLEL OR AT RIGHT ANGLES TO BUILDING WALL STRUCTURES.

8. IN SUSPENDED CEILING AND RAISED FLOOR AREAS WHERE DUCT, CABLE TRAYS OR CONDUIT ARE NOT AVAILABLE, CABLE BUNDLES SHALL BE SUPPORTED VIA "J" HOOKS ATTACHED TO THE BUILDING STRUCTURE AND FRAMEWORK AT A MAXIMUM OF FIVE (5) FOOT INTERVALS. MINIMUM 1 " WIDE J-HOOKS SHALL BE APPROPRIATELY SIZED TO ALLOW A MINIMUM OF 60% SPARE CAPACITY FOR FUTURE CABLE INSTALLATION. THE CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID FOR ANY ADDITIONAL SUPPORTS/SEISMIC BRACING REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

9. THE CONTRACTOR SHALL BUNDLE, IN BUNDLES OF 48 OR LESS, STATION OR OTHER CABLING WITH 3/4" HOOK AND LOOP "VELCRO" STRIPS TIGHT ENOUGH TO HOLD THE BUNDLE TOGETHER IN A CYLINDRICAL SHAPE, BUT NOT SO TIGHT AS TO DEFORM THE CABLE GEOMETRY. IT SHALL BE POSSIBLE TO COMPLETELY ROTATE ALL HOOK AND LOOP TIES AROUND ALL CABLE BUNDLES. PLENUM RATED HOOK AND LOOP TIES WILL BE USED IN ALL PLENUM AREAS.

10. CABLES OR J-HOOKS SHALL NOT BE ATTACHED TO LIFT OUT CEILING GRID SUPPORTS OR LAID DIRECTLY ON THE CEILING GRID.

11. CABLES OR J-HOOKS SHALL NOT BE ATTACHED TO OR SUPPORTED BY FIRE SPRINKLER HEADS OR DELUGE SYSTEMS OR ANY ENVIRONMENTAL SENSOR LOCATED IN THE CEILING AIR SPACE.

12. WHERE ADDITIONAL CONDUIT(S)/SLEEVE(S) ARE REQUIRED, BUT NOT PROVIDED BY THE CONTRACTOR, THE SCS AND/OR LV CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE SUCH CONDUIT(S) SLEEVE(S) AS REQUIRED. SLEEVE(S) SHALL BE OF SUITABLE MATERIAL, SIZED, INSTALLED, FIRE-STOPPED, AND GROUNDED AS REQUIRED BY THE CEC, ANSI/TIA-569-D STANDARD AND ALL OTHER APPLICABLE CODES AND STANDARDS. SLEEVES SHALL CONSIST OF METALLIC CONDUIT DE-BURRED AND GROMMETED ON BOTH ENDS WITH FLANGES OR OTHER MEANS TO PREVENT THE SLEEVE FROM SLIPPING OR FALLING OUT OF THE PARTITION. SLEEVES SHALL EXTEND A MINIMUM OF 6" ON BOTH SIDES OF THE PARTITION. OUTSIDE PERIMETER OF SLEEVES SHALL BE SEALED AGAINST SOUND, AIR, WATER, HEAT, OR AS REQUIRED BY PARTITION DESIGN. INSIDE OF SLEEVE SHALL BE SEALED SIMILARLY AFTER INSTALLATION OF ALL CABLING. CABLES SHALL BE INDEPENDENTLY SUPPORTED ON EITHER SIDE OF THE SLEEVE. SLEEVES SHALL NOT BE USED AS CABLE SUPPORTS. ANY CONDUIT(S) AND SLEEVE(S) ADDED BY THE SCS CONTRACTOR SHALL BE APPROVED BY THE OWNERS REPRESENTATIVE PRIOR TO ROUGH-IN.

13. IN THE EVENT CONTRACTOR IS REQUIRED TO REMOVE CEILING TILES, SUCH WORK SHALL NOT BREAK OR DISTURB GRID. REMOVAL OF THE CEILING GRID MUST BE COORDINATED WITH THE OWNERS REPRESENTATIVE. ALL INSULATION SHALL BE REPLACED IN ITS ORIGINAL LOCATION.

14. THE NUMBER OF CABLES IN EACH CONDUIT SHALL BE CONTROLLED TO ALLOW FOR FUTURE CABLE INSTALLATION AND TO STAY WITHIN THE MANUFACTURER'S MAXIMUM ALLOWABLE CABLE PULLING TENSION. CONDUIT FILL RATIOS SHALL NOT EXCEED THE CURRENT REQUIREMENTS OF THE CEC, ANSI/TIA-569-D, REFERENCE SECTION B.2, TABLES 1 AND 2 OF THIS DOCUMENT FOR ADDITIONAL REQUIREMENTS.

15. CONDUITS:
- ALL BACKBONE CABLING WILL RUN THROUGH DEDICATED CONDUITS.
- ALL NEW CONDUITS WILL BE SUPPLIED WITH A PULL STRING BY THE CONTRACTOR.
- EXISTING CONDUITS SHALL BE PROVEN TO BE CLEAR BY THE SCS AND/OR LV CONTRACTOR PRIOR TO PULLING OF CABLES.
- SCS AND/OR LV CONTRACTOR SHALL SUPPLY PULL STRING AND PULL ROPE FOR THE INSTALLATION OF ALL CABLES IN EXISTING CONDUITS.
- FOR ALL CONDUITS LEFT WITH AVAILABLE CAPACITY, SCS AND/OR LV CONTRACTOR SHALL REPLACE PULL STRINGS DURING THE COURSE OF HIS WORK. SCS AND/OR LV CONTRACTOR MUST SEAL ALL CONDUITS WITH AN APPROVED SEALING COMPOUND.

## TECHNOLOGY GROUNDING SYSTEM NOTES:

1. THE CONTRACTOR SHALL PROVIDE A TELECOMMUNICATION GROUNDING BUSBAR (TGB) AND TELECOMMUNICATION BONDING BACKBONE (TBB) CABLE(S) AT EACH MDF ROOM AND IDF LOCATION. TERMINATE THE TBB ON GROUND BARS LOCATED AT EACH MDF ROOM AND IDF CABINET FROM BUILDING STEEL OR MAIN ELECTRICAL GROUND, OR AS OTHERWISE INDICATED ON THE DRAWINGS.

2. THE SCS CONTRACTOR SHALL UTILIZE A TELECOMMUNICATIONS BONDING BACKBONE (TBB) AS INDICATED IN THE DRAWINGS. GROUNDING MUST BE IN ACCORDANCE WITH THE CEC, ANSI/TIA-607-B AND ALL LOCAL CODES AND PRACTICES.

3. THE SCS CONTRACTOR SHALL BE RESPONSIBLE FOR BONDING ALL METALLIC SHEATH COMMUNICATIONS CABLES ENTERING THE BUILDING PER MANUFACTURER SPECIFICATIONS AND CEC 770-33, 100-33 AND 800-40. ALL GROUNDS SHALL CONSIST OF # 6-AWG COPPER WIRE AND SHALL BE SUPPLIED FROM AN APPROVED BUILDING GROUND AND BONDED TO THE MAIN ELECTRICAL GROUND. ALL CABLE SHEATHS AND SPLICE CASES SHALL BE GROUNDED TO A TELECOMMUNICATIONS GROUND BUS.

4. THE SCS CONTRACTOR SHALL PROVIDE GROUNDING AND BONDING FROM ALL HORIZONTAL EQUIPMENT INCLUDING DISTRIBUTION AND CROSS CONNECT FRAMES, PATCH PANELS, CABLE TRAYS, EQUIPMENT RACKS, LADDER TRAYS, CONDUITS, ACTIVE TELECOMMUNICATION EQUIPMENT, SLEEVES, TEST APPARATUS. EQUIPMENT SHALL BE BONDED TO THE TBB GROUND BARS UTILIZING A #6-AWG GREEN CONDUCTOR WITH 2-HOLE LONG BARREL COMPRESSION GROUNDING LUGS.

a. EACH EQUIPMENT CABINET AND RACK REQUIRES ITS OWN DEDICATED RACK GROUNDING BUSBAR (RGB) WITH A BONDING CONNECTION TO THE GROUNDING INFRASTRUCTURE. THE GROUNDING INFRASTRUCTURE CONSIST OF A TB, BY PROVIDING EVERY RACK/CABINET WITH ITS OWN DEDICATED #6 WAG (MIN.) GREEN CONDUCTORS BACK TO THE TOMB/TB. ALL GROUND CONDUCTOR ATTACHMENTS SHALL UTILIZE 2-HOLE LONG BARREL COMPRESSION LUGS.

b. HORIZONTAL CABLES SHALL BE GROUNDED IN COMPLIANCE WITH ANSI/TIA-607-C, FP 70 (EEC) AND LOCAL REQUIREMENTS AND PRACTICES.

c. IN RAISED-FLOOR ENVIRONMENTS, THE GROUND CONDUCTOR SHALL ATTACH TO THE LOWEST HOLES ON THE FRONT RAIL OF EACH RACK/CABINET.

d. RACK MOUNTED EQUIPMENT SHALL BE GROUNDED VIA THE CHASSIS, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

e. BONDING OF LADDER RACK SECTIONS: ATTACH BONDING STRAPS TO EACH LADDER RACK SECTION BY UTILIZING EITHER TWO (2) TRI-LOBULAR THREAD-FORMING SCREWS (NOT SELF-TAPPING OR SHEET METAL SCREWS) OR BY USING TWO (2) STANDARD BOLTS WITH TWO (2) "TYPE B" INTERNAL / EXTERNAL TOOTH LOCK WASHERS PER BOLT. IF THREAD-FORMING SCREWS ARE NOT USED, REMOVE PAINT AT EACH CONNECTION POINT AND USE AN APPROVED ANTI-OXIDANT PRIOR TO ATTACHING THE BONDING STRAP.

## TECHNOLOGY TERMINAL BACKBOARD NOTES:

1. WHERE INDICATED ON DRAWINGS, CONTRACTOR TO PROVIDE NEW PLYWOOD TERMINAL BACKBOARDS. USE DOUGLAS FIR PLYWOOD, INTERIOR A/C GRADE, FINISHED ONE SIDE AND PRIME COAT PAINTED ON ALL SURFACES WITH A FINISH COAT OF FIRE RETARDANT WHITE ENAMEL, ON EACH PLYWOOD SHEET LEAVE ONE (1) FIRE MARSHAL STAMP UNPAINTED FOR INSPECTION. UNLESS OTHERWISE INDICATED, USE 8'-0" HIGH X LENGTH AS SHOWN ON DRAWINGS X 3/4" THICK PLYWOOD. REFERENCE BACKBOARD ELEVATIONS FOR MORE INFORMATION.

## TECHNOLOGY PATHWAY NOTES:

1. PATHWAYS CAN BE DIVIDED UP INTO TWO SEPARATE CATEGORIES, OUTSIDE PLANT (OSP) AND INSIDE PLANT (ISP). IT IS THE SCS AND/OR LV SYSTEM(S) CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL EXISTING PATHWAYS (CONDUIT, CABLE TRAY, ETC) THAT WILL BE UTILIZED ON THE PROJECT, AND COORDINATE WITH THE ON-SITE ELECTRICAL OR GENERAL CONTRACTOR TO PROVE ALL PATHS SUBJECT TO BE USED ON THIS PROJECT, BEFORE INSTALLATION. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION ALL UNDERGROUND (OSP) PATHWAYS, NON-ACCESSIBLE AND OPEN CEILING SPACE PATHWAYS AS DESCRIBED IN SECTION F, CONTRACTOR GUIDELINES OF THESE TECHNOLOGY GENERAL NOTES.

2. ALL PULL-BOXES SHALL BE SIZED AND INSTALLED PER ANSI/TIA-569-D. PULL-BOXES FOR IN/UNDER SLAB CONDUIT RUNS ARE NOT PERMITTED UNLESS OTHERWISE NOTED. PULL-BOXES FOR OVERHEAD CONDUIT RUNS SHALL BE LOCATED ABOVE ACCESSIBLE CEILINGS WITHIN THE ACCESSIBLE CEILING SPACE AND SUPPORTED INDEPENDENTLY FROM THE STRUCTURE AND CONDUIT SUPPORTS. PULL-BOXES FOR ROOF MOUNTED OR EXTERIOR ABOVE GRADE APPLICATIONS SHALL BE NEMA 3R RATED. PULL-BOXES SHALL BE SIZED ACCORDING TO THE FOLLOWING: FOR FILL RATIO BASED CONDUIT SIZING REFER TO THE FILL RATIO TABLE 1A - 2B BELOW AND REFERENCE TO ANSI/TIA-569-D.

PULLBOX SIZING PER ANSI/TIA 569-D

| Conduit Size | WIDTH | LENGTH | DEPTH | WIDTH INCREASE PER ADDITIONAL CONDUIT |
|---|---|---|---|---|
| 1" | 4" | 15"... | 3" | 2" |
| 2" | 8" | 36" | 4" | 5" |
| 3" | 61 | 48" | 5" | 6" |
| 4" | 101 | 60" | 8" | 8" |

FILL RATIO TABLE 1A - Conduit

| Conduit Size | .13 | .18 | .19 | .20 | .21 | .22 | .23 | .24 | .25 | .26 | .27 | .28 | .29 | .30 | .31 | .32 | .33 | .34 | .35 | .37 | .39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/4" | 16 | 8 | 7 | 6 | 6 | 5 | 5 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 1 | 1 |
| 1" | 26 | 13 | 12 | 11 | 9 | 9 | 8 | 7 | 7 | 6 | 6 | 5 | 5 | 4 | 4 | 4 | 3 | 3 | 3 | 2 | 2 |
| 1 1/4" | 45 | 23 | 21 | 19 | 17 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 9 | 8 | 7 | 7 | 6 | 6 | 5 | 5 | 5 |
| 1 1/2" | 61 | 32 | 28 | 25 | 23 | 21 | 19 | 18 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 10 | 9 | 8 | 8 | 7 | 6 |
| 2" | 101 | 52 | 47 | 42 | 38 | 35 | 32 | 29 | 27 | 25 | 23 | 21 | 20 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 |
| 2 1/2" | 176 | 92 | 82 | 74 | 67 | 61 | 56 | 51 | 47 | 44 | 40 | 38 | 35 | 33 | 31 | 29 | 27 | 25 | 24 | 21 | 19 |
| 3" | 266 | 139 | 124 | 112 | 102 | 93 | 85 | 78 | 72 | 66 | 61 | 57 | 53 | 50 | 46 | 43 | 41 | 38 | 36 | 32 | 29 |
| 3 1/2" | 347 | 181 | 162 | 146 | 133 | 121 | 111 | 102 | 94 | 86 | 80 | 74 | 69 | 65 | 61 | 57 | 53 | 50 | 47 | 42 | 38 |
| 4" | 444 | 231 | 208 | 187 | 170 | 155 | 142 | 130 | 120 | 111 | 103 | 95 | 89 | 83 | 78 | 73 | 68 | 64 | 61 | 54 | 49 |

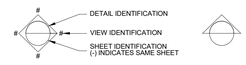
FILL RATIO TABLE 2A - Cable Tray / Wire Basket / Raceway

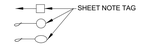
| Tray Size (WxD) | .13 | .18 | .19 | .20 | .21 | .22 | .23 | .24 | .25 | .26 | .27 | .28 | .29 | .30 | .31 | .32 | .33 | .34 | .35 | .37 | .39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4x4 | 482 | 251 | 225 | 203 | 184 | 168 | 154 | 141 | 130 | 120 | 111 | 103 | 96 | 90 | 84 | 79 | 74 | 70 | 66 | 59 | 53 |
| 6x4 | 723 | 377 | 338 | 305 | 277 | 252 | 231 | 212 | 195 | 180 | 167 | 155 | 145 | 135 | 127 | 119 | 112 | 105 | 99 | 89 | 80 |
| 12x4 | 1447 | 754 | 677 | 661 | 554 | 505 | 462 | 424 | 391 | 361 | 335 | 311 | 290 | 271 | 254 | 238 | 224 | 211 | 199 | 178 | 160 |
| 18x4 | 2170 | 1132 | 1016 | 917 | 831 | 758 | 693 | 636 | 587 | 542 | 503 | 467 | 436 | 407 | 381 | 358 | 336 | 317 | 299 | 267 | 241 |
| 24x4 | 2894 | 1509 | 1

# TECHNOLOGY SYMBOL LEGEND:

ALL NOTES ARE TYPICAL UNLESS NOTED OTHERWISE ON PLANS AND DETAILS

| ROW# | SYMBOL | DESCRIPTION | BACK BOX | PLASTER RING | MOUNTING HEIGHT | CONDUIT | CABLING RESPONSIBILITY | | | CABLE MFR. | CABLE PRODUCT NUMBER | DEVICE RESPONSIBILITY | | | DEVICE MFR. | DEVICE PRODUCT NUMBER | DEVICE ACCESSORY | MAX. LOAD | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CFCI | OFCI | OFOI | | | CFCI | OFCI | OFOI | | | | | |
| 1 | MDF (E) | MDF | N/A | N/A | N/A | N/A | | | | N/A | N/A | | | | EXISTING | | | N/A | N/A |
| 2 | IDF (E) | IDF | N/A | N/A | N/A | N/A | | | | N/A | N/A | | | | EXISTING | | | N/A | N/A |
| 3 | | CONDUIT SLEEVES,<br>SIZE AND QTY. AS NOTED PER PLAN | N/A | N/A | N/A | N/A | | | | N/A | N/A | ✓ | | | GENERAL | EMT / RIGID | N/A | N/A | N/A |
| 4 | ○ | CONDUIT RISER UP/DOWN,<br>SIZE AND QTY. AS NOTED PER PLAN | N/A | N/A | N/A | N/A | | | | N/A | N/A | ✓ | | | GENERAL | EMT / RIGID | N/A | N/A | N/A |
| 5 | J | J-HOOK<br>PROVIDE COLOR CLIP | N/A | N/A | N/A | N/A | | | | N/A | N/A | ✓ | | | B-LINE | BCH-32 /<br>BCH-64 | N/A | N/A | INSTALL 6" ABOVE CEILING |
| 6 | # | DATA / VOICE WORK AREA OUTLET<br># DENOTES DROP QTY.,<br>IF NONE, DROP QTY. EQUALS ONE (1) | 4" SQ., 2-1/8" DEEP | 2-DEVICE | +16" TO BOTT. | 1 EA. 3/4"C | | | ✓ | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | N/A | N/A | N/A | N/A | PAINT PLASTER RING "BLUE"<br>FOR PRE SHEETROCK<br>INSPECTION |
| 7 | WAP | WIRELESS ACCESS POINT, CEILING MOUNT<br>PROVIDE TWO (2) DROPS | N/A | N/A | CEILING. | N/A | | | ✓ | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | | | ✓ | OWNER FURNISHED | | | N/A | N/A |
| 8 | | LED TV/MONITOR WALL MOUNT<br>FULL ARTICULATING | 4-11/16" SQ.,<br>2-1/8" DEEP | 2-DEVICE | PER DETAIL | PER DETAIL | | | ✓ | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | CHIEF | TS525TU W/<br>TA500 | N/A | N/A | LED TV/MONITOR SIZE AS<br>NOTED PER PLAN |
| 9 | AVc | AUDIO-VIDEO WALL CONTROL PANEL,<br>LED TOUCH PANEL | 4" SQ., 2-1/8"<br>DEEP | 2-DEVICE | +48" TO TOP | 1 EA. 3/4"C | | | ✓ | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | CRESTRON | PENDING | N/A | N/A | PAINT PLASTER RING "BLUE"<br>FOR PRE SHEETROCK<br>INSPECTION |
| 10 | AVi | AUDIO-VIDEO INPUT PLATE<br>HDMI W/ STEREO AUDIO IN/OUT | 4-11/16" SQ.,<br>2-1/8" DEEP | 2-DEVICE | +16" TO BOTT. | 1 EA. 1-1/4"C | | | ✓ | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | CRESTRON | PENDING | N/A | N/A | PAINT PLASTER RING "BLUE"<br>FOR PRE SHEETROCK<br>INSPECTION |
| 11 | FB | AUDIO-VIDEO FLOOR BOX W/<br>FLUSH CARPET LID | | | | 2 EA. 1"C | | | ✓ | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | LEGRAND | RFB11 | N/A | N/A | |
| 12 | CAM-# | SURVEILLANCE CAMERA<br>W/ SMOKE DOME | 4" SQ., 2-1/8"<br>DEEP | 1-DEVICE | CEILING | 1 EA. 3/4"C | | | ✓ | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | GENETECH | OWNER<br>FURNISHED | N/A | N/A | PAINT PLASTER RING "BLUE"<br>FOR PRE SHEETROCK<br>INSPECTION |
| 13 | | PROXIMITY MOTION SENSOR<br>W/ GIMBAL | 4" SQ., 2-1/8"<br>DEEP | 1-DEVICE | +96" TO<br>CENTER | 1 EA. 1/2"C | ✓ | | | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | GENETECH | OWNER<br>FURNISHED | N/A | N/A | PAINT PLASTER RING "BLUE"<br>FOR PRE SHEETROCK<br>INSPECTION |
| 14 | | DOOR POSITION CONTACT,<br>1"-DIA., DPDT | 4" SQ., 2-1/8"<br>DEEP | 2-DEVICE | TOP OF<br>DOOR FRAME | 1 EA. 1/2"C | ✓ | | | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | ABLOY | EA500 | N/A | N/A | PAINT PLASTER RING "BLUE"<br>FOR PRE SHEETROCK<br>INSPECTION |
| 15 | R | PROXIMITY CARD READER | SINGLE<br>GANG, 2-1/8"<br>DEEP | 1-DEVICE | +48" TO TOP | 1 EA. 1/2"C | ✓ | | | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | GENETECH | OWNER<br>FURNISHED | N/A | N/A | N/A |
| 16 | AH | ACCESS HARDWARE, ELECTRIFIED<br>*PER DIVISION 08 71 00* | N/A | N/A | CEILING. | N/A | ✓ | | | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | PER DIVISION 08 HARDWARE CONSULTANT | | | N/A | N/A |
| 17 | DR | DURESS BUTTON | SINGLE<br>GANG, 2-1/8"<br>DEEP | 1-DEVICE | +24" TO TOP | 1 EA. 1/2"C | | | | LEVITON | CAT6A: 11140627<br>JACK: 6110G-R*6 | ✓ | | | GENETECH | OWNER<br>FURNISHED | N/A | N/A | N/A |







NOTES:

1. REFERENCE EIA/TIA STANDARDS.
2. ROUTE CONDUIT IN WALL TO NEAREST TO ACCESSIBLE CEILING SPACES.
3. USE EXTENSION RINGS IF NEEDED, ON ALL LOCATIONS.
4. REFERENCE AUDIO VISUAL SPECIFICATIONS AND MANUFACTURER GUIDELINES WHEN DETERMINING BACK BOX SIZE FOR AV EQUIPMENT.


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STATE OF CALIFORNIA

# SAN BERNARDIO PUBLIC HEALTH

451 E VANDERBILT WAY #200
SAN BERNARDINO, CALIFORNIA

Developed for
SAN BERNARDINO COUNTY

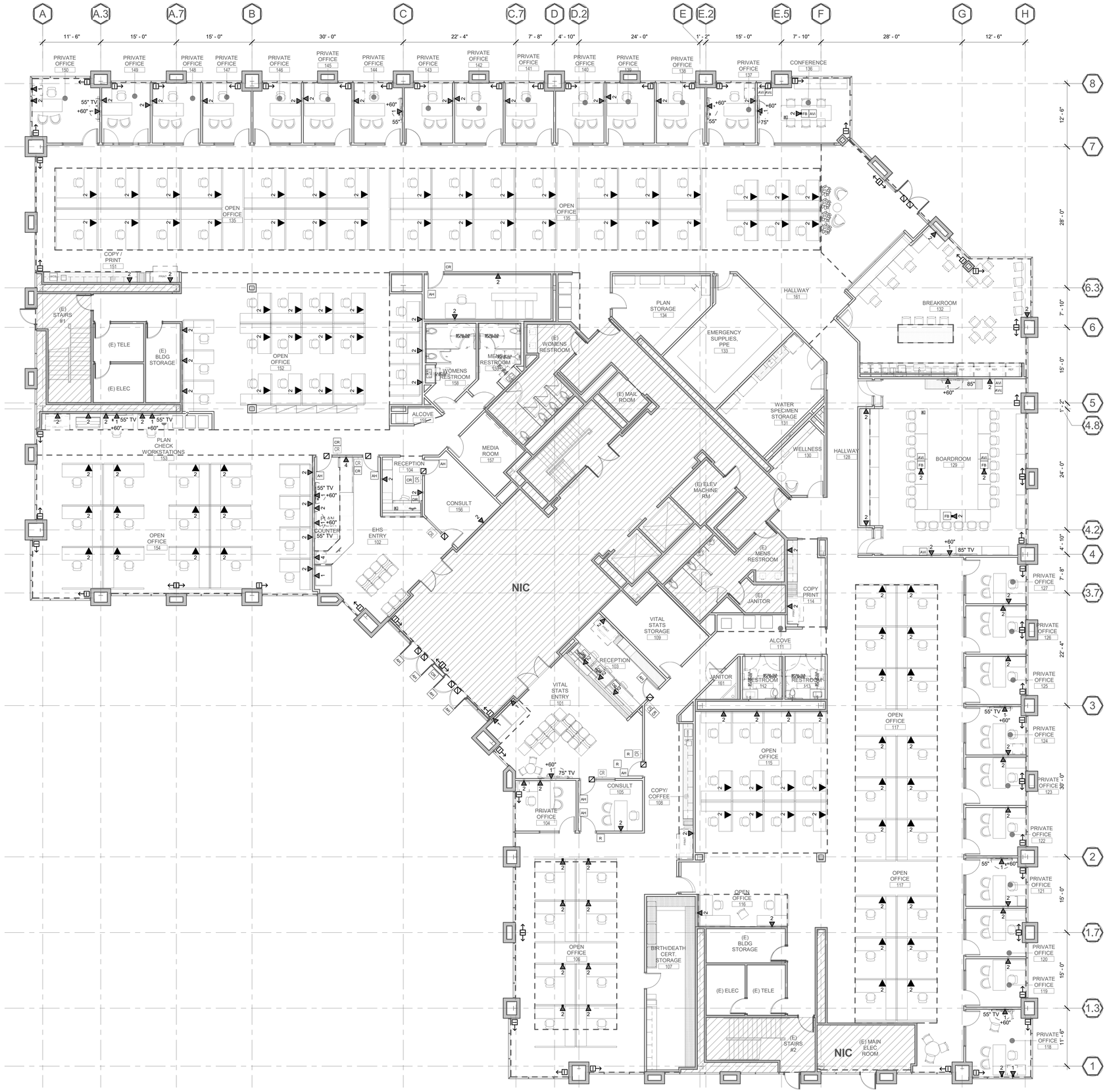
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| Submittal | Date |
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| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/21/2025 |
| CITY SUBMITTAL | 08/08/2025 |

| | |
|---|---|
| Job Number | 32467 |
| Checked By | LPCE |
| Scale | |

TECHNOLOGY LEGENDS

T0.2




**1** **TECHNOLOGY FIRST FLOOR PLAN**
SCALE: 1/8" = 1'-0"

## TECHNOLOGY GENERAL SHEET NOTES:

A. REFER TO ARCHITECTURAL DRAWINGS FOR ALL BUILDING PLANS AND DIMENSIONS.

B. REFER TO ELECTRICAL DRAWINGS FOR ALL TECHNOLOGY POWER CIRCUIT REQUIREMENTS.

C. CONTRACTOR SHALL UTILIZE 3-DIMENSION TECHNOLOGY REVIT BIM MODEL FOR TRADES COORDINATION IN CONSTRUCTION. SYSTEMS INSTALLATION SHALL BE IN GENERAL PLACEMENT OF DESIGN AS SHOWN ON APPROVED CONSTRUCTION DRAWINGS AND/OR REVIT BIM MODELS.

D. ALL EQUIPMENT SHOWN ON CONSTRUCTION DOCUMENTS SHALL BE NEW, CONTRACTOR FURNISHED/CONTRACTOR INSTALLED UNLESS SPECIFIED ON DRAWINGS AND/OR SCHEDULES.

E. ALL TECHNOLOGY SYSTEMS MUD RINGS SHALL BE PAINTED BLUE FOR A PRE-DRYWALL / FINISH INSPECTION OF IN-WALL INFRASTRUCTURE.

F. ALL EXPOSED CONDUITS SHALL BE PRIMED WHITE AND PAINTED TO MATCH SURROUNDING AREA.

G. NETWORK STATION CABLING SHALL BE TERMINATED IN PATCH PANEL(S) IN SEQUENTIAL ORDER OF ROOM NUMBER, DROP ID. CABLES SHALL BE MACHINE LABELED AT PATCH PANEL FACE, AND AT CATEGORY CABLE (BOTH ENDS AS SHOWN ON DETAILS/SPECIFICATIONS).

## (#) KEY NOTES

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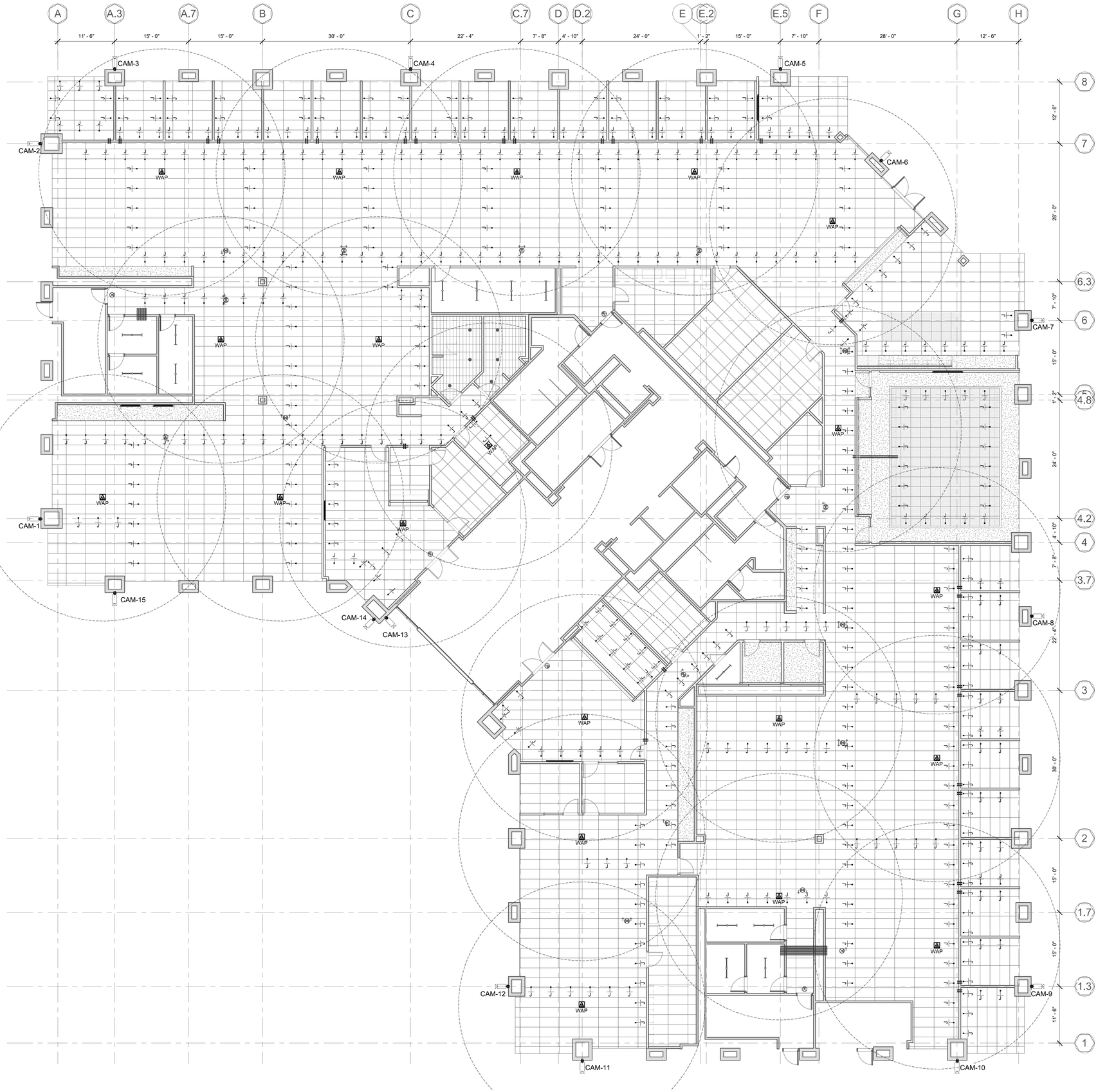
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| Scale | 1/8" = 1'-0" |

TECHNOLOGY FIRST FLOOR PLAN

T2.1




## 1 FIRST FLOOR REFLECTED CEILING PLAN

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

0 4 8 12 16 TRUE NORTH

## TECHNOLOGY GENERAL SHEET NOTES:

A. REFER TO ARCHITECTURAL DRAWINGS FOR ALL BUILDING PLANS AND DIMENSIONS.

B. REFER TO ELECTRICAL DRAWINGS FOR ALL TECHNOLOGY POWER CIRCUIT REQUIREMENTS.

C. CONTRACTOR SHALL UTILIZE 3-DIMENSION TECHNOLOGY REVIT BIM MODEL FOR TRADES COORDINATION IN CONSTRUCTION. SYSTEMS INSTALLATION SHALL BE IN GENERAL PLACEMENT OF DESIGN AS SHOWN ON APPROVED CONSTRUCTION DRAWINGS AND/OR REVIT BIM MODELS.

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## (#) KEY NOTES

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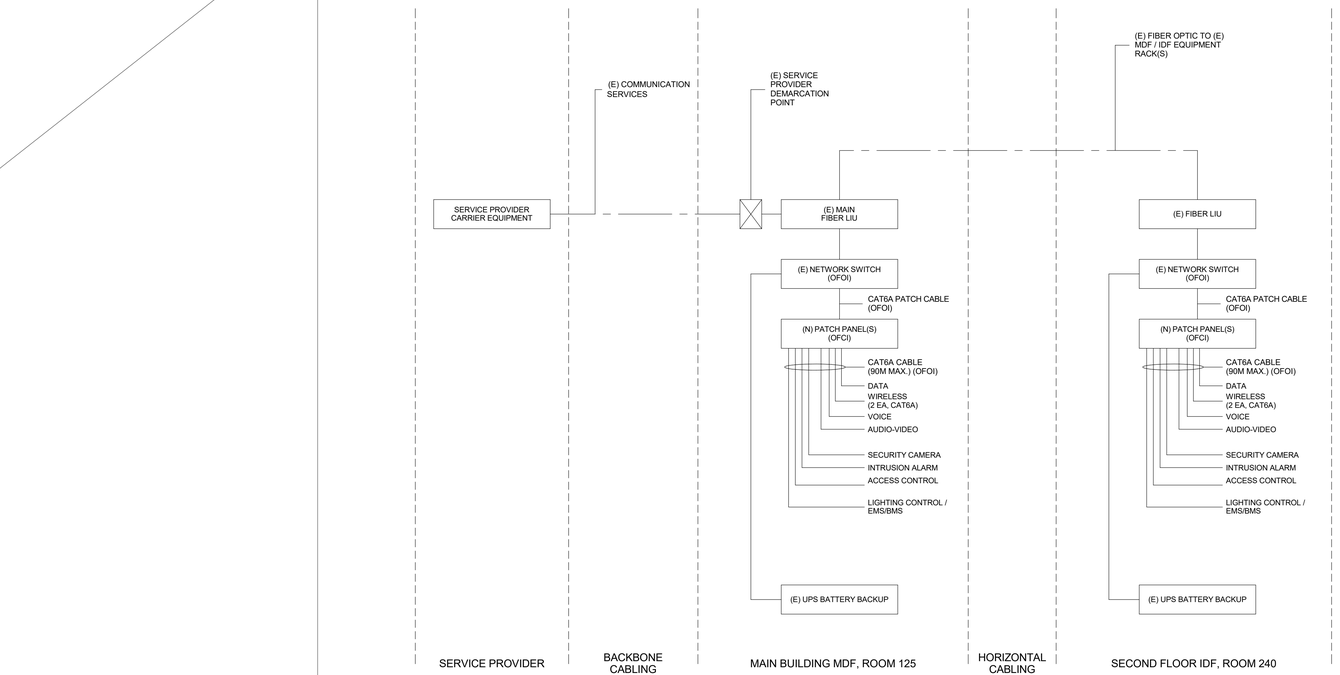
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TECHNOLOGY FIRST FLOOR CEILING PLANS

T2.2




TECHNOLOGY NETWORK SYSTEM ONE-LINE DIAGRAM

SCALE: N/A

1

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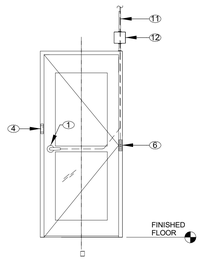
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| Scale | |

TECHNOLOGY ONE-LINE DIAGRAMS

T4.1

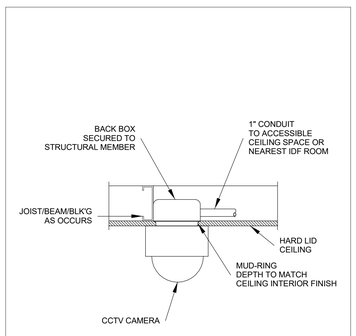
1. ELECTRIFIED LATCH/TRIM
2. PANIC, DOOR HARDWARE
3. PANIC LATCH RETRACTION MOTOR
4. CARD READER, MULLION (TYP, U.N.O. OR WALL MOUNT AS NOTED PER PLAN)
5. RX SWITCH
6. ELECTRIFIED DOOR POSITION HINGE
7. HANDLE, DOOR HARDWARE
8. LOCKSET
9. ADJACENT WALL, AS SHOWN ON PLANS
10. BACK BOX
11. CONDUIT (TYPE PER PLAN), ROUTE TO NEAREST PULL BOX, CABLE TRAY AS SHOWN PER PLAN
12. 4" SQUARE JUNCTION BOX

NOTE: MIRROR SINGLE DOOR ORIENTATION AT CENTERLINE FOR RIGHT/LEFT HAND DOOR SWING AS OCCURS AT DOOR CONDITION.



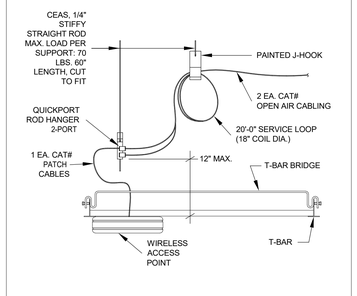

## MOTION DETECTOR COVERAGE

SCALE: N.T.S. | 23




## SURVEILLANCE CAMERA, INTERIOR HARD LID CEILING

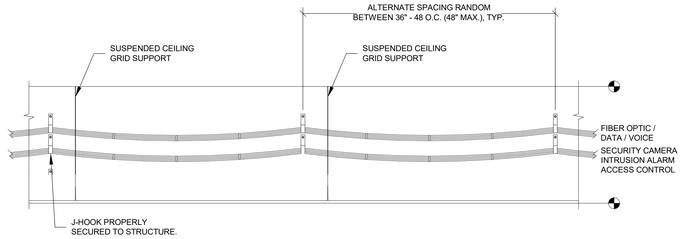
SCALE: N.T.S. | 19




NOTE:
1) ASSEMBLY NOT TO EXCEED 20 LBS.

## ABOVE CEILING WIRELESS ACCESS POINT

SCALE: N.T.S. | 15

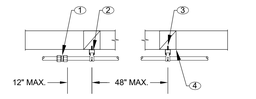



## J-HOOK PATHWAY, ABOVE SUSPENDED CEILING

SCALE: N.T.S. | 7

1. WEATHERPROOF COUPLING DEVICE BOX OR JUNCTION, TYP.
2. UNISTRUT P1000T, TYP.
3. #12 SHEET METAL SCREW W/ HEX HEAD AND WASHER,
4. BLK'G

4. UNISTRUT UNIVERSAL PIPE CLAMP FOR 1/2" TO 2" CONDUIT
   - 1/2" - P1211 (16 GA)
   - 3/4" - P1212 (16 GA)
   - 1" - P1213 (16 GA)
   - 1 1/4" - P1214 (14 GA)
   - 1 1/2" - P1215 (14 GA)
   - 2" - P1217 (14 GA)

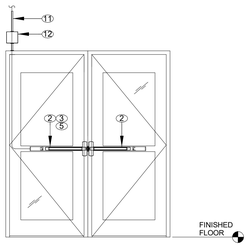



## CONDUIT SUPPORT

SCALE: N.T.S. | 3

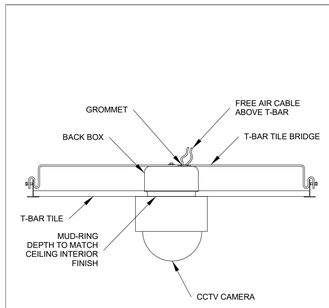
1. ELECTRIFIED LATCH/TRIM
2. PANIC, DOOR HARDWARE
3. PANIC LATCH RETRACTION MOTOR
4. CARD READER, MULLION (TYP, U.N.O. OR WALL MOUNT AS NOTED PER PLAN)
5. RX SWITCH
6. ELECTRIFIED DOOR POSITION HINGE
7. HANDLE, DOOR HARDWARE
8. LOCKSET
9. ADJACENT WALL, AS SHOWN ON PLANS
10. BACK BOX
11. CONDUIT (TYPE PER PLAN), ROUTE TO NEAREST PULL BOX, CABLE TRAY AS SHOWN PER PLAN
12. 4" SQUARE JUNCTION BOX

NOTE: MIRROR SINGLE DOOR ORIENTATION AT CENTERLINE FOR RIGHT/LEFT HAND DOOR SWING AS OCCURS AT DOOR CONDITION.



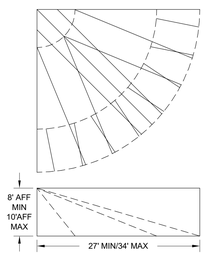

## MOTION DETECTOR COVERAGE

SCALE: N.T.S. | 21



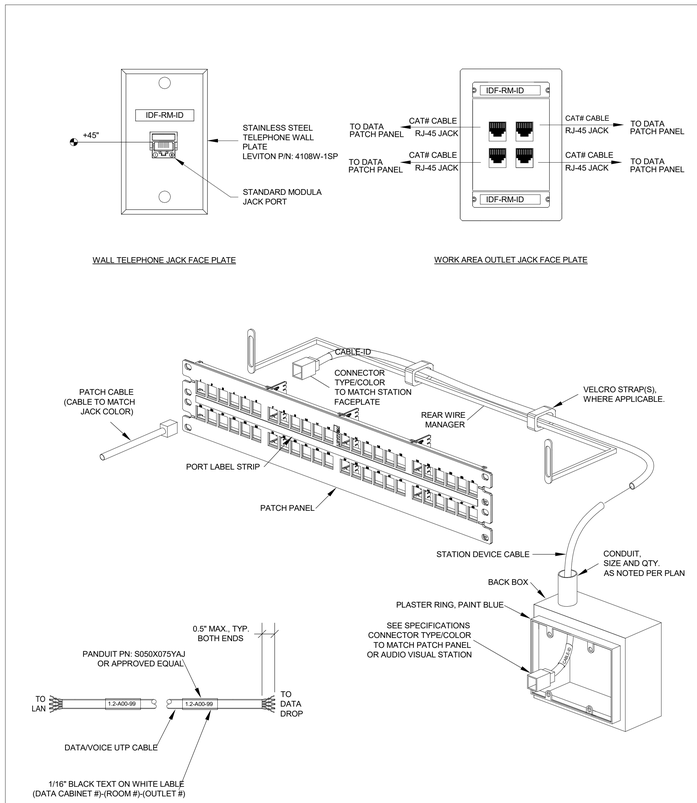

## SURVEILLANCE CAMERA, INTERIOR ACT CEILING

SCALE: N.T.S. | 18




## WALL MOUNTED MOTION SENSOR COVERAGE

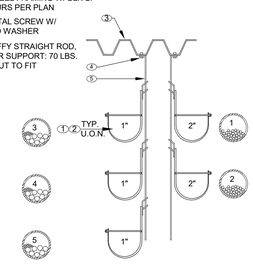
SCALE: N.T.S. | 17




## NETWORK PERMANENT LINK TRANSMISSION CHANNEL

SCALE: N.T.S. | 9

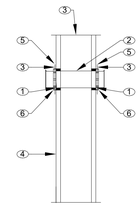
1. PAINTED J-HOOK W/ COLOR CLIP, COOPER INDUSTRIES: BCH12, BCH32 MAX. WEIGHT LOADING: 25 LBS.
2. OVERHEAD STEEL FRAMING W/ BLK'G. TYPE AS OCCURS PER PLAN
3. #12 SHEET METAL SCREW W/ HEX HEAD AND WASHER
4. CEAS, 1/4" STIFFY STRAIGHT ROD, MAX. LOAD PER SUPPORT: 70 LBS. 60" LENGTH, CUT TO FIT




## CEILING MOUNTED J-HOOKS

SCALE: N.T.S. | 5

1. DRAFT STOP OR FIRE CAULK ACCORDING TO WALL PENETRATION DETAILS
2. THREADED, RIGID, OR IMC CONDUIT
3. SCREW ON BUSHING
4. WALL
5. REDUCING WASHER OR PLATE
6. SCREW ON LOCKING RINGS FRONT & BACK (TYP.)




## CONDUIT, SLEEVE / CORE

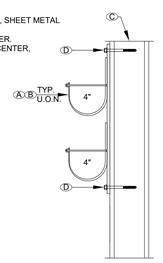
SCALE: N.T.S. | 1

Ⓐ J-HOOK, COOPER INDUSTRIES: BCH64-#S MAX. WEIGHT LOADING: 25 LBS.

Ⓑ J-HOOK COLOR ID CLIP, COOPER INDUSTRIES BCHID-(COLOR ID)32

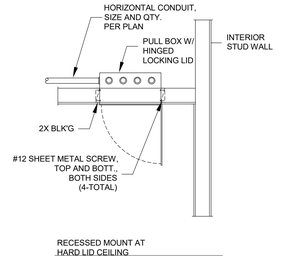
Ⓒ WALL STUD

Ⓓ #12X2-1/2" SELF TAPPING, SHEET METAL SCREW (ZINC PLATED) W/ HEX HEAD AND WASHER. ATTACH AT EACH STUD CENTER, OR 4'-0" MAX. SPACING.




## J-HOOK, WALL MOUNT

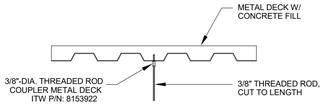
SCALE: N.T.S. | 6




RECESSED MOUNT AT HARD LID CEILING

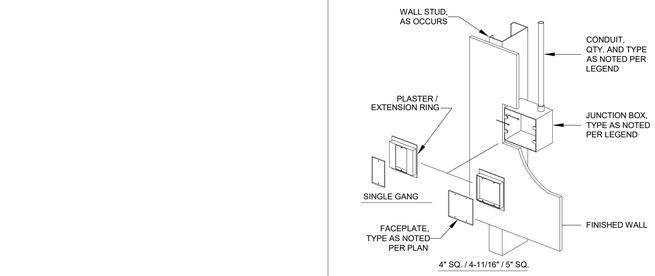
## INTERIOR PULL BOX, CEILING RECESS MOUNT

SCALE: N.T.S. | 2



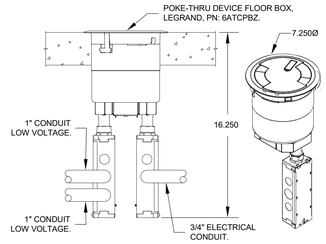

## THREADED ROD, METAL DECK

SCALE: N.T.S. | 4




## JUNCTION BOX, WALL MOUNT

SCALE: N.T.S. | 12




NOTE:
1. ORDER WITH BRONZE COVER PLATE

## FLOOR POKE THROUGH

SCALE: N.T.S. | 8


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EXP. 9-30-26
ELECTRICAL
STATE OF CALIFORNIA

# SAN BERNARDIO PUBLIC HEALTH

451 E VANDERBILT WAY #200
SAN BERNARDINO, CALIFORNIA

Developed for
SAN BERNARDINO COUNTY

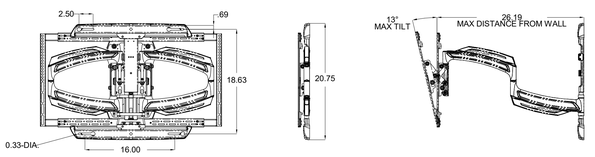
| Revision | Date |
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| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/21/2025 |
| CITY SUBMITTAL | 08/08/2025 |

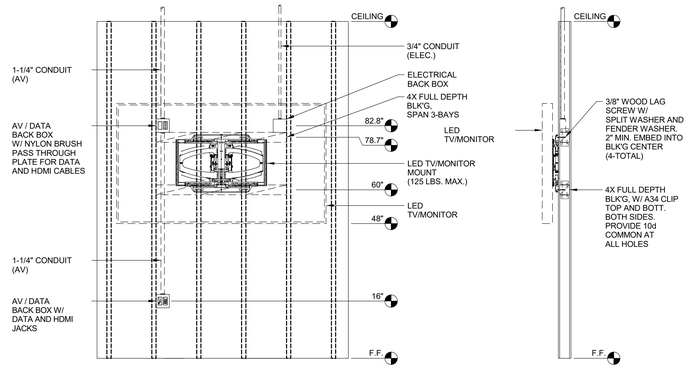
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| Job Number | 32467 |
| Checked By | Checker |
| Scale | |

TECHNOLOGY DETAILS

T8.1




FRONT VIEW | SIDE VIEW | SIDE VIEW (EXTENDED)




LED TV/MONITOR MOUNTING
86"-DIAGONAL DISPLAY

SCALE: N.T.S.

1

LPA

ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING

949-261-1001 Office

**LPADesignStudios.com**

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Irvine, California 92617

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SAN BERNARDINO, CALIFORNIA

Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 05/21/2025 |
| CITY SUBMITTAL | 08/08/2025 |

| | |
|---|---|
| Job Number | 32467 |
| Checked By | Checker |
| Scale | |

AUDIO-VIDEO DETAILS

T8.2

Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814)
and ANSI/ULC263 (ASTM E119)

CLIV.R14288
Wall-opening Protective Materials

SpecSeal Power Shield Box Inserts, for use with flush device UL Listed Metallic Outlet Boxes without internal clamps installed with steel mud rings in framed wall assemblies. When protective material is used in outlet boxes on both sides of the wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the boxes are not installed back-to-back. Installation shall comply with the National Electrical Code (NFPA 70). The max outlet box dimensions, hourly rating, type of stud, use of stud cavity insulation and type of faceplate are tabulated below. Additional general construction features shall comply as follows:

A. Studs - Unless otherwise specified, the minimum stud width is 3-1/2 in. (89 mm).

B. Stud Cavity Insulation - Where indicated in the table below, stud cavity insulation to consist of min 3-1/2 in. (89 mm) thick fiberglass (min 0.5 pcf or 8 kg/m3) or mineral fiber (min 4 pcf or 64 kg/m3). Unless indicated as required, stud cavity insulation is optional.

C. Wall Design - Stud composition is indicated in the table below. Wall construction shall comply with the individual U300, U400 or V400 Series Wall and Partition Design in the Fire Resistance Directory.

D. Pad Dimensions - The minimum dimensions of the insert pad are shown in the table below. Pads may be cut to achieve dimensions shown in table and partial insert pads may be utilized.

| Product | Max Outlet Box Size, in. (mm) | Outlet Box Type | Outlet Box Mfr | Pad Size, in. (mm) | Rating, hr | Stud | Cavity Insulation | Face Plate Type | Putty Ball |
|---|---|---|---|---|---|---|---|---|---|
| EP 23 | 2 x 3 x 2-1/4 (51 x 76 x 57) deep | - | - | 1-7/8 x 2-3/4 (48 x 70) | 2 | Steel | No | Steel | - |
| EP 23 | 2 x 3 x 2-1/4 (51 x 76 x 57) deep | - | - | 1-7/8 x 2-3/4 (48 x 70) | 2 | Steel | Yes | Plastic | - |
| EP 23 | 2 x 3 x 2-1/4 (51 x 76 x 57) deep | - | - | 1-7/8 x 2-3/4 (48 x 70) | 1 | Steel or Wood | Yes | Plastic or Steel | - |
| EP 24 | 2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep | - | - | 1-7/8 x 3-3/4 (48 x 95) | 2 | Steel | No | Steel | - |
| EP 24 | 2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep | - | - | 1-7/8 x 3-3/4 (48 x 95) | 2 | Steel | Yes | Plastic | - |
| EP 24 | 2-1/8 x 4 x 2-1/8 (54 x 102 x 54) deep | - | - | 1-7/8 x 3-3/4 (48 x 95) | 1 | Steel or Wood | Yes | Plastic or Steel | - |
| EP 44 | 4 x 4 x 2-1/8 (102 x 102 x 54) deep | - | - | 3-3/4 x 3-3/4 (95 x 95) | 2 | Steel | No | Steel | - |
| EP 44 | 4 x 4 x 2-1/8 (102 x 102 x 54) deep | - | - | 3-3/4 x 3-3/4 (95 x 95) | 2 | Steel | Yes | Plastic | - |
| EP 44 | 4 x 4 x 2-1/8 (102 x 102 x 54) deep | - | - | 3-3/4 x 3-3/4 (95 x 95) | 1 | Steel or Wood | Yes | Plastic or Steel | - |
| EP 45 | 4-11/16 x 4-11/16 x 2-1/8 (119 x 119 x 54) deep | - | - | 4-1/2 x 4-1/2 (114 x 114) | 1 or 2 | Steel or Wood | Yes | Plastic or Steel | - |
| EP 45 | 5 x 5 x 2-3/8 (114 x 127 x 60) deep | - | - | 4-1/2 x 4-1/2 (114 x 114) | 1 or 2 | Steel or Wood | Yes | Plastic or Steel | - |
| EP 45 | 5 x 5 x 2-3/8 (114 x 356 x 64) deep | - | - | 4-1/2 x 4-1/2 (114 x 349) | 1 or 2 | Steel or Wood | Yes | Plastic or Steel | - |

SpecSeal Putty Pads, for use with flush device UL Listed Metallic Outlet Boxes installed with steel mud rings or UL Listed Nonmetallic Outlet Boxes in framed wall assemblies. When protective material is used in outlet boxes on both sides of the wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the boxes are not installed back-to-back. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13 mm) at the seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box. When nonmetallic box is used with Type NM cable, a 3/16 in. (5 mm) thickness of putty shall be formed around the cable at its connection to the box and extending a min of 1 in. (25 mm). The box composition, max device dimensions, hourly rating, type of stud and type of faceplate are tabulated below. Additional general construction features shall comply as follows:

A. Studs - Unless otherwise specified, the minimum stud width is 3-1/2 in. (89 mm).

B. Stud Cavity Insulation - Unless indicated as required, stud cavity insulation is optional and may consist of min 3-1/2 in. (89 mm) thick fiberglass (min 0.5 pcf or 8 kg/m3) or mineral fiber (min 4 pcf or 64 kg/m3).

C. Wall Design - Stud composition is indicated in the table below. Wall construction shall comply with the individual U300, U400 or V400 Series Wall and Partition Design in the Fire Resistance Directory.



D. Metallic Outlet Boxes - Except as indicated in the table below, when steel outlet boxes are used and the boxes are interconnected by means of electrical metallic tube or conduit, a ball of putty is to be installed to plug the open end of each electrical metallic tube (EMT) or conduit within the outlet box. When MC cable is used and/or when the outlet boxes are not interconnected, the ball of putty is not required.

E. Nonmetallic Outlet Boxes - The box manufacturer is indicated in the table below. Boxes shall bear a 2 hr rating under the "Outlet Boxes and Fittings Classified for Fire Resistance" category in the Fire Resistance Directory.

| Model | Max Outlet Box in. (mm) | Outlet Box Type | Outlet Box Mfr | Pad Size in. (mm) | Rating, hr | Stud | Cavity Insulation | Face Plate Type | Putty Ball |
|---|---|---|---|---|---|---|---|---|---|
| - | 4 x 4 x 2-1/8 (102 x 102 x 54) deep | Steel | N.A. | - | 1 | Steel or Wood | - | Steel | No |
| - | 4 x 4 x 2-1/8 (102 x 102 x 54) deep | Steel | N.A. | - | 1 | Steel or Wood | - | Plastic | Yes |
| - | 4-11/16 x 4 x 2-1/8 (119 x 119 x 54) deep | Steel | N.A. | - | 1 or 2 | Steel or Wood | - | Steel | Yes |
| - | 4-1/2 x 5 x 2-3/8 (114 x 127 x 60) deep | Steel | N.A. | - | 1 or 2 | Steel or Wood | - | Steel | Yes |
| - | 4-1/2 x 14 x 2-1/2 (114 x 127 x 60) deep | Steel | N.A. | - | 1 or 2 | Steel or Wood | - | Steel | Yes |
| - | 3-3/4 x 4 x 3 (95 x 102 x 76) deep | Polyvinyl Chloride | Lamson & Sessions or Carlon | - | 1 or 2 | Wood | - | Plastic or Steel | N.A. |
| - | 3-3/4 x 4 x 3 (95 x 102 x 76) deep | Phenolic | Allied Moulded Prods | - | 1 or 2 | Wood | - | Plastic or Steel | N.A. |
| - | 3-3/4 x 4 x 3 (95 x 102 x 76) deep | Polycarbonate | Thomas & Betts | - | 1 or 2 | Wood | - | Plastic or Steel | N.A. |
| - | 3-3/4 x 4 x 3 (95 x 102 x 76) deep | Phenolic | Thomas & Betts | - | 1 or 2 | Wood | - | Plastic or Steel | N.A. |
| - | 2-1/4 x 3-3/4 x 2-3/4 (57 x 95 x 70) deep | Polyvinyl Chloride | Pass & Seymour | - | 1 or 2 | Wood | - | Plastic or Steel | N.A. |

SpecSeal Putty Pads , for use with maximum 4 by 4 by 2-1/8 in. (102 by 102 by 54 mm) deep flush device UL Listed Metallic Outlet Boxes installed with steel mud rings and with steel faceplates in 1 hr or 2 hr fire rated gypsum board wall assemblies constructed with min 5-1/2 in. (140 mm) wide wood or steel studs and with stud cavities filled with fiberglass (nom 0.5 pcf or 8 kg/m3) or mineral fiber (nom 4 pcf or 64 kg/m3) insulation. When protective material is used on outlet boxes on both sides of the wall as directed, the boxes may be installed back-to-back provided that the boxes on opposite sides of the wall are not interconnected with conduit or, when interconnected, the open end of the conduit within the outlet box is filled with a ball of putty. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13 mm) at the seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box.

SpecSeal EP23, EP24 and EP44 Power Shield Box Inserts and SpecSeal Putty Pads, for use with maximum 4 by 4 by 1-1/2 or 2-1/8 in. (102 by 102 by 38 or 54 mm) deep flush device UL Listed Metallic Outlet Boxes installed with steel mud rings and with steel or plastic faceplates in 1 hr or 2 hr fire rated gypsum board wall assemblies constructed with min 3-1/2 in. (89 mm) wide wood or steel studs. When both protective materials are used with outlet boxes on both sides of the wall as directed, the boxes may be installed back-to-back provided that the backs of the boxes are minimum 1/2 in. (13 mm) apart and provided that the boxes are not interconnected. Installation shall comply with the National Electrical Code (NFPA 70). Min 3/16 in. (5 mm) thick moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud) and to completely seal against the stud within the stud cavity. Adjoining pieces of moldable putty pads to be overlapped approx 1/2 in. (13 mm) at the seam. An additional 3/16 in. (5 mm) thickness of putty to be formed around the connector securing the end of each Type MC cable, electrical metallic tube (EMT) or conduit to the box. An insert pad shall be installed to completely cover the back inside surface of each outlet box.



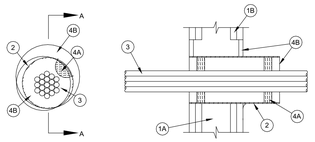
SpecSeal Putty Pads, for use with max 5 by 5 by 2 7/8 in. (127 by 127 by 73 mm) deep flush device UL Listed Metallic Outlet Boxes or UL Listed Communications-Circuit Accessories manufactured by Randl Industries Inc for use in 1 hr or 2 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. (92 mm) wide wood or steel studs and constructed as specified in the individual U300, U400, or V400 or W400 Series Wall and Partition Designs in the Fire Resistance Directory. Metallic outlet boxes to be provided with UL Listed Signal Appliance with steel cover plate manufactured by Cooper Wheelock Inc. Moldable putty pads are to be installed to completely cover the exterior surfaces of the outlet box (except for the side of the outlet box against the stud unless otherwise noted) including nailing tabs and to completely seal against the stud within the stud cavity. Multiple moldable putty pads may be installed on an outlet box to attain the required minimum thickness of putty material. Additional putty material used to seal around each conduit and/or cable fitting on the exterior of each box. A min 3/16 in. (4.8 mm) thickness of putty material is required on the exterior surfaces of flush device boxes in 1 and 2 hr fire rated Wall and Partition Designs. When the moldable putty pad outlet box protective material is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the outlet boxes are not installed back to back, except as noted.

SpecSeal EP55 Power Shield Box Inserts, for use with max 5 by 5 by 2 7/8 in. (127 by 127 by 73 mm) deep flush device UL Listed Metallic Outlet Boxes or UL Listed Communications-Circuit Accessories manufactured by Randl Industries Inc for use in 1 hr or 2 hr fire rated gypsum board wall assemblies framed with min 3-5/8 in. (92 mm) wide wood or steel studs and constructed as specified in the individual U300, U400, or V400 or W400 Series Wall and Partition Designs in the Fire Resistance Directory. Metallic outlet boxes to be provided with UL Listed Signal Appliance with steel cover plate manufactured by Cooper Wheelock Inc. Power Shield Box Insert is to be applied to the back surface of the box and may be slit to accommodate communications-circuit accessories. When the Power Shield Box Insert is used on boxes on both sides of wall as directed, the horizontal separation between outlet boxes on opposite sides of the wall may be less than 24 in. (610 mm) provided that the outlet boxes are not installed back to back, except as noted.



Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 System No. W-L-3210

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 1 and 2 Hr (See Item 1) | F Ratings - 1 and 2 Hr (See Item 1) |
| T Rating - 3/4 Hr | FT Rating - 3/4 Hr |
| | FH Ratings - 1 and 2 Hr (See Item 1) |
| | FTH Rating - 3/4 Hr |



Section A-A

1. Wall Assembly - The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (76 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* - Thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, V300, U400 , V400 or W400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 6-1/2 in. (165 mm) when sleeve (Item 2) is installed. Max diam of opening is 4 in. (102 mm) when sleeve is not used.
   The hourly F rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Steel Sleeve - (Optional) - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT), steel conduit, Schedule 5 (or heavier) steel pipe sleeve or min 0.016 in. thick (0.41 mm, No. 26 ga) galv steel sleeve installed flush with wall surfaces. The annular space between the steel sleeve and periphery of opening shall be min 0 in. (continuous point contact) to max 2 in. (51 mm). When Schedule 5 steel pipe or EMT is used, sleeve may be installed flush with or extend up to 18 in. (46 cm) beyond one or both wall surfaces. Steel sleeve may be installed at an angle not greater than 45 degrees from perpendicular. Schedule 5 steel pipe or EMT sleeves may extend continuously beyond one wall surface. Sleeve to be rigidly supported when extending from the wall surfaces.



3. Cables - Aggregate cross-sectional area of cables in steel sleeve to be max 48 percent of the aggregate cross-sectional area of the opening or sleeve. Cables to be bundled and rigidly supported on both sides of wall assembly. When the sleeve (Item 2) is installed, the annular space between the cables and the sleeve shall be min 0 in. (point contact) to max 1-1/2 in. (38 mm). When the sleeve (Item 2) is not used, the annular space between the cables and the opening shall be a min 0 in. (point contact) to a max 1/2 in. (13 mm). Cable bundle, using cables described below, may penetrate the wall at an angle not greater than 45 degrees. Any combination of the following types and sizes of copper conductor cable may be used:
   A. Max 200 pair No. AWG (or smaller) copper conductor cable with polyvinyl chloride (PVC) or plenum-rated jacketing and insulation.
   B. Max 3/C No. 2/0 AWG (or smaller) aluminum or copper conductor service entrance cable with PVC insulation and jacket.
   C. Max 3/C No. 8 AWG (or smaller) nonmetallic sheathed (Romex) cable with copper conductors, PVC insulation and jacket.
   D. Max 7/C No. 2/0 AWG (or smaller) multiconductor power and control cables with XLPE or PVC insulation and XLPE or PVC jacket.
   E. Max RG/U (or smaller) coaxial cable with fluorinated ethylene or plenum-rated insulation and jacketing.
   F. Max 62 5/48 fiber optic cable with PVC or plenum-rated insulation and jacketing.
   G. Max 4/C No. 24 AWG (or smaller) copper conductor data cable with PVC or plenum-rated insulation and jacket.
   H. Max 4/C No. 2/0 aluminum or copper conductor aluminum or steel Metal-Clad® or Armored-Clad® cable.
   I. Max ¼-in. (19 mm) copper ground cable with or without a PVC jacket.
4. Firestop System - The firestop system shall consist of the following:
   A. Packing Material - When required (See table in Item 4B), min 1 in. (25 mm) thickness of min 4.0 pcf (64 kg/m3) mineral wool batt insulation firmly packed into each end of sleeve as a permanent form. Packing material to be recessed from each end of sleeve as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* - Sealant or Putty - Fill material applied to appropriate thickness within steel sleeve, flush with edges of steel sleeve on both surfaces of wall. Min 1/2 in. (13 mm) thickness of fill material installed into annular space between sleeve and wall flush with both surfaces of the wall. Min 1/2 in. (13 mm) diam bead of sealant or "rope" of putty shall be applied around the perimeter of the sleeve on each side of the wall when sleeve extends beyond surface of wall and is installed at continuous point contact. See table below for fill material thickness requirements around cables.

| Sealant or Putty Type | Thickness, In. (mm) | Packing Material Required |
|---|---|---|
| SpecSeal Series SSS Sealant or LCI Sealant | 1/2 in. (13) | Yes |
| SpecSeal Series SSS Sealant or LCI Sealant | 1 in. (25) | No |
| SpecSeal Putty | 1 in. (25) | No |

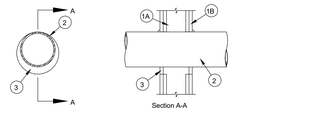
SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant, SpecSeal LCI Sealant or SpecSeal Putty

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 System No. W-L-1049

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 1 and 2 Hr (See Item 1) | F Rating - 1 and 2 Hr (See Item 1) |
| T Rating - 0 Hr | FT Rating - 0 Hr |
| L Rating At Ambient - Less Than 1 CFM/sq ft | FH Rating - 1 and 2 Hr (See Item 1) |
| L Rating At 400 F - Less Than 1 CFM/sq ft | FTH Rating - 0 Hr |
| | L Rating At Ambient - Less Than 1 CFM/sq ft |
| | L Rating At 400 F - Less Than 1 CFM/sq ft |



Section A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-5/8 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* - 5/8 in. (16 mm) thick, 4 ft (1.22 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.
   The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

1A. Metallic Sleeve - (Optional, Not Shown) - Cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) to max 0.105 in. (2.7 mm) thick sheet steel. Length of steel sleeve to be equal to the thickness of wall. Long/butonal seam of sleeve welded or overlapped min 1 in. (25 mm). The ends of the steel sleeve shall be flush or recessed max 1/4 in. (6 mm) from wall surfaces.

2. Through Penetrant - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (0 mm, point contact) to max 2 in. (51 mm). For maximum 16 in. (406 mm) diam (or smaller) pipes, annular space shall be min 0 in. (0 mm, point contact) to max 2 in. (51 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe - Nom 36 in. (914 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe - Nom 36 in. (914 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing, nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 1 in. (25 mm) diam (or smaller) flexible steel conduit.
   D. Copper Tubing - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* - Sealant - Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall. At the point contact location between through penetrant and gypsum board, a min 3/8 in. (10 mm) diam bead of fill material shall be applied at the gypsum board/through penetrant interface on both surfaces of wall.
   SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant

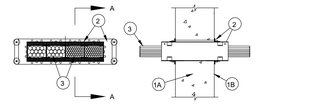
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.





Classified by
Underwriters Laboratories, Inc.
to ANSI/UL 1479 (ASTM E814) and CAN/ULC S115 System No. W-J-3098

| ANSI/UL1479 (ASTM E814) | CAN/ULC S115 |
|---|---|
| F Ratings - 2 and 4 Hr (See Item 3) | F Ratings - 2 and 4 Hr (See Item 3) |
| T Rating - 3/4 and 1 Hr (See Item 3) | FT Ratings - 3/4 and 1 Hr (See Item 3) |
| L Rating At Ambient - Less Than 1, 1.3, 4 or 7 CFM/Device Module (See Item 3) | FH Ratings - 2 and 4 Hr (See Item 3) |
| L Rating At 400 F - Less Than 1, 2 or 3 CFM/Device Module (See Item 3) | FTH Ratings - 3/4 and 1 Hr (See Item 3) |
| | L Rating At Ambient - Less Than 1, 1.3, 4 or 7 CFM/Device Module (See Item 3) |
| | L Rating At 400 F - Less Than 1, 2 or 3 CFM/Device Module (See Item 3) |



Section A-A

1. Wall Assembly - Min 6 in. (152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3 ) concrete wall. Wall may also be constructed of any UL Classified Concrete Blocks*. Opening to be max 1/4 in. (6 mm) larger than width and height dimensions of firestop device(s).
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Firestop Device* - One, two, three, four or seven firestop device modules ganged together. Each firestop device module consists of a 3 by 3 by 10-1/2 in. (76 by 76 by 267 mm) long steel tube with an intumescent material lining. Firestop device modules to be installed in accordance with the accompanying installation instructions. The space between the firestop device module(s) and the periphery of the opening shall be min 0 in. ( 0 mm, point contact) to max 1/8 in. (3.2 mm). In round openings, the space between the firestop device and the periphery of the opening shall be min 0 in. (point contact) to max 1/2 in. (13 mm). Firestop device module(s) secured in place by means of steel wall plates installed with gasketing material supplied with product. Steel wall plates installed on both sides of wall and secured to each device by means of steel set screws provided with device. Each firestop device module is to be installed with ends projecting an equal distance beyond each surface of the wall assembly. As an option, devices may be cast or grouted into wall assembly. When device is cast or grouted in place, the steel wall plates are optional.
   SPECIFIED TECHNOLOGIES INC - EZ PATH Series 33 Fire Rated Pathway
2A. Firestop Device* - Extension Module - (Optional, Not Shown) - Module attached to ends of 3 by 3 by 10-1/2 in. (76 by 76 by 267 mm) long firestop device (Item 3) to increase its length to facilitate installation in thicker walls. Each module consists of a 3 by 3 by 6 in. (76 by 76 by 152 mm) long galv steel tube with an intumescent material lining. Extension module to be installed in accordance with the accompanying installation instructions. When module is used, firestop device (Item 2) and extension module(s) secured in place by means of steel wall plates installed with gasketing material supplied with product. Steel wall plates installed on both sides of wall and secured to each device or extension module(s) by means of steel set screws provided with wall plates. Firestop device and extension module(s) assembly to be installed with ends projecting an equal distance beyond each surface of the wall assembly.
   SPECIFIED TECHNOLOGIES INC - EZ PATH Extension



3. Cables - Cables may represent a 0 to 100 percent visual fill within the loading area for each firestop device module. Cables to be rigidly supported on both sides of the wall assembly. Any combination of the following types of cables may be used:
   A. Max 400 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
   B. Max 350 kcmil single copper conductor power cable with XLPE jacket and insulation
   C. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
   D. Max 3/C No. 10 AWG metal clad or armored cable with steel or aluminum jacket.
   E. Max 3/C No. 8 AWG NM cable (Romex) with PVC insulation and jacket.
   F. Max four pair No. 22 AWG (or smaller) copper conductor data cable with PVC or plenum rated jacketing and insulation.
   G. Max RG/U coaxial cable with fluorinated ethylene insulation and jacketing.
   H. Optical fiber cable with PVC or polyethylene (PE) jacket and insulation and having a max diam of 5/8 in. (16 mm).
   When Item 3A, 3B, 3C, 3D or 3E is used, the F and FH Ratings are 2 hr and the T, FT and FTH Ratings are 3/4 hr. When max 200 pair No. 24 AWG telecommunication cable is used or when Item 3F, 3G or 3H is used, the F and FH Ratings are 4 hr and the T, FT and FTH Ratings are 1 hr.
   The L Rating for each empty firestop device module is less than 1 cfm at ambient and at 400F. When Item 3A is used, the L Rating for each firestop device module with 100 percent visual fill is 4 cfm at ambient and 3 cfm at 400F. When Item 3F is used, the L Rating for each firestop device module with 100 percent visual fill is 1.3 cfm at ambient and less than 1 cfm at 400F.When Item 3G or 3H is used, the L Rating for each firestop device module with 100 percent visual fill is 7 cfm at ambient and 2 cfm at 400F.
   * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



RATED ASSEMBLY PENETRATIONS | SCALE: NTS | 1


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SAN BERNARDINO, CALIFORNIA
Developed for
SAN BERNARDINO COUNTY

| Revision | Date |
|---|---|

| Submittal | Date |
|---|---|
| SCHEMATIC DESIGN | 03/14/2025 |
| DESIGN DEVELOPMENT | 08/21/2025 |
| CITY SUBMITTAL | 08/08/2025 |

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| Job Number | 32467 |
| Checked By | LPCE |
| Scale | |

RATED ASSEMBLY PENETRATION DETAILS

T8.3