SONORA HIGH SCHOOL

SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

PROJECT NUMBER
32433

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/01/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

LPA
ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
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Irvine, California 92617

FOR BID ONLY
NOT FOR
CONSTRUCTION

COVER SHEET

G0.00

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01/27/2026	E1.02	ELECTRICAL DEMOLITION FLOOR PLAN
01/27/2026	E1.03	ELECTRICAL DEMOLITION ROOF PLAN
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STATEMENT OF GENERAL CONFORMANCE

Application No.: # 04-124966
File No.: 30-H3)

The drawings identified as follows:

☒ All drawings of sheets included in this set not bearing my stamp and signature.
☐ Drawing sheets denoted in the sheet index as follows: _____
☐ Drawing sheets included under the following PC approval(s): _____

have been prepared by other design professionals or consultants who are licensed and authorized to prepare such drawings (plans) in this state. They have been examined by me for:

1. Design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications prepared by me, and
2. Coordination with my drawings (plans) and specifications and are acceptable for incorporation into the construction of this project.

Per Title 24, Part 1, Section 4-316(b): This Statement of General Conformance shall not be construed as relieving me of my rights, duties, and responsibilities under Sections 17302 and 81138 of the Education Code and Sections 4-336, 4-341 and 4-344 of Title 24, Part 1.

Signature — 11 / 2025 (Date)

Architect or Engineer designated to be in general responsible charge

STEVEN KEY (Print Name) — C-32815 (License Number) — 11 / 2027 (Expiration Date)

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	07/01/2025
90% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	

SHEET LIST

G0.10

SYMBOLS

COLUMN LINES

SURFACE DRAINAGE ARROW INDICATES DIRECTION OF FLOW

NORTH ARROW

TRUE NORTH PROJECT NORTH

BUILDING SECTION

SECTION ID

SHEET NUMBER

TYP

WALL SECTION

SECTION ID

SHEET NUMBER

TYP

DETAIL CALLOUTS

DETAIL ID

SHEET NUMBER

SIM

DETAIL SECTION

DETAIL ID

SHEET NUMBER

SIM

DETAIL REFERENCE

DETAIL ID

SHEET NUMBER

SIM

INTERIOR ELEVATIONS

DETAIL ID

SHEET NUMBER

SIM

ROOM DESIGNATION

ROOM NUMBER

ROOM AREA

REVISION CLOUD & TAG (OPTIONAL)

SHADED PORTION POINTS TO SIDE REFERENCED

MATCH LINE

SEE SHEET A101

DATUM POINT

KEYNOTE

TYP

WALL TYPE

DOOR DESIGNATION

OPENING DESIGNATION

EQUIPMENT TAG

FINISH TAG

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

STAIR DIRECTION

DN

UP

CENTER LINES, LEVEL LINES

HIDDEN CONSTRUCTION FEATURE

BREAK LINE

ABBREVIATIONS

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

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 EXIST 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 CONSTRUCTION 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 REQD 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 REQD, A STATEMENT IN WRITING SHALL BE GIVEN TO DSA, 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. PROVIDE ALL ACCESS PANELS AS REQD BY GOVERNING CODES TO ALL CONCEALED SPACES, VOIDS, ATTICS, ETC. VERIFY TYPE REQD WITH ARCHITECT PRIOR TO INSTALLATION.
16. NO PORTION OF WORK REQD 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.
17. 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
18. DO NOT SCALE DRAWINGS
19. PROVIDE ALL NECESSARY BLOCKING, BACKING, & FRAMING FOR LIGHT FIXTURES, ELECTRIC UNITS, AC EQUIP, RECESSED ITEMS, AND ALL OTHER ITEMS AS REQD.
20. WHERE LARGER STUDS OR FURRING ARE REQD 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.
21. 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 REQD BY THE APPLICABLE CODES. ALL DOOR SWINGS SERVING AN OCCUPANT LOAD OF 50 OR GREATER SHALL SWING IN THE DIRECTION OF TRAVEL. ALL DOORS TO COMPLY WITH CBC 1010.2.8
22. ALL GLASS AND GLAZING SHALL COMPLY WITH THE APPLICABLE CODES.
23. WALL AND CLG MATERIALS SHALL NOT EXCEED THE FLAME SPREAD CLASSIFICATIONS IN THE APPLICABLE CODES.
24. SURVEYORS CERTIFICATE REQD PRIOR TO FINAL COMPLETION.
25. THE CONTRACTOR SHALL COMPLY WITH THE APPLICABLE CODES FOR FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION.

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 REQD 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 WITHIN 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 REQD 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 REQD 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 & EXIST 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 REQD THE APPLICABLE STANDARDS AND CODES.

APPLICABLE CODES

LIST OF APPLICABLE CODES

2025	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 6, 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 BUILDING 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

APPLICABLE STANDARDS

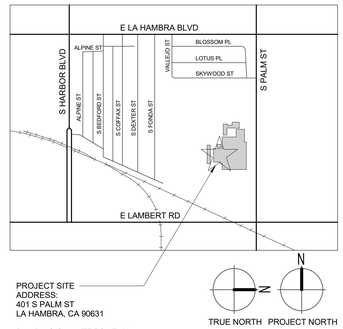
FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

ADA CONSTRUCTION SUPPORT FACILITIES

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.

VICINITY MAP



PROJECT SCOPE

1. THE SCOPE OF WORK PROPOSES MODERNIZATION OF BUILDING 400 (MATH AND SCIENCE) SCIENCE CLASSROOMS AND LABS
2. ACCESSIBILITY UPGRADES IN BLDG. 500 STAFF RESTROOMS AND BLDG. 600 STUDENT RESTROOMS.
3. EXTERIOR SITE WORK TO INCLUDE TWO (2) NEW CONCRETE LANDINGS PER NEW EGRESS DOOR PLACEMENT AT SCIENCE CLASSROOMS AND PATH OF TRAVEL UPGRADES.

LIMIT OF WORK

THE INTENT OF THE LIMIT OF WORK LINE IS TO DESCRIBE IN GENERAL THE AREAS AFFECTED BY PROJECT CONSTRUCTION. IT IS NOT INTENDED TO BE AN EXACT INDICATION OR EDGE OF THE CONSTRUCTION AREA. THE CONTRACTOR SHOULD VISIT THE SITE & BECOME FAMILIAR W/ EXG CONDITIONS & THEIR RELATIONSHIP TO THE WORK PROPOSED IN THE CONTRACT DOCUMENTS. ALL ITEMS NECESSARY FOR THE PROPER EXECUTION & COMPLETION OF THE WORK SHALL BE INCLUDED. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY & WHAT IS REQ BY ONE SHALL BE BINDING AS IF REQ BY ALL TO THE EXTENT THAT IT IS REASONABLY INFERABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED RESULTS.

RESPONSIBILITY FOR JOB SITE SAFETY

NOTICE TO PERSONS PERFORMING WORK ON JOB SITE, INCLUDING CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS & ANY AGENTS OR EMPLOYEES THEREOF

THESE PLANS & SPECIFICATIONS DO NOT PROVIDE ANY DIRECTION OR INSTRUCTIONS TO CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS OR THEIR EMPLOYEES OR AGENTS RELATED TO CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, SAFETY PRECAUTIONS, MANNERS OR METHODS OF EGRESS OR INGRESS, INCLUDING BUT NOT LIMITED TO JOB SITE SAFETY. THE PHYSICAL CONDITION OF THE JOB SITE, THE MANNER OR METHOD IN WHICH THE AREA WHERE WORK IS PERFORMED IS ACCESSED BY WORKERS, & SAFETY PROGRAMS OR SAFETY PROTOCOLS OF ANY KIND IN CONNECTION WITH THE WORK. ALL OF THE FOREGOING ARE SOLELY & EXCLUSIVELY THE RESPONSIBILITY OF THE CONTRACTOR, SUBCONTRACTOR, MATERIAL SUPPLIERS, OR ANY AGENTS OR EMPLOYEES THEREOF.

THE ARCHITECT EXPRESSLY DISCLAIMS ANY CONTROL OVER & RESPONSIBILITY FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, SAFETY PRECAUTIONS, MANNERS OR METHODS OF EGRESS OR INGRESS, INCLUDING BUT NOT LIMITED TO JOB SITE SAFETY, THE PHYSICAL CONDITION OF THE JOB SITE, THE MANNER OR METHOD IN WHICH THE AREA WHERE WORK IS PERFORMED IS ACCESSED BY WORKERS, & SAFETY PROGRAMS OR SAFETY PROTOCOLS OF ANY KIND IN CONNECTION WITH THE WORK.

THE ARCHITECT HAS NOT CONDUCTED AN EVALUATION OR ANALYSIS OF SAFETY PROCEDURES OR APPLICABLE LAW REGARDING OR RELATING TO ACCESSING THE JOB SITE OR AREAS OF THE WORK DURING THE COURSE OF CONSTRUCTION.

THE ARCHITECT, THE ARCHITECT'S DESIGNS, & ANY OTHER WORK PERFORMED BY THE ARCHITECT DO NOT ADDRESS, ANALYZE OR PROVIDE ANY DIRECTION OR ADVICE TO ANY PERSON OR ENTITY ON WHETHER OR NOT THE USE OF EXG LADDERS, DOORS, RAILINGS, INGRESS & INGRESS ROUTES OR THE LIKE ARE IN COMPLIANCE OR NON-COMPLIANCE WITH OSHA, CAL-OSHA/CALIFORNIA ONLY), OR ANY OTHER APPLICABLE STATUTE, REGULATION, OR STANDARD RELATED TO JOB SITE SAFETY DURING THE COURSE OF CONSTRUCTION OF THE IMPROVEMENTS.

ALL WORK SHALL CONFORM TO 2022 TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338; PART 1, TITLE 24, CCR.

A "DSA CERTIFIED" PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DSA SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, CCR. A MINIMUM CLASS _3_ INSPECTOR IS REQUIRED.

A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THE PROJECT.

THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR. A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK. (SECTION 4-317(C), PART 1, TITLE 24, CCR).

PROJECT DIRECTORY

CLIENT INFORMATION

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DIRECTOR OF FACILITY
TEL: 714/680-5601
VINCE MADSEN vmadsen@fjuhsd.org

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CONTACT: AUSTIN LARGENT E-MAIL: austin.largent@wsp.com

PLUMBING ENGINEER

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TEL: 949/751-5917
CONTACT: RON BRICK E-MAIL: ron.brick@wsp.com

ELECTRICAL ENGINEER

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CITY,STATE, ZIP: IRVINE, CA 92618
TEL: 949/751-5917
CONTACT: RONALD DELA CRUZ E-MAIL: ronald.delacruz@wsp.com

LIGHTING ENGINEER

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CITY,STATE, ZIP: IRVINE, CA 92618
TEL: 949/751-5917
CONTACT: CHRISTOPHER WHEAT E-MAIL: christopher.wheat@wsp.com

LOW VOLTAGE CONSULTANT

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CITY,STATE, ZIP: IRVINE, CA 92618
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CONTACT: JOE MAROTTA E-MAIL: joe.marotta@wsp.com

FIRE ANALYSIS

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CONTACT: DANNY HERNANDEZ E-MAIL: danny.hernandez@wsp.com

FIRE PROTECTION

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TEL: 949/751-5917
CONTACT: CHRIS PASCUAL E-MAIL: chris.pascual@wsp.com

SPECIFICATIONS

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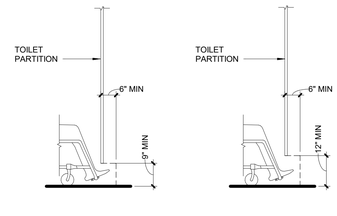
CONTACT: STEVE KEY E-MAIL: skey@lpadesignstudios.com

TITLE 24 ACCEPTANCE TESTING

THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.

LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).

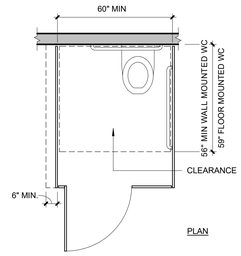
MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER



CBC 11B-604.8.1.4 & CBC 11B-604.8.1.1.3

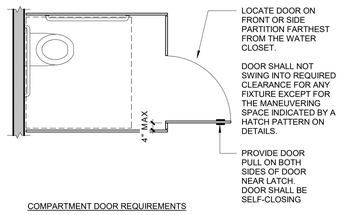
ELEVATION ADULT

ELEVATION CHILDREN (K-12)



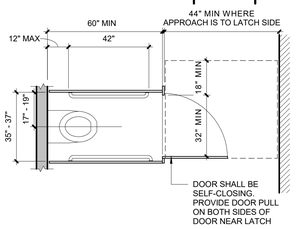
PLAN

WHEELCHAIR ACCESSIBLE TOILET COMPARTMENT TOE CLEARANCE — 3/8" = 1'-0" — 08



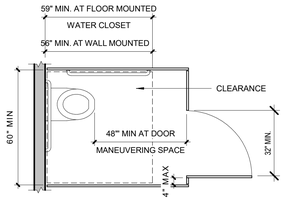
COMPARTMENT DOOR REQUIREMENTS

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.



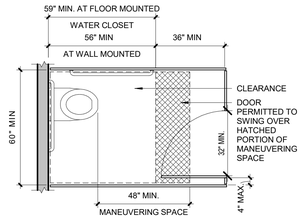
AT AMBULATORY STALL

CBC 11B-604.8.1.2



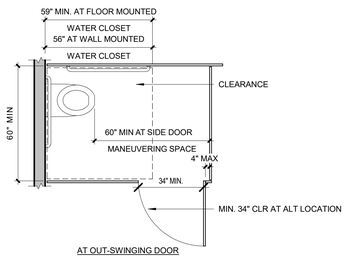
AT OUT-SWINGING DOOR

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



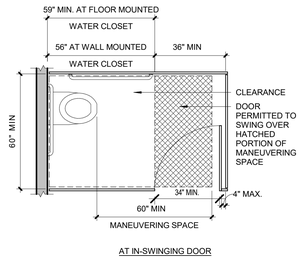
AT IN-SWINGING DOOR

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

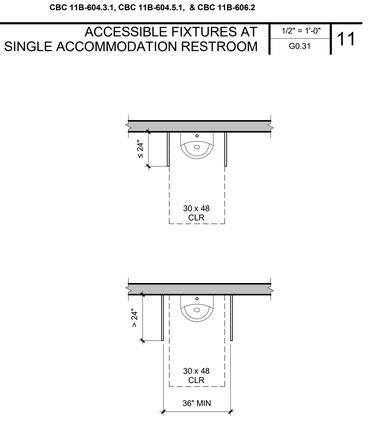


AT IN-SWINGING DOOR

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

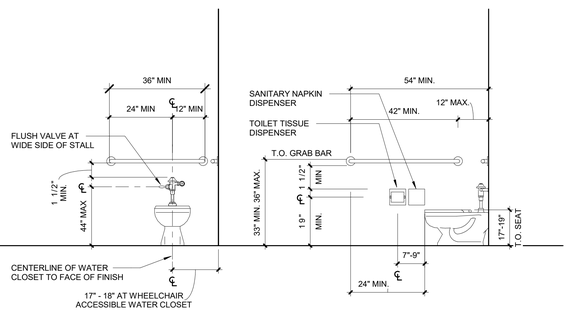
CBC 11B-305.7.1

ACCESSIBLE TOILET CLEARANCES — 3/8" = 1'-0" — 06



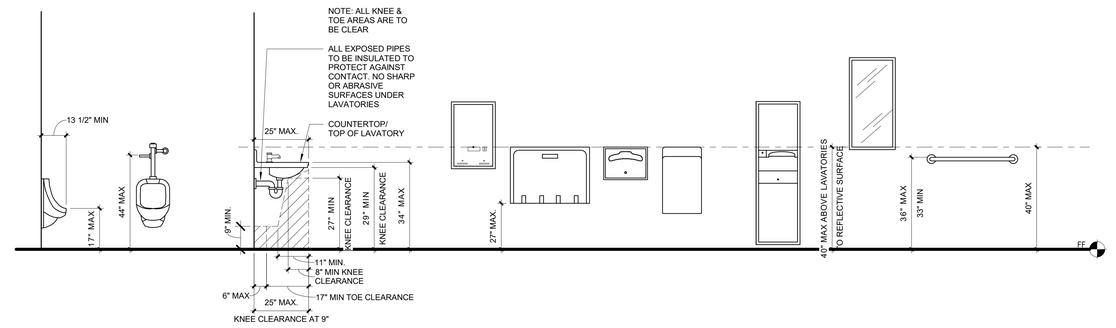
CBC 11B-604.3.1, CBC 11B-604.5.1, & CBC 11B-606.2

ACCESSIBLE FIXTURES AT SINGLE ACCOMMODATION RESTROOM — 1/2" = 1'-0" — G0.31 — 11



CBC 11B-604.1, CBC 11B-604.2, CBC 11B-604.4, CBC 11B-604.7, CBC 11B-604.5.1, CBC 11B-609.3, & CBC 11B-609.4

ACCESSIBLE RESTROOM MOUNTING HEIGHTS — 1/2" = 1'-0" — 19



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" — 05

ACCESSIBILTY DETAIL NOTES

1. ALL DIMENSIONS SHOWN ON THIS SHEET ARE TO FACE OF FINISH, UNO
2. ALL DIMENSIONS & CLEARANCES SHOWN ON THIS SHEET ARE APPLICABLE THROUGHOUT THE DOCUMENTS WHEREVER THE DESCRIBED CONDITIONS OCCUR & MAY OR MAY NOT BE SPECIFICALLY REFERENCED.
3. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL REQD CLEARANCES.
4. CONSTRACTOR SHALL BRING DISCREPANCIES TO THE IMMEDIATE ATTENTION OF THE ARCHITECT.
5. FLOOR SLOPE AT ALL WHEELCHAIR SPACES TO BE 1:48 MAX IN ANY DIRECTION.
6. ACCESSIBLE SIGNAGE REQD SEE SHEET A10.41

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

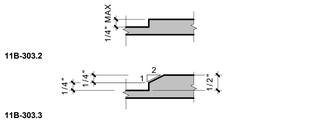
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	09/05/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

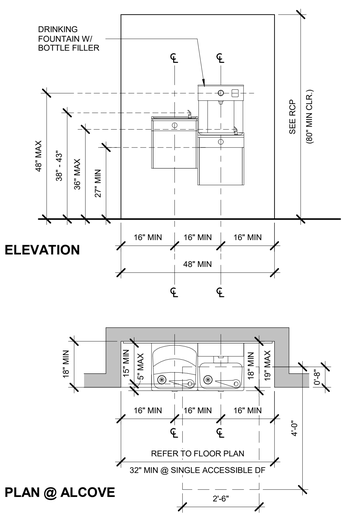
Job Number	32433
Checked By	Checker
Scale	As indicated

TYPICAL ACCESSIBILITY NOTES AND DETAILS

G0.31

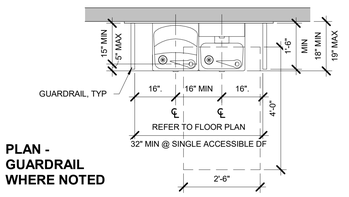


CHANGES IN LEVEL | 6" = 1'-0" | 24

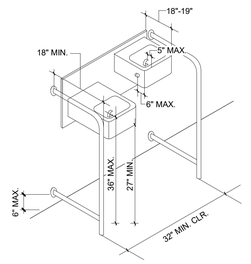


ELEVATION

PLAN @ ALCOVE



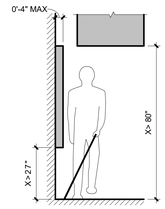
PLAN - GUARDRAIL WHERE NOTED



1. DRINKING FOUNTAIN SHALL BE ACCESSIBLE.
2. DRINKING FOUNTAINS SHALL BE LOCATED COMPLETELY WITHIN ALCOVES OR OTHERWISE POSITIONED SO AS NOT TO ENCROACH INTO PEDESTRIAN WAYS. THE ALCOVE IN WHICH THE WATER FOUNTAIN IS LOCATED SHALL NOT BE LESS THAN 32" IN WIDTH AND 18" IN DEPTH.
3. DRINKING FOUNTAIN SHALL BE A MIN OF 18" AND A MAX OF 19" IN DEPTH AND THERE SHALL BE A CLEAR AND UNOBSTRUCTED KNEE SPACE UNDER THE DRINKING FOUNTAIN NOT LESS THAN 27" IN HEIGHT, 30" IN WIDTH AND 8" IN DEPTH. THE DEPTH MEASUREMENT BEING TAKEN FROM THE FRONT EDGE OF THE FOUNTAIN.
4. THERE SHALL BE TOE CLEARANCE OF 9" IN HEIGHT ABOVE THE FLOOR, AND 17" IN DEPTH FROM THE FRONT EDGE OF THE FOUNTAIN.
5. A CLEAR FLOOR SPACE AT LEAST 30" X 48" SHALL BE PROVIDED IN FRONT OF THE DRINKING FOUNTAIN TO ALLOW FORWARD APPROACH.
6. THE DRINKING FOUNTAIN BUBBLER SHALL BE ACTIVATED BY A MANUALLY OPERATED SYSTEM THAT IS FRONT MOUNTED OR SIDE MOUNTED AND LOCATED WITHIN 6" OF THE FRONT EDGE OF THE FOUNTAIN OR AN ELECTRONICALLY CONTROLLED DEVICE.
7. THE BUBBLER OUTLET ORIFICE SHALL BE LOCATED WITHIN 5" OF THE FRONT OF THE DRINKING FOUNTAIN AND SHALL BE WITHIN 36" OF THE FLOOR. THE WATER STREAM FROM THE BUBBLER SHALL BE SUBSTANTIALLY PARALLEL TO THE FRONT EDGE OF THE DRINKING FOUNTAIN.

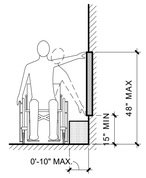
CBC 11B-306.3, CBC 11B-602, & CBC 11B-602.9

DRINKING FOUNTAIN ALCOVE W/ BOTTLE FILLER | 1/2" = 1'-0" | 21

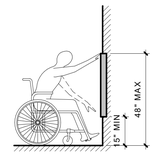


11B-307.2

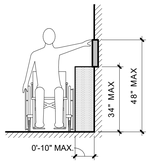
ACCESSIBLE PATH OF TRAVEL PROTRUDING OBJECT LIMITS | 3/8" = 1'-0" | G0.32 | 16



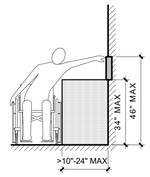
UNOBSTRUCTED SIDE REACH



UNOBSTRUCTED FORWARD REACH

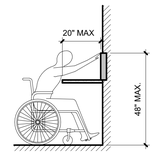


OBSTRUCTED HIGH SIDE REACH

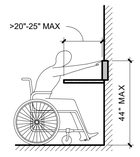


OBSTRUCTED HIGH SIDE REACH

CBC 11B-306.3.1 & CBC 11B-308.3.2



OBSTRUCTED HIGH FORWARD REACH



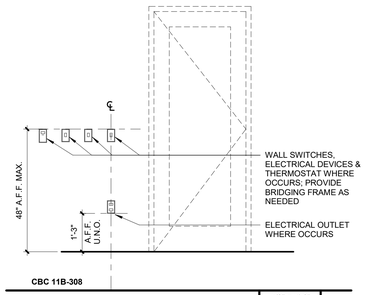
OBSTRUCTED HIGH FORWARD REACH

CBC 11B-308.2.1 & CBC 11B-308.2.2

ACCESSIBLE SIDE REACH REQUIREMENTS | 3/8" = 1'-0" | 19

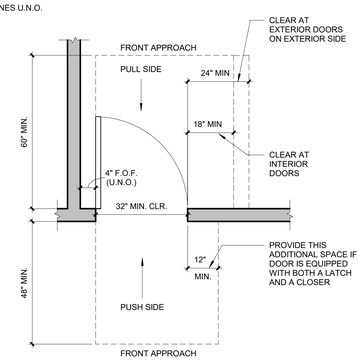
ACCESSIBLE FORWARD REACH REQUIREMENTS | 3/8" = 1'-0" | 15

NOTE: ALIGN CENTER OF ALL WALL SWITCHES & WALL DEVICES @ CENTERLINES U.N.O.



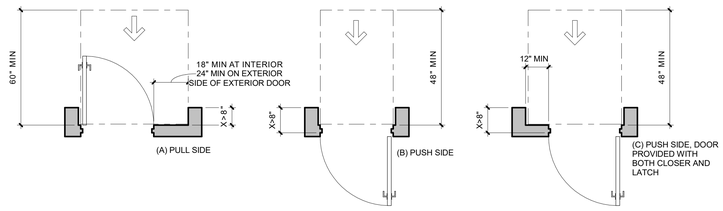
CBC 11B-308

TYPICAL DEVICE INSTALLATION | 1/2" = 1'-0" | 18



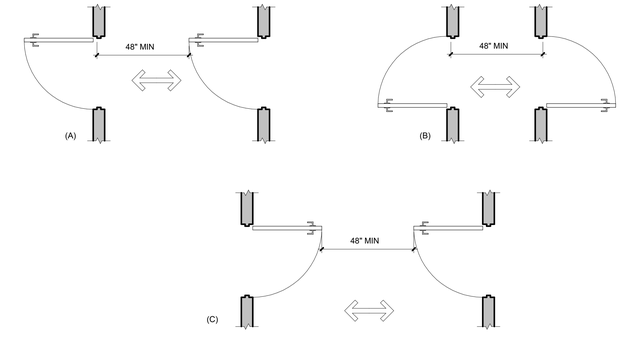
CBC 11B-404.2.3 & CBC 11B-404.2.4.1

TYPICAL CLEARANCES AT DOOR | 1/2" = 1'-0" | 14



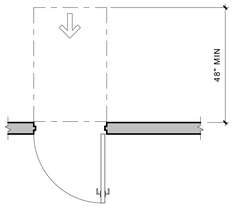
CBC 11B-404.2.4.3

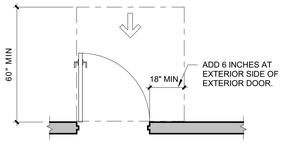
RECESSED DOOR CLEARANCES | 3/8" = 1'-0" | 13



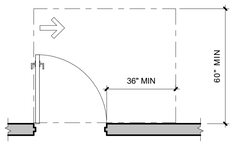
CBC 11B-404.2.6

DOOR CLEARANCES - DOORS IN SERIES | 3/8" = 1'-0" | 08

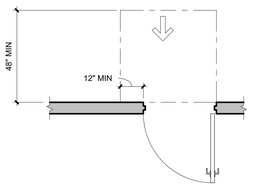




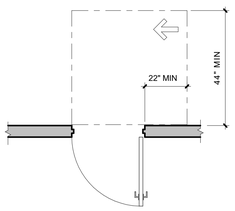
(A)
FRONT APPROACH, PULL SIDE



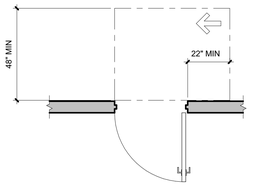
(D)
HINGE APPROACH, PULL SIDE



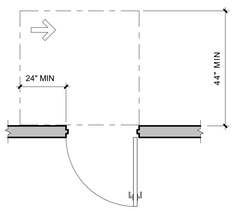
(C)
FRONT APPROACH, PUSH SIDE, DOOR PROVIDED WITH BOTH CLOSER AND LATCH



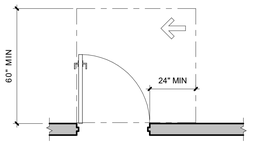
(F)
HINGE APPROACH, PUSH SIDE



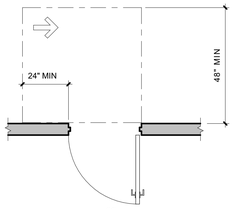
(G)
HINGE APPROACH, PUSH SIDE, DOOR PROVIDED WITH BOTH CLOSER AND LATCH



(J)
LATCH APPROACH, PUSH SIDE



(H)
LATCH APPROACH, PULL SIDE



(K)
LATCH APPROACH, PUSH SIDE, DOOR PROVIDED WITH CLOSER

CBC 11B-404.2.4.1

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

ACCESSIBILTY DETAIL NOTES

1. ALL DIMENSIONS SHOWN ON THIS SHEET ARE TO FACE OF FINISH, UNO
2. ALL DIMENSIONS & CLEARANCES SHOWN ON THIS SHEET ARE APPLICABLE THROUGHOUT THE DOCUMENTS WHEREVER THE DESCRIBED CONDITIONS OCCUR & MAY OR MAY NOT BE SPECIFICALLY REFERENCED.
3. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL REQD CLEARANCES.
4. CONSTRACTOR SHALL BRING DISCREPANCIES TO THE IMMEDIATE ATTENTION OF THE ARCHITECT.
5. FLOOR SLOPE AT ALL WHEELCHAIR SPACES TO BE 1:48 MAX IN ANY DIRECTION.
6. ACCESSIBLE SIGNAGE REQD SEE SHEET A10.41

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

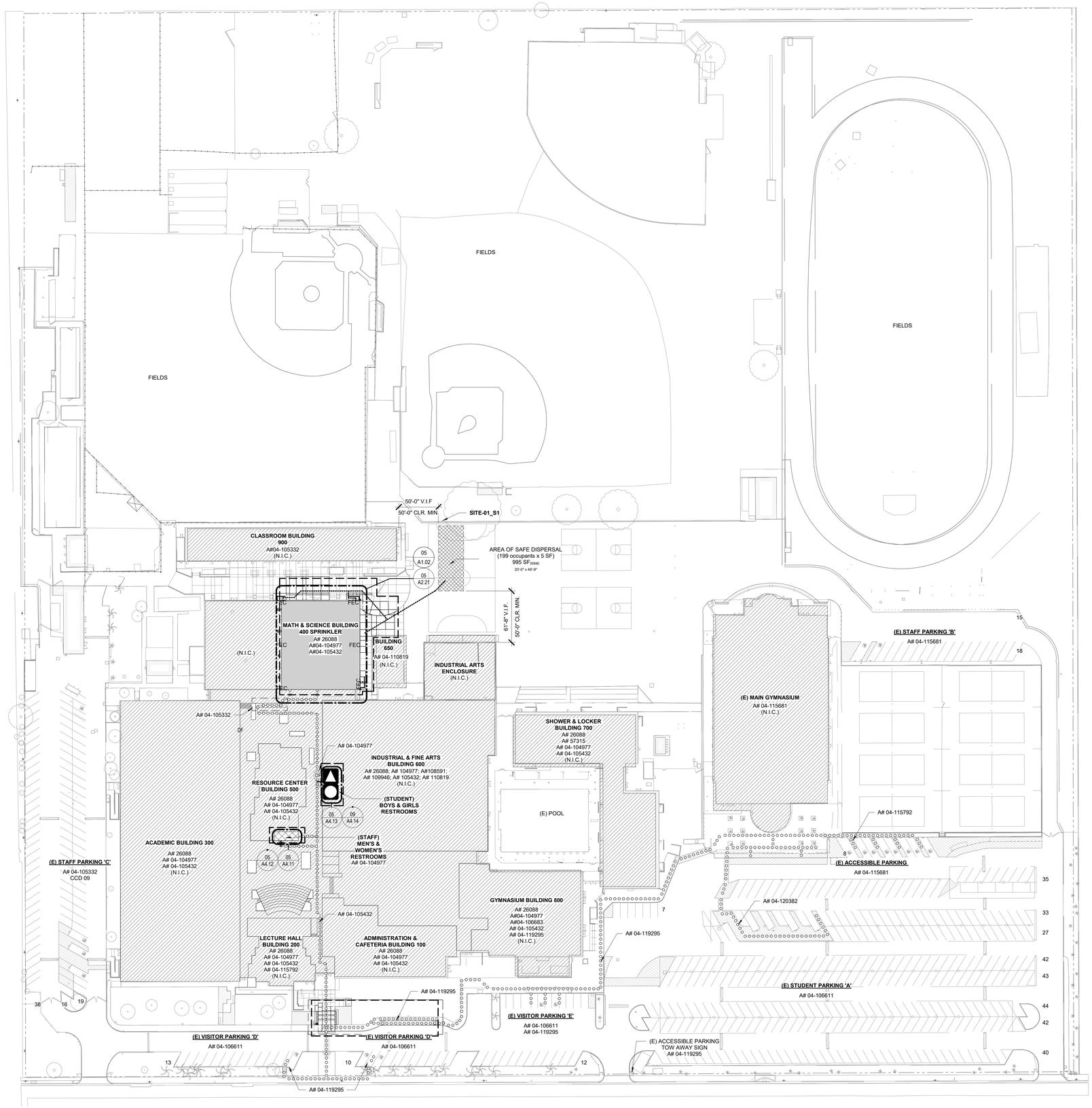
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	09/16/2025
100% DESIGN DEVELOPMENT	09/30/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	As indicated

TYPICAL ACCESSIBILITY NOTES AND DETAILS

G0.32



01 - SITE ACCESSIBILITY PLAN | 1" = 50'-0" G1.10 | 05

KEYNOTES

SITE SIGNAGE SCHEDULE

MARK	TEXT LINE 1	MOUNTING LOCATION	REFERENCE	BRAILLE
SITE-01_S1	(SAFE DISPERSAL AREA SIGNAGE, SEE DETAIL)	POST	RE: 24/ A10.41	NO

LEGEND

- LIMIT OF WORK (L.O.W.)
- PATH TO SAFE DISPERSAL
- EXISTING PATH OF TRAVEL (P.O.T.)
- PROPERTY LINE
- (N.I.C.) (E) BUILDING NOT IN SCOPE
- SCIENCE LAB TO BE REMODELED (IN SCOPE OF THIS APPLICATION)
- (E) ACCESSIBLE BOYS RESTROOM
- (E) ACCESSIBLE GIRLS RESTROOM
- (E) (STAFF) MEN'S & WOMEN'S RESTROOMS
- AREA OF SAFE DISPERSAL
- DF (E) ACCESSIBLE DRINKING FOUNTAIN

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND REPORT ALL DISCREPANCIES TO THE ARCHITECT.
2. FIRE PROTECTION DURING DEMOLITION AND CONSTRUCTION SHALL BE IN ACCORDANCE TO 2022 CBC CHAPTER 33 AND CFC CHAPTER 33.

PATH OF TRAVEL, TECHNICAL REQUIREMENTS FOR ACCESSIBLE ROUTE

"ACCESSIBLE PATH OF TRAVEL AS INDICATED ON PLAN IS A BARRIER-FREE ACCESS ROUTE WITHOUT ABRUPT LEVEL CHANGES EXCEEDING ½" IF BEVELED AT 1:2 MAXIMUM SLOPE OR VERTICAL LEVEL CHANGES NOT EXCEEDING ¼" MAXIMUM AND AT LEAST 48" IN WIDTH. SURFACE IS STABLE, FIRM, AND SLIP-RESISTANT. CROSS-SLOPE SHALL NOT BE STEEPER THAN 1:48 AND SLOPE IN THE DIRECTION OF TRAVEL SHALL NOT BE STEEPER THAN 1:20. ACCESSIBLE PATH OF TRAVEL SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND FREE OF OBJECTS PROTRUDING MORE THAN 4" FROM THE WALL, ABOVE 27" AND LESS THAN 80" ABOVE THE FLOOR. ARCHITECT SHALL VERIFY THAT THERE ARE NO BARRIERS IN THE PATH OF TRAVEL."

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT

THE P.O.T. IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS MEETS THE REQUIREMENTS OF THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE (CBC) ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS, AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE P.O.T. WAS EXAMINED AND ANY ELEMENTS, COMPONENTS, OR PORTIONS OF THE P.O.T. THAT WERE DETERMINED TO BE NONCOMPLIANT WITH THE CBC HAVE BEEN IDENTIFIED AND THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS, AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NONCOMPLIANT ELEMENTS, COMPONENTS, OR PORTIONS OF THE P.O.T. THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE INDICATED IN THESE CONSTRUCTION DOCUMENTS.

DURING CONSTRUCTION, IF P.O.T. ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CBC COMPLIANT ARE FOUND TO BE NONCONFORMING BEYOND REASONABLE CONSTRUCTION TOLERANCES, THE ITEMS SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT./DIRECTIVE.

DSA CERTIFICATION LIST

1. THE FOLLOWING PROJECT... **A# 04-104977** CLOSED WITH DSA CERTIFICATION ON 09/08/2011
2. THE FOLLOWING PROJECT... **A# 04-105432** CLOSED WITH DSA CERTIFICATION ON 09/16/2011
3. THE FOLLOWING PROJECT... **A# 04-105332** CLOSED WITH DSA CERTIFICATION ON 01/16/2008
4. THE FOLLOWING PROJECT... **A# 04-106611** CLOSED WITH DSA CERTIFICATION ON 04/27/2010
5. THE FOLLOWING PROJECT... **A# 04-110819** CLOSED WITH DSA CERTIFICATION ON 04/27/2016
6. THE FOLLOWING PROJECT... **A# 04-115681** CLOSED WITH DSA CERTIFICATION ON 04/09/2020
7. THE FOLLOWING PROJECT... **A# 04-115792** CLOSED WITH DSA CERTIFICATION ON 08/22/2018
8. THE FOLLOWING PROJECT... **A# 04-120382** CLOSED WITH DSA CERTIFICATION ON 04/27/2022
9. THE FOLLOWING PROJECT... **A# 04-119295** CLOSED WITH DSA CERTIFICATION ON 05/17/2023
10. THE FOLLOWING PROJECT... **A# 04-106683** CLOSED WITH DSA CERTIFICATION ON 12/18/2006

PARKING CALCULATION

(E) STUDENT PARKING 'A':	
STANDARD STALLS	307
VAN ACCESSIBLE STALLS	3
STD ACCESSIBLE STALLS	10
TOTAL P-LOT 'A' STALLS	**320**
(E) STAFF PARKING 'B'	
STANDARD STALLS	31
VAN ACCESSIBLE STALLS	1
STD ACCESSIBLE STALLS	1
TOTAL P-LOT 'A' STALLS	**33**
(E) STAFF PARKING 'C'	
STANDARD STALLS	89
VAN ACCESSIBLE STALLS	1
STD ACCESSIBLE STALLS	5
TOTAL P-LOT 'A' STALLS	**95**
(E) STAFF PARKING 'D'	
STANDARD STALLS	23
VAN ACCESSIBLE STALLS	1
STD ACCESSIBLE STALLS	1
TOTAL P-LOT 'A' STALLS	**25**
(E) STAFF PARKING 'E'	
STANDARD STALLS	20
VAN ACCESSIBLE STALLS	2
STD ACCESSIBLE STALLS	1
TOTAL P-LOT 'A' STALLS	**23**
TOTAL STALLS ON SITE	**496**

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SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

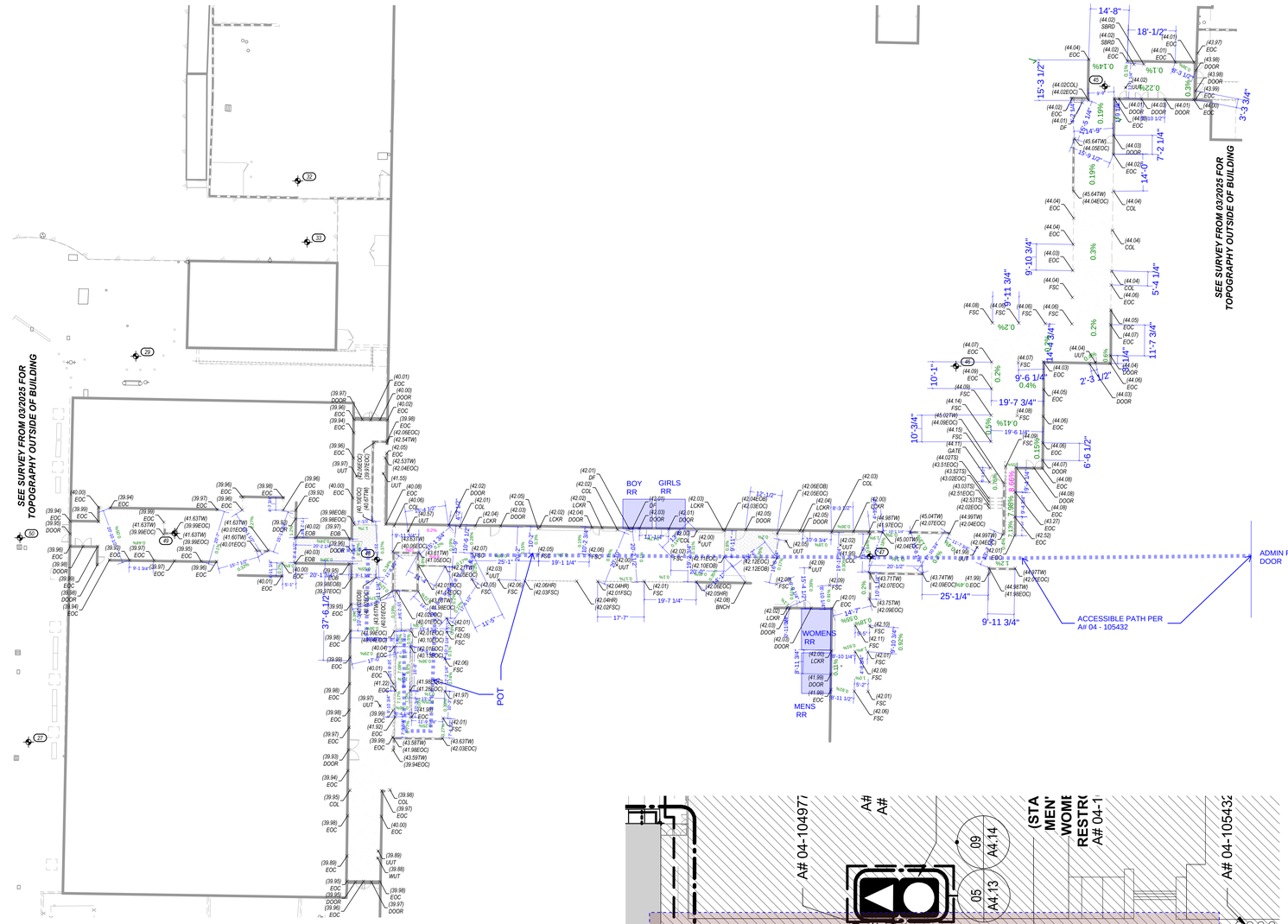
Revision	Date

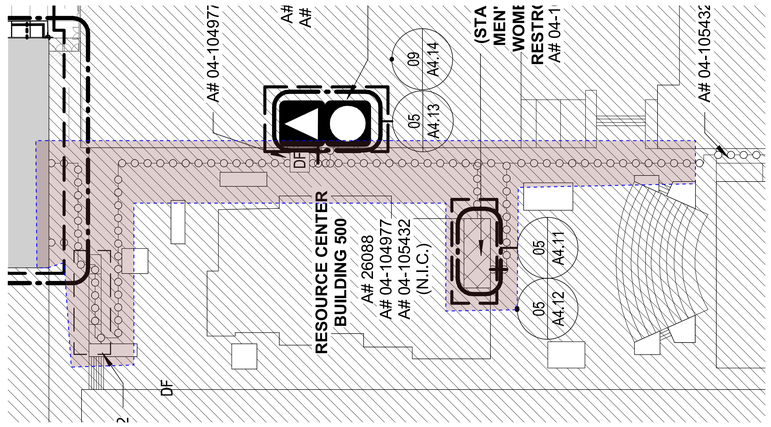
Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	09/16/2025
100% DESIGN DEVELOPMENT	10/07/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	As indicated

SITE ACCESSIBILITY PLAN

G1.10

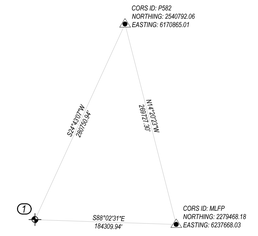




EXERPT FROM G1.10

SURVEYOR'S NOTE:

THE POINT / CONTROL AND CONTINUOUS OPERATING REFERENCE STATION TIES ARE SHOWN ON THE DIAGRAM BELOW AND ARE REFERENCED ON BASIS OF BEARINGS STATEMENT.



BENCHMARK:

VERTICAL CONTROL FOR THIS SURVEY IS: NAVD88 GEOID18
AS ESTABLISHED BY STATIC GPS BASED ON THE CORS STATIONS LISTED UNDER THE BASIS OF BEARINGS SHOWN HEREON.

A TEMPORARY BENCHMARK WAS ESTABLISHED AT THE BASE CONTROL POINT NO. 1 REFERENCED ABOVE

DESCRIPTION: MN

ELEVATION: 343.08' (NAVD88)

NORTHING: 2285765.60' EASTING: 6053465.71'

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM: SPC 0406, ZONE VI
BASED LOCALLY ON CONTINUOUS OPERATING REFERENCE STATIONS (CORS):
"P582" AND "MLFP" NAD 83 (2011) EPOCH 2010.00
ALL BEARINGS SHOWN ON THIS MAP ARE GRID. ALL DISTANCES ARE GROUND DISTANCES UNLESS SPECIFIED OTHERWISE. GRID DISTANCES MAY BE OBTAINED BY MULTIPLYING THE GROUND DISTANCE BY A COMBINATION FACTOR OF: 0.99988788

CONTROL TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2285765.6040	6053465.7080	343.08	MN
8	2285466.4100	6053733.5850	346.71	MN
9	2285389.3230	6053732.4290	345.72	MN
10	2285314.7950	6053731.2090	344.60	SCOREDX
11	2284917.9900	6053724.3500	339.86	BM 2P-2-00
12	2285400.2800	6053641.0230	342.05	MN
13	2285327.5570	6053694.1140	343.74	SCOREDX
14	2285152.5420	6053628.4020	343.42	SCOREDX
15	2284843.0900	6053664.1920	338.70	SCOREDX
16	2284618.7860	6053723.4530	338.78	SCOREDX
17	2284839.5420	6053570.7740	338.07	MN
18	2284796.5970	6053332.2290	334.12	MN
19	2284990.3810	6053405.4420	337.92	SCOREDX
20	2284900.5540	6053249.8560	336.81	SCOREDX
21	2284943.6170	6053153.8920	337.46	SCOREDX
22	2285069.8030	6053134.2690	339.62	SCOREDX
23	2285215.5010	6053174.7870	338.78	SCOREDX
24	2285281.7000	6053235.9270	342.60	SCOREDX
25	2285256.5980	6053239.4130	343.52	MN
26	2285278.3150	6053090.6600	337.01	MN
27	2285215.3620	6052942.9920	332.96	MN
28	2285257.1390	6052773.7500	331.74	MN
29	2285133.3870	6052792.5410	332.56	MN
30	2285092.2430	6052665.0320	330.16	60D
45	2285317.4080	6053540.4970	344.02	SCOREDX
46	2285211.7650	6053484.3440	345.68	SCOREDX
47	2285139.9080	6053451.9180	342.09	SCOREDX
48	2285138.6530	6053265.8400	340.01	SCOREDX
49	2285148.5690	6053169.4420	341.65	SCOREDX
50	2285146.9540	6053131.0530	339.50	SCOREDX
100	2285519.2570	6053559.8740	344.62	MN
102	2285786.5730	6053731.1030	351.25	SCOREDX
104	2286036.0510	6053611.3870	352.32	SCOREDX
106	2285864.1430	6053497.0130	346.09	MN
108	2285583.1530	6053373.6510	342.83	MN
110	2285718.4160	6053117.7060	341.76	SCOREDX
112	2285575.9710	6053270.4860	342.05	MN
113	2285659.1320	6053080.3210	340.55	MN
114	2285371.1200	6053247.8640	340.42	MN
115	2285380.8090	6053355.4120	343.90	SCOREDX
118	2285399.1110	6053375.1770	343.72	SCOREDX
121	2285469.8870	6053423.6960	343.84	SCOREDX
122	2285616.6070	6052903.2210	335.31	60D
123	2285545.5600	6052599.9070	331.98	60D
124	2285459.5070	6052451.0620	330.25	60D
125	2285183.9890	6052635.2980	329.84	60D

GENERAL NOTES:

THE FIELD TOPOGRAPHY SHOWN HEREON WAS COMPILED BY FIELD SURVEY PERFORMED ON 7/11/25 BY EPIC ENGINEERS.

IN PREPARING THESE PLANS, EPIC ENGINEERS, INC. DID A THOROUGH SEARCH FOR ALL EXISTING PLANS AND COMPILED A FIELD SURVEY OF ALL ABOVE GROUND APPURTENANCES. EPIC ENGINEERS, INC. PROVIDES NO WARRANTY AND ACCEPTS NO RESPONSIBILITY AS TO THE ACTUAL LOCATION OF ANY UNDERGROUND OR ABOVE GROUND UTILITY EITHER INSTALLED BEFORE OR AFTER THE DATE OF PREPARATION OF THESE PLANS. CONTRACTOR TO CONTACT UNDERGROUND SERVICE ALERT @ 811 TO VERIFY LOCATION OF EXISTING UTILITY LOCATIONS AND SHALL CONTACT THE ENGINEER OF RECORD IF THERE IS ANY MATERIAL DISCREPANCY.
BEFORE USING THIS MAP FOR DESIGN PURPOSES, ALL EASEMENT OF RECORD AND SETBACK LINES DEFINED IN COVENANTS, CONDITIONS, AND RESTRICTIONS OF RECORD AFFECTING THIS PROPERTY SHOULD BE PLOTTED ON THIS MAP FROM A CURRENT TITLE REPORT SO THAT THESE EASEMENTS AND SETBACK LINES OF RECORD CAN BE PLOTTED ON THIS MAP.
THIS MAP SHOULD BE EXPANDED TO MEET ALTA REQUIREMENTS IF FINANCING IS TO BE OBTAINED FOR THE PROJECT, REQUIRING AN EXTENDED COVERAGE POLICY OF TITLE INSURANCE.
THIS SURVEY DOES NOT INCLUDE EASEMENTS EXCEPT THOSE SPECIFICALLY DELINEATED HEREON.

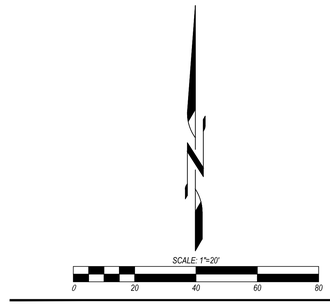
TOPOGRAPHIC LEGEND:

AC	ASPHALTIC CONCRETE
ACB	ASPHALT CONCRETE BERM
ADA	AMERICAN DISABILITY ACT
BOLL	BOLLARD
BOLH	BOLLARD HINGE
BSG	BACKSIDE GROOVE
CB	CATCH BASIN
CFL	CURB FLOWLINE
CLF	CHAIN LINK FENCE
CLFG	CHAIN LINK FENCE GATE
CLFH	CHAIN LINK FENCE HINGE
CO	CLEANOUT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
COR	CORNER
DF	DRINKING FOUNTAIN
DH	DOOR HINGE
DI	DRAIN INLET
DIC	DRAIN INLET CORNER
DR	DIRECT REFLECTION
DS	DOWNSPOUT
EOB	EDGE OF BRICK
EOC	EDGE OF CONCRETE
EP	EDGE OF PAVEMENT
ETP	EDGE OF TRAVELED PATH
FA	FIRE ACCESS
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR
FH	FIRE HYDRANT
FL	FLOWLINE
FP	FLAG POLE
FSB	FINISHED SURFACE BRICK
FSC	FINISHED SURFACE CONCRETE
GB	GRADE BREAK
GL	GUTTER LIP
GR	GUARD RAIL
HR	HAND RAIL
ICV	IRRIGATION CONTROL VALVE
IE	INVERT STORM DRAIN
INV	INVERT SEWER
LCKR	LOCKER
LT	LIGHT
MB	MAILBOX
MN	MAGNAIL
NG	NATURAL GROUND
PM	PITCHING MACHINE
PIV	POST INDICATOR VALVE
PP	POWER POLE
PS	PAINT STRIPE
SB	SPEED BUMP
SBRD	SKATEBOARD RACK
STF	STEEL TUBE FENCE
TC	TOP OF CURB
TD	TRUNCATED DOMES
TH	THRESHOLD
TL	TRAFFIC LIGHT
TOP	TOP OF PIPE
TP	TOP OF PAVEMENT
TS	TOP OF STEP
TW	TOP OF WALL
UB	UTILITY BOX
UTUTIL	UTILITY
UV	UTILITY VAULT
VLT	VAULT
WC	WALL CORNER
WIF	WROUGHT IRON FENCE
WS	WHEEL STOP
V	VALVE

UTILITIES

UTILITY INITIAL + COMM/UBUT/UV/V
F FIRE
G GAS
S SEWER
SD STORM DRAIN
SL STREET LIGHT
U UNKNOWN
W WATER

IRRIGATION CONTROL VALVE
CONTROL POINT
TREE
DRAIN
DOUBLE DETECTOR CHECK ASSEMBLY
POST INDICATOR VALVE
HOSE BIBB
HANDICAP
DOOR
FIRE DEPARTMENT CONNECTION
SIGN
MANHOLE
LIGHT
FIRE HYDRANT
POWER POLE
CURB & GUTTER
FLOWLINE
EDGE OF CONCRETE / BRICK
EDGE OF PAVEMENT
GRADE BREAK
WALL
DEMO UTILITY LINE
CONTOUR
ADA HATCH
ASPHALT HATCH
CONCRETE HATCH
BRICK HATCH



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W.O.	94.05
BY:	RAW
CHECKED BY:	TDM
DATE:	07/25/2025
SCALE:	PER PLAN

FULLERTON UNION JOINT HIGH SCHOOL DISTRICT
SONORA HIGH SCHOOL INTERIOR
401 SOUTH PALM STREET, LA HABRA, CA 90631

TOPOGRAPHIC MAP

SHEET NUMBER
1 OF 1

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

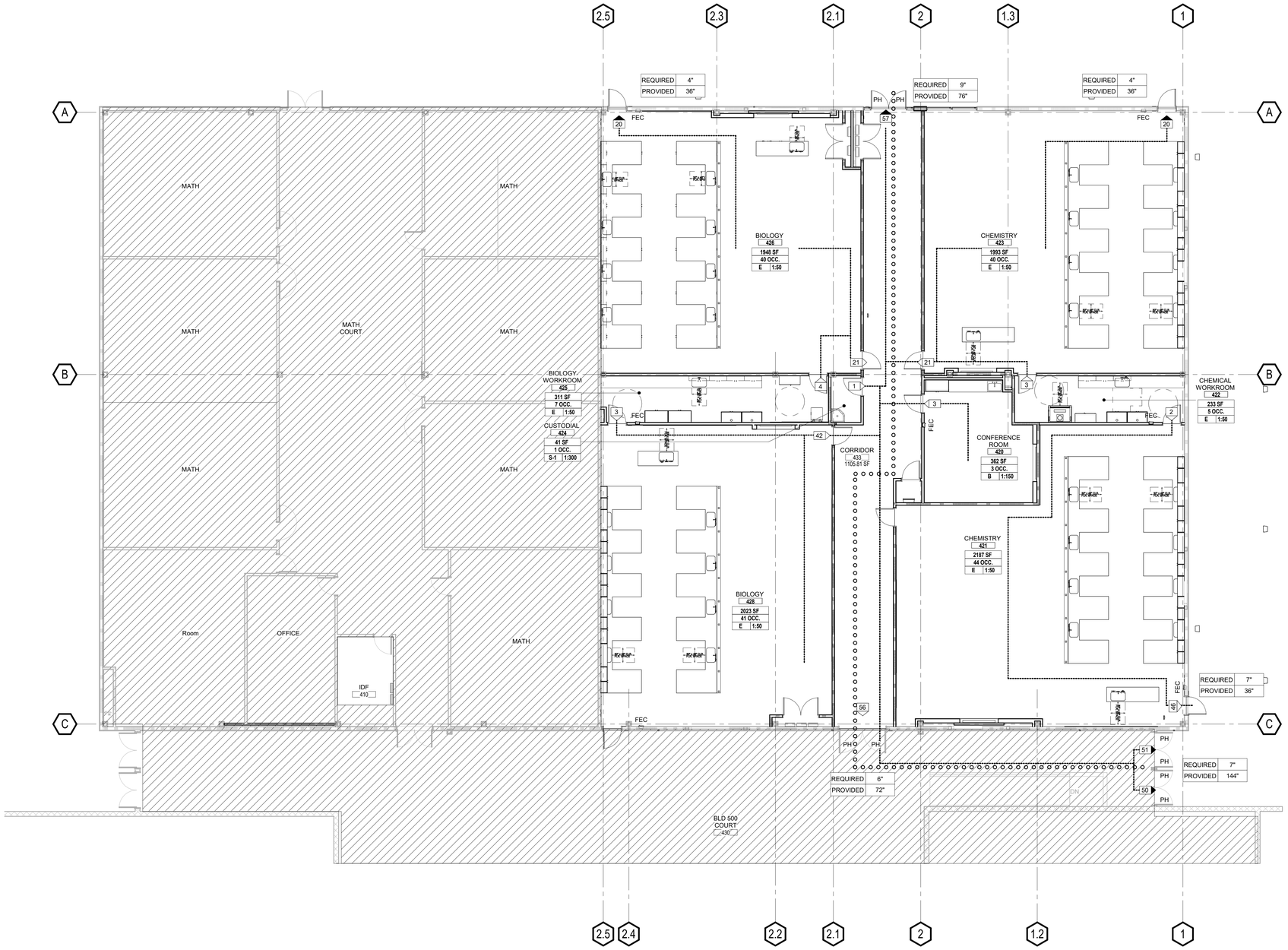
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	07/25/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	

EXISTING INTERIOR POT SURVEY

G1.11



KEYNOTES

LEGEND

Room Name
— ROOM NUMBER
SF — SQUARE FOOTAGE
Occ-Load OCC — OCCUPANT LOAD
1 OLF — OCCUPANCY LOAD FACTOR
OCCUPANCY GROUP

1 HOUR RATED PARTITION
2 HOUR RATED PARTITION

REQUIRED 0" — EGRESS WIDTH REQUIRED
PROVIDED 0" — EGRESS WIDTH PROVIDED

FEC — FIRE EXTINGUISHER CABINET
PH — INDICATES PANIC HARDWARE REQUIRED

0 — INDIVIDUAL ROOM OCCUPANCY LOAD
0 — COMBINED ROOM OCCUPANCY LOAD

o o o o o — EGRESS PATH OF TRAVEL/TRAVEL DISTANCE
---------- — COMMON PATH OF TRAVEL

CODE ANALYSIS

BUILDING CLASSIFICATION:

BUILDING USE: CLASSROOMS AND LABORATORIES

CONSTRUCTION CLASSIFICATION (CBC 602): TYPE II-B

OCCUPANCY CLASSIFICATION (CBC 302 & 508.3): E

FIRE PROTECTION: SPRINKLERED

ACCESSORY OCCUPANCY (CBC 508.2): B/ S-1
INCIDENTAL USES (CBC 509): SCIENCE CLASSROOMS

BUILDING AREA: 20,034 SF/ NO CHANGE

** BUILDING AREAS INCLUDE HORIZONTAL PROJECTIONS OF THE ROOF OR FLOOR ABOVE BUT EXCLUDE VENT SHAFTS & COURTS (CBC 202)*

FIRE-RESISTANCE RATING REQ FOR BLDG ELEMENTS (CBC TABLE 601):
- STRUCTURAL FRAME: 0 HOUR
- EXTERIOR BEARING WALLS: 0 HOUR
- INTERIOR BEARING WALLS: 0 HOUR
- EXTERIOR NONBEARING WALLS: REFER TO REQ. RATING BELOW
- INTERIOR NONBEARING WALLS: 0 HOUR
- FLOOR CONSTRUCTION: 0 HOUR
- ROOF CONSTRUCTION: 0 HOUR **

***FIRE PROTECTION OF MEMBERS OTHER THAN THE PRIMARY STRUCTURAL FRAME SHALL NOT BE REQ, INCLUDING PROTECTION OF THE ROOF FRAMING & DECKING WHERE EVERY PART OF CONSTRUCTION IS 20 FT OR MORE ABOVE ANY FLOOR IMMEDIATELY BELOW (CBC 601 EXCEPTION B)*

FIRE-RESISTANCE RATING REQ FOR EXTERIOR WALLS (CBC TABLE 705.5)
- 1-HR PROTECTED: < 30'-0"
- NO PROTECTION REQ: ≥ 30'-0"

MEANS OF EGRESS SIZING (CBC 1005):

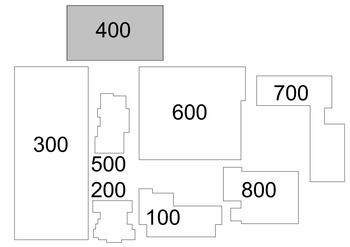
DOOR EXITS & CORRIDORS: # OCCUPANTS X 0.15 = EGRESS WIDTH (CBC 1005.3.2, EXCEPTION 2)
PROVIDE 2 EXITS IN ALL ROOMS WITH OCCUPANT LOADS ABOVE 49 (A-3 & E)
PROVIDE 2 EXITS IN ALL ROOMS WITH OCCUPANT LOADS ABOVE 29 (S-1)

MAXIMUM COMMON PATH OF TRAVEL (CBC TABLE 1006.2.1):
- A-3 / E OCCUPANCIES: 75'-0"
- S-1 OCCUPANCY: 100'-0"

MAXIMUM EXIT ACCESS TRAVEL DISTANCE (CBC TABLE1017.2):
- A-3 / E OCCUPANCIES: 250'-0"
- S-1 OCCUPANCY: 250'-0"

AREA OF REFUGE (CBC 1009):
NOT REQUIRED IN BLDGS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM

KEYPLAN



PROJECT NORTH TRUE NORTH

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DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	1/8" = 1'-0"

CODE ANALYSIS

G2.01

ABBREVIATIONS

AB	AGGREGATE BASE	MIN	MINIMUM
AC	ASPHALT CONCRETE PAVEMENT	MOC	MIDDLE OF CURVATURE
AE	ACCESS EASEMENT	N	NORTH
ASPH	ASPHALT PAVING	NG	NATURAL GRADE
BC	BEGIN CURVATURE	NTS	NOT TO SCALE
BCR	BEGIN CURB RETURN	OC	ON CENTER
BFP	BACK FLOW PREVENTER	(P)	PROPOSED, NEW
BI	BOX INLET	PA	PLANTING AREA
BM	BENCHMARK	PBC	PULL BOX CABLE
BOP	BOTTOM OF PIPE	PBE	PULL BOX ELECTRIC
BOR	BOTTOM OF RAMP	PBT	PULL BOX TELEPHONE
BS	BOTTOM OF STAIRS	PBW	PULL BOX WATER
BVC	BEGIN VERTICAL CURVATURE	PCC	POINT OF COMPOUND CURVATURE
BW	BOTTOM OF WALL	PE	PEDESTRIAN EASEMENT
C&G	CURB AND GUTTER	PI	POINT OF INTERSECTION
CL/CL	CENTER LINE	PIVC	POINT OF INTERSECTION VERTICAL CURVATURE
CB	CATCH BASIN	PL	PROPERTY LINE
CONST	CONSTRUCT	POC	POINT OF CONNECTION
CR	CURB RETURN	PP	POWER POLE
CT	COURT	PRC	POINT OF REVERSE CURVATURE
CUL	CULVERT	PVC	POLYVINYL CHLORIDE
DI	DROP INLET	PVMT	PAVEMENT
DIP	DUCTILE IRON PIPE	R	RADIUS
DW	DOMESTIC WATER	RCP	REINFORCED CONCRETE PIPE
D/W	DRIVEWAY	RIM	TOP RIM OF STRUCTURE
DE	DRAINAGE EASEMENT	ROW	HIGHWAY EASEMENT
DR	DRIVE	RT	RIGHT
(E)	EXISTING	RW	RECLAIMED WATER
E	EAST	R/W	RIGHT OF WAY
EC	END CURVATURE	S	SOUTH OR SLOPE
ECR	END CURB RETURN	SBE	SETBACK EASEMENT
EG	EXISTING GRADE	SCO	SANITARY SEWER CLEANOUT
ELEV	ELEVATION	SD	STORM DRAIN
EOC	EDGE OF CONCRETE	SDMH	STORM DRAIN MANHOLE
EP	EDGE OF PAVEMENT	SF	SQUARE FEET
EQ	EQUAL	SHT	SHEET
ESMT	EASEMENT	STA	STATION
EVC	END OF VERTICAL CURVATURE	SMH	SANITARY SEWER MANHOLE
FF	FINISHED FLOOR	SS	SANITARY SEWER
FFE	FINISHED FLOOR ELEVATION	SWPPP	STORM WATER POLLUTION PREVENTION PLAN
FG	FINISHED GRADE	S/W	SIDEWALK
FH	FIRE HYDRANT	T	TANGENT
FL	FLOWLINE	TB	TOP OF BERM
FS	FINISHED SURFACE	TBC	TOP BACK OF CURB
FW	FIRE PROTECTION SERVICE WATER	TBW	TOP BACK OF WALK
GB	GRADE BREAK	TC	TOP OF CURB
GSL	LIMITS OF GRAVITY SEWER	TF	TOP OF FOOTING
GR	GRATE	TG	TOP OF GRATE
GV	GAS VALVE	TOE	TOE OF SLOPE
HB	HOSE BIB	TOP	TOP OF PIPE
HP	HIGH POINT	TOR	TOP OF RAMP
ICV	IRRIGATION CONTROL VALVE	TOS	TOP OF SLOPE
INTX	POINT OF INTERSECTION	TP	TOP OF PLANTER
INV	INVERT	TS	TOP OF STAIRS
JP	JOINT POLE	TW	TOP OF WALL
LE	LANDSCAPE EASEMENT	TYP	TYPICAL
LF	LINEAR FEET	TP	TELEPHONE POLE
LIP	LIP OF GUTTER	VC	VERTICAL CURVATURE
LP	LOW POINT	W	WEST
LT	LEFT	WM	WATER MAIN
MAX	MAXIMUM	WV	WATER VALVE
MH	MANHOLE		

LEGEND

SYMBOL	DESCRIPTION
	TRENCH DRAIN

LINE TYPE	DESCRIPTION
	RIGHT OF WAY/ PROPERTY LINE
GB	GRADE BREAK LINE
	FLOW LINE
	DAYLIGHT LINE

SEE FOLLOWING SHEET FOR EXISTING CONDITIONS LEGEND

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. CONTRACTOR SHALL ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE AT ALL TIMES DURING CONSTRUCTION.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED.
3. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BEFORE AND AFTER ALL STORMS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
5. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR MORE OFTEN AS NECESSARY.
6. CONTRACTOR SHALL PLACE GRAVEL/SAND BAGS AROUND ALL NEW DRAINAGE STRUCTURE OPENINGS IMMEDIATELY AFTER THE STRUCTURE OPENING IS CONSTRUCTED. THESE GRAVEL/SAND BAGS SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.
7. CONTRACTOR SHALL IMPLEMENT HOUSEKEEPING PRACTICES AS FOLLOWS:
   - A. SOLID WASTE MANAGEMENT: PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR REMOVAL AND DISPOSAL. CLEAR SITE OF TRASH INCLUDING ORGANIC DEBRIS, PACKAGING MATERIALS, SCRAP OR SURPLUS BUILDING MATERIALS AND DOMESTIC WASTE DAILY.
   - B. MATERIAL DELIVERY AND STORAGE: PROVIDE A DESIGNATED MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. STORE MATERIAL ON PALLETS AND PROVIDE COVERING FOR SOLUBLE MATERIALS. RELOCATE STORAGE AREA INTO BUILDING SHELL WHEN POSSIBLE. INSPECT AREA WEEKLY.
   - C. CONCRETE WASTE: PROVIDE A DESIGNATED AREA FOR A TEMPORARY PIT TO BE USED FOR CONCRETE TRUCK WASH-OUT. CONCRETE WASHOUT CANNOT BE WITHIN 50' MINIMUM OF DRAIN INLETS. DISPOSE OF HARDENED CONCRETE OFFSITE. AT NO TIME SHALL A CONCRETE TRUCK DUMP ITS WASTE AND CLEAN ITS TRUCK INTO THE STORM DRAINS VIA CURB AND GUTTER. INSPECT DAILY TO CONTROL RUNOFF, AND WEEKLY FOR REMOVAL OF HARDENED CONCRETE.

POLLUTION PREVENTION NOTES

IN ORDER TO MEET THE REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PROGRAM FOR CONSTRUCTION, CONSTRUCTION CONTRACTORS SHALL INSTALL AND MAINTAIN APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS), AS SHOWN IN THE EROSION CONTROL PLAN. BMPS SHALL BE INSTALLED IN ACCORDANCE WITH INDUSTRY RECOMMENDED STANDARDS, AND/OR IN ACCORDANCE WITH ANY GENERAL CONSTRUCTION PERMIT ISSUED BY THE STATE FOR THE PROJECT TO PREVENT ANY DISCHARGES FROM THE PROJECT SITE OR INTO ANY STORM DRAIN FACILITIES. ALL SEDIMENTS, CONSTRUCTION MATERIALS, DEBRIS AND WASTES, AND OTHER POLLUTANTS MUST BE RETAINED ON SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, WIND, OR VEHICLE TRACKING. UNDER DIRECTION OF THE ENGINEER OF RECORD, EROSION AND/OR SEDIMENT CONTROL DEVICES SHALL BE MODIFIED AS NEEDED AS THE PROJECT PROGRESSES TO ENSURE EFFECTIVENESS.

AREA SUMMARY

TOTAL DISTURBED AREA = 0.098± ACRES

GENERAL NOTES TO CONTRACTOR

1. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY OWNERS FOR LOCATION, REMOVAL, AND/OR RELOCATION OF ANY UTILITY SERVICES AFFECTED BY CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT UNDERGROUND OR OVERHEAD STRUCTURES WHETHER OR NOT THEY ARE SHOWN ON THESE DRAWINGS.
2. THE CONTRACTOR SHALL NOTIFY THE PROJECT INSPECTOR AND THE RESPECTIVE UTILITY OWNERS AND OTHER AGENCIES AT LEAST TWO WORKING DAYS PRIOR TO START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING, VERIFYING LOCATIONS (BOTH HORIZONTAL AND VERTICAL), AND MAINTAINING ALL EXISTING UNDERGROUND UTILITIES, BOTH SHOWN ON THE PLANS AND/OR NOT SHOWN ON THE PLANS DURING CONSTRUCTION. REPAIR DAMAGED UTILITIES TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS BECAUSE OF LOCATIONS OF EXISTING FACILITIES AND SHALL REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES AND/OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OR COMPLETENESS OF THE LOCATION OR THE EXISTENCE, OR NON-EXISTENCE OF ANY UTILITY AND/OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THE CONTRACTOR IS REQUIRED TO TAKE ALL DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OF RECORD AND/OR NOT OF RECORD SHOWN OR NOT SHOWN AND ANY OTHER LINE(S) OR STRUCTURE(S) NOT SHOWN ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF, AND/OR DAMAGE TO THESE LINE(S) AND/OR STRUCTURE(S).
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SHORING AT PROPOSED BUILDING FOUNDATIONS, FOOTINGS, AND WALLS TO PROTECT EXISTING UTILITIES IN PLACE.
6. UNAUTHORIZED CHANGES AND USES - CAUTION: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.
7. THE CONTRACTOR SHALL MAINTAIN THE EXISTING ACCESSIBLE ROUTE CLEAR OR PROVIDE AN ALTERNATE ACCESSIBLE ROUTE OF TRAVEL DURING DEMOLITION AND/OR CONSTRUCTION.
8. THE CONTRACTOR SHALL MAINTAIN THE EXISTING FIRE EXITS AND STAIRS CLEAR AND USABLE OR PROVIDE ALTERNATE FIRE EXITS DURING DEMOLITION AND/OR CONSTRUCTION.

EARTHWORK NOTES

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE GRADING PLANS AND SOILS REPORT THOROUGHLY PRIOR TO SITE MOBILIZATION. IT IS ALSO THE GRADING CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CIVIL AND SOILS ENGINEERS IF ONSITE DISCREPANCIES ARE OBSERVED THAT WOULD AFFECT THE EARTHWORK QUANTITIES.
2. THE EXISTING TOPOGRAPHY AS DELINEATED ON THESE DRAWINGS SHALL BE UTILIZED AS THE BASIS FOR ALL EARTHWORK COMPUTATIONS. SAID TOPOGRAPHY SHALL BE PRESUMED TO BE ACCEPTABLE TO ALL INTERESTED PARTIES UNLESS A DEVIATION IS FOUND PRIOR TO THE START OF GRADING IN ANY SPECIFIC AREAS. ANY DEVIATION SO DETERMINED SHALL BE PROMPTLY TRANSMITTED TO ALL INTERESTED PARTIES.
3. THE CONTRACTOR IS REQUIRED TO ESTIMATE THE QUANTITIES OF GRADING WORK TO BE DONE AND INCLUDE ALL COSTS THEREFROM WITH HIS BID, AS NO ADDITIONAL ALLOWANCE WILL BE MADE WITHOUT PRIOR CONSENT FROM THE OWNER.
4. OVER-EXCAVATION AND/OR EXCESS BACKFILLING OR DUPLICATION OF GRADING ACTIVITIES IS NOT A BASIS FOR ADDITIONAL COMPENSATION. THIS ALSO APPLIES WHERE MATERIAL IS TO BE REMOVED AND REPLACED TO REDUCE MOISTURE CONTENT.
5. OFF-SITE DISPOSAL OF EXCAVATION MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE BID. THE CONTRACTOR SHALL HOLD THE OWNER AND ENGINEER HARMLESS AS A RESULT OF ANY CLAIMS ARISING FROM THE ACTIONS ENROUTE OR AWAY FROM THE SITE.
6. EARTH VOLUMES SHOWN HEREON ARE ESTIMATES BASED UPON THE GEOTECHNICAL ANALYSIS PERFORMED BY THE NAMED SOILS ENGINEER AND TOPOGRAPHIC SURVEY OF THE EXISTING GROUND SURFACE AT THE TIME OF PLAN PREPARATION. EARTHWORK VOLUMES ARE COMPUTED BY METHODS COMMONLY USED IN STANDARD ENGINEERING PRACTICE, AND ARE INTENDED FOR USE IN ESTABLISHING GOVERNING AGENCY FEES. ACTUAL FIELD CONDITIONS MAY VARY FROM OBSERVED OR MEASURED CONDITIONS AT THE TIME OF PLAN PREPARATION. EARTHWORK QUANTITIES MAY VARY AS A RESULT.
7. ANY EXPORT OR IMPORT REQUIRED TO BALANCE THE SITE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. PAVEMENT AND SUBGRADE RECOMMENDATIONS RELATED TO OVER-EXCAVATION, PAVEMENT SUBGRADE, ETC., PER GEOTECHNICAL REPORT.

GEOTECHNICAL INFORMATION

FOR SITE PREPARATION, OVEREXCAVATION, FOUNDATION RECOMMENDATIONS, PAVEMENT, SUBGRADE, AND GRADATION REQUIREMENTS SEE GEOTECHNICAL INVESTIGATION REPORT ENTITLED:

"PROPOSED NEW CLASSROOM BUILDING AND FIRE LANE"

PREPARED BY: HARRINGTON GEOTECHNICAL ENGINEERING, INC.
1590 N BRIAN ST.
ORANGE, CA 92867
(714) 637-3093

PROJECT NO: 02-01-2111

DATED: OCTOBER 10, 2002 (REVISED APRIL 23, 2003)

EARTHWORK QUANTITIES

APPROXIMATE CUT: 70 CY

APPROXIMATE FILL: 70 CY

NOTE:
EARTHWORK QUANTITIES INDICATED ARE FOR REFERENCE ONLY (NOT FOR BID OR PAYMENT). THE CONTRACTOR IS RESPONSIBLE FOR ACTUAL QUANTITIES.

HAUL ROUTE TO BE DETERMINED AT PRE-GRADE MEETING AND ALL NECESSARY PERMITS SHALL BE OBTAINED BY THE GENERAL CONTRACTOR

BENCHMARK

VERTICAL CONTROL FOR THIS SURVEY IS: NAVD88 GEOID18
AS ESTABLISHED BY STATIC GPS BASED ON THE CORS STATIONS LISTED UNDER THE BASIS OF BEARINGS SHOWN HEREON.

A TEMPORARY BENCHMARK WAS ESTABLISHED AT THE BASE CONTROL POINT NO. 1
REFERENCED ABOVE

DESCRIPTION: MN

ELEVATION: 343.08' (NAVD88)

NORTHING: 2285765.60' *EASTING:* 6053465.71'

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM: SPC 0406, ZONE VI

BASED LOCALLY ON CONTINUOUS OPERATING REFERENCE STATIONS (CORS): "P582" AND "MLFP" NAD 83 (2011) EPOCH 2010.00
ALL BEARINGS SHOWN ON THIS MAP ARE GRID. ALL DISTANCES ARE GROUND DISTANCES UNLESS SPECIFIED OTHERWISE. GRID DISTANCES MAY BE OBTAINED BY MULTIPLYING THE GROUND DISTANCE BY A COMBINATION FACTOR OF: 0.99999702

IMPORTANT NOTICE

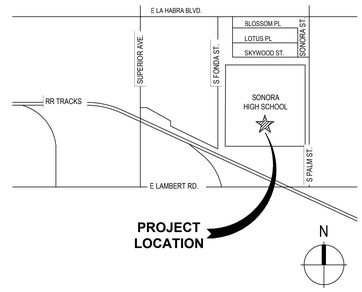
1. ALL ASBESTOS CEMENT PIPE TO BE REMOVED SHALL BE SNAPPED, ENCAPSULATED, AND DISPOSED OF PER LOCAL, STATE, AND FEDERAL REGULATIONS.
2. DOMESTIC WATER SERVICE AND FIRE PROTECTION SHALL BE MAINTAINED DURING CONSTRUCTION. PROVIDE BYPASS LINES DURING CONSTRUCTION INCLUDING TIE-IN. COORDINATE ALL SHUT DOWNS OF WATER AND POWER WITH OWNER PRIOR TO CONSTRUCTION.
3. PURSUANT TO CALIFORNIA ASSEMBLY BILL 1953 ALL PIPE, FITTINGS, AND FIXTURES INTENDED TO CONVEY OR DISPENSE WATER FOR HUMAN CONSUMPTION THROUGH DRINKING WATER OR COOKING SHALL BE "LEAD FREE" AS OF JANUARY 1, 2010.

DEDICATED FIRE ACCESS

PORTIONS OF DEMOLITION MAY REQUIRE BLOCKING AND/OR OBSTRUCTING THROUGH ACCESS TO EMERGENCY / FIRE ACCESS VEHICLES. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A FIRE WATCH SPECIALIST SERVICE FOR THE DURATION OF TIME THAT EMERGENCY / FIRE ACCESS VEHICLES ARE BLOCKED AND/OR OBSTRUCTED DURING CONSTRUCTION UNLESS EQUIVALENT ALTERNATE MEASURES ARE TAKEN TO ENSURE CONTINUOUS ACCESS TO EMERGENCY / FIRE ACCESS VEHICLES. CONTRACTOR TO COORDINATE THROUGH ACCESS TO EMERGENCY / FIRE ACCESS VEHICLES WITH THE LOCAL FIRE AUTHORITY HAVING JURISDICTION.

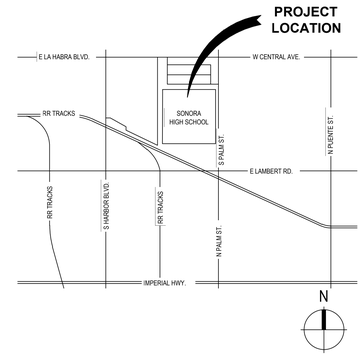
VICINITY MAP

NTS



LOCATION MAP

NTS



CIVIL SHEET INDEX

C0.01	CIVIL NOTES & LEGENDS
C0.02	EXISTING CONDITIONS
C1.01	DEMOLITION PLAN
C2.01	GRADING AND PAVING PLAN
C2.02	GRADING ENLARGEMENT PLAN
C6.01	EROSION CONTROL PLAN
C7.01	DETAILS

DIG ALERT NOTICE

PURSUANT TO THE CALIFORNIA GOVERNMENT CODE SECTION 4216, NO EXCAVATION PERMIT IS VALID UNLESS DIG ALERT HAS BEEN CONTACTED AT LEAST TWO (2) WORKING DAYS PRIOR TO THE COMMENCEMENT OF EXCAVATION AND AN INQUIRY IDENTIFICATION NUMBER HAS BEEN ISSUED.

INQUIRY ID# _____

DIGALERT

811 Know what's below. Call 811 before you dig.

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ARCHITECTURE ENGINEERING INTERIOR DESIGN
LANDSCAPE ARCHITECTURE PLANNING
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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

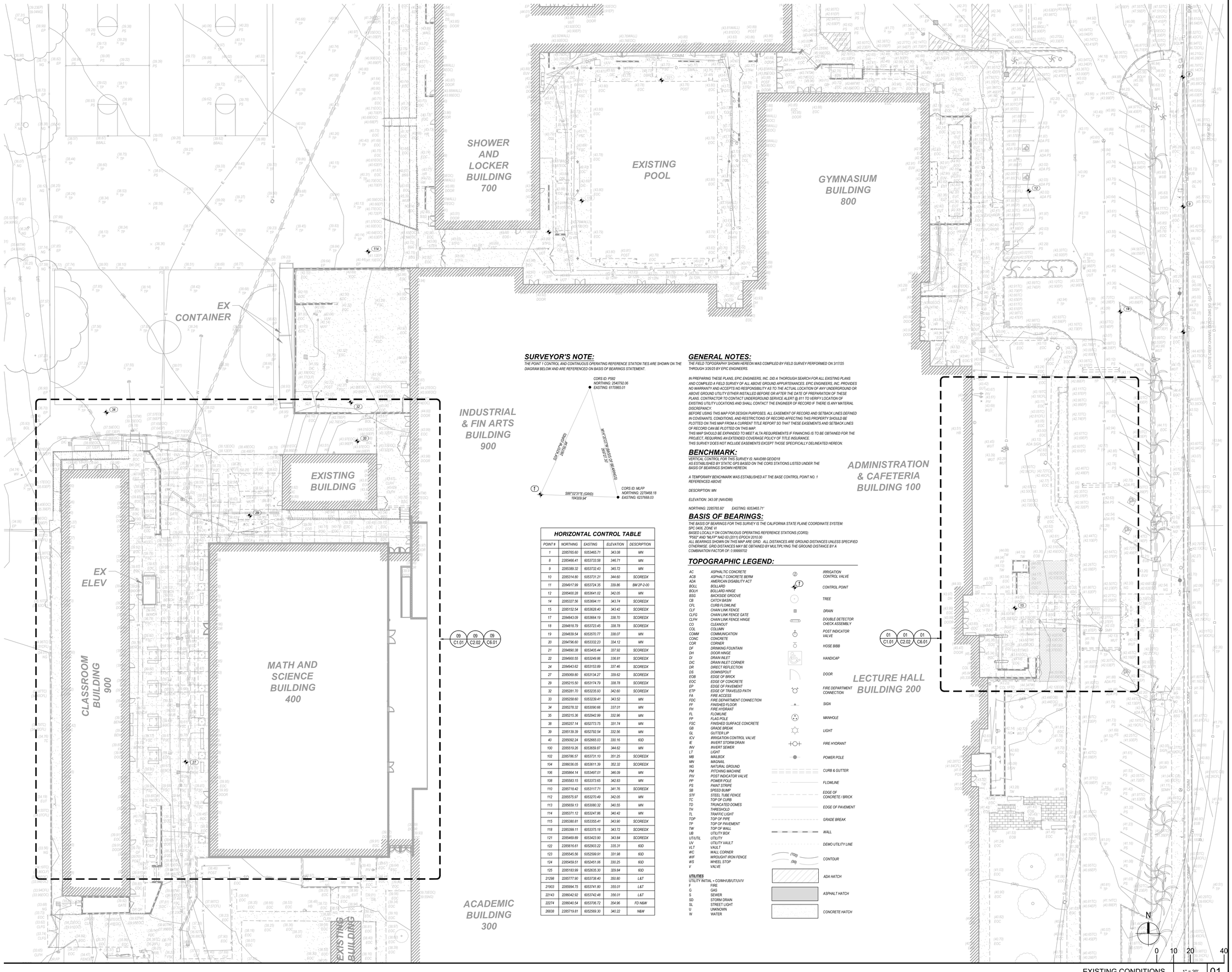
Revision	Date

Submittal	Date
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/01/2025
DSA CORRECTIONS	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	KS
Scale	-

CIVIL NOTES & LEGENDS

C0.01



SURVEYOR'S NOTE:

THE POINT 1 CONTROL AND CONTINUOUS OPERATING REFERENCE STATION TIES ARE SHOWN ON THE DIAGRAM BELOW AND ARE REFERENCED ON BASIS OF BEARINGS STATEMENT.

HORIZONTAL CONTROL TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2285765.60	6053465.71	343.08	MN
8	2285466.41	6053733.58	346.71	MN
9	2285389.32	6053732.43	345.72	MN
10	2285314.80	6053731.21	344.60	SCOREDX
11	2284917.99	6053724.35	339.86	BM 2P-2-00
12	2285400.28	6053641.02	342.05	MN
14	2285327.56	6053694.11	343.74	SCOREDX
15	2285152.54	6053628.40	343.42	SCOREDX
17	2284843.00	6053664.19	338.70	SCOREDX
18	2284818.79	6053723.45	338.78	SCOREDX
19	2284839.54	6053570.77	338.07	MN
20	2284796.60	6053332.23	334.12	MN
21	2284890.38	6053405.44	337.92	SCOREDX
22	2284900.55	6053249.86	336.81	SCOREDX
24	2284943.62	6053153.89	337.46	SCOREDX
27	2285069.80	6053134.27	339.62	SCOREDX
29	2285215.50	6053174.79	338.78	SCOREDX
32	2285281.70	6053235.93	342.60	SCOREDX
33	2285258.60	6053239.41	343.52	MN
34	2285278.32	6053090.66	337.01	MN
35	2285215.36	6052942.99	332.96	MN
38	2285257.14	6052773.75	331.74	MN
39	2285139.39	6052792.54	332.56	MN
40	2285092.24	6052665.03	330.16	60D
100	2285519.26	6053659.87	344.62	MN
102	2285786.57	6053731.10	351.25	SCOREDX
104	2286036.05	6053611.39	352.32	SCOREDX
106	2285864.14	6053497.01	346.09	MN
108	2285583.15	6053373.65	342.83	MN
110	2285718.42	6053117.71	341.76	SCOREDX
112	2285575.97	6053270.49	342.05	MN
113	2285659.13	6053080.32	340.55	MN
114	2285371.12	6053247.86	340.42	MN
115	2285380.81	6053355.41	343.90	SCOREDX
118	2285399.11	6053375.18	343.72	SCOREDX
121	2285469.89	6053423.90	343.84	SCOREDX
122	2285616.61	6052903.22	335.31	60D
123	2285545.56	6052599.91	331.98	60D
124	2285459.51	6052451.06	330.25	60D
125	2285183.99	6052635.30	329.84	60D
21298	2285777.90	6053738.40	350.80	L&T
21903	2285994.75	6053741.80	355.01	L&T
22143	2286042.92	6053742.48	356.01	L&T
22274	2286040.54	6053706.72	354.96	FD N&W
26838	2285719.81	6052569.30	340.22	N&W

GENERAL NOTES:

THE FIELD TOPOGRAPHY SHOWN HEREON WAS COMPILED BY FIELD SURVEY PERFORMED ON 3/17/25 THROUGH 3/26/25 BY EPIC ENGINEERS.

IN PREPARING THESE PLANS, EPIC ENGINEERS, INC. DID A THOROUGH SEARCH FOR ALL EXISTING PLANS AND COMPILED A FIELD SURVEY OF ALL ABOVE GROUND APPURTENANCES. EPIC ENGINEERS, INC. PROVIDES NO WARRANTY AND ACCEPTS NO RESPONSIBILITY AS TO THE ACTUAL LOCATION OF ANY UNDERGROUND OR ABOVE GROUND UTILITY EITHER INSTALLED BEFORE OR AFTER THE DATE OF PREPARATION OF THESE PLANS. CONTRACTOR TO CONTACT UNDERGROUND SERVICE ALERT @ 811 TO VERIFY LOCATION OF EXISTING UTILITY LOCATIONS AND SHALL CONTACT THE ENGINEER OF RECORD IF THERE IS ANY MATERIAL DISCREPANCY.
BEFORE USING THIS MAP FOR DESIGN PURPOSES, ALL EASEMENT OF RECORD AND SETBACK LINES DEFINED IN COVENANTS, CONDITIONS, AND RESTRICTIONS OF RECORD AFFECTING THIS PROPERTY SHOULD BE PLOTTED ON THIS MAP FROM A CURRENT TITLE REPORT SO THAT THESE EASEMENTS AND SETBACK LINES OF RECORD CAN BE PLOTTED ON THIS MAP.
THIS MAP SHOULD BE EXPANDED TO MEET ALTA REQUIREMENTS IF FINANCING IS TO BE OBTAINED FOR THE PROJECT, REQUIRING AN EXTENDED COVERAGE POLICY OF TITLE INSURANCE.
THIS SURVEY DOES NOT INCLUDE EASEMENTS EXCEPT THOSE SPECIFICALLY DELINEATED HEREON.

BENCHMARK:

VERTICAL CONTROL FOR THIS SURVEY IS: NAVD88 GEOID18
AS ESTABLISHED BY STATIC GPS BASED ON THE CORS STATIONS LISTED UNDER THE BASIS OF BEARINGS SHOWN HEREON.

A TEMPORARY BENCHMARK WAS ESTABLISHED AT THE BASE CONTROL POINT NO. 1 REFERENCED ABOVE

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TOPOGRAPHIC LEGEND:

AC	ASPHALTIC CONCRETE		IRRIGATION CONTROL VALVE
ACB	ASPHALT CONCRETE BERM	1	CONTROL POINT
ADA	AMERICAN DISABILITY ACT		TREE
BOLL	BOLLARD		DRAIN
BOLH	BOLLARD HINGE		DOUBLE DETECTOR CHECK ASSEMBLY
BSG	BACKSIDE GROOVE		POST INDICATOR VALVE
CB	CATCH BASIN		HOSE BIBB
CFL	CURB FLOWLINE		HANDICAP
CLF	CHAIN LINK FENCE		DOOR
CLFG	CHAIN LINK FENCE GATE		FIRE DEPARTMENT CONNECTION
CLFH	CHAIN LINK FENCE HINGE		SIGN
CO	CLEANOUT		MANHOLE
COL	COLUMN		LIGHT
COMM	COMMUNICATION		FIRE HYDRANT
CONC	CONCRETE		POWER POLE
COR	CORNER		CURB & GUTTER
DF	DRINKING FOUNTAIN		FLOWLINE
DH	DOOR HINGE		EDGE OF CONCRETE / BRICK
DI	DRAIN INLET		EDGE OF PAVEMENT
DIC	DRAIN INLET CORNER		GRADE BREAK
DR	DIRECT REFLECTION		WALL
DS	DOWNSPOUT		DEMO UTILITY LINE
EOB	EDGE OF BRICK	(100)	CONTOUR
EOC	EDGE OF CONCRETE	(99)	
EP	EDGE OF PAVEMENT		ADA HATCH
ETP	EDGE OF TRAVELED PATH		ASPHALT HATCH
FA	FIRE ACCESS		CONCRETE HATCH
FDC	FIRE DEPARTMENT CONNECTION		
FF	FINISHED FLOOR		
FH	FIRE HYDRANT		
FL	FLOWLINE		
FP	FLAG POLE		
FSC	FINISHED SURFACE CONCRETE		
GB	GRADE BREAK		
GL	GUTTER LIP		
ICV	IRRIGATION CONTROL VALVE		
IE	INVERT STORM DRAIN		
INV	INVERT SEWER		
LT	LIGHT		
MB	MAILBOX		
MH	MAGNAIL		
NG	NATURAL GROUND		
PM	PITCHING MACHINE		
PIV	POST INDICATOR VALVE		
PP	POWER POLE		
PS	PAINT STRIPE		
SB	SPEED BUMP		
STF	STEEL TUBE FENCE		
TC	TOP OF CURB		
TD	TRUNCATED DOMES		
TH	THRESHOLD		
TL	TRAFFIC LIGHT		
TOP	TOP OF PIPE		
TP	TOP OF PAVEMENT		
TW	TOP OF WALL		
UB	UTILITY BOX		
UTL/UTIL	UTILITY		
UV	UTILITY VAULT		
VLT	VAULT		
WC	WALL CORNER		
WIF	WROUGHT IRON FENCE		
WS	WHEEL STOP		
V	VALVE		

UTILITIES
UTILITY INITIAL + COMM/HUB/UT/U/V/

F	FIRE
G	GAS
S	SEWER
SD	STORM DRAIN
SL	STREET LIGHT
U	UNKNOWN
W	WATER

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SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
50% DESIGN DEVELOPMENT	06/16/2025
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DSA SUBMITTAL	09/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	KS
Scale	

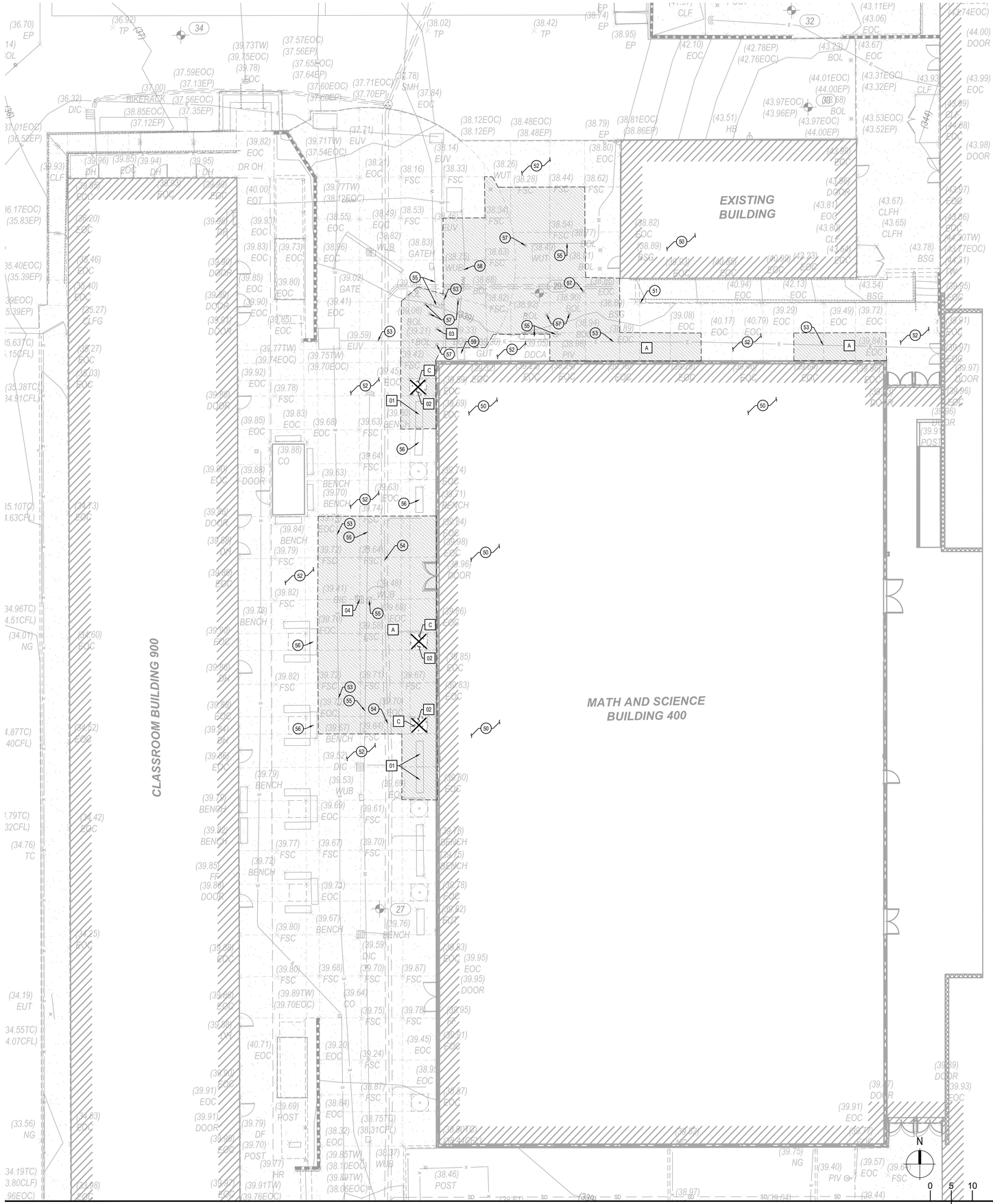
EXISTING CONDITIONS

C0.02

N

0 10 20 40

EXISTING CONDITIONS 1" = 20' 01



DEMOLITION PLAN 1" = 10' 09

DEMOLITION NOTES

1. THE INTENT OF THE DEMOLITION PLAN IS TO DESCRIBE IN GENERAL THE DEMOLITION AREAS AFFECTED BY THE PROJECT CONSTRUCTION. IT IS NOT INTENDED AS A DETAILED DESCRIPTION OF EXISTING ITEMS OR ELEMENTS TO BE REMOVED. THE CONTRACTOR SHALL VISIT THE SITE AND REVIEW ANY AVAILABLE RECORD DOCUMENTS TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND SHOULD INCLUDE THE REMOVAL OF ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE BINDING AS IF REQUIRED BY ALL TO THE EXTENT THAT IT IS REASONABLY INFERABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED RESULTS.
2. REMOVE EXISTING SERVICE UTILITIES AS INDICATED ON PLANS. CAP ALL UTILITIES AT APPROPRIATE POINTS. COORDINATE DEMOLITION OF ALL UTILITIES WITH THE OWNER. ALL UTILITIES CONNECTED TO EXISTING BUILDINGS TO REMAIN SHALL CONTINUE TO BE OPERATIONAL DURING THE DEMOLITION PROCESS.
3. FOR ALL EXISTING MATERIALS THAT CAN BE SALVAGED, OWNER HAS FIRST RIGHT OF REFUSAL FOR REMOVED ITEMS THAT MAY HAVE RESIDUAL COMMERCIAL OR HISTORIC VALUE. ALL ITEMS TO BE SALVAGED FOR REUSE/REINSTALLATION MUST MEET CURRENT CODE REQUIREMENTS. COORDINATE ITEMS TO BE RETAINED WITH OWNER AND REMOVE FROM CONSTRUCTION SITE TO A LOCATION APPROVED BY OWNER. REMOVED MATERIALS, NOT INDICATED OR DIRECTED TO BE SALVAGED FOR THE OWNER'S BENEFIT ARE DEBRIS AND BECOME THE CONTRACTOR'S PROPERTY UPON REMOVAL.
4. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY SEARCH OF THE AVAILABLE RECORDS AND FIELD SURVEYS. THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT, UTILITY COMPANIES, AND/OR FIELD VERIFY AND LOCATE ALL UTILITIES BEFORE PROCEEDING WITH WORK. THE CONTRACTOR IS ALSO REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. NOTIFY THE ENGINEER IF ADDITIONAL UTILITIES ARE LOCATED OR IF CONFLICTS ARE FOUND WITH EXISTING CONDITIONS.
5. ALL TREES TO BE REMOVED SHALL BE MARKED BY CONTRACTOR AND APPROVED FOR REMOVAL BY THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO REMOVING OR CUTTING TREE(S). EXISTING ROOTS SHALL BE GRINDED TO A DEPTH OF APPROXIMATELY 3-FEET. USE CAUTION WHILE GRINDING WHEN EXISTING UTILITIES ARE IN CLOSE PROXIMITY TO TREES. ALL TREES TO REMAIN WITHIN THE LIMIT OF WORK SHALL BE PROTECTED AND MAINTAINED PER SPECIFICATIONS AND DETAILS.
6. SAWCUT EXISTING CONCRETE AND ASPHALT TO AN EXISTING CONTROL JOINT WHERE POSSIBLE, AT MINIMUM TO A NEAT-STRAIGHT LINE. ALL DEBRIS SHALL BE HAULED OFFSITE TO A LEGAL DUMPING SITE OR SALVAGED FOR REUSE ON PROJECT AS NOTED.
7. CONTRACTOR TO COORDINATE UTILITY DEMOLITION WITH UTILITY WORK SHOWN IN THIS PLAN SET. ALL UTILITY SHUTDOWNS SHALL BE COORDINATED PER PROJECT SPECIFICATIONS.
8. THE CONTRACTOR SHALL RECYCLE CONSTRUCTION DEBRIS, ASPHALT, AND CONCRETE GENERATED FROM REMOVALS REQUIRED TO CONSTRUCT THE PROJECT. THE CONTRACTOR IS OBLIGATED, UNDER THIS CONTRACT, TO RECYCLE THE WASTE MATERIAL THROUGH AN APPROVED RECYCLING PLANT.
9. A LIST OF FACILITIES THAT ACCEPT CONSTRUCTION & DEMOLITION DEBRIS CAN BE FOUND ON THE CALRECYCLE WEBSITE AT: HTTPS://WWW.CALRECYCLE.CA.GOV/CONDEMO
10. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING BUILDING FINISHES DURING DEMOLITION. ANY FINISH THAT IS DAMAGED DURING DEMOLITION SHALL BE REPAIRED OR REPLACED IN-KIND OR BETTER.

DEMOLITION LEGEND

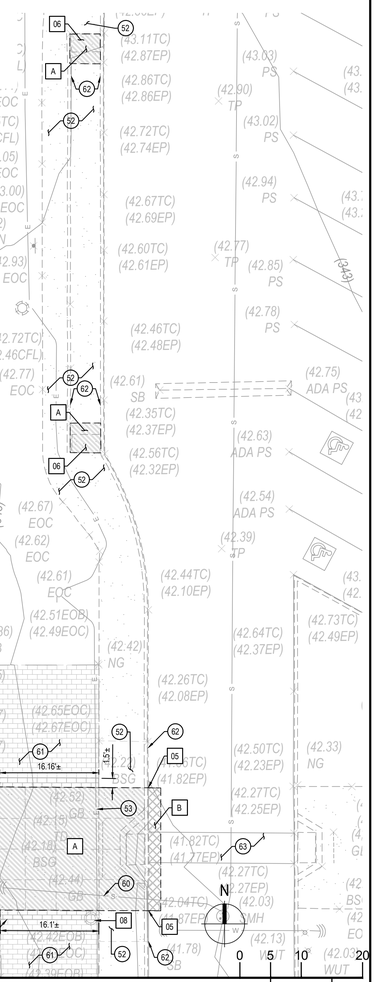
LABEL	DESCRIPTION
A	REMOVE (E) CONCRETE PAVEMENT/SIDEWALK, SEE DEMOLITION NOTE 8 ABOVE.
B	REMOVE (E) AC PAVEMENT DEMOLITION NOTE 8 ABOVE.
C	REMOVE (E) LANDSCAPING.
	REMOVE (E) TREE, SEE DEMOLITION NOTE 5 ABOVE.
	SAWCUT (E) PAVEMENT AS NEEDED. SEE DEMOLITION NOTE 6 AND 8 ABOVE.

DEMOLITION KEYNOTES

KEY NOTE	DESCRIPTION
01	REMOVE (E) BENCH AND COORDINATE STORAGE WITH SCHOOL DISTRICT..
02	LOCATE AND CAP (E) IRRIGATION LINE AS REQUIRED.
03	REMOVE (E) BOLLARD AND FOOTING AND RELOCATE PER GRADING PLAN.
04	REMOVE (E) DRAIN INLET AND PROTECT (E)STORM DRAIN LATERAL. SEE GRADING PLAN FOR IMPROVEMENTS PRIOR TO DEMO.
05	REMOVE (E) CURB.
06	REMOVE (E) TRUNCATED DOMES.
07	REMOVE AND REUSE (E) PAVERS ALONG NEW FINISH SURFACE AS REQUIRED FOR SEAT WALL AND SMOOTH GRADE TRANSITION TO IMPROVEMENTS. SEE GRADING PLAN C2.02 AND LANDSCAPE PLANS.
08	REMOVE (E) LIGHT POLE AND FOOTING. (E) LIGHT TO BE RELOCATED. SEE LANDSCAPE PLANS FOR MORE DETAIL.

PROTECTION KEYNOTES

KEY NOTE	DESCRIPTION
50	PROTECT (E) BUILDING, FOUNDATION AND OTHER STRUCTURAL FEATURES AND BUILDING UTILITIES.
51	PROTECT (E) RAMP AND HANDRAILING.
52	PROTECT (E) CONCRETE PAVEMENT/SIDEWALK.
53	PROTECT (E) ELECTRICAL FACILITIES.
54	PROTECT (E) STORM DRAIN FACILITIES.
55	PROTECT (E) WATER SERVICE FACILITIES.
56	PROTECT (E) BENCH.
57	PROTECT (E) BOLLARD AND FOOTING.
58	PROTECT (E) TELECOMMUNICATIONS FACILITIES.
59	PROTECT (E) GAS FACILITIES.
60	PROTECT (E) SEWER FACILITIES.
61	PROTECT (E) PAVERS.
62	PROTECT (E) CURB.
63	PROTECT (E) AC PAVEMENT.



DEMOLITION PLAN 1" = 10' 01

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SCIENCE CLASSROOMS MODERNIZATION PROJECT

401 S PALM STREET
LA HABRA, CA 90631

Developped for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

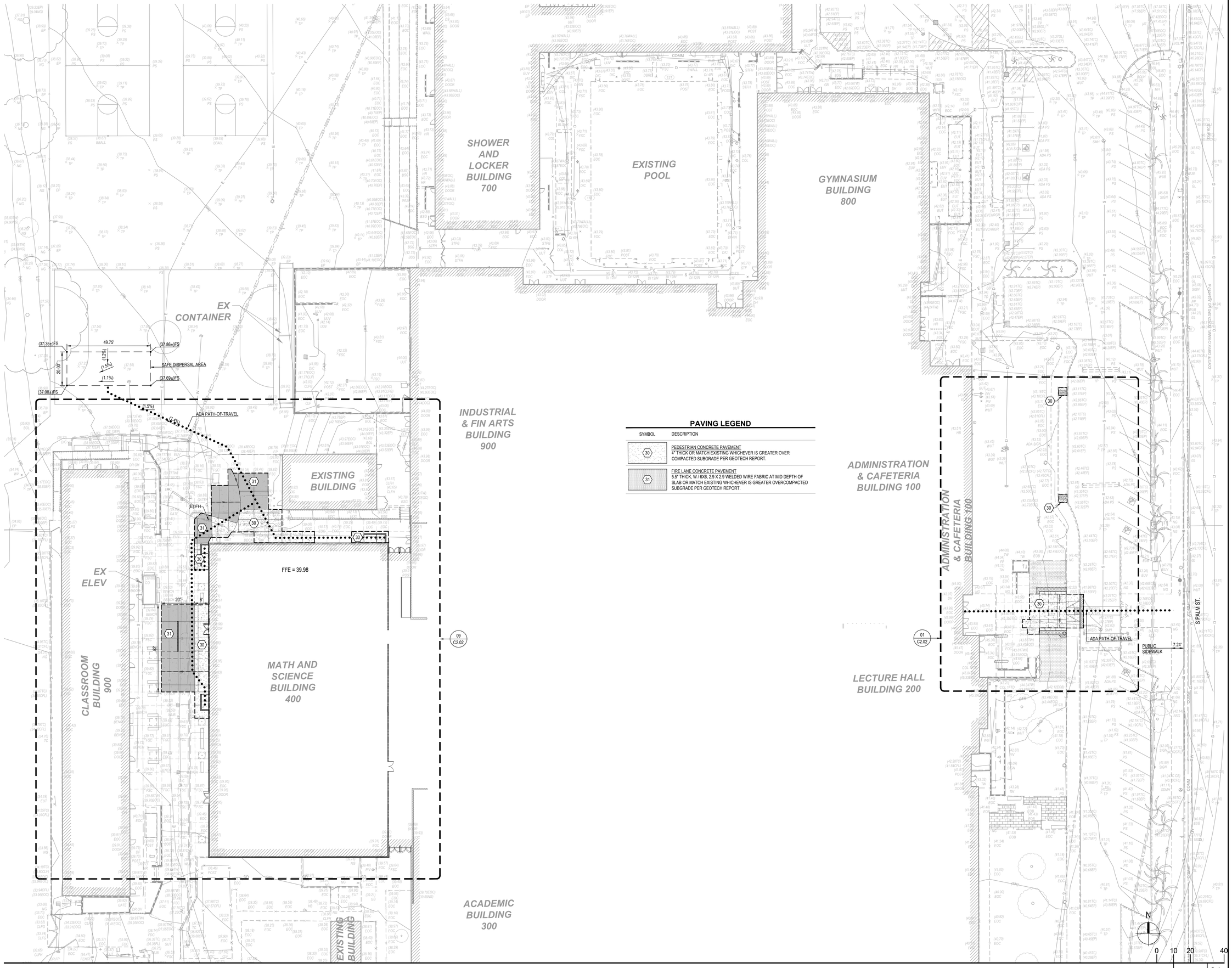
Revision	Date

Submittal	Date
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/01/2025
50% DSA	09/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	KS
Scale	

DEMOLITION PLAN

C1.01



PAVING LEGEND

SYMBOL	DESCRIPTION
30	PEDESTRIAN CONCRETE PAVEMENT 4" THICK OR MATCH EXISTING WHICHEVER IS GREATER OVER COMPACTED SUBGRADE PER GEOTECH REPORT.
31	FIRE LANE CONCRETE PAVEMENT 5.5" THICK, W / 6X6, 2.9 X 2.9 WELDED WIRE FABRIC AT MID DEPTH OF SLAB OR MATCH EXISTING WHICHEVER IS GREATER OVERCOMPACTED SUBGRADE PER GEOTECH REPORT.

GRADING PLAN 1" = 20' 01

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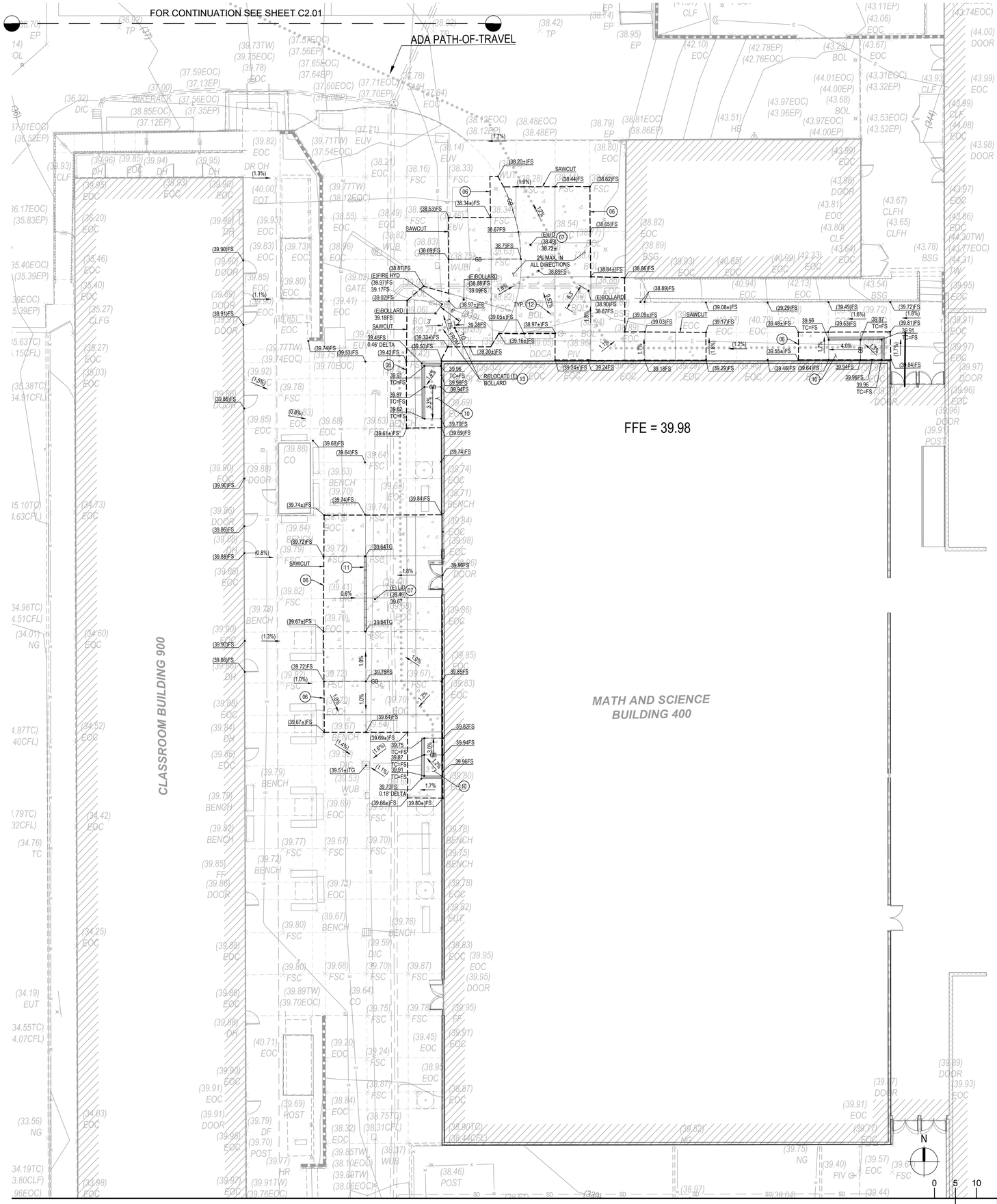
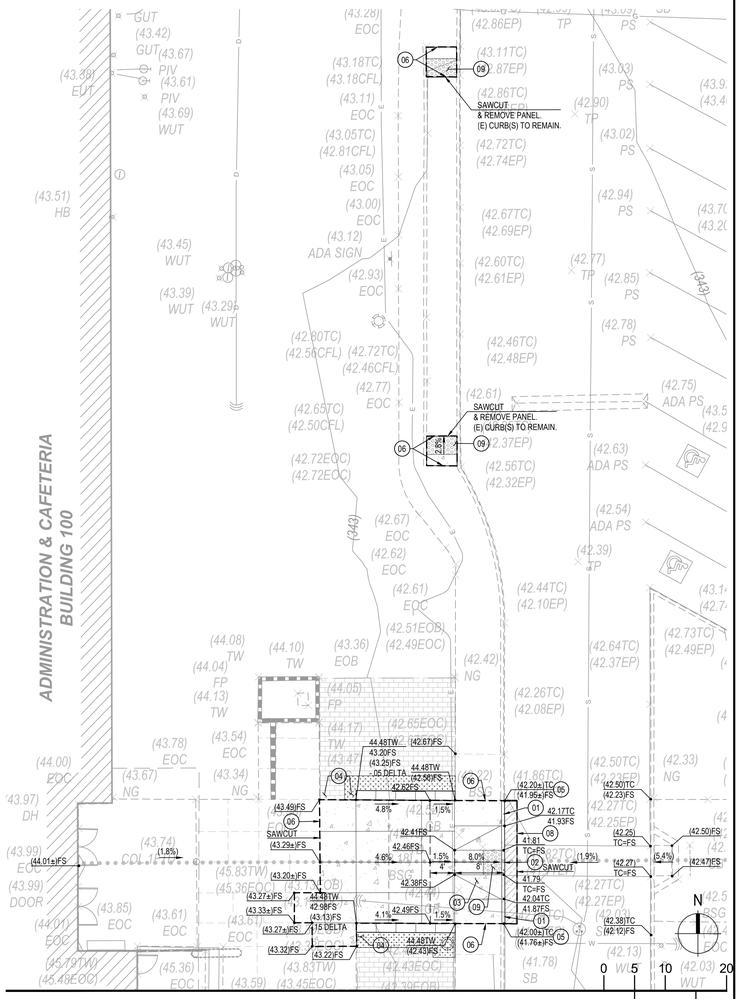
GRADING AND PAVING PLAN

C2.01





LEGEND

SYMBOL	DESCRIPTION
– – — GB – – –	GRADE BREAK.
— — — — —	SAWCUT (E) PAVEMENT ON EXISTING CONTROL JOINTS. IF CONFLICT EXIST, NOTIFY ENGINEER. SEE DEMOLITION PLAN.
. . . . .	ADA PATH-OF-TRAVEL
X.X%	GRADE ARROW.

GRADING CONSTRUCTION NOTES

KEY NOTE	DESCRIPTION
01	CONSTRUCT VERTICAL CURB PER DETAIL 01 SHEET C7.01.
02	CONSTRUCT FLUSH CURB PER DETAIL 02 SHEET C7.01.
03	CONSTRUCT FLARED CURB RAMP PER DETAIL 03 ON SHEET C7.01.
04	REMOVE (E) PAVERS AS REQUIRED TO PROVIDE A SMOOTH GRADE TRANSITION TO (N) FINISH SURFACE GRADE. INSTALL IN KIND. GRADE BETWEEN SURFACES TO BE FLUSH.
05	JOIN EXISTING CURB AND/OR GUTTER AND MATCH GRADE.
06	JOIN EXISTING FINISH SURFACE AND MATCH EXISTING GRADE.
07	ADJUST (E) UTILITY VAULT LID TO GRADE.
08	FULL ASPHALT PATCH. APPLY BITUMINOUS TACK COAT ON PAVEMENT EDGES, MATCH GRADE AND JOIN EXISTING ASPHALT PAVEMENT.
09	SEE LANDSCAPE PLANS FOR TRUNCATED DOMES.
10	CONSTRUCT LANDING WITH CURB AND GUARD RAIL. SEE LANDSCAPE PLANS FOR DETAILS.
11	SUPPLY AND INSTALL COMMERCIAL, CLASS C, 4" ACO K100 TRENCH DRAIN TYPE 476D-IRON. EMBED IN CONCRETE PER MANUFACTURER'S RECOMMENDATIONS. CONNECT TO (E) ADJACENT STORM DRAIN. SEE SHEET C7.01 FOR ACO REFERENCE DETAILS.
12	PROTECT (E) BOLLARDS AND FOOTING IN PLACE. CONTRACTOR TO CLEAN AND PAINT BOLLARDS AS REQUIRED AFTER (N) FINISH SURFACE IS CONSTRUCTED.
13	RELOCATE (E) BOLLARD PER DETAIL 04 SHEET C7.01.

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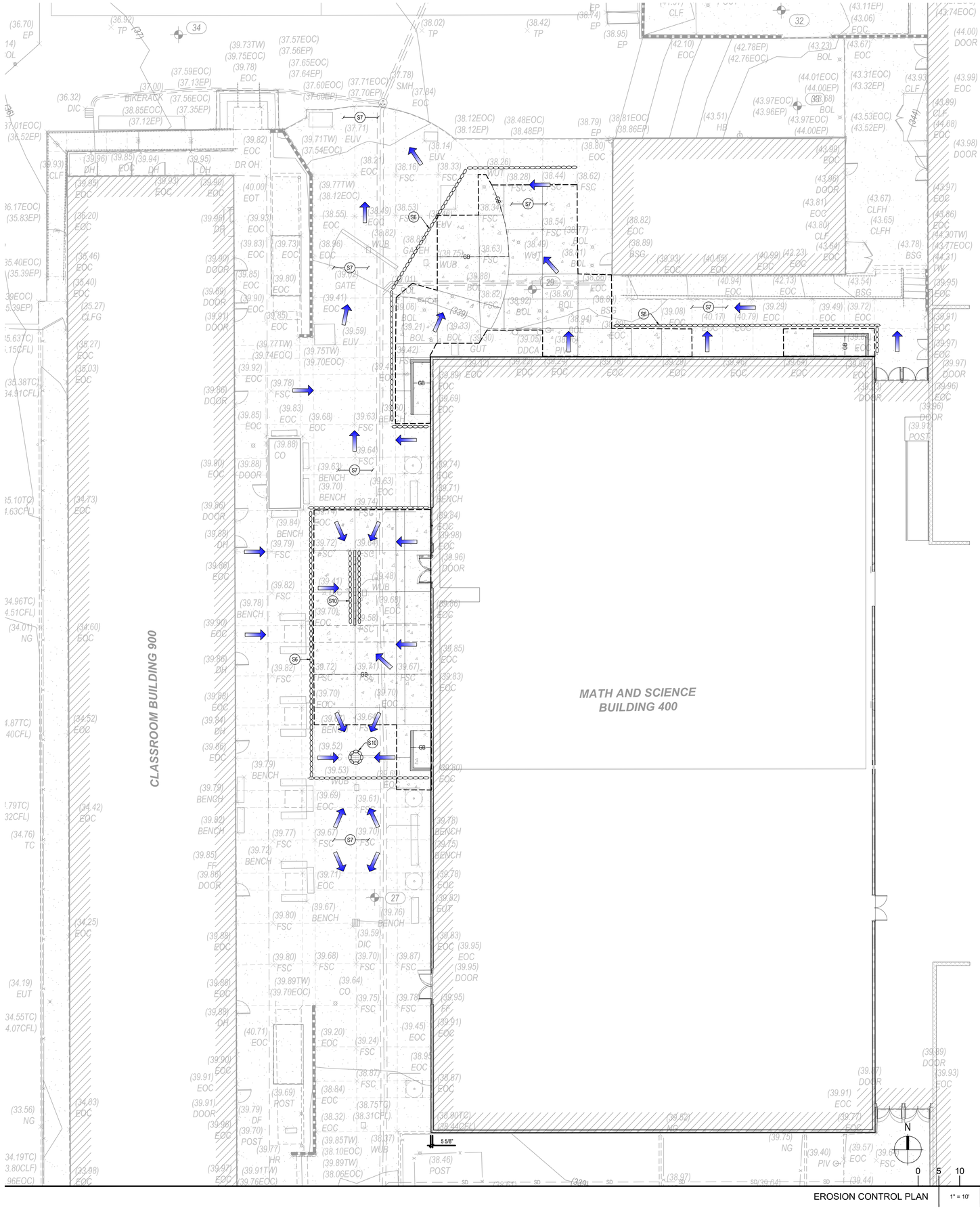
GRADING ENLARGEMENT PLAN

C2.02



EROSION CONTROL PLAN 1" = 10' 09

EROSION CONTROL PLAN 1" = 10' 01

EROSION CONTROL NOTES

-SEE SHEET C0.01 FOR EROSION AND SEDIMENT CONTROL NOTES.

-SEE SHEET C0.01 FOR BMP MAINTENANCE NOTES.

-ALL BMPS PER CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA)/UNLESS NOTED OTHERWISE) AND ARE AVAILABLE AT www.casqa.org.

-BMPS "NOT" CALLED OUT PER PLAN, ARE SHOWN FOR REFERENCE AS BMP OPTIONS PER QSP (QUALIFIED SWPPP PRACTITIONER) FIELD RECOMMENDATIONS.

-AT THE COMPLETION OF PROJECT, CONTRACTOR SHALL REMOVE ALL CONSTRUCTION BMPS FROM SITE AND DISPOSE IN A LEGAL MANNER.

LEGEND

SYMBOL	DESCRIPTION
	GRAVEL BAGS AND/OR SANDBAGS PER BMP KEYNOTES
	FLOW DIRECTION

WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL BMPs:

W1	WM-1, MATERIAL DELIVERY AND STORAGE
W2	WM-2, MATERIAL USE
W3	WM-3, STOCKPILE MANAGEMENT
W4	WM-4, SPILL PREVENTION AND CONTROL
W5	WM-5, SOLID WASTE MANAGEMENT
W6	WM-6, HAZARDOUS WASTE MANAGEMENT
W7	WM-7, CONTAMINATED SOIL MANAGEMENT
W8	WM-8, CONCRETE WASTE MANAGEMENT
W9	WM-9, SANITARY/SEPTIC WASTE MANAGEMENT
W10	WM-10, LIQUID WASTE MANAGEMENT

EROSION CONTROL BMPs:

KEY NOTE	DESCRIPTION
E1	EC-1, SCHEDULING
E2	EC-2, PRESERVATION OF EXISTING VEGETATION
E5	EC-5, SOIL BINDERS
E7	EC-7, GEOTEXTILES AND MATS
E15	EC-15, SOIL PREPARATION/ROUGHENING
E16	EC-16, NON-VEGETATIVE STABILIZATION

SEDIMENT CONTROL BMPs:

S5	SE-5, FIBER ROLLS
S6	SE-6, GRAVEL BAG BERM
S7	SE-7, STREET SWEEPING AND VACUUMING
S8	SE-8, SANDBAG BARRIER
S10	SE-10, STORM DRAIN INLET PROTECTION

TRACKING CONTROL BMPs:

T1	TC-1, STABILIZED CONSTRUCTION ENTRANCE/EXIT
T3	TC-3, ENTRANCE/OUTLET TIRE WASH

NON-STORMWATER MANAGEMENT CONTROL BMPs:

N1	NS-1, WATER CONSERVATION PRACTICES
N3	NS-3, PAVING AND GRINDING OPERATIONS
N6	NS-6, ILLICIT CONNECTION/DISCHARGE
N7	NS-7, POTABLE WATER/IRRIGATION
N8	NS-8, VEHICLE AND EQUIPMENT CLEANING
N9	NS-9, VEHICLE AND EQUIPMENT FUELING
N10	NS-10, VEHICLE AND EQUIPMENT MAINTENANCE
N12	NS-12, CONCRETE CURING
N13	NS-13, CONCRETE FINISHING
EC10	SC-10, NON-STORMWATER DISCHARGES

WIND EROSION CONTROL BMPs:

WE	WE-1, WIND EROSION CONTROL

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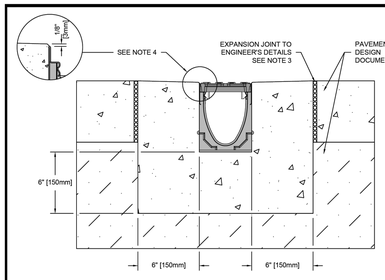
Scale	

EROSION CONTROL PLAN

C6.01



NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

KS100 KLASSIKDRAIN 'DRAINLOK' LOAD CLASS C

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE KS100 CHANNEL SYSTEM WITH STAINLESS STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN STAINLESS STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
DILUTE ACID AND ALKALI RESISTANT	YES
B117 SALT SPRAY TEST COMPLIANT	YES

THE SYSTEM SHALL BE 4" (100mm) NOMINAL INTERNAL WIDTH WITH A 5.1" (130mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'DRAINLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

KS1D-C-ECP	KS100 - KLASSIKDRAIN - LOAD CLASS: C Exposed Concrete Pavement	**ACO Polymer Products, Inc.**		
DATE: 11/19/16	INSTALLATION DRAWING - ACO DRAIN	825 W. Beechcraft St Casa Grande, AZ 85122 Tel: 520-421-9988 Fax: 520-421-8899	9470 Pinecone Dr. Mentor, OH 44060 Tel: 440-639-7230 Fax: 440-639-7235	4211 Pleasant Rd. Fort Mill, SC 29708 Tel: 440-639-7230 Fax: 803-802-1063

Arizona Tel: 888-490-9552 e-mail: sales@acousa.com Ohio Tel: 800-543-4764 www.acousa.com South Carolina Tel: 800-543-4764

ACO DRAIN

Type 476D Longitudinal ductile iron grate (ADA)

Product Features

- Certified to EN 1433 Load Class C - 56,000 lbs - 1,162 psi
- Uses 'DrainLok' boltless locking system
- Suitable for use with K100, KS100, and H100K-8 channels
- Manufactured from ductile iron to ASTM A 536-84 - Grade 65-45-12
- E- coated for improved resistance against rust
- Complies with ADA - Amercan Disabilities Act of 1990 Section 4.5.4
- Bicycle Tire Penetration Resistant to AS 3996 - 2006

Specifications

General
The surface drainage system shall be ACO Drain K100, KS100, and H100K-8 channels*, complete with ACO Type 476D longitudinal ductile iron grate with 'DrainLok' locking as manufactured by ACO, Inc. or similar approved.

Materials
The covers shall be manufactured from ductile iron and have ***minimum*** properties as follows:

- ***Independently certified to meet Load Class C to EN 1433 - 56,000 lbs - 1,162 psi***
- ***Ductile iron to ASTM A 536-84 - Grade 65-45-12***
- ***Intake area of 22.6 sq. in. (145.16 cm²) per half meter of grate***

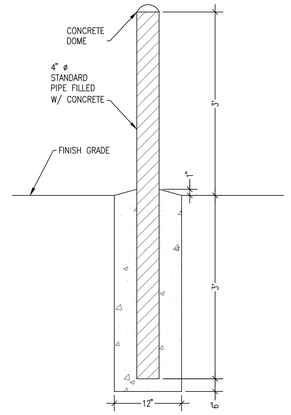
The overall width of 4.85" (123mm) and overall length of 19.69" (500mm). Slots measure at 2.1" (53.34mm) by 0.24" (6.09mm).

Installation
The trench drain system and grates shall be installed in accordance with the manufacturer's installation instructions and recommendations.
* delete as appropriate

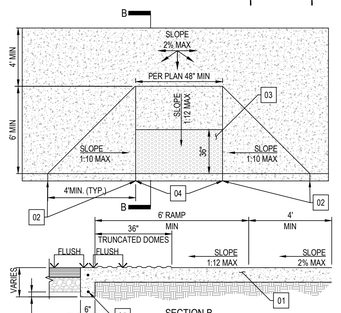
April 2018

www.ACODrain.us

ACO Specification Information

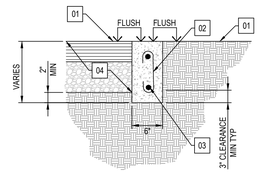


BOLLARD NTS 04



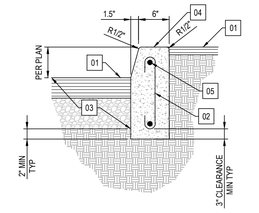
01 PAVEMENT SECTION PER PLAN
02 CONCRETE CURB. TOP OF CURB TO MATCH RAMP SLOPE
03 SEE DETECTABLE WARNING DETAIL 09 SHEET L5.01
04 FLUSH CURB. CROSS SLOPE OF FLUSH CURB NOT TO EXCEED 2% MAX
05 2 - #3 REBAR CONTINUOUS TYP

ACCESSIBLE FLARED CURB RAMP NTS 03



01 FINISHED SURFACE / FINISHED GRADE
02 #3 REBAR @ 36" OC
03 (2) #4 REBAR CONTINUOUS TYP
04 PAVEMENT SECTION PER PLAN

FLUSH CURB NTS 02



NOTES:
- EXPANSION JOINTS AND CONTROL JOINTS PER SSPWC SECTION 303-5 SHALL BE PLACED IN CURB ALIGNED WITH HARDSCAPE JOINTING PER LANDSCAPE DRAWINGS (EXCEPTION: CONTROL JOINTS SHALL BE MAXIMUM 10.0' INTERVALS).

01 FINISHED SURFACE / FINISHED GRADE
02 #3 REBAR @ 36" OC
03 PAVEMENT SECTION PER PLAN
04 SLOPE 1/4" PER FOOT
05 (2) #4 REBAR CONTINUOUS TYP

VERTICAL CURB NTS 01

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DETAILS

C7.01

ABBREVIATIONS

&	AND	GA.	GAUGE
∠	ANGLE	GALV.	GALVANIZED
@	AT	GND.	GROUND
℄	CENTERLINE	GR.	GRADE
⌀	DIAMETER OR ROUND		
#	POUND OR NUMBER	HDR	HEADER
		HT.	HEIGHT
ADJ.	ADJACENT		
AGGR.	AGGREGATE	LT.	LIGHT
AL.	ALUMINUM		
APPROX.	APPROXIMATE	MAX.	MAXIMUM
ARCH.	ARCHITECTURAL	MET.	METAL
AC.	ASPHALT	MFR.	MANUFACTURER
ACC.	ACCESSIBLE	MIN.	MINIMUM
		MTD.	MOUNTED
B.C.R.	BEGINNING OF CURVE RADIUS	MTL.	MATERIAL
B.O.C.	BACK OF CURB		
B.O.W.	BOTTOM OF WALL	N.I.C.	NOT IN CONTRACT
B.O.S.	BOTTOM OF SLOPE	N.T.S.	NOT TO SCALE
BLDG.	BUILDING		
BLK.	BLOCK	O.C.	ON CENTER
		O.D.	OUTSIDE DIAMETER (DIM.)
C.E.	CIVIL ENGINEER		
C.I.P.	CAST IN PLACE	PA	PLANTING AREA
CLKG.	CAULKING	PED.	PEDESTRIAN
CMU.	CONCRETE MASONRY UNIT	PRCST.	PRECAST
CONC.	CONCRETE	P.I.P.	POURED IN PLACE
CONSTR.	CONSTRUCTION	P.O.T.	POINT OF TANGENCY
CONT.	CONTINUOUS	P.T.S.	POST TENSION SLAB
CTR.	CENTER		
		QTY	QUANTITY
D.A.	DISABLED ACCESS		
DET.	DETAIL	R.	RISER
DIA.	DIAMETER	RAD.	RADIUS
DIM.	DIMENSION	REINF.	REINFORCED
DN.	DOWN	REQ.	REQUIRED
DWGS.	DRAWINGS		
		SCHED.	SCHEDULE
E.J.	EXPANSION JOINT	SHT.	SHEET
EL.	ELEVATION	SPEC.	SPECIFICATION
ELEC.	ELECTRICAL	S.S.	STAINLESS STEEL
EQ.	EQUAL	STD.	STANDARD
EXP.	EXPANSION	STRL.	STRUCTURAL
EXT.	EXTERIOR		
		T.	TREAD
F.G.	FINISH GRADE	T.C.	TOP OF CURB
F.S.	FINISH SURFACE	T.O.S.	TOP OF SLOPE
F.O.B.	FACE OF BUILDING	T.O.W.	TOP OF WALL
F.O.C.	FACE OF CURB	TYP.	TYPICAL
F.O.W.	FACE OF WALL	TBD.	TO BE DETERMINED
		VEH.	VEHICULAR
		VERT.	VERTICAL
		W/	WITH
		W/O	WITHOUT

LANDSCAPE GRADING AND DRAINAGE NOTES

1. REFER TO CIVIL ENGINEER'S GRADING PLANS FOR SITE GRADING, DRAINAGE, AND UTILITY LOCATIONS. IF ACTUAL SITE CONDITIONS VARY FROM WHAT IS SHOWN ON THE LANDSCAPE ARCHITECT'S DRAWINGS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AUTHORIZED REPRESENTATIVE AND LANDSCAPE ARCHITECT FOR DIRECTION AS TO HOW TO PROCEED.
2. REFER TO CIVIL ENGINEER'S DRAWINGS FOR SUBDRAINAGE POINT OF IN CONNECTION TO STORM DRAIN.
3. THE CONTRACTOR SHALL REQUEST OBSERVATION AS REQUIRED 48 HOURS ADVANCE OF PERFORMING WORK.
4. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA 800/227-2600) OR DIG ALERT (800-422-4133) 48 HOURS PRIOR TO ANY EXCAVATION.
5. ALL GRADING OPERATIONS SHALL CONFORM TO LOCAL GUIDELINES.
6. FIELD VERIFY EXISTING UNDERGROUND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION AND ELEVATION IN THE FIELD PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION.
7. NO CHANGE IN CONTRACT PRICE WILL BE ALLOWED FOR ACTUAL OR CLAIMED DISCREPANCY BETWEEN EXISTING GRADE AND THOSE SHOWN ON PLANS AFTER CONTRACTOR HAS ACCEPTED EXISTING GRADES AND MOVED ONTO THE SITE.
8. ALL PROPOSED GRADES ARE TO MEET AND BLEND IN WITH EXISTING GRADING AT PROJECT LIMIT AND EXISTING SIDEWALK. PRECISE ELEVATIONS INDICATED ON PLANS TO BE VERIFIED IN FIELD TO AS-BUILT CONDITION.
9. THE DEBRIS CREATED BY LANDSCAPE GRADING OPERATIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE LEGALLY DISPOSED OF OFF-SITE.

LAYOUT AND MATERIALS NOTES

1. THE CONTRACTOR SHALL LAYOUT AND FIELD VERIFY ALL DIMENSIONS OF DRIVEWAY, WALKS, SLOPES AND RELATED WORK PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE.
2. VERIFY LOCATIONS OF ALL PERTINENT EXISTING AND PROPOSED SITE IMPROVEMENTS. IF ANY PART OF THIS PLAN CANNOT BE FOLLOWED DUE TO SITE CONDITIONS, CONTACT THE LANDSCAPE ARCHITECT FOR INSTRUCTION PRIOR TO COMMENCING WORK.
3. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE.
4. THIS DRAWING INCLUDES THE LOCATION OF AREA DRAINS FOR REFERENCE. REFER TO RELATED CIVIL ENGINEER'S DRAWINGS FOR CONSTRUCTION DETAILS AND UTILITY CONNECTIONS.
5. REFER TO ELECTRICAL ENGINEER'S DRAWINGS FOR LIGHT FIXTURE SCHEDULE AND CIRCUITRY AS NECESSARY.
6. REFER TO SOIL ENGINEER'S GEOTECHNICAL REPORT FOR SUB-BASE MATERIALS AND COMPACTION.
7. WHERE DIMENSIONS ARE CALLED AS "EQUAL", ALL REFERENCED ITEMS SHALL BE SPACED EQUALLY, MEASURED TO THEIR CENTERLINES.
8. ALL MEASUREMENTS ARE TO FACE OF WALL, CURB OR OTHER FIXED SITE IMPROVEMENT, UNLESS OTHERWISE NOTED. DIMENSIONS TO CENTERLINES AS INDICATED.
9. INSTALL ALL INTERSECTING ELEMENTS AT 90 DEGREES TO EACH OTHER UNLESS OTHERWISE NOTED.

GENERAL NOTES

1. BASE INFORMATION INCLUDING THE LOCATION OF PROPERTY LINES, EASEMENTS, BUILDINGS, ROADS AND CURBS HAVE BEEN TAKEN FROM THE CIVIL ENGINEER'S DRAWINGS. REFER TO CIVIL ENGINEER'S DRAWINGS FOR ADDITIONAL INFORMATION.
2. REFER TO THE CIVIL ENGINEER'S DRAWINGS FOR PROPOSED UTILITY INFORMATION INCLUDING STORM DRAIN, SEWER, WATER, ELECTRICAL, GAS, TELEPHONE AND CABLE TV.
3. REFER TO CITY AND/OR COUNTY STANDARD PLANS AND SPECIFICATIONS WHERE APPLICABLE.
4. VERIFY SITE INFORMATION, INCLUDING PROPERTY LINES, EXISTING ABOVE GROUND AND BELOW GROUND UTILITIES AND STRUCTURES, AND OTHER INFORMATION AFFECTING THE SCOPE OF WORK INCLUDED ON THESE DRAWINGS. IF ACTUAL SITE CONDITIONS VARY FROM WHAT IS SHOWN ON THE LANDSCAPE ARCHITECT'S DRAWINGS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AUTHORIZED REPRESENTATIVE AND THE LANDSCAPE ARCHITECT FOR DIRECTION ON HOW TO PROCEED.
5. EXCAVATION IN THE VICINITY OF UTILITIES AND EXISTING MATERIALS SHALL BE UNDERTAKEN WITH CARE. THE CONTRACTOR BEARS FULL RESPONSIBILITY FOR THIS WORK. ANY DAMAGE CAUSED BY ANY PERSON, VEHICLE, EQUIPMENT, OR TOOL RELATED TO THE EXECUTION OF THE CONTRACT SHALL BE REPAIRED IMMEDIATELY AT NO EXPENSE TO THE OWNER.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION REQUIRED TO ACCOMPLISH ALL CONSTRUCTION OPERATIONS. ALL PIPING, CONDUIT, SLEEVES, ETC., SHALL BE SET IN PLACE PRIOR TO INSTALLATION OF CONSTRUCTION ITEMS.
7. CONTRACTOR SHALL BE RESPONSIBLE TO CONSULT WITH SITE SUPERINTENDENT, APPROPRIATE AGENCIES AND PLANS, FOR THE LOCATIONS OF ALL UNDER-GROUND UTILITIES, PIPES AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE OF SAID UTILITIES.
8. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS, AREA DISCREPANCIES AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATIONS.
9. CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ANY EXISTING MATERIALS THAT ARE DAMAGED DURING CONSTRUCTION.
10. PRIOR TO INSTALLATION OF ANY CONSTRUCTION ITEM, FORMS WITH STEEL IN PLACE AND COMPACTED SUBGRADE COMPLETE, SHALL BE OBSERVED AND REVIEWED BY THE LANDSCAPE ARCHITECT.
11. ALL WALLS AND WALKS SHOULD HAVE SMOOTH, CONTINUOUS CURVES AS INDICATED ON PLANS.
12. ALL PROPERTY LINES, LOT LINES, AND TOP OF SLOPE LINES SHALL BE VERIFIED PRIOR TO COMMENCING WORK.
13. ALL ELECTRICAL JUNCTION BOXES FOR LIGHTS SHALL BE IN PLANTING AREAS AND LOCATION REVIEWED BY THE LANDSCAPE ARCHITECT. STAKE LOCATION PRIOR TO INSTALLATION.
14. SEE CIVIL ENGINEER'S DRAWINGS FOR CURBS AND A/C PAVING.
15. REFER TO CIVIL ENGINEER'S DRAWINGS FOR ELEVATIONS AND LOCATION OF DRAINAGE STRUCTURES PRIOR TO INSTALLATION OF WALKS, FOOTINGS AND OTHER STRUCTURES.
16. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION. IF NOTES ON THE PLANS DIFFER FROM THE GEOTECHNICAL REPORT, PROVIDE THE MOST STRINGENT REQUIREMENT.
17. RAISE ALL VAULTS/UTILITIES BOXES TO GRADE WITHIN LIMITS OF WORK. FIELD VERIFY PRIOR TO BID.

SHEET INDEX

L0.01 LANDSCAPE NOTES AND SCHEDULES

L0.02 OVERALL SITE PLAN

L1.01 MATERIALS PLAN

L2.01 LAYOUT PLAN

L5.01 CONSTRUCTION DETAILS

GENERAL SCOPE OF WORK

1. SITEWORK INCLUDING CONCRETE HARDSCAPE
2. CONCRETE VERTICAL CURB
3. BARRIER RAILS
4. LIGHT POLES

MATERIALS KEYNOTE LEGEND

NOTE	DESCRIPTION	DET/ SHT	COLOR / FINISH
01	CONCRETE PAVING	01/ L5.01	NATURAL GREY/ MEDIUM BROOM
02	CONCRETE TIE-IN	05/ L5.01	NATURAL GREY/ MEDIUM BROOM
03	TRUNCATED DOMES	09/ L5.01	FEDERAL YELLOW (A-40)
04	FREESTANDING CONCRETE WALL	17/ L5.01	NATURAL GREY/ SMOOTH TROWEL
05	BARRIER RAIL	19/ L5.01	NATURAL GREY/ SMOOTH TROWEL
06	CONCRETE UNIT PAVERS	11/ L5.01	SALVAGED

REFERENCE KEYNOTE LEGEND

NOTE	DESCRIPTION	COMMENTS
A	EXISTING PAVING	PROTECT IN PLACE
B	EXISTING CURB	PROTECT IN PLACE
C	EXISTING GUTTER	PROTECT IN PLACE
D	EXISTING STAIR	PROTECT IN PLACE
E	EXISTING WALL	PROTECT IN PLACE
F	EXISTING FENCE	PROTECT IN PLACE
G	EXISTING UTILITY	PROTECT IN PLACE
H	EXISTING TREE	PROTECT IN PLACE
J	A.C. PAVING	PER CIVIL
K	CURB AND GUTTER	PER CIVIL
L	CURB RAMP	PER CIVIL
M	PAVEMENT STRIPING	PER CIVIL
N	CONCRETE VERTICAL CURB	PER CIVIL
P	TRENCH DRAIN	PER CIVIL
Q	SITE PEDESTRIAN LIGHT	SALVAGE AND RELOCATE/ USE (E) CONDUIT

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LA HABRA, CA 90631

Developped for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
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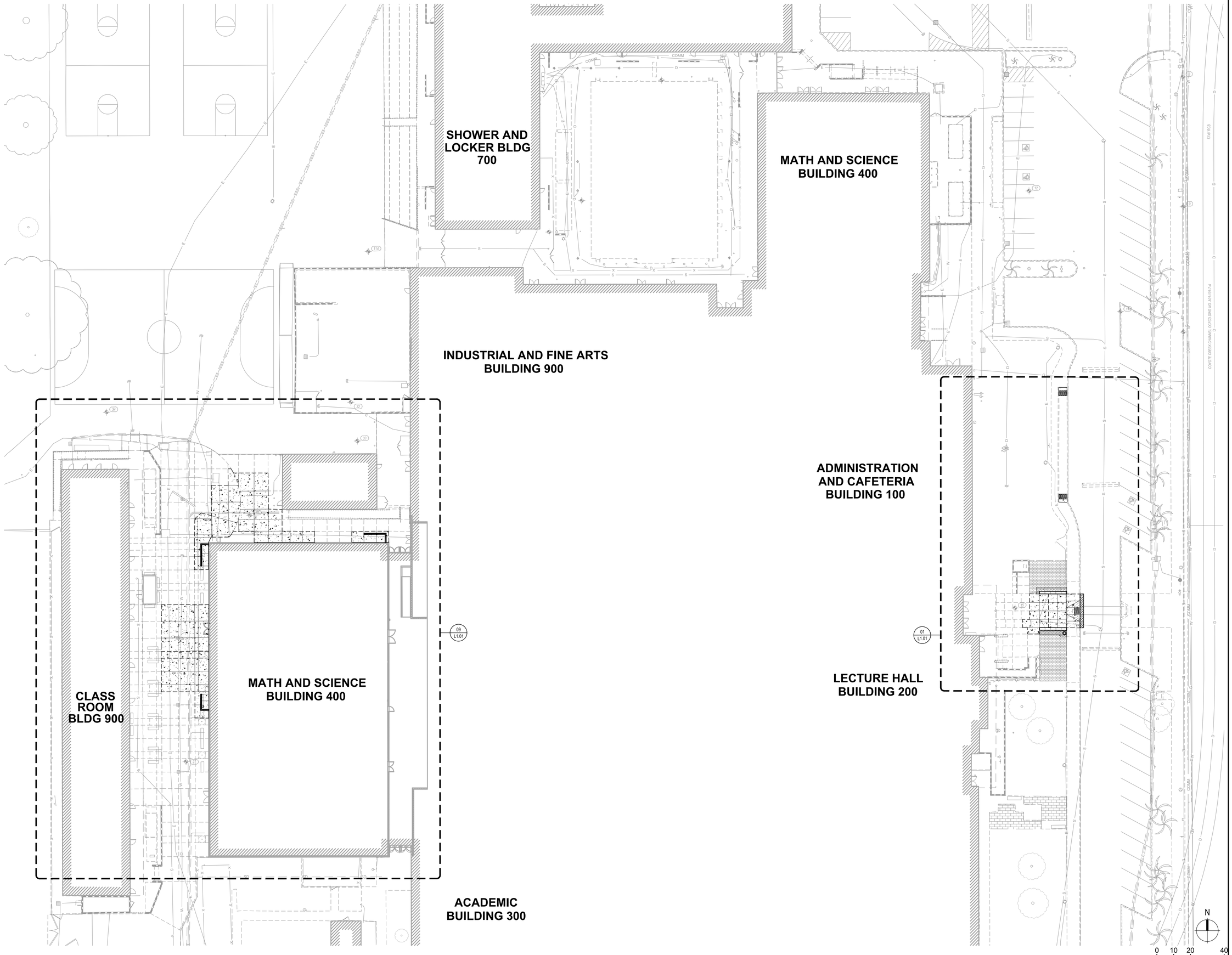
100% DESIGN DEVELOPMENT	07/01/2025
90% CD	10/09/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	JY, LS, TT
Scale	-

LANDSCAPE NOTES & LEGENDS

L0.01



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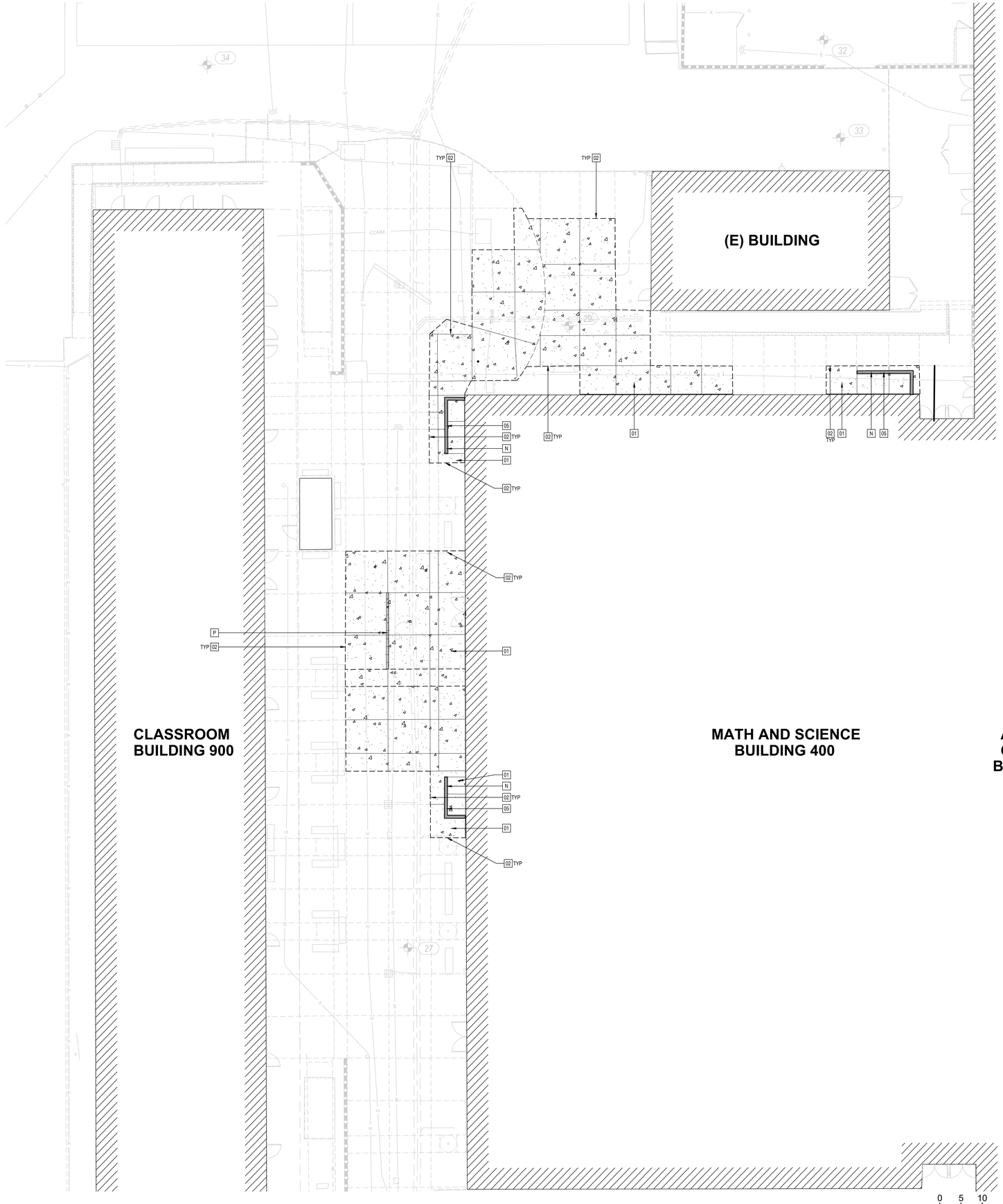
OVERALL SITE PLAN

L0.02



0 5 10 20

MATERIALS PLAN 1" = 10' 09

MATERIALS PLAN 1" = 10' 01

MATERIALS KEYNOTE LEGEND

NOTE	DESCRIPTION	DET/ SHT	COLOR / FINISH
01	CONCRETE PAVING	01/ L5.01	NATURAL GREY/ MEDIUM BROOM
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04	FREESTANDING CONCRETE WALL	17/ L5.01	NATURAL GREY/ SMOOTH TROWEL
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06	CONCRETE UNIT PAVERS	11/ L5.01	SALVAGED

REFERENCE KEYNOTE LEGEND

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G	EXISTING UTILITY	PROTECT IN PLACE
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J	A.C. PAVING	PER CIVIL
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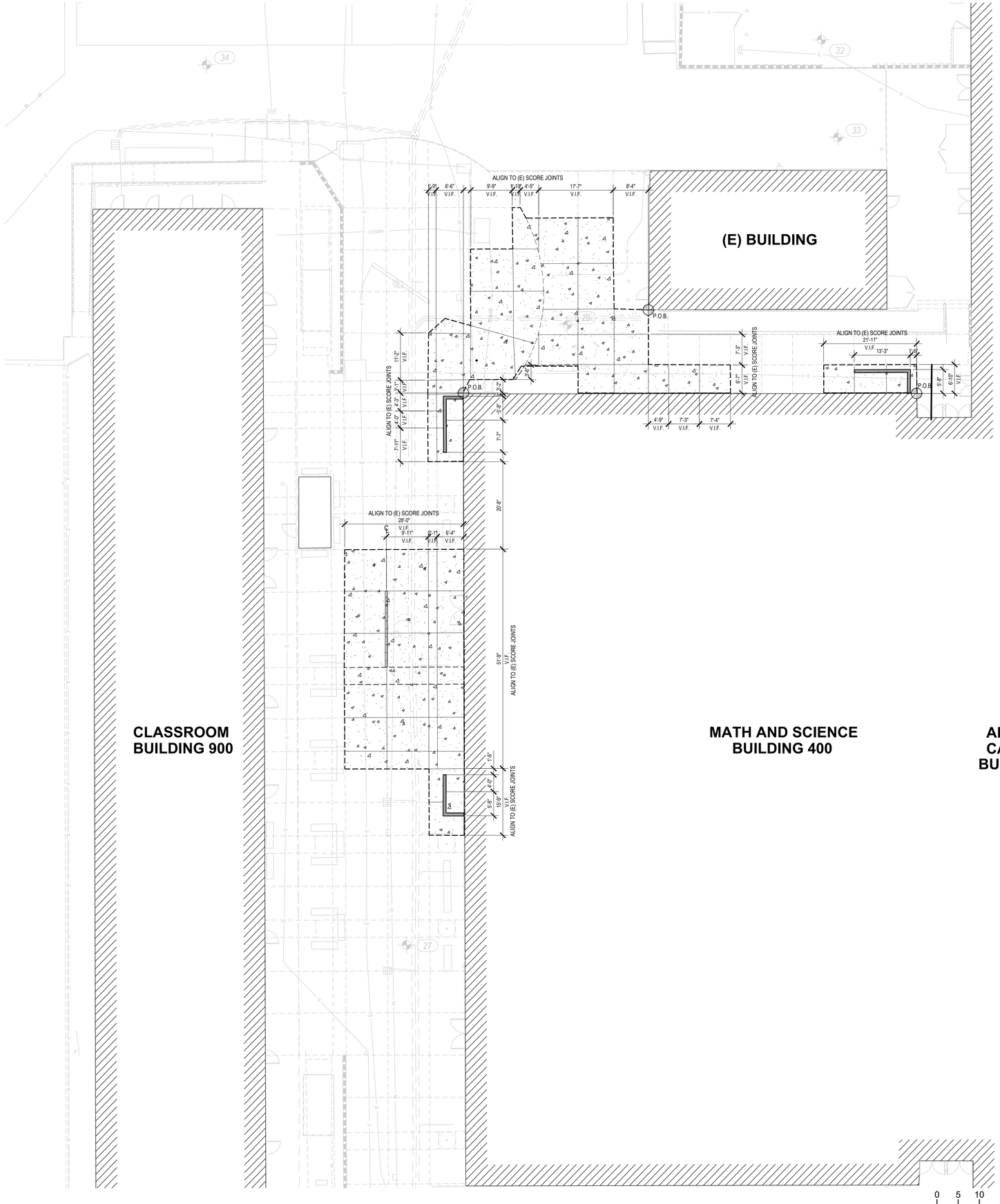
MATERIALS PLAN

L1.01



ADDITIONAL LAYOUT NOTES

1. SEE SHEET L0.01 FOR LANDSCAPE LAYOUT NOTES.
2. PLAN MEASUREMENTS ARE TO FACE OF WALL, CURB, OR OTHER FIXED SITE IMPROVEMENT, UNLESS NOTED OTHERWISE ON PLANS.

LAYOUT SYMBOL LEGEND

- POINT OF BEGINNING (P.O.B.)
- ALIGN/FLUSH
- CENTER LINE

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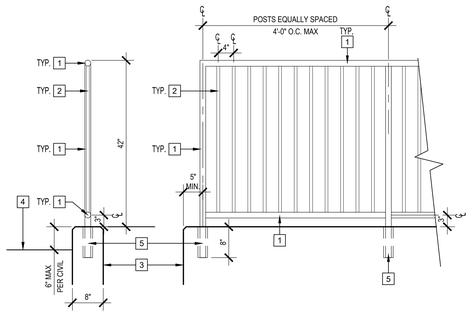
LAYOUT PLAN

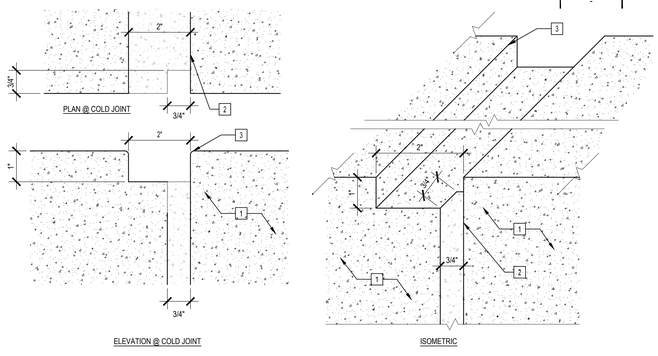
L2.01



1. 1-1/2" DIA. HOT DIPPED GALVANIZED SCH. 40, GRADE "B" METAL GUARDRAIL AND POST.
2. 3/4" DIA. HOT DIPPED GALVANIZED SCH. 40 METAL PICKETS @ 4" O.C. MAX.
3. CONC. VERTICAL CURB PER CIVIL
4. ADJ. FINISH SURFACE — 01
5. 2 1/2" DIA. I.D. GALV STEEL SLEEVE; EMBED GUARDRAIL POST AND GROUT SOLID

NOTES:
A. ALL COMPONENTS ARE TO BE HOT DIPPED GALVANIZED STEEL, SEE SPEC.
B. GRIND ALL WELDS SMOOTH.
C. 1/8" EDGES TYPICAL ALL CORNERS.
D. COLD GALVANIZE ALL FIELD WELDS.

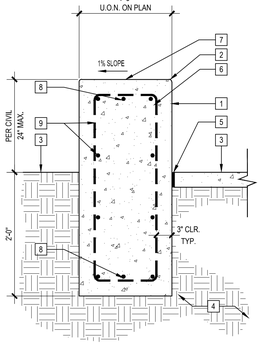
BARRIER RAIL — 3/4" = 1'-0" — 19



1. CONCRETE WALL PER MATERIALS PLAN
2. COLD JOINT
3. 1/4" EASED EDGE RADIUS CORNERS AND EDGES

NOTES:
A. PROVIDE REVEAL @ ALL COLD JOINTS.
B. REVEAL SHOULD BE CONTINUOUS ON SIDES & TOP OF WALL UNLESS OTHERWISE NOTED ON PLAN OR ELEVATION.
C. REFER TO PLANS & ELEVATIONS FOR JOINT SIZE & LOCATIONS.
D. ALIGN ALL FORM JOINTS W/ REVEALS. CUSTOM CUT FORMS AS REQUIRED.
E. SPACING SHOWN ON LAYOUT PLANS AND ELEVATION ARE BASED ON THE CENTER OF THE 3/4" COLD JOINT

CONCRETE WALL REVEAL-SKATE DETERRENT — 6" = 1'-0" — 18



1. CONCRETE FREE-STANDING WALL PER MATERIALS PLAN. REFER TO KEYNOTE LEGEND FOR COLOR & FINISH
2. 1/8" EASED EDGE RADIUS, TYP. ALL EDGES. NO CHAMFERS
3. FINISH SURFACE/FINISH GRADE; REFER TO MATERIALS PLAN FOR TYPE.
4. OVER-EXCAVATION, SUBGRADE SCARIFICATION/COMPACTION SHALL BE PER GEOTECHNICAL REPORT
5. EXPANSION JOINT PER — 07
6. #4 @ 12" O.C.
7. TOP OF WALL PER CIVIL GRADING PLAN
8. (3) #4 CONTINUOUS AT TOP AND BOTTOM
9. #4 @ 12" O.C. EACH WAY AND EACH FACE

NOTES:
A. REVEAL — 18

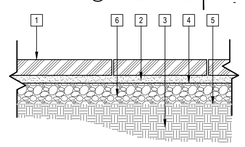
B. REFER TO PLANS & ELEVATIONS FOR LOCATION OF JOINTS.
C. ALL FORM SEAMS ARE TO ALIGN WITH REVEALS SHOWN ON ELEVATIONS & PLANS. PROVIDE CUSTOM FORM BOARDS AS REQUIRED.
D. PROVIDE PERMANENT NON-SACRIFICIAL ANTI-GRAFFITI COATING ON ALL EXPOSED WALL SURFACES (SEE SPEC)
E. CONCRETE BATCH PLANT INSPECTION IS NOT REQUIRED
F. DSA SSS REVIEW IS NOT REQUIRED PER IR A-22

CONCRETE FREE-STANDING WALL — 1" = 1'-0" — 17

1. ADJACENT PAVING PER MATERIALS PLANS
2. PRECAST CONCRETE PAVER PER REFER TO SPECS FOR MIN PAVER LENGTH AT EDGE — 11
3. BUTT JOINT @ PRECAST PAVER BACKFILL JOINT W/SAND, TYP.

NOTES:
A. FOR MORE INFO SEE — 11

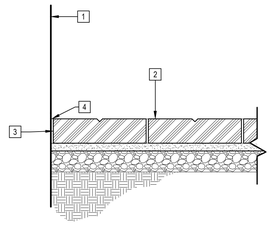
PAVER @ HARDSCAPE — 1 1/2"=1'-0" — 12



1. EXISTING PRECAST CONCRETE PAVER
2. 1" - 1 1/2" MAX SAND LEVELING BED
3. COMPACTED SUBGRADE PER — 01
4. DRAINAGE GEOTEXTILE
5. SEPARATION GEOTEXTILE
6. THICKNESS OF THE AGGREGATE BASE TO MATCH EXISTING

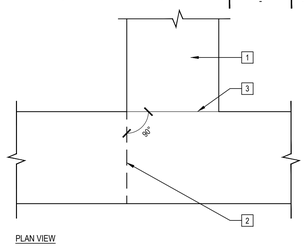
NOTES:
A. INTEGRAL COLOR TO BE SOLID THROUGHOUT THE ENTIRE THICKNESS OF THE PAVER.
B. PAVERS @ ADJACENT HARDSCAPE PER — 12
C. PAVERS @ VERTICAL SURFACE PER — 14
D. PAVER PATTERN TO MATCH EXISTING

PRECAST PAVERS ON SAND — 1 1/2"=1'-0" — 11



1. VERTICAL SURFACE
2. PRECAST CONCRETE PAVER — 11
3. BUTT JOINT
4. BACKFILL WITH SAND- TYP.

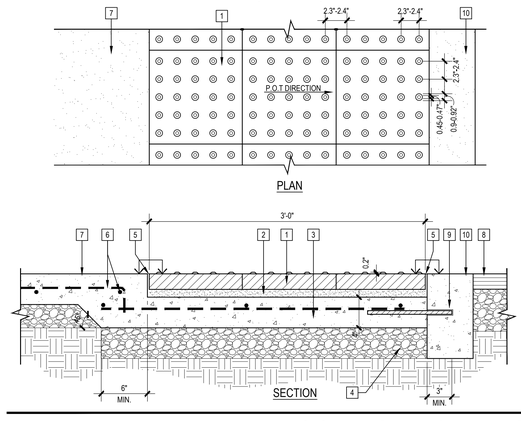
NOTES:
A. FOR MORE INFO SEE — 11



1. CONCRETE MOW CURB
2. EXPANSION JOINT, SEE — 02
3. SAWCUT, SEE — 02

NOTE:
A. PROVIDE EXPANSION JOINT AS SHOWN AT ALL CHANGES IN DIRECTION.

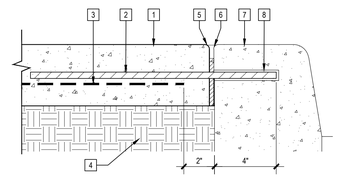
PRECAST PAVERS @ VERT. SURF. — 1 1/2"=1'-0" — 14



1. PRE-CAST TRUNCATED DOME TILES. COLOR TO BE FEDERAL YELLOW (33538) OF SAE AMSSTD-595A. SHALL COMPLY WITH CBC 11B-247, 11B-250, 11B-705
2. MORTAR SETTING BED PER MANUF.
3. CONCRETE PAVING PER — 01
4. BASE MATERIAL & COMPACTED SUBGRADE PER GEOTECHNICAL REPORT
5. EXPANSION JOINT PER — 02
6. #3 REBAR AT 18" O.C. EACH WAY
7. FINISH SURFACE; REFER TO MATERIALS PLAN
8. ADJACENT PAVING; REFER TO MATERIALS PLAN
9. DRILLED 5/8" DIA. SLIP SLEEVE AT CONCRETE FLUSH BAND; DOWEL TO HAVE FREE MOVEMENT AT THIS SIDE.
10. FLUSH CONCRETE CURB; PER CIVIL DWG'S.

NOTE:
A. TOTAL LENGTH OF TRUNCATED DOME TILES PER PLAN.
B. TRUNCATED DOME TILES ARE TO CONFORM TO STATE ACCESSIBILTY STANDARDS. CONTRACTOR TO VERIFY STANDARDS PRIOR TO INSTALLATION.

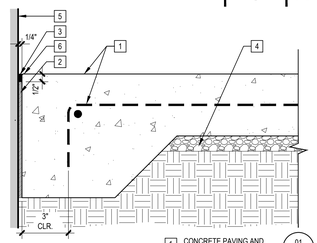
PRECAST TRUNCATED DOME PAVERS - MORTAR SET — 1 1/2" = 1'-0" — 09



1. CONCRETE PAVING; REFER TO DTL — 01
2. #3 @ 18" O.C.
3. CONCRETE PAVING STEEL REINFORCEMENT; REFER TO DTL. — 01
4. BASE MATERIAL & COMPACTED SUBGRADE; REFER TO DTL. — 01
5. 1/8" RADIUS
6. EXPANSION JOINT; REFER TO DTL. — 02
7. CONCRETE CURB; REFER TO CIVIL DTL.
8. DRILLED 5/8" DIA. SLIP SLEEVE AT CONCRETE CURB; DOWEL TO HAVE FREE MOVEMENT THIS SIDE

NOTES:
A. NATIVE OR FILL SOIL SUPPORTING EXTERIOR NON-STRUCTURAL FLATWORK AND UNPAVED LANDSCAPING AREAS ARE EXEMPT FROM SPECIAL INSPECTION AND TESTING.
B. CONCRETE BATCH PLANT INSPECTION IS NOT REQUIRED.

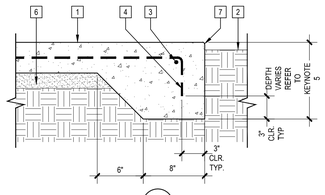
PAVING JOINT AT CURB — 3" = 1'-0" — 08



1. CONCRETE PAVING AND REINFORCEMENT PER DETAIL — 01
2. EXPANSION JOINT FILLER; MATCH FULL DEPTH OF CONC. PAVING; REFER TO SPECS FOR MATERIAL
3. JOINT SEALANT; COLOR TO MATCH CONCRETE COLOR W/SEEDED SILICA SAND
4. BASE MATERIAL AND SUBGRADE PER DETAIL — 01
5. FACE OF VERTICAL SURFACE
6. 1/4" RADIUS

NOTES:
A. PROVIDE EXPANSION JOINT AT ALL VERTICAL SURFACES.
B. EXPANSION JOINT AT CURB PER DETAIL — 08
C. NATIVE OR FILL SOIL SUPPORTING EXTERIOR NON-STRUCTURAL FLATWORK AND UNPAVED LANDSCAPING AREAS ARE EXEMPT FROM SPECIAL INSPECTION AND TESTING.
D. CONCRETE BATCH PLANT INSPECTION IS NOT REQUIRED.

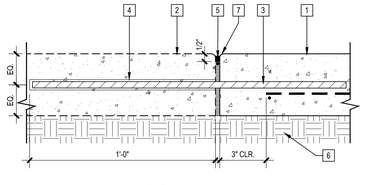
EXPANSION JOINT AT VERTICAL SURFACE — 3"=1'-0" — 07



1. CONCRETE PAVING; REFER TO DTL. — 01
2. ADJACENT SURFACE/ FINISH GRADE; REFER TO PER MATERIALS PLAN
3. #3 REINFORCING; CONTINUOUS
4. EXTEND REINFORCEMENT FROM PAVING INTO THICKENED EDGE & WRAP ENDS
5. THICKENED EDGE; 8" DEPTH FOR PEDESTRIAN PAVING
6. BASE MATERIAL & COMPACTED SUBGRADE; REFER TO CIVIL DTL. — 01
7. EASE ALL EDGES; 1/4"R, TYP.

NOTE:
FOR EDGE CONDITION ADJACENT TO VERTICAL SURFACE REFER TO DTL. — 07

CONC. PAVING THICKENED EDGE — 1 1/2" = 1'-0" — 06

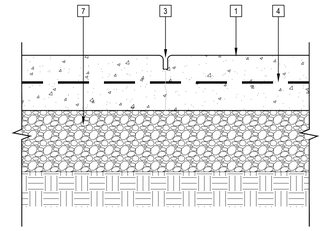


1. NEW CONCRETE PAVING AND REINFORCEMENT; REFER TO DTL. — 01
2. EXISTING CONCRETE PAVING
3. 1/2" X 24" SMOOTH STEEL DOWEL AT 18" O.C.
4. 5/8" SLIP SLEEVE DRILLED INTO EXISTING CONCRETE PAVING; DOWEL TO HAVE FREE MOVEMENT ON THIS SIDE
5. JOINT SEALANT WITH BACKER ROD
6. BASE MATERIAL AND COMPACTED SUBGRADE; REFER TO DTL. — 01
7. 1/8" RADIUS; AT NEW CONCRETE PAVING

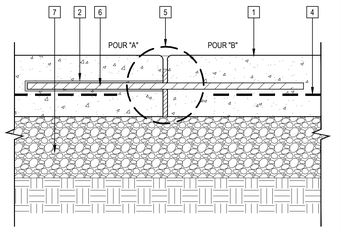
NOTES:
A. PROVIDE AT ALL LOCATIONS WHERE NEW CONCRETE JOINS EXISTING CONCRETE.
B. PROVIDE CLEAN SAWCUT AT EXISTING PAVING. EXTEND PROPOSED PAVING AS REQUIRED TO CLOSEST ADJACENT JOINT.
C. SEE CIVIL PLANS FOR LIMIT OF DEMOLITION.
D. NATIVE OR FILL SOIL SUPPORTING EXTERIOR NON-STRUCTURAL FLATWORK AND UNPAVED LANDSCAPING AREAS ARE EXEMPT FROM SPECIAL INSPECTION AND TESTING.
E. CONCRETE BATCH PLANT INSPECTION IS NOT REQUIRED.

CONCRETE PAVING TIE-IN — 3"=1'-0" — 05

EXPANSION JOINT ENLARGEMENT — N.T.S. — 04



A. SAWCUT CONTROL JOINT

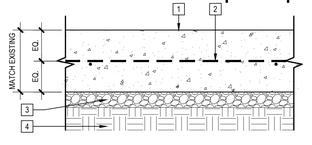


B. EXPANSION JOINT

1. CONCRETE PAVING; REFER TO DETAIL — 01
2. SPEED DOWEL; BY SIKA CORPORATION CONCRETE ACCESSORIES; PRODUCT # PSD12/ #4TX
3. SAWCUT CONTROL JOINT; 1/8-INCH WIDE; CUT TO 1/4 DEPTH OF SLAB; PROVIDE TIGHT 1/8-INCH RADIUS ON EDGE OF PAVING BEFORE SAWCUTTING.
4. CONCRETE PAVING REINFORCEMENT; REFER TO DETAIL — 01
5. JOINT ENLARGEMENT; REFER TO DETAIL — 04
6. PEDESTRIAN: #3 @ 18" O.C.
7. AGGREGATE BASE AND SUBGRADE; REFER TO PAVING DETAIL — 01

NOTES:
A. NATIVE OR FILL SOIL SUPPORTING EXTERIOR NON-STRUCTURAL FLATWORK AND UNPAVED LANDSCAPING AREAS ARE EXEMPT FROM SPECIAL INSPECTION AND TESTING.
B. CONCRETE BATCH PLANT INSPECTION IS NOT REQUIRED.

CONCRETE PAVING JOINTS — 3" = 1'-0" — 02



1. CONCRETE PAVING; REFER TO MATERIALS PLAN KEYNOTE LEGEND FOR FINISH & COLOR.
2. FOR PAVING THICKNESS & REINF. SEE CIVIL — C2.01
3. AGGREGATE BASE PER CIVIL PLANS
4. SUBGRADE COMPACTION AND OVER EXCAVATION PER GEOTECHNICAL REPORT

NOTES:
A. SAWCUT & EXPANSION JOINTS; REFER TO DTL. — 02
B. PROVIDE DOWELS WHERE NEW CONCRETE TIES INTO EXISTING PER DTL. — 05
C. PROVIDE THICKENED EDGE AT COLUMNS, WALLS, AND WHERE PAVING ADJACENT TO PLANTING. — 06
D. DO NOT ALLOW CONCRETE OVER-POUR INTO ADJACENT PLANTERS.
E. NATIVE OR FILL SOIL SUPPORTING EXTERIOR NON-STRUCTURAL FLATWORK AND UNPAVED LANDSCAPING AREAS ARE EXEMPT FROM SPECIAL INSPECTION AND TESTING.
F. CONCRETE BATCH PLANT INSPECTION IS NOT REQUIRED.

CONCRETE PAVING — 3" = 1'-0" — 01

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SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
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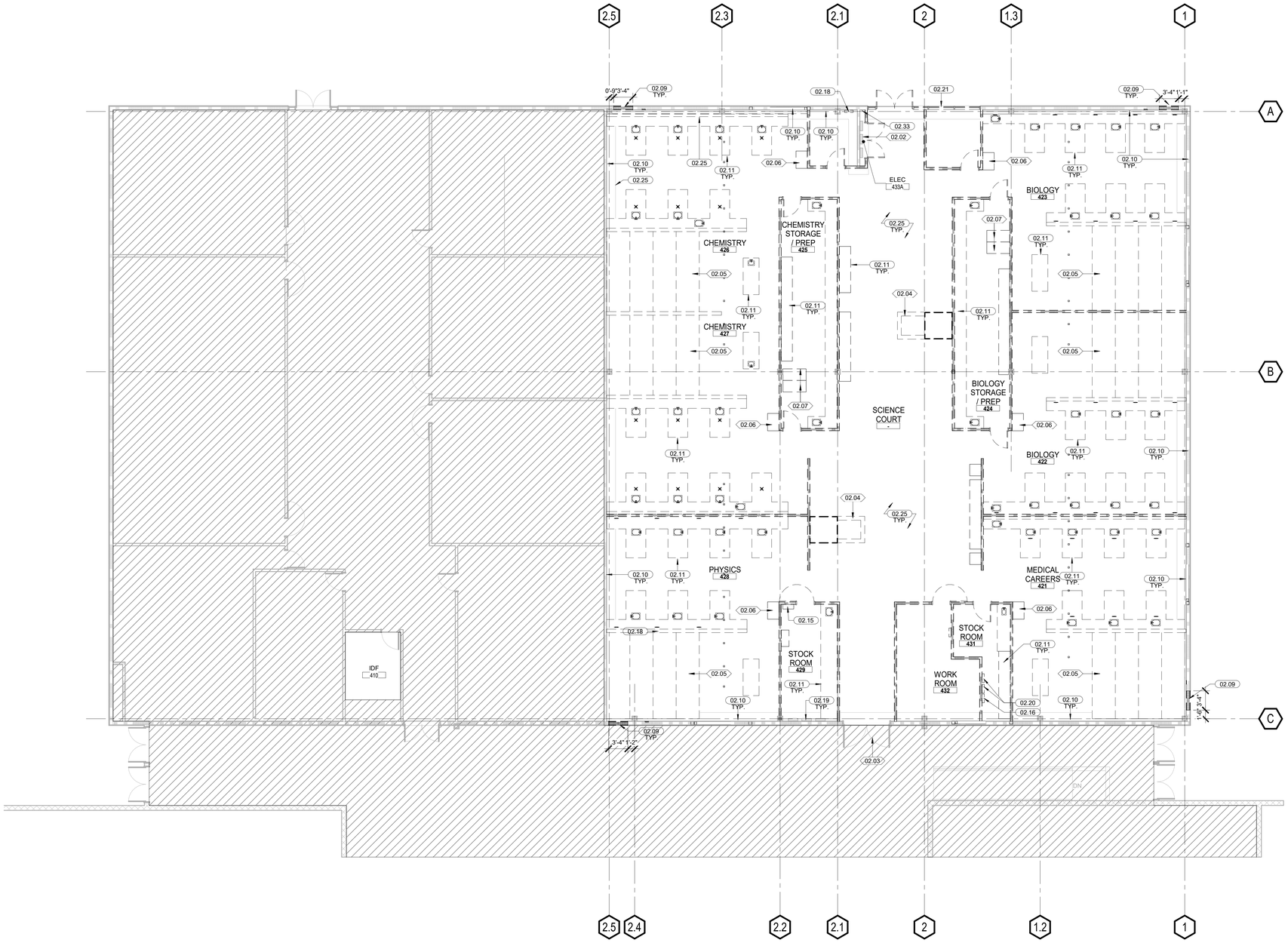
100% DESIGN DEVELOPMENT	07/01/2025
90% CD	10/22/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	JY, LS, TT
Scale	AS NOTED

CONSTRUCTION DETAILS

L5.01



PROJECT NORTH TRUE NORTH

01 - FLOOR DEMOLITION PLAN | 1/8" = 1'-0" A1.02 | 05

KEYNOTES

02.02	(E) ELECTRICAL PANELS TO REMAIN AND PROTECTED IN PLACE. SEE ELECTRICAL DRAWINGS.
02.03	(E) DOOR, FRAME, AND HARDWARE TO REMAIN, PROTECT IN PLACE.
02.04	(E) PLANTER AND IRRIGATION TO BE DEMOLISHED. SEE PLUMBING DRAWINGS.
02.05	(E) TIERED PLATFORMS TO BE DEMOLISHED.
02.06	(E) FUME HOOD TO BE DEMOLISHED. DISCONNECT AND CAP GAS CONNECTION BEFORE DEMO. DEMOLISH ASSOCIATED HVAC DUCTING. SEE MECHANICAL DRAWINGS.
02.07	(E) VENTILATED CHEMICAL STORAGE TO BE DEMOLISHED. COORDINATE WITH DISTRICT TO CONFIRM CHEMICALS HAVE BEEN SAFELY RELOCATED BEFORE DEMO OCCURS. DISCONNECT AND CAP GAS CONNECTION BEFORE DEMO. SEE MECHANICAL DRAWINGS.
02.09	PORTION OF (E) WALL TO BE DEMOLISHED FOR NEW DOOR OPENING. REFERENCE DOOR SCHEDULE A6.11.
02.10	(E) PLYWOOD AND DRYWALL TO BE DEMOLISHED AT FULL LENGTH OF PERIMETER WALL WITHIN SCOPE BOUNDARY; EXISTING FRAMING TO REMAIN PROTECTED IN PLACE.
02.11	(E) CASEWORK AND ASSOCIATED PLUMBING FIXTURES TO BE DEMOLISHED. CAP OFF ASSOCIATED PLUMBING AND GAS LINES. SEE PLUMBING DRAWINGS.
02.15	(E) FIRE ALARM POWER SUPPLY AND AMPLIFIER TO BE DEMOLISHED/ RELOCATED. SEE FIRE ALARM DRAWINGS.
02.16	(E) FIRE ALARM TERMINAL CABINET TO BE DEMOLISHED. SEE FIRE ALARM DRAWINGS.
02.18	(E) ELECTRICAL PANEL TO BE REMOVED. SEE ELECTRICAL DRAWINGS.
02.19	(E) ELECTRICAL PANELS TO BE TEMPORARILY REMOVED, THEN REINSTALLED IN THE SAME LOCATION OVER NEW INSULATION AND DRYWALL. SEE ELECTRICAL DRAWINGS.
02.20	(E) (2) LOW VOLTAGE PANELS TO BE RELOCATED. SEE ELECTRICAL DWGS.
02.21	(E) STOREFRONT SYSTEM AND DOOR TO BE DEMOLISHED. PATCH AND REPAIR AS REQUIRED.
02.25	(E) SLAB TO BE DEMOLISHED PREPARE FOR NEW SLAB.. SEE STRUCTURAL DRAWINGS.
02.33	(E) EXISTING GAS SHUT OFF VALVE TO REMAIN. PROTECT IN PLACE. SEE PLUMBING DRAWINGS.

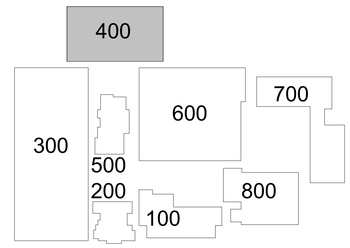
LEGEND

- NOT IN SCOPE OF WORK
- SCOPE OF WORK
- WALL TO BE DEMOLISHED
- EXISTING NON-RATED WALL TO REMAIN
- EXISTING 1-HR WALL TO REMAIN
- EXISTING 2-HR WALL TO REMAIN
- DOOR TO BE DEMOLISHED
- MILLWORK TO BE DEMOLISHED
- PLUMBING FIXTURE TO BE DEMOLISHED
- EXISTING GAS SHUT OFF VALVE TO REMAIN

GENERAL NOTES

1. ALL CASEWORK AND COUNTERTOPS TO BE REMOVED. ANY SINKS OR GAS LINES TO BE DISCONNECTED AND CAPPED.
2. ALL CHEMICAL STORAGE TO BE COORDINATED WITH DISTRICT BEFORE PROCEEDING WITH ANY CASEWORK DEMOLITION.
3. NO DEMOLITION SALVAGE WORK SHALL PROCEED UNTIL A HAZARDOUS MATERIALS ABATEMENT PLAN HAS BEEN PROVIDED BY OWNER AND MATERIALS IDENTIFIED IN THE PLAN HAVE BEEN ABATED PER THE ABATEMENT PLAN.
4. EXISTING MATERIALS THAT HAVE BEEN DAMAGED AS THE RESULT OF THE DEMOLITION SHALL BE RESTORED TO LIKE-NEW CONDITION OR REPLACED WITH NEW MATERIALS THAT MEET THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.
5. AFTER DEMOLITION HAS OCCURED, EXISTING SURFACES SHALL BE PREPARED FOR NEW CONSTRUCTION.
6. PROTECT EXISTING CONSTRUCTION NOT INDICATED TO BE DEMOLISHED.
7. CLEAN ALL SURFACES AND AREAS OF DUST, DIRT, AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS, RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.
8. ALL ELECTRICAL TO BE DISCONNECTED BEFORE RELOCATING ANY ELECTRICAL PANELS.
9. SIGNAGE TO REMAIN IN PLACE, U.N.O.
10. AT DEMOLISHED DOORS WITH FLOOR CLOSERS, REMOVE FLOOR CLOSER, AND FILL VOID WITH CONCRETE. SURFACE SHALL BE FLUSH AND HAVE SIMILAR FINISH TO ADJACENT SURFACE.
11. REMOVE ALL (E) FURNISHINGS THAT ARE NOT PERMANENTLY ATTACHED TO THE STRUCTURE.
12. REMOVE ALL FLOOR FINISHES (U.N.O.) AND PREP FOR NEW FINISHES PER FINISH PLANS AND INTERIOR ELEVATIONS.
13. REMOVE ALL ABANDONED CONDUITS.
14. EXTERIOR WALL DIMENSIONS ARE TO FACE OF FINISH, U.N.O. INTERIOR WALL DIMENSIONS ARE TO FACE OF FINISH, UNLESS IT IS LOCATED ON GRID LINE OR U.N.O. IF IT IS LOCATED ON A GRID LINE, INTERIOR WALL DIMENSIONS ARE TO CENTER OF WALL, DOORS ARE DIMENSIONED FROM ROUGH OPENING, U.N.O.

KEYPLAN



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SCIENCE CLASSROOMS MODERNIZATION

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Developed for
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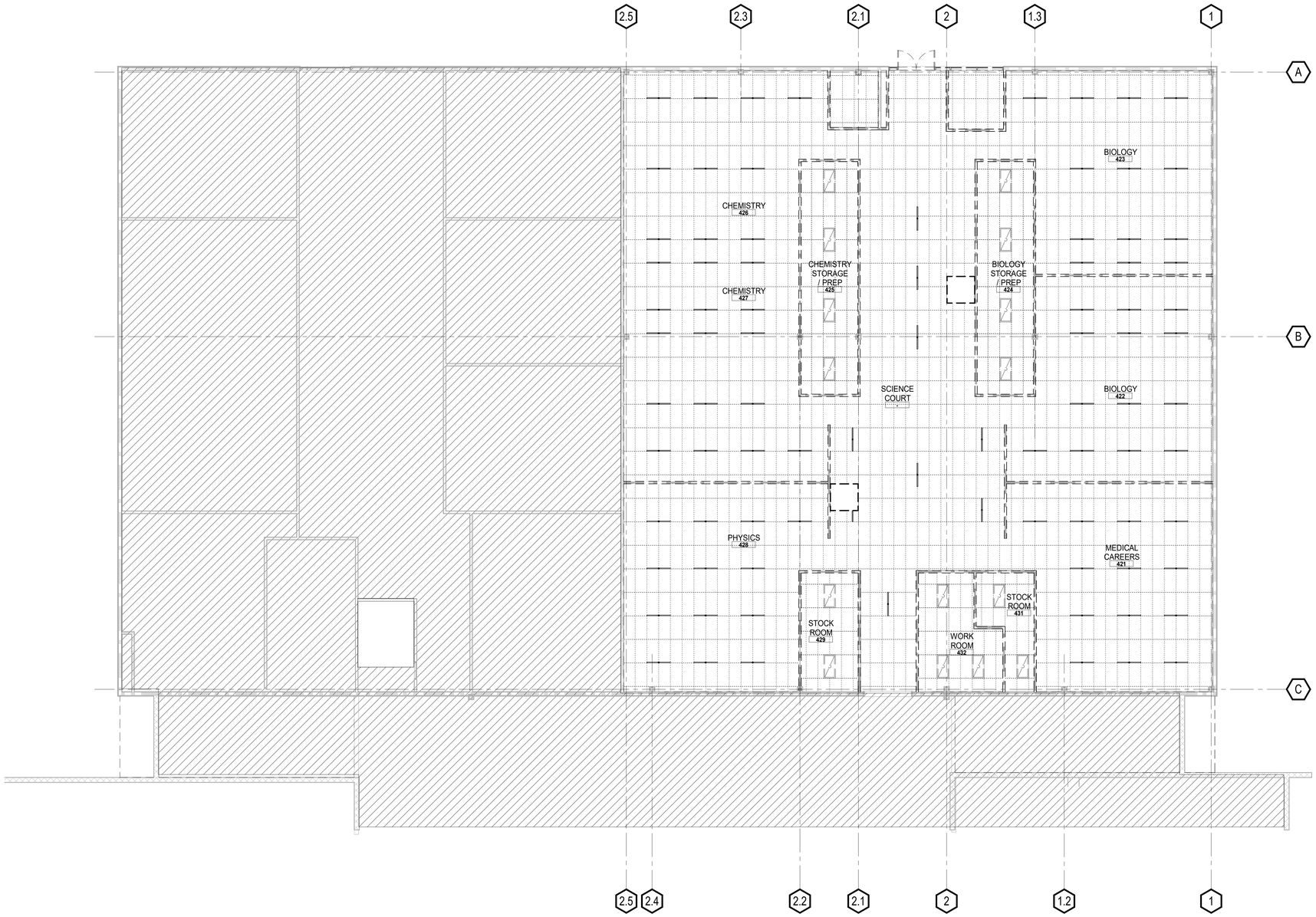
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	09/08/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	1/8" = 1'-0"

FLOOR DEMOLITION PLAN

A1.02



N
PROJECT NORTH

N
TRUE NORTH

01 - FLOOR DEMOLITION REFLECTED CEILING PLAN | 1/8" = 1'-0" | A1.32 | 05

KEYNOTES

LEGEND

ACT CLG TO BE DEMOLISHED

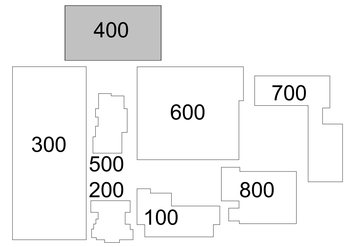
LIGHTING FIXTURE TO BE DEMOLISHED

SKYLIGHT TO BE INFILLED

GENERAL NOTES

1. ALL LIGHT FIXTURES TO BE DEMOLISHED.
2. WHEN REMOVING ACT CEILING, EXISTING STRUCTURE TO BE PROTECTED.
3. NO DEMOLITION SALVAGEWORK SHALL PROCEED UNTIL A HAZARDOUS MATERIALS ABATEMENT PLAN HAS BEEN PROVIDED BY OWNER AND MATERIALS IDENTIFIED IN THE PLAN HAVE BEEN ABATED PER THE ABATEMENT PLAN.
4. EXISTING MATERIALS THAT HAVE BEEN DAMAGED AS THE RESULT OF THE DEMOLITION SHALL BE RESTORED TO LIKE-NEW CONDITION OR REPLACED WITH NEW MATERIALS THAT MEET THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.
5. AFTER DEMOLITION HAS OCCURED, EXISTING SURFACES SHALL BE PREPARED FOR NEW CONSTRUCTION.
6. PROTECT EXISTING CONSTRUCTION NOT INDICATED TO BE DEMOLISHED.
7. CLEAN ALL SURFACES AND AREAS OF DUST, DIRT, AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS, RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.
8. DEMO/ REMOVE ALL (E) R30 BATT INSULATION FROM UNDERSIDE OF EXISTING ROOF IN PREPARATION FOR NEW CONSTRUCTION. PROTECT ALL (E) WIRING AND EQUIPMENT U.N.O.

KEYPLAN



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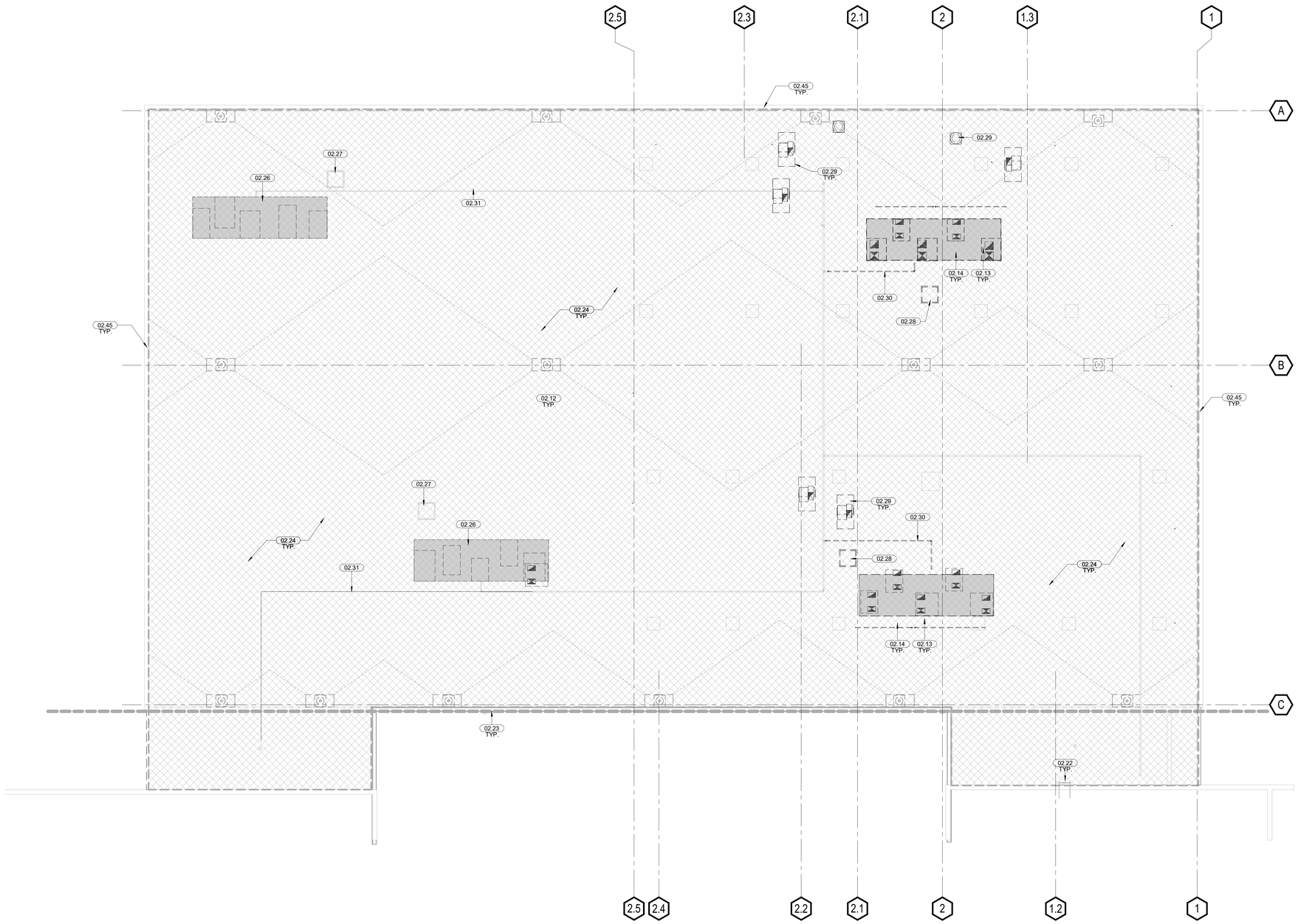
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	1/8" = 1'-0"

FLOOR REFLECTED CEILING DEMOLITION PLAN

A1.32



KEYNOTES

02.12	(E) ROOF DRAINS TO BE REMOVED AND REPLACED WITH NEW DRAINS, SEE PLUMBING DRAWINGS.
02.13	(E) HVAC ROOFTOP UNITS TO BE DEMOLISHED. SEE MECHANICAL DRAWINGS.
02.14	(E) MECHANICAL PLATFORM TO BE DEMOLISHED, PREP FOR NEW ROOF DECK. SEE MECHANICAL DRAWINGS.
02.22	(E) ROOF LADDER TO REMAIN
02.23	(E) SEISMIC JOINT TO REMAIN
02.24	(E) SINGLE-PLY ROOF, AND RIDGE INSULATION TO BE REMOVED DOWN TO EXISTING METAL DECK. PROTECT ALL EXISTING ROOF DRAIN PIPING IN PLACE.
02.26	(E) MECHANICAL UNITS AND PLATFORM TO REMAIN, PROTECT IN PLACE.
02.27	(E) SKYLIGHT TO REMAIN, PROTECT IN PLACE.
02.28	(E) 4-6" X 4'-6" (V.I.F) SKYLIGHT TO BE DEMOLISHED. PREP OPENING TO INSTALL NEW ROOF DECK. RE:15/A8.22.
02.29	(E) PLATFORM AT EXHAUST FAN TO BE DEMOLISHED, PREP OPENING FOR INSTALLATION OF NEW ROOF DECK. RE:15/A8.22.
02.30	PORTION OF (E) GAS LINE TO BE DEMOLISHED. SEE PLUMBING DRAWINGS.
02.31	(E) GAS LINES TO REMAIN, PROTECT IN PLACE DURING CONSTRUCTION. RE: GENERAL NOTES.
02.45	(E) ROOF COPING TO BE DEMOLISHED.

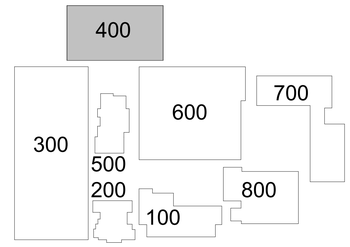
LEGEND

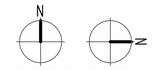
- (E) ROOFTOP MECHANICAL EQUIPMENT, RE:MECHANICAL
- (E) MECHANICAL UNIT TO BE DEMOLISHED
- (E) PLATFORM TO BE DEMOLISHED
- (E) ROOF AND INSULATION TO BE DEMOLISHED DOWN TO (E) METAL DECK, REFER TO KEYNOTE 02.24
- (E) INSULATION CRICKETS
- (E) ROOF DRAIN
- (E) SEISMIC JOINT

GENERAL NOTES

1. BACKGROUND DRAWINGS ARE BASED ON ORIGINAL CONSTRUCTION DOCUMENTS, NOT AS-BUILT DRAWINGS. PLEASE VERIFY ALL CONDITIONS & DIMENSIONS PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ARCHITECT.
2. EXISTING CONDITIONS DAMAGED OR REMOVED AS A RESULT OF ALL WORK REQUIRED TO BE DONE UNDER THIS CONTRACT SHALL BE REPAIRED OR REPLACED TO ORIGINAL CONDITION & FINISHED TO MATCH ADJACENT SURFACES.
3. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS & REPORT ALL DISCREPANCIES TO THE ARCHITECT.
4. PATCH & REPAIR EXISTING ROOF AS REQUIRED BY NEW PENETRATIONS. FOR ROOF INFILL SEE DETAIL 15/A8.22.
5. TUBULAR SKYLIGHT LOCATIONS TO SHIFT AS NECESSARY TO ACOMMODATE EXISTING DUCTWORK, STRUCUTRAL FRAMING, AND OTHER ELEMENTS IN THE PLENUM SPACE AND ON THE ROOF. ANY AREAS THAT CANNOT BE ACCOMODATED SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OF RECORD.
6. CRICKETS ARE REQUIRED ON ALL HIGH SIDES AT ALL CURBS.
7. ALL EXISTING MECHANICAL UNITS, GAS LINES AND EQUIPMENT TO BE PROTECTED IN PLACE. ALL EXISTING PIPE LINES RAISED ON WOOD BLOCK CAN BE CAREFULLY AND TEMPORARILY UNSCREW TO INSTALL NEW ROOFING MATERIALS UNDERNEATH. REINSTALL WITH NEW DURA BLOCK TO SUPPORT ALL PIPING.
8. INSTALLATION OF THE ROOFING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURES SPECIFICATIONS AND PROCEDURES.
9. CONFIRM MECHANICAL EQUIPMENT PAD DIMENSIONS WITH EQUIPMENT MANUFACTURER, VERIFY PAD SIZE ACCOMODATES MECHANICAL EQUIPMENT INCLUDING REQUIRED CLEARANCES.
11. MECHANICAL EQUIPMENT SHOWN FOR REFERENCE. REFER TO MECHANICAL DRAWINGS FOR LOCATION AND DIMENSIONS.
12. HORIZONTAL PIPE OR CODUIT SUPPORT OVER ROOFING SYSTEM.RE:14/A8.21.
13. TYPICAL ROOF PENETRATION DETAILS AND SPACING REQUIREMENTS, REFERENCE SHEET A8.21 & A8.22..
14. ALL PENETRATIONS THROUGH THE ROOF SHALL BE BY THE USE OF ROUND CONDUIT FOR PIPES, VENTS, RISERS AND EQUIPMENT SUPPORTS. THE USE OF CHANNELS, ANGLES OR UNISTRUT THROUGH THE ROOF WITH PITCH POKERTS SHALL NOT BE ALLOWED.
15. ROOF FIRE HAZARD CLASSIFICATION TYPE A.

KEYPLAN





ROOF DEMOLITION PLAN | 1/8" = 1'-0" | A1.34 | 05

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

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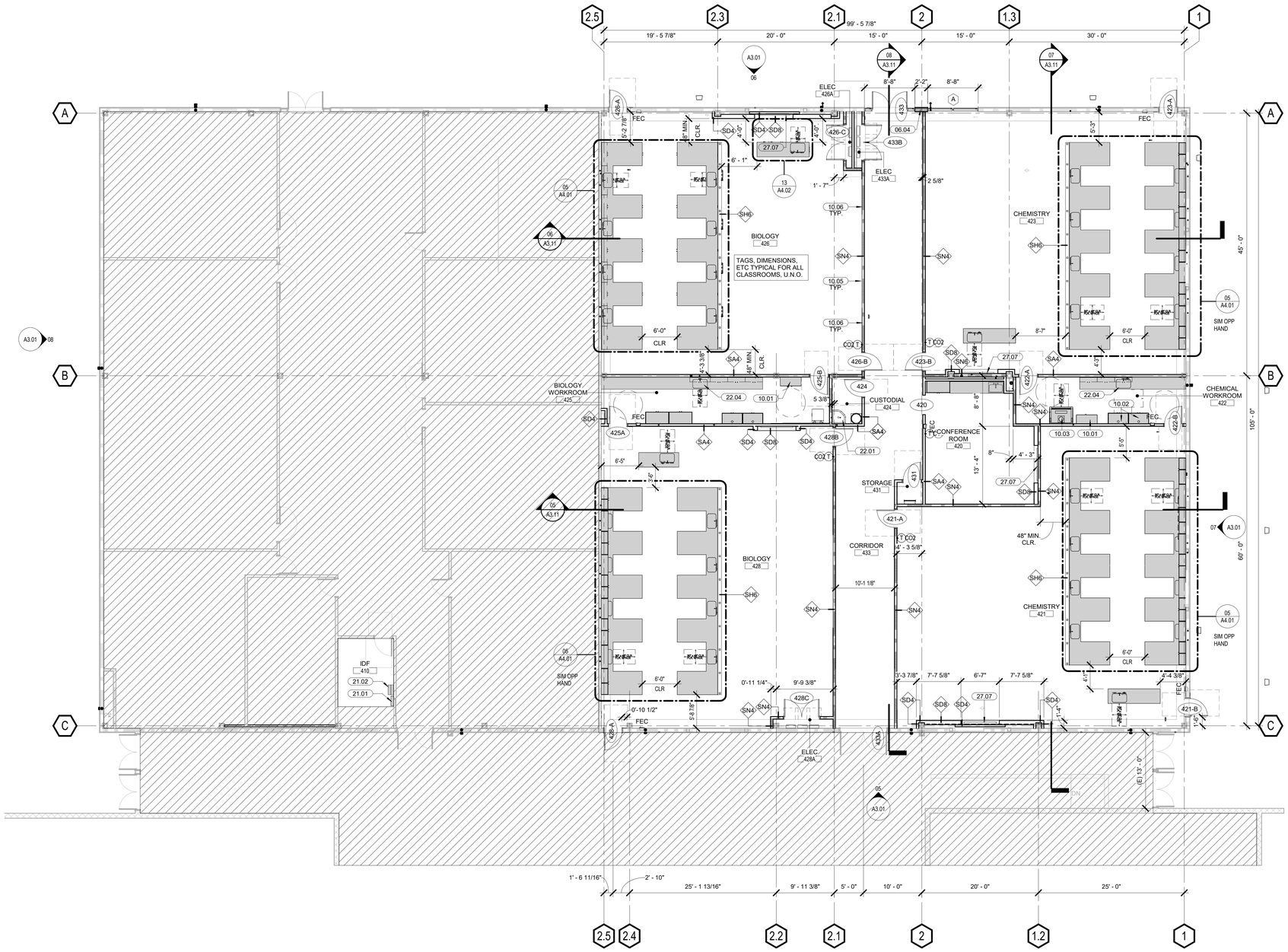
Job Number	32433
Checked By	Checker
Scale	1/8" = 1'-0"

ROOF DEMOLITION PLAN

A1.34



PROJECT NORTH TRUE NORTH

01 - FLOOR PLAN | 1/8" = 1'-0" A2.01 | 05

KEYNOTES

06.04	INFILL WALL, MATCH EXISTING ADJACENT WALL, RE: 01/A8.11
10.01	SCIENCE METAL CASEWORK FOR STORAGE.
10.02	SCIENCE METAL CASEWORK FOR CHEMICAL STORAGE. SEE MECHANICAL DWGS FOR VENTILATION.
10.03	ACCESSIBLE FUME HOOD. SEE 18/A9.51. SEE MECHANICAL DWGS FOR VENTILATION.
10.05	WALL MOUNTED CERAMIC MARKER BOARD. RE: 10/A9.51
10.06	WALL MOUNTED FABRIC WRAPPED TACK PANEL. RE:7/A9.51
21.01	FIRE ALARM TERMINAL CABINET. SEE FIRE ALARM DRAWINGS.
21.02	FIRE ALARM POWER SUPPLY AMPLIFIER. SEE FIRE ALARM DRAWINGS.
22.01	FLOOR SINK, SEE PLUMBING DRAWINGS.
22.04	EPOXY COUNTERTOP WITH INTEGRATED EPOXY SINK.
27.07	VIEWSONIC TV WITH WALL MOUNT, RE: 14/A9.51

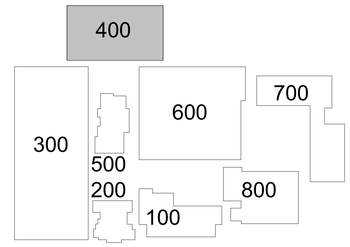
LEGEND

- NOT IN SCOPE OF WORK
- DENOTES MILLWORK - REFER TO INTERIOR ELEVATIONS
- NEW SLAB ON GRADE
- SA2U — **WALL TYPE.** LETTER INDICATES WALL TYPE. SEE A9.01. **STUD SIZE.** NUMBER INDICATES STUD SIZE. SEE A9.01. REFER TO S6.71B FOR INTERIOR STUD WALL SCHEDULE.
- STUD WALL CONSTRUCTION
- 1-HR RATED WALL ASSEMBLY
- (E) STUD WALL CONSTRUCTION
- (E) 1-HR RATED WALL ASSEMBLY
- (E) 2-HR RATED WALL ASSEMBLY
- Room 101 150 SF — ROOM NAME / ROOM NUMBER / ROOM AREA
- #### — DOOR TAG PER DOOR SCHEDULE
- ? — KEYNOTE
- FEC — SEMI-RECESSED FIRE EXTINGUISHER CABINET, RE: 16/A9.51

GENERAL NOTES

1. ALL INTERIOR NON-RATED STUD WALLS TO BE WALL TYPE "SA4", UNO. ALL INTERIOR RATED STUD WALLS TO BE "SN4", UNO.
   A. FULL HEIGHT WALLS: LOCATED IN ALL LOCATIONS UNO
   B. PONY WALLS: 4'-0" IN HEIGHT, LOCATED AT LAB SINKS.
2. EXTERIOR WALL DIMENSIONS ARE TO FACE OF FINISH, U.N.O. INTERIOR WALL DIMENSIONS ARE TO FACE OF FINISH UNLESS IT IS LOCATED ON GRID LINE OR U.N.O. IF IT IS LOCATED ON A GRID LINE, INTERIOR WALL DIMENSIONS ARE TO CENTER OF WALL, DOORS ARE DIMENSIONED FROM ROUGH OPENING, U.N.O
3. PROVIDE MOISTURE RESISTANT GYP BD IN ALL WET LOCATIONS, UNO.
4. PATCH ALL SURFACES AND PROVIDE FINISH TO MATCH ADJACENT AS REQUIRED FOR ALL DEMOLITION AND INSTALLATION WORK. IN CASE OF WALL PANEL REPLACEMENT ENTIRE MASONITE OR DRYWALL PANEL IS TO BE REPLACED.
5. PROVIDE ACOUSTIC BATT INSULATION FULL HEIGHT AT ALL PROPOSED INTERIOR METAL/ WOOD STUD CONSTRUCTION WALLS, FULL STUD DEPTH.
6. LOCATE DOORS MINIMUM 4" FROM ADJACENT WALL, TYP.
7. ALL FIRE EXTINGUISHERS SHALL BE FM APPROVED & SHALL BEAR THE FM SEAL OF APPROVAL.
8. PROVIDE HW PIPE INSULATION BENEATH SINKS.

KEYPLAN



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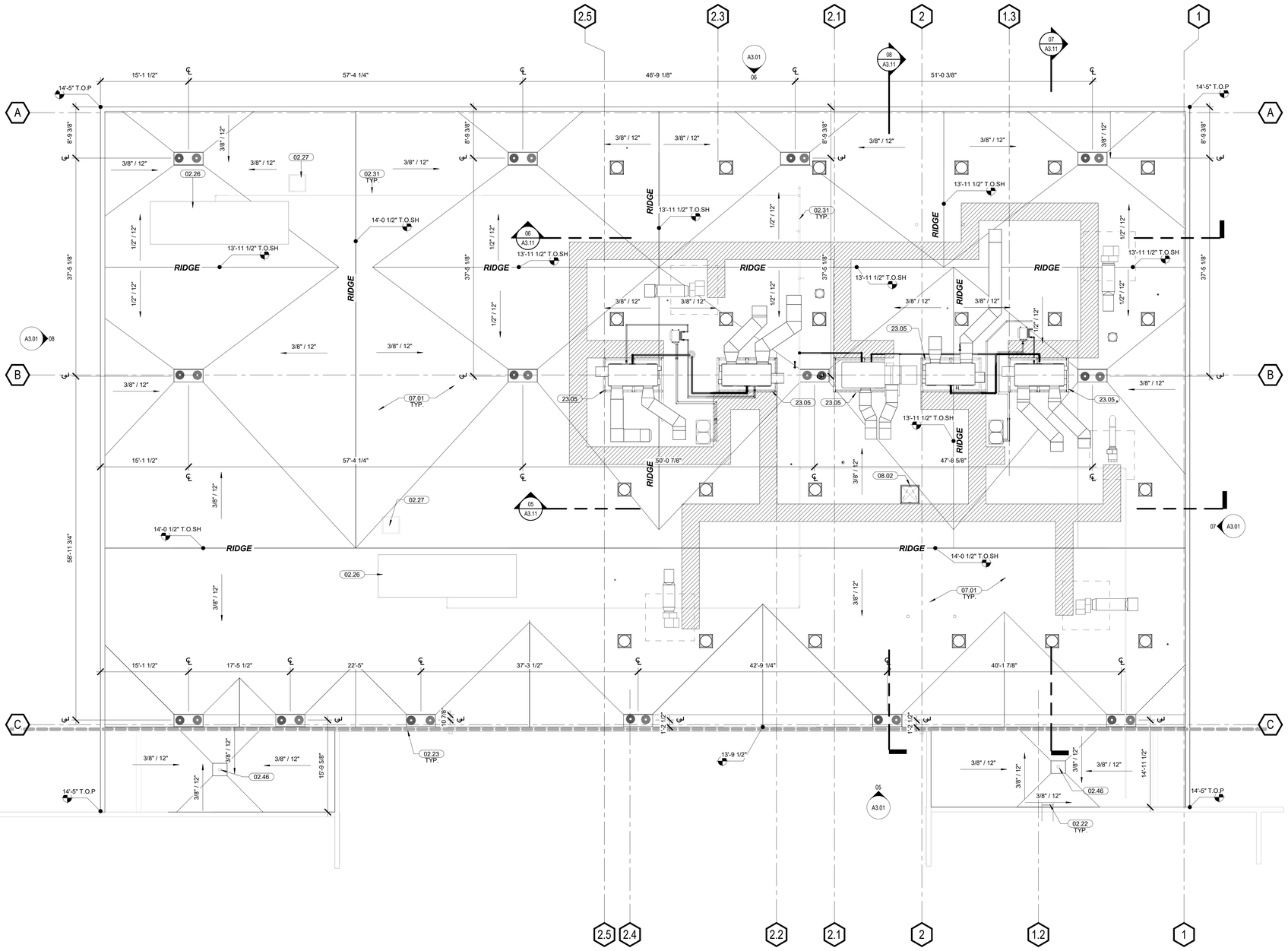
Scale	1/8" = 1'-0"

FLOOR PLAN

A2.01



PROJECT NORTH TRUE NORTH

ROOF PLAN | 1/8" = 1'-0" A2.09 | 05

KEYNOTES

02.22	(E) ROOF LADDER TO REMAIN
02.23	(E) SEISMIC JOINT TO REMAIN
02.26	(E) MECHANICAL UNITS AND PLATFORM TO REMAIN, PROTECT IN PLACE.
02.27	(E) SKYLIGHT TO REMAIN, PROTECT IN PLACE.
02.31	(E) GAS LINES TO REMAIN, PROTECT IN PLACE DURING CONSTRUCTION. RE: GENERAL NOTES.
02.46	(E) ROOF DRAIN TO REMAIN. PROTECT IN PLACE
07.01	NEW 4 PLY BUILT UP ROOFING, CRICKETS AND RIGID INSULATION. PROVIDE NEW R-30 BATT INSULATION TO UNDERSIDE OF EXISTING ROOF DECKING.
08.02	ROOF ACCESS HATCH, RE: 09/A8.22
23.05	MECHANICAL EQUIPMENT AND ASSOCIATED DUCTWORK, REFER TO MECHANICAL DRAWINGS.

LEGEND

- (E) ROOFTOP MECHANICAL EQUIPMENT, RE:MECHANICAL
- (E) SEISMIC JOINT
- (N) MECHANICAL EQUIPMENT, RE:MECHANICAL
- (N) TUBULAR SKYLIGHT, RE: 02/ A8.22
- (N) ROOF DRAIN, RE: 13/ A8.21 ; 17/ A8.21
- (N) ROOF HATCH, RE: 09/ A8.22
- (N) TAPERED PANELS; 1/4" / 1'-0" MIN. FOR VALLEYS
- (N) ROOF WALKPADS
- X'-X" T.O.SH — (N) TOP OF ROOF SHEATHING
- X'-X" T.O.P — (N) TOP OF PARAPET
- (N) SLOPE DIRECTION

GENERAL NOTES

1. BACKGROUND DRAWINGS ARE BASED ON ORIGINAL CONSTRUCTION DOCUMENTS, NOT AS-BUILT DRAWINGS. PLEASE VERIFY ALL CONDITIONS & DIMENSIONS PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ARCHITECT.
2. EXISTING CONDITIONS DAMAGED OR REMOVED AS A RESULT OF ALL WORK REQUIRED TO BE DONE UNDER THIS CONTRACT SHALL BE REPAIRED OR REPLACED TO ORIGINAL CONDITION & FINISHED TO MATCH ADJACENT SURFACES.
3. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS & REPORT ALL DISCREPANCIES TO THE ARCHITECT.
4. PATCH & REPAIR EXISTING ROOF AS REQUIRED BY NEW PENETRATIONS. FOR ROOF INFILL SEE DETAIL 15/A8.22.
5. TUBULAR SKYLIGHT LOCATIONS TO SHIFT AS NECESSARY TO ACOMMODATE EXISTING DUCTWORK, STRUCUTRAL FRAMING, AND OTHER ELEMENTS IN THE PLENUM SPACE AND ON THE ROOF. ANY AREAS THAT CANNOT BE ACCOMODATED SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OF RECORD.
6. CRICKETS ARE REQUIRED ON ALL HIGH SIDES AT ALL CURBS.
7. ALL EXISTING MECHANICAL UNITS, GAS LINES AND EQUIPMENT TO BE PROTECTED IN PLACE. ALL EXISTING PIPE LINES RAISED ON WOOD BLOCK CAN BE CAREFULLY AND TEMPORARILY UNSCREW TO INSTALL NEW ROOFING MATERIALS UNDERNEATH. REINSTALL WITH NEW DURA BLOCK TO SUPPORT ALL PIPING.
8. INSTALLATION OF THE ROOFING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURES SPECIFICATIONS AND PROCEDURES.
9. CONFIRM MECHANICAL EQUIPMENT PAD DIMENSIONS WITH EQUIPMENT MANUFACTURER. VERIFY PAD SIZE ACCOMODATES MECHANICAL EQUIPMENT INCLUDING REQUIRED CLEARANCES.
11. MECHANICAL EQUIPMENT SHOWN FOR REFERENCE. REFER TO MECHANICAL DRAWINGS FOR LOCATION AND DIMENSIONS.
12. HORIZONTAL PIPE OR CODUIT SUPPORT OVER ROOFING SYSTEM.RE:14/A8.21.
13. TYPICAL ROOF PENETRATION DETAILS AND SPACING REQUIREMENTS, REFERENCE SHEET A8.21 & A8.22..
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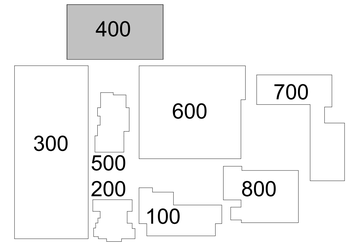
15. ROOF FIRE HAZARD CLASSIFICATION TYPE A.

KEYPLAN



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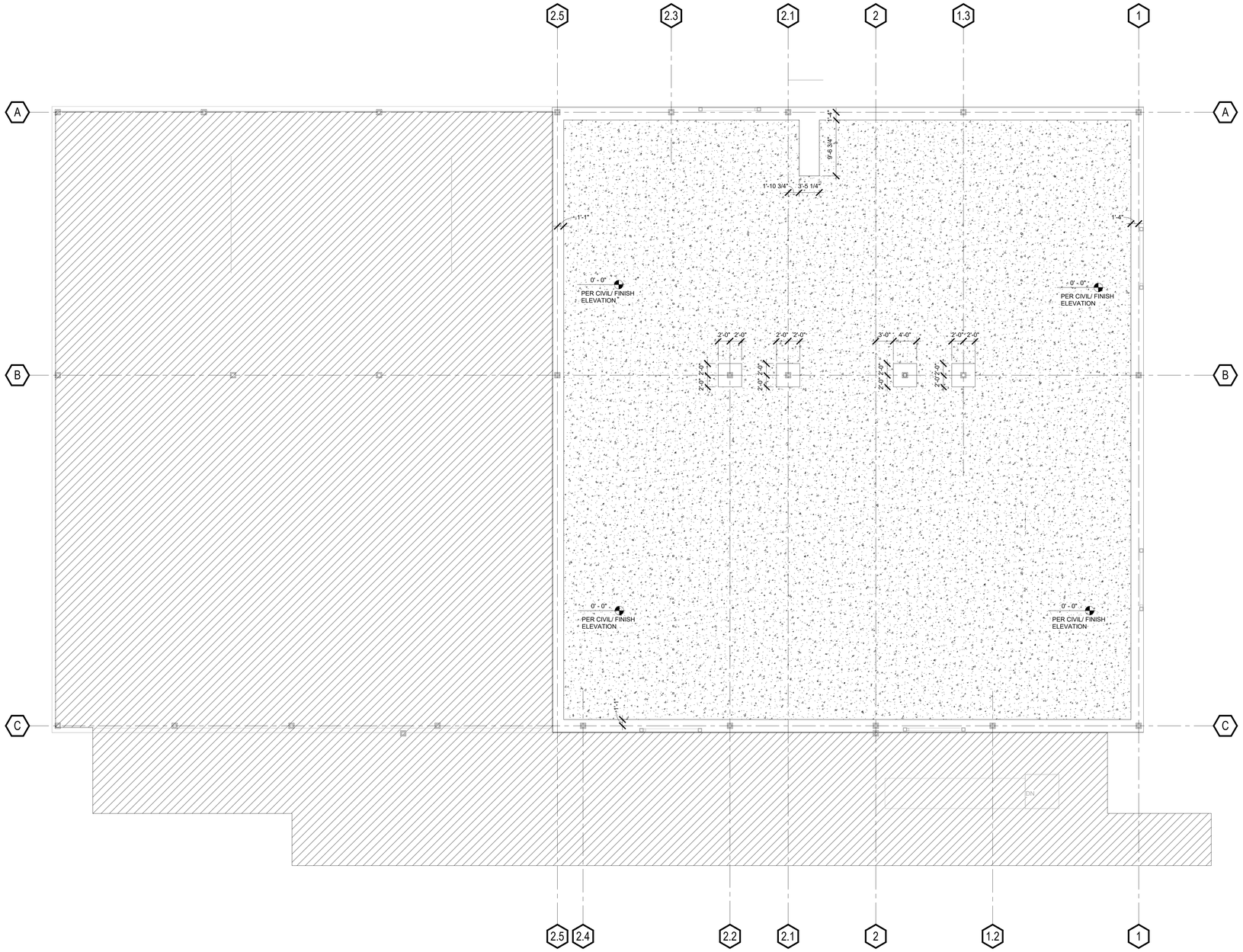
Scale	1/8" = 1'-0"

ROOF PLAN

A2.09



01 - FLOOR PLAN - EDGE OF SLAB | 1/8" = 1'-0" A2.11 | 05

KEYNOTES

LEGEND

- 0' - 0" — TOP OF SLAB ELEVATION
- NOT IN SCOPE OF WORK
- DENOTES (E) STRUCTURAL COLUMN
- DENOTES (E) CONCRETE SLAB-ON-GRADE TO REMAIN
- DENOTES (N) CONCRETE SLAB-ON-GRADE OR FLOOR SLAB REFER TO STRUCTURAL FOUNDATION / FRAMING PLANS

GENERAL NOTES

1. TOP OF SLAB ELEVATIONS PROVIDED ON EDGE OF SLAB PLAN INDICATE RELATIVE ELEVATION POINTS [0'-0"=XX.XX'] SEE C2.02 FINISH FLOOR LEVELS AT SLAB ON GRADE.
2. CONTRACTOR TO COORDINATE FINAL CURB LOCATIONS & THICKNESSES WITH WALL WIDTHS INDICATED IN ARCHITECTURAL FLOOR PLANS.
3. SACK & PATCH ALL EXPOSED CONCRETE CURBS AND SLAB EDGE.
4. CONTRACTOR TO COORDINATE EDGE OF SLAB PLANS WITH STRUCTURAL FOUNDATION PLANS.
5. VERIFY FLOOR DRAIN LOCATIONS AT CUSTODIAL ROOM. SEE PLUMBING DRAWINGS.

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Scale	1/8" = 1'-0"

FLOOR EDGE OF SLAB PLAN

A2.11

FINISH SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	SPECIFICATION
B-1	4"H RUBBER BASE	TARKETT	BLACK, STRAIGHT @ CP-1 LOCATIONS & COVE @ HARD SURFACES U.N.O.
CP-1	CARPET	TARKETT	CRE_VISION G0079, INCLUSIVE 32811
CTB-1	CERAMIC COVE BASE	DALTILE	COLOR WHEEL CLASSIC, GALAXY 1469, 4X4
CTF-1	CERAMIC FLOOR TILE	DALTILE	KEYSTONES, BUFFSTONE RANGE D147, 2X2
CTW-1	CERAMIC WALL TILE	DALTILE	COLOR WHEEL CLASSIC, BISCUIT K175, 4X4
CTW-2	CERAMIC WALL TILE	DALTILE	COLOR WHEEL CLASSIC, GALAXY 1469, 4X4
EP-1	EPOXY COUNTERTOP	DURCON	GRAPHITE
P-1	FIELD PAINT	DUNN EDWARDS	TBD
P-2	ACCENT PAINT	DUNN EDWARDS	TBD
PL-1	PLASTIC LAMINATE	WILSONART	INDIGO D379-60, MATTE FINISH
HVT-1	HYBRID VINYL TILE	CATALINA PRODUCT	BOULDER 337
HVT-2	HYBRID VINYL TILE	CATALINA PRODUCT	STONE 324
HVT-3	HYBRID VINYL TILE	CATALINA PRODUCT	DENIM 326
SC-1	SEALED CONCRETE	*	SEE SPECS
SS-1	SOILID SURFACE	CORIAN	RAIN STREAK
TB-1	TACKBOARD	CHATFIELD CLARKE	LACEWING, ICE, MOUNTED OVER 1" THK LAMVIN TACKABLE HIGH IMPACT PANEL
TB-2	TACKBOARD	CHATFIELD CLARKE	INKWELL VPHB-04, MOUNTED OVER 1" THK LAMVIN TACKABLE HIGH IMPACT PANEL
WC-1	WOOD CASEWORK	*	RED OAK, STAIN TO MATCH ARCHITECT PROVIDED SAMPLE

KEYNOTES

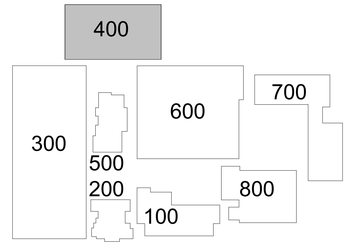
LEGEND

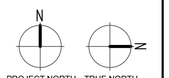
- FINISH TAG
- FINISH CODE, SEE SCHEDULE ON THIS SHEET FOR FINISHES
- FLOOR TRANSITION, SEE DETAIL 01/A9.51 FOR VARIOUS CONDITIONS AND SPECIFICATIONS
- FLOOR PATTERN DIRECTION

GENERAL NOTES

1. REFER TO FINISH SCHEDULE FOR FINISH AND COLOR INFORMATION.
2. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND REPORT ANY AND ALL DISCREPANCIES TO THE ARCHITECT.
3. PATCH ALL FLOOR AREAS WHERE FLOOR IS NOT LEVEL OR IS CRACKED PRIOR TO FLOORING INSTALLATION.
4. GRIND AND CLEAN ALL CONCRETE PRIOR TO FINISHING WHERE NEW WORK OCCURS.
5. FLOORING TO BE INSTALLED PRIOR TO CASEWORK INSTALLATION.
6. PATCH, REPAIR, AND MATCH WALL TEXTURE ANY AND ALL DAMAGE AT WALLS BEFORE APPLYING NEW WALL FINISHES, EQUIPMENT, ETC.
7. REFER TO INTERIOR ELEVATIONS AND/OR ENLARGED PLANS FOR CASEWORK FINISHES.
8. GENERAL FINISHES: ALL GYP WALLS TO BE PAINTED (P-1), BASE (B-1) U.N.O. ALL CEILINGS TO BE FACTORY FINISH, U.N.O.
9. ACCENT WALLS TO ALWAYS TERMINATE AT INNER CORNERS OF ADJACENT WALLS, U.N.O.
10. WHERE FLOORING TRANSITIONS AT DOOR, CENTER TRANSITION TO DOOR FRAME, U.N.O.
11. REFER TO SHEET A9.31 FOR TYPICAL CASEWORK DETAILS.
12. REFER TO WI STANDARDS FOR CASEWORK TYPES.

KEYPLAN





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

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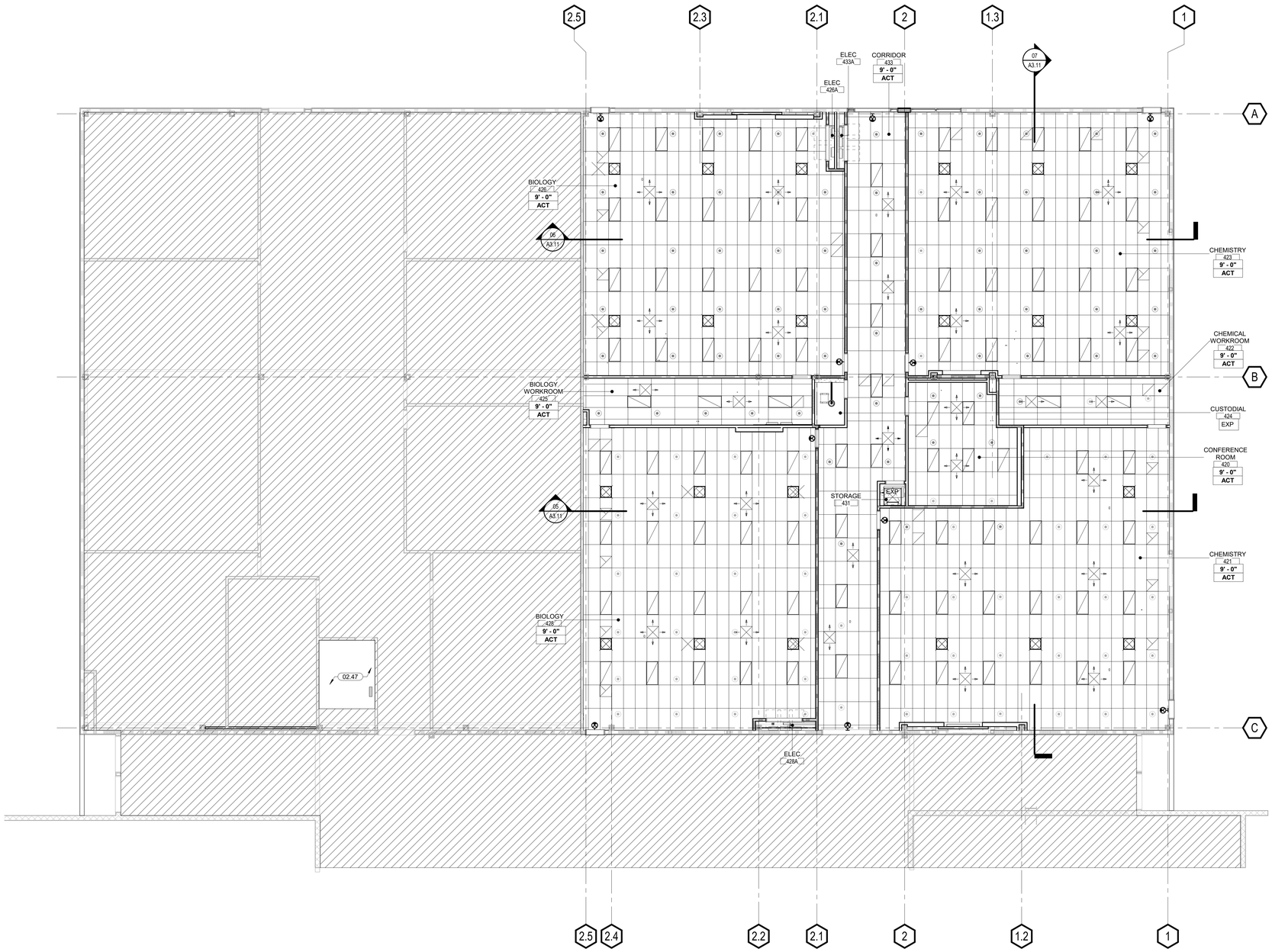
FLOOR FINISH PLAN
AND FINISH SCHEDULE

A2.21



KEYNOTES

02.47	PATCH AND REPAIR (E) ACT CEILING IF ANY DAMAGES OCCUR DURING INSTALLATION OF FIRE ALARM CABINET.

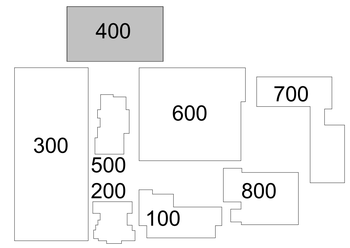
LEGEND

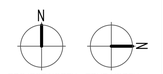
- NOT IN SCOPE OF WORK
- **ACT1** 9'-0" AFF, U.N.O. ARMSTRONG INDUSTRIES, ULTIMA, 2 X 4, WHITE, SUPRAFINE 9/16" WHITE SEE DETAIL 05/A9.21
- EXP — EXPOSED CEILING PAINT ALL DUCTING, STRUCTURE, CONDUIT, ETC TO MATCH P1
- 9'-0" — TYP CLG HEIGHT, UNO
- XXX-1 — TYP CLG TYPE, UNO
- EQ / EQ / EQ / EQ — CENTER DEVICES ON CLG TILE - TYP INCLUDED BUT NOT LIMITED TO THE FOLLOWING: SPRINKLER, FIRE STROBE, SPEAKERS, DAYLIGHT & OCCUPANCY SENSORS.
- EXIT SIGN. REFER TO ELEC.
- TUBULAR SKYLIGHT W/ 2X2 DIFFUSER CONNECTOR
- 2X4 RECESSED LIGHT FIXTURE

GENERAL NOTES

1. ALL CLG HEIGHT TO BE 9'-0" AFF, U.N.O., SEE LEGEND
2. FOR ALL LIGHTING SPECIFICATIONS, REFER TO LIGHTING & ELECTRICAL DWG
3. REFER TO MECHANICAL DWG FOR SUPPLY & RETURN AIR SPECIFICATIONS
4. SEE AV & SECURITY DWG FOR ADDL CLG ELEMENTS
5. CEILING EXHAUST FAN WHERE OCCURS TO BE SUPPORTED PER DETAIL 7/M5.01
6. CONCEALED DUCT WHERE OCCURS TO BE SUPPORTED PER DETAIL 8/M5.01
7. CEILING DIFFUSER WHERE OCCURS TO BE SUPPORTED PER DETAIL 10/M5.01

KEYPLAN





01 - FLOOR REFLECTED CEILING PLAN | 1/8" = 1'-0" | A2.31 | 05

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SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
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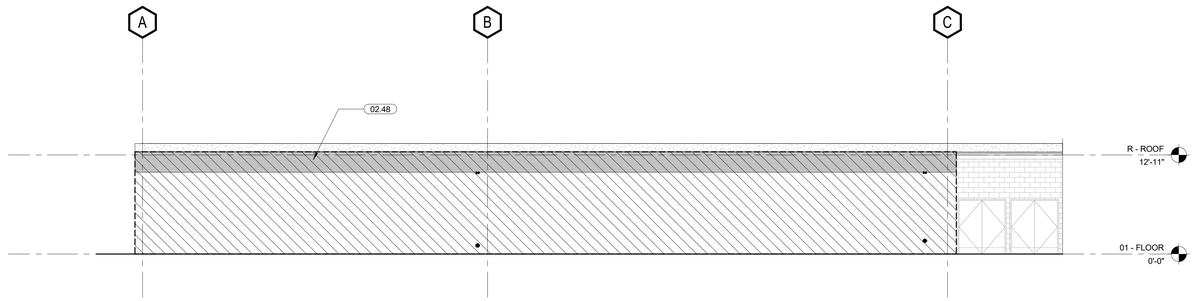
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/07/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

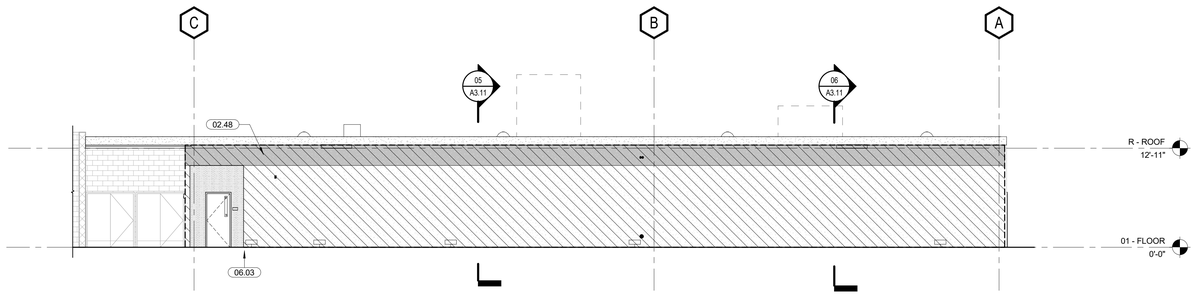
Job Number	32433
Checked By	Checker
Scale	1/8" = 1'-0"

REFLECTED CEILING PLAN

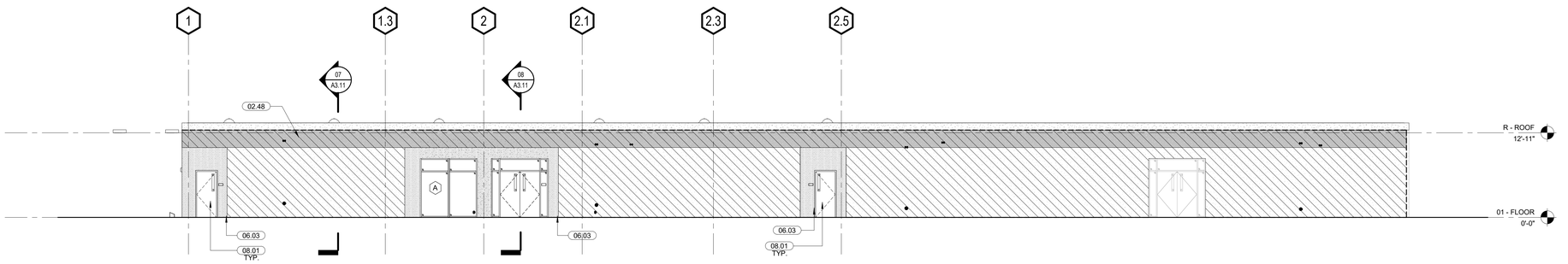
A2.31



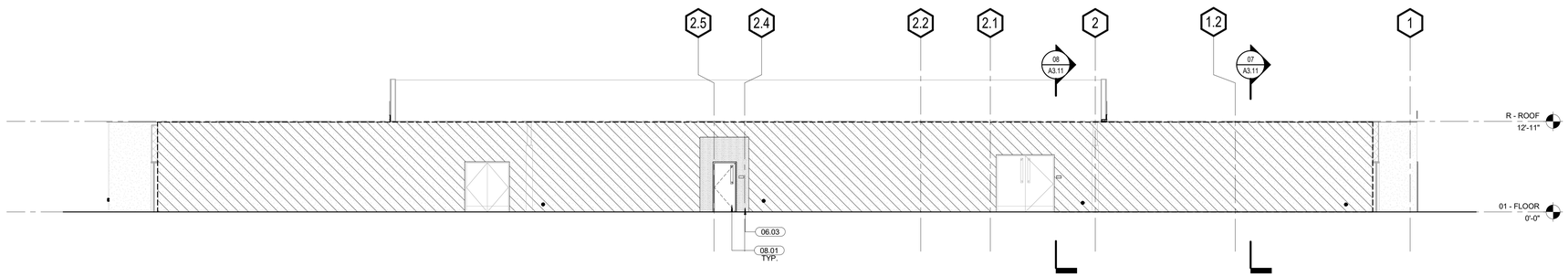
ELEVATION - WEST (FROM OUTSIDE) | 1/8" = 1'-0" | A3.01 | 08



ELEVATION - EAST (FROM OUTSIDE) | 1/8" = 1'-0" | A3.01 | 07



ELEVATION - NORTH (FROM OUTSIDE) | 1/8" = 1'-0" | A3.01 | 06



ELEVATION - SOUTH (FROM BLDG 500 COURT) | 1/8" = 1'-0" | A3.01 | 05

KEYNOTES

02.48	REMOVE AND REPLACE PLASTER AND EXTERIOR SHEATHING TO INSTALL NEW. RE: 06/ A8.21
06.03	NEW PLASTER AROUND DAMAGED OPENINGS. PREP AND REPAIR AS REQUIRED. TEXTURE AND PAINT TO MATCH (E).
08.01	DOOR PER DOOR SCHEDULE. SEE A6.11.

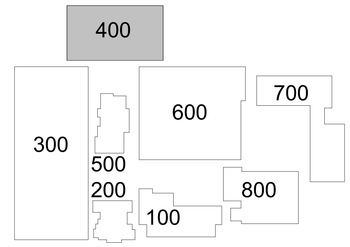
LEGEND

- (E) POLYMER MODIFIED FIBERGLASS REINFORCED PLASTER PROTECT IN PLACE
- (E) MASONRY PROTECT IN PLACE
- NEW PAINT TO MATCH EXISTING
- NEW 1" LOW E IGU STOREFRONT SYSTEM
- NEW PLASTER AND EXTERIOR SHEATHING
- x — OPENING TYPE RE: SHEET A6.21

GENERAL NOTES

1. EXTERIOR WALL ASSEMBLY TO BE MIN R-30.
2. ROOF ASSEMBLY TO BE MIN R-12.
3. CONTROL JOINTS TO BE PAINTED. COLOR TO MATCH ADJACENT.
4. REFERENCE ENGINEERING DRAWINGS FOR EXTERIOR MOUNTED DEVICES. CONTRACTOR TO SUBMIT COORDINATION DRAWINGS OF EXTERIOR DEVICES FOR ARCHITECT REVIEW OF PLACEMENT AND ALIGNMENT.

KEYPLAN



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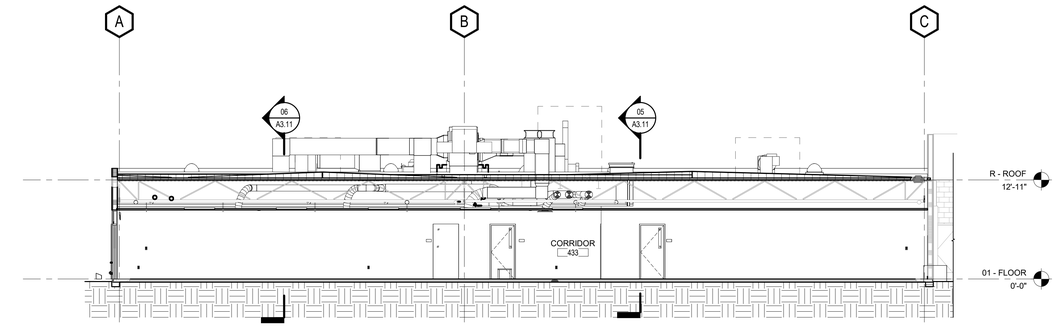
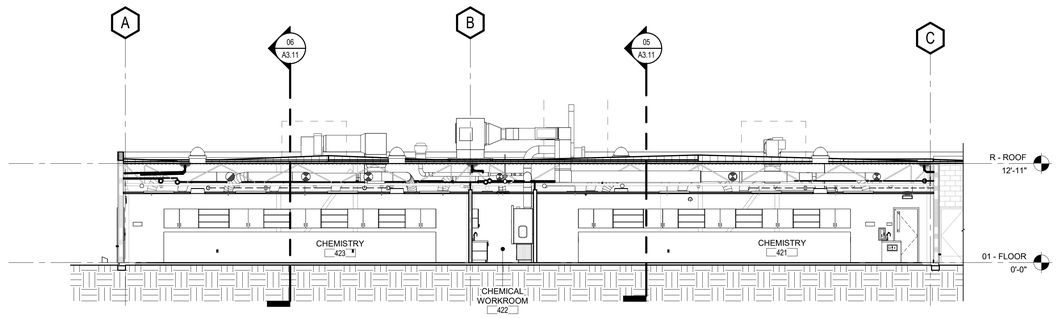
Job Number	32433
Checked By	Checker
Scale	1/8" = 1'-0"

EXTERIOR ELEVATIONS

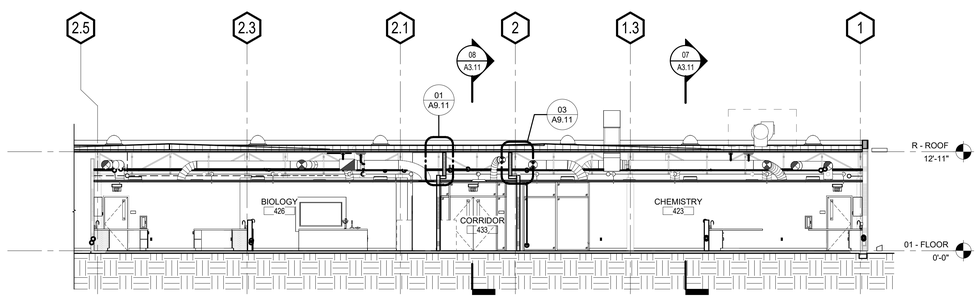
A3.01



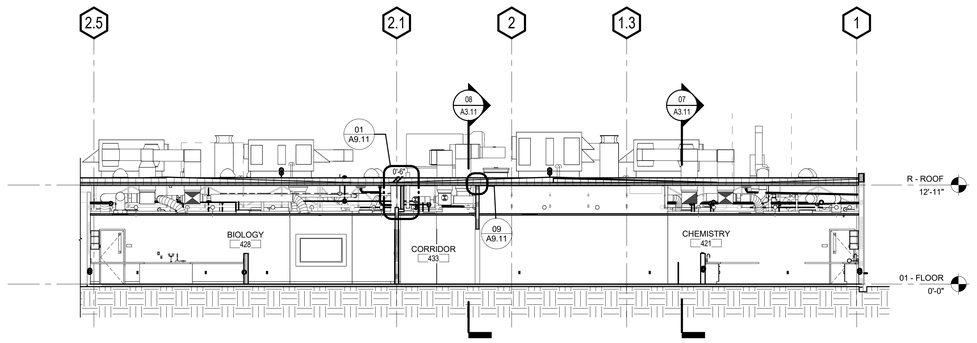
SECTION - CIRCULATION | 1/8" = 1'-0" | A3.11 | 08



SECTION - CHEMISTRY 38 + BIOLOGY 39 + CHEMICAL STORAGE | 1/8" = 1'-0" | A3.11 | 07



SECTION - SCIENCE - CHEMISTRY CLASSROOMS 37 + 38 | 1/8" = 1'-0" | A3.11 | 06



SECTION - SCIENCE - BIOLOGY CLASSROOMS 39 + 40 | 1/8" = 1'-0" | A3.11 | 05

KEYNOTES

LEGEND

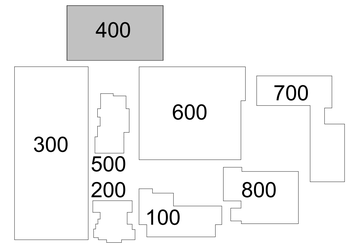
1 HOUR RATED WALL ASSEMBLY

SLAB ON GRADE

GENERAL NOTES

1. EXTERIOR WALL ASSEMBLY TO BE MIN R-30.
2. ROOF ASSEMBLY TO BE MIN R-12.

KEYPLAN



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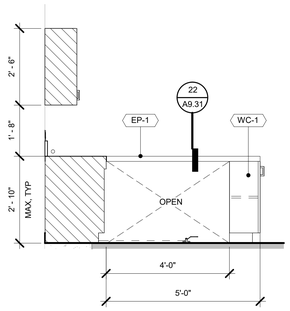
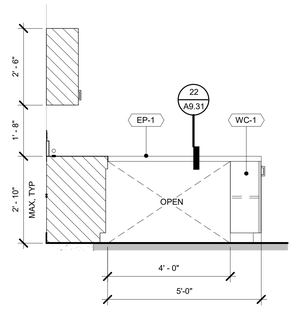
Scale	1/8" = 1'-0"

BUILDING SECTIONS

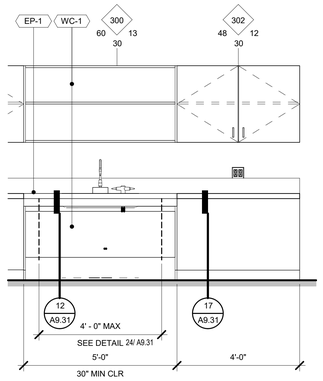
A3.11



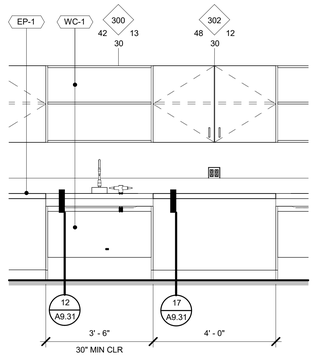
TYPICAL ADA STATION ELEVATION PENNINSULA | 1/2" = 1'-0" | A4.01 | 24



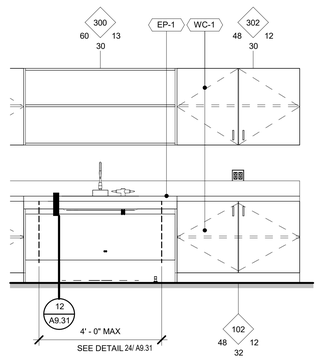
TYPICAL STATION ELEVATION PENNINSULA | 1/2" = 1'-0" | A4.01 | 20



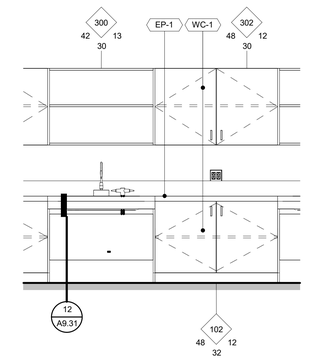
TYPICAL ADA STATION ELEVATION INTERIOR | 1/2" = 1'-0" | A4.01 | 23



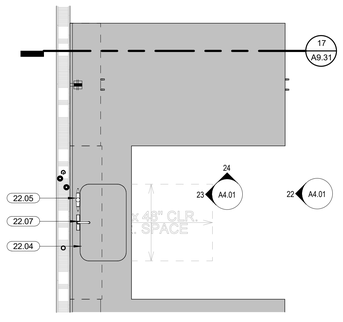
TYPICAL STATION ELEVATION INTERIOR | 1/2" = 1'-0" | A4.01 | 19



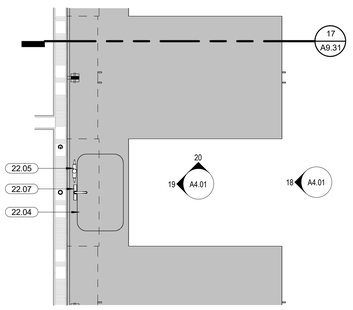
TYPICAL ADA STATION ELEVATION OVERALL | 1/2" = 1'-0" | A4.01 | 22



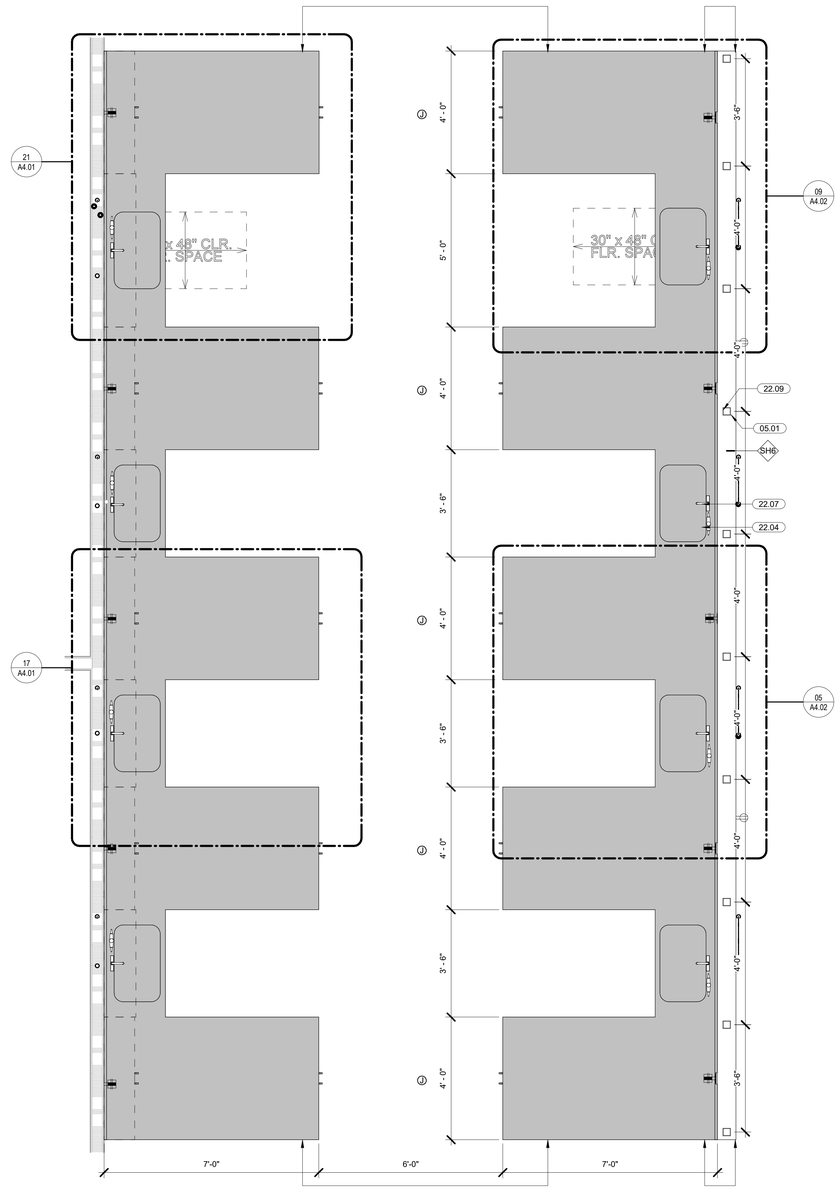
TYPICAL STATION ELEVATION OVERALL | 1/2" = 1'-0" | A4.01 | 18



TYPICAL ADA STATION | 1/2" = 1'-0" | A4.01 | 21



TYPICAL STATION | 1/2" = 1'-0" | A4.01 | 17



ENLARGED TYPICAL LAB CASEWORK FLOOR PLAN | 1/2" = 1'-0" | A4.01 | 05

PROJECT NORTH TRUE NORTH

KEYNOTES

05.01	3X3 STEEL POSTS EMBEDDED WITH 4'-0" SPACING. INSIDE 6IN METAL STUD PONY WALL. SEE DETAIL 7/A9.01 AND SEE STRUCTURAL DRAWINGS.
22.04	EPOXY COUNTERTOP WITH INTEGRATED EPOXY SINK.
22.05	DOUBLE GAS TURRET. SEE PLUMBING DRAWINGS.
22.07	COMBINATION OF COLD WATER GOOSE NECK FAUCET AND DOUBLE OUTLET GAS FIXTURE. SEE PLUMBING DRAWINGS.
22.09	ALLOW SPACING FOR COLD WATER LINE AND GAS LINE. SEE 7/A9.01 AND STRUCTURAL, PLUMBING DRAWINGS

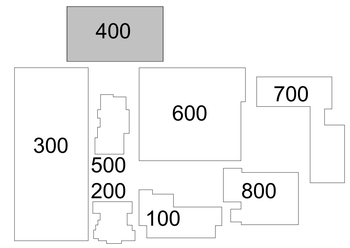
LEGEND

- # — AWI CASEWORK NUMBER
- 30" / 36" / 42" — CABINET DEPTH / CABINET HEIGHT / CABINET WIDTH
- ? — FINISH TAG; FINISH CODE, SEE SCHEDULE ON SHEET A2.21 FOR FINISHES
- ? — KEYNOTE
- ALIGN
- S/2U — **WALL TYPE.** LETTER INDICATES WALL TYPE. SEE A9.01. **STUD SIZE.** NUMBER INDICATES STUD SIZE. SEE A9.01. REFER TO S6.71B FOR INTERIOR STUD WALL SCHEDULE

GENERAL NOTES

1. REFER TO SHEET A2.21 FOR FINISH SCHEDULE.
2. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND REPORT ALL DISCREPANCIES TO THE ARCHITECT.
3. REFER TO SHEET A9.31 FOR TYPICAL CASEWORK DETAILS.
4. REFER TO WI STANDARDS FOR CASEWORK TYPES.
5. FLOORING TO BE INSTALLED PRIOR TO CASEWORK INSTALLATION.

KEYPLAN



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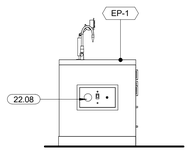
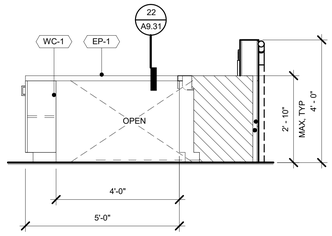
Checked By	Checker
Scale	As indicated

ENLARGED PLANS AND ELEVATIONS

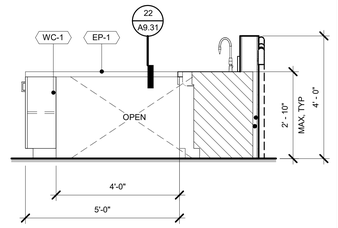
A4.01



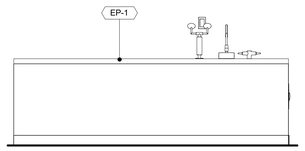
TYPICAL TEACHER STATION - SIDE | 1/2" = 1'-0" | A4.02 | 16



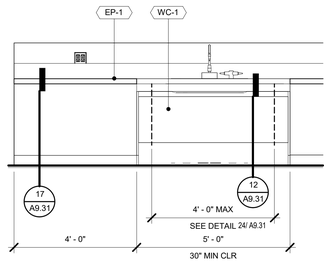
TYPICAL ADA STATION ELEVATION PENNINSULA (LOWERS ONLY) | 1/2" = 1'-0" | A4.02 | 12



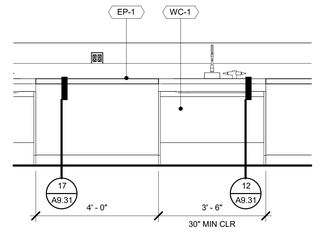
TYPICAL STATION ELEVATION PENNINSULA (LOWERS ONLY) | 1/2" = 1'-0" | A4.02 | 08



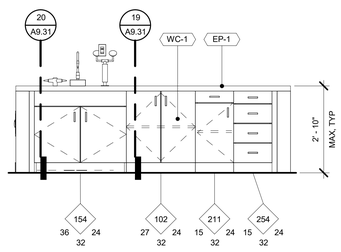
TYPICAL TEACHER STATION - FRONT | 1/2" = 1'-0" | A4.02 | 15



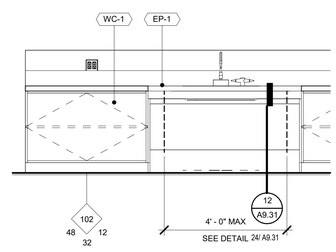
TYPICAL ADA STATION ELEVATION INTERIOR (LOWERS ONLY) | 1/2" = 1'-0" | A4.02 | 11



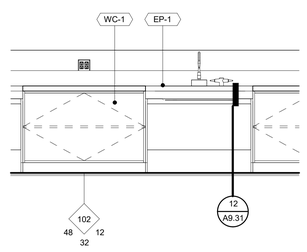
TYPICA LSTATION ELEVATION INTERIOR (LOWERS ONLY) | 1/2" = 1'-0" | A4.02 | 07



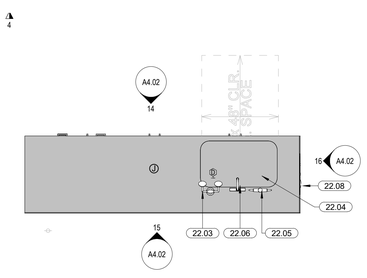
TYPICAL TEACHER STATION - INTERIOR | 1/2" = 1'-0" | A4.02 | 14



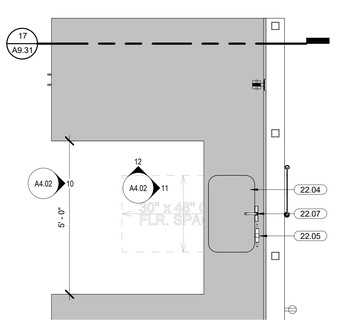
TYPICAL ADA STATION ELEVATION OVERALL (LOWERS ONLY) | 1/2" = 1'-0" | A4.02 | 10



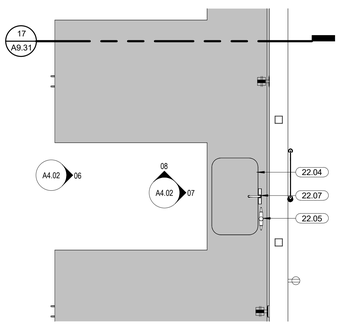
TYPICAL STATION OVERALL (LOWERS ONLY) | 1/2" = 1'-0" | A4.02 | 06



TYPICAL TEACHER DEMO STATION | 1/2" = 1'-0" | A4.02 | 13



TYPICAL ADA LAB STATION (LOWERS ONLY) | 1/2" = 1'-0" | A4.02 | 09



TYPICAL LAB STATION (LOWERS ONLY) | 1/2" = 1'-0" | A4.02 | 05

KEYNOTES

22.03	EMERGENCY EYE WASH, SEE PLUMBING DRAWINGS.
22.04	EPOXY COUNTERTOP WITH INTEGRATED EPOXY SINK.
22.05	DOUBLE GAS TURRET, SEE PLUMBING DRAWINGS.
22.06	GOOSENECK FAUCET, HOT AND COLD WATER AND EMERGENCY EYE WASH. SEE PLUMBING DRAWINGS.
22.07	COMBINATION OF COLD WATER GOOSE NECK FAUCET AND DOUBLE OUTLET GAS FIXTURE. SEE PLUMBING DRAWINGS.
22.08	EMERGENCY GAS VALVE, SEE PLUMBING DRAWINGS.

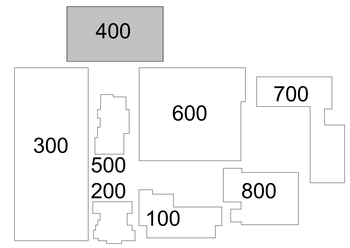
LEGEND

- AWI CASEWORK NUMBER
- 30" / 36" / 42" — CABINET DEPTH / CABINET HEIGHT / CABINET WIDTH
- FINISH TAG
- FINISH CODE, SEE SCHEDULE ON SHEET A2.21 FOR FINISHES
- KEYNOTE
- ALIGN
- **WALL TYPE.** LETTER INDICATES WALL TYPE. SEE A9.01.
- **STUD SIZE.** NUMBER INDICATES STUD SIZE. SEE A9.01. REFER TO S6.71B FOR INTERIOR STUD WALL SCHEDULE

GENERAL NOTES

1. REFER TO SHEET A2.21 FOR FINISH SCHEDULE.
2. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND REPORT ALL DISCREPANCIES TO THE ARCHITECT.
3. REFER TO SHEET A9.31 FOR TYPICAL CASEWORK DETAILS.
4. REFER TO WI STANDARDS FOR CASEWORK TYPES.
5. FLOORING TO BE INSTALLED PRIOR TO CASEWORK INSTALLATION.

KEYPLAN



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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/07/25
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

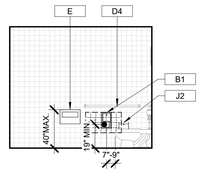
Job Number	32433
Checked By	Checker
Scale	As indicated

ENLARGED PLANS AND ELEVATIONS

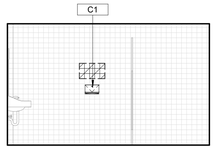
A4.02

RESTROOM ACCESSORIES SCHEDULE

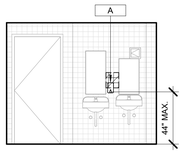
TAG #	DESCRIPTION	MANUFACTURER	MODEL #	Remarks
A	LIQUID SOAP DISPENSER	BOBRICK	B-2111	SURFACE MTD, RE: 01/G0.31
B1	TOILET PAPER DISPENSER RECESSED (ACCESSIBLE)	BOBRICK	B-3888	SURFACE MTD, RE: 01/G0.31
C1	PAPER TOWEL DISPENSER (SURFACE MOUNTED)	BOBRICK	B-2621	SURFACE MTD, RE: 01/G0.31
D4	(E) GRAB BAR 42"	--		COMPLIANT
D5	(E) GRAB BAR 36"	--		COMPLIANT
D6	GRAB BAR 42"	BOBRICK	B-6806	WALL MOUNT, RE: 01/G0.31
E	TOILET SEAT COVER DISPENSER	BOBRICK	B-221	SURFACE MTD, RE: 01/G0.31
F	HAND DRYER - EXCELERATOR			
G	(E) SANITARY NAPKIN VENDOR	--	B-47069C	COMPLIANT
J1	(E) SANITARY NAPKIN DISPOSAL	--	B-270	COMPLIANT
J2	SANITARY NAPKIN DISPOSAL	BOBRICK	B-270	SURFACE MTD, RE: 04/A-1113
T1	TOILET COMPARTMENT PARTITION	BOBRICK		TOILET PARTITION MOUNT, RE: 04/A9.41



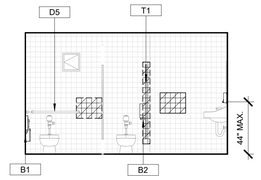
508 WOMEN'S STAFF TOILET - WEST | 1/4" = 1'-0" | A4.11 | 19



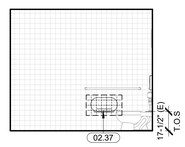
508 WOMEN'S STAFF TOILET - SOUTH | 1/4" = 1'-0" | A4.11 | 15



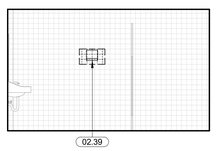
508 WOMEN'S STAFF TOILET - EAST | 1/4" = 1'-0" | A4.11 | 11



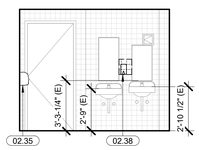
508 WOMEN'S STAFF TOILET - NORTH | 1/4" = 1'-0" | A4.11 | 07



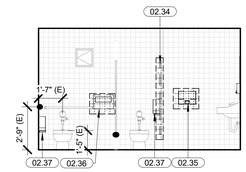
508 WOMEN'S STAFF TOILET - DEMO - WEST | 1/4" = 1'-0" | 05/ A4.11 | 4



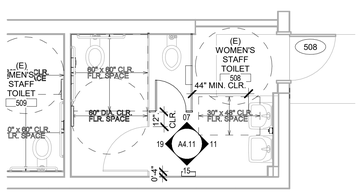
508 WOMEN'S STAFF TOILET - DEMO - SOUTH | 1/4" = 1'-0" | 05/ A4.11 | 14



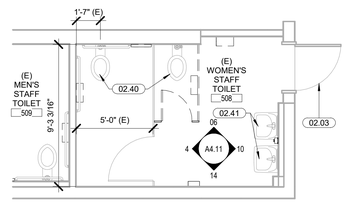
508 WOMEN'S STAFF TOILET - DEMO - EAST | 1/4" = 1'-0" | 05/ A4.11 | 10



508 WOMEN'S STAFF TOILET - DEMO - NORTH | 1/4" = 1'-0" | 05/ A4.11 | 06



01 - ENLARGED FLOOR PLAN - BLDG 500 - WOMEN RESTROOMS | 1/4" = 1'-0" | 05/ A3.01 | 09



01 - ENLARGED DEMO PLAN - BLDG 500 - WOMEN RESTROOMS | 1/4" = 1'-0" | 05/ A3.01 | 05

KEYNOTES

02.03	(E) DOOR, FRAME, AND HARDWARE TO REMAIN, PROTECT IN PLACE.
02.34	(E) TOILET PARTITION TO BE DEMOLISHED.
02.35	(E) HAND DRYER TO BE DEMOLISHED. PATCH AND REPAIR AS REQUIRED. FINISHES TO MATCH EXISTING.
02.36	(E) TOILET SEAT COVER DISPENSER TO BE DEMOLISHED.
02.37	(E) TOILET PAPER DISPENSER TO BE DEMOLISHED.
02.38	(E) SOAP DISPENSER TO BE DEMOLISHED.
02.39	(E) PAPER TOWEL DISPENSER TO BE DEMOLISHED.
02.40	(E) TOILET FIXTURE TO REMAIN.
02.41	(E) LAVATORY TO REMAIN.

LEGEND

WALL TYPE. LETTER INDICATES WALL TYPE. SEE A9.01

SA2U

STUD SIZE. NUMBER INDICATES STUD SIZE. SEE A9.01 FOR INTERIOR STUD WALL SCHEDULE

WALL TO BE DEMOLISHED

EXISTING NON-RATED WALL TO REMAIN

DOOR TO BE DEMOLISHED

STUD WALL CONSTRUCTION

(E) TILE TO REMAIN

(E) TILE TO BE DEMOLISHED FOR REFERENCE, TILE REMOVAL NOT TO EXCEED (1) ROW/COLUMN OF TILES BEYOND DAMAGED TILES

(N) TILE WHERE DEMO OCCURED, FOR TILE PATTERN, SEE DETAIL 09/ A9.41

(E) ACT CLG TO BE DEMOLISHED

(N) MOISTURE RESISTANT GYP BOARD

FLOOR DRAIN; RE: PLUMBING DRAWINGS

CEILING DEVICE: RE: ELECTRICAL AND FA DRAWINGS

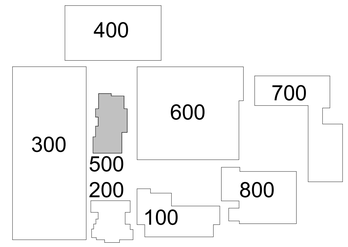
(E) ACCESS PANEL

(E) CLEANOUTS

GENERAL NOTES

1. ALL WALLS TO MATCH EXISTING, UNO. RE: A9.01
2. MATERIALS THAT HAVE BEEN DAMAGED AS THE RESULT OF THE DEMOLITION SHALL BE RESTORED TO LIKE-NEW CONDITION OR REPLACED WITH NEW MATERIALS TO MATCH EXISTING
3. AFTER DEMOLITION HAS OCCURED, EXISTING SURFACES SHALL BE PREPARED FOR NEW CONSTRUCTION. CLEAN ALL SURFACE AND AREAS OF DIRT, DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS, RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.
4. REFER TO SHEET G0.31 FOR ALL PLUMBING FIXTURES AND ACCESSORIES MOUNTING HEIGHT.
5. FOR ACCESSIBILITY SIGNAGE AND DETAILS REFER TO SHEET A10.41.
6. IF DAMAGED DURING CONSTRUCTION, ALL NEW GYP. BD CEILINGS AND SOFFITS FINISH TO MATCH EXISTING.
7. FOR TYPICAL DETAILS AT TILE WALL AND FLOOR, RE: A9.41.
8. FOR TOILET PARTITION DETAILS, RE: A9.41
9. LAVATORY EXPOSED PIPES TO BE PROVIDED WITH INSULATION SLEEVES FOR ACCESSIBILITY PROTECTION.
10. FOR ADDITIONAL INFORMATION ON ACCESSIBLE & AMBULATORY STALLS, RE: G0.31.
11. DEMO WALL AND FLOOR TILE TO NEAREST GROUT LINE, U.N.O.
12. REFER TO INTERIOR ELEVATIONS AND FINISH SCHEDULE FOR MORE CLARIFICATIONS ON INTERIOR FINISHES.
13. ALL FINISHES TO COMPLY WITH CBC, CFC, AND TITLE 19.
14. PROVIDE WALL BACKING AT WALL MOUNTED EQUIPMENT AS NEEDED. RE: A9.51.
15. CONTRACTOR TO V.I.F PLUMBING LINE LOCATIONS PRIOR TO ANY DEMOLITION WORK.
16. V.I.F. FOR ALL DIMENSIONS MEASURED FROM (E) WALLS REMAINING.
17. IN RESTROOM AREAS WHERE TILE WILL BE AFFECTED PER REMOVAL OF ACCESSORIES PATCH AND SEAL ANY SCREW HOLES AS REQUIRED.
18. WHERE NEW WORK OCCURS PAINT WALLS TO MATCH EXISTING COLOR.
19. NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

KEYPLAN



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SCIENCE CLASSROOMS MODERNIZATION

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Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/07/2025
50% CD	10/31/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

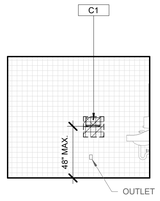
Job Number	32433
Checked By	Checker
Scale	As indicated

BLDG. 500 RESTROOMS ENLARGED PLANS AND ELEVATIONS

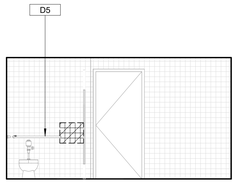
A4.11

RESTROOM ACCESSORIES SCHEDULE

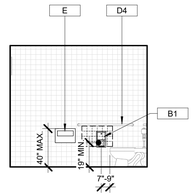
TAG #	DESCRIPTION	MANUFACTURER	MODEL #	Remarks
A	LIQUID SOAP DISPENSER	BOBRICK	B-2111	SURFACE MTD, RE: 01/G0.31
B1	TOILET PAPER DISPENSER RECESSED (ACCESSIBLE)	BOBRICK	B-3888	SURFACE MTD, RE: 01/G0.31
C1	PAPER TOWEL DISPENSER (SURFACE MOUNTED)	BOBRICK	B-2621	SURFACE MTD, RE: 01/G0.31
D4	(E) GRAB BAR 42"	--		COMPLIANT
D5	(E) GRAB BAR 36"	--		COMPLIANT
D6	GRAB BAR 42"	BOBRICK	B-6806	WALL MOUNT, RE: 01/G0.31
E	TOILET SEAT COVER DISPENSER	BOBRICK	B-221	SURFACE MTD, RE: 01/G0.31
F	HAND DRYER - EXCELERATOR			
G	(E) SANITARY NAPKIN VENDOR	--	B-47069C	COMPLIANT
J1	(E) SANITARY NAPKIN DISPOSAL	--	B-270	COMPLIANT
J2	SANITARY NAPKIN DISPOSAL	BOBRICK	B-270	SURFACE MTD, RE: 04/A-1113
T1	TOILET COMPARTMENT PARTITION	BOBRICK		TOILET PARTITION MOUNT, RE: 04/A9.41



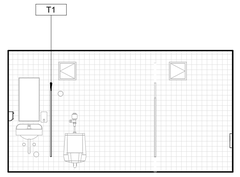
509 MEN'S STAFF TOILET - WEST | 1/4" = 1'-0" A4.12 | 19



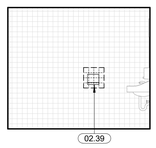
509 MEN'S STAFF TOILET - SOUTH | 1/4" = 1'-0" A4.12 | 15



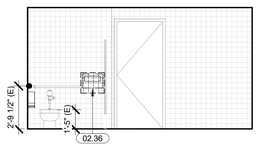
509 MEN'S STAFF TOILET - EAST | 1/4" = 1'-0" A4.12 | 11



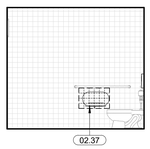
509 MEN'S STAFF TOILET - NORTH | 1/4" = 1'-0" A4.12 | 07



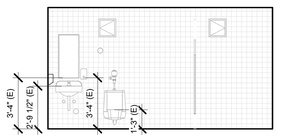
509 MEN'S STAFF TOILET - DEMO - WEST | 1/4" = 1'-0" A4.12 | 18



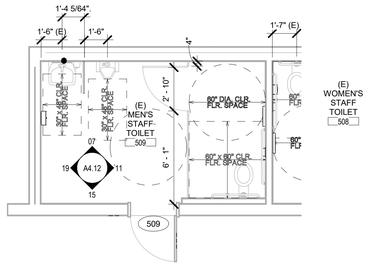
509 MEN'S STAFF TOILET - DEMO - SOUTH | 1/4" = 1'-0" A4.12 | 14



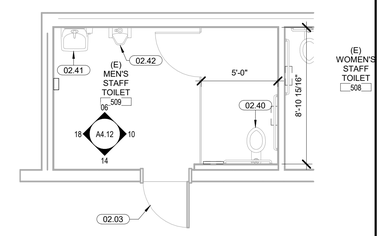
509 MEN'S STAFF TOILET - DEMO - EAST | 1/4" = 1'-0" A4.12 | 10



509 MEN'S STAFF TOILET - DEMO - NORTH | 1/4" = 1'-0" A4.12 | 06



01 - ENLARGED FLOOR PLAN - BLDG 500 - MEN RESTROOMS | 1/4" = 1'-0" 05/ A3.01 | 09



01 - ENLARGED DEMO PLAN - BLDG 500 - MEN RESTROOMS | 1/4" = 1'-0" 05/ A3.01 | 05

KEYNOTES

02.03	(E) DOOR, FRAME, AND HARDWARE TO REMAIN, PROTECT IN PLACE.
02.36	(E) TOILET SEAT COVER DISPENSER TO BE DEMOLISHED.
02.37	(E) TOILET PAPER DISPENSER TO BE DEMOLISHED.
02.39	(E) PAPER TOWEL DISPENSER TO BE DEMOLISHED.
02.40	(E) TOILET FIXTURE TO REMAIN.
02.41	(E) LAVATORY TO REMAIN.
02.42	(E) URINAL TO REMAIN.

LEGEND

WALL TYPE. LETTER INDICATES WALL TYPE. SEE A9.01

STUD SIZE. NUMBER INDICATES STUD SIZE. SEE A9.01 FOR INTERIOR STUD WALL SCHEDULE

WALL TO BE DEMOLISHED

EXISTING NON-RATED WALL TO REMAIN

DOOR TO BE DEMOLISHED

STUD WALL CONSTRUCTION

(E) TILE TO REMAIN

(E) TILE TO BE DEMOLISHED FOR REFERENCE, TILE REMOVAL NOT TO EXCEED (1) ROW/COLUMN OF TILES BEYOND DAMAGED TILES

(N) TILE WHERE DEMO OCCURED, FOR TILE PATTERN, SEE DETAIL 09/ A9.41

(E) ACT CLG TO BE DEMOLISHED

(N) MOISTURE RESISTANT GYP BOARD

FLOOR DRAIN; RE: PLUMBING DRAWINGS

CEILING DEVICE: RE: ELECTRICAL AND FA DRAWINGS

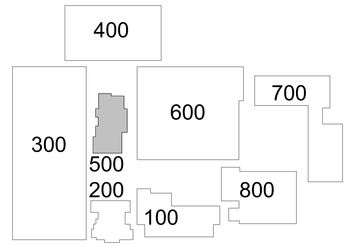
(E) ACCESS PANEL

(E) CLEANOUTS

GENERAL NOTES

1. ALL WALLS TO MATCH EXISTING, UNO. RE: A9.01
2. MATERIALS THAT HAVE BEEN DAMAGED AS THE RESULT OF THE DEMOLITION SHALL BE RESTORED TO LIKE-NEW CONDITION OR REPLACED WITH NEW MATERIALS TO MATCH EXISTING
3. AFTER DEMOLITION HAS OCCURED, EXISTING SURFACES SHALL BE PREPARED FOR NEW CONSTRUCTION. CLEAN ALL SURFACE AND AREAS OF DIRT, DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS, RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.
4. REFER TO SHEET G0.31 FOR ALL PLUMBING FIXTURES AND ACCESSORIES MOUNTING HEIGHT.
5. FOR ACCESSIBILITY SIGNAGE AND DETAILS REFER TO SHEET A10.41.
6. IF DAMAGED DURING CONSTRUCTION, ALL NEW GYP. BD CEILINGS AND SOFFITS FINISH TO MATCH EXISTING.
7. FOR TYPICAL DETAILS AT TILE WALL AND FLOOR, RE: A9.41.
8. FOR TOILET PARTITION DETAILS, RE: A9.41
9. LAVATORY EXPOSED PIPES TO BE PROVIDED WITH INSULATION SLEEVES FOR ACCESSIBILITY PROTECTION.
10. FOR ADDITIONAL INFORMATION ON ACCESSIBLE & AMBULATORY STALLS, RE: G0.31.
11. DEMO WALL AND FLOOR TILE TO NEAREST GROUT LINE, U.N.O.
12. REFER TO INTERIOR ELEVATIONS AND FINISH SCHEDULE FOR MORE CLARIFICATIONS ON INTERIOR FINISHES.
13. ALL FINISHES TO COMPLY WITH CBC, CFC, AND TITLE 19.
14. PROVIDE WALL BACKING AT WALL MOUNTED EQUIPMENT AS NEEDED. RE: A9.51.
15. CONTRACTOR TO V.I.F PLUMBING LINE LOCATIONS PRIOR TO ANY DEMOLITION WORK.
16. V.I.F. FOR ALL DIMENSIONS MEASURED FROM (E) WALLS REMAINING.
17. IN RESTROOM AREAS WHERE TILE WILL BE AFFECTED PER REMOVAL OF ACCESSORIES PATCH AND SEAL ANY SCREW HOLES AS REQUIRED.
18. WHERE NEW WORK OCCURS PAINT WALLS TO MATCH EXISTING COLOR.
19. NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

KEYPLAN



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ARCHITECTURE ENGINEERING INTERIORS
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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	09/05/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

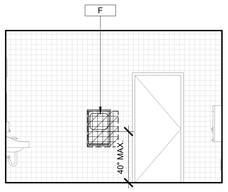
Job Number	32433
Checked By	Checker
Scale	As indicated

BLDG. 500 RESTROOMS ENLARGED PLANS AND ELEVATIONS

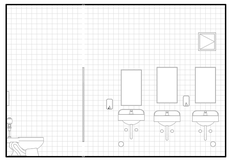
A4.12

RESTROOM ACCESSORIES SCHEDULE

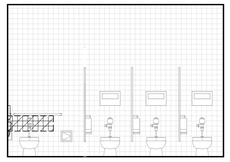
TAG #	DESCRIPTION	MANUFACTURER	MODEL #	Remarks
A	LIQUID SOAP DISPENSER	BOBRICK	B-2111	SURFACE MTD, RE: 01/G0.31
B1	TOILET PAPER DISPENSER RECESSED (ACCESSIBLE)	BOBRICK	B-3888	SURFACE MTD, RE: 01/G0.31
C1	PAPER TOWEL DISPENSER (SURFACE MOUNTED)	BOBRICK	B-2621	SURFACE MTD, RE: 01/G0.31
D4	(E) GRAB BAR 42"	--		COMPLIANT
D5	(E) GRAB BAR 36"	--		COMPLIANT
D6	GRAB BAR 42"	BOBRICK	B-6806	WALL MOUNT, RE: 01/G0.31
E	TOILET SEAT COVER DISPENSER	BOBRICK	B-221	SURFACE MTD, RE: 01/G0.31
F	HAND DRYER - EXCELERATOR			
G	(E) SANITARY NAPKIN VENDOR	--	B-47069C	COMPLIANT
J1	(E) SANITARY NAPKIN DISPOSAL	--	B-270	COMPLIANT
J2	SANITARY NAPKIN DISPOSAL	BOBRICK	B-270	SURFACE MTD, RE: 04/A-1113
T1	TOILET COMPARTMENT PARTITION	BOBRICK		TOILET PARTITION MOUNT, RE: 04/A9.41



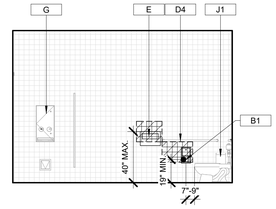
638 GIRLS RESTROOM - WEST | 1/4" = 1'-0" | 19



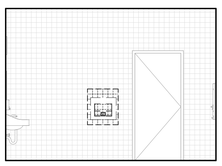
638 GIRLS RESTROOM - SOUTH | 1/4" = 1'-0" | 15



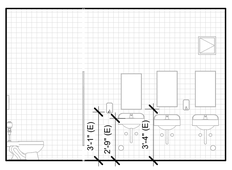
638 GIRLS RESTROOM - EAST | 1/4" = 1'-0" | 11



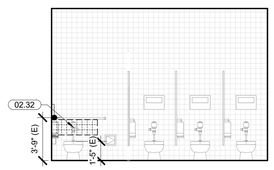
638 GIRLS RESTROOM - NORTH | 1/4" = 1'-0" | 07



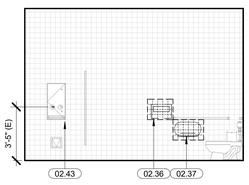
638 GIRLS RESTROOM - DEMO - WEST | 1/4" = 1'-0" A4.13 | 18



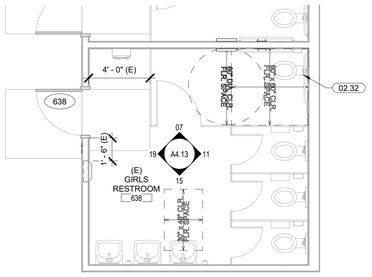
638 GIRLS RESTROOM - DEMO - SOUTH | 1/4" = 1'-0" A4.13 | 14



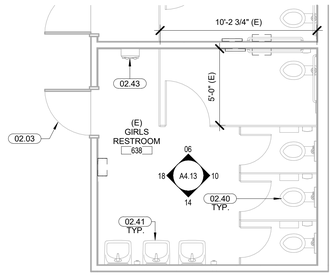
638 GIRLS RESTROOM - DEMO - EAST | 1/4" = 1'-0" A4.13 | 10



638 GIRLS RESTROOM - DEMO - NORTH | 1/4" = 1'-0" | 06



01 - ENLARGED FLOOR PLAN - BLDG 600 - GIRLS RESTROOMS | 1/4" = 1'-0" 05/ A3.01 | 09

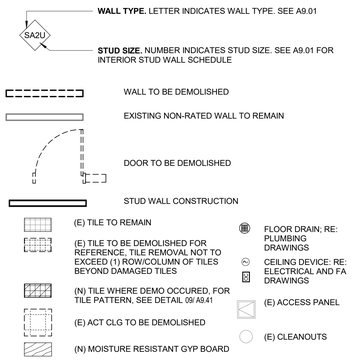


01 - ENLARGED DEMO PLAN - BLDG 600 - GIRLS RESTROOMS | 1/4" = 1'-0" 05/ A3.01 | 05

KEYNOTES

02.03	(E) DOOR, FRAME, AND HARDWARE TO REMAIN, PROTECT IN PLACE.
02.32	(E) FLUSH VALVE TO BE REMOVED AND MOVED TO OPEN SIDE OF WATER CLOSET. RE: PLUMBING DRAWINGS
02.36	(E) TOILET SEAT COVER DISPENSER TO BE DEMOLISHED.
02.37	(E) TOILET PAPER DISPENSER TO BE DEMOLISHED.
02.40	(E) TOILET FIXTURE TO REMAIN.
02.41	(E) LAVATORY TO REMAIN.
02.43	(E) SANITARY NAPKIN DISPENSER TO REMAIN.

LEGEND



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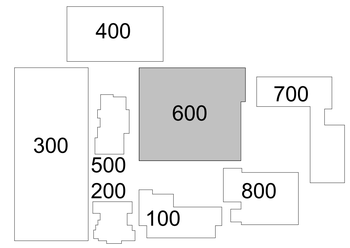
KEYPLAN



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SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/07/25
50% CD	10/31/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

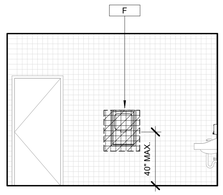
Job Number	32433
Checked By	Checker
Scale	As indicated

BLDG. 600 RESTROOMS ENLARGED PLANS AND ELEVATIONS

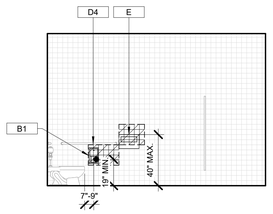
A4.13

RESTROOM ACCESSORIES SCHEDULE

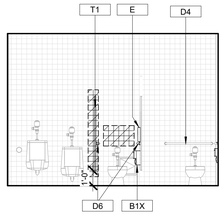
TAG #	DESCRIPTION	MANUFACTURER	MODEL #	Remarks
A	LIQUID SOAP DISPENSER	BOBRICK	B-2111	SURFACE MTD, RE: 01/G0.31
B1	TOILET PAPER DISPENSER RECESSED (ACCESSIBLE)	BOBRICK	B-3888	SURFACE MTD, RE: 01/G0.31
C1	PAPER TOWEL DISPENSER (SURFACE MOUNTED)	BOBRICK	B-2621	SURFACE MTD, RE: 01/G0.31
D4	(E) GRAB BAR 42"	--		COMPLIANT
D5	(E) GRAB BAR 36"	--		COMPLIANT
D6	GRAB BAR 42"	BOBRICK	B-6806	WALL MOUNT, RE: 01/G0.31
E	TOILET SEAT COVER DISPENSER	BOBRICK	B-221	SURFACE MTD, RE: 01/G0.31
F	HAND DRYER - EXCELERATOR			
G	(E) SANITARY NAPKIN VENDOR	--	B-47069C	COMPLIANT
J1	(E) SANITARY NAPKIN DISPOSAL	--	B-270	COMPLIANT
J2	SANITARY NAPKIN DISPOSAL	BOBRICK	B-270	SURFACE MTD, RE: 04/A-1113
T1	TOILET COMPARTMENT PARTITION	BOBRICK		TOILET PARTITION MOUNT, RE: 04/A9.41



639 BOYS RESTROOM - WEST 1/4" = 1'-0" 19



639 BOYS RESTROOM - SOUTH 1/4" = 1'-0" 15



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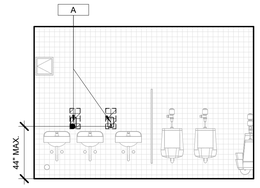
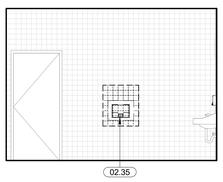
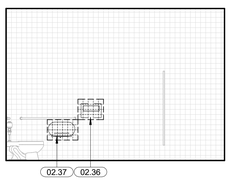


639 BOYS RESTROOM - NORTH 1/4" = 1'-0" 07



639 BOYS RESTROOM - DEMO - WEST 1/4" = 1'-0" 18



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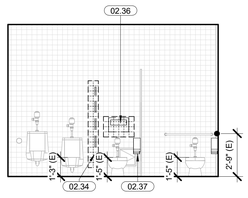
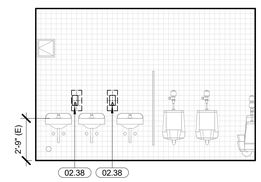


639 BOYS RESTROOM - DEMO - EAST 1/4" = 1'-0" 10



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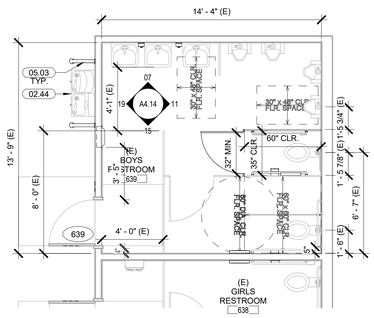
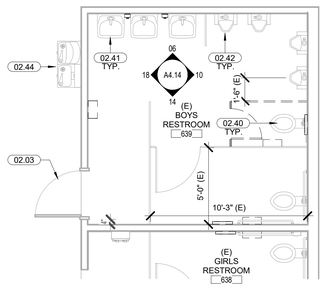


01 - ENLARGED FLOOR PLAN - BLDG 600 - BOYS RESTROOM 1/4" = 1'-0" 05/ A3.01 09



01 - ENLARGED DEMO PLAN - BLDG 600 - BOYS RESTROOM 1/4" = 1'-0" 05/ A3.01 05

KEYNOTES

02.03	(E) DOOR, FRAME, AND HARDWARE TO REMAIN, PROTECT IN PLACE.
02.34	(E) TOILET PARTITION TO BE DEMOLISHED.
02.35	(E) HAND DRYER TO BE DEMOLISHED. PATCH AND REPAIR AS REQUIRED. FINISHES TO MATCH EXISTING.
02.36	(E) TOILET SEAT COVER DISPENSER TO BE DEMOLISHED.
02.37	(E) TOILET PAPER DISPENSER TO BE DEMOLISHED.
02.38	(E) SOAP DISPENSER TO BE DEMOLISHED.
02.40	(E) TOILET FIXTURE TO REMAIN.
02.41	(E) LAVATORY TO REMAIN.
02.42	(E) URINAL TO REMAIN.
02.44	(E) ACCESSIBLE DRINKING FOUNTAIN TO REMAIN.
05.03	DRINKING FOUNTAIN GUARDRAIL, RE: 21/G0.32.

LEGEND

WALL TYPE. LETTER INDICATES WALL TYPE. SEE A9.01

SA2U

STUD SIZE. NUMBER INDICATES STUD SIZE. SEE A9.01 FOR INTERIOR STUD WALL SCHEDULE

WALL TO BE DEMOLISHED

EXISTING NON-RATED WALL TO REMAIN

DOOR TO BE DEMOLISHED

STUD WALL CONSTRUCTION

(E) TILE TO REMAIN

(E) TILE TO BE DEMOLISHED FOR REFERENCE, TILE REMOVAL NOT TO EXCEED (1) ROW/COLUMN OF TILES BEYOND DAMAGED TILES

(N) TILE WHERE DEMO OCCURED, FOR TILE PATTERN, SEE DETAIL 09/ A9.41

(E) ACT CLG TO BE DEMOLISHED

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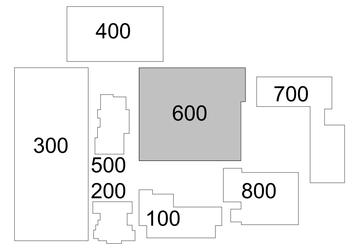
10. FOR ADDITIONAL INFORMATION ON ACCESSIBLE & AMBULATORY STALLS, RE: G0.31.
11. DEMO WALL AND FLOOR TILE TO NEAREST GROUT LINE, U.N.O.
12. REFER TO INTERIOR ELEVATIONS AND FINISH SCHEDULE FOR MORE CLARIFICATIONS ON INTERIOR FINISHES.
13. ALL FINISHES TO COMPLY WITH CBC, CFC, AND TITLE 19.
14. PROVIDE WALL BACKING AT WALL MOUNTED EQUIPMENT AS NEEDED. RE: A9.51.
15. CONTRACTOR TO V.I.F PLUMBING LINE LOCATIONS PRIOR TO ANY DEMOLITION WORK.
16. V.I.F. FOR ALL DIMENSIONS MEASURED FROM (E) WALLS REMAINING.
17. IN RESTROOM AREAS WHERE TILE WILL BE AFFECTED PER REMOVAL OF ACCESSORIES PATCH AND SEAL ANY SCREW HOLES AS REQUIRED.
18. WHERE NEW WORK OCCURS PAINT WALLS TO MATCH EXISTING COLOR.
19. NO DEMOLITION SHALL BEGIN UNTIL PLANS INCLUDING THE DEMOLITION WORK HAVE BEEN APPROVED BY DSA.

KEYPLAN



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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

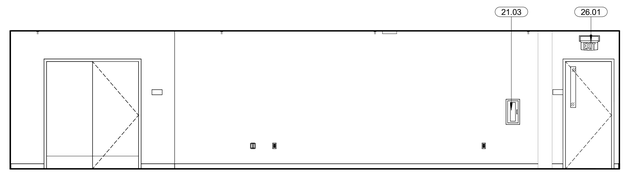
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	09/01/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	As indicated

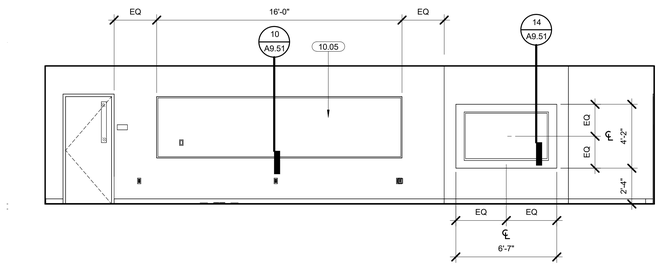
BLDG. 600 RESTROOMS ENLARGED PLANS AND ELEVATIONS

A4.14

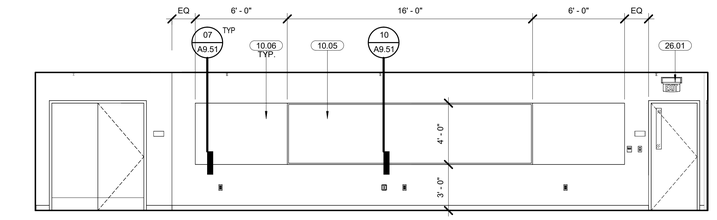


428 BIOLOGY CLASSROOM - ELECTRICAL PANEL WALL | 1/4" = 1'-0" A5.01 | 15

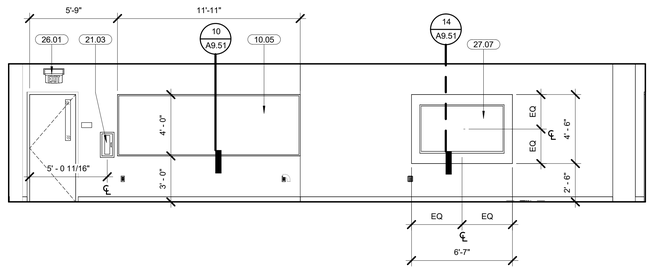
428 BIOLOGY CLASSROOM - SECONARY TEACHING WALL | 1/4" = 1'-0" A5.01 | 14



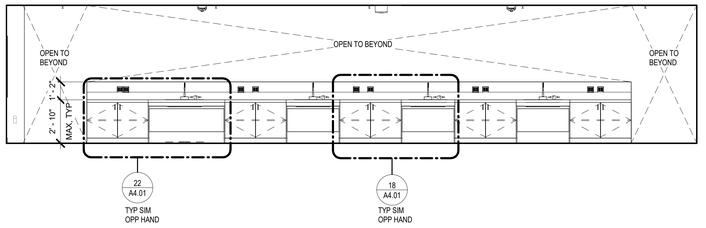
428 BIOLOGY CLASSROOM - MAIN TEACHING WALL | 1/4" = 1'-0" A5.01 | 13



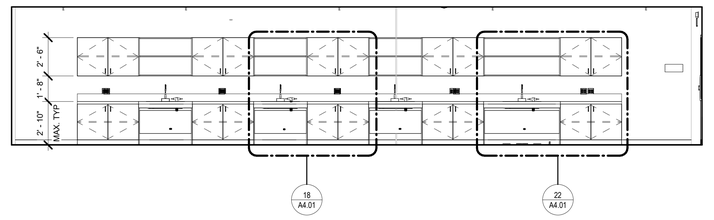
426 BIOLOGY CLASSROOM - SECONDARY TEACHING WALL | 1/4" = 1'-0" A5.01 | 08



426 BIOLOGY CLASSROOM - MAIN TEACHING WALL | 1/4" = 1'-0" A5.01 | 07



TYPICAL CLASSROOM CASEWORK ELEVATION @ PARTIAL HEIGHT WALL | 1/4" = 1'-0" A5.01 | 06



TYPICAL CASEWORK ELEVATION @ FULL HEIGHT WALL | 1/4" = 1'-0" A5.01 | 05

KEYNOTES

10.05	WALL MOUNTED CERAMIC MARKER BOARD. RE: 10/A9.51
10.06	WALL MOUNTED FABRIC WRAPPED TACK PANEL. RE:7/A9.51
21.03	SEMI RECESSED FIRE EXTINGUISHER CABINET. RE:16/A9.51
26.01	ILLUMINATED EXIT SIGN, SEE ELECTRICAL DRAWINGS.
27.07	VIEWSONIC TV WITH WALL MOUNT, RE: 14/A9.51

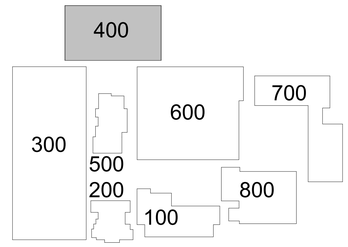
LEGEND

- # — AWI CASEWORK NUMBER
- 30" / 36" / 42" — CABINET DEPTH / CABINET HEIGHT / CABINET WIDTH
- ? — FINISH TAG
- FINISH CODE, SEE SCHEDULE ON SHEET A2.21 FOR FINISHES
- ? — KEYNOTE
- ALIGN

GENERAL NOTES

1. ALL INTERIOR FINISHES TO BE P-1 & B-1, UNO
2. ALL GYPSUM BOARD CLG & SOFFITS TO BE PAINTED P-1, UNO
3. PROVIDE FILLER PANELS BETWEEN WALL & CABINET, TYP FILLER PANELS TO BE MINIMAL & SHALL NOT EXCEED 1" IN WIDTH
4. ALL CASEWORK MUST MEET WIC CASEWORK STANDARDS CERTIFICATIONS.
5. FOR FINISH LEGEND, RE: FINISH SCHEDULE ON FINISH PLAN A2.21
6. SWITCHES, OUTLETS, & WALL MTD ELECTRICAL/DATA DEVICES ARE SHOWN FOR REFERENCE ONLY. FOR SYMBOL LEGEND & HEIGHTS, REFER TO ELECTRICAL DWG

KEYPLAN



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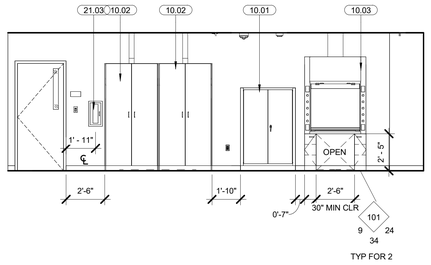
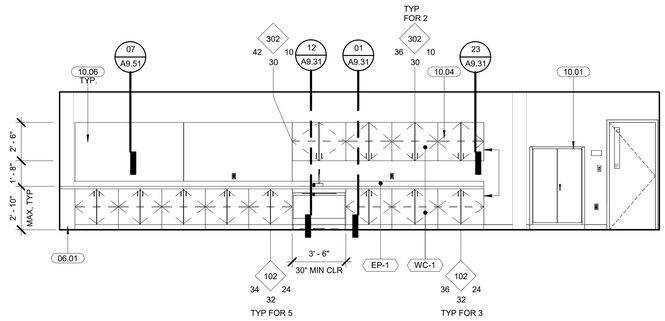
Scale	As indicated

INTERIOR ELEVATIONS

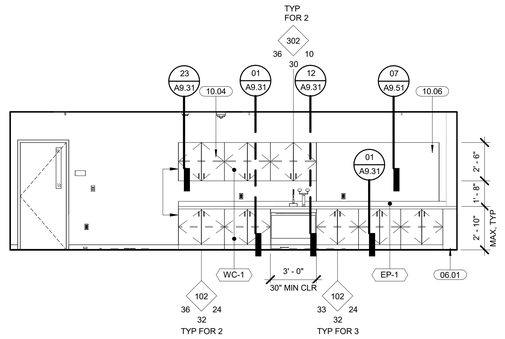
A5.01



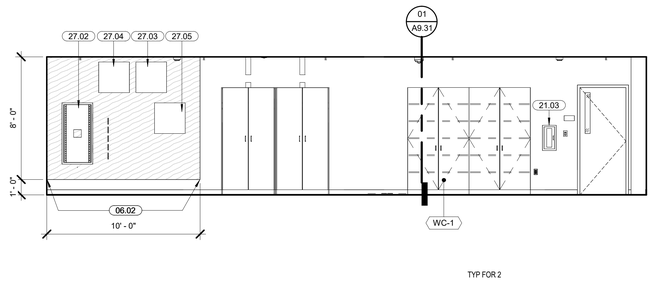
422 CHEMICAL STORAGE INTERIOR ELEVATION @ EQUIPMENT WALL | 1/4" = 1'-0" | A5.02 | 16



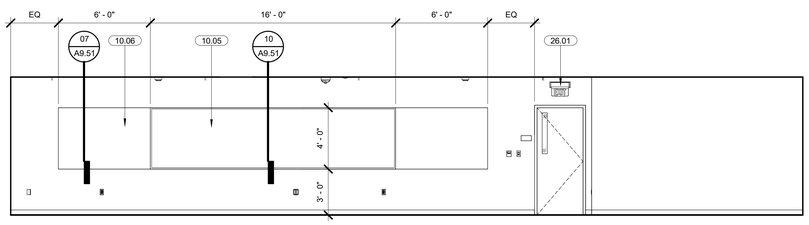
425 BIOLOGY STORAGE INTERIOR ELEVATION @ SINK WALL | 1/4" = 1'-0" | A5.02 | 08



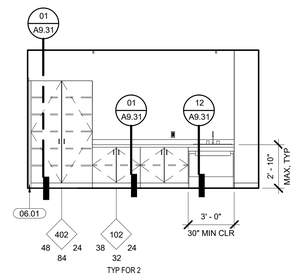
422 CHEMICAL STORAGE INTERIOR ELEVATION @ SINK WALL | 1/4" = 1'-0" | A5.02 | 15



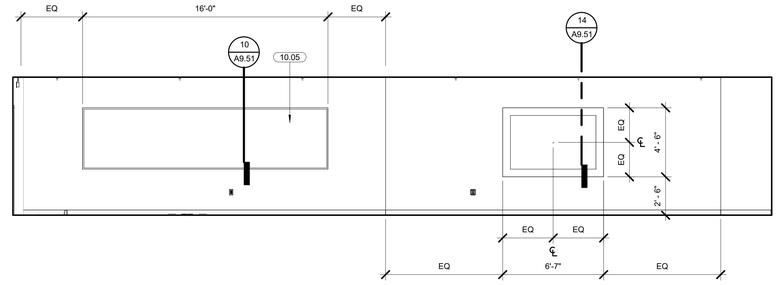
425 BIOLOGY STORAGE INTERIOR ELEVATION @ STORAGE WALL | 1/4" = 1'-0" | A5.02 | 07



421 CHEMISTRY CLASSROOM - SECONDARY TEACHING WALL | 1/4" = 1'-0" | A5.02 | 06



420 CONFERENCE ROOM - NORTH ELEVATION | 1/4" = 1'-0" | A5.02 | 17

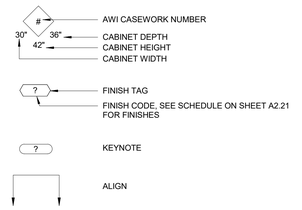


421 CHEMISTRY CLASSROOM - MAIN TEACHING WALL | 1/4" = 1'-0" | A5.02 | 05

KEYNOTES

06.01	FILLER PANEL TO MATCH ADJACENT CASEWORK
06.02	PAINTED PLYWOOD BACKBOARD. TO MATCH WALL GYP. WALL FINISH.
10.01	SCIENCE METAL CASEWORK FOR STORAGE.
10.02	SCIENCE METAL CASEWORK FOR CHEMICAL STORAGE. SEE MECHANICAL DWGS FOR VENTILATION.
10.03	ACCESSIBLE FUME HOOD. SEE 18/A9.51. SEE MECHANICAL DWGS FOR VENTILATION.
10.04	GOGGLE STORAGE CABINET
10.05	WALL MOUNTED CERAMIC MARKER BOARD. RE: 10/A9.51
10.06	WALL MOUNTED FABRIC WRAPPED TACK PANEL. RE:7/A9.51
21.03	SEMI RECESSED FIRE EXTINGUISHER CABINET. RE:16/A9.51
26.01	ILLUMINATED EXIT SIGN, SEE ELECTRICAL DRAWINGS.
27.02	DATA CABINET, SEE TECHNOLOGY DRAWINGS
27.03	IDF CABINET, SEE TECHNOLOGY DRAWINGS
27.04	SECURITY CABINET, SEE TECHNOLOGY DRAWINGS
27.05	ELECTRICAL CABINET, SEE ELECTRICAL DRAWINGS

LEGEND



GENERAL NOTES

1. ALL INTERIOR FINISHES TO BE P-1 & B-1, UNO
2. ALL GYPSUM BOARD CLG & SOFFITS TO BE PAINTED P-1, UNO
3. PROVIDE FILLER PANELS BETWEEN WALL & CABINET, TYP FILLER PANELS TO BE MINIMAL & SHALL NOT EXCEED 1" IN WIDTH
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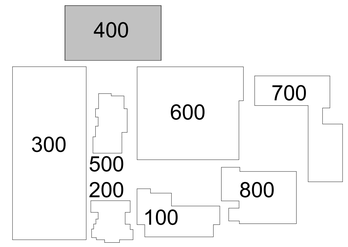
KEYPLAN



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Job Number	32433
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INTERIOR ELEVATIONS

A5.02

DOOR SCHEDULE

DOOR NUMBER	LOCATION		PHASE CREATED	DOOR TYPE	DOOR SIZE		DOOR PANEL				DOOR FRAME		CLOSER	FIRE RATING	HARDWARE GROUP	DETAILS				REMARKS
	FROM	TO			WIDTH	HEIGHT	THICKNESS	CORE	MATERIAL	FINISH	MATERIAL	FINISH				HEAD	JAMB	JAMB	THRESHOLD	
01 - FLOOR																				
433A	430	433	Existing	BB	8'-0"	8'-0"	0'-1 3/4"	(E)	HM	PAINT	(E)	PAINT		(E)	008	(E)	(E)	(E)	(E)	
508	508		Existing	A	3'-0"	7'-0"	0'-1 1/2"	(E)	HM	PAINT	(E)	PAINT		(E)	-	(E)	(E)	(E)	(E)	BLDG 500
509	509		Existing	A	3'-0"	7'-0"	0'-1 1/2"	(E)	HM	PAINT	(E)	PAINT		(E)	-	(E)	(E)	(E)	(E)	BLDG 500
638		638	Existing	A	3'-0"	7'-0"	0'-1 1/2"	(E)	HM	PAINT	(E)	PAINT		(E)	-	(E)	(E)	(E)	(E)	BLDG 600
639	639		Existing	A	3'-0"	7'-0"	0'-1 1/2"	(E)	HM	PAINT	(E)	PAINT		(E)	-	(E)	(E)	(E)	(E)	BLDG 600
420	420	433	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		-	003	04/A6.12	04/A6.12	04/A6.12	03/A6.12	
421-A	433	421	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		45 MIN	004	04/A6.12	04/A6.12	04/A6.12	03/A6.12	PH
421-B	421		New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		45 MIN	001	08/A6.12	07/A6.12	07/A6.12	02/A6.12	PH
422-A	423	422	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		-	002	04/A6.12	04/A6.12	04/A6.12	03/A6.12	
422-B	421	422	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		-	002	04/A6.12	04/A6.12	04/A6.12	03/A6.12	
423-A		423	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		45 MIN	001	08/A6.12	07/A6.12	07/A6.12	02/A6.12	PH
423-B	433	423	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		45 MIN	004	04/A6.12	04/A6.12	04/A6.12	03/A6.12	PH
424	424	433	New Construction	A	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		-	005	04/A6.12	04/A6.12	04/A6.12	03/A6.12	U (1")
425-B	426	425	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		-	002	04/A6.12	04/A6.12	04/A6.12	03/A6.12	
425A	428	425	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		-	002	04/A6.12	04/A6.12	04/A6.12	03/A6.12	
426-A		426	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		45 MIN	001	08/A6.12	07/A6.12	07/A6.12	02/A6.12	PH
426-B	433	426	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		45 MIN	004	04/A6.12	04/A6.12	04/A6.12	03/A6.12	PH
426-C	426		New Construction	DD	6'-0"	7'-0"	0'-1 3/4"	HCI	HM	PAINT	HM	PAINT		45 MIN	007	04/A6.12	04/A6.12	04/A6.12	03/A6.12	U (3/8")
428-A	430	428	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		45 MIN	001	04/A6.12	07/A6.12	07/A6.12	03/A6.12	PH
428B	433	428	New Construction	B	3'-0"	7'-0"	0'-1 1/2"	HCI	HM	PAINT	HM	PAINT		45 MIN	004	04/A6.12	04/A6.12	04/A6.12	03/A6.12	PH
428C	428	428A	New Construction	DD	6'-0"	7'-0"	0'-1 3/4"	HCI	HM	PAINT	HM	PAINT		45 MIN	007	04/A6.12	04/A6.12	04/A6.12	03/A6.12	U (3/8")
431	431	433	New Construction	A	3'-0"	7'-0"	0'-1 1/2"		HM	PAINT	HM	PAINT		-	006	04/A6.12	04/A6.12	04/A6.12	03/A6.12	
433	433		New Construction	BB	6'-0"	7'-0"	0'-1 3/4"	HCI	AL		AL			45 MIN	009	07/A8.51	06/A8.51	06/A8.51	05A8.51	PH; FG
433B		433	New Construction	DD	6'-0"	7'-0"	0'-1 3/4"	HCI	HM	PAINT	HM	PAINT		45 MIN	007	04/A6.12	04/A6.12	04/A6.12	03/A6.12	U (3/8")

DOOR GENERAL NOTES

A. ALL REQUIRED EXIT DOORS SHALL BE OPERABLE FROM INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.

B. ALL REQUIRED EXIT DOORS SHALL BE SIZED NOT LESS THAN 3'-0" WIDE AND NOT LESS THAN 6'-8" HIGH, CAPABLE OF OPENING 90 DEGREES AND MOUNTED SO THAT THE CLEAR WIDTH OF THE EXIT WAY IS A MINIMUM 32 INCHES, U.N.O.

C. CLOSER EFFORT TO BE SLBS MAXIMUM AT EXTERIOR DOORS, GATES, AND INTERIOR DOORS PER 11B-404.2.9 AND SHALL HAVE HINGES ADJUSTED SO THAT FROM THE OPEN POSITION OF 70°, THE DOOR OR GATE SHALL MOVE TO THE CLOSED POSITION IN 1.5 SECONDS MINIMUM PER 11B-404.2.8.2. WHERE FIRE DOORS ARE REQUIRED, THE AUTHORITY HAVING JURISDICTION, MAY INCREASE THE MAXIMUM EFFORT TO OPERATE FIRE DOORS TO ACHIEVE POSITIVE LATCHING, BUT NOT TO EXCEED 15LB MAX.

D. LATCHING AND LOCKING DOORS THAT ARE HAND-ACTIVATED AND WHICH ARE IN PATH OF TRAVEL SHALL BE OPERABLE WITH A SINGLE EFFORT BY LEVER-TYPE HARDWARE, PANIC BARS, PUSH-PULL ACTIVATED BARS, OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING THE ABILITY TO GRASP THE OPENING HARDWARE.

E. PANIC HARDWARE DEVICES SHALL BE PROVIDED ON EXIT DOORS SERVING AN OCCUPANT LOAD OF 50 OR MORE.

F. INTERIOR AND EXTERIOR THRESHOLDS SHALL BE 1/2" MAXIMUM ABOVE THE FLOOR LEVEL. EXPOSED EDGE SHALL BE SLOPED OR BEVELED TO MAXIMUM 1:2 SLOPE WITH MAXIMUM 1/4" CHANGE IN VERTICAL ELEVATION. RE: 02 & 03/A6.12

G. THE BOTTOM 10" OF ALL DOORS, EXCEPT AUTOMATIC AND SLIDING, SHALL HAVE A SMOOTH UNINTERRUPTED SURFACE TO ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST.

H. ALL REQUIRED EXIT DOORS SHALL SWING IN THE DIRECTION OF TRAVEL.

I. ALL FIRE DOORS SHALL HAVE UNDERCUT NOT EXCEEDING MAXIMUM ALLOWANCE PER NFPA 80, SECTION 4.8.4.1 (3/4" MAX.).

J. DOORS IN CORRIDORS SHALL COMPLY WITH C.B.C. SECTION 716.2.2.1.

K. NOTE: IF USING WIRED GLASS LIMITATIONS PER TABLE 716.5. EACH LIMITATION IS TO MAXIMUM AREA TESTED FOR ALL GLASS IN RATED DOORS OR ASSEMBLIES

L. PROVIDE NON-REMOVABLE PINS ON ALL HINGES ACCESSIBLE FROM THE EXTERIOR.

M. PROVIDE CYLINDER GUARD ON ALL MORTISED OR RIM TYPE CYLINDER LOCKS WHICH PROJECT BEYOND THE FACE OF DOOR.

N. HAND ACTIVATED HARDWARE BETWEEN 34" TO 44" AFF (DSA PREFERENCE 36" AFF); LEVER-TYPE HARDWARE, PANIC BARS, PUSH-PULL ACTIVATING; LEVER HANDLE FOR THUMB TURN DEAD BOLT PER 1132A.8 AND 1132A.8.1 (COORDINATE MOUNTING HEIGHT. NOT TO OBSTRUCT DOOR VISION LIGHT WHERE OCCURS.)

O. DOOR SIGNAGE FOR ACCESSIBLE RESTROOMS: PROVIDE REQUIRED SIGNS AND SYMBOLS AT APPROPRIATE TOILET DOORS INDICATING ACCESSIBLE TOILET FACILITY, RE: A10.41 FOR ADDITIONAL INFORMATION.

P. VARIOUS FRAME SIZES WILL REQUIRE FIELD MEASUREMENTS AS INDICATED ON DRAWINGS.

Q. SAFETY GLAZING SHALL COMPLY WITH CBC SECTION 2406.

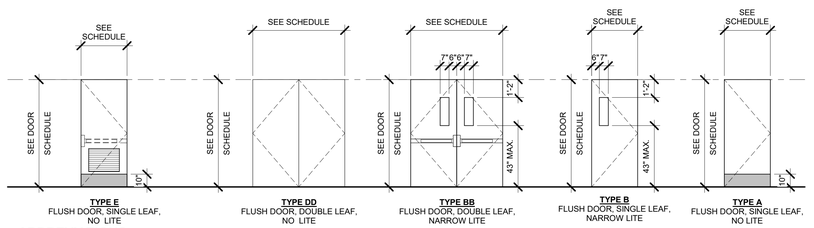
R. FIRE DOORS AND WINDOW ASSEMBLIES SHALL BE LABELED PER CBC SECTION 716.2.9, 716.2.9.1. DEMONSTRATE FIRE MARKING AT GLAZING MEETS D-H-45. CBC TABLE 716.1(2)

S. GLAZING IN ANY COMPONENT OF A 20 MIN. DOOR ASSEMBLY MUST BE TESTED IN ACCORDANCE WITH NFPA 257 (EXCEPT GLAZING IN DOOR ITSELF) AND SHALL COMPLY WITH CBC SECTION 716.2.9

T. FOR DOOR CLEARANCES, RE: A-2.01.

U. FOR HARDWARE GROUPS, REFER TO SPECIFICATIONS SECTION 08 7100 DOOR HARDWARE

DOOR TYPES



ABBREVIATIONS

CORE
GL = GLASS (T = TEMPERED)
SC = SOLID CORE
HC = HOLLOW CORE
HCI = HOLLOW CORE INSULATED
(E) = EXISTING

DOOR PANEL FINISH
PT = PAINT (SEMI-GLOSS)
FF = FACTORY FINISH
PL = PLASTIC LAMINATE
ST = STAIN

DOOR FRAME FINISH
PT = PAINT
FF = FACTORY FINISH
(E) = EXISTING

CLOSER
OH = OVERHEAD
FLR = FLOOR
C-OH = CONCEALED OVERHEAD
(E) = EXISTING

DOOR PANEL MATERIAL
AL = ALUMINUM
WD = WOOD
HM = HOLLOW METAL
(E) = EXISTING

DOOR FRAME MATERIAL
AL = ALUMINUM
HM = HOLLOW METAL
(E) = EXISTING

GLASS FINISH
FM = FILM ON DOOR & SIDELIGHT GLAZING
FG = FIRE RATED GLASS

REMARKS
PH = PANIC HARDWARE
HO = HOLD OPEN
CR = CARD READER
BG = BULLET-RESISTANT GLASS
U(#) = DOOR UNDERCUT (UNDERCUT SIZE)

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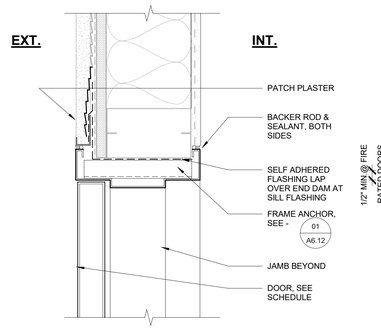
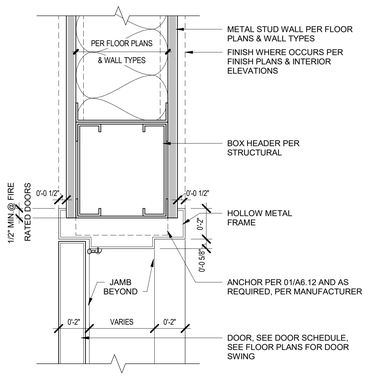
DOOR SCHEDULES & TYPES

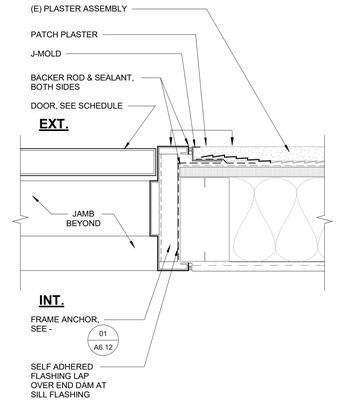
A6.11



EXT. HOLLOW METAL DOOR HEAD — 3" = 1'-0" — A6.12 — 08

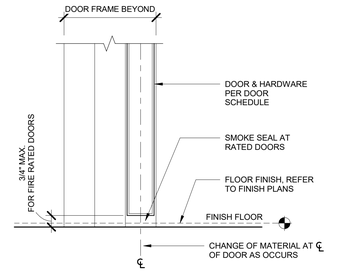


INT HM DOOR HEAD @ GYP (JAMB SIM.) — 3" = 1'-0" — 04

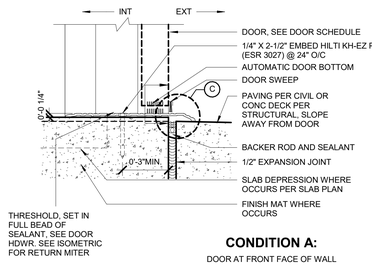


EXT. HOLLOW METAL DOOR JAMB — 3" = 1'-0" — A6.12 — 07

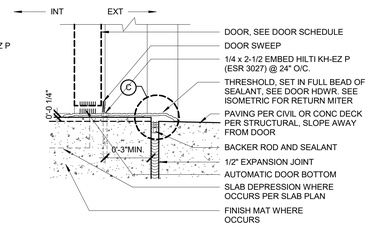
NOTE:
UNDERCUT ALL DOORS TO CLEAR FLOOR FINISH BY 1/4" EXCEPT AT RATED DOORS.



INT. DOOR THRESHOLD — 3" = 1'-0" — A6.12 — 03



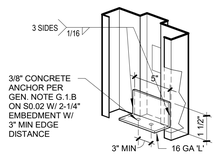
CONDITION A:
DOOR AT FRONT FACE OF WALL



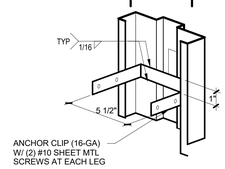
CONDITION B:
DOOR AT BACK FACE OF WALL

DETAIL C

HM DOOR THRESHOLD (ALUM. DOOR SIM.) — 3" = 1'-0" — 02

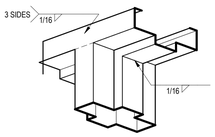


FLOOR CLIP (B)



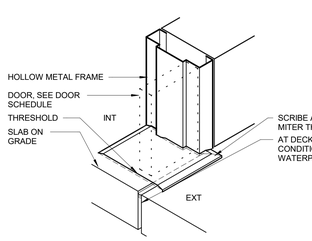
STUD CAP (A)

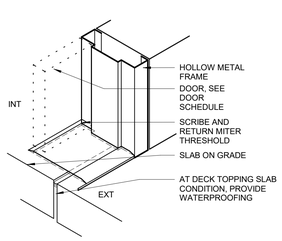
ANCHOR SPACING PER SPECS SEE JAMB DETAILS FOR STUD SIZES OVERLAP HM FRAME & GYP BD, 1/2" MIN



TYP MULLION & HEAD WELD (D)

NOTE: FOR ADD INSTALLATION INFO, SEE SPECIFICATIONS





SCRIBE AND MITER THRESHOLD — 1 1/2" = 1'-0" — 09

NOTES

1. ALL HOLLOW MTL FRAME/JAMBS SHALL BE CUT FOR STANDARD UNIT LOCK STRIKES 3/4" HIGH.
2. FRAME DIMENSIONS ARE FROM FINISH PAVING. FRAME DIMENSIONS MAY VARY DUE TO FINISH MATERIALS.
3. SEE 'LABELS' ON DOOR SCHEDULE FOR REQ RATED DOORS.
4. VERIFY ALL DOOR AND FRAME OPENING SIZES AND WALL AND DOOR FRAME WIDTHS ON SITE.
5. PER CBC 715.4, APPROVED FIRE DOOR HDWR AND FIRE DOOR FRAMES INCL THE ANCHORAGE THEREOF SHALL BE INSTALLED IN ACCORDANCE WITH THEIR LISTING.
6. ADHERE TO UBC STANDARD 7-2 FOR INSTALLATION OF DOOR FRAMES.

TYPICAL HOLLOW METAL DOOR FRAME DETAILS — 12" = 1'-0" — 01

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HOLLOW METAL DOOR DETAILS

A6.12

KEYNOTES

LEGEND

EXTERIOR PAINTED PLASTER ASSEMBLY

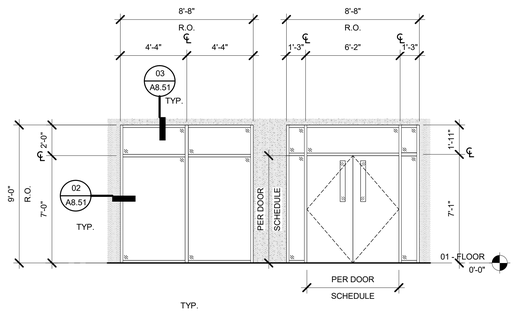
EXTEROR: INSULATED LOW-E VISION GLAZING (GL-1)

OPENING FRAME FINISH:

PT = PAINT
FF = FACTORY FINISH

GENERAL NOTES

1. DIMENSIONS ARE TO ROUGH OPENINGS, U.N.O. FIELD VERIFY PRIOR TO FABRICATION
2. SEE DOOR SCHEDULE FOR DOOR DETAILS, DIMENSIONS AND TYPES. RE: A6.11
3. SAFETY GLAZING SHALL COMPLY WITH CBC SECTION 2406
4. CAR. I OR II = CATEGORY CLASSIFICATION PER CBC SECTION 2406
5. WINDOWS REQUIRED TO BE RATED AS INDICATED IN WINDOW TYPES SHALL BE PROTECTED BY FIXED GLAZING LISTED AND LABELED OR MARKED FOR FIRE PROTECTION OF AT LEAST 3/4-HR AND COMPLY WITH CBC 2022 SECTION 408.13. THE TOTAL AREA OF WINDOWS IN THE CORRIDOR SHALL NOT EXCEED THE AREA OF THE COMMON WALL WITH ANY ROOM.
6. ALL DETAIL PREFERENCES SHOWN ON WINDOW ELEVATIONS ARE TYPICAL OF THAT CONDITION, U.N.O.
7. FOR GLAZING, GLASS TYPES AND REQUIREMENTS SEE SPECIFICATIONS SECTION 088000
8. ALL GLAZING TO BE FULLY TEMPERED, U.N.O.
9. FASTEN ALL METAL STOPS THROUGH A CONTINUOUS BEAD OF SEALANT AT FASTENERS.
10. GLAZING TO BE TYPE GL-1 U.N.O.
11. ALL OPENINGS ARE FIXED GLAZING (NON-OPERABLE), U.N.O.



ALUMINUM FRAME SYSTEM
1" LOW E INSULATED GLAZING
FRAME FINISH: FF
RATING: 1 HR

OPENING TYPE - A | 1/4" = 1'-0" | A6.21 | 05

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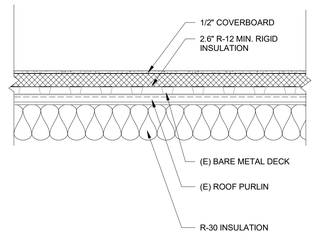
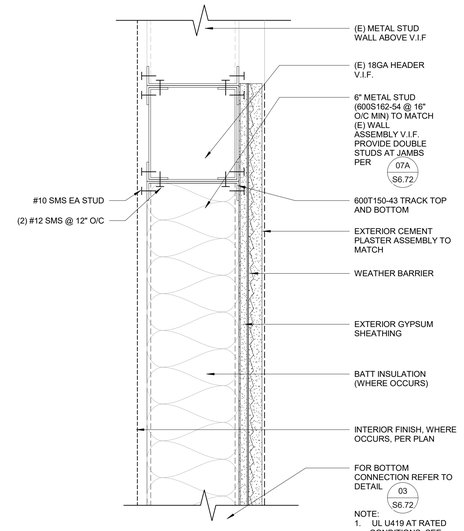
OPENING TYPES

A6.21



R1 - ROOF ASSEMBLY | 1" = 1'-0" | 02



SECTION

W1 EXT. WALL ASSEMBLY

W1 - METAL STUD WITH CEMENT PLASTER | 3" = 1'-0" | 01

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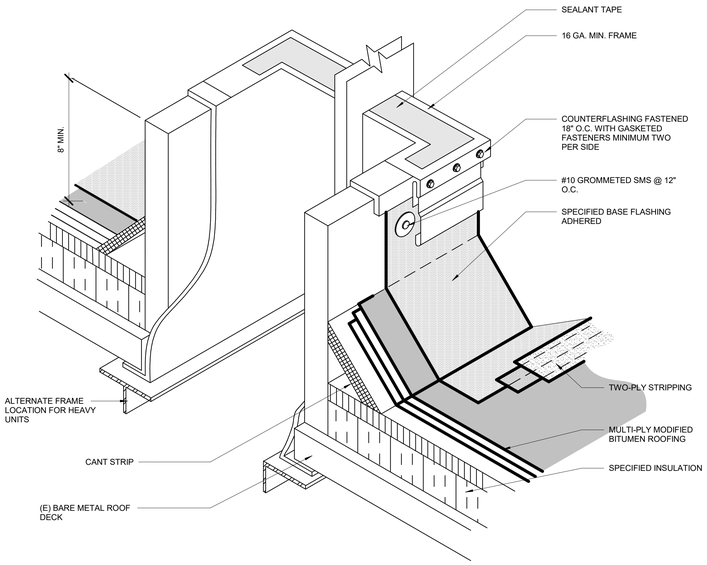
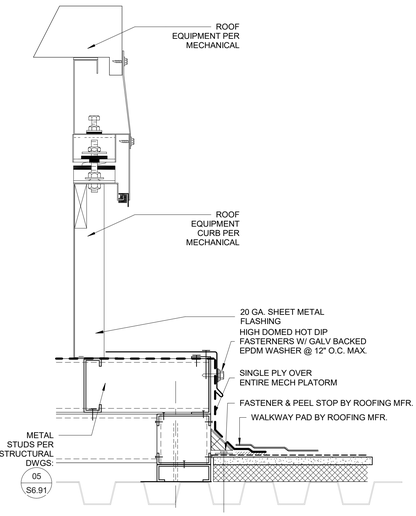
EXTERIOR ASSEMBLIES

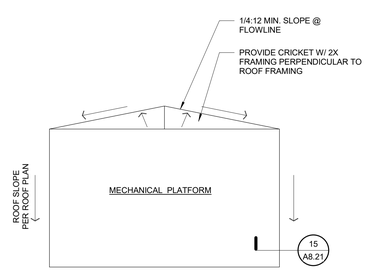
A8.11



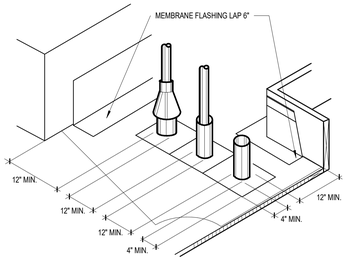
DUCT PENETRATION AT ROOF DECK | N.T.S. | 19



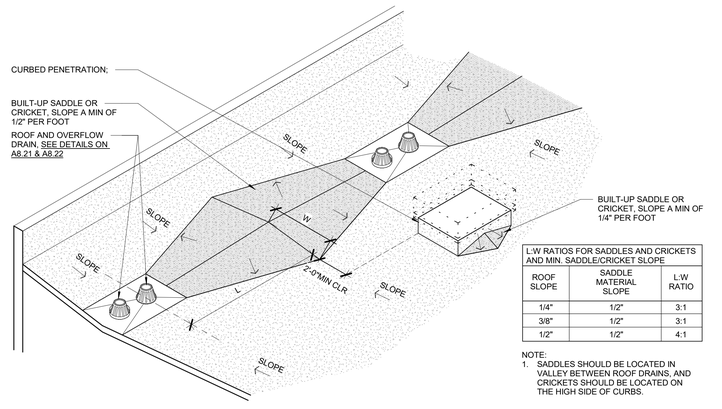
TYP MECH ROOF PAD - SECTION | 3" = 1'-0" | 15



MECH. PLATFORM CRICKET DETAIL | 3/4" = 1'-0" | 08



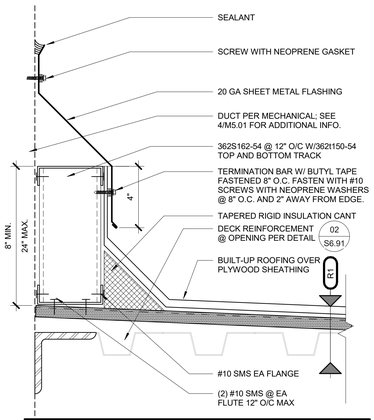
TYP ROOF FLASHING / SPACING | 1" = 1'-0" | 04



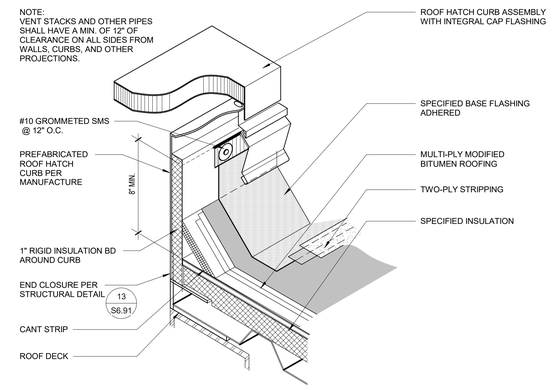
L:W RATIOS FOR SADDLES AND CRICKETS AND MIN. SADDLE/CRICKET SLOPE		
ROOF SLOPE	SADDLE MATERIAL SLOPE	L:W RATIO
1/4"	1/2"	3:1
3/8"	1/2"	3:1
1/2"	1/2"	4:1

NOTE:
1. SADDLES SHOULD BE LOCATED IN VALLEY BETWEEN ROOF DRAINS, AND CRICKETS SHOULD BE LOCATED ON THE HIGH SIDE OF CURBS.

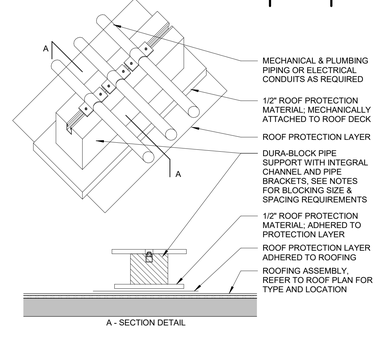
TYPICAL ROOF SADDLES AND CRICKETS | 1/4" = 1'-0" | 07



DUCT PENETRATION FLASHING | 3" = 1'-0" | 03



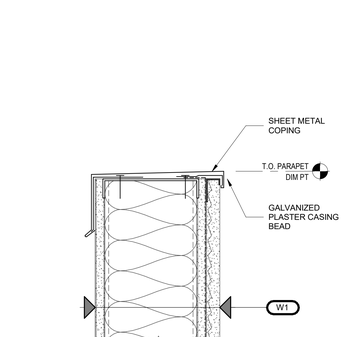
ROOF HATCH PENETRATION & CURB AT ROOF DECK | N.T.S. | 18



A - SECTION DETAIL

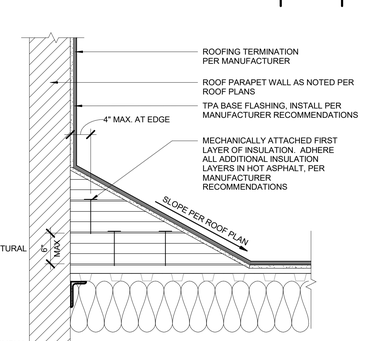
NOTES: FOR BLOCKING SIZE AND SPACING TO CARRY PIPING AND CONDUITS, REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS.1-1/2" DIAMETER MAX. AND (3) PIPES/CONDUITS MAX. ON BLOCKING.
PROVIDE A MAXIMUM OF 6'-0" BETWEEN SUPPORT BLOCKS. ADDITIONALLY PROVIDE BLOCK WITHIN 2'-0" OF ANY CHANGE OF DIRECTION, REFER TO MANUFACTURER'S DATA FOR BLOCK SPACING OF MULTIPLE PIPES.
THIS DETAIL IS NOT TO BE USED FOR GAS PIPING GREATER THAN 1" DIAMETER.
SEE MECHANICAL DWG FOR ADDITIONAL INFO.

TYP. PIPING SUPPORT | 1 1/2" = 1'-0" | 14

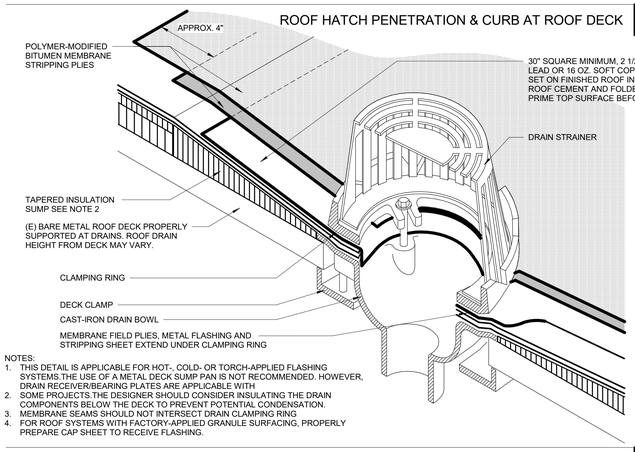


PLASTER COPING DETAIL PARAPET | 3" = 1'-0" | A8.21 | 10

EDGE CONDITION AT EXISTING PERIMETER WALLS | 1" = 1'-0" | A8.21 | 06

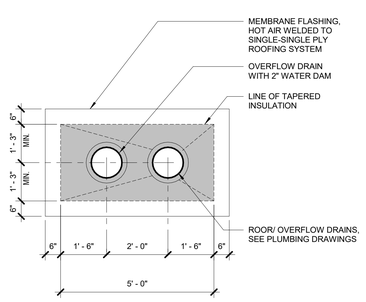


BUILT UP INSULATION ATTACHMENTS | 1" = 1'-0" | 02



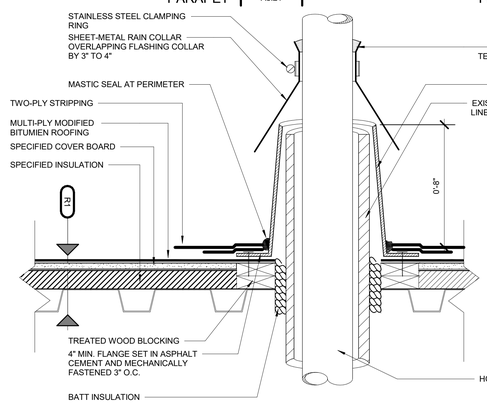
NOTES:
1. THIS DETAIL IS APPLICABLE FOR HOT-, COLD- OR TORCH-APPLIED FLASHING SYSTEMS.THE USE OF A METAL DECK SUMP PAN IS NOT RECOMMENDED. HOWEVER, DRAIN RECEIVER/BEARING PLATES ARE APPLICABLE WITH
2. SOME PROJECTS.THE DESIGNER SHOULD CONSIDER INSULATING THE DRAIN COMPONENTS BELOW THE DECK TO PREVENT POTENTIAL CONDENSATION.
3. MEMBRANE SEAMS SHOULD NOT INTERSECT DRAIN CLAMPING RING
4. FOR ROOF SYSTEMS WITH FACTORY-APPLIED GRANULE SURFACING, PROPERLY PREPARE CAP SHEET TO RECEIVE FLASHING.

ROOF DRAIN PENETRATION AT ROOF DECK | N.T.S. | 17



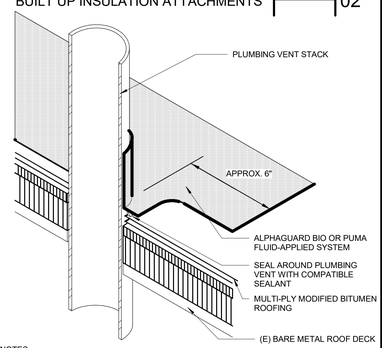
NOTES:
1. ROOF AND OVERFLOW DRAIN LOCATIONS & CONFIGURATION PER ARCHITECTURAL & PLUMBING ROOF PLAN.

ROOF / OVERFLOW DRAIN | 1/2" = 1'-0" | 13



NOTES:
1. WHEN HOT STACK SERVICE TEMPERATURE EXCEEDS 400 DEGREES, WELD OR SOLDER RAIN COLLAR TO PIPE IN LIEU OF INSTALLING SEALANT.
2. THE CLEARANCE REQUIRED BETWEEN THE HOT PIPE AND INSULATED METAL LINER WILL DEPEND ON THE TEMPERATURE OF THE MATERIAL HANDLED BY THE STACK.

TYP. VENT PIPE PENETRATION | 3" = 1'-0" | A8.21 | 05



NOTES:
1. ONLY FOR USE WITH MODIFIED BITUMEN SYSTEMS CONSTRUCTED USING TORCH-APPLIED, HOT ASPHALT, THERMASTIC OR POWERPLY ENDURE BIO TF ADHESIVES.
2. VENT STACKS AND OTHER PIPES SHOULD HAVE A MINIMUM OF 12 INCHES OF CLEARANCE ON ALL SIDES FROM WALLS, CURBS AND OTHER PROJECTIONS TO FACILITATE PROPER FLASHING.
3. MINIMUM RECOMMENDED FLASHING HEIGHT IS 8".

TYPICAL ROOF PIPE / PLUMBING VENT PENETRATION AT ROOF DECK | N.T.S. | 01

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Revision	Date

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SCHEMATIC DESIGN	03/13/2025
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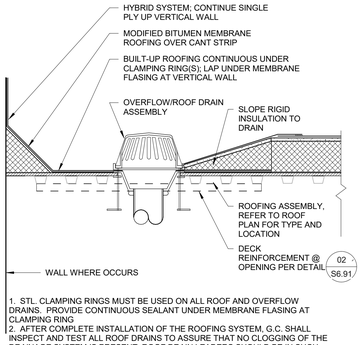
Checked By	Checker
Scale	As indicated

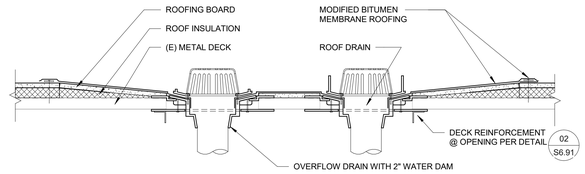
EXTERIOR ROOF DETAILS

A8.21

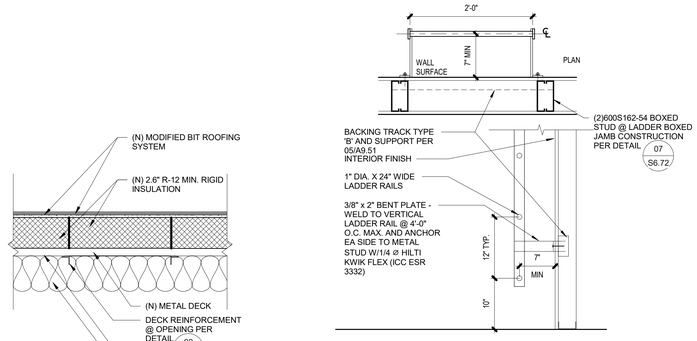


1. STL. CLAMPING RINGS MUST BE USED ON ALL ROOF AND OVERFLOW DRAINS. PROVIDE CONTINUOUS SEALANT UNDER MEMBRANE FLASING AT CLAMPING RING
2. AFTER COMPLETE INSTALLATION OF THE ROOFING SYSTEM, G.C. SHALL INSPECT AND TEST ALL ROOF DRAINS TO ASSURE THAT NO CLOGGING OF THE DRAINAGE SYSTEM IS PRESENT. ROOF DRAIN LEADERS SHOULD BE IN SUCH CONDITION THAT THE FULL DIAMETER OF THE DRAIN LEADER IS CLEAR.

ROOF/OVERFLOW DRAIN SUMP | 1" = 1'-0" | 12

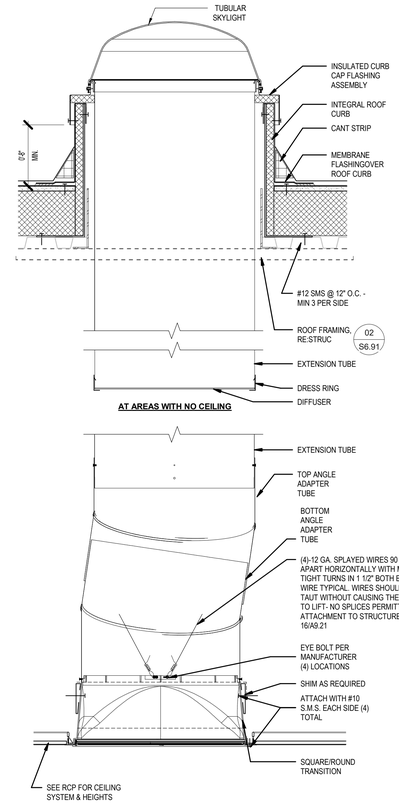


ROOF DRAIN AT METAL DECK | 1 1/2" = 1'-0" A8.22 | 04



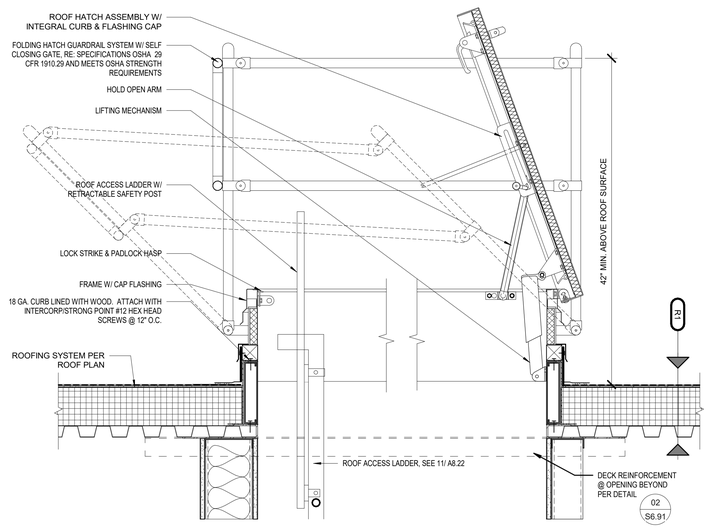
R1 - ROOF ASSEMBLY - INFILL | 1" = 1'-0" | 15

ROOF ACCESS LADDER DETAIL | 1" = 1'-0" | 11

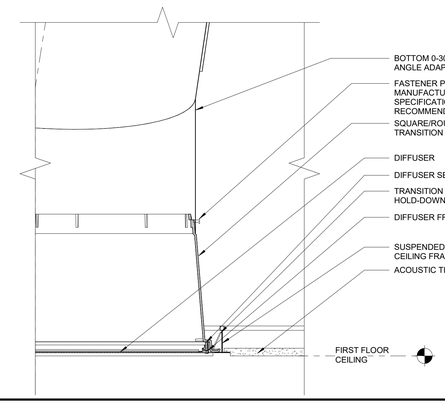


NOTE:
1. 6" MIN. CLEARANCE SHOULD BE MAINTAINED FROM ALL SOLATUBE COMPONENTS AND OTHER PLENUM ELEMENTS.

TUBULAR SKYLIGHT SECTION | 1 1/2" = 1'-0" A8.22 | 02



ROOF HATCH OPENING & LADDER (FIXED RAIL) | 1 1/2" = 1'-0" | 09



TYPICAL CEILING AT TUBULAR SKYLIGHT | 3" = 1'-0" A8.22 | 01

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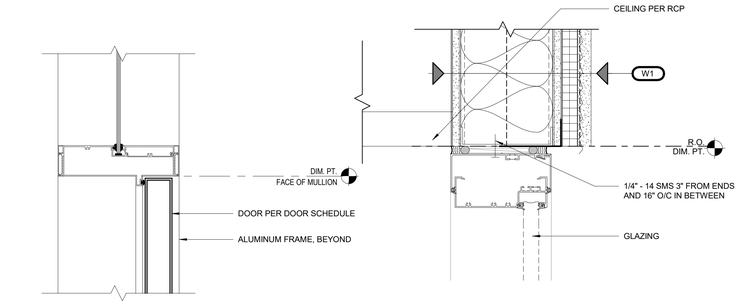
Scale	As indicated

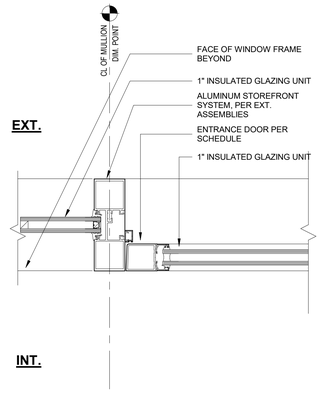
EXTERIOR ROOF DETAILS

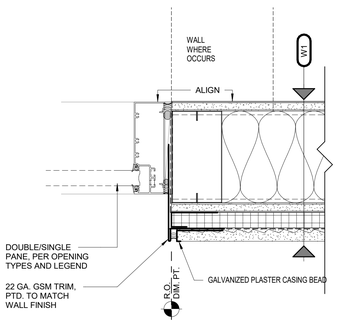
A8.22



ALUM FRAME HEAD @ TRANSOM (JAMB @ SIDELITE SIM.) — 3" = 1'-0" — 07

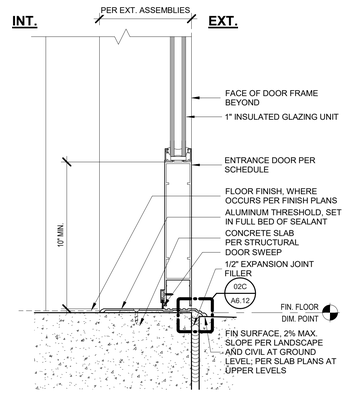
WINDOW HEAD @ PLASTER CEILING — 3" = 1'-0" — 03

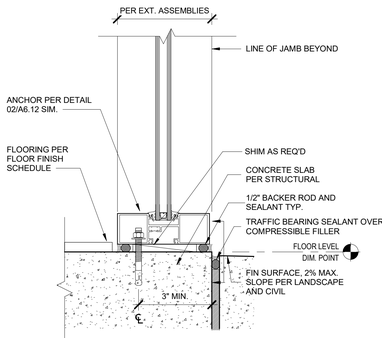




EXT ALUM SF DOOR @ JAMB — 3" = 1'-0" — 06

WINDOW JAMB — 3" = 1'-0" — 02





EXT ALUM SF DOOR @ THRESHOLD — 3" = 1'-0" — 05

ALUM. S.F. @ SILL ON SLAB ON GRADE — 3" = 1'-0" — 01

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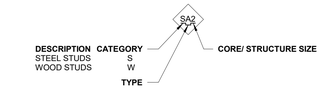
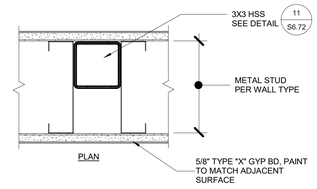
Scale	3" = 1'-0"

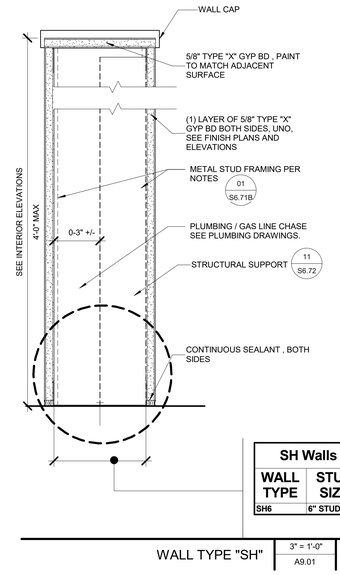
EXTERIOR OPENING DETAILS

A8.51



PARTITION TYPE TAG | 1/8" = 1'-0"

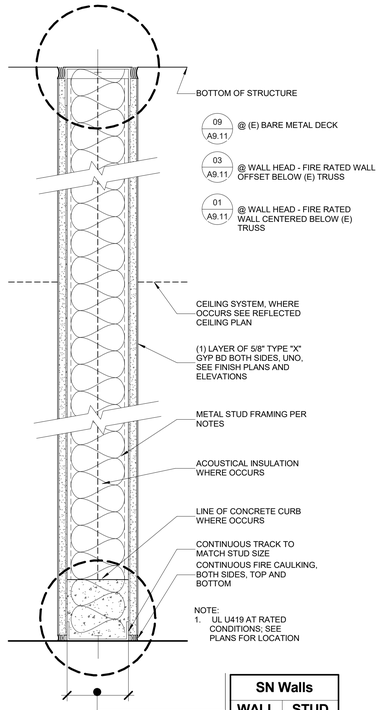




SH Walls	
WALL TYPE	STUD SIZE
SH6	6" STUDS

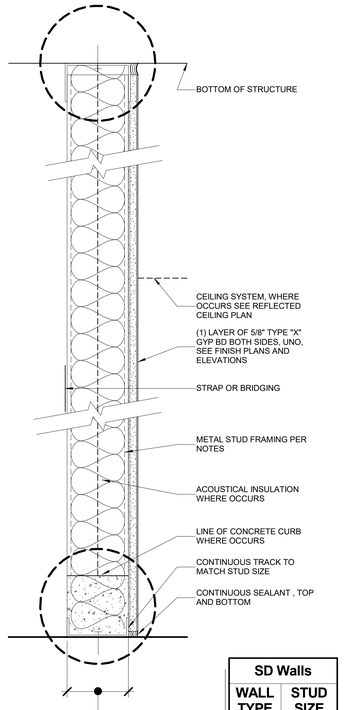
WALL TYPE "SH" | 3" = 1'-0" A9.01 | 07

NOTE:
CBC 703.5 – FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS OR PARTITIONS OR ANY OTHER WALL REQUIRED TO HAVE PROTECTED OPENINGS OR PENETRATIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING. PROVIDE DETAIL TO SHOW COMPLIANCE WITH THE FOLLOWING ITEMS: 1. LOCATIONS, 2. SPACING AND 3. LETTERING.



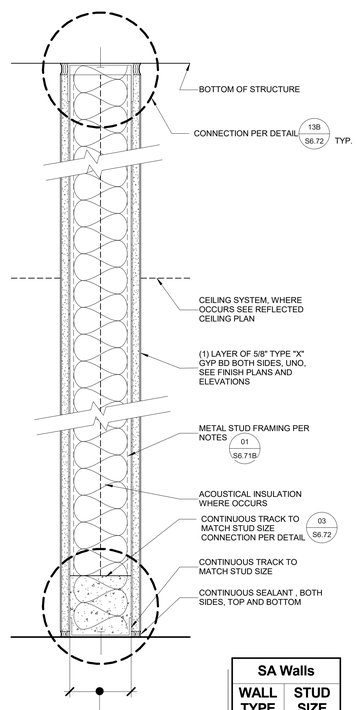
SN Walls	
WALL TYPE	STUD SIZE
SN4	4" STUDS
SN6	6" STUDS

WALL TYPE "SN" (1HR) | 3" = 1'-0" A9.01 | 13



SD Walls	
WALL TYPE	STUD SIZE
SD4	4" STUDS
SD8	8" STUDS

WALL TYPE "SD" | 3" = 1'-0" A9.01 | 05



SA Walls	
WALL TYPE	STUD SIZE
SA4	4" STUDS
SA6	6" STUDS

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

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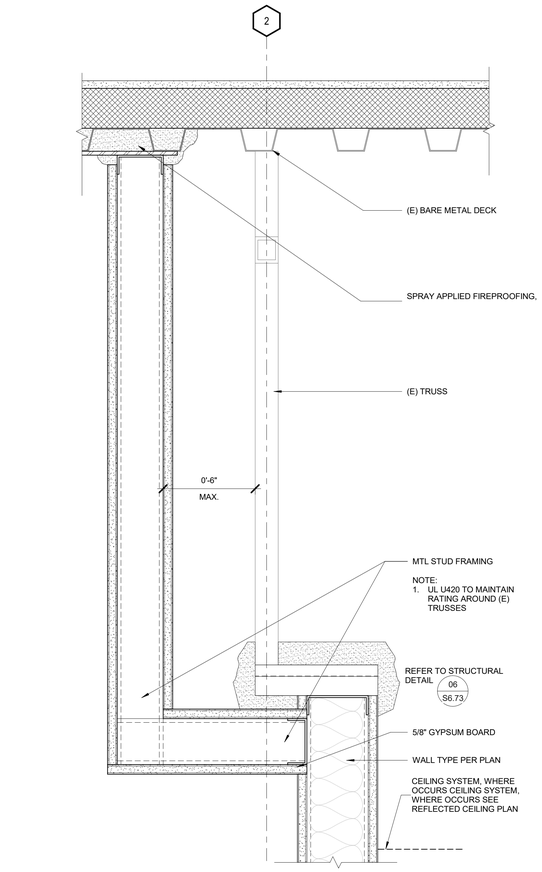
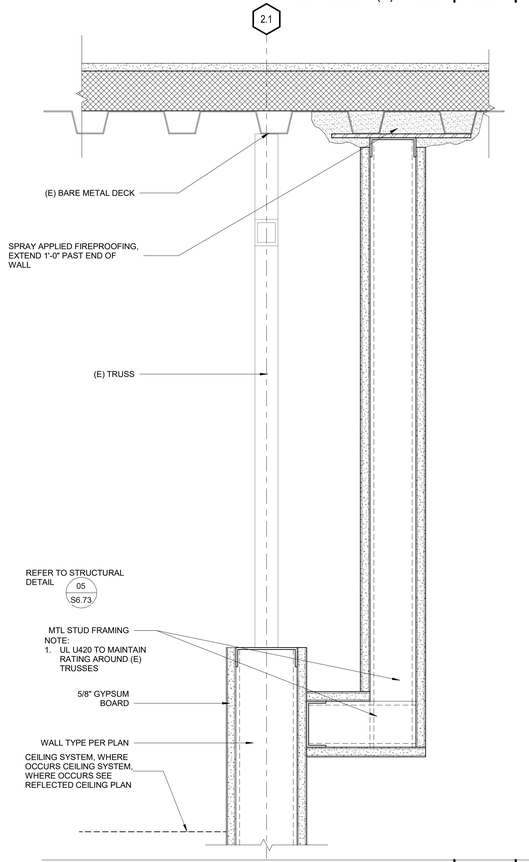
WALL TYPES

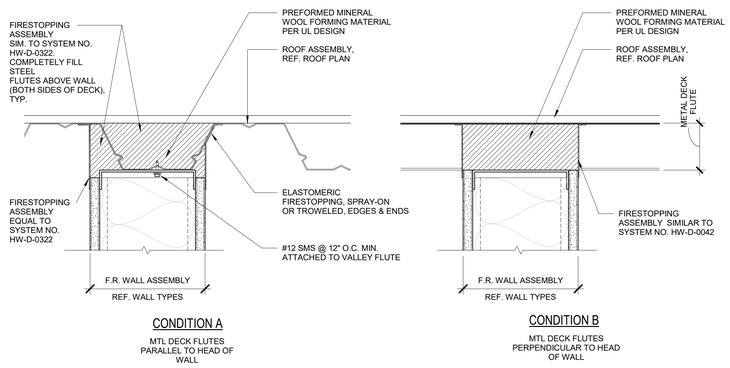
A9.01



WALL HEAD - FIRE RATED WALL OFFSET BELOW (E) TRUSS | 3" = 1'-0" | 06/ A3.11 | 03



WALL HEAD - FIRE RATED WALL CENTERED BELOW (E) TRUSS | 3" = 1'-0" | 05 / A3.11 | 01



HEAD OF WALL FIRESTOPPING @ (E) BARE METAL DECK | 3" = 1'-0" | 05 / A3.11 | 09

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DSA BACK CHECK	01/27/2026

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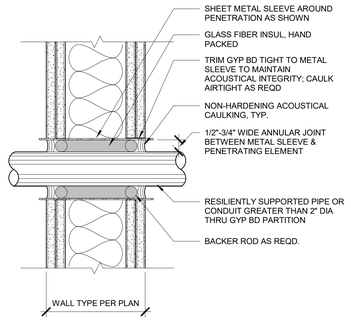
Checked By	Checker
Scale	3" = 1'-0"

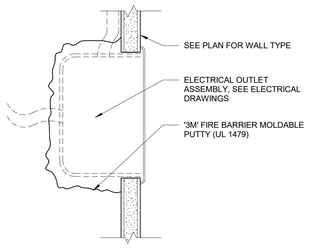
HEAD OF WALL

A9.11



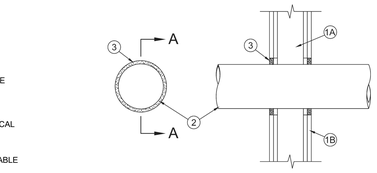
NOTE:
1. IF MULTIPLE PIPING PENETRATIONS OCCUR IN PARTITION, MAINTAIN ADEQUATE SEPARATION TO TREAT EA PIPE SEPARATELY.
2. INTERRUPT THERMAL INSUL WHERE ELEMENT PENETRATES PARTITION.
3. FRAME AROUND OPENING
4. UL SYSTEM NO W-L-1003

PENETRATION +2" DIA | 3" = 1'-0" | 16



NOTE:
FOR OUTLET PLACEMENT AND REQUIRED FIRE AND ACOUSTICAL SEPARATION, REFER TO 07/-

ELECT OUTLET @ RATED WALL | 6" = 1'-0" | 12



SECTION A-A

System No. W-L-7045
July 26, 2007
F Ratings – 1 and 2 Hr (See Item 1)
T Rating – 0 Hr

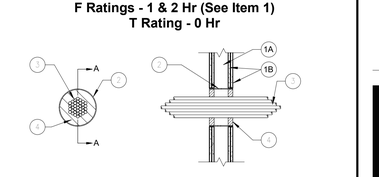
1. **Wall Assembly** – The 1 hr or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features.
   A. **Studs** – Wall framing shall consist of min 3-1/2 in. (89 mm) wide steel channel studs spaced max 24 in. (610 mm) OC. When diam of opening exceeds width of stud cavity, additional lengths of steel stud installed to frame out opening around steel duct (Item 2).
   B. **Gypsum Board*** – Min 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 U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 25-1/2 in. (648 mm).

   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 Duct** – Min 24 ga. (610 mm) diam No. 24 gauge (or heavier) spiral wound steel duct to be installed concentrically with a 3/4 in. (19 mm) annular space. Duct to be rigidly supported on both sides of wall assembly.
3. **Fill,Void or Cavity Material*** - **Caulk or Sealant** – Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly.

   3M COMPANY – CP 25WB+ or FB-3000 WT

*Bearing the UL Classification Mark

UL WL7045 | 1/2" = 1'-0" | 08



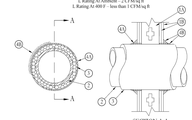
SECTION A - A

UL System No. W-L-3065
F Ratings - 1 & 2 Hr (See Item 1)
T Rating - 0 Hr

1. **Wall Assembly** - The 1 or 2 fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in . wide and spaced max 24 in. OC.
   B. Gypsum Board* - Nom 5/8 in. thick gypsum wallboard, with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Designs in the UL Fire Resistance Directory. Max diam of opening is 4 in.
2. **Metallic Sleeve -** (Optional) - Nom 4 in. diam (or smaller) steel electrical metallic tubing
   (EMT) or Schedule 5 (or heavier) steel pipe or min 0.016 in. thick (28 MSG) galv steel sleeve cast into wall assembly with joint compound and installed flush with wall surfaces.
   When Schedule 5 steel pipe or EMT is used, sleeve may extend up to 18 in. beyond the wall surfaces.
3. **Cables** - Aggregate cross-sectional area of cable in opening to be max 45 percent of the cross-sectional area of the opening. The annular space between the cable bundle and the periphery of the opening to be min 1/4 in. to max 3/4 in. Cables to be ridgly supported on both sides of the wall assembly. Any combination of the following types and
   sizes of copper conductor cables may be used:
   A. Max 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   B. Max 25 pair No. 24 AWG telephone cable with PVC insulation and jacket.
   C. Type RG 59/U coaxial cable with polyethylene (PE) insulation and PVC jacket.
   D. Multiple fiber optical communication cable jacketed with PVC and having a max OD
   of 5/8 in.
   E. Through Penetrating Products* - Max two copper conductor No. 8 AWG or max 3 copper conductors No. 14 AWG **Metal-Clad Cable+** .
   AFC CABLE SYSTEMS INC
4. **Fill, Void or Cavity Material*** - Sealant Fill material applied within the annulus, flush with
   each end of the steel sleeve or wall surface. Fill material installed symmetrically on both
   sides of the wall. A min 5/8 in. thickness of sealant is required for the 1 or 2 hr F Rating. An additional 1/2 in. diam bead of fill material shall be applied around the perimeter of sleeve on both sides of the wall when sleeve extends beyond surface of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC - FS601 or FS-One Sealant; FS601 for use in 2 hr F Rating only.

*Bearing the UL Classification Mark

CABLES AT 1 & 2 HR WALL | 3/4" = 1'-0" | 03



SECTION A-A

System No. W-L-5001
May 19, 2005
F Ratings – 1 and 2 Hr (See Item 1)
F Rating At 0 Hr = 1.5 CFM/sq ft
T Rating At Ambient – 23 CFM/sq ft
T Rating At 400 F – less than 1 CFM/sq ft

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 described in the individual U400 or V400 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 in. by 4 in. (25 mm by 102 mm) lumber spaced 16 in. (406 mm) OC. Nom 2 by 6 in. lumber may used if more than one cross brace. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-5/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board*** - Min 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 14-1/2 in.(368 mm) for wood stud walls and 18 in. (457 mm) for steel stud walls.

   The hourly F Rating of the firestop system is 1 hr when installed in a 1 hr fire rated wall and 2 hr when installed in a 2 hr fire rated wall.
2. **Through Penetrants** - One metallic pipe or tubing to be centered within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of pipe are permitted:
   A. **Steel Pipe** - Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Copper Tubing** - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   C. **Copper Pipe** - Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
3. **Pipe Covering*** - Nom 1 in. or 2 in. (25 mm or 51 mm) thick hollow cylindrical heavy density glass fiber units jacketed on the outside with all service jacket. Longitudinal seams are sealed with self-sealing lap. Circumferential joints are butted and secured with 3/4 in. (19 mm) wide metal fasteners or with butt strip tape supplied with the product. When nom 1 in. (25 mm) thick pipe covering is used, the annular space between the pipe covering and the circular cutout in the gypsum board layers on each side of the wall shall be min 1/4 in. to max 3/8 in. (6 mm to max 10 mm). When nom 2 in. (51 mm) thick pipe covering is used, the annular space between the pipe covering and the circular cutout in the gypsum board layers on each side of the wall shall be min 1/2 in. to max 3/4 in. (13 mm to max 19 mm).

   The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. Refer to Pipe Covering Materials in the Fire Resistance Directory for names of manufacturers. Any pipe covering material bearing the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

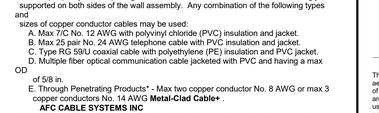
   The hourly T Rating of the firestop system is 3/4 hr when nom 1 in. (25 mm) thick pipe covering is used. The hourly T Rating of the firestop system is 1 hr and 1-1/2 hr when nom 2 in. (51 mm) thick pipe covering is used with 1 hr and 2 hr fire rated walls, respectively.
4. **Firestop System** - Installed symmetrically on both sides of wall assembly. The details of the firestop system shall be as follows:
   A. **Fill,Void or Cavity Material*** - **Wrap Strip** - Nom 1/4 in. (6 mm) thick intumescent fire resistive material faced on one side with aluminum foil, supplied in 2 in. (51 mm) wide strips. Nom 2 in. (51 mm) wide strip tightly wrapped around pipe covering (foil side out) with outer butted. Wrap strip layer securely bound with steel wire or aluminum foil tape and slid into annular space approx 1-1/4 in. (32 mm) such that approx 3/4 in. (19 mm) of the wrap strip width protrudes from the wall surface. One layer of wrap strip is required when nom 1 in. (25 mm) thick pipe covering is used. Two layers of wrap strip are required when nom 2 in. (51 mm) thick pipe covering is used.

      3M COMPANY – FS-195+
   B. **Fill,Void or Cavity Materials*** - **Caulk or Sealant** – Min 1/4 in. (6 mm) diam continuous bead applied to the wrap strip/wall interface and to the exposed edge of the wrap strip layer approx 3/4 in. (19 mm) from the wall surface.

      3M COMPANY – CP 25WB+, IC 15WB+, FireDam 150+ caulk or FB-3000 WT sealant

*Bearing the UL Classification Marking

UL WL5001 | 1/2" = 1'-0" | 07



SECTION A-A

System No. C-AJ-7051
October 20, 2000
F Rating — 3 Hr
T Rating — 1 Hr

1. **Floor or Wall Assembly** — Min 4-1/2 in. thick reinforced lightweight or normal weight (100–150 pcf) concrete floor or min 5-1/2 in. thick lightweight or normal weight concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max area of opening is 1024 in. sq with a max dimension of 32 in.

   See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. **Steel Duct** — Nom 30 by 30 by No. 24 gauge (or heavier) galv steel duct. One steel duct to be positioned within the firestop system. The annular space shall be min 1/4 in. to max 1-1/4 in. Duct to be rigidly supported on both sides of floor or wall assembly.
3. **Firestop System** — The firestop system shall consist of the following:
   A. **Packing Materials** — Min 1-1/2 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form between the bare steel duct and the periphery of the opening. Packing material to be recessed from top surface of floor or both surfaces of wall as required to accommodate the required thickness of fill material.
   B. **Fill, Void or Cavity Material*** — **Sealant** — Min 1 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.

      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 606 Flexible Firestop Sealant or FS-ONE Sealant.
4. **Steel Retaining Angle** — Nom 2 in. by 2 in. by No. 16 gauge (or heavier) steel angles attached to all four sides of the steel duct on the top surface or both surfaces of the wall. The angles shall be attached with No. 8 (or larger) steel sheet metal screws spaced max of 1 in. from each end and a max of 3 in. OC.

*Bearing the UL Classification Mark

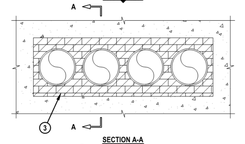
Last Updated on 2000-10-20

C.I.P HYDRONIC PIPE PENETRATION | 1/2" = 1'-0" | 02

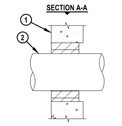
NG **ENGINEERING JUDGMENT FIRESTOP DETAIL**

PROJECT : SAN MARCOS HIGH SCHOOL
ARCHITECT : LPA ARCHITECTS
F-RATING = 1-HR.

FRONT VIEW



SECTION A-A



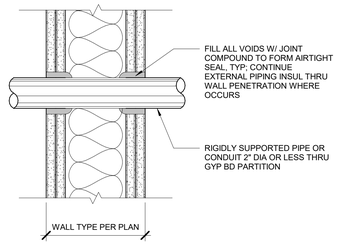
1. **CONCRETE WALL ASSEMBLY (MINIMUM 9-1/4" THICK) (1-HR. FIRE-RATING).**
2. **ONE OR MORE MAXIMUM 10" NOMINAL DIAMETER STEEL PIPE.**
3. **HILTI CFS-BL FIRESTOP BLOCK (2" THICK, 5" WIDE, 8" DEEP. REFERENCE : FRONT VIEW).**

NOTES : 1. MAXIMUM SIZE OF OPENING = 52" x 17".
2. ANNULAR SPACE = MINIMUM 1/2", MAXIMUM 12".
3. APPLY HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT IN ANY VOID THAT MAY EXIST AROUND PENETRANTS OR FIRESTOP BLOCKS.

THIS ENGINEERING JUDGMENT REPRESENTS A FIRESTOP SYSTEM THAT WOULD BE EXPECTED TO PASS THE STATED RATINGS IF TESTED. (REFERENCE : UL SYSTEM NO. W-J-8048 & C-AJ-5207)

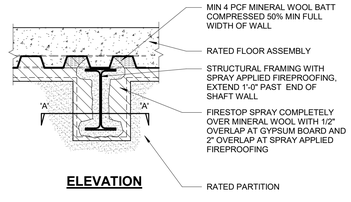
HILTI, Inc.
Tulsa, Oklahoma USA (800) 879-8000
Designed by
Sheet: 1 of 1
Scale: 5/64" = 1"
Date: Aug. 13, 2012
Drawing No.: 161628b
Hilti Firestop Systems
Saving Lives through Innovation and Education

DUCT AT CONCRETE | 1/2" = 1'-0" | 01

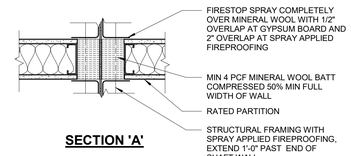


NOTE:
1. IF MULTIPLE PIPING PENETRATIONS OCCUR IN PARTITION, MAINTAIN ADEQUATE SEPARATION TO TREAT EA PIPE SEPARATELY
2. UL SYSTEM NO W-L-1001

PENETRATION 2" DIA OR LESS | 3" = 1'-0" | 15

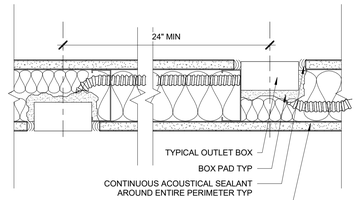


ELEVATION



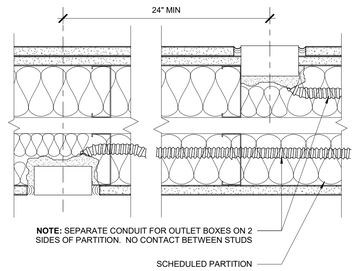
SECTION 'A'

TYP BEAM PENETRATION AT RATED PARTITION | 1 1/2" = 1'-0" | 14



TYPICAL SINGLE STUD PARTITION WITH SOUND ISOLATION

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



NOTE: SEPARATE CONDUIT FOR OUTLET BOXES ON 2 SIDES OF PARTITION. NO CONTACT BETWEEN STUDS

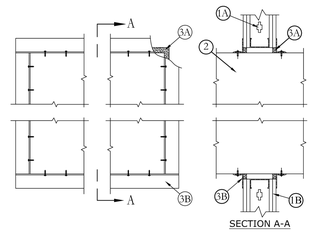
TYPICAL DOUBLE STUD PARTITION WITH SOUND ISOLATION (SIMILAR FOR STAGGERED STUDS)

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

NOTE:
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 DETAILS PLAN | 3" = 1'-0" | 10

System No. W-L-7063
October 14, 2009
F Ratings – 1 and 2 Hr (See Item 1)
T Ratings – 0 and 3/4 Hr (See Item 2)



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 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 steel channel studs. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC. Additional steel studs shall be used to completely frame the opening.
   B. **Wallboard, Gypsum*** – Thickness, type, number of layers and fasteners as required in the individual Wall and Partition Design. Max size of opening is 9,800 in² (6.32 m²) with a max dimension of 100 in. (254 cm).

   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 Duct** – Nom 96 by 96 in. (244 by 244 cm, or smaller) galv steel duct to be installed within the opening. The duct shall be constructed and reinforced in accordance with SMACNA construction standards and provided with 2 in. (51 mm) standing seams. The annular space between the duct and the periphery of opening shall be a min 1 in.(25 mm) to a max 2 in. (51 mm) with the exception that the standing seams which shall be installed at point contact to the framing of the opening. Duct to be rigidly supported on both sides of opening.

   The hourly T Rating of the firestop system is 0 hr except that when the thickness of the steel duct is 18 ga, the T Rating is 3/4 hr.
3. **Firestop System** – The Firestop system shall consist of the following.
   A. **Fill,Void or Cavity Material*** – **Caulk or Sealant** – Min 5/8 in. (16 mm) thickness of caulk applied within annulus, flush with both surfaces of wall assembly.

      3M COMPANY – CP 25WB+ or FB-3000 WT
   B. **Steel Retaining Angles** – Min 16 gauge galv steel angles sized to lap duct a min of 2 in. (51 mm) and lap wall surface a min of 1 in. (25 mm). Angles attached to the duct on both sides of wall with No. 10 (or larger) steel sheet metal screws 1 in. (25 mm) from each end, and 6 in. (152 mm) OC. On the opposite side of wall, the screw pattern to be staggered.

*Bearing the UL Classification Mark

UL WL7063 | 1/2" = 1'-0" | 05

LPA
ARCHITECTURE ENGINEERING INTERIORS
LANDSCAPE ARCHITECTURE PLANNING

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

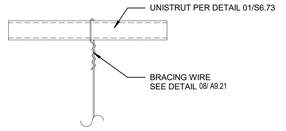
Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DSA	07/07/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Revision
Date

Job Number	32433
Checked By	Checker
Scale	As indicated

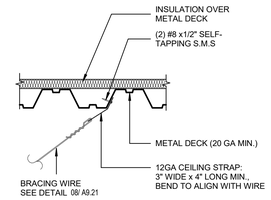
FIRESTOPPING DETAILS

A9.12

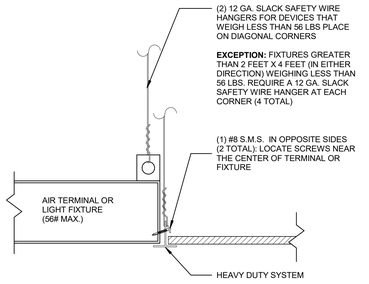


NOTES :
1. REFER TO DETAIL 15/ A9.21 FOR ADDITIONAL INFORMATION.

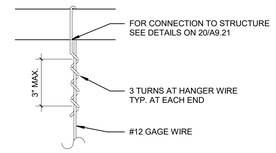
HANGER WIRE CONNECTION TO STRUCTURAL STEEL | 1 1/2" = 1'-0" A9.21 | 20



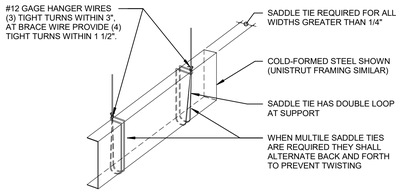
BRACE WIRE CONNECTION AT METAL DECK | 1 : 10 A9.21 | 16



LUMINAIRE / AIR TERMINAL SUPPORT | 3" = 1'-0" A9.21 | 12

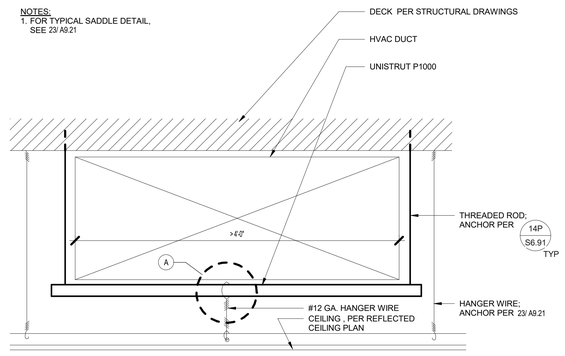


HANGER WIRE CONNECTION - TYP. WIRE TURNS | 3" = 1'-0" A9.21 | 08



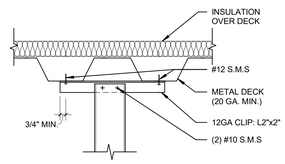
TYPICAL SADDLE TIE DETAIL | NTS | 23

NOTES:
1. FOR TYPICAL SADDLE DETAIL, SEE 23/ A9.21

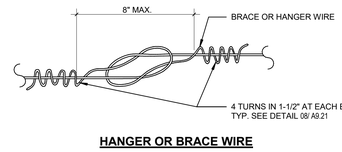


HANGER WIRE ATTACHMENT AT DUCT | 1 1/2" = 1'-0" A9.21 | 15

CHANNEL STRUT: OPTION 2



DSA 5.20 - STRUT CONNECTION TO BARE METAL DECK | 1 1/2" = 1'-0" A9.21 | 11



HANGER WIRE ONLY

HANGER OR BRACE WIRE

NOTES:
1. WIRE SPLICES ARE SHOWN LOOSELY TIED FOR ILLUSTRATIVE PURPOSES ONLY AND SHALL BE DRAWN TIGHT TO COMPLETE INSTALLATION WHEN CONSTRUCTED.
2. WIRE LOOPS SHALL BE TIGHTLY WRAPPED AND SHARPLY BENT TO PREVENT ANY VERTICAL MOVEMENT OR ROTATION WITHIN THE LOOPS.
3. EACH HANGER AND BRACE WIRE SHALL BE SPLICED NO MORE THAN ONCE ALONG ITS LENGTH.

CEILING WIRE SPLICES | 3" = 1'-0" A9.21 | 07

1. CEILING SYSTEM GENERAL NOTES

1.01 CEILING SYSTEM COMPONENTS SHALL COMPLY WITH ASTM C635 AND SECTION 5.1 OF ASTM E580.

1.02 THE CEILING GRID SYSTEM MUST BE RATED HEAVY DUTY AS DEFINED BY ASTM C635.

1.03 CEILING SYSTEMS. THE FOLLOWING CEILING SYSTEM(S) IS/ARE PART OF THE SCOPE OF THIS PROJECT:
MANUFACTURER: ARMSTRONG CEILINGS
PRODUCT NAME: SUPRAFINE XL 9/16
EVALUATION REPORT TYPE AND NUMBER: ESR-1308
MAIN RUNNER PART, MODEL, OR CATALOG NUMBER: 7501
CROSS RUNNER PART, MODEL, CATALOG NUMBER: XL7520

1.04 SEISMIC WALL CLIP:
MANUFACTURER'S MODEL: REFER TO SPECS.

1.05 CEILING PANELS SHALL NOT SUPPORT ANY LUMINAIRES, AIR TERMINALS ORDEVICES.

1.06 FOR CEILING INSTALLATIONS UTILIZING ACOUSTICAL TILE PANELS OF MINERAL OR GLASS FIBER, IT IS NOT MANDATORY TO PROVIDE ½" CLEARANCE BETWEEN THE ACOUSTICAL TILE PANELS AND THE WALL ON THE SIDES OF THE CEILING WHICH ARE FREE TO SLIP. FOR ALL OTHER CEILING PANEL TYPES, PROVIDE ¼" CLEARANCE BETWEEN THE CEILING PANEL AND THE WALL ON THE SIDES OF THE CEILING FREE TO SLIP. CLEARANCE BETWEEN CEILING GRID RUNNERS/MEMBERS AND WALLS SHALL COMPLY WITH THE DETAILS ON THESE DRAWINGS REGARDLESS OF CEILING TILE MATERIAL.

2. MATERIALS

2.01 CEILING WIRE SHALL BE CLASS 1 ZINC COATED (GALVANIZED) CARBON STEEL CONFORMING TO ASTM A641. WIRE SHALL BE #12 GAUGE (0.106" DIAMETER) WITH SOFT TEMPER AND MINIMUM ULTIMATE TENSILE STRENGTH = 70 KSI.

2.02 GALVANIZED SHEET STEEL (INCLUDING THAT USED FOR METAL STUD AND TRACK COMPRESSION STRUTS/POST) SHALL CONFORM TO ASTM A653, OR OTHER EQUIVALENT SHEET STEEL LISTED IN SECTION A3.1 OF THE NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS. (ASI S100). MATERIAL 43 MIL (18 GAUGE) AND LIGHTER SHALL HAVE MINIMUM YIELD STRENGTH OF 33 KSI. MATERIAL 54 MIL (16 GAUGE) AND HEAVIER SHALL HAVE A MINIMUM YIELD STRENGTH OF 50KSI.

2.03 ELECTRICAL METALLIC TUBE (EMT) SHALL BE ANSI C80.3/UL 797 CARBON STEEL WITH G90
GALVANIZING. EMT SHALL HAVE MINIMUM YIELD STRENGTH (FY) OF 30 KSI AND MINIMUM ULTIMATE STRENGTH (FU) OF 48 KSI.

3. ATTACHMENT OF HANGER AND BRACING WIRES

3.01 SEPARATE ALL CEILING HANGER AND BRACING WIRES AT LEAST 6 INCHES FROM ALL UNBRACED DUCTS, PIPES, CONDUIT, ETC.

3.02 HANGER AND BRACING WIRES SHALL NOT ATTACH TO OR BEND AROUND OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO PIPING, DUCTWORK, CONDUIT AND EQUIPMENT.

3.03 HANGER WIRES THAT ARE MORE THAN ONE (HORIZONTAL) IN SIX (VERTICAL) OUT OF PLUMB SHALL HAVE COUNTER-SLOPING WIRES.

3.04 SLACK SAFETY WIRES SHALL BE CONSIDERED HANGER WIRES FOR INSTALLATION AND TESTING REQUIREMENTS.

3.05 HANGER AND BRACING WIRE ANCHORAGE TO THE STRUCTURE SHALL BE INSTALLED IN SUCH A MANNER THAT THE DIRECTION OF THE ANCHORAGE ALIGNS CLOSELY WITH THE DIRECTION OF THE WIRE (E.G., BRACING WIRE CEILING CLIPS MUST BE BENT AS SHOWN IN THE DETAILS AND ROTATED AS REQUIRED TO ALIGN CLOSELY WITH THE DIRECTION OF THE WIRE, SCREW EYES IN WOOD MUST BE INSTALLED SO THEY ALIGN CLOSELY WITH THE DIRECTION OF THE WIRE, ETC.).

4. FASTENERS AND WELDING

4.01 SHEET METAL SCREWS SHALL COMPLY WITH ASTM C1513 AND ASME B18.6.3.
PENETRATION OF
SCREWS THROUGH JOINED MATERIAL SHALL NOT BE LESS THAN THREE EXPOSED THREADS.

4.02 NOT USED

4.03 NOT USED

4.04 NOT USED

4.05 NOT USED

4.06 NOT USED

4.07 NOT USED

5. TESTING

5.01 ALL FIELD TESTING MUST BE PERFORMED IN THE PRESENCE OF THE PROJECT INSPECTOR.

5.02 NOT USED

5.03 NOT USED

6. LUMINAIRES

6.01 ALL LUMINAIRES SHALL BE POSITIVELY ATTACHED TO THE CEILING SUSPENSION SYSTEMS BY
MECHANICAL MEANS TO RESIST A HORIZONTAL FORCE EQUAL TO THE WEIGHT OF THE LUMINAIRE. A MINIMUM OF TWO SCREWS OR APPROVED FASTENERS ARE REQUIRED AT EACH LUMINAIRE, PER ASTM E580 SECTION 5.3.1.

6.02 SURFACE-MOUNTED LUMINAIRES SHALL BE ATTACHED TO THE MAIN RUNNER WITH AT LEAST TWO POSITIVE CLAMPING DEVICES. THE CLAMPING DEVICE SHALL COMPLETELY SURROUND THE SUPPORTING CEILING RUNNER AND BE MADE OF STEEL WITH A MINIMUM THICKNESS OF #14 GAUGE. ROTATIONAL SPRING CATCHES DO NOT COMPLY. A #12 GAUGE SLACK SAFETY WIRE SHALL BE CONNECTED FROM EACH CLAMPING DEVICE TO THE STRUCTURE ABOVE. PROVIDE ADDITIONAL SUPPORTS WHEN A LUMINAIRE IS 8 FEET OR LONGER OR EXCEEDS 56 POUNDS. MAXIMUM SPACING BETWEEN SUPPORTS SHALL NOT EXCEED 8 FEET.

6.03 LUMINAIRES WEIGHING LESS THAN OR EQUAL TO 10 POUNDS MAY BESUPPORTED DIRECTLY ON THE CEILING RUNNERS, SHALL HAVE A MINIMUM OF ONE #12 GAUGE SLACK SAFETY WIRE CONNECTED FROM THE FIXTURE HOUSING TO THE STRUCTURE ABOVE.

6.04 LUMINAIRES WEIGHING GREATER THAN 10 POUNDS BUT LESS THAN OR EQUAL TO 56 POUNDS MAY BE SUPPORTED DIRECTLY ON THE CEILING RUNNERS, BUT THEY SHALL HAVE A MINIMUM OF TWO #12 GAUGE SLACK SAFETY WIRES CONNECTED FROM THE FIXTURE HOUSING AT DIAGONAL CORNERS TO THE STRUCTURE ABOVE.
EXCEPTION: ALL LUMINAIRES GREATER THAN TWO BY FOUR FEET WEIGHING LESS THAN 56 POUNDS
SHALL HAVE A #12 GAUGE SLACK SAFETY WIRE AT EACH CORNER.

6.05 ALL LUMINAIRES WEIGHING GREATER THAN 56 POUNDS SHALL BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN FOUR TAUT #12 GAUGE HANGER WIRES (ONE AT EACH CORNER) ATTACHED FROM THE FIXTURE HOUSING TO THE STRUCTURE ABOVE OR OTHER APPROVED HANGERS. THE FOUR TAUT #12 GAUGEWIRES OR OTHER APPROVED HANGERS, INCLUDING THEIR ATTACHMENT TO THE STRUCTURE ABOVE, SHALL BE CAPABLE OF SUPPORTING FOUR TIMES THE WEIGHT OF THE FIXTURE.

7. SERVICES WITHIN THE CEILING

7.01 ALL FLEXIBLE SPRINKLER HOSE FITTING MOUNTING BRACKETS, CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES SHALL BE POSITIVELY ATTACHED TO THE CEILING SUSPENSION SYSTEMS BY MECHANICAL MEANS. SCREWS OR APPROVED FASTENERS ARE REQUIRED. A MINIMUM OF TWO ATTACHMENTS ARE REQUIRED AT EACH COMPONENT.

7.02 CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES WEIGHING LESS THAN OR EQUAL TO 20 POUNDS SHALL HAVE ONE #12 GAUGE SLACK SAFETY WIRE ATTACHED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE.

7.03 FLEXIBLE SPRINKLER HOSE FITTINGS, CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES WEIGHING MORE THAN 20 POUNDS BUT LESS THAN OR EQUAL TO 56 POUNDS SHALL HAVE TWO #12 GAUGE SLACK SAFETY WIRES (AT DIAGONAL CORNERS) CONNECTED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE.

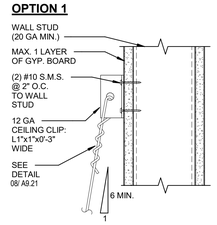
7.04 FLEXIBLE SPRINKLER HOSE FITTINGS, CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES WEIGHING MORE THAN 56 POUNDS SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE ABOVE BY NOT LESS THAN FOUR TAUT #12 GAUGE HANGER WIRES ATTACHED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE OR OTHER APPROVED HANGERS.

8. OTHER DEVICES WITHIN THE CEILING

8.01 ALL LIGHTWEIGHT MISCELLANEOUS DEVICES, SUCH AS STROBE LIGHTS, OCCUPANCY SENSORS, SPEAKERS, EXIT SIGNS, ETC., SHALL BE ATTACHED TO THE CEILING GRID. IN ADDITION, DEVICES WEIGHING MORE THAN 10 POUNDS SHALL HAVE A #12 GAUGE SLACK SAFETY WIRE ANCHORED TO THE STRUCTURE ABOVE. DEVICES WEIGHING MORE THAN 20 POUNDS SHALL BE SUPPORTED INDEPENDENTLY FROM THE STRUCTURE ABOVE.

CEILING REQUIREMENTS | 6" = 1'-0" A9.21 | 01

OPTION 1



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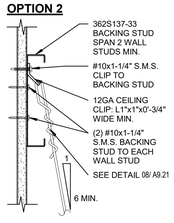
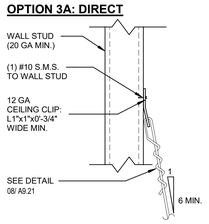
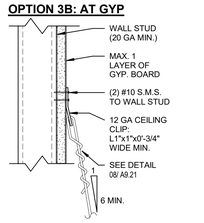


OPTION 3A: DIRECT



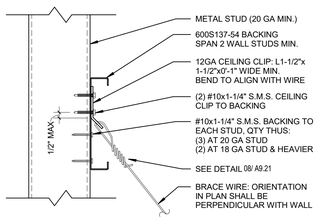
OPTION 3B: AT GYP



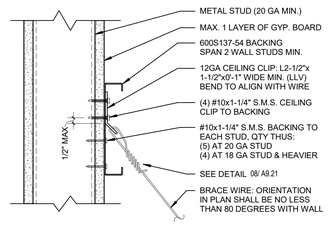
NOTES:
1. THIS DETAIL APPLIES AT PERIMETER WIRE ATTACHEMENT OR WHERE OBSTRUCTION PREVENTS ATTACHMENT TO THE STRUCTURE ABOVE.

HANGER WIRE CONNECTION TO METAL STUD WALL | 3" = 1'-0" A9.21 | 14

WALL WITHOUT GYP. BOARD

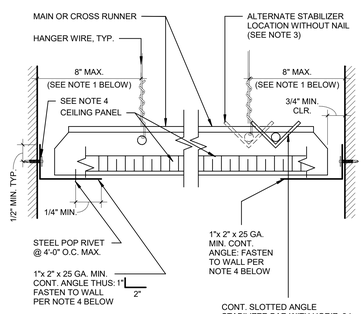


WALL WITH GYP. BOARD

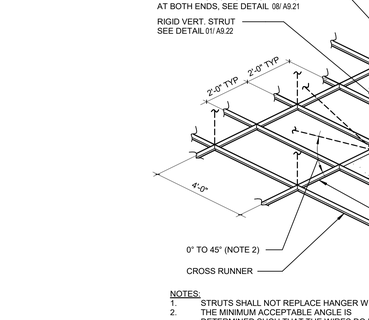


BRACE WIRE CONNECTION TO METAL STUD WALL | 3" = 1'-0" A9.21 | 06

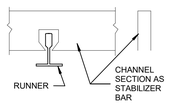
ATTACHED JOINT



FREE JOINT

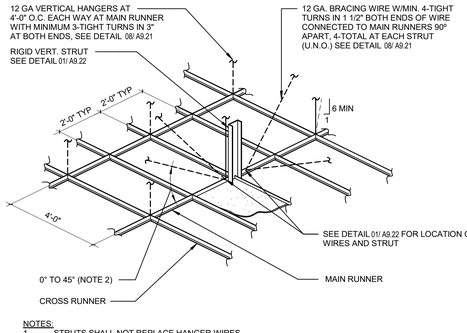


NOTES:
1. PROVIDE #12 GAGE HANGER WIRES AT THE ENDS OF ALL MAIN AND CROSS RUNNERS WITHIN EIGHT (8) INCHES OF THE SUPPORT OR WITHIN ONE-FOURTH (1/4) OF THE LENGTH OF THE END TEE, WHICHEVER IS LESS. FOR THE PERIMETER OF THE CEILING AREA PERIMETER WIRES ARE NOT REQUIRED WHEN THE LENGTH OF THE END TEE IS EIGHT (8) INCHES OR LESS.
2. NAILS AT ENDS OF HORIZONTAL STABILIZERS ARE TO BE PLACED WITH NAIL HEAD TOWARD CENTER LINE OF SPAN OF STRUT.
3. STABILIZER BAR MAY BE SLOTTED APPROVED ANGLES OR CHANNELS WITH "DIAMOND POINTS" OF SPRING STEEL WHICH SNAP TIGHT TO PREVENT MOVEMENT OF STRUT.
4. FASTEN ANGLE TO WALL STUD OR BLOCKING AS FOLLOWS:
   A. METAL STUD (20 GA. MIN.) WALL: (1) #10 SMS AT 24" O.C. MAX.



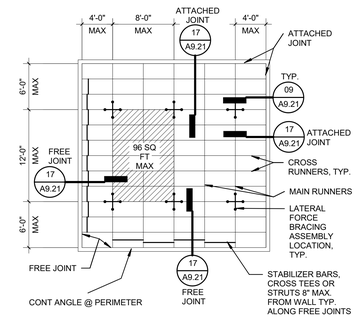
STABILIZER (SEE NOTE 3)

DSA 2.60 - CEILING PERIMETER | 3" = 1'-0" A9.21 | 17



NOTES:
1. STRUTS SHALL NOT REPLACE HANGER WIRES.
2. THE MINIMUM ACCEPTABLE ANGLE IS DETERMINED SUCH THAT THE WIRES DO NOT INTERFERE WITH THE RUNNERS, LIGHT FIXTURES, ETC. AND REMAIN STRAIGHT AND UNOBSTRUCTED.

SUSPENSION AND LATERAL BRACING ASSEMBLY | 3" = 1'-0" A9.21 | 09



NOTE:
BRACING WIRES AND COMP. STRUT SHALL OCCUR AT EVERY 96 SQ. FT. MAX. IN ROOMS OVER 144 SQ. FT.

TYP. CEILING PLAN FOR 8'-0"x12'-0" BRACE SPACING | 1/8" = 1'-0" A9.21 | 05

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

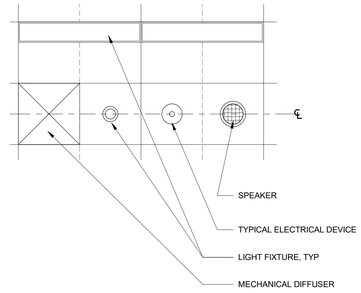
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	09/08/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	As indicated

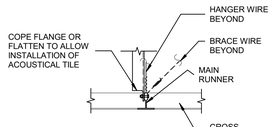
CEILING DETAILS

A9.21



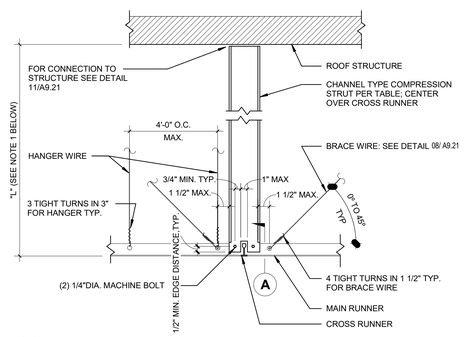
NOTES:
1. CENTER DEVICE ON LIGHT FIXTURE OR MECHANICAL DIFFUSER WHERE OCCURS.
2. IN ACP CEILINGS, CENTER DEVICES IN CEILING TILE, NO MORE THAN TWO DEVICES PER 2x4 TILE.
3. IN ACP CEILINGS, IF ONLY ONE DEVICE OCCURS, CENTER DEVICE IN TILE, BOTH DIRECTIONS.
4. WHERE MULTIPLE DEVICES OCCUR, CONSOLIDATE INTO ONE AREA WHERE POSSIBLE.

TYPICAL DEVICE LAYOUT1 | 1/2" = 1'-0" | A9.22 | 02



SECTION A

COMPRESSION STRUT CHANNEL SECTION	MAXIMUM LENGTH
250S125-33	5' - 10"
250S137-33	6' - 10"
362S137-33	8' - 0"
250S137-43	8' - 10"
400S137-43	10' - 10"



NOTES:
1. DIMENSION "L" SHALL NOT EXCEED THE ALLOWABLE LENGTH GIVEN IN THE TABLE FOR THE COMPRESSION STRUT SECTION USED.

COMPRESSION STRUT - CHANNEL TYPE | 1 1/2" = 1'-0" | A9.22 | 01

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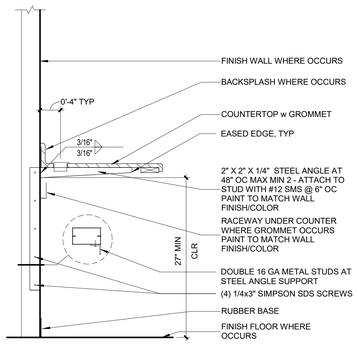
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

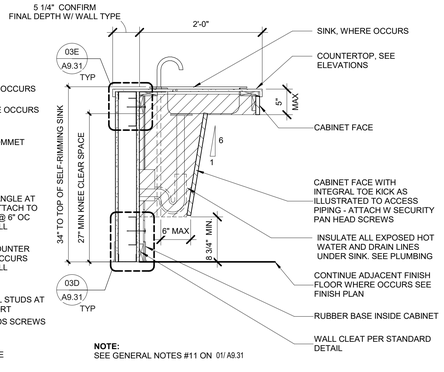
Job Number	32433
Checked By	Checker
Scale	As indicated

CEILING DETAILS

A9.22

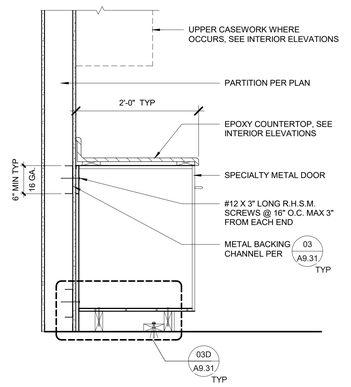


TYPICAL COUNTER SUPPORT | 1" = 1'-0" | A9.31 | 24

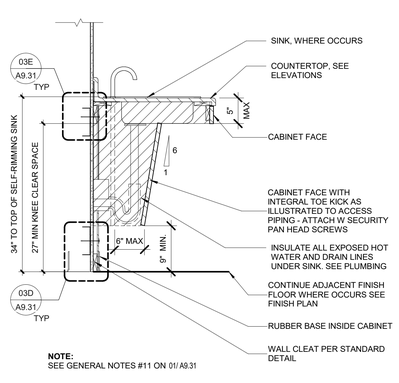


NOTE:
SEE GENERAL NOTES #11 ON 01/ A9.31

TEACHER STATION SINK SKIRT | 1" = 1'-0" | 20

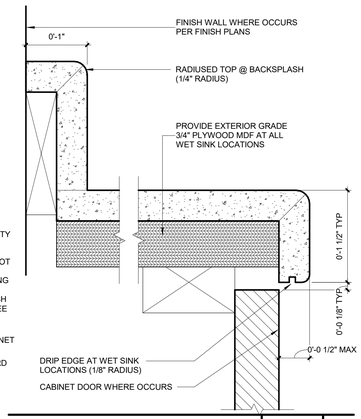


LOWER METAL SPECIALTY CABINET | 1" = 1'-0" | 16

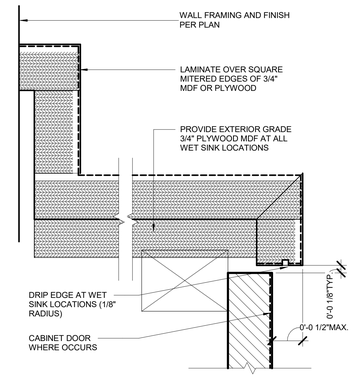


NOTE:
SEE GENERAL NOTES #11 ON 01/ A9.31

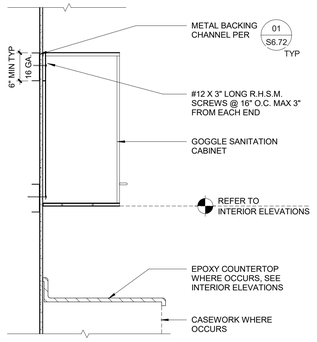
LOWER CABINET WITH SINK SKIRT @ ACCESSIBLE SINKS | 1" = 1'-0" | A9.31 | 12



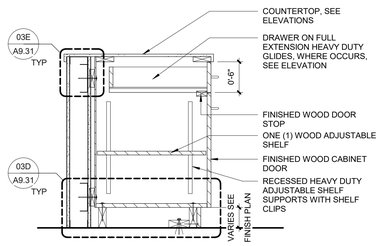
EPOXY COUNTERTOP | 12" = 1'-0" | 08



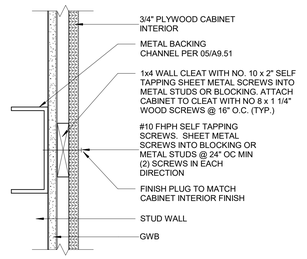
PLASTIC LAMINATE COUNTERTOP | 12" = 1'-0" | 04



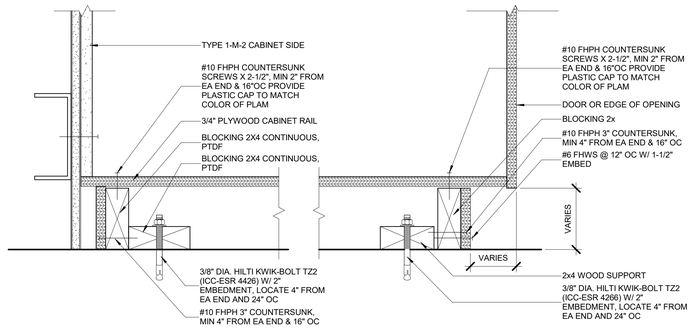
GOGGLE SANITATION WALL ANCHORAGE | 1" = 1'-0" | 23



TEACHER STATION SECTION | 1" = 1'-0" | 19

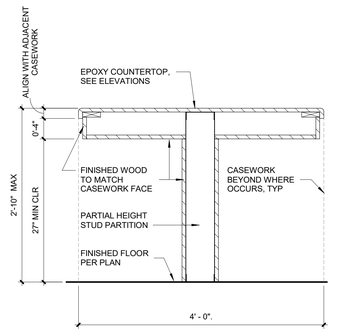


DETAIL E
(METAL ANCHORAGE)

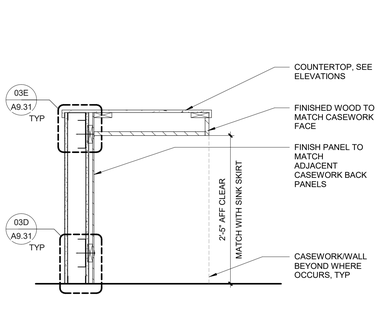


DETAIL D
(BLOCKING)

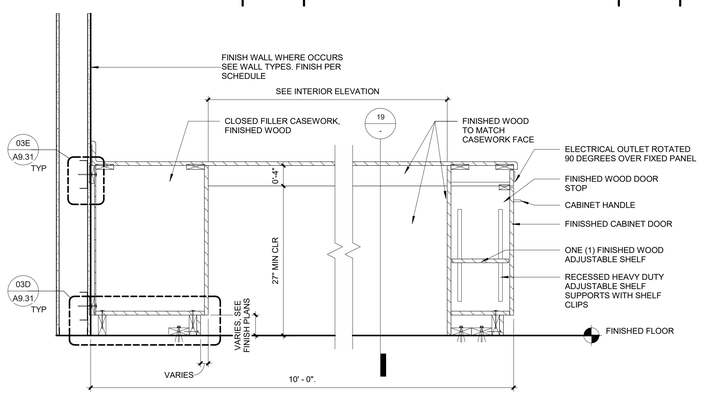
CABINET ANCHORAGE | 3" = 1'-0" | 03



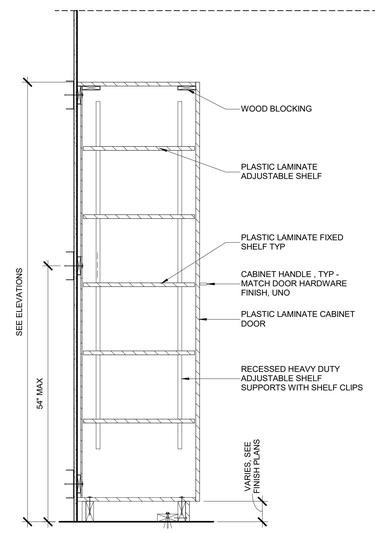
PENINSULA CASEWORK SECTION | 1" = 1'-0" | 22



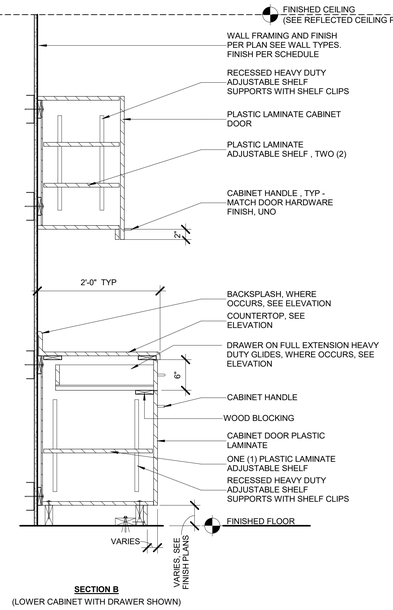
TEACHER STATION CLEAR SPACE | 1" = 1'-0" | 18



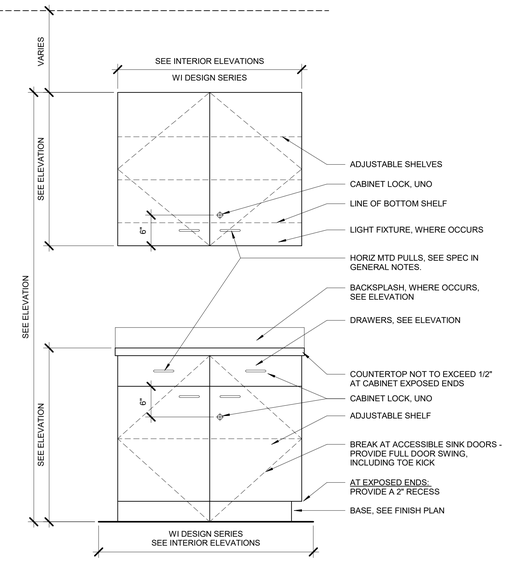
PENINSULA CASEWORK | 1" = 1'-0" | 17



SECTION C
(TALL CABINET)



SECTION B
(LOWER CABINET WITH DRAWER SHOWN)



ELEVATION A

GENERAL NOTES:
1. SEE SPECIFICATION SECTIONS 064000 & 064116.
2. CONSTRUCTION SHALL BE PER THE ARCHITECTURAL WOODWORK INSTITUTE (WI) STANDARDS, LATEST EDITION.
3. FINISH PER PLANS, SCHEDULES, AND LEGEND.
4. WHITE THERMALLY FUSED MELAMINE AT CONCEALED INTERIOR OF CABINETS, UNO
5. AT SINKS, WHEN DOORS OPEN 90° PROVIDE FOR 32" MIN CLEAR BETWEEN KICKS. SEE CBC SECTION 11B-603.3 FOR KNEE CLEARANCE.
6. NO SHARP OR ABRASIVE SURFACES UNDER SINK.
7. ALL JOINTS TO BE CAULKED WITH CLEAR SILICONE CAULK.
8. WRAP HOT & COLD WATER SUPPLIES AND DRAIN PIPING W/ PVC INSULATION MATERIAL COMPLIANT WITH ASTM E84-07, 25 FLAME / 450 SMOKE INDEX.
9. INSTALL SECURE BACKING AT ALL (3) SIDES OF COUNTER.
10. 2x4 #1 DOUGLAS FIR LEDGER BACK & SIDE WALLS.
11. CABINET DOOR PULL, SPEC: FANTASY CREATION, FCM P-81-6 WIRE PULL, FINISH: SATIN NICKEL.
12. LOWER CABINET WITH SINK:
    A. INSULATE ALL EXPOSED HOT WATER AND DRAIN LINES UNDER SINK.
    B. SEE CBC SECTION 11B-603.3 FOR KNEE CLEARANCE.
    C. AREA HATCHED BELOW SINK SHALL BE ACCESSIBLE & CLEAR.
    D. FAUCET CONTROLS TO BE LEVER OR A TYPE NOT REQD GRASPING, PINCHING, OR TWISTING OF THE WRIST W/ 5 LBS FORCE MAX TO OPERATE.

TYPICAL UPPER/LOWER CABINETS | 1" = 1'-0" | 01

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

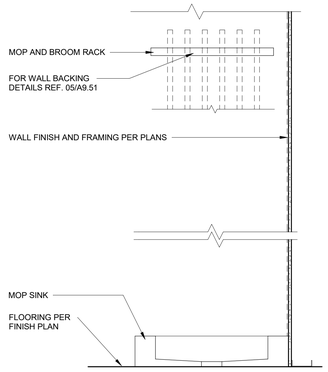
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	07/07/2025
90% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

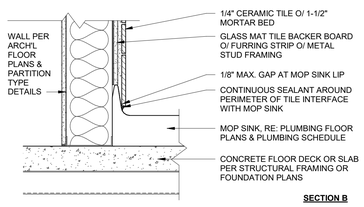
Job Number	32433
Checked By	Checker
Scale	As indicated

CASEWORK DETAILS

A9.31

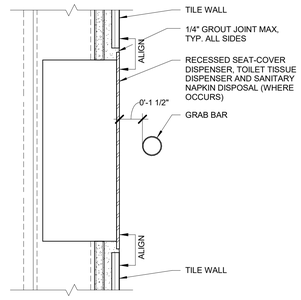


MOP SINK WITH BROOM RACK | 1" = 1'-0" | A9.41 | 16

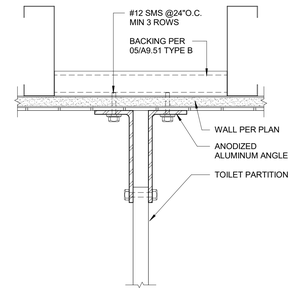


SECTION B

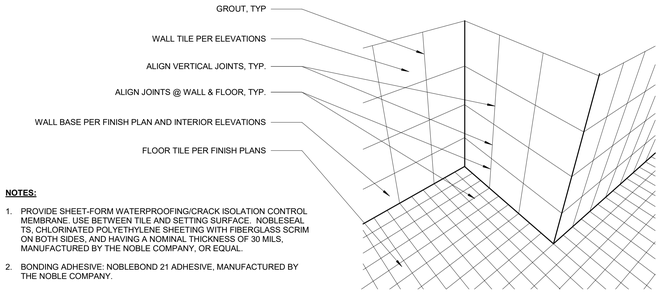
MOP SINK WALLS - SECTION | 1 1/2" = 1'-0" | A9.41 | 12



RECESSED TOILET ACCESSORY | 3" = 1'-0" | A9.41 | 08



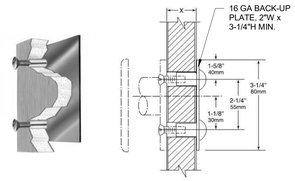
TOILET PARTITION DETAIL | 3" = 1'-0" | A9.41 | 04



NOTES:

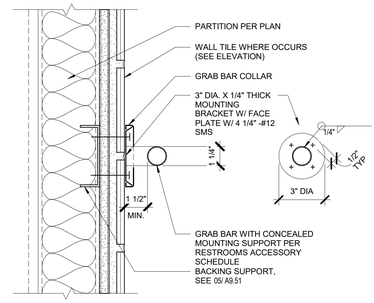
1. PROVIDE SHEET-FORM WATERPROOFING/CRACK ISOLATION CONTROL MEMBRANE. USE BETWEEN TILE AND SETTING SURFACE. NOBLESEAL TS, CHLORINATED POLYETHYLENE SHEETING WITH FIBERGLASS SCRIM ON BOTH SIDES, AND HAVING A NOMINAL THICKNESS OF 30 MILS, MANUFACTURED BY THE NOBLE COMPANY, OR EQUAL.
2. BONDING ADHESIVE: NOBLEBOND 21 ADHESIVE, MANUFACTURED BY THE NOBLE COMPANY.

TILE CORNERS ISOMETRIC | 1 : 6 | A9.41 | 11

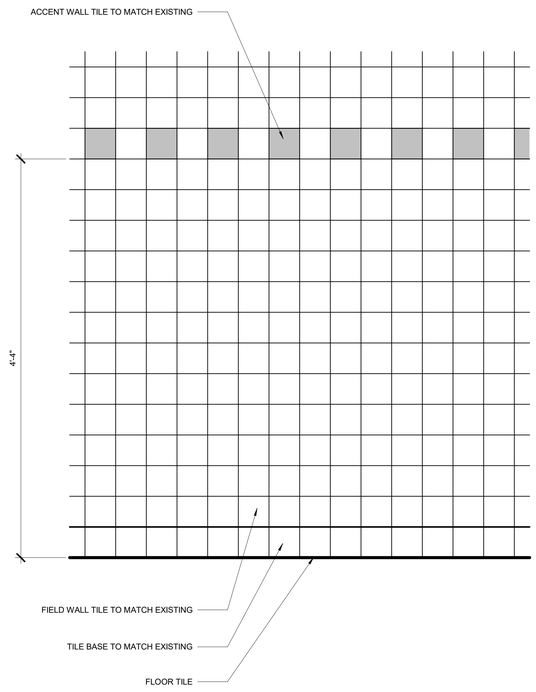


NOTE:
1. ALL GRAB BAR SHALL SPAN 36" MAX. AND BE PROVIDED WITH BACK-UP PLATE
2. REFER TO DSA IR 16-12, 2.3 AND SPEC SECTION 10 2113 FOR GRAB BAR AND ATTACHMENT PART INFORMATION

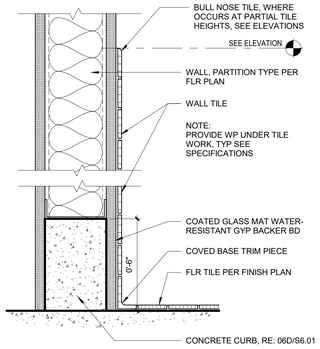
GRAB BAR ATTACHMENT TO TOILET PARTITION | 3/4" = 1'-0" | A9.41 | 07



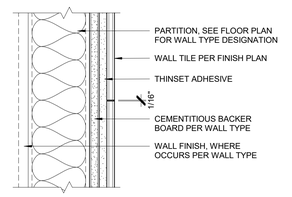
GRAB BAR AND SUPPORT | 3" = 1'-0" | A9.41 | 03



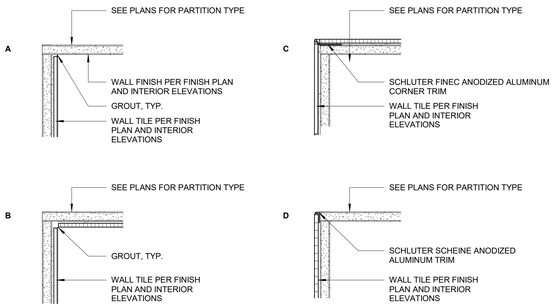
EXISTING WALL TILE PATTERN | 1 1/2" = 1'-0" | A9.41 | 09



TILE AT TOP AND BASE | 3" = 1'-0" | A9.41 | 06



HORIZONTAL TILE JOINT | 3" = 1'-0" | A9.41 | 02



TILE CORNERS | 3" = 1'-0" | A9.41 | 01

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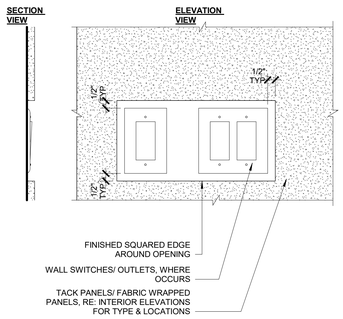
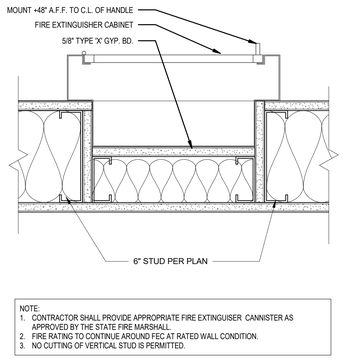
RESTROOM DETAILS

A9.41



TYPICAL WALL PANEL CUTOUT

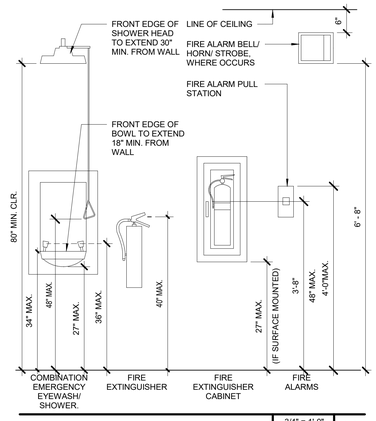
3" = 1'-0" | A9.51 | 20



NOTE:
1. CONTRACTOR SHALL PROVIDE APPROPRIATE FIRE EXTINGUISER CANNISTER AS APPROVED BY THE STATE FIRE MARSHALL.
2. FIRE RATING TO CONTINUE AROUND FEC AT RATED WALL CONDITION.
3. NO CUTTING OF VERTICAL STUD IS PERMITTED.

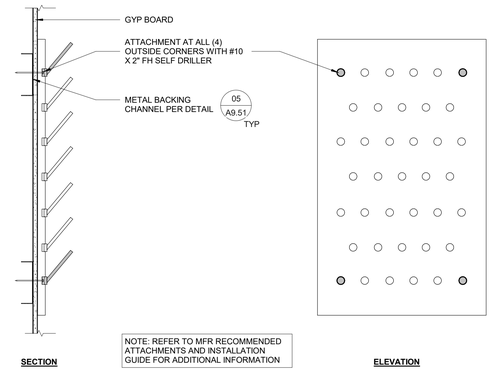
SEMI-REC.FIRE EXT. CAB.

3" = 1'-0" | A9.51 | 16



LAB MOUNTING HEIGHTS

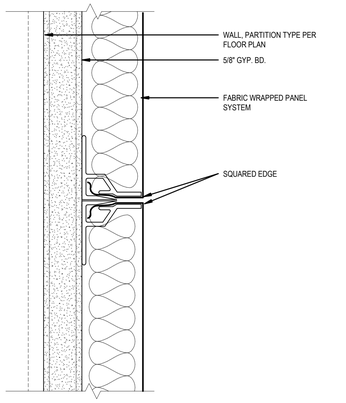
3/4" = 1'-0" | A9.51 | 12



NOTE: REFER TO MFR RECOMMENDED ATTACHMENTS AND INSTALLATION GUIDE FOR ADDITIONAL INFORMATION

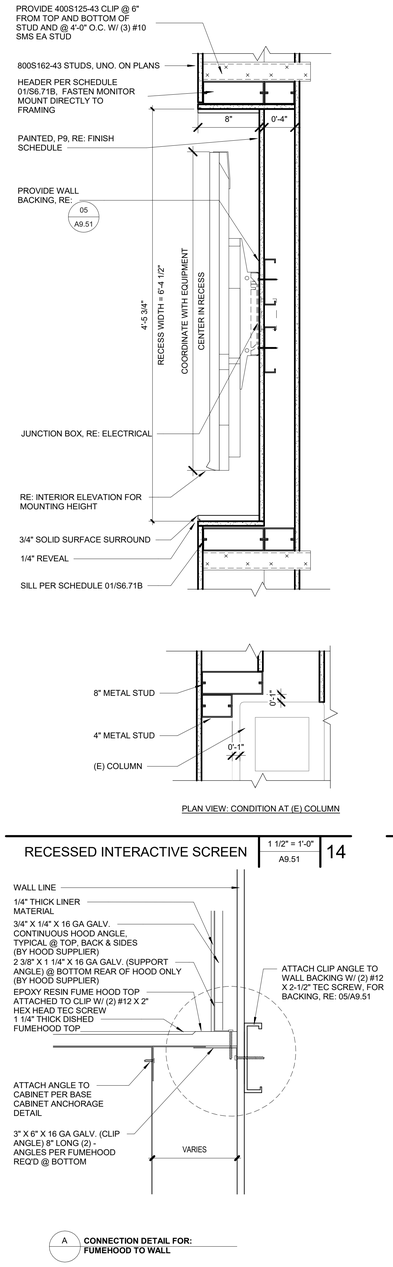
PEGBOARD ATTACHMENT

1 1/2" = 1'-0" | 04



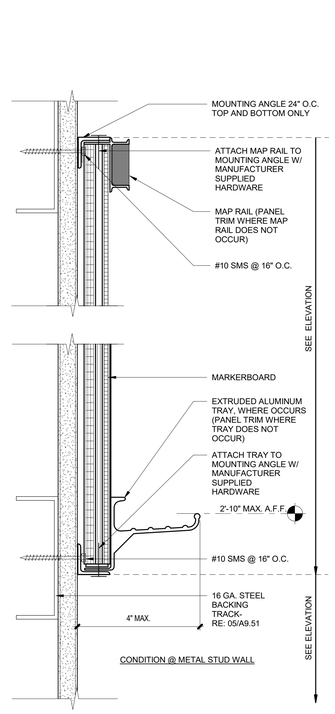
TYPICAL TACKABLE PANEL JOINT

12" = 1'-0" | A9.51 | 19



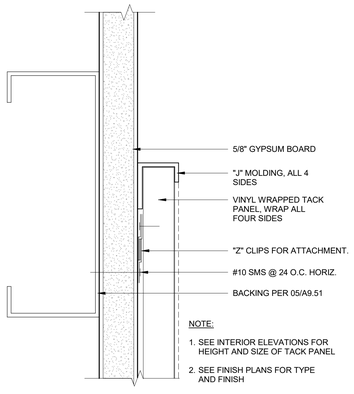
RECESSED INTERACTIVE SCREEN

1 1/2" = 1'-0" | A9.51 | 14



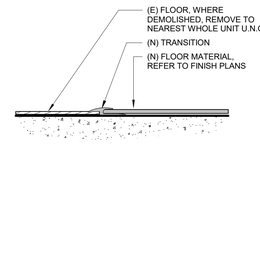
MARKERBOARD SUPPORT

6" = 1'-0" | 10



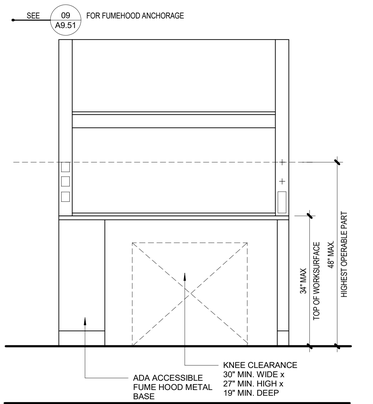
VINYL WRAPPED TACK PANEL

12" = 1'-0" | A9.51 | 07



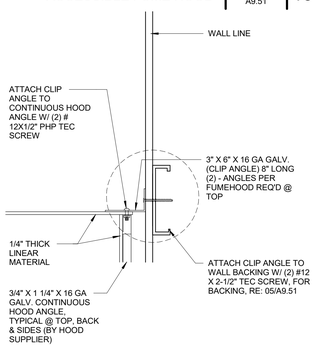
EXISTING FLOORING & NEW FLOORING

3" = 1'-0" | A9.51 | 03



ACCESSIBLE FUME HOOD

3/4" = 1'-0" | A9.51 | 18

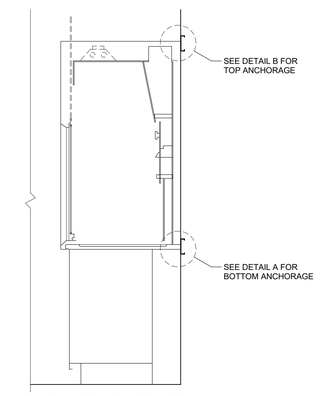


B **CONNECTION DETAIL FOR: FUMEHOOD TO WALL**

TYPICAL DETAIL FOR HOOD TOP AT REAR

A **CONNECTION DETAIL FOR: FUMEHOOD TO WALL**

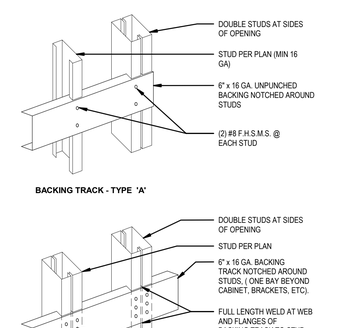
TYPICAL DETAIL FOR HOOD BOTTOM AT REAR



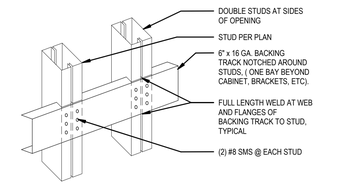
FUMEHOOD BACKING LOCATIONS SECTION

ANCHORAGE @ FUME HOOD

1/2" = 1'-0" | A9.51 | 09



BACKING TRACK - TYPE 'A'



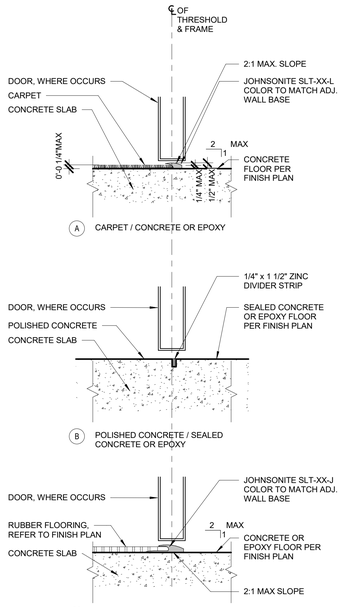
BACKING TRACK - TYPE 'B'

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

3/8" = 1'-0" | A9.51 | 05



NOTE:
UNDERCUT ALL DOORS TO CLEAR FLOOR FINISH BY 1/4" EXCEPT AT RATED DOORS.

INTERIOR FLOOR TRANSITIONS

3" = 1'-0" | A9.51 | 01

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DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

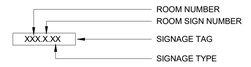
Job Number	32433
Checked By	Checker
Scale	As indicated

INTERIOR DETAILS

A9.51

KEYNOTES

LEGEND



GENERAL NOTES

1. FOR SIGNAGE DETAILS, RE A10.41
2. FOR ACCESSIBILITY SIGNAGE NOTES, RE 01/A10.41
3. FOR SIGNAGE MOUNTING CRITERIA RE 01/A10.41
4. FOR MATERIAL, COLOR, LETTERING, TYPEFACE, SUBMITTAL REQUIREMENTS, REFER TO 01/A10.41

SIGNAGE SCHEDULE

Mark	Type	Sign Text Line 1	Sign Text Line 2	Mounting Location	Braille	Comments
	B-3888					
420.1.	A1	CONFERENCE ROOM	420	WALL	Yes	
420.2.	D2	(SEE DETAIL)		WALL	Yes	
421.1.	A1	CHEMISTRY	421	WALL	Yes	
421.2.	A1	CHEMISTRY	421	WALL	Yes	
421.3.	A1	CHEMISTRY	421	WALL	Yes	
421.4.	D2	(SEE DETAIL)		WALL	Yes	
421.5.	D1	(SEE DETAIL)		WALL	Yes	
421.6.	L	(SEE DETAIL)		WALL	Yes	
422.1.	A1	CHEMISTRY STORAGE	422	WALL	Yes	
422.2.	A1	CHEMISTRY STORAGE	422	WALL	Yes	
423.1.	A1	CHEMISTRY	423	WALL	Yes	
423.2.	A1	CHEMISTRY	423	WALL	Yes	
423.3.	A1	CHEMISTRY	423	WALL	Yes	
423.4.	D2	(SEE DETAIL)		WALL	Yes	
423.5.	D1	(SEE DETAIL)		WALL	Yes	
423.6.	L	(SEE DETAIL)		WALL	Yes	
424.1.	A1	CUSTODIAL	424	WALL	Yes	
425.1.	A1	BIOLOGY STORAGE	425	WALL	Yes	
425.2.	A1	BIOLOGY STORAGE	425	WALL	Yes	
426.1.	A1	BIOLOGY	426	WALL	Yes	
426.2.	A1	BIOLOGY	426	WALL	Yes	
426.3.	A1	BIOLOGY	426	WALL	Yes	
426.4.	D2	(SEE DETAIL)		WALL	Yes	
426.5.	D1	(SEE DETAIL)		WALL	Yes	
426.6.	L	(SEE DETAIL)		WALL	Yes	
426A.1.	A1	ELECTRICAL	426A	WALL	Yes	
428.1.	A1	BIOLOGY	428	WALL	Yes	
428.2.	A1	BIOLOGY	428	WALL	Yes	
428.3.	A1	BIOLOGY	428	WALL	Yes	
428.4.	D2	(SEE DETAIL)		WALL	Yes	
428.5.	D2	(SEE DETAIL)		WALL	Yes	
428.6.	L	(SEE DETAIL)		WALL	Yes	
428A.1.	A1	ELECTRICAL	428A	WALL	Yes	
431.1.	A1	STORAGE	431	WALL	Yes	
433.1.	D1	(SEE DETAIL)		GLAZING	Yes	
433.2.	D2	(SEE DETAIL)		WALL	Yes	
433.3.	A1	SCIENCE		GLAZING	Yes	

01 - FLOOR PLAN SIGNAGE PLAN | 1/8" = 1'-0" | A10.21 | 05

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

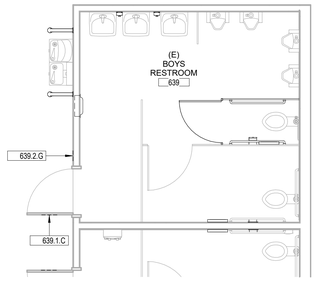
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	07/07/2025
95% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

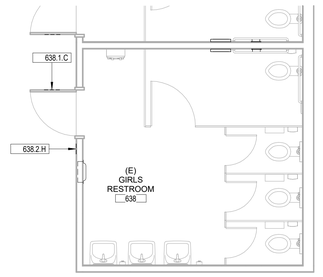
Job Number	32433
Checked By	Checker
Scale	1/8" = 1'-0"

FLOOR SIGNAGE PLAN AND SCHEDULE

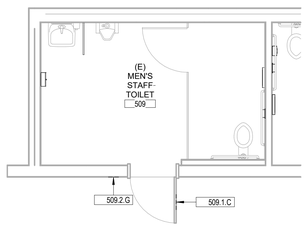
A10.21



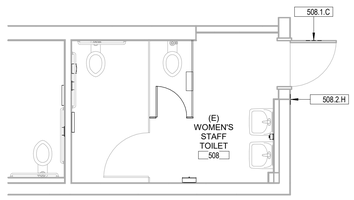
01 - ENLARGED SIGNAGE PLAN - BLDG 600 - BOYS RESTROOM | 1/4" = 1'-0" | A10.22 | 08



01 - ENLARGED SIGNAGE PLAN - BLDG 600 - GIRLS RESTROOMS | 1/4" = 1'-0" | A10.22 | 07



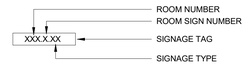
01 - ENLARGED SIGNAGE PLAN - BLDG 500 - MEN RESTROOMS | 1/4" = 1'-0" | A10.22 | 06



01 - ENLARGED SIGNAGE PLAN - BLDG 500 - WOMEN RESTROOMS | 1/4" = 1'-0" | A10.22 | 05

KEYNOTES

LEGEND



GENERAL NOTES

1. FOR SIGNAGE DETAILS, RE A10.41
2. FOR ACCESSIBILITY SIGNAGE NOTES, RE 01/A10.41
3. FOR SIGNAGE MOUNTING CRITERIA RE 01/A10.41
4. FOR MATERIAL, COLOR, LETTERING, TYPEFACE, SUBMITTAL REQUIREMENTS, REFER TO 01/A10.41

SIGNAGE SCHEDULE

Mark	Type	Sign Text Line 1	Sign Text Line 2	Mounting Location	Braille	Comments
433.4.	A1	SCIENCE		WALL	Yes	
433A.1.	A1	ELECTRICAL	433A	WALL	Yes	
508.1.	C	(SEE DETAIL)		DOOR	Yes	
508.2.	H	(SEE DETAIL)		WALL	Yes	
509.1.	C	(SEE DETAIL)		DOOR	Yes	
509.2.	G	(SEE DETAIL)		WALL	Yes	
638.1.	C	(SEE DETAIL)		DOOR	Yes	
638.2.	H	(SEE DETAIL)		WALL	Yes	
639.1.	C	(SEE DETAIL)		DOOR	Yes	
639.2.	G	(SEE DETAIL)		WALL	Yes	

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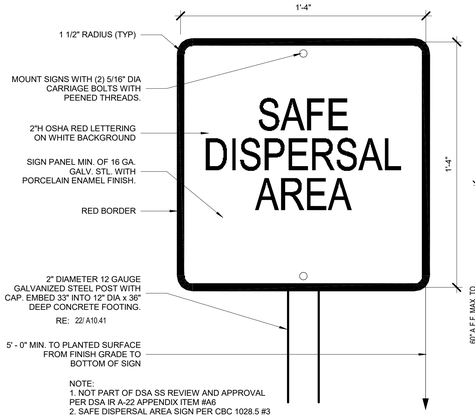
DSA BACK CHECK	01/27/2026

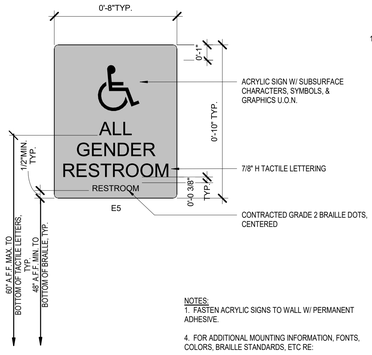
Job Number	32433
Checked By	Checker
Scale	As indicated

FLOOR SIGNAGE PLAN
AND SCHEDULE

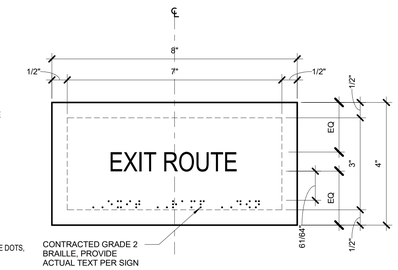
A10.22



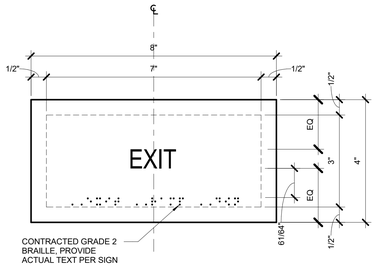
SIGN TYPE 'S-1' SAFE DISPERSAL AREA SIGN | 3" = 1'-0" | A10.41 | 24



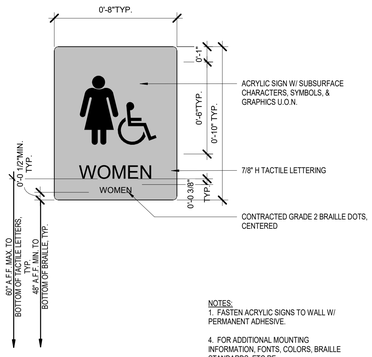
TYPE 'J' RESTROOM SIGNAGE | 3" = 1'-0" | A10.41 | 20



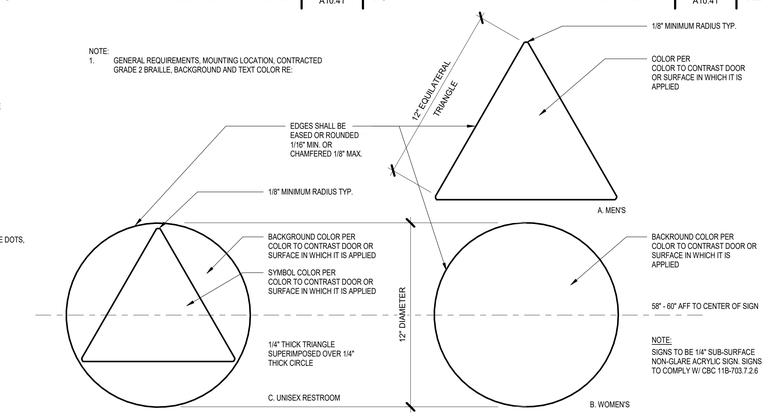
TYPE 'D2' - EXIT ROUTE | 6" = 1'-0" | A10.41 | 16



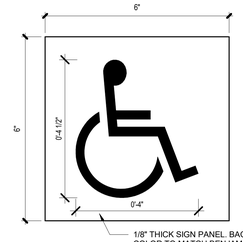
TYPE 'D1' - EXIT | 6" = 1'-0" | A10.41 | 12



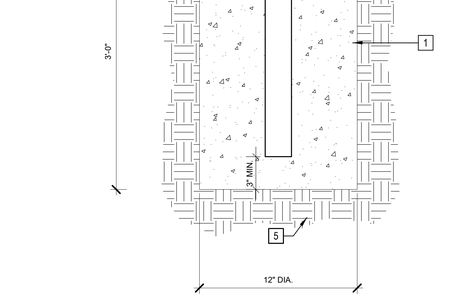
TYPE 'H' RESTROOM SIGNAGE | 3" = 1'-0" | A10.41 | 19



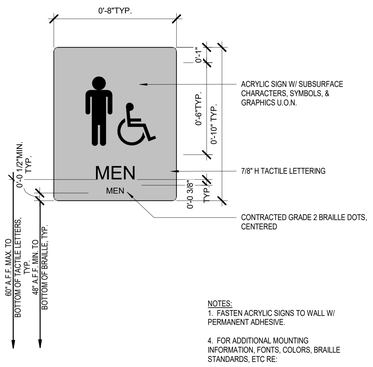
TYPE 'C' RESTROOM DOOR SIGNAGE | 6" = 1'-0" | A10.41 | 11



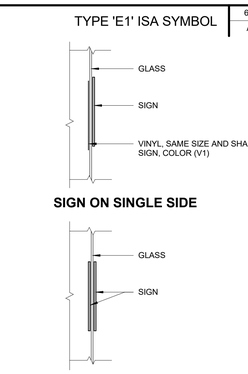
TYPE 'E1' ISA SYMBOL | 6" = 1'-0" | A10.41 | 07



SIGN TYPE S-1 POST FOOTING | 1 1/2" = 1'-0" | A10.41 | 22



TYPE 'G' RESTROOM SIGNAGE | 3" = 1'-0" | A10.41 | 18

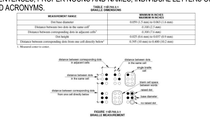


GLASS SIGN MOUNTING | 3" = 1'-0" | A10.41 | 06

GENERAL NOTES:

1. CHARACTER TYPE AND SIZE:
CHARACTERS ON SIGNS SHALL BE RAISED 1/32", UPPER CASE, 'HELVETICA MEDIUM' SANS SERIF AND SHALL BE ACCOMPANIED WITH CALIFORNIA GRADE II BRAILLE. RAISED CHARACTERS SHALL BE AT LEAST 5/8" HIGH, BUT NO HIGHER THAN 2".

2. BRAILLE STANDARD DIMENSIONS:
CALIFORNIA GRADE II BRAILLE SHALL BE USED WHEREVER BRAILLE IS REQUIRED. BRAILLE DOTS SHALL HAVE A DOMED OR ROUNDED SHAPE AND SHALL COMPLY WITH TABLE 11B-703.3.1.
THE INDICATION OF AN UPPERCASE LETTER OR LETTERS SHALL ONLY BE USED BEFORE THE FIRST WORD OF SENTENCES, PROPER NOUNS AND NAMES, INDIVIDUAL LETTERS OF THE ALPHABET, INITIALS, AND ACRONYMS.



3. POSITION:
BRAILLE SHALL BE POSITIONED BELOW THE CORRESPONDING TEXT IN A HORIZONTAL FORMAT, FLUSH LEFT OR CENTERED. IF TEXT IS MULTI-LINED, BRAILLE SHALL BE PLACED BELOW ENTIRE TEXT. BRAILLE SHALL BE SEPERATED 3/8" (9.5MM) MIN. AND 1/2" (12.7MM) MAX. FROM ANY OTHER TACTILE CHARACTERS AND 3/8" (9.5MM) MIN. FROM RAISED BORDERS AND DECORATIVE ELEMENTS.

4. FINISH AND CONTRAST:
CHARACTERS, SYMBOLS AND THEIR BACKGROUNDS SHALL HAVE AN MATTE, OR OTHER NON-GLARE FINISH AND CONTRAST 70% MIN. WITH THEIR BACKGROUNDS.
CHARACTERS & SYMBOLS - CUSTOM COLOR TO MATCH P1 COLOR
BACKGROUND - CUSTOM COLOR TO MATCH TO MATCH P2 COLOR
PANEL - 1/8" THICK ACRYLIC PANEL WITH PHOTO POLYMER RAISED TACTILE COPY
SUB-SURFACE SYMBOL (U.N.O.) AND 1/4" RADIUS CORNERS

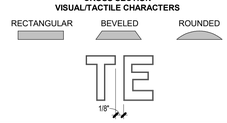
5. PROPORTIONS:
CHARACTERS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60% MIN. AND 110% MAX. OF THE HEIGHT OF THE UPPERCASE LETTER "I." STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 15% MAX. OF THE HEIGHT OF THE CHARACTER, 11B-703.2.4, 11B-703.2.6

6. EXTERIOR SIGNS SHALL BE METAL COMPONENTS SUITABLE TO EXTERIOR USE AND SIMILAR TO INTERIOR SIGNS FOR SHAPE AND FORM. SIGNAGE IS TO BE COLOR MATCHED TO BUILDING MULLIONS. ALL EXTERIOR SIGNAGE TO BE MECHANICALLY FASTENED WITH CONCEALED ATTACHMENTS

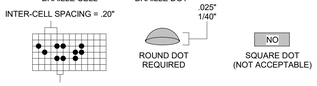
7. CONTRACTOR TO SUBMIT A SCHEDULE TO VERIFY ALL PERMANENT NUMBERS AND TEXT PRIOR TO FABRICATION.

8. SIGNAGE SHALL COMPLY WITH CBC SECTION 11B-703.

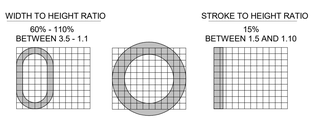
CROSS SECTION
VISUAL/TACTILE CHARACTERS



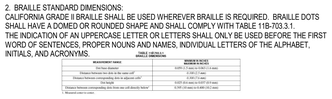
CHARACTER SPACING



FONT RATIO



CONTRAST
MINIMUM 70% CONTRAST DIFFERENCE BETWEEN CHARACTERS/GRAPHICS AND BACKGROUND



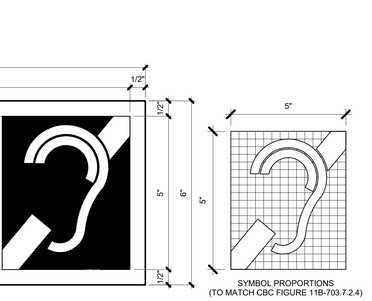
STATE FIRE MARSHAL NOTES:
CALIFORNIA BUILDING CODE, SECTION 1013.4 RAISED CHARACTER AND BRAILLE EXIT SIGNS

TACTILE EXIT SIGNS SHALL BE REQUIRED AT THE FOLLOWING LOCATIONS:

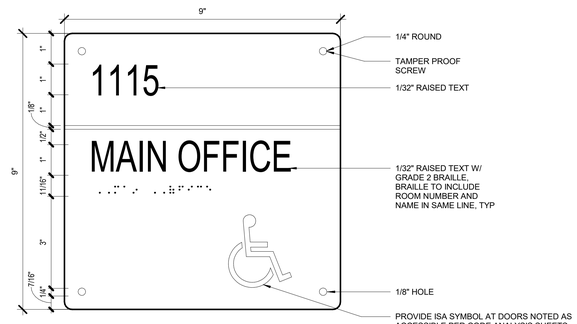
1. "EXIT" SIGN @ EACH GRADE LEVEL EXTERIOR EXIT DOOR.
2. EACH EXIT DOOR THAT LEADS DIRECTLY TO A GRADE-LEVEL EXTERIOR EXIST BY MEANS OF A STAIRWAY OR RAMP SHALL BE IDENTIFIED BY A TACTILE EXIT SIGN WITH THE FOLLOWING WORDS AS APPROPRIATE: "EXIT STAIR DOWN," "EXIT RAMP DOWN," "EXIT STAIR UP," OR "EXIT RAMP UP"
3. "EXIT ROUTE" SIGN @ EACH EXIT DOOR THAT LEADS DIRECTLY TO A GRADE LEVEL EXTERIOR EXIT BY MEANS OF AN EXIT ENCLOSURE OR AN EXIT PASSAGEWAY.
4. "EXIT ROUTE" SIGN @ EACH EXIT ACCESS DOOR FROM AN INTERIOR ROOM OR AREA TO A CORRIDOR OR HALLWAY THAT IS REQUIRED TO HAVE VISUAL EXIT SIGNS.
5. "TO EXIT" SIGN @ EACH EXIT ACCESS DOOR THROUGH A HORIZONTAL EXIT.

NOTE:
* SIGNAGE SHALL COMPLY WITH CBC SECTION 11B-703 AND CFC SECTION 1013.4

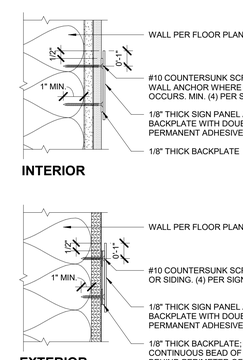
SIGNAGE GENERAL NOTES | 12" = 1'-0" | A10.41 | 02



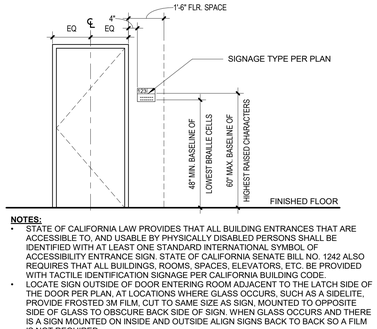
TYPE 'L' ASSISTIVE LISTENING SIGNAGE | 6" = 1'-0" | 17



TYPE 'A1' ROOM ID SIGNAGE | 6" = 1'-0" | 09



SIGNAGE CONCEALED MOUNTING | 3" = 1'-0" | A10.41 | 05



DOOR SIGN MOUNTING | 3" = 1'-0" | A10.41 | 01

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DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	As indicated

SIGNAGE DETAILS

A10.41

STRUCTURAL STEEL

1. Provide readily identifiable structural steel compliant with Applicable Code Section 2202A.1.

2. Structural Steel: Furnish structural steel complying with the following ASTM standard specifications unless noted otherwise:

Use/Shape	Type/Grade	GWP Limit (unfabricated) ($MT\ CO_2e/MT$)	Notes
Wide Flanges and Channels	ASTM A992, Grade 50	1.01	
Angles	ASTM A572, Grade 50	1.01	
Plates	ASTM A572, Grade 50	1.49	
Hollow Structural Sections (rectangular and round)	ASTM A500, Grade C (50 ksi)	1.71	
Pipes:	ASTM A53, Grade B (35 ksi)		
Anchor Rods:	ASTM F1554, Grade 55		Weldable All Threaded
Headed Anchor Bolts	ASTM F1554, Grade 55		Weldable

3. Holes for Bolted Connections and Anchor Rods: AISC "standard" holes, unless noted otherwise. See note below for oversized holes for anchor rods in non-frame base plates.

4. N/A

5. Welding:
   A. Applicable Welding Standard: Applicable Code and latest adopted edition of AWS D1.1 and D1.8.
   B. Pre-qualified and Non-Pre-qualified Welds: Welds shall be pre-qualified in compliance with Applicable Welding Standard. Where non-pre-qualified welds are to be used, qualify by test and procedure qualification test record complying with Applicable Welding Standard.
   C. Work performed by Welders and Inspectors: Adhere to approved Welding Procedure Specification (WPS). Each welder and inspector shall retain a copy of WPS.
   D. Pre-construction Meeting: Conduct to include Architect (Structural Engineer), fabricator, erector, Contractor and inspectors to discuss Welding Procedure Specification (WPS).
   E. Welding Procedure Specification (WPS): The fabricator/erector shall develop a WPS in compliance with the Applicable Welding Standard. Submit the WPS to the Architect (Structural Engineer) for record before fabrication. Procedures submitted shall result in completed connections that comply with the design intent of structural drawings. No deviation from structural drawings is permitted unless otherwise accepted by Architect (Structural Engineer) and approved by Governing Code Authority.
   F. Welding Electrode (Filler Metal): E70xx (70 ksi) uno, provide filler metal with Charpy V-notch toughness of 20 ft/lbs at -20 degrees Fahrenheit at complete penetration groove welds.
      a. Welding Electrode (Filler Metal): E70xx (70 ksi) UNO, provide filler metal with Charpy V-notch toughness of 20 ft/lbs at -20 degrees Fahrenheit at complete penetration groove welds.
      b. N/A.
      c. N/A.
   G. N/A
   H. Fabricators: Perform shop welds by fabricators approved by LA City or AISC.
      a. Welder Qualification: Welders, regardless if Work is performed in shop or in field, shall be qualified for the Work they will be doing and shall have certifications current and acceptable to Governing Code Authority.
      b. Special inspection shall be required for all welding, as required by governing code authority.
   I. Welds Exposed to View:
      a. Faces of fillet welds exposed to view shall have as-welded surfaces that are reasonably smooth and uniform. No finishing or grinding shall be required, except where clearances or fit of other items may so necessitate.
      b. Partial and full penetration welds exposed to view shall be ground smooth and flush with finish surface of steel. Remove backup bars and weld tabs. Fill holes with weld metal or body solder and smooth by grinding or filing.
   J. Groove Preparation: Clean groove preparation thermal cuts by grinding.
   K. Termination of Welds: Terminate at joint ends in a manner that ensures sound welds. Use extension bars and run-off tabs whenever necessary.
   L. Hand-held Calibrated Amp and Volt Meters: To be used by fabricator, erector and inspectors to assure proper amperage and voltage of welding process. Measure amperage and voltage at arc. Verify travel speed and electrode stick-out in compliance with electrode manufacturer's recommendations and with approved WPS.
   M. Storage of Electrodes: Adhere to Section 5.3 of AWS D1.1.
   N. N/A.
   O. Welding of ASTM A913 Materials: Perform according to requirements of latest edition of AWS standard, structural drawings and specifications, whichever is more stringent.
   P. Minimum Fillet Weld Size: Where minimum fillet weld size, as stipulated by AISC Section J2 and Table J2.4, exceeds fillet weld size indicated on structural drawings, use AISC stipulated size.
   Q. Minimum Groove or Butt Weld Size: Provide complete penetration unless indicated otherwise.
   R. Minimum Flare Bevel Weld Size: Provide weld flush to outside face of surface unless indicated otherwise.
   S. Weld Length: Length of welds shown are net effective lengths. Where length of weld is not indicated, provide weld full length of joint.
   T. Welding at Galvanized Steel: Galvanization shall be ground off prior to welding. Repair galvanization after completion of welding.

6. Shop Drawings: Submit To Architect (Structural Engineer) for review and, upon request, to Governing Code Authority. Include sequence of erection procedures from approved WPS:

7. Sustainable Design Submittals: Submit type III factory-specific or product-specific environmental product declaration (EPD) for each of the following products:
   A. Hot Rolled Structural Steel
   B. Hollow Structural Steel
   C. Steel Plate

8. Fabrication: Perform in shop approved by LA City or AISC
   A. Moment Connections: Orient flange stiffener plates and cap plates used in moment connections so that rolling direction of plate is parallel with direction of principal stress.
   B. Horizontal Members: Place natural camber up.
   C. Filler Plates: Provide at splices of parts having more than 1/8-inch difference in thickness. Filler plates to match grade of material spliced.

9. Traceability:
   A. Material tracing is required for all steel including miscellaneous metals, connectors, and steel products manufactured by third parties. The contractor is advised that material tracing is required as directed by DSA and the project inspection team and may include any or all of the levels of traceability described below:
      a. Lot traceability: materials can be traced to the set of mill test reports (MTRs) for the project.
      b. Piece-mark traceability: heat number can be correlated to each piece mark.
      c. Piece traceability: heat number can be correlated for each piece, which requires separate piece marks for each piece, or marking of each individual piece with its heat number.
   B. Prior to placing the mill order, the contractor shall schedule a preconstruction meeting to include the AOR, SEOR, PI and inspectors responsible for inspection of the steel material fabrication and erection/installation for the purpose of reviewing material traceability requirements.
   C. The contractor shall include the cost of piece traceability in their basic services and provide deductive alternates for piece-mark and lot traceability to be provided as a credit to the Owner.

10. Cleaning: After fabrication, clean steel surfaces free of rust, loose mill scale, and oil.

11. N/A.

12. N/A.

13. Exposure to Weather: UNO, All structural steel (including connection elements) exposed to weather shall be hot dipped galvanized or coated in high performance exterior grade paint. Coordinate finishes with architect at AESS. At welding on galvanized or painted members, remove and repair galvanization or paint as required.

14. Exposure to View: All structural steel (including connection elements) exposed to view in the completed structure shall be designated Architecturally Exposed Structural Steel (AESS) UNO. AESS classification of members, unless a more restrictive class is indicated in Architectural drawings or project specifications, shall be as follows:
    A. All Exposed Steel, UNO: AESS-1

15. N/A

16. See QUALITY ASSURANCE general notes for non-destructive testing.

17. N/A.

18. N/A.

19. Field weld flag symbols indicate design intent but are not requirements. Whether a weld is to be made in the shop or in the field is means and methods to be coordinated by the contractor.

20. Where bent plates specified cannot be bent due to thickness, provide two plate pieces joined with a complete penetration weld.

DESIGN LOADING

1. Loading and Design Parameters:
   A. Live Load
      a. Floor / Roof Live Load: Per CBC 1607A.1. See legends as provided on plan sheets.
   B. Wind Design Parameters

Wind Speed Strength level, V:	101 MPH (STRENGTH)
a. Wind Speed Allowable Stress, V_{asd}	78 MPH (ASD)
b. Risk Category:	III
c. Exposure:	C
d. Enclosure Classification:	Enclosed
• Internal Pressure Coefficient, GC_{Pi}:	+/-0.18

   C. Project Seismic Design Parameters:

a. Site Class:	D - Default
b. Mapped Spectral Acceleration (S_s, S_1):	1.8 g, 0.635 g (respectively)
c. Site Specific Spectral Response Coefficient (S_{DS}, S_{D1}):	1.44 g, 0.72 g (respectively)
d. Site Coefficient (F_a, F_v):	1.2, 1.7 (respectively)
e. Risk Category:	III
f. Seismic Importance Factor I_e:	1.25
g. Seismic Design Category:	D

CAST-IN-PLACE CONCRETE

1. Concrete mixing shall comply with ASTM C94.

2. Hydraulic Cement:
   A. ASTM C595 see table for types.
   B. Alternatively, ASTM C150 type II/V.

3. Aggregates:
   A. Normal Weight Concrete Aggregate (NW): ASTM C33 for aggregates of natural sand and rock. The maximum aggregate size is noted in the table below. The maximum dry density shall be 145 pcf.
      a. Where smaller aggregate is required for workability or areas of congestion, the contractor shall submit a request to the structural engineer prior to submitting the mix design. Pea gravel is not permitted.
   B. Light Weight Aggregate (LW) for Structural Concrete: ASTM C330, expanded shale lightweight aggregate. The maximum dry density shall be 115 pcf.
   C. Alkali Aggregates: Aggregate shall be non-reactive per ASTM C1778.

4. See the table below for the required concrete properties:

Class	Use/Location	Strength (psi) 28-Day	Agg Type	Max Agg Size (in)	Slump (in)	Max w/c	Target Air %	ASTM C595 Type	Exposure Category	GWP Limit $kgCO_2e/m^3$
A	UNLESS NOTED OTHERWISE	4,000	NW	1	3-5	0.5	--	IL	F0,S0	324
B	FOOTING AND GRADE BEAMS	4,000	NW	1	3-5	0.5	--	IL (HS)	F0,S2	324
C	SLAB ON GRADE	4,500	NW	1	3-5	0.45	--	IL	F0,S0	378

5. Slump: Per ACI 301, CH. 4 and CBC section 1705A.3. The specified slump above is measured before applying chemical add mixtures. The slump may be increased at the contractor's option for workability and should be noted in the mix design submittal.

6. Global Warming Potential (GWP): as defined in the specifications.
   A. Concrete may be considered one product category to comply with the GWP Limit. A weighted average of the maximum GWP for all concrete mixes installed in the project shall be less than the weighted average maximum GWP as specified above. Calculations shall be submitted for approval.

7. Air content shall be +/- 1.5 percentage points from the specified target air content in the table above.

8. All concrete above grade, including slab on grade, deck fill, wall, topping slab, stair landing and tread, shall have 1.5 pounds of 3/4" long fibrous reinforcing per cubic yard of concrete.

9. Lean Concrete: Where specifically indicated, containing 2 sacks of cement per cubic yard of concrete. Use only where specifically called for.

10. Non-shrink Grout: ASTM C1107, cementitious, non-metallic, attaining a compressive strength of 8000 psi.

11. Concrete Mix Design Submittal: Prior to ordering concrete, submit for each compressive strength and type of concrete required designed, mix designs signed, and sealed by a registered Civil or Structural Engineer in State of California to Architect (Structural Engineer), Special Inspector and to Governing Code Authority complying with California Building Code, Chapter 19A.

12. Sustainable Design Submittals: For each concrete mix design to be used on site, submit a Type III factory-specific or product-specific environmental product declaration (EPD).

13. Construction Joint: Roughen surface to 1/4-inch amplitude. Clean, remove laitance, thoroughly wet and remove standing water before placing new concrete. Submit to the Architect (Structural Engineer) at least 14 days prior to placing concrete indicating locations of construction joints and extent of pours. Place joints at locations to minimize the effects of shrinkage as well as being placed at points that least impair the strength of the structure. Provide dowels as directed.

14. Embedments and Penetrations in Concrete: No penetration through structural concrete is permitted unless shown in these drawings or specifically accepted in writing by the Architect (Structural Engineer). Do not cut any reinforcing.
   A. Pipes, Sleeves, Conduits, and Ducts: Not permitted embedded or penetrating concrete spread footings, columns, walls or concrete cast over metal decking, except as shown in these drawings.
   B. Conduits Embedded in Structural Concrete Slabs: Not permitted unless limited to two layers of 1 inch, and 1/6 slab thickness. outside diameter conduits and smaller spaced at least 3 inches center to center and within middle third of slab thickness. No conduit embedded in concrete cast over metal decking is permitted. No aluminum conduit is permitted.

15. Chamfered Corners: Provide 3/4-inch chamfer at exposed corners of columns, beams and walls except where structural walls are laid flush with column or beam faces, unless detailed otherwise.

16. Curing: Maintain concrete above 50 degrees Fahrenheit and in a moist condition for a minimum of 7 days after placement unless otherwise accepted by the Architect (Structural Engineer).

17. N/A.

18. N/A.

19. The maximum water-soluble chloride ION (CI) content in concrete by percentage of weight cement is 0.30.

EARTHWORK and FOUNDATIONS

1. Grading, Excavations, Backfill and Compaction of Backfill: Comply with the requirements of the Governing Code Authority and perform only under the Continuous Special Inspection of the IOR.

2. Foundation Excavations: Excavations are to be inspected by the IOR prior to the placement of reinforcing steel and formwork. Ensure excavations are clean, dry and free of debris or loose soil. Cast concrete directly against excavated surfaces as soon as possible. Do not allow water in excavations after final compaction and before concrete placement.

3. Allowable Foundation Design Values per Chapter 18A of CBC.
   A. Bearing Capacity: 1500 psf.
   B. Passive Lateral Bearing Pressure: 200 psf/ft.

GENERAL

1. Authority Having Jurisdiction (AHJ): Division of the State Architect (DSA SS)
   Applicable Building Code 2022 California Building Code (CBC) as modified by AHJ. References to industry standards herein shall be the latest edition as adopted by the Applicable Code.

2. Field Verification: Field verify the existing conditions and dimensions prior to construction. Promptly notify the Architect (Structural Engineer) in case of discrepancies.

3. Design Intent: Contract Documents indicate the design intent for the structure in its completed state. They do not indicate the method of construction. Promptly notify the Architect (Structural Engineer) prior to proceeding with the Work if the design intent requires further clarification.

4. Deviations, Modifications and Substitutions to Approved Structural Drawings: Must be accepted in writing by the Architect (Structural Engineer) and approved by AHJ. No deviation, modification or substitution will be accepted via shop drawing review.

5. Procedures of Construction: The contractor is responsible for procedures of construction that comply with national, state and local safety ordinances. Site visits (including Structural Observation) by the Architect (Structural Engineer) do not constitute supervision of the methods of construction.
   A. Protection of Utilities: Locate existing utilities, including those not shown on Contract Documents, and protect them from damage. The contractor bears the expense of repair or replacement of utilities in conjunction with the execution of Work.
   B. Excavations: Protect structure, adjacent structures, adjacent properties, streets, and utilities during excavation utilizing lagging, shoring, underpinning and related procedures as may be required. Provide necessary support for soil at the sides of excavations. The contractor and affected trades shall refer to the Geotechnical Report for more information.
   C. Protection of Structure: Provide necessary measures to protect the structure and adjacent buildings during the execution of Work.
   D. Contractor Proposed Revisions: Where a revision of structural design or connection is proposed by the Contractor to accommodate construction tolerances, construction sequence and/or dimension modifications, the Contractor shall retain a structural engineer licensed in the State having jurisdiction to perform design. Submit stamped and signed design drawings and calculations to the Architect (Structural Engineer) for review and to the AHJ for approval.
   E. Erection Plans: Determine phases of Work requiring erection plans according to applicable safety regulations. Maintain certified copies of erection plans at the site during construction.
   F. Shoring, Bracing, and Other Temporary Supports: Design and erect shoring, bracing, and other temporary supports where the structure has not attained design strength and as required for safe erection. Ensure floor, roof, and wall members are securely shored and braced during construction. Provide shoring at elevated beams and slabs supporting concrete or masonry walls during and after the wall pour until the wall attains design strength.
   G. Temporary Loading: Ensure construction loads do not exceed indicated design live load values. Notify affected sub-contractor trades of these design load limits.
   H. Fabrication, Shipment, and Erection of Structural Steel: Ensure stresses occurring during fabrication, shipment, and erection of structural steel are temporary and are less than the design and allowable stress capacities of individual members. Do not impair the full design and load-carrying capacity of members due to fabrication, shipment, or erection. The contractor is responsible for controlling the erection sequence, erection procedure, temperature differentials and weld shrinkage to minimize residue stresses. Provide additional materials for the erection of structural steel, such as temporary bracing and guy cables, as may be necessary at no additional cost. Remove these materials unless approved in writing by the Owner. Do not tighten bolts in typical beam to column connections for erection purposes.
   I. Securing Reinforcing Steel, Dowels, Anchor Bolts and Embeds: Firmly support and accurately place complying with ACI standards prior to casting concrete or grout in masonry walls. Use ties and support bars in addition to reinforcing steel shown where necessary. No welding of reinforcing steel, including tack welding, is permitted unless otherwise accepted in writing by the Architect (Structural Engineer). Provide plastic or plastic-coated chairs and spacers when resting on exposed surfaces.
   J. Coordination Responsibility: The Contractor is responsible for the coordination of Work, including that of sub-contractor trades.
      A. Core-drilling of hardened concrete shall only be done after a specific review by the Architect (Structural Engineer). Core drilling shall not cut any reinforcing. Concrete coverage for reinforcement, as described in these notes, shall be maintained at the locations of cores.

6. Submittals: Submit to the Architect (Structural Engineer) as indicated on structural drawings and specifications. The General Contractor shall review the submittal for completeness and compliance with Contract Documents prior to submission.
   A. Request for Information (RFI) Submittals: Accompany RFI's with partial structural foundation or framing plans showing the location in question and affected structural members. Copy partial plan from structural drawings and indicate grid line locations and floor level. Also, provide properly drawn engineering sketches illustrating issues and the Contractor's proposed solutions. Photographs are not acceptable substitutes for engineering sketches.
   B. N/A

7. Contract Documents Use: Review Contract Documents in their entirety before performing structural-related Work and before developing shop drawings. Bring discrepancies to the immediate attention of the Architect (Structural Engineer) before starting Work.
   A. Scaling of Drawings: Not permitted.
   B. Additional Structural Requirements: See specifications.
   C. Building Geometry: See architectural drawings for building geometry including, but not limited to, top of floor and roof elevations; depressions; slopes; curbs; drains; trenches; slab and deck edge locations; wall overall dimensions; and size and locations of openings in floors, roof, and walls.
   D. Non-structural Items Requiring Special Provisions: See architectural, mechanical, plumbing, and electrical drawings for non-structural items requiring special provisions during construction. They include but are not limited to, non-structural walls; size and locations of openings and sleeves penetrating structure; size and location of concrete curbs and pads; and size and location of piping, ductwork, and equipment anchorages mounted or suspended from the structure. Verify the exact size and location of equipment with the equipment manufacturer.
      A. Work shown is new unless noted as existing thus, (E).

   E. Materials: Furnish and install in compliance with legally constituted public authorities having jurisdiction, including county and local ordinances and safety orders of the State Industrial Accident Commission, OHSA. The Architect (Structural Engineer) and Owner accept no responsibility for the contractor's failure to comply with these requirements.

   F. Penetrations, Embedments, and Openings in Structural Members: No penetration, embedment, opening, sleeve, pipe, or conduit shall occur in structural members, including footings, slabs, walls, columns, and beams unless specifically shown or indicated on structural drawings.

   G. Typical Details: Details on sheets indicated as typical are applicable throughout the Project wherever the described condition occurs and may or may not be specifically referenced on structural drawings. The contractor is responsible for identifying these details and understanding the extent of their application prior to performing Work. Details not shown or noted shall be similar to those shown for similar construction. The contractor shall submit RFI's for details such as this to the Architect (Structural Engineer) prior to proceeding with work.

8. Evaluation Report:
   A. References to Evaluation Reports for proprietary materials herein shall be the latest edition as adopted by Authority Having Jurisdiction (AHJ).
   B. For proprietary structural elements and products, the product is to hold an Evaluation Report in compliance with the applicable code for the product's intended use.
   C. Approved Evaluation Report Agencies:
      a. ICC (ICC-ES)
      b. IAPMO (IAPMO-ES)
      c. OSHPD (OPA / OPM / OSP / OPD)
      d. City Of Los Angeles (COLA/RR)
      e. Miami-Dade (NOA)
      f. Other Agencies as noted in DSA IR A-5.

QUALITY ASSURANCE (STRUCTURAL OBSERVATION, MATERIALS TESTING, and SPECIAL INSPECTION)

1. Structural Observation:
   A. The Architect (Structural Engineer) of record will visually observe the construction as required by CAC 4-333 and CAC 4.341 and in accordance with the governing code. These visual observations shall not be considered a substitute for special inspections.
   B. Coordination Responsibilities of Contractor: Notify the Architect (Structural Engineer) 48 hours in advance of critical stages of construction indicated below so visits may be scheduled by the Structural Observer. Failure by the Contractor to meet the observation schedule may require the removal of subsequent Work for observation. Contractor to bear costs of removal and replacement of finished Work or framing damaged by the removal process or as required for corrective action and for any associated scheduling delays.
      a. Critical stages of construction that require structural observation.
         • Mechanical unit support framing installation.
   C. Pre-construction Meeting: The owner may coordinate and call for a meeting between the Architect (Structural Engineer) responsible for structural design, the Structural Observer, the Contractor, affected subcontractors and the Special Inspector. structural observer will preside over this meeting. Purpose of meeting is to identify major structural elements and connections that affect vertical and lateral load resisting systems of structure and to review schedule of Structural Observation, Materials Testing, and Special Inspection of Project.

2. Mill Test Reports Certifying Materials: The contractor shall submit mill test reports certifying reinforcing steel, and structural steel are of identifiable tested stock to the Owner, Special Inspector, Architect (Structural Engineer) and, upon request, to the AHJ. Ensure materials are properly tagged for identification. If mill test reports cannot be made available or if material cannot be identified, the Testing Laboratory will perform tests as directed by the Architect (Structural Engineer). The contractor shall pay the Testing Laboratory for costs related to tests and inspections of unidentifiable materials or materials furnished without mill test reports, materials found deficient after initial tests and inspections, or materials replacing deficient materials.
   A. N/A.

3. Weld Testing and Inspection: Testing Laboratory will submit weld test results to Owner, Contractor, Architect (Structural Engineer) and to Governing Code Authority. See Specifications for testing requirements not indicated on structural drawings.
   A. Structural Steel Welding: Apart from visual inspection and review of fabrication and erection reports of fabricator/erector's own quality control testing and inspection, the Owner's Testing Laboratory will perform indicated shop and field inspection and testing. The Testing Laboratory will be AWS Q.C.-1 certified and will provide inspectors for continuous inspection of steel fabrication and erection and structural welding. Shop and field testing of materials and welding will be as follows:
      a. Ultrasonic testing (UT) is required for all (100%) complete penetration welds. Test groove welding on continuity plates by ultrasonic testing after beam flange weld connection. Testing shall be performed 24 hours or more after completion of welding. Weld backing removal areas and fillet welds shall be subjected to magnetic particle examination.
         • UT testing reduction: Where the initial rate for UT is 100%, the NDT rate for an individual welder or welding operator is permitted to be reduced to 25% provided that the number of welds containing unacceptable defects divided by the number of welds completed (reject rate) is 5% or less of the welds tested for the welder or welding operator. A sampling of at least 40 completed welds for a job shall be made for such reduction evaluation. See AISC 360-10 N5.5e and AISC 341 J6.2g for additional information.
         • UT Reduction is NOT permitted at demand critical welds.
         • Documentation: All Nondestructive Testing (NDT) performed shall be documented per AISC 360-16 N5.5g.
      b. N/A
      c. Welds shall be visually inspected and periodically measured (15 percent minimum).
      d. Check 10 percent of fillet welds by magnetic particle (ASTM 109 method). Check 25 percent of continuity plate fillet welds by magnetic particle, UNO. At continuity plates in moment connections (where CJP is used on one or more plate ends), 100 percent of fillet welds shall be tested by magnetic particles.
      e. N/A
      f. k-Area welds shall be MT'd no sooner than 48 hours after completion of the weld.
      g. Amperage, voltage, polarity and electrode stick out will be verified for compliance with the electrode manufacturer's recommendations.

4. Special Inspection: Per DSA-103 and Chapter 17A of CBC.

LPA

ARCHITECTURE ENGINEERING INTERIORS
LANDSCAPE ARCHITECTURE PLANNING

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	02/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	09/08/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	VT
Scale	12" = 1'-0"

GENERAL NOTES

S0.01

ABBREVIATIONS

&	AND
@	AT
Ø	DIAMETER
>	GREATER THAN
≥	GREATER THAN OR EQUAL TO
<	LESS THAN
≤	LESS THAN OR EQUAL TO
#	"POUNDS, NUMBER"
AB	ANCHOR BOLT(S)
ABV	ABOVE
ADDL	ADDITIONAL
ADJ	ADJACENT
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
AOR	ARCHITECT OF RECORD
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ASD	ALLOWABLE STRESS DESIGN
(B)	BOTTOM
BF	BRACED FRAME
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BLKG	BLOCKING
BLW	BELOW
BM	BEAM
BN	BOUNDARY NAILING
BO	BOTTOM OF
BOD	BOTTOM OF DECK
BOF	BOTTOM OF FOOTING
BOPC	BOTTOM OF PILE CAP
BOS	BOTTOM OF STEEL
BOSL	BOTTOM OF SLAB
BOT	BOTTOM
BP	BASE PLATE
BRB	BUCKLING RESTRAINED BRACE
BRCG	BRACING
BRDG	BRIDGING
BRG	BEARING
BTWN	BETWEEN
BU	BUILT-UP
C	CAMBER
CA	COLUMN ABOVE
CANT	CANTILEVER
CB	COLUMN BELOW
CGS	CENTER OF GRAVITY OF PRESTRESSING STRAND
CIP	CAST-IN-PLACE
CIV	CIVIL
CJ	CONSTRUCTION/CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CLT	CROSS LAMINATED TIMBER
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION/CONNECT
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
COV	COVER
CTR	CENTER
CVN	Charpy V-Notch
d	Penny - Nail size
db	"REBAR, WIRE, or PRESTRESSSING STRAND DIAMETER"
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DCW	DEMAND CRITICAL WELD
DEMO	DEMOLITION/DEMOLISH
DET	DETAIL
DF	Douglas Fir
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	Down
DO	DITTO
DWG	DRAWING
DWL	DOWEL
(E)	EXISTING
EA	EACH
EBF	ECCENTRICALLY BRACED FRAME
EDP	ENVIRONMENTAL PRODUCT DECLARATION
EF	EACH FACE
EFF	EFFECTIVE
EGRS	Elevator Guide Rail Support
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMBED	"EMBEDMENT, EMBEDDED"
EN	EDGE NAILING
ENGR	ENGINEER
EOR	ENGINEER OF RECORD
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ER	EVALUATION REPORT
ESR	EVALUATION SERVICE REPORT
ETC	ET CETERA
EW	EACH WAY
EXP	EXPANSION
EXT	EXTERIOR
FAB	FABRICATE
f'c	28-DAY (UNO) COMPRESSIVE STRENGTH OF CONCRETE
FDN	FOUNDATION
FF	Finished Floor
FG	FINISHED GRADE
FIN	FINISH(ED)
FLR	FLOOR
f'm	28-DAY (UNO) COMPRESSIVE STRENGTH OF MASONRY
FN	FIELD NAILING
FRP	FIBER-REINFORCED POLYMER
FS	FAR SIDE / FINISHED SURFACE
FT	"FOOT, FEET"
FTG	FOOTING
FUT	FUTURE
Fy	YIELD STRENGTH
GA	"GAGE, GAUGE"
GALV	GALVANIZE(D)
GC	GENERAL CONTRACTOR
GEN	GENERAL
GWP	GLOBAL WARMING POTENTIAL
GLB	GLUED-LAMINATED BEAM
GR	GRADE
HD	HOLDDOWN
HDR	HEADER
HGR	HANGER
HORIZ	HORIZONTAL
HS	HIGH STRENGTH
HSA	HEADED STUD ANCHOR
HSB	HIGH STRENGTH BOLT
HSS	HOLLOW STRUCTURAL SECTION
HT	HEIGHT
IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
ICC	INTERNATIONAL CODE COUNCIL
ID	INSIDE DIAMETER
IN	INCH
INFO	INFORMATION
INT	INTERIOR
IOR	INSPECTOR OF RECORD
JST	JOIST
JT	JOINT
K	KIPS (1000 LBS)
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE
LAND	LANDSCAPE
LBS	POUNDS
LCA	LIFE CYCLE ASSESSMENT
Ld	DEVELOPMENT LENGTH of straight rebar
Ldh	DEVELOPMENT LENGTH for hooked rebar
Ldt	DEVELOPMENT LENGTH for headed rebar
LL	DOUBLE ANGLE
LLBB	LONG LEG BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LOR	LAB OF RECORD
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
Ls	SPLICE LENGTH of straight rebars
LSH	LONG SIDE HORIZONTAL
LSL	LONG-SLOTTED HOLE
LSV	LONG SIDE VERTICAL
LT GA	LIGHT GAUGE
LVL	LAMINATED VENEER LUMBER
LWC	LIGHTWEIGHT CONCRETE
MAX	MAXIMUM
MECH	MECHANICAL
MEP	"MECH, ELECT, & PLUMB"
MEZZ	MEZZANINE
MF	MOMENT FRAME
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
(N)	NEW
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO.	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMALWEIGHT CONCRETE
O/C	ON CENTER
OD	OUTSIDE DIAMETER
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OVS	OVERSIZED HOLE
PAF	POWDER/POWER ACTUATED FASTENER
PAR	PARALLEL
PC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PCY	POUNDS PER CUBIC YARD
PERF	PERFORATED
PERP	PERPENDICULAR
PI	PROJECT INSPECTOR
PJ	PANEL JOINT
PJP	PARTIAL JOINT PENETRATION
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PLF	POUNDS PER LINEAR FOOT
PLUMB	PLUMBING
PQR	PROCEDURE QUALIFICATION RECORD
PRELIM	PRELIMINARY
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	PRESSURE TREATED OR POST-TENSION(ED)
PWD	PLYWOOD
QTY	QUANTITY
RAD	RADIUS
RBS	REDUCED BEAM SECTION
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
REV	REVISION
RO	ROUGH OPENING
RR	ROOF RAFTER
RTU	ROOF TOP UNIT
SC	SLIP CRITICAL OR SAW CUT
SCBF	SPECIAL CONCENTRICALLY BRACED FRAME
SCHED	SCHEDULE(D)
SDS	SELF-DRILLING SCREW
SECT	SECTION
SEOR	STRUCTURAL ENGINEER OF RECORD
SEP	SEPARATION
SFRS	SEISMIC FORCE RESISTING SYSTEM
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SLBB	SHORT LEG BACK TO BACK
SMRF	SPECIAL MOMENT RESISTING FRAME
SMS	SHEET METAL SCREW
SOG	SLAB-ON-GRADE
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS	STAINLESS STEEL
SSL	SHORT-SLOTTED HOLE
STAGG	STAGGERED
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUCT	"STRUCTURE, STRUCTURAL"
SUSP	SUSPENDED
SW	SHEAR WALL
SYM	"SYMMETRIC, SYMMETRICAL"
(T)	TOP
(T&B)	TOP AND BOTTOM
T.O.	TOP OF
THK	THICK
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING / FOUNDATION
TOM	TOP OF MASONRY
TOPC	TOP OF PILE CAP
TOS	TOP OF STEEL
TOSL	TOP OF SLAB
TOW	TOP OF WALL
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UT	ULTRASONIC TESTING
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/C	WATER-CEMENT RATIO
W/O	WITHOUT
"WF, W"	WIDE FLANGE
WP	WORK POINT
WPS	WELD PROCEDURE SPECIFICATIONS
WT	"WEIGHT" OR "T" SECTION CUT FROM WIDE FLANGED BEAM"
WWF	WELDED WIRE FABRIC
XS	EXTRA STRONG
XXS	DOUBLE EXTRA STRONG

PROPRIETARY ANCHORAGES and FASTENERS

1. Anchorages:
   1. Drill and Epoxy Anchors:
      a. At Concrete: Hilti HIT-RE 500 V3 adhesive anchor system complying with ICC-ES Evaluation Report ESR-3814.
      b. At Masonry: Hilti HIT-HY 270 adhesive anchor system complying with ICC-ES Evaluation Report ESR-4143.
      c. Provide anchor type, size and embedment as indicated in details.
      d. Overhead applications must be installed using the Hilti HIT-SZ piston plug system.
   2. Mechanical (Expansion) Anchors:
      a. At Concrete: Hilti KB-TZ2 carbon steel expansion anchor complying with ICC-ES Evaluation Report ESR-4266.
      b. At Masonry: Hilti KB-TZ2 carbon steel expansion anchor complying with ICC-ES Evaluation Report ESR-4561.
      c. Where mechanical anchor is exposed to weather, provide stainless steel anchor conforming to the Evaluation Report in lieu of carbon steel.
   3. Welded Shear Studs: Nelson S3L flux filled, headed stud anchors, 65,000 psi minimum ultimate tensile strength conforming to ASTM A29, automatically end welded in the field and complying with ICC-ES Evaluation Report ESR-2856.
   4. Welded Deformed Anchors: Nelson D2L, cold rolled, deformed steel reinforcing bars conforming to ASTM A1064 and complying with ICC-ES Evaluation Report ESR-2907.

2. Fasteners:
   A. Power/Powder Actuated Fasteners (Indicated "Shot Pins" or "PAF" on Drawings): Hilti Low-velocity Power Actuated Drive, 0.157" diameter (X-U), complying with ICC-ES Report ESR-2269. Provide an appropriate washer between the fastener head and light gauge metal or wood surface. Shot pins shall not be used @ PT slab or beams.
   B. Self-Drilling Metal Screws (Indicated "Screws" or "SMS" on Drawings): Hilti Self-Drilling Screw complying with current ICC-ES Evaluation Report ESR-2196.
   C. Concrete Screws: Hilti KH-EZ carbon steel screw anchor complying with ICC ES Evaluation Report ESR-3027.
   D. Masonry Screws: Hilti KH-EZ carbon steel screw anchor complying with ICC ES Evaluation Report ESR-3056.
   E. Self-Drilling wood Screw: At steel-to-wood connections (Indicated "SDS" on drawings): Simpson SDS screw complying with ICC-ES ESR 2236. At wood-to-wood connections (Indicated "SDWS" on drawings): Simpson SDWS screw complying with IAPMO-UES ER 192.
   F. Lag Screw: Lag Screw complying with ANSI / ASME B18.2.1
   G. Where fasteners are exposed to weather, provide stainless steel fasteners conforming to the Evaluation Report in lieu of carbon steel.

3. Installation: Follow all manufacturer's written instructions and the referenced ICC-ES evaluation report. The contractor shall arrange for an anchor manufacturer's representative to provide onsite installation training for all anchor products specified.
   A. Prior to drilling holes for post-installed anchors, the contractor shall locate existing rebar, prestressing tendons, post-tensioning tendons, and embedded utilities using non-hazardous, non-destructive methods with accurate location tolerances (plus or minus 1/4-inch). Do not cut, hit, or otherwise damage existing rebar or tendons during anchor installation.
   B. 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, (destructive methods with accurate location tolerances (plus or minus 1/4-inch) prior to drilling holes to avoid cutting or damaging rebar. Holes shall be thoroughly cleaned per the manufacturer's written recommendations prior to the installation of anchorages.
   C. Deleterious Materials: Keep anchorages, including holes for drill and epoxy anchors and mechanical anchors, free of dust, grease, and other materials that impair bond.
   D. The use of a diamond core bit with a roughening tool for anchor holes requires approval from the Engineer of Record prior to drilling. Unless otherwise shown in the drawings, all holes shall be drilled perpendicular to the concrete surface.
   E. Embedment Depths:
      a. Mechanical Anchors: Embedment depths noted in drawings are the effective minimum embedment UNO. Refer to the applicable evaluation report for the corresponding minimum hole depth and nominal embedment.
      b. Screw Anchors: Embedment depths noted in drawings are the nominal minimum embedment UNO. Refer to the applicable evaluation report for the corresponding minimum hole depth.
   F. Anchor installer certification is required for all installers of drill and epoxy anchors in a horizontal or upwardly inclined orientation. Installer qualification must be provided to the inspector prior to installation.
   G. Installation Torques for Expansion Anchors shall be as noted:

Nominal Anchor Diameter	Expansion Anchor Installation Torque (ft-lb)			
	Into Concrete		Into Masonry	
	KB-TZ2 Carbon Steel	KB-TZ2 Stainless Steel	KB-TZ2 Carbon Steel	KB-TZ2 Stainless Steel
1/4"	4	6	4	6
3/8"	30	30	15	15
1/2"	50	40	25	15
5/8"	40	60	30	35
3/4"	110	125	50	50

   H. Installation Torques for Screw Anchors shall be as noted:

Nominal Anchor Diameter	Screw Anchor Installation Torque (ft-lb)					
	Into Concrete				Into Masonry	
	Hilti KH-EZ Hex	Hilti KH-EZ C	Hilti KH-EZ CRC	Hilti KH-EZ E & KH-EZ I	Hilti KH-EZ (Hex, P, PM, PL & C)	Hilti KH-EZ CRC
1/4"	18		N/A	18	21	N/A
3/8"	40 (19 @ h_{nom} <2.5")		40	40	22	20
1/2"	45	N/A	45	N/A	34	25
5/8"	85	N/A	85	N/A	38	35
3/4"	95	N/A	85	N/A	70	45

   Note: 1/4" dia. Hilti KH-EZ P, PM & PL in concrete shall have installation torque of 18 ft-lb.

4. Testing:
   A. See DSA-103 Testing and Inspections.
   B. Installation in Concrete:
      a. Provide testing of post-installed anchors in concrete per CBC 2022 1910A.5.
   C. Installation in Masonry:
      a. Provide testing of post-installed anchors in masonry per CBC 2022 1910A.5 as required by section 1705A.4.

LIGHT GAUGE METAL FRAMING GENERAL NOTES

1. 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, Type H.
      b. Galvanized: ASTM A653, SS Grade 33.
   B. 54 mils (16 gauge) and heavier (50 ksi):
      a. Carbon Sheet Steel to be Painted: ASTM A1003, Grade 50, Type H.
      b. Galvanized: ASTM A653, SS Grade 50.
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 the referenced evaluation report.
3. Design 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. - 0.0346 inch, 33 mils
4. Track Material: Provide unpunched track of dimensions to ensure proper fit of studs with minimum effective section properties as indicated in the 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. Self-Drilling Screws: See General Notes.
10. Welding: ANSI/AWS D1.3 and CBC Section 2210A. 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.

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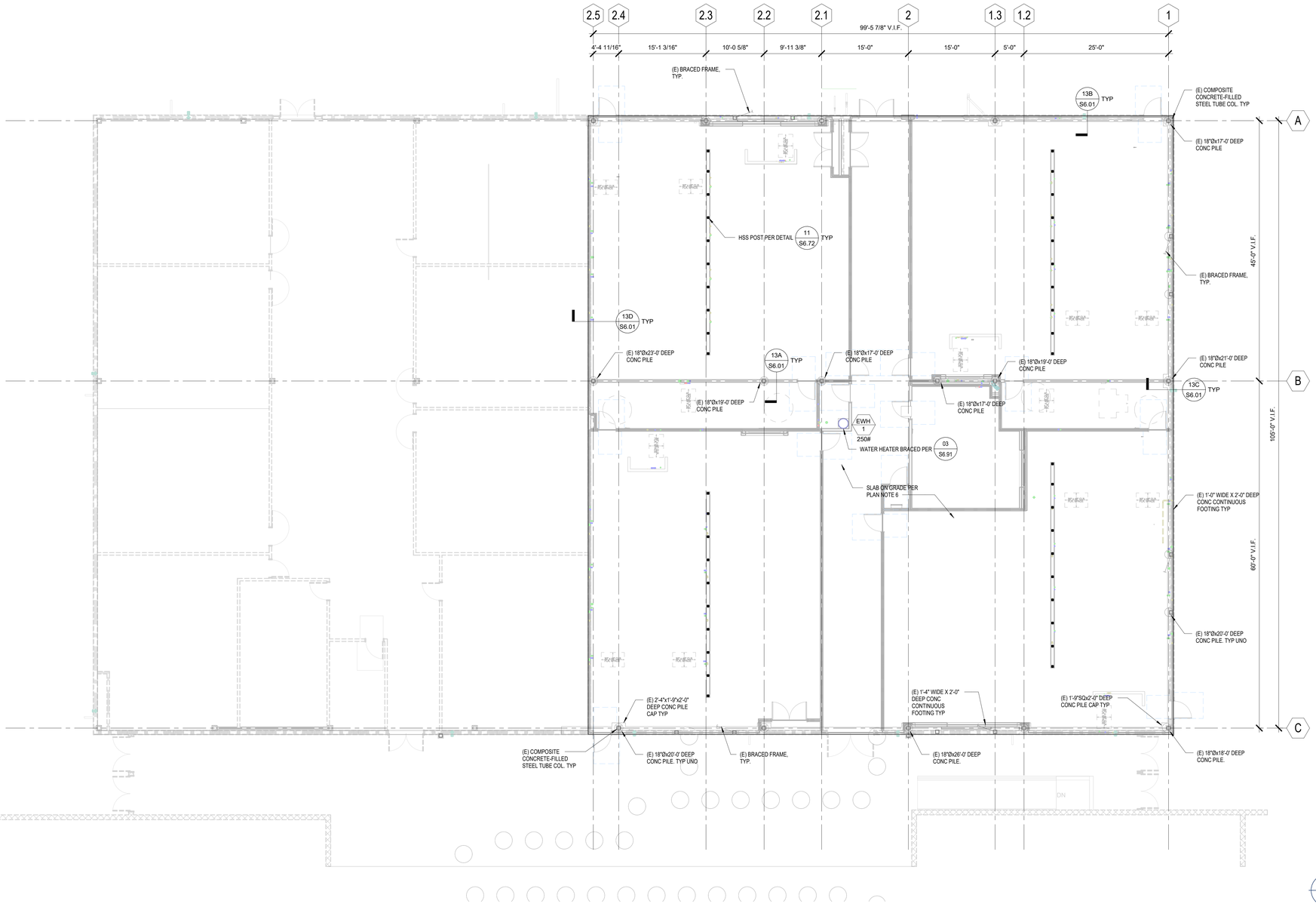
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/28/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	VT
Scale	12" = 1'-0"

GENERAL NOTES

S0.02



FOUNDATION PLAN 1/8" = 1'-0" 05

FOUNDATION PLAN NOTES

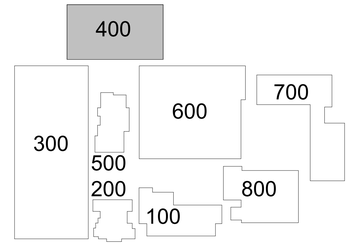
1. FOR GENERAL NOTES and TYPICAL DETAILS SEE S0.01 & S6. SERIES SHEETS
2. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR TOP OF CONCRETE SLAB ON GRADE ELEVATIONS, DEPRESSIONS, SLOPES, OPENINGS, DRAINS, TRENCHES, PADS, AND CURBS; SLAB EDGE LOCATIONS; WALL OVERALL DIMENSIONS; AND LOCATIONS OF OPENINGS NOT INDICATED ON STRUCTURAL DRAWINGS.
3. VERIFY IN FIELD ALL (E) FRAMING, DIMENSIONS, CONDITIONS, ETC.
4. DO NOT CUT ANY (E) FRAMING MEMBERS EXCEPT AS SHOWN ON DETAILS.
5. ALL EXISTING FRAMING IS ASSUMBED AND SHALL BE VERIFIED BY CONTRACTOR, ANY MEMBER DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SEOR PROMPTLY.
6. BUILDING SLAB-ON-GRADE: 5" THICK W/ #4 @ 18" O/C EACH WAY at CENTER OF SLAB OVER 4" LAYER OF CLEAN SAND OVERLAIN BY A 10 MIL POLYETHYLENE VAPOR RETARDER (LAP 6" AT JOINTS and TAPE SEAL) OVER PROPERLY COMPACTED FILL. PROVIDE CONSTRUCTION JOINTS OR WEAKENED PLANE JOINTS IN SLAB-ON-GRADE EACH DIRECTION PER DETAIL 06/S6.01 - AT AREAS TO RECEIVE TILE, COORDINATE LOCATION OF JOINTS IN SLAB TO ALIGN WITH TILE EXPANSION JOINTS PER ARCH.
7. CONSTRUCT LIGHT GAUGE METAL STUD WALLS PER 01/S6.71B AT INTERIOR CONDITION UNLESS NOTED OTHERWISE.

PRIOR TO COMMENCEMENT OF NEW CONSTRUCTION, CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, IN CASE OF DISCREPANCIES FROM THIS DOCUMENT COORDINATE WITH ARCHITECTURAL/STRUCTURAL ENGINEER PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION DOCUMENT MAY BE REVISED TO ACCOMMODATE CONDITION AS REQUIRED.

FOUNDATION LEGEND

EXISTING FRAMING MEMBER TO BE VERIFIED IN THE FIELD

KEYPLAN



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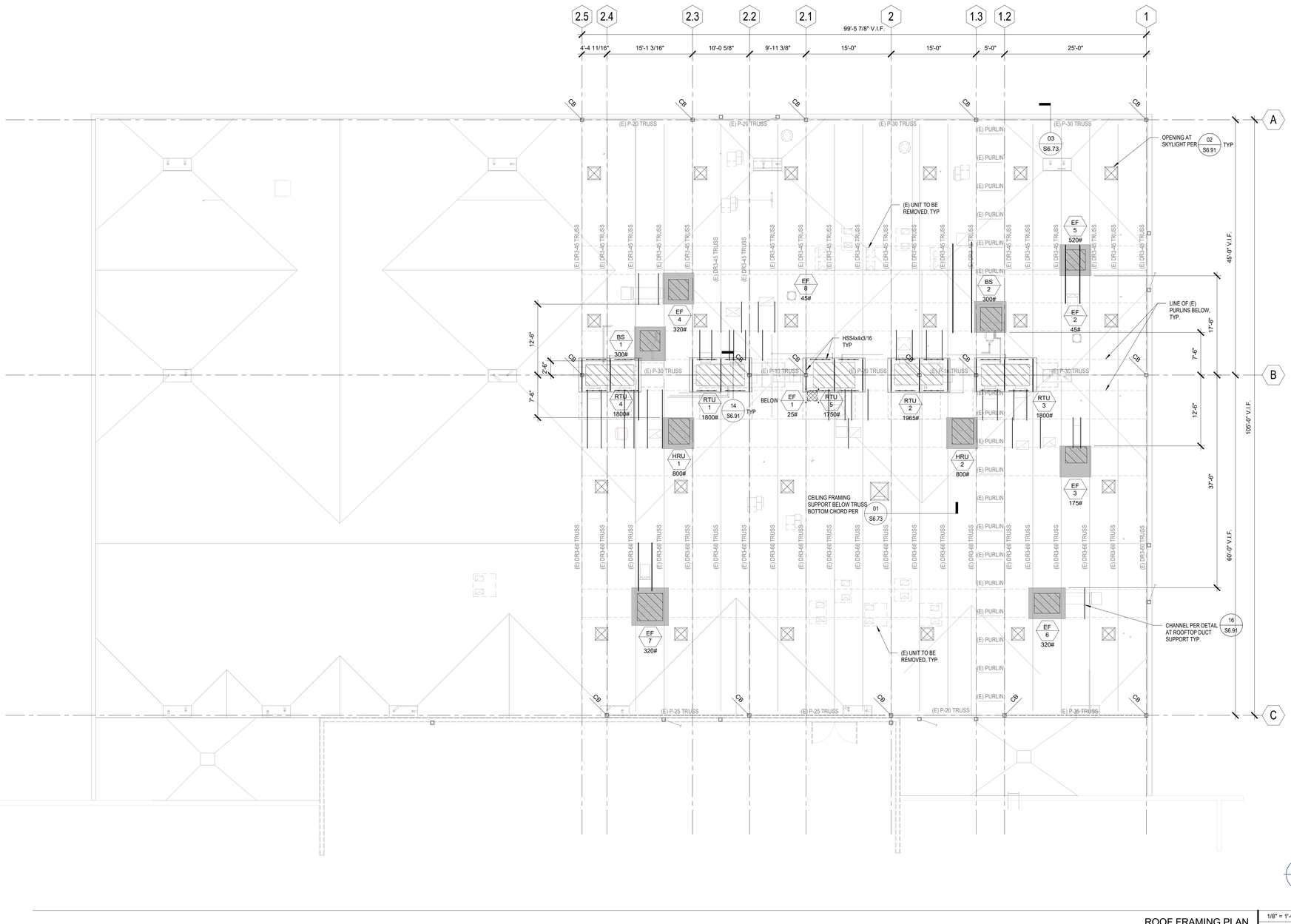
Scale	1/8" = 1'-0"

FOUNDATION PLAN

S2.01



ROOF FRAMING PLAN 1/8" = 1'-0" 05

ROOF FRAMING PLAN NOTES

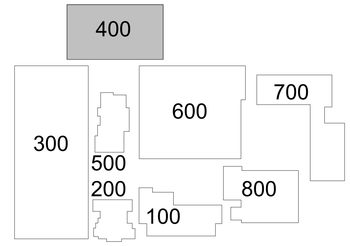
1. FOR GENERAL NOTES and TYPICAL DETAILS SEE S0.01 & S6. SERIES SHEETS
2. SEE ARCHITECTURAL DRAWINGS FOR DRAINS, OVERALL WALL DIMENSIONS; AND LOCATIONS OF OPENINGS NOT INDIATED ON STRUCTURAL DRAWINGS.
3. SEE MECHANICAL, ELECTRICAL AND/OR PLUMBING FOR EXACT SIZE AND LOCATION OF PLATFORMS AND/OR UNITS.
4. REMOVE, REPAIR AND REPLACE (E) ROOFING, INSULATION, FIREPROOFING, GYPSUM BOARD, ETC. AS REQUIRED FOR NEW CONSTRUCTION PER ARCHITECTURAL.
5. VERIFY IN FIELD ALL (E) FRAMING, DIMENSIONS, CONDITIONS, ETC.
6. DO NOT CUT ANY (E) FRAMING MEMBERS EXCEPT AS SHOWN ON DETAILS.
7. ALL EXISTING FRAMING IS ASSUMED AND SHALL BE VERIFIED BY CONTRACTOR, ANY MEMBER DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SEOR PROMPTLY.
8. FOR OPENINGS IN ROOF UP TO 2'-0" SQUARE SEE 02/S6.91. AT EXHAUST FANS, ROOF ACCESS HATCHES, AND OTHER SIMILAR ROOFTOP EQUIPMENT PROVIDE DETAILING PER 13/S9.91 REGARDLESS OF OPENING SIZE UNO
9. SEE MECH DRAWINGS FOR ROOFTOP DUCTS. REFER TO DETAILS 16/S6.91 AND 12/M5.01 FOR ROOFTOP DUCT SUPPORTS.
10. SEE MECH AND PLUMBING DRAWINGS FOR ROOFTOP PIPES. REFER TO DETAILS 1/M5.03 AND 6/P4.10 FOR ROOFTOP PIPE SUPPORT DETAILS.

PRIOR TO COMMENCEMENT OF NEW CONSTRUCTION, CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, IN CASE OF DISCREPANCIES FROM THIS DOCUMENT COORDINATE WITH ARCHITECTURAL/STRUCTURAL ENGINEER PRIOR TO COMMENCING ANY CONSTRUCTION. CONSTRUCTION DOCUMENT MAY BE REVISED TO ACCOMMODATE CONDITION AS REQUIRED.

ROOF FRAMING LEGEND

- EXISTING FRAMING MEMBER TO BE VERIFIED IN THE FIELD
- NEW FRAMING MEMBER
- XX / XX MAX WEIGHT — MECHANICAL UNIT MARK. REFER TO MECHANICAL DRAWINGS FOR EQUIPMENT INFORMATION AND LOCATION.
- MECHANICAL UNIT ABOVE
- MECHANICAL UNIT BELOW
- EQUIPMENT PLATFORM PER DETAIL 05/S6.91 (LOCATE EQUIPMENT PLATFORM RELATIVE TO THE (E) PURLINS BELOW)

KEYPLAN



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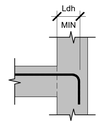
ROOF FRAMING PLAN

S2.02

HOOKED BAR DEVELOPMENT LENGTH (Ldh) SCHEDULE

CASE TYPE / BAR SIZE	f'c = 3000psi				f'c = 4000psi				f'c = 5000psi				f'c = 6000psi			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
#3	8"	6"	6"	6"	7"	6"	6"	6"	7"	6"	6"	6"	7"	6"	6"	6"
#4	12"	7"	9"	6"	11"	7"	9"	6"	10"	7"	8"	6"	10"	7"	8"	6"
#5	16"	10"	13"	8"	15"	10"	12"	8"	15"	9"	12"	7"	14"	9"	11"	7"
#6	21"	13"	17"	11"	20"	12"	16"	10"	19"	12"	15"	10"	19"	14"	15"	9"
#7	26"	17"	21"	13"	25"	16"	20"	13"	24"	15"	19"	12"	23"	15"	19"	12"
#8	32"	20"	26"	16"	30"	19"	24"	15"	29"	18"	23"	15"	28"	18"	23"	14"
#9	38"	24"	31"	19"	36"	23"	29"	18"	35"	22"	28"	18"	34"	21"	27"	17"
#10	46"	29"	37"	23"	43"	27"	35"	22"	42"	26"	33"	21"	41"	25"	33"	20"
#11	54"	34"	43"	27"	50"	32"	40"	25"	49"	30"	39"	24"	47"	30"	38"	24"

NOTES:
1. FOR TYP BAR HOOKS & BENDS, SEE DETAIL 03/-
2. HOOKED BAR LENGTHS SHOWN IN SCHEDULE ABOVE APPLY TO NORMAL WEIGHT CONC - MULTIPLY THE SPECIFIED DEVELOPMENT LENGTH BY 1.33 FOR LIGHTWEIGHT CONC
3. LENGTHS SHOWN IN SCHEDULE ABOVE APPLY TO UNCOATED GRADE 60 BARS. MULTIPLY THE SPECIFIED LENGTH BY 1.33 FOR GRADE 80 BARS
4. CASE I: TYPICAL
5. CASE II: HOOKED BARS SPACED GREATER THAN 6db O/C
6. CASE III: HOOKED BARS WITH SIDE COVER PARALLEL WITH HOOKED BAR GREATER THAN OR EQUAL TO 6db or HOOKED BARS TERMINATING WITHIN CONFINED COLUMN CORE WITH SIDE COVER PARALLEL WITH HOOKED BAR BAR GREATER THAN OR EQUAL TO 2 1/2"
7. CASE IV: HOOKED BARS MEETING REQUIREMENTS OF BOTH CASE II AND CASE III
8. HOOKED BARS MAYBE SUBSTITUTED WITH HEADED BARS PER 'Ldt' SCHEDULE AT LEFT



Ldh

HOOKED (Ldh) BAR DEVELOPMENT LENGTH SCHEDULE — N.T.S. — 16

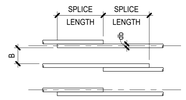


DIAGRAM AT STAGGERED SPLICES

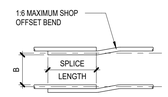
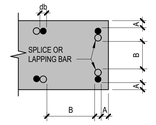


DIAGRAM AT NON-STAGGERED SPLICES



BAR SPACING DIAGRAM

LEGEND:
A. CLEAR EDGE DISTANCE
B. CLEAR SPACING OF SPLICED OR LAPPED BARS (SEE GEN NOTE 'E.8' FOR MIN CLEAR SPACING)
db = BAR ⌀

NOTES:
1. ALL SPLICES SHALL BE CLASS B SPLICES UNLESS INDICATED OTHERWISE. DEVELOPMENT Ld TO BE USED WHERE SPECIFICALLY INDICATED.
2. SCHEDULE APPLIES TO UNCOATED GRADE 60 BARS IN NORMAL WEIGHT CONC
3. TOP BARS (INDICATED "T" IN SCHEDULE) ARE HORIZ BARS WITH MORE THAN 12" OF CONC CAST BELOW THE BARS.
4. BOTTOM BARS (INDICATED "B" IN SCHEDULE) ARE ALL VERT BARS AND HORIZ BARS WITH LESS THAN 12" OF CONC CAST BELOW HORIZ BARS.
5. FOR LIGHTWEIGHT CONC MULTIPLY LENGTHS IN SCHEDULE BY 1.33.
6. AT SPLICE BETWEEN BARS OF VARYING SIZE, PROVIDE LAP SPLICE CORRESPONDING TO LARGER OF 'Ls' OF SMALLER BAR and 'Ld' OF LARGER BAR.
7. LENGTHS SHOWN IN SCHEDULE APPLY TO UNCOATED GRADE 60 BARS MULTIPLY THE SPECIFIED LENGTH BY 1.33 FOR GRADE 80 BARS.

SCHEDULE FOR DETERMINING CATEGORY

I	II
1. A>db and B>2db 2. A>db and B<db and TIES THROUGHOUT Ld	OTHER CASES

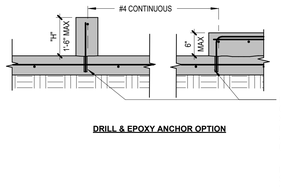
TENSION LAP SPLICE "Ls" SCHEDULE

CATEGORY	NORMAL WEIGHT CONCRETE f'c PSI	SPLICE LENGTH (INCHES)															
		0.375		0.500		0.625		0.750		0.875		1.000		1.128		1.270		1.410	
		#3		#4		#5		#6		#7		#8		#9		#10		#11	
		T	B	T	B	T	B	T	B	T	B	T	B	T	B	T	B	T	B
I	3000	28	22	37	29	47	36	56	43	81	63	93	72	105	81	118	91	131	101
	4000	24	19	32	25	40	31	48	37	70	54	80	62	91	70	102	79	113	87
	5000	22	17	29	22	36	28	43	33	63	49	72	55	81	63	91	70	101	78
II	3000	42	32	56	43	70	54	84	64	122	94	139	107	157	121	177	136	196	151
	4000	36	28	48	37	60	47	72	56	106	81	121	93	136	105	153	118	170	131
	5000	33	25	43	33	54	42	65	50	94	73	108	83	122	94	137	105	152	117

DEVELOPMENT "Ld" SCHEDULE

CATEGORY	NORMAL WEIGHT CONCRETE f'c PSI	DEVELOPMENT LENGTH (INCHES)															
		0.375		0.500		0.625		0.750		0.875		1.000		1.128		1.270		1.410	
		#3		#4		#5		#6		#7		#8		#9		#10		#11	
		T	B	T	B	T	B	T	B	T	B	T	B	T	B	T	B	T	B
I	3000	22	17	29	22	36	28	43	33	63	48	72	55	81	62	91	70	101	78
	4000	19	15	25	19	31	24	37	29	54	42	62	48	70	54	79	61	87	67
	5000	17	13	22	17	28	22	33	26	49	37	55	43	63	48	70	54	78	60
II	3000	32	25	43	33	54	41	64	50	94	72	107	82	121	93	136	105	151	116
	4000	28	22	37	29	47	36	56	43	81	63	93	71	105	81	118	91	131	101
	5000	25	19	33	26	42	32	50	38	73	56	83	64	94	72	105	81	117	90

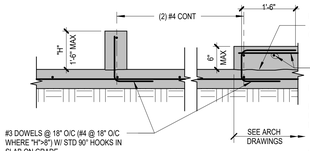
TYPICAL REBAR TENSION SPLICE and BAR DEVELOPMENT SCHEDULE (IN CONCRETE) — N.T.S. — 04



DRILL & EPOXY ANCHOR OPTION

DRILL and EPOXY ANCHORS PER GENERAL NOTES. WHERE "H" <=6", # 3 DOWELS @ 18" O/C W/ 3" EMBED (PULL TEST = 4100#) WHERE "H" > 6", #4 DOWELS @ 18" O/C W/ 3" EMBED (PULL TEST = 4500#)

NOTE:
SEE TYP CONDITION BELOW FOR REMAINDER OF INFO



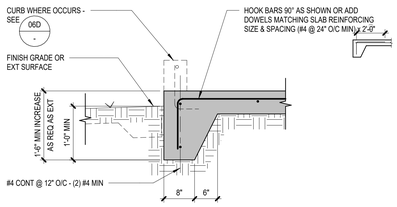
TYP CONDITION

PREPARE "CONSTRUCTION JOINT" SURFACE PER GEN NOTES - TYP

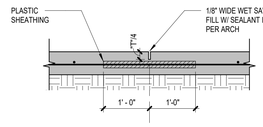
NOTE:
DOWELS AT HOUSEKEEPING PADS ARE REQ'D @ PERIMETER OF PADS & @ INTERMEDIATE ROWS SPACED @ 6'-0" EA DIRECTION

NOTE:
SEE ARCHITECTURAL FOR SIZE AND LOCATION OF CURBS & PADS

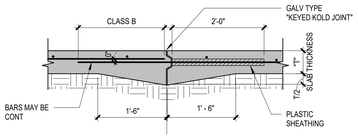
CONDITION AT CURB OR HOUSEKEEPING PAD (D)



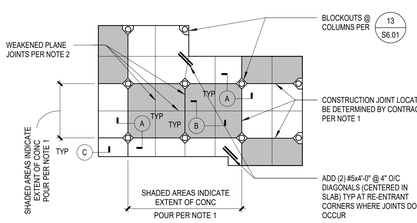
TURNED-DOWN SLAB EDGE (C)



WEAKENED PLANE JOINT (B)

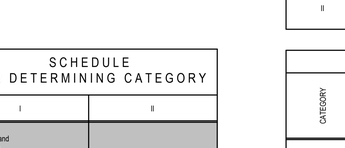


CONSTRUCTION JOINT (A)



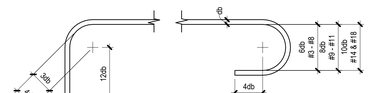
NOTES:
1. AREA OF CONC POURS TO BE DETERMINED BY CONTRACTOR. SUBMIT JOINT LAYOUT PRIOR TO POURING SLABS PER GENERAL NOTES. PROVIDE CONSTRUCTION JOINTS SURROUNDING AREA OF EA POUR UNLESS DETAILED OTHERWISE. ALLOW 24 HOURS MIN BEFORE CASTING SLABS AT ADJ AREAS.
2. SAWCUT WEAKENED PLANE JOINT AS SOON AS CONC CAN SUPPORT WEIGHT OF PERSONNEL AND SAW WITHOUT AFFECTING FINAL FINISH BUT NO LATER THAN 12 HOURS AFTER POUR. LOCATE WEAKENED PLANE JOINTS ALIGNED TO COLUMN GRID AS SHOWN AND NO GREATER THAN 15'-0" IN BOTH DIRECTIONS, UNLESS NOTED OTHERWISE.

SLAB ON GRADE JOINT DIAGRAM (PLAN VIEW)

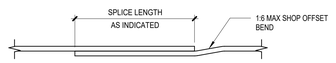


TYPICAL SECTION AT SLAB ON GRADE

TYP SLAB ON GRADE DETAILS — N.T.S. — 06



STANDARD HOOKS OTHER THAN STIRRUPS AND TIES

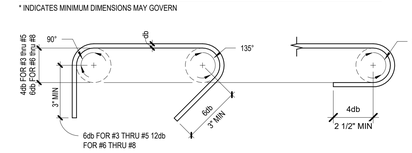


MAXIMUM OFFSET AT SPLICES

BAR DIAMETER DISTANCES

BAR DIA	BAR SIZE								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
3db	1 1/8"	1 1/2"	1 7/8"	2 1/4"	2 5/8"	3"	-	-	-
4db	1 1/2"*	2"*	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"
6db	2 1/4"*	3"	3 3/4"	4 1/2"	5 1/4"	6"	-	-	-
8db	-	-	-	-	-	-	9"	10"	11"
12db	4 1/2"	6"	7 1/2"	9"	10 1/2"	12"	13 1/2"	15"	16 1/2"

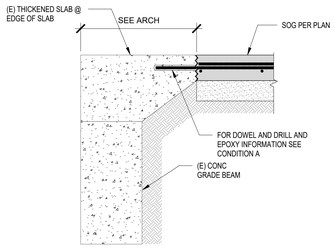
* INDICATES MINIMUM DIMENSIONS MAY GOVERN



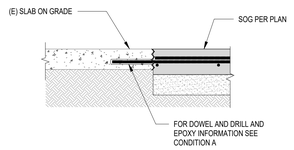
STANDARD HOOKS FOR STIRRUPS AND TIES

NOTE:
HOOKS OF TWO SUCCESSIVE STIRRUPS OR TIES ENGAGING SAME LONGITUDINAL BAR SHALL BE ALTERNATED END FOR END

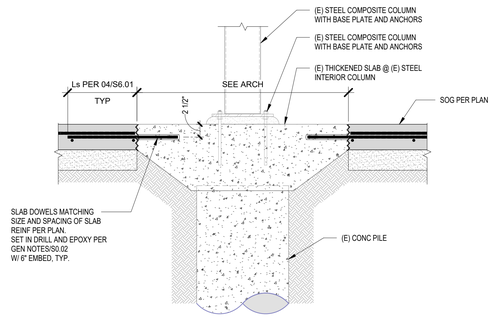
TYP REINFORCING STEEL HOOKS, BENDS and OFFSETS AT SPLICES — N.T.S. — 03



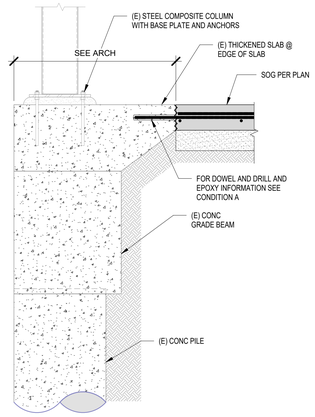
CONDITION AT EDGE OF SLAB (B)



CONDITION AT SLAB TRANSITION (D)



CONDITION AT INTERIOR COLUMN (A)



CONDITION AT EXTERIOR COLUMN (C)

SLAB ON GRADE TIE IN TO EXISTING FOUNDATION — N.T.S. — 13

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

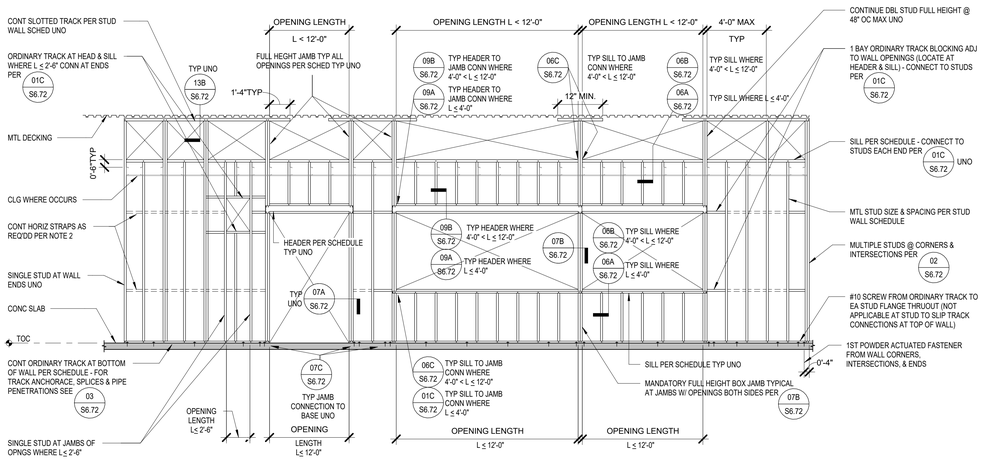
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/22/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	VT
Scale	As indicated

TYPICAL FOUNDATION AND SOG DETAILS

S6.01



TYPICAL INTERIOR STUD WALL ELEVATION

INTERIOR HEADER SCHEDULE (SEE 09/S6.72)	
MAX OPNG. LENGTH "L"	HEADER MATERIAL
4'-0"	FLAT MEMBER MATCHING STUD MATERIAL W/ ORDINARY TRACK ABOVE PER STUD WALL SCHEDULE
8'-0"	(2) 600S162-43 W/ ORDINARY TRACK TOP and BOTTOM PER STUD SCHEDULE

INTERIOR SILL SCHEDULE (SEE 08/S6.72)	
MAX OPNG LENGTH "L"	SILL MATERIAL
4'-0"	ORDINARY TRACK PER STUD WALL SCHEDULE
8'-0"	FLAT MEMBER MATCHING STUD MATERIAL W/ ORDINARY TRACK BELOW PER STUD WALL SCHEDULE

INTERIOR JAMB SCHEDULE (SEE 07/S6.72)		
MAX OPNG. LENGTH "L"	JAMB MATERIAL	SECTION
4'-0"	DOUBLE STUDS MATCHING STUD MATERIAL	07A S6.72
8'-0"	DOUBLE STUDS MATCHING STUD MATERIAL	07A S6.72

INTERIOR STUD WALL SCHEDULE				
STUD SIZE	MTL STUD (SSMA TRACK DESIGNATION) & SPACING	ORDINARY TRACK (SSMA DESIGNATION)	VERT SLOTTED TRACK (PER 13/S6.72) GAUGE	REMARKS
4" STUD	400S162-43@16" O/C	400T150-43	16	WHERE NOTED ON DETAIL OR SECTION (MAX SPAN = 17'-6")
6" STUD	600S162-43 @16" O/C	600T150-43	16	WHERE NOTED ON DETAIL OR SECTION (MAX SPAN = 24'-0")

STUD WALL NOTES:

1. SEE LIGHT GAUGE METAL FRAMING GENERAL NOTES ON S0.02.
2. PROVIDE HORIZONTAL STRAPS and BLOCKING AT ALL STUD WALLS EXCEPT WHERE WALL FINISH OCCURS ON BOTH SIDES OF WALL. SEE DETAIL 01/S6.72.
3. ALL INTERIOR STUDS SHALL BE 4" STUDS UNLESS NOTED OTHERWISE.
4. STUDS THAT ARE SUPPORTING LIGHT (BETWEEN 50 lbs and 250 lbs) EQUIPMENT or CASEWORK SHALL BE 16 GA. MIN WHERE HEAVY (EXCEEDING 250 lbs) EQUIPMENT OR CASEWORK OCCUR PROVIDE DOUBLE STUDS OF 16 GA. MIN (INTERCONNECT PER 07A/S6.72).
5. WHERE PIPE, CONDUIT, ETC. RUN VERTICALLY WITHIN INTERIOR WALLS, POSITION PIPE and ADJACENT STUDS PER 03D/S6.72.
6. DO NOT SPLICE STUDS/TRACKS WITHIN HEADERS, JAMBS, OR SILLS.

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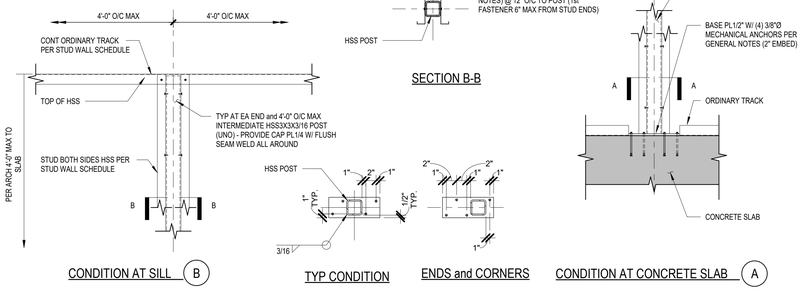
95% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	VT
Scale	1/4" = 1'-0"

TYPICAL INTERIOR LIGHT GAUGE FRAMING SCHEDULES AND ELEVATIONS

S6.71B



CONDITION AT SILL (B)

SECTION B-B

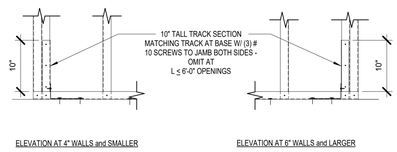
TYP CONDITION

ENDS and CORNERS

CONDITION AT CONCRETE SLAB (A)

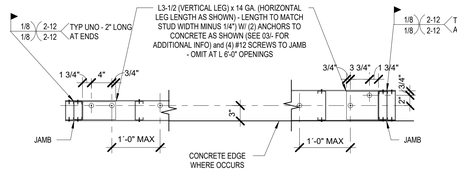
SECTION A-A

TYPICAL HSS POST AT INTERIOR WALLS | N.T.S. | 11



ELEVATION AT 4" WALLS and SMALLER

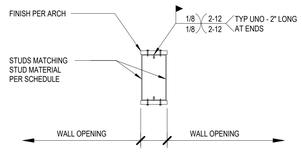
ELEVATION AT 6" WALLS and LARGER



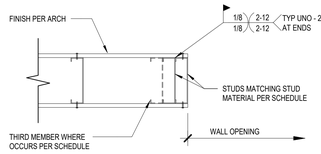
PLAN VIEW AT 4" WALLS and SMALLER

PLAN VIEW AT 6" WALLS and LARGER

JAMB CONNECTION AT BASE (C)

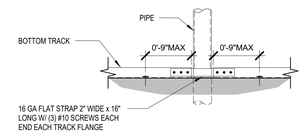


BOX JAMB SECTION (B)

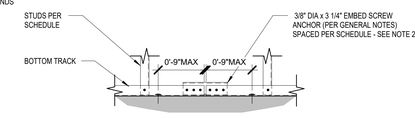


FRONT-TO-BACK JAMB SECTION (A)

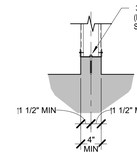
TYPICAL STUD WALL JAMB CONSTRUCTION AT OPENINGS | N.T.S. | 07



BOTTOM TRACK PENETRATION DETAIL (D)

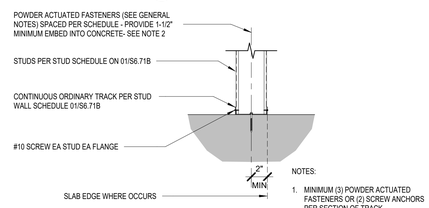


BOTTOM TRACK SPLICE DETAIL (C)



SILL TRACK FASTENING SCHEDULE		
MAX STUD HEIGHT	POWDER ACTUATED FASTENER OR SCREW ANCHOR SPACING AS DETAILED (INTERIOR)	SCREW ANCHOR SPACING AS DETAILED (EXTERIOR)
17'-6"	24"	16"

BASE AT CURB DETAIL (B)

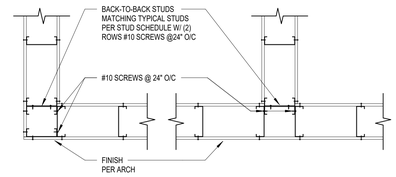


NOTES:

1. MINIMUM (3) POWDER ACTUATED FASTENERS OR (2) SCREW ANCHORS PER SECTION OF TRACK.
2. PROVIDE SCREW ANCHORS PER 3B/- AT EXTERIOR WALLS, INTERIOR WALLS WITH CURBS, AND INTERIOR WALLS SUPPORTING ANY CABINETRY - OR - ANY EQUIPMENT HEAVIER THAN 40 LBS.

TYP BASE DETAIL (A)

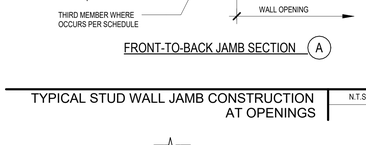
TYP STUD WALL BASE CONSTRUCTION TO CONCRETE | N.T.S. | 03



PLAN VIEW AT TYPICAL CORNERS (B)

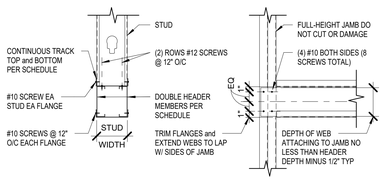
PLAN VIEW AT TYPICAL INTERSECTIONS (A)

TYPICAL METAL STUD CONSTRUCTION at CORNERS and INTERSECTIONS | N.T.S. | 02



TRIPLE STUD HEADER SECTION

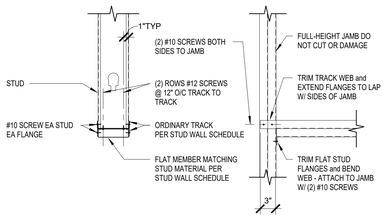
TRIPLE STUD HEADER TO JAMB CONNECTION



DOUBLE STUD HEADER SECTION

DOUBLE SUD HEADER TO JAMB CONNECTION

CONDITION AT BOX HEADER (B)

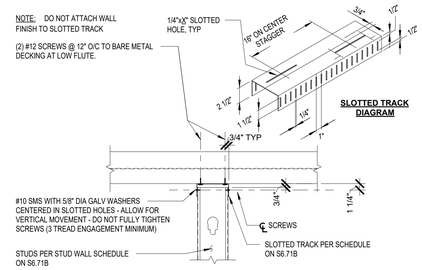


HEADER SECTION

HEADER TO JAMB CONNECTION

CONDITION AT FLAT MEMBER HEADER (A)

TYPICAL STUD WALL HEADER CONSTRUCTION AT OPENINGS | N.T.S. | 09

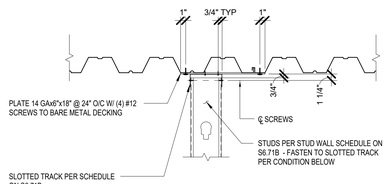


SLOTTED TRACK DIAGRAM

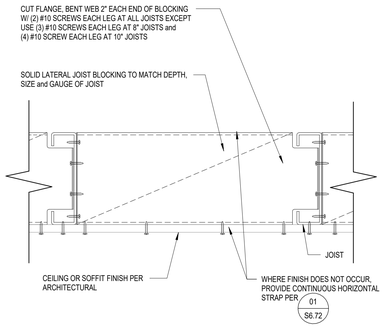
CONDITION AT ELEVATED CONCRETE DECKS OR CONDITION WHERE WALL IS SKEWED OR PERPENDICULAR TO METAL DECKING SPAN

SLIP CONNECTION TO FLOOR/ROOF DECK (B)

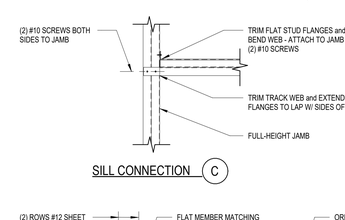
TYP CONN AT TOP OF STUD WALL TO FLOOR/ROOF DECK | N.T.S. | 13



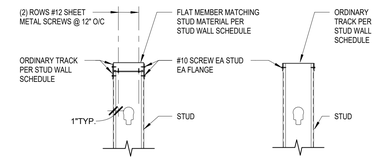
CONDITION WHERE WALL IS PARALLEL TO METAL DECKING SPAN (A)



TYP JOIST LATERAL BLOCKING | N.T.S. | 17



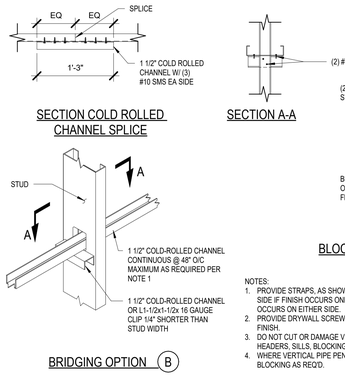
SILL CONNECTION (C)



SILL SECTION (B)

SILL SECTION (A)

TYPICAL STUD WALL SILL CONSTRUCTION AT OPENINGS | N.T.S. | 06



SECTION COLD ROLLED CHANNEL SPLICE

SECTION A-A

BLOCKING TO STUD CONNECTION (C)

BRIDGING OPTION (B)

NOTES:

1. PROVIDE STRAPS, 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" O/C 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.
4. WHERE VERTICAL PIPE PENETRATION PIPE OCCURS, PROVIDE STRAP OPTION PER OPTION A and RELOCATE BLOCKING AS REQ'D.

STRAP OPTION (A)

TYPICAL METAL STUD STRAPPING OR BRIDGING DETAIL | N.T.S. | 01

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SCIENCE CLASSROOMS MODERNIZATION

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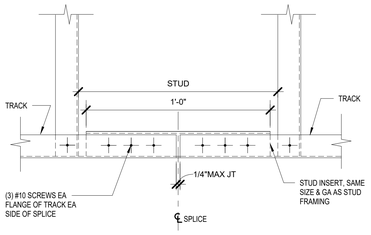
90% DESIGN DEVELOPMENT	07/25/2025
95% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

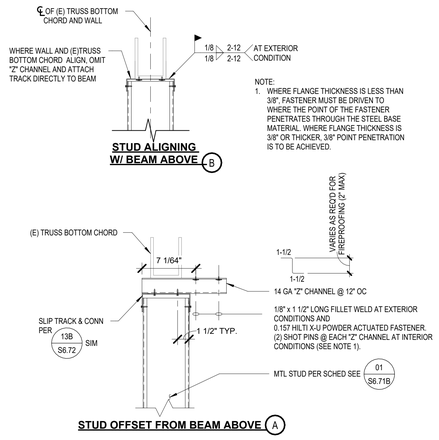
Job Number	32433
Checked By	VT
Scale	As indicated

TYPICAL LIGHT GAUGE METAL FRAMING DETAILS

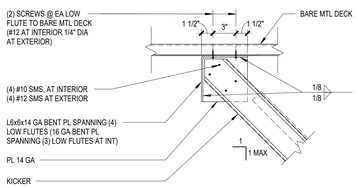
S6.72



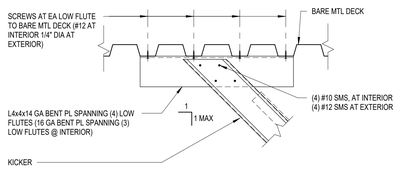
TYP TRACK SPLICE ELEVATION | N.T.S. | 12



TYPICAL MTL STUD SLIP CONN TO (E) TRUSS | N.T.S. | 15

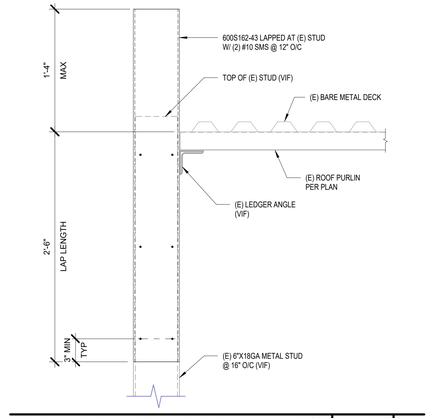


KICKER PARALLEL TO FLUTES E

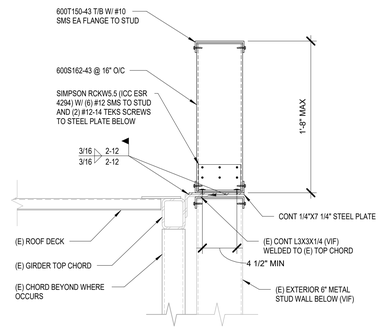


KICKER PERPENDICULAR TO FLUTES D

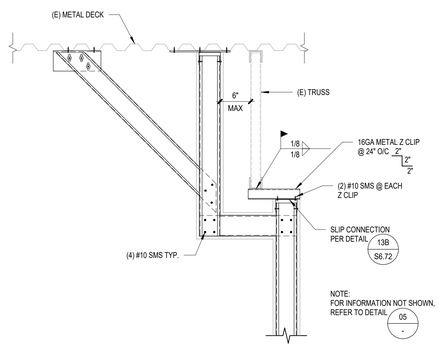
TYP KICKER DETAIL TO MTL DECK | N.T.S. | 17



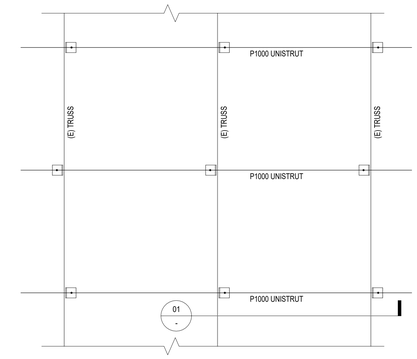
EXTERIOR METAL STUD PARAPET DETAIL @ LAPPED STUD CONDITION | N.T.S. | 04



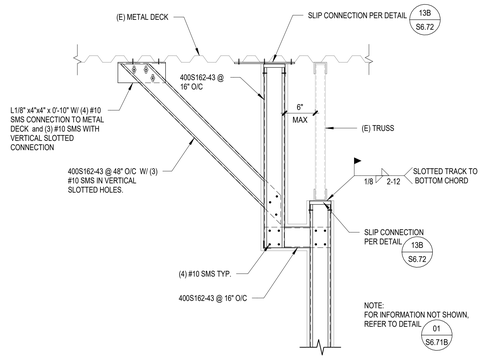
EXTERIOR METAL STUD PARAPET DETAIL | N.T.S. | 03



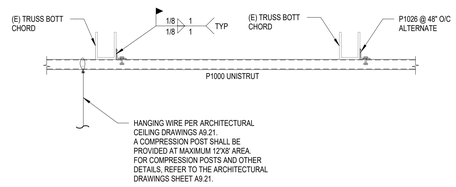
FIRE RATED WALL BELOW (E) TRUSS - OFFSET CONDITION | N.T.S. | 06



CEILING PLAN VIEW, TYPICAL BAY | N.T.S. | 02



FIRE RATED WALL BELOW (E) TRUSS | N.T.S. | 05



CEILING CONN DETAIL | N.T.S. | 01

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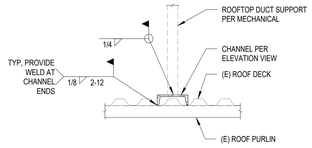
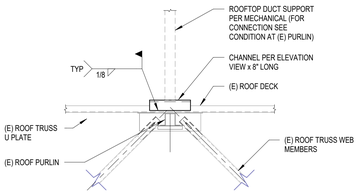
TYPICAL LIGHT GAUGE METAL FRAMING DETAILS

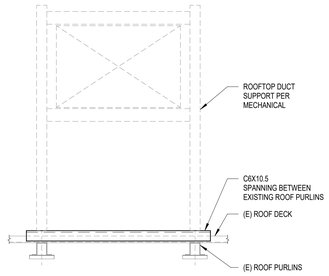
S6.73



SUPPORT CONDITION AT (E) PURLIN

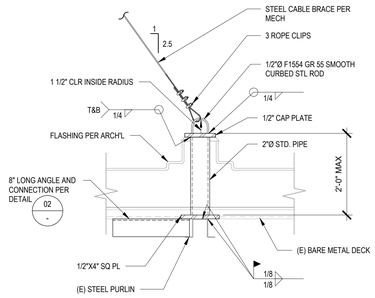


SUPPORT CONDITION AT (E) ROOF TRUSS

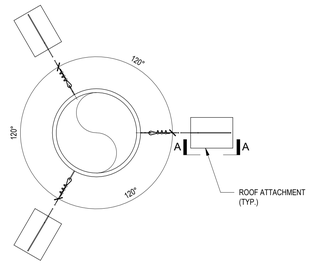


ELEVATION VIEW

ROOFTOP DUCT SUPPORT TO STRUCTURE — N.T.S. — 16

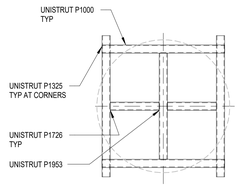


SECTION A-A

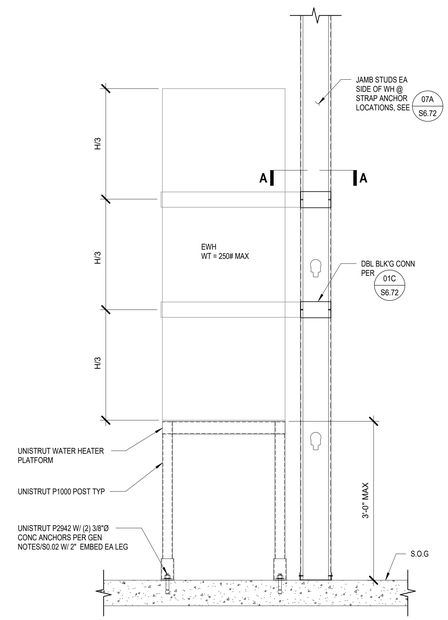


PLAN VIEW

SECTION A-A



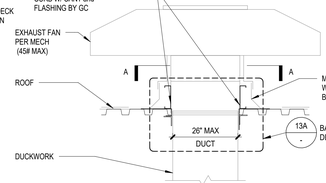
UNISTRUT PLATFORM PLAN VIEW



TYPICAL SEISMIC BRACE SUPPORT — N.T.S. — 15

PARALLEL CONDITION

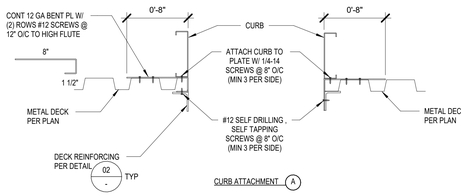
STEEL ANGLE BRACE TO BARE METAL ROOF DECK (O)



NOTE:
SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL & PLUMBING DWGS. FOR SEISMIC BRACE SIZES. SIZES PROVIDES ARE MINIMUM.

BRACING WIRE OR METAL CHAIN AT BARE METAL ROOF DECK (L)

TYPICAL GRAVITY HANGER SUPPORT — N.T.S. — 14



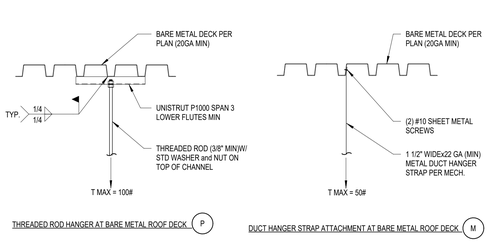
CURB ATTACHMENT (A)

BARE METAL DECKING CONDITIONS

NOTE:
1. REFER TO ARCH DRAWINGS FOR ROOFING DETAILS. CONFIRM ROOF PITCH PRIOR TO CURB FABRICATION

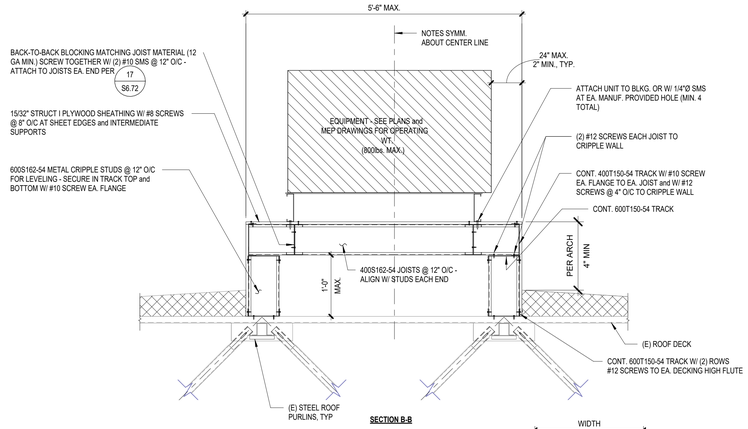
EXHAUST FAN SUPPORT — N.T.S. — 13

ROOFTOP EXHAUST FAN SPLAY BRACING — N.T.S. — 11

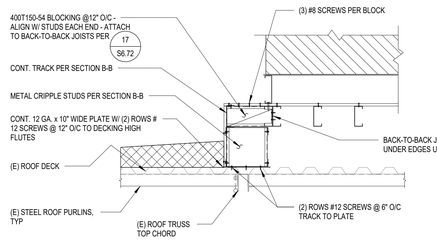


THREADED ROD HANGER AT BARE METAL ROOF DECK (P)

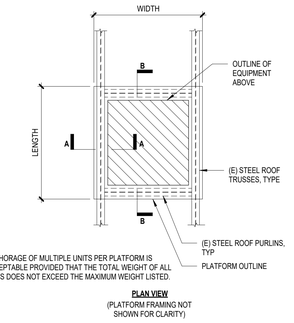
DUCT HANGER STRAP ATTACHMENT AT BARE METAL ROOF DECK (M)



SECTION B-B



SECTION A-A

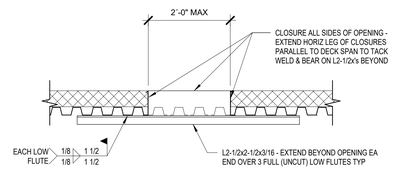


NOTE:
1. ANCHORAGE OF MULTIPLE UNITS PER PLATFORM IS ACCEPTABLE PROVIDED THAT THE TOTAL WEIGHT OF ALL UNITS DOES NOT EXCEED THE MAXIMUM WEIGHT LISTED.

PLAN VIEW
(PLATFORM FRAMING NOT SHOWN FOR CLARITY)

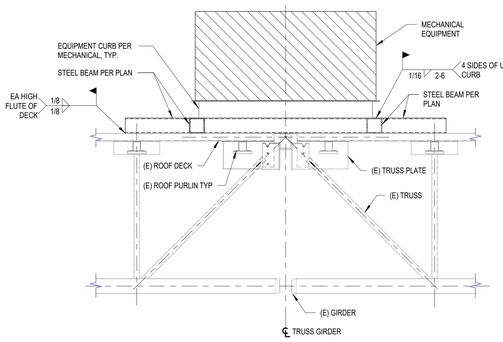
METAL STUDS CONDENSING UNIT EQUIPMENT PLATFORM — N.T.S. — 05

WATER HEATHER SEISMIC BRACING — N.T.S. — 03



SECTION AT BARE DECK (NO CONC FILL)

TYPICAL ROOF DECK OPENING (LESS 2'-0" SQUARE) — N.T.S. — 02



MECHANICAL EQUIPMENT SUPPORT — N.T.S. — 01

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TYPICAL EQUIPMENT ANCHORAGE DETAILS

S6.91

GENERAL DEMOLITION NOTES

1. THE MECHANICAL DRAWINGS ARE DIAGRAMMATIC ONLY. DO NOT SCALE THE DRAWINGS TO DETERMINE THE LOCATION OF EQUIPMENT OR UTILITIES. SEE ARCHITECTURAL PLANS, WHERE PROVIDED ON PROJECT, FOR EXTENT OF DEMOLITION.
2. ITEMS NOT INDICATED TO BE REMOVED SHALL BE PROTECTED IN PLACE.
3. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL ITEMS INDICATED TO BE REMOVED. PENDING OWNER'S INSPECTION AND REVIEW, ALL SUCH ITEMS SHALL BE REMOVED INTACT, FULLY FUNCTIONAL AND SUITABLE FOR REUSE. AND SHALL BE PROTECTED FROM DAMAGE. CONTRACTOR SHALL CONFIRM WITH THE OWNER'S REPRESENTATIVE ACCEPTANCE OR REFUSAL OF SUCH ITEMS. ALL ITEMS ACCEPTED BY THE OWNER SHALL BE DELIVERED BY THE CONTRACTOR TO ONSITE STORAGE LOCATIONS AS DIRECTED BY THE OWNER'S REPRESENTATIVE. ALL ITEMS REFUSED BY THE OWNER SHALL BE DISPOSED OF BY THE CONTRACTOR IN AN APPROVED MANNER.
4. NO EXISTING EQUIPMENT OR MATERIAL SHALL BE REUSED WITHOUT THE SPECIFIC APPROVAL OF THE OWNER'S REPRESENTATIVE.
5. REMOVAL OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE SATISFACTORY PERFORMANCE OF THE GENERAL WORK. NOT ALL EXISTING CONDITIONS ARE DETAILED ON THE DRAWINGS. CONTRACTOR SHALL SURVEY THE SITE AND MAKE ALL NECESSARY CHANGES REQUIRED BASED ON THE EXISTING CONDITIONS FOR THE PROPER INSTALLATION OF NEW WORK.
6. REMOVE AND/OR RELOCATE EXISTING FIXTURES AND EQUIPMENT AS INDICATED. EXISTING GAS AND/OR VENT PIPING SERVING SUCH ITEMS SHALL BE REMOVED TO A SUITABLE CONCEALED LOCATION WITHIN EXISTING TO REMAIN WALL OR ABOVE CEILING AND CAPPED WATERTIGHT. SOIL/WASTE PIPING SERVING SUCH FIXTURES SHALL BE REMOVED TO A SUITABLE CONCEALED LOCATION BELOW FINISHED FLOOR OR WITHIN EXISTING TO REMAIN WALL AND CAPPED WATERTIGHT.
7. UNLESS NOTED OTHERWISE, EXISTING COMPONENTS RENDERED DEFUNCT AS PART OF THIS PROJECT SHALL BE ADDRESSED IN THE FOLLOWING MANNER: EXISTING DEFUNCT VENTS THROUGH ROOF SHALL BE CAPPED ABOVE ROOF.
8. CONTRACTOR SHALL FIELD VERIFY EXISTING DUCT RUNS, REUSE AS REQUIRED AND REMOVE ALL UNUSED DUCTS. UNUSED DUCT IN INACCESSIBLE LOCATIONS (WALLS/SHAFTS TO CAN BE ABANDONED IN PLACE
9. THE EXISTING CONDITIONS SHOWN ARE FROM AVAILABLE RECORD DRAWINGS AND SHOWN FOR REFERENCE CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITIONS AT 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.
10. CONTRACTOR IS RESPONSIBLE TO RELOCATE OR REMOVE FROM WALLS, CEILINGS, FLOOR SPACES, ETC. ANY EXISTING DUCT, FIRE-SMOKE DAMPERS, OR OTHER MECHANICAL EQUIPMENT WHICH INTERFERES WITH PLANNED REMODEL WORK.
11. NOTIFY THE ENGINEER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, OR NOT INDICATED ON AS-BUILT DRAWINGS OR WAS BURIED UNDERGROUND OR EMBEDDED STRUCTURE/WALLS
12. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT, UTILITY LINES AND MATERIALS. WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE SMALLEST AREA POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.
13. EQUIPMENT, MATERIALS AND SUPPLIES TEMPORARILY REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.
14. DEMOLITION WORK SHALL BE DONE IN A MANNER WHICH WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO USERS OF THE PREMISES AND ADJACENT SITE, AND NOT INTERFERE WITH ITS OPERATION. ANY DEMOLITION WORK TO BE PERFORMED MUST BE PLANNED IN ADVANCE.
15. RESEAL ALL PENETRATIONS OR OPENING THROUGH WALLS, CEILING, FLOORS, ETC., TO MAINTAIN THE RATING OF STRUCTURE.
16. ALL REMOVED MATERIALS AND EQUIPMENT WHICH ARE SALVAGED MATERIALS SHALL REMAIN IN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY OWNER AND NEATLY PILE OR STORE AND PROTECT FROM DAMAGE. DISPOSE OF ALL HAZARDOUS MATERIAL PER FEDERAL, STATE AND LOCAL REGULATIONS AND OTHER AGENCIES HAVING JURISDICTION.
17. ALL DEMOLISHED, ALTERED AND RELOCATED COMPONENTS SHALL BE REFLECTED ON THE AS-BUILT RECORD DOCUMENTS.

3D COORDINATION NOTES

1. CONTRACTOR SHALL BE REQUIRED TO PERFORM 3D COORDINATION AND BUILDING INFORMATION MODELING (BIM) TO INTEGRATE STRUCTURAL STEEL, STRUCTURAL CONCRETE, METAL STUD FRAMING, FIRE PROTECTION, ELECTRICAL, LOW VOLTAGE, AND MEP WORK. ALL CONFLICTS SHALL BE RESOLVED PRIOR TO FABRICATION AND INSTALLATION.
2. CONTRACTOR IS REQUIRED TO HAVE AND USE NAVISWORKS MANAGE AS THE COLLABORATIVE SOFTWARE TO COMBINE EACH DISCIPLINES MODEL AND USE CLASH DETECTION AS A COORDINATION TOOL. THE CONTRACTOR IS REQUIRED TO PROVIDE 3D MODELING OF THEIR SCOPE OF WORK AS OUTLINED BELOW IN BOTH NATIVE AND NAVISWORKS (.NWD OR .NWC) FORMAT.
3. SHOULD UNAVOIDABLE CONFLICTS BE ENCOUNTERED DURING THE PREPARATION OR REVIEW OF THE COORDINATION MODELS AND SUPPLEMENTAL DRAWINGS OR SHOP DRAWINGS, OR DURING CONSTRUCTION, THEY SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF THE DESIGN TEAM, IN WRITING, FOR REVIEW. ALL CONGESTED AREAS NEED TO BE FIELD VERIFIED AND MEASURED TO ENSURE SYSTEMS FIT.
4. COORDINATED SHOP DRAWINGS MUST BE SIGNED OFF BY CONTRACTOR PRIOR TO SUBMITTING TO THE DESIGN TEAM. PREPARE DETAILED SHOP DRAWINGS IN PLAN VIEW, WITH CROSS-SECTIONS AS NECESSARY, INDICATING THE PROPOSED INSTALLATION PLAN FOR ALL WOOD OR METAL STUD FRAMING.
5. HVAC, MECHANICAL, FIRE SPRINKLER, PLUMBING, AND ELECTRICAL INSTALLATIONS WITHIN THE CEILING. THESE DRAWINGS SHOULD DEPICT ACTUAL ELEVATIONS AND LINEAR DIMENSIONS, AND ALL ROUTING CHANGES, TRANSITIONS, AND MAJOR OFFSETS DEEMED NECESSARY TO ACCOMPLISH THE INSTALLATION. INDIVIDUAL SHOP DRAWINGS WILL BE PREPARED FOR EACH TRADE WORKING WITHIN THE DESIGNATED SPACE OR AREA. IN ADDITION, COORDINATION OF THE CONSOLIDATED INSTALLATION SHALL REMAIN THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. THESE SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW PRIOR TO COMMENCEMENT OF INSTALLATION.
6. DO NOT OBSTRUCT SPACES AND INSTALLATIONS REQUIRED TO BE CLEAR FOR OPERATION, MAINTENANCE, PART REPLACEMENT OR APPLICABLE CODE REQUIREMENTS.
7. MODEL ALL HVAC SYSTEMS, DUCTWORK (INCLUDING FLANGES AND CONNECTIONS), DIFFUSERS/GRILLES, CURBS & EQUIPMENT PADS, EQUIPMENT & ASSOCIATED INSTALLATION OR MAINTENANCE CLEARANCE, ACCESS PANELS, SEISMIC BRACING, HANGERS, SUPPORTS, PENETRATIONS & OPENINGS, INSULATION, AND TEMPORARY SYSTEMS.

GENERAL MECHANICAL NOTES

1. ALL DRAWINGS ARE CONSIDERED TO BE PART OF THE CONTRACT DOCUMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO ANY CONSTRUCTION, INCLUDING STRUCTURAL, PLUMBING, AIR CONDITIONING AND ELECTRICAL. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENT SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE, AND AT NO EXPENSE TO THE DISTRICT.
2. ALL SYMBOLS AND ABBREVIATIONS USED ON THE DRAWINGS ARE CONSIDERED TO BE CONSTRUCTION STANDARDS. IF CLARIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
3. DO NOT SCALE DRAWINGS. ALL DIMENSIONS AND JOB SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR TO BID SUBMITTAL. START OF CONSTRUCTION AND/OR FABRICATION OF MATERIALS. IF DISCREPANCIES ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED FOR CLARIFICATION.
4. THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, EQUIPMENT, TRANSPORTATION AND SERVICES NECESSARY FOR COMPLETION OF THE WORK AND PROVIDE A FULLY OPERATIONAL SYSTEM. ALL MATERIALS AND WORK SHALL COMPLY WITH APPLICABLE CODES AND GOVERNING REGULATIONS AND MEET THE APPROVAL OF THE CITY AND STATE FIRE MARSHALL.
5. CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR PROTECTION AND REPAIR OF ADJACENT EXISTING SURFACES AND AREAS WHICH MAY BE DAMAGED AS A RESULT OF DEMOLITION AND/OR NEW WORK.
6. ALL EQUIPMENT THAT IS REMOVED AND NOT REUSED SHALL BE COORDINATED WITH, AND/OR RETURNED TO, THE DISTRICT.
7. ALL EXISTING DUCT TAPS THAT ARE REMOVED AND NOT REUSED SHALL BE CAPPED AIRTIGHT AND SEALED WITH MIRACLE DUCT SEALER AND D-617 OR EQUAL.
8. VERIFY FINAL LOCATION OF SENSORS WITH ARCHITECT AND/OR DISTRICT CONSTRUCTION COORDINATOR PRIOR TO ANY INSTALLATION WORK.
9. CONTRACTOR SHALL PROVIDE RECORD/AS BUILT DOCUMENTS TO CONSTRUCTION COORDINATOR, ARCHITECT AND ENGINEER AT COMPLETION OF CONSTRUCTION.
10. MAINTAIN NET FREE AREA EQUAL TO DUCT SIZE WHERE FIRE DAMPERS OCCUR.
11. ROOM THERMOSTATS SHALL BE CAPABLE OF BEING SET TO MAINTAIN SPACE TEMPERATURE SET POINTS FOR 65° F TO 85° F AND SHALL BE CAPABLE OF OPERATING THE HEATING AND COOLING IN SEQUENCE. THERMOSTATS SHALL BE ADJUSTABLE TO PROVIDE A TEMPERATURE RANGE OF UP TO 5° F BETWEEN FULL HEATING AND FULL COOLING BEING SUPPLIED. TEMPERATURE CONTROL SYSTEM SHALL OPERATE IN ACCORDANCE WITH THE BASIS BUILDING SEQUENCE OF OPERATION
12. PROVIDE MINIMUM DUCT RADIUS ON ELBOWS AT 1-1/2 TIMES DUCT SIZE.
13. ALL CEILING DIFFUSERS ARE 4-WAY THROW UNLESS NOTED OTHERWISE.
    A. DIFFUSERS SHALL BE ADJUSTED BY MECHANICAL CONTRACTOR AND/OR TEST & BALANCE CONTRACTOR FROM 4-WAY TO 3-WAY OR 2-WAY WHEN WITHIN 3'-0 OF ADJACENT WALL OR CORNER. SUBMIT PROPOSED ADJUSTMENTS IN WRITING PRIOR TO ADJUSTING.
14. CONTRACTOR SHALL STRICTLY COORDINATE ALL CEILING DIFFUSERS AND GRILLES WITH ARCHITECTURAL REFLECTED CEILING PLAN. IF ANY DISCREPANCIES ARE ENCOUNTERED THE ENGINEER SHALL BE NOTIFIED FOR CLARIFICATION. VERIFY WITH OWNERS REPRESENTATIVE IN FIELD PRIOR TO INSTALLATION.
15. MATERIALS EXPOSED WITHIN DUCT SHALL COMPLY WITH SECTION 602.2 AND 605.0 OF THE 2022 CMC.
16. PROVIDE SMOKE DETECTORS IN MAIN SUPPLY AIR DUCTS OF AIR MOVING SYSTEMS EXCEEDING 2,000 CFM PER SECTION 609.1 OF THE 2022 CMC.
17. MECHANICAL SYSTEMS SHALL COMPLY WITH REQUIREMENTS OF SECTION 608 OF THE 2022 CFC.
18. VENTS SHALL NOT TERMINATE LESS THAN 3-FT. ABOVE ANY OUTSIDE- OR MAKEUP-AIR INLET LOCATED WITHIN 10-FT. AT THE ROOF LEVEL, PER CMC 906.6
19. THE CONTRACTOR SHALL COORDINATE ALL CEILING ACCESS PANELS FOR SERVICING MECHANICAL EQUIPMENT/DEVICES WITH THE ARCHITECT AND INTERIOR DESIGNER AS APPLICABLE.
20. PRIOR TO ROUGH-IN OF ELECTRICAL. PROVIDE COORDINATION SHOP DRAWINGS OF T-STAT LOCATIONS TO ARCH./ENG. FOR REVIEW.
21. DUCT SEALING:
    A. DUCTWORK SHALL BE SEALED PRIOR TO DELIVERY TO JOB SITE.
    B. DUCTWORK SHALL BE SEALED DURING DELIVERY.
    C. DUCTWORK SHALL BE SEALED UPON INSTALLATION.
    D. OPENINGS INTO EQUIPMENT AND DUCTWORK SHALL BE SEALED DURING CONSTRUCTION.
22. ALL CONTROL WIRING ROUTED IN CEILING SHALL BE CLEARLY IDENTIFIED & SECURED TO DUCTWORK OR TIGHT TO STRUCTURE TO PREVENT DAMAGE DURING FUTURE DISTRICT IMPROVEMENT PROJECTS.
23. THE CONTRACTOR SHALL VERIFY ALL DIFFUSER/GRILLE/REGISTER/BORDER AND FRAME TYPES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO ORDERING. COORDINATE ALL FINISHES WITH ARCHITECT.
24. ALL HVAC SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH AN APPROVED METHOD PER THE 2022 CMC SECTION 314.1, CALGREEN AND THE ENERGY EFFICIENCY STANDARDS.
25. THROUGH-PENETRATIONS AND MEMBRANE PENETRATIONS SHALL BE PROTECTED BY AN APPROVED PENETRATION FIRESTOP SYSTEM OR MEMBRANE PENETRATION FIRESTOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 814 OR UL 1479, WITH MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 PA) OF WATER OR AS OTHERWISE PERMITTED BY 2022 CBC, SECTION 714. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS AND MEMBRANE PENETRATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTALLATION FOR DETAILS LISTED SYSTEMS. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS, MEMBRANE PENETRATION PROTECTION AND OTHER PERMITTED MEANS AND METHODS OF PENETRATION PROTECTION SHALL BE SUBMITTED TO THE AGENCY HAVING JURISDICTIONIAL AUTHORITY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
26. PROVIDE BALANCING VOLUME DAMPERS IN EACH BRANCH DUCT AND IN EACH MAIN DUCT TO PROVIDE FOR COMPLETE AIR BALANCING. PROVIDE ADEQUATE ACCESS. OPPOSED BLADE DAMPERS (OBD'S) ARE NOT CONSIDERED BALANCING DAMPERS. COORDINATE ALL LOCATIONS WITH ARCHITECT'S REFLECTED CEILING PLAN WHERE REMOTE BALANCING DAMPERS ARE REQUIRED.
27. PROVIDE INTERNALLY LINED DUCTWORK FOR SUPPLY AND RETURN AIR PLENUMS ON ALL FAN COILS WITH MINIMUM ONE-INCH THICK ACOUSTICAL DUCT LINER.
28. INSTALL DIELECTRIC INSULATION WHERE COPPER PIPES CONNECT TO FERROUS PIPES, COMPONENTS AND EQUIPMENT.
29. OUTDOOR AIR SUPPLY AND EXHAUST EQUIPMENT SHALL BE INSTALLED WITH DAMPERS THAT AUTOMATICALLY CLOSE UPON FAN SHUTDOWN.

EQUIPMENT ANCHORAGE AND BRACING

1. ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC , SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26 AND 30.
   A. ALL PERMANENT EQUIPMENT AND COMPONENTS.
   B. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICE SUCH AS ELECTRICITY, GAS, OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
   C. TEMPORARY, MOVABLE, OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA
2. THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.
   A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
   B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR HUNG FROM WALL.
3. THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHANGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION BRACING NOTE:

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7 AND 13.6.8. 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. THE MEP DESIGN PROFESSIONAL ENGINEER RESPONSIBLE FOR CONTENT ON THESE SHEETS HAS VERIFIED THAT THE DESIGN METHODS IDENTIFIED BELOW ARE IN ACCORDANCE WITH DSA IR 16-13. METHODS IDENTIFIED BELOW ARE IN ACCORDANCE WITH DSA IR 16-13.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP __ MD X PP __ E __ OPTION 1: PROJECT-SPECIFIC DESIGN
MP __ MD __ PP __ E __ OPTION 2: DESIGN BASED ON OSHPD OPM, WITH PROJECT SUBMITTAL
MP __ MD __ PP __ E __ OPTION 3: DESIGN BASED ON OSHPD OPM, WITH DEFERRED SUBMITTAL

APPLICABLE CODES

2022	CALIFORNIA BUILDING CODE
2022	CALIFORNIA MECHANICAL CODE
2022	CALIFORNIA PLUMBING CODE
2022	CALIFORNIA ELECTRICAL CODE
2022	CALIFORNIA FIRE CODE
2022	CALIFORNIA ENERGY STANDARDS
2022	CAL GREEN CODE
	ALL OTHER APPLICABLE LOCAL AND STATE LAWS AND REGULATIONS

ABBREVIATIONS

A/C	AIR CONDITIONING	HRU	HEAT RECOVERY UNIT
ABV	ABOVE	HVAC	HEATING, VENTILATION & AIR CONDITIONING
ACCEPT	ACCEPTANCE	HW	HEATING WATER
ACU	AIR CONDITIONING UNIT	HWP	HEATING WATER PUMP
AD	ACCESS DOOR	HWR	HEATING WATER RETURN
ADA	AMERICANS WITH DISABILITIES ACT	HWS	HEATING WATER SUPPLY
ADD	ADDITION	HX	HEAT EXCHANGER
AFF	ABOVE FINISH FLOOR	ID	INSIDE DIAMETER
AHJ	AUTHORITY HAVING JURISDICTION	IE	INVERT ELEVATION
AHU	AIR HANDLING UNIT	IN	INCH
AP	ACCESS PANEL	IW	INDUSTRIAL WASTE
APPROX	APPROXIMATE	L	LENGTH
ARCH	ARCHITECTURAL	LBS	POUNDS
ARI	AMERICAN REFRIGERATION INSTITUTE	LP	LOW PRESSURE
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS	LPC	LOW PRESSURE CONDENSATE
AS	AIR SEPARATOR	LPS	LOW PRESSURE STEAM
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	M	MOTOR
AUTO	AUTOMATIC	MA	MIXED AIR
AUX	AUXILIARY	MAX	MAXIMUM
AV	AIR VENT	MC	MECHANICAL CONTRACTOR
B	BOILER	MCC	MOTOR CONTROL CENTER
BAS	BUILDING AUTOMATION SYSTEM	MECH	MECHANICAL
BDD	BACKDRAFT DAMPER	MIN	MINIMUM
BFF	BELOW FINISH FLOOR	MPC	MEDIUM PRESSURE CONDENSATE
BLDG	BUILDING	MPS	MEDIUM PRESSURE STEAM
BOD	BOTTOM OF DUCT	MV	MANUAL AIR VENT
BOP	BOTTOM OF PIPE	(N)	NEW
BSMT	BASEMENT	N/A	NOT APPLICABLE
BV	BALL VALVE	NC	NORMALLY CLOSED
BYV	BUTTERFLY VALVE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
C	COMMON, CONDENSATE OR CONDUIT	NIC	NOT IN CONTRACT
CA	CONTROL AIR, or COMBUSTION AIR	NTS	NOT TO SCALE
CAC	CALIFORNIA ADMINISTRATIVE CODE	OA	OUTSIDE AIR
CAP	CAPACITY	OBD	OPPOSED BLADE DAMPER
CAV	CONSTANT AIR VOLUME	OC	ON CENTER
CB	CHILLED BEAM	OD	OUTSIDE DIAMETER
CBC	CALIFORNIA BUILDING CODE	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
CC	COOLING COIL OR CONTROLS CONTRACTOR	OFOI	OWNER FURNISHED OWNER INSTALLED
CD	CONSTRUCTION DOCUMENTS	P	PUMP OR PRESSURE OR POLE
CEC	CALIFORNIA ELECTRICAL CODE	PC	PUMPED CONDENSATE
CFC	CALIFORNIA FIRE CODE	PCR	PRESSURIZED CONDENSATE RETURN
CFM	CUBIC FEET PER MINUTE	PD	PRESSURE DROP
CH	CHILLER	PE	PNEUMATIC ELECTRIC
CHV	CHECK VALVE	PF	PRE FILTER
CHWP	CHILLED WATER PUMP	PG	PIPE GUIDE OR PRESSURE GAUGE
CHWR	CHILLED WATER RETURN	PH	PHASE
CHWS	CHILLED WATER SUPPLY	PLBG	PLUMBING
CL	CENTERLINE	POC	POINT OF CONNECTION
CLG	CEILING	POD	POINT OF DISCONNECTION
CMC	CALIFORNIA MECHANICAL CODE	PS	PRESSURE SENSOR
CONN	CONNECTION	PSI	POUNDS PER SQUARE INCH
CP	CONTROL PANEL	PSIG	POUNDS PER SQUARE INCH - GAUGE
CPC	CALIFORNIA PLUMBING CODE	QTY	QUANTITY
CV	CONSTANT VOLUME OR CONTROL VALVE	(R)	REMOVE
CWP	CONDENSER WATER PUMP	R	RISERS, RELOCATE OR RISE
CWR	CONDENSER WATER RETURN	RA	RETURN AIR
CWS	CONDENSER WATER SUPPLY	REF	RELIEF FAN
D	DROP OR DRAIN	REFRIG	REFRIGERANT
DDC	DIRECT DIGITAL CONTROL	REQ'D	REQUIRED
DEMO	DEMOLISH / DEMOLITION	REV	REVISE, REVISION OR REVOLUTIONS
DEPT	DEPARTMENT	RF	RETURN FAN
DET	DETAIL	RHC	REHEAT COIL
DIA	DIAMETER	RM	ROOM
DIFF	DIFFERENCE	RS	REFRIGERANT SUCTION
DISCH	DISCHARGE	RTU	ROOFTOP UNIT
DN	DOWN	SA	SUPPLY AIR
DV	DIAPHRAGM VALVE	SAN	SANITARY
DWG	DRAWING	SD	SMOKE DAMPER
DX	DIRECT EXPANSION	SEN	SENSIBLE
(E)	EXISTING	SF	SUPPLY FAN OR SQUARE FEET
E	EAST	SP	STATIC PRESSURE
EA	EXHAUST AIR OR EACH	SPEC	SPECIFICATION
EC	ELECTRICAL CONTRACTOR	SQ FT	SQUARE FEET
ECON	ECONOMIZER	SQ IN	SQUARE INCH
EF	EXHAUST FAN	ST	STRAINER OR SOUND TRAP OR STEAM TRAP
EL	ELEVATION	STD	STANDARD
ELEC	ELECTRICAL	STRUC	STRUCTURAL
EQUIP	EQUIPMENT	SS	STAINLESS STEEL
ESP	EXTERNAL STATIC PRESSURE	T	THERMOSTAT OR THERMOMETER OR THROAT
ET	EXPANSION TANK	TCP	TEMPERATURE CONTROL PANEL
EXH	EXHAUST	TDH	TOTAL DYNAMIC HEAD
FC	FLEXIBLE CONNECTION OR FAIL CLOSED	TEMP	TEMPERATURE
FCU	FAN COIL UNIT	THRU	THROUGH
FD	FIRE DAMPER	TI	TENANT IMPROVEMENT
FF	FINISH FLOOR OR FINAL FILTER	TOP	TOP OF DUCT
FFE	FINISH FLOOR ELEVATION	TS	TEMPERATURE SENSOR
FLR	FLOOR	TSP	TOTAL STATIC PRESSURE
FPB	FAN POWERED BOX	TYP	TYPICAL
FR	FIRE WRAP	UC	UNDERCUT DOOR
FSD	FIRE/SMOKE DAMPER	UG	UNDERGROUND
FT	FOOT / FEET	UH	UNIT HEATER
G	GAS	UNO	UNLESS NOTED OTHERWISE
GA	GAUGE, GAGE	V	VENT
GALV	GALVANIZED	VAV	VARIABLE AIR VOLUME
GLV	GLOBE VALVE	VD	VOLUME DAMPER
GN	GENERAL NOTE	VEL	VELOCITY
GND	GROUND	VFD	VARIABLE FREQUENCY DRIVE
GPM	GALLON PER MINUTE	W/	WITH
GV	GATE VALVE	W/O	WITHOUT
HC	HEATING COIL	WG	WATER GAUGE
HP	HORSEPOWER	WMS	WIRE MESH SCREEN
HP	HIGH PRESSURE	WPD	WATER PRESSURE DROP
HP	HEAT PUMP	WSHP	WATER SOURCE HEAT PUMP
HPC	HIGH PRESSURE CONDENSATE	WT	WEIGHT
HPS	HIGH PRESSURE STEAM	XFMR	TRANSFORMER

HVAC LEGEND

SYMBOL	DESCRIPTION
	GENERAL
	POINT OF DISCONNECTION
	POINT OF CONNECTION
X.ZZZ	KEYNOTE
M	FURNISHED & INSTALLED BY MECHANICAL
ME	FURNISHED BY MECHANICAL INSTALLED BY ELECTRICAL
EM	FURNISHED BY ELECTRICAL INSTALLED BY MECHANICAL
E	FURNISHED & INSTALLED BY ELECTRICAL
	EQUIPMENT TAG TYPE MARK EQUIPMENT NUMBER
(RA/ER/EAR)	SUPPLY, RETURN, & EXHAUST REGISTER TYPE AIR QUANTITY (C.F.M.)
(REAG)	RELIEF AIR GRILLE TYPE AIR QUANTITY (C.F.M)
	LINEAR SUPPLY & RETURN # OF SLOTS - SLOT WIDTH CFM TOTAL LENGTH (FT)
	DUCTWORK
	REMOVE EXIST. EQUIP., PIPES, OR DUCT SHOWN HATCHED
	EXIST. DIFFUSER OR RETURN AIR GRILLE TO BE REMOVED
	EXIST. MECHANICAL EQUIPMENT & DUCT
	EXIST. DUCTWORK TO BE REMOVED & CAPPED
	LINEAR DIFFUSER
	SUPPLY AIR TERMINAL
	RETURN AIR TERMINAL
	EXHAUST AIR TERMINAL
14"x12" / 14"x12"	RECTANGULAR DUCT SIZE (WIDTH x DEPTH IN INCHES)
14"ø / 14"ø	ROUND DUCT SIZE (WIDTH x DEPTH IN INCHES)
R	DUCT RISE / DUCT DROP
	DUCT WITH INTERNAL LINING
	DUCT WITH FIRE WRAP INSULATION
	STAINLESS STEEL DUCT
	FLEXIBLE DUCT
	RECTANGULAR DUCT UP
	RECTANGULAR DUCT DOWN
	DUCT TRANSITION (RECTANGULAR TO ROUND)
D.L./U.C.	DOOR LOUVER OR UNDERCUT
	AUTOMATIC DAMPER (WITH ACTUATOR)
	BACKDRAFT DAMPER
	MANUAL VOLUME DAMPER
FSD	COMBINATION FIRE & SMOKE DAMPER
FD — H	FIRE DAMPER
	PIPING
#"-####	PIPE TAG (E.G. 2"-CHWS)
	PIPE RISE
	PIPE DROP
	PIPE BRANCH
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CIRCUIT SETTER
	REDUCER
	STRAINER
	UNION
	AIR VENT VALVE
	PRESSURE GAUGE
	THERMOMETER
	CONTROL VALVE
	PIPE ANCHOR
	CONTROLS (PLAN)
CO2	CO2 SENSOR
NO2	NITROGEN DIOXIDE SENSOR
H	HUMIDITY SENSOR
O	OXYGEN SENSOR
T	ROOM THERMOSTAT & ZONE NUMBER
S	SWITCH (MANUAL WALL MOUNT OR DOOR INTERLOCK)
SD	SMOKE DETECTOR
CO	CARBON MONOXIDE SENSOR
SP	PRESSURE SENSOR (DUCT MOUNTED)
P	PRESSURE SENSOR (ROOM PRESSURE)
V	PURGE EXHAUST CONTROL SWITCH
HS	VISU

ROOF-TOP-UNITS

TAG	#	MANUFACTURER	MODEL NUMBER	SERVICE	MIN OA (CFM)	DCV OA (CFM)	AMBIENT TEMP. DB (°F)	SUPPLY FAN						COOLING COIL						HEATING COIL			SEER/EER	COP	COMP. QTY	COND. QTY	POWER EXHAUST					ELECT. POWER CONN. (#)	ELECTRICAL CONNECTION 1						ELECTRICAL CONNECTION 2 (PWR. EXH)						CONDENSATE CONNECTION		DETAIL REFERENCE	CONTROL DIAGRAM	OPERATING WEIGHT (LBS)	REMARKS
								QTY	DRIVE TYPE	AIR FLOW (CFM)	EXTERNAL STATIC PRESSURE (IN WG)	FAN SPEED (RPM)	MOTOR (BHP)	TOTAL CAPACITY (BTU/HR)	SENSIBLE CAPACITY (BTU/HR)	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	TOTAL CAPACITY (BTU/HR)	EAT DB (°F)	LAT DB (°F)					MOTOR (HP)	MANUF.	MODEL NUMBER	TYPE	LOCATION		FLA (A)	MCA (A)	MOCP (A)	VOLTS	PH	Hz	FLA	MCA	MOCP	VOLTS	PH	Hz	QTY	SIZE (IN)				
RTU	1	WILSENERGY	O1997-GS-2	BIOLOGY 426, BIOLOGY STORAGE 425	600	0	100	1	DIRECT	2,400	1.00	2248	1.39	72,400	54,000	82	67	61	57	81,900	56.9	87.9	-	-	-	-	0	-	-	-	N/A	1	4.8	5.9	10.7	208	3	60	0.9			0	0	0	1	1 1/2"	8,9,10/M5.02	1/M6.02	1,800	1,2,4,5,6,8,9,10,11,12
RTU	2	WILSENERGY	O1997-GS-3	CHEMISTRY 423, CHEMICAL STORAGE 422	600	0	100	1	DIRECT	3,000	1.00	2444	1.68	95,000	95,000	95	67	66	57	91,000	56.9	87.1	-	-	-	-	0	-	-	-	N/A	1	4.8	5.9	10.7	208	3	60	0.9			0	0	0	1	1 1/2"	8,9,10/M5.02	1/M6.02	1,965	1,2,4,5,6,8,9,10,11,12
RTU	3	WILSENERGY	O1997-GS-2	CHEMISTRY 421	600	0	100	1	DIRECT	2,400	1.00	2248	1.39	72,400	54,000	82	67	61	57	83,100	56.2	87.7	-	-	-	-	0	-	-	-	N/A	1	4.8	5.9	10.7	208	3	60	0.9			0	0	0	1	1 1/2"	8,9,10/M5.02	1/M6.02	1,800	1,2,4,5,6,8,9,10,11,12
RTU	4	WILSENERGY	O1997-GS-2	BIOLOGY 428	600	0	100	1	DIRECT	2,400	1.00	2248	1.39	72,400	54,000	82	67	61	57	81,400	57.2	88.0	-	-	-	-	0	-	-	-	N/A	1	4.8	5.9	10.7	208	3	60	0.9			0	0	0	1	1 1/2"	8,9,10/M5.02	1/M6.02	1,800	1,2,4,5,6,8,9,10,11,12
RTU	5	TRANE	DHK048A4	CIRCULATION 433, CONFRENCE 420	650	485	100	1	DIRECT	1,600	0.80	891	0.45	45,150	45,150	84	64	56	58	60,000	70.0	97.4	16.8	3.8	1	1	0.5	CANFAB	SUB-6144-PE_MPE	UNIT MOUNTED	RTU-5	2	5.3	28	40	208	3	60	2.4	2.2	5	208	3	60	1	3/4"	1,2,3/M5.02	1/M6.01	1,750	1,2,3,4,5,7,9,10,11

REMARKS:
1. PELICAN CONTROLS THERMOSTAT FURNISHED AND INSTALLED BY BAS CONTRACTOR.
2. PROVIDE WITH 0-100% ULTRA LOW LEAK DIFFERENTIAL DRY BULB ECONOMIZER WITH BAROMETRIC RELIEF AND FAULT DETECTION DIAGNOSTICS.
3. PROVIDE WITH MODULATING POWER EXHAUST AND BUILDING DIFFERENTIAL PRESSURE SENSOR.
4. PROVIDE WITH DEMAND CONTROL VENTILATION/CO2 SENSING.
5. THE BUILDING WILL BE EQUIPED WITH A TOTAL COVERAGE SMOKE-DETECTION SYSTEM. ELECTRICAL CONTRACTOR TO PROVIDE RELAYS TO SHUTDOWN UNIT UPON AREA DETECTION. DUCT SMOKE DETECTORS ARE NOT REQUIRED (CMC 608. EXCEPTION_1)
6. PROVIDE WITH ECONOMIZER WITH DRY BULB LOCKOUT CONTROL.
7. PROVIDED ISOLATION CURB (1" SPRING DEFLECTION).
8. PROVIDE RIGID CURB.
9. PROVIDE 2" MERV 13 FILTERS.
10. HORIZONTAL DISCHARGED.
11. TAB TO BALANCE AND SET MINIMUM OSA AT BOTH SCHEDULED AND MINIMUM SUPPLY AIR CFM. AC UNITS HAVE MULTI-SPEED INDOOR FANS.
12. PROVIDE MITSUBISHI LEV PAC INTERFACE KIT FOR COMMUNICATION WITH VRF SYSTEM.

VRF OUTDOOR HEAT RECOVERY UNITS

TAG	#	MANUFACTURER	MODEL NUMBER	SERVICE	COOLING		HEATING	REFRIGERANT CHARGE			NO. OF MODULES	ELECTRICAL CONNECTION 1					EFFICIENCY			OPERATING WEIGHT (LBS)	REMARKS
					TOTAL CAPACITY (BTU/HR.)	AMBIENT DB TEMP. (°F)	TOTAL CAPACITY (BTU/HR.)	FACTORY CHARGE (LBS)	ADDL REFRIGERANT (LBS)	TOTAL CHARGE (LBS)		MCA (A)	MOCP (A)	VOLTAGE (V)	PHASE	HERTZ (HZ)	EER	IEER	COP @ 47F		
HRU	1	PURY-EM144YXU-A	TRANE/MITSUBISHI	RTU 1 & 4 (ON ROOF)	144000	100	168000	23	12	35	1	60	100	208	3	60	10	20.2	3.3	800	1,2,3,4
HRU	2	PURY-EM168YXU-A	TRANE/MITSUBISHI	RTU 2 & 3 (ON ROOF)	168000	100	188000	23	12	35	1	60	100	208	3	60	10	20.2	3.3	800	1,2,3,4

REMARKS:
1. R-32 REFRIGERANT.
2. SIZE PIPING PER MANUFACTURERS RECOMMENDATIONS BASED ON ACTUAL FIELD ROUTING.
3. PROVIDE WITH SHORT CYCLE PROTECTION, COIL GUARDS, LOW AMBIENT KIT, AND NEOPRENE ISOLATION PADDING.
4. INSTALL PER MANUFACTURERS INSTRUCTIONS.
5. PROVIDE WITH FACTORY CONTROLLER WITH STANDARD OPERATION.

BS CONTROLLERS

TAG	#	MANUFACTURER	MODEL NUMBER	NUMBER OF PORTS	TOTAL CAPACITY (BTU/HR)	ELECTRICAL CONNECTION						DETAIL REFERENCE	OPERATING WEIGHT (LBS)	REMARKS
						FLA (A)	MCA (A)	MOCP (A)	VOLTAGE (V)	PHASE	HERTZ (HZ)			
BS	1	TRANE/MITSUBISHI	TCMBM0108JA21N4	8	54,000	0.2	1	20	208	1	60	1/M5.03	300	1
BS	2	TRANE/MITSUBISHI	TCMBM0108JA21N4	8	54,000	0.2	1	20	208	1	60	1/M5.03	300	1

REMARKS:
1. PROVIDE WITH OUTDOOR ENCLOSURE.

EXHAUST FANS

TAG	#	MANUFACTURER	MODEL NUMBER	SERVICE	TYPE	DRIVE TYPE	NORMAL AIR FLOW (CFM)	ECONO. AIR FLOW (CFM)	EXTERNAL STATIC PRESSURE (IN WG)	EFFICIENCY (%)	MOTOR SPEED (RPM)	MOTOR (HP)	ELECTRICAL CONNECTION			ANCHORAGE DETAIL REFERENCE	CONTROL DIAGRAM	OPERATING WEIGHT (LBS)	REMARKS
													VOLTAGE (V)	PHASE	HERTZ (HZ)				
EF	1	GREENHECK	SP-A110	CUSTODIAL 424	CEILING	DIRECT	90		0.25	40	934	0	115	1	60	7/M5.01	2/M6.01	25	4,7
EF	2	GREENHECK	CUE-060-VG	CHEMICAL STORAGE 422 (ACID CABINETS)	UPBLAST	DIRECT	75		0.35	21	1512	0.1	115	1	60	5/M5.01	5/M6.01	45	1,2,3,4,5,10
EF	3	GREENHECK	FJ-8	CHEMICAL STORAGE 422 (FUMEHOOD)	UTILITY	BELT	600		1	61	1878	0.5	208	3	60	4,5/M5.02	4/M6.01	175	1,2,3,4,5,8,10
EF	4	GREENHECK	USF-15	BIOLOGY 426	UTILITY	DIRECT	650	2450	5.1	70	2544	3	208	3	60	3/M5.01, 6/M5.02	3/M6.01	320	1,2,3,4,5,6,9
EF	5	GREENHECK	USF-18	CHEMISTRY 423	UTILITY	DIRECT	685	3050	8	74	2631	7.5	208	3	60	3/M5.01, 6/M5.02	3/M6.01	520	1,2,3,4,5,6,9
EF	6	GREENHECK	USF-15	CHEMISTRY 421	UTILITY	DIRECT	650	2450	5.1	70	2544	3	208	3	60	3/M5.01, 6/M5.02	3/M6.01	320	1,2,3,4,5,6,9
EF	8	GREENHECK	CUE-060-VG	BIOLOGY STORAGE 425 (ACID CABINETS)	UPBLAST	DIRECT	75		0.35	21	1512	0.1	115	1	60	5/M5.01	5/M6.01	45	1,2,3,4,5,10

REMARKS:
1. PROVIDE WITH BACKDRAFT DAMPER, BIRD SCREEN AND DISCONNECT.
2. PROVIDE WITH FACTORY ROOF CURB.
3. INTERLOCK WITH PELICAN BAS.
4. FAN-SPEED CONTROLLER.
5. PROVIDE WITH HOUSING DRAIN.
6. PROVIDE WITH FACTORY SUPPLIED VFD.
7. PROVIDE WITH OCCUPANCY SENSING LIGHT SWITCH.
8. PROVIDE WITH SEPARATE FIELD SUPPLIED VFD.
9. THE EXHUAST FAN SHALL MONITOR AND BALANCE THE SPACE TO 0.02" POSITIVE PRESSURE.
10. STAINLESS STEEL - TYPE 316 DUCTS.

DIFFUSERS, REGISTERS AND GRILLES

MARK	MANUFACTURER	MODEL NO	NECK SIZE	FACE SIZE	DESCRIPTION	MOUNTING	THROW	DAMPER	COLOR	MAX. NC	REMARKS
CS-1	PRICE	SMCD	SEE PLANS	SEE PLANS	MODULAR CORE DIRECTIONAL DIFFUSER	LAY-IN	4-WAY	BRANCH	SEE NOTE 1	20	1,2,3,4
CR-1	PRICE	530	SEE PLANS	SEE PLANS	LOUVERED RETURN GRILLE WITH FILTER FRAME	LAY-IN	-	BRANCH	SEE NOTE 1	20	1,2,3,4
CE-1	PRICE	530	SEE PLANS	SEE PLANS	LOUVERED EXHAUST GRILLE	LAY-IN	-	BRANCH	SEE NOTE 1	20	1,2,3,4
TRAG-1	PRICE	530	SEE PLANS	SEE PLANS	LOUVERED TRANSFER GRILLE	LAY-IN	-	-	SEE NOTE 1	20	1,2,3,4

REMARKS:
1. PROVIDE AIR DISTRIBUTION IN B12 WHITE.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT CEILING TYPE.
3. PROVIDE BALANCING DAMPERS FOR EVERY INLET AND OUTLET.
4. SEE FLOOR PLANS FOR NECK/GRILLE SIZES.

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SONORA HIGH SCHOOL
SCIENCE CLASSROOM MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	07/07/2025
90% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	F. STEFAN
Scale	12" = 1'-0"

EQUIPMENT SCHEDULES

M0.02

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

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: Sonora Lab Upgrade Bldg.400	**Report Page:**	**(Page 1 of 18)**
Project Address: 401 S. Plam Street	**Date Prepared:**	10/17/2025

A. GENERAL INFORMATION

01	Project Location (city)	La Habra	04	Total Conditioned Floor Area	10909
02	Climate Zone	8	05	Total Unconditioned Floor Area	0
03	Occupancy Types Within Project:		06	# of Stories (Habitable Above Grade)	1

● Classroom ● Support Areas

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 Air System(s)	02 Wet System Components	03 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

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
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	Date Prepared:	10/17/2025

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance.

01		02		03		04		05		06		07		08	09
System Summary 110.1, 110.2, 140.4, 170.2(c)	AND	Pumps 140.4(k), 170.2(c)4I	AND	Fans/ Economizers 140.4(c), 140.4(e), 170.2(c)	AND	System Controls 110.2, 120.2, 140.4(f), 170.2(c)	AND	Ventilation 120.1, 160.2	AND	Terminal Box Controls 140.4(d), 170.2(c)4B	AND	Distribution 120.3, 140.4(l), 160.2, 160.3	AND	Cooling Towers 110.2(e)2	Compliance Results
(See Table F)		(See Table G)		(See Table H)		(See Table I)		(See Table J)		(See Table K)		(See Table L)		(See Table M)	
Yes	AND		AND	Yes	AND	Yes	AND	Yes	AND		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)

Space Conditioning System Information

01 System Name	02 Quantity	03 System Serving	04 System Status	05 Space Type	06 Utilizing Recovered Heat
HRU-1	1	Single zone	New/ Addition		☐
HRU-2	1	Single zone	New/ Addition		☐
RTU-5	1	Single zone	New/ Addition		☐

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems)

01	02	03	04	05	06	07	08	09	10	11
Name or Item Tag	Equipment Category per Tables 110.2, 140.4(a)2 and 170.2(c)3aii	Equipment Type per Tables 110.2 and Title 20	Smallest Size Available[1] 140.4(a) and 170.2(c)1	Equipment Sizing per Mechanical Schedule (kBtu/h) 140.4(a&b), 170.2(c)1 & 170.2(c)2						
				Heating Output[2,3]			Cooling Output[2,3]		Load Calculations[3,4]	
				Per Design (kBtu/h)	Rated (kBtu/h)	Supp. Heating Output (kBtu/h)	Sensible Per Design (kBtu/h)	Rated (kBtu/h)	Total Heating Load (kBtu/h)	Total Sensible Cooling Load (kBtu/h)
HRU-1	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Load Controls	111.03	160	0	144.92	130	323.57	239.47
HRU-2	Unitary Heat Pumps	Air-cooled, split (3 phase)	NA: Load Controls	130.46	188	0	169.06	157	308.32	234.81
RTU-5	Unitary Heat Pumps	Air-cooled, pkg (3 phase)	NA: Load Controls	25.42	36.63	0	43.81	46.46	42.56	50.98

[1] FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(a) and 170.2(c)1. Healthcare facilities are excepted.
[2] It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.
[3] If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.
[4] Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Heating Mode				Cooling Mode		
		Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
HRU-1	>=135,000 and <240,000		COP	3.2	3.3	EER IEER	10.6 13.5	12.2 12.9

STATE OF CALIFORNIA
Mechanical Systems
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F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)

Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)

01	02	03	04	05	06	07	08	09
Name or Item Tag	Size Category (Btu/h)	Heating Mode				Cooling Mode		
		Rating Condition (°F)	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency	Efficiency Unit	Minimum Efficiency Required per Tables 110.2 / Title 20	Design Efficiency
HRU-2	>=135,000 and <240,000		COP	3.2	3.3	EER IEER	10.6 13.5	12.2 12.9
RTU-5	<65,000		HSPF2	6.7	9	SEER2	13.4	16.8

G. PUMPS

This section does not apply to this project.

STATE OF CALIFORNIA
Mechanical Systems
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CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
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H. FAN SYSTEMS & AIR ECONOMIZERS

This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)3, and 170.2(c)4A for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.

System Name	HRU-1	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	2,400	Site Elevation	340	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	2,400		557		Manufacturer provided		1.16
			MERV 13-16 Filter upstream of thermal conditioning equipment	2,400		334				
			Hydronic/DX cooling coil or heat pump coil	2,400		334				
			Energy Recovery 0.70 <= ERR > 0.75	2,400		576				
			Economizer Return Damper	2,400		110				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1.91	Fan System Electrical Output (kW)	1.16

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	HRU-2	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	3,000	Site Elevation	340	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	3,000		696		Manufacturer provided		1.42
			MERV 13-16 Filter upstream of thermal conditioning equipment	3,000		417				
			Hydronic/DX cooling coil or heat pump coil	3,000		417				
			Energy Recovery 0.70 <= ERR > 0.75	3,000		720				
			Economizer Return Damper	3,000		138				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		2.39	Fan System Electrical Output (kW)	1.42

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CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
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H. FAN SYSTEMS & AIR ECONOMIZERS

System Name	RTU-5	Quantity	1	Fan System Status	New	System Zoning	all other systems	Serving Dwelling Units	Not Serving Dwelling Units	Fan System Airflow (cfm)	1,600	Site Elevation	340	Economizer	Differential Temperature
01	02	03	04			05		06	07	08	09			10	11

Fan Name or Item Tag	Fan Type	Qty	Component	Airflow through Component (%)	Water Gauge (w.g)	Allowance: Component Allowance	Allowance: Fan Allowance (watt/cfm)[3]	Design: Design Electrical Input Power Method	Design: Motor Nameplate Horsepower	Design: Design Electrical Input Power (kW)
SF	Supply	1	Base Allowance for system serving spaces <=6 floors away	1,600		371		Manufacturer provided		0.4
			MERV 13-16 Filter downstream of thermal conditioning equipment	1,600		370				
			Hydronic/DX cooling coil or heat pump coil	1,600		222				
			Economizer Return Damper	1,600		74				
			Low-turndown single-zone VAV fan systems	1,600		112				
Supply Fan Base Allowance (kW)			Exhaust/Return/Relief/Transfer Fan Base Allowance(kW)			Fan System Allowance (kW)[3]		1.15	Fan System Electrical Output (kW)	0.4

[1] FOOTNOTES: Fans serving spaces with design background noise goals below NC35
[2] Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.
[3] Fan system allowance includes fan system base allowance.
[4] Filter pressure loss can only be counted once per fan system.
[5] Complex Fan System means a fan system that combines a single cabinet fan system with other supply fans, exhaust fans, or both.
[6] Computer room economizers must meet requirements of 140.9(a) and will be documented on the NRCC-PRC-E document..

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Sonora Lab Upgrade Bldg.400	**Report Page:**	**(Page 8 of 18)**
	Date Prepared:	10/17/2025

H. EXHAUST AIR HEAT RECOVERY 140.4(q), 170.2(c)4O

01 Fan System Name	02 Qty	03 Hours of Operation per Year	04 Design Supply Airflow Rate	05 Outdoor Airflow	06 % Outdoor Air at Full Design Airflow	07 Exemptions to Exhaust Air Heat Recovery Requirement per 140.4(q) & 170.2(c)4O	08 Exhaust Air Heat Recovery 140.4(q) & 170.2(c)4O	09 Type Of Heat Recovery Rating	10 Required Recovery Ratio	11 Energy Recovery Bypass

Fan Energy Index (FEI)

01 Name or Item Tag	02 FEI Exception	03 FEI
HRU-1	None Applies	1
HRU-2	None Applies	1
RTU-5	None Applies	1

STATE OF CALIFORNIA
Mechanical Systems
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-MCH-E
Project Name: Sonora Lab Upgrade Bldg.400	**Report Page:**	**(Page 9 of 18)**
	Date Prepared:	10/17/2025

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 System Name	02 System Zoning	03 Conditioned Floor Area Being Served (ft²)	04 Thermostats	05 Shut-Off Controls	06 Isolation Zone Controls	07 Demand Response	08 Supply Air Temp. Reset	09 Window Interlocks per 140.4(n) & 170.2(c)4D
HRU-1	Single zone	<= 25,000 ft²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	NA: Would increase energy use	Provided
HRU-2	Single zone	<= 25,000 ft²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	NA: Would increase energy use	Provided
RTU-5	Single zone	<= 25,000 ft²	Setback	Auto Timer Switch	4 Hour Timer	EMCS	NA: Would increase energy use	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)3B 140.4(p) and 140.4(q) for all nonresidential and hotel/motel and d124refpoink/j160.2, 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

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Project Leader - Bill Voller
Mechanical Lead - Austin Largent
WSP Job #:US0043159.0992

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SCIENCE CLASSROOM MODERNIZATION

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Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	09/12/2025
50% CD	10/3/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	F. STEFAN
Scale	

TITLE 24 COMPLIANCE FORMS

M0.03

J. VENTILATION AND INDOOR AIR QUALITY

04		05			06			07	
System Name	HRU-1	System Design OA CFM Airflow[1]		5400	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[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[6] 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		
RTU-4	All others	2730		40	600	0	3000	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
RTU-1	Science Laboratories	2275		44	646.5	2275	2400	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				1246	18	Ventilation for this System Complies?		Yes

04		05			06			07	
System Name	HRU-2	System Design OA CFM Airflow[1]		4800	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[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[6] 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		

J. VENTILATION AND INDOOR AIR QUALITY

RTU-2	All others	2229		44	635	0	2400	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
RTU-3	All others	2185		40	600	0	2400	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				1235	18	Ventilation for this System Complies?		Yes

04		05			06			07	
System Name	RTU-5	System Design OA CFM Airflow[1]		542	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[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[6] 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		
RTU-5	Corridor	1490		36	616.5	0	0	DCV	NA: Not required per §120.1(d)3
								Occ Sensor	NA: Not required space type
17	Total System Required Min OA CFM				616	18	Ventilation for this System Complies?		Yes

[1] FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system

[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.

J. VENTILATION AND INDOOR AIR QUALITY

[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).

K. TERMINAL BOX CONTROLS

This section does not apply to this project.

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.

Duct Leakage Testing

The answers to the questions below apply to the following duct systems:	HRU-1	**NR/ Common Use:** Duct leakage testing shall not exceed 6% 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 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	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		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			

The answers to the questions below apply to the following duct systems:	HRU-2	**NR/ Common Use:** Duct leakage testing shall not exceed 6% 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 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	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		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			

The answers to the questions below apply to the following duct systems:	RTU-5	**NR/ Common Use:** Duct leakage testing shall not exceed 6% 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 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for systems?	No
		Duct leakage testing per CMC Section 603.10.1 required for these systems?	Yes
11	No	The scope of the project includes only duct systems serving healthcare facilities	
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.	
13	Yes	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		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.	
16	No	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.	
17		All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A	
18		All ductwork is an extension of an existing duct system	
19		Ductwork serving individual dwelling unit	
20		< 25 ft of new or replacement space conditioning ducts installed	
21	R-8	Duct Insulation R-value	
22			
23			

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/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

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/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

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.	PURY-EM144 ; PURY-EM168; TRANE DHK048A4;
NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to "Yes'. If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicant should move this form to "Yes".	PURY-EM144 ; PURY-EM168;
NRCA-MCH-05-A - Air Economizer Controls	PURY-EM144 ; PURY-EM168; TRANE DHK048A4;
NRCA-MCH-11-A Automatic Demand Shed Controls	PURY-EM144 ; PURY-EM168; TRANE DHK048A4;
NRCA-MCH-12-A FDD for Packaged Direct Expansion Units	PURY-EM144 ; PURY-EM168; TRANE DHK048A4;
NRCA-MCH-16-A Supply Air Temperature Reset Controls	PURY-EM144 ; PURY-EM168; TRANE DHK048A4;
NRCA-MCH-18-A Energy Management Control Systems	PURY-EM144 ; PURY-EM168; TRANE DHK048A4;

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no NRCV forms required for this project.

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

01		02
Compliance with Mandatory Measures documented through MCH Mandatory Measures Note Block	Yes	Plan sheet or construction document location
		M-Sheets

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Oscar Vazquez	Documentation Author Signature:
Company: WSP USA	Signature Date: 2025-10-30
Address: 11870 Pierce Street	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Riverside CA 92505	Phone: 951-299-4161

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: William Galarza	Responsible Designer Signature:
Company: WSP	Date Signed: 2025-10-17
Address: 11870 Pierce Street	License: M32627
City/State/Zip: Riverdside Ca 92505	Phone: 951-299-4160

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Project Leader - Bill Voller
Mechanical Lead - Austin Largent
WSP Job #:US0043159.0992

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FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

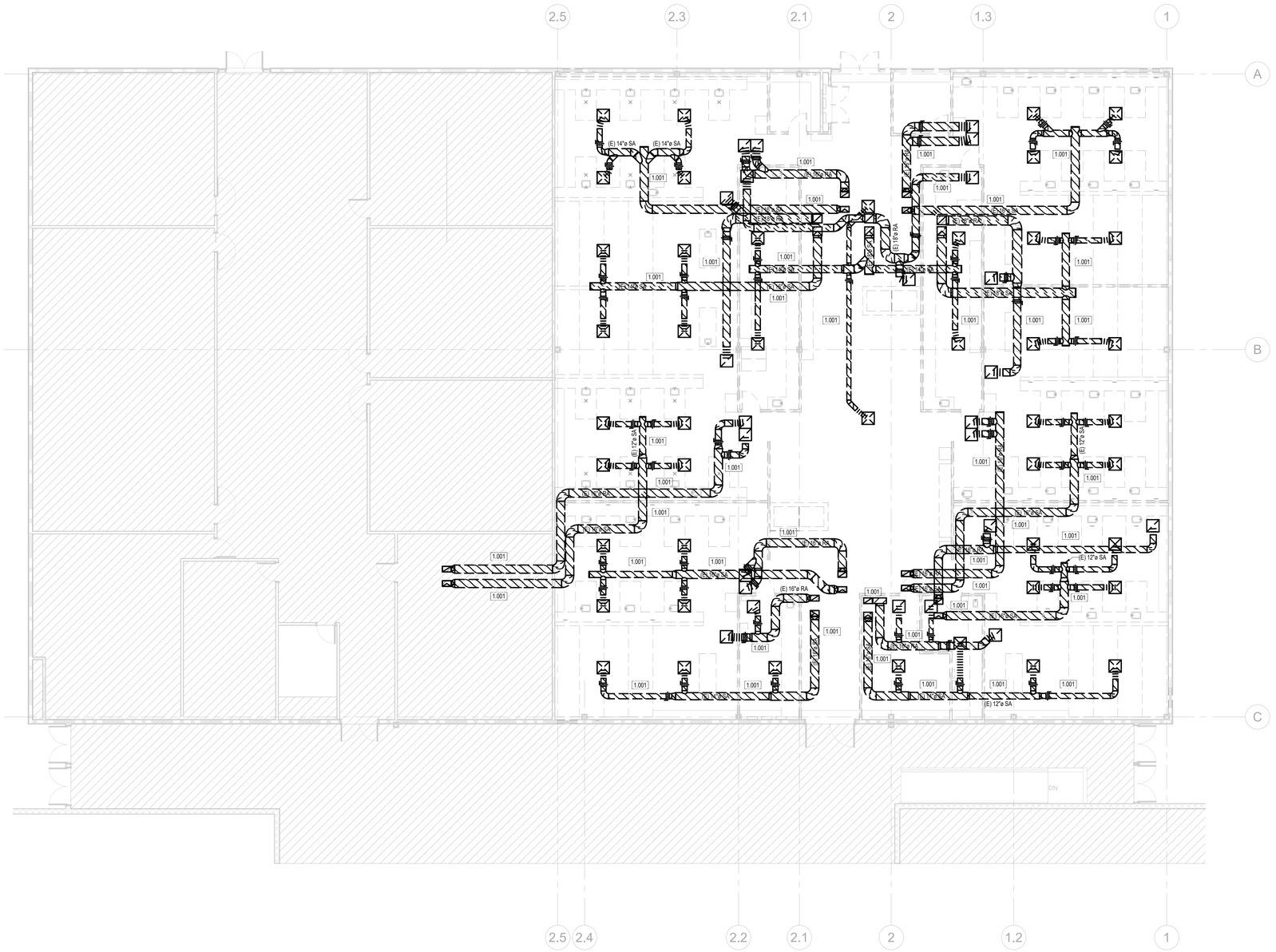
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	09/02/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	F. STEFAN
Scale	

TITLE 24 COMPLIANCE FORMS

M0.04



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2. CONTRACTOR SHALL VERIFY CONDITIONS, EXACT LOCATION AND DIMENSIONS OF EXISTING PRIOR TO BEGINNING WORK.
3. CAP ALL UNUSED PIPING & DUCTWORK.
4. ALL NEW MECHANICAL EQUIPMENT, DEVICES, AIR REGISTERS/GRILLES SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

KEYNOTES

1.001 ALL EXISTING MECHANICAL EQUIPMENT SHOWN IN HATCHING TO BE DEMOLISHED ALONG WITH ALL RELATED, DUCTWORK, AIR TERMINALS, PIPING, AND CONTROLS WIRING. PROPERLY DISPOSE OF OFF SITE.

MECHANICAL DEMOLITION FLOOR PLAN | 1/8" = 1'-0" | M1.02 | 1

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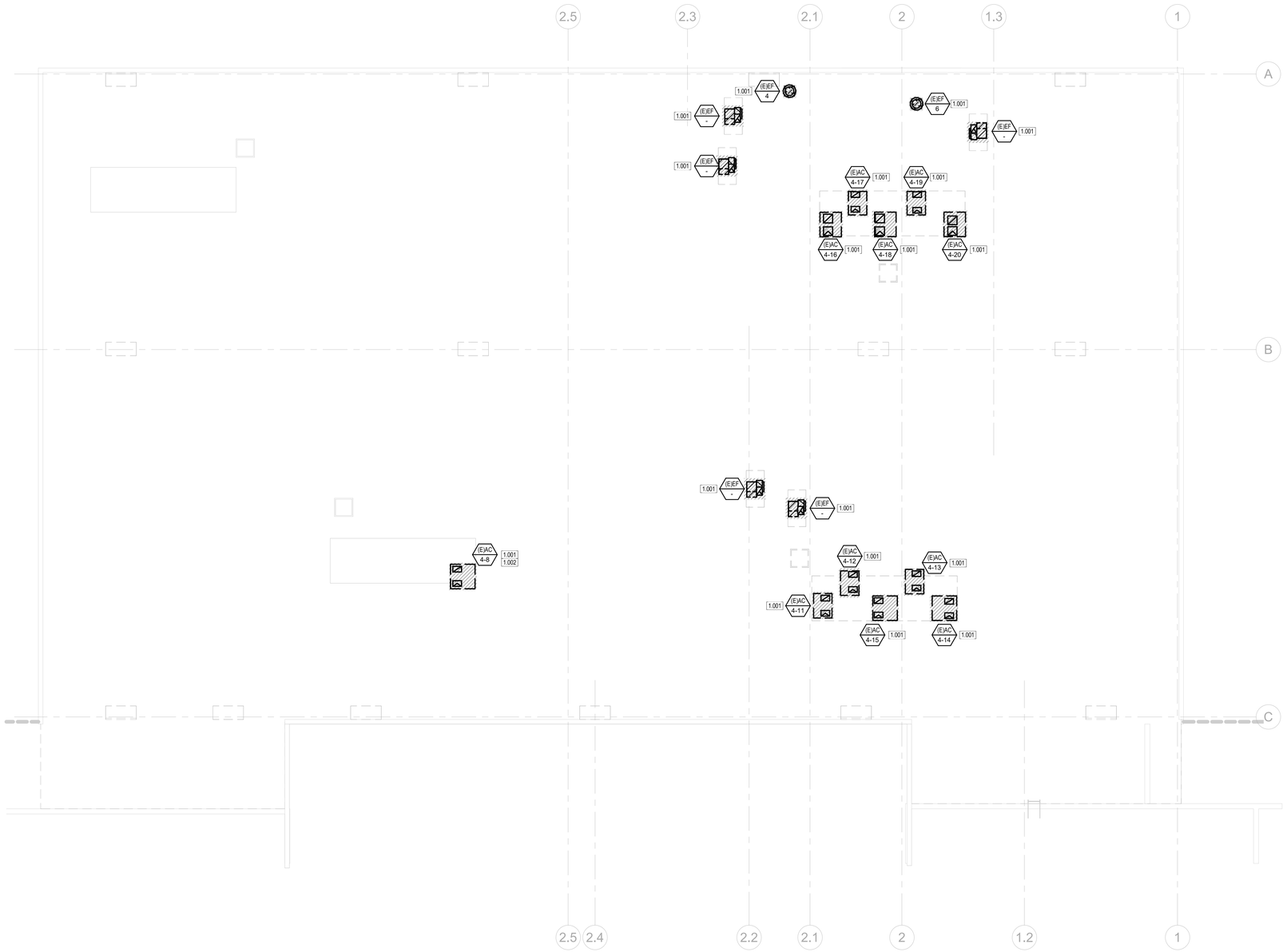
100% DESIGN DEVELOPMENT	07/25/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	F. STEFAN
Scale	1/8" = 1'-0"

MECHANICAL DEMOLITION FLOOR PLAN

M1.02



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KEYNOTES

1.001	ALL EXISTING MECHANICAL EQUIPMENT SHOWN IN HATCHING TO BE DEMOLISHED ALONG WITH ALL RELATED, DUCTWORK, AIR TERMINALS, PIPING, AND CONTROLS WIRING. PROPERLY DISPOSE OF OFF SITE.
1.002	PATCH ROOF AT REMOVAL OF AC4-8.

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Project Leader - Bill Voller
Mechanical Lead - Austin Largent
WSP Job #:US0043159.0992

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SONORA HIGH SCHOOL
SCIENCE CLASSROOM MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

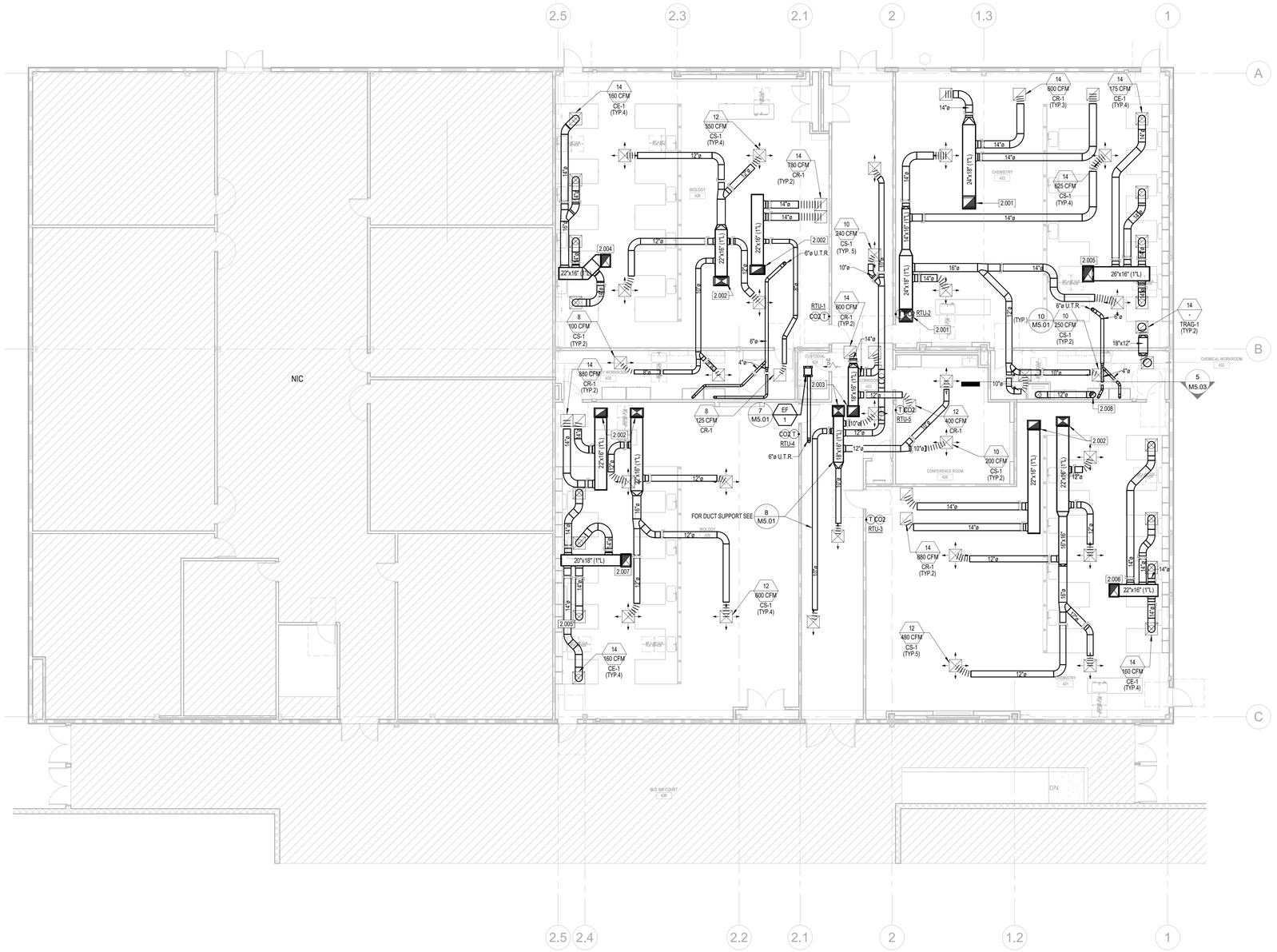
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	07/07/2025
95% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	F. STEFAN
Scale	1/8" = 1'-0"

MECHANICAL DEMOLITION ROOF PLAN

M1.03



GENERAL NOTE

1. THESE DRAWINGS ARE PREPARED BASED ON AVAILABLE RECORD DRAWINGS AND NON-INVASIVE, NON-INSTRUMENT ASSISTED, FIELD OBSERVATION ONLY. THE INTENT OF THESE DRAWINGS IS TO DEFINE THE SCOPE OF WORK AND CONVEY THE DESIGN CONCEPTS ONLY.
2. CONTRACTOR SHALL VERIFY CONDITIONS, EXACT LOCATION AND DIMENSIONS OF EXISTING PRIOR TO BEGINNING WORK.
3. CAP ALL UNUSED PIPING & DUCTWORK.
4. ALL NEW MECHANICAL EQUIPMENT, DEVICES, AIR REGISTERS/GRILLES SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
5. DUCT SUPPORT DETAIL 8/M5.01, (TYP.) FOR ALL DUCTWORK BELOW ROOF.

KEYNOTES

2.001 24"X18"(1"L) UP TO (2") LINED EXTERIOR DUCT ON ROOF. SEE ROOF PLAN SHEET M3.01 FOR EXTERIOR DUCT DIMENSIONS.

2.002 22"X16"(1"L) UP TO (2") LINED EXTERIOR DUCT ON ROOF. SEE ROOF PLAN SHEET M3.01 FOR EXTERIOR DUCT DIMENSIONS.

2.003 18"X16"(1"L) UP TO (2") LINED EXTERIOR DUCT ON ROOF. SEE ROOF PLAN SHEET M3.01 FOR EXTERIOR DUCT DIMENSIONS.

2.004 22"X16"(1"L) UP TO (2") LINED EXTERIOR DUCT ON ROOF TO EF-4. SEE ROOF PLAN SHEET M3.01 FOR EXTERIOR DUCT DIMENSIONS.

2.005 26"X16"(1"L) UP TO (2") LINED EXTERIOR DUCT ON ROOF TO EF-5. SEE ROOF PLAN SHEET M3.01 FOR EXTERIOR DUCT DIMENSIONS.

2.006 22"X16"(1"L) UP TO (2") LINED EXTERIOR DUCT ON ROOF TO EF-6. SEE ROOF PLAN SHEET M3.01 FOR EXTERIOR DUCT DIMENSIONS.

2.007 20"X18"(1"L) UP TO (2") LINED EXTERIOR DUCT ON ROOF TO EF-7. SEE ROOF PLAN SHEET M3.01 FOR EXTERIOR DUCT DIMENSIONS.

2.008 12" DIA. TYPE 316 STAINLESS STEEL DUCT UP THROUGH ROOF TO EF-3 SEE ROOF PLAN SHEET M3.01 FOR EXTERIOR DUCT DIMENSIONS.

MECHANICAL FLOOR PLAN | 1/8" = 1'-0" | M2.01 | 1

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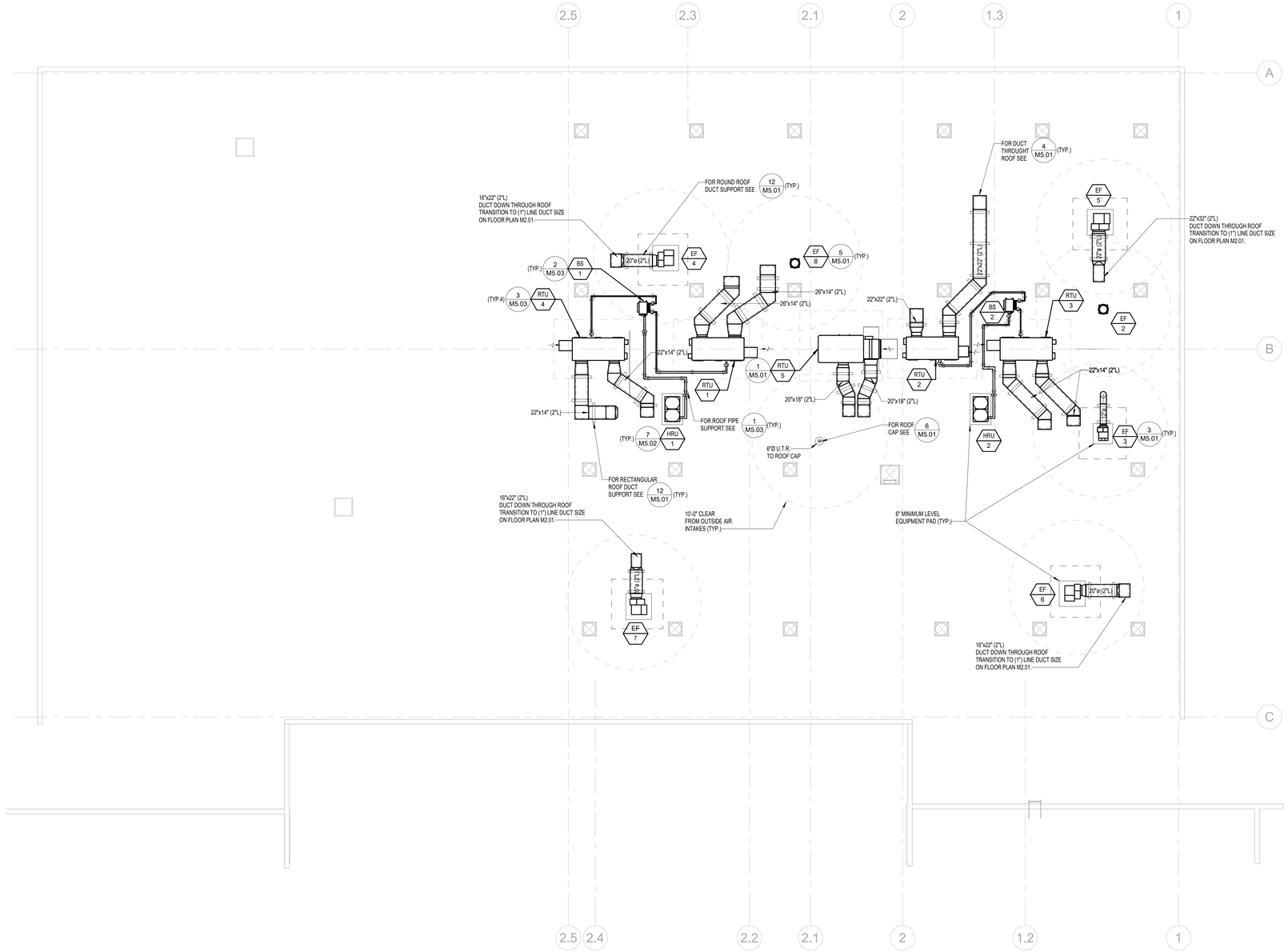
MECHANICAL FLOOR PLAN

M2.01



MECHANICAL ROOF PLAN | 1/8" = 1'-0" M3.01 | 1

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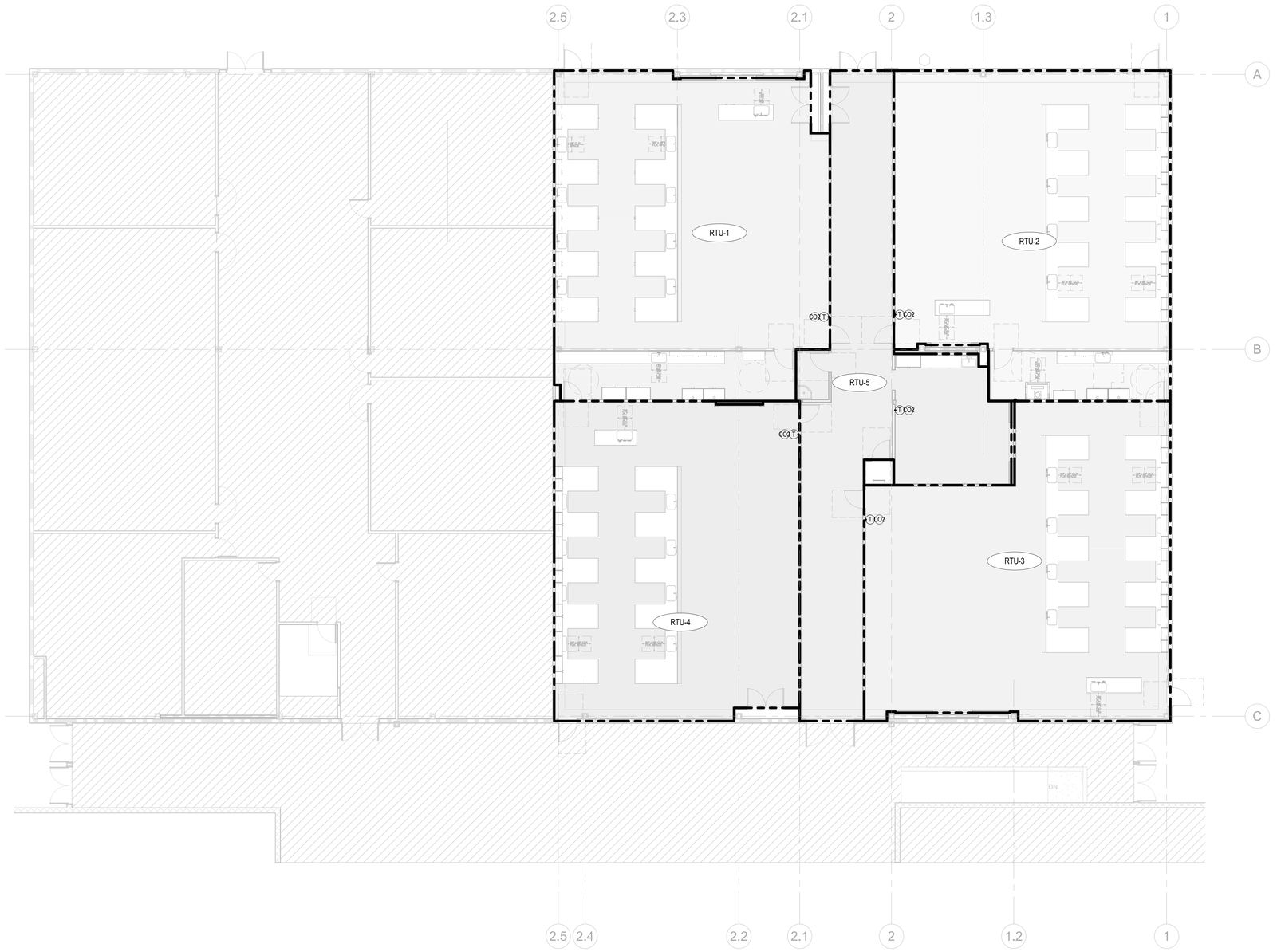
MECHANICAL ROOF PLAN

M3.01



MECHANICAL ZONING PLAN | 1/8" = 1'-0" M4.01 | 1

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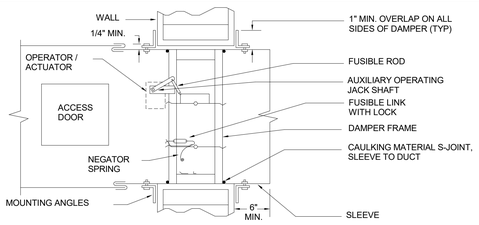
MECHANICAL ZONING PLAN

M4.01

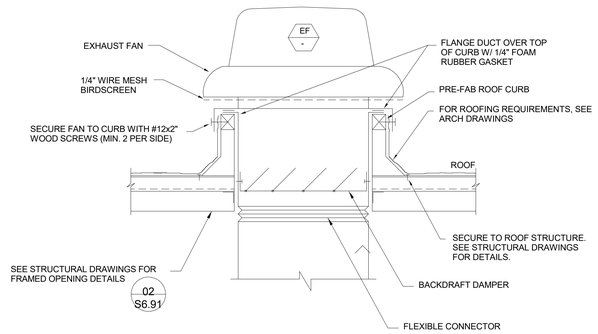


UL 555 & 555S #R13317

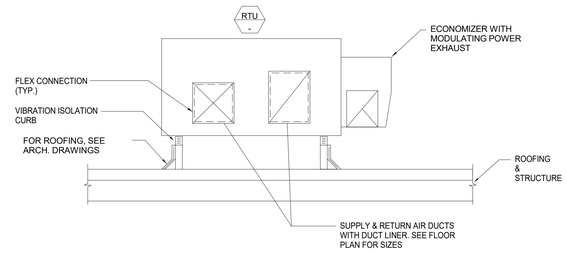
COMBINATION SMOKE & FIRE DAMPER NOTES:

1. SELECTION IS BASED ON GREENHECK MODEL FSD-211 COMBINATION FIRE SMOKE DAMPERS. CSFM CALIFORNIA STATE FIRE MARSHALL LISTING (#3225-0981:103) & (#3230-0981:0104)
2. MOUNTING ANGLES SHALL BE 1-1/2 IN. x 1-1/2 IN x 16 GAGE MIN FASTENED WITH NO. 10 SCREWS 8 IN. ON CENTER
3. ACCESS DOORS SHALL BE PROVIDED IN DUCT AND SHALL BE OF ADEQUATE SIZE AND LOCATION TO PERMIT MAINTENENCE & RESETTING OF DAMPER.
4. FIRE DAMPER DETAIL FOR REFERENCE ONLY.
5. FIRE DAMPERS SHALL BE STATE FIRE MARSHALL APPROVED AND INSTALLED IN COMPLIANCE WITH TITLE 24, C.C.R. STANDARD 12-43-2 AND STRICT PER MANUFACTURERS PRINTED INSTRUCTIONS.
6. MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE MADE AVAILABLE TO INSPECTING AUTHORITIES.
7. FLANGES AND RETAINING ANGLES SHALL OVERLAP FRAMEWORK OF OPENING BY A MIN. OF 1".
8. SECURE FIRE DAMPER TO SLEVE WITH 1" BOLT, MAX. SPACING 12" O.C. BEGIN FROM EACH CORNER.
9. INTERIOR OF OPENINGS LINED WITH U.L. LISTED MATERIAL OF SAME FIRE RESISTIVE RATING AS WALL.

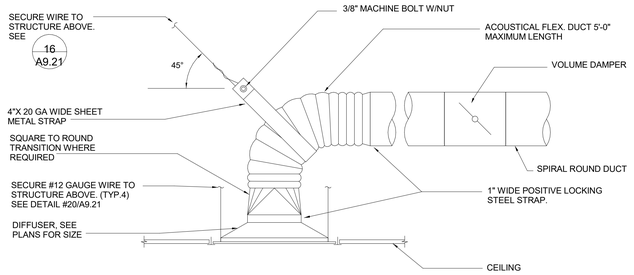
FIRE SMOKE DAMPER DETAIL | 9



DOWNBLAST EXHAUST FAN MOUNTING DETAIL | 5



ROOFTOP PACKAGED HEAT PUMP UNIT (SIDE DISCHARGE) DETAIL | 1

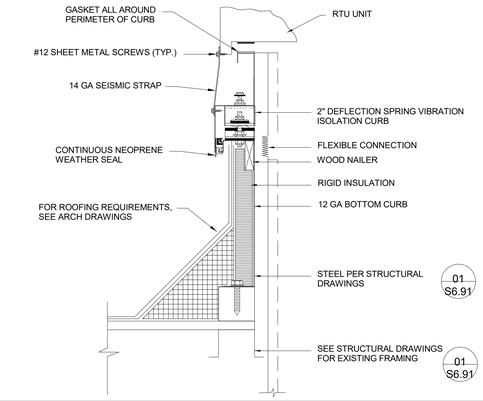


NOTE:

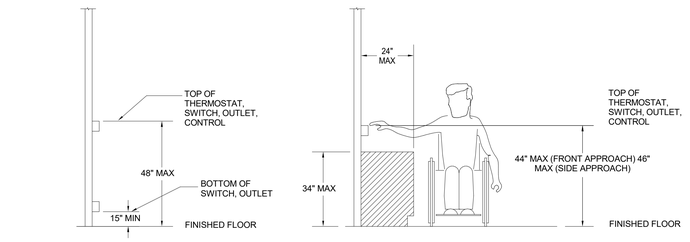
1. FLEXIBLE DUCT CONNECTIONS SHALL BE CASCO SILENT FLEX II OR EQUAL.
2. RETURN AIR REGISTERS AND RELIEF AIR REGISTERS ARE SIMILAR.
3. EXHAUST AIR REGITERS SIMILAR WITH RIGID DUCT IN LIEU OF FLEX.
4. DIFFUSERS AND REGISTERS TO BE INSTALLED PER SMACNA.
5. PROVIDE FACE ADJUSTABLE OPPOSED BLADE VOLUME DAMPERS AT HARD CEILING INSTALLATION.

CEILING DIFFUSER | 10

NOT IN USE | 6



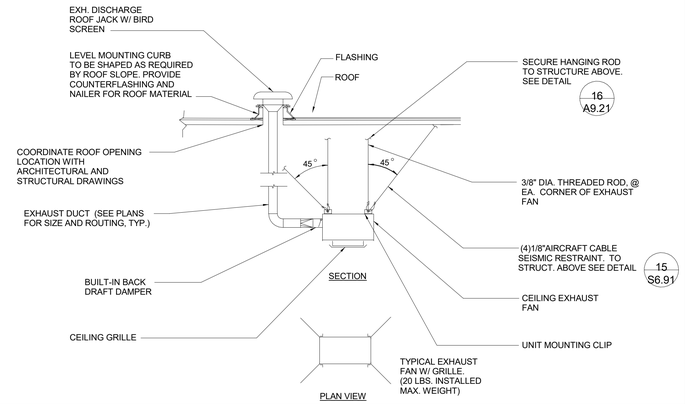
RTU MOUNTING DETAIL | 2



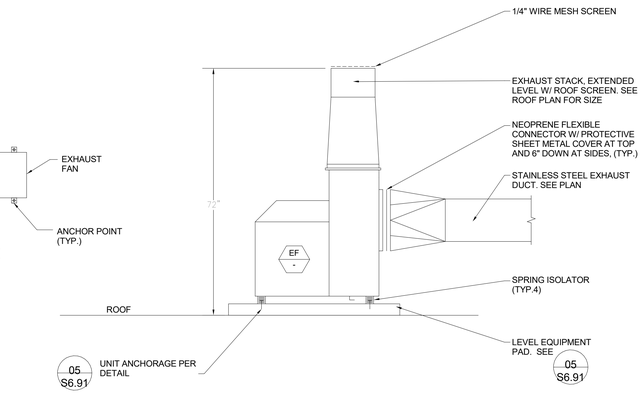
NOTE:

1. COORDINATE CONTROL DEVICE LOCATIONS WITH DISTRICT AND ARCHITECT PRIOR TO INSTALLATION.

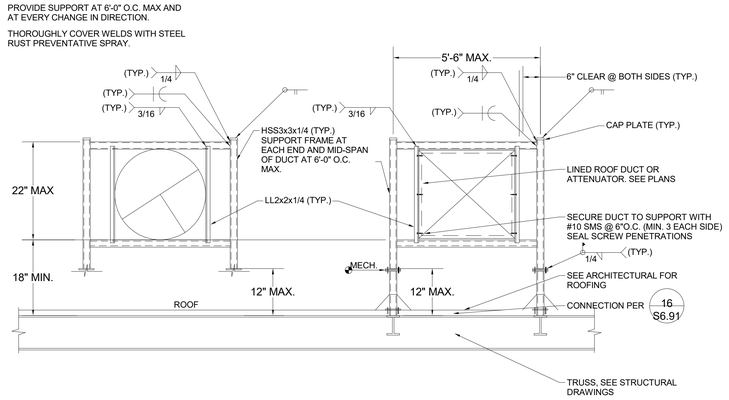
THERMOSTAT/CO2 MOUNTING DETAIL | 11



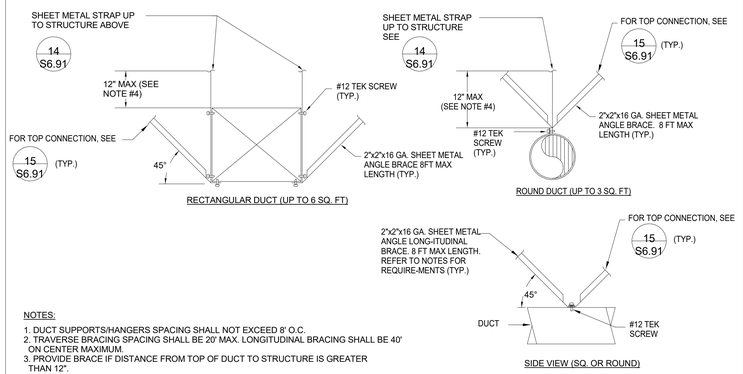
CEILING EXHAUST FAN DETAIL | 7



UTILITY-TYPE EXHAUST FAN MOUNTING DETAIL | 3



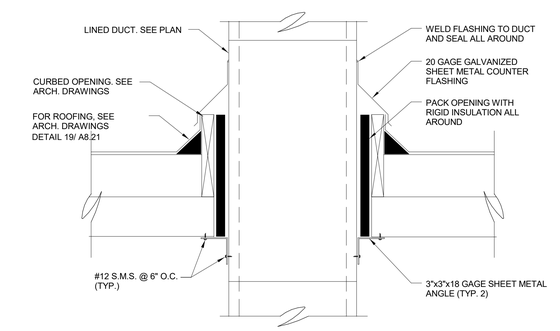
ROOF DUCT SUPPORT DETAIL | 12



NOTES:

1. DUCT SUPPORTS/HANGERS SPACING SHALL NOT EXCEED 8' O.C.
2. TRAVERSE BRACING SPACING SHALL BE 20' MAX. LONGITUDINAL BRACING SHALL BE 40' ON CENTER MAXIMUM.
3. PROVIDE BRACE IF DISTANCE FROM TOP OF DUCT TO STRUCTURE IS GREATER THAN 12".

CONCEALED DUCT SUPPORT DETAIL | 8



DUCT THROUGH ROOF DETAIL | 4

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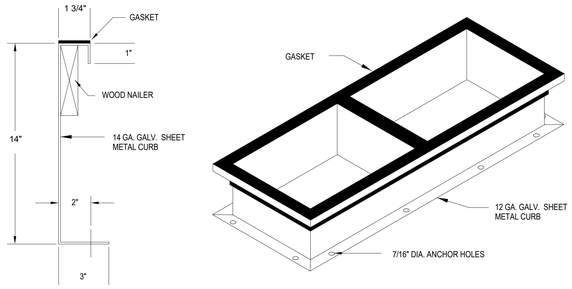
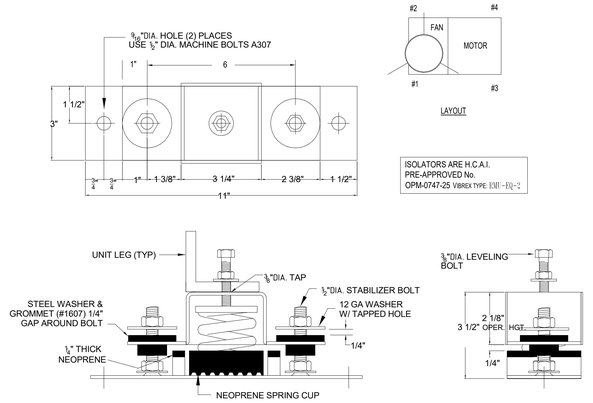
DETAILS

M5.01

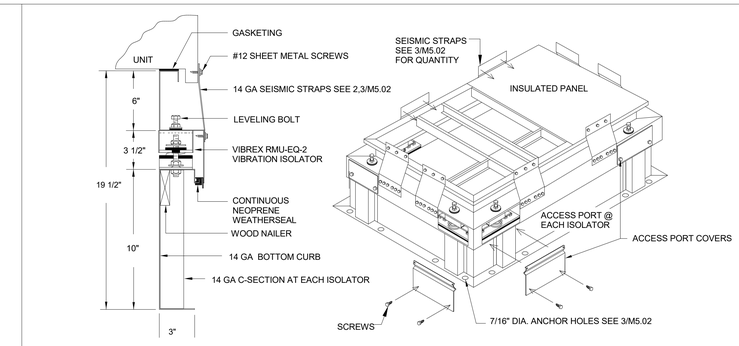


NOTES:
1. FOR ANCHOR REQUIREMENTS AND DETAILS OF SEISMIC STRAPS, SEE DETAIL 2, 3.
2. SUBMITTED ROOF CURBS ARE LEVEL. ALL DIMENSIONS REQUIRE FINAL REVIEW BEFORE CONSTRUCTION.

RIGID ROOF CURB FOR RTU-1,2,3,4 | 8



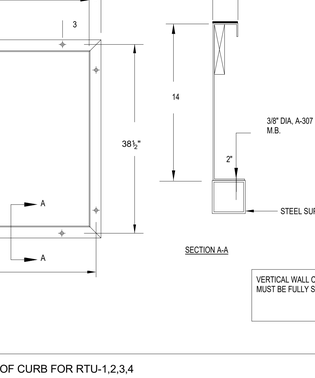
ANCHORAGE FOR EF-3 | 4



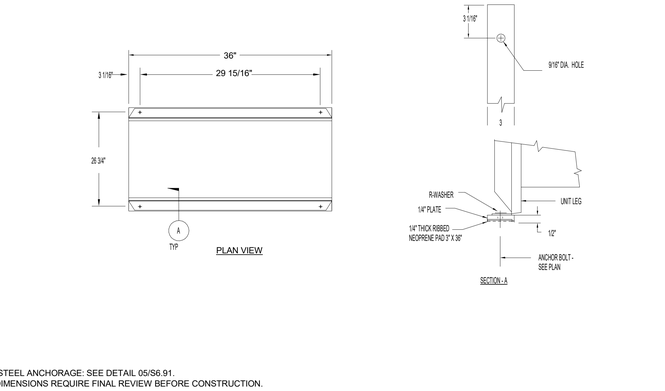
NOTES:
1. FOR ANCHOR REQUIREMENTS AND DETAILS OF ISOLATORS AND SEISMIC STRAPS, SEE 2, 3/M5.02.
2. SUBMITTED ROOF CURBS ARE LEVEL. PITCHED ROOF CURBS ARE AVAILABLE UPON REQUEST TO MATCH ROOF SLOPE.
3. ALL DIMENSIONS TO BE FIELD VERIFIED BY CONTRACTOR BEFORE CONSTRUCTION.
4. FOR ANCHORAGE TO STRUCTURAL STEEL SUPPORT, SEE DETAIL 01/S6.91.

VIBRATION ISOLATION CRUB FOR RTU-5 | 1

SEISMIC STRAP



SEISMIC TIE-DOWN PLATE FOR RTU-1,2,3,4 | 9



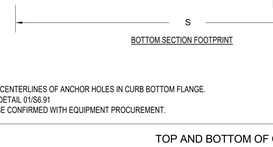
ANCHORAGE OF 1/8 INCH DIA AIR CRAFT CABLE IN WOOD ROOD

ANCHORAGE FOR AIR PLUME DUCT FOR EF-3 | 5

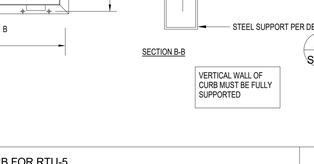
MAXIMUM DESIGN LOADS: HORIZ.: 1,685 LBS VERT.: 1,643 LBS

ISOLATOR H.C.A.I. PRE-APPROVED No. OPM-0747-25

RMU-EQ-2



SEISMIC STRAP

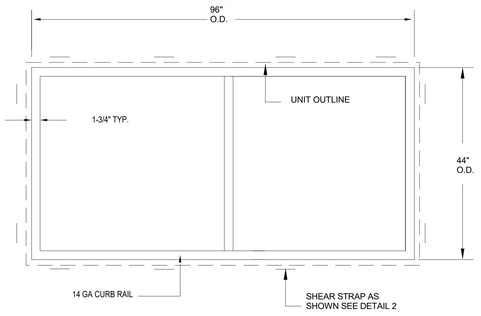


NOTES:
1) ALL DIMENSIONS IN INCHES
2) SPRING DEFLECTION = 1"

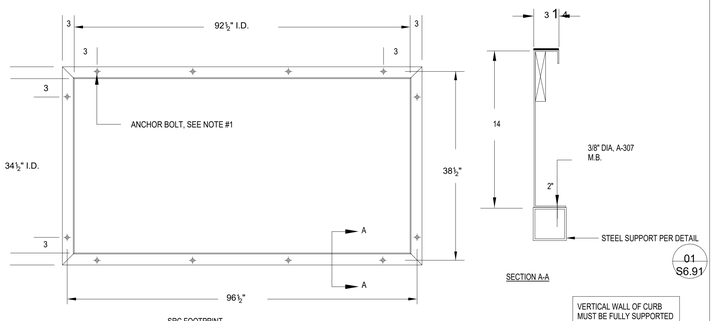
VIBRATION ISOLATION AND SEISMIC TIE-DOWN PLATE FOR RTU-5 | 2

MARK	MAKE	MODEL	SRC WT.
RTU-1,3,4	WILSENERGY	6 TON	200#
RTU-2	WILSENERGY	8 TON	

**ALL DIMENSIONS TO BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION.



SRC TOP VIEW



SRC FOOTPRINT

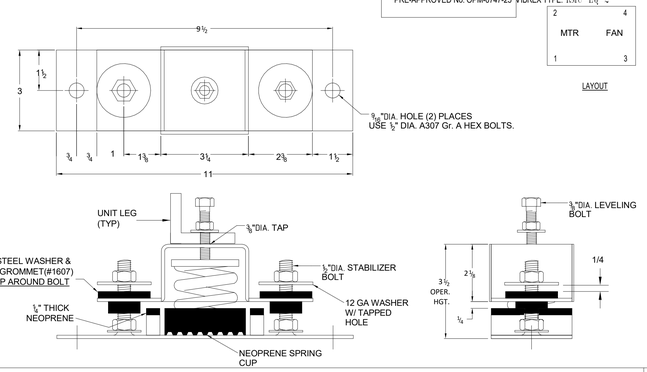
SECTION A-A

VERTICAL WALL OF CURB MUST BE FULLY SUPPORTED

NOTES:
1. FOR ANCHORAGE, SEE DETAIL 01/S6.91.

TOP AND BOTTOM OF CURB FOR RTU-1,2,3,4 | 10

ISOLATORS ARE H.C.A.I.
PRE-APPROVED No. OPM-0747-25 VIBREX TYPE: RMU-EQ-2

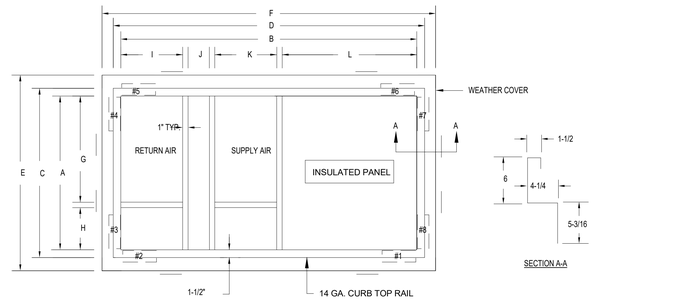


ANCHORAGE FOR EF-4,5,6,7 | 6

NOTES:
1. FOR STEEL ANCHORAGE: SEE DETAIL 05/S6.91.
2. ALL DIMENSIONS REQUIRE FINAL REVIEW BEFORE CONSTRUCTION.

ANCHORAGE DETAIL FOR HRU-1 AND HRU-2 | 7

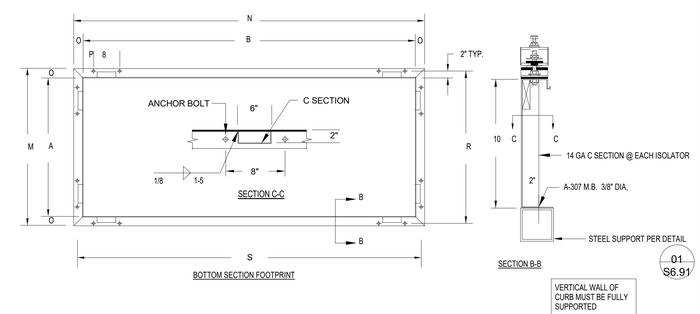
NOTES:
1) ——— INDICATES SEISMIC STRAP (2) REQUIRED PER SIDE, SEE 2/M5.02.
2) #1 THRU #8 INDICATE ISOLATOR LOCATIONS. SEE 2/M5.02.



TOP SECTION PLAN VIEW

A	B	C	D	E	F	G	H	I	J	K	L
46-3/8	80-1/2	49-3/8	83-1/2	54-7/8	89	34-3/8	11	18-1/2	6-5/8	18-1/2	33-7/8

M	N	O	P	Q	R	S
52-3/8	86-1/2	3	3	4	50-3/8	84-1/2



VERTICAL WALL OF CURB MUST BE FULLY SUPPORTED

NOTES:
1. Q & R DIMENSIONS ARE CENTERLINES OF ANCHOR HOLES IN CURB BOTTOM FLANGE.
2. FOR ANCHORAGE, SEE DETAIL 01/S6.91
3. FINAL DIMENSIONS TO BE CONFIRMED WITH EQUIPMENT PROCUREMENT.

TOP AND BOTTOM OF CURB FOR RTU-5 | 3

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Mechanical Lead - Austin Largent
WSP Job #:US0043159.0992

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SONORA HIGH SCHOOL
SCIENCE CLASSROOM MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

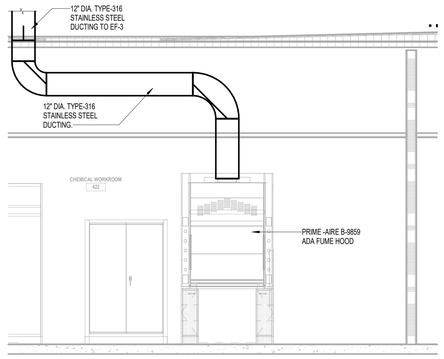
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
100% DESIGN DEVELOPMENT	07/07/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

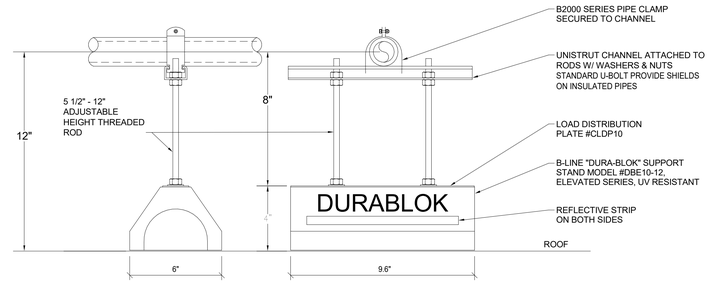
Job Number	32433
Checked By	F. STEFAN
Scale	

DETAILS

M5.02



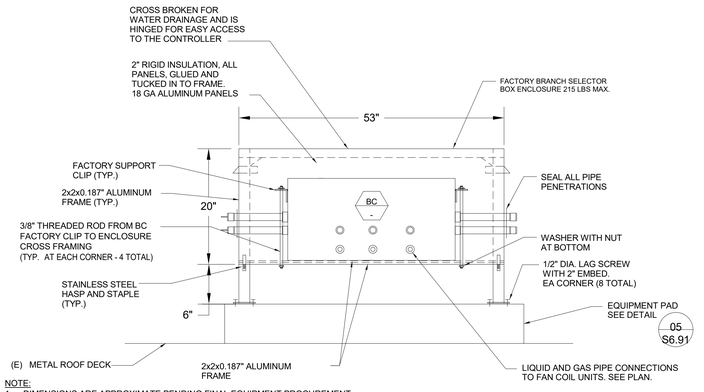
-	9	FUME HOOD DETAIL	5



NOTES:

1. STRUT ASSEMBLY IS ALL HOT DIPPED GALVANIZED STEEL.
2. DURA-BLOK PIPE SUPPORT SET PER MANUFACTURERS RECOMMENDATIONS NOT TO EXCEED 10'-0" ON CENTER & 2'-0" FROM CHANGE OF DIRECTION. SUPPORT SET IN MASTIC TO PREVENT MOVEMENT.
3. ROOF SLOPE IS 1/2"/12" AND NOT TO EXCEED 1"/12".
4. PIPE SUPPORT NOT TO EXCEED 12" HIGH FROM CENTER OF PIPE PER IR 16-13_4.2.

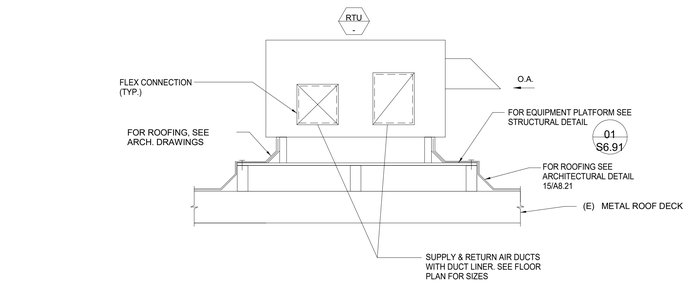
-	10	-	6	ROOF PIPE SUPPORT DETAIL	1



NOTE:

1. DIMENSIONS ARE APPROXIMATE PENDING FINAL EQUIPMENT PROCUREMENT.

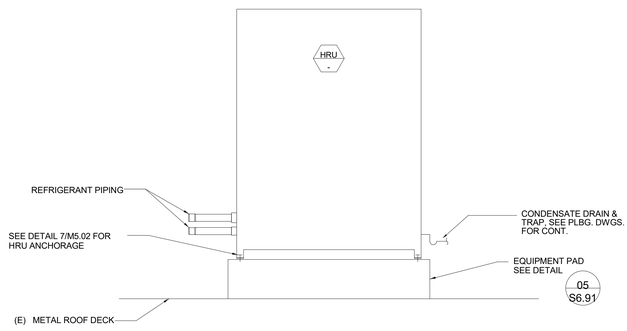
-	11	-	7	VRF FLOW BRANCH SELECTOR MOUNTING DETAIL	2



NOTES:

1. COORDINATE EXACT LOCATION AND FRAMING OF ROOF OPENING WITH GENERAL CONTRACTOR .

-	12	-	8	RTU MOUNTING DETAIL	3



-	12	-	8	HRU MOUNTING DETAIL	4

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DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	F. STEFAN
Scale	3/8" = 1'-0"

DETAILS

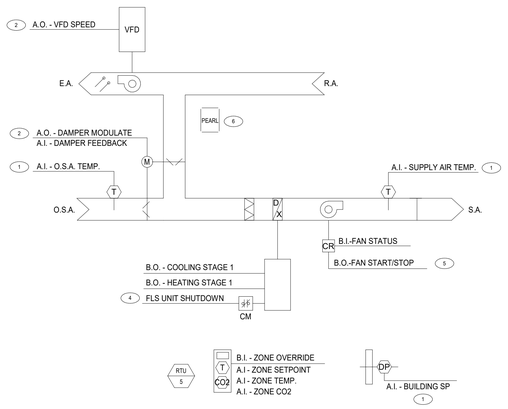
M5.03

KEYNOTES:

1. SENSORS FURNISHED BY PELICAN, INSTALLED / WIRED BY BAS CONTRACTOR.
2. DEVICE FURNISHED AND FACTORY INSTALLED BY ECONOMIZER MANUFACTURER. DEVICES WIRED BY BAS CONTRACTOR. FDD ALARMS SHALL BE INDICATED ON WEB-APP INTERFACE.
3. NOT IN USE.
4. CONTROL MODULE FURNISHED AND WIRED BY FLS, INSTALLED BY MECHANICAL FOR EMERGENCY UNIT SHUTDOWN. REFER TO EQUIPMENT SCHEDULES FOR UNITS REQUIRING FLS UNIT SHUTDOWNS.
5. FAN START/STOP CONTROL BY BAS CONTRACTOR. FAN HIGH SPEED AND LOW SPEED CONTROL BY MANUFACTURER'S FACTORY INTERNAL CONTROLS.
6. PELICAN PEARL CONTROLLER FURNISHED, INSTALLED, AND WIRED BY BAS CONTRACTOR.

GENERAL NOTES:

1. PELICAN SHALL COORDINATE DIRECTLY WITH HVAC EQUIPMENT MANUFACTURER TO CONFIRM ALL WIRING DETAILS, WIRING TERMINATIONS, INTERFACE DEVICES, ETC., AS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.



SINGLE ZONE VAV:
UNLESS OTHERWISE NOTED, ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE THROUGH THE BAS.

RUN CONDITIONS - SCHEDULED:THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE.

OCCUPIED MODE:
OCCUPIED MODE SHALL BE BETWEEN 6:00AM AND 6:00PM. THE UNIT SHALL MAINTAIN:
- A 75°F COOLING SETPOINT.
- A 70°F HEATING SETPOINT.
- A DEADBAND OF 5°F BETWEEN COOLING AND HEATING.

PRE-OCCUPANCY PURGE MODE (TITLE 24 SECTION 120.1(d)2) :
PRE-OCCUPANCY PURGE MODE SHALL BEGIN 1-HOUR PRIOR TO OCCUPANCY. THE OUTSIDE AIR DAMPER SHALL OPEN TO THE MINIMUM OUTSIDE AIR FLOW POSITION, UNLESS IN ECONOMIZER MODE. THE UNIT SHALL MAINTAIN:
- A 75°F COOLING SETPOINT.
- A 70°F HEATING SETPOINT.
- A DEADBAND OF 5°F BETWEEN COOLING AND HEATING.

MORNING WARM-UP & COOLDOWN (OPTIMAL START) (TITLE 24 SECTION 120.2(k)):
PRIOR TO SCHEDULED OCCUPANCY, THE BAS SHALL CALCULATE THE REQUIRED WARM-UP OR COOLDOWN TIME FOR EACH ZONE BASED ON THE ZONE'S OCCUPIED SETPOINTS, THE CURRENT ZONE TEMPERATURE, THE OUTDOOR AIR TEMPERATURE, AND A MASS/CAPACITY FACTOR FOR EACH ZONE. THE FACTOR SHALL BE MANUALLY ADJUSTED OR SELF-TUNED BY THE BAS. IF AUTOMATIC, THE TUNING PROCESS SHALL BE TURNED ON OR OFF BY A SOFTWARE SWITCH TO ALLOW THE TUNING TO BE STOPPED AFTER THE SYSTEM HAS BEEN TRAINED.
- WARM-UP OR COOLDOWN MODE SHALL ENABLE THE UNIT BASED ON THE ZONE WITH THE LONGEST CALCULATED TIME REQUIREMENT, BUT NO EARLIER THAN 3 HOURS BEFORE THE START OF THE SCHEDULED OCCUPIED PERIOD, AND SHALL END AT THE SCHEDULED OCCUPIED START HOUR.
- IF WARM-UP OR COOLDOWN MODE BEGINS PRIOR TO PRE-OCCUPANCY PURGE, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED UNTIL THE START OF PRE-OCCUPANCY PURGE.

UNOCCUPIED MODE (NIGHT SETBACK):
UNOCCUPIED MODE SHALL BE BETWEEN HOURS OUTSIDE OF THE OCCUPIED MODE SCHEDULE. THE UNIT SHALL MAINTAIN
- AN 85°F COOLING SETPOINT.
- A 55°F HEATING SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH ZONE TEMPERATURE: THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY 5°F FOR 10 MINUTES. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE ZONE TEMPERATURE RETURNS BELOW THE ALARM THRESHOLD FOR 10 MINUTES.
- LOW ZONE TEMPERATURE: THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 5°F FOR 10 MINUTES. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE ZONE TEMPERATURE RETURNS ABOVE THE ALARM THRESHOLD FOR 10 MINUTES.

ZONE SETPOINT ADJUST:
THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR. THE RANGE OF ADJUSTMENT SHALL BE +/- 2°F.

ZONE UNOCCUPIED OVERRIDE: A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR 30 MINUTE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE NORMAL SCHEDULE.

VAV SUPPLY FAN: THE UNIT CONTROLLER SHALL MONITOR THE ZONE TEMPERATURE AND CONTROL BOTH THE SUPPLY AIR TEMPERATURE AND SUPPLY FAN AIRFLOW, AS NEEDED, TO MAINTAIN THE ZONE COOLING AND HEATING SETPOINTS. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL BE SUBJECT TO THE FACTORY MINIMUM RUNTIME SAFETIES.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- SUPPLY FAN FAILURE: FAN IS COMMANDED ON, BUT THE STATUS IS OFF FOR 1 MINUTE. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE STATUS MATCHES THE COMMAND FOR 1 MINUTE.
- SUPPLY FAN IN HAND: FAN IS COMMANDED OFF, BUT THE STATUS IS ON FOR 1 MINUTE. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE STATUS MATCHES THE COMMAND FOR 1 MINUTE.

COOLING STAGES:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE COOLING TO MAINTAIN ITS ZONE COOLING SETPOINT. TO PREVENT SHORT CYCLING, THE COMPRESSORS SHALL BE SUBJECT TO THE FACTORY PRESET MINIMUM RUNTIMES.

THE COOLING SHALL BE ENABLED WHENEVER:
- THE ZONE TEMPERATURE IS ABOVE THE COOLING SETPOINT.
- AND THE ECONOMIZER IS DISABLED OR FULLY OPEN.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE HEATING IS NOT ACTIVE.

HEATING STAGES:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE HEATING TO MAINTAIN ITS ZONE HEATING SETPOINT. TO PREVENT SHORT CYCLING, THE HEATING SHALL BE SUBJECT TO THE FACTORY MINIMUM RUNTIME SAFETIES.
THE HEATING SHALL BE ENABLED WHENEVER:
- THE ZONE TEMPERATURE IS BELOW THE HEATING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE COOLING IS NOT ACTIVE.

ECONOMIZER OUTSIDE AIR DRYBULB LOCKOUT CONTROL - CLIMATE ZONE 03 (93906) (TITLE 24 SECTION 140.4(e)C): THE PELICAN ECONOMIZER CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN UNISON TO MAINTAIN THE ZONE COOLING SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE OUTSIDE AIR FLOW WHENEVER OCCUPIED. (SEE THE EQUIPMENT SCHEDULE SHEET FOR THE MINIMUM OUTSIDE AIR FLOW SETTINGS.)

THE ECONOMIZER SHALL BE ENABLED WHENEVER:
- THE OUTSIDE AIR TEMPERATURE IS LESS THAN OR EQUAL TO 75°F.
- AND THE SUPPLY FAN STATUS IS ON.

THE ECONOMIZER SHALL BE DISABLED AND CLOSE TO THE MINIMUM POSITION WHENEVER:
- THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 75°F.
- OR THE OUTSIDE AIR TEMPERATURE IS LESS THAN 56°F.

THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL FULLY CLOSE AND THE RETURN AIR DAMPER SHALL OPEN:
- WHEN THE UNIT IS OFF.
- OR ON LOSS OF SUPPLY FAN STATUS.
- OR THE UNIT'S FACTORY FREEZESTAT HAS TRIPPED.

BUILDING STATIC PRESSURE CONTROL - VFD POWER EXHAUST FAN:
DURING OCCUPIED MODE, THE PELICAN ECONOMIZER CONTROLLER SHALL MEASURE THE BUILDING STATIC PRESSURE AND MODULATE THE POWER EXHAUST FAN VFD TO MAINTAIN A BUILDING STATIC PRESSURE SETPOINT OF 0.02" WC POSITIVE.

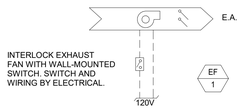
ECONOMIZER FAULT DETECTION DIAGNOSTICS (TITLE 24 SECTION 120.2(i)7): ECONOMIZER FAULTS SHALL BE VIEWABLE AT THE PELICAN GRAPHICAL USER INTERFACE. THE FOLLOWING FAULTS SHALL BE INDICATED:
1. AIR TEMPERATURE SENSOR FAULT.
2. NOT ECONOMIZING WHEN IT SHOULD.
3. ECONOMIZING WHEN IT SHOULD NOT.
4. DAMPER NOT MODULATING.
5. EXCESS OUTDOOR AIR.

MINIMUM OUTSIDE AIR VENTILATION - DEMAND CONTROLLED VENTILATION (AS INDICATED ON EQUIPMENT SCHEDULES) (TITLE 24 SECTION 120.1(d)4):
DURING OCCUPIED MODE, THE CONTROLLER SHALL MONITOR THE SPACE CO2 LEVEL AND ENABLE DEMAND CONTROLLED VENTILATION ACCORDING TO THE FOLLOWING:
- IF THE CO2 LEVEL HAS BEEN ABOVE 1,000 PPM FOR MORE THAN 10 MINUTES, THEN INCREASE THE MINIMUM OUTDOOR AIR RATE AS THE CO2 LEVEL INCREASES TO THE DEMAND CONTROL VENTILATION SETPOINT AIRFLOW (SEE EQUIPMENT SCHEDULE).
- WHEN THE ZONE CO2 LEVEL HAS DROPPED BELOW 1,000 PPM FOR 5 MINUTES, THE CONTROLLER SHALL MODULATE THE RETURN AIR DAMPER TO ACHIEVE THE MINIMUM OUTSIDE AIRFLOW SETPOINT (SEE THE EQUIPMENT SCHEDULE SHEET FOR THE MINIMUM AND DEMAND CONTROL VENTILATION OUTSIDE AIRFLOW SETTINGS).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH ZONE CO2 LEVEL: THE ZONE CO2 LEVEL IS GREATER THAN 1,200 PPM FOR 30 MINUTES WHEN IN THE OCCUPIED MODE. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE ZONE CO2 LEVEL RETURNS BELOW 1,000 PPM FOR 5 MINUTES.

SYMBOL	DESCRIPTION
AFMS	AIR FLOW MEASURING STATION
C/C	COOLING COIL
H/C	HEATING COIL
CR	CURRENT SENSING RELAY OR TRANSMITTER
CO2	CO2 SENSOR - DUCT MOUNTED
CO2	CO2 TRANSMITTER - WALL
DP	DIFFERENTIAL PRESSURE SWITCH OR TRANSMITTER - FILTER
DP	DIFFERENTIAL PRESSURE SWITCH OR TRANSMITTER -DUCT
DP	DIFFERENTIAL PRESSURE TRANSMITTER - BUILDING
H	HUMIDITY TRANSMITTER - WALL
H	HUMIDITY SWITCH
OS	OCCUPANCY SENSOR - WALL
E	FURNISHED AND INSTALLED BY ELECTRICAL
SD	SMOKE DETECTOR
T	TEMPERATURE SENSOR - WALL
T	TEMPERATURE SENSOR - DUCT
T	TEMPERATURE SENSOR - AVERAGING
T OS	TEMPERATURE SENSOR - OUTDOOR AIR
T	TEMPERATURE SENSOR - PIPE
BACNET ONICON T	BTU METER - WITH BACNET INTERFACE
FM	FLOW METER
M	DAMPER WITH ACTUATOR
	BACKDRAFT OR BAROMETRIC RELIEF DAMPER
DP	DIFFERENTIAL PRESSURE SWITCH OR TRANSMITTER, PIPE
M	BUTTERFLY VALVE WITH ACTUATOR
M A AB	2-WAY VALVE WITH ACTUATOR
M A AB B	3-WAY MIXING VALVE WITH ACTUATOR
M AB A B	3-WAY DIVERTING VALVE WITH ACTUATOR
A.I.	ANALOG INPUT
B.I.	BINARY INPUT
A.O.	ANALOG OUTPUT
B.O.	BINARY OUTPUT
	PELICAN GW400 WIRELESS GATEWAY AND PELICAN WIRELESS REPEATER
PEARL	PELICAN PEARL ECONOMIZER CONTROLLER
PM5	PELICAN POWER CONTROL MODULE
Z8	PELICAN Z8 CONTROLLER
-RTR-	BAS ROUTER
SWITCH	NETWORK SWITCH
E-PWR	EMERGENCY POWER

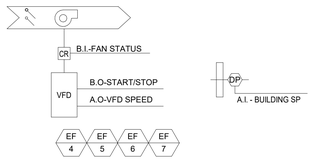
1 PELICAN VAV RTU
SCALE: NOT TO SCALE



EXHAUST FANS - LIGHT SWITCH CONTROL

RUN CONDITIONS - INTERLOCK:
THE EXHAUST FAN SHALL BE INTERLOCKED TO RUN WHENEVER THE LIGHT SWITCH IS ON.
THE FAN SHALL TURN OFF WHEN THE LIGHT SWITCH IS SWITCHED OFF.

2 EXHAUST FAN - LIGHT SWITCH
SCALE: NOT TO SCALE



EXHAUST FANS:
UNLESS OTHERWISE NOTED, ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE THROUGH THE BAS.

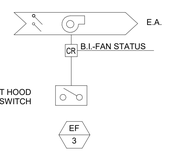
RUN CONDITIONS:
THE PELICAN Z8 CONTROLLER SHALL MEASURE THE BUILDING STATIC PRESSURE AND MODULATE THE EXHAUST FAN VFD TO MAINTAIN A BUILDING STATIC PRESSURE SETPOINT OF 0.02" WC POSITIVE.

THE EXHAUST FAN EF-4 SHALL RUN AND MONITOR SPACE STATIC PRESSUE IN BIOLOGY 426.
THE EXHAUST FAN EF-5 SHALL RUN AND MONITOR SPACE STATIC PRESSUE IN CHEMISTRY 423.
THE EXHAUST FAN EF-6 SHALL RUN AND MONITOR SPACE STATIC PRESSUE IN CHEMISTRY 421.
THE EXHAUST FAN EF-7 SHALL RUN AND MONITOR SPACE STATIC PRESSUE IN BIOLOGY 428.

FAN STATUS:
THE CONTROLLER SHALL MONITOR THE FAN STATUS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAN FAILURE: FAN IS COMMANDED ON, BUT THE STATUS IS OFF FOR 1 MINUTE. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE FAN STATUS MATCHES THE COMMAND FOR 1 MINUTE.
- FAN IN HAND: FAN IS COMMANDED OFF, BUT THE STATUS IS ON FOR 1 MINUTE. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE FAN STATUS MATCHES THE COMMAND FOR 1 MINUTE.

3 EXHAUST FAN - INTERLOCK
SCALE: NOT TO SCALE

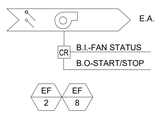


EXHAUST FANS - EXHAUST HOOD

RUN CONDITIONS - SWITCH CONTROL:
THE EXHAUST FAN EF-3 SHALL BE INTERLOCKED TO RUN AND MODULATE WITH THE EXHAUST HOOD SWITCH.

FAN STATUS:
THE BAS CONTROLLER SHALL MONITOR THE FAN STATUS.

4 EXHAUST FAN - HOOD SWITCH
SCALE: NOT TO SCALE



EXHAUST FANS - CHEMICAL CABINET:
UNLESS OTHERWISE NOTED, ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE THROUGH THE BAS.

RUN CONDITIONS - SCHEDULED:
THE EXHAUST FAN EF-2 SHALL RUN CONTINUOUSLY.
THE EXHAUST FAN EF-8 SHALL RUN CONTINUOUSLY.

FAN STATUS:
THE CONTROLLER SHALL MONITOR THE FAN STATUS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAN FAILURE: FAN IS COMMANDED ON, BUT THE STATUS IS OFF FOR 1 MINUTE. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE FAN STATUS MATCHES THE COMMAND FOR 1 MINUTE.
- FAN IN HAND: FAN IS COMMANDED OFF, BUT THE STATUS IS ON FOR 1 MINUTE. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE FAN STATUS MATCHES THE COMMAND FOR 1 MINUTE.

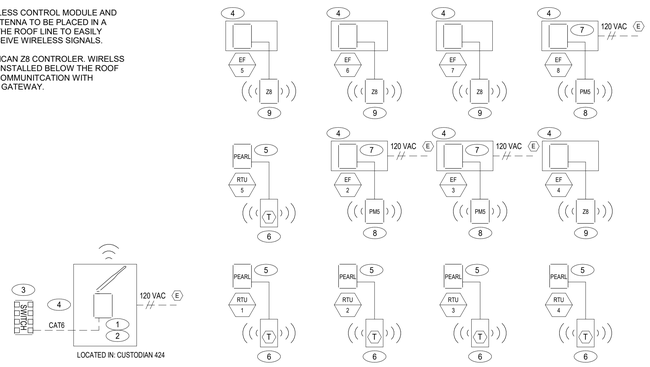
5 EXHAUST FAN - TIME OF DAY
SCALE: NOT TO SCALE

GENERAL NOTES:

1. BAS CONTRACTOR TO FURNISH AND INSTALL A 120V/24V TRANSFORMER OR OTHER LOW VOLTAGE POWER SUPPLY AS NEEDED FOR EACH ASC, BUILDING NETWORK CONTROLLER, BACNET GATEWAY, ETC. 120V POWER SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
2. BAS CONTRACTOR SHALL PROVIDE TREND LOGS TO MEOR OR CX AGENT UPON REQUEST TO VALIDATE THE SYSTEM PERFORMANCE. BAS CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING ANY TUNING NECESSARY TO MEET SYSTEM PERFORMANCE REQUIREMENTS AT NO ADDITIONAL COST.
3. BAS GRAPHICAL USER INTERFACE SHALL INCLUDE GRAPHICS FOR EACH SYSTEM CONTROLLED AND/OR MONITORED. GRAPHICS SHALL INCLUDE FLOW DIAGRAMS THAT INDICATE STATUS, SETPOINTS, CURRENT INPUT/OUTPUT VALUES, OPERATOR COMMANDS, ETC WITH THE APPROPRIATE ENGINEERING UNITS. SYSTEM ALARMS SHALL BE DISPLAYED ON THE SCHEMATIC AND SHALL BE COLOR CODED ACCORDING TO THE STATE OF THE ALARM.
4. QUANTITY OF PELICAN WIRELESS RELAY BOARDS WITH ANTENNAS SHALL BE DETERMINED BY THE BAS CONTRACTOR AND ELECTRICAL CONTRACTOR.
5. COORDINATE PELICAN WIRELESS REPEATER EXACT LOCATION WITH DISTRICT AND OTHER TRADES AS REQUIRED.

KEYNOTES:

1. PELICAN WIRELESS GATEWAY TO CONNECT ALL ON-SITE PELICAN WIRELESS CONTROLLERS TO PELICAN WEB INTERFACE.
2. PELICAN WIRELESS REPEATER TO EXTEND WIRELESS RANGE OF GATEWAY. BAS CONTRACTOR TO FURNISH ADDITIONAL REPEATERS AS NEEDED FOR A STABLE SYSTEM AT NO ADDITIONAL COST TO THE CONTRACT.
3. CONNECT TO DISTRICT MANAGED SWITCH. CAT6 CABLE BY BAS CONTRACTOR. BAS CONTRACTOR TO CONFIRM EXACT CABLING REQUIRED BY DISTRICT.
4. NON-METALLIC CONTROL ENCLOSURE FURNISHED AND INSTALLED BY BAS CONTRACTOR.
5. 24V POWER TO PELICAN PEARL AND PELICAN THERMOSTAT SUPPLIED BY UNIT'S ONBOARD 24V TRANSFORMER.
6. PELICAN WIRELESS COMBINATION TEMPERATURE AND CO2 THERMOSTAT.
7. PELICAN PM5 RELAY MODULE TO BE MOUNTED AND INSTALLED IN A HIGH VOLTAGE RATED ELECTRICAL BOX.
8. PELICAN PM5 WIRELESS CONTROL MODULE AND WALL MOUNTED ANTENNA TO BE PLACED IN A LOCATION BELOW THE ROOF LINE TO EASILY TRANSMIT AND RECEIVE WIRELESS SIGNALS.
9. 24V POWER TO PELICAN Z8 CONTROLER. WIRELSS ANTENIA SHALL BE INSTALLED BELOW THE ROOF LINE TO MAINTAIN COMMUNITCATION WITH PELICAN WIRELESS GATEWAY.



SONORA HIGH SCHOOL SCIENCE LAB BUILDING

6 PELICAN WIRELESS ARCHITECTURE
SCALE: NOT TO SCALE

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FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

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WIRING & CONTROLS

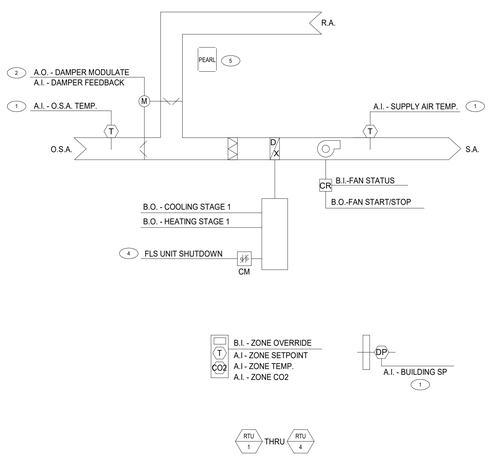
M6.01

KEYNOTES:

1. SENSORS FURNISHED BY PELICAN, INSTALLED / WIRED BY BAS CONTRACTOR.
2. DEVICE FURNISHED AND FACTORY INSTALLED BY ECONOMIZER MANUFACTURER. DEVICES WIRED BY BAS CONTRACTOR. FDD ALARMS SHALL BE INDICATED ON WEB-APP INTERFACE.
3. NOT IN USE.
4. CONTROL MODULE FURNISHED AND WIRED BY FLS, INSTALLED BY MECHANICAL FOR EMERGENCY UNIT SHUTDOWN. REFER TO EQUIPMENT SCHEDULES FOR UNITS REQUIRING FLS UNIT SHUTDOWNS.
5. PELICAN PEARL CONTROLLER FURNISHED, INSTALLED, AND WIRED BY BAS CONTRACTOR.

GENERAL NOTES:

1. PELICAN SHALL COORDINATE DIRECTLY WITH HVAC EQUIPMENT MANUFACTURER TO CONFIRM ALL WIRING DETAILS, WIRING TERMINATIONS, INTERFACE DEVICES, ETC., AS NEEDED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.



1 PELICAN ROOF TOP AIR HANDLING UNIT

SCALE: NOT TO SCALE

SINGLE ZONE AIR HANDLING UNIT:
UNLESS OTHERWISE NOTED, ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE THROUGH THE BAS.

RUN CONDITIONS - SCHEDULED: THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE.

OCCUPIED MODE:
OCCUPIED MODE SHALL BE BETWEEN 6:00AM AND 6:00PM. THE UNIT SHALL MAINTAIN:
- A 75°F COOLING SETPOINT.
- A 70°F HEATING SETPOINT.
- A DEADBAND OF 5°F BETWEEN COOLING AND HEATING.

PRE-OCCUPANCY PURGE MODE [TITLE 24 SECTION 120.1(d)2] :
PRE-OCCUPANCY PURGE MODE SHALL BEGIN 1-HOUR PRIOR TO OCCUPANCY. THE OUTSIDE AIR DAMPER SHALL OPEN TO THE MINIMUM OUTSIDE AIR FLOW POSITION, UNLESS IN ECONOMIZER MODE. THE UNIT SHALL MAINTAIN:
- A 75°F COOLING SETPOINT.
- A 70°F HEATING SETPOINT.
- A DEADBAND OF 5°F BETWEEN COOLING AND HEATING.

MORNING WARM-UP & COOLDOWN (OPTIMAL START) [TITLE 24 SECTION 120.2(k)]:
PRIOR TO SCHEDULED OCCUPANCY, THE BAS SHALL CALCULATE THE REQUIRED WARM-UP OR COOLDOWN TIME FOR EACH ZONE BASED ON THE ZONE'S OCCUPIED SETPOINTS, THE CURRENT ZONE TEMPERATURE, THE OUTDOOR AIR TEMPERATURE, AND A MASS/CAPACITY FACTOR FOR EACH ZONE. THE FACTOR SHALL BE MANUALLY ADJUSTED OR SELF-TUNED BY THE BAS. IF AUTOMATIC, THE TUNING PROCESS SHALL BE TURNED ON OR OFF BY A SOFTWARE SWITCH TO ALLOW THE TUNING TO BE STOPPED AFTER THE SYSTEM HAS BEEN TRAINED.
- WARM-UP OR COOLDOWN MODE SHALL ENABLE THE UNIT BASED ON THE ZONE WITH THE LONGEST CALCULATED TIME REQUIREMENT, BUT NO EARLIER THAN 3 HOURS BEFORE THE START OF THE SCHEDULED OCCUPIED PERIOD, AND SHALL END AT THE SCHEDULED OCCUPIED START HOUR.
- IF WARM-UP OR COOLDOWN MODE BEGINS PRIOR TO PRE-OCCUPANCY PURGE, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED UNTIL THE START OF PRE-OCCUPANCY PURGE.

UNOCCUPIED MODE (NIGHT SETBACK):
UNOCCUPIED MODE SHALL BE BETWEEN HOURS OUTSIDE OF THE OCCUPIED MODE SCHEDULE. THE UNIT SHALL MAINTAIN
- AN 85°F COOLING SETPOINT.
- A 55°F HEATING SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH ZONE TEMPERATURE: THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY 5°F FOR 10 MINUTES. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE ZONE TEMPERATURE RETURNS BELOW THE ALARM THRESHOLD FOR 10 MINUTES.
- LOW ZONE TEMPERATURE: THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY 5°F FOR 10 MINUTES. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE ZONE TEMPERATURE RETURNS ABOVE THE ALARM THRESHOLD FOR 10 MINUTES.

ZONE SETPOINT ADJUST:
THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR. THE RANGE OF ADJUSTMENT SHALL BE +/- 2°F.

ZONE UNOCCUPIED OVERRIDE: A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR 30 MINUTE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE NORMAL SCHEDULE.

SUPPLY FAN:
THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL BE SUBJECT TO THE FACTORY MINIMUM RUNTIME SAFETIES.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- SUPPLY FAN FAILURE: FAN IS COMMANDED ON, BUT THE STATUS IS OFF FOR 1 MINUTE. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE STATUS MATCHES THE COMMAND FOR 1 MINUTE.
- SUPPLY FAN IN HAND: FAN IS COMMANDED OFF, BUT THE STATUS IS ON FOR 1 MINUTE. THE ALARM SHALL AUTOMATICALLY CLEAR WHEN THE STATUS MATCHES THE COMMAND FOR 1 MINUTE.

COOLING STAGES:
THE PEARL CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND REQUEST COOLING FROM THE VRF CONTROLLER TO MAINTAIN ITS ZONE COOLING SETPOINT. EACH ROOF TOP UNIT SHALL COMMUNICATE TO THE OUTDOOR UNIT THE NEED FOR COOLING.

THE COOLING SHALL BE ENABLED WHENEVER:
- THE ZONE TEMPERATURE IS ABOVE THE COOLING SETPOINT.
- AND THE ECONOMIZER IS DISABLED OR FULLY OPEN.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE HEATING IS NOT ACTIVE.

HEATING STAGES:
THE PEARL CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND REQUEST HEATING FROM THE VRF CONTROLLER TO MAINTAIN ITS ZONE HEATING SETPOINT. EACH ROOF TOP UNIT SHALL COMMUNICATE TO THE OUTDOOR UNIT THE NEED FOR HEATING.

THE HEATING SHALL BE ENABLED WHENEVER:
- THE ZONE TEMPERATURE IS BELOW THE HEATING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE COOLING IS NOT ACTIVE.

ECONOMIZER OUTSIDE AIR DRYBULB LOCKOUT CONTROL - CLIMATE ZONE 03 (93906) [TITLE 24 SECTION 140.4(e)C]: THE PELICAN ECONOMIZER CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN UNISON TO MAINTAIN THE ZONE COOLING SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE OUTSIDE AIR FLOW WHENEVER OCCUPIED. (SEE THE EQUIPMENT SCHEDULE SHEET FOR THE MINIMUM OUTSIDE AIR FLOW SETTINGS.)

THE ECONOMIZER SHALL BE ENABLED WHENEVER:
- THE OUTSIDE AIR TEMPERATURE IS LESS THAN OR EQUAL TO 75°F.
- AND THE SUPPLY FAN STATUS IS ON.

THE ECONOMIZER SHALL BE DISABLED AND CLOSE TO THE MINIMUM POSITION WHENEVER:
- THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 75°F.
- OR THE OUTSIDE AIR TEMPERATURE IS LESS THAN 56°F.

THE OUTSIDE AIR DAMPERS SHALL FULLY CLOSE AND THE RETURN AIR DAMPER SHALL OPEN:
- WHEN THE UNIT IS OFF.
- OR ON LOSS OF SUPPLY FAN STATUS.
- OR THE UNIT'S FACTORY FREEZESTAT HAS TRIPPED.

WHILE THE ECONOMIZER IS ENABLED THE ECONOMIZER DAMPERS SHALL MODULATE TO FULLY OPEN THE OUTSIDE AIR DAMPERS AND FULLY CLOSE THE RETURN AIR DAMPERS TO ALLOW FOR 100% OUTSIDE AIR.

ECONOMIZER FAULT DETECTION DIAGNOSTICS [TITLE 24 SECTION 120.2(i)7]: ECONOMIZER FAULTS SHALL BE VIEWABLE AT THE PELICAN GRAPHICAL USER INTERFACE. THE FOLLOWING FAULTS SHALL BE INDICATED:
1. AIR TEMPERATURE SENSOR FAULT.
2. NOT ECONOMIZING WHEN IT SHOULD.
3. ECONOMIZING WHEN IT SHOULD NOT.
4. DAMPER NOT MODULATING.
5. EXCESS OUTDOOR AIR.

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WIRING & CONTROLS

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PIPE MATERIAL

1.	SANITARY SEWER , VENT AND STORM DRAIN PIPING BELOW GROUND :	NO-HUB CAST IRON PIPE & FITTINGS WITH STAINLESS STEEL NO-HUB COUPLINGS. WRAP ALL UNDERGROUND PIPE AS SPECIFIED.
2.	SANITARY SEWER, VENT & STORM DRAIN PIPING ABOVE GROUND :	SERVICE WEIGHT NO-HUB CAST IRON PIPE & FITTINGS CONFORMING TO THE REQUIREMENTS OF CISPI STANDARD 301, ASTM A888 OR ASTM A74 WITH TYPE 304 STAINLESS STEEL STANDARD DUTY NO-HUB COUPLINGS.
3.	DOMESTIC WATER BELOW GROUND :	TYPE 'K' COPPER WITH BRAZED JOINTS.
4.	DOMESTIC WATER ABOVE GROUND :	TYPE "L" COPPER TUBING WITH SOLDERED JOINTS. DOMESTIC WATER PIPING SHALL UTILIZE LEAD-FREE MATERIAL AND SOLDER.
5.	CONDENSATE AND INDIRECT DRAIN PIPING :	TYPE "M" COPPER PIPE & FITTINGS WITH SOLDERED JOINTS. CONDENSATE DRAIN PIPING ABOVE CEILINGS SHALL BE INSULATED WITH "AP ARMAFLEX" CLOSED-CELL ELASTOMERIC PLENUM RATED FOAM INSULATION. FLAME-SPREAD INDEX OF 25 OR LESS & SMOKE-DEVELOPED INDEX OF 50 OR LESS. 1/2" THICK FOR PIPING UP TO 1", AND 1" THICK FOR PIPING 11/4" AND LARGER.
6.	NATURAL GAS PIPING ABOVE GROUND:	SCHEDULE 40 BLACK STEEL PIPE WITH IRON SCREWED FITTING.
7.	NATURAL GAS PIPING BELOW GROUND :	APPROVED POLYETHYLENE (PE) PIPE WITH FUSION JOINTS. SPIRAL WRAP ALL UNDERGROUND PIPE W/AWG 14 ELECTRIC TRACER WIRE.
8.	INSULATION OF HOT WATER SUPPLY & RETURN PIPING :	GLASS FIBER PIPE INSULATION WITH FACTORY APPLIED WHITE JACKET; "-JM" MICRO-LOK 750AP. HOT WATER PIPE INSULATION SHALL HAVE A MINIMUM WALL THICKNESS OF NOT LESS THAN 1" FOR 3/4 IN. PIPE, 11/2 IN. FOR 1 IN. THRU 11/4 IN. PIPE AND NOT LESS THAN 2 IN. FOR PIPE 2" DIA. AND LARGER.
9.	LAB WASTE AND LAB VENT PIPING ABOVE GRADE IN NON-PLENUM WALLS & SHAFT :	SCHEDULE 40 CPVC TYPE IV, GRADE 1 PIPE AND FITTINGS AS MANUFACTURED BY CHARLOTTE PIPE AND FOUNDRY UNDER THE TRADE NAME OF "CHEMDRAIN" WITH SOLVENT CEMENTED JOINTS. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
10.	LAB WASTE AND LAB VENT PIPING ABOVE GRADE IN RETURN AIR PLENUM:	IAPMO LISTED SCHEDULE 40, FLAME RETARDANT FR-PVDF PIPE AND FITTINGS WITH ELECTROFUSION SOCKET FUSION JOINTS AS MANUFACTURED BY IPEX. SURFACE BURING CHARACTERISTICS GREATER THAN OR EQUAL TO A FLAME SPREAD 25 AND SMOKE DEVELOPEMENT 50. ALL PIPE AND FITTINGS SHALL BE IPEX "PLENUMLINE " INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
11.	ALL OF THE ABOVE SHALL COMPLY WITH THE SPECIFICATIONS.	

LEAD-FREE NOTE:

ALL PIPE, FITTINGS, FIXTURES, ETC. THAT CONTACT POTABLE WATER FOR HUMAN CONSUMPTION SHALL SHOW APPROVAL TO NSF 61, ANNEX "G". EFFECTIVE JANUARY 1, 2010, THE LEAD CONTENT OF THE WETTED SURFACE AREA OF THE PIPES, FITTINGS AND FIXTURES CONVEYING POTABLE WATER FOR HUMAN CONSUMPTION, OF NOT MORE THAN 0.25%, SHALL BE DETERMINED PURSUANT TO A PRESCRIBED FORMULA AS DETERMINED BY THIRD PARTY CERTIFIERS TO NSF STANDARD 61, ANNEX "G". FOR SOLDER AND FLUX, THE LEAD CONTENT SHALL BE NOT MORE THAN 0.2 PERCENT WHERE USED IN PIPING SYSTEMS THAT CONVEY OR DISPENSE WATER FOR HUMAN CONSUMPTION. REFERENCE SECTION 604.02, CALIFORNIA PLUMBING CODE, 2016 EDITION, AND HEALTH & SAFETY CODE SECTION 116875.

TITLE 24 MANDATORY MEASURES

APPLICABLE	
	EQUIPMENT AND SYSTEMS EFFICIENCY
Yes	ANY APPLIANCE FOR WHICH THERE IS A CALIFORNIA STANDARD ESTABLISHED IN THE APPLIANCE EFFICIENCY STANDARDS MAY BE INSTALLED ONLY IF THE MANUFACTURER HAS CERTIFIED TO THE COMMISSION, AS SPECIFIED IN THOSE REGULATIONS, THAT THE APPLIANCE COMPLIES WITH THE APPLICABLE STANDARD FOR THAT APPLIANCE.
Yes	PIPING SYSTEMS SHALL BE INSULATED IN ACCORDANCE WITH REQUIREMENTS OF THE TITLE 24 STANDARDS AND ALL CODES HAVING THE JURISDICITON.
	SERVICE WATER HEATING SYSTEMS
Yes	THE FOLLOWING SERVICE WATER HEATING SYSTEMS AND EQUIPMENT MAY BE INSTALLED ONLY IF THE MANUFACTURER HAS CERTIFIED THAT THE EQUIPMENT MEETS OR EXCEEDS ALL APPLICABLE EFFICIENCY REQUIREMENTS LISTED IN 113 OF THE ENERGY EFFICIENCY STANDARDS: GAS-FIRED NON-STORAGE TYPES >200,000 BTU/HR.
Yes	UNFIRED SERVICE WATER HEATER STORAGE TANKS AND BACKUP TANKS FOR SOLAR WATER HEATING SYSTEMS SHALL HAVE EITHER; EXTERNAL INSULATION WITH AN INSTALLED R-VALUE OF AT LEAST R-12, INTERNAL AND EXTERNAL INSULATION WITH A COMBINED R-VALUE OF AT LEAST R-15, OR SUFFICIENT INSULATION SO THAT THE HEAT LOSSO FHTE TANK SURFACE BASED ON AN 80°F WATER-AIR TEMPERATURE DIFFERENCE SHALL BE LESS THAN 6.5 BTU/HR/SF.
Yes	IF A CIRCULATING HOT WATER SYSTEM IS INSTALLED, IT SHALL HAVE A CONTROL CAPABLE OF AUTOMATICALLY TURNING OFF THE CIRCULATING PUMP (S) WHEN HOT WATER IS NOT REQUIRED.
	LAVATORIES IN RESTROOMS OF PUBLIC FACILITIES SHALL BE EQUIPED WITH:
Yes	OUTLET DEVICES THAT LIMIT THE FLOW OF HOT WATER TO MAXIMUM OF 0.5 GALLONS PER MINUTE
Yes	FOOT ACTUATED CONTROL VALVES, AND OUTLET DEVICES THAT LIMIT THE FLOW OF HOT WATER TO A MAXIMUM OF 0.75 GALLONS PER MINUTE.
No	PROXIMITY SENSOR ACTUATED CONTROLS VALVES, AND OUTLET DEVICES THAT LIMIT THE FLOW OF HOT WATER TO A MAXIMUM OF 0.75 GALLONS PER MINUTE.
Yes	SELF-CLOSING VALVES, AND OUTLET DEVICES THAT LIMIT THE FLOW OF HOT WATER TO A MAXIMUM OF 2.5 GALLONS PER RMINUTE, AND 0.25 GALLONS/CYCLE (CIRCULATING SYSTEM).
Yes	SELF-CLOSING VALVES, AND OUTLET DEVICES THAT LIMIT THE FLOW OF HOT WATER TO A MAXIMUM OF 2.5 GALLONS PER RMINUTE, AND 0.50 GALLONS/CYCLE (NON-CIRCULATING SYSTEM)
No	SELF-CLOSING VALVES, AND OUTLET DEVICES THAT LIMIT THE FLOW OF HOT WATER TO A MAXIMUM OF 2.5 GALLONS PER RMINUTE, AND 0.75 GALLONS/CYCLE (FOOT SWITCHES AND PROXIMITY SENSOR CONTROLS).
No	LAVATORIES IN RESTROOM OF PUBLIC FACILITIES SHALL BE EQUIPPED WITH CONTROLS TO LIMIT THE OUTLET TEMPERATRURE TO 110° F.

PLUMBING GENERAL NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL PLUMBING FIXTURES, DRAINS AND EQUIPMENT.
2. COORDINATE ALL LOCATIONS, SIZES AND ELEVATIONS OF ALL SLEEVES THROUGH BEAMS, SLABS AND FOOTINGS WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS.
3. ALL HORIZONTAL WASTE LINES SHALL BE RUN AT A MINIMUM SLOPE OF 1/4" PER FOOT UNLESS OTHERWISE NOTED ON PLAN.
4. ALL HORIZONTAL STORM DRAINS AND OVERFLOW DRAIN LINES SHALL BE RUN AT A SLOPE OF 1/8" PER FOOT UNLESS OTHERWISE NOTED ON PLAN.
5. COORDINATE AND VERIFY EXACT LOCATION, SIZE, POINTS OF CONNECTION AND INVERT ELEVATIONS OF UTILITY SERVICE PIPING BEFORE TRENCHING OR INSTALLATION.
6. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR WALL AND PARTITION CONSTRUCTION AND THICKNESS WHERE PLUMBING PIPING OR EQUIPMENT IS INDICATED.
7. THE LOCATION AND ELEVATION OF ALL PLUMBING PIPING SHALL BE VERIFIED AND COORDINATED WITH ALL OTHER TRADES, STRUCTURAL CONDITIONS AND BUILDING CONSTRUCTION PRIOR TO START OF INSTALLATION.
8. ALL VALVES AND COCKS SHALL BE LOCATED TO BE READILY ACCESSIBLE. WHERE VALVES ARE INSTALLED WITHIN OR BEHIND WALLS, PARTITIONS OR CEILINGS, AN ACCESS PANEL SHALL BE INSTALLED.
9. ALL OUTLETS FOR FUTURE CONNECTIONS SHALL BE INSTALLED SO AS TO PERMIT EASY CONNECTION - COORDINATE WITH DUCT WORK, STRUCTURAL CONDITIONS AND ARCHITECTURAL LAYOUT.
10. ALL PLUGGED OR CAPPED WASTE OUTLETS FOR FUTURE CONNECTIONS SHALL BE INSTALLED ABOVE CEILING WITH PIPE INVERT + 4 INCHES ABOVE THE CEILING.
11. ALL PLUGGED OR CAPPED VENT OUTLETS FOR FUTURE CONNECTIONS SHALL BE INSTALLED ABOVE CEILING WITH PIPE INVERT 12" FROM BOTTOM OF SLAB.
12. SEE RISER DIAGRAMS FOR ALL PIPE SIZING FOR ALL PLUMBING SYSTEMS.
13. FIRE PROTECTION PIPING AND EQUIPMENT SHOWN IS FOR REFERENCE ONLY. FOR FIRE PROTECTION PIPING SEE FIRE SPRINKLER SHOP DRAWINGS. FIRE SPRINKLER DESIGN/BUILD CONTRACTOR SHALL COORDINATE HIS WORK DURING SHOP DRAWING PHASE, WITH ROOF DRAINS AND LINES AS SHOWN AND SHALL MAKE PROVISIONS FOR FUTURE DUCTWORK AND FINISHED CEILINGS.
14. FIRE RISERS SUBJECT TO FIRE AUTHORITY APPROVAL.
15. ALL WALL MOUNTED ACCESS PANELS AND WALL CLEANOUTS SHALL BE MOUNTED AS LOW AS POSSIBLE UNLESS NOTED OTHERWISE OR AS INDICATED IN ARCHITECTURAL PLANS OR AS REQUIRED. CONTRACTOR SHALL GET ARCHITECT AND ENGINEER APPROVAL FOR ALL LOCATIONS PRIOR TO INSTALLATION OF WALL GYPSUM BOARD.
16. THESE DRAWINGS ARE DIAGRAMMATIC . THE LOCATION & ELEVATION OF ALL PLUMBING PIPING IS APPROXIMATE AND SHALL BE VERIFIED AND COORDINATED WITH ALL OTHER TRADES, STRUCTURAL CONDITIONS AND BUILDING CONSTRUCTION PRIOR TO START OF INSTALLATION.
17. PENETRATIONS OF PIPES, ETC , IN WALLS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED. FIRE STOP MATERIAL SHALL BE A TESTED ASSEMBLY APPROVED BY THE STATE FIRE MARSHAL.
18. ALL HOT AND COLD WATER PIPE SHALL BE INSULATED INCLUDING PIPING IN THE WALLS.
19. ALL REQUIRED CLEANOUTS SHALL BE INSTALLED AS PER SECTION 707.0 OF THE PLUMBING CODE.
20. ROOF DRAIN AND OVERFLOW PIPING WITHIN THE BUILDING SHALL UTILIZE APPROVED DRAINAGE FITTINGS.
21. CLEANOUTS FOR BUILDING STORM DRAINS SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 719.0 OF THE PLUMBING CODE.
22. NEW BUILDING STORM DRAINAGE SYSTEM AND PARTS OF EXISTING SYSTEMS THAT HAVE BEEN ALTERED, EXTENDED OR REPAIRED SHALL BE TESTED AS DESCRIBED IN SECTION 1109.0 OF THE PLUMBING CODE.
23. DIELECTRIC UNIONS SHALL BE USED AT ALL POINTS OF CONNECTION WHERE THERE IS A DISSIMILARITY OF METALS.
24. ALL VENTS THROUGH ROOF SHALL MAINTAIN A MINIMUM OF 25 FT. CLEARANCE AND 3 FEET ABOVE OF ANY WINDOW, DOOR, OPENING, AIR INTAKE OR VENT SHAFT. (FOR NON-OSHPD-3 BLDGS

ANCHORAGE & BRACING NOTES

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENTS PRESCRIBED IN THE 2022 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7-10 CHAPTERS 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARDWIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. PERMANENTLY ATTACHED SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT DEMONSTRATE DESIGN COMPLINCE WITH THE REFERENCES NOTED ABOVE NOR BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJEST TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

MEP DISTRIBUTION SYSTEM BRACING NOTE FOR PIPNG,DUCTWORK, AND ELECTRICAL CONDUIT

PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7 SECTION 13.3 AS DEFINED IN ASCE 7 SECTION 13.3 AS DEFINED IN ASCE 7-10 SECTION 13.6.5.6, 13.6.7, 13.6.8, AND 2016 CBC, SECTIONS 1616A.1.24, 1616A.1.25 AND 1616A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. THE MEP DESIGN PROFESSIONAL ENGINEER RESPONSIBLE FOR CONTENT ON THESE SHEETS HAS VERIFIED THAT THE DESIGN METHODS INDENTIFIED BELOW ARE IN ACCORDANCE WITH DSA IR 16-13.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPNIG (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP ☐ MD ☐ PP ☒ E ☐ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 2: DESIGN BASED ON OSHPD OPM, WITHIN PROJRCT SUBMITTAL.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 3: DESIGN BASED ON OSHPD OPM, DEFERRED SUBMITTAL.

DESIGN PROFESSIONAL USER NOTE (DO NOT COPY USER NOTE TO THE PLANS):

MEP DESIGN PROFESSIONALS: IDENTIFY WHICH OPTIONS APPLY FOR YOUR PROJECT. IF OPTION 1 IS CHOSEN, PROVIDE PROJECT SPECIFIC DETAILS COORDINATED WITH A STRUCTURAL ENGINEER AND PRESENTED ON THE DRAWINGS IN ACCORDANCE WITH IR 16-13 SCTION 2.1. FOR OPTION 2, VERIFY THAN AN OPM PACKAGE HAS BEEN PREPARED IN ACCORDANCE WITH IR 16-13 SECTION 2.2 AND IS INCLUDED WITHIN THE ORIGINAL PROJECT SUBMITTAL. FOR OTION 3, VERIFY THAT ALL OF THEREQUIREMENTS FOR THE DEFERRE SUBMITTAL HAVE BEEN SATISFIED PRIOR TO THE PLAN SUBMITTAL IN ACCORDANCE WITH IR 16-13 SECTION 2.2.6 FOR ALL OPTIONS VERIFY THAT THE SEOR HAS VERFIFIED THE ADEQUACY OF THE STRUCTURE TO SUPPORT ALL HANGAR AND BRACE LOADS.

LEGEND

LEGEND	ABBR.	DESCRIPTION
	S OR W	SOIL OR WASTE ABOVE FLOOR OR GRADE
	S OR W	SOIL OR WASTE BELOW FLOOR OR GRADE
SD	SD	STORM DRAIN ABOVE FLOOR OR GRADE
SD	SD	STORM DRAIN BELOW FLOOR OR GRADE
OD	OD	OVERFLOW DRAIN ABOVE FLOOR OR GRADE
OD	OD	OVERFLOW DRAIN BELOW FLOOR OR GRADE
	V	SANITARY VENT
	CW	DOMESTIC COLD WATER
	HW	DOMESTIC HOT WATER
	HWR	DOMESTIC HOT WATER RETURN
D	D	INDIRECT DRAIN
CD	CD	CONDENSATE DRAIN
PCD	PCD	PUMPED CONDENSATE DRAIN
SCD	SCD	SECONDARY CONDENSATE DRAIN
MG	MG	MEDIUM PRESSURE FUEL GAS
G	G	FUEL GAS
TP	TP	TRAP PRIMER
		DIRECTION OF FLOW
	P.G.	PRESSURE GAUGE W/PETE COCK
	G.C.	GAS COCK
	P.R.V.	PRESSURE REDUCING VALVE
	C.V.	CHECK VALVE
	L.B.V.	LOCKING BALL VALVE
	B.V.	BALL VALVE
	G.V.	GATE VALVE
	FCO	FLOOR CLEANOUT
	WCO	WALL CLEANOUT
		DOWN
		RISE
		UNION
		SLOPE IN DIRECTION OF FLOW
		WATER HAMMER ARRESTOR
	P.O.C.	POINT OF CONNECTION
	WHA	WATER HAMMER ARRESTOR
	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
	ABV	ABOVE
	AFF	ABOVE FINISHED FLOOR
	AP	ACESS PANEL
	BEH	BEHIND
	BEL	BELOW
	CLG	CEILING
	CONT.	CONTINUATION
	CO.	CLEAN OUT
	EXIST. (E)	EXISTING
(E)	FIN.	FINISHED
	F.F.E.	FINISHED FLOOR ELEVATION
	FLR.	FLOOR
	FR.	FROM
	G.P.F.	GALLONS PER FLUSH
	GR	GRADE
	HDR	HEADER
	I.E.	INVERT ELEVATION
	VTR	VENT THROUGH ROOF

SHEET INDEX

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P4.10	DETAILS

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LEGEND, SCHEDULES & NOTES

P0.01

ELECTRIC WATER HEATER

UNIT NO.	MANUFACTURER & MODEL NO.	LOCATION	SERVICE	STORAGE CAPACITY	REC. @ 100° T.R.	INLET TEMP °F	OUTLET TEMP °F	ELECTRICAL				OPER. WEIGHT	REMARKS
								KW	V	PH	HZ		
EWH-1	A.O. SMITH #DEL-20S-4	JANITOR'S ROOM	DOMESTIC HOT WATER	20 GAL.	16 GPH	60°	120°	4.0	208	3	60	239.6 LBS	MOUNT UP HIGH ON WALL
EWH-2	EEMAX SPEX8208T	CLASSROOM ROOM	DOMESTIC HOT WATER	-	-	60°	120°	8	208	1	60	4 LBS	MOUNT BELOW SINK

GAS PIPE SIZING

TDL = 200 FT. CPC TABLE 1216.2 (1)
2 PSI INLET PRESSURE

PIPE SIZE	CFH	PIPE SIZE	CFH
1/2"	34	2 1/2"	1270
3/4"	71	3"	2240
1"	134	4"	4560
1 1/4"	275		
1 1/2"	412		
2"	794		

NATURAL GAS LOADS

LAB SINKS	QTY	CFH	TOTAL CFH	
DOUBLE GAS TURRET	32	6	192	192 X .5 = 96 CFH

DIVERSITY FACTORS FOR CLASSROOM GAS OUTLETS

NO. OF OUTLETS	SIMULTANEOUS USE FACTOR
1-10	.8
11-25	.6
26-100	.5
101-350	.4

GAS PIPE SIZING IS BASED ON THE REQUIREMENTS OF THE 2022 CPC CHAPTER 12 TABLE 1216.2 SCHEDULE 40 STEEL PIPE FOR A DEVELOPED LENGTH OF 200 FT.

GAS PIPING SHALL BE SLOPED NOT LESS THAN 1/4" IN 15 FEET TO PREVENT TRAPS (CPC 1210.2.2)

EMERGENCY GAS SHUT-OFF VALVE WITH SIGNAGE SHALL BE LOCATED AT THE TEACHER'S DESK ADJACENT TO THE LABORATORY'S EGRESS. (NFPA 54:7.9.2.4)(2022 CPC CHAPTER 12 SECTION 1210.11.3

WATER SYSTEM CALCULATION

PRESSURE BETWEEN ROOMS 427 AND 428: HYDRAULIC GRADE LINE = XX
2"PIPE, 40.5 FU, 49 GPM

COMMON BUILDING FINISHED FLOOR ELEVATION = 338.50'
350-109.6 = 240.4 x 0.433 = 104.1 PSI

EQUIVALENT LENGTH FROM METER TO PRESSURE REGULATING VALVE (PRV) = 50 FT + 25% FOR FITTINGS = 62.5 FT.

LOSSES (METER TO PRV)

2"METER	4 PSI
2\"RPBP	12 PSI
FRICTION = 63 FT. x 6.47/ 100 x 0.433 =	1.76 PSI
	18 PSI

104.1 PSI - 18 PSI = 86.1 PSI

PRV SET: 78 PSI, 75 PSI

LOSSES (PRV TO MOST REMOTE FIXTURE)

PRV	10 PSI
RESIDUAL (W.C.)	25 PSI
STATIC = (5 FT. x 0.433) =	2 PSI
	37 PSI

75 PSI - 37 PSI = 38 PSI

EQUIVALENT LENGTH FROM PRV TO MOST REMOTE FIXTURE = 360 FT x 25% FOR FITTINGS = 450 FT.

ALLOWABLE AVERAGE LOSS DUE TO FRICTION PER 100 FT OF PIPE = 38 PSI/ 450 FT x 100 FT = 8.44 PSI. PIPE SIZES BASED ON 3 PSI LOSS PER 100' OR 8 FT. PER SECOND VELOCITY, WHICHEVER RESTRICTION IS GREATER.
5FT. PER SECOND (HOT)

PIPE SIZING SCHEDULE

(BASED ON 3 PSI / 100 FT.)

SIZE	FIXTURE UNITS			VELOCITY (FPS)	G.P.M.
	FLUSH TANK HW	FLUSH TANK CW	FLUSH VALVE		
1/2"	0	0	0	2.6	1.9
3/4"	4	4	0	3.2	4.9
1"	12	12	0	3.9	10
1 1/4"	24	24	0	4.4	17.4
1 1/2"	46	46	10	4.9	27
2"	119	155	63	5.9	56
2 1/2"	245	380	245	6.7	100
3"	406	665	596	7.5	160

PLUMBING FIXTURE SCHEDULE

UNIT NO.	DESCRIPTION	CONNECTION SIZES					REMARKS
		TRAP	W	V	CW	HW	
LS-1	LAB SINK (STUDENT)	1-1/2"	2"	1-1/2"	1/2"	-	ORION #ARLS-15, 20.25" X 17.5" X 12" CORROSION RESISTANT LAB SINK, CHICAGO FAUCET #927-317XKCP, SWING GOOSENECK SPOUT WITH 4" VANDAL PROOF WRIST BLADE HANDLES, 1.5 GPM. GRID DRAIN WITH CHROME-PLATED TAILPIECE. MCGUIRE LFH2165LK LEAD-FREE ANGLE STOPS AND SUPPLIES. SUPPLY WITH CHICAGO #982-VR909AGVCP DECK MOUNTED DOUBLE GAS TURRET.
LS-2	LAB SINK (STUDENT / ACCESSIBLE)	1-1/2"	2"	1-1/2"	1/2"	-	ORION #ARLS-15-ADA, 20.25" X 17.5" X 6" CORROSION RESISTANT LAB SINK, CHICAGO FAUCET #927-317XKCP, SWING GOOSENECK SPOUT WITH 4" VANDAL PROOF WRIST BLADE HANDLES, 1.5 GPM. GRID DRAIN WITH CHROME-PLATED TAILPIECE. MCGUIRE LFH2165LK LEAD-FREE ANGLE STOPS AND SUPPLIES. SUPPLY WITH CHICAGO #982-VR909AGVCP DECK MOUNTED DOUBLE GAS TURRET.
LS-3	LAB SINK (TEACHER / ACCESSIBLE)	1-1/2"	2"	1-1/2"	1/2"	1/2"	ORION #ARLS-15-ADA, 20.25" X 17.5" X 6" CORROSION RESISTANT LAB SINK, CHICAGO FAUCET #927-317XKCP, SWING GOOSENECK SPOUT WITH 4" VANDAL PROOF WRIST BLADE HANDLES, 1.5 GPM. GRID DRAIN WITH CHROME-PLATED TAILPIECE. MCGUIRE LFH2165LK LEAD-FREE ANGLE STOPS AND SUPPLIES. SUPPLY WITH CHICAGO #980-VR909AGVCP DECK MOUNTED DOUBLE GAS TURRET.
S-1	SINK	1-1/2"	2"	1-1/2"	1/2"	1/2"	ELKAY LUSTERTONE MODEL LRAD 21955, STAINLESS STEEL, SINGLE HOLE, REAR CENTER DRAIN, 22"x 19 1/2"x5", ADA COMPLIANT, WULK-99 DRAIN TYPE 304 STAINLESS STEEL BODY STRAINER, CHICAGO FAUCET MODEL 116.769.AB.1T, 1.5 GPM LAMINAR FLOW RATE, CHROME FINISH CHICAGO FAUCETS MODEL 1017-ABCP LOOSE KEY STOPS W/ WALL FLANGES
DT-1	DILUTION TRAP	2"	2"	2"	1/2"	1/2"	ORION STYLE #10 1 1/2-GALLON TANK; WITH 2" OUTLET WITH COMPLETE ACID-RESISTANT TRAP ARM EXTENSION
EEW-1	EMERGENCY EYEWASH (DECK MOUNT)	--	--	--	3/4"	--	GUARDIAN G5022 DECK MOUNTED EYE/FACE WASH WITH TWO SPRAY HEADS. SUPPLIED WITH AN INTEGRAL FLOW CONTROL.
MS-1	MOP (SERVICE) SINK	3"	3"	2"	3/4"	3/4"	AMERICAN STANDARD #7745.811 MOP SINK 28" X 28" X 13" DEEP WITH AMERICAN STANDARD 8344.212.004 WALL MOUNTED FAUCET.
ECV-1	EMERGENCY CONTROL VALVE (GAS)	-	-	-	-	-	ISIMET NATURAL GAS SERVICE PANEL, INTERNAL JUINCTION BOX W/120-VAC LINE VOLTAGE ALONG WITH TRANSFORMER AND CIRCUIT BOARD.
HB-1	HOSE BIBB	-	-	-	3/4"	-	ACORN 8120CP-LF HOSE VALVE, HEAVY ROUGH BRASS BODY, FURNISHED WITH A LOCKSHIELD BONNET AND REMOVABLE LOOSE KEY WHEEL HANDLE.
HB-2	HOSE BIBB (ROOF)	-	-	-	3/4"	-	ACORN 8125CR-LF HOSE VALVE, HEAVY ROUGH BRASS BODY, FURNISHED WITH A LOCKSHIELD BONNET AND REMOVABLE LOOSE KEY WHEEL HANDLE.
RR-1	ROOF RECEPTOR	3"	3"	2"	-	-	J.R. SMITH FIG 3980Y DUCO CAST IRON RECEPTOR WITH SOLID WATER DAM AND CAST IRON DOME BOTTOM STRAINER SECURED WITH STAINLESS STEEL VANDAL PROOF SCREWS
RD-1	ROOF DRAIN	-	-	-	-	-	J.R. SMITH FIG 1010YCU DUCO CAST IRON RECEPTOR WITH COMBINED FLASHING CLAMP AND GRAVEL STOP AND CAST IRON DOME.
OD-1	OVERFLOW DRAIN	-	-	-	-	-	J.R. SMITH FIG 1080YCU DUCO CAST IRON RECEPTOR WITH EXTERNAL WATER DAM AND CAST IRON DOME BOTTOM STRAINER.

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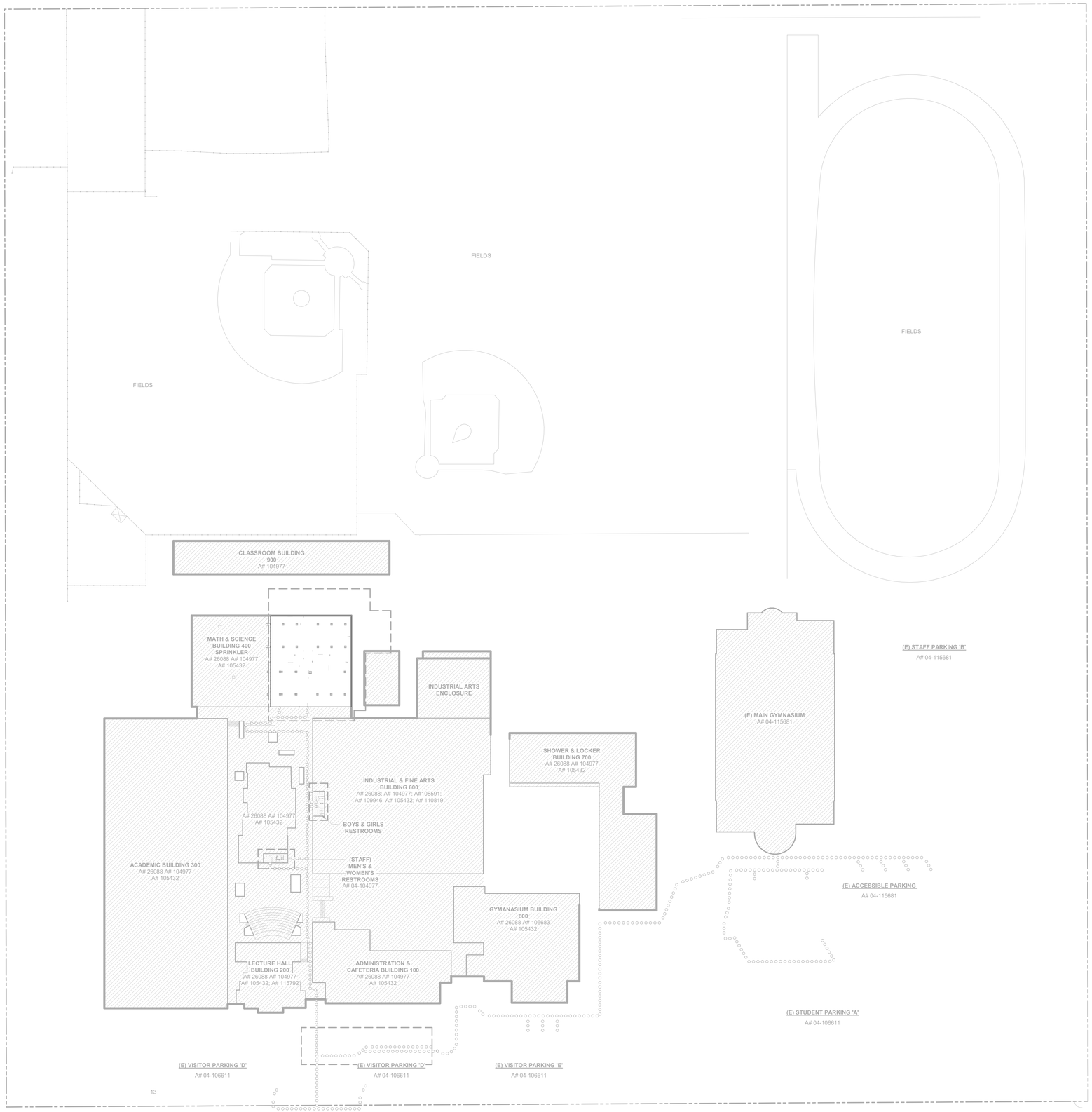
EQUIPMENT SCHEDULES

P0.02

KEYNOTES



PLUMBING SITE PLAN | 1" = 50'-0" | P1.00 | 1

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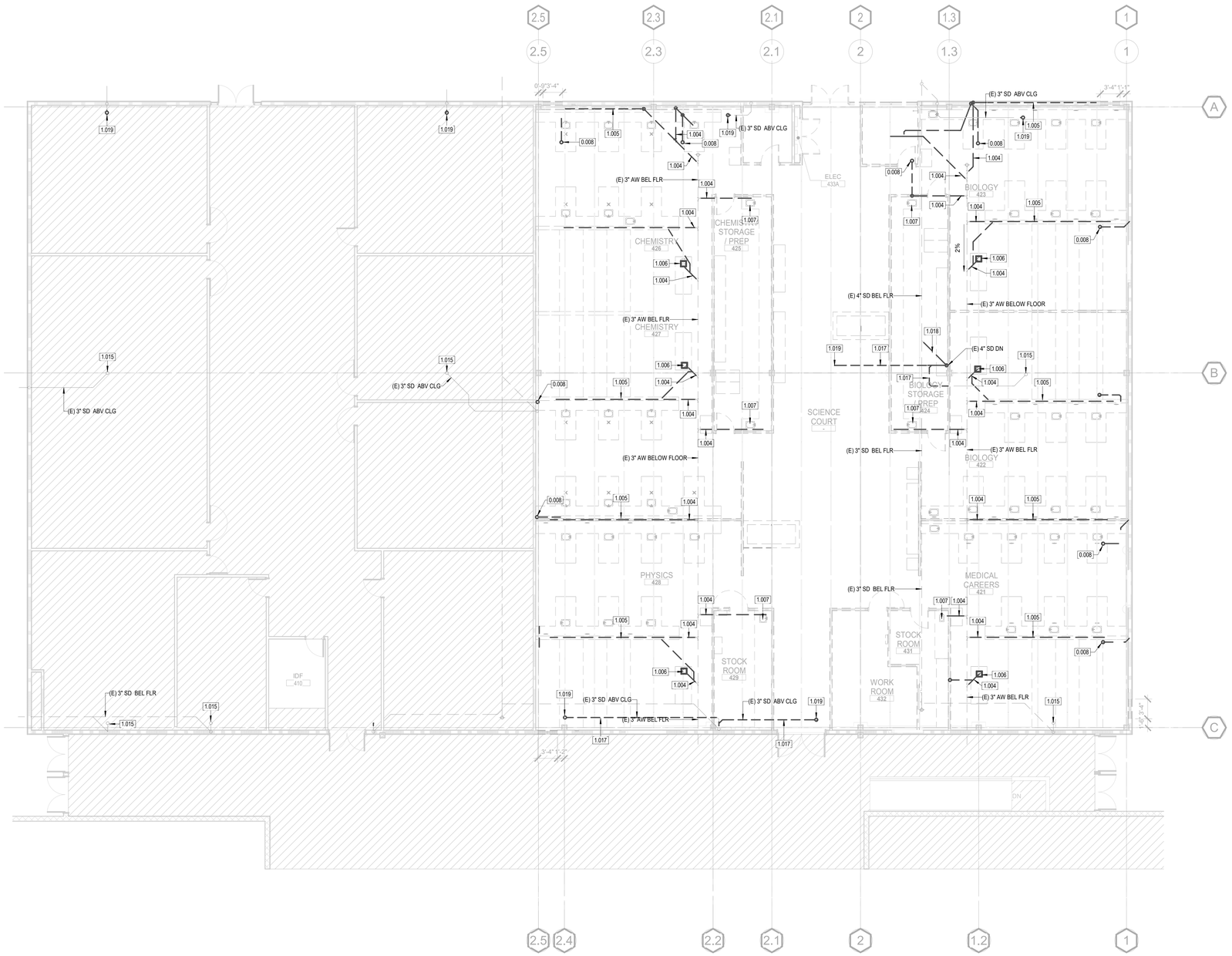
PLUMBING SITE PLAN

P1.00



KEYNOTES

0.008	EXISTING 1 1/2" VENT UP THRU ROOF TO BE REMOVED.
1.004	REMOVE EXISTING WASTE LINE AND PLUG AT MAIN CONNECTION.
1.005	REMOVE EXISTING WASTE AND VENT PIPING IN WALL.
1.006	REMOVE EXISTING FLOOR SINK, WASTE AND VENT PIPING UP IN WALL.
1.007	REMOVE EXISTING SINK, WASTE AND VENT PIPING UP IN WALL.
1.015	EXISTING 3" STORM DRAIN UP TO EXISTING ROOF DRAIN.
1.017	REMOVE EXISTING STORM DRAIN PIPING ABOVE CEILING AND CAP.
1.018	REMOVE EXISTING STORM DRAIN PIPING BELOW FLOOR AND CAP.
1.019	REMOVE EXISTING STORM DRAIN PIPING UP TO EXISTING ROOF DRAIN.

PLUMBING DEMOLITION PLAN W & V | 1/8" = 1'-0" | P1.02 | 1

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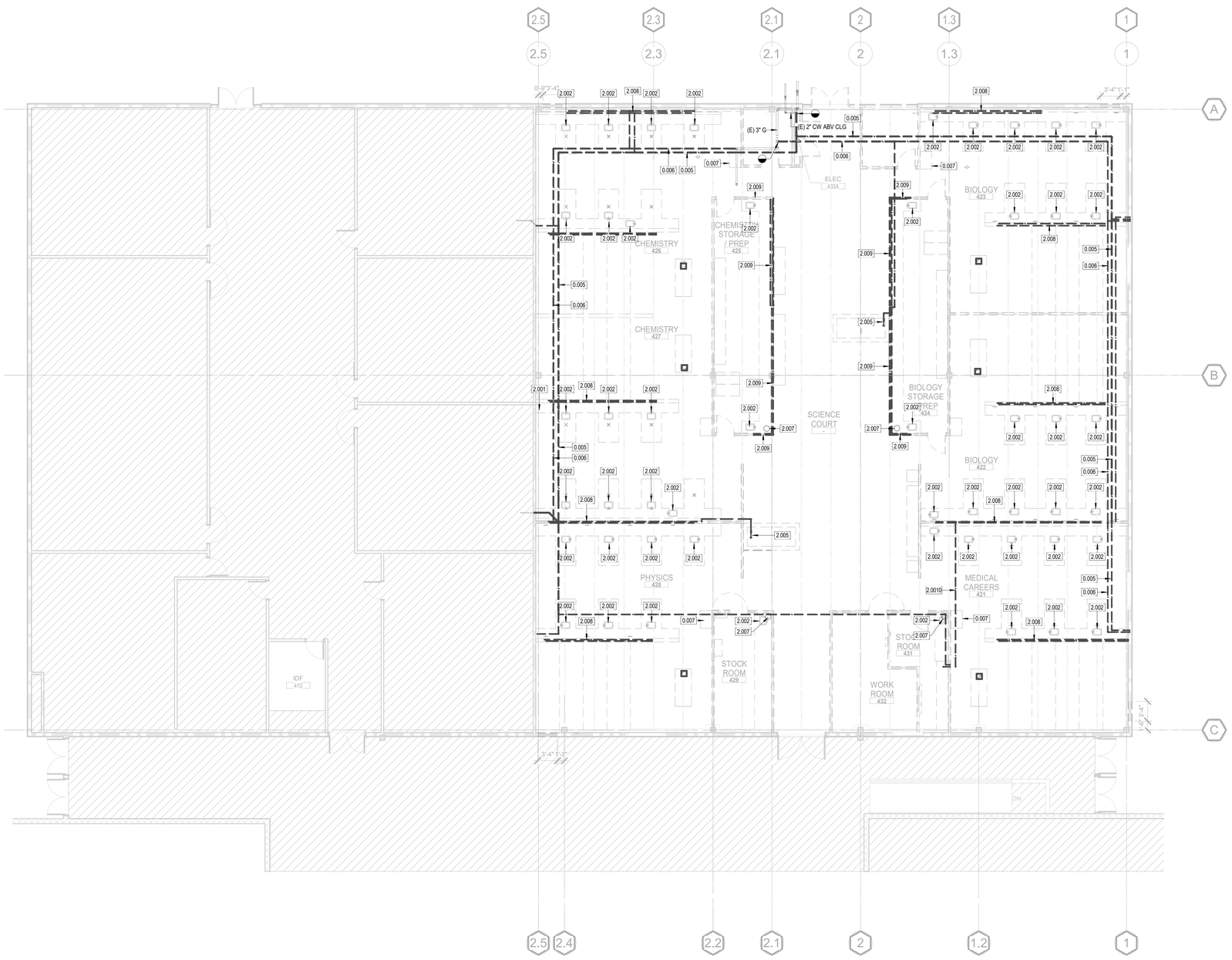
PLUMBING DEMOLITION PLAN W & V

P1.02



KEYNOTES

0.005	EXISTING COLD WATER PPE ABOVE CEILING TO REMAIN.
0.006	EXISTING GAS PIPE ABOVE CEILING TO BE REMOVED.
0.007	EXISTING FUME HOOD TO BE REMOVED. CAP EXISTING GAS AND COLD WATER ABOVE CEILING.
2.001	CAP EXISTING GAS AND COLD WATER ABOVE CEILING.
2.002	REMOVE EXISTING SINK, GAS, GAS TURRETS & COLD WATER PIPING IN WALL.
2.005	REMOVE EXISTING HOSE BIBB & COLD WATER PIPING.
2.007	REMOVE EXISTING HOT WATER HEATER & WATER PIPING.
2.008	REMOVE EXISTING GAS & COLD WATER PIPING IN WALL ABOVE FLOOR.
2.009	REMOVE EXISTING GAS & HOT AND COLD WATER PIPING IN WALL ABOVE FLOOR.
2.0010	REMOVE EXISTING HOT WATER PIPING ABOVE CEILING.

PLUMBING DEMOLITION PLAN PRESSURE PIPING | 1/8" = 1'-0" P1.03 | 1

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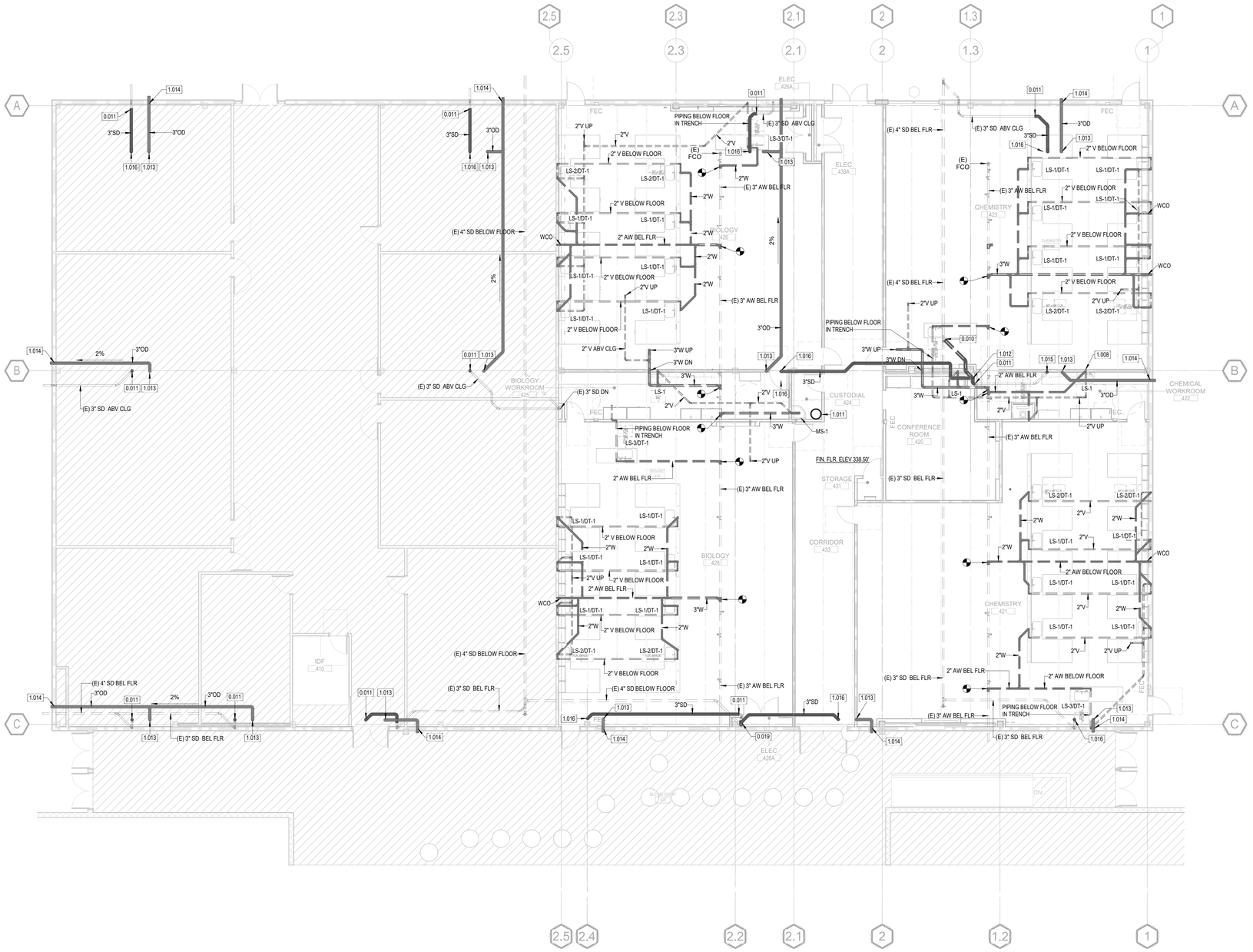
PLUMBING DEMOLITION PLAN PRESSURE PIPING

P1.03



KEYNOTES

0.010 POINT OF CONNECTION TO EXISTING 4" STORM DRAIN BELOW FLOOR.

0.011 POINT OF CONNECTION TO EXISTING 3" STORM DRAIN ABOVE CEILING.

0.019 POINT OF CONNECTION TO EXISTING 4" STORM DRAIN ABOVE CEILING.

1.008 2" AW UP.

1.011 3/4" TEMP & PRESS RELIEF DRAIN FROM WATER HEATER TO SPILL INTO MOP SINK WITH 1" AIR GAP.

1.012 4" STORM DRAIN DOWN TO BELOW FLOOR.

1.013 3" OVERFLOW DRAIN UP TO NEW OVERFLOW DRAIN ON ROOF.

1.014 3" OVERFLOW DRAIN DN IN WALL AND SPILL THRU EXTERIOR WALL @+ 18" A.F.G.

1.015 EXISTING 3" STORM DRAIN UP TO EXISTING ROOF DRAIN.

1.016 3" STORM DRAIN UP TO NEW ROOF DRAIN ON ROOF.

GENERAL NOTES: PROVIDE A WALL CLEANOUT BELOW ALL SINKS.

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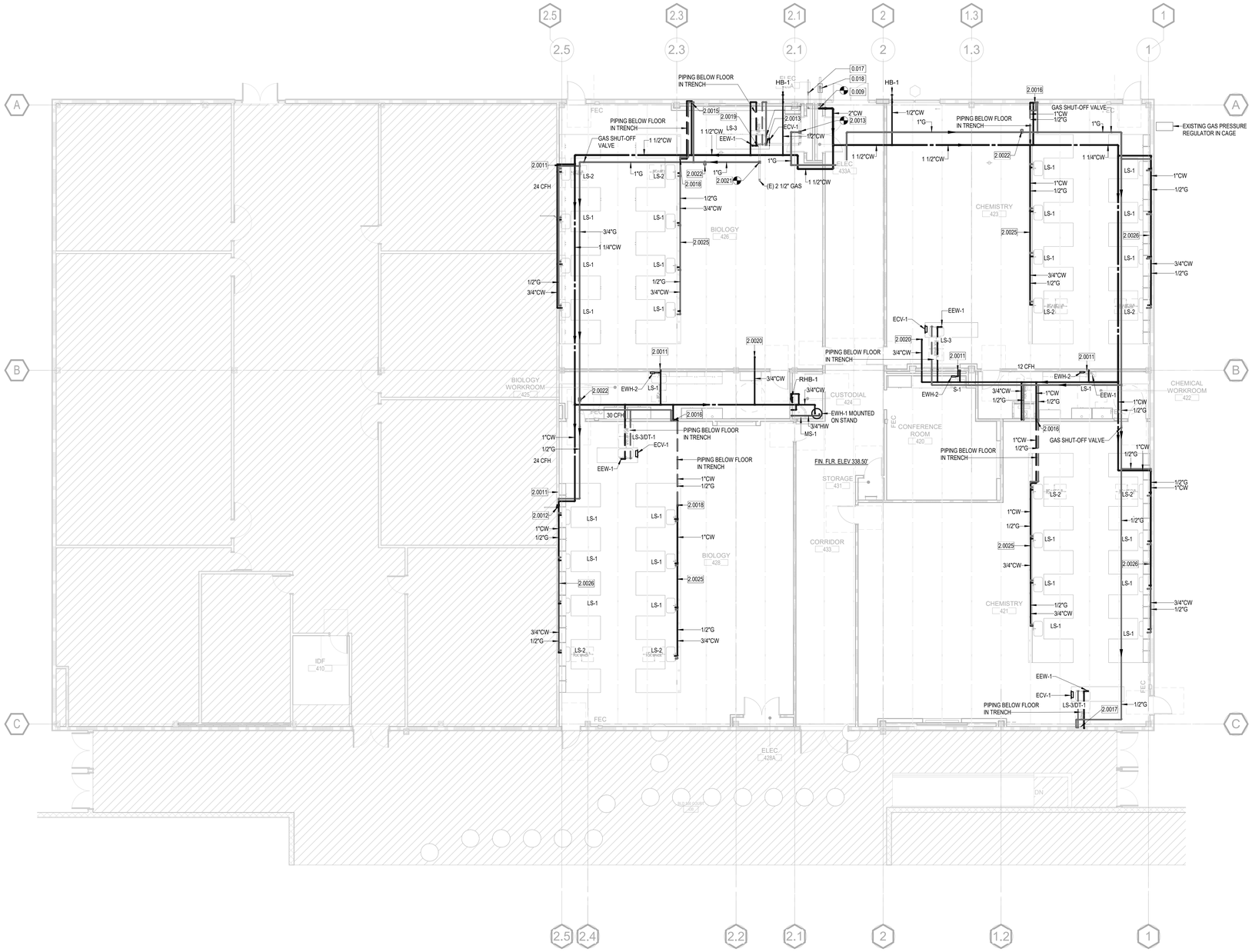
PLUMBING FLOOR PLAN W & V

P2.10



KEYNOTES

0.009	POINT OF CONNECTION TO EXISTING 2" DOMESTIC COLD WATER ABOVE THE CEILING WITH SHUT-OFF VALVE.
0.017	EXISTING DOMESTIC WATER SHUT OFF VALVE PER EXISTING AS-BUILTS.
0.018	EXISTING GAS SHUT OFF VALVE PER EXISTING AS-BUILTS.
2.0011	1" COLD WATER AND 1/2" GAS DOWN TO SINK(S).
2.0012	3/4" COLD WATER DOWN AND CONNECT TO EXISTING 3/4" COLD WATER BELOW FLOOR.
2.0013	POINT OF CONNECTION TO EXISTING 3" GAS ABOVE CEILING.
2.0015	3/4" GAS WITH SHUT-OFF VALVE TO MECHANICAL UNIT.
2.0016	3/4" CW & 1/2" GAS DN TO BELOW FLOOR.
2.0017	3/4" CW, 3/4" HW & 1/2" GAS DOWN TO BELOW FLOOR.
2.0018	1" CW & 1/2" GAS UP FROM BELOW FLOOR.
2.0019	3/4" CW & 1/2" GAS & 1/2" HW UP FROM BELOW FLOOR.
2.0020	3/4" CW UP TO HOSE BIBB ON ROOF.
2.0021	POINT OF CONNECTION TO EXISTING 2 1/2" GAS ABOVE CEILING.
2.0022	PROVIDE GAS SOLENOID VALVE ABOVE CEILING. WIRE TO ECV-1 AT TEACHERS DESK.
2.0025	INSTALL COLD WATER AND GAS LINES HORIZONTALLY WITHIN THE PONY WALL ONE ON TOP OF THE OTHER.
2.0026	INSTALL COLD WATER AND GAS LINES HORIZONTALLY WITHIN THE WALL ONE ON TOP OF THE OTHER.

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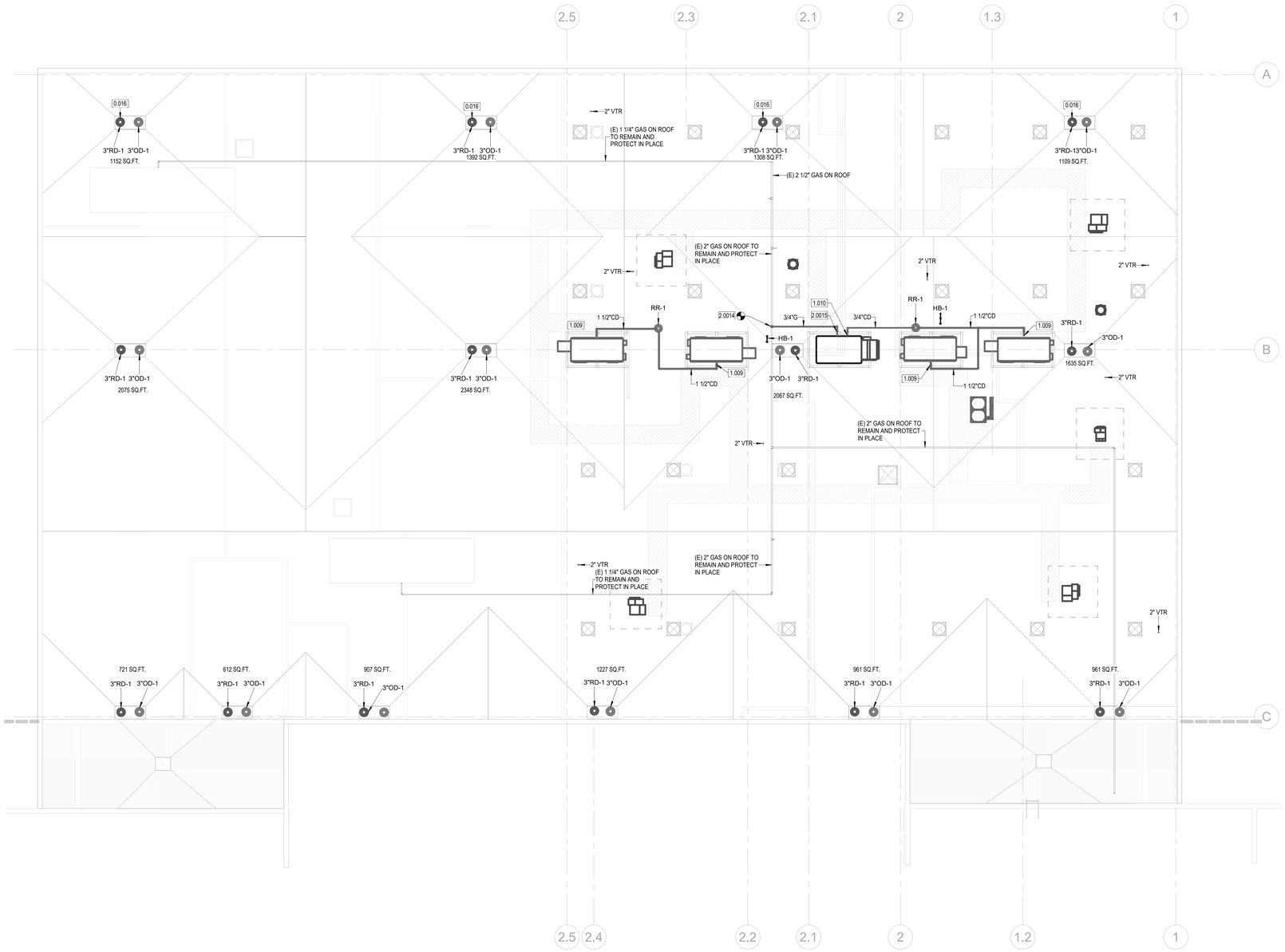
PLUMBING FLOOR PLAN PRESSURE PIPING

P2.11



PLUMBING ROOF PLAN | 1/8" = 1'-0" | P2.20 | 1

KEYNOTES

0.016	NEW LOCATION FOR NEW ROOF DRAIN.
1.009	1 1/2" CONDENSATE DRAIN. TRAP AT UNIT AND RUN ON ROOF AND SPILL INTO ROOF RECEPTOR WITH 1" AIR GAP.
1.010	3/4" CONDENSATE DRAIN. TRAP AT UNIT AND RUN ON ROOF AND SPILL INTO ROOF RECEPTOR WITH 1" AIR GAP.
2.0014	POINT OF CONNECTION TO EXISTING 2 1/2" GAS ON ROOF.
2.0015	3/4" GAS WITH SHUT-OFF VALVE TO MECHANICAL UNIT.

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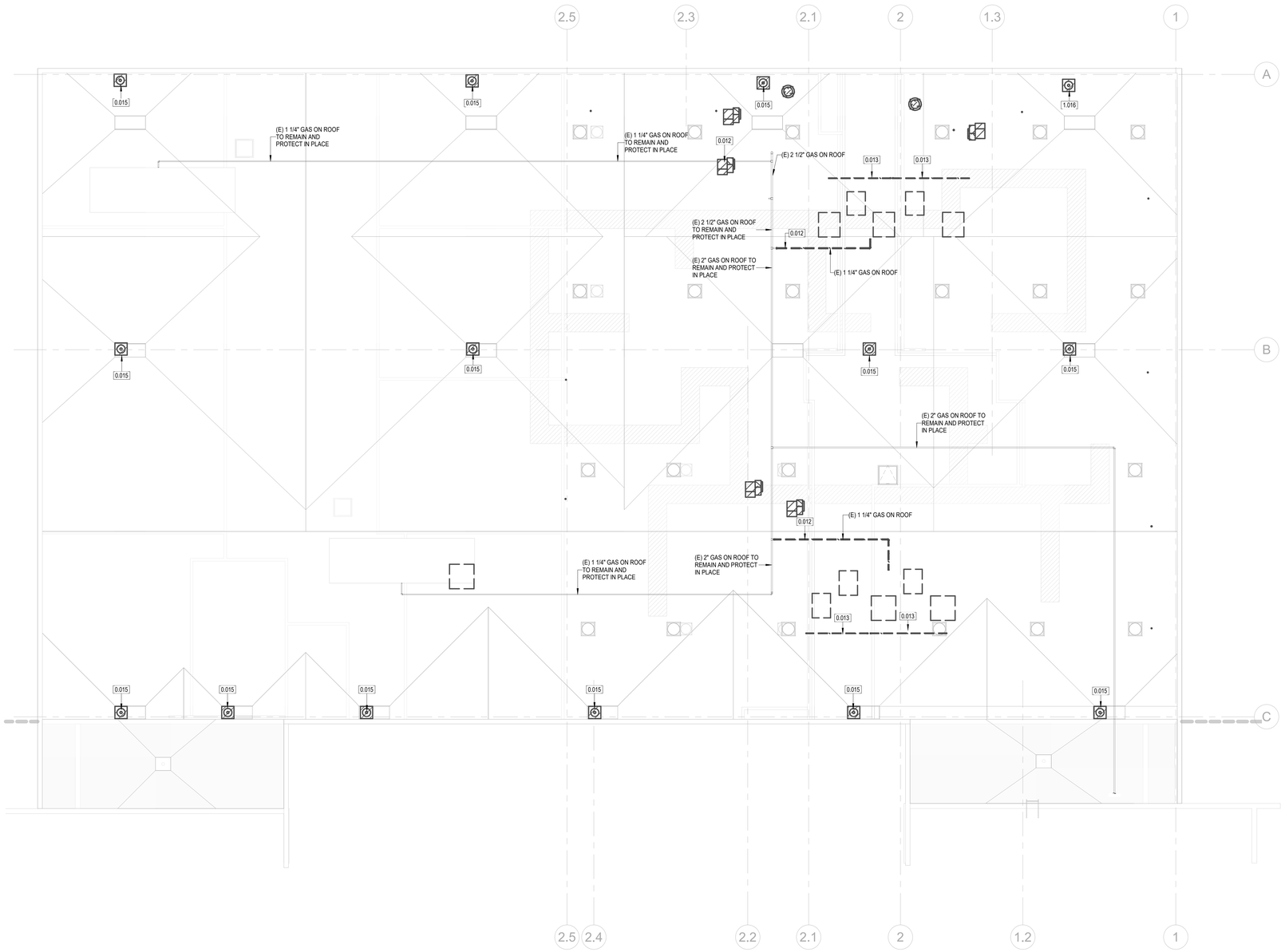
PLUMBING ROOF PLAN

P2.20



KEYNOTES

0.012	EXISTING GAS PIPE ON ROOF TO BE REMOVED AND CAPPED.
0.013	EXISTING CONDENSATE DRAIN PIPE ON ROOF TO BE REMOVED AND CAPPED.
0.015	EXISTING ROOF DRAIN TO BE REMOVED.
1.016	3" STORM DRAIN UP TO NEW ROOF DRAIN ON ROOF.

GENERAL NOTE
CONTRACTOR TO VERIFY ALL ROOF DRAIN LOCATIONS BEFORE STARTING CONSTRUCTION.

PLUMBING DEMOLITION ROOF PLAN | 1/8" = 1'-0" | P2.21 | 1

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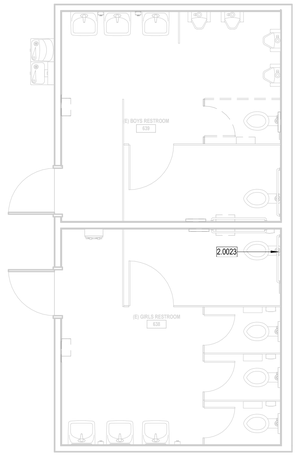
PLUMBING DEMOLITION ROOF PLAN

P2.21

KEYNOTES

2.0023 REMOVE EXISTING FLUSH VALVE.



1 BLDG 600 PLUMBING RESTROOMS FLOOR PLAN DEMOLITION PRESSURE PIPING

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

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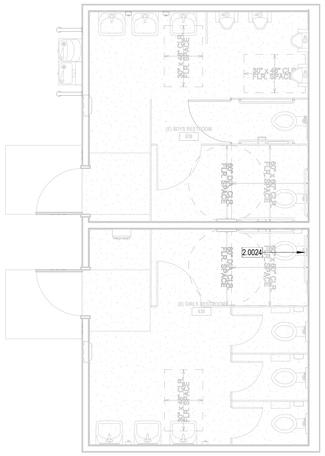
BLDG 600 RESTROOMS
FLOOR PLAN
DEMOLITION PRESSURE
PIPING

P2.22

KEYNOTES

2.0024 INSTALL NEW FLUSH VALVE ON THE RIGHT SIDE OF WATER CLOSET.



1 BLDG 600 PLUMBING RESTROOMS FLOOR PLAN REMODEL PRESSURE PIPING

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

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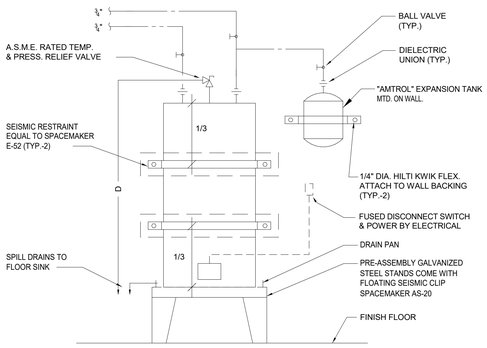
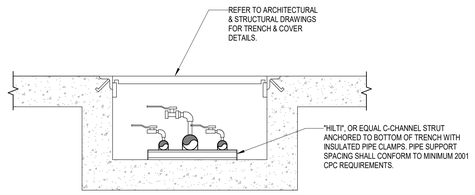
BLDG 600 RESTROOMS
FLOOR PLAN REMODEL
PRESSURE PIPING



9 ELECTRIC WATER HEATER DETAIL

SCALE: 12" = 1'-0"



8 TYPICAL PIPE SUPPORT IN TRENCH

SCALE: NONE

ALL PIPING MUST BE SUPPORTED, BRACED AND SECURED TO RESIST THRUSTING FORCES AND MINIMIZED MOVEMENT.

ALL PIPING MUST BE BRACED PER ACORNVAC SPECS OR PER LOCAL CODE REQUIREMENTS WHICHEVER IS MORE RESTRICTIVE.

ALL BRACING ASSEMBLIES MUST BE ATTACHED TO STRUCTURAL STEEL, RIGID STUDS, OR WOODEN BACKINGS. DRYWALL, THIN SHEET METAL CASE BACKING, AND HVAC DUCT WORK ARE NOT ACCEPTABLE ANCHOR POINTS.

BRACING OF HORIZONTAL PIPING SHOULD BE IN FIVE FOOT INTERVALS WHEN INSTALLATION IS DONE IN PVC, AND EIGHT FOOT INTERVALS FOR COPPER, OR AS REQUIRED BY LOCAL CODE.

SAGGING OF THE PIPING BETWEEN SUPPORTS IS NOT PERMITTED, 1/4" PER FOOT OF SLOPE IS TO BE MAINTAINED AT ALL TIMES.

LATERAL OR SEISMIC BRACING SHOULD BE ADDED EVERY 25' WHEN THE HANGER ASSEMBLY IS GREATER THAN 36" LONG, OR AS REQUIRED BY LOCAL CODE.

WHEN A UNI-STRUT TRAPEZE IS USED, PIPING MUST BE CLAMPED DOWN SECURELY.

VERTICAL LIFTS ARE TO BE SECURED IN SIX FOOT INTERVALS.

BRACING IS REQUIRED AT THE TOP OF ALL VERTICAL LIFTS.

AN APPROVED BRACING ASSEMBLY MUST BE INSTALLED WITHIN ONE FOOT OF EVERY DIRECTIONAL CHANGE, ON BOTH SIDES OF THE FITTING.

AN APPROVED BRACING ASSEMBLY MUST BE INSTALLED WITHIN ONE FOOT OF EVERY EXTRACTION VALVE, ON BOTH THE INLET AND THE OUTLET SIDE.

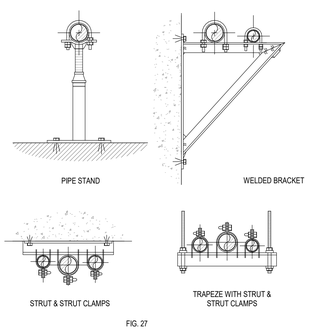
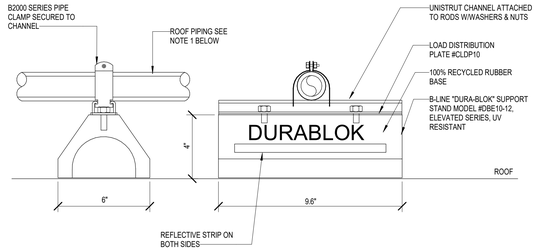


FIG. 27

7 TYPICAL BRACING DETAILS

SCALE: NONE

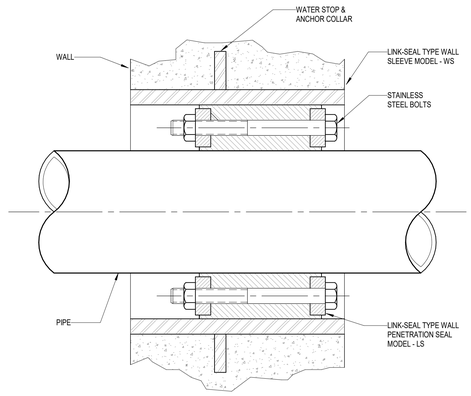


NOTES:

1. 1 ½" AND SMALLER COPPER CONDENSATE AND SCHDULE 40 BLACK STEEL GAS PIPING ONLY.
2. STRUT ASSEMBLY IS ALL HOT DIPPED GALVANIZED STEEL.
3. DURABLOK ROOF SUPPORT SET PER MANUFACTURERS RECCOMDATIONS NOT TO EXCEED 10'-0" ON CENTER & 2'-0" FROM CHANGE OF DIRECTION, SUPPORT SET IN MASTIC TO PREVENT MOVEMENT.

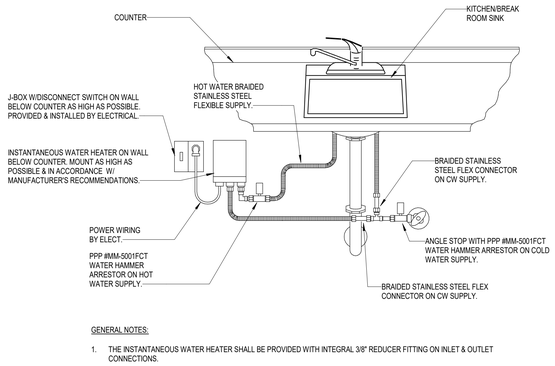
6 ROOF PIPE SUPPORT - GAS PIPING

SCALE: 12" = 1'-0"



5 MECHANICAL SEAL

SCALE: NONE

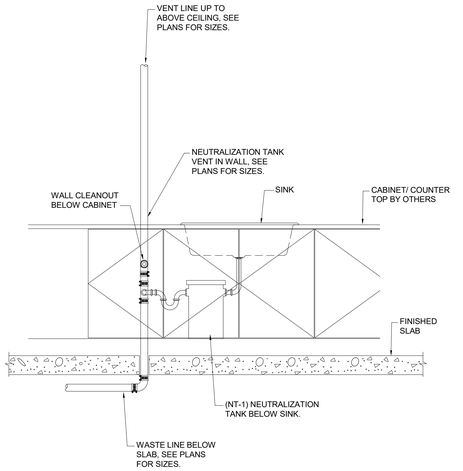


GENERAL NOTES:

1. THE INSTANTANEOUS WATER HEATER SHALL BE PROVIDED WITH INTEGRAL 3/8" REDUCER FITTING ON INLET & OUTLET CONNECTIONS.

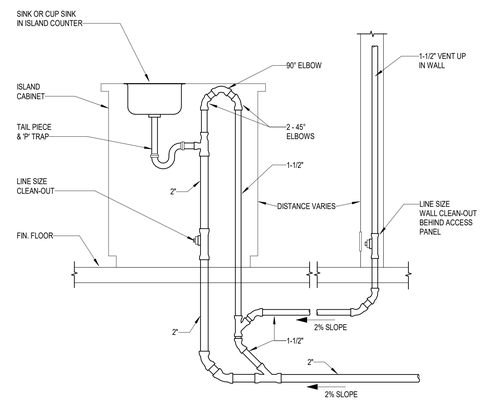
4 INSTANTANEOUS WATER HEATER-SINK

SCALE: NONE



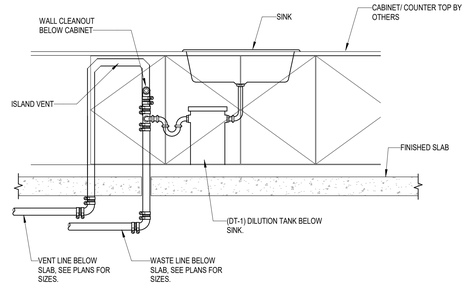
3 ACID DILUTION TANK BELOW SINK

SCALE: 12" = 1'-0"



2 ISLAND VENT

SCALE: NONE



1 ACID DILUTION TANK BELOW SINK

SCALE: NONE

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

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Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

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Scale	12" = 1'-0"

DETAILS

P4.10

LIGHTING SYMBOLS

SITE LIGHTING FIXTURE SYMBOLS DEPICTED WITH CAPITAL LETTER(S) ADJACENT TO RESPECTIVE SYMBOL(S) INDICATE(S) LIGHT FIXTURE MOUNTING BASE DETAIL(S). SEE LIGHTING FIXTURE SCHEDULE FOR FIXTURE SYMBOL INFORMATION.

1a — LIGHTING FIXTURE CALL OUT, NUMBER(S) AND/OR UPPER CASE LETTER(S) (i.e. "1") INDICATES FIXTURE TYPE (REFER TO LIGHTING FIXTURE SCHEDULE). LOWER CASE LETTER (i.e. "a") ADJACENT TO FIXTURE TYPE INDICATES BALLAST OPTION (SEE GENERAL LIGHTING FIXTURE SCHEDULE NOTES).

J — INDICATES FINAL CONNECTION TO A LIGHTING FIXTURE, NUMBER OF CONDUCTORS AS REQUIRED.

LIGHTING CONTROL SYMBOLS

SEE THE DISTRIBUTED LIGHTING CONTROL (DLCS) SPECIFICATIONS AND SEQUENCE OF OPERATIONS (SOO) FOR MORE INFORMATION.

LOW VOLTAGE WIRING INTERCONNECTING DLCS COMPONENTS AS REQUIRED. SEE DLCS SPECIFICATIONS FOR MORE INFORMATION.

WALL MOUNTED DIMMER. SEE SINGE POLE SWITCH SYMBOL FOR RELATED SUBSCRIPTS. QUANTITY OF ADJACENT LOWER CASE LETTERS INDICATES QUANTITY OF DIMMERS REQUIRED. PROVIDE DIMMER TYPE TO MATCH INDICATED BALLAST TYPE AND CONTROL REQUIREMENTS.

⊗_{y} — WALL MOUNTED STAND ALONE OCCUPANCY SENSOR.

⊙^{H}_{y} — WALL MOUNTED SYSTEM-BASED OCCUPANCY SENSOR.

$\text{⊙}^{H,AV,DM,P}_{y}$ — 1-WAY DIRECTIONAL CEILING MOUNTED, SYSTEM-BASED OCCUPANCY SENSOR.

$\text{⊙}^{H,AV,DM,P}_{y}$ — 2-WAY DIRECTIONAL CEILING MOUNTED, SYSTEM-BASED OCCUPANCY SENSOR.

$\text{E}^{K,V}_{y}$ — LOW VOLTAGE MOMENTARY SWITCHES, WALL MOUNTED, FOR MANUAL ON/OFF SWITCHING, DIMMING, AND OVERRIDE CONTROL OF LIGHTING.

Ⓢ_{y*} — AUTOMATIC SWITCHING/STEP-DIMMING DAYLIGHTING CONTROLLER USED TO SWITCH OFF LIGHTS WHEN SUFFICIENT NATURAL LIGHT IS PRESENT. REFER TO THE DLCS SOO FOR TARGET ILLUMINATION VALUE.

Ⓓ_{y*} — AUTOMATIC CONTINUOUS DIMMING DAYLIGHTING CONTROLLER USED TO DIM LIGHTS WHEN SUFFICIENT NATURAL LIGHT IS PRESENT. REFER TO THE DLCS SOO FOR TARGET ILLUMINATION VALUE.

LIGHTING CONTROL SYMBOL SUPERSCRIPT & SUBSCRIPT KEY:

1. "y" INDICATES THAT SWITCH LEG "y" TO BE CONFIGURED PER THE SOO. ADJACENT LOWER CASE LETTERS INDICATES QUANTITY OF SWITCHLEGS TO BE CONTROLLED. EXACT CONTROL FUNCTION IS DETERMINED BY THE BALLAST/DRIVER/FIXTURE TYPE.
2. ADJACENT UPPER CASE LETTER(S) TO INDICATE THE FOLLOWING:
   - AV INDICATES CONNECTION TO A/V CONTROL SYSTEM.
   - DM INDICATES DUAL MODE CONTROL AT CORRIDORS, STAIRWELLS AND WAREHOUSE AISLEWAYS
   - H INDICATES CONNECTION TO HVAC SYSTEM CONTROLS VIA CONTROLLED DRY-CONTACT CLOSURE.
   - K INDICATES LOCKING SWITCH FOR THE SUBSEQUENT LOWER CASE LETTER.
   - P INDICATES CONNECTION TO MOVEABLE PARTITION INTERFACE, SENSOR AND STATUS INDICATOR.
   - V INDICATES VANDAL RESISTANT SWITCH.
3. ADJACENT LOWER CASE LETTER(S) INDICATE SWITCH LEG(S) CONTROLLED EXCEPT WHERE "DM" INDICATES DUAL MODE CONTROL SWITCH.
4. ADJACENT "+, ++ AND "" INDICATES PORTION OF SWITCHLEG CONTROLLED BY SENSOR WHERE "+" INDICATES PRIMARY SIDELIT DAYLIT ZONE, "++" INDICATES SECONDARY SIDELIT DAYLIT ZONE, AND "" INDICATES SKYLIT DAYLIT ZONE.

MISCELLANEOUS SYSTEM SYMBOLS

- ICP — INVERTER CONTROL PANEL - SEE INVERTER SPECIFICATIONS.
- IAP — INVERTER ANNUNCIATOR PANEL - SEE INVERTER SPECIFICATIONS.
- GAP — GENERATOR ANNUNCIATOR PANEL - SEE GENERATOR SYSTEM SPECIFICATIONS FOR MORE INFORMATION.
- IDCS — INTEGRATED DIMMING CONTROL STATION (IDCS) PANEL - WALL MOUNTED. SEE IDCS SYSTEM SPECIFICATIONS FOR MORE INFORMATION.
- DPCS — DIMMING PANEL CONTROL STATION (DPCS) PANEL - WALL MOUNTED. SEE DPCS SYSTEM SPECIFICATIONS FOR MORE INFORMATION.
- L — LIGHTING CONTROL SYSTEM LOCAL SWITCH - WALL MOUNTED. SEE LIGHTING CONTROL SYSTEM SPECIFICATIONS FOR MORE INFORMATION.
- O — LIGHTING CONTROL SYSTEM OVERRIDE SWITCH - WALL MOUNTED. SEE LIGHTING CONTROL SYSTEM SPECIFICATIONS FOR MORE INFORMATION.
- M — LIGHTING CONTROL SYSTEM MASTER SWITCH - WALL MOUNTED. SEE LIGHTING CONTROL SYSTEM SPECIFICATIONS FOR MORE INFORMATION.
- R — IDCS/DPCS SYSTEM REMOTE STATION SWITCH - WALL MOUNTED. SEE IDCS SYSTEM AND/OR DPCS SYSTEM SPECIFICATIONS FOR MORE INFORMATION.
- P — IDCS/DPCS SYSTEM PARTITION STATION SWITCH - WALL MOUNTED. SEE IDCS SYSTEM AND/OR DPCS SYSTEM SPECIFICATIONS FOR MORE INFORMATION.

BRANCH CIRCUIT SYMBOLS

- A-1,3,5 — HOMERUNS WITH INDIVIDUAL HASH MARKS PER CIRCUIT REPRESENT SHARED NEUTRAL FOR UP TO THREE CIRCUITS PER HOMERUN. NOTE, BREAKERS FOR CIRCUITS SHARING A NEUTRAL CONDUCTOR SHALL BE FURNISHED WITH HANDLE-TIE OR MLTI-POLE BREAKERS SHALL BE USED IN COMPLIANCE WITH CEC-210.4(B).
- A-1&3&5 — HOME RUN TO PANEL. LETTER DESIGNATES PANEL, NUMBERS INDICATE CIRCUITS WITH SEPARATE NEUTRALS. "&" INDICATES SEPARATE NEUTRALS.
- A-1+3+5 — HOME RUN TO PANEL. LETTER DESIGNATES PANEL, NUMBERS INDICATE CIRCUITS. "+" INDICATES SEPARATE #10 NEUTRAL THROUGHOUT BRANCH CIRCUIT. HASH MARK " " INDICATES AN ISOLATED GROUND CONDUCTOR.
- HOMERUNS WITH ARROWS ONLY ARE THE SAME AS ABOVE, EXCEPT EACH AROW REPRESENTS A CIRCUIT IN PLACE OF EACH PAIR OF HASH MARKS.
- CONCEALED CONDUIT OR BRANCH CIRCUIT UNLESS OTHERWISE NOTED. 1/2" CONDUIT MINIMUM, (2) #12 AWG CONDUCTORS MINIMUM.
- CONDUIT OR BRANCH CIRCUIT CONCEALED BELOW GRADE, 3/4" CONDUIT MINIMUM WITH (2) 12 AWG CONDUCTORS MINIMUM AND A CODE SIZED EQUIPMENT GROUND.
- SURFACE-MOUNTED CONDUIT OR BRANCH CIRCUIT UNLESS OTHERWISE NOTED. 1/2" CONDUIT MINIMUM, (2) #12 AWG CONDUCTORS MINIMUM.
- TANDEM WIRING CONNECTION.
- CONDUIT STUB OUT, CAP, MARK AND RECORD ON AS-BUILT DRAWINGS
- CONDUIT CONTINUATION.
- FLEXIBLE CONNECTION AS REQUIRED. NUMBER OF CONDUCTORS AS REQUIRED. VERIFY CONNECTION REQUIREMENTS WITH MANUFACTURER PRIOR TO ROUGH-IN.
- CONDUIT/ BRANCH CIRCUIT/FEEDER CONTINUATION DOWN WALL TO FLOOR BELOW OR CONDUIT STUB DOWN.
- CONDUIT/ BRANCH CIRCUIT/FEEDER CONTINUATION UP WALL TO FLOOR ABOVE OR CONDUIT STUB UP.

FLOOR BOX / SPECIALTY WALL BOX / PEDESTAL BOX SYMBOLS

- SINGLE SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.
- TWO SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.
- THREE SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.
- FOUR SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.
- SIX SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.
- AV — 7-GANG AV FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.
- # — ON-GRADE FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX SCHEDULE, DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.
- (#) — ABOVE GRADE POKE-THRU DEVICE. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX SCHEDULE, DETAILS AND SPECIFICATIONS FOR MORE INFORMATION
- AV — RECESSED, ADJUSTABLE DEPTH, FLAT PANEL TV/DISPLAY WALL BOX WITH FLUSH GROMMETED COVER PANEL (CHIEF #PAC525F) AND MINIMUM OF (1) 1-1/4"C.O. FROM TOP-MOUNTED L.V. CONDUIT ENTRY BOX TO ACCESSIBLE CEILING. SEE PLANS FOR ANY ADDITIONAL CONDUIT REQUIREMENTS. PROVIDE ADDITIONAL L.V. AND LINE VOLTAGE CONDUIT ENTRY BOXES AS REQUIRED TO ACCOMPLISH WALL BOX CONFIGURATION DEPICTED ON PLANS. FLUSH GROMMETED COVER SHALL BE WHITE, BLACK OR CUSTOM COLOR PER ARCHITECT. WHEN FIELD CONDITIONS PROHIBIT INSTALLATION OF THIS DEVICE (SUCH AS WALL STUD/CAVITY DEPTH OF LESS THAN 2.5" ETC), CONFIRM VIA WRITTEN RFI THE INSTALLATION OF A TRADITIONAL POWER AND DATA RECEPTACLE INSTALLATION ALONG SIDE CCTV/AV JUNCTION BOX CONSISTING OF 2-GANG DEEP JUNCTION BOX/2-GANG RING WITH 1-1/4"C.O. TO ACCESSIBLE CEILING IN ADDITION TO ANY OTHER CONDUIT REQUIREMENTS DEPICTED ON PLANS. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR MOUNTING HEIGHT.
- SINGLE OR DUAL SERVICE RECESSED EXTERIOR WALL BOX - TYPE "WP-A". PROVIDE DEVICES PER PLAN. EACH L.V OR UNUSED COMPARTMENT SHALL BE EQUIPPED WITH A 1"CO TO THE NEAREST ACCESSIBLE CEILING SPACE U.O.N. SEE EXTERIOR DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.
- SINGLE OR DUAL SERVICE EXTERIOR PEDESTAL - TYPE "WP-C". PROVIDE DEVICES PER PLAN. SEE EXTERIOR DETAILS AND SPECIFICATIONS FOR MORE INFORMATION. ARROW DENOTES DEVICE DOOR LOCATION.

POWER SYMBOLS

ALL RECEPTACLE OUTLETS SHOWN WITH A DIAGONAL SLASH SHALL BE CONTROLLED BY OCCUPANCY SENSOR OR LIGHTING CONTROL PANEL. SEE DISTRIBUTED LIGHTING CONTROLS FOR ADDITIONAL REQUIREMENTS. WHERE DOUBLE DUPLEX RECEPTACLE OUTLETS ARE INDICATED AS CONTROLLED, ONLY A SINGLE DUPLEX RECEPTACLE OUTLET (NON-IG, NON-GCFI TYPE) SHALL BE CONTROLLED. WITHIN ANY CONTROLLED DUPLEX RECEPTACLE OUTLET, ONLY ONE RECEPTACLE SHALL BE CONTROLLED. NOTE THAT FOR FLOOR BOXES OR POKE-THRU DEVICES, THE ASSOCIATED CONTROL RELAY MAY NEED TO BE LOCATED WITHIN THE ELECTRICAL ROOM WHERE THE CONTROLLED CIRCUIT ORIGINATES.

- Ⓡ_{a} — OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM CONTROLLED RECEPTACLE RELAY. WHERE LETTER DESIGNATION "a" REPRESENTS OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM CONTROL ZONE. SEE THE DISTRIBUTED LIGHTING CONTROL SPECIFICATION FOR MORE INFORMATION.
- DUPLEX RECEPTACLE, WALL MOUNTED.
- DOUBLE DUPLEX RECEPTACLE, WALL MOUNTED.
- DUPLEX, GFCI RECEPTACLE, WALL MOUNTED. WP INDICATES WEATHERPROOF, A, B OR C INDICATES THE TYPE OF COVER, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.
- DOUBLE DUPLEX, WALL MOUNTED, WITH (1) GFCI RECEPTACLE AND (1) DUPLEX RECEPTACLE CONNECTED ON LOAD SIDE OF GFCI. WP INDICATES WEATHERPROOF, A, B OR C INDICATES THE TYPE OF COVER, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.
- DUPLEX RECEPTACLE, ONE HALF SWITCHED, WALL MOUNTED.
- DUPLEX, ISOLATED GROUND RECEPTACLE, WALL MOUNTED.
- 1,3 / 1,3a — COMBINATION DOUBLE DUPLEX: ONE ISOLATED GROUND DUPLEX RECEPTACLE AND ONE DUPLEX RECEPTACLE, WALL MOUNTED.
- COMBINATION DOUBLE DUPLEX: TWO ISOLATED GROUND RECEPTACLES, WALL MOUNTED.
- SIMPLEX RECEPTACLE, WALL MOUNTED.
- SPECIAL RECEPTACLE, WALL MOUNTED. REFER TO PLAN NOTES.
- DUPLEX RECEPTACLE FLUSH IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- DOUBLE DUPLEX RECEPTACLE FLUSH IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- DUPLEX RECEPTACLE, ONE HALF SWITCHED, FLUSH IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- DUPLEX, ISOLATED GROUND RECEPTACLE, FLUSH IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- 1,3 / 1,3a — COMBINATION DOUBLE DUPLEX: ONE ISOLATED GROUND DUPLEX RECEPTACLE AND ONE DUPLEX RECEPTACLE, MOUNTED FLUSH IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN FLOOR BOX SYMBOL.
- COMBINATION DOUBLE DUPLEX FLUSH IN CEILING: TWO ISOLATED GROUND RECEPTACLES - MOUNT FLUSH IN FLOOR WHEN INDICATED IN FLOOR BOX SYMBOL.
- SIMPLEX RECEPTACLE FLUSH IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- SPECIAL RECEPTACLE FLUSH IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL.
- DUPLEX RECEPTACLE, WALL MOUNTED AT 6-INCHES COUNTER OR SPLASH.
- DOUBLE DUPLEX RECEPTACLE, WALL MOUNTED AT 6-INCHES COUNTER OR SPLASH.
- DUPLEX, GFCI RECEPTACLE, WALL MOUNTED AT 6-INCHES COUNTER OR SPLASH. WP INDICATES WEATHERPROOF, A, B OR C INDICATES THE TYPE OF COVER, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.
- DOUBLE DUPLEX, WALL MOUNTED, WITH (1) GFCI RECEPTACLE AND (1) DUPLEX RECEPTACLE CONNECTED ON LOAD SIDE OF GFCI. WP INDICATES WEATHERPROOF, A, B OR C INDICATES THE TYPE OF COVER, REFER TO THE GENERAL PRODUCT SPECIFICATIONS.
- DUPLEX RECEPTACLE, BOTTOM HALF SWITCHED, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH.
- DUPLEX, ISOLATED GROUND RECEPTACLE, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH.
- 1,3 / 1,3a — COMBINATION DOUBLE DUPLEX: ONE ISOLATED GROUND DUPLEX RECEPTACLE AND ONE DUPLEX RECEPTACLE, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH.
- COMBINATION DOUBLE DUPLEX: TWO ISOLATED GROUND DUPLEX RECEPTACLES, WALL MOUNTED AT 6" ABOVE COUNTER OR SPLASH.
- SIMPLEX RECEPTACLE, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH.
- SPECIAL RECEPTACLE, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH. REFER TO PLAN NOTES.
- WP-B — WET LOCATION-LISTED (RAINTITE-IN-USE) RECEPTACLE - SEE ELECTRICAL SPECIFICATION FOR ADDITIONAL INFORMATION.
- WP-D — DAMP LOCATION-LISTED (NOT-RAINTITE-IN-USE) RECEPTACLE - SEE ELECTRICAL SPECIFICATION FOR ADDITIONAL INFORMATION.
- DUPLEX RECEPTACLES WITH TWO 5V, 3.6A USB CHARGING PORTS. PROVIDE COLOR AS REQUIRED IN 15A OR 20A CONFIGURATION AND/OR TAMPER RESISTANT AND/OR HOSPITAL GRADE AS REQUIRED BY PLANS AND THE WIRING DEVICES SECTION OF THE GENERAL ELECTRICAL SPECIFICATIONS. (PASS & SEYMOUR OR EQUAL BY HUBBELL OR LEVITON.)
- QUAD RECEPTACLES WITH TWO 5V, 3.6A USB CHARGING PORTS. PROVIDE COLOR AS REQUIRED IN 15A OR 20A CONFIGURATION AND/OR TAMPER RESISTANT AND/OR HOSPITAL GRADE AS REQUIRED BY PLANS AND THE WIRING DEVICES SECTION OF THE GENERAL ELECTRICAL SPECIFICATIONS. (PASS & SEYMOUR OR EQUAL BY HUBBELL OR LEVITON.)
- J — JUNCTION BOX, WALL MOUNTED AT +18-INCHES A.F.F. OR AS NOTED. 4S/DP MINIMUM OR AS REQUIRED BY N.E.C. OR CEC, WHERE ADOPTED.
- J — JUNCTION BOX, MOUNTED IN ACCESSIBLE CEILING FOR APPLICATION DENOTED ON PLAN. 4S/DP MINIMUM OR AS REQUIRED BY N.E.C. OR CEC, WHERE ADOPTED.
- J — JUNCTION BOX, WALL MOUNTED AT 6-INCHES ABOVE COUNTER OR SPLASH. 4S/DP MINIMUM OR AS REQUIRED BY N.E.C. OR CEC WHERE ADOPTED.
- J / X — JUNCTION BOX, 4S MINIMUM OR AS REQUIRED BY N.E.C., OR CEC, WHERE ADOPTED. MOUNTED IN ACCESSIBLE CEILING SPACE PER PLAN FOR FLEXIBLE CONNECTION TO PRE-WIRED FURNITURE SYSTEM. MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL. WHEN SHOWN WITH A DIAGONAL SLASH, THE LAST GENERAL RECEPTACLE CIRCUIT ON THE HOME-RUN CALL OUT SHALL BE CONTROLLED BY THE OCCUPANCY SENSOR. COORDINATE CONTROLLED CIRCUIT CONNECTION REQUIREMENTS WITH FURNITURE SYSTEM MANUFACTURER PRIOR TO ROUGH-IN. SEE DISTRIBUTED LIGHTING CONTROLS FOR ADDITIONAL REQUIREMENTS.
- J / X — JUNCTION BOX, WALL MOUNTED AT +18(\C4;-INCHES) A.F.F., 4S/DP MINIMUM OR AS REQUIRED BY N.E.C., OR CEC, WHERE ADOPTED, FOR FLEXIBLE CONNECTION TO PREWIRED FURNITURE SYSTEM. WHEN SHOWN WITH A DIAGONAL SLASH, THE LAST GENERAL RECEPTACLE CIRCUIT ON THE HOME-RUN CALLOUT SHALL BE CONTROLLED BY THE OCCUPANCY SENSOR. COORDINATE CONTROLLED CIRCUIT CONNECTION REQUIREMENTS WITH FURNITURE SYSTEM MANUFACTURER PRIOR TO ROUGH-IN. SEE DISTRIBUTED LIGHTING CONTROLS FOR ADDITIONAL REQUIREMENTS.
- SURFACE MOUNTED MULTI-OUTLET ASSEMBLY. REFER TO GENERAL PRODUCT SPECIFICATIONS. PROVIDE ALL COMPONENTS NECESSARY FOR A COMPLETE INSTALLATION.
- T — THERMOSTAT OUTLET BOX, PROVIDE 1/2"C.O. TO RESPECTIVE MECHANICAL UNIT.
- EXHAUST FAN, OR MOTOR LOAD. REFER TO MECHANICAL, PLUMBING OR KITCHEN DRAWINGS FOR SPECIFIC LOAD REQUIREMENTS OR AS NOTED.
- FLUSH MOUNTED ELECTRICAL PANELBOARD OR LOAD CENTER. REFER TO PANEL SCHEDULE.
- SURFACE MOUNTED 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 WITH FUSES PER EQUIPMENT MANUFACTURER AND WEATHERPROOF AS REQUIRED. PROVIDE FINAL CONNECTION TO UNIT EQUIPMENT. SEE MOTORIZED EQUIPMENT SCHEDULE FOR DISCONNECT AND STARTER SIZES.
- NON-FUSED DISCONNECT SWITCH, HP RATED AND WEATHERPROOF AS REQUIRED. PROVIDE FINAL CONNECTION TO UNIT EQUIPMENT. SEE MOTORIZED EQUIPMENT SCHEDULE FOR DISCONNECT SIZES.
- M — UTILITY COMPANY METER. PROVIDE "CTs" AND "PTs" AS REQUIRED, REFER TO SINGLE LINE DIAGRAM.
- A / B / C — CIRCUIT BREAKER: "A" REPRESENTS CIRCUIT BREAKER AMPERE RATING, "B" REPRESENTS NUMBER OF POLES AND "C" REPRESENTS MISCELLANEOUS BREAKER FEATURES.
  - SHUNT= PROVIDE SHUNT TRIP MECHANISM
  - GFP= GROUND FAULT PROTECTION
  - CLCB= CURRENT LIMITING CIRCUIT BREAKER
  - SS= PROVIDE SOLID STATE CIRCUIT BREAKER
  - LO= PROVIDE PERMANENT LOCK-OPEN (OFF) HARDWARE
  - LC= PROVIDE PERMANENT LOCK-CLOSED (ON) HARDWARE
- * / A / B / C / D — FUSIBLE SWITCH: "A" REPRESENTS SWITCH / FRAME AMPERE RATING, "B" REPRESENTS THE FUSE AMPERE RATING, "C" INDICATES NUMBER OF POLES AND "D" REPRESENTS MISCELLANEOUS FUSE / SWITCH FEATURES.
  - SHUNT= PROVIDE SHUNT TRIP MECHANISM
  - GFP= GROUND FAULT PROTECTION
  - CLF= CURRENT LIMITING FUSE
- GROUND CONNECTION, SIZE AS INDICATED OR AS REQUIRED.
- a,b — SINGLE POLE SWITCHES, WALL MOUNTED. SUBSCRIPTS AT SYMBOL INDICATE THE FOLLOWING:
  - 2 - DOUBLE POLE
  - 3 - THREE WAY
  - 4 - FOUR WAY
  - K - KEY OPERATED
  - LV - LOW VOLTAGE
  - P - PILOT LIGHT
  - R - REMOTE CONTROL
  - M - MOTOR STARTING
  - RL - ROTARY LOCK KEY TYPE
  - PB - PUSHBUTTON
  - S - PROJECTION SCREEN

  a, b, c, ETC. - DESIGNATES QUANTITY OF SWITCHES AT EACH LOCATION.

  NOTE: ALL WALL SWITCHES CONTROLLING EMERGENCY CIRCUITS SHALL BE ENGRAVED WITH "EMERGENCY".
- EMERGENCY POWER OFF STATION, WALL MOUNTED PER EPO SYSTEM DETAIL.
- PB, OR P — PULLBOX, SIZED PER N.E.C. OR AS NOTED.

WALL MOUNTED DEVICE MOUNTING HEIGHT NOTE:

ALL WALL-MOUNTED EQUIPMENT MOUNTING HEIGHTS SHALL BE VERIFIED PRIOR TO ROUGH-IN PER REQUIREMENTS OF THE DEVICE ALIGNMENT AND MOUNTING HEIGHT DETAILS AND SPECIFICATIONS.

NOTE: ALL LIGHT SWITCHES SHALL BE MOUNTED NOT HIGHER THAN 48 INCHES AFF TO TOP OF BOX AND RECEPTACLE OUTLETS SHALL BE MOUNTED NOT LOWER THAN 15 INCHES AFF TO BOTTOM OF BOX.

ABBREVIATIONS

4S/DP	4" SQUARE BY 2-1/8" DEEP BOX
ADA	AMERICAN WITH DISABILITIES ACT
A.F.F.	ABOVE FINISH FLOOR
A.F.G.	ABOVE FINISH GRADE
AWG	AMERICAN WIRE GAUGE
AMP, A	AMPERE
A.I.C. or AIC	AMPERES INTERRUPTING CAPACITY (SYMMETRICAL)
A.F.C. or AFC	AVAILABLE FAULT CURRENT
AF/AT	AMP FRAME, AMP TRIP
AHJ	AUTHORITY HAVING JURISDICTION
AS/AF	AMP SWITCH, AMP FUSE
ATS	AUTOMATIC TRANSFER SWITCH
AVG	AVERAGE
BJ	BONDING JUMPER
BDF	BUILDING DISTRIBUTION FRAME
BR	BRANCH
BLDG	BUILDING
CBC	CALIFORNIA BUILDING CODE
CEC	CALIFORNIA ELECTRICAL CODE
CIRC., CKT.	CIRCUIT
CB	CIRCUIT BREAKER
CSFD	COMBINATION SMOKE FIRE DAMPER
C	CONDUIT
C.O.	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 DEVICE TO BE DEMOLISHED
DAS	DISTRIBUTED ANTENNA SYSTEM
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
D.P.C.S.	DIMMING PANEL CONTROL STATION
E.C.	ELECTRICAL CONTRACTOR
EMS	ENERGY MANAGEMENT CONTROL SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRICAL NON-METALLIC TUBING
EWC	ELECTRIC WATER COOLER
E.P.O.	EMERGENCY POWER OFF
E-O-L	END-OF-LINE CIRCUIT TERMINATOR
EF	EXHAUST FAN
EGC or EG or E/G	EQUIPMENT GROUND (GREEN)
(E)	EXISTING DEVICE TO REMAIN
EP	EXPLOSION PROOF
(ER)	EXISTING DEVICE TO BE RELOCATED
FT or '	FEET
FA or F.A.	FIRE ALARM
FLA	FULL LOAD AMPS
GRD	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GE or GEC	GROUNDING ELECTRODE CONDUCTOR
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	ISOLATED GROUND
IBC	INTERNATIONAL BUILDING CODE
I.D.C.S.	INTEGRATED DIMMING CONTROL PANEL
IDF	INTERMEDIATE DISTRIBUTION FRAME
JBOX	JUNCTION BOX
K	DEGREE KELVIN
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWH	KILOWATT HOUR
LCL	LONG CONTINUOUS LOAD
LF, L.F.	LINEAR FEET
LTG, LTS	LIGHTING
LPS	LOW PRESSURE SODIUM
MAX.	MAXIMUM
MBJ	MAIN BONDING JUMPER
MDF	MAIN DISTRIBUTION FRAME
MOCP	MAXIMUM OVERCURRENT PROTECTION
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
M.C.	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
NATS	NON AUTOMATIC DISCONNECT
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NF	NON-FUSED
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
NL	NIGHT LIGHT
NO. or #	NUMBER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
%Z	PERCENT IMPEDANCE
PH. or ø	PHASE
PC	PHOTOCELL
P.C.	PLUMBING CONTRACTOR
P	POLE
PVC	POLY VINYL CHLORIDE
PDU	POWER DISTRIBUTION UNIT
PRIMARY	OVER 600 VOLTS
PROVIDE	FURNISH, INSTALL AND CONNECT
PT	POTENTIAL TRANSFORMER
PA	PUBLIC ADDRESS
(R)	DENOTES RELOCATED DEVICE LOCATION.
REC, RECEPT	RECEPTACLE
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL
RMS	ROOT MEAN SQUARE
SCC	SHORT CIRCUIT CURRENT
SCCR	SHORT CIRCUIT CURRENT RATING
SCS	STRUCTURED CABLING SYSTEM
SFD	SMOKE FIRE DAMPER
SECONDARY	600 VOLTS AND LESS
SMACNA	SHEET METAL AND AIR COND. CONTRACTOR'S NAT'L ASSOC.
SQ.	SQUARE
SSBJ	SUPPLY SIDE BONDING JUMPER
SBJ	SYSTEM BONDING JUMPER
TC	TIMECLOCK
TEL/DATA	TELEPHONE AND DATA
TV	TELEVISION
T.V.S.S.	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
U.G.P.S.	UNDERGROUND PULL SECTION
U.O.N.	UNLESS OTHERWISE NOTED
U.P.S. or UPS	UNINTERRUPTABLE POWER SYSTEM
VAV	VARIABLE AIR VOLUME
V	VOLTS
VA	VOLT AMPERES
VD	VOLTAGE DROP
WP	WEATHERPROOF
W	WIRE
XFMR	TRANSFORMER

ANNOTATIONS

- A — PANEL CALLOUT, "A" INDICATES PANELBOARD OR EQUIPMENT DESIGNATION.
- AC / 2 — MECHANICAL EQUIPMENT CALLOUT, "AC" INDICATES UNIT TYPE AND "2" INDICATES UNIT NUMBER. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION AND ELECTRICAL REQUIREMENTS.
- 3 / E-1 — DETAIL CALLOUT, "3" INDICATES DETAIL NUMBER "E-1" INDICATES SHEET NUMBER.
- 1.100 / 2 — PLAN NOTE REFERENCE, REFER TO NOTES ON SHEET, OR AS DIRECTED.
- 4 — REVISION REFERENCE.
- WYE CONFIGURATION — DELTA CONFIGURATION — GROUND

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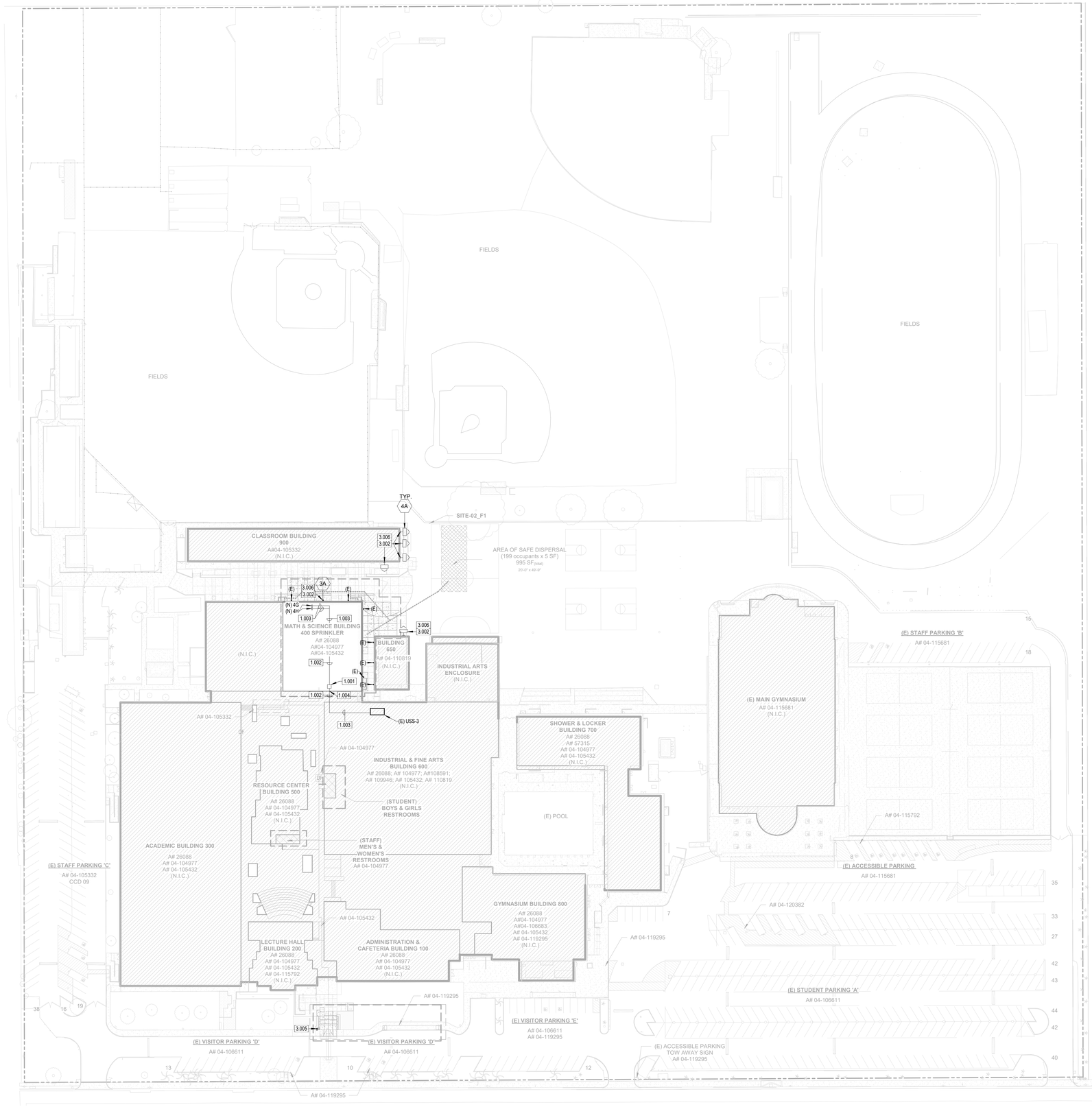
E3.02	MECHANICAL COORDINATION SCHEDULE
E4.00	SINGLE LINE DIAGRAM
E4.03	PANEL SCH



ELECTRICAL SITE PLAN | 1" = 50'-0" | E0.10 | 1

PLAN NOTES:

1.001 PROVIDE (N) PULL BOX, SIZED PER CEC, INSTALLED ABOVE CEILING FOR POWER.

1.002 ROUTE CONDUIT OVERHEAD ABOVE EXISTING LOWER CEILING VESTIBULE TO NEW ELECTRICAL PANELS.

1.003 PROVIDE 2-1/2"C. (4)#40, (1)#2 GND. TO BOTH NEW PANELS '4G' AND '4H'.

1.004 PROVIDE SEISMIC EXPANSION FITTING ON EACH CONDUIT CROSSING SEISMIC JOINT.

3.002 NEW EXTERIOR LIGHTING TO BE TIED-IN TO EXISTING ENERGY MANAGEMENT SYSTEM (PELICAN) FOR SCHEDULED ON/OFF OPERATION.

3.005 (E) LIGHT POLE TO BE RELOCATED AWAY FROM NEW STANDING WALL. COORDINATE NEW LOCATION WITH ARCHITECT. EXTEND WIRING AS REQUIRED.

3.006 EXTEND CIRCUIT FROM EXISTING EXTERIOR LIGHTS WITH 2#12, 12G, 3/4"C FOR NEW EXTERIOR LIGHT FIXTURE. CONNECT AS REQUIRED.

SITE UTILITY PLAN CONSTRUCTION NOTES:

THESE NOTES ESTABLISH MINIMUM QUALITY LEVELS AND COORDINATION REQUIREMENTS. RESPECTIVE UTILITY COMPANY PLANS AND REQUIREMENTS TAKE PRECEDENCE OVER THESE NOTES WITH REGARD TO RESPECTIVE UTILITY COMPANY CONDUIT AND UNDERGROUND STRUCTURE SYSTEMS.

1. CALL UNDERGROUND SERVICE ALERT (USA) AT (800) 422-4133 OR APPLICABLE STATE AND LOCAL DIG SAFE OR UNDERGROUND ALERT HOTLINES PRIOR TO CONSTRUCTION START.
2. COORDINATE ALL UNDERGROUND STRUCTURES AND CONDUIT ROUTING WITH LANDSCAPE ARCHITECT PRIOR TO ROUGH-IN TO ENSURE THAT SUCH ITEMS ARE NOT PLACED IN CRITICAL LANDSCAPE PLANTING/HARDSCAPE AREAS.
3. VAULTS, MAINTENANCE HOLES (MH's), FORMERLY KNOWN AS MANHOLES, AND CONDUITS SHALL MAINTAIN A MINIMUM COVER OF 24" BELOW FINAL SURFACE AT ALL CONDITIONS. INCLUDE ALL COSTS IN BASE BID TO MEET UTILITY COMPANY REQUIREMENTS WHICH MAY REQUIRE GREATER MINIMUM CONDUIT DEPTHS.
4. VAULTS, MH's AND PULLBOXES (PB's) SHALL BE EQUIPPED WITH KNOCKOUT PANELS OR PRE-CAST INDIVIDUAL CONDUIT OPENINGS. CONDUITS SHALL ONLY ENTER AND EXIT ON END/SHORT WALLS. CONDUITS MAY NOT ENTER AND EXIT ON SIDE/LONG WALLS, CEILINGS OR FLOORS UNLESS OTHERWISE NOTED.
5. CUT DUCTS FLUSH WITH INTERIOR VAULT/MH/PB WALL.
6. GROUT AROUND DUCT ENTRANCES ON VAULT/MH/PB WALLS.
7. SLURRY BACKFILL AROUND DUCTS WITHIN 5 FEET OF VAULT/MH/PB TO PREVENT SHEARING.
8. CONDUITS PASSING UNDER THE BUILDING PERIMETER SHALL BE ENCASED IN LIGHTWEIGHT CONCRETE OR WATER-IMPERVIOUS CLAY TO PREVENT WATER INFILTRATION. SEE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
9. CONDUIT BEND RADIUS FOR BUILDING ENTRANCES AND AT POLES SHALL BE A MINIMUM OF 24" FOR CONDUITS WITH LESS THAN 2" INTERNAL DIAMETER AND A MINIMUM OF 48" FOR CONDUITS WITH MORE THAN 2" INTERNAL DIAMETER.
10. PREFERRED CONDUIT SWEEP RADIUS BETWEEN VAULTS IS 25 FEET. UNDER NO CIRCUMSTANCES SHALL THE CONDUIT SWEEP RADIUS BE LESS THAN 12.5 FEET. MAXIMUM OF 90 DEGREES PER SWEEP AND LIMITED TO NO MORE THAN (2) 90 DEGREE SWEEPS BETWEEN VAULTS.
11. VAULTS/MH's/PB's ARE TO BE EQUIPPED WITH RACKING, GROUNDING LUGS, AND BOLT-DOWN LIDS UNLESS OTHERWISE NOTED.
12. VAULTS AND MH's TO BE EQUIPPED WITH ROUND COVERS, EXTENSION RINGS AS REQUIRED, LADDERS AND (3) SEGMENTS OF 6 FOOT HIGH CABLE RACKING PER EACH LONG WALL.
13. LABEL ALL NON-UTILITY COMMUNICATION VAULT/MH/PB COVERS WITH "COMMUNICATIONS" UNLESS OTHERWISE NOTED ON PLANS.
14. COORDINATE FINAL VAULT/MH/PB OPENING HEIGHT WITH G.C. PRIOR TO ROUGH-IN TO ENSURE FINAL GRADE DOES NOT SLOPE INTO VAULT/MH/PB OPENING.
15. CONTRACTOR TO PROVIDE A MINIMUM OF 8" DEEP COMPACTED 1/2" DIAMETER GRAVEL, UNDER ALL VAULTS, MH's OR PB's TO ENSURE UNIFORM DISTRIBUTION OF SOIL PRESSURE ON THE FLOOR AND BE ABLE TO DISSIPATE WATER OUT OF THE VAULT, MH OR PB.
16. ALL VAULTS/MH's/PB's WITHOUT GROUNDING LUGS SHALL HAVE AN 8' x 3/4" COPPER GROUND ROD DRIVEN THRU THE FLOOR TO ALLOW GROUNDING OF ITEMS WITHIN.
17. ALL VAULTS/MH's/PB's SHALL BE PROVIDED WITH TRAFFIC RATED COVERS WHEN LOCATED IN PAVED AREAS UTILIZED FOR VEHICLE TRAFFIC.
18. IF THE WATER OR MOISTURE BARRIER ON OR NEAR THE FOUNDATION OF A BUILDING IS DISTURBED IN ANY MANNER BY EXCAVATION OR OTHER CONSTRUCTION WORK, THE MOISTURE BARRIER MUST BE REPAIRED FOLLOWING THE RECOMMENDATIONS OF THE MANUFACTURER OF THE ORIGINAL BARRIER PRODUCT.
19. THE CONTRACTOR SHALL INCLUDE IN BASE BID ALL COSTS TO COMPLY WITH ALL REQUIREMENTS FOR CONFINED SPACE ENTRY PER THE OSHA REQUIREMENTS 29 CFR-1910.146, 29 CFR-1910.268, ETC. DURING ANY CONFINED SPACE ENTRY.
20. ANY DUCTS LEAVING A VAULT, MH OR PB ROUTED INTO A FACILITY SHALL BE PLUGGED AT EACH END USING REMOVABLE MECHANICAL PLUGS DESIGNED TO PREVENT WATER AND GAS FROM ENTERING THE FACILITY.
21. SEE ELECTRICAL SPECIFICATIONS AND PLAN DETAILS FOR ADDITIONAL REQUIREMENTS REGARDING UNDERGROUND CONDUITS AND IN-GRADE VAULT/MH/PB/JUNCTION BOXES.

SITE UTILITY PLAN NOTES:

1. UTILITY POINTS OF SERVICE AND WORK/MATERIAL SHOWN ARE BASED UPON PRELIMINARY INFORMATION ONLY BY THE UTILITY COMPANIES AND ARE FOR BID PURPOSES ONLY.
2. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR FINAL AND EXACT WORK/MATERIAL REQUIREMENTS AND CONSTRUCT TO UTILITY COMPANY ENGINEERING PLANS AND SPECIFICATIONS ONLY. CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, PULL WIRES, CABLES, PULLBOXES, CONCRETE ENCASEMENT OF CONDUITS, TRANSFORMER PAD, BARRIERS, POLE RISERS, TRENCHING AND BACKFILL, AND PAY ALL UTILITY CO. FEES AND INCLUDE ALL REQUIREMENTS IN SCOPE OF WORK.
3. LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE AND CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING ON THIS SITE TO AVOID EXISTING DUCTS, PIPING, OR CONDUITS, ETC., AND TO PREVENT HAZARD TO PERSONNEL AND/OR DAMAGE TO EXISTING UNDERGROUND UTILITIES OR STRUCTURES WHETHER OR NOT SHOWN AND INSTALLED BY ANY OTHER CONTRACTS. THE ENGINEER IS NOT RESPONSIBLE FOR THE LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES WHETHER OR NOT SHOWN OR DETAILED AND INSTALLED BY ANY OTHER CONTRACTS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER SHOULD SUCH UNIDENTIFIED CONDITIONS BE DISCOVERED. THESE DRAWINGS AND SPECIFICATIONS DO NOT INCLUDE THE NECESSARY ELEMENTS FOR CONSTRUCTION SAFETY.
4. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), OR EXISTING, ALL ELECTRICAL DEVICES SHOWN ARE NEW.

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Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
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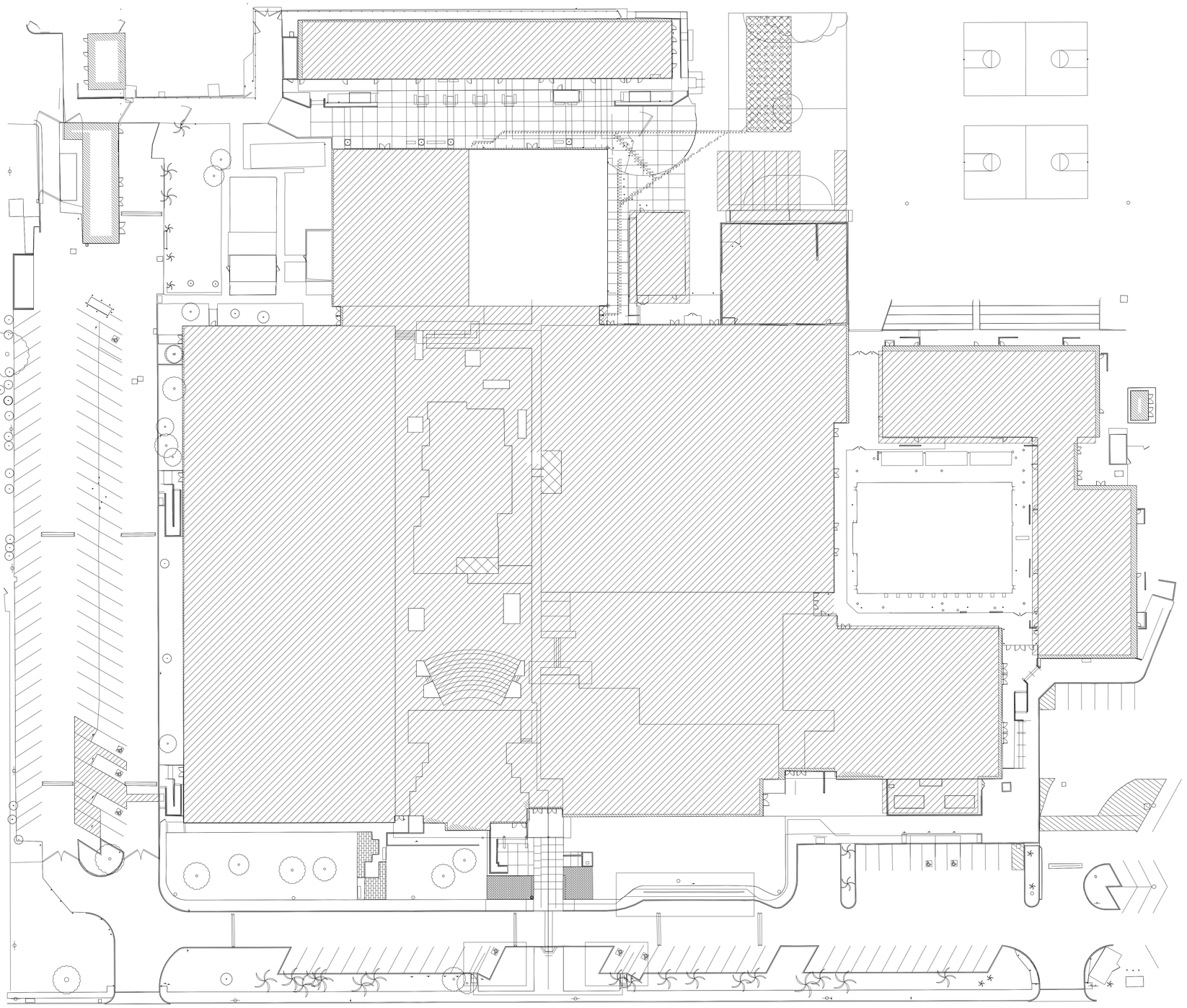
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	1" = 50'-0"

SITE ELECTRICAL PLAN

E0.10

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Path of Travel	+	2.6 fc	2.9 fc	2.2 fc	1.3:1	1.2:1
Path of Travel	+	3.5 fc	5.5 fc	2.3 fc	2.4:1	1.5:1
Path of Travel	+	2.7 fc	3.6 fc	2.0 fc	1.8:1	1.4:1
Path of Travel	+	2.4 fc	3.4 fc	1.0 fc	3.4:1	2.4:1
Path of Travel	+	2.0 fc	2.7 fc	1.1 fc	2.5:1	1.8:1
Path of Travel	+	4.2 fc	5.1 fc	2.8 fc	1.8:1	1.5:1
Path of Travel	+	2.5 fc	3.5 fc	1.9 fc	1.8:1	1.3:1
Path of Travel	+	2.7 fc	5.5 fc	1.0 fc	5.5:1	2.7:1
Path of Travel	+	2.0 fc	2.0 fc	2.0 fc	1.0:1	1.0:1
Path of Travel	+	2.4 fc	2.9 fc	1.9 fc	1.5:1	1.3:1
SDA	+	7.0 fc	11.8 fc	4.0 fc	3.0:1	1.8:1



SITE NORMAL PHOTOMETRIC PLAN | 1" = 30'-0" | E0.11 | 1

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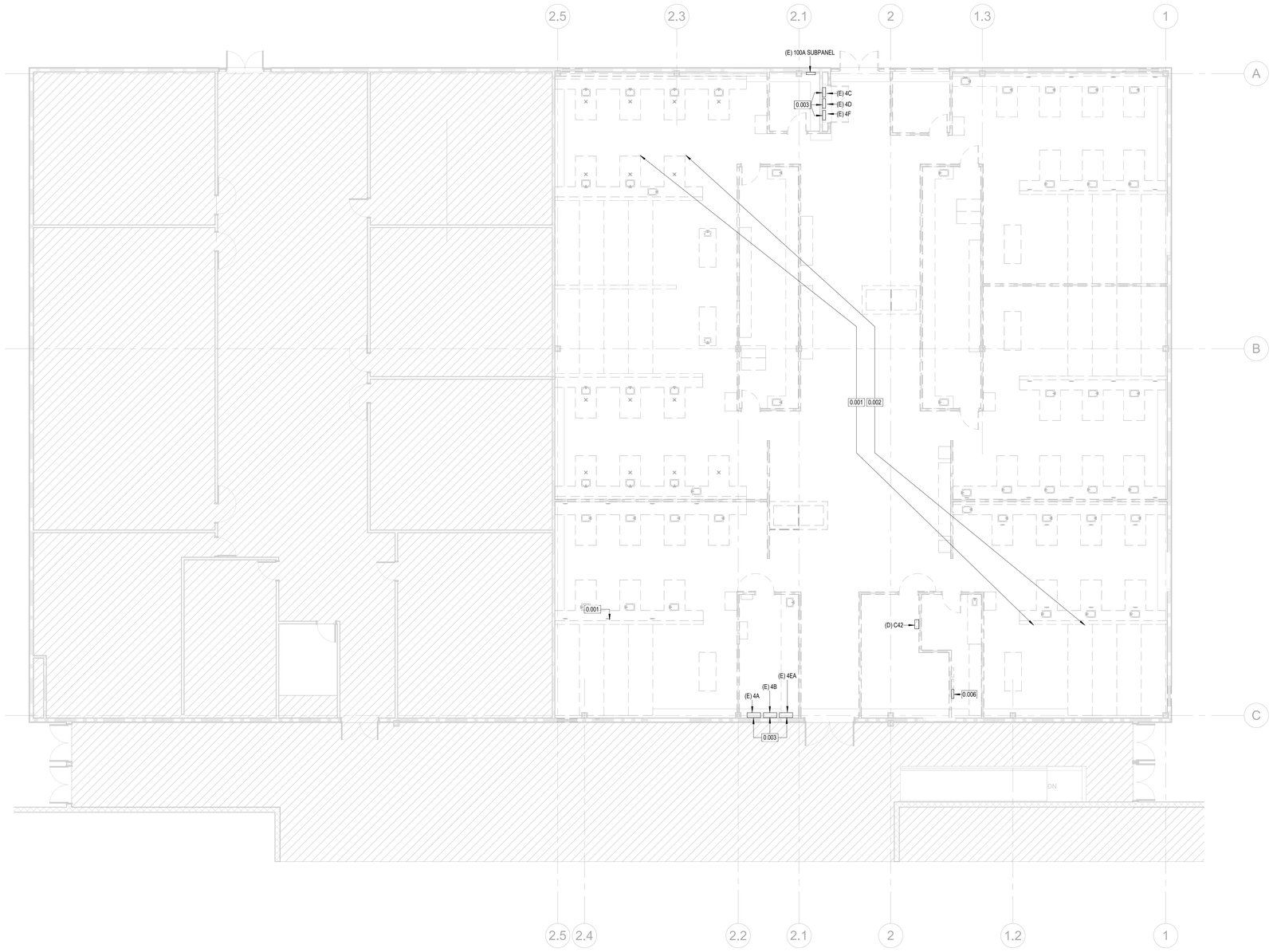
Scale	

SITE NORMAL PHOTOMETRIC PLAN

E0.11



ELECTRICAL DEMOLITION FLOOR PLAN | 1/8" = 1'-0" | E1.02 | 1

PLAN NOTES:

0.001 CONTRACTOR TO DISCONNECT AND REMOVE ALL EXISTING ELECTRICAL DEVICES INCLUDING ASSOCIATED CIRCUIT WIRING AND CONDUITS BACK TO SERVING PANEL.

0.002 CONTRACTOR TO DISCONNECT AND REMOVE EXISTING LIGHTING FIXTURES INCLUDING ASSOCIATED CIRCUIT WIRING AND CONTROLLING SWITCHES/SENSORS.

0.003 NETEXISTING PANELS TO BE REMOVED AND RE-INSTALLED. EXISTING CIRCUITS USED ARE TO BE PROTECTED.

0.006 DEMOLISH EXISTING FA CABINET. MAINTAIN CONTINUITY OF EXISTING DEVICES TO REMAIN AS REQUIRED.

GENERAL DEMOLITION NOTES:

1. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. DO NOT SCALE THE ELECTRICAL DRAWINGS TO DETERMINE THE LOCATION OF EQUIPMENT OR OUTLETS. SEE ARCHITECTURAL PLANS, WHERE PROVIDED ON PROJECT, FOR EXTENT OF DEMOLITION.
2. THE EXISTING CONDITIONS SHOWN ARE FROM AVAILABLE RECORD DRAWINGS AND SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITIONS AT 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 FOR RELOCATING OR REMOVING FROM WALLS, CEILINGS, FLOOR SPACES, ETC., ANY EXISTING CONDUITS, WIRES, BOXES, FITTINGS, FIXTURES OR OTHER ELECTRICAL EQUIPMENT WHICH INTERFERES WITH PLANNED REMODEL WORK. PROVIDE CIRCUIT CONTINUATION REQUIRED FOR ALL EXISTING OUTLETS, FIXTURES, EQUIPMENT, ETC. SCHEDULED TO REMAIN.
4. NOTIFY THE ENGINEER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, OR NOT INDICATED ON "AS-BUILT" DRAWINGS OR WAS BURIED UNDERGROUND OR EMBEDDED IN STRUCTURE WALLS.
5. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT, UTILITY LINES AND MATERIALS. WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE SMALLER AREA IF POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.
6. EQUIPMENT, MATERIALS AND SUPPLIES TEMPORARILY REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.
7. DEMOLITION WORK SHALL BE DONE IN A MANNER WHICH WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO USERS OF THE PREMISES AND ADJACENT SITE, AND NOT INTERFERE WITH ITS OPERATION. ANY DEMOLITION WORK TO BE PERFORMED MUST BE PLANNED IN ADVANCE.
8. DO ALL DRILLING, CUTTING, ETC. REQUIRED 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, CEILING, FLOORS, ETC., TO MAINTAIN THE RATING OF STRUCTURE.
10. ALL REMOVED MATERIALS AND EQUIPMENT WHICH ARE SALVAGED MATERIALS SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY OWNER AND NEATLY PILE OR STORE AND PROTECT FROM DAMAGE. DISPOSE OF ALL HAZARDOUS MATERIAL PER FEDERAL, STATE AND LOCAL REGULATIONS AND OTHER AGENCIES HAVING JURISDICTION.
11. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT/WIRING RUNS, REUSE AS REQUIRED, AND REMOVE ALL UNUSED CONDUIT/WIRING. UNUSED CONDUIT IN INACCESSIBLE LOCATIONS (WALLS TO REMAIN) MAY BE ABANDONED IN PLACE. REMOVE UNUSED WIRING, INCLUDING ABANDONED TELEPHONE, DATA AND OTHER LOW VOLTAGE SYSTEMS CABLING AFTER CONFIRMING WITH THE OWNER'S PROJECT MANAGER THAT CABLING IS ABANDONED AND WILL NOT BE RE-USED.
12. CONTRACTOR TO VERIFY CIRCUIT NUMBER AND LOADS FOR ALL EXISTING EQUIPMENT PRIOR TO INSTALLATION OF NEW OR RELOCATED ELECTRICAL EQUIPMENT. REASSIGN CIRCUITS AND LOADS ACCORDINGLY. PROVIDE COMPLETE "AS BUILT" DRAWINGS AND 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 AFFECT ADJACENT BUILDINGS, SCHEDULE OUTAGES OR INTERRUPTIONS WITH THE OWNER, BUILDING OCCUPANTS AND/OR ADJACENT BUILDING OWNER(S) AND OCCUPANTS PRIOR TO CONDUCTING OUTAGE(S) OR INTERRUPTIONS.

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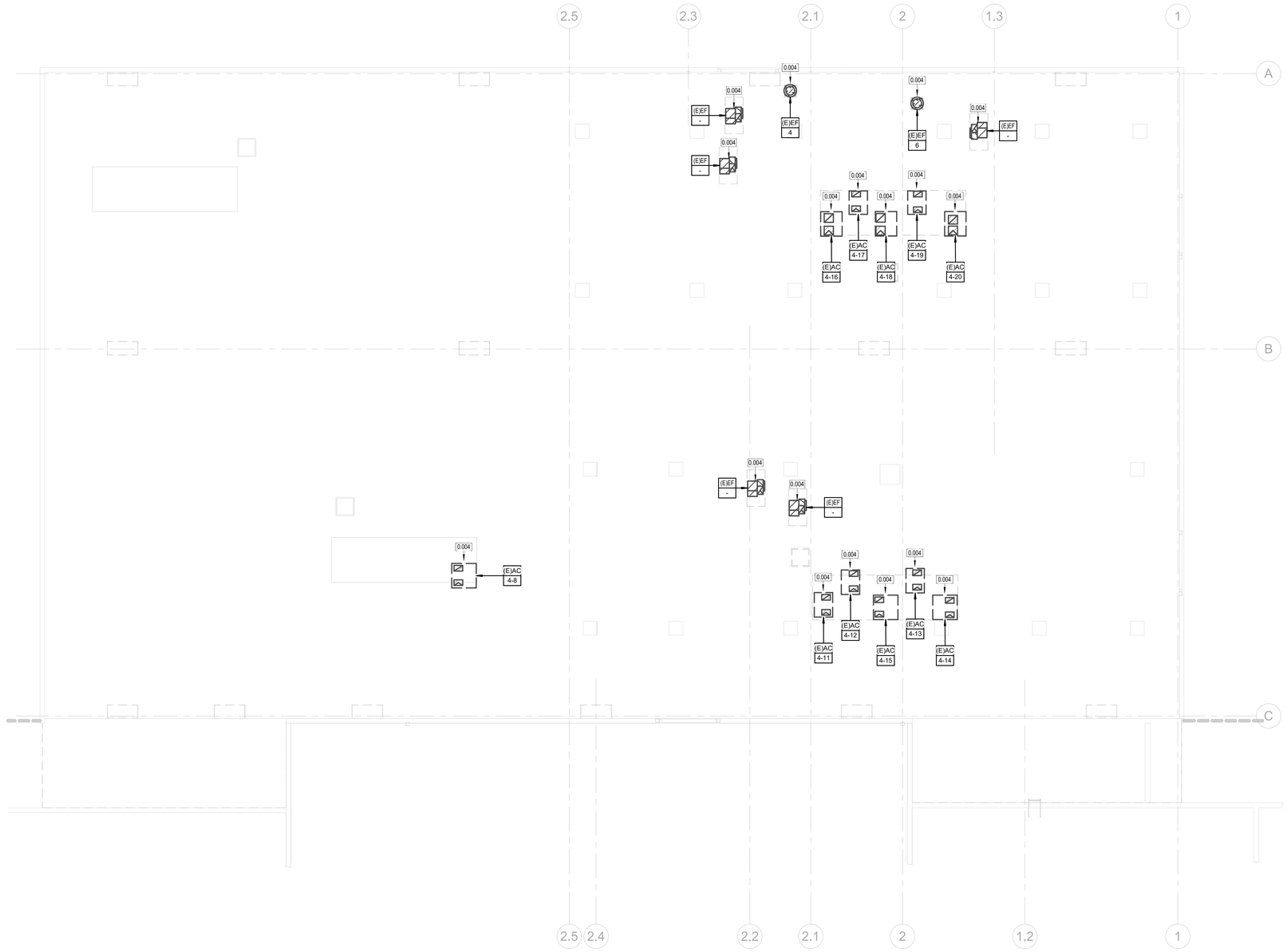
Job Number	32433
Checked By	Checker
Scale	As indicated

ELECTRICAL DEMOLITION FLOOR PLAN

E1.02



PLAN NOTES:

0.004 DISCONNECT POWER TO HVAC EQUIPMENT BACK TO SOURCE. REMOVE CONDUITS AND CONDUCTORS BACK TO SOURCE AND LABEL DEMOLISHED CIRCUITS AS 'SPARE' AT THE PANEL SCHEDULE.

GENERAL DEMOLITION NOTES:

1. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. DO NOT SCALE THE ELECTRICAL DRAWINGS TO DETERMINE THE LOCATION OF EQUIPMENT OR OUTLETS. SEE ARCHITECTURAL PLANS, WHERE PROVIDED ON PROJECT, FOR EXTENT OF DEMOLITION.
2. THE EXISTING CONDITIONS SHOWN ARE FROM AVAILABLE RECORD DRAWINGS AND SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITIONS AT 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 FOR RELOCATING OR REMOVING FROM WALLS, CEILINGS, FLOOR SPACES, ETC., ANY EXISTING CONDUITS, WIRES, BOXES, FITTINGS, FIXTURES OR OTHER ELECTRICAL EQUIPMENT WHICH INTERFERES WITH PLANNED REMODEL WORK. PROVIDE CIRCUIT CONTINUATION REQUIRED FOR ALL EXISTING OUTLETS, FIXTURES, EQUIPMENT, ETC. SCHEDULED TO REMAIN.
4. NOTIFY THE ENGINEER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, OR NOT INDICATED ON "AS-BUILT" DRAWINGS OR WAS BURIED UNDERGROUND OR EMBEDDED IN STRUCTURE WALLS.
5. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT, UTILITY LINES AND MATERIALS. WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE SMALLER AREA IF POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.
6. EQUIPMENT, MATERIALS AND SUPPLIES TEMPORARILY REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.
7. DEMOLITION WORK SHALL BE DONE IN A MANNER WHICH WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO USERS OF THE PREMISES AND ADJACENT SITE, AND NOT INTERFERE WITH ITS OPERATION. ANY DEMOLITION WORK TO BE PERFORMED MUST BE PLANNED IN ADVANCE.
8. DO ALL DRILLING, CUTTING, ETC. REQUIRED 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, CEILING, FLOORS, ETC., TO MAINTAIN THE RATING OF STRUCTURE.
10. ALL REMOVED MATERIALS AND EQUIPMENT WHICH ARE SALVAGED MATERIALS SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY OWNER AND NEATLY PILE OR STORE AND PROTECT FROM DAMAGE. DISPOSE OF ALL HAZARDOUS MATERIAL PER FEDERAL, STATE AND LOCAL REGULATIONS AND OTHER AGENCIES HAVING JURISDICTION.
11. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT/WIRING RUNS, REUSE AS REQUIRED, AND REMOVE ALL UNUSED CONDUIT/WIRING. UNUSED CONDUIT IN INACCESSIBLE LOCATIONS (WALLS TO REMAIN) MAY BE ABANDONED IN PLACE. REMOVE UNUSED WIRING, INCLUDING ABANDONED TELEPHONE, DATA AND OTHER LOW VOLTAGE SYSTEMS CABLING AFTER CONFIRMING WITH THE OWNER'S PROJECT MANAGER THAT CABLING IS ABANDONED AND WILL NOT BE RE-USED.
12. CONTRACTOR TO VERIFY CIRCUIT NUMBER AND LOADS FOR ALL EXISTING EQUIPMENT PRIOR TO INSTALLATION OF NEW OR RELOCATED ELECTRICAL EQUIPMENT. REASSIGN CIRCUITS AND LOADS ACCORDINGLY. PROVIDE COMPLETE "AS BUILT" DRAWINGS AND 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 AFFECT ADJACENT BUILDINGS, SCHEDULE OUTAGES OR INTERRUPTIONS WITH THE OWNER, BUILDING OCCUPANTS AND/OR ADJACENT BUILDING OWNER(S) AND OCCUPANTS PRIOR TO CONDUCTING OUTAGE(S) OR INTERRUPTIONS.

ELECTRICAL DEMOLITION ROOF PLAN | 1/8" = 1'-0" E1.03 | 1

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Scale	As indicated

ELECTRICAL DEMOLITION ROOF PLAN

E1.03

PLAN NOTES:

2.002	ROUTE CONDUIT TO NEAREST FULL HEIGHT WALL UP TO ACCESSIBLE CEILING SPACE FOR RECEPTACLE AT TEACHER'S DESK.
2.003	DEDICATED RECEPTACLE FOR COPIER/PRINTER. VERIFY EXACT LOCATION AND REQUIREMENTS WITH ARCHITECT PRIOR TO ROUGH
2.008	RECEPTACLE FOR IDF. REFER TO TECH DETAIL 1/T5.02.
2.009	RECEPTACLE FOR INTRUSION ALARM SYSTEM. REFER TO TECH DETAIL 1/T5.02 FOR MOUNTING HEIGHTS.
2.012	ROUTE CONDUIT TO THE NEAREST FULL HEIGHT WALL TO ACCESSIBLE CEILING. TYP.
2.014	SEE SHEET EFA2.01 FOR FIRE ALARM CIRCUITING.
5.108	PROVIDE 3/4"C, WITH 2#12, 1#12 GRD. TO 120V DEDICATED CIRCUIT FOR POWER. PROVIDE 20AMP, 1-POLE CIRCUIT BREAKER WITH APPROVED LOCK-ON DEVICE. RED INDICATOR AND IDENTIFIED AS "FIRE ALARM CONTROL CIRCUIT" (NFPA 72, 10.6). CONNECT AS REQUIRED. PROVIDE ALL REQUIRED MOUNTING HARDWARE. MATCH A.I.C. RATING OF DEVICES USED.

POWER PLAN GENERAL NOTES:

1. ALL RECEPTACLES ON COMMON WALLS SHALL BE SEPARATE BOXES AND OFFSET 24-INCHES MINIMUM.
2. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GREATER THAN THE FIRE RATING OF THE WALL.
3. ALL WALL-MOUNTED DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH-IN.
4. ALL WALL-MOUNTED DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH-IN.
5. ALL FURNITURE WHIPS SHALL BE TRIMMED TO REDUCE EXCESS WHIP LENGTH.
6. WHEN EXPOSED CEILINGS OR OPEN GRID CONDITIONS OCCUR, THE CONTRACTOR WILL NEED TO PROVIDE THE FOLLOWING ITEMS:
   a. ALL BRANCH CIRCUITS SHALL BE EMT.
   b. ALL BRANCH CIRCUITS SHALL BE ROUTED ORTHOGONALLY, NEATLY TRAINED, IN PARALLEL TO STRUCTURES OR DUCTWORK. THE TERM "TRAINED" MEANS ALL PARALLEL CONDUITS SHALL MAINTAIN THE SAME SPATIAL RELATIONSHIP WITH EACH OTHER FOR ENTIRE RUN TO INCLUDE RADIUS BENDS AND SWEEPS.
   c. VISUALLY OBJECTIONABLE BRANCH CIRCUITS WILL BE REROUTED AT THE REQUEST OF THE ARCHITECT AT NO ADDITIONAL COST.
7. EXPOSED CABLE/CONDUCTORS INSTALLED IN A PLENUM SPACE SHALL CONFORM TO NEC, OR CEC WHERE ADOPTED. **ARTICLE 300.22(C).**
8. PROVIDE G.F.C.I. TYPE RECEPTACLE(S) OR RECEPTACLE(S) PROTECTED BY AGFCI CIRCUIT BREAKER(S) WHEN RECEPTACLES ARE 50A OR LESS, 150V TO GROUND OR LESS AND ARE LOCATED WITHIN 6-FEET OF ANY SINK OR THERAPEUTIC TUB, LAUNDRY AREA, SERVING ANY DRINKING FOUNTAIN OR VENDING MACHINE, WITHIN ANY KITCHEN SPACE, LOCKER ROOM AREA, GARAGE AND BATHROOM SPACE AND/OR LOCATED OUTDOORS. WHERE RECEPTACLES ARE NOT READILY ACCESSIBLE, PROVIDE GFCI CIRCUIT BREAKER(S) TO PROTECT THE RESPECTIVE BRANCH CIRCUIT AND PROVIDE ADDITIONAL NEUTRAL CONDUCTORS IN THE BRANCH CIRCUITING AS REQUIRED TO ENSURE PROPER GFCI FUNCTION.
9. PROVIDE OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM CONTROLLED RECEPTACLE RELAY(S) AS REQUIRED TO SWITCH CONTROLLED RECEPTACLES. CONNECT BRANCH CIRCUITRY AND CONTROL WIRING AS REQUIRED TO ALLOW OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM RELAY TO SWITCH STANDALONE AND/OR SYSTEMS FURNITURE CONTROLLED RECEPTACLES AS INDICATED ON PLANS. PROVIDE ADDITIONAL CONDUIT, WIRING AND PATHWAYS NECESSARY TO CONNECT BRANCH CIRCUITRY AND CONTROL WIRING TO REMOTE RELAYS TO INCLUDE RELAY(S) LOCATED ON ALTERNATE FLOORS, IN ELECTRICAL ROOMS, ETC.
10. PROVIDE ADDITIONAL J-BOX NEAR PANEL FOR MULTIPLE HOMERUN CIRCUITRY.
11. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.

POWER PLAN | 1/8" = 1'-0" | E2.01 | 1

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POWER PLAN

E2.01

PLAN NOTES:

2.004 REFER TO MOTORIZED EQUIPMENT SCHEDULE ON SHEET E3.02 FOR CIRCUITING AND ADDITIONAL INFORMATION.

2.005 PROVIDE 3/4"C O.(S) TO RESPECTIVE CONTROL DEVICE(S) FOR CONTROL WIRING. REFER TO THE EQUIPMENT SCHEDULE CONTROL WIRING DIAGRAMS FOR ADDITIONAL INFORMATION.

2.007 PROVIDE 60A MANUAL MOTOR RATED SWITCH.

2.011 SEE ROOF PLAN E3.01 FOR CIRCUITRY FOR MECHANICAL EQUIPMENT.

2.013 PROVIDE 3/4"C, 3#10, #10G.

FLOOR PLAN GENERAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL REFER TO MECHANICAL/PLUMBING AND ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND CHARACTERISTICS OF ALL EQUIPMENT LISTED IN SCHEDULE. ANY MODIFICATIONS AND/OR ADDITIONAL WORK NECESSARY SHALL BE INCLUDED IN THE BASE BID.
2. ALL TEMPERATURE CONTROL AND INTERLOCK CONDUIT AND WIRING SHALL BE BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED . SEE MECHANICAL/PLUMBING DRAWINGS FOR ALL INFORMATION.
3. ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL CONNECTION POINTS WITH THE EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE LOCAL REMOTE DISCONNECTING MEANS FOR ALL ELECTRIC HEATING EQUIPMENT IF REQUIRED BY THE LOCAL ELECTRICAL CODE.
5. ELECTRICAL CONTRACTOR SHALL COORDINATE THE ROUTING OF CONDUIT/WIRING TO ROOF-MOUNTED EQUIPMENT WITH EQUIPMENT INSTALLER PRIOR TO ROUGH-IN. WHERE ROOF-MOUNTED EQUIPMENT IS MANUFACTURED 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 CEILING SPACE LOCATION.
6. ALL ROOF MOUNTED EQUIPMENT SHALL BE NEMA 3R RATED.
7. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.

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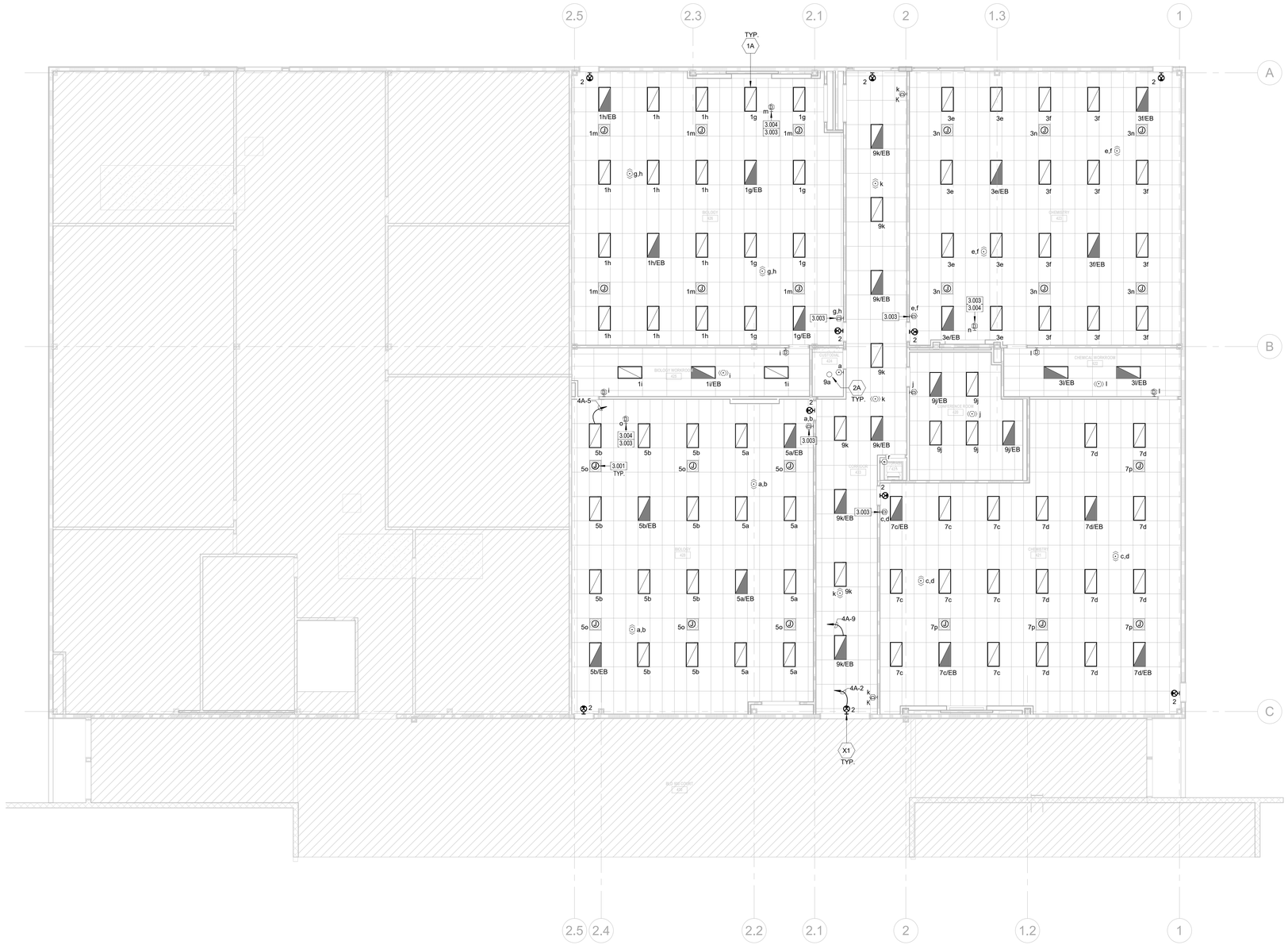
ELECTRICAL-MECHANICAL COORDINATION PLAN

E2.02



PLAN NOTES:

3.001 PROVIDE 120V POWER FOR SOLATUBE SKYLIGHT. COORDINATE EXACT LOCATION WITH ARCHITECT. CONNECT TO 0-10V DRIVER AS REQUIRED.

3.003 CONTRACTOR TO PROVIDE NLIGHT WALL SWITCH, MODEL#: NPODMS-2P-DX, FOR DIMMING LIGHTING CONTROL.

3.004 LOCATE WALL SWITCH FOR SOLATUBE DIMMING CONTROL NEAR TEACHER'S DESK. COORDINATE EXACT LOCATION WITH ARCHITECT.

LIGHTING PLAN GENERAL NOTES:

1. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND ELEVATION OF ALL LIGHTING FIXTURES AND ALL DEVICES. ALL WALL-MOUNTED DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH-IN.
2. VERIFY EXACT CEILING CONSTRUCTION WITH ARCHITECTURAL REFLECTED CEILING PLAN AND SPECS. PROVIDE LIGHTING FIXTURES WITH ALL NECESSARY MOUNTING HARDWARE.
3. ALL RECESSED FIXTURES SHALL BE PROVIDED WITH ALL STRUCTURAL SUPPORTS AS REQUIRED BY THE CBC WHERE ADOPTED, IN ADDITION TO ANY LOCAL CODES.
4. ALL LINE VOLTAGE DIMMING BRANCH CIRCUITS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH ZONE/CHANNEL.
5. ALL LINE VOLTAGE DIMMING BRANCH CIRCUITS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH ZONE/CHANNEL.
6. RECESSED FIXTURES LOCATED IN A FIRE-RATED CEILING OR WALL SHALL BE PROVIDED WITH A 5-SIDED, RATED ENCLOSURE SO CONSTRUCTED AS TO ALLOW CODE AND MANUFACTURER-REQUIRED CLEARANCES BETWEEN THE FIXTURE AND THE ENCLOSURE.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXIT SIGN CHEVRONS AND NUMBER OF FACES PER EXIT SIGN. ANY DISCREPANCIES BETWEEN EXIT SIGNS SHOWN ON THE ELECTRICAL AND ARCHITECTURAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO ORDERING EXIT SIGNS.
8. WHEN EXPOSED CEILINGS OR OPEN GRID CONDITIONS OCCUR, THE CONTRACTOR WILL NEED TO PROVIDE THE FOLLOWING ITEMS:
   a. ALL BRANCH CIRCUITS SHALL BE EMT.
   b. ALL BRANCH CIRCUITS SHALL BE ROUTED ORTHOGONALLY, NEATLY TRAINED, IN PARALLEL TO STRUCTURES OR DUCTWORK. THE TERM "TRAINED" MEANS ALL PARALLEL CONDUITS SHALL MAINTAIN THE SAME SPATIAL RELATIONSHIP WITH EACH OTHER FOR ENTIRE RUN TO INCLUDE RADIUS BENDS AND SWEEPS.
   c. VISUALLY OBJECTIONABLE BRANCH CIRCUITS WILL BE REROUTED AT THE REQUEST OF THE ARCHITECT AT NO ADDITIONAL COST.
9. ALL LED REMOTE INDICATORS FOR DUCT DETECTORS AND FIRE/SMOKE DAMPERS REQUIRED BY THE LOCAL AHJ SHALL BE LOCATED IN CEILINGS IN COORDINATION WITH ARCHITECT PRIOR TO ANY ROUGH-IN.
10. PROVIDE ADDITIONAL J-BOX NEAR PANEL FOR MULTIPLE HOMERUN CIRCUITRY.
11. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.
12. REFER TO GENERAL POWER PLAN NOTES AND COMMUNICATIONS PATHWAYS GENERAL NOTE FOR ADDITIONAL REQUIREMENTS WHEN POWER AND/OR DATA DEVICES ARE SHOWN ON THIS PLAN.
13. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GREATER THAN THE FIRE RATING OF THE WALL.

EMERGENCY LIGHTING GENERAL NOTES:

1. EMERGENCY LIGHTING SYSTEMS SHALL BE DESIGNED AND INSTALLED SO THAT THE FAILURE OF ANY INDIVIDUAL LIGHTING ELEMENT, SUCH AS THE BURNING OUT OF A LIGHT BULB, CANNOT LEAVE IN TOTAL DARKNESS ANY SPACE THAT REQUIRES EMERGENCY ILLUMINATION. MEANS OF EGRESS ILLUMINATION (INCLUDING EXIST DISCHARGE AREAS) SHALL CONFORM TO THE CBC SECTION 1008 AND CEC 700.16.
2. IN ADDITION TO THE CODE REQUIRED MEANS OF EGRESS ILLUMINATION EACH ROOM EXCEPT SMALL STORAGE ROOMS AND JANITOR CLOSETS SHALL BE PROVIDED WITH AT LEAST ONE EMERGENCY ILLUMINATED FIXTURE.
3. CORRIDOR EGRESS ILLUMINATION SHALL BE UN-SWITCHED 24/7. A TIMER WILL AUTOMATICALLY TURN OFF ALL CORRIDOR LIGHTS EXCEPT EGRESS LIGHTING DURING THE NIGHT SHIFT. THE STATE REQUIRES CBC 1008.3 BE PROVIDED IN ALL OCCUPIED SPACES REGARDLESS IF IT IS NOT CONSIDERED THE MEANS OF EGRESS.
4. EXIST SIGNS SHALL CONFORM TO CBC SECTION 1013. EXIT SIGNS SHALL BE ILLUMINATED AT ALL TIMES AND SHALL NOT USE POLE SWITCHES FOR POWER SOURCES.
5. A COMPLETELY INDEPENDENT RACEWAY AND WIRING SYSTEM SHALL BE ISNTALLED FOR EMERGENCY CIRCUITS PER CEC 700.9.
6. ALL OTHER ELECTRICAL LOADS INCLUDING LIGHTING, NOT INCLUDED IN EMERGENCY EGRESS ILLUMINATION, LOADS LISTED FOR EMERGENCY BRANCH PER CEC 700.2 SHALL BE CONNECTED TO TWO SOURCES OF POWER, GENERATOR POWER AND NORMAL POWER VIA A NON-EMERGENCY TRANSFER SWITCH.

LIGHTING PLAN | 1/8" = 1'-0" | E2.31 | 1

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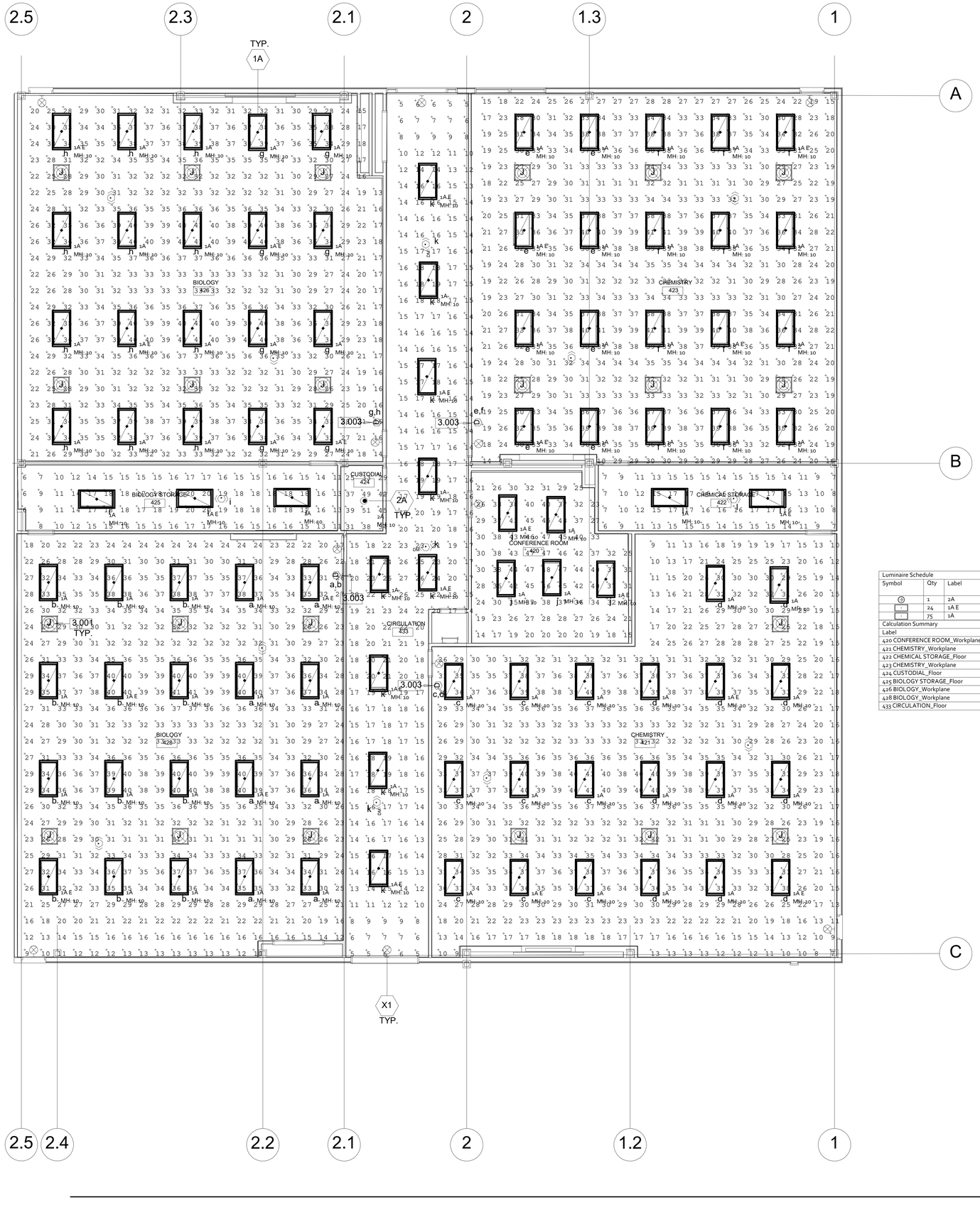
LIGHTING PLAN

E2.31



PLAN NOTES:

LIGHTING PLAN GENERAL NOTES:

1. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND ELEVATION OF ALL LIGHTING FIXTURES AND ALL DEVICES. ALL WALL-MOUNTED DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH-IN.
2. VERIFY EXACT CEILING CONSTRUCTION WITH ARCHITECTURAL REFLECTED CEILING PLAN AND SPECS. PROVIDE LIGHTING FIXTURES WITH ALL NECESSARY MOUNTING HARDWARE.
3. ALL RECESSED FIXTURES SHALL BE PROVIDED WITH ALL STRUCTURAL SUPPORTS AS REQUIRED BY THE CBC WHERE ADOPTED, IN ADDITION TO ANY LOCAL CODES.
4. ALL LINE VOLTAGE DIMMING BRANCH CIRCUITS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH ZONE/CHANNEL.
5. ALL LINE VOLTAGE DIMMING BRANCH CIRCUITS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH ZONE/CHANNEL.
6. RECESSED FIXTURES LOCATED IN A FIRE-RATED CEILING OR WALL SHALL BE PROVIDED WITH A 5-SIDED, RATED ENCLOSURE SO CONSTRUCTED AS TO ALLOW CODE AND MANUFACTURER-REQUIRED CLEARANCES BETWEEN THE FIXTURE AND THE ENCLOSURE.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXIT SIGN CHEVRONS AND NUMBER OF FACES PER EXIT SIGN. ANY DISCREPANCIES BETWEEN EXIT SIGNS SHOWN ON THE ELECTRICAL AND ARCHITECTURAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO ORDERING EXIT SIGNS.
8. WHEN EXPOSED CEILINGS OR OPEN GRID CONDITIONS OCCUR, THE CONTRACTOR WILL NEED TO PROVIDE THE FOLLOWING ITEMS:
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   b. ALL BRANCH CIRCUITS SHALL BE ROUTED ORTHOGONALLY, NEATLY TRAINED, IN PARALLEL TO STRUCTURES OR DUCTWORK. THE TERM "TRAINED" MEANS ALL PARALLEL CONDUITS SHALL MAINTAIN THE SAME SPATIAL RELATIONSHIP WITH EACH OTHER FOR ENTIRE RUN TO INCLUDE RADIUS BENDS AND SWEEPS.
   c. VISUALLY OBJECTIONABLE BRANCH CIRCUITS WILL BE REROUTED AT THE REQUEST OF THE ARCHITECT AT NO ADDITIONAL COST.
9. ALL LED REMOTE INDICATORS FOR DUCT DETECTORS AND FIRE/SMOKE DAMPERS REQUIRED BY THE LOCAL AHJ SHALL BE LOCATED IN CEILINGS IN COORDINATION WITH ARCHITECT PRIOR TO ANY ROUGH-IN.
10. PROVIDE ADDITIONAL J-BOX NEAR PANEL FOR MULTIPLE HOMERUN CIRCUITRY.
11. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.
12. REFER TO GENERAL POWER PLAN NOTES AND COMMUNICATIONS PATHWAYS GENERAL NOTE FOR ADDITIONAL REQUIREMENTS WHEN POWER AND/OR DATA DEVICES ARE SHOWN ON THIS PLAN.
13. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GREATER THAN THE FIRE RATING OF THE WALL.

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
ⓒ	1	2A	Single	NU4-RD-SW-30LM-30K-80-50D-NL-WH-WH	0.900	3075	26	26
-	24	1A E	Single	2BLT4 40L ADP LP935	0.900	3709	30.46	731.04
-	75	1A	Single	2BLT4 40L ADP LP935	0.900	3709	30.46	2284.5

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
420 CONFERENCE ROOM_Workplane	Illuminance	Fc	33.37	48	24	2.38	3.43
421 CHEMISTRY_Workplane	Illuminance	Fc	28.64	41	7	4.09	5.86
422 CHEMICAL STORAGE_Floor	Illuminance	Fc	13.03	17	6	2.17	2.83
423 CHEMISTRY_Workplane	Illuminance	Fc	31.05	41	4	7.76	10.25
424 CUSTODIAL_Floor	Illuminance	Fc	37.75	51	25	1.51	2.04
425 BIOLOGY STORAGE_Floor	Illuminance	Fc	15.19	20	6	2.53	3.33
426 BIOLOGY_Workplane	Illuminance	Fc	31.73	41	13	2.44	3.15
428 BIOLOGY_Workplane	Illuminance	Fc	30.40	41	9	3.38	4.56
433 CIRCULATION_Floor	Illuminance	Fc	15.90	27	5	3.18	5.40

NORMAL PHOTOMETRIC PLAN | 3/16" = 1'-0" | E2.32 | 1

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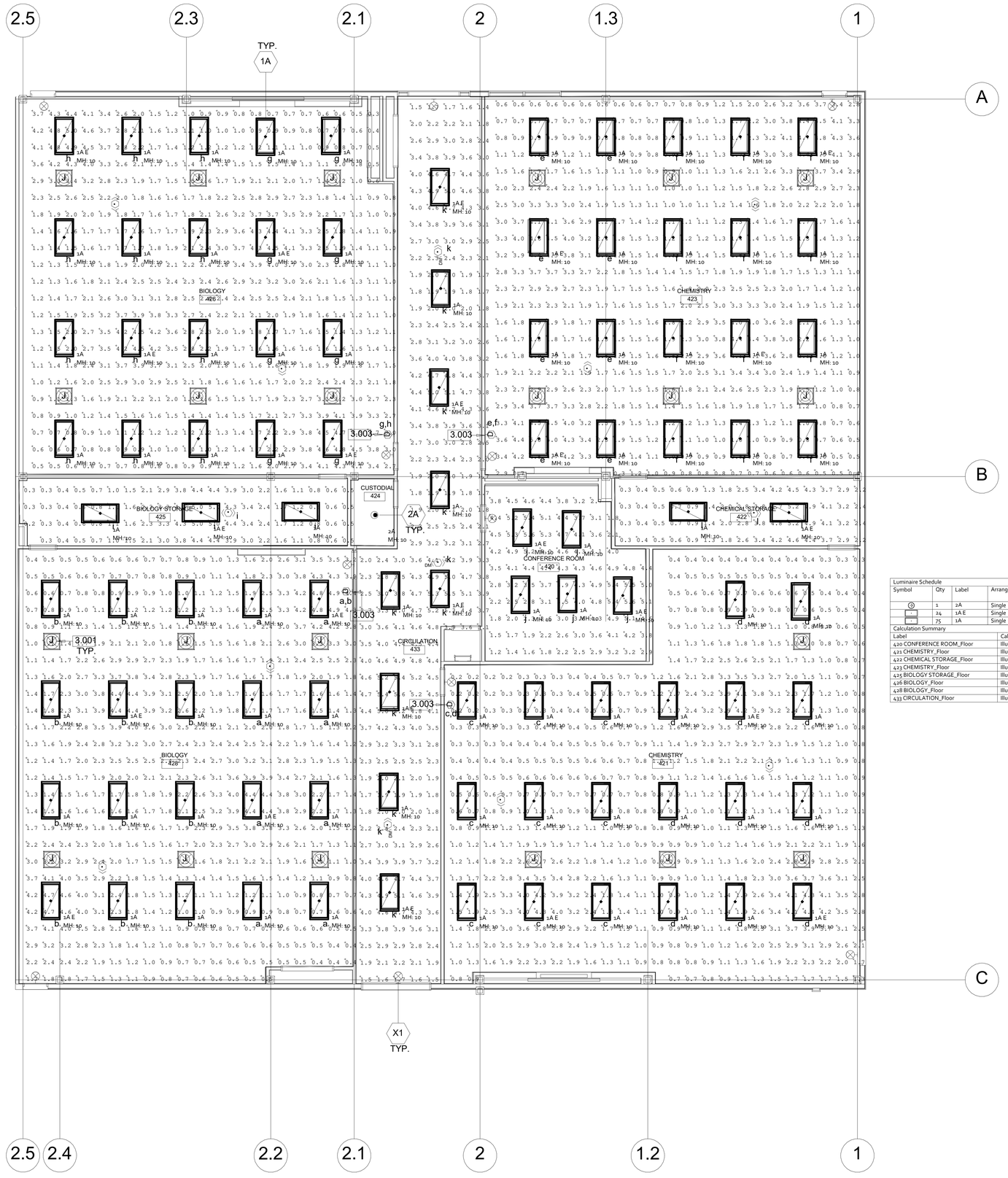
NORMAL PHOTOMETRIC PLAN

E2.32



PLAN NOTES:

LIGHTING PLAN GENERAL NOTES:

1. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND ELEVATION OF ALL LIGHTING FIXTURES AND ALL DEVICES. ALL WALL-MOUNTED DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH-IN.
2. VERIFY EXACT CEILING CONSTRUCTION WITH ARCHITECTURAL REFLECTED CEILING PLAN AND SPECS. PROVIDE LIGHTING FIXTURES WITH ALL NECESSARY MOUNTING HARDWARE.
3. ALL RECESSED FIXTURES SHALL BE PROVIDED WITH ALL STRUCTURAL SUPPORTS AS REQUIRED BY THE CBC WHERE ADOPTED, IN ADDITION TO ANY LOCAL CODES.
4. ALL LINE VOLTAGE DIMMING BRANCH CIRCUITS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH ZONE/CHANNEL.
5. ALL LINE VOLTAGE DIMMING BRANCH CIRCUITS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH ZONE/CHANNEL.
6. RECESSED FIXTURES LOCATED IN A FIRE-RATED CEILING OR WALL SHALL BE PROVIDED WITH A 5-SIDED, RATED ENCLOSURE SO CONSTRUCTED AS TO ALLOW CODE AND MANUFACTURER-REQUIRED CLEARANCES BETWEEN THE FIXTURE AND THE ENCLOSURE.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXIT SIGN CHEVRONS AND NUMBER OF FACES PER EXIT SIGN. ANY DISCREPANCIES BETWEEN EXIT SIGNS SHOWN ON THE ELECTRICAL AND ARCHITECTURAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO ORDERING EXIT SIGNS.
8. WHEN EXPOSED CEILINGS OR OPEN GRID CONDITIONS OCCUR, THE CONTRACTOR WILL NEED TO PROVIDE THE FOLLOWING ITEMS:
   a. ALL BRANCH CIRCUITS SHALL BE EMT.
   b. ALL BRANCH CIRCUITS SHALL BE ROUTED ORTHOGONALLY, NEATLY TRAINED, IN PARALLEL TO STRUCTURES OR DUCTWORK. THE TERM "TRAINED" MEANS ALL PARALLEL CONDUITS SHALL MAINTAIN THE SAME SPATIAL RELATIONSHIP WITH EACH OTHER FOR ENTIRE RUN TO INCLUDE RADIUS BENDS AND SWEEPS.
   c. VISUALLY OBJECTIONABLE BRANCH CIRCUITS WILL BE REROUTED AT THE REQUEST OF THE ARCHITECT AT NO ADDITIONAL COST.
9. ALL LED REMOTE INDICATORS FOR DUCT DETECTORS AND FIRE/SMOKE DAMPERS REQUIRED BY THE LOCAL AHJ SHALL BE LOCATED IN CEILINGS IN COORDINATION WITH ARCHITECT PRIOR TO ANY ROUGH-IN.
10. PROVIDE ADDITIONAL J-BOX NEAR PANEL FOR MULTIPLE HOMERUN CIRCUITRY.
11. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.
12. REFER TO GENERAL POWER PLAN NOTES AND COMMUNICATIONS PATHWAYS GENERAL NOTE FOR ADDITIONAL REQUIREMENTS WHEN POWER AND/OR DATA DEVICES ARE SHOWN ON THIS PLAN.
13. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GREATER THAN THE FIRE RATING OF THE WALL.

Luminaire Schedule								
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
⊗	1	2A	Single	NU4-RD-SW-30LM-30K-80-50D-NL-WH-WH	0.900	3075	26	26
▭	24	1A E	Single	2BLT4 40L ADP LP935 E10W	0.320	3709	30.46	731.04
▭	75	1A	Single	2BLT4 40L ADP LP935	0.900	3709	30.46	2284.5

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
420 CONFERENCE ROOM_Floor	Illuminance	Fc	3.76	5.6	1.2	3.13	4.67
421 CHEMISTRY_Floor	Illuminance	Fc	1.45	4.4	0.2	7.25	22.00
422 CHEMICAL STORAGE_Floor	Illuminance	Fc	2.37	5.2	0.3	7.90	17.33
423 CHEMISTRY_Floor	Illuminance	Fc	1.94	5.0	0.3	6.47	16.67
425 BIOLOGY STORAGE_Floor	Illuminance	Fc	1.92	5.0	0.2	9.60	25.00
426 BIOLOGY_Floor	Illuminance	Fc	2.07	5.0	0.3	6.90	16.67
428 BIOLOGY_Floor	Illuminance	Fc	1.97	4.9	0.4	4.93	12.25
433 CIRCULATION_Floor	Illuminance	Fc	3.22	5.6	1.4	2.30	4.00

EMERGENCY PHOTOMETRIC PLAN | 3/16" = 1'-0" E2.33 | 1

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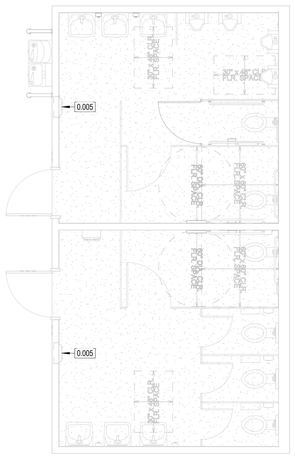
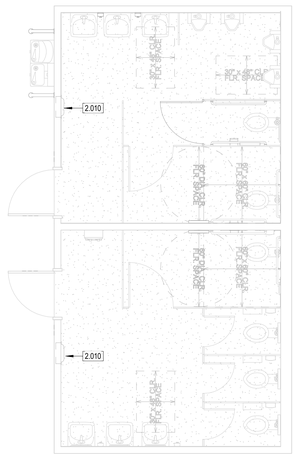
EMERGENCY PHOTOMETRIC PLAN

E2.33



2 BLDG 600 -RESTROOMS FLOOR PLAN (DEMO)

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



1 BLDG 600 - RESTROOMS FLOOR PLAN

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

PLAN NOTES:

0.005 CONTRACTOR TO DISCONNECT AND REMOVE EXISTING HAND-DRYER.

2.010 PROVIDE 120V POWER TO (N) HAND DRYER. CONTRACTOR TO USE (E) CIRCUIT FROM DEMOLISHED HAND DRYER IN SAME LOCATION. COORDINATE EXACT LOCATION WITH ARCHITECT. UPDATE PANEL DIRECTORY AS REQUIRED.

POWER PLAN GENERAL NOTES:

1. ALL RECEPTACLES ON COMMON WALLS SHALL BE SEPARATE BOXES AND OFFSET 24-INCHES MINIMUM.
2. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GREATER THAN THE FIRE RATING OF THE WALL.
3. ALL WALL-MOUNTED DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH-IN.
4. ALL WALL-MOUNTED DEVICE HEIGHTS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ROUGH-IN.
5. ALL FURNITURE WHIPS SHALL BE TRIMMED TO REDUCE EXCESS WHIP LENGTH.
6. WHEN EXPOSED CEILINGS OR OPEN GRID CONDITIONS OCCUR, THE CONTRACTOR WILL NEED TO PROVIDE THE FOLLOWING ITEMS:
   a. ALL BRANCH CIRCUITS SHALL BE EMT.
   b. ALL BRANCH CIRCUITS SHALL BE ROUTED ORTHOGONALLY, NEATLY TRAINED, IN PARALLEL TO STRUCTURES OR DUCTWORK. THE TERM "TRAINED" MEANS ALL PARALLEL CONDUITS SHALL MAINTAIN THE SAME SPATIAL RELATIONSHIP WITH EACH OTHER FOR ENTIRE RUN TO INCLUDE RADIUS BENDS AND SWEEPS.
   c. VISUALLY OBJECTIONABLE BRANCH CIRCUITS WILL BE REROUTED AT THE REQUEST OF THE ARCHITECT AT NO ADDITIONAL COST.
7. EXPOSED CABLE/CONDUCTORS INSTALLED IN A PLENUM SPACE SHALL CONFORM TO NEC, OR CEC WHERE ADOPTED. **ARTICLE 300.22(C)**.
8. PROVIDE G.F.C.I. TYPE RECEPTACLE(S) OR RECEPTACLE(S) PROTECTED BY AGFCI CIRCUIT BREAKER(S) WHEN RECEPTACLES ARE 50A OR LESS, 150V TO GROUND OR LESS AND ARE LOCATED WITHIN 6-FEET OF ANY SINK OR THERAPEUTIC TUB, LAUNDRY AREA, SERVING ANY DRINKING FOUNTAIN OR VENDING MACHINE, WITHIN ANY KITCHEN SPACE, LOCKER ROOM AREA, GARAGE AND BATHROOM SPACE AND/OR LOCATED OUTDOORS. WHERE RECEPTACLES ARE NOT READILY ACCESSIBLE, PROVIDE GFCI CIRCUIT BREAKER(S) TO PROTECT THE RESPECTIVE BRANCH CIRCUIT AND PROVIDE ADDITIONAL NEUTRAL CONDUCTORS IN THE BRANCH CIRCUITING AS REQUIRED TO ENSURE PROPER GFCI FUNCTION.
9. PROVIDE OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM CONTROLLED RECEPTACLE RELAY(S) AS REQUIRED TO SWITCH CONTROLLED RECEPTACLES. CONNECT BRANCH CIRCUITRY AND CONTROL WIRING AS REQUIRED TO ALLOW OCCUPANCY SENSOR/LIGHTING CONTROL SYSTEM RELAY TO SWITCH STANDALONE AND/OR SYSTEMS FURNITURE CONTROLLED RECEPTACLES AS INDICATED ON PLANS. PROVIDE ADDITIONAL CONDUIT, WIRING AND PATHWAYS NECESSARY TO CONNECT BRANCH CIRCUITRY AND CONTROL WIRING TO REMOTE RELAYS TO INCLUDE RELAY(S) LOCATED ON ALTERNATE FLOORS, IN ELECTRICAL ROOMS, ETC.
10. PROVIDE ADDITIONAL J-BOX NEAR PANEL FOR MULTIPLE HOMERUN CIRCUITRY.
11. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.

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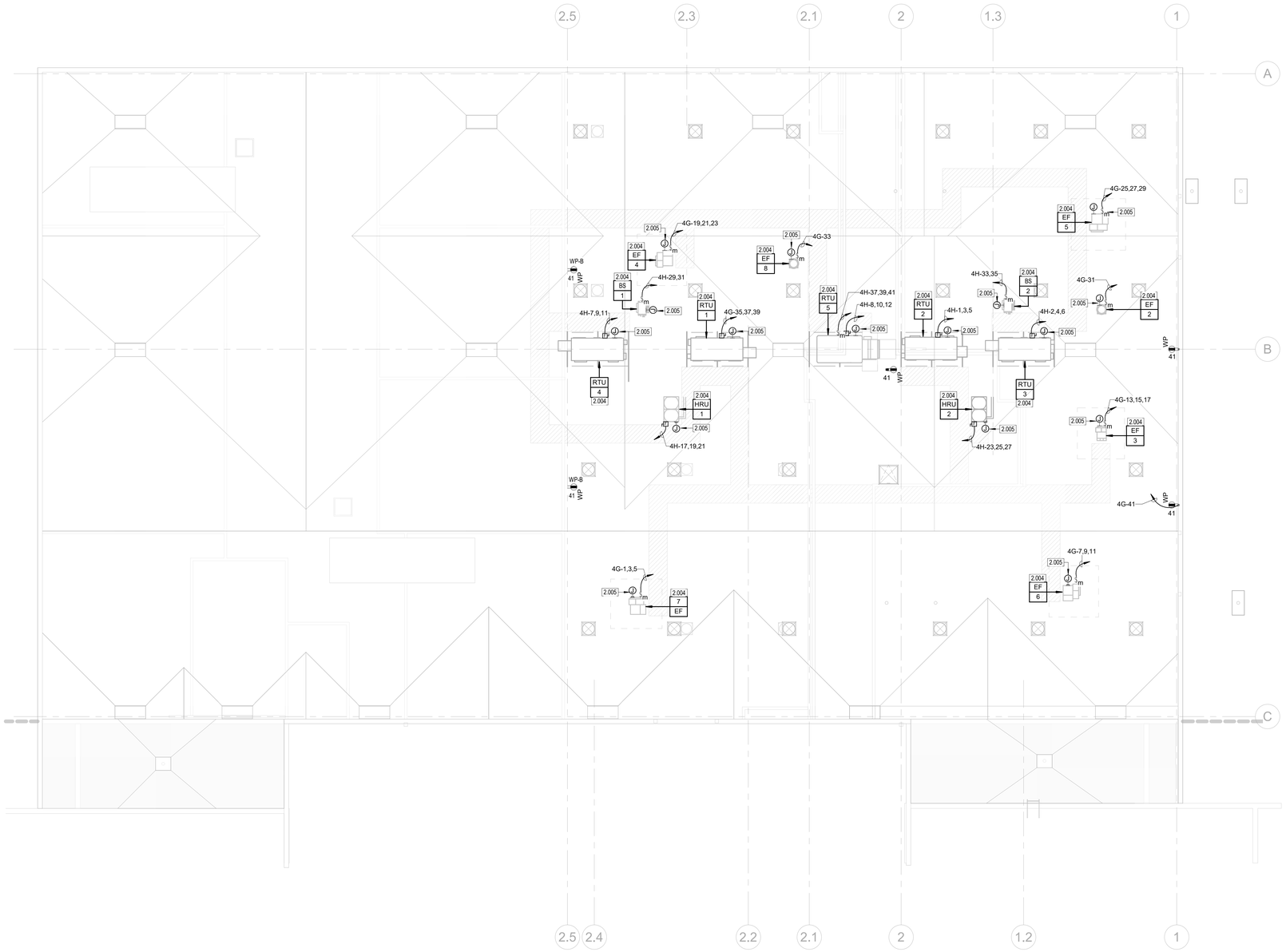
BLDG 600 RESTROOMS FLOOR PLAN

E2.34



PLAN NOTES:

2.004 REFER TO MOTORIZED EQUIPMENT SCHEDULE ON SHEET E3.02 FOR CIRCUITING AND ADDITIONAL INFORMATION.

2.005 PROVIDE 3/4"C.O.(S) TO RESPECTIVE CONTROL DEVICE(S) FOR CONTROL WIRING. REFER TO THE EQUIPMENT SCHEDULE CONTROL WIRING DIAGRAMS FOR ADDITIONAL INFORMATION.

ROOF PLAN GENERAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL REFER TO MECHANICAL/PLUMBING AND ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND CHARACTERISTICS OF ALL EQUIPMENT LISTED IN SCHEDULE. ANY MODIFICATIONS AND/OR ADDITIONAL WORK NECESSARY SHALL BE INCLUDED IN THE BASE BID.
2. ALL TEMPERATURE CONTROL AND INTERLOCK CONDUIT AND WIRING SHALL BE BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED . SEE MECHANICAL/PLUMBING DRAWINGS FOR ALL INFORMATION.
3. ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL CONNECTION POINTS WITH THE EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE LOCAL REMOTE DISCONNECTING MEANS FOR ALL ELECTRIC HEATING EQUIPMENT IF REQUIRED BY THE LOCAL ELECTRICAL CODE.
5. ELECTRICAL CONTRACTOR SHALL COORDINATE THE ROUTING OF CONDUIT/WIRING TO ROOF-MOUNTED EQUIPMENT WITH EQUIPMENT INSTALLER PRIOR TO ROUGH-IN. WHERE ROOF-MOUNTED EQUIPMENT IS MANUFACTURED 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 CEILING SPACE LOCATION.
6. ALL ROOF MOUNTED EQUIPMENT SHALL BE NEMA 3R RATED.
7. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.

ELECTRICAL ROOF PLAN | 1/8" = 1'-0" | E3.01 | 1

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ELECTRICAL ROOF PLAN

E3.01

MOTORIZED EQUIPMENT SCHEDULE

TAG	ITEM	DESCRIPTION	EQUIPMENT RATING VOLTS	PH.	MOTOR HP	MOTOR FLA	VFD FLA	MCA	MOCP	SCCR	DISC. SW. SIZE STARTER SIZE	TK, Conduit & Wire	SPECIFIC NOTES
BS	1	BS CONTROLLERS	208	1	-	0.2	-	1	20A	-	MOTOR RATED SWITCH	3/4" C - 2#12, #12EG	A, C
BS	2	BS CONTROLLERS	208	3	-	0.2	-	1	20A	-	MOTOR RATED SWITCH	3/4" C - 2#12, #12EG	A, C
EF	1	EXHAUST FAN	120	1	-	0.9	-	-	20A	- -	MOTOR RATED SWITCH	3/4" C - 2#12, #12EG	A, C
EF	2	EXHAUST FAN	115	1	0.1	0.84	-	1	15A	-	MOTOR RATED SWITCH	3/4" C - 2#12, #12EG	A, C
EF	3	EXHAUST FAN	208	3	0.5	1.0	-	3	20A	-	MOTOR RATED SWITCH	3/4" C - 2#12, #12EG	A, C
EF	4	EXHAUST FAN	208	3	3	4.8	-	24.33	30A	-	MOTOR RATED SWITCH	3/4" C - 3#10, #10 EG	A, C
EF	5	EXHAUST FAN	208	3	7.5	11	-	47.33	50A		30AS	1"C - 3#6, #8 EG	A, C
EF	6	EXHAUST FAN	208	3	3	4.8	-	24.33	30A	-	MOTOR RATED SWITCH	3/4" C - 3#10, #10 EG	A, C
EF	7	EXHAUST FAN	208	3	3	4.8	-	24.33	30A	-	MOTOR RATED SWITCH	3/4" C - 3#10, #10 EG	A, C
EF	8	EXHAUST FAN	115	1	0.1	0.84	-	1	15A	-	MOTOR RATED SWITCH	3/4" C - 2#12, #12EG	A, C
HRU	1	HEAT RECOVERY UNIT	208	3	-	-	-	60	100A	-	100AS	1-1/4"C - 3#3, #8EG	A ,C
HRU	2	HEAT RECOVERY UNIT	208	3	-	-	-	60	100A	-	100AS	1-1/4"C - 3#3, #8EG	A, C
RTU	2	ROOF-TOP UNIT	208	3	-	4.8	-	5.9	15A	-	30AS	3/4" C - 2#12, #12EG	A, C
RTU	3	ROOF-TOP UNIT	208	3	-	4.8	-	5.9	15A	-	30AS	3/4" C - 2#12, #12EG	A, C
RTU	4	ROOF-TOP UNIT	208	3	-	4.8	-	5.9	15A	-	30AS	3/4" C - 2#12, #12EG	A, C
RTU	5	ROOF-TOP UNIT	208	3	-	5.3	-	28	40A	-	30AS	3/4"C - 3#8, #10EG	A, C
RTU	5	RTU-5 POWER EXHAUST	208	3	-	2.2	-	2.75	4.95A	-	MOTOR RATED SWITCH	3/4" C - 2#12, #12EG	A, C

MOTORIZED EQUIPMENT SCHEDULE SPECIFIC NOTES:

A. FUSED AS RECOMMENDED BY MANUFACTURER.

B. MAGNETIC MOTOR STARTER WITH CONTROL TRANSFORMER, AUXILIARY CONTACTS, INDICATOR LIGHT AND H.O.A. SWITCH. VERIFY CONTROL TRANSFORMER VOLTAGE WITH M.C. PRIOR TO ORDERING MATERIAL.

C. ROUTE THROUGH LINE VOLTAGE CONTROL. SEE MECHANICAL AND/OR PLUMBING PLANS FOR ADDITIONAL REQUIREMENTS.

D. VERIFY LOCATION WITH PLUMBING PLANS PRIOR TO ROUGH-IN. CONNECT TO AQUASTAT AND TIME CLOCK AS REQUIRED.

E. REMOTE VFD. PROVIDE EARLY BREAK CONTACTS ON ANY DISCONNECT SWITCHES REQUIRED BY CODE OR SHOWN ON PLANS THAT ARE DOWNSTREAM OF THE REMOTE VFD. PROVIDE CONDUIT AND CONDUCTORS AS REQUIRED TO INTERCONNECT THE CONTACT WITH VFD "ENABLE" TERMINALS. REFER TO MECHANICAL AND/OR PLUMBING PLANS FOR LOCATION. PROVIDE FEEDER(S) TO CONNECT REMOTE VFD AND MOTOR(S) AS REQUIRED.

F. INTEGRAL VFD PROVIDED WITH EQUIPMENT. REFER TO MECHANICAL AND/OR PLUMBING PLANS FOR LOCATION. CONNECT TO VFD AS REQUIRED.

G. INTEGRAL DISCONNECT PROVIDED WITH EQUIPMENT. REFER TO MECHANICAL AND/OR PLUMBING PLANS FOR LOCATION. CONNECT TO INTEGRAL DISCONNECT AS REQUIRED.

H. INTEGRAL DISCONNECT PROVIDED WITH VFD. REFER TO MECHANICAL AND/OR PLUMBING PLANS FOR LOCATION. CONNECT TO INTEGRAL DISCONNECT AS REQUIRED.

J. ROUTE 1 PHASE CONDUCTOR OF EACH UPS ROOM/DATA ROOM EXHAUST FAN BRANCH CIRCUIT THROUGH/AROUND A DEDICATED, CURRENT-OPERATED LOAD MONITORING SWITCH THAT DETECTS OVERLOADS AND UNDERLOADS (INCLUDING FAN BELT BREAKAGE) WITHIN +/- 15 PERCENT OF AVERAGE CURRENT DRAW. LOCATE IN BARRIERED PULL BOX - NEMA 3R FOR WET LOCATIONS - AND CONNECT N.O. CONTACT TO FIRE ALARM MONITORING MODULE (SUPERVISORY SIGNAL). LOCATE PULL BOX WITH DEVICES INDOORS WHERE POSSIBLE AND ADJACENT TO THE SERVING ELECTRICAL DISTRIBUTION EQUIPMENT. PROVIDE LABEL "USPA BATTERY EX. FAN MONITOR" PER LABELING SPECIFICATIONS. (NK TECHNOLOGIES #ASM-NOU-OU-FT - www.nktechnologies.com).

K. ROUTE THROUGH LINE VOLTAGE CONTROL FOR KITCHEN HOOD FIRE SUPPRESSION SYSTEM. SEE MECHANICAL, FIRE ALARM AND FOOD SERVICE PLANS FOR ADDITIONAL REQUIREMENTS.

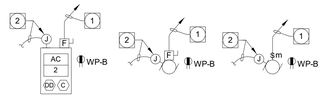
MOTORIZED EQUIPMENT SCHEDULE GENERAL NOTES:

1. ALL BRANCH CIRCUIT DATA IS BASED UPON METALLIC CONDUITS. IF THE CONTRACTOR ELECTS TO USE NONMETALLIC CONDUITS, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED PER NEC, OR CEC WHERE ADOPTED, TABLE 250.122 AND THE CONDUIT SIZE SHALL BE INCREASED ACCORDINGLY.
2. ELECTRICAL CONTRACTOR SHALL REFER TO ALL DOCUMENTS RELATED TO THE EQUIPMENT (I.E. SHOP DRAWINGS, CONSTRUCTION DOCUMENTS, ETC.) IN REGARDS TO ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT LISTED IN THE SCHEDULE. ANY MODIFICATION AND/OR ADDITIONAL WORK NECESSARY SHALL BE INCLUDED IN THE BASE BID.
3. ELECTRICAL CONTRACTOR SHALL CHECK THE ROTATION OF ALL THREE PHASE MOTORS AND CORRECT THE ROTATION IF REVERSED.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE FUSES SIZED PER THE EQUIPMENT NAMEPLATE INFORMATION.
5. DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE, EXTERNALLY OPERATED, QUICK MAKE QUICK BREAK AND SHALL BE FUSIBLE OR NON FUSIBLE AS INDICATED. A MAXIMUM VOLTAGE, CURRENT AND HORSEPOWER SHALL BE CLEARLY MARKED ON SWITCH ENCLOSURE. SWITCHES HAVING DUAL RATINGS (HIGHER RATINGS WHEN USED WITH DUAL ELEMENT FUSES) SHALL HAVE RATINGS INDICATED ON METAL PLATES RIVETED OR OTHERWISE PERMANENTLY ATTACHED TO THE ENCLOSURE. WHEN INDICATED, TOGGLE SWITCHES SHALL BE MOTOR RATED FOR THE APPLICATION.
6. STARTERS SHALL BE FULL VOLTAGE, REDUCED VOLTAGE OR COMBINATION DISCONNECT AND STARTER, WITH CONTROL VOLTAGE AS REQUIRED, AS INDICATED ON THE DOCUMENTS RELATED TO THE EQUIPMENT, SUCH AS SHOP DRAWINGS, CONSTRUCTION DOCUMENTS, ETC. STARTERS SHALL INCLUDE MOTOR OVERLOAD PROTECTION, PHASE LOSS AND PHASE UNBALANCE PROTECTION AS REQUIRED.
7. ALL TERMINATIONS AND ENCLOSURES SHALL BE RATED FOR USE WITH 75 DEGREE C CONDUCTORS.
8. COMPLETE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF NEC (OR CEC WHERE ADOPTED) ARTICLES 430 AND 440.
9. CONTRACTOR TO COORDINATE WITH ALL OTHER PROJECT TRADES AND WITH OWNER/ TENANT FOR TO OBTAIN RESPECTIVE EQUIPMENT SCCR AND PROVIDE APPROPRIATE PROTECTIVE DEVICES TO LIMIT AVAILABLE FAULT CURRENT TO LESS THAN THE EQUIPMENT NAMEPLATE SCCR PER NEC (OR CEC WHERE ADOPTED) 110.10. SEE POWER SYSTEM STUDY SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
10. UNLESS OTHERWISE NOTED, MOCP VALUES FOR VFD-EQUIPPED DEVICE ARE SIZED PER NEC (OR CEC WHERE ADOPTED) 430.130(A).1. CONTRACTOR SHALL COORDINATE WITH ALL OTHER PROJECT TRADES AND WITH OWNER/ TENANT (IF PROVIDING EQUIPMENT ON PROJECT) TO OBTAIN NAMEPLATE VFD-EQUIPPED DEVICE MOCP VALUE FROM MANUFACTURER INSTALLATION INSTRUCTIONS AND PROVIDE APPROPRIATE PROTECTIVE DEVICES TO COMPLY WITH NEC (OR CEC WHERE ADOPTED) 430.130(A).2.

ROOF PLAN SPECIFIC NOTES:

1 REFER TO MOTORIZED EQUIPMENT SCHEDULE FOR MOTOR FEEDER/ BRANCH CIRCUIT INFORMATION.

2 PROVIDE 3/4" C.O.(S) TO RESPECTIVE CONTROL DEVICE(S) FOR CONTROL WIRING. REFER TO THE EQUIPMENT CONTROL WIRING DIAGRAMS FOR ADDITIONAL INFORMATION.



ROOF PLAN GENERAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL REFER TO MECHANICAL/PLUMBING AND ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND CHARACTERISTICS OF ALL EQUIPMENT LISTED IN SCHEDULE. ANY MODIFICATIONS AND/OR ADDITIONAL WORK NECESSARY SHALL BE INCLUDED IN THE BASE BID.
2. ALL TEMPERATURE CONTROL AND INTERLOCK CONDUIT AND WIRING SHALL BE BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED . SEE MECHANICAL/PLUMBING DRAWINGS FOR ALL INFORMATION.
3. ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL CONNECTION POINTS WITH THE EQUIPMENT INSTALLER PRIOR TO ROUGH-IN.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE LOCAL REMOTE DISCONNECTING MEANS FOR ALL ELECTRIC HEATING EQUIPMENT IF REQUIRED BY THE LOCAL ELECTRICAL CODE.
5. ELECTRICAL CONTRACTOR SHALL COORDINATE THE ROUTING OF CONDUIT/WIRING TO ROOF-MOUNTED EQUIPMENT WITH EQUIPMENT INSTALLER PRIOR TO ROUGH-IN. WHERE ROOF-MOUNTED EQUIPMENT IS MANUFACTURED 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 CEILING SPACE LOCATION.
6. ALL ROOF MOUNTED EQUIPMENT SHALL BE NEMA 3R RATED.
7. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.

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MECHANICAL COORDINATION SCHEDULE

E3.02

POWER SYSTEMS STUDY SPECIFICATIONS:

THE CONTRACTOR SHALL PROVIDE, WITH THE ASSISTANCE OF THE SWITCHGEAR MANUFACTURER, POWER SYSTEMS STUDIES CONSISTING OF A SHORT CIRCUIT STUDY, A COORDINATION STUDY, AND AN ARC FLASH STUDY - ALL PER LATEST PUBLISHED EDITIONS OF THE FOLLOWING STANDARDS: ANSI C37, IEEE 141, IEEE 242, IEEE 399 - BROWN BOOK, NFPA 70E AND IEEE STD 1584/1584a. ADDITIONALLY:

a. CONTRACTOR SHALL PERFORM STUDY USING SKM "SYSTEMS ANALYSIS POWER TOOLS FOR WINDOWS" COMPUTER SOFTWARE PROGRAM - LATEST AVAILABLE VERSION OR EQUAL BY ETAP.

b. CONTRACTOR SHALL FURNISH/OBTAIN ALL DATA REQUIRED FOR POWER SYSTEMS STUDIES. DATA COLLECTION EFFORT SHALL BE PERFORMED IN AN EXPEDITIOUS MANNER AND AS SOON AS POSSIBLE AFTER CONTRACT AWARD TO ENSURE STUDY COMPLETION FOR SUBMISSION AS PART OF THE ELECTRICAL DISTRIBUTION EQUIPMENT SHOP DRAWINGS AND SUBMITTALS. DATA COLLECTION EFFORTS MAY INCLUDE, BUT ARE NOT LIMITED TO, CALCULATED UTILITY COMPANY FAULT VALUES, SERVICE TRANSFORMER PRIMARY PROTECTIVE DEVICE AND APPLIED VOLTAGE, ELECTRICAL CHARACTERISTICS AND FAULT CONTRIBUTION FROM EXISTING MOTORS/GENERATORS, EXISTING CONDUCTOR QUANTITIES, SIZE AND LENGTHS, EXISTING/ NEW OVERCURRENT PROTECTIVE DEVICE SPECIFICATIONS AND PART NUMBERS, TRANSFER SWITCH CHARACTERISTICS AND SHORT CIRCUIT CURRENT RATINGS IN ADDITION TO ANY OTHER DATA REQUIRED TO PERFORM COMPREHENSIVE POWER SYSTEM STUDIES. RANGES OF FAULT CURRENT VALUES OR GENERIC FAULT CURRENT VALUES PROVIDED BY THE UTILITY COMPANY ARE UNACCEPTABLE AS ARE ANY FAULT CURRENT VALUES SHOWN ON THE SINGLE LINE DIAGRAM OR FEEDER SCHEDULE.

   DATA GATHERING SHALL BE CONDUCTED IN A SAFE MANNER WITH 1) EQUIPMENT COMPLETELY DE-ENGERIZED IN COORDINATION WITH THE OWNER DURING A SCHEDULED POWER SHUTDOWN OR 2) UTILIZING A LICENSED ELECTRICIAN WEARING APPROPRIATE PERSONNEL PROTECTIVE EQUIPMENT PER NFPA 70E STANDARDS.

   CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING UTILITY DATA FROM THE UTILITY COMPANY - INCLUDE ALL COSTS IN BASE BID FOR ANY UTILITY COMPANY FEES FOR PROVIDING NECESSARY DATA. WHERE THE PROJECT IS LOCATED ON A CAMPUS WITH AN OWNER-FURNISHED ELECTRICAL DISTRIBUTION SYSTEM, CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN SUFFICIENT ELECTRICAL SYSTEM DATA TO DEMONSTRATE COORDINATION OF THE PROJECT'S ELECTRICAL SYSTEM WITH CAMPUS DISTRIBUTION SYSTEM. THIS DATA MAY BE AVAILABLE IN THE FORM OF AN OWNER-PROVIDED CAMPUS POWER SYSTEM STUDY. WHERE SUCH STUDIES ARE NOT AVAILABLE, THE CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID TO PERFORM NECESSARY FIELD INVESTIGATION OF CAMPUS DISTRIBUTION SYSTEM INCLUDING CAMPUS SERVICE ENTRANCE AND SERVING UTILITY DATA AS REQUIRED TO DEMONSTRATE COORDINATION OF THE PROJECT'S ELECTRICAL SYSTEM WITH CAMPUS DISTRIBUTION SYSTEM. INCLUDE ALL COSTS FOR RECOMMENDING ADJUSTMENTS TO EXISTING CAMPUS DISTRIBUTION SYSTEM SETTINGS DISCOVERED TO BE INCORRECT. OWNER SHALL BE RESPONSIBLE TO UNDERTAKE ANY PHYSICAL ADJUSTMENTS TO EXISTING MEDIUM OR HIGH VOLTAGE DISTRIBUTION EQUIPMENT WITH THE EXCEPTION OF FUSES, RELAYS OR OTHER CIRCUIT PROTECTIVE DEVICES LOCATED IN EXISTING DISTRIBUTION EQUIPMENT THAT ARE DEDICATED TO SERVE ONLY THIS PROJECT'S ELECTRICAL SYSTEM.

   CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING EQUIPMENT SCCR RATING FROM ALL OTHER PROJECT TRADES AND FOR ANY OWNER-FURNISHED OR TENANT-FURNISHED EQUIPMENT CONNECTED TO THE ELECTRICAL SYSTEM IN ORDER TO VALIDATE AVAILABLE FAULT CURRENT AT THE EQUIPMENT CONNECTIONS IS LESS THAN THE RESPECTIVE EQUIPMENT SCCR.

c. THE SHORT CIRCUIT STUDY SHALL INCLUDE CALCULATED SHORT-CIRCUIT MOMENTARY AND INTERRUPTING DUTIES FOR 3-PHASE BOLTED FAULTS AND LINE-TO-GROUND FAULTS THROUGHOUT THE SINGLE LINE TO INCLUDE UTILITY SERVICE SUPPLY, GENERATORS AND TRANSFER SWITCHES, SUBSTATIONS, SWITCHGEAR, PANEL BOARDS ETC. STUDY SHALL EVALUATE ALL ELECTRICAL DISTRIBUTION EQUIPMENT AND PROTECTIVE DEVICES AGAINST SHORT CIRCUIT CURRENT RATINGS. THIS STUDY EFFORT SHALL EXTEND TO SCCR RATINGS OF EQUIPMENT, EQUIPMENT CONTROL PANELS, VARIABLE FREQUENCY DRIVES ETC PROVIDED BY OTHER TRADES THAT ARE CONNECTED TO THE ELECTRICAL SYSTEM. NOTE ANY EXISTING CIRCUIT PROTECTIVE DEVICE(S)/ELECTRICAL DISTRIBUTION THAT IS INADEQUATELY RATED TO WITHSTAND CALCULATED FAULT VALUES OR WHERE EQUIPMENT SCCR IS EXCEEDED. WHERE THE UTILITY COMPANY PROVIDES MULTIPLE FAULT CURRENT VALUES REFLECTING INITIAL TRANSFORMER CAPACITY AND WORST CASE TRANSFORMER CAPACITY, THE CONTRACTOR SHALL PROVIDE SHORT CIRCUIT ANALYSIS PRIMARILY BASED ON WORST CASE TRANSFORMER CAPACITY. ALL SERVICE EQUIPMENT SHALL BE LABELED WITH THE MAXIMUM AVAILABLE FAULT CURRENT AND FAULT CURRENT CALCULATION DATE PER NEC (OR CEC WHERE ADOPTED) 110.24. SEE LABELING SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

d. THE COORDINATION STUDY SHALL INCLUDE TIME-CURRENT CURVES (TCC) FOR OVER CURRENT PROTECTIVE DEVICES (OCPDs) ALONG WITH TRANSFORMER FULL-LOAD CURRENT, INRUSH CURRENT, AND THROUGH-FAULT PROTECTION CURVES, CONDUCTOR DAMAGE CURVES, GROUND FAULT PROTECTIVE DEVICE CURVES, MOTOR STARTING CURVE(S)/DAMAGE POINT(S), GENERATOR SHORT-CIRCUIT CURVE(S) /DAMAGE POINT(S) ETC. - CLEARLY IDENTIFIED AND PLOTTED ON LOG-LOG SCALE GRAPH(S). TCC GRAPH(S) SHALL INCLUDE A ONE-LINE DIAGRAM IDENTIFYING THE SPECIFIC PORTION COVERED BY THE GRAPH. DEMONSTRATE THAT ADEQUATE CLEARING TIME/SELECTIVE OPERATION EXISTS BETWEEN PROTECTIVE DEVICES WHILE PROVIDING PROPER SYSTEM PROTECTION & COORDINATION. STUDY SHALL INCLUDE ALL MAIN AND FEEDER OCPDs INCLUDING SECONDARY SIDE OF EACH TRANSFORMER DOWN TO BREAKERS IN PANEL BOARDS AND INDIVIDUAL BREAKERS IN DISTRIBUTION BOARDS. IN ALL CASES, SOLID STATE AND/OR ADJUSTABLE OCPDs SHALL BE ANALYZED WITH UPSTREAM AND DOWNSTREAM OCPDs AS REQUIRED TO ESTABLISH PROPER COORDINATION SETTINGS. SPECIAL EMPHASIS SHALL BE PLACED ON ANALYZING PORTIONS OF THE ELECTRICAL SYSTEM REQUIRING SELECTIVE COORDINATION WHICH INCLUDE, BUT ARE NOT LIMITED TO, NEC (OR CEC WHERE ADOPTED) ARTICLES 517, 620, 700, 701 & 708; ALONG WITH ANY ARTICLE 702 OPTIONAL STANDBY SYSTEMS SERVING SERVER ROOMS/DATA CENTERS OR OTHER AREAS REQUIRING HIGH AVAILABILITY/PROPER COORDINATION SUCH AS MANUFACTURING, CLEAN ROOM OR LAB FACILITIES. CONTRACTOR SHALL BE RESPONSIBLE TO RECOMMEND SETTINGS OF ALL DEVICES, TO INCLUDE GROUND FAULT SETTINGS, TO ACHIEVE SYSTEM COORDINATION. THE CONTRACTOR SHALL FIELD ADJUST NEW AND EXISTING DEVICES ACCORDINGLY UTILIZING A QUALIFIED MANUFACTURER'S REPRESENTATIVE OR A THIRD-PARTY ELECTRICAL TESTING AGENCY.

e. THE ARC FLASH ANALYSIS SHALL BE BASED ON THE INCIDENT ENERGY ANALYSIS METHOD (NFPA 70E 130.5). THE ARC FLASH ANALYSIS SHALL DETERMINE THE FLASH BOUNDARY, THE WORKING DISTANCE, THE INCIDENT ENERGY AND MINIMUM ARC RATING OF CLOTHING(CAL/CM²) AT LOCATIONS IN THE ELECTRICAL SYSTEM WHERE WORK CAN OR MIGHT BE PERFORMED ON ENERGIZED COMPONENTS WHERE MULTIPLE SYSTEM CONFIGURATION SCENARIOS ARE POSSIBLE, THE CONFIGURATION WITH GREATEST INCIDENT ENERGY MUST BE SHOWN. DECREMENT FAULT CONTRIBUTIONS FROM MOTOR(S) AND GENERATOR(S) BASED ON INDUSTRY STANDARDS. THE CONTRACTOR SHALL MAKE RECOMMENDATIONS WITH REGARD TO SYSTEM ADJUSTMENTS OR OTHER MITIGATION MEASURES TO OPTIMIZE THE RESULTS OF THE STUDY AS IT RELATES TO SAFE AND RELIABLE ELECTRICAL SYSTEM OPERATION (E.G. OVERCURRENT DEVICE SETTINGS, WORKING DISTANCES, CURRENT LIMITING DEVICES). THIS INCLUDES MITIGATION, WHERE POSSIBLE, OF INCIDENT ENERGY LEVELS THAT EXCEED 40 CAL/CM². PERFORM ITERATIVE CALCULATIONS TO DEMONSTRATE EFFECTS OF OPENING PROTECTIVE DEVICES UTILIZING A VARIETY OF DIFFERENT SETTINGS TO BEST MITIGATE ARC FLASH ENERGY WHILE MAINTAINING AN ACCEPTABLE LEVEL OF SYSTEM COORDINATION. WHERE SUCH RECOMMENDATIONS COMPROMISE SELECTIVE COORDINATION SETTINGS, SO STATE IN THE ANALYSIS.

   INCLUDE INCIDENT ENERGY/FLASH PROTECTION BOUNDARY CALCULATIONS FOR BOTH LINE/LOAD SIDE OF ALL SEPARATELY ENCLOSED MAIN CIRCUIT BREAKERS. ALL CALCULATIONS SHALL BE BASED ON ACTUAL OVERCURRENT DEVICE CLEARING TIMES.

f. BASED ON THE RESULTS OF THE ARC FLASH ANALYSIS, THE CONTRACTOR SHALL PRODUCE AND INSTALL A WARNING LABEL (ORANGE <40 CAL/CM2) OR DANGER LABEL (RED > 40 CAL/CM2) FOR EACH PIECE OF EQUIPMENT PER NEC (OR CEC WHERE ADOPTED) 110.16 AND IN ACCORDANCE WITH ANSI Z535.4-2007 OR LATEST PUBLISHED EDITION. THE LABEL MUST BE READABLE IN BOTH INDOOR AND OUTDOOR ENVIRONMENTS FOR AT LEAST 3 YEARS AND CONTAIN THE FOLLOWING INFORMATION: NOMINAL SYSTEM VOLTAGE, ARC HAZARD BOUNDARY (INCHES), WORKING DISTANCE (INCHES), AVAILABLE ARC FLASH INCIDENT ENERGY AT THE WORKING DISTANCE (CAL/CM²), MINIMUM ARC RATING OF CLOTHING, EQUIPMENT/BUS NAME, DATE PREPARED, SUPPLIER'S NAME AND ADDRESS. PROVIDE LABEL AS MANUFACTURED BY BRADY OR EQUAL. PRIOR TO PLACING ARC FLASH LABELS, CONTRACTOR SHALL SET ALL PROTECTIVE DEVICE SETTINGS PER THE APPROVED COORDINATION STUDY.

g. DURING THE CONSTRUCTION PHASE OF THE PROJECT, ALL GROUND FAULT RELAYS SHALL BE SET AT THE LOWEST AVAILABLE TIME DELAY AND PICK-UP SETTINGS.

h. POWER SYSTEMS STUDIES SHALL BE SUBMITTED AS PART OF THE OVERALL SWITCHGEAR SUBMITTAL. THE RESULTS OF THE POWER SYSTEMS STUDY SHALL BE PRESENTED IN A COMPREHENSIVE REPORT THAT INCLUDES:

   - REPORT SUMMARY WITH ANALYSIS METHODOLOGY, FINDINGS AND RECOMMENDATIONS
   - SUMMARY OF INPUT DATA FOR UTILITY SOURCE, EQUIPMENT AND CABLES
   - AVAILABLE FAULT CURRENT AT EACH EQUIPMENT LOCATION WITH COMPARISON TO EQUIPMENT RATING
   - OVERCURRENT DEVICE SETTINGS (E.G. PICK-UP, TIME DELAY, CURVE), "AS FOUND" AND "AS RECOMMENDED"
   - OVERCURRENT DEVICE COORDINATION CURVES INCLUDING RELATED SECTION OF THE SINGLE-LINE DIAGRAM
   - COMPLETE SYSTEM SINGLE-LINE DIAGRAM FOR THE SYSTEM ANALYZED
   - INCIDENT ENERGY LEVEL (CAL/CM²) FOR EACH EQUIPMENT LOCATION, RECOMMENDED PPE AND SAMPLE ARC FLASH WARNING LABELS
   - A DVD OR CD CONTAINING ELECTRONIC PROJECT FILES USED TO DEVELOP THE STUDY TO INCLUDE SKM OR ETAP PROJECT AND REFERENCE LIBRARY FILES. ALL FILES SHALL BE AVAILABLE FOR REVIEW AND/OR FUTURE MODIFICATION WITHOUT LIMITATION. LOCKING OR SECURING FILES BY OTHER MEANS IS NOT ACCEPTABLE. FAILURE TO SUBMIT COMPLETE STUDIES AND FULLY ACCESSIBLE FILES SHALL RESULT IN THE REJECTION OF THE ENTIRE SWITCHGEAR SUBMITTAL.

i. AS A PART OF A CLOSEOUT SUBMITTAL TO BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL PROJECT CONSTRUCTION OBSERVATIONS, CONTRACTOR SHALL PROVIDE PHOTOS OF ALL ADJUSTABLE CIRCUIT BREAKERS DEPICTING THEIR FINAL SETTINGS BASED ON THE POWER SYSTEMS STUDY. SUBMITTAL SHALL BE ORGANIZED WITH OCPD IDENTIFICATION, OCPD PHOTO IMAGE AND RESPECTIVE POWER SYSTEM STUDY OCPD SETTING REQUIREMENTS TO ALLOW EFFICIENT CONFIRMATION OF RECORD SETTINGS. PLEASE NOTE THAT IMAGES MAY NEED TO BE TAKEN PRIOR TO INSTALLATION OF EQUIPMENT COVERS/EQUIPMENT ENERGIZATION SINCE OCPD SETTINGS MAY BE OBSTRUCTED BY EQUIPMENT COVERS.

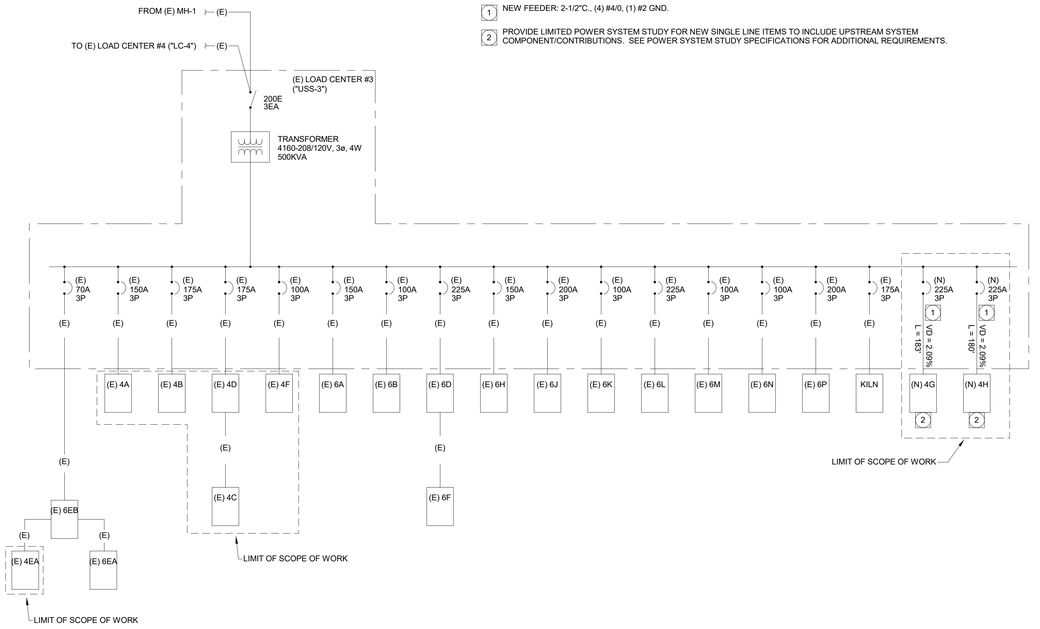
j. THE STUDY SHALL BE LIMITED IN SCOPE TO INCLUDE JUST NEW PORTIONS OF ELECTRICAL SINGLE LINE DIAGRAM TO INCLUDE UPSTREAM OR DOWNSTREAM ELEMENTS THAT MAY INFLUENCE STUDY RESULTS INCLUDING, BUT NOT LIMITED TO, UTILITY SOURCE CONTRIBUTION, RELEVANT PORTIONS OF THE EXISTING ELECTRICAL DISTRIBUTION SYSTEM WITHIN A BUILDING AND/OR CAMPUS ELECTRICAL DISTRIBUTION SYSTEMS AS DESCRIBED ABOVE. IN THIS CASE APPLICATION OF ARC FLASH LABELING SHALL BE LIMITED TO THE NEW PORTIONS OF THE SINGLE LINE AND ANY CONNECTED UPSTREAM ELECTRICAL SYSTEM COMPONENTS UP TO AND INCLUDING THE MAIN ELECTRICAL SERVICE, ANY LIFE-SAFETY, EMERGENCY, LEGALLY REQUIRED OR OPTIONAL STANDBY SYSTEMS, ELEVATORS, AND FIRE PUMPS.

GENERAL SINGLE LINE DIAGRAM NOTES:

1. ALL ELECTRICAL EQUIPMENT SHALL BE SQUARE D (BASIS OF DESIGN, DISTRICT PREFERRED) OR EQUAL BY CUTLER-HAMMER, G.E., SIEMENS, IEM, OR Z-POWER AND DISTRIBUTION.
2. ALL ITEMS DEPICTED ON THE SINGLE LINE DRAWINGS SHALL BE ASSUMED AS NEW U.O.N.
3. ALL OVERCURRENT DEVICES IN AN INDIVIDUAL PIECE OF EQUIPMENT SHALL HAVE AN AIC RATING EQUAL TO THE OVERALL RATING OF THE EQUIPMENT. SERIES-RATING OF DEVICES WITHIN A PIECE OF EQUIPMENT IS NOT ALLOWED. SEE SPECIFICATIONS FOR MORE INFORMATION.
4. ALL SWITCHBOARDS, SWITCHGEAR, AND PANELBOARDS SHALL HAVE A SHORT-CIRCUIT CURRENT RATING NOT LESS THAN THE AVAILABLE FAULT CURRENT. THE AVAILABLE FAULT CURRENT AND THE DATE THE CALCULATION WAS PERFORMED SHALL BE FIELD MARKED ON THE ENCLOSURE AT THE POINT OF SUPPLY.
5. NOT USED.
6. ALL TERMINATIONS AND ENCLOSURES SHALL BE RATED FOR USE WITH 75 DEGREE CELSIUS CONDUCTORS.
7. ALL SERVICE ENTRANCE EQUIPMENT RATED AT 400A OR GREATER SHALL BE PROVIDED WITH A BACKFEED-RATED, SOLID STATE MAIN OVERCURRENT DEVICE AND BUSSING RATED AT 100% OPERATION (1000A/sq.in. FOR CU, 750A/sq.in. FOR AL). NO HEAT RISE RATED BUSSING ALLOWED. NON-SERVICE ENTRANCE SWITCHBOARDS AND DISTRIBUTION BOARDS LARGER THAN 600A SHALL BE PROVIDED WITH BUSSING RATED FOR 100% OPERATION - SEE SPECIFICATION FOR CIRCUIT BREAKER REQUIREMENTS. ALL NON-SERVICE ENTRANCE SWITCHBOARDS AND DISTRIBUTION BOARD MAIN OVERCURRENT DEVICES SHALL BE BACKFEED-RATED. BACKFEED RATINGS SHALL COMPLY WITH NEC, OR CEC WHERE ADOPTED, 710.15 (E) AND 705.12(B)(4). SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS REGARDING CIRCUIT BREAKERS.
8. PROVIDE CIRCUIT BREAKER ARC ENERGY REDUCTION MAINTENANCE SWITCHING PER NEC, OR CEC WHERE ADPOPTED, 240.87(B)(3) FOR ANY CIRCUIT BREAKER, 1200A FRAME AND LARGER. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
9. ALL SWITCHBOARDS AND DISTRIBUTION BOARDS SHALL HAVE:
   a. TIN-PLATED ALUMINUM BUSSING WITH RECTANGULAR CROSS SECTION. HORIZONTAL AND VERTICAL BUSSING SHALL BE FULL LENGTH AND SHALL HAVE PROVISIONS FOR FUTURE EXTENSIONS. ALL BUSSING SHALL HAVE MINIMUM WITHSTAND RATING EQUAL TO THE AVAILABLE FAULT CURRENT INDICATED. ALL VERTICAL AND HORIZONTAL BUSSING SHALL BE RATED AT FULL CAPACITY IN ALL SWITCHBOARD AND DISTRIBUTION BOARD SECTIONS. PROVIDE 100% NEUTRAL BUSSING MINIMUM UNLESS OTHERWISE NOTED. PROVIDE FULL LENGTH GROUND BUS AND, WHERE INDICATED ON PLANS, ISOLATED GROUND BUSSING. PROVIDE REAR WIRE WAY IN ALL SWITCHBOARD SECTIONS.
   b. LUGS SUITABLE FOR USE WITH COPPER OR ALUMINUM CONDUCTORS LISTED FOR USE WITH 75 DEGREE CELSIUS AMPACITY CONDUCTORS.
   c. PERMANENT PLACARD(S) MARKED PER THE SPECIFICATIONS AND PER NEC (OR CEC-WHERE ADOPTED) SECTIONS 225.37, 230.2(E), 690.56, 692.56, 700.7, 701.7, 702.7, AND 705.10 AND IFC (OR CFC - WHERE ADOPTED) SECTION 608.2.6.1. DENOTING THE PRESENCE OF ADDITIONAL SERVICES, PHOTOVOLTAIC SYSTEMS, FUEL CELLS, EMERGENCY, STATIONARY BATTERY STORAGE SYSTEMS, OR STAND-BY POWER SOURCES AS APPLICABLE.
10. CONTRACTOR SHALL SUBMIT SWITCHBOARD SHOP DRAWINGS TO THE SERVING UTILITY FOR APPROVAL PRIOR TO FABRICATION. CONTRACTOR SHALL SECURE CONFIRMATION THAT THE PROPOSED SWITCHBOARD COMPLIES WITH ELECTRIC UTILITY COMPANY REGULATIONS.
11. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PER THE SPECIFICATIONS FOR SWITCHBOARDS, DISTRIBUTION BOARDS, TRANSFORMERS, PANEL BOARDS, AND ALL OTHER DEVICES SHOWN ON THE SINGLE LINE, PRIOR TO FABRICATION.
12. ALLOWABLE DIMENSIONS IN MAIN ELECTRICAL ROOM ARE A CRITICAL COORDINATION ITEM. CONTRACTOR SHALL PROVIDE 1/4"= 1'-0" SCALE DRAWINGS WITH SWITCHGEAR SUBMITTALS SHOWING THAT ALL PROPOSED EQUIPMENT WILL FIT IN THE SPACE PROVIDED. SUBMITTALS WITHOUT THIS DRAWING SHALL BE REJECTED AS INCOMPLETE.
13. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), OR EXISTING, ALL ELECTRICAL DEVICES SHOWN ARE NEW.
14. WHERE REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION OR WHERE A NEW GROUND FAULT PROTECTIVE DEVICE IS BEING INSTALLED, A GROUND FAULT SYSTEM TEST SHALL BE CONDUCTED BY AN INDEPENDENT TESTING AGENCY PER NEC (OR CEC-WHERE ADOPTED) 230.95(C). THE GROUND FAULT SYSTEM TEST SHALL BE PERFORMED IN THE PRESENCE OF THE LOCAL AUTHORITY HAVING JURISDICTION. VERIFICATION OF DEVICE SETTINGS PER THE POWER SYSTEMS STUDY SPECIFICATION SHALL BE PERFORMED BY THE SAME INDEPENDENT TESTING AGENCY. THE GROUND FAULT TEST RESULTS SHALL BE DELIVERED TO THE ENGINEER OF RECORD. DURING THE CONSTRUCTION PHASE OF THE PROJECT, ALL NEW GROUND FAULT RELAYS SHALL BE SET AT THE LOWEST AVAILABLE TIME DELAY AND PICK-UP SETTINGS.
15. SEE POWER SYSTEMS STUDY SPECIFICATION FOR ADDITIONAL REQUIREMENTS. ALL REQUIRED POWER SYSTEMS STUDIES MUST BE COMPLETED AND SUBMITTED WITH ELECTRICAL POWER DISTRIBUTION EQUIPMENT SUBMITTAL. FAILURE TO DO SO WILL PREVENT THE ENGINEER FROM EFFECTIVELY EVALUATING THE SUBMITTAL AND SHALL RESULT IN REJECTION OF THE ELECTRICAL POWER DISTRIBUTION EQUIPMENT SUBMITTAL AS INCOMPLETE.
16. ALL EQUIPMENT SHOWN IS EXISTING UNLESS OTHERWISE NOTED.

SPECIFIC SINGLE LINE NOTES:

1. NEW FEEDER: 2-1/2"C., (4) #4/0, (1) #2 GND.
2. PROVIDE LIMITED POWER SYSTEM STUDY FOR NEW SINGLE LINE ITEMS TO INCLUDE UPSTREAM SYSTEM COMPONENT/CONTRIBUTIONS. SEE POWER SYSTEM STUDY SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	09/12/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	

SINGLE LINE DIAGRAM

E4.00

PANEL: 4C

MOUNTING: **DOUBLE-LUGS:** No **VOLTS:** 120/208 Wye **SUPPLY FROM:**
NEMA 3R: No **200% NEUTRAL:** No **PHASE:** 3 **LOCATION:**
FEED THRU: No **I/G BUS:** No **WIRE:** 4 **MCB:** 100 A
M.L.O.: No **AIC:** 10000 **BUS:** 225 A

NOTE	DESCRIPTION	BKR	POLE	TYPE	CIRC	A (VA)	B (VA)	C (VA)	CIRC	TYPE	POLE	BKR	DESCRIPTION	NOTE
	CHEM LAB TABLE RECEPTS RM 421	20 A	1	R	1	720 180			2	R	1	20 A	CONFERENCE ROOM RECEPT RM 420	
	CHEM LAB TABLE RECEPTS RM 421	20 A	1	R	3		720 900		4	R	1	20 A	COPIER RECEPT RM 420	
	CHEM LAB TABLE RECEPTS RM 421	20 A	1	R	5			720 180	6	P	1	20 A	FUME HOOD	
	CHEM LAB TABLE RECEPTS RM 421	20 A	1	R	7	720			8					
	CHEM LAB TABLE RECEPTS RM 421	20 A	1	R	9		720		10					
	CHEM CONVENIENCE RECEPTS RM 421	20 A	1	R	11			900	12					
	CHEM CONVENIENCE RECEPTS RM 421	20 A	1	R	13	720			14					
	TEACHER'S DESK RECEPT RM 421	20 A	1	R	15		180		16					
	CHEM LAB TABLE RECEPTS RM 423	20 A	1	P	17			720	18					
	CHEM LAB TABLE RECEPTS RM 423	20 A	1	P	19	720			20					
	CHEM LAB TABLE RECEPTS RM 423	20 A	1	P	21		720		22					
	CHEM LAB TABLE RECEPTS RM 423	20 A	1	P	23			720 --	24	--	1	--	SPACE	
	CHEM LAB TABLE RECEPTS RM 423	20 A	1	P	25	720 --			26	--	1	--	SPACE	
	CHEM CONVENIENCE RECEPTS RM 423	20 A	1	P	27		900 --		28	--	1	--	SPACE	
	CHEM CONVENIENCE RECEPTS RM 423	20 A	1	P	29			1080 --	30	--	1	--	SPACE	
	TEACHER'S DESK RECEPT RM 423	20 A	1	P	31	180			32					
	CHEM STORAGE RECEPTS RM 422	20 A	1	R	33		360		34					
	CHEM STORAGE RECEPTS RM 422	20 A	1	R	35			360	36					
	CONFERENCE RM RECEPTS RM 420	20 A	1	R	37	720 0			38	--	1	20 A	SPARE	
	(E) EXISTING CKT	20 A	1	--	39		500 1000		40	--	1	20 A	EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	41			1000 800	42	--	1	20 A	EXISTING CKT	
						4680.00 VA	6000.00 VA	6480.00 VA						
	PHASE TOTALS:					39.0 A	51.7 A	55.7 A						

COMMENTS:

LOAD TYPE KEY	LOAD CLASSIFICATION	CONNECTED LOAD	AVG. DEMAND...	ESTIMATED DEMAND	PANEL TOTALS	AMPS	KVA
H = HVAC EQUIP	P	5940 VA	100.00%	5940 VA			
K = KITCHEN	R	7920 VA	100.00%	7920 VA	TOTAL CONNECTED LOAD:	47.6 A	17160 VA
L = LIGHTING					TOTAL DEMAND LOAD:	47.6 A	17160 VA
M = MOTOR					HIGH PHASE:	56 A	6480 VA
P = POWER							
R = RECEPTACLE							
W = WATER HEATER							

PANEL: 4B

MOUNTING: **DOUBLE-LUGS:** No **VOLTS:** 120/208 Wye **SUPPLY FROM:**
NEMA 3R: No **200% NEUTRAL:** No **PHASE:** 3 **LOCATION:** ELEC 428A
FEED THRU: No **I/G BUS:** No **WIRE:** 4 **MCB:** 150 A
M.L.O.: No **AIC:** 10000 **BUS:** 225 A

NOTE	DESCRIPTION	BKR	POLE	TYPE	CIRC	A (VA)	B (VA)	C (VA)	CIRC	TYPE	POLE	BKR	DESCRIPTION	NOTE
	(E) EXISTING CKT	20 A	1	--	1	720 540			2	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	3		900 180		4	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	5			540 720	6	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	7	720 540			8	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	9		180 180		10	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	11			720 720	12	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	13	180 1100			14	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	15		600 1100		16	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	17			180 1100	18	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	19	180 1100			20	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	21		1100 1300		22	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	23			1000 1100	24	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	25	1200 1100			26	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	27		1300 1100		28	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	29			1090 1100	30	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	31	1100 1100			32	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	33		1100 1100		34	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	35			1100 1000	36	--	1	20 A	(E) EXISTING CKT	
	(E) EXISTING CKT	20 A	1	--	37	1000 0			38	--	1	20 A	(E) EXISTING CKT	
	SPACE	--	1	--	39		-- 0		40	--	1	20 A	(E) EXISTING CKT	
	SPACE	--	1	--	41			-- --	42					
						10580.00 VA	10140.00 VA	10370.00 VA						
	PHASE TOTALS:					88.5 A	84.5 A	86.7 A						

COMMENTS:

LOAD TYPE KEY	LOAD CLASSIFICATION	CONNECTED LOAD	AVG. DEMAND...	ESTIMATED DEMAND	PANEL TOTALS	AMPS	KVA
H = HVAC EQUIP							
K = KITCHEN					TOTAL CONNECTED LOAD:	86.3 A	31090 VA
L = LIGHTING					TOTAL DEMAND LOAD:	86.3 A	31090 VA
M = MOTOR					HIGH PHASE:	88 A	10580 VA
P = POWER							
R = RECEPTACLE							
W = WATER HEATER							

PANEL: 4A

MOUNTING: **DOUBLE-LUGS:** No **VOLTS:** 120/208 Wye **SUPPLY FROM:**
NEMA 3R: No **200% NEUTRAL:** No **PHASE:** 3 **LOCATION:** ELEC 428A
FEED THRU: No **I/G BUS:** No **WIRE:** 4 **MCB:** 150 A
M.L.O.: No **AIC:** 10000 **BUS:** 225 A

NOTE	DESCRIPTION	BKR	POLE	TYPE	CIRC	A (VA)	B (VA)	C (VA)	CIRC	TYPE	POLE	BKR	DESCRIPTION	NOTE
	CLASSROOM 426 LTG	20 A	1	L	1	822 30			2	L	1	20 A	EXIT SIGNS	
	CLASSROOM 423 LTG	20 A	1	L	3		791 95		4	L	P 1	20 A	EXTERIOR LTG	
	CLASSROOM 425 LTG	20 A	1	L	5			730 0	6	--	1	20 A	SPARE	
	CLASSROOM 421 LTG	20 A	1	L	7	690 0			8	--	1	20 A	SPARE	
	CORRIDOR CONFERENCE ROOM LTG	20 A	1	L	9		453 0		10	--	1	20 A	SPARE	
	SPARE	20 A	1	--	11			0 0	12	--	1	20 A	SPARE	
	SPARE	20 A	1	--	13	0 0			14	--	1	20 A	SPARE	
	SPARE	20 A	1	--	15		0 0		16	--	1	20 A	SPARE	
	SPARE	20 A	1	--	17			0 0	18	--	1	20 A	SPARE	
	SPACE	--	1	--	19	-- 0			20	--	1	20 A	SPARE	
	SPARE	20 A	1	--	21		0 0		22	--	1	20 A	SPARE	
	SPARE	20 A	1	--	23			0 0	24	--	1	20 A	SPARE	
	SPARE	20 A	1	--	25	0 0			26	--	1	20 A	SPARE	
	SPARE	20 A	1	--	27		0 0		28	--	1	20 A	SPARE	
	SPARE	20 A	1	--	29			0 500	30	--	1	20 A	SPARE	
	SPARE	20 A	1	--	31	0 --			32	--	1	--	SPACE	
	SPARE	20 A	1	--	33		0 0		34	--	1	20 A	SPARE	
	SPARE	20 A	1	--	35			0 0	36	--	1	20 A	SPARE	
	SPARE	20 A	1	--	37	0 1500			38	--	1	20 A	(E) EXTERIOR LTG	
	SPARE	20 A	1	--	39		0 1300		40	--	1	20 A	(E) EXTERIOR LTG	
	SPARE	20 A	1	--	41			0 0	42	--	1	20 A	SPARE	
						3041.50 VA	2639.00 VA	1230.00 VA						
	PHASE TOTALS:					27.2 A	23.8 A	10.3 A						

COMMENTS:

LOAD TYPE KEY	LOAD CLASSIFICATION	CONNECTED LOAD	AVG. DEMAND...	ESTIMATED DEMAND	PANEL TOTALS	AMPS	KVA
H = HVAC EQUIP	P	95 VA	100.00%	95 VA			
K = KITCHEN	L	3516 VA	125.00%	4394 VA	TOTAL CONNECTED LOAD:	19.2 A	6911 VA
L = LIGHTING					TOTAL DEMAND LOAD:	21.6 A	7789 VA
M = MOTOR					HIGH PHASE:	27 A	3042 VA
P = POWER							
R = RECEPTACLE							
W = WATER HEATER							

PANEL: 4F

MOUNTING: **DOUBLE-LUGS:** No **VOLTS:** 120/208 Wye **SUPPLY FROM:**
NEMA 3R: No **200% NEUTRAL:** No **PHASE:** 3 **LOCATION:**
FEED THRU: No **I/G BUS:** No **WIRE:** 4 **MCB:** 100 A
M.L.O.: No **AIC:** 10000 **BUS:** 225 A

NOTE	DESCRIPTION	BKR	POLE	TYPE	CIRC	A (VA)	B (VA)	C (VA)	CIRC	TYPE	POLE	BKR	DESCRIPTION	NOTE
	BIO LAB TABLE RECEPTS RM 428	20 A	1	R	1	720			2					
	BIO LAB TABLE RECEPTS RM 428	20 A	1	R	3		720		4					
	BIO LAB TABLE RECEPTS RM 428	20 A	1	R	5			720	6					
	BIO LAB TABLE RECEPTS RM 428	20 A	1	R	7	720			8					
	BIO LAB TABLE RECEPTS RM 428	20 A	1	R	9		720		10					
	BIO CONVENIENCE RECEPTS RM 428	20 A	1	R	11			1080	12					
	BIO CONVENIENCE RECEPTS RM 428	20 A	1	R	13	900			14					
	TEACHER'S DESK RECEPT RM 428	20 A	1	R	15		180		16					
	BIO LAB TABLE RECEPTS RM 426	20 A	1	P	17			720	18					
	BIO LAB TABLE RECEPTS RM 426	20 A	1	P	19	720			20					
	BIO LAB TABLE RECEPTS RM 426	20 A	1	P	21		720		22					
	BIO LAB TABLE RECEPTS RM 426	20 A	1	P	23			720	24					
	BIO LAB TABLE RECEPTS RM 426	20 A	1	P	25	720			26					
	BIO CONVENIENCE RECEPTS RM 426	20 A	1	P	27		900	360	28	--	1	20 A	EXISTING CIRCUIT	
	BIO CONVENIENCE RECEPTS RM 426	20 A	1	P	29			1080 540	30	--	1	20 A	EXISTING CIRCUIT	
	BIO TEACHER'S DESK RECEPT RM 426	20 A	1	P	31	180 500			32	--	1	20 A	EXISTING CIRCUIT	
	BIO STORAGE RECEPTS RM 425	20 A	1	R	33		540 500		34	--	1	20 A	EXISTING CIRCUIT	
	BIO STORAGE RECEPTS RM 425	20 A	1	R	35			360	36					
	CIRCULATION RECEPTS RM 433	20 A	1	R	37	900			38					
	PA SYSTEM POWER	20 A	1	R	39		360 180		40	P	1	20 A	FAPS-D	A,E
	IDF POWER	20 A	1	R	41			360 180	42	P	1	20 A	AMP-D	A,E
						5360.00 VA	5180.00 VA	5760.00 VA						
	PHASE TOTALS:					44.9 A	43.2 A	48.2 A						

COMMENTS:

LOAD TYPE KEY	LOAD CLASSIFICATION	CONNECTED LOAD	AVG. DEMAND...	ESTIMATED DEMAND	PANEL TOTALS	AMPS	KVA
H = HVAC EQUIP	P	6120 VA	100.00%	6120 VA			
K = KITCHEN	R	8280 VA	100.00%	8280 VA	TOTAL CONNECTED LOAD:	45.2 A	16300 VA
L = LIGHTING					TOTAL DEMAND LOAD:	45.2 A	16300 VA
M = MOTOR					HIGH PHASE:	48 A	5760 VA
P = POWER							
R = RECEPTACLE							
W = WATER HEATER							

PANEL: 4EA

MOUNTING: **DOUBLE-LUGS:** No **VOLTS:** 120/208 Wye **SUPPLY FROM:**
NEMA 3R: No **200% NEUTRAL:** No **PHASE:** 3 **LOCATION:** ELEC 428A
FEED THRU: No **I/G BUS:** No **WIRE:** 4 **MCB:** 40 A
M.L.O.: No **AIC:** 10000 **BUS:** 100 A

NOTE	DESCRIPTION	BKR	POLE	TYPE	CIRC	A (VA)	B (VA)	C (VA)	CIRC	TYPE	POLE	BKR	DESCRIPTION	NOTE
	EXISTING CKT	20 A	1	--	1	40 0			2	--	1	20 A	SPARE	
	EXISTING CKT	20 A	1	--	3		600 0		4	--	1	20 A	SPARE	
	EXISTING CKT	20 A	1	--	5			400 0	6	--	1	20 A	SPARE	
	EXISTING CKT	20 A	1	--	7	300 0			8	--	1	20 A	SPARE	
	SPACE	--	1	--	9		-- 0		10	--	1	20 A	SPARE	
	SPACE	--	1	--	11			-- 0	12	--	1	20 A	SPARE	
	SPACE	--	1	--	13	-- --			14	--	1	--	SPACE	
	SPACE	--	1	--	15		-- --		16	--	1	--	SPACE	
	SPACE	--	1	--	17			-- --	18	--	1	--	SPACE	
	SPACE	--	1	--	19	-- --			20	--	1	--	SPACE	
	SPACE	--	1	--	21		-- --		22	--	1	--	SPACE	
	SPACE	--	1	--	23			-- --	24	--	1	--	SPACE	
	SPACE	--	1	--	25	-- --			26	--	1	--	SPACE	
	SPACE	--	1	--	27		-- --		28	--	1	--	SPACE	
	SPACE	--	1	--	29			-- --	30	--	1	--	SPACE	
	SPACE	--	1	--	31	-- --			32	--	1	--	SPACE	
	SPACE	--	1	--	33		-- --		34	--	1	--	SPACE	
	SPACE	--	1	--	35			-- --	36	--	1	--	SPACE	
	SPACE	--	1	--	37	-- --			38	--	1	--	SPACE	
	SPACE	--	1	--	39		-- --		40	--	1	--	SPACE	
	SPACE	--	1	--	41			-- --	42	--	1	--	SPACE	
						340.00 VA	600.00 VA	400.00 VA						
	PHASE TOTALS:					2.8 A	5.1 A	3.4 A						

COMMENTS:

LOAD TYPE KEY	LOAD CLASSIFICATION	CONNECTED LOAD	AVG. DEMAND...	ESTIMATED DEMAND	PANEL TOTALS	AMPS	KVA
H = HVAC EQUIP							
K = KITCHEN					TOTAL CONNECTED LOAD:	3.7 A	1340 VA
L = LIGHTING					TOTAL DEMAND LOAD:	3.7 A	1340 VA
M = MOTOR					HIGH PHASE:	5 A	600 VA
P = POWER							
R = RECEPTACLE							
W = WATER HEATER							

PANEL: 4D

MOUNTING: **DOUBLE-LUGS:** No **VOLTS:** 120/208 Wye **SUPPLY FROM:**
NEMA 3R: No **200% NEUTRAL:** No **PHASE:** 3 **LOCATION:**
FEED THRU: No **I/G BUS:** No **WIRE:** 4 **MCB:** 175 A
M.L.O.: No **AIC:** 10000 **BUS:** 175 A

NOTE	DESCRIPTION	BKR	POLE	TYPE	CIRC	A (VA)	B (VA)	C (VA)	CIRC	TYPE	POLE	BKR	DESCRIPTION	NOTE
					1				2					
					3				4					
					5				6					
					7				8					
					9				10					
					11				12					
					13				14					
					15				16					
					17				18					
					19				20					
					21				22					
					23				24	--	1	20 A	EXISTING CKT	
					25	0			26	--	1	20 A	EXISTING CKT	
					27		0		28	--	1	20 A	EXISTING CKT	
					29			0	30	--	1	20 A	EXISTING CKT	
					31	0			32	--	1	20 A	EXISTING CKT	
					33		0		34	--	1	20 A	EXISTING CKT	
					35			--	36	--	1	--	SPACE	
					37	0			38	--	1	20 A	SPARE	
	EXISTING CKT	20 A	1	--	39		0 0		40	--	1	20 A	EXISTING CKT	
	EXISTING CKT	20 A	1	--	41			0 0	42	--	1	20 A	EXISTING CKT	
						0.00 VA	0.00 VA	0.00 VA						
	PHASE TOTALS:					0.0 A	0.0 A	0.0 A						

COMMENTS:

LOAD TYPE KEY	LOAD CLASSIFICATION	CONNECTED LOAD	AVG. DEMAND...	ESTIMATED DEMAND	PANEL TOTALS	AMPS	KVA
H = HVAC EQUIP							
K = KITCHEN					TOTAL CONNECTED LOAD:	0.0 A	0 VA
L = LIGHTING					TOTAL DEMAND LOAD:	0.0 A	0 VA
M = MOTOR					HIGH PHASE:	0 A	0 VA
P = POWER							
R = RECEPTACLE							
W = WATER HEATER							

PANEL: 4H

MOUNTING: **DOUBLE-LUGS:** No **VOLTS:** 120/208 Wye **SUPPLY FROM:**
NEMA 3R: No **200% NEUTRAL:** No **PHASE:** 3 **LOCATION:**
FEED THRU: No **I/G BUS:** No **WIRE:** 4 **MCB:** 225 A
M.L.O.: No **AIC:** 10000 **BUS:** 225 A

NOTE	DESCRIPTION	BKR	POLE	TYPE	CIRC	A (VA)	B (VA)	C (VA)	CIRC	TYPE	POLE	BKR	DESCRIPTION	NOTE
	RTU-2	20 A	3	H	1	576 576			2	H	3	20 A	RTU-3	
--	--	--	--	--	3		576 576		4	--	--	--	--	--
--	--	--	--	--	5			576 576	6	--	--	--	--	--
	RTU-4	20 A	3	H	7	576 636			8	H	3	20 A	RTU-5	
--	--	--	--	--	9		576 636		10	--	--	--	--	--
--	--	--	--	--	11			576 636	12	--	--	--	--	--
					13				14					
					15				16					
	HRU-1	100 A	3	H	17			4160	18					
--	--				19	4160			20					
--	--	--	--	--	21		4160		22					
	HRU-2	100 A	3	H	23			4160	24					
--	--	--	--	--	25	4160			26					
--	--	--	--	--	27		4160		28					
	BS-1	20 A	2	H	29			90	30					
--	--	--	--	--	31	90			32					
	BS-2	20 A	2	H	33		90		34					
--	--	--	--	--	35			90	36					
	RTU-5 PWR EXHAUST	15 A	3	H	37	0			38					
--	--	--	--	--	39		0		40					
--	--	--	--	--	41			0	42					
						10774.00 VA	10774.00 VA	10864.00 VA						
	PHASE TOTALS:					89.8 A	89.8 A	90.5 A						

COMMENTS:

LOAD TYPE KEY	LOAD CLASSIFICATION	CONNECTED LOAD	AVG. DEMAND...	ESTIMATED DEMAND	PANEL TOTALS	AMPS	KVA
H = HVAC EQUIP	H	32412 VA	100.00%	32412 VA			
K = KITCHEN					TOTAL CONNECTED LOAD:	90.0 A	32412 VA
L = LIGHTING					TOTAL DEMAND LOAD:	90.0 A	32412 VA
M = MOTOR					HIGH PHASE:	91 A	10864 VA
P = POWER							
R = RECEPTACLE							
W = WATER HEATER							

PANEL: 4G

MOUNTING: **DOUBLE-LUGS:** No **VOLTS:** 120/208 Wye **SUPPLY FROM:**
NEMA 3R: No **200% NEUTRAL:** No **PHASE:** 3 **LOCATION:**
FEED THRU: No **I/G BUS:** No **WIRE:** 4 **MCB:** 225 A
M.L.O.: No **AIC:** 10000 **BUS:** 225 A

NOTE	DESCRIPTION	BKR	POLE	TYPE	CIRC	A (VA)	B (VA)	C (VA)	CIRC	TYPE	POLE	BKR	DESCRIPTION	NOTE
	EF-7	20 A	3	H	1	1272 360			2	H	1	20 A	EF-1	
--	--	--	--	--	3		1272		4					
--	--	--	--	--	5			1272 1333	6	W	3	30 A	EWH-1 RM 424	
	EF-6	20 A	3	H	7	1272 1333			8	--	--	--	--	--
--	--	--	--	--	9		1272 1333		10	--	--	--	--	--
--	--	--	--	--	11			1272 4000	12	W	2	50 A	EWH-2 RM 425	
	EF-3	20 A	3	H	13	267 4000			14	--	--	--	--	--
--	--	--	--	--	15		267 4000		16	W	2	50 A	EWH-2 RM 420	
--	--	--	--	--	17			267 4000	18	--	--	--	--	--
	EF-4	20 A	3	H	19	1272 4000			20	W	2	50 A	EWH-2 RM 422	
--	--	--	--	--	21		1272 4000		22	--	--	--	--	--
--	--	--	--	--	23			1272	24					
	EF-5	20 A	3	H	25	2923			26					
--	--	--	--	--	27		2923		28					
--	--	--	--	--	29			2923	30					
	EF-2	20 A	1	H	31	360			32					
	EF-8	20 A	1	H	33		360		34					
	RTU-1	20 A	3	H	35			576	36					
--	--	--	--	--	37	576			38					
--	--	--	--	--	39		576		40					
	ROOF RECEPTACLES	20 A	1	R	41			900	42					
						17635.33 VA	17275.33 VA	17815.33 VA						
	PHASE TOTALS:					147.4 A	144.0 A	148.9 A						

COMMENTS:

LOAD TYPE KEY	LOAD CLASSIFICATION	CONNECTED LOAD	AVG. DEMAND...	ESTIMATED DEMAND	PANEL TOTALS	AMPS	KVA
H = HVAC EQUIP	R	900 VA	100.00%	900 VA			
K = KITCHEN	H	23826 VA	100.00%	23826 VA	TOTAL CONNECTED LOAD:	146.4 A	52726 VA
L = LIGHTING	W	28000 VA	125.00%	35000 VA	TOTAL DEMAND LOAD:	165.8 A	59726 VA
M = MOTOR					HIGH PHASE:	149 A	17815 VA
P = POWER							
R = RECEPTACLE							
W = WATER HEATER							

AS-BUILT PANEL DIRECTORY NOTE:

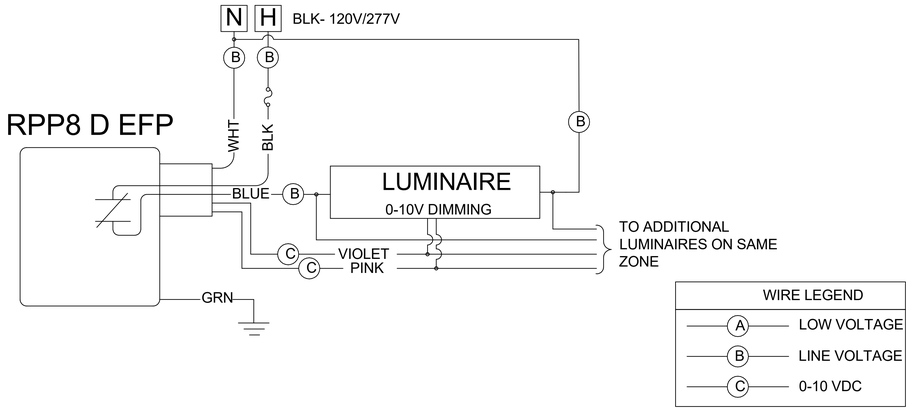
BRANCH CIRCUIT LOCATIONS NOTED WITH "(E)" INDICATE EXISTING CIRCUIT(S). THE IDENTITIES OF THESE CIRCUITS ARE BASED ON EXISTING PANEL DIRECTORIES AND/OR LIMITED AS-BUILT INFORMATION. CONTRACTOR SHALL FIELD VERIFY EACH BRANCH CIRCUIT AND PROVIDE COMPLETE, TYPED AS-BUILT PANEL DIRECTORIES AS REQUIRED THAT DISTINGUISH EACH CIRCUIT PER NEC, OR CEC WHERE ADOPTED, ART 408.1 AND 408.4. COMPLETED DIRECTORIES SHALL BE SUBMITTED TO THE ELECTRICAL INSPECTOR PRIOR TO FINAL ELECTRICAL INSPECTION. INCLUDE ALL COSTS IN BID.

EXISTING CIRCUIT BREAKER NOTE:

PROVIDE BREAKER INTERLOCK WITH ADJACENT BREAKER(S) FOR ANY MULTI-WIRE BRANCH CIRCUIT. BREAKER INTERLOCK GROUPING SHALL BE BY BRANCH CIRCUIT GROUP (i.e. MULTIPLE CIRCUITS SHARING A COMMON NEUTRAL (NEC, OR CEC WHERE ADOPTED, 210.4(B),) COMMON YOKE (NEC, OR CEC WHERE ADOPTED, 210.7,) OR FURNITURE SYSTEM NEC OR CEC WHERE ADOPTED, 605.5 AND 605.7). WHERE AN EXISTING PANEL IS BEING ALTERED OR MODIFIED IN ANY WAY, CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID TO ADD BREAKER INTERLOCKS TO EXISTING MULTI-WIRE BRANCH CIRCUITS BASED ON CONTRACTOR'S INVESTIGATION OF EXISTING CONDITIONS.

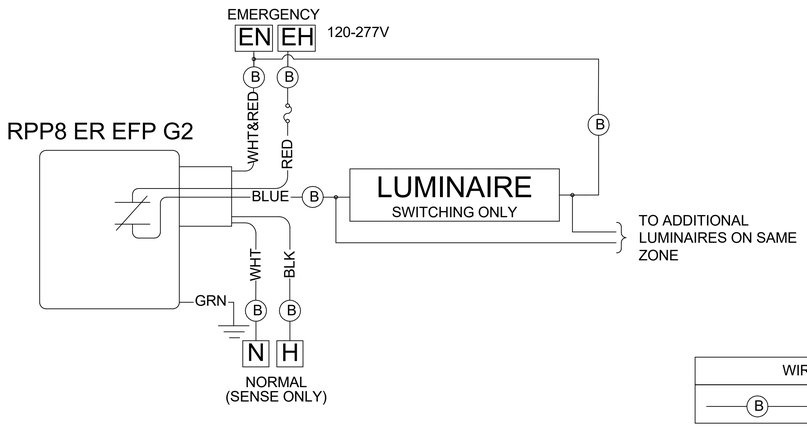
GENERAL PANEL SCHEDULE NOTES:

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. WHERE PANEL CIRCUIT BREAKER RATING IS SHOWN AS SERIES RATED, PROVIDE CIRCUIT BREAKERS IN PANELBOARD WHICH ARE SERIES RATED WITH THE UPSTREAM SYSTEM FOR THE AVAILAB



TYPICAL WIRING DIAGRAM: RPP8 D EFP

N.T.S.

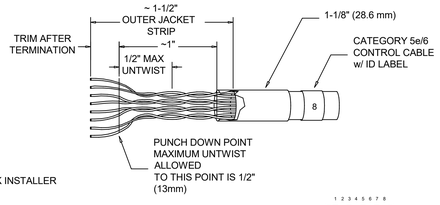


TYPICAL WIRING DIAGRAM: RPP8 ER EFP G2

N.T.S.

TIA / EIA-568-B CABLING STANDARD TERMINATION

Function	PAIR #	PIN OUT (T568B)	Wire Color
(T1)	1	5	WHITE w/ BLUE
(R1)		4	BLUE
Tx + (T2)	2	1	WHITE w/ ORANGE
Tx - (R2)		2	ORANGE
Rx + (T3)	3	3	WHITE w/ GREEN
Rx - (R3)		6	GREEN
(T4)	4	7	WHITE w/ BROWN
(R4)		8	BROWN

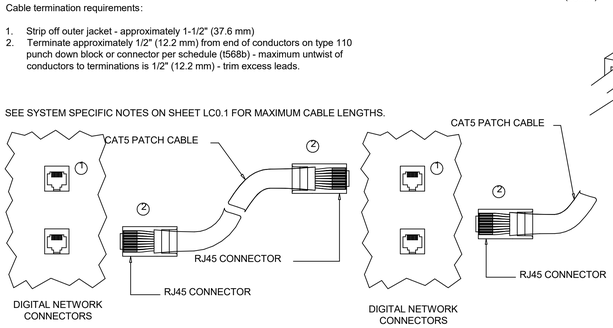


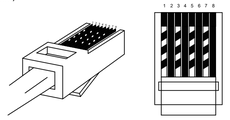
TERMINATION & TESTING OF CAT5 CABLES MUST BE DONE BY A QUALIFIED NETWORK INSTALLER

Cable termination requirements:

1. Strip off outer jacket - approximately 1-1/2" (37.6 mm)
2. Terminate approximately 1/2" (12.2 mm) from end of conductors on type 110 punch down block or connector per schedule (t568b) - maximum untwist of conductors to terminations is 1/2" (12.2 mm) - trim excess leads.

SEE SYSTEM SPECIFIC NOTES ON SHEET LC0.1 FOR MAXIMUM CABLE LENGTHS.





1. WHITE w/ ORANGE
2. ORANGE
3. WHITE w/ GREEN
4. BLUE
5. WHITE w/ BLUE
6. GREEN
7. WHITE w/ BROWN
8. BROWN

Notes:

Daisy-chain CAT5 patch cable with RJ45 connectors from digital device to digital device.

Refer to manufacturers instructions for long distance runs between digital devices.

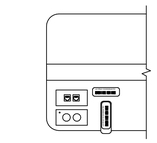
Crimp and test each cable with a LAN circuit tester prior to installation.

RJ45 FEMALE CONNECTOR

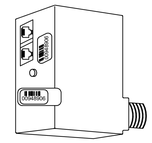
RJ45 MALE CONNECTORS. ALL CABLES SUPPLIED BY CONTRACTOR.

CAT5E/6 CABLE TERMINATION

N.T.S.



BAR CODE ON NLIGHT ENABLED FIXTURE



BAR CODE ON NLIGHT DEVICE

NOTES:

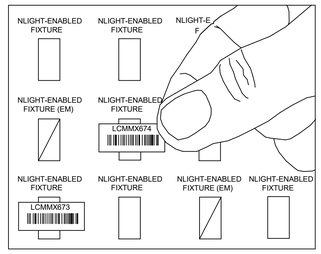
EVERY NLIGHT ENABLED DEVICE (INCLUDING NLIGHT EANABLED FIXTURES) IS FURNISHED WITH (1) PERMANENTLY ADHERED ID TAG AND (1) MATCHING, PARTIALLY ADHERED ID TAG TO BE PLACED ON THE RISER DIAGRAM SHEET PROVIDED AS PART OF AN NLIGHT SUBMITTAL DURING INSTALLATION AND PRIOR TO FACTORY STARTUP. CONTRACTOR SHALL 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 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 PROGRAM 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 OF THE INSTALLATION AREA TO A MINIMUM D SIZE (24X36). THE PLAN MAY BE A REFLECTED CEILING PLAN, LIGHTING PLAN, OR ELECTRICAL PLAN, SO LONG AS ALL DEVICES CAN BE LOCATED BY THE FIELD SUPPORT ENGINEER.
2. PLACE THE SMALL BARCODE LABEL (0.875 LONG) FROM EACH LUMINAIRE AND DEVICE ON THE FLOORPLAN. THE LARGE BARCODE LABEL (1.25 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 OTHER PERSONNEL RESPONSIBLE FOR ONSITE SYSTEM STARTUP. IT IS ALSO ACCEPTABLE TO PROVIDE THE BARCODE PLAN AS SCANNED PDF FILES, EMAILED TO YOUR LOCAL LIGHTING AGENCY. IF YOU DO NOT KNOW YOUR LOCAL LIGHTING AGENCY, PLEASE REACH OUT TO TECH SUPPORT AT 1 (800) 535-2465, OPTION 1 FOR NLIGHT. THEY WILL BE ABLE TO IDENTIFY YOUR LOCAL REP.
4. DRAW ON PLAN ANY LOCATION CHANGES FOR A FIXTURE OR DEVICES, IF DIFFERENT THAN SHOWN ON PLAN.



NLIGHT BARCODE INSTRUCTIONS

N.T.S.

OVERALL BILL OF MATERIAL

PRODUCT LEGEND
BACKBONE, LC1.0(E2.13

- rCP 9 — RCMS PDT 9 G2
  Networked nLight AIR occupancy and daylight sensor, Passive Dual Technology, Small Motion / Standard Range 360° Lens, Generation Two
- rCP B 7 — RCMSB PDT 7 G2
  Ceiling Mount Battery Powered Sensor, Passive Dual Technology, Mini-Low Bay 360° Lens, Generation Two
- r$ 2PD — RPODBA 2P DX XX G2
  nLight Preset Wall control, 2-Pole, Raise/Lower Dimming, Generation Two
- r$ D — RPODBA DX XX G2
  nLight Preset Wall control, Raise/Lower Dimming, Generation Two
- rPD8 — RPP8 D EFP G2 SKP
  RPP8, Dimming, External Fault Protection, Generation Two, Stocking Program-CA
- rPD8 EM — RPP8 D EM EFP G2 SKP
  RPP8, Dimming, Emergency Operation, External Fault Protection, Generation Two, Stocking Program-CA
- $XP — WSXA PDT XX
  Wall Switch, Passive Dual Technology

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

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LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	09/16/2025
100% DESIGN DEVELOPMENT	09/30/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	1" = 1'-0"

DISTRIBUTED LIGHTING CONTROLS

E4.04

DISTRIBUTED LIGHTING CONTROLS SYSTEM SPECIFICATIONS (OCCUPANCY / VACANCY SENSORS AND DAYLIGHTING CONTROLS):

1. SEE LIGHTING PLAN DRAWINGS FOR DISTRIBUTED LIGHTING CONTROL SYSTEM (DLCS) SPECIFICS, SPACE SPECIFIC CONFIGURATIONS/REQUIREMENTS, AS WELL AS FIXTURE BALLAST/DRIVER CONFIGURATIONS.

2. ALL PRODUCTS SHALL BE BACKED BY A FIVE YEAR MANUFACTURER'S WARRANTY.

3. ALL PRODUCTS LISTED IN THIS SPECIFICATION ARE BASED UPON PRODUCTS LISTED ON THIS SHEET. THE FEATURES AND CHARACTERISTICS OF THE PRODUCT LITERATURE AND SPECIFICATION SHEETS AVAILABLE ON THE VARIOUS MANUFACTURER'S WEB-SITES ARE INCLUDED IN THE REQUIREMENT OF THESE SPECIFICATIONS. ALL DLCS NETWORKED/NON-NETWORKED SYSTEM-BASED AND STANDALONE COMPONENTS SHALL BE PROVIDED BY A SINGLE MANUFACTURER.

4. DLCS COMPONENTS SHALL BE COMPLIANT WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL ENERGY CODES.

5. ALL NETWORKED AND NON-NETWORKED SYSTEM-BASED DLCS SYSTEMS SHALL BE COMPLIANT WITH AND CERTIFIED TO THE FOLLOWING SECURITY STANDARDS SET FORTH IN THE LATEST PUBLISHED VERSION OF THE DESIGNLIGHTS CONSORTIUM'S "NETWORKED LIGHTING CONTROL SYSTEM TECHNICAL REQUIREMENTS" DOCUMENT (VERSION 4.0 OR LATEST PUBLISHED VERSION):

   - DLCS COMPONENTS: UL2900-1 UL STANDARD FOR SOFTWARE CYBER SECURITY FOR NETWORK-CONNECTABLE PRODUCTS.
   - DLCS DESIGN PROCESS: UL 2900-1 UL STANDARD FOR SOFTWARE CYBER SECURITY FOR NETWORK-CONNECTABLE PRODUCTS AND/OR ISO/IEC 27001 STANDARD FOR INFORMATION SECURITY MANAGEMENT SYSTEMS.
   - DLCS CLOUD SERVICES: ANY ASSOCIATED DLCS CLOUD SERVICES SHALL MEET THE REQUIREMENTS OF ISO/IEC 27017 (WITH 27001) STANDARD FOR CODE OF PRACTICE FOR INFORMATION SECURITY CONTROLS FOR CLOUD SERVICES.

   WHERE THE MANUFACTURER CANNOT DEMONSTRATE COMPLIANCE WITH THE ABOVE REQUIREMENTS, THE DLCS MANUFACTURER SHALL PROVIDE A COMPREHENSIVE PRODUCT-SPECIFIC IT SECURITY STATEMENT FOR REVIEW BY THE OWNER. THE DLCS SHALL NOT BE CONNECTED TO AN OWNER-FURNISHED NETWORK WITHOUT PRIOR WRITTEN PERMISSION BY THE OWNER,

   ADDITIONALLY, WHERE INSTALLED IN THE STATE OF CALIFORNIA, SYSTEM-BASED DLCS SYSTEMS SHALL BE COMPLIANT WITH CA STATE ASSEMBLY BILL NO. 375 CALIFORNIA PRIVACY ACT OF 2018 AND CA STATE SENATE BILL NO 327 INFORMATION PRIVACY FOR CONNECTED DEVICES.

6. WHERE THE DLCS SCHEDULE INDICATES A SPECIFIC "SYSTEM TOPOLOGY" OPTION, PROVIDE ONE OF THE FOLLOWING:

   "NETWORKED" - PROVIDE A SYSTEM-BASED DLCS THAT COMMUNICATES USING A MANUFACTURER-SPECIFIC DLCS NETWORK ALLOWING BI-DIRECTIONAL FLOW OF INFORMATION BETWEEN DEVICES SUCH AS ROOM CONTROLLERS, SENSORS, RELAY PANELS AND NETWORK CONTROLLERS. PROVIDE A DLCS GUI AND RELATED SOFTWARE TO FACILITATE REMOTE DLCS DEVICE PARAMETERS CHANGES, REMOTE CONTROL ANY DLCS ELEMENT OR DEVICE, REMOTE SCHEDULE CHANGES/IMPLEMENTATIONS, AND REMOTE DLCS COMMISSIONING AND TROUBLESHOOTING. A NETWORKED SYSTEM TOPOLOGY SHALL BE CONFIGURED TO RESPOND TO LOCAL UTILITY DEMAND RESPONSE SIGNALS.

   "NON-NETWORKED" - PROVIDE A SYSTEM-BASED DLCS THAT COULD BE MADE TO COMMUNICATE USING A MANUFACTURER-SPECIFIC DLCS NETWORK, BUT FOR THIS PROJECT IS CONFIGURED WITHOUT ANY NETWORK CONNECTIVITY OR NETWORK COMPONENTS, EXCEPT FOR ANY NETWORK COMPONENTS REQUIRED TO FACILITATE DUAL MODE CONTROL FOR CORRIDORS, WAREHOUSE AISLES ETC. OR WHERE REQUIRED FOR BAS INTEGRATION REQUIRED IN THE DLCS SCHEDULE OR ELSEWHERE IN THE DRAWINGS AND SPECIFICATIONS. IN A "NON-NETWORKED" DLCS, DEMAND RESPONSE CAPABILITY IS NOT REQUIRED.

   "STAND ALONE" - PROVIDE INDIVIDUAL WALL SENSORS/CONTROLS - OPERATING AT 120V OR 277V. GENERALLY, STANDALONE COMPONENT INSTALLATIONS ARE TO BE AVOIDED AND ARE LIMITED TO USE IN SMALL ROOMS WHERE ADVANCED CONTROLS, DIMMING CAPABILITY, DEMAND RESPONSE, DUAL MODE CONTROL AND/OR NETWORK CONNECTIVITY ARE NOT REQUIRED BY APPLICABLE ENERGY CODE AND WHERE ACCEPTABLE TO AN END-USER.

7. WHERE THE DLCS SCHEDULE INDICATES A SPECIFIC "COMMUNICATIONS TOPOLOGY" OPTION, PROVIDE ONE OF THE FOLLOWING:

   PROVIDE WIRING, AS REQUIRED, TO INTERCONNECT DLCS DEVICES. WIRING MAY BE A COMBINATION OF LOW AND LINE VOLTAGE CONDUCTORS BASED ON SPECIFIC MANUFACTURER REQUIREMENTS.

   "WIRELESS" - PROVIDE WIRELESS CONNECTIVITY BETWEEN WALL CONTROLS, WALL, CEILING OR FIXTURE-INTEGRATED SENSORS, ROOM CONTROLLERS, WIRELESS ROUTER(S), AND WIRELESS NETWORK BRIDGES. CONTRACTOR SHALL PROVIDE WIRELESS ROUTERS, QTY AS REQUIRED, TO MAINTAIN ROBUST COMMUNICATIONS WITH ALL WIRELESS DEVICES. ROBUST MEANS THAT A CHANGE OF VALUE FROM OR TO ANY DLCS SYSTEM COMPONENT FROM OR TO AN APPLICABLE WIRELESS ROUTER/BRIDGE OCCURS IN LESS THAN 3 SECONDS.

   "HYBRID" - WHERE A SOLELY WIRELESS DLCS TOPOLOGY IS DEEMED INADEQUATE BASED ON OPERATIONAL OR AESTHETIC REASONS, A WIRELESS TOPOLOGY SHALL BE AUGMENTED WITH WIRED SYSTEM TO FORM A HYBRID COMMUNICATIONS TOPOLOGY. AREAS REQUIRING WIRED CONNECTIVITY SHALL BE OUTLINED ON THE LIGHTING PLANS AND UNLESS OTHERWISE INDICATED, ALL RESTROOMS SHALL BE PROVIDED WITH DUAL TECHNOLOGY OCCUPANCY SENSORS WHICH REQUIRE WIRED CONNECTIVITY AND WIRED POWER SUPPLY. A NETWORKED, SYSTEM-BASED DLCS INSTALLED WITH A HYBRID COMMUNICATIONS TOPOLOGY SHALL APPEAR IN THE USER GUI/SOFTWARE AS A SINGLE UNIFIED SYSTEM. SEPARATE GUI SOFTWARE INTERFACES FOR THE WIRED AND WIRELESS PORTIONS OF THE DLCS ARE UNACCEPTABLE.

9. WHERE THE DLCS SCHEDULE REQUIRES FIXTURE-INTEGRATED SENSORS, PROVIDE OCCUPANCY AND/OR DAYLIGHT SENSORS INTEGRATED WITHIN SPECIFIED FIXTURE TYPE THAT ALSO INTEGRATE INTO THE DLCS. SEE THE LIGHTING FIXTURE SCHEDULE FOR AFFECTED FIXTURE TYPE(S). WHERE INTEGRATED SENSORS DO NOT MEET OCCUPANCY/DAYLIGHT SENSOR COVERAGE REQUIREMENTS, CONTRACTOR SHALL AUGMENT COVERAGE WITH ADDITIONAL CEILING MOUNTED SENSORS AS REQUIRED AND AS A PART OF THE BASE BID.

10. WHERE THE DLCS SCHEDULE REQUIRES THE DLCS TO INTEGRATE WITH THE PROJECT'S BUILDING AUTOMATION SYSTEM (BAS) - SEE THE DLCS START-UP, BUILDING AUTOMATION SYSTEM (BAS) INTEGRATION, COMMISSIONING, & TRAINING PORTION OF THIS SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

11. WHERE THE DLCS SCHEDULE INDICATES "WIRELESS" OR "HYBRID" COMMUNICATIONS TOPOLOGIES AND ALOS ALLOWS WIRELESS DLCS COMPONENT BATTERY USAGE, PROVIDE BATTERIES WITHIN THE WIRELESS DLCS COMPONENTS INDICATED IN LIEU OF LINE OR LOW VOLTAGE POWER SOURCES.

12. DLCS COMPONENTS SHALL BE BE PROVIDED AS FOLLOWS:

    a. STANDALONE: WALL MOUNTED OCCUPANCY SENSORS SHALL BE UL LISTED AND HAVE A MINIMUM LOAD CAPACITY OF 800 WATTS AT 120 VOLTS AND 1200 WATTS AT 277 VOLTS. WALL SENSORS SHALL ALSO BE DECORA STYLE, WITH A LOW-PROFILE APPEARANCE AND A HARD LENS FOR DURABILITY. SENSOR SHALL UTILIZE PASSIVE INFRARED TECHNOLOGY (PIR) AND ULTRASONIC/MICROPHONIC TECHNOLOGY. UNIT SHALL BE RATED FOR 120/277 VOLT WITH NO MINIMUM LOAD, COMPATIBLE WITH ALL THE SPECIFIED BALLASTS, PROVIDED WITH A NEUTRAL CONNECTION (NO LEAKAGE TO GROUND) AND NO LEAKAGE TO LOAD IN THE "OFF" MODE. SENSOR SHALL BE UTILIZED IN SPACES NOT EXCEEDING 150 SQ.FT. SINGLE RELAY SENSORS SHALL BE CONFIGURED WITH THE RELAY IN A "MANUAL ON/ AUTO OFF" SETTING. DUAL RELAY SENSORS SHALL BE CONFIGURED WITH THE FIRST RELAY IN A "AUTOMATIC ON/ AUTOMATIC OFF" SETTING AND THE SECOND RELAY IN A "MANUAL ON/ AUTOMATIC OFF" SETTING. FACTORY STANDARD COLOR TO BE APPROVED BY ARCHITECT.

    b. SYSTEM-BASED (NETWORK OR NON-NETWORK): THE OCCUPANCY SENSOR SYMBOL SHALL REPRESENT A LOW VOLTAGE, WALL MOUNTED OCCUPANCY SENSOR CONNECTED TO A CONTROL UNIT(S) AS REQUIRED. SENSOR SHALL BE DECORA STYLE WITH A LOW-PROFILE APPEARANCE, HAVE ON/OFF/RAISE/LOWER BUTTONS, AND A HARD LENS FOR DURABILITY. FACTORY STANDARD COLOR TO BE APPROVED BY ARCHITECT.

       SYSTEM-BASED (NETWORK OR NON-NETWORK) OR STANDALONE CEILING MOUNTED OCCUPANCY SENSORS SHALL SHALL REPRESENT A LOW VOLTAGE, CEILING-MOUNTED OCCUPANCY SENSOR WITH A LOW-PROFILE APPEARANCE AND SHALL BE CONFIGURED IN ONE OF THE FOLLOWING WAYS AS INDICATED ON THE DRAWINGS:

       - AUTO ON: a/b
       - SWITCHED: AUTO ON a / MANUAL ON b
       - CONTINUOUS DIMMED: AUTO ON 50% a / MANUAL ON 100% a

    c. SENSOR(S) SHALL UTILIZE DUAL TECHNOLOGY (PIR AND ULTRASONIC/MICROPHONIC TECHNOLOGY) WITH 360 DEGREE COVERAGE. IN SPACES WITH DESKTOP ACTIVITIES, THE COVERAGE SHALL BE "HAND MOTION" AND SHALL NOT EXCEED 500 SQ. FT. AT A MAXIMUM CEILING HEIGHT OF 10 FT. IN CORRIDORS, STORAGE ROOMS AND OTHER SPACES WITH NON-DESKTOP ACTIVITIES, COVERAGE SHALL BE "HALF-STEP, WALKING MOTION" AND SHALL NOT EXCEED 1200 SQ. FT. AT A MAXIMUM CEILING HEIGHT OF 10 FT. PIR-ONLY WIRELESS OCCUPANCY SENSORS SHALL NOT BE UTILIZED IN RESTROOMS OR LOCKER ROOMS.

    d. "H" AT THE OCCUPANCY SENSOR INDICATES CONNECTION TO AUXILIARY OUTPUT CONTROL DEVICE FOR CONTROL OF A THIRD PARTY DEVICE VIA LOW-VOLTAGE CONTACT CLOSURES - 1 AMP @ 24V AC/DC. NC/NO RELAYS SHALL BE CONNECTED TO A CONTROLLER TO PERFORM THE AUXILIARY CONTROL REQUIREMENTS INDICATED BY THE DRAWINGS.

    e. OCCUPANCY SENSORS LOCATED WITHIN CORRIDORS, HALLWAYS, STAIRWAYS/WELLS, AISLEWAYS WITHIN WAREHOUSE SPACES, AND IN OTHER AREAS PER PLANS AND/OR SOO SHALL BE CONFIGURED TO CREATE DUAL MODE CONTROL FUNCTIONALITY PER THE SOO/ZONE SCHEDULE. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL DEVICES AND WIRING REQUIRED FOR DUAL MODE OPERATIONS AND ANY PROGRAMMING/CONFIGURATION OF TIME-BASED OPERATING PARAMETERS. COORDINATE WITH OWNER TO DETERMINE BUSINESS HOUR/AFTER BUSINESS HOUR MODES. IF THE PLANS IDENTIFY A NEW OR EXISTING LIGHTING CONTROL PANEL AS THE SOURCE OF DUAL MODE TIMING, E.C. SHALL INCLUDE ALL COSTS TO INSTALL ANY NECESSARY I/O TERMINALS, CARDS, ETC. TO MAKE THE SYSTEM FULLY FUNCTIONAL.

    f. NETWORK SYSTEM-BASED DLCS SYSTEMS SHALL PROVIDE/RESULT IN "LADDERLESS COMMISSIONING" OF DAYLIGHT CONTROLS. AT A MINIMUM, NETWORK ACQUIRED DATA SHALL PROVIDE CT-BASED LIGHTING POWER (WATTS) MEASUREMENTS PER THE COMMISSIONING PORTION OF THESE REQUIREMENTS. PROVIDE NETWORKED CONTROL UNITS/POWER PACKS/INTERFACES AND MISCELLANEOUS EQUIPMENT AS FOLLOWS:

       1) NETWORK SEGMENT MANAGER OR BORDER ROUTER WITH NATIVE BACnet IP - QUANTITY AS REQUIRED BASED UPON A MAXIMUM OF 100 LOCAL ROOM NETWORKS PER SEGMENT AND A MINIMUM OF ONE SEGMENT MANAGER PER FLOOR. THIS EQUIPMENT SHALL BE LOCATED IN THE TYPICAL FLOOR ELECTRICAL ROOM.

       2) NETWORK BRIDGE CONNECTING THE SEGMENT MANAGER TO THE CONTROLLER SUB/LOCAL NETWORK.

       3) ALL CORRIDORS, WAREHOUSE AISLE WAYS, AND STAIRWELLS SHALL BE PROVIDED WITH DUAL MODE CORRIDOR/STAIRWAY CONTROLS TO INCLUDE CEC-LISTED TIME CLOCK(S), ROUTERS, OR SYSTEM GATEWAYS, INTERPOSING RELAYS (WHEN INTERFACING WITH EXISTING CEC-LISTED RELAY PANELS), WIRING, 120V POWER, PROGRAMMING, ETC. NECESSARY FOR A COMPLETE AND FUNCTIONING CONTROL SYSTEM.

       4) INCLUDE ALL COSTS IN BASE BID TO PROVIDE 120V CIRCUIT(S) AND RECEPTACLE(S) NECESSARY TO POWER ALL DEMAND RESPONSE EQUIPMENT.

       5) PROVIDE DATA OUTLET/PATHWAY, DATA CABLING (IF REQUIRED ELSEWHERE BY PROJECT DOCUMENTS), AND CONNECTION TO THE PROJECT'S LOCAL AREA NETWORK.

       6) INCLUDE ALL COSTS IN BASE BID TO PROVIDE 120V CIRCUIT(S) AND RECEPTACLE(S) NECESSARY TO POWER ALL NETWORK SEGMENT MANAGERS, SWITCHES AND ROUTERS.

       7) DEMONSTRATE DLCS RESPONSE TO A SIMULATED DEMAND RESPONSE REQUEST AS PART OF THE LIGHTING COMMISSIONING PROCESS. WHERE MORE THAN ONE WIRING TOPOLOGY AND/OR ZONE IS REQUIRED TO ACCOMPLISH DEMAND RESPONSE - ALL WIRING TOPOLOGIES AND ZONES SHALL BE TESTED ACCORDINGLY. SEE DLCS SOO FOR POWER REDUCTION PERCENTAGES BY ROOM TYPE THAT SHALL BE UTILIZED IN THE SIMULATED DEMAND RESPONSE TESTING.

    g. WHERE INDICATED ON DRAWINGS, PROVIDE DLCS DAYLIGHTING CONTROLS AS FOLLOWS:

       1) AUTOMATIC SWITCHING DAYLIGHTING CONTROLS SHALL BE PROVIDED TO SWITCH SELECTED FIXTURES AND/OR LAMPS OFF AND ON BASED UPON LIGHTING LEVELS PRESENT IN THE CONTROLLED SPACE. THE DAYLIGHTING CONTROLS SHALL BE CONNECTED TO THE CONTROL UNIT. THE SENSOR SHALL UTILIZE AN INTEGRAL PHOTO DIODE TO MEASURE AMBIENT LIGHT LEVELS. CONTROLS SHALL BE FULLY ADJUSTABLE FROM 1 TO 6,500 FOOTCANDLES AND SHALL BE PROVIDED WITH AN ADJUSTABLE TIME DELAY AND ADJUSTABLE DEAD BAND SETTINGS.

       2) AUTOMATIC DIMMING DAYLIGHTING CONTROLS SHALL BE PROVIDED TO CONTINUOUSLY DIM SELECTED FIXTURES/LAMPS UP AND DOWN BASED UPON LIGHTING LEVELS PRESENT IN THE CONTROLLED SPACE. THE SENSOR SHALL UTILIZE AN INTERNAL PHOTO DIODE TO MEASURE AMBIENT LIGHT LEVELS. 0-10 VOLT DIMMING CONTROLS SHALL RANGE FROM 0.2 VOLTS TO 10 VOLTS, WITH AMBIENT LIGHTING SET POINTS FROM 1-6,500 FOOTCANDLES.

       3) AUTOMATIC DAYLIGHTING CONTROLS SHALL BE CONNECTED TO CONTROL UNITS TO PERFORM THE FIXTURE SWITCHING/DIMMING REQUIREMENTS INDICATED BY THE DRAWINGS - CONNECTIONS DIRECTLY TO A BALLAST ARE NOT ALLOWED.

       4) DAYLIGHT SENSOR SHALL PROVIDE CONTROLS FOR UP TO THREE DISTINCT LIGHTING ZONES TO ALLOW SEPARATE CONTROL OF PRIMARY DAYLIT, SECONDARY DAYLIT, AND SKYLIT ZONES.

    h. PROVIDE CONTROL UNITS AND SYSTEM FUNCTIONALITY AS FOLLOWS:

       1) CONTINUOUS DIMMING CONTROLS: SYSTEM-BASED WALL OR CEILING MOUNTED OCCUPANCY SENSORS (CONTINUOUS DIMMED - AUTO ON 50%/MANUAL ON 100%) SHALL BE PROVIDED WITH CONTROL UNITS TO PERFORM THE FIXTURE/LAMP DIMMING REQUIREMENTS INDICATED BY THE BALLAST AND FIXTURE TYPE. SWITCH LEG INDICATED OUTSIDE THE PARENTHESIS TO BE CONFIGURED AS "AUTO ON 50%/MANUAL ON 100%" FOR CONTINUOUS DIMMED. SWITCH LEGS INSIDE PARENTHESIS INDICATES A MANUAL ACTION REQUIRED TO INCREASE LIGHTING LEVELS ABOVE 50%. CONTROL UNITS WITH INTEGRAL TRANSFORMERS SHALL BE UTILIZED TO PROVIDE POWER TO OCCUPANCY SENSORS AND OTHER CONTROL DEVICES. CONTROL UNITS SHALL BE LOCATED WITHIN JUNCTION BOXES AND NOT EXPOSED IN THE CEILING SPACE. CONTROL UNIT SHALL BE 120/277 VOLT RATED WITH NO MINIMUM LOAD, COMPATIBLE WITH ALL THE SPECIFIED BALLASTS PROVIDED WITH A NEUTRAL CONNECTION (NO LEAKAGE TO GROUND) AND NO LEAKAGE TO LOAD IN THE "OFF" MODE. ADDITIONAL RELAY ZONES MAY BE REQUIRED FOR THE ADDITION OF PRIMARY DAYLIT, SECONDARY DAYLIT, AND PRIMARY SKYLIT UTILIZING THE SAME CONTROL CHANNEL. (I.E. EVEN THOUGH A SINGLE LETTER "a" IS INDICATED AT THE PRIMARY SENSOR), ADDITIONAL RELAYS WOULD BE REQUIRED FOR THE "a+" (PRIMARY SIDELIT DAYLIT ZONE), "a++" (SECONDARY SIDELIT DAYLIT ZONE), AND "a*" (SKYLIT DAYLIT ZONE). WHERE MORE THAN ONE CIRCUIT/THREE SWITCH LEGS/THREE RELAY ZONES ARE REQUIRED, PROVIDE ADDITIONAL FULL FEATURE CONTROL UNITS AS REQUIRED.

       2) WHERE ADDITIONAL 120/ 277 VOLT DEVICES, RECEPTACLES, OR BRANCH CIRCUITS ARE BEING CONTROLLED BY THE ROOM CONTROLLER, AN ADDITIONAL CONTROL UNIT SHALL BE PROVIDED AS REQUIRED.

       3) THE OCCUPANCY SENSOR CONTROLLED RECEPTACLE BRANCH CIRCUIT RELAY, CONNECTED TO THE SPACE'S DISTRIBUTED LIGHTING CONTROL SYSTEM, SHALL CONTROL OCCUPANCY SENSOR RELAY. SHALL TURN ON WHEN THE ROOM IS OCCUPIED, REGARDLESS OF THE CONFIGURATION OF THE LIGHTING CONTROL STATE - I.E. AUTO ON/MANUAL ON. SEE THE DISTRIBUTED LIGHTING CONTROL SPECIFICATION FOR MORE INFORMATION. EVEN THOUGH A SINGLE SYMBOL IS INDICATED, MULTIPLE RELAYS MAY BE REQUIRED TO CONTROL THE REQUIRED NUMBER OF SWITCHLEGS/CIRCUITS.

       4) LOW VOLTAGE WALL CONTROLS SHALL BE DECORA STYLE, LOW-VOLTAGE, MOMENTARY SWITCHES WITH COLOR TO MATCH OTHER WALL DEVICES/SWITCHES. LOWER CASE LETTERS INDICATE SWITCHING CONFIGURATION. PROVIDE SWITCHING OR DIMMING CONTROL DEVICES AS REQUIRED BY DRAWINGS.

          DIMMING - NUMBER OF SWITCHES AS REQUIRED - 4 ZONES/YOKE MAX. EACH CONTROL ZONE TO HAVE A DEDICATED RAISE AND LOWER BUTTONS. FACTORY STANDARD COLOR BY ARCHITECT. EACH MULTI-ZONE DIMMING CONTROL STATION SHALL BE PROVIDED WITH MASTER ON AND MASTER OFF BUTTON IN ADDITION TO THE INDIVIDUAL CONTROL ZONE BUTTONS.

          WHERE INDICATED, PROVIDE VANDAL RESISTANT, HIGH ABUSE SWITCH CONNECTED TO THE DLCS INPUT/OUTPUT INTERFACE DEVICE FOR ON/ OFF AND DIMMING CONTROLS. SWITCHES LOCATED IN HIGH ABUSE AREAS (EXTERIOR AREAS OR AREAS SUBJECT TO WASH-DOWN ETC.) OR IDENTIFIED ON PLANS AS HIGH-ABUSE SWITCHES SHALL BE VANDAL RESISTANT, STAINLESS STEEL, TOUCH SENSITIVE AND AVAILABLE WITH UP TO TWO BUTTONS IN A SINGLE GANG. EACH HIGH ABUSE SWITCH SHALL BE ABLE TO BE PROGRAMMED FOR ON, OFF, TOGGLE OR MAINTAIN OPERATION. SWITCHES MUST BE CAPABLE OF HANDLING ELECTROSTATIC DISCHARGES OF AT LEAST 30,000 VOLTS (1CMSPARK) WITHOUT ANY INTERRUPTION OR FAILURE IN OPERATION.

          WHERE INDICATED, PROVIDE A LOCKING SINGLE POLE SWITCH CONNECTED TO THE ROOM CONTROLLER VIA A INPUT/OUTPUT INTERFACE DEVICE FOR ON/OFF CONTROLS. DIRECT CONNECTION OF THE KEYED SWITCH ON THE LOAD SIDE OF THE CONTROLLER IS PROHIBITED. PROVIDE AT LEAST THREE (3) KEYS TO OWNER AT CONCLUSION OF PROJECT. ADJACENT SWITCH SHALL ONLY BRING LIGHTS FULL ON. KEYED SWITCH ALLOWS MANUAL OFF FUNCTIONALITY. DIMMER SWITCH ALLOWS AUTO-ON 50% OVERRIDE TO 100% ALL-ON AND SHALL NOT ALLOW LIGHTING LEVELS TO DECREASE IN ANY WAY.

    i. WHEN LIGHTING SYSTEM IS INDICATED WITH A CONNECTION TO A REMOTE EMERGENCY POWER SOURCE (I.E. AN INVERTER OR GENERATOR) PROVIDE UL924 LISTED INTERFACE EQUIPMENT TO ALLOW THE OVERRIDE OF THE LOCAL SWITCHING AND/OR DIMMING CONTROLS DURING A POWER OUTAGE.

    j. WHEN LIGHTING FIXTURES/CONTROLS ARE PROVIDED WITH LUTRON 3-WIRE DIMMING BALLASTS, AN INTERFACE DEVICE SHALL BE PROVIDED TO ALLOW 0-10V CONTROL OF LUTRON 3-WIRE DIMMING BALLASTS. MOUNT INTERFACE IN A NEMA1 ENCLOSURE IN ACCESSIBLE CEILING SPACE ADJACENT TO ITS ASSOCIATED CONTROL UNIT.

    k. WHEN LIGHTING FIXTURES/CONTROLS ARE LINE VOLTAGE DIMMED OR PROVIDED ELECTRONIC LOW-VOLTAGE, MAGNETIC LOW-VOLTAGE, NEON/COLD CATHODE, LUTRON "TU-WIRE" DIMMING BALLASTS, AN INTERFACE DEVICE SHALL BE PROVIDED TO ALLOW LINE VOLTAGE CONTROL. MOUNT INTERFACE IN A NEMA1 ENCLOSURE IN ACCESSIBLE CEILING SPACE ADJACENT TO ITS ASSOCIATED CONTROL UNIT.

    l. WHEN AV SYSTEM INTERFACE IS INDICATED, PROVIDE TWO-WAY CAPABLE RS-232 COMMUNICATIONS INTERFACE TO ALLOW AV CONTROL SYSTEM TO CALL ADDRESSABLE LIGHTING/ROOM SCENES. COMMUNICATIONS INTERFACE SHALL PROVIDE FEEDBACK TO THE AV CONTROL SYSTEM FOR LIGHT LEVEL STATUS.

    m. WHEN MOVEABLE PARTITION INTERFACE IS INDICATED, PROVIDE ALL COMPONENTS, SENSORS, WIRING, POWER SUPPLIES AND PROGRAMMING NECESSARY TO MONITOR AND REPORT MOVEABLE PARTITION(S) OPEN/CLOSED STATUS. DLCS SYSTEM SHALL AUTOMATICALLY ADOPT SINGLE ROOM OR MULTI-ROOM CONTROL PROFILES AS REQUIRED BY PARTITION STATUS.

    n. WHEN NETWORKED LIGHTING CONTROL RELAY PANEL(S) ARE INDICATED, PROVIDE ALL COMPONENTS, WIRING, AND PROGRAMMING NECESSARY TO INTEGRATE RELAY PANELS WITHIN THE DLCS SYSTEM.

13. GENERAL SYSTEM REQUIREMENTS:

    a. ALL EQUIPMENT SHALL FEATURE A PRE-SET DEFAULT OPERATION. UPON INITIAL POWER UP, THE SYSTEM SHALL AUTOMATICALLY IDENTIFY THE DEVICES ON THE LOCAL NETWORK, THEN ENTERS THE PRE-SET CONFIGURATION TO ALLOW BASIC OPERATION OF ALL DEVICES. IN MOST APPLICATIONS THE RELATIONSHIP BETWEEN QUANTITY OF LOADS, SWITCHES AND OCCUPANCY SENSORS WILL NOT REQUIRE ANY ADJUSTMENTS - ALTHOUGH AN ADJUSTMENT TO THE AUTOMATIC SETTINGS SHALL BE INCLUDED IN THE BASE BID.

    b. ALL EQUIPMENT SHALL FEATURE A CONFIGURATION (CONFIG) BUTTON ON MOST DEVICES THAT ALLOWS EASY ACCESS TO THE INTEGRATED AUTO-CONFIGURATION TECHNOLOGY TO MODIFY SYSTEM OPERATION. FUNCTIONALITY OF THE CONFIG BUTTON SHALL BE STANDARDIZED THROUGHOUT THE PRODUCT LINE, AS IS THE OPERATION OF THE CONFIG LED INDICATORS.

    c. NETWORK DLCS SYSTEM CONTROL/CONFIGURATION SOFTWARE SHALL BE PRE-CONFIGURED TO THE MAXIMUM EXTENT POSSIBLE OFF-SITE AT THE DLCS FACTORY OR ENGINEERING FACILITY. THE CONTRACTOR SHALL DOCUMENT EVERY NETWORK COMPONENT'S LOCATION (ROOM AND DOOR NUMBER) AND ITS' RESPECTIVE SERIAL NUMBER OR OTHER DEVICE IDENTIFIER ON A FULL SIZE FLOOR PLAN IN PDF FORMAT. HANDWRITTEN DOCUMENTATION IS UNACCEPTABLE. THE PREFERRED ACCEPTABLE METHOD OF NETWORK COMPONENT DOCUMENTATION IS COLLECTION OF FACTORY-PROVIDED, SELF-ADHESIVE, BAR-CODE IDENTIFIERS DESIGNED TO BE REMOVED FROM NETWORK COMPONENTS AS THEY ARE INSTALLED IN THE FIELD. BAR CODES IDENTIFIERS SHALL BE APPLIED TO A PAPER COPY OF A FLOOR PLAN WHICH SHALL BE PROVIDED TO THE FACTORY FOR USE IN OFF-SITE DLCS NETWORK PROGRAMMING AND CONFIGURATION. THE RESULTS OF EITHER METHOD SHALL BE SCANNED AND SUBMITTED AS A PART OF THE PROJECT CLOSEOUT DOCUMENTATION.

    d. NETWORK SYSTEMS SHALL BE INSTALLED BY VENDOR-CERTIFIED CONTRACTOR FIELD PERSONNEL TO PERFORM NETWORK INSTALLATIONS INCLUDING ACCURATE, REPEATABLE COMMUNICATIONS CABLING TERMINATIONS (BOTH LAN AND MS/TP TYPE). INCLUDE CERTIFICATES FOR EACH CERTIFIED INSTALLER TO BE UTILIZED ON THE PROJECT AS A PART OF THE PROJECT SUBMITTALS. A CERTIFIED FIELD INSTALLER SHALL BE ON-SITE SUPERVISING COMMUNICATIONS CABLING AND CABLING TERMINATIONS AT ALL TIMES WHEN THIS WORK IS OCCURRING ON THE PROJECT.

    e. ANY BATTERY-POWERED DLCS COMPONENTS SHALL BE PROVIDED WITH A 10 YEAR EXPECTED BATTERY LIFE. EACH COMPONENT SHALL BE PROVIDED WITH BOTH A LOCAL LOW BATTERY INDICATION ON EACH DEVICE AND A SOFTWARE-BASED LOW BATTERY ALARM. WHERE A WIRELESS DLCS SYSTEM COMPONENT IS AVAILABLE EITHER AS A BATTERY POWERED DEVICE OR A LINE/LOW VOLTAGE POWERED DEVICE, PROVIDE THE LINE/LOW VOLTAGE VERSION ALONG WITH ANY LINE OR LOW VOLTAGE WIRING, CONDUIT AND BACK BOXES TO LIMIT THE NUMBER OF BATTERIES WITHIN THE DLCS INSTALLATION TO A MINIMUM.

14. INSTALLATION OF CONTROL UNITS, OCCUPANCY/VACANCY SENSORS AND DAYLIGHTING CONTROLS:

    a. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND AIM SENSORS IN THE CORRECT LOCATION REQUIRED FOR COMPLETE AND PROPER VOLUMETRIC COVERAGE PER THE MANUFACTURER'S RECOMMENDATIONS. ROOMS SHALL HAVE NINETY (90) TO ONE HUNDRED (100) PERCENT COVERAGE AND SHALL ACCOMMODATE ALL HABITS OF SINGLE OR MULTIPLE OCCUPANTS PRESENT IN THE CONTROLLED SPACE. THE LOCATIONS AND QUANTITIES OF SENSORS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE ONLY THE ROOMS THAT ARE TO BE PROVIDED WITH SENSORS. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE SPACE. WHERE PIR-ONLY WIRELESS CEILING OR FIXTURE-INTEGRAL OCCUPANCY SENSORS ARE UTILIZED, PROVIDE QUANTITY AS REQUIRED TO MAINTAIN THE SAME COVERAGE AND SAME MOVEMENT DETECTION SENSITIVITY AS PROVIDED BY WIRED DUAL TECHNOLOGY SENSORS. ADDITIONALLY, IT MAY BE NECESSARY FOR THE CONTRACTOR TO MAKE ADJUSTMENTS, CHANGE THE LOCATION OR TYPE OF SENSOR TO OBTAIN PROPER OPERATION IN A SPECIFIC ROOM. THE USE OF FACTORY-SUPPLIED INTERNAL MASKING (PIR) SHALL BE PROVIDED/INSTALLED AS REQUIRED TO LIMIT DETECTION TO WITHIN THE CONTROLLED SPACE ONLY. IF MASKING IS NOT AVAILABLE AS A FACTORY-SUPPLIED ITEM, ALTERNATE FACTORY-SUPPLIED MEANS OF COMPLIANCE OR METHODS MAY BE ACCEPTABLE. THE CONTRACTOR SHALL HAVE FINAL RESPONSIBILITY FOR PROPER OPERATION OF THE SYSTEM IN EACH ROOM AND SHOULD THEREFORE MAKE LABOR ALLOWANCES FOR CHANGES AND ADJUSTMENTS.

    b. CEILING MOUNTED SENSORS SHOULD BE LOCATED IN THE SPACE TO BE COVERED, A MINIMUM OF 4', PREFERABLY 5', AWAY FROM THE LATCH SIDE OF THE DOOR, 2' TO 3' AWAY FROM THE WALL AND 3' TO 4' FROM AN AIR SUPPLY REGISTER. DO NOT MOUNT SENSORS OVER A DOORWAY OR BEHIND A FULL HEIGHT DOOR. SENSORS SHALL BE AIMED IN THE DIRECTION OF THE SPACE TO BE COVERED. DO NOT AIM SENSORS TOWARD A DOORWAY. THE USE OF FACTORY SUPPLIED INTERNAL MASKING (PIR) SHALL BE PROVIDED/INSTALLED AS REQUIRED TO LIMIT DETECTION TO WITHIN THE CONTROLLED SPACE ONLY.

    c. ALL SENSORS SHALL BE ADJUSTED PER THE DLCS SOO/ZONE SCHEDULE. WHERE A ROOM TYPE IS NOT INDICATED ON THE DLCS SOO, ADJUST FOR FOR A TIME DELAY OF TWENTY (20) MINUTES.

    d. EACH DAYLIGHTING CONTROL SYSTEM/ZONE SHALL BE INSTALLED/ADJUSTED AS FOLLOWS:

       1) AUTOMATIC SWITCHING/DIMMING CONTROL PLACEMENT: IT IS IMPORTANT TO SELECT A LOCATION IN THE DAYLIGHTING Z

AREA TYPE	OCC SENSOR					INTERIOR DAYLIGHT SENSOR			EXTERIOR PHOTOCELL		ASTRONOMICAL TIME CLOCK CONTROLS			LOCAL CONTROL			SYSTEM		NOTES	REMARKS
ALL VALUES ARE BASED ON CALIFORNIA TITLE 24 2022 LIGHTING CONTROLFOR NON-RESIDENTIAL BUILDINGS	AUTO ON WHEN OCCUPANCY IS DETECTED (PERCENTAGE OF NOMINAL FC)	MANUAL ON (WHEN SWITCH / BITTON IS PRESSED)	PRIMARY OCCUPANCY SENSOR ZONE REDUCED OUTPUT OR OFF	REDUCED OUTPUT OR OFF DURING NORMAL HOURS	REDUCED OUTPUT OR OFF AFTER NORMAL HOURS	AUTO OFF AT TARGET FC FIXTURES DIM TO OFF	AUTO DIM AT TARGET FC FIXTURES REMAIN AT LOWEST LEVEL	TARGET ILLUMINATION LEVEL NOMINAL FOOTCANDLE & METER HEIGHT	EXTERIOR PHOTOCELL ON	EXTERIOR PHOTOCELL OFF	BEGIN NORMAL OPERATING HOURS (ASTRONOMICAL TIME CLOCK TURN ON)	END NORMAL OPERATING HOURS (ASTRONOMICAL TIME CLOCK TURN OFF)	AFTER NORMAL HOURS OVERRIDE CANNOT EXCEED 2 HOURS PER §130.1(b)3.B	ON / OFF	ON / OFF / TARGET / LOWER DIMMING	SCENE SELECTOR (1) SCENE RTN, LTG ONLY*, NO DECON*(2) SCENE ALL OFF OR "CLOSED"	PLUG LOAD CONTROL MUST BE CAPABLE OF TURNING OFF IN RESPONSE TO DEMAND RESPONSE SIGNAL	LIGHTING REDUCTION FOR SYSTEMS WITH DEMAND RESPONSE REFER TO TITLE 24 DOCUMENTATION TO CONFIRM IF REQ'D	PROGRAMMING NOTES PLEASE SEE BELOW	PLEASE REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. O = INDICATES OPTIONAL COMPLIANCE, NOT REQ'D. ● = INDICATES REQUIRED COMPLIANCE ALL LIGHTING WITHIN DAYLIGHTING ZONES SHALL BE COMMISSIONED AT NIGHT, WITH NO DAYLIGHT CONTRIBUTION, IN ORDER TO ESTABLISH BASELINE ILLUMINATION LEVELS. "NORMAL HOURS" REFERS TO OWNER-DETERMINED OPERATING HOURS. "AFTER HOURS" REFERS TO ANY TIME PERIOD BEFORE OR AFTER OWNER-DETERMINED OPERATING HOURS. WHERE EXTERIOR PHOTOCELL CONTROL IS INDICATED, PLEASE PROVIDE EXTERIOR NORTH FACING DAYLIGHT SENSOR.
CLASSROOM	ON AT 70%	ON AT 100%	OFF AFTER 5 MIN.	-	-	-	●	40-50 FC +30" AFF	-	-	-	-	-	-	●	○	-	●	A,B,D	CONFIRM SWITCH TYPE PREFERENCE WITH OWNER. PROVIDE SCENE SELECTOR SWITCH IF MORE THAN ONE LIGHTING PRESET IS REQUIRED (E.G. "AV MODE").
CLASSROOM > 0.7 W PER SQ FT	ON AT 70%	ON AT 100%	OFF AFTER 5 MIN.	-	-	-	●	35 FC +30" AFF	-	-	-	-	-	-	●	○	-	●	A,B,D	CONFIRM SWITCH TYPE PREFERENCE WITH OWNER PRIOR TO RELEASE OF ORDER. MULTI-ZONE LIGHTING SCENARIO WILL REQUIRE SCENE SELECTOR. PROVIDE SCENE SELECTOR SWITCH IF MORE THAN ONE LIGHTING PRESET IS REQUIRED (E.G. "AV MODE"). PROVIDE SEPARATE CONTROL ZONE FOR LIGHTING ADJACENT TO PROJECTION SCREENS OR TV MONITORS.
CLASSROOM LABORATORY	ON AT 70%	ON AT 100%	OFF AFTER 5 MIN.	-	-	-	●	50 FC +36" AFF	-	-	-	-	-	-	●	-	●	●	A,B,D	
CLOSET	ON AT 100%	ON AT 100%	OFF AFTER 5 MIN.	-	-	-	-	-	-	-	-	-	-	●	-	-	-	-	-	§130.1(b) EXCEPTION 1 - AN AREA ENCLOSED BY CEILING HEIGHT PARTITIONS THAT HAS ONLY ONE LUMINAIRE WITH NO MORE THAN TWO LAMP DOES NOT REQUIRE MULTI-LEVEL CONTROLS.
CONFERENCE ROOM / MEETING / HUDDLE ROOM	ON AT 70%	ON AT 100%	OFF AFTER 5 MIN.	-	-	-	●	40-50 FC +0" AFF	-	-	-	-	-	-	●	○	●	●	A,C,D,F	
CORRIDOR	ON AT 100%	-	-	DIM 50% AFTER 5 MIN.	OFF AFTER 5 MIN.	-	●	5-10 FC +0" AFF	-	-	06:00	18:00	●	-	●	-	-	●	A,B,C,J,M	§130.1(a)1 EXCEPTION 1 - MANUAL CONTROL MAY BE LOCATED IN A SEPARATE, SECURED LOCATION. PROVIDE DUAL MODE CONTROL PER DLCS SPECIFICATIONS.
EXTERIOR LIGHTING, TIMECLOCK / PHOTOCELL CONTROL																				
EXTERIOR LIGHTING >24 FT TALLER THAN 24 FT	-	-	-	-	-	-	-	-	●	-	PERIOD 1: ON 100% AT DUSK - PERIOD 2: DIM 80% AT 24:00	OFF AT DAWN	●	-	-	-	-	-	J, L, M	§130.2(c) LIGHTS SHALL BE OFF DURING DAYTIME; LIGHTS SHALL BE AUTOMATICALL CONTROLLED BY TIME-BASED SCHEDULING CONTROLS. §130.2(c)2B - AUTOMATIC SCHEDULING CONTROLS SHALL ALLOW SCHEDULING OF MIN. OF TWO NIGHTTIME PERIODS WITH INDEPENDENT LIGHTING LEVELS.... OCCUPANCY SENSOR NOT REQUIRED
EXTERIOR LIGHTING ≤24 FT & >40W 24 FT OR SHORTER 40W OR MORE	ON AT 100%	ON AT 100%	PERIOD 1: 50% 10 MIN. PERIOD 2: 40% 10 MIN.	-	-	-	-	-	●	-	PERIOD 1: ON 100% AT DUSK - PERIOD 2: DIM 40% AT 24:00	OFF AT DAWN	●	-	-	-	-	-	BJ, M	§130.2(c) LIGHTS SHALL BE OFF DURING DAYTIME; LIGHTS SHALL BE AUTOMATICALL CONTROLLED BY TIME-BASED SCHEDULING CONTROLS. §130.2(c)2B - AUTOMATIC SCHEDULING CONTROLS SHALL ALLOW SCHEDULING OF MIN. OF TWO NIGHTTIME PERIODS WITH INDEPENDENT LIGHTING LEVELS.... §130.2(c)3DI - FACADE, ORNAMENTAL HARDSCAPE, OUTDOOR DINING AND SALES FRONTAGE LIGHTING ARE EXEMPT FROM MOTION SENSOR REQUIREMENT. OCCUPANCY SENSOR REQUIRED; LIGHTING SHALL REMAIN ON FROM DUSK UNTIL DAWN, REDUCED OUTPUT BETWEEN 40% AND 80% WHEN VACANT OR AFTER LOCAL CURFEW, IF REQUIRED. NO MORE THAN 1,500W OF LIGHTING CONTROLLED TOGETHER.
EXTERIOR LIGHTING ≥24 FT & <40W 24 FT OR SHORTER 40W OR LESS	-	-	-	-	-	-	-	-	●	●	PERIOD 1: ON 100% AT DUSK - PERIOD 2: DIM 50% AT 24:00	OFF AT DAWN	●	-	-	-	-	-	J,L,M	§130.2(c) LIGHTS SHALL BE OFF DURING DAYTIME; LIGHTS SHALL BE AUTOMATICALL CONTROLLED BY TIME-BASED SCHEDULING CONTROLS. §130.2(c)2B - AUTOMATIC SCHEDULING CONTROLS SHALL ALLOW SCHEDULING OF MIN. OF TWO NIGHTTIME PERIODS WITH INDEPENDENT LIGHTING LEVELS.... §130.2(c)3 - LUMINAIRES WITH A MAXIMUM RATED WATTAGE OF 40W EACH ARE NOT REQUIRED TO HAVE MOTION SENSING CONTROLS.

PROGRAMMING NOTES

NOTES:	A. PROVIDE DAYLIGHTING CONTROL FOR PRIMARY AND SECONDARY DAYLIT OR SKYLIT ZONES WERE REQUIRED. DAYLIGHTING IS NOT NECESSARY WHEN AREAS DO NOT INCLUDE SKYLIGHTS OR GLAZING < 24 SQ FT OR SKYLIT+PRIMARY SIDELIT ZONE IS LESS THAN 120W. LUMINAIRES IN OR AT LEAST 50% WITHIN DAYLIGHTING ZONES MUST BE CONTROLLED.
	B. CONTROLLED BY OCCUPANCY SENSOR: AUTO AND / OR MANUAL ON UNLESS OVERRIDDEN BY DAYLIGHTING SENSORS.
	C. MANUAL CONTROL WALL STATIONS FOR THESE AREAS SHALL BE LOCATED IN THE NEAREST BACK OF HOUSE CLOSET, CONTROL BOOTH, ELECTRICAL ROOM, ETC. TO PREVENT UNAUTHORIZED USERS FROM ADJUSTING LIGHTING LEVELS.
	D. CONFIGURE LIGHTING CONTROL TO PROVIDE PROPORTIONATE RAISE / LOWER OF ALL ROOM LIGHTING TOGETHER, REGARDLESS OF LOCATION IN DAYLIGHTING AND NON-DAYLIGHTING ZONES WHERE THEY OCCUR.
	E. PROVIDE RS-232 OR ETHERNET CONNECTION TO AV SYSTEM TO ALLOW RECALL OF LIGHTING PRESETS BY AV SYSTEM WITHIN THIS ROOM, IF REQUESTED BY OWNER.
	F. PROVIDE CONTROLLED RECEPTACLES IN THIS ROOM AS REQUIRED. CONTROLLED RECEPTACLE MUST BE WITHIN 6'-0" OF UNCONTROLLED RECEPTACLE.
	G. PROVIDE AUTOMATIC TRANSFER RELAY, BRANCH CIRCUIT ELTS OR OTHER APPROVED METHOD WITH FACP INPUT TO FORCE LIGHTS ON TO FULL DURING LOSS OF NORMAL POWER OR DURING A FIRE ALARM EVENT. UNLESS SPECIFIED WITH A MANUAL EMERGENCY CONDITION RELEASE, LIGHTING SHALL RESTORE TO NORMAL OPERATION WHEN POWER IS RESTORED OR ALARM CONDITION IS CLEARED.
	H. LIGHTING IN THIS SPACE MAY BE CONTROLLED FROM A STAGE LIGHTING SYSTEM. THE STAGE LIGHTING SYSTEM SHALL BE PROVIDED WITH A TITLE 24 COMPLIANT LIGHTING CONTROL PROCESSOR AND COMPATIBLE OCCUPANCY AND DAYLIGHT SENSORS AS REQUIRED FOR COMPLIANCE.
	I. NOT USED
	J. CONFIRM OPERATING HOURS WITH OWNER PRIOR TO FINAL PROGRAMMING.
	K. REQUIRES CONNECTION TO BUILDING AUTOMATION SYSTEM (BAS) WHEN SUCH SYSTEM IS PRESENT.
	L. FIXTURES WITHOUT OCCUPANCY SENSORS SHALL HAVE LOW END TRIM ADJUSTED TO MAINTAIN MINIMUM ILLUMINATION LEVELS.
	M. LIGHTING CONTROL SYSTEM SHALL HAVE ASTRONOMICAL TIME CLOCK AND DUAL MODE CAPABILITY FOR "AFTER HOURS" CONTROL OF LIGHTING.
	N. PERFORMANCE SPACE, NO DAYLIGHTING REQUIRED. TARGET ILLUMINATION LISTED ONLY FOR REFERENCE IN THIS COLUMN.

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	02/13/2025
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SEQUENCE OF OPERATIONS

E4.06

LIGHTING FIXTURE SCHEDULE NOTES:

A. GENERAL NOTES:

1. THE LIGHTING FIXTURES, LAMPS, BALLASTS, POWER SUPPLIES, DRIVERS AND TRANSFORMERS FOR THIS PROJECT HAVE BEEN SPECIFIED TO ENSURE THAT SPECIFIC AESTHETIC AND PERFORMANCE REQUIREMENTS WILL BE SATISFIED. THESE PRODUCTS HAVE BEEN CAREFULLY RESEARCHED AND EACH SPECIFIED ITEM HAS UNIQUE QUALITIES WHICH WERE DETERMINED TO BE ESSENTIAL IN SATISFYING THE OWNER'S, ARCHITECT'S, ENGINEER'S AND LIGHTING CONSULTANT'S DESIGN CRITERIA.

2. CONTRACTOR SHALL PROVIDE ALL MATERIALS AS DETAILED ON DRAWINGS AND/OR SCHEDULES, AND LABOR AS REQUIRED TO ACHIEVE A COMPLETE AND OPERATING LIGHTING SYSTEM.

3. CONTRACTOR SHALL NOTIFY THE ELECTRICAL ENGINEER AND/OR LIGHTING CONSULTANT OF ANY PROVISIONS OF THE SPECIFICATION THAT IS IN CONFLICT WITH LOCALLY ENFORCED CODES.

4. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT OF ANY REQUIRED MODIFICATIONS THAT ARE NOT SHOWN ON THE DRAWINGS.

5. ALL ELECTRICAL MATERIAL SHALL BE IN NEW & UNDAMAGED CONDITION WHEN INSTALLED. ALL EQUIPMENT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.

6. ALL DIMENSIONS & MEASUREMENTS FOUND ON PLANS ARE APPROXIMATE. CONTRACTOR SHALL VALIDATE ALL DIMENSIONS PRIOR TO ORDERING MATERIAL TO INCLUDE MAKING FIELD MEASUREMENTS BASED ON ACTUAL SITE CONDITIONS TO DEVELOP COMPLETE ORDERS AND INSTALL SYSTEMS PER DRAWINGS AND SPECIFICATIONS.

7. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND ELEVATION OF ALL LIGHTING FIXTURES AND ASSOCIATED DEVICES AND EQUIPMENT.

8. PRIOR TO AIMING/ADJUSTING ACTIVITIES, COMMISSIONING OR PUNCHWALK COMMENCEMENT, CONTRACTOR SHALL PROPERLY TEST AND VERIFY ALL CIRCUITRY AND CONTROL WIRING AND IMPLEMENT ALL CONTROLS PROGRAMMING.

B. INSTALLATION:

1. LOCATIONS OF THE FIXTURES SHALL BE PER THE ARCHITECTURAL REFLECTED CEILING PLAN(S) AND SHALL BE COORDINATED AT TIME OF ROUGH IN. CONFLICTS BETWEEN THE ARCHITECTURAL REFLECTED CEILING PLAN(S) AND THE ELECTRICAL/LIGHTING DESIGN PLAN(S) SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING PRIOR TO ORDERING FIXTURES.

2. LIGHTING DRAWINGS REPRESENT THE DESIGN INTENT OF THE EQUIPMENT, DEVICES, ETC. TO BE CONNECTED AND THE CIRCUITS TO WHICH THEY ARE TO BE CONNECTED. CONTRACTOR SHALL INSTALL ALL CONDUIT, J-BOXES AND ADDITIONAL HARDWARE AND DEVICES AS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

3. ALL LIGHTING FIXTURES SHALL BE MOUNTED AND INDIVIDUALLY SUPPORTED IN ACCORDANCE WITH APPLICABLE CODES. FIXTURES SHALL BE FURNISHED AND INSTALLED WITH ALL REQUIRED MOUNTING DEVICES, HARDWARE AND ACCESSORIES.

4. CONTRACTOR TO VERIFY LIGHTING FIXTURE MOUNTING HARDWARE IS COMPATIBLE WITH APPROVED MOUNTING CONDITIONS. MOUNTING CONDITIONS MUST ALLOW FOR AIMING AND ADJUSTING OF LIGHTING FIXTURES ON SITE.

5. CONTRACTOR TO INCLUDE AIMING/ADJUSTING LABOR AFTER DARK AS REQUIRED FOR ANY ADJUSTABLE LIGHTING FIXTURE AND FOR EACH INDIVIDUAL LIGHTING FIXTURE HEAD OR LAMP HOLDER IN A MULTI-FIXTURE/MULTI-LAMP ASSEMBLY. LIGHTING FIXTURES TO BE AIMED/ADJUSTED PER THE DIRECTION OF OWNER, ARCHITECT AND/OR LIGHTING CONSULTANT.

6. CONTRACTOR TO SUPPLY ADEQUATE SUPPORT INCLUDING LADDERS, LIFTS OR OTHER EQUIPMENT REQUIRED TO ACCESS LIGHTING FIXTURES AT THE TIME OF FOCUS, INCLUDING EVENING OR NIGHT WORK AS MAY BE REQUIRED DUE TO SCHEDULE CONFLICT OR DAYLIGHT IMPACT. AIMING/ADJUSTING LABOR SHALL BE PREPARED FOR WORK WITH COMMON HAND TOOLS TO MAKE ADJUSTMENTS AND MINOR REPAIRS DURING AIMING.

7. ALL COVE MOUNTED LIGHTING FIXTURES SHALL EXTEND THE FULL LENGTH OF THE COVE. CONTRACTOR TO FIELD MEASURE COVE LENGTH AND ORDER QUANTITY OF LIGHTING FIXTURES AS REQUIRED. PROVIDE COMPLETE MANUFACTURER SHOP DRAWINGS OF BUILT-IN COVE OR LINEAR LIGHTING SYSTEMS.

8. CONTRACTOR TO REPLACE ALL INOPERATIVE LAMPS, LED ARRAYS OR SYSTEMS AT THE END OF THE CONSTRUCTION PHASE PRIOR TO THE FOCUS AND PROGRAMMING PHASE AND AGAIN PRIOR TO OWNER OCCUPANCY OR PROJECT OPENING.

9. ALL POLE MOUNTED FIXTURES, POST MOUNTED FIXTURES AND BOLLARDS SHALL BE PROVIDED WITH A STRUCTURAL FOOTING AS DETAILED ELSEWHERE IN THE DRAWINGS. FOOTING SIZE TO BE PROVIDED BY STRUCTURAL ENGINEER. REFERENCE FIXTURE SCHEDULE AND DETAILS FOR MORE INFORMATION.

10. ALL EXIT SIGNS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE LOCAL FIRE PREVENTION CODE AUTHORITY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY HARDWARE SUCH THAT ALL EXIT SIGNS ARE INSTALLED IN AN APPROVED VISIBLE LOCATION. THE CONTRACTOR SHALL VERIFY CHEVRONS AND NUMBER OF FACES PER EXIT SIGN WITH ARCHITECTURAL REFLECTED CEILING PLAN(S). ANY DISCREPANCIES BETWEEN EXIT SIGNS DEPICTED ON ARCHITECTURAL AND ELECTRICAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO ORDERING EXIT SIGNS.

C. SUBMITTALS AND SUBSTITUTIONS:

1. CONTRACTOR TO SUBMIT FOR APPROVAL ON THE PRODUCTS THEY INTEND TO FURNISH WITHIN TEN (10) DAYS OF AWARD OF CONTRACT. FAILURE TO SUBMIT WITHIN DEADLINE CONSTITUTES A GUARANTEE THAT ONLY THE BASE SPECIFIED PRODUCTS WILL BE SUPPLIED AND THAT NO OTHER PRODUCTS, WHETHER LISTED AS ALTERNATES OR NOT, WILL BE CONSIDERED.

2. CONTRACTOR TO PROVIDE A SUBMITTAL/SHOP DRAWING SUBMITTAL FOR EACH LIGHTING FIXTURE TYPE INCLUDING ACCESSORIES, BALLAST(S), POWER SUPPLIES, DRIVER(S) TRANSFORMER(S), AND INTEGRAL EMERGENCY BATTERIES AND TEST SWITCHES. ANY LIGHTING FIXTURE SUBMITTAL PROVIDED WITHOUT SPECIFIC LIGHTING FIXTURE'S ACCESSORIES, BALLAST, POWER SUPPLY, DRIVER, TRANSFORMER OR BATTERY INFORMATION SHALL BE REJECTED AS INCOMPLETE.

3. SUBSTITUTIONS OF THE SPECIFIED PRODUCTS ARE STRICTLY PROHIBITED - UNLESS APPROVED AS STATED HEREIN. LIGHTING FIXTURE SUBSTITUTIONS SHALL BE FORMALLY PRESENTED TO THE ELECTRICAL ENGINEER AND/OR LIGHTING CONSULTANT, BY APPOINTMENT ONLY, AT LEAST TEN (10) WORKING DAYS PRIOR TO BID TIME. THE SUBMITTAL MATERIAL SHALL INCLUDE THE FOLLOWING ITEMS.

   a. A COMPLETE AND OPERATING SAMPLE, WIRED FOR 120V OPERATION, WITH LAMP, CORD AND PLUG .

   b. A COMPLETE PHOTOMETRIC REPORT, FOR THE PROPOSED SUBSTITUTE PRODUCT, USING THE SPECIFIED LAMP OR LED TYPE AND WATTAGE, INCLUDING TABULATED CANDLEPOWER VALUES, COEFFICIENT OF UTILIZATION, AND AN ISO-FOOT-CANDLE DIAGRAM. PRORATED DATA WILL NOT BE ACCEPTABLE. THE PHOTOMETRIC REPORT MUST BE DONE IN ACCORDANCE WITH PUBLISHED I.E.S. TESTING PROCEDURES AND CERTIFIED BY A REGISTERED ELECTRICAL ENGINEER.

   c. A CURRENT ORIGINAL CATALOG DATA SHEET WITH LIGHTING FIXTURE CATALOG NUMBERS. MODIFIED DATA SHEETS WILL NOT BE ACCEPTABLE.

   d. A SIGNED COPY OF THE "SUBSTITUTION COMPLIANCE FORM", LOCATED IN THE DIVISION 1 SPECIFICATION, STATING THAT IF THE PROPOSED SUBSTITUTION IS ACCEPTED, THE PROJECT SCHEDULE WILL NOT BE NEGATIVELY AFFECTED. IF THE COMPLETION OF THE PROJECT IS DELAYED BECAUSE OF THE APPROVED SUBSTITUTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR PAYMENT OF ANY ESTABLISHED LIQUIDATED DAMAGES.

   e. FOR SPECIFIC INTERIOR FIXTURE SUBSTITUTIONS, WHEN DIRECTED BY THE ELECTRICAL ENGINEER AND/OR LIGHTING CONSULTANT, A POINT-BY-POINT SCALED COMPUTER PRINTOUT SHALL BE PROVIDED VERIFYING THE ILLUMINATION LEVELS FOR THE SPECIFIC INTERIOR AREA. IF THE SUBSTITUTED FIXTURE IS AN EMERGENCY FIXTURE, THE REPORT SHALL BE RUN IN BOTH NORMAL AND EMERGENCY MODES. THIS REPORT SHALL BE CONFIGURED WITH SPECIFIC CONSTRAINTS, AS DIRECTED BY THE ENGINEER OF RECORD. THE REPORT MUST SHOW THAT THE SUBSTITUTED FIXTURE PROVIDES PERFORMANCE EQUAL TO OR BETTER THAN THE LIGHTING LEVELS OF THE SPECIFIED PRODUCT.

   f. FOR ALL EXTERIOR FIXTURE SUBSTITUTIONS, A POINT-BY-POINT SCALED COMPUTER PRINTOUT SHALL BE PROVIDED VERIFYING THE ILLUMINATION LEVELS FOR THE ENTIRE SITE PLAN BASED ON USING THE PROPOSED ALTERNATIVE FIXTURES. THE REPORT MUST SHOW THAT THE SUBSTITUTED FIXTURE PROVIDES PERFORMANCE EQUAL TO, OR BETTER THAN THE LIGHTING LEVELS AND UNIFORMITY RATIOS (MAX:MIN AND AVG:MIN) OF THE SPECIFIED PRODUCT. THIS REPORT SHALL BE CONFIGURED WITH THE FOLLOWING CONSTRAINTS.

      i. THE SPACING INCREMENT OR POINTS ON THE VERIFICATION REPORT SHALL NOT EXCEED TEN (10) FEET IN EITHER DIRECTION.

      ii. THE PHOTOMETRIC CALCULATION SHALL BE BASED ON PROVIDING MAINTAINED FOOT-CANDLE LEVELS USING MEAN LAMP LUMENS AND A LIGHT LOSS FACTOR, AS DIRECTED BY THE ENGINEER OF RECORD.

      iii. THE PHOTOMETRIC CALCULATION SHALL SHOW ANY ADDITIONAL ENERGY AND/OR ENERGY COSTS, FOR A TEN YEAR PERIOD, AS COMPARED TO THE ORIGINALLY SPECIFIED ITEM. THE TOTAL COSTS FOR THESE EXPENSES WILL BE DEDUCTED FROM THE CONTRACT COST.

4. DURING THE BIDDING PROCESS, THE CONTRACTOR SHALL REFER TO THE LIGHTING FIXTURE SCHEDULES ON THE ARCHITECTURAL PLANS (IF PROVIDED ON PROJECT), LIGHTING DESIGN PLANS/SPECIFICATIONS (IF PROVIDED ON PROJECT), AND THE ELECTRICAL PLANS. ANY DISCREPANCIES BETWEEN THEM INCLUDING, BUT NOT LIMITED TO, PART NUMBERS AND FIXTURE DESCRIPTIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT, ELECTRICAL ENGINEER, AND LIGHTING DESIGNER WITH PRE-BID RFI(S). WHERE DISCREPANCIES ARE DISCOVERED WHEN THERE IS INSUFFICIENT TIME TO ISSUE PRE-BID RFI(S), THE BASE BID SHALL INCORPORATE THE MOST COSTLY VERSION OF THE DISCREPANCY AND SHALL BE MEMORIALIZED IN AN RFI OR AS A BID CLARIFICATION. PROVIDING A VOLUNTARY DEDUCTIVE ALTERNATE BID CLARIFYING FIXTURE SCHEDULE DISCREPANCIES IS ALSO AN ACCEPTABLE FORM OF DISCREPANCY DOCUMENTATION.

5. FIXTURE FINISHES:

   a. ALL FIXTURE FINISHES AND COLORS, UNLESS NOTED AS PREMIUM OR CUSTOM, SHALL BE SELECTED FROM THE MANUFACTURERS STANDARD COLOR OPTIONS AS LISTED ON THE FIXTURE SPECIFICATION SHEET. STANDARD FINISH SHALL BE SELECTED BY THE ARCHITECT, INTERIOR DESIGNER OR OWNER. THIS DIRECTION WILL BE PROVIDED IN THE SHOP DRAWING REVIEW PROCESS.

   b. ALL FIXTURES INDICATED WITH A PREMIUM OR CUSTOM COLOR SHALL BE ASSIGNED A CUSTOM COLOR REFERENCE NUMBER (SUCH AS RAL#) OR PROVIDE FIVE (5) PAINT CHIPS FOR MANUFACTURER TO USE TO MATCH COLOR. PREMIUM OR CUSTOM FINISH SHALL BE SELECTED BY THE ARCHITECT, INTERIOR DESIGNER OR OWNER. THIS DIRECTION WILL BE PROVIDED IN THE SHOP DRAWING REVIEW PROCESS.

6. THE LIGHTING FIXTURE MODEL NUMBER MAY INDICATE A FIXTURE OPTION THAT THE CONTRACTOR MUST IDENTIFY PRIOR TO ORDERING/PROVIDING SUBMITTALS, INCLUDING, BUT NOT LIMITED TO: VOLTAGE, MOUNTING CONDITION/HARDWARE, FINISH, DIMMING REQUIREMENTS/BALLAST INFORMATION. GENERALLY, CONTRACTOR-SELECTED OPTIONS ARE DENOTED IN THE PART NUMBER WITH BRACKETS EX: [VOLTS?]

   a. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND PROVIDING ALL HANGERS, CLIPS AND NECESSARY HARDWARE TO INSTALL THE FIXTURE IN THE ENVIRONMENT AS SHOWN ON THE ARCHITECTURAL PLANS. ALL FIXTURES SHALL BE PROVIDED WITH ALL REQUIRED STRUCTURAL SUPPORTS AS REQUIRED BY THE CURRENTLY ADOPTED CODES.

   b. VOLTAGES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING - SEE ELECTRICAL DRAWINGS FOR BRANCH CIRCUIT INFORMATION. IT IS POSSIBLE THAT FIXTURES WILL BE REQUIRED IN VARIOUS VOLTAGES.

7. "NO KNOWN EQUAL" LIGHTING FIXTURE PRICING/BIDDING NOTES:

   a. EACH FIXTURE IDENTIFIED AS "NO KNOWN EQUAL" ON THIS PROJECT SHALL BE BID IN A "LINE ITEM" FORMAT. A PER UNIT MATERIAL COST SHALL BE PROVIDED FOR EACH "NO KNOWN EQUAL" FIXTURE. THIS PRICE SHALL INCLUDE LAMPS AS WELL AS ALL OTHER REQUIRED MATERIALS REQUIRED FOR INSTALLATION. THE FIXTURE PRICE QUOTED WILL BE UTILIZED, PRIOR TO SHOP DRAWING APPROVAL, FOR "ADDING" AND/OR "DELETING" ANY QUANTITY OF THE FIXTURE.

   b. A UNIT COST SHALL BE SUBMITTED FOR EACH "NO KNOWN EQUAL" FIXTURE. SUBMIT THE PRICING AS PART OF THE BID FORM ON A SEPARATE 8 1/2" X 11" SHEET.

   c. FAILURE TO SUBMIT A LINE ITEM FOR EACH "NO KNOWN EQUAL" FIXTURE MAY RESULT IN THE REJECTION, REFUSAL, OR NON-ACCEPTANCE OF THE CONTRACTOR'S BID.

8. FIXTURES IDENTIFIED AS "NO KNOWN EQUAL - OWNER STANDARD" OR "CAMPUS STANDARD" ARE TO BE PROVIDED AS SPECIFIED, WITH SUBSTITUTIONS STRICTLY PROHIBITED. SEE ADDITIONAL NOTES FOR "NO KNOW EQUAL" BIDDING REQUIREMENTS.

D. LIGHTING FIXTURE SPECIFICATIONS:

1. ALL EXTERIOR LIGHTING EQUIPMENT SHALL BE RATED FOR WET LOCATION AND THE IP RATING OF ALL EQUIPMENT, INCLUDING BALLAST, POWER SUPPLY AND TRANSFORMER ENCLOSURES SHALL CONFORM TO THE CONDITIONS IN WHICH THE LIGHTING FIXTURE IS MOUNTED.

2. ALL BALLASTS, POWER SUPPLIES, DRIVERS AND/OR TRANSFORMERS THAT ARE REMOTELY LOCATED SHALL BE INSTALLED AS NEAR TO THE LIGHTING FIXTURE(S) AS POSSIBLE, HIDDEN FROM PUBLIC VIEW IN AN ACCESSIBLE COMPARTMENT THAT IS WELL VENTILATED. CONTRACTOR TO COORDINATE LOCATION(S) WITH ARCHITECT PRIOR TO ROUGH-IN.

3. ALL TRANSFORMERS SHALL BE FUSED ON THE SECONDARY SIDE.

4. COLOR FILTERS SHALL BE GLASS OR DICHROIC UNLESS OTHERWISE INDICATED ON DRAWINGS.

5. CONTRACTOR TO PROVIDE 20% ADDITIONAL COLOR FILTERS FOR EACH COLOR AND SIZE.

6. CONTRACTOR TO VERIFY THAT ALL LIGHTING FIXTURES SPECIFIED WITH A COLOR FILTER ARE SUPPLIED WITH ANY AND ALL ATTACHMENT DEVICES FOR THE FILTER.

7. ALL TRACK LIGHTING FIXTURES SHALL BE PROVIDED WITH THE APPROPRIATE TRACK SYSTEM WHICH SHALL INCLUDE ALL MISCELLANEOUS COMPONENTS REQUIRED, AS WELL A ANY REQUIRED CIRCUIT LIMITERS FOR A COMPLETE INSTALLATION. TRACK LENGTH(S) SHALL BE PER DRAWINGS.

E. DRIVERS / TRANSFORMERS:

1. [OPTION?] IN FIXTURE MODEL NUMBER INDICATE THAT THE FIXTURE DRIVER TYPE AND QUANTITY MUST BE VERIFIED BY THE CONTRACTOR USING FIXTURE CALLOUT INFORMATION AND FIXTURE SWITCHING CONFIGURATION INFORMATION.

2. CONTINUOUS DIMMING AND CONTROLLABLE LED:

   a. PROVIDE CONTROLLABLE LED DIMMING DRIVERS (INTEGRAL OR REMOTE) WITH POWER FACTOR GREATER THAN 0.85 AND MAXIMUM THD OF 20% AT FULL LOAD.

   b. PRIOR TO BID CONTRACTOR TO VERIFY DRIVER COMPATIBILITY WITH DIMMERS, DIMMING CONTROL SYSTEM(S) AND DISTRIBUTED LIGHTING CONTROL SYSTEM(S) WITH RESPECTIVE LIGHTING MANUFACTURER(S) AND LIGHTING/DIMMING CONTROL SYSTEM MANUFACTURERS. IF COMPATIBILITY DOCUMENTATION IS UNAVAILABLE FOR A GIVEN LED FIXTURE/LIGHTING CONTROL SYSTEM COMBINATION, CONTRACTOR SHALL INCLUDE COSTS IN THE BASE BID FOR RESPECTIVE LIGHTING MANUFACTURER AND LIGHTING CONTROLS MANUFACTURER TO TEST/WARRANT COMPATIBILITY OF SAID COMBINATIONS.

   c. CONTINUOUS LED DIMMING DRIVERS SHALL BE AT MINIMUM 4-WIRE 0-10V 10% DIMMING (HOT, NEUTRAL, DIM+, DIM-).

F. EMERGENCY FIXTURES / BATTERY PACKS:

1. LIGHT FIXTURES INDICATED AS EMERGENCY SHALL BE IDENTIFIED / PROVIDED AS FOLLOWS:
   a. INTEGRAL BATTERY PACK (EB):
      - 3a/3EB - FIXTURE CONNECTED TO CIRCUIT "3", CONTROL SWITCHLEG "a" - WITH THE BATTERY CHARGING LEAD CONNECTED TO A CONSTANT HOT CIRCUIT "3".
      - 3NL/3EB - FIXTURE CONNECTED TO A CONSTANT HOT CIRCUIT "#3". BATTERY CHARGING LEAD CONNECTED TO A CONSTANT HOT CIRCUIT "3".
   b. REMOTE BACK-UP SOURCE (EM):
      - 3a/3EM - ROUTED THROUGH A U.L. LISTED TRANSFER RELAY (LC & D #GR-2001E/S) FOR SWITCHED CONTROLS OR A U.L. LISTED TRANSFER SWITCH (BODINE #GTD SERIES DEVICE) FOR DIMMING CONTROLS. CONNECTED TO A CONSTANT HOT EMERGENCY CIRCUIT "3". SEE DISTRIBUTED LIGHTING CONTROL SPECIFICATIONS FOR DEVICE REQUIREMENTS WHEN CONTROLLED BY OCCUPANCY SENSORS.
      - 3NL/3EM - FIXTURE CONNECTED TO A CONSTANT HOT EMERGENCY CIRCUIT "3".
   c. REMOTE BACK-UP SOURCE (EM) NOTES:
      - ALL REMOTE BACK UP SOURCE (EM) FIXTURES SHALL BE PROVIDED WITH AN IN LINE FUSE. PROVIDE ADDITIONAL LABELING TO INDICATE FIXTURE IS PROTECTED BY A FUSE.

EMERGENCY BATTERY PACK
2. NOTES:

   a. PROVIDE INTEGRAL TEST SWITCH / CHARGE LIGHT OPTION FOR ALL EMERGENCY BATTERY PACKS INSTALLED IN LIGHT FIXTURES.

   b. ALL RECESSED DOWNLIGHTS SUPPLIED WITH A BATTERY PACK SHALL BE PROVIDED WITH AN INTEGRAL COMBINATION TEST SWITCH / CHARGING INDICATOR LIGHT- MOUNTED INSIDE THE REFLECTOR. REMOTE TEST SWITCH / CHARGING LIGHTS ARE NOT ALLOWED. THE TEST SWITCH / CHARGING INDICATOR LIGHT SHALL BE SECURELY ATTACHED TO THE REFLECTOR WITH 18" OF SLACK LEADS, FOR EASY REMOVAL OF THE REFLECTOR ASSEMBLY.

   c. ALL BATTERY PACKS AND ALL COMBINATION LED BATTERY PACK/EMERGENCY DRIVERS SHALL BE UL924 LISTED.

   d. PRIOR TO BID, CONTRACTOR SHALL VERIFY WITH FIXTURE MANUFACTURER(S) THAT EMERGENCY BATTERY PACKS ARE MANUFACTURED TO BE INTEGRAL TO FIXTURE HOUSINGS.

   e. SHOULD THE SPECIFIED LED EMERGENCY BATTERY PACK(S) NOT FIT WITHIN A GIVEN FIXTURE(S) OR SHOULD THE FIXTURE NOT BE MANUFACTURED TO ACCOMMODATE A BATTERY PACK, CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID TO LOCATE/CONNECT SELF-TESTING MINI INVERTER(S) (IOTA #ILS SERIES OF BODINE#ELI-S-[WATT?]) REMOTELY FROM THE FIXTURE(S) IN THE NEAREST ELECTRICAL ROOM OR TO LOCATE EMERGENCY BATTERY PACK(S) REMOTELY FROM THE FIXTURE ABOVE THE NEAREST ACCESSIBLE CEILING.

   f. LED BATTERY PACKS SHALL PROVIDE A MINIMUM OF 90 MINUTES OF EMERGENCY ILLUMINATION, AND SHALL BE RATED AT A MINIMUM OF 10 WATTS, OR AS SPECIFIED. WHERE A FIXTURE TYPE IS UNAVAILABLE WITH A 10W BATTERY PACK OR WHERE THE WATTAGE IS NOT SPECIFIED ON THE PLANS, INCLUDE ALL COST IN BASE BID TO PROVIDE THE HIGHEST WATTAGE AVAILABLE ON THE FIXTURE CUTSHEET. ANY LISTED EQUAL FIXTURE OR ANY SUBSTITUTION OFFERED BY THE CONTRACTOR MUST ALSO HAVE BATTERY PACKS CAPABLE OF PRODUCING THE SAME OR MORE LUMENS WHEN ON BATTERY AS OUTLINED ABOVE. ACCEPTABLE MANUFACTURES: BODINE OR IOTA.

   g. TO MAINTAIN UL LISTING OF LED FIXTURE, FIXTURE MANUFACTURER(S) SHALL INSTALL LED EMERGENCY BATTERY PACKS AT THE FACTORY AND OBTAIN A UL LISTING FOR THE FIXTURE WITH EMERGENCY BATTERY PACK. FIELD-INSTALLATION OF LED EMERGENCY BATTERY PACK(S) IS PROHIBITED.

   h. PROVIDE DAMP LOCATION VERSION IN ALL DAMP LABEL INSTALLATIONS.

LIGHTING FIXTURE SCHEDULE

SYMBOL	TYPE	MANUFACTURER AND MODEL NUMBER	FIXTURE VA/ WATTS	LAMP/ LAMP OPTION	GENERAL DESCRIPTION
	1A	LITHONIA LIGHTING 2BLT4-40L-ADP-GZ10-LP935 - EM BATTERY PACK: ELI7L OR APPROVED EQUAL	30.5	LED/3500	RECESSED 2' X 4' LED LUMINAIRE WITH 4200 LUMEN OUTPUT. UNIVERSAL VOLTAGE, 120-277V. 0-10V DIMMING DRIVER. CONTRACTOR SHALL VERIFY FINISH WITH ARCHITECT PRIOR TO ORDERING. CONTRACTOR SHALL VERIFY EXACT DIMMING REQUIREMENTS AND PROVIDE ALL COMPONENTS TO MAKE A COMPLETE AND OPERATIONAL TITLE 24 CODE COMPLIANT LIGHTING CONTROLS SYSTEM. LOCATED IN MDF/IDF ROOM.
	2A	ALPHABET LIGHTING NU4-RD-30LM-35K-8D-NL-TRIM COLOR-UNV-DIM10 - EM BATTERY PACK W/ INT TEST SWITCH: EM7-ITS - OR APPROVED EQUAL	26W	LED/3500K	RECESSED 4" DIAMETER LED ROUND DOWNLIGHT. 120/277V INPUT VOLTAGE. 0-10V DIMMING DRIVER. CONTRACTOR SHALL VERIFY FINISH WITH ARCHITECT PRIOR TO ORDERING. CONTRACTOR SHALL VERIFY EXACT DIMMING REQUIREMENTS AND PROVIDE ALL COMPONENTS TO MAKE A COMPLETE AND OPERATIONAL TITLE 24 COMPLIANT LIGHTING CONTROLS SYSTEM.
	3A	LITHONIA LIGHTING WDGE2-P2-40K-80CRI-T3M-MVOLT - EM BATTERY PACK: E10WH OR APPROVED EQUAL	19W	LED	EXTERIOR WALL PACK.
	4A	LITHONIA LIGHTING DSXF3 LED 6 P4 40K 70CRI WFL MVOLT YKC62 PE WG FINISH OR APPROVED EQUAL	189W	LED	WALL SPOTLIGHT WITH PRECISION OPTIC. 70CRI, 4000K. OUTDOOR RATED.
	X1	LITHONIA LIGHTING EDG-W-1/2-LETTER COLOR-EL OR APPROVED EQUAL	3W	LED	EMERGENCY EXIT SIGN WITH 90MIN BATTERY PACK. - - -

SEE GENERAL LIGHTING FIXTURE SCHEDULE NOTES FOR CRITICAL FIXTURE SPECIFICATION AND ORDERING INFORMATION.

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Submittal	Date
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LIGHTING FIXTURE SCHEDULES

E5.01

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 T. If using Table T to document lighting in multifamily common use areas providing shared provisions for living, eating, cooking or sanitation, those luminaires are not included here.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per 140.6(a)3 / 170.2(e)2C	Design Watts	Field Inspector	
									Pass	Fail
1A	1A 2X4 RECESSED	No	NA	30.5	Mfr. Spec	99	No	3,019.5	☐	☐
2A	2A RECESSED DOWNLIGHT	No	NA	26	Mfr. Spec	1	No	26	☐	☐
Total Designed Watts: CONDITIONED SPACES								3,046		

[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.

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

This table includes lighting controls for conditioned and unconditioned spaces.

Building Level Controls

01	02	03	
Mandatory Demand Response 110.12(c)	Shut-off controls 130.1(c) / 160.5(b)4C	Field Inspector	
		Pass	Fail
Required >= 4,000W subject to multilevel	Whole Building Auto Time Switch	☐	☐

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)4Av (+)	Tailored 140.6(c)3 / 170.2(e)4B (+)	=	**Total Allowed** (Watts)	≥	Total Designed (Watts)	Adjustments PAF Lighting Control Credits 140.6(a)2 / 170.2(e)1B (-)	=	**Total 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		8,068.7	0		=	8,069	≥	3,046	0	=	3046	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.

Q. RATED POWER REDUCTION COMPLIANCE FOR ONE-FOR-ONE ALTERATIONS

This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS

This section does not apply to this project.

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This section does not apply to this project.

T. DWELLING UNIT LIGHTING

This section does not apply to this project.

U. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selections have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-LTI-E - Must be submitted for all buildings

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Company: WSP USA	Signature Date: 2025-11-13
Address:	CEA/ HERS Certification Identification (if applicable):
City/State/Zip:	Phone:

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: Ray Swartz	Responsible Designer Signature:
Company: WSP Global Inc	Date Signed: 2025-11-13
Address: 15231 Laguna Canyon Road, Suite 100	License: E15610
City/State/Zip: Irvine CA 92618	Phone: 949-751-5800

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

STORAGE	All Other Space Types	0.4	585	234	No	No
		TOTALS:	9,965	8,068.7	See Tables J, or P for detail	

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.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))

This section does not apply to this project.

V. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "-A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	Whole Building Time Switch; Conference; Corridors; All Other Rooms;
NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	Whole Building Demand Response;

A. GENERAL INFORMATION

01 Project Location (city)	LA HABRA	04 Total Conditioned Floor Area (ft²)	9,965
02 Climate Zone	13	05 Total Unconditioned Floor Area (ft²)	0
03 Occupancy Types Within Project (select all that apply):		06 # of Stories (Habitable Above Grade)	1

● Support Areas ● All Other Occupancies

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	Area Category Method	9965	Area Category Method	0
Total Area of Work (ft²)	9965		0	

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

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(b)4A	Multi-Level Controls 130.1(b) / 160.5(b)4B	Shut-Off Controls 130.1(c) // 160.5(b)4C	Primary/Sky lit Daylighting 130.1(d) / 160.5(b)4D	Secondary Daylighting 130.1(d) / 160.5(b)4D	Interlocked Systems 140.6(a)1/ 170.2(e)2A	Field Inspector	
								Pass	Fail
Conference	All Other Space Types	Readily Accessible	Dimmer	Occupancy Sensor	NA: General Ltg < 120W	NA: General Ltg < 120W	No	☐	☐
Corridors	All Other Space Types	Readily Accessible	Dimmer	Occupancy Sensor	NA: General Ltg < 120W	NA: General Ltg < 120W	No	☐	☐
All Other Rooms	All Other Space Types	Readily Accessible	Dimmer	Occupancy Sensor	NA: General Ltg < 120W	NA: General Ltg < 120W	No	☐	☐
							13		
							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
CORRIDORS	Corridor	0.4	1,106	442.4	No	No
SCIENTIFIC LABORATORIES	Laboratory Area, Scientific	0.9	7,912	7,120.8	No	No
CONFERENCE	Convention, Conference, Multipurpose and Meeting Center	0.75	362	271.5	No	No

TITLE 24 PROCEDURES FOR TESTING AND ADJUSTING

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ASSOCIATED WITH FINAL INSPECTION AND APPLICABLE ACCEPTANCE REQUIREMENT PROCEDURES. INCLUDE ALL COSTS IN THE BASE BID. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, CONSTRUCTION INSPECTION, MEASUREMENTS, MONITORING, FUNCTIONAL TESTING, CALIBRATING, ETC. CONTRACTOR SHALL ASSUME THE ROLE OF "FIELD TECHNICIAN" AND "RESPONSIBLE PERSON" AS DEFINED IN STATE OF CALIFORNIA 2022 BUILDING ENERGY EFFICIENCY STANDARDS NONRESIDENTIAL COMPLIANCE MANUAL SECTIONS 13.1.2.2 AND 13.1.2.3.

LIGHTING CONTROL ACCEPTANCE TESTING AND ADJUSTING PROCEDURES - REFER TO NRCA-LTI-02-A DOCUMENTS.

AUTOMATIC DAYLIGHT CONTROL ACCEPTANCE TESTING AND ADJUSTING PROCEDURES - REFER TO NRCA-LTI-03-A DOCUMENTS.

DEMAND RESPONSE LIGHTING CONTROL ACCEPTANCE TESTING AND ADJUSTING PROCEDURES - REFER TO NRCA-LTI-04-A DOCUMENTS.

INSTITUTIONAL TUNING PAF ACCEPTANCE TESTING AND ADJUSTING PROCEDURES - REFER TO NRCA-LTI-05-A DOCUMENTS.

OUTDOOR LIGHTING CONTROL ACCEPTANCE TESTING AND ADJUSTING PROCEDURES - REFER TO NRCA-LTO-02-A DOCUMENTS.

ALL LIGHTING CONTROLS TESTING AND ADJUSTING DOCUMENTS NOTED ABOVE ARE AVAILABLE FROM THE CALIFORNIA ENERGY COMMISSION WEB SITE AT:
https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency-5

TITLE 24 GENERAL NOTE

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ASSOCIATED WITH FINAL INSPECTION AND APPLICABLE ACCEPTANCE REQUIREMENT PROCEDURES. INCLUDE ALL COSTS IN THE BASE BID. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, CONSTRUCTION INSPECTION, MEASUREMENTS, MONITORING, FUNCTIONAL TESTING, CALIBRATING, ETC. CONTRACTOR SHALL ASSUME THE ROLE OF "FIELD TECHNICIAN" AND "RESPONSIBLE PERSON" AS DEFINED IN STATE OF CALIFORNIA 2022 BUILDING ENERGY EFFICIENCY STANDARDS NONRESIDENTIAL COMPLIANCE MANUAL SECTION 14.1.2.

SEE STATE OF CALIFORNIA 2022 BUILDING ENERGY EFFICIENCY STANDARDS SECTIONS 10-103(a)3A AND 10-103(a)3B AND SECTION 130.4 FOR MORE INFORMATION.

SEE STATE OF CALIFORNIA 2022 BUILDING ENERGY EFFICIENCY STANDARDS NONRESIDENTIAL COMPLIANCE MANUAL CHAPTER 14 FOR MORE DETAILED REQUIREMENTS / INFORMATION.

SEE STATE OF CALIFORNIA 2022 BUILDING ENERGY EFFICIENCY STANDARDS RESIDENTIAL COMPLIANCE MANUAL CHAPTER 2 FOR MORE DETAILED REQUIREMENTS / INFORMATION.

PROVIDE COMPLETED INSTALLATION CERTIFICATE(S) AND CERTIFICATE(S) OF ACCEPTANCE AS REQUIRED TO THE SATISFACTION OF THE ENFORCEMENT AGENCY.

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Riverside, California 92505
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Project Leader - Bill Voller
Electrical Lead - Ronald Dela Cruz
WSP Job #:US0043159.0992

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SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

Submittal	Date
SCHEMATIC DESIGN	06/16/2025
50% DESIGN DEVELOPMENT	07/01/2025
100% DESIGN DEVELOPMENT	07/01/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	

TITLE 24 (INTERIOR)

E5.02

MEP COMPONENT ANCHORAGE NOTE:

ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC, SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16, CHAPTERS 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.

B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

MEP DISTRIBUTION SYSTEM BRACING NOTE FOR PIPING, DUCTWORK, AND ELECTRICAL CONDUIT:

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7 SECTION 13.3 AS DEFINED IN ASCE 7 SECTIONS 13.6.5, 13.6.6, 13.6.7, AND 13.6.8; AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

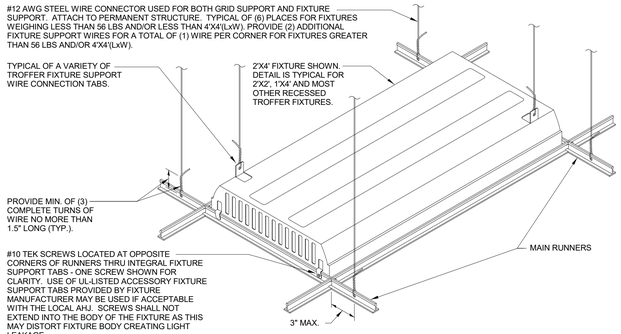
THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW AND SHALL BE IN ACCORDANCE WITH DSA IR 16-13. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐ MD☐ PP☐ E☒ IR 16-13 SECTION 2.1: PROJECT SPECIFIC DESIGN.

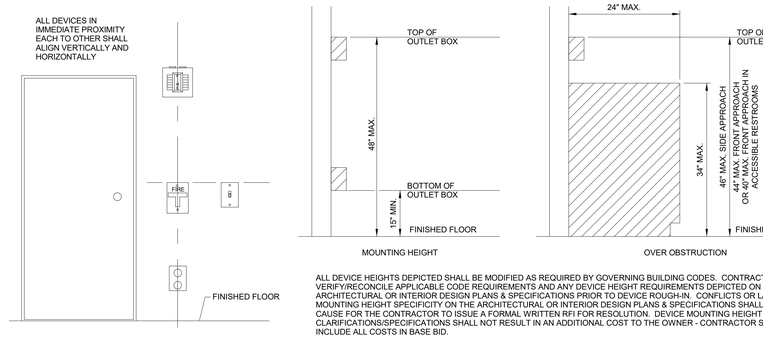
MP☐ MD☐ PP☐ E☐ IR 16-13 SECTION 2.2: DESIGN BASED ON OSHPD OPM, PART OF PROJECT SUBMITTAL.
OPM NUMBERS: _____
SHEET NUMBERS: _____

MP☐ MD☐ PP☐ E☐ IR 16-13 SECTION 2.2.3: DESIGN BASED ON OSHPD OPM, DEFERRED APPROVAL.



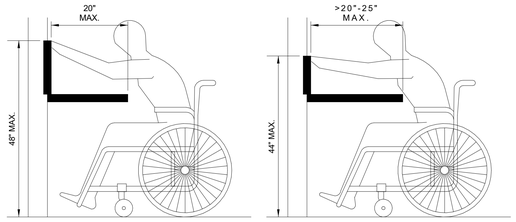
NOTE: SEE 12/A9.21 FOR ADDITIONAL INFORMATION ON FIXTURE SUPPORT.

FIXTURE SUPPORT DETAIL 4
SCALE: NTS

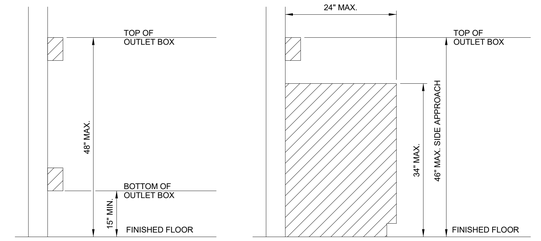


ALL DEVICE HEIGHTS DEPICTED SHALL BE MODIFIED AS REQUIRED BY GOVERNING BUILDING CODES. CONTRACTOR TO VERIFY/RECONCILE APPLICABLE CODE REQUIREMENTS AND ANY DEVICE HEIGHT REQUIREMENTS DEPICTED ON ARCHITECTURAL OR INTERIOR DESIGN PLANS & SPECIFICATIONS PRIOR TO DEVICE ROUGH-IN. CONFLICTS OR LACK OF MOUNTING HEIGHT SPECIFICITY ON THE ARCHITECTURAL OR INTERIOR DESIGN PLANS & SPECIFICATIONS SHALL BE CAUSE FOR THE CONTRACTOR TO ISSUE A FORMAL WRITTEN RFI FOR RESOLUTION. DEVICE MOUNTING HEIGHT CLARIFICATIONS/SPECIFICATIONS SHALL NOT RESULT IN AN ADDITIONAL COST TO THE OWNER - CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID.

DEVICE ALIGNMENT & MOUNTING HEIGHT DETAILS 1
SCALE: N.T.S.

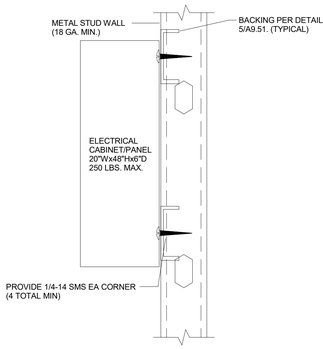


OBSTRUCTED HIGH FORWARD REACH DIAGRAM



ALL DEVICE HEIGHTS DEPICTED SHALL BE MODIFIED AS REQUIRED BY GOVERNING BUILDING CODES. CONTRACTOR TO VERIFY/RECONCILE APPLICABLE CODE REQUIREMENTS AND ANY DEVICE HEIGHT REQUIREMENTS DEPICTED ON ARCHITECTURAL OR INTERIOR DESIGN PLANS & SPECIFICATIONS PRIOR TO DEVICE ROUGH-IN. CONFLICTS OR LACK OF MOUNTING HEIGHT SPECIFICITY ON THE ARCHITECTURAL OR INTERIOR DESIGN PLANS & SPECIFICATIONS SHALL BE CAUSE FOR THE CONTRACTOR TO ISSUE A FORMAL WRITTEN RFI FOR RESOLUTION. DEVICE MOUNTING HEIGHT CLARIFICATIONS/SPECIFICATIONS SHALL NOT RESULT IN AN ADDITIONAL COST TO THE OWNER - CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID.

MOUNTING HEIGHT OVER OBSTRUCTION DETAIL 2
SCALE: N.T.S.



SURFACE PANEL MOUNTING 3
SCALE: N.T.S.

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Project Leader - Bill Voller
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Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	07/07/2025
95% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	

ELECTRICAL DETAILS

E5.05

FIRE ALARM NOTES

1. WALL MOUNTED, AUDIBLE NOTIFICATION DEVICES SHALL HAVE THEIR TOPS MOUNTED AT 90" MINIMUM AND 100" MAXIMUM ABOVE THE FINISHED FLOOR, AND NO CLOSER THAN 6" TO A HORIZONTAL STRUCTURE. (NFPA 72, SECTION 18.4.8.1). ALL WALL MOUNTED VISUAL APPLIANCES AND COMBINATION AUDIBLE/VISUAL APPLIANCES SHALL HAVE THEIR BOTTOMS MOUNTED AT 80" MINIMUM AND 96" MAXIMUM ABOVE FINISHED FLOOR AS MEASURED TO THE LENS. (NFPA 72, SECTION 18.5.5.1)
2. ALL EQUIPMENT SHALL BE U.L. AND C.S.F.M. LISTED.
3. ALL FIRE ALARM WIRING SHALL BE FLP (FIRE POWER LIMITED) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE THHN OR THWN.
4. PER THE CEC, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH FIRE DEVICE. DO NOT SPLICE THE WIRE. THERE MUST BE AT LEAST 6" OF LEAD WIRE FROM THE BOX TO THE DEVICE. ALL BOXES TO BE SIZED PER CEC AND SHALL HAVE THEIR COVERS PAINTED RED WHERE APPLICABLE.
5. DO NOT DEVIATE FROM CONDUIT RUNS AS SHOWN ON FLOOR PLANS WITHOUT PRIOR APPROVAL FROM ELECTRICAL ENGINEER. FACTORS SUCH AS EXCESSIVE VOLTAGE DROP, ADDITIONAL PARTS, ENGINEERING, ETC., THAT ARE A RESULT OF CONDUIT RUN DEVIATIONS SHALL BE THE SOLE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
6. ALL FAN SHUTDOWN FUNCTIONS, DAMPER CLOSURES AND ASSOCIATED MECHANICAL SYSTEM FIRE ALARM INTERFACE SHALL BE BY MECHANICAL CONTRACTOR, AND SHALL BE COORDINATED WITH FIRE ALARM SYSTEM.
7. ALL DUCT SMOKE DETECTORS SHALL BE MOUNTED BY THE MECHANICAL CONTRACTOR. DUCT SMOKE DETECTORS EXPOSED TO THE WEATHER SHALL BE C.S.F.M. LISTED FOR OUTDOOR INSTALLATION, AND WEATHER PROTECTED BY THE MECHANICAL CONTRACTOR. ALL AIR VELOCITY TESTING SHALL BE PERFORMED BY THE MECHANICAL CONTRACTOR.
8. ALL FIRE ALARM DEVICE BACKBOXES, FIRE ALARM TERMINAL CABINETS, GUTTERS, JUNCTION BOXES AND ASSOCIATED CONDUITS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED. REFER TO FIRE ALARM SYMBOL LIST AND/OR MOUNTING DETAILS FOR ADDITIONAL INFORMATION. SYSTEM SUPPLIER PROVIDED BACKBOXES SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
9. SMOKE DETECTOR TESTING SHALL BE PERFORMED TO ENSURE THAT EACH DETECTOR IS WITHIN ITS LISTED AND MARKED SENSITIVITY RANGE USING THE METHODS RECOMMENDED PER CFC, SECTION 907.8.4 AND NFPA 72, SECTION 14.4.4.3.4.
10. ALL WIRING, INITIATING DEVICES AND ANNUNCIATOR PANEL SHALL BE SUPERVISED TO THE PRINCIPAL POINT OF ANNUNCIATION. THE FIRE ALARM CONTROL PANEL TO SUPERVISE THE ANNUNCIATOR PANEL, ALL INITIATING AND INDICATING DEVICE CIRCUITS.
    A. INITIATING DEVICE CIRCUITS (IDC): CLASS B
    B. SIGNALING LINE CIRCUITS (SLC): CLASS B
    C. NOTIFICATION APPLIANCE CIRCUITS (NAC): CLASS B
11. ALL WIRING SHALL BE CUT FOR IN AND OUT. WIRING SHALL NOT BE LOOPED THROUGH DEVICES.
12. POINT AND COMMON ANNUNCIATION AND T-TAPPING ARE PROHIBITED. (T-TAPPING IS ALLOWABLE ON SLC LOOPS).
13. PROVIDE 3/4" CONDUIT FROM FIRE ALARM CONTROL PANEL TO TELEPHONE BACKBOARD FOR OWNER PROVIDED CENTRAL STATION MONITORING, WHEN APPLICABLE.
14. CONTRACTOR TO FIELD VERIFY AND PROVIDE DECIBEL METER FOR TESTING OF AMBIENT NOISE LEVELS AUDIBLE DEVICES TO BE AT LEAST 15 DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN 75 DBA AT 10 FEET OR 5 DBA ABOVE THE MAXIMUM SOUND LEVEL BUT NOT MORE THAN 110 DBA AT THE MINIMUM HEARING DISTANCE. SOUND LEVEL SHALL BE MAINTAINED FOR DURATION OF AT LEAST 60 SECONDS. (CFC, SECTION 907.5.2.1.1) THE CONTRACTOR SHALL ADJUST/INSTALL ALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS. PROVIDE UPDATED PLANS AND CALCULATIONS THROUGH THE "CHANGE ORDER" PROCESS WHEN INSTALLING ADDITIONAL DEVICES.
15. VISUAL DEVICES SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15-CANDELA. VISUAL DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
16. ALL FIRE ALARM CIRCUITS SHALL BE IN CONDUIT OR APPROVED SURFACE RACEWAY IN A NEAT AND PROTECTED MANNER AS INDICATED ON THE DESIGN DOCUMENTS. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMENTS. ALL CONDUITS SHALL BE 3/4" MINIMUM. CONTRACTOR TO VERIFY CONDUIT FILL PRIOR TO INSTALLATION.
17. ALL FLOW SWITCHES SHALL BE 2 WIRE WITH NON-ELECTRONIC RETARD TYPE SIMILAR TO THE SYSTEM SENSOR MODEL "WFD SERIES" ONLY.
18. ALL DEVICES IN THE ALARM SYSTEM SHALL BE COMPATIBLE AND INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
19. SYSTEM SHALL BE FURNISHED AND INSTALLED BY AN AUTHORIZED DISTRIBUTOR.
20. FIRE ALARM SYSTEM INSTALLATION COMPANY SHALL BE UL LISTED (UUJS).
21. FIRE ALARM PANEL, REMOTES, AND COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURER'S SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED THE WEIGHT OF 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
22. SMOKE DETECTOR SHALL NOT BE ANY CLOSER THAN 1 FOOT FROM FIRE SPRINKLERS OR 3 FEET FROM ANY SUPPLY DIFFUSER. IN THE AREA OF CONSTRUCTION OR WHERE POSSIBLE DAMAGE/CONTAMINATION COULD OCCUR ON NEWLY INSTALLED FIRE ALARM DEVICES, DEVICES SHALL BE COVERED UNTIL THAT AREA IS READY TO BE TURNED OVER TO THE OWNER. DETECTORS THAT HAVE BEEN INSTALLED PRIOR TO FINAL CLEAN-UP BY ALL TRADES SHALL BE CLEANED OR REPLACED IN ACCORDANCE WITH CFC, SECTION 907. CLEANING OR REPLACEMENT OF DEVICES THAT WERE MOUNTED AT THE REQUEST OF THE CONTRACTOR WILL NOT BE PERFORMED WITHOUT WRITTEN AUTHORIZATION THAT ASSUMES FINANCIAL RESPONSIBILITY FOR COSTS INCURRED. TESTING OF DETECTORS SHALL BE PERFORMED PER NFPA 72, SECTION 14.4.5.3 AND CFC, SECTION 907.8.4.
23. PER CBC, SECTION 11B-309 ACTIVATION OF INITIATING DEVICE SHALL NOT REQUIRE MORE THAN 5 LBS. (22.2N) OF FORCE OR REQUIRE TIGHT GRASPING PINCHING, OR TWISTING OF WRIST.
24. THE SYSTEM SHALL CONFORM TO CALIFORNIA CODE OF REGULATIONS (CCR) TITLES 19 AND 24 AS APPLICABLE TO THIS PROJECT.
25. THE VOICE/ALARM COMMUNICATION SYSTEM VOICE MESSAGE SHALL COMPLY WITH NFPA 72, SECTIONS 18.4 AND 24.4 FOR GENERAL REQUIREMENTS, INTELLIGIBILITY, AUDIBILITY, MESSAGE PRIORITY, TONES, ETC.
26. A DEDICATED 120V BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM THE COMMON USE AREA PANEL AND SHALL HAVE NO OTHER OUTLETS. THE BREAKER SHALL HAVE A RED LOCKING DEVICE TO BLOCK THE HANDLE IN THE "ON" POSITION AND BE LABELED AS FOLLOWS:
    A. "FIRE ALARM" FOR FIRE ALARM SYSTEMS
    B. "EMERGENCY COMMUNICATIONS" FOR EMERGENCY COMMUNICATION SYSTEMS, OR
    C. "FIRE ALARM/ECS" FOR COMBINATION FIRE ALARM AND COMMUNICATIONS SYSTEMS.
27. WHERE A DETECTOR IS INSTALLED ABOVE THE CEILING, THE DETECTOR SHALL BE EASILY ACCESSIBLE AND THE LOCATION OF THE DETECTOR SHALL BE CLEARLY MARKED. FOR DUCT SMOKE DETECTORS A REMOTE TEST STATION SHALL BE PROVIDED. ELECTRICAL CONTRACTOR SHALL FURNISH ACCESS PANELS TO AREAS THAT REQUIRE SERVICING, TROUBLE SHOOTING, ETC.
28. THE "END OF LINE RESISTANCE" OF EACH CIRCUIT SHALL BE TESTED IN THE PRESENCE OF THE I.O.R. AND SHALL NOT EXCEED THE LISTED MANUFACTURER'S MINIMUM OPERATING VOLTAGE.
29. UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATERTIGHT FITTINGS AND WIRE LISTED FOR WET LOCATIONS, IN ACCORDANCE WITH CEC, SECTIONS 110.11, 300.5(B), 300.6, 300.9, 310.10, AND 760.3(D).
30. FIRE ALARM SYSTEM IS A FULLY AUTOMATIC SYSTEM. CONTRACTOR TO UTILIZE AREA COVERAGE SMOKE DETECTORS AND ADDRESSABLE CONTROL RELAYS FOR THE SHUTDOWN AND/OR CLOSURE OF HVAC UNITS AND COMBINATION SMOKE/FIRE DAMPERS. CONTROL RELAYS TO BE LOCATED WITHIN 3FT OF THE CONTROLLED CIRCUIT OR APPLIANCE PER NFPA 72, SECTION 21.2.4.
31. PROVIDE (VIA CHANGE ORDER PROCESS) APPROPRIATE MANUFACTURER PRODUCT DATA SHEETS AND APPLICABLE CSFM LISTINGS FOR ALL SUBSTITUTED MANUFACTURER'S MATERIAL, EQUIPMENT OR APPLIANCES, TO DSA PRIOR TO START OF INSTALLATION.
32. CONTRACTOR SHALL PROVIDE FIRE WATCH FOR ALL OCCUPIED AREAS OF WORK WHERE THE REQUIRED FIRE ALARM SYSTEM IS OUT OF SERVICE FOR THE DURATION OF THE SYSTEM OUTAGE. FIRE WATCH AND SYSTEM/EQUIPMENT SHALL BE PER CFC, SECTION 901.7.
33. EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NFPA 72. THE OPERATION OF ANY AUTOMATIC FIRE DETECTOR, SPRINKLER WATERFLOW DEVICE OR MANUAL FIRE ALARM BOX SHALL AUTOMATICALLY SOUND AN ALERT TONE FOLLOWED BY VOICE INSTRUCTIONS GIVING APPROVED INFORMATION AND DIRECTIONS FOR A GENERAL OR STAGED EVACUATION IN ACCORDANCE WITH THE FIRE SAFETY EVACUATION PLANS REQUIRED BY CFC, SECTION 404 PER CBC/CFC, SECTION 907.5.2.2
34. EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS SHALL HAVE THE CAPABILITY TO BROADCAST LIVE VOICE MESSAGES BY PAGING ZONES ON A SELECTIVE AND ALL-CALL BASIS PER CBC/CFC, SECTION 907.5.2.2.2.
35. EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS SHALL BE PROVIDED WITH AN APPROVED EMERGENCY POWER SOURCE PER CBC/CFC, SECTION 907.5.2.2.5.
36. UPON DETECTION OF CARBON MONOXIDE THE FIRE ALARM SYSTEM SHALL PRODUCE A FOUR-PULSE TEMPORAL PATTERN SIGNAL WITHIN THE BUILDING AND COMPLY WITH NFPA 720, SECTION 5.8.6.5.
37. ALL MEMBRANE AND THROUGH-PENETRATIONS OF RATED ASSEMBLIES SHALL BE PROTECTED BY AN APPROVED FIRE STOP SYSTEM AS IDENTIFIED IN CBC, CHAPTER 7, UL OR OTHER LAB TESTING CRITERIA. APPROVED TYPES OF MATERIALS SHALL BE IDENTIFIED WITHIN THE FIRE ALARM SECTION OF THE PROJECT SPECIFICATIONS.
38. CONTROL PANELS AND REMOTE ANNUNCIATORS SHALL BE INSTALLED WITH THEIR BOTTOMS MOUNTED AT 48" ABOVE THE FINISHED FLOOR.

FIRE ALARM SYSTEM TESTING NOTES:

1. INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED DESIGN DOCUMENTS AND SPECIFICATIONS, INCLUDING STATE FIRE MARSHAL LISTING NUMBERS FOR EACH COMPONENT OF THE SYSTEM HAS BEEN APPROVED BY DSA.
2. A STAMPED SET OF APPROVED FIRE ALARM DESIGN DOCUMENTS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION.
3. DISTRICT SHALL PROVIDE A CERTIFIED IMPARTIAL FIRE ALARM INSPECTOR. DSA, ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND/OR TESTING.
4. 100% OF THE SYSTEM IN CONTRACT WILL BE TESTED AND INSPECTED WITH THE CONTRACTOR OR CONTRACTOR'S SUB AND DISTRICT'S ETS STAFF MEMBER PRESENT. INSPECTION WILL INCLUDE, BUT NOT BE LIMITED TO, REMOVING STROBES/HORNS TO CHECK FOR "T-TAPS", REMOVING J-BOX COVERS TO CHECK WIRE GAGE AND SPLICES.
5. FOLLOW ALL REQUIREMENTS AND INSTRUCTIONS PROVIDED BY MANUFACTURER UPON INSTALLATION OF MANUFACTURER'S PRODUCTS AND DEVICES.
6. PRIOR TO REQUESTING FINAL APPROVAL OF THE INSTALLATION, THE INSTALLING CONTRACTOR SHALL FURNISH A WRITTEN STATEMENT TO THE FIRE CODE OFFICIAL THAT THE SUBJECT FIRE PROTECTION SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH APPROVED PLANS AND HAS BEEN TESTED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND THE APPROPRIATE INSTALLATION STANDARD. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF DSA AND THE ARCHITECT/ENGINEER OF THE PROJECT. ANY DEVIATIONS FROM THE DESIGN STANDARDS SHALL BE NOTED AND COPIES OF THE APPROVALS FOR SUCH DEVIATIONS SHALL BE ATTACHED TO THE WRITTEN STATEMENT. (CFC, SECTION 901.2.1)
7. UPON COMPLETION OF SYSTEM INSTALLATION, THE SYSTEM SHALL BE TESTED IN THE PRESENCE OF AND IN A MANNER ACCEPTABLE TO DSA/I.O.R. CONTRACTOR SHALL SUPPLY NECESSARY TESTING EQUIPMENT, INCLUDING A "SOUND LEVEL METER" TO CHECK ACCEPTABLE NOISE LEVELS OF AUDIBLE DEVICES. PROVIDE TEST RESULTS PER NFPA 72 TO ARCHITECT, D.S.A., I.O.R. AND TO LOCAL FIRE AUTHORITY, PER CFC, SECTION 907.8.2.
8. INSPECTION, TESTING AND MAINTENANCE SHALL BE IN COMPLIANCE WITH NFPA 72, CHAPTER 14, REACCEPTANCE TESTING SHALL BE IN COMPLIANCE WITH NFPA 72, SECTION 14.4.2.
9. THE LOCAL FIRE AUTHORITY SHALL BE NOTIFIED FOR TESTING. THE FIRE AUTHORITY SHALL BE PRESENT AND SHALL BEAR WITNESS FOR TESTING PROCEDURES. DOCUMENTATION FOR WHETHER THE FIRE AUTHORITY WAS PRESENT AND WITNESSED TESTING SHALL BE DOCUMENTED AS PART OF TESTING PROCEDURES DOCUMENTATION.
10. PRIOR TO COMPLETION OF FIRE ALARM SYSTEM THE TWO WAY COMMUNICATION SYSTEM SHALL BE TESTED AND CERTIFIED VIA NFPA 72 EMERGENCY COMMUNICATION SYSTEM SUPPLEMENTARY RECORD OF INSPECTION AND TESTING FORM.
11. THE INSTALLING CONTRACTOR SHALL PROVIDE A COMPLETED RECORD OF COMPLETION PER NFPA 72, FIGURE 7.8.2(A) THROUGH (I) AS APPLICABLE. A COMPLETE RECORD OF THE TESTS AND OPERATIONS OF EACH SYSTEM SHALL BE KEPT UNTIL THE NEXT TEST AND FOR ONE YEAR AFTER PER NFPA 72, SECTION 7.7.1.
12. FIRE ALARM SYSTEM DOCUMENTS SHALL BE HOUSED IN THE DOCUMENT CABINET. THE DOCUMENT CABINET SHALL BE INSTALLED AT THE SYSTEM CONTROL UNIT OR AT ANOTHER APPROVED LOCATION AT THE PROTECTED PREMISES AS REQUIRED BY NFPA 72, SECTION 7.7.2.
13. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CFC, SECTION 907.6.6. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING A FIRE ALARM SYSTEM MONITORING CONTRACT.
14. THE VOICE/ALARM COMMUNICATION SYSTEM VOICE MESSAGE SHALL COMPLY WITH NFPA 72 SECTIONS 18.4 AND 24.4 FOR GENERAL REQUIREMENTS, INTELLIGIBILITY, AUDIBILITY, MESSAGE PRIORITY, TONES, ETC. REFER TO NFPA 72 ANNEX D, D.1 THROUGH D.6 FOR DETERMINING THE FUNDAMENTALS OF TEST PROTOCOL AND METHOD OF MEASURING INTELLIGIBILITY.

SEQUENCE OF OPERATIONS

ACTION	DEVICE	120 VOLT POWER FAILURE	SYSTEM TROUBLE WIRING OPEN, GROUND, SHORT FAULT, SYSTEM LOW BATTERY, CIRCUIT SHORT	MANUAL PULL STATION	AREA SMOKE DETECTOR	CARBON MONOXIDE DETECTOR	AREA or ATTIC HEAT DETECTOR	SMOKE/FIRE DAMPER SMOKE DETECTOR
SOUND CONTROL PANEL TROUBLE BUZZER		YES	YES	NO	NO	YES	NO	NO
SOUND CONTROL PANEL SUPERVISORY BUZZER		NO	NO	NO	NO	YES	NO	NO
SOUND CONTROL PANEL ALARM BUZZER		NO	NO	YES	YES	YES	YES	YES
ACTIVATE RELAY FOR CENTRAL STATION MONITORING		YES	YES	YES	YES	YES	YES	YES
ANNUNCIATE AT FIRE ALARM CONTROL PANEL (ALARM)		NO	NO	YES	YES	YES	YES	YES
ANNUNCIATE AT FIRE ALARM CONTROL PANEL (TROUBLE)		YES	YES	NO	NO	NO	NO	NO
ANNUNCIATE AT REMOTE ANNUNCIATOR PANEL (ALARM)		NO	NO	YES	YES	YES	YES	YES
ANNUNCIATE AT REMOTE ANNUNCIATOR PANEL (TROUBLE)		YES	YES	NO	NO	NO	NO	NO
ACTIVATE AUDIBLE NOTIFICATION ALARM SIGNAL THROUGHOUT CAMPUS		NO	NO	YES	YES	NO	YES	YES
ACTIVATE VISUAL NOTIFICATION ALARM SIGNAL THROUGHOUT CAMPUS		NO	NO	YES	YES	NO	YES	YES
ACTIVATE AUDIBLE NOTIFICATION ALARM SIGNAL THROUGHOUT BLDG		NO	NO	YES	YES	YES	YES	YES
ACTIVATE VISUAL NOTIFICATION ALARM SIGNAL THROUGHOUT BLDG		NO	NO	YES	YES	YES	YES	YES
SOUND SPRINKLER BELL ALARM -		NO	NO	NO	NO	NO	NO	NO
SHUT DOWN ASSOCIATED AIR HANDLING (HVAC) THROUGHOUT BUILDING		NO	NO	NO	YES	NO	NO	YES
NOTIFY FIRE DEPARTMENT VIA MONITORING STATION -		NO	NO	YES	YES	YES	YES	YES
SOUND AN ALERT TONE FOLLOWED BY VOICE INSTRUCTION		NO	NO	YES	YES	YES	YES	YES

PLAN REVIEW REQUIREMENTS AND APPLICABLE CODES AND STANDARDS

1.0 FIRE ALARM PLAN REVIEW

A. FIRE ALARM PLAN REVIEW

1. AS PART OF THE FIRE ALARM PLAN REVIEW, PLANS AND SPECIFICATIONS FOR THE FIRE ALARM SYSTEM HAVE BEEN INCLUDED FOR REVIEW AND COMMENT BY THE DIVISION OF THE STATE ARCHITECT, FIRE & LIFE SAFETY.
2. THE FLOOR PLANS AND SPECIFICATIONS INCLUDE THE FOLLOWING: LOCATIONS OF ALL ALARM-INITIATING AND SIGNALING DEVICES, CONTROL AND TROUBLE SIGNALING EQUIPMENT (FIRE ALARM CONTROL PANEL, BUILDING ANNUNCIATION (FIRE ALARM ANNUNCIATOR).

B. FIRE ALARM COMPONENTS

1. PROVIDE CALIFORNIA STATE FIRE MARSHAL LISTING SHEETS AND U.L. LISTING NUMBERS FOR EACH COMPONENT.
2. EQUIPMENT POWER CONNECTIONS.
3. RISER DIAGRAM SHOWING EACH COMPONENT.
4. VOLTAGE DROP CALCULATIONS.
5. POWER CONNECTIONS TO APPLICABLE COMPONENTS.
6. WIRE AND/OR CABLING TYPES AND SIZES.
7. PROVIDE CATALOG DATA SHEETS FOR ALL FIRE ALARM SYSTEM COMPONENTS.
8. CONTRACTOR TO FURNISH STATEMENT OF COMPLIANCE BEFORE REQUESTING FINAL APPROVAL OF INSTALLATION IN ACCORDANCE WITH CFC, SECTION 901.2.1.
9. A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE PROJECT INSPECTOR AND, IF APPLICABLE, LOCAL FIRE AUTHORITY.
10. THE INSTALLER SHALL SUPPLY THE OWNER WITH A WRITTEN OPERATING, TESTING AND MAINTENANCE INSTRUCTIONS, POINT-TO-POINT AS BUILT DRAWINGS AND EQUIPMENT SPECIFICATIONS. AS BUILT RECORDS SHALL BE MAINTAINED ON PREMISES FOR A MINIMUM OF THREE YEARS PER CFC, SECTION 901.6.3.

C. SCOPE OF WORK

1. INSTALL A FULLY AUTOMATIC, ADDRESSABLE, FIRE ALARM SYSTEM WITH AN EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM WITHIN ALL BUILDINGS IN SCOPE OF PROJECT AS DEFINED PER CFC, SECTION 907.2.3 AND NFPA 72.
2. FIRE ALARM SYSTEM SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION IN ACCORDANCE WITH NFPA 72. THE SUPERVISING STATION SHALL BE U.L. LISTED AS UUFX (CENTRAL STATION) PER CFC, SECTION 907.6.6.3.
3. FIRE SPRINKLER SYSTEM UTILIZED FOR HEAT DETECTION IN ALL ABOVE CEILING, ATTIC SPACES AND CONCEALED COMBUSTIBLE AREAS. PROVIDE HEAT DETECTORS WHERE FIRE SPRINKLERS HAVE BEEN OMITTED PER NFPA 72 AND NFPA 13.

2.0 LIST OF CURRENT CALIFORNIA CODE OF REGULATIONS

APPLICABLE CODES AS OF JANUARY 1, 2023

2025 California Administrative Code (CAC), Part 1, Title 24, C.C.R.

2022 California Building Code (CBC), Volumes 1 & 2, Part 2, Title 24, C.C.R.

2022 California Electrical Code (CEC), Part 3, Title 24, C.C.R.

2022 California Mechanical Code (CMC), Part 4, Title 24, C.C.R.

2022 California Plumbing Code (CPC), Part 5, Title 24, C.C.R.

2022 California Energy Code, Part 6, Title 24, C.C.R.

2022 California Historical Building Code, Title 24, C.C.R.

2022 California Fire Code (CFC), Part 9, Title 24, C.C.R.

2022 California Existing Building Code (CEBC), Part 10, Title 24, C.C.R.

2022 California Green Building Standards Code (CALGreen), Part 11, Title 24, C.C.R.

2022 California Referenced Standards Code, Part 12, Title 24, C.C.R.

LIST OF FEDERAL CODES AND STANDARDS (if applicable)

Americans with Disabilities Act (ADA), Title II or Title III

For Title II: Uniform Federal Accessibility Standards (UFAS) or ADA Standards for Accessible Design (Appendix A of 28 CFR Part 36.)

For Title III: ADA Standards for Accessible Design (Appendix A of 28 CFR Part 36.)

Americans with Disabilities Act Accessibility Guidelines (ADAAG) (with amendments through September 2002)

PARTIAL LIST OF APPLICABLE NFPA STANDARDS:

NFPA 13	Automatic Sprinkler Systems (CA Amended)	2022 Edition
NFPA 14	Standpipes Systems (CA Amended)	2019 Edition
NFPA 17	Standard for Dry Chemical Extinguishing Systems	2021 Edition
NFPA 17a	Standard for Wet Chemical Systems	2021 Edition
NFPA 20	Installation Stationary Pumps for Fire Protection	2019 Edition
NFPA 22	Water tanks for Private Fire Protection	2019 Edition
NFPA 24	Installation of Private Fire Service Mains (CA Amended)	2022 Edition
NFPA 72	National Fire Alarm and Signaling Code (CA Amended) (Note: See UL Standard 1971 for "Visual Devices")	2022 Edition
NFPA 80	Fire Door and Other Opening Protectives	2019 Edition
NFPA 92	Standard for Smoke Control Systems	2018 Edition
NFPA 253	Critical Radiant Flux of Floor Covering Systems	2019 Edition
NFPA 2001	Clean Agent Fire Extinguishing Systems (CA Amended)	2018 Edition
ICC 300	ICC Standards on Bleachers, Folding and Telescoping Seating and Grandstands	2017 Edition
UL 38	Manual Operating Signal Boxes (with revisions through February 2, 2005 as amended)	1999 Edition
UL 268	Smoke Detectors for Fire Alarm Systems	2016 Edition
UL 268A	Smoke Detectors Duct Applications (with revisions through October 22, 2003 as amended)	2009 Edition
UL 300	Fire Testing of Fire Extinguishing Systems for Protection Of Restaurant Cooking Areas (with revisions through December 2014 as amended)	2005 Edition
UL 464	Audible Signal Appliances (with revisions through October 10, 2003 as amended)	2003 Edition
UL 521	Heat Detectors for Fire Protective Signaling Systems (with revisions through July 20, 2005 as amended)	1999 Edition
UL 864	Control Units for Fire Protective Signaling Systems (with revisions through December 2018)	2014 Edition

Refer to 2022 California Building Code (SFM) Chapter 35 and 2022 California Fire Code Chapter 80 for a complete list of applicable NFPA Standards.

FIRE ALARM SYMBOL LIST

SYMBOL	DESCRIPTION	MODEL	MANUFACTURER	BACKBOX	MOUNTING HEIGHT	C.S.F.M. NUMBER
VECP	(E) VOICE EVACUATION CONTROL PANEL (AR04-104977)	IFP-2100ECS	FARENHYT BY SILENT KNIGHT	PROVIDED	5'-6" A.F.F. TO TOP	7165-0559:0505
FAAP RM	REMOTE FIRE ALARM ANNUNCIATOR WITH BUILT-IN REMOTE MICROPHONE	ECS-LOC	FARENHYT BY SILENT KNIGHT	PROVIDED	5'-6" A.F.F. TO TOP	7165-0559:0505
FAPS	(E) FIRE ALARM POWER SUPPLY (AR04-104977)	5895XL	FARENHYT BY SILENT KNIGHT	PROVIDED	5'-6" A.F.F. TO TOP	7165-0559:0135
AMP	VOICE EVACUATION AUDIO AMPLIFIER	ECS-50W	FARENHYT BY SILENT KNIGHT	PROVIDED	5'-6" A.F.F. TO TOP	7165-0559:0173
FATC	FIRE ALARM TERMINAL CABINET	N/A	BY ELECTRICIAN	18"SQ. x 6"D U.N.O. (RED)	VERIFY IN FIELD	N/A
MS	MANUAL PULL STATION (ADDRESSABLE)	IDP-PULL-DA	FARENHYT BY SILENT KNIGHT	4S DEEP BOX W/ SINGLE GANG RING	48" A.F.F. TO TOP OF ACTIVATING HANDLE	7150-0559:0140
SD	AREA SMOKE DETECTOR (ADDRESSABLE/PHOTO.)	IDP-PHOTO B210LP (BASE)	FARENHYT BY SILENT KNIGHT	4S DEEP BOX W/ 3-0 RING	CEILING	7272-0559:0149
HD	AREA HEAT DETECTOR (ADDRESS.FIXED 200'F)	IDP-HEAT-HT B210LP (BASE)	FARENHYT BY SILENT KNIGHT	4S DEEP BOX W/ 3-0 RING	ABOVE ACCESSIBLE CEILING, U.O.N.	7270-0559:0147
CO	MULTI-CRITERIA FIRE/CO DETECTOR	IDP-FIRE-CO B210LP (BASE)	FARENHYT BY SILENT KNIGHT	4S DEEP BOX W/ 3-0 RING	CEILING	7270-0559:0517
CR	FIRE ALARM RELAY CONTROL MODULE	IDP-RELAY	FARENHYT BY SILENT KNIGHT	4S DEEP BOX	VERIFY IN FIELD	7300-0559:0155
DH	FIRE ALARM DOOR HOLD	EXISTING	EXISTING	EXISTING	VERIFY IN FIELD	EXISTING
S WP	WEATHERPROOF FIRE ALARM SPEAKER	WSSPK	GENTEX	GBLP WEATHERPROOF ENCLOSURE	90" A.F.F. TO TOP	7320-0569:0141
SF cd	FIRE ALARM SPEAKER/ STROBE (WALL)	SSPK24WLP	GENTEX	4S DEEP BOX W/ 4S EXTENSION	80" A.F.F. TO BOTTOM	7320-0569:0137
SF cd	FIRE ALARM SPEAKER/ STROBE (CEILING)	SSPK24CLP	GENTEX	4S DEEP BOX W/ 4S EXTENSION	CEILING	7320-0569:0137
F cd	FIRE ALARM STROBE (WALL)	GES3-24W	GENTEX	4S DEEP BOX W/ 4S EXTENSION	80" A.F.F. TO BOTTOM	7125-0569:0123
F cd	FIRE ALARM STROBE (CEILING)	GCS24C	GENTEX	4S DEEP BOX W/ 4S EXTENSION	CEILING	7135-0569:0123
SYNC	NOTIFICATION SYNC MODULE	AVSM	GENTEX	4S DEEP BOX	VERIFY IN FIELD	7125-0569:0123
J	FIRE ALARM JUNCTION BOX	N/A	BY ELECTRICIAN	4S BOX, U.N.O.	VERIFY IN FIELD	N/A

GENERAL FIRE ALARM SYMBOL LIST NOTES:

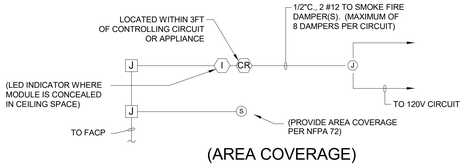
1. CONFIRM NOTIFICATION DEVICE COLOR (WHITE OR RED) WITH ARCHITECT PRIOR TO ANY ORDER OR INSTALLATION. COLOR TO BE INDICATED IN SHOP DRAWING SUBMITTAL.
2. NOTIFICATION APPLIANCES USED FOR SIGNALING OTHER THAN FIRE SHALL NOT HAVE THE WORD "FIRE", OR ANY FIRE SYMBOL, IN ANY FORM (i.e., STAMPED, IMPRINTED, ETC.) ON THE APPLIANCE VISIBLE TO THE PUBLIC. (NFPA 72 18.3.3.2.
3. NUMBER ADJACENT TO VISUAL DEVICES INDICATES MINIMUM CANDELLA RATING OF STROBE DEVICE.
4. UPON DETECTION OF CARBON MONOXIDE THE FIRE ALARM SYSTEM SHALL PRODUCE A FOUR-PULSE TEMPORAL PATTERN SIGNAL WITHIN THE BUILDING AND COMPLY WITH NFPA 720, SECTION 5.8.6.5.

GENERAL FIRE ALARM ABBREVIATIONS:

A.F.F.	ABOVE FINISHED FLOOR	N/A	NOT APPLICABLE
E.O.L.	END OF LINE RESISTOR	U.N.O.	UNLESS NOTED OTHERWISE
(E)	EXISTING DEVICE	VL	VERIFY LOCATION IN FIELD
F.B.O.	FURNISHED BY OTHERS	WP	WEATHERPROOF DEVICE
TSP	TWISTED SHIELDED PAIR	cd	INDICATED CANDELA RATING OF STROBE DEVICE

WIRING LEGEND

WIRE DESIGNATION	WIRE IN CONDUIT	WIRE IN CONDUIT UNDERGROUND/WET LOC.	UNDERGROUND/WET WIRE DESIGNATION
INITIATING CIRCUITS Z	2 CONDUCTOR #18 FPL TWISTED/ UNSHEILDED W/OVERALL JACKET	2 CONDUCTOR #18 FPL TWISTED/ UNSHEILDED W/OVERALL JACKET	INITIATING CIRCUITS ZU
POWER CKT. P	2 CONDUCTOR #12 THHN STRANDED	2 CONDUCTOR #12 STRANDED TYPE THWN	POWER CKT. PU
NETWORK CONTROL C	2 CONDUCTOR #12 THHN STRANDED	2 C



(AREA COVERAGE)

Note:
PER CMC 605.8, When the automatic activation of a smoke damper or a combination smoke-fire damper occurs, the HVAC system serving such dampers shall immediately shut down. ALL HVAC UNITS CONTAINING COMBINATION SMOKE FIRE DAMPERS AS PART OF THEIR DUCTING SYSTEM SHALL BE PROVIDED WITH SHUNT RELAYS AND DEVICES FOR IMMEDIATE SHUT DOWN UPON THE ACTIVATION / CLOSURE OF ASSOCIATED COMBINATION SMOKE FIRE DAMPERS.

SMOKE/FIRE DAMPER SCHEMATIC

SCALE: N.T.S.

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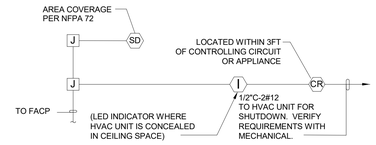
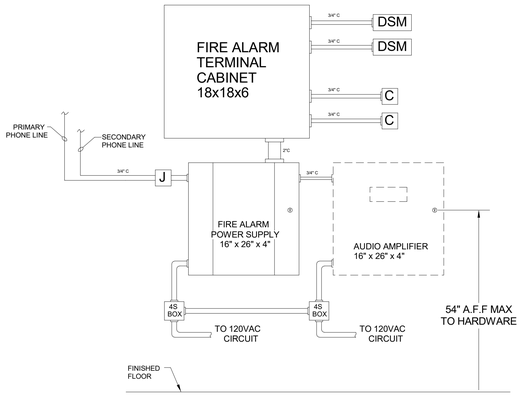


HVAC SHUT DOWN SCHEMATIC (AREA COVERAGE)

SCALE: N.T.S.

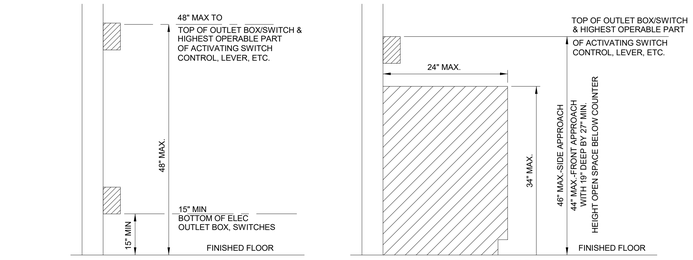
6



FIRE ALARM PANEL/POWER SUPPLY MOUNTING ELEVATION

SCALE: N.T.S.

5

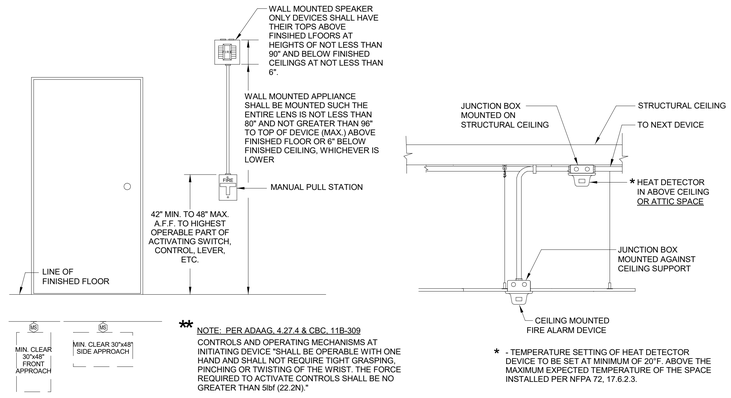


ALL DEVICE HEIGHTS DEPICTED SHALL BE MODIFIED AS REQUIRED BY GOVERNING BUILDING CODES. CONTRACTOR TO VERIFY/RECONCILE APPLICABLE CODE REQUIREMENTS AND ANY DEVICE HEIGHT REQUIREMENTS DEPICTED ON ARCHITECTURAL OR INTERIOR DESIGN PLANS & SPECIFICATIONS PRIOR TO DEVICE ROUGH-IN. CONFLICTS OR LACK OF MOUNTING HEIGHT SPECIFICITY ON THE ARCHITECTURAL OR INTERIOR DESIGN PLANS & SPECIFICATIONS SHALL BE CAUSE FOR THE CONTRACTOR TO ISSUE A FORMAL WRITTEN RFI FOR RESOLUTION. DEVICE MOUNTING HEIGHT CLARIFICATIONS/SPECIFICATIONS SHALL NOT RESULT IN AN ADDITIONAL COST TO THE OWNER - CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID.

MOUNTING HEIGHT OVER OBSTRUCTION DETAIL

SCALE: NTS

3



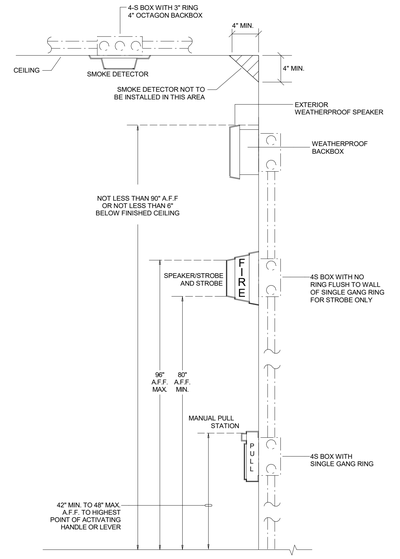
** NOTE: PER ADAAG, 4.27.4 & CBC, 11B-309
CONTROLS AND OPERATING MECHANISMS AT INITIATING DEVICE "SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5lbf (22.2N)."

* - TEMPERATURE SETTING OF HEAT DETECTOR DEVICE TO BE SET AT MINIMUM OF 20°F. ABOVE THE MAXIMUM EXPECTED TEMPERATURE OF THE SPACE INSTALLED PER NFPA 72, 17.6.2.3.

DEVICE MOUNTING DETAILS

SCALE: N.T.S.

2



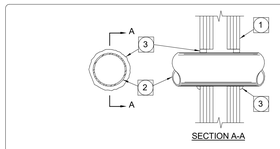
GENERAL NOTES:

1. THE ENTIRE LENS OF STROBE LIGHTS MUST BE BETWEEN 80" AND 96" ABOVE FLOOR FINISH. (NFPA 72, 18.5.5)
2. MANUAL FIRE ALARM BOXES SHALL BE INSTALLED IN ACCORDANCE WITH CFC, SECTIONS 907.4 THROUGH 907.5.
3. WHEN APPLICABLE, MANUAL FIRE ALARM BOXES SHALL BE LOCATED NOT MORE THAN 5 FEET FROM THE ENTRANCE TO EACH EXIT. ADDITIONAL MANUAL FIRE ALARM BOXES SHALL BE LOCATED SO THAT TRAVEL DISTANCE TO THE NEAREST BOX DOES NOT EXCEED 200 FEET. (CFC, 907.4.2.1)

MOUNTING HEIGHT DETAIL

SCALE: N.T.S.

1



SECTION A-A

PENETRATION THRU GYPSUM BOARD WALL

NO SCALE

System No.W-L-1252
January 22, 2019
F Ratings - 1, 2, 3 and 4 Hr (See Items 1 and 3)
T Ratings - 0 Hr
L Rating At Ambient - less than 1 CFM/sq ft
L Rating At 400 F - less than 1 CFM/sq ft

1. Wall Assembly - The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs - Wall framing may consist of steel channel studs. Steel studs to be min 3-1/2 in. (89 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.
   B. Gypsum Board * - Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard 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).

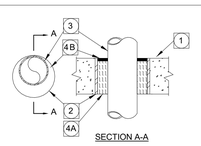
The hourly F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrant - One metallic pipe, conduit or tube to be installed either concentrically or eccentrically within the firestop system. The annular space between the pipe, conduit or tube and periphery of opening shall be min 0 in. (point contact) to max 7/8 in. (22 mm). Pipe, conduit or tube to be rigidly supported on both sides of wall assembly.
   A. Steel Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe - Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit - Nom 4 in. (102 mm) diam (or smaller) rigid steel conduit.
   D. Conduit - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic conduit.
   E. Copper Tubing - Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.
   F. Copper Pipe - Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. Fill, Void or Cavity Material * - Sealant - 1. Fill material applied within annulus , flush with both surfaces of wall. Type and thickness of sealant is dependent on F and FH Ratings as indicated in Table below. An additional 1/2 in. (13 mm) diameter bead of sealant applied at penetrant/gypsum board interface at point contact location on both surfaces of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP 606 Sealant

F, FH RATINGS (HR)	SEALANT TYPE	SEALANT THICKNESS, IN. (MM)
1,2	FS-ONE, FS-ONE MAX OR CP 606	5/8 (16)
3	FS-ONE, FS-ONE MAX OR CP 606	1 (25)
4	FS-ONE, FS-ONE MAX	1 (25)

*Bearing the UL Classification Marking



SECTION A-A

PENETRATION THRU CONCRETE WALL OR FLOOR

NO SCALE

System No. C-AJ-1630
DECEMBER 20, 2013
F Ratings - 2, 3, and 4 Hr (See Item 4)
T Rating - 0 Hr
L Rating At Ambient - less than 1 CFM/sq ft
L Rating At 400 F - less than 1 CFM/sq ft
W Rating - Class I (See Item 4)

1. Floor or Wall Assembly - 1. See Configuration A above. Reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/cu meter) concrete as specified in the Table in item 4 below. Wall may also be constructed of any UL Classified Concrete Blocks'. Max diam of sleeved opening is 32 in. (813 mm).
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

1A. Floor Assembly - See Configuration B above. Min 6 in. (152 mm) thick UL Classified hollow-core Precast Concrete Units'. Max diam of opening is 7 in. (178 mm).
See Precast Concrete Units (CFTV) category in the Fire Resistance Directory for names of manufacturers.

2. Steel Sleeve (Optional) - Nom 32 in. (813 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe sleeve cast or grouted into floor or wall assembly, flush with both surfaces of floor or wall. As an option, sleeve may extend max 2 in. above top surface of floor or beyond one or both surfaces of wall. Steel sleeve may be used in 2 and 3 hr F Rated systems only.

3. Through Penetrants - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. See Table in item 4 for sizes of penetrants A, B, D and E that may be used. See Item 3C below for size of conduit that may be used. The annular space shall be as specified in Table in item 4 below. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe - -- Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe - Cast or ductile iron pipe.
   C. Conduit - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or nom 6 in. (152 mm) diam (or smaller) steel conduit.
   D. Copper Tubing - Type L (or heavier) copper tubing.
   E. Copper Pipe - Regular (or heavier) copper pipe.

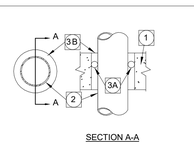
4. Firestop System - The F Rating of the system is dependent upon the type of concrete, thickness of concrete, annular space, fill and packing material thickness, packing material density and penetrant size as shown in the Table below. W Rating applies to annular spaces of min 0 in. (point contact) to max 1-7/8 in. and to Configuration A detail only.

F RATING HR	MIN THICK CONCRETE IN.	ANNULAR SPACE IN.	MIN THICK PACKING MTL IN.	MIN DENSITY PACKING MTL PCF (KG/CU MTR	MIN THICK FILL MTL IN.	PENETRANT SIZE IN. DIAM (OR SMALLER)	
						E,E COPPER	A,B STEEL, IRON
2	5-1/2(140)	0 TO 1-7/8 (0 TO 48)	5 (127)	4 (64)	1/2 (13)	4 (102)	16 (406)
3	4-1/2(114)	0 TO 2-1/8 (0 TO 54)	4-1/4 (108)	4 (64)	1/4 (6)	6 (152)	30 (762)
4	5-1/2(140)	0 TO 1-7/8 (0 TO 48)	5 (127)	4 (64)	1/2 (13)	4 (102)	8 (203)

A. Packing Material – Min 4-1/4 or 5 in. (108 or 127 mm) thickness of min 4.0 pcf (64 kg/cu meter) mineral wool batt insulation firmly packed into opening as a permanent form as specified in the Table above. Packing material to be recessed from top surface of floor or top end of sleeve, or from both surfaces of wall or ends of sleeve, as required to accommodate the required thickness of fill material. For hollow-core floor applications as shown in Configuration B, one half of the required thickness of mineral wool packing material shall be installed flush with the bottom surface of the floor and the remaining half of the mineral wool packing material installed at the top of the opening and recessed from the top surface of the floor to accommodate the required thickness of the fill material.

B. Fill, Void or Cavity Material* – Caulk – Min 1/4 or 1/2 in. (6 or 13 mm) thickness of fill material as specified in the Table above applied within the annulus, flush with top surface of floor or top end of sleeve, or with both surfaces of wall or ends of sleeve. At the point contact location betWeen pipe and concrete or sleeve, a min 1/2 in. (13 mm) diam bead of fill material shall be applied. As an option, for hollow-core floors, the packing material (Item 4A) on the bottom surface of the floor may be recessed to accommodate a 1/4 in. (6 mm) depth of fill material installed flush with bottom surface of floor.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CFS-S SIL GG (floors or walls) and CFS-S SIL SL (floors only)

*Bearing the UL Classification Mark



SECTION A-A

PENETRATION THRU CONCRETE FLOOR

NO SCALE

SYSTEM NO.C-AJ-1276
April 20, 2012
F RATING-3 HR
T RATING-0 HR

Floor or Wall Assembly - 1. Floor or Wall Assembly – Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks". Max diam of opening is 6 in. (152 mm).

See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Through Penetrants - One metallic pipe, conduit or tubing to be centered within the firestop system. A nom annular space of 3/4 in. (19 mm) is required within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe
   B. Conduit - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.

3. Firestop System - The firestop system shall consist of the following:
A. Packing or Forming Materials – Optional – One of the following packing or forming materials may be used:

A1. Foam Backer Rod – Foam backer rod tightly packed into the opening as a permanent form. Packing material to be recessed from the top surface of floor or both surfaces of wall as required to accommodate the required thickness of putty.

A2. Mineral Wool Batt Insulation – Min 4 pcf (64 kg/m3), tightly packed into the opening as a permanent form. Packing material to be recessed from the top surface of floor or both surfaces of wall as required to accommodate the required thickness of putty.

A3. Forming Material* – Forming material to be foamed into the opening as a permanent form. Forming material to be recessed from the top surface of floor or both surfaces of wall as required to accommodate the required thickness of putty.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CF612 or CF-AS CJP Foam Sealant

B. Fill, Void or Cavity Material* – Putty – Min 1 in. (25 mm) thickness of putty applied within the annulus, flush with top surface of floor or with both surfaces of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – CP 618 Firestop Putty Stick

*Bearing the UL Classification Mark

THROUGH RATED WALL OR FLOOR PENETRATIONS (U.L. LISTINGS)

SCALE: N.T.S.

4

COMPLETE FIRE ALARM SUBMITTAL

AUTOMATIC ADDRESSABLE FIRE ALARM SYSTEM WITH EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM

LPA
ARCHITECTURE ENGINEERING INTERIORS
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

WSP
11870 Pierce Street, Suite 160
Riverside, California 92505
951.299.4160 wsp.com
Project Leader - Bill Voller
Electrical Lead - Ronald Dela Cruz
WSP Job #:US0043159.0992

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

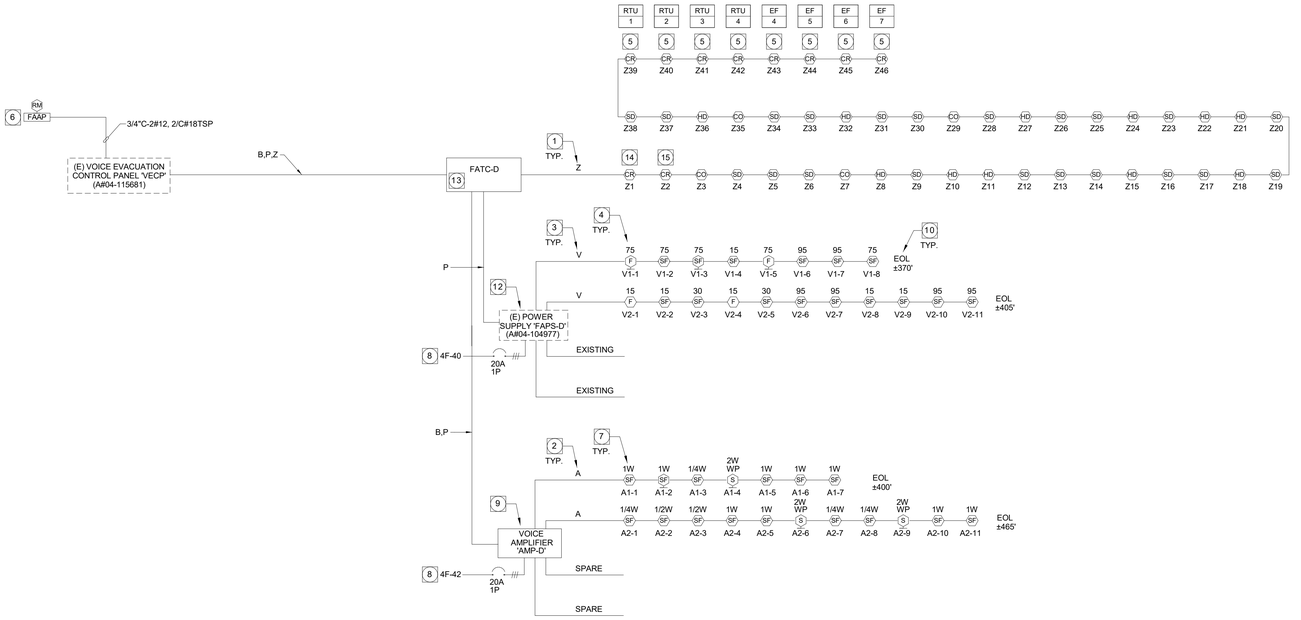
Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	07/30/2025
95% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Revision	Date

Job Number	32433
Checked By	Checker
Scale	12" = 1'-0"

FIRE ALARM DETAILS

EFA0.02



RISER DIAGRAM SPECIFIC NOTES:

1. 'Z' INDICATES ZONABLE/ADDRESSABLE CIRCUIT, PROVIDE 2#18 TWISTED PAIR PER CIRCUIT. SEE WIRE LEGEND FOR ADDITIONAL INFORMATION.
2. 'A' INDICATES AUDIBLE SPEAKER CIRCUIT, SEE WIRE LEGEND FOR ADDITIONAL INFORMATION.
3. 'V' INDICATES VISIBLE STROBE CIRCUIT, SEE WIRE LEGEND FOR ADDITIONAL INFORMATION.
4. NUMBER INDICATES CANDELA RATING OF STROBE DEVICE.
5. CONNECT AS REQUIRED TO MECHANICAL UNIT FOR IMMEDIATE SHUTDOWN OF UNIT UPON ACTIVATION OF FIRE ALARM SYSTEM. VERIFY EXACT LOCATION OF UNIT PRIOR TO ROUGH-IN.
6. NEW FIRE ALARM ANNUNCIATOR PANEL (FAAP) TO REPLACE EXISTING. VERIFY WITH DISTRICT REPRESENTATIVE, A.H.J. AND ARCHITECT FOR EXACT LOCATION.
7. INDICATES WATTAGE FOR SPEAKER.
8. PROVIDE 3/4"C. WITH 2#12, 1#12 GRD. TO 120V DEDICATED CIRCUIT FOR POWER. PROVIDE 20AMP, 1-POLE CIRCUIT BREAKER WITH APPROVED LOCK-ON DEVICE, RED INDICATOR AND IDENTIFIED AS "FIRE ALARM CONTROL CIRCUIT" (NFPA 72, SECTION 10.6.5.2). CONNECT AS REQUIRED. PROVIDE ALL REQUIRED MOUNTING HARDWARE. MATCH A.I.C. RATING OF DEVICES USED.
9. NEW FIRE ALARM DIGITAL AUDIO AMPLIFIER (AMP-D). SEE SYMBOL LIST FOR ADDITIONAL INFORMATION.
10. INDICATES LENGTH OF WIRE IN FEET. SEE WIRING DIAGRAM FOR WIRE TYPES. SEE VOLTAGE DROP CALCULATIONS FOR PERCENT DROPPED AND ADDITIONAL INFORMATION.
12. EXISTING FIRE ALARM POWER SUPPLY (FAPS-D), PROVIDE DEDICATED 120V CIRCUIT WITH RED INDICATOR AND APPROVED LOCK-ON DEVICE PER PLANS. RECONNECT EXISTING CIRCUITS THAT ARE NOT PART OF SCOPE.
13. NEW FIRE ALARM TERMINAL CABINET (FATC). ESTABLISH RECONNECTION BETWEEN BUILDING 900 AND 400 TO THE CONTROL PANEL. PROVIDE ANY NEW OR ADDITIONAL WIRING AND CONNECTIONS AS NEEDED FOR A COMPLETE AND OPERABLE SYSTEM.
14. PROVIDE CONTROL MODULE WITHIN FIRE ALARM PANEL AND CONNECT AS REQUIRED FOR CONTROL OF COMBINATION SMOKE/FIRE DAMPERS.
15. INTERCEPT DOOR HOLDER RELAY CIRCUIT AND RECONNECT TO THE NEW FIRE ALARM TERMINAL CABINET.

FIRE ALARM GENERAL NOTES:

1. NOTIFICATION DEVICES IN ROOMS CONTAINING (2) OR MORE AUDIBLE AND/OR (2) OR MORE VISUAL DEVICES SHALL BE SYNCHRONIZED PER NFPA 72. THIS SHALL INCLUDE AUDIBLE AND VISUAL DEVICES LOCATED IN ADJACENT/ADJOINING SPACES.
2. DO NOT DEVIATE FROM CONDUIT RUNS AS SHOWN ON FLOOR PLANS WITHOUT PRIOR APPROVAL FROM SYSTEM SUPPLIER / ENGINEER. FACTORS SUCH AS EXCESSIVE VOLTAGE DROP, ADDITIONAL PARTS, ENGINEERING, ETC. THAT ARE A RESULT OF CONDUIT RUN DEVIATIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
3. DETECTORS SHALL NOT BE LOCATED IN A DIRECT AIR-FLOW, NOR CLOSER THAN 3 FEET (915 mm) FROM ANY AIR SUPPLY DIFFUSER.
4. THE AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 dBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 dBA ABOVE THE MAXIMUM SOUND LEVEL HAVING DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIED SPACE WITHIN THE BUILDING PER CFC SECTION 907.5.2.1.1. THE MINIMUM SOUND PRESSURE LEVEL SHALL BE 60 dBA PER NFPA 72, TABLE A.18.4.3.
5. THE AUDIBLE ALARM SIGNAL SHALL BE THE STANDARD FIRE ALARM EVACUATION SIGNAL, ANSI S34.1 AUDIBLE EMERGENCY EVACUATION SIGNAL, "THREE PULSE TEMPORAL PATTERN", AS DESCRIBED IN NFPA 72. EXCEPTION: THE USE OF THE EXISTING EVACUATION SIGNALING SCHEME SHALL BE PERMITTED WHERE APPROVED BY THE ENFORCING AGENT. (CFC, SECTION 907.5.2.1.3)
6. THE EXISTING CAMPUS FIRE ALARM SYSTEM SHALL BE MAINTAINED AND OPERATIONAL AT ALL TIMES DURING ALTERATIONS AND CONSTRUCTION. WHEN PORTIONS OF THE SYSTEM REQUIRE ALTERATIONS, THE REMAINDER OF THE SYSTEM SHALL BE KEPT IN SERVICE. IF NECESSARY TO SHUT DOWN ENTIRE FIRE ALARM SYSTEM, CONTRACTOR SHALL PROVIDE A FIRE WATCH FOR ALL OCCUPIED AREAS OF WORK WHERE THE REQUIRED FIRE ALARM SYSTEM IS OUT OF SERVICE FOR THE DURATION OF THE SYSTEM OUTAGE. FIRE WATCH AND SYSTEM/EQUIPMENT IDENTIFICATIONS SHALL BE PER CFC, SECTION 901.7. LOCAL FIRE AUTHORITY SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF ANY SHUT DOWN.
7. PROVIDE HEAT DETECTORS WHERE FIRE SPRINKLERS HAVE BEEN OMITTED PER NFPA 72 AND NFPA 13.
8. EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NFPA 72. THE OPERATION OF ANY AUTOMATIC FIRE DETECTOR, SPRINKLER WATERFLOW DEVICE OR MANUAL FIRE ALARM BOX SHALL AUTOMATICALLY SOUND AN ALERT TONE FOLLOWED BY VOICE INSTRUCTIONS GIVING APPROVED INFORMATION AND DIRECTIONS FOR A GENERAL OR STAGED EVACUATION IN ACCORDANCE WITH THE FIRE SAFETY EVACUATION PLANS REQUIRED BY CFC SECTION 404 PER CBC/CFC SECTION 907.5.2.2.
9. EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS SHALL HAVE THE CAPABILITY TO BROADCAST LIVE VOICE MESSAGES BY PAGING ZONES ON A SELECTIVE AND ALL-CALL BASIS PER CBC/CFC, SECTION 907.5.2.2.2.
10. EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS SHALL BE PROVIDED WITH AN APPROVED EMERGENCY POWER SOURCE PER CBC/CFC, SECTION 907.5.2.2.5.

VOLTAGE DROP CALCULATIONS

SONORA HIGH SCHOOL

DEVICE	UL MAX. CURRENT AMPS	AUDIBLE CIRCUIT		AUDIBLE CIRCUIT		AUDIBLE CIRCUIT		AUDIBLE CIRCUIT		VISUAL CIRCUIT		VISUAL CIRCUIT		VISUAL CIRCUIT	
		NO	A1	NO	A2	NO	SPARE	NO	SPARE	NO	V1	NO	V2	NO	EXISTING
SPEAKER (2W) (EXTERIOR)	0.028	1	0.028	2	0.056		0.000		0.000		0.000		0.000		0.000
SPEAKER (1W) (INTERIOR)	0.014	5	0.070	4	0.056		0.000		0.000		0.000		0.000		0.000
SPEAKER (1/2W) (INTERIOR)	0.007		0.000	2	0.014		0.000		0.000		0.000		0.000		0.000
SPEAKER (1/4W) (INTERIOR)	0.004	1	0.004	3	0.011		0.000		0.000		0.000		0.000		0.000
STROBE (WALL) 30 CD	0.063		0.000		0.000		0.000		0.000		0.000		0.000		0.000
STROBE (WALL) 75 CD	0.112		0.000		0.000		0.000		0.000	3	0.336		0.000		0.000
STROBE (WALL) 110 CD	0.136		0.000		0.000		0.000		0.000		0.000		0.000		0.000
STROBE (CEILING) 15 CD	0.072		0.000		0.000		0.000		0.000	1	0.072	5	0.360		0.000
STROBE (CEILING) 30 CD	0.101		0.000		0.000		0.000		0.000		0.000	2	0.202		0.000
STROBE (CEILING) 75 CD	0.167		0.000		0.000		0.000		0.000	2	0.334		0.000		0.000
STROBE (CEILING) 95 CD	0.200		0.000		0.000		0.000		0.000	2	0.400	4	0.800		0.000
			0.000		0.000		0.000		0.000		0.000		0.000		0.000
			0.000		0.000		0.000		0.000		0.000		0.000		0.000
TOTAL CURRENT ON CIRCUIT			0.102 AMPS		0.137 AMPS		0.000 AMPS		0.000 AMPS		1.142 AMPS		1.362 AMPS		0.000 AMPS
TOTAL WIRE LENGTH IN FEET			400		465						370		405		
OPERATING VOLTAGE			**20.06**		**19.87**		**20.40**		**20.40**		**19.00**		**18.58**		**20.40**		**20.40**
WIRE SIZE			#16		#16		#16		#16		#12		#12		#12		#12
CIRCUIT LOCATION			AMP-D		AMP-D		AMP-D		AMP-D		FAPS-D		FAPS-D		FAPS-D		FAPS-D
VOLTS DROPPED			**0.34**		**0.53**		**0.00**		**0.00**		**1.40**		**1.82**		**0.00**		**0.00**
% VOLTS DROPPED			**1.67**		**2.60**		**0.00**		**0.00**		**6.85**		**8.94**		**0.00**		**0.00**

BATTERY SIZING - NEW LOAD

PROJECT NAME: SONORA HS SCIENCE CLASSROOMS MOD
PANEL LOCATION: ADMIN BUILDING 100
DATE PERFORMED: January 20, 2026

(E) VECP

QTY.	DEVICE NAME	STD-BY (AMPS)		ALARM (AMPS)	
21	SMOKE DETECTOR	0.0003	0.0063	0.0065	0.1365
11	HEAT DETECTOR	0.0002	0.0022	0.0065	0.0715
4	COMBINAITON CO MODULE	0.0004	0.0016	0.0055	0.0220
10	CONTROL RELAY MODULE	0.0003	0.0030	0.0065	0.0650
1	ANNUNCIATOR	0.0200	0.0200	0.0250	0.0250
		0.0000	0.0000	0.0000	0.0000
		0.0000	0.0000	0.0000	0.0000
		0.0000	0.0000	0.0000	0.0000
	TOTALS =		0.0246		0.1120

STAND-BY LOAD = 0.0246 ALARM LOAD = 0.1120 AMPS
STAND-BY TIME = 24 ALARM TIME = 15 / 60 HRS

STAND-BY = 0.5904 ALARM = 0.0280 AMP HRS

TOTAL = STAND-BY + ALARM
= 0.59 + 0.03
= 0.62 Ah (AMP HRS)
MULTIPLY BY DERATING FACTOR OF 1.25 = 0.77 Ah (AMP HRS)

MINIMUM BATTERY SIZE = 0.77 AMPERE HOURS

PROVIDE MIN. (2) 18.00 Ah 12VDC BATTERIES AS REQUIRED FOR 24VDC OPERATION

BATTERY SIZING - NEW LOAD

PROJECT NAME: SONORA HS SCIENCE CLASSROOMS MOD
PANEL LOCATION: BLDG 400 - IDF 410
DATE PERFORMED: January 20, 2026

(E) FAPS-D

QTY.	DEVICE NAME	STD-BY (AMPS)		ALARM (AMPS)	
3	75cd STROBE (WALL)	0.0000	0.0000	0.1800	0.5400
6	15cd STROBE (CEILING)	0.0000	0.0000	0.1200	0.7200
2	30cd STROBE (CEILING)	0.0000	0.0000	0.1200	0.2400
2	75cd STROBE (CEILING)	0.0000	0.0000	0.2000	0.4000
6	95cd STROBE (CEILING)	0.0000	0.0000	0.2200	1.3200
2	SYNC MODULE	0.0000	0.0000	0.0450	0.0900
		0.0000	0.0000	0.0000	0.0000
		0.0000	0.0000	0.0000	0.0000
		0.0000	0.0000	0.0000	0.0000
	TOTALS =		0.0000		3.3100

STAND-BY LOAD = 0.0000 ALARM LOAD = 3.3100 AMPS
STAND-BY TIME = 24 ALARM TIME = 15 / 60 HRS

STAND-BY = 0.0000 ALARM = 0.8275 AMP HRS

TOTAL = STAND-BY + ALARM
= 0.00 + 0.83
= 0.83 Ah (AMP HRS)
MULTIPLY BY DERATING FACTOR OF 1.25 = 1.03 Ah (AMP HRS)

MINIMUM BATTERY SIZE = 1.03 AMPERE HOURS

PROVIDE MIN. (2) 7.00 Ah 12VDC BATTERIES AS REQUIRED FOR 24VDC OPERATION

BATTERY SIZING CALCULATION

PROJECT NAME: SONORA HS SCIENCE CLASSROOMS MOD
PANEL LOCATION: BLDG 400 - IDF 410
DATE PERFORMED: January 20, 2026

AMP-D

QTY.	DEVICE NAME	STD-BY (AMPS)		ALARM (AMPS)	
1	50 WATT AMPLIFIER	0.1000	0.1000	0.5800	0.5800
4	SPEAKER (1/4W)	0.0000	0.0000	0.0490	0.1960
2	SPEAKER (1/2W)	0.0000	0.0000	0.0490	0.0980
9	SPEAKER (1W)	0.0000	0.0000	0.0490	0.4410
3	WP SPEAKER (2W)	0.0000	0.0000	0.0490	0.1470
2	SYNC MODULE	0.0000	0.0000	0.0450	0.0900
		0.0000	0.0000	0.0000	0.0000
		0.0000	0.0000	0.0000	0.0000
		0.0000	0.0000	0.0000	0.0000
	TOTALS =		0.0000		0.6780

STAND-BY LOAD = 0.0000 ALARM LOAD = 0.6780 AMPS
STAND-BY TIME = 24 ALARM TIME = 15 / 60 HRS

STAND-BY = 0.0000 ALARM = 0.1695 AMP HRS

TOTAL = STAND-BY + ALARM
= 0.00 + 0.17
= 0.17 Ah (AMP HRS)
MULTIPLY BY DERATING FACTOR OF 1.25 = 0.21 Ah (AMP HRS)

MINIMUM BATTERY SIZE = 0.21 AMPERE HOURS

PROVIDE MIN. (2) 7.00 Ah 12VDC BATTERIES AS REQUIRED FOR 24VDC OPERATION

VOLTAGE DROP CALCULATIONS GENERAL NOTES:

1. THE LISTED MANUFACTURER OPERATING VOLTAGE RANGE FOR EQUIPMENT AND DEVICES ARE AS FOLLOWS:

   DEVICES = 16 - 33 VDC
   EQUIPMENT = +24VDC FILTERED, REGULATED
   BATTERY = 20.4 VDC END OF USEFUL LIFE PER NFPA 72 HANDBOOK AND UL 864.

2. VOLTAGE DROP PERCENT FORMULA:

$$\frac{\text{WIRE LENGTH x TOTAL CURRENT AMPS x 21.6}}{\text{CIRCULAR MILS}} \times \frac{100}{20.4}$$

   21.6 = CONSTANT (RESISTANCE OF CONDUCTOR)

   CIRCULAR MILS:
   #12AWG = 6530 #16AWG = 2580
   #14AWG = 4110 #18AWG = 1620

BATTERY CALCULATIONS GENERAL NOTES:

CONTRACTOR TO PROVIDE BATTERY MANUFACTURER DATE STAMP PER NFPA 72. TYPICAL FOR ALL CONTROL PANELS, POWER SUPPLY PANELS AND AUDIO AMPLIFIER PANELS.

COMPLETE FIRE ALARM SUBMITTAL
AUTOMATIC ADDRESSABLE FIRE ALARM SYSTEM WITH EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM

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Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

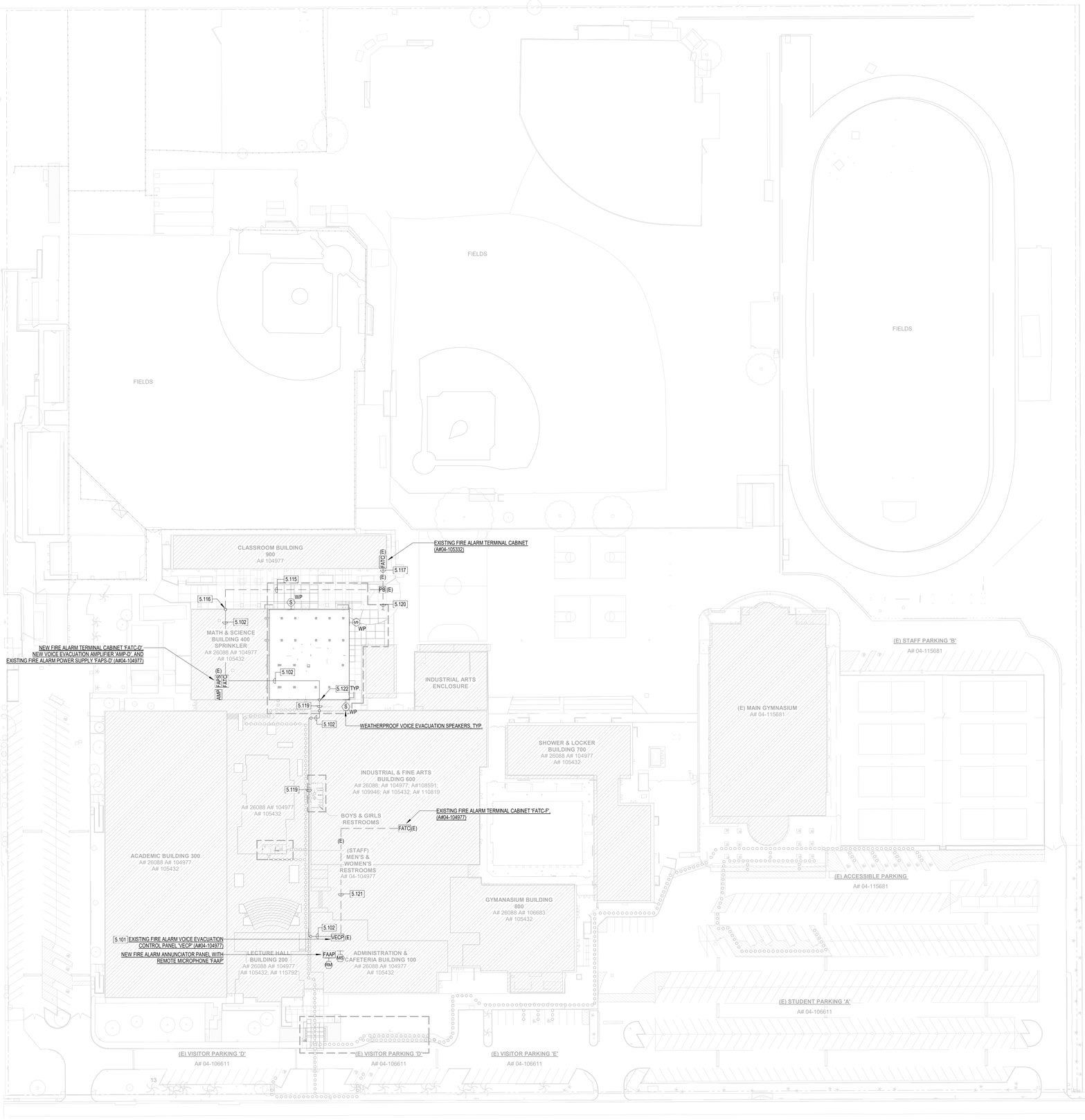
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	09/30/2025
95% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	12" = 1'-0"

FIRE ALARM RISER DIAGRAM & SYSTEM CALCULATIONS

EFA0.03



FIRE ALARM SITE PLAN | 1" = 50'-0" | EFA0.10 | 1

PLAN NOTES:

5.101 MODIFY EXISTING FIRE ALARM CONTROL PANEL AS REQUIRED TO SERVE THE NEW CONSTRUCTION. PROVIDE ADDITIONAL HARDWARE, MODULES, CONNECTIONS, PROGRAMMING, ETC. AS NEEDED FOR A COMPLETE AND OPERABLE SYSTEM.

5.102 ROUTE 1"C. THROUGH ACCESSIBLE CEILING SPACE.

5.115 PROVIDE NEW 2"C. ESTABLISHING RECONNECTION BETWEEN BUILDING 900 AND 400.

5.116 ROUTE CONDUIT FROM BELOW GRADE EXPOSED ON BUILDING EXTERIOR TO AN ELEVATION ABOVE THE ACCESSIBLE CEILING SPACE. PROVIDE A WEATHERPROOF "LB" FITTING AND SEALED PENETRATION THROUGH THE BUILDING EXTERIOR AS REQUIRED TO PERFORM WORK INDICATED. PAINT CONDUIT TO MATCH THE SURROUNDING SURFACE.

5.117 EXISTING CONDUIT TO BE PROTECTED IN PLACE. PROVIDE NEW WIRING FOR A COMPLETE AND OPERABLE SYSTEM OF BUILDING 900.

5.119 ROUTE CONDUIT OVERHEAD ABOVE EXISTING LOWER CEILING VESTIBULE.

5.120 ABANDON CONDUIT IN PLACE AND REMOVE EXISTING WIRING.

5.121 EXISTING CONNECTION TO REMAIN PROTECTED IN PLACE. SHOWN FOR REFERENCE ONLY.

5.122 PROVIDE SEISMIC EXPANSION FITTING ON EACH CONDUIT CROSSING SEISMIC JOINT.

SITE PLAN GENERAL NOTES:

1. CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING ON THIS SITE TO AVOID EXISTING DUCTS, PIPING OR CONDUITS, ETC., AND TO PREVENT HAZARDS TO PERSONNEL AND/OR DAMAGE TO EXISTING UNDERGROUND UTILITIES OR STRUCTURES WHETHER OR NOT SHOWN AND INSTALLED BY ANY OTHER CONTRACTS. THE ENGINEER IS NOT RESPONSIBLE FOR THE LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES WHETHER OR NOT SHOWN OR DETAILED AND INSTALLED BY ANY OTHER CONTRACTS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER SHOULD SUCH UNIDENTIFIED CONDITIONS BE DISCOVERED. THESE DRAWINGS AND SPECIFICATIONS DO NOT INCLUDE THE NECESSARY ELEMENTS FOR CONSTRUCTION SAFETY.
2. CALL UNDERGROUND SERVICE ALERT (USA) AT 1 (800) 422-4133 OR APPLICABLE STATE AND LOCAL DIG SAFE OR UNDERGROUND ALERT HOTLINES PRIOR TO CONSTRUCTION START.
3. MINIMUM CONDUIT SIZE SHALL BE 3/4" - U.O.N.
4. MINIMUM CONDUCTOR SIZE SHALL BE #10 AWG. - U.O.N.
5. ALL SITE BRANCH CIRCUITS SHALL INCLUDE AN EQUIPMENT GROUND CONDUCTOR THAT, AT MINIMUM, MATCHES THE SIZE OF THE ASSOCIATED BRANCH CIRCUIT CONDUCTOR. WHERE MULTIPLE BRANCH CIRCUITS ARE ROUTED/GROUPED TOGETHER, THE EQUIPMENT GROUNDING CONDUCTOR SHALL MATCH THE SIZE OF THE LARGEST BRANCH CIRCUIT CONDUCTOR IN THE GROUP.
6. ALL ELECTRICAL EQUIPMENT MOUNTED OUTDOORS SHALL BE WEATHERPROOF (NEMA #3R).
7. ALL CONDUIT ONLY SHALL BE PROVIDED WITH A NYLON PULL STRING.
8. SEE ARCHITECTURAL/LANDSCAPE ARCHITECTURAL PLANS FOR EXACT LOCATIONS OF FIXTURES, PULLBOXES, MANHOLES, OTHER ELECTRICAL DEVICES, ETC. COORDINATE ALL UNDERGROUND STRUCTURES AND CONDUIT ROUTING WITH LANDSCAPE ARCHITECT PRIOR TO ROUGH-IN TO ENSURE THAT SUCH ITEMS ARE NOT PLACED IN CRITICAL LANDSCAPE PLANTING/HARDSCAPE AREAS.
9. UNLESS SPECIFICALLY SHOWN AS (E), (R), (ER), (D), EXISTING OR NON-BOLD, ALL ELECTRICAL DEVICES SHOWN ARE NEW.

FIRE ALARM PLAN GENERAL NOTES:

1. NOTIFICATION DEVICES IN ROOMS CONTAINING (2) OR MORE AUDIBLE AND/OR (2) OR MORE VISUAL DEVICES SHALL BE SYNCHRONIZED PER NFPA 72. THIS SHALL INCLUDE AUDIBLE AND VISUAL DEVICES LOCATED IN ADJACENT/ADJOINING SPACES.
2. DO NOT DEVIATE FROM CONDUIT RUNS AS SHOWN ON FLOOR PLANS WITHOUT PRIOR APPROVAL FROM SYSTEM SUPPLIER / ENGINEER. FACTORS SUCH AS EXCESSIVE VOLTAGE DROP, ADDITIONAL PARTS, ENGINEERING, ETC. THAT ARE A RESULT OF CONDUIT RUN DEVIATIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
3. DETECTORS SHALL NOT BE LOCATED IN A DIRECT AIR-FLOW, NOR CLOSER THAN 3 FEET (915 mm) FROM ANY AIR SUPPLY DIFFUSER.
4. THE AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 dBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 dBA ABOVE THE MAXIMUM SOUND LEVEL HAVING DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIED SPACE WITHIN THE BUILDING PER CFC SECTION 907.5.2.1.1. THE MINIMUM SOUND PRESSURE LEVEL SHALL BE 60 dBA PER NFPA 72, TABLE A.18.4.4.
5. THE VOICE/ALARM COMMUNICATION SYSTEM VOICE MESSAGE SHALL COMPLY WITH NFPA 72, SECTIONS 18.4 AND 24.4 FOR GENERAL REQUIREMENTS, INTELLIGIBILITY, AUDIBILITY, MESSAGE PRIORITY, TONES, ETC.
6. REFER TO ARCHITECTURAL EXTERIOR ELEVATIONS FOR PRECISE DEVICE LOCATIONS.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING MOUNTED DEVICES.
8. IF SHIELDED WIRE IS USED, THE FOLLOWING MUST BE OBSERVED:
   A. METALLIC CONTINUITY OF THE SHIELD MUST BE MAINTAINED AND INSULATED THROUGHOUT THE ENTIRE LENGTH OF THE CABLE.
   B. THE ENTIRE LENGTH OF THE CABLE MUST HAVE A RESISTANCE GREATER THE 1 MEGOHM TO EARTH.
9. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRE STOP SYSTEM EQUAL TO OR GREATER THAN THE FIRE RATING OF THE STRUCTURE / SURFACE BEING PENETRATED AS IDENTIFIED IN CBC CHAPTER 7, UL OR OTHER LAB TESTING CRITERIA. APPROVED TYPES OF MATERIALS SHALL BE IDENTIFIED WITHIN THE FIRE ALARM SECTION OF THE PROJECT SPECIFICATIONS.
10. A SYSTEM GROUND MUST BE PROVIDED FOR EARTH DETECTION AND LIGHTNING PROTECTION DEVICES. THIS CONNECTION SHALL BE MADE TO AN APPROVED DEDICATED EARTH CONNECTION PER CEC, ARTICLE 250.
11. WIRING IN DUCTS, PLENUMS AND OTHER AIR HANDLING SPACES MUST BE INSTALLED IN ACCORDANCE WITH CEC.
12. UNDERGROUND WIRING MUST BE FREE OF ALL WATER.
13. ALL FIRE ALARM SYSTEM CONDUCTORS SHALL BE RUN IN A DEDICATED FIRE ALARM CONDUIT SYSTEM.
14. WHERE A DETECTOR IS INDICATED TO BE INSTALLED ABOVE THE CEILING AND NO ACCESS TO THE CEILING SPACE EXISTS, THE ELECTRICAL CONTRACTOR SHALL FURNISH ACCESS PANELS. THE DETECTOR SHALL BE EASILY ACCESSIBLE AND THE LOCATION OF THE DETECTOR SHALL BE CLEARLY MARKED.
15. FIRE ALARM SYSTEM UTILIZES A COMPLETE COVERAGE, FULLY AUTOMATIC SYSTEM. PROVIDE RELAY MODULE(S) AT FATC/FACP LOCATIONS FOR CONTROL OF HVAC SHUT DOWN, SMOKE/FIRE DAMPER CLOSURE AND DOOR HOLD RELEASES.
16. WHERE NEW DEVICES (AND ASSOCIATED CONDUIT) CANNOT PHYSICALLY BE MOUNTED CONCEALED IN WALLS, RUN IN PANDUIT SURFACE RACEWAY/RACEWAY (AND DEVICES SHALL BE MOUNTED ON SURFACE OUTLET BOXES). REFER TO SPECIFICATIONS. PROVIDE SIZE OF RACEWAY TO ACCOMMODATE THE REQUIRED CONDUCTORS. WHERE CONDUIT IS INDICATED, PROVIDE SURFACE RACEWAY WITH AN EQUAL CROSS SECTION TO THE DIAMETER OF THE CONDUIT INDICATED.
17. DETECTOR SENSITIVITY SHALL BE TESTED USING MANUFACTURER'S CALIBRATED SENSITIVITY INSTRUMENT OR OTHER CALIBRATED TESTING METHOD. (CFC, SECTIONS 907.8.3 AND 907.8.4).
18. UPON DETECTION OF CARBON MONOXIDE THE FIRE ALARM SYSTEM SHALL PRODUCE A FOUR-PULSE TEMPORAL PATTERN SIGNAL WITHIN THE BUILDING AND COMPLY WITH NFPA 72 SECTION 18.4.3.
19. THE VOICE/ALARM COMMUNICATION SYSTEM VOICE MESSAGE SHALL COMPLY WITH NFPA 72 SECTIONS 18.4 AND 24.4 FOR GENERAL REQUIREMENTS, INTELLIGIBILITY, AUDIBILITY, MESSAGE PRIORITY, TONES, ETC. REFER TO NFPA 72 ANNEX D, D.1 THROUGH D.6 FOR DETERMINING THE FUNDAMENTALS OF TEST PROTOCOL AND METHOD OF MEASURING INTELLIGIBILITY.
20. THE EXISTING CAMPUS FIRE ALARM SYSTEM SHALL BE MAINTAINED AND OPERATIONAL AT ALL TIMES DURING ALTERATIONS AND CONSTRUCTION. WHEN PORTIONS OF THE SYSTEM REQUIRE ALTERATIONS, THE REMAINDER OF THE SYSTEM SHALL BE KEPT IN SERVICE. IF NECESSARY TO SHUT DOWN ENTIRE FIRE ALARM SYSTEM, CONTRACTOR SHALL PROVIDE FIREWATCH FOR ALL OCCUPIED AREAS OF WORK UNTIL THE FIRE ALARM SYSTEM IS RETURNED TO OPERATIONAL SERVICE. FIREWATCH AND SYSTEM/EQUIPMENT IDENTIFICATION SHALL BE PER THE 2022 CFC, CHAPTER 14. LOCAL FIRE AUTHORITY AND OWNER SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF ANY SHUT DOWN.

COMPLETE FIRE ALARM SUBMITTAL
AUTOMATIC ADDRESSABLE FIRE ALARM SYSTEM WITH EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

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Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

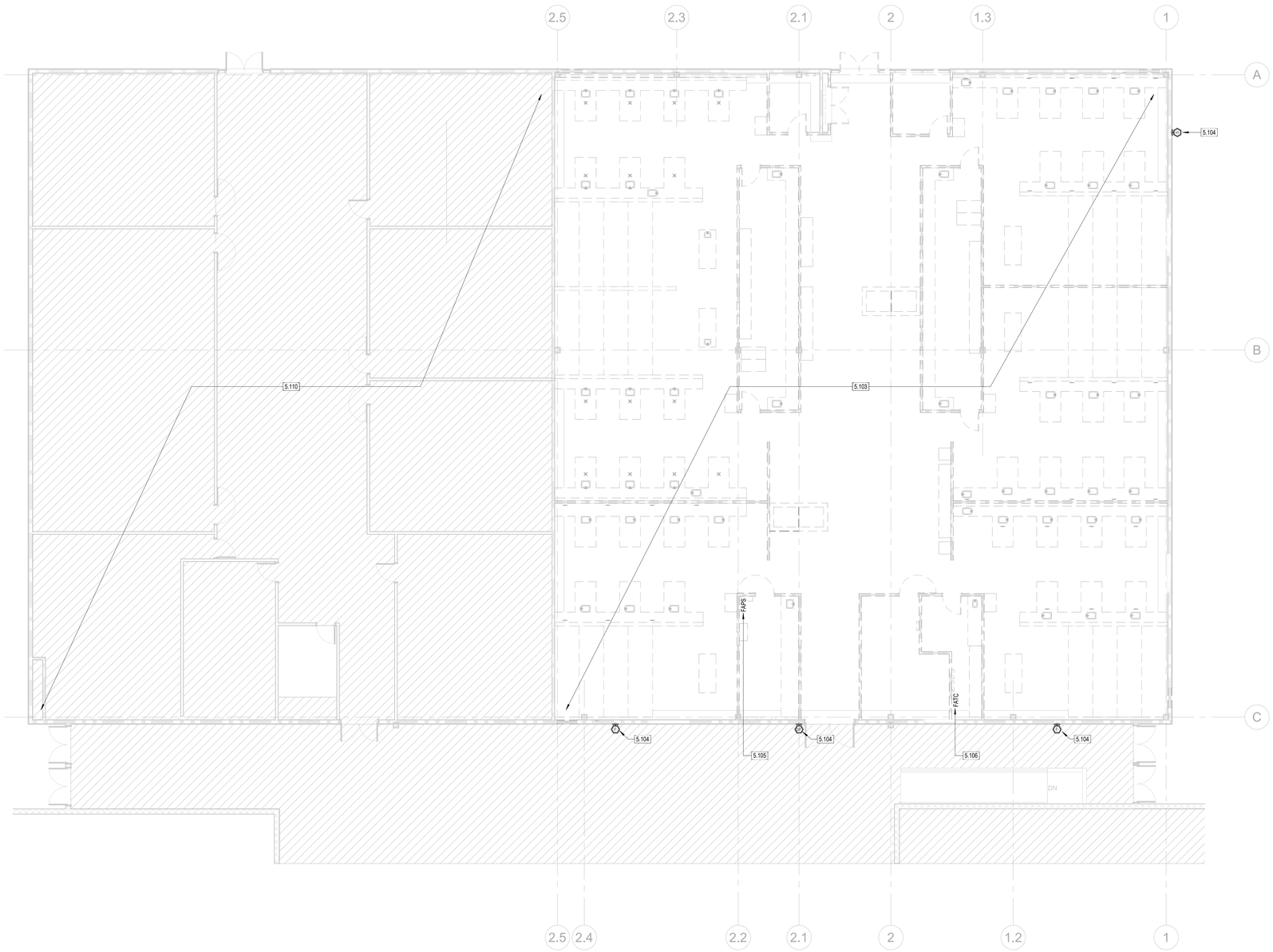
Revision	Date

Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% DESIGN DEVELOPMENT	10/03/2025
50% CD	10/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	As indicated

FIRE ALARM SITE PLAN

EFA0.10



FIRE ALARM DEMOLITION PLAN | 1/8" = 1'-0" | EFA1.02 | 1

PLAN NOTES:

5.103 REMOVE ALL EXISTING INITIATION AND NOTIFICATION DEVICES AND ASSOCIATED WIRING.

5.104 EXISTING DEVICE TO BE REPLACED WITH NEW IN SAME LOCATION.

5.105 REMOVE EXISTING FIRE ALARM POWER SUPPLY AND RELOCATE TO IDF ROOM 410 - SEE EFA2.01 FOR EXACT LOCATION.

5.106 DEMOLISH EXISTING FIRE ALARM TERMINAL CABINET. DEMOLISH EXISTING CONNECTION BETWEEN BUILDING 900 FATC. REMOVE EXISTING WIRE AND ABANDON CONDUIT. PROVIDE NEW FIRE ALARM TERMINAL CABINET IN IDF ROOM 410 - SEE EFA2.01 FOR EXACT LOCATION.

5.110 INTERCEPT CONDUIT ABOVE CEILING AND CONNECT EXISTING DEVICES THAT ARE NOT IN SCOPE TO THE NEW FIRE ALARM TERMINAL CABINET AND EXISTING RELOCATED POWER SUPPLY.

GENERAL DEMOLITION NOTES:

1. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. DO NOT SCALE THE ELECTRICAL DRAWINGS TO DETERMINE THE LOCATION OF EQUIPMENT OR OUTLETS. SEE ARCHITECTURAL PLANS, WHERE PROVIDED ON PROJECT, FOR EXTENT OF DEMOLITION.
2. THE EXISTING CONDITIONS SHOWN ARE FROM AVAILABLE RECORD DRAWINGS AND SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITIONS AT 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 FOR RELOCATING OR REMOVING FROM WALLS, CEILINGS, FLOOR SPACES, ETC., ANY EXISTING CONDUITS, WIRES, BOXES, FITTINGS, FIXTURES OR OTHER ELECTRICAL EQUIPMENT WHICH INTERFERES WITH PLANNED REMODEL WORK. PROVIDE CIRCUIT CONTINUATION REQUIRED FOR ALL EXISTING OUTLETS, FIXTURES, EQUIPMENT, ETC. SCHEDULED TO REMAIN.
4. NOTIFY THE ENGINEER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, OR NOT INDICATED ON "AS-BUILT" DRAWINGS OR WAS BURIED UNDERGROUND OR EMBEDDED IN STRUCTURE WALLS.
5. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT, UTILITY LINES AND MATERIALS. WHEN WORKING FINISHED SURFACES, LIMIT DAMAGE TO THE SMALLER AREA IF POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.
6. EQUIPMENT, MATERIALS AND SUPPLIES TEMPORARILY REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.
7. DEMOLITION WORK SHALL BE DONE IN A MANNER WHICH WILL NOT CAUSE UNNECESSARY INCONVENIENCE OR DANGER TO USERS OF THE PREMISES AND ADJACENT SITE, AND NOT INTERFERE WITH ITS OPERATION. ANY DEMOLITION WORK TO BE PERFORMED MUST BE PLANNED IN ADVANCE.
8. DO ALL DRILLING, CUTTING, ETC. REQUIRED 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, CEILING, FLOORS, ETC., TO MAINTAIN THE RATING OF STRUCTURE.
10. ALL REMOVED MATERIALS AND EQUIPMENT WHICH ARE SALVAGED MATERIALS SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY OWNER AND NEATLY PILE OR STORE AND PROTECT FROM DAMAGE. DISPOSE OF ALL HAZARDOUS MATERIAL PER FEDERAL, STATE AND LOCAL REGULATIONS AND OTHER AGENCIES HAVING JURISDICTION.
11. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT/WIRING RUNS, REUSE AS REQUIRED, AND REMOVE ALL UNUSED CONDUIT/WIRING. UNUSED CONDUIT IN INACCESSIBLE LOCATIONS (WALLS TO REMAIN) MAY BE ABANDONED IN PLACE. REMOVE UNUSED WIRING, INCLUDING ABANDONED TELEPHONE, DATA AND OTHER LOW VOLTAGE SYSTEMS CABLING AFTER CONFIRMING WITH THE OWNER'S PROJECT MANAGER THAT CABLING IS ABANDONED AND WILL NOT BE RE-USED.
12. CONTRACTOR TO VERIFY CIRCUIT NUMBER AND LOADS FOR ALL EXISTING EQUIPMENT PRIOR TO INSTALLATION OF NEW OR RELOCATED ELECTRICAL EQUIPMENT. REASSIGN CIRCUITS AND LOADS ACCORDINGLY. PROVIDE COMPLETE "AS BUILT" DRAWINGS AND 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 AFFECT ADJACENT BUILDINGS, SCHEDULE OUTAGES OR INTERRUPTIONS WITH THE OWNER, BUILDING OCCUPANTS AND/OR ADJACENT BUILDING OWNER(S) AND OCCUPANTS PRIOR TO CONDUCTING OUTAGE(S) OR INTERRUPTIONS.

FIRE ALARM PLAN GENERAL NOTES:

1. NOTIFICATION DEVICES IN ROOMS CONTAINING (2) OR MORE AUDIBLE AND/OR (2) OR MORE VISUAL DEVICES SHALL BE SYNCHRONIZED PER NFPA 72. THIS SHALL INCLUDE AUDIBLE AND VISUAL DEVICES LOCATED IN ADJACENT/ADJOINING SPACES.
2. DO NOT DEVIATE FROM CONDUIT RUNS AS SHOWN ON FLOOR PLANS WITHOUT PRIOR APPROVAL FROM SYSTEM SUPPLIER / ENGINEER. FACTORS SUCH AS EXCESSIVE VOLTAGE DROP, ADDITIONAL PARTS, ENGINEERING, ETC. THAT ARE A RESULT OF CONDUIT RUN DEVIATIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
3. DETECTORS SHALL NOT BE LOCATED IN A DIRECT AIR-FLOW, NOR CLOSER THAN 3 FEET (915 mm) FROM ANY AIR SUPPLY DIFFUSER.
4. THE AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 dBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 dBA ABOVE THE MAXIMUM SOUND LEVEL HAVING DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIED SPACE WITHIN THE BUILDING PER CFC SECTION 907.5.2.1.1. THE MINIMUM SOUND PRESSURE LEVEL SHALL BE 60 dBA PER NFPA 72, TABLE A.18.4.4.
5. THE VOICE/ALARM COMMUNICATION SYSTEM VOICE MESSAGE SHALL COMPLY WITH NFPA 72, SECTIONS 18.4 AND 24.4 FOR GENERAL REQUIREMENTS, INTELLIGIBILITY, AUDIBILITY, MESSAGE PRIORTY, TONES, ETC.
6. REFER TO ARCHITECTURAL EXTERIOR ELEVATIONS FOR PRECISE DEVICE LOCATIONS.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING MOUNTED DEVICES.
8. IF SHIELDED WIRE IS USED, THE FOLLOWING MUST BE OBSERVED:
   A. METALLIC CONTINUITY OF THE SHIELD MUST BE MAINTAINED AND INSULATED THROUGHOUT THE ENTIRE LENGTH OF THE CABLE.
   B. THE ENTIRE LENGTH OF THE CABLE MUST HAVE A RESISTANCE GREATER THE 1 MEGOHM TO EARTH.
9. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRE STOP SYSTEM EQUAL TO OR GREATER THAN THE FIRE RATING OF THE STRUCTURE / SURFACE BEING PENETRATED AS IDENTIFIED IN CBC CHAPTER 7. UL OR OTHER LAB TESTING CRITERIA. APPROVED TYPES OF MATERIALS SHALL BE IDENTIFIED WITHIN THE FIRE ALARM SECTION OF THE PROJECT SPECIFICATIONS.
10. A SYSTEM GROUND MUST BE PROVIDED FOR EARTH DETECTION AND LIGHTNING PROTECTION DEVICES. THIS CONNECTION SHALL BE MADE TO AN APPROVED DEDICATED EARTH CONNECTION PER CEC, ARTICLE 250.
11. WIRING IN DUCTS, PLENUMS AND OTHER AIR HANDLING SPACES MUST BE INSTALLED IN ACCORDANCE WITH CEC.
12. UNDERGROUND WIRING MUST BE FREE OF ALL WATER.
13. ALL FIRE ALARM SYSTEM CONDUCTORS SHALL BE RUN IN A DEDICATED FIRE ALARM CONDUIT SYSTEM.
14. WHERE A DETECTOR IS INDICATED TO BE INSTALLED ABOVE THE CEILING AND NO ACCESS TO THE CEILING SPACE EXISTS, THE ELECTRICAL CONTRACTOR SHALL FURNISH ACCESS PANELS. THE DETECTOR SHALL BE EASILY ACCESSIBLE AND THE LOCATION OF THE DETECTOR SHALL BE CLEARLY MARKED.
15. FIRE ALARM SYSTEM UTILIZES A COMPLETE COVERAGE, FULLY AUTOMATIC SYSTEM. PROVIDE RELAY MODULE(S) AT FATC/FACP LOCATIONS FOR CONTROL OF HVAC SHUT DOWN, SMOKE/FIRE DAMPER CLOSURE AND DOOR HOLD RELEASES.
16. WHERE NEW DEVICES (AND ASSOCIATED CONDUIT) CANNOT PHYSICALLY BE MOUNTED CONCEALED IN WALLS, RUN IN PANDUIT SURFACE RACEWAY/WIREWAY (AND DEVICES SHALL BE MOUNTED ON SURFACE OUTLET BOXES). REFER TO SPECIFICATIONS. PROVIDE SIZE OF RACEWAY TO ACCOMMODATE THE REQUIRED CONDUCTORS. WHERE CONDUIT IS INDICATED, PROVIDE SURFACE RACEWAY WITH AN EQUAL CROSS SECTION TO THE DIAMETER OF THE CONDUIT INDICATED.
17. DETECTOR SENSITIVITY SHALL BE TESTED USING MANUFACTURER'S CALIBRATED SENSITIVITY INSTRUMENT OR OTHER CALIBRATED TESTING METHOD. (CFC, SECTIONS 907.8.3 AND 907.8.4).
18. UPON DETECTION OF CARBON MONOXIDE THE FIRE ALARM SYSTEM SHALL PRODUCE A FOUR-PULSE TEMPORAL PATTERN SIGNAL WITHIN THE BUILDING AND COMPLY WITH NFPA 72 SECTION 18.4.3.
19. THE VOICE/ALARM COMMUNICATION SYSTEM VOICE MESSAGE SHALL COMPLY WITH NFPA 72 SECTIONS 18.4 AND 24.4 FOR GENERAL REQUIREMENTS, INTELLIGIBILITY, AUDIBILITY, MESSAGE PRIORITY, TONES, ETC. REFER TO NFPA 72 ANNEX D, D.1 THROUGH D.6 FOR DETERMINING THE FUNDAMENTALS OF TEST PROTOCOL AND METHOD OF MEASURING INTELLIGIBILITY.
20. THE EXISTING CAMPUS FIRE ALARM SYSTEM SHALL BE MAINTAINED AND OPERATIONAL AT ALL TIMES DURING ALTERATIONS AND CONSTRUCTION. WHEN PORTIONS OF THE SYSTEM REQUIRE ALTERATIONS, THE REMAINDER OF THE SYSTEM SHALL BE KEPT IN SERVICE. IF NECESSARY TO SHUT DOWN ENTIRE FIRE ALARM SYSTEM, CONTRACTOR SHALL PROVIDE FIREWATCH FOR ALL OCCUPIED AREAS OF WORK UNTIL THE FIRE ALARM SYSTEM IS RETURNED TO OPERATIONAL SERVICE. FIREWATCH AND SYSTEM/EQUIPMENT IDENTIFICATION SHALL BE PER THE 2022 CFC, CHAPTER 14. LOCAL FIRE AUTHORITY AND OWNER SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF ANY SHUT DOWN.

COMPLETE FIRE ALARM SUBMITTAL
AUTOMATIC ADDRESSABLE FIRE ALARM SYSTEM WITH EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM

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FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

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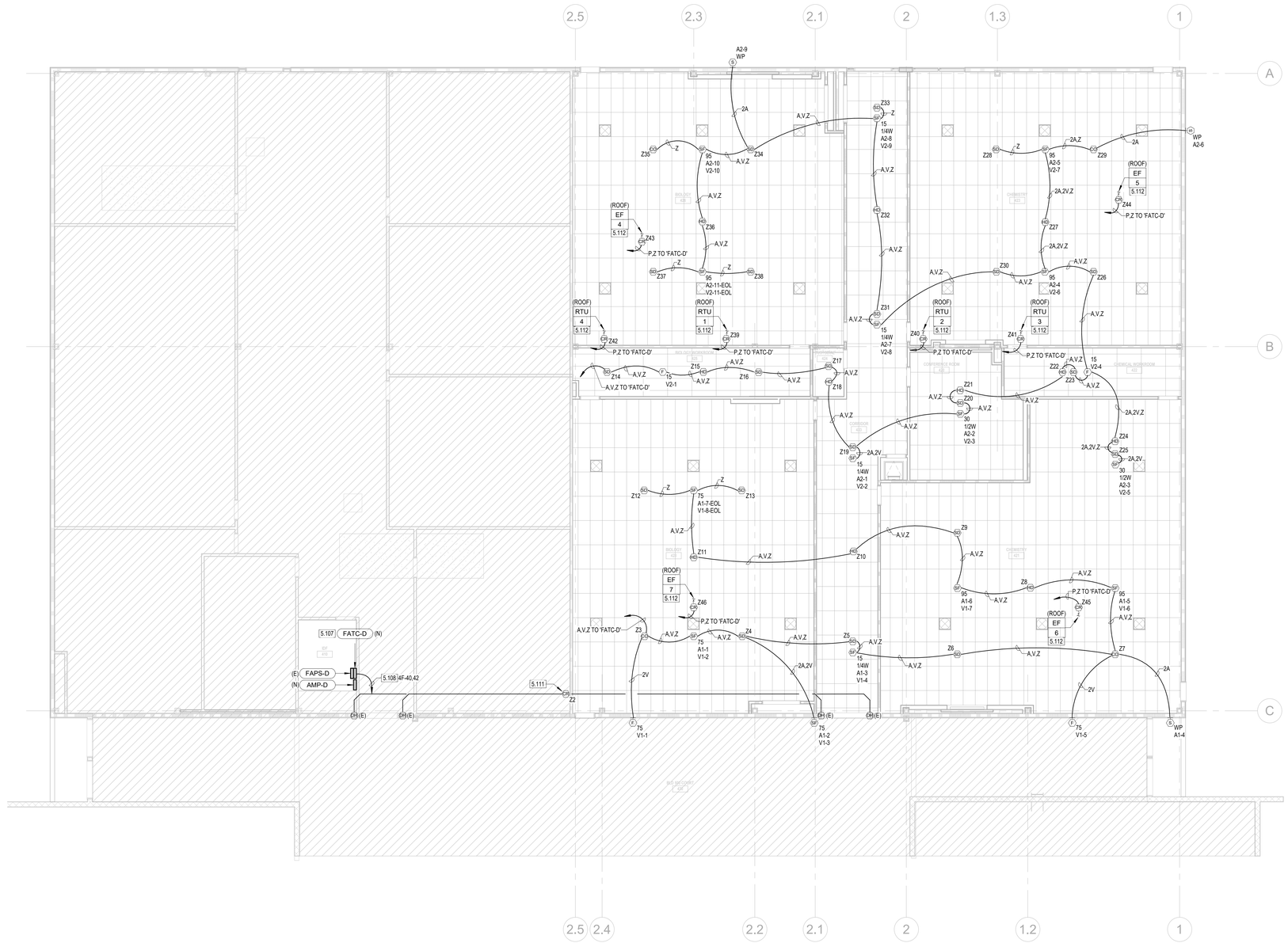
FIRE ALARM DEMOLITION PLAN

EFA1.02



PLAN NOTES:

5.107 NEW FIRE ALARM TERMINAL CABINET. RE-CONNECT ALL EXISTING FIRE ALARM DEVICES NOT IN SCOPE OF WORK FOR A COMPLETE AND OPERATIONAL SYSTEM. RE-ROUTE IN ACCESSIBLE CEILING SPACE TO THE EXISTING CONTROL PANEL IN ADMIN BUILDING 100 - SEE EFA0.10 FOR EXACT ROUTING.

5.108 PROVIDE 3/4"C. WITH 2#12, 1#12 GRD. TO 120V DEDICATED CIRCUIT FOR POWER. PROVIDE 20AMP, 1-POLE CIRCUIT BREAKER WITH APPROVED LOCK-ON DEVICE, RED INDICATOR AND IDENTIFIED AS "FIRE ALARM CONTROL CIRCUIT" (NFPA 72, 10.6). CONNECT AS REQUIRED. PROVIDE ALL REQUIRED MOUNTING HARDWARE. MATCH A.I.C. RATING OF DEVICES USED.

5.111 INTERCEPT DOOR HOLDER RELAY CIRCUIT AND RECONNECT TO THE NEW FIRE ALARM TERMINAL CABINET.

5.112 CONNECT AS REQUIRED TO MECHANICAL UNIT FOR IMMEDIATE SHUTDOWN OF UNIT UPON ACTIVATION OF FIRE ALARM SYSTEM. VERIFY EXACT LOCATION OF UNIT PRIOR TO ROUGH-IN.

FIRE ALARM PLAN GENERAL NOTES:

1. NOTIFICATION DEVICES IN ROOMS CONTAINING (2) OR MORE AUDIBLE AND/OR (2) OR MORE VISUAL DEVICES SHALL BE SYNCHRONIZED PER NFPA 72. THIS SHALL INCLUDE AUDIBLE AND VISUAL DEVICES LOCATED IN ADJACENT/ADJOINING SPACES.
2. DO NOT DEVIATE FROM CONDUIT RUNS AS SHOWN ON FLOOR PLANS WITHOUT PRIOR APPROVAL FROM SYSTEM SUPPLIER / ENGINEER. FACTORS SUCH AS EXCESSIVE VOLTAGE DROP, ADDITIONAL PARTS, ENGINEERING, ETC. THAT ARE A RESULT OF CONDUIT RUN DEVIATIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
3. DETECTORS SHALL NOT BE LOCATED IN A DIRECT AIR-FLOW, NOR CLOSER THAN 3 FEET (915 mm) FROM ANY AIR SUPPLY DIFFUSER.
4. THE AUDIBLE ALARM NOTIFICATION APPLIANCES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 dBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 dBA ABOVE THE MAXIMUM SOUND LEVEL HAVING DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY OCCUPIED SPACE WITHIN THE BUILDING PER CFC SECTION 907.5.2.1.1. THE MINIMUM SOUND PRESSURE LEVEL SHALL BE 60 dBA PER NFPA 72, TABLE A.18.4.4.
5. THE VOICE/ALARM COMMUNICATION SYSTEM VOICE MESSAGE SHALL COMPLY WITH NFPA 72, SECTIONS 18.4 AND 24.4 FOR GENERAL REQUIREMENTS, INTELLIGIBILITY, AUDIBILITY, MESSAGE PRIORTY, TONES, ETC.
6. REFER TO ARCHITECTURAL EXTERIOR ELEVATIONS FOR PRECISE DEVICE LOCATIONS.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING MOUNTED DEVICES.
8. IF SHIELDED WIRE IS USED, THE FOLLOWING MUST BE OBSERVED:
   A. METALLIC CONTINUITY OF THE SHIELD MUST BE MAINTAINED AND INSULATED THROUGHOUT THE ENTIRE LENGTH OF THE CABLE.
   B. THE ENTIRE LENGTH OF THE CABLE MUST HAVE A RESISTANCE GREATER THE 1 MEGOHM TO EARTH.
9. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRE STOP SYSTEM EQUAL TO OR GREATER THAN THE FIRE RATING OF THE STRUCTURE / SURFACE BEING PENETRATED AS IDENTIFIED IN CBC CHAPTER 7, UL OR OTHER LAB TESTING CRITERIA. APPROVED TYPES OF MATERIALS SHALL BE IDENTIFIED WITHIN THE FIRE ALARM SECTION OF THE PROJECT SPECIFICATIONS.
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VISUAL NOTIFICATION APPLIANCES NOTE:
VISUAL NOTIFICATION APPLIANCES UTILIZED FOR CO ALARM PURPOSES MUST NOT REFLECT THE WORD 'FIRE' OR HAVE ANY FIRE SYMBOL THEREON. REFER TO DSA IR - 9-1

VOICE EVACUATION SPEAKER NOTE:
- ALL INTERIOR SPEAKERS SHALL BE TAPPED AT 1 WATT, U.O.N.
- ALL EXTERIOR SPEAKERS SHALL BE TAPPED AT 2 WATTS, U.O.N.

COMPLETE FIRE ALARM SUBMITTAL
AUTOMATIC ADDRESSABLE FIRE ALARM SYSTEM WITH EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM

FIRE ALARM PLAN | 1/8" = 1'-0" | EFA2.01 | 1

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FIRE ALARM PLAN

EFA2.01

DESIGN CRITERIA

LIGHT HAZARD OCCUPANCIES

CONFERENCE ROOM, CIRCULATION.

MAX AREA OF PROTECTION:	225 SF
MAX SPACING:	15' (STANDARD PENDENT & UPRIGHT), 14' (SIDEWALL)
DENSITY:	0.10 GPM/SF
DESIGN AREA:	1500 SF
HOSE ALLOWANCE:	100 GPM
DEFLECTOR DISTANCE: (OBSTRUCTUED AND UNOBSTRUCTED CONSTRUCTION).	1" TO 12" BELOW CEILING FOR UNOBSTRUCTED CONSTRUCTION 1" TO 6" BELOW BOTTOM OF FRAMING MEMBERS FOR OBSTRUCTED CONSTRUCTION

ORDINARY HAZARD (GROUP I) OCCUPANCIES

CUSTODIAL.

MAX AREA OF PROTECTION:	130 SF
MAX SPACING:	15' (STANDARD PENDENT & UPRIGHT), 10' (SIDEWALL)
DENSITY:	0.15 GPM/SF
DESIGN AREA:	1500 SF
HOSE ALLOWANCE:	250 GPM
DEFLECTOR DISTANCE: (OBSTRUCTUED AND UNOBSTRUCTED CONSTRUCTION).	1" TO 12" BELOW CEILING FOR UNOBSTRUCTED CONSTRUCTION 1" TO 6" BELOW BOTTOM OF FRAMING MEMBERS FOR OBSTRUCTED CONSTRUCTION

ORDINARY HAZARD (GROUP II) OCCUPANCIES

CHEMISTRY CLASSROOM, CHEMICAL STORAGE, BIOLOGY CLASSROOM.

MAX AREA OF PROTECTION:	130 SF
MAX SPACING:	15' (STANDARD PENDENT & UPRIGHT), 10' (SIDEWALL)
DENSITY:	0.20 GPM/SF
DESIGN AREA:	1500 SF
HOSE ALLOWANCE:	250 GPM
DEFLECTOR DISTANCE: (OBSTRUCTUED AND UNOBSTRUCTED CONSTRUCTION).	1" TO 12" BELOW CEILING FOR UNOBSTRUCTED CONSTRUCTION 1" TO 6" BELOW BOTTOM OF FRAMING MEMBERS FOR OBSTRUCTED CONSTRUCTION

SPRINKLER HEAD USE:

EXPOSED, UPRIGHT - GENERAL EXPOSED CEILING, MECHANICAL ROOMS WITHOUT CEILINGS, EQUIPMENT ROOMS WITHOUT CEILINGS, UTILITARIAN MECHANICAL TYPE SHOPS, ELECTRICAL ROOMS WITHOUT CEILINGS, TELECOM ROOMS WITHOUT CEILINGS

SEMI-RECESSED - ALL REMOVABLE TILE CEILINGS AND HARD LID CEILINGS. TO BE INSTALLED CENTER TILE.

CONCEALED - ONLY IN ARCHITECTURAL SENSITIVE LOCATIONS TO MATCH. TO BE INSTALLED CENTER TILE.

HIGH TEMPERATURE - UTILIZE IN ALL MECHANICAL ROOMS, ELECTRICAL ROOMS, TELECOM ROOMS OR OTHER AREAS WHERE ELEVATED TEMPERATURES MAY BE PREVALENT.

SPRINKLER HEAD GUARD - UTILIZE IN ALL MECHANICAL ROOMS, ELECTRICAL ROOMS, TELECOM ROOMS OR OTHER AREAS WHERE DAMAGE TO HEADS COULD EASILY OCCUR.

IN CORRIDORS, SPRINKLER HEADS ARE IDEALLY LOCATED ALONG CENTERLINE.

STANDPIPES (CBC 905):

NOT REQUIRED

ABBREVIATIONS

ADA	AMERICANS WITH DISABILITIES ACT
AHJ	AUTHORITY HAVING JURISDICTION
AUTO	AUTOMATIC
A/CONC	ABOVE CONCRETE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFP	BACKFLOW PREVENTER
BSMT	BASEMENT
BOB	BOTTOM OF BEAM
BLDG	BUILDING
BLK	BLACK
CI	CAST IRON
CL	CLASS
CLG	CEILING
CHK	CHECK
CR	CONCRETE
CON	CONCENTRIC
DN	DOWN
D	DRY
DIA	DIAMETER
DEG	DEGREE
DWG	DRAWING
DEPT	DEPARTMENT
DOD	DEPT OF DEFENSE
DI	DUCTILE IRON
DSA	DIVISION OF THE STATE ARCHITECT
EA	EACH
EL	ELBOW
EC	EXTENDED COVERAGE
ECC	ECCENTRIC
ELEC	ELECTRIC
EL	ELEVATION
EH1	EXTRA HAZARD 1
EH2	EXTRA HAZARD 2
EXIST	EXISTING
EX	EXTERIOR
EXT	EXTINGUISHER
FM	FACTORY MUTUAL GLOBAL
FA	FIRE ALARM
FDC	FIRE DEPARTMENT CONNECTION
FLG	FLANGE
FL	FLOOR
FP	FIRE PROTECTION
GAL	GALLONS
GPM	GALLONS PER MINUTE
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GR	GRADE
GND	GROUND
GVD	GROOVED
HYD	HYDRANT
HP	HORSEPOWER
HR	HOSE REEL
HV	HOSE VALVE
HC	HOSE CABINET
HVAC	HEATING VENTING AND AIR CONDITIONING
INT	INTERIOR
INSP	INSPECTOR
LTG	LIGHTING
LH	LIGHT HAZARD
MJ	MECHANICAL JOINT
MEZZ	MEZZANINE
MI	MALLEABLE IRON
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
NIC	NOT IN CONTRACT
NA	NOT APPLICABLE
NRS	NON RISING STEM
NTS	NOT TO SCALE
NPT	NATIONAL PIPE THREAD
OS&Y	OUTSIDE SCREW AND YOKE
OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
OTS	OPEN TO STRUCTURE
OH1	ORDINARY HAZARD I
OH2	ORDINARY HAZARD 2
PEND	PENDENT
PLB	PLUMBING
PH	PHASE
PIV	POST INDICATING VALVE
PSI	POUNDS PER SQUARE INCH
RED	REDUCER
RES	RESIDUAL
RM	ROOM
SCH	SCHEDULE
SCR	SCREWED
SW	SIDEWALL
SPEC	SPECIFICATION
SP	SPECIAL
SF	SQUARE FEET
STL	STEEL
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
THRD	THREADED
TYP	TYPICAL
TBD	TO BE DETERMINED
UL	UNDERWRITERS LABORATORY
UPR	UPRIGHT
UNO	UNLESS NOTED OTHERWISE
UG	UNDERGROUND
VA	US DEPT OF VETERANS AFFAIRS
VAL	VALVE
V	VOLTS
FS	WATER FLOW SWITCH
WLD	WELDED
WG	WIREGUARD

FIRE SPRINKLER GENERAL NOTES

1. BEFORE SUBMITTING A PROPOSAL FOR THE WORK, EACH BIDDER WILL BE HELD RESPONSIBLE TO HAVE EXAMINED THE EXISTING SITE CONDITIONS FOR THE WORK INCLUDED UNDER THIS CONTRACT. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON THEIR PART.
2. PIPE ROUTING SHOWN SHALL BE USED; ANY ADDITIONAL OFFSETS OR FITTINGS REQUIRED FOR PROPER INSTALLATION, COORDINATION WITH OTHER TRADES, AND/OR TO MAINTAIN PROPER CLEARANCE SHALL BE APPROVED BY ARCHITECT/ENGINEER AND SHALL BE PROVIDED BY THE SPRINKLER CONTRACTOR AT NO ADDITIONAL COST.
3. DESIGN AND INSTALLATION SHALL BE SUBJECT TO FINAL INSPECTION AND APPROVAL.
4. THE FIRE PROTECTION CONTRACTOR SHALL BE C-16 LICENSED BY THE STATE OF CALIFORNIA FOR THE DESIGN AND INSTALLATION OF SPRINKLER AND STANDPIPE SYSTEMS.
5. THE FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, SEALING, PATCHING, AND PAINTING REQUIRED FOR INSTALLATION OF THE STANDPIPE SYSTEM. ALL PENETRATIONS OF FIRE-RATED ASSEMBLIES SHALL BE FIRE STOPPED WITH AN APPROVED/LISTED FIRE STOPPING METHOD AS PRESCRIBED IN THE CALIFORNIA BUILDING CODE.
6. THE FIRE PROTECTION CONTRACTOR SHALL COMPLETE AND SIGN CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR THE ABOVE AND UNDERGROUND PIPING AS WELL AS ANY EQUIPMENT. THE FORMS SHALL BE GIVEN TO THE PROJECT INSPECTOR WHO WILL FORWARD TO AHJ FOR FILLING IN PROJECT RECORDS. A COPY OF THIS CERTIFICATE SHALL BE PROVIDED TO THE OWNER.
7. CONTRACTOR SHALL MAINTAIN A CLEAN WORK PREMISE AT ALL TIMES AND SHALL CLEAN CONSTRUCTION SITE OF ALL THEIR DEBRIS AT THE END OF THE DAY AND BEFORE FINAL PAYMENT IS MADE.
8. THE BUILDING IS ASSUMED TO BE STRUCTURALLY SOUND AND FULLY CAPABLE OF SUPPORTING THE PROPOSED SPRINKLER PIPING AND ALL ASSOCIATED FITTINGS, HANGERS, SEISMIC BRACING AND ASSOCIATED APPURTENANCES.
9. REFER TO FIRE PROTECTION SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING THE FIRE PROTECTION SYSTEM.
10. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL BUILDING DIMENSIONS AND DETAILS. DO NO SCALE "FP" DRAWINGS FOR CONSTRUCTION PURPOSES.
11. REFERENCE TO THE CIVIL DRAWINGS FOR ADDITIONAL FIRE SERVICE LINE INFORMATION AND ACTUAL LENGTH OF PIPE. THE LAYOUT SHOWN ON THE CIVIL DRAWINGS WILL SUPERSEDE WHAT IS SHOWN ON THE FIRE PROTECTION SITE PLAN (IF PROVIDED IN SET).
12. OWNER SHALL BE PROVIDED WITH ALL REQUIRED TEST CERTIFICATES, CARE & MAINTENANCE BOOK.
13. ALL MATERIALS, EQUIPMENT, APPURTENANCE AND RELATED DEVICES SHALL BE APPROVED FOR FIRE PROTECTION USE AND BE UL LISTED AND/OR FM APPROVED.
14. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS.
15. INSTALL ALL EQUIPMENT AND SPECIALTY DEVICES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
16. ALL PIPE SHALL BE BLACK STEEL SCHEDULE 40 FOR PIPES 2" AND SMALLER AND/OR SCHEDULE 10 FOR PIPES 2 ½" AND LARGER UNLESS NOTED IN DESIGN DRAWINGS.
17. FLOOR/ WALL PENETRATIONS THROUGH RATED SEPARATIONS SHALL BE SEALED WITH AN APPROVED FIRE RATED MATERIAL AND/OR APPROVED ASSEMBLY.
18. WALL PENETRATIONS THROUGH NON-RATED PARTITIONS SHALL BE PROVIDED WITH A NON-SHRINKING GROUT OR CAULKING MATERIAL AND/OR APPROVED ASSEMBLY.
19. JOINING OF PIPE AND FITTINGS SHALL BE DONE WITH GROOVED COUPLINGS WHEN LIGHTWALL PIPE IS USED OR THREADED CAST IRON OR DUCTILE IRON FITTINGS WITH THREADABLE PIPE.
20. SIGNAGE SHALL BE PROVIDED IN ACCORDANCE WITH AHJ AND NFPA 13.
21. THE SPRINKLER SYSTEM SHALL BE MONITORED BY AN APPROVED SUPERVISORY STATION FURNISHED AND INSTALLED BY THE FIRE ALARM CONTRACTOR. ALL TAMPER AND WATER FLOW SWITCHES SHALL BE INSTALLED BY THE FIRE PROTECTION CONTRACTOR AND WIRED TO THE SUPERVISORY STATION BY THE FIRE ALARM CONTRACTOR.
22. THE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY TESTED IN ACCORDANCE WITH NFPA 13 AND 14. PRIOR TO CONNECTION TO THE ABOVE GROUND SYSTEM, THE UNDERGROUND FIRE WATER SERVICE SHALL BE FLUSHED IN ACCORDANCE WITH NFPA 13.
23. ALL SPRINKLER LOCATIONS SHALL BE COORDINATED WITH LIGHTING FIXTURES, HVAC DIFFUSERS, FIRE ALARM DEVICES, SIGNS, AND OTHER RELATED CEILING DEVICES PRIOR TO CONSTRUCTION. THE SPRINKLER PIPE ROUTING SHALL ALSO BE COORDINATED WITH STRUCTURAL AND OTHER DISCIPLINES PRIOR TO CONSTRUCTION TO ELIMINATE OR MINIMIZE THE NUMBER OF LOW POINT DRAINS FOR THE SPRINKLER SYSTEM.
24. ALL INSPECTOR'S TEST CONNECTION AND LOW POINT DRAINS SHALL BE IN ACCORDANCE WITH NFPA 13 AND 14 (UNLESS OTHERWISE NOTED) AND SHALL BE DISPLAYED ON SHOP DRAWINGS. ALL PIPING RELATED SHALL BE LOCATED TIGHT AGAINST THE PERIMETER WALLS. COORDINATE WITH ARCHITECT FOR ACCEPTABLE LOCATIONS.
25. MOUNTING OF CONTROL VALVES SHALL BE AT MAXIMUM HEIGHT OF 7'-0" A.F.F. UNLESS OTHERWISE NOTED WHICH WILL REQUIRE APPROVED MEANS OF ACCESSIBILITY.
26. PROVIDE A SPARE SPRINKLER CABINET AND WRENCH(ES) IN ACCORDANCE WITH NFPA 13.
27. FLOW SWITCH SHALL BE CONNECTED TO A 10-INCH OUTSIDE ALARM BELL OR OTHER AUDIBLE ALARM DEVICE AT RISER. APPROVED IDENTIFICATION SIGNS SHALL BE PROVIDED ON THE OUTSIDE OF THE ALARM BELL "SPRINKLER FIRE ALARM – WHEN ALARM SOUNDS CALL 911/FIRE DEPARTMENT".
28. STORAGE AND USE OF HAZARDOUS MATERIALS SHALL NOT EXCEED THE MAXIMUM ALLOWABLE QUANTITIES LISTED IN CHAPTER 50 OF THE ADOPTED FIRE CODE.

BUILDING INFORMATION

OCCUPANCY - BUILDING 400 (CLASSROOMS AND LAB):	A-3/B
TYPE OF CONSTRUCTION:	TYPE II-B
TOTAL BUILDING AREA (SQ. FT.):	9,454 SQ. FT.
BUILDING HEIGHT:	10'-0" (1 STORY)
AUTOMATIC SPRINKLER SYSTEM:	FULLY SPRINKLERED THROUGHOUT

PIPE DESIGN CRITERIA

ABOVEGROUND PIPE - SIZES 2" AND SMALLER
STEEL PIPE, SCH. 40 BLACK MUST HAVE MALLEABLE IRON OR FORGED STEEL WELDING TYPE FITTINGS AND THREADED FITTINGS.

ABOVEGROUND PIPE - SIZES 2-1/2" AND LARGER
STEEL PIPE, SCH. 40 OR 10 BLACK MUST HAVE WELDED FITTINGS OR GROOVED COUPLINGS.

UNDERGROUND PIPE
CORROSION RESISTANT STAINLESS STEEL PIPE, TYPE 304. C900 PVC MAY BE USED WHEN PIPE IS UNDERGROUND AND LOCATED MORE THAN 5'-0" FROM BUILDING EXTERIOR WALL.

STEEL PIPE DIMENSIONS: SCH. 10 PIPE

NOMINAL PIPE SIZES (inches)	OUTSIDE DIAMETER (inches)	INSIDE DIAMETER (inches)	WALL THICKNESS (inches)	WEIGHT OF WATER FILLED PIPE (lbs/ft)	CAPACITY OF PIPE (gal/ft)
1	1.315	1.097	0.109	1.81	0.049
1 -1/4	1.660	1.442	0.109	2.52	0.085
1 -1/2	1.900	1.682	0.109	3.04	0.115
2	2.375	2.157	0.109	4.22	0.190
2 -1/2	2.875	2.635	0.120	5.89	0.283
3	3.500	3.260	0.120	7.94	0.434
3 -1/2	4.000	3.760	0.120	9.78	0.577
4	4.500	4.260	0.120	11.78	0.740
6	6.625	6.357	0.134	23.03	1.649
8	8.625	8.249	0.188	40.08	2.776

STEEL PIPE DIMENSIONS: SCH. 40 PIPE

NOMINAL PIPE SIZES (inches)	OUTSIDE DIAMETER (inches)	INSIDE DIAMETER (inches)	WALL THICKNESS (inches)	WEIGHT OF WATER FILLED PIPE (lbs/ft)	CAPACITY OF PIPE (gal/ft)
1	1.315	1.049	0.133	2.05	0.045
1 -1/4	1.660	1.380	0.140	2.93	0.078
1 -1/2	1.900	1.610	0.145	3.61	0.106
2	2.375	2.067	0.154	5.13	0.174
2 -1/2	2.875	2.469	0.203	7.89	0.249
3	3.500	3.068	0.216	10.82	0.384
3 -1/2	4.000	3.548	0.226	13.48	0.514
4	4.500	4.026	0.237	16.40	0.661
6	6.625	6.065	0.280	31.69	1.501
8	8.625	7.981	0.322	47.70	2.599

FIRE SPRINKLER HANGING AND BRACING NOTES

1. 1INSTALL AFSS PIPING WITH 2" MINIMUM CLEARANCE FROM STRUCTURAL MEMBERS NOT PENETRATED OR USED TO SUPPORT THE PIPING.
2. HANGER LOCATIONS FOR ALL PIPING SHALL BE IN ACCORDANCE WITH NFPA 13, SECTION 17.4. SEE HANGER SCHEDULE AND/OR DETAILS FOR TYPES OF HANGERS USED. ALTERNATE UL AND FM HANGER METHODS ARE ACCEPTED AT NO ADDITIONAL COST TO THE OWNER. PROVIDE UL AND/OR FM APPROVAL TO ARCHITECT/ENGINEER PRIOR TO INSTALLATION.
3. PROVIDE SEISMIC BRACING IN ACCORDANCE WITH NFPA 13 SECTION 18.1.
4. AFSS PIPING SHALL PASS THROUGH HOLES/SLEEVES IN WALLS, FLOORS, ROOFS OR FOUNDATIONS. COMPLY WITH ALL STRUCTURAL DETAILS AND THE FOLLOWING: PROVIDE 2" NOMINAL CLEARANCE AT HOLES/SLEEVES FOR PIPES 3-1/2" AND SMALLER. PROVIDE 4" NOMINAL CLEARANCE AT HOLES/SLEEVES FOR PIPES 4" AND LARGER.
5. SAFSS PIPING SHALL NOT PENETRATE OR INTERRUPT FRAMING MEMBERS INCLUDING BUT NOT LIMITED TO STUDS, POSTS, COLUMNS, JOISTS, RAFTERS, BEAMS AND GIRDERS. DO NOT CUT OR DRILL FRAMING MEMBERS UNLESS SPECIFICALLY NOTED.
6. AFSS PIPING HANGERS, COMPONENTS, AND FASTENERS SHALL BE LISTED FERROUS, AND DESIGNED TO SUPPORT FIVE TIMES THE TRIBUTARY WEIGHT OF WATER-FILLED PIPE PLUS 250 POUNDS.
7. PIPING HANGERS SHALL NOT BE SUBJECTED TO BENDING. INSTALL WITH SWIVELS, EYE NUTS, ARTICULATING ATTACHMENTS OR OTHER DEVICES TO PREVENT BENDING.
8. PIPING HANGERS SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE. C-TYPE CLAMPS USED TO ATTACH HANGERS TO THE BUILDING STRUCTURE SHALL BE EQUIPPED WITH A RESTRAINING STRAP. POWER ACTUATED FASTENERS SHALL NOT BE USED TO ATTACH HANGERS TO THE BUILDING STRUCTURE.
9. THE MAXIMUM DISTANCE BETWEEN AFSS PIPING HANGERS SHALL NOT EXCEED: 12' FOR STEEL PIPE 1-1/4" AND SMALLER; 15' FOR STEEL PIPE 1-1/2" AND LARGER.
10. PROVIDE ONE HANGER MINIMUM ON EACH SECTION OF PIPE BETWEEN EACH BRANCHLINE AT MAINS, AND AT THE ENDS OF MAINS. HANGER CLEARANCE TO UPRIGHT SPRINKLERS SHALL BE 3" MINIMUM.
11. WOOD FRAMING SUPPORTING AFSS PIPING, HANGERS SHALL COMPLY WITH THE FOLLOWING: DO NOT SUPPORT PIPING FROM STRUCTURAL PANELS OR 2X OR SMALLER FRAMING/DECKING UNO. SUPPORT PIPING 2" AND SMALLER FROM 3X MINIMUM FRAMING/DECKING OR WITH THROUGH BOLTS TO THE SIDES OF 2X FRAMING. SUPPORT PIPING 2-1/2" TO 6" FROM 4X MINIMUM FRAMING. SUPPORT PIPING 8" FROM 6X MINIMUM FRAMING. DO NOT SUPPORT PIPING FROM FRAMING LESS THAN 8" DEEP. DO NOT SUPPORT MORE THAN ONE PIPING HANGER AT ANY MEMBER LESS THAN 6X MINIMUM. SCREWS OR BOLTS IN THE SIDES OF THE FRAMING SHALL NOT BE INSTALLED LESS THAN 3" OR 1/3 THE FRAMING DEPTH FROM THE BOTTOM.
12. STEEL FRAMING SUPPORTING AFSS PIPING HANGERS SHALL COMPLY WITH THE FOLLOWING: U.N.O. DO NOT SUPPORT PIPING FROM BARE STEEL DECK. U.N.O. DO NOT SUPPORT PIPING 2-1/2" AND GREATER FROM CONCRETE FILLED STEEL DECK OR CONCRETE SLABS. U.N.O. DO NOT SUPPORT PIPING FROM FRAMING LESS THAN 8" DEEP. U.N.O. DO NOT SUPPORT MORE THAN ONE PIPING HANGER AT ANY MEMBER LESS THAN 12" DEEP.
13. LATERAL BRACING SHALL BE PROVIDED ON ALL FEED AND CROSS MAIN REGARDLESS OF PIPING SIZE, ON ALL OTHER PIPING 2-1/2" AND LARGER AND SHALL BE SPACED AT A MAXIMUM OF 40' ON CENTER. PROVIDE A LATERAL BRACE WITHIN 6' OF EACH END OF EACH RUN OF MAIN PIPE.
14. LONGITUDINAL BRACING SHALL BE PROVIDED ON ALL FEES AND CROSS MAIN PIPING AND SHALL BE SPACED AT CALCULATED VALUES.
15. LONGITUDINAL BRACES SHALL BE ALLOWED TO ACT AS LATERAL BRACES IF THEY ARE WITHIN 24" OF THE CENTER LINE OF THE PIPING BRACED LATERALLY. LATERAL BRACES SHALL BE ALLOWED TO ACT AS LONGITUDINAL BRACES IF THEY ARE WITHIN 24" OF THE CENTERLINE OF THE PIPING BRACED LONGITUDINALLY AND THE LATERAL BRACE IS ON A PIPE OF EQUAL OR GREATER SIZE THAN THE PIPE BEING BRACED LONGITUDINALLY.
16. EACH RUN OF PIPE BETWEEN CHANGES IN DIRECTION SHALL BE PROVIDED WITH BOTH LATERAL AND LONGITUDINAL BRACING OTHER THAN PIPE RUNS LESS THAN 12' LONG.
17. BRACE ATTACHMENT TO PIPING SHALL BE ATTACHED DIRECTLY TO FEED AND CROSS MAINS. INSTALL SO THAT CONNECTIONS ARE TIGHT AND IN STRAIGHT LINES TO AVOID ECCENTRIC LOADINGS ON BRACES, COMPONENTS, AND FASTENERS. POWER ACTUATED FASTENERS, LAG SCREWS, OR C-TYPE CLAMPS SHALL NOT BE USED TO ATTACH BRACES TO THE BUILDING STRUCTURE.
18. THREADED PIPE USED AS PART OF A BRACE ASSEMBLY SHALL BE SCHEDULE 40 MINIMUM.
19. TOPS OF RISERS EXCEEDING 3' IN LENGTH SHALL BE PROVIDE WITH A FOUR-WAY BRACE.
20. BRANCH LINE PIPING SHALL BE VERTICALLY AND LATERALLY RESTRAINED AT INTERVALS IN ACCORDANCE WITH NFPA 13 TABLE 18.6.4(a), AND SHALL NOT EXCEEDING 36 INCHES FROM THE END OF THE LINE FOR 1 INCH PIPE; 48 INCHES FROM THE END OF THE LINE FOR 1.25 INCH PIPE; AND 60 INCHES FROM THE END OF THE LINE FOR 1.5 INCH PIPE. SPRIGS 4' OR LONGER SHALL BE LATERALLY RESTRAINED.
21. PROVIDE RIGID COUPLINGS THROUGHOUT, EXCEPT FLEXIBLE COUPLINGS SHALL BE INSTALLED WHERE REQUIRED BY NFPA 13 SECTION 18.2.

SCOPE OF WORK

MODIFY THE EXISTING FIRE SPRINKLER SYSTEM TO SERVE THE RENOVATED SCIENCE CLASSROOMS.

PARTIAL LIST OF APPLICABLE CODES & STANDARDS

TITLE 19, STATE FIRE MARSHAL - PUBLIC SAFETY

TITLE 24, CALIFORNIA BUILDING AND FIRE CODE (PARTS 1-9 INCLUSIVE) - 2022 EDITION

NFPA 13, STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS - 2022 EDITION

NFPA 24, STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES - 2019 EDITION

NFPA 25, STANDARD FOR THE INSPECTION, TESTING, AND MAINTENANCE OF WATER-BASED FIRE PROTECTION SYSTEMS - 2013 CA EDITION

NFPA, AUTOMATIC SPRINKLER SYSTEM HANDBOOK

UNDERWRITERS LABORATORIES FIRE PROTECTION EQUIPMENT DIRECTORY

FACTORY MUTUAL APPROVAL GUIDE

LOCAL FIRE MARSHAL

SYMBOL LIST

DRAWING INDEX

SHEET INDEX

FP0.01	FIRE PROTECTION NOTES, SYMBOLS, ABBREVIATIONS
FP0.02	FIRE PROTECTION SITE PLAN (FOR HYDRAULIC REFERENCE ONLY)
FP0.03	FIRE PROTECTION BUILDING SECTIONS
FP1.01	FIRE PROTECTION FLOOR PLAN
FP1.02	FIRE PROTECTION REFLECTED CEILING PLAN

HOSE STREAM ALLOWANCE

OCCUPANCY	INSIDE HOSE gpm	INSIDE HOSE L/min	TOTAL COMBINED INSIDE AND OUTSIDE HOSE gpm	TOTAL COMBINED INSIDE AND OUTSIDE HOSE L/min	DURATION (minutes)
LIGHT HAZARD	0, 50, 100	0, 190, 380	100	380	30
ORDINARY HAZARD	0, 50, 100	0, 190, 380	250	950	60-90
EXTRA HAZARD	0, 50, 100	0, 190, 380	500	1900	90-120

NFPA 13 TABLE 11.2.3.1.2

FIRE FLOW TEST INFORMATION - INFORMATION CURRENTLY UNAVAILABLE - PRELIMINARY HYDRAULIC SYSTEM DEMAND

SPECTRUM FIRE PROTECTION
1330 E. Orangethorpe Ave.
Fullerton, CA 92831
SPECTRUM C-16 886810 PHONE: (714) 213-8451 FAX: (714) 213-8759

PRIVATE FIRE HYDRANT INSPECTION AND TESTING RECORD

Company: Sonora High School Contact: Andy kim
Address: 401 South Palm Street Phone: 714-62-4400
City: La Habra

HYDRANT FLOW TEST Time: 3:30PM

Hydrant Location	Static Hydrant Location	Residual Hydrant Location	Nozzle Size/ Coefficient	Static Pressure	Residual Pressure	Pitot (PSI)	Flow (GPM)	Flushing (Y/N)
H1	H2	H2	2.5 /0.90	70	30	28	1002	Y
H2	H1	H1	2.5 /0.90	70	50	32	1557	Y
			/					
			/					
			/					
			/					
			/					
			/					
			/					
			/					
			/					
			/					
			/					
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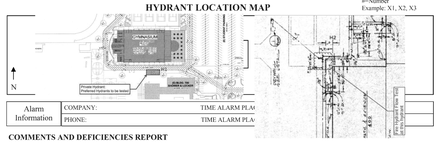
			/					

HYDRANT LOCATION MAP

X= Location
#=Number
Example: X1, X2, X3



Alarm Information		
	COMPANY:	TIME ALARM PLA
	PHONE:	TIME ALARM PLA

COMMENTS AND DEFICIENCIES REPORT

Jaime Flores — INSPECTOR NAME
Jaime Flores — INSPECTOR SIGNATURE
05/21/2025 — DATE

LPA
ARCHITECTURE ENGINEERING INTERIORS
LANDSCAPE ARCHITECTURE PLANNING
949-261-1001 Office
LPADesignStudios.com
5301 California Avenue, Suite 100
Irvine, California 92617

wsp
11870 Pierce Street, Suite 160
Riverside, California 92505
951.299.4160 wsp.com
Project Leader - Bill Vollier
FECC Lead - Chris Pascual
WSP Job #:US0043159.0992

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

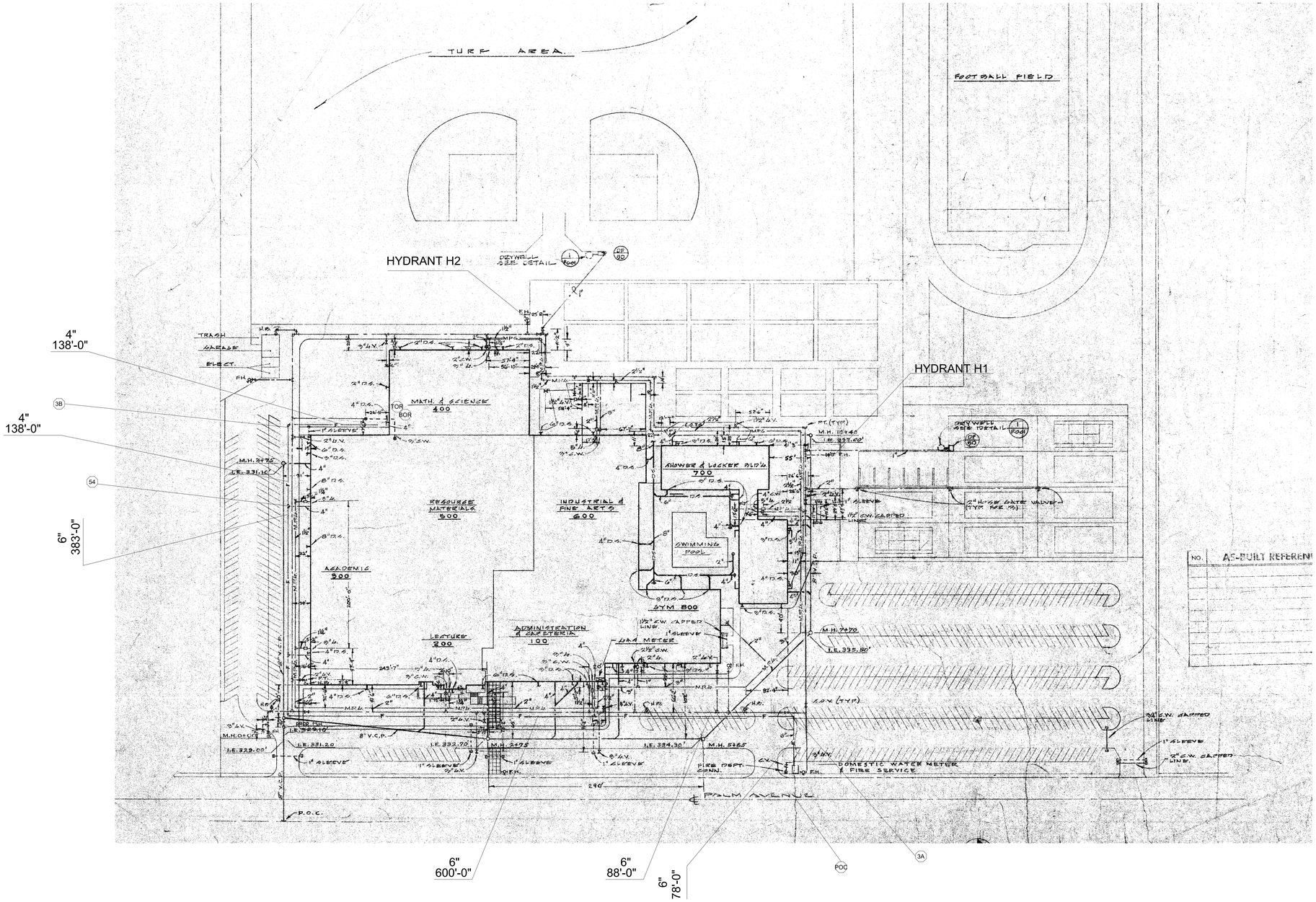
Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% CD	11/20/2025
DSA SUBMITTAL	01/12/2026
DSA BACK CHECK	01/27/2026

Revision Date

Job Number	32433
Checked By	Checker
Scale	12" = 1'-0"

FIRE PROTECTION NOTES, SYMBOLS, ABBREVIATIONS

FP0.01



1 SITE PLAN (FOR HYDRAULIC REFERENCE ONLY)

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

KEYNOTES

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ARCHITECTURE ENGINEERING INTERIORS
LANDSCAPE ARCHITECTURE PLANNING

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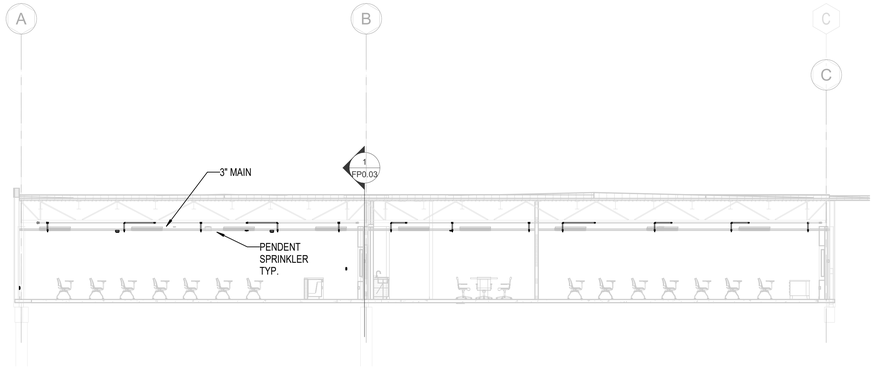
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	1/8" = 1'-0"

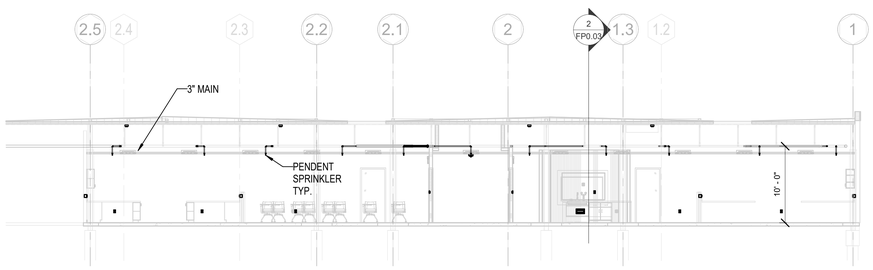
FIRE PROTECTION SITE PLAN (FOR HYDRAULIC REFERENCE ONLY)

FP0.02



2 BUILDING SECTION 2

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



1 BUILDING SECTION 1

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

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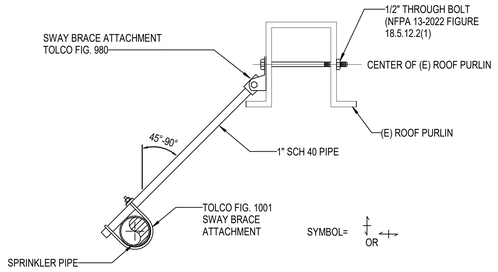
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	1/8" = 1'-0"

FIRE PROTECTION
BUILDING SECTIONS

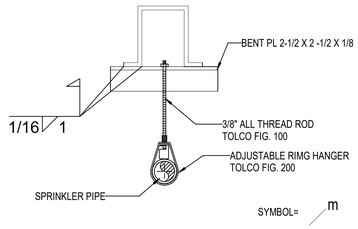
FP0.03



3 BRANCH LINE RESTRAINT AT HSS

SCALE: NTS

HANGER ROD SIZES	
PIPE SIZE	DIAMETER OF ROD
UP TO INCLUDING 4"	3/8"



2 HANGER AT HSS

SCALE: NTS

SPRINKLER SCHEDULE & LEGEND

SYMBOL	SPRINKLER DESCRIPTION	MANUFACTURER	MODEL/SERIES	K-FACTOR	TEMP.	FINISH	SIN	QUANTITY
◉	RECESSED QUICK RESPONSE PENDENT SPRINKLER	TYCO	TY-FRB	5.6	155° F	WHITE	TY3231	126
○	QUICK RESPONSE UPRIGHT SPRINKLER	TYCO	TY-FRB	5.6	200° F	WHITE	TY3131	4
	HEAD CAB'T & WRENCH(ES) PROVIDED			TOTAL COUNT THIS BUILDING =				130

NOTE: WHERE SPRINKLERS ARE EXPOSED TO ATMOSPHERIC CONDITIONS PROVIDE CORROSION PROTECTION.
WHERE SURFACE MOUNTED LIGHTS OCCUR, INSTALL 401 CANOPY TYPE.

PIPE LEGEND

EXISTING SPRINKLER PIPE

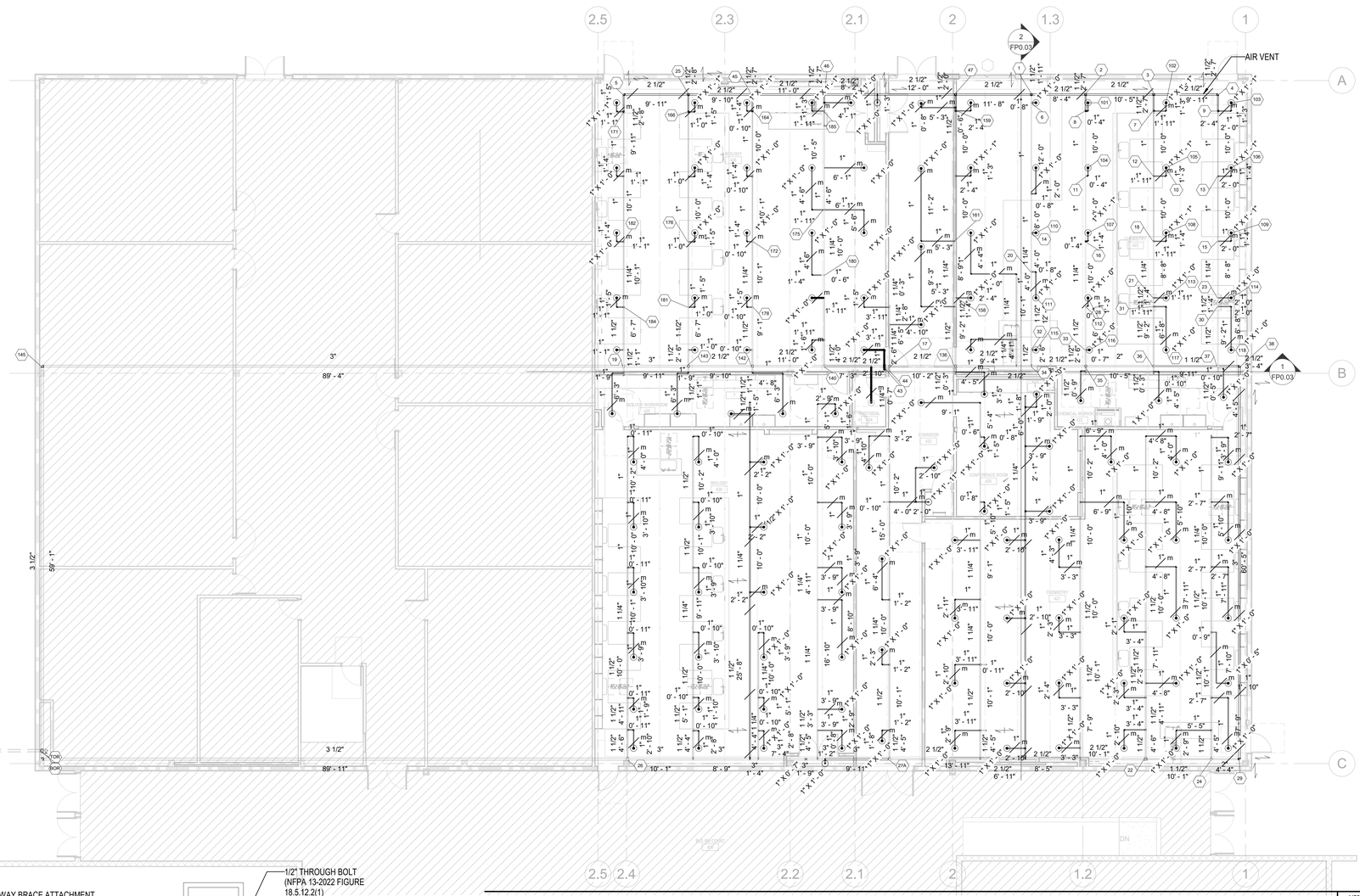
NEW SPRINKLER PIPE

GENERAL NOTES:

1.DEMOLISH ALL EXISTING SPRINKLERS AND ARMOVERS IN AREA OF WORK, AND PROVIDE NEW ARMOVERS AND SPRINKLERS IN ACCORDANCE WITH THE FIRE PROTECTION FLOOR PLAN.

3. ALL EXISTING FIRE PROTECTION UNDERGROUND UTILITIES, SITE APPURTENANCES, RISER, SPRINKLER MAINS, BRANCH LINES, HANGERS AND SWAY BRACING SHALL REMAIN.

4. CONTRACTOR TO VERIFY AND COORDINATE BRACHLINE ARMOVERS WITH OTHER TRADES IN FIELD.



FIRE PROTECTION FLOOR PLAN | 1/8" = 1'-0" FP1.01 | 1

LEGEND

- LONGITUDINA SWAY BRACING AT HHS
- LATERAL SWAY BRACING AT HHS
- END OF BRANCH LINE RESTRAINT AT HHS
- m HANGER AT HHS

HYDRAULIC CALCULATIONS

THIS BUILDING IS PROTECTED BY A HYDRAULICALLY DESIGNED AUTOMATIC SPRINKLER SYSTEM. REMOTE AREA IS A TREE SYSTEM FED FROM A SMALL GRID.

LOCATION: CHEMISTRY 423

NO. OF SPRINKLERS: 18

BASIS OF DESIGN

1. DENSITY: 0.20 GPM/SQ. FT.
2. DESIGNED AREA OF DISCHARGE: 1,516 SQ. FT.
3. HAZARD OCUPANCY: ORDINARY HAZARD GROUP I

SYSTEM DEMAND AT FLANGE ON THE RISER

1. GPM DISCHARGE: 382.95 GPM
2. RESIDUAL PRESSURE: 40.37 PSI

TOTAL COMBINED INSIDE AND OUTSIDE HOSE STREAM - 250 GPM

REQ'D FLOW AND PRESSURE OF THE SYSTEM AT THE WATER SUPPLY SOURCE:

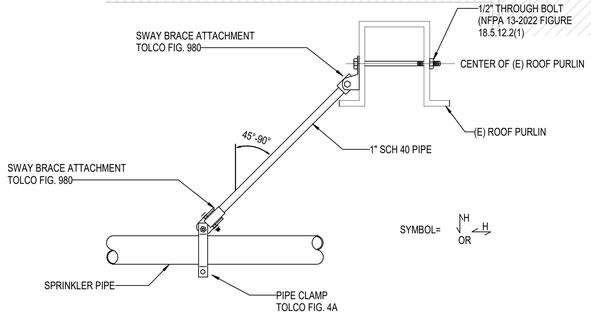
1. GPM DISCHARGE: 632.95 GPM
2. RESIDUAL PRESSURE: 55.92 PSI

QUICK-RESPONSE, PENDENT SPRINKLERS
K-5.6 155° TY3231

20 GPM AT 12.76 PSI REQUIRED FROM HYDRAULICALLY MOST DEMANDING SPRINKLER

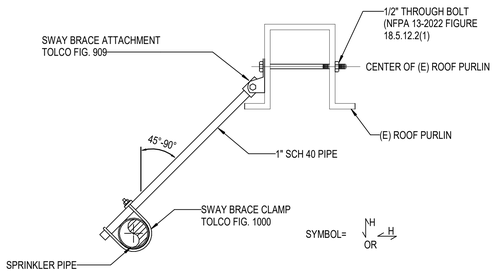
PROTECTION AREA PER SPRINKLER: 120 SQ. FT.
MAXIMUM SPRINKLER SPACING SHALL BE 130 SQ. FT.

NFPA 13, 2016 EDITION



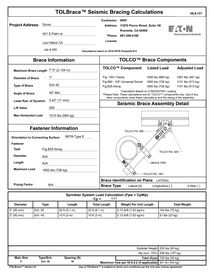
5 LONGITUDINAL BRACE AT HSS STEEL BEAM

SCALE: NTS



4 LATERAL BRACE AT HSS STEEL BEAM

SCALE: NTS



TOLBrace™ Seismic Bracing Calculations

Project Address: Donor
401 S Palm st
Los Nietos CA
Job # 000

Contractor: MSP
Address: 10976 Penna Street, Suite 106
Riverside, CA 92505
Phone: 951.288.4160
License:

Calculations based on 2019 NFPA Pamphlet #13

Brace Information

Maximum Brace Length	7'-0" (2.134 m)
Diameter of Brace	1"
Type of Brace	Sch 40
Angle of Brace	45° Min.
Load Rad. of Gyration	0.42" (11 mm)
L/R Value	200
Max Horizontal Load	1310 lbs (594 kg)

Fastener Information

Orientation to Connecting Surface	NFPA Type E
Fastener	Fig.925 Anvil
Diameter	N/A
Length	N/A
Maximum Load	1000 lbs (720 kg)
Prying Factor	N/A

TOLCO™ Brace Components

TOLCO™ Component	Listed Load	Adjusted Load
Fig. 100 / Clamp	2000 lbs (907 kg)	1414 lbs (641 kg)
Fig.909 Lateral Swivel	1000 lbs (726 kg)	707 lbs (321 kg)
Fig.925 Anvil	1000 lbs (726 kg)	707 lbs (321 kg)

*Fastener based on CONCRETE Loading
**Brace based on Slenderness Ratio (L/r) = 200 Use of any other components across these calculations will void the listing of this assembly.

Seismic Brace Assembly Detail

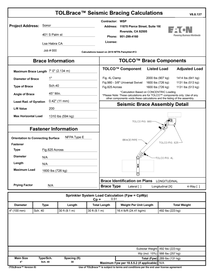
Brace Identification on Plans LATERAL
Brace Type Lateral ☐ Longitudinal ☐ 4 Way ☐

Sprinkler System Load Calculation (Fate + Cattle)

Diameter	Type	Length	Total Length	Weight Per Unit Length	Total Weight
4" (90 mm)	Sch. 40	0 ft (0.0 m)	0.0 ft (0.0 m)	10.79 lb (16.07 kg/m)	0.0 lbs (0.0 kg)
1" (90 mm)	Sch. 40	0 ft (0.0 m)	0.0 ft (0.0 m)	10.79 lb (16.07 kg/m)	0.0 lbs (0.0 kg)

Sprinkler Weight 200 lbs (90 kg)
Pipe Weight 0.0 lbs (0.0 kg)
Total Dead Weight 200 lbs (90 kg)
Maximum Design Load 1000 lbs (454 kg)

Work Area: Typical
Spacing (ft): 10' x 13'
Maximum Design Load: 1000 lbs (454 kg)
Total Load: 200 lbs (90 kg)
Load Ratio: 0.2 (Total Load / Maximum Design Load)



TOLBrace™ Seismic Bracing Calculations

Project Address: Donor
401 S Palm st
Los Nietos CA
Job # 000

Contractor: MSP
Address: 10976 Penna Street, Suite 106
Riverside, CA 92505
Phone: 951.288.4160
License:

Calculations based on 2019 NFPA Pamphlet #13

Brace Information

Maximum Brace Length	7'-0" (2.134 m)
Diameter of Brace	1"
Type of Brace	Sch 40
Angle of Brace	45° Min.
Load Rad. of Gyration	0.42" (11 mm)
L/R Value	200
Max Horizontal Load	1310 lbs (594 kg)

Fastener Information

Orientation to Connecting Surface	NFPA Type E
Fastener	Fig.925 Anvilac
Diameter	N/A
Length	N/A
Maximum Load	1000 lbs (720 kg)
Prying Factor	N/A

TOLCO™ Brace Components

TOLCO™ Component	Listed Load	Adjusted Load
Fig. 4L Clamp	2000 lbs (907 kg)	1414 lbs (641 kg)
Fig.909 Lateral Swivel	1000 lbs (726 kg)	707 lbs (321 kg)
Fig.925 Anvil	1000 lbs (726 kg)	707 lbs (321 kg)

*Fastener based on CONCRETE Loading
**Brace based on Slenderness Ratio (L/r) = 200 Use of any other components across these calculations will void the listing of this assembly.

Seismic Brace Assembly Detail

Brace Identification on Plans LONGITUDINAL
Brace Type Lateral ☐ Longitudinal ☐ 4 Way ☐

Sprinkler System Load Calculation (Fate + Cattle)

Diameter	Type	Length	Total Length	Weight Per Unit Length	Total Weight
4" (90 mm)	Sch. 40	0 ft (0.0 m)	0.0 ft (0.0 m)	10.79 lb (16.07 kg/m)	0.0 lbs (0.0 kg)

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Total Dead Weight 200 lbs (90 kg)
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Work Area: Typical
Spacing (ft): 10' x 13'
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Total Load: 200 lbs (90 kg)
Load Ratio: 0.2 (Total Load / Maximum Design Load)

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SONORA HIGH SCHOOL
SCIENCE CLASSROOMS MODERNIZATION

401 S PALM STREET
LA HABRA, CA 90631

Developed for
FULLERTON JOINT UNION HIGH SCHOOL DISTRICT

Revision	Date

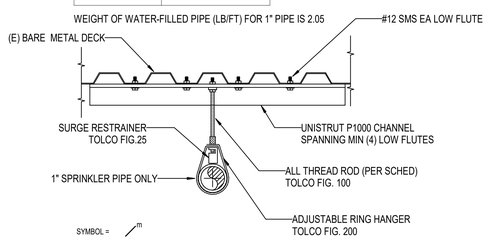
Submittal	Date
SCHEMATIC DESIGN	03/13/2025
50% DESIGN DEVELOPMENT	06/16/2025
90% CD	09/30/2025
DSA SUBMITTAL	11/21/2025
DSA BACK CHECK	01/27/2026

Job Number	32433
Checked By	Checker
Scale	As indicated

FIRE PROTECTION FLOOR PLAN

FP1.01

HANGER ROD SIZES	
PIPE SIZE	DIAMETER OF ROD
1"	3/8"



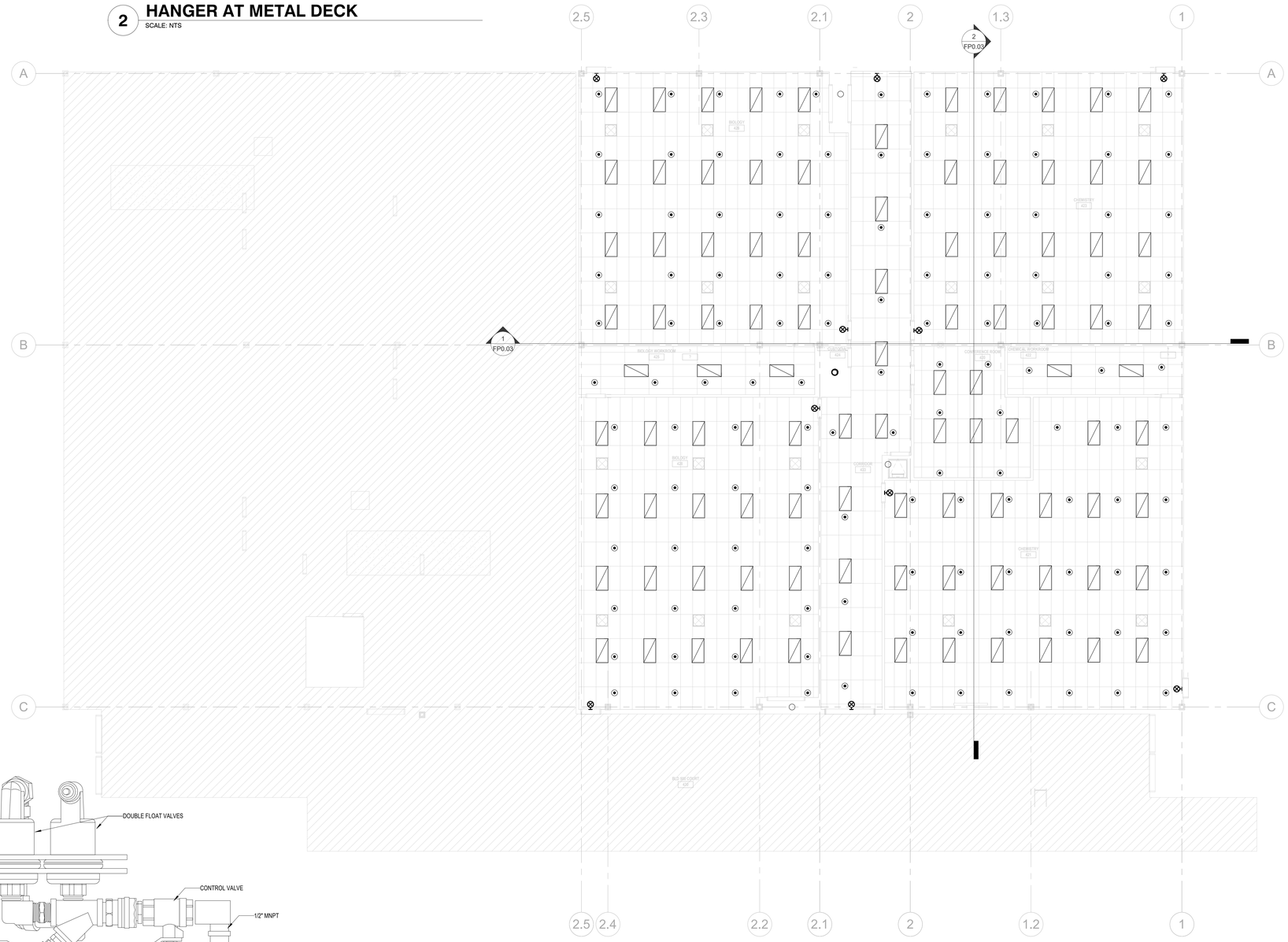
2 HANGER AT METAL DECK

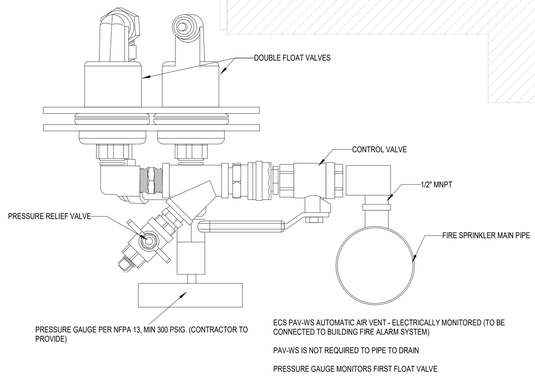
SCALE: NTS

SPRINKLER SCHEDULE & LEGEND

SYMBOL	SPRINKLER DESCRIPTION	MANUFACTURER	MODEL/SERIES	K-FACTOR	TEMP.	FINISH	SIN	QUANTITY
◉	RECESSED QUICK RESPONSE PENDENT SPRINKLER	TYCO	TY-FRB	5.6	155º F	WHITE	TY3231	126
○	QUICK RESPONSE UPRIGHT SPRINKLER	TYCO	TY-FRB	5.6	200º F	WHITE	TY3131	2
	HEAD CAB'T & WRENCH(ES) PROVIDED				TOTAL COUNT THIS BUILDING =			128

NOTE: WHERE SPRINKLERS ARE EXPOSED TO ATMOSPHERIC CONDITIONS PROVIDE CORROSION PROTECTION.
WHERE SURFACE MOUNTED LIGHTS OCCUR, INSTALL 401 CANOPY TYPE.





3 TYPICAL ECS AIR VENT

SCALE: N.T.S.

KEYNOTES

LPA

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Scale	As indicated

FIRE PROTECTION REFLECTED CEILING PLAN

FP1.02

ABBREVIATIONS

NOT ALL ABBREV. MAY BE USED

4S/DP	4" SQUARE BY 2-1/8" DEEP BOX
ADA	AMERICAN WITH DISABILITIES ACT
A.F.F.	ABOVE FINISH FLOOR
A.F.G.	ABOVE FINISH GRADE
AWG	AMERICAN WIRE GAUGE
AMP, A	AMPERE
A.I.C. or AIC	AMPERES INTERRUPTING CAPACITY (SYMMETRICAL)
A.F.C. or AFC	AVAILABLE FAULT CURRENT
AF/AT	AMP FRAME, AMP TRIP
AHJ	AUTHORITY HAVING JURISDICTION
AS/AF	AMP SWITCH, AMP FUSE
ATS	AUTOMATIC TRANSFER SWITCH
AVG	AVERAGE
BJ	BONDING JUMPER
BDF	BUILDING DISTRIBUTION FRAME
BR	BRANCH
BD	BOB DYLAN
BLDG	BUILDING
CBC	CALIFORNIA BUILDING CODE
CEC	CALIFORNIA ELECTRICAL CODE
CIRC., CKT.	CIRCUIT
CB	CIRCUIT BREAKER
CSFD	COMBINATION SMOKE FIRE DAMPER
C	CONDUIT
C.O.	CONDUIT ONLY; COMPLETE WITH PULLSTRING
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CONN	CONNECTED
CPT	CONTROL POWER TRANSFORMER
CLCB	CURRENT LIMITING CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
CT	CURRENT TRANSFORMER
(D)	EXISTING DEVICE TO BE DEMOLISHED
DAS	DISTRIBUTED ANTENNA SYSTEM
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
D.P.C.S.	DIMMING PANEL CONTROL STATION
E.C.	ELECTRICAL CONTRACTOR
EMS	ENERGY MANAGEMENT CONTROL SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRICAL NON-METALLIC TUBING
EWC	ELECTRIC WATER COOLER
E.P.O.	EMERGENCY POWER OFF
E-O-L	END-OF-LINE CIRCUIT TERMINATOR
EF	EXHAUST FAN
EGC or EG or E/G	EQUIPMENT GROUND (GREEN)
(E)	EXISTING DEVICE TO REMAIN
EP	EXPLOSION PROOF
(ER)	EXISTING DEVICE TO BE RELOCATED
FT or '	FEET
FA or F.A.	FIRE ALARM
FLA	FULL LOAD AMPS
GRD	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GE or GEC	GROUNDING ELECTRODE CONDUCTOR
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
IG	ISOLATED GROUND
IBC	INTERNATIONAL BUILDING CODE
I.D.C.S.	INTEGRATED DIMMING CONTROL PANEL
IDF	INTERMEDIATE DISTRIBUTION FRAME
JBOX	JUNCTION BOX
K	DEGREE KELVIN
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWH	KILOWATT HOUR
LCL	LONG CONTINUOUS LOAD
LF, L.F.	LINEAR FEET
LTG, LTS	LIGHTING
LPS	LOW PRESSURE SODIUM
LV	LOW VOLTAGE
MAX.	MAXIMUM
MBJ	MAIN BONDING JUMPER
MDF	MAIN DISTRIBUTION FRAME
MOCP	MAXIMUM OVERCURRENT PROTECTION
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
M.C.	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
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
N.T.S.	NOT TO SCALE
NL	NIGHT LIGHT
NO. or #	NUMBER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
%Z	PERCENT IMPEDANCE
PH. or ø	PHASE
PC	PHOTOCELL
P.C.	PLUMBING CONTRACTOR
P	POLE
PVC	POLY VINYL CHLORIDE
PDU	POWER DISTRIBUTION UNIT
PRIMARY	OVER 600 VOLTS
PROVIDE	FURNISH, INSTALL AND CONNECT
PT	POTENTIAL TRANSFORMER
PA	PUBLIC ADDRESS
(R)	DENOTES RELOCATED DEVICE LOCATION.
REC, RECEPT	RECEPTACLE
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL
RMS	ROOT MEAN SQUARE
SCC	SHORT CIRCUIT CURRENT
SCCR	SHORT CIRCUIT CURRENT RATING
SCS	STRUCTURED CABLING SYSTEM
SFD	SMOKE FIRE DAMPER
SECONDARY	600 VOLTS AND LESS
SMACNA	SHEET METAL AND AIR COND. CONTRACTOR'S NAT'L ASSOC.
SQ.	SQUARE
SSBJ	SUPPLY SIDE BONDING JUMPER
SBJ	SYSTEM BONDING JUMPER
TC	TIMECLOCK
TEL/DATA	TELEPHONE AND DATA
TV	TELEVISION
T.V.S.S.	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
U.G.P.S.	UNDERGROUND PULL SECTION
U.O.N.	UNLESS OTHERWISE NOTED
U.P.S. or UPS	UNINTERRUPTABLE POWER SYSTEM
VAV	VARIABLE AIR VOLUME
V	VOLTS
VA	VOLT AMPERES
VD	VOLTAGE DROP
WP	WEATHERPROOF
W	WIRE
XFMR	TRANSFORMER

THE PURPOSE OF THIS SHEET IS TO ILLUSTRATE AND DEFINE GRAPHIC SYMBOLS WHICH MAY OCCUR ON THE TECHNOLOGY DRAWING SET. THE ILLUSTRATION OF A SYMBOL, OR SYSTEM OF SYMBOLS, ON THIS SHEET DOES NOT NECESSARILY INDICATE THAT THE BUILDING COMPONENT REPRESENTED SYSTEM BY THE SYMBOL IS USED AS PART OF THIS PROJECT. REFER TO THE COMPLETE DRAWING PACKAGE AND SPECIFICATIONS TO DETERMINE THE SCOPE OF THE WORK

GENERAL

NOT ALL SYMBOLS MAY BE USED

FLOOR BOX/SPECIALTY WALL BOX/IN-GRADE BOX SYMBOLS

SINGLE SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS ON ELECTRICAL SHEETS AND SPECIFICATIONS FOR MORE INFORMATION.

TWO SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS ON ELECTRICAL SHEETS AND SPECIFICATIONS FOR MORE INFORMATION.

THREE SERVICE IN FLOOR BOX. PROVIDE DEVICES PER PLAN. SEE FLOOR BOX DETAILS ON ELECTRICAL SHEETS AND SPECIFICATIONS FOR MORE INFORMATION.

PB OR P — FLUSH IN GRADE PULLBOX, SIZED PER N.E.C. OR AS NOTED.

CONDUIT/PATHWAY/BACKBOARD SYMBOLS

T — CONCEALED TELEPHONE/DATA CONDUIT RUN, 1-INCH CONDUIT (MIN) OR AS NOTED ON PLANS. SEE TABLE BELOW FOR CONDUIT SIZE VARIATIONS.

T2 = 1-1/4" C. T3 = 1-1/2" C. T4 = 2" C.

CONCEALED CONDUIT UNLESS OTHERWISE NOTED, SIZE AS NOTED ON PLANS

CONDUIT CONCEALED BELOW GRADE, SIZE AS NOTED ON PLANS

CONDUIT STUB OUT, PROVIDE A BUSHING ON BOTH ENDS

CONDUIT CONTINUATION

CONDUIT CONTINUATION DOWN WALL TO FLOOR BELOW

CONDUIT CONTINUATION UP WALL TO FLOOR ABOVE

SURFACE MOUNTED, LOCKABLE TERMINAL CABINET WITH TERMINAL STRIPS AS REQUIRED.

PAINTED TELEPHONE TERMINAL BACKBOARD SIZED AS NOTED, REFER TO TELECOM SYSTEM GROUND DETAIL.

TELECOM GROUND BUS BAR, REFER TO TELECOM SYSTEM GROUND DETAIL AND SPECIFICATIONS.

TELECOMMUNICATIONS

NOT ALL SYMBOLS MAY BE USED

DATA OUTLET, WALL MOUNTED 4S DEEP BOX WITH 1-GANG RING AND 1" C. STUB UP TO NEAREST ACCESSIBLE CEILING. PROVIDE A BUSHING. "?" = QUANTITY OF CABLES/JACKS REQUIRED. SEE FACEPLATE DETAILS.

DATA OUTLET, WALL MOUNTED 4S DEEP BOX WITH 1-GANG RING AND 1" C. STUB UP TO NEAREST ACCESSIBLE CEILING. PROVIDE A BUSHING. "?" = QUANTITY OF CABLES/JACKS REQUIRED. SEE FACEPLATE DETAILS.

DATA OUTLET BOX FLUSH MOUNTED IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL. STUB A 1" C. TO NEAREST ACCESSIBLE CEILING AND PROVIDE A BUSHING. "?" = QUANTITY OF CABLES/JACKS REQUIRED. SEE FACEPLATE DETAILS.

DATA OUTLET BOX FLUSH MOUNTED IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL. "?" = QUANTITY OF CABLES/JACKS REQUIRED. SEE FACEPLATE DETAILS.

TV — TELEVISION OUTLET BOX FLUSH MOUNTED IN CEILING - MOUNT FLUSH IN FLOOR WHEN INDICATED IN A FLOOR BOX SYMBOL WITH A 1.25"C STUB UP TO NEAREST ACCESSIBLE CEILING OR AS SHOWN ON PLANS. SEE FACEPLATE DETAILS.

TV — TELEVISION OUTLET, WALL MOUNTED 4S DEEP BOX WITH 1 GANG RING AND 1.25"C STUB UP TO NEAREST ACCESSIBLE CEILING OR AS SHOWN ON PLANS. SEE FLOOR PLANS FOR BOX HEIGHT. SEE FACEPLATE DETAILS.

DATA OUTLET, WALL MOUNTED 6-INCHES ABOVE COUNTER OR SPLASH. STUB A 1" C. TO NEAREST ACCESSIBLE CEILING AND PROVIDE A BUSHING. 4S/DP MINIMUM WITH SINGLE GANG RING. "?" = QUANTITY OF CABLES/JACKS REQUIRED. SEE FACEPLATE DETAILS.

DATA OUTLET BOX, WALL MOUNTED 6-INCHES ABOVE COUNTER OR SPLASH. STUB A 1" C. TO NEAREST ACCESSIBLE CEILING AND PROVIDE A BUSHING. 4S/DP MINIMUM WITH SINGLE GANG RING. "?" = QUANTITY OF CABLES/JACKS REQUIRED. SEE FACEPLATE DETAILS.

WAP — INTERIOR WIRELESS ACCESS POINT OUTLET DATA OUTLET(S) AND 1" CONDUIT WITH CONDUCTORS TO NEAREST ACCESSIBLE CEILING SPACE, OR AS SHOWN ON THE FLOOR PLANS. WHEN INSTALLED AT ACCESSIBLE CEILING TILE LOCATIONS, PROVIDE WAP OUTLET ABOVE ACCESSIBLE CEILING TILE AND MOUNTED TO THREADED ROD ATTACHED TO STRUCTURE ABOVE. REFER TO FACEPLATE DETAILS FOR ADDITIONAL INFORMATION. WAP ELECTRONICS AND ANTENNA ARE CFCI.

WP — EXTERIOR WIRELESS ACCESS POINT OUTLET DATA OUTLET(S) WITH FLUSH 4S DEEP BOX, WEATHERPROOF BLANK PLATE, AND 1" CONDUIT WITH CONDUCTORS TO NEAREST ACCESSIBLE CEILING SPACE, OR AS SHOWN ON THE FLOOR PLANS. REFER TO FACEPLATE DETAILS FOR ADDITIONAL INFORMATION. WAP ELECTRONICS AND ANTENNA ARE CFCI.

AUDIOVISUAL SYSTEMS

NOT ALL SYMBOLS MAY BE USED

S — FLUSH CEILING MOUNTED PUBLIC ADDRESS SPEAKER WITH BACKBOX AND CONDUCTORS PER SPECIFICATIONS.

S — FLUSH WALL MOUNTED PUBLIC ADDRESS SPEAKER WITH BACKBOX, BAFFLE, CONDUCTORS, AND 3/4"C STUB TO ACCESSIBLE CEILING PER SPECIFICATIONS.

IO — WALL MOUNTED HDMI INPUT PLATE, 4S DEEP BOX WITH 1.25"C TO ACCESSIBLE CEILING SPACE UNLESS OTHERWISE SHOWN ON PLANS. REFER TO FACEPLATE DETAILS FOR MORE INFORMATION.

IO — HDMI INPUT PLATE, IN FLOOR BOX WITH 1.25"C TO ACCESSIBLE CEILING SPACE UNLESS OTHERWISE SHOWN ON PLANS. REFER TO FACEPLATE DETAILS FOR MORE INFORMATION.

VIDEO AND INTRUSION ALARM SYSTEMS

NOT ALL SYMBOLS MAY BE USED

WALL MOUNTED VIDEO SURVEILLANCE CAMERA WITH FLUSH 4S DP BOX, 3/4"C TO ACCESSIBLE CEILING AND CONDUCTORS - CAMERA AND MOUNT ARE OWNER FURNISHED CONTRACTOR INSTALLED.

CEILING MOUNTED VIDEO SURVEILLANCE CAMERA WITH BACKBOX AND CONDUCTORS - CAMERA AND MOUNT ARE OWNER FURNISHED CONTRACTOR INSTALLED.

CC — VIDEO SURVEILLANCE SYSTEM CONDUIT WITH CONDUCTORS.

IDF — SECURITY SYSTEM TERMINAL CABINET COMPLETE WITH POWER SUPPLY, TERMINAL BLOCKS, POPITS, ZONE EXPANSION MODULES, ETCETERA. SEE SPECIFICATIONS.

MD — SECURITY ALARM CEILING MOUNTED DUAL TECHNOLOGY MOTION SENSOR WITH CONDUCTORS - SEE SPECIFICATIONS.

KP — SECURITY ALARM KEY PAD COMPLETE WITH 1-GANG FLUSH J-BOX, 3/4"C TO ACCESSIBLE CEILING AND CONDUCTORS - SEE SPECIFICATIONS.

SA — CONCEALED SECURITY ALARM CONDUIT RUN, 3/4-INCH CONDUIT (MIN). SEE TABLE BELOW FOR CONDUIT SIZE VARIATIONS:

SA = 3/4" C. SA1 = 1" C. SA2 = 1-1/4" C. SA3 = 1-1/2" C. SA4 = 2" C.

GENERAL NOTES

APPLIES TO ALL SHEETS IN THIS SET

TELECOMMUNICATIONS PATHWAYS AND 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 PULL BOX. SPLIT CONDUITS IN PLACE OF PULL BOXES 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-INCHES IN DIAMETER OR LESS, AND (b) 10 TIMES THE INTERNAL CONDUIT DIAMETER FOR CONDUITS MORE THAN 2-INCHES IN DIAMETER.
4. TERMINATE CONDUIT STUBS AND SLEEVES THAT PROTRUDE THROUGH STRUCTURAL FLOORS 2-INCHEST TO 3-INCHES ABOVE THE FLOOR SURFACE.
5. INSTALL BUSHINGS OR BELL ENDS AS REQUIRED ON ALL CONDUITS.
6. FLEX CONDUIT IS UNACCEPTABLE FOR USE AS A COMMUNICATIONS CONDUIT EXCEPT AT SEISMIC JOINTS AND/OR IF 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 ELECTRICAL SPECIFICATIONS, DETAILS AND PLANS FOR ADDITIONAL CONDUIT SEALING REQUIREMENTS.
8. WHERE OPEN CEILINGS OCCUR CONDUCTORS SHALL BE INSTALLED INSIDE SURFACE MOUNTED RACEWAY (CONDUIT). PROVIDE ALL SURFACE MOUNTED RACEWAY, CONDUITS AND CONDUIT SLEEVES WHETHER OR NOT SHOWN ON THE PLAN DRAWINGS. THIS APPLIES TO ALL LOW VOLTAGE AND SIGNAL SYSTEMS CONDUCTORS INCLUDING DATA, TELEPHONE, SECURITY, PUBLIC ADDRESS, CLOCKS, AUDIO VISUAL, CATV, SURVEILLANCE CAMERAS, FIRE ALARM, BMS/EMS, ETCETERA.
9. WHERE INACCESSIBLE CEILINGS OCCUR CONDUCTORS SHALL BE INSTALLED INSIDE CONDUIT RACEWAY. PROVIDE ALL CONDUITS AND CONDUIT SLEEVES WHETHER OR NOT SHOWN ON THE PLAN DRAWINGS. THIS APPLIES TO ALL LOW VOLTAGE AND SIGNAL SYSTEMS CONDUCTORS INCLUDING DATA, TELEPHONE, SECURITY, PUBLIC ADDRESS, CLOCKS, AUDIO VISUAL, CATV, SURVEILLANCE CAMERAS, FIRE ALARM, BMS/EMS, ETCETERA.
10. PROVIDE ANY AND ALL CONDUIT SLEEVES AS MAY BE REQUIRED WHENEVER LOW VOLTAGE CONDUCTORS PASS THROUGH AN INTERIOR OR EXTERIOR WALL, FLOOR, OR ANY STRUCTURAL ASSEMBLY. PROPERLY FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES PER THE NEC AND ELECTRICAL SPECIFICATIONS.
11. PROVIDE SOUND STOP MATERIAL FOR ALL CONDUIT PENETRATIONS IN SOUND RATED WALL ASSEMBLIES.
12. ALL PULL BOXES SHALL BE SIZED AND INSTALLED PER ANSI-TIA-569-C. 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:

CONDUIT SIZE	WIDTH	LENGTH	DEPTH	WIDTH INCREASE PER ADDITIONAL CONDUIT
1"	4"	16"	3"	2"
2"	8"	36"	4"	5"
3"	12"	48"	5"	6"
4"	15"	60"	6"	8"

FOR OTHER CONDUIT SIZES REFER TO ANSI/TIA 569 C TABLE 12, LATEST PUBLISHED EDITION.

13. CONDUIT(S) SHALL EXIT A PULL BOX ON THE WALL OPPOSITE THE WALL ENTERED.
14. ALL PULL BOXES INSTALLED ON TOP OF ROOFS OR ATTACHED TO CANOPIES SHALL BE RATED NEMA-3R OR NEMA-4. PROVIDE QUANTITY AND SIZE OF PULL BOXES AS REQUIRED TO COMPLY WITH THESE GENERAL PATHWAY NOTES. PAINT BOXES TO MATCH SURROUNDING SURFACES.
15. ALL CONDUITS INSTALLED ON EXTERIOR OF BUILDINGS AND CANOPIES SHALL BE GALVANIZED. PAINT ALL CONDUITS TO MATCH SURROUNDING SURFACES.
16. PROVIDE LABELING OF EACH CONDUIT PER GENERAL ELECTRICAL SPECIFICATIONS.
17. PROVIDE INTERNAL/EXTERNAL GAS AND WATER TIGHT MECHANICAL SEALING/PLUGGING OF EACH UNDERGROUND BUILDING ENTRY CONDUIT AS SPECIFIED ELSEWHERE IN THE DRAWINGS AND SPECIFICATIONS.
18. ALL CONDUITS EXPOSED TO VIEW (I.E.: OPEN CEILING SPACES) SHALL BE PAINTED TO MATCH SURROUNDING SURFACES. CONDUITS INSTALLED ABOVE HARD CEILINGS OR INACCESSIBLE CEILINGS ARE EXEMPT FROM PAINTING.
19. ELECTRICAL CONTRACTOR SHALL REFERENCE ALL E-SERIES, T-SERIES AND AV-SERIES SHEETS FOR ADDITIONAL CONDUIT REQUIREMENTS.

SHEET INDEX

T0.01	LEGEND, SYMBOLS & NOTES
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T1.02	TECHNOLOGY DEMOLITION PLAN
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T4.01	TECHNOLOGY BLOCK DIAGRAMS
T5.01	TECHNOLOGY DETAILS
T5.02	TECHNOLOGY DETAILS

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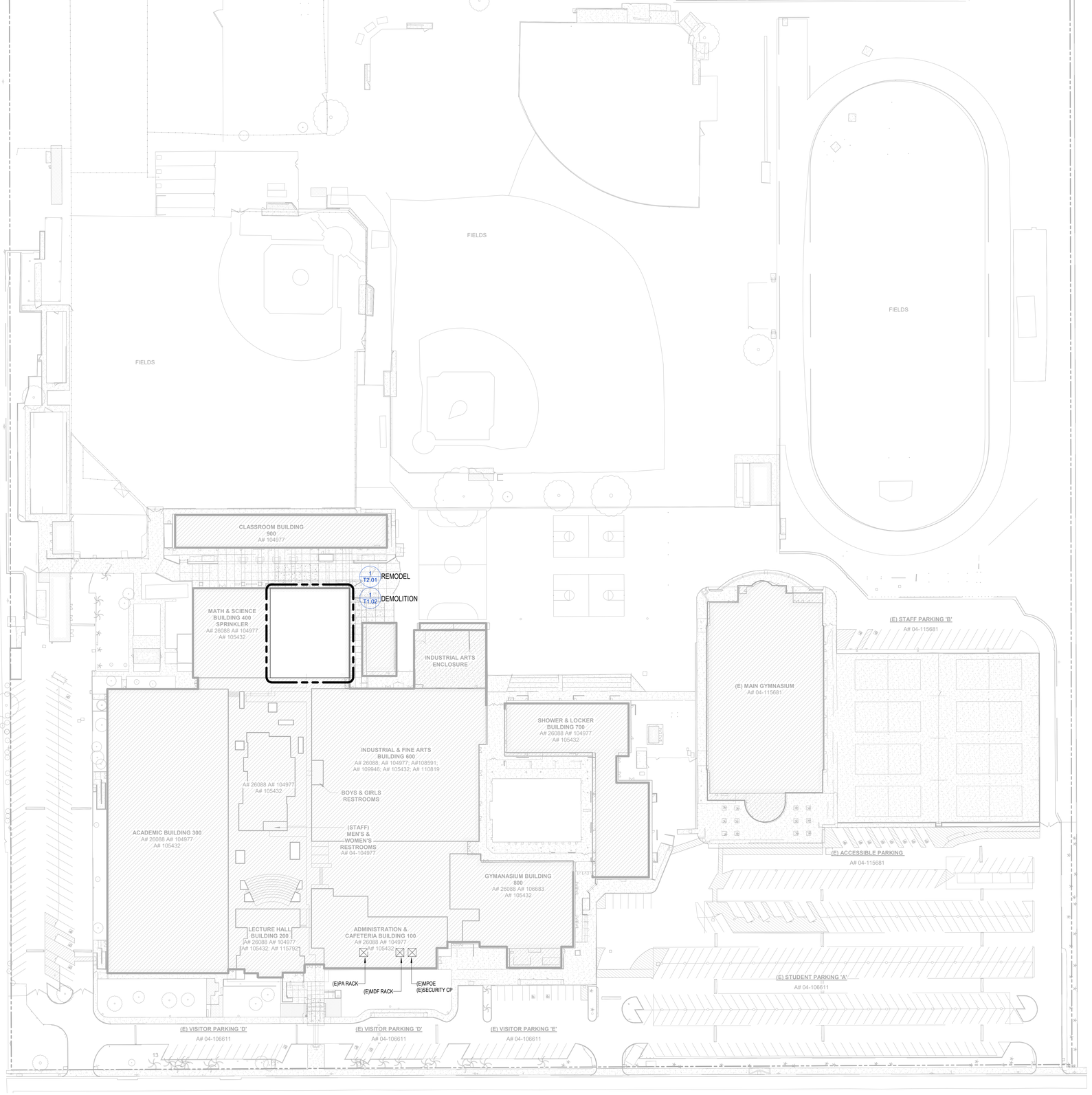
LEGEND, SYMBOLS & NOTES

T0.01



TECHNOLOGY SITE PLAN | 1" = 50'-0" | T0.10 | 1

N

KEYNOTES

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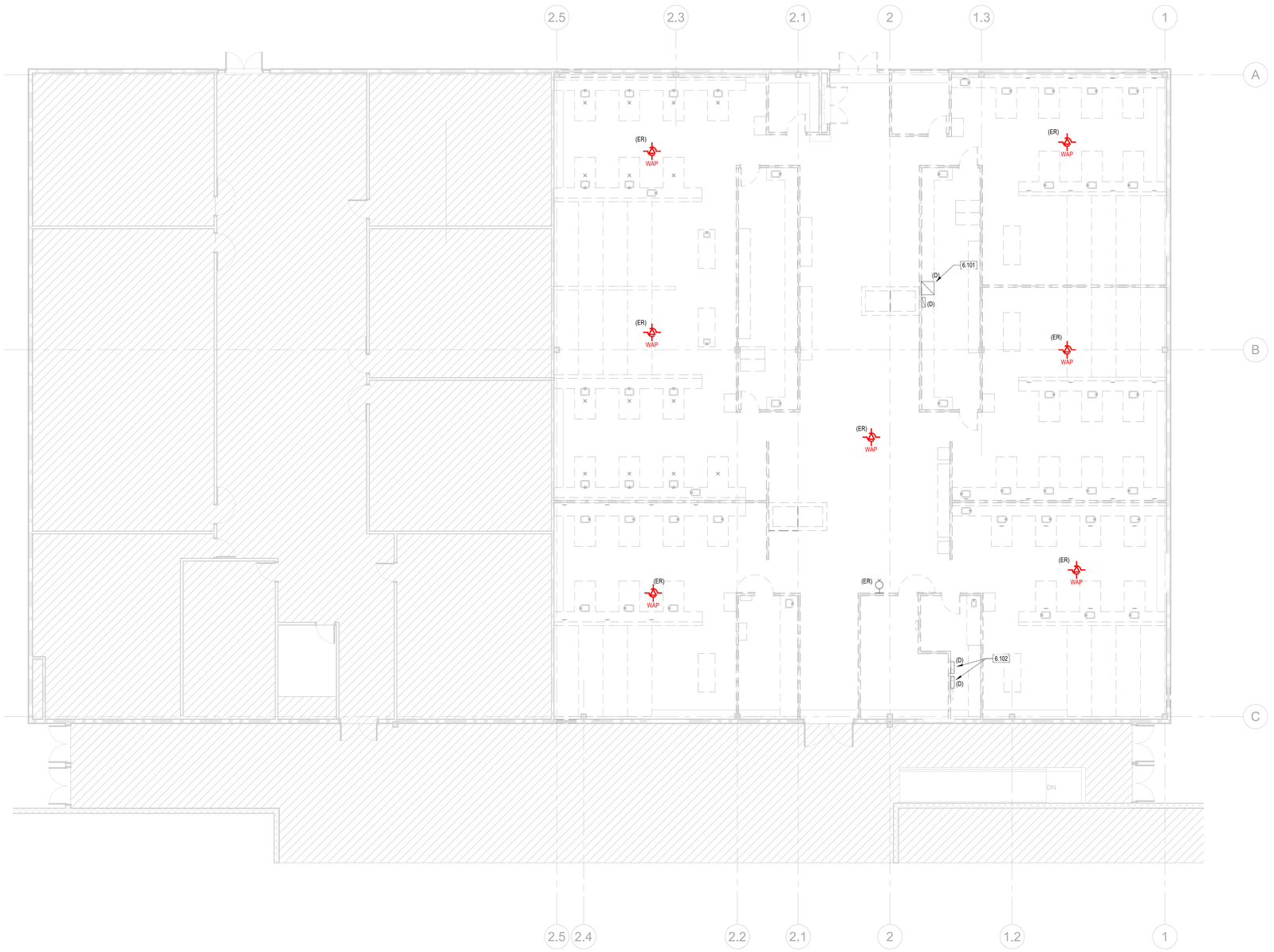
TECHNOLOGY SITE PLAN

T0.10



KEYNOTES

6.101 REMOVE TWO (2) EXISTING WALL MOUNTED IDF CABINETS AND WALL MOUNTED UPS EQUIPMENT. RETURN ALL EQUIPMENT TO DISTRICT. DEMOLISH EXISTING FIBER OPTIC BACKBONE CABLE BACK TO TERMINATION POINT AT MDF.

6.102 DEMOLISH COMPLETE TWO (2) EXISTING SIGNAL CABINETS. DEMO ALL PUBLIC ADDRESS SYSTEM PUNCH BLOCKS AND CONDUCTORS BACK TO POINTS OF FIELD TERMINATION. CONTRACTOR TO DEMOLISH ALL COAXIAL CABLE BACK TO POINTS OF TERMINATION AND HEADEND ORIGINATION. DEMO INTRUSION ALARM SYSTEM COMPONENTS AND CONDUCTORS BACK TO POINTS OF FIELD TERMINATION AND BACK TO HEADEND ORIGINATION.

DEMOLITION GENERAL NOTES:

1. DISCONNECT ALL EXISTING WIRELESS ACCESS POINT ELECTRONICS LOCATED WITHIN THE DEMO AREA AND SAFELY STORE THEM FOR REINSTALLATION DURING CONSTRUCTION PHASE.

2. DEMOLISH ALL PUBLIC ADDRESS SYSTEM SPEAKERS AND ASSOCIATED CABLING.

3. DEMOLISH INTRUSION ALARM SYSTEM KEYPAD, WALL AND CEILING MOUNTED DETECTION DEVICES AND ASSOCIATED CABLING.

4. DEMOLISH ALL LAN / PHONE SYSTEM OUTLETS, AND CABLING BACK TO IDF CABINETS.

5. REMOVE ALL EXISTING INTERIOR VIDEO SURVEILLANCE CAMERAS AND RETURN TO OWNER. DEMOLISH ASSOCIATED CAMERA CABLING.

6. CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO NOT DISRUPT OTHER SYSTEMS LOCATED OUTSIDE THE DEMOLITION SCOPE AREA OF THIS PROJECT.

TECHNOLOGY DEMOLITION PLAN | 1/8" = 1'-0" | T1.02 | 1

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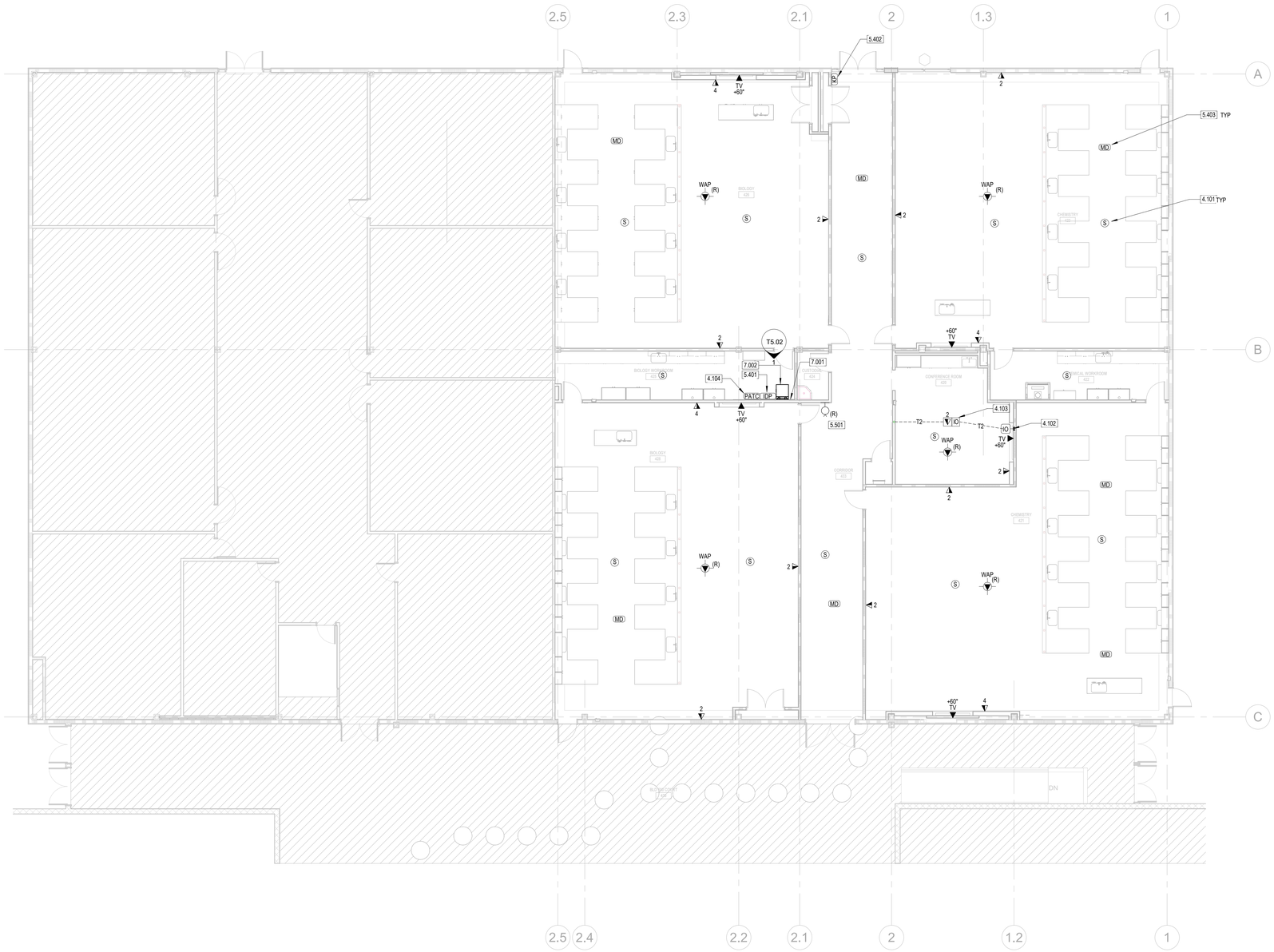
TECHNOLOGY DEMOLITION PLAN

T1.02



KEYNOTES

4.101 CEILING MOUNTED PUBLIC ADDRESS SYSTEM SPEAKER WITH CONDUCTORS. REFER TO SPECIFICATIONS AND SYSTEM BLOCK DIAGRAM FOR MORE INFORMATION.

4.102 HDMI INPUT PLATE WITH 4S DEEP BOX MOUNTED BEHIND TV AND 1.25"C AS SHOWN. REFER TO FACEPLATE DETAILS FOR MORE INFORMATION.

4.103 HDMI INPUT PLACE INSIDE E.C.-PROVIDED FLOOR BOX WITH HDMI CABLE TO HDMI PLATE LOCATED BEHIND TV. COORDINATE WITH E.C. IN FIELD. REFER TO FACEPLATE DETAILS FOR MORE INFORMATION.

4.104 WALL MOUNTED PUBLIC ADDRESS SYSTEM TERMINAL CABINET COMPLETE WITH TERMINAL BLOCK, ETCETERA, AS REQUIRED. REFER TO PA SYSTEM SPECIFICATIONS AND BLOCK DIAGRAM FOR MORE INFORMATION. MOUNT CLOSE TO CEILING.

5.401 INTRUSION ALARM TERMINAL CABINET COMPLETE WITH POWER SUPPLY, ZONE EXPANDERS, POPITS, TERMINAL BLOCK, BATTERY, ETCETERA FOR A COMPLETE SYSTEM. REFER TO SPECIFICATIONS. COORDINATE FINAL MOUNTING LOCATION IN FIELD.

5.402 WALL MOUNTED ARM-DISARM KEYPAD. REFER TO SPECIFICATIONS AND SYSTEM BLOCK DIAGRAM FOR MORE INFORMATION.

5.403 CEILING MOUNTED MOTION SENSOR WITH CONDUCTORS. REFER TO SPECIFICATIONS AND SYSTEM BLOCK DIAGRAM FOR MORE INFORMATION.

5.501 REINSTALL EXISTING VIDEO SURVEILLANCE CAMERA. VERIFY LOCATION IN FIELD WITH OWNER PRIOR TO ROUGH-IN. REFER TO LAN SYSTEM BLOCK DIAGRAM FOR MORE INFORMATION.

7.001 PAINTED PLYWOOD BACKBOARD 8-FT HIGH X 8-FT WIDE X 3/4"D. MOUNT 12 INCHES AFF.

7.002 WALL MOUNTED 24"W X 48"H X 30"D IDF CABINET COMPLETE. REFER TO SPECIFICATIONS AND BLOCK DIAGRAM FOR MORE INFORMATION. MOUNT 18 INCHES AFF.

ASSISTIVE LISTENING SYSTEM (ALS) GENERAL NOTE -
PROVIDE ASSISTIVE LISTENING SYSTEM EQUIPMENT FOR THE REMODEL AREA. REFER TO ALS SYSTEM INFORMATION ON T4.01.

TECHNOLOGY FLOOR PLAN | 1/8" = 1'-0" T2.01 | 1

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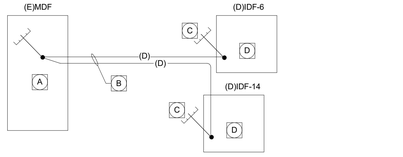
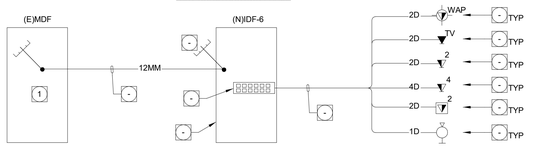
TECHNOLOGY FLOOR PLAN

T2.01





DEMOLITION KEY NOTES:

A EXISTING FLOOR MOUNTED MDF CABINET TO REMAIN PROTECTED IN PLACE. VERIFY LOCATION IN FIELD. DISCONNECT FIBER BACKBONE CABLES THAT FEED IDF-6 AND IDF-14. ALL OTHER FIBER CABLES TO REMAIN PROTECTED IN PLACE.

B COMPLETELY REMOVE EXISTING FIBER BACKBONE CABLE FEEDING EXISTING IDF-6 AND IDF-14.

C DISCONNECT EXISTING FIBER FROM RACK MOUNT FIBER ENCLOSURE. RETURN ENCLOSURE TO DISTRICT I.T. STAFF.

D REMOVE EXISTING IDF CABINET(S) COMPLETE AND RETURN ALL EQUIPMENT TO DISTRICT I.T. STAFF. REFER TO DEMOLITION FLOOR PLANS FOR ADDITIONAL INFORMATION.

NEW CONSTRUCTION KEY NOTES:

1 WAL MOUNTED IDF CABINET PER SPECIFICATIONS. ELECTRONICS ARE OWNER FURNISHED CONTRACTOR INSTALLED. COORDINATE WITH OWNER IN FIELD FOR PLACEMENT OF EQUIPMENT.

2 PROVIDE 48 PORT RACK MOUNT CAT-6A PATCH PANEL(S), QUANTITY AS REQUIRED TO TERMINATE ALL CABLES ON THIS PROJECT. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. COORDINATE FINAL PLACEMENT IN RACK WITH OWNER IN FIELD PRIOR TO ROUGH-IN.

3 CATEGORY-6A UTP 4-PAIR CABLE(S) PER SPECIFICATIONS. CABLE QUANTITIES AT EACH DEVICE AS INDICATED.

4 ABOVE-CEILING MOUNTED OUTLET FOR INTERIOR WIRELESS ACCESS POINT (WAP). QUANTITY AND LOCATIONS PER PLANS. REFER TO FACE PLATE DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

5 WALL MOUNTED DATA OUTLET FOR TV MONITOR. QUANTITY AND LOCATIONS PER PLANS. REFER TO FACE PLATE DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

6 DUAL DATA OUTLET. QUANTITY AND LOCATIONS PER PLANS. REFER TO FACE PLATE DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

7 QUAD DATA OUTLET. QUANTITY AND LOCATIONS PER PLANS. REFER TO FACE PLATE DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

8 FLUSH FLOOR DATA OUTLET. QUANTITY AND LOCATIONS PER PLANS. REFER TO FACE PLATE DETAILS AND SPECIFICATIONS FOR MORE INFORMATION.

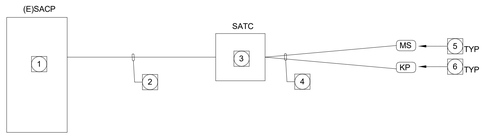
9 VIDEO SURVEILLANCE CAMERA, OWNER FURNISHED CONTRACTOR INSTALLED. QUANTITY AND LOCATIONS PER PLANS. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

CABLE SCHEDULE

DESIGNATOR	CABLE QUANTITY AND TYPE
1D	ONE (1) CATEGORY-6A UTP 4-PAIR CABLE
2D	TWO (2) CATEGORY-6A UTP 4-PAIR CABLES
4D	FOUR (4) CATEGORY-6A UTP 4-PAIR CABLES
12MM	12 STRAND 50-MICRON OM4 MULTIMODE FIBER OPTIC CABLE PLENUM

1 LAN SYSTEM BLOCK DIAGRAM

SCALE: 12" = 1'-0"



SECURITY ALARM SYSTEM BLOCK DIAGRAM KEY NOTES:

1 EXISTING SECURITY ALARM SYSTEM CABINET AND DMP PANEL XR550. MODIFY AS REQUIRED TO ACCOMMODATE ALL DEMOLITION AND NEW CONSTRUCTION WORK ON THIS PROJECT. PROVIDE ADDITIONAL ZONE EXPANDERS, TERMINALS, ETCETERA, AS REQUIRED FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.

2 BUS BACKBONE CABLING PER SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS. CABLE SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED, PER NEC.

3 SECURITY TERMINAL CABINET COMPLETE WITH POWER SUPPLY, BATTERY, ZONE EXPANDERS, POPITS, ETCETERA AS REQUIRED. REFER TO FLOOR PLAN FOR LOCATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

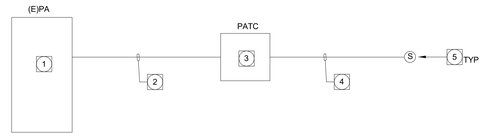
4 DEVICE CABLING PER SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS. CABLE SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED, PER NEC.

5 CEILING MOUNTED SECURITY SYSTEM MOTION DETECTION DEVICE. QUANTITY AND LOCATIONS PER PLANS. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

6 WALL MOUNTED SECURITY SYSTEM ARM-DISARM KEYPAD DEVICE. QUANTITY AND LOCATIONS PER PLANS. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

3 SECURITY ALARM SYSTEM BLOCK DIAGRAM

SCALE: 12" = 1'-0"



PUBLIC ADDRESS DIAGRAM KEY NOTES:

1 EXISTING PUBLIC ADDRESS SYSTEM HEADEND CABINET. MODIFY AS REQUIRED TO ACCOMMODATE ALL DEMOLITION AND NEW CONSTRUCTION WORK ON THIS PROJECT. PROVIDE ADDITIONAL AMPLIFIERS AS REQUIRED FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.

2 MULTIPAIR SPEAKER CABLING PER SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS. CABLE SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED, PER NEC.

3 PUBLIC ADDRESS TERMINAL CABINET COMPLETE WITH TERMINAL STRIPS, ETCETERA AS REQUIRED. REFER TO FLOOR PLAN FOR LOCATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

4 SPEAKER CABLING PER SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS. CABLE SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED, PER NEC.

5 CEILING MOUNTED PUBLIC ADDRESS SYSTEM SPEAKER AND BACKBOX. QUANTITY AND LOCATIONS PER PLANS. REFER TO SPEAKER MOUNTING DETAIL AND SPECIFICATIONS FOR MORE INFORMATION.

2 PUBLIC ADDRESS SYSTEM BLOCK DIAGRAM

SCALE: 12" = 1'-0"

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TECHNOLOGY BLOCK DIAGRAMS

T4.00

ASSISTIVE LISTENING SYSTEM CALCULATIONS NOTE:

DEVICE QUANTITIES ARE BASED ON CBC 11B-219.3 EXCEPTION 1, AND APRIL 2020 DSA CODE APPEAL INTERPRETATION :

"FOR EACH SCHOOL, PROVIDE 2 PORTABLE ASSISTIVE LISTENING SYSTEMS, EACH WITH A TRANSMITTER AND A MINIMUM OF 2 RECEIVERS FOR USE IN CLASSROOMS WITHOUT AUDIO AMPLIFICATION. THE ASSISTIVE LISTENING RECEIVERS AND TRANSMITTER SHALL BE STORED IN THE SCHOOL SITE ADMINISTRATION OFFICE UNTIL REQUESTED.

"IN ADDITION, PROVIDE AN ASSISTIVE LISTENING SYSTEM FOR ASSEMBLY AREAS SUCH AS MULTI-PURPOSE ROOMS, CAFETERIAS, LECTURE HALLS OR OTHER ASSEMBLY AREAS. IF THE ROOM HAS NO FIXED SEATING, CALCULATE THE NUMBER OF SEATS USING 7 SF PER OCCUPANT. PROVIDE 4% OF ASSISTIVE LISTENING RECEIVERS FOR TOTAL NUMBER OF SEATS IN EACH ASSEMBLY AREA, BUT NO LESS THAN 2. THE ASSISTIVE LISTENING RECEIVERS SHOULD BE STORED IN OR NEAR THE ASSEMBLY AREA."

FOR THE SCIENCE BUILDING REMODEL, PROVIDE THE FOLLOWING ALS EQUIPMENT:

QTY.	DESCRIPTION
(1)	LK-1 LISTEN TALK TRANSCEIVER
(3)	LK-1 LISTEN TALK RECEIVER WITH LA-401 EAR SPKR
(1)	LA-452 HEADSET 2 (OVER HEAD W/ MIC)
(2)	LA-438 ADVANCED INDUCTION NECK LOOPS
(4)	LA-445-BK BREAKAWAY LANYARD
(1)	LA-423 4-PORT USB CHARGER
(1)	LA-436 MIC INPUT/HEADPHONE OUTPUT CABLE
(4)	LA-365 RECHARGEABLE BATT. AA (2-PACK)

ADDITIONAL REQUIRED ITEMS:

(1)	LA-483 SOFT SHELL CASE 4
(1)	LA-304 ALS NOTIFICATION SIGNAGE KIT

ASSISTIVE LISTENING SYSTEM SPECIFICATION AND NOTES:

1. PROVIDE COMPLETE PORTABLE ASSISTIVE LISTENING SYSTEM(S) (ALS) WITH ALL CABLES, DEVICES, EQUIPMENT, RECHARGEABLE BATTERIES, CHARGING/CARRYING CASES, ANTENNAS, COMPONENTS, TERMINATIONS AND TESTING FOR COMPLETE AND OPERABLE SYSTEM.
2. DRAWINGS AND LAYOUTS ARE PRIMARILY DIAGRAMMATIC, CONTRACTOR IS RESPONSIBLE FOR FINAL FOOTAGES AND EXACT LOCATIONS.
3. THE ALS SYSTEM SHALL ACCOMMODATE A MINIMUM OF 4% OF TOTAL NUMBER OF SEATS, AS SHOWN ON THE ARCHITECTURAL DRAWINGS AND NOTED IN THE ALS CALCULATION TABLE.
4. QUANTITY OF PORTABLE RECEIVERS REQUIRED SHALL BE CALCULATED PER 2022 CALIFORNIA BUILDING CODE (CBC) 11B-219.3 RECEIVERS EXCEPTION #1 WHICH STATES, "WHERE A BUILDING CONTAINS MORE THAN ONE ASSEMBLY AREA AND THE ASSEMBLY AREAS REQUIRED TO PROVIDE ASSISTIVE LISTENING SYSTEMS ARE UNDER ONE MANAGEMENT, THE TOTAL NUMBER OF REQUIRED RECEIVERS SHALL BE PERMITTED TO BE CALCULATED ACCORDING TO THE TOTAL NUMBER OF SEATS IN THE ASSEMBLY AREAS IN THE BUILDING PROVIDED THAT ALL RECEIVERS ARE USABLE WITH ALL SYSTEMS."
5. EQUIPMENT NUMBERS ABOVE ARE SHOWN FOR REFERENCE. CONTRACTOR IS RESPONSIBLE TO MATCH EXISTING ALS MANUFACTURER AND MODEL ON CAMPUS. PROVIDE MOST CURRENT PRODUCT MODELS AND PART NUMBERS. CONTRACTOR SHALL COORDINATE DIRECTLY WITH OWNER IN FIELD.
6. CONTRACTOR TO PROVIDE ANTENNA(S) AND ASSOCIATED ACCESSORIES/HARDWARE AS REQUIRED, FOR COMPLETE COVERAGE WITHIN ENTIRE PROJECT AREA.
7. PROVIDE ALS SIGNAGE IN THE QUANTITIES AND LOCATIONS AS INDICATED IN ARCHITECTURAL DRAWINGS, AND AS REQUIRED BY 2022 CBC AND 2010 ADA STANDARDS.
8. PROVIDE MANUFACTURER'S 3 YEAR (MINIMUM) WARRANTY FOR ALL PORTABLE TRANSMITTERS AND RECEIVERS.
9. PRIOR TO ORDERING ALS EQUIPMENT, CONTRACTOR SHALL PERFORM A RADIO FREQUENCY (RF) TEST TO DETERMINE AND IDENTIFY ANY POTENTIAL RECEIVED RF INTERFERENCE. CONTRACTOR SHALL BE RESPONSIBLE TO SELECT ALS SYSTEM RADIO FREQUENCIES (72 MHZ OR 216 MHZ) THAT DO NOT RECEIVE RF INTERFERENCE FROM OTHER BUILDING SYSTEMS SUCH AS LIGHTING, POWER, GENERATORS, HVAC, COMPUTERS, AUDIO, PAGING, ETCETERA. FINAL SYSTEM TESTING SHALL BE CONDUCTED WITH ALL BUILDING SYSTEMS TURNED ON TO VERIFY THE ALS SYSTEM IS FREE OF INTERFERENCE. IF RF INTERFERENCE IS DETECTED WITHIN THE FIRST 30 DAYS AFTER PROJECT COMPLETION, CONTRACTOR SHALL REPLACE ALS EQUIPMENT WITH EQUIPMENT ON ANOTHER FREQUENCY AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL INCLUDE ALL COSTS IN BASE BID.
10. ANY PENETRATIONS THROUGH FIRE-RATED WALLS SHALL BE SEALED BY THE CONTRACTOR AS REQUIRED BY THE 2022 CALIFORNIA ELECTRICAL CODE AND AS DIRECTED BY, AND TO THE SATISFACTION OF, THE OWNER'S PROJECT MANAGER.
11. THE ASSISTIVE LISTENING SYSTEM SIGNS SHALL BE PROVIDED BY THE CONTRACTOR. SIGNS SHALL COMPLY WITH ALS SIGN DETAIL ON A-SERIES OR G-SERIES SHEETS. THE ASSISTIVE LISTENING SYSTEM SIGNS SHALL ALSO MEET THE REQUIREMENTS AS SET FORTH IN THE FOLLOWING SECTION OF THE 2010 ADA STANDARDS:
    a. 216.10. ASSISTIVE LISTENING SYSTEMS. EACH ASSEMBLY AREA REQUIRED BY 219 TO PROVIDE ASSISTIVE LISTENING SYSTEMS SHALL PROVIDE SIGNS INFORMING PATRONS OF THE AVAILABILITY OF THE ASSISTIVE LISTENING SYSTEM. ASSISTIVE LISTENING SIGNS SHALL COMPLY WITH 703.5 AND SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESS FOR HEARING LOSS COMPLYING WITH 703.7.2.4.
    b. EXCEPTION: WHERE TICKET OFFICES OR WINDOWS ARE PROVIDED, SIGNS SHALL NOT BE REQUIRED AT EACH ASSEMBLY AREA PROVIDED THAT SIGNS ARE DISPLAYED AT EACH TICKET OFFICE OR WINDOW INFORMING PATRONS OF THE AVAILABILITY OF ASSISTIVE LISTENING SYSTEMS.
12. THE ASSISTIVE LISTENING SYSTEM SHALL CONFORM TO THE FOLLOWING SECTIONS OF 2022 CALIFORNIA BUILDING CODE (CBC):
    - 11B-706 ASSISTIVE LISTENING SYSTEMS
    - 11B-706.1 GENERAL. ASSISTIVE LISTENING SYSTEMS REQUIRED IN ASSEMBLY AREAS CONFERENCE AND MEETING ROOMS SHALL COMPLY WITH SECTION 11B-706.
    - 11B-706.2 RECEIVER JACKS. RECEIVERS REQUIRED FOR USE WITH AN ASSISTIVE LISTENING SYSTEM SHALL INCLUDE A 1/8 INCH (3.5MM) STANDARD MONO JACK.
    - 11B-706.3 RECEIVER HEARING-AID COMPATIBILITY. RECEIVERS REQUIRED TO BE HEARING-AID COMPATIBLE SHALL INTERFACE WITH TELECOILS IN HEARING AIDS THROUGH THE PROVISION OF NECK LOOPS.
    - 11B-706.4 SOUND PRESSURE LEVEL. ASSISTIVE LISTENING SYSTEMS SHALL BE CAPABLE OF PROVIDING A SOUND PRESSURE LEVEL OF 11O DB MINIMUM AND 118 DB MAXIMUM WITH A DYNAMIC RANGE ON THE VOLUME CONTROL OF 50 DB.
    - 11B-706.5 SIGNAL-TO-NOISE RATIO. THE SIGNAL-TO-NOISE RATIO FOR INTERNALLY GENERATED NOISE IN ASSISTIVE LISTENING SYSTEMS SHALL BE 18 DB MINIMUM.
    - 11B-706.6 PEAK CLIPPING LEVEL. PEAK CLIPPING SHALL NOT EXCEED 18 DB OF CLIPPING RELATIVE TO THE PEAKS OF SPEECH.

1 ASSISTIVE LISTENING SYSTEM SPEC AND INFO

SCALE: 12" = 1'-0"

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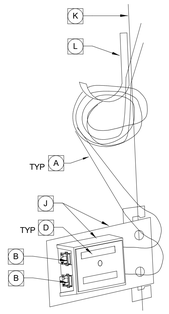
TECHNOLOGY BLOCK DIAGRAMS

T4.01

WHERE THE FOLLOWING SYMBOLS ARE INDICATED ON THE ELECTRICAL DRAWINGS, ARCHITECTURAL DRAWINGS AND/OR STRUCTURED CABLING SYSTEM DRAWINGS:

WAP

THE FOLLOWING SHALL BE PROVIDED, AS DEPICTED IN THE FOLLOWING DIAGRAMMATIC CONNECTIVITY DETAIL.



8 ABOVE CEILING WAP FACEPLATE

SCALE: 12" = 1'-0"

WHERE THE FOLLOWING SYMBOLS ARE INDICATED ON THE ELECTRICAL DRAWINGS ARCHITECTURAL DRAWINGS AND/OR STRUCTURED CABLING SYSTEM DRAWINGS:

IO IO

THE FOLLOWING SHALL BE PROVIDED, AS DEPICTED IN THE FOLLOWING DIAGRAMMATIC CONNECTIVITY DETAIL.

NOTE: INCLUDE ONE (1) HDMI CABLE AND CONNECT THE FLOOR BOX HDMI MEDIA INPUT PLATE TO THE HDMI PLATE LOCATED BEHIND THE WALL MOUNTED TELEVISION. INCLUDE ONE (1) DATA OUTLET AND CABLE IN EACH PLATE. INCLUDE ALL COSTS IN BASE BID.

9 HDMI FACEPLATES

SCALE: 12" = 1'-0"

FACEPLATE NOTES:

A. PROVIDE (1) CAT 6A, 4 PAIR UTP CABLE(S) TO IDF RACK/CABINET. TERMINATE STATION END(S) IN CAT-6A STATION CONNECTOR(S) PER DETAILS. TERMINATE RACK END(S) ON CAT-6A PATCH PANEL(S) PER SPECIFICATIONS.

B. PROVIDE DATA CAT-6A STATION CONNECTOR. COLOR OF JACK PER SPECIFICATIONS.

C. PROVIDE FACE PLATE. FACE PLATE MATERIAL AND FINISH SHALL MATCH ADJACENT OR NEARBY POWER FACE PLATES. FACE PLATES SHALL BE EQUIPPED WITH CLEAR WINDOWS FOR LABELING.

D. PROVIDE MACHINE GENERATED FACE PLATE LABELING PER SPECIFICATIONS.

E. BLANK INSERT. ALL UNUSED OPENINGS SHALL BE COVERED WITH A BLANK INSERT MATCHING THE COLOR OF THE FACEPLATE.

F. SURFACE-MOUNT, PLENUM-RATED TWO-PORT HOUSING (LEVITON 41089-2WP OR EQUAL). INSTALL IN E.C.-PROVIDED FLUSH BOX.

G. SINGLE PORT JACK BOX (AMP #1116697-1 OR EQUAL) WITH CAT-6A PATCH CORD. MOUNT INSIDE FLUSH WEATHERPROOF J-BOX.

H. DEVICE FRAME WITH FACEPLATE, MOUNT INSIDE FLOOR BOX. REFER TO FLOOR BOX MANUFACTURER'S REQUIREMENTS AND COORDINATE IN FIELD.

J. SURFACE-MOUNT, PLENUM-RATED TWO-PORT HOUSING (LEVITON 41089-2WP OR EQUAL). MOUNT TO CONTRACTOR-PROVIDED IN-CEILING BRACKET WITH MULTI-FUNCTION CLIP FOR ROD OR HANGER WIRE MOUNTING (LEVITON 49223-CBC OR EQUAL). PROVIDE 15FT SLACK LOOP ON J-HOOK MOUNTED ABOVE HOUSINGS. MOUNT HOUSING 9 TO 12 INCHES ABOVE ACCESSIBLE CEILING TILE.

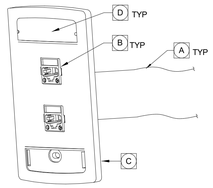
K. INSTALL DEDICATED SUSPENDED CEILING WIRE/HANGAR OR SUPPORT ROD/ROD HANGAR DIRECTLY TO STRUCTURAL CEILING ABOVE TO SUPPORT WAP SURFACE MOUNT HOUSING.

L. PROVIDE J-HOOK ABOVE ACCESSIBLE CEILING PER SPECIFICATIONS. J-HOOKS SHALL BE SPACED AT A MAXIMUM OF 5 FEET APART.

WHERE THE FOLLOWING SYMBOLS ARE INDICATED ON THE ELECTRICAL DRAWINGS, ARCHITECTURAL DRAWINGS AND/OR STRUCTURED CABLING SYSTEM DRAWINGS:

2 TV

THE FOLLOWING SHALL BE PROVIDED, AS DEPICTED IN THE FOLLOWING DIAGRAMMATIC CONNECTIVITY DETAIL.



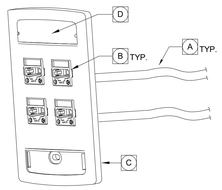
5 DUAL DATA FACEPLATE

SCALE: 12" = 1'-0"

WHERE THE FOLLOWING SYMBOLS ARE INDICATED ON THE ELECTRICAL DRAWINGS, ARCHITECTURAL DRAWINGS AND/OR STRUCTURED CABLING SYSTEM DRAWINGS:

4

THE FOLLOWING SHALL BE PROVIDED, AS DEPICTED IN THE FOLLOWING DIAGRAMMATIC CONNECTIVITY DETAIL.



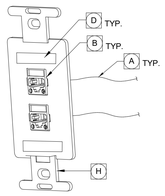
6 QUAD DATA FACEPLATE

SCALE: 12" = 1'-0"

WHERE THE FOLLOWING SYMBOLS ARE INDICATED ON THE ELECTRICAL DRAWINGS, ARCHITECTURAL DRAWINGS AND/OR STRUCTURED CABLING SYSTEM DRAWINGS:

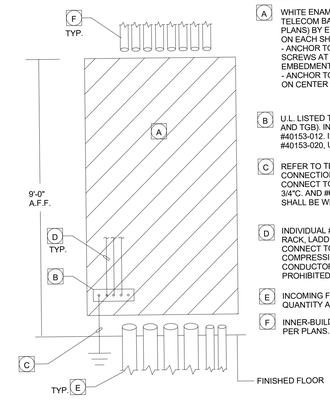
2

THE FOLLOWING SHALL BE PROVIDED, AS DEPICTED IN THE FOLLOWING DIAGRAMMATIC CONNECTIVITY DETAIL.



7 DUAL DATA FLOOR BOX

SCALE: 12" = 1'-0"



TELECOM BACKBOARD & GROUND BUS BAR DETAIL

BACKBOARD AND GROUNDING DETAIL NOTES:

A. WHITE ENAMEL PAINTED A/C GRADE FIRE RATED PLYWOOD TELECOM BACKBOARD, (8' HIGH x 3/4" THICK x WIDTH PER PLANS) BY E.C.. LEAVE ONE FIRE MARSHAL STAMP UNPAINTED ON EACH SHEET. MOUNT 6" ABOVE FINISHED FLOOR.
- ANCHOR TO WOOD STUD WALL WITH #14 TRUSS HEAD WOOD SCREWS AT 16" ON CENTER. EDGE AND FIELD MINIMUM EMBEDMENT 2" INTO STUDS.
- ANCHOR TO METAL STUD WALL WITH #12 SMS SCREWS AT 16" ON CENTER AT EDGE AND FIELD.

B. U.L. LISTED TELECOMMUNICATIONS GROUND BUS BAR (TMGB AND TGB). IN IDF AND MDF ROOMS PROVIDE TGB, CHATSWORTH #40153-012. IN MPOE ROOMS PROVIDE TMGB CHATSWORTH #40153-020, U.O.N. ON PLANS.

C. REFER TO TELECOM RISER AND GROUNDING DIAGRAM FOR CONNECTION OF TMGB TO MAIN ELECTRICAL SERVICE GROUND. CONNECT TGB'S TO ELECTRICAL PANEL GROUND BUS WITH 3/4"C. AND #6AWG GROUND CONDUCTOR. ALL CONNECTIONS SHALL BE WITH 2-HOLE COMPRESSION LUGS.

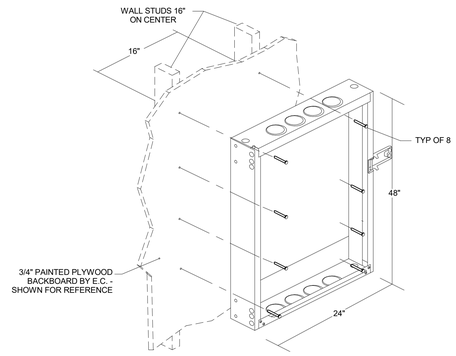
D. INDIVIDUAL #6AWG GROUND CONDUCTORS TO EACH CABINET, RACK, LADDER TRAY, CONDUIT, ETC. BY SCS CONTRACTOR. CONNECT TO EQUIPMENT AND TO GROUND BUS BAR VIA 2-HOLE COMPRESSION LUGS ONLY. DAISY-CHAINING OF GROUND CONDUCTOR TO MORE THAN ONE PIECE OF EQUIPMENT IS PROHIBITED.

E. INCOMING FEED CONDUITS AND INNER-BUILDING CONDUITS. QUANTITY AND SIZE PER PLANS.

F. INNER-BUILDING CONDUITS AND SLEEVES. QUANTITY AND SIZE PER PLANS.

1 BACKBOARD AND TELECOM GROUND BUSBAR

SCALE: NOT TO SCALE



GENERAL NOTES:

1. THE REAR FRAME MUST BE SECURED TO WALL AT (8) LOCATIONS AND ARE INTENDED TO GO THROUGH 3/4" PLYWOOD BACKBOARD INTO WALL STUD:

   METAL STUD: PROVIDE #14 x 3" SMS WITH HEX WASHER HEADS CENTERED ON METAL WALL STUDS, 6 TOTAL, 3 PER STUD EQUALLY SPACED.

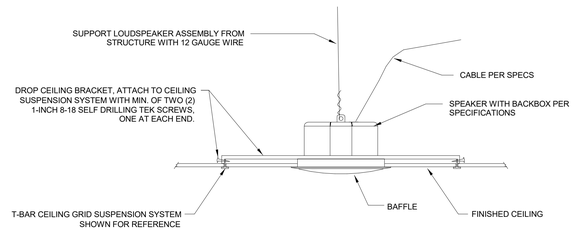
   WOOD STUD: PROVIDE 3/8" DIAMETER X 4" LAG SCREWS AND WASHERS CENTERED ON WOOD WALL STUDS, WITH 2.5" EFF STUD EMBEDMENT, 8 TOTAL, 4 PER STUD EQUALLY SPACED.

2. CONTRACTOR TO INSTALL CABINET TO BACKBOARD. E.C. TO INSTALL PAINTED PLYWOOD BACKBOARD PER ELECTRICAL SPECIFICATIONS.

3. DIMENSIONS: 24"W X 48"H X 30"D. MAXIMUM WEIGHT: 600 POUNDS

3 48" CABINET WALL MOUNTING DETAIL

SCALE: NOT TO SCALE



MAXIMUM INSTALLED WEIGHT 5.75 LBS

ANCHORAGE TO CEILING GRID COMPLIES WITH DSA IR 25-2, SECTION 1.9 AND 1.8.1 REQUIREMENTS.

4 PUBLIC ADDRESS SYSTEM CEILING SPEAKER DETAIL

SCALE: NOT TO SCALE

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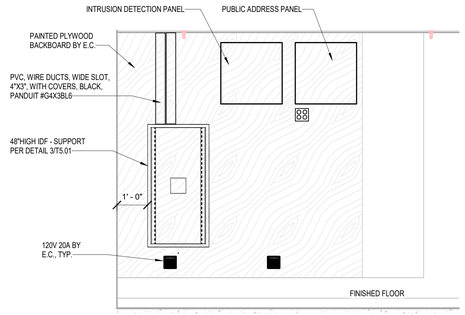
TECHNOLOGY DETAILS

T5.01



1 IDF BACKBOARD ELEVATION

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

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