ARTIST RENDITION, ONLY

LAKE HAVASU CITY WATER QUALITY LABORATORY

LAKE HAVASU CITY PUBLIC WORKS
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

DRAWING INDEX

GENERAL

SHEET #	SHEET NAME	CITY REVIEW - 1st	BID DATE
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G003	IBC CODE ANALYSIS - PLAN & DETAILS	APRIL 2, 2025	APRIL 21, 2025
G004	IBC CODE ANALYSIS - WRITTEN	APRIL 2, 2025	APRIL 21, 2025
G005	WALL TYPE DETAILS	APRIL 2, 2025	APRIL 21, 2025
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SHEET #	SHEET NAME	CITY REVIEW - 1st	BID DATE
C-1	TITLE SHEET	APRIL 2, 2025	APRIL 21, 2025
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ARCHITECTURAL

SHEET #	SHEET NAME	CITY REVIEW - 1st	BID DATE
A101	LEVEL 1 - SLAB PLAN	APRIL 2, 2025	APRIL 21, 2025
A102	LEVEL 1 - FLOOR PLAN - DIMENSIONS	APRIL 2, 2025	APRIL 21, 2025
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A104	REFLECTED CEILING PLAN	APRIL 2, 2025	APRIL 21, 2025
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A201	EXTERIOR ELEVATIONS	APRIL 2, 2025	APRIL 21, 2025
A202	EXTERIOR ELEVATIONS	APRIL 2, 2025	APRIL 21, 2025
A301	BUILDING SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A302	BUILDING SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A303	BUILDING SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A304	BUILDING SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A305	WALL SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A306	WALL SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A307	WALL SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A308	WALL SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A309	WALL SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A310	WALL SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A311	WALL SECTIONS	APRIL 2, 2025	APRIL 21, 2025
A401	ENLARGED PLANS / ELEVATIONS	APRIL 2, 2025	APRIL 21, 2025
A402	INTERIOR ELEVATIONS	APRIL 2, 2025	APRIL 21, 2025
A403	INTERIOR ELEVATIONS	APRIL 2, 2025	APRIL 21, 2025
A404	INTERIOR ELEVATIONS	APRIL 2, 2025	APRIL 21, 2025
A405	INTERIOR ELEVATIONS	APRIL 2, 2025	APRIL 21, 2025
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A501	DETAILS	APRIL 2, 2025	APRIL 21, 2025
A502	DETAILS	APRIL 2, 2025	APRIL 21, 2025
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A602	WINDOW ELEVATIONS	APRIL 2, 2025	APRIL 21, 2025
A603	WINDOW ELEVATIONS	APRIL 2, 2025	APRIL 21, 2025
A604	WINDOW DETAILS	APRIL 2, 2025	APRIL 21, 2025

STRUCTURAL

SHEET #	SHEET NAME	CITY REVIEW - 1st	BID DATE
S0.1	GENERAL STRUCTURAL NOTES AND ABBREVIATIONS	APRIL 2, 2025	APRIL 21, 2025
S0.2	GENERAL STRUCTURAL NOTES - CONTINUED	APRIL 2, 2025	APRIL 21, 2025
S0.3	SCHEDULES AND NOTES	APRIL 2, 2025	APRIL 21, 2025
S0.4	TYPICAL DETAILS	APRIL 2, 2025	APRIL 21, 2025
S0.5	TYPICAL DETAILS	APRIL 2, 2025	APRIL 21, 2025
S1.1	FOUNDATION PLAN	APRIL 2, 2025	APRIL 21, 2025
S2.1	LOW ROOF FRAMING PLAN	APRIL 2, 2025	APRIL 21, 2025
S2.2	HIGH ROOF FRAMING PLAN	APRIL 2, 2025	APRIL 21, 2025
S3.1	FOUNDATION DETAILS	APRIL 2, 2025	APRIL 21, 2025
S4.1	FRAMING DETAILS	APRIL 2, 2025	APRIL 21, 2025

MECHANICAL

SHEET #	SHEET NAME	CITY REVIEW - 1st	BID DATE
M0.1	MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS	APRIL 2, 2025	APRIL 21, 2025
M2.1	LEVEL 1 MECHANICAL PLAN	APRIL 2, 2025	APRIL 21, 2025
M2.2	MECHANICAL & PLUMBING ROOF PLAN	APRIL 2, 2025	APRIL 21, 2025
M5.1	MECHANICAL SCHEDULES AND DETAILS	APRIL 2, 2025	APRIL 21, 2025
M5.2	MECHANICAL DETAILS	APRIL 2, 2025	APRIL 21, 2025
TECH-1	K-TECH DRAWINGS	APRIL 2, 2025	APRIL 21, 2025
TECH-2	K-TECH DRAWINGS	APRIL 2, 2025	APRIL 21, 2025

PLUMBING

SHEET #	SHEET NAME	DATE CREATED	BID DATE
P0.1	PLUMBING NOTES, SYMBOLS AND ABBREVIATIONS	APRIL 2, 2025	APRIL 21, 2025
P2.1	PLUMBING FLOOR PLAN	APRIL 2, 2025	APRIL 21, 2025
P5.1	PLUMBING SCHEDULES AND DETAILS	APRIL 2, 2025	APRIL 21, 2025
P5.2	PLUMBING DETAILS	APRIL 2, 2025	APRIL 21, 2025

ELECTRICAL

SHEET #	SHEET NAME	DATE CREATED	BID DATE
E0.0	ELECTRICAL SCHEDULE AND NOTES	APRIL 2, 2025	APRIL 21, 2025
E1.0	LIGHTING PLAN	APRIL 2, 2025	APRIL 21, 2025
E2.0	POWER PLAN	APRIL 2, 2025	APRIL 21, 2025
E3.0	ROOF ELECTRICAL PANELS	APRIL 2, 2025	APRIL 21, 2025
E4.0	ELECTRICAL PANELS AND RISER DIAGRAM	APRIL 2, 2025	APRIL 21, 2025
E5.0	ELECTRICAL DETAILS	APRIL 2, 2025	APRIL 21, 2025
E6.0	ELECTRICAL SPECIFICATIONS	APRIL 2, 2025	APRIL 21, 2025
E7.0	COMPLIANCE REPORTS	APRIL 2, 2025	APRIL 21, 2025

PROJECT TEAM

ARCHITECT:
THINK ARCHITECTURE:
7927 SOUTH HIGH POINT WAY, SUITE 300
SANDY, UT. 84094
801.269.0055

STRUCTURAL ENGINEER:
WRIGHT STRUCTURAL ENGINEERS
9160 SOUTH 300 WEST, SUITE 2
SANDY, UT. 84070
801.352-2001

MECHANICAL ENGINEER:
B & D ENGINEERING
9710 SOUTH 700 EAST, SUITE 201
SANDY, UT. 84070
801 685-8081

ELECTRICAL ENGINEER:
MAXX ENGINEERING
P.O. BOX 1404
BLACKFOOT, IDAHO 83221
801 664-5440

CIVIL ENGINEER:
LAKE HAVASU PUBLIC WORKS DEPT.
900 LONDON BRIDGE ROAD
LAKE HAVASU CITY, AZ. 86403
928 680-5460

LANDSCAPE ARCHITECT:
LAKE HAVASU PUBLIC WORKS DEPT.
900 LONDON BRIDGE ROAD
LAKE HAVASU CITY, AZ. 86403
928 680-5460

GENERAL CONTRACTOR:
--- TO BE DETERMINED ---
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.

OWNER:
LAKE HAVASU CITY
2330 MCCULLOCH BLVD. NORTH
LAKE HAVASU CITY, AZ. 86403
928-855-2116

FIRE DEPARTMENT:
LAKE HAVASU CITY
2330 MCCULLOCH BLVD. NORTH
LAKE HAVASU CITY, AZ. 86403
928-855-1141

SEAL

GOVERNING BUILDING CODES & INFORMATION

BUILDING CODE:	2021 INTERNATIONAL BUILDING CODE (I.B.C.) WITH ARIZONA STATE AMENDMENTS	MECHANICAL CODE:	2021 INTERNATIONAL MECHANICAL CODE (I.M.C.)
PLUMBING CODE:	2021 INTERNATIONAL PLUMBING CODE (I.P.C.)	FIRE CODE:	2021 INTERNATIONAL FIRE CODE (I.F.C.)
ELECTRICAL CODE:	2020 NATIONAL ELECTRICAL CODE (N.E.C.)	ENERGY CONSERVATION:	2021 INTERNATIONAL ENERGY CONSERVATION CODE COMMERCIAL (I.E.C.C.)
ACCESSIBILITY:	2017 ANSI 117.1 & 2015 I.B.C.		

OCCUPANCY GROUP:	B	BUILDING TYPE:	TYPE V-B	BUILDING TYPE:	TYPE V-B
FIRE SPRINKLERD:	YES	FIRE SPRINKLER TYPE:	NFPA 13	ADDRESSABLE FIRE ALARM:	YES
RISK CATEGORY (TABLE 1604.5):	II	SITE EXPOSURE:	C	V = BASIC WIND SPEED:	90 MPH
				Vasd = ALLOWABLE STRESS DESIGN:	115 MPH

MATERIALS: CMU FOUNDATION WALLS ON CONCRETE FOOTINGS. CONCRETE SLAB ON GRADE OVER COMPACTED GRANULAR FILL. CMU EXTERIOR WALLS: METAL CLADDED OR EXPOSED. PLYWOOD SHEATHING OVER WOOD FRAMED ROOFING SYSTEM. TPO AND METAL ROOFING ON LOW-SLOPE ROOFS.

DEFERRED SUBMITTAL REQUIREMENTS

DEFERRED SUBMITTALS ARE THOSE PORTIONS OF DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE PERMIT APPLICATION AND HAVE RECEIVED PRIOR APPROVAL FROM THE BUILDING OFFICIAL TO BE DEFERRED.
THE DEFERRED SUBMITTALS SHALL BE SUBMITTED TO THE ARCHITECT AND GENERAL CONTRACTOR WITHIN SIX WEEKS TO COMMMENCEMENT OF CONSTRUCTION TO THIS PORTION OF WORK.

DEFERRED SUBMITTAL PROCESS:

1. THE DEFERRED SUBMITTAL SHALL FIRST BE REVIEWED BY THE GENERAL CONTRACTOR FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. THE SUBMITTAL MUST BE REVIEWED, APPROVED, STAMPED AND SIGNED BY THE GENERAL CONTRACTOR BEFORE BEING SUBMITTED TO THE ARCHITECT.

2. THE GENERAL CONTRACTOR SHALL DIGITALLY SUBMIT DEFERRED SUBMITTALS TO THE ARCHITECT VIA AN AGREED UPON CONSTRUCTION MANAGEMENT PLATFORM.

3. THE DEFERRED SUBMITTAL ITEMS WILL BE REVIEWED BY THE ENGINEER OR ARCHITECT IN RESPONSIBLE CHARGE. THE ENGINEER OR ARCHITECT WILL ATTACH A LETTER TO THE SUBMITTAL STATING THAT THE DEFERRED ITEM IS IN CONFORMANCE WITH THE DESIGN OF THE STRUCTURE.

4. THE APPROVED SUBMITTALS WILL BE RETURNED TO THE GENERAL CONTRACTOR. TWO SETS OF THE DEFERRED SUBMITTAL ARE THEN SUBMITTED TO THE CITY FOR REVIEW OR AGENCY WITH JURISDICTION OVER THE DEFERRED SUBMITTAL CONTENT.

5. THE GENERAL CONTRACTOR SHALL MAINTAIN ONE SET OF THE APPROVED SUBMITTAL ON SITE FOR REFERENCE BY THE CITY INSPECTOR AND/OR THE APPLICABLE AGENCY.

6. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL AND/OR THE APPLICABLE AGENCY.

7. SEE STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS FOR STRUCTURAL DEFERRED SUBMITTALS AND SPECIAL INSPECTIONS.

DEFERRED SUBMITTAL ITEMS

1. FIRE SPRINKLING DRAWINGS, INCLUDING DESIGN DRAWINGS AND CALCULATIONS.
2. FIRE ALARM DRAWINGS AND SPECIFICATIONS.
3. CCTV SECURITY CAMERAS , SECURITY SYSTEM AND CONTROL ACCESS DEVICES.
4. PROJECT TRIPLE PLAY - (PHONE, DATA, T.V.) SHALL BE PROVIDED BY DEFERRED SUBMITTAL.

SPECIAL INSPECTIONS REQUIREMENTS

SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH IBC 2021 CHAPTER 17, SECTION 1704 AND THE SPECIAL INSPECTION TABLES SHOWN ON THE STRUCTURAL DRAWINGS.

SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONALS IN RESPONSIBLE CHARGE. (2021 IBC SECTION 1704.2.4).

SEE PROJECT MANUAL / SPECIFICATIONS, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL GENERAL NOTES FOR ADDITIONAL SPECIAL INSPECTION REQUIREMENTS.

SPECIAL INSPECTOR QUALIFICATIONS PRIOR TO THE START OF THE CONSTRUCTION, THE APPROVED AGENCIES SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING THE COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION. (2021 IBC SECTION 1704.2.1)

ABBREVIATIONS

(GENERAL CONTRACTOR SHALL CONTACT THE ARCHITECT FOR CLARIFICATION OF ABBREVIATIONS ON DRAWINGS BUT NOT LISTED BELOW.)

#	NUMBER	HDW.	HARDWARE
@	AT	H.M.	HOLLOW METAL
A.B.	ANCHOR BOLT	HORZ.	HORIZON
ABV.	ABOVE	HT.	HEIGHT
ADJ.	ADJUSTABLE	HVAC	HEATING/VENTILATION/AIR CONDITIONING
A.F.F.	ABOVE FINISHED FLOOR	HYD	HYDRANT
ALUM.	ALUMINUM	I.D.	INSIDE DIAMETER
BD	BOARD	INFO.	INFORMATION
BLDG.	BUILDING	INSUL.	INSULATION
B.M.	BENCHMARK	LAV	LAVATORY
B.O.	BOTTOM OF	LT.	LIGHT
BOT.	BOTTOM	LT WT	LIGHT WEIGHT
B.P.	BASE PLATE	MAINT.	MAINTENANCE
BRG.	BEARING	MANUF.	MANUFACTURER
BTWN.	BETWEEN	MAX.	MAXIMUM
C.J.	CONSTRUCTION JOINT	MAT	MATERIAL
CLG.	CEILING	M.C.J.	MASONRY CONTROL JOINT
CLR.	CLEAR	MECH.	MECHANICAL
CMU	CONCRETE MASONRY UNIT	MIN.	MINIMUM
COL.	COLUMN	MISC.	MISCELLANEOUS
CONC.	CONCRETE	M.O.	MASONRY OPENING
CONT.	CONTINUOUS	MTL.	METAL
CONST.	CONSTRUCTION	N.I.C.	NOT IN CONTRACT
C.T.J.	CONTRACTION JOINT	N.T.S.	NOT TO SCALE
DBL.	DOUBLE	O.C.	ON CENTER
DET./DTL.	DETAIL	O.D.	OUTSIDE DIAMETER
DIA.	DIAMETER	O.F.	OUTSIDE FACE
DTL.	DETAIL	PERP	PERPENDICULAR
DWGS	DRAWINGS	PL	PLATE
E.F.	EACH FACE	PTD.	PAINTED
E.J.	EXPANSION JOINT	QTY.	QUANTITY
EL/ELEV.	ELEVATION	R.D.	ROOF DRAIN
EQ.	EQUAL	RAD.	RADIUS
E.S.	EACH SIDE	RFNF.	REINFORCED
E.W.	EACH WAY	REQ'D.	REQUIRED
EXIST.	EXISTING	RM	ROOM
EXPAN.	EXPANSION	R.O.	ROUGH OPENING
EXT.	EXTERIOR	SCHED	SCHEDULE
E.W.C.	ELECTRIC WATER COOLER	SHT.	SHEET
F.D.	FLOOR DRAIN	SIM.	SIMILAR
FDN./FDTN	FOUNDATION	SPEC.	SPECIFICATION
F.E.	FIRE EXTINGUISHER	STC.	SOUND TRANSMISSION COEFFICIENT
F.E.C.	FIRE EXTINGUISHER CABINET	STRUCT.	STRUCTURAL
F.F.	FINISH FLOOR	SUSP.	SUSPENDED
FIN.	FINISH	T.O.	TOP OF
FLR.	FLOOR	T.O.C.	TOP OF CURB
FT	FEET	T.O.F.	TOP OF FOOTING
FTG.	FOOTING	T.O.S.	TOP OF SLAB OR SIDEWALK
GA.	GAGE/GAUGE	T.O.W.	TOP OF WALL
GALV.	GALVANIZED	TYP.	TYPICAL
G.C.	GENERAL CONTRACTOR	U.N.O.	UNLESS NOTED OTHERWISE
GPM	GALLONS PER MINUTE	VERT.	VERTICLE
GND	GROUND	W/	WITH
GYP. BD.	GYPSUM WALL BOARD	WD.	WOOD
HC	HANDICAPPED	W.W.F.	WELDED WIRE FABRIC

GRAPHIC SYMBOLS/ MATERIAL LEGENDS

(GENERAL CONTRACTOR SHALL CONTACT THE ARCHITECT FOR CLARIFICATION OF SYMBOLS/MATERIALS ON DRAWINGS BUT NOT LISTED BELOW.)

- FLOOR OR POINT ELEVATION
- KEY NOTE
- SPECIFICATION KEY NOTE
- WALL TYPE
- DOOR NUMBER
- WINDOW NUMBER
- FIXTURE TAG
- REVISION TAG
- DETAIL
- INTERIOR ELEVATION
- BUILDING ELEVATION
- ROOM NAME & NUMBER (Room name / 101)
- BUILDING SECTION
- WALL SECTION
- CENTER LINE
- OWNER PROVIDED EQUIP. (G.C., INSTALLED)
- CONTRACT PROVIDED EQUIP. (G.C. INSTALLED)
- MASTER GRID LINES
- PARKING GRID LINES
- BUILDING GRID LINES
- E.I.F.S.
- CONCRETE MASONRY UNIT
- BRICK VENEER
- STONE VENEER
- CONCRETE
- GYPSUM BOARD OR GROUT
- MORTAR
- BATT INSULATION
- RIGID INSULATION
- PLYWOOD
- ROUGH WOOD-CONTINUOUS
- ROUGH WOOD-BLOCKING
- WOOD TRIM
- STEEL
- GRAVEL
- EARTH

BUILDING AREAS

BUILDING AREA - FINISHED

AREA	FINISHED
2,640 SQUARE FEET	2,640 SQUARE FEET

BUILDING AREA - UNFINISHED

AREA	UNFINISHED
2,600 SQUARE FEET	0 SQUARE FEET

OWNER & MUNICIPAL DRAWING APPROVALS

OWNER:	DATE:	CITY ENGINEER:	DATE:
CITY PLANNING & ZONING DEPARTMENT:	DATE:	CITY FIRE DEPARTMENT:	DATE:
CITY BUILDING DEPARTMENT:	DATE:	CITY POLICE DEPARTMENT:	DATE:

VICINITY MAP

(PROPERTY BOUNDARY AND BUILDING OUTLINE SHOWN FOR GRAPHIC PURPOSES - SEE OFFICIAL DOCUMENT.)

CITY APPROVAL STAMP

Think Architecture ©

Architecture
Interior Design
Landscape Architecture
Land Planning
Construction Management

7927 So. Highpoint Parkway, Suite 300
Sandy, Utah 84094
ph. 801.269.0055
Fax 801.269.1405
www.thinkaec.com

REGISTERED ARCHITECT — 49665 — JARED MICHAEL PLOUZEK — ARIZONA, U.S.A. — EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
G001

Plot Date: 4/21/2025 9:56:33 AM

PROJECT GENERAL NOTES

1. DEFINITIONS

a. PROVIDE:

MEANS TO PROVIDE, FURNISH AND INSTALL, A COMPLETE SYSTEM AND READY FOR OPERATIONS AND USE FOR PURPOSE INTENDED INCLUDES THOSE ITEMS SPECIFIED WITHIN THE DRAWINGS AND SPECIFICATIONS AS WELL AS THOSE ITEMS THAT ARE REQUIRED TO PROVIDE A COMPLETE SYSTEM. THE CONTRACTOR AND SUB CONTRACTORS ARE REQUIRED TO PROVIDE THE FULL AND COMPLETE SYSTEM.

b. FURNISH:

MEANS TO SUPPLY, PURCHASE, PROCURE AND DELIVER COMPLETE WITH RELATED ACCESSORIES, READY FOR ASSEMBLY, APPLICATION, INSTALLATION, AND SIMILAR OPERATIONS, AS APPLICABLE IN EACH INSTANCE.

c. INSTALL:

MEANS TO CONSTRUCT, ASSEMBLE, ERECT, MOUNT, ANCHOR, PLACE, CONNECT, APPLY AND SIMILAR OPERATIONS, COMPLETE WITH RELATED ACCESSORIES, AS APPLICABLE IN EACH INSTANCE.

d. EQUIVALENT:

MEANS "EQUIVALENT AS ACCEPTED BY THE ARCHITECT." WITH RESPECT TO PRODUCTS, EQUIVALENT MEANS A LIKE DEGREE OF FEATURES, ATTRIBUTES, PERFORMANCES, OR QUALITIES DEEMED ESSENTIAL TO THE DESIGN INDICATED INSTEAD, THE TERM INTENDED TO MEAN ARCHITECT WILL CONSIDER SUBSTITUTION PROPOSALS FOR THE PRODUCT. DO NOT ASSUME THAT SUBSTITUTE PRODUCTS ARE ACCEPTABLE. SUBSTITUTIONS MADE BY THE CONTRACTOR WITHOUT FULL AND FINAL APPROVAL, MAY REQUIRE TO BE REMOVED IF NOT DEEMED ACCEPTABLE BY THE ARCHITECT. ALL COSTS ASSOCIATED TO REMOVAL OF SUBSTITUTION NOT APPROVED, AND INSTALLATION OF ACCEPTED PRODUCTS WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

GENERAL NOTES

G1. INTENT OF THE DOCUMENTS:

DRAWINGS AND SPECIFICATIONS ARE INTENDED TO PROVIDE THE BASIS FOR THE PROPER COMPLETION OF THE PROJECT, SUITABLE FOR THE INTENDED USE OF THE OWNER. ITEMS NOT EXPRESSLY SET FORTH WITHIN THE DRAWINGS AND SPECS , BUT WHICH ARE REASONABLY IMPLIED FOR COMPLETION OF A COMPLETE SYSTEM, OR NECESSARY, FOR THE PROPER PERFORMANCE OF THE WORK SHALL BE INCLUDED.

G2. DRAWINGS AND SPECIFICATIONS:

SPECIFICATIONS ARE INTENDED TO BE COMPLIMENTARY AND SUPPLEMENTAL TO THE DRAWINGS. NO RELATIVE IMPORTANCE OF DRAWINGS VERSUS SPECIFICATIONS HAS BEEN ESTABLISHED AND NONE SHOULD BE ASSUMED, BUT THE MOST STRINGENT CONDITIONS SHOULD BE ASSUMED FOR ALL BIDDING AND CONSTRUCTION REQUIREMENTS. IN THE EVENT OF DISCREPANCIES OR CONFLICTS, THE ARCHITECT SHALL BE CONSULTED IN ORDER TO RENDER AN INTERPRETATION.

BIDDING, PRICING OR CONSTRUCTION DONE PRIOR TO RECEIVING FINAL BUILDING DEPARTMENT PERMITS IS AT THE CONTRACTORS OWN RISK. CHANGES TO THE DRAWINGS MAY BE REQUIRED AS PART OF THE PLAN CHECK AND/ OR OWNER REVIEW PROCESS. THINK ARCHITECTURE INC. AND ITS CONSULTING ENGINEERS WILL NOT BE HELD LIABLE FOR, NOR COMPENSATE FOR, CHANGES TO THESE DRAWINGS BEFORE FINAL JURISDICTION AND OWNER APPROVAL IS OBTAINED.

DRAWINGS FOR THIS PROJECT IS COMPILED INTO 2 VOLUMES, AND BOTH VOLUMES SHALL BE USED FOR THE CONSTRUCTION OF THIS PROJECT. THE DRAWINGS ARE INTENDED AS AN ENTIRE GROUP, AND NO SET OF DRAWINGS TAKE PRECENDENCE. ALL CONTRACTORS WORKING ARE RESPONSIBLE FOR ALL ITEMS WITHIN THIS SET OF DRAWINGS, AND NOT INDIVIDUAL AREA. FAILURE TO REVIEW AND PROVIDE COSTS FOR ALL ITEMS WITHIN THEIR RESPECTIVE SCOPE OF WORK WHEREVER SHOWN WITHIN THE DRAWINGS IS THE BURDEN OF THE GENERAL CONTRACTOR AND SUB -CONTRACTORS FOR THOSE ITEMS MISSED, AND SHALL NOT BE AVAILABLE FOR CHANGE ORDERS FROM THE OWNER FOR MISSED SCOPE OF WORK IN THE BIDDING PROCESS.

G3. WORK NOT INCLUDED:

ANY ITEM INDICATED ON THE DRAWINGS AS "N.I.C." (NOT IN CONTRACT), OR OTHERWISE DESIGNATED TO BE DONE BY OTHERS IS NOT A PART OF THE CONTRACT. INSTALLATION AND/OR BACKING MAY BE REQUIRED FOR SOME EQUIPMENT FURNISHED BY OWNER OR OWNER'S SUBCONTRACTOR. REFER TO DRAWINGS FOR SPECIFIC REQUIREMENTS.

G4. CONTRACT DOCUMENTS AT SITE:

THE CONTRACTOR SHALL MAINTAIN CURRENT PERMIT DRAWINGS; SHOP DRAWINGS; REVISED DRAWINGS; AND CLARIFICATION DRAWINGS, ADDENDA; CHANGE ORDERS; BULLETINS; INSPECTIONS; TEST CERTIFICATIONS AND RECORDS; PRODUCT SUBMITTAL DATA AND SAMPLES. FIELD OFFICE SHALL CONTAIN A CURRENT COPY OF ALL GOVERNING BUILDING CODE(S). MAKE DOCUMENTS AVAILABLE AT ALL TIMES FOR ARCHITECT'S REVIEW. ALL DRAWINGS MUST BE CLEARLY MARKED AS TO THE FINAL APPROVED DRAWINGS.

G5. RECORD DRAWINGS:

THE MAINTAIN ACCURATELY DIMENSIONED RECORDS OF ALL UNDERGROUND LINES, SERVICES, AND UTILITIES, AS WELL AS ANY DISCREPANCIES OR REQUIRED CHANGES IN THE CONTRACT DOCUMENTS. AT THE END OF THE PROJECT, FORWARD TO ARCHITECT FOR FUTURE RECORDS. ONE (1) CD OF COMPLETE RECORD DRAWINGS TO OWNER IN PDF FORMAT AFTER COMPLETING FINAL PUNCH LIST.

G6. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED SIZES; DO NOT SCALE DRAWINGS TO DETERMINE ANY LOCATIONS. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES, PRIOR TO CONTINUING WITH WORK.

G7. FIELD CONFIRMATION OF DISCREPANCIES SHALL BE RECORDED ON REPRODUCIBLE DOCUMENT AND IMMEDIATELY TRANSMITTED TO ARCHITECT FOR PROJECT RECORD, COORDINATION, AND NECESSARY RESOLUTION PRIOR TO CONTINUING WITH WORK.

G8. FIELD MEASUREMENTS:

VERIFY FIELD MEASUREMENTS BEFORE ORDERING MATERIALS AND PREFABRICATED ITEMS. ANY NECESSARY ADJUSTMENTS BETWEEN FIELD MEASUREMENTS AND DRAWINGS SHALL BE MADE IN CONSULTATION WITH THE ARCHITECT.

G9. ALL WORK SHALL CONFORM TO THE LATEST ADOPTED EDITIONS OF ALL APPLICABLE BUILDING CODES, THE AMERICANS WITH DISABILITIES ACT, AS WELL AS ALL OTHER LOCAL GOVERNING CODES AND ORDINANCES.

G10. REFERENCE STANDARDS:

COMPLY WITH ASSOCIATION, TRADE, FEDERAL, COMMERCIAL, ASTM, AND OTHER SIMILAR STANDARDS REFERENCED WITHIN INDIVIDUAL SECTIONS, EXCEPT WHERE MORE EXPLICIT OR STRINGENT REQUIREMENTS ARE INDICATED, OR REQUIRED BY APPLICABLE CODES. REFERENCE STANDARDS HAVE SAME FORCE AND EFFECT AS IF BOUND INTO CONTRACT DOCUMENTS. SHOULD SPECIFIED REFERENCE STANDARDS CONFLICT WITH CONTACT DOCUMENTS, REQUEST CLARIFICATION FROM ARCHITECT BEFORE PROCEEDING.

CONTRACTOR

C1. THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL EXISTING SITE CONDITIONS, UTILITIES, CONNECTIONS, LOCATIONS, ETC, AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

C2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES, WHETHER SHOWN HEREIN OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE FOR THE REPAIR OR REPLACEMENT OF UTILITIES AND ALL OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH EXECUTION OF WORK.

C3. CONTRACTOR SHALL, PRIOR TO COMMENCEMENT OF WORK, FIELD VERIFY ALL EXISTING PROJECT CONDITIONS, INCLUDING DIMENSIONS, UTILITY LOCATIONS, AND UTILITY SIZES.

C4. THE CONTRACTOR SHALL BE REQUIRED TO MEET ALL NATIONAL, STATE AND LOCAL, AND RELATED CODES FOR STANDARD CONSTRUCTION PRACTICES.

C5. INSTALLATION STANDARDS:

ALL MANUFACTURED MATERIALS AND PRODUCTS SHALL BE APPLIED, INSTALLED, CONNECTED, CLEANED AND CONDITIONED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS. ALL REFERENCES TO STANDARDS OR TO MANUFACTURER'S SPECIFICATIONS SHALL BE TO THE LATEST EDITIONS OR LATEST AMENDMENTS.

C6. HOURS OF WORK:

ALL DEMOLITION, GRADING, AND CONSTRUCTION WORK SHALL BE LIMITED TO THE FOLLOWING HOURS: MUST STOP BY 10PM MONDAY THROUGH FRIDAY FROM MAY 1 TO SEPTEMBER 30 AND 6 AM TO 10 PM FROM OCTOBER 1 TO APRIL 30. ON WEEKENDS AND HOLIDAYS, CONSTRUCTION WORK MUST STOP BY 7 PM.

C7. TESTING AGENCIES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING SPECIAL INSPECTIONS WITH THE APPROVED AGENCY. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR SCHEDULING CITY INSPECTIONS WITH THE APPROPRIATE CITY AGENCY IN A TIMELY MANNER AS SET FORTH BY THE CITY'S BUILDING DEPARTMENT. THE OWNER SHALL BE RESPONSIBLE TO CARRY THE CONTRACT WITH THE SPECIAL INSPECTION AND TESTING AGENCY.

C8. PROJECT LOG:

MAINTAIN DAILY LOG CONTAINING ALL INFORMATION REGARDING CONSTRUCTION OPERATIONS AND OTHER OCCURRENCES PERTAINING TO THE PROJECT. MAKE LOG AVAILABLE FOR ARCHITECT'S REVIEW.

C9. WORK PROGRESS SCHEDULE:

MAINTAIN AN UPDATED WORK PROGRESS SCHEDULE POSTED IN A VISIBLE PLACE LOCATED IN FIELD OFFICE. UPDATE SCHEDULE DAILY TO REFLECT WORK PROGRESS. THE SCHEDULE SHALL BE REVIEWED DURING OAC MEETINGS THEN UPDATED PER ADJUSTMENTS STATED IN THE OAC MEETING.

C10. THE GENERAL BUILDING PERMITS SHALL BE PAID FOR BY THE OWNER AND SECURED BY THE GENERAL CONTRACTOR. ALL OTHER REQUIRED PERMITS SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR OR SUBCONTRACTOR DIRECTLY RESPONSIBLE.

C11. CONTRACTOR SHALL ASSIST OWNER IN OBTAINING FINAL APPROVAL OF LOCAL HEALTH DEPARTMENT AND THE TEMPORARY AND FINAL CERTIFICATES OF OCCUPANCY.

C12. ADDITIONAL REQUIRED CITY AND COUNTY LICENSES SHALL BE ACQUIRED AND PAID FOR BY THE INDIVIDUAL TRADES.

C13. ALL CONTRACTORS SHALL HAVE VALID CERTIFICATES OF WORKMAN'S COMPENSATION OF FILE WITH THE APPROPRIATE AGENCIES.

C14. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE SAFETY OF THE OCCUPANTS AND WORKERS AT ALL TIMES. CONSTRUCTION EQUIPMENT, MATERIALS AND DEBRIS SHALL BE REMOVED OR STAGED IN A SAFE MANNER PERIODICALLY TO MAINTAIN A SAFE AND ORDERLY PROJECT SITE.

C15. CONTRACTOR'S FIELD OFFICE:

PROVIDE AND MAINTAIN A FIELD OFFICE ON THE PREMISES WHERE DIRECTED. OFFICE SHALL BE OF NEAT, SUBSTANTIAL CONSTRUCTION. PROVIDE HANGING PLAN FILES AND MAINTAIN WITH ALL CURRENT RAWINGS.

a. STORAGE STRUCTURE:

PROVIDE AND MAINTAIN, WHERE DIRECTED, A WATERTIGHT STORAGE STRUCTURE FOR ALL MATERIALS WHICH MIGHT BE DAMAGED BY WEATHER, INCLUDING STORAGE FACILITIES FOR CONCRETE TEST SAMPLES, OR OTHER MATERIAL SAMPLES REQUIRED FOR WORK.

b. COSTS:

PAY COSTS FOR A LOCAL BUSINESS TELEPHONE FOR USE BY CONTRACTOR, OWNER AND ARCHITECT THROUGHOUT CONTRACT PERIOD.

c. COMMUNICATION EQUIPMENT:

PROVIDE A TELEPHONE ON SITE. ASSIGN A RESPONSIBLE PERSON TO ANSWER ALL TELEPHONE CALLS IN EVENT THE SUPERINTENDENT IS ABSENT FROM THE PREMISES. PROVIDE APPROVED MEANS TO ESTABLISH URGENT COMMUNICATIONS (CELLULAR TELEPHONE OR PAGER).

C16. TEMPORARY FACILITIES:

PROVIDE TEMPORARY FACILITIES AND CONNECTIONS AS REQUIRED FOR THE PROPER COMPLETION OF THE PROJECT. PROVIDE AND MAINTAIN TEMPORARY UTILITY SERVICES. PROVIDE SUITABLE WASTE DISPOSAL UNITS AND EMPTY REGULARLY. DO NOT PERMIT ACCUMULATION OF TRASH AND WASTE MATERIALS. PROVIDE TEMPORARY SANITARY FACILITIES AS REQUIRED.

C17. STORAGE AND PROTECTION:

STORE AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS WITH LABELS INTACT AND LEGIBLE. STORE SENSITIVE PRODUCTS IN WEATHERTIGHT, CLIMATE CONTROLLED ENCLOSURES. PROVIDE OFFSITE STORAGE AND PROTECTION WHEN SITE DOES NOT PERMIT ON SITE STORAGE.

C18. FIELD QUALITY CONTROL:

EMPLOY ONLY EXPERIENCED INSTALLERS AND FURNISH EVIDENCE OF EXPERIENCE IF REQUESTED. USE OF ANY SUBCONTRACTOR OR INSTALLER IS SUBJECT TO OWNER'S APPROVAL. EMPLOY FULL-TIME, COMPETENT SUPERINTENDENT AS WELL AS NECESSARY ASSISTANTS. SUPERINTENDENT SHALL REPRESENT THE CONTRACTOR AND ALL COMMUNICATIONS GIVEN TO THE SUPERINTENDENT SHALL BE AS BINDING AS IF GIVEN TO THE CONTRACTOR.

C19. PRODUCT HANDLING:

TRANSPORT AND HANDLE PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DELIVER PRODUCTS IN UNDAMAGED CONDITION, IN MANUFACTURER'S ORIGINAL UNOPENED CONTAINER'S OR PACKING, WITH IDENTIFYING LABELS INTACT AND LEGIBLE. PROMPTLY INSPECT SHIPMENTS TO ENSURE THAT PRODUCTS COMPLY WITH REQUIREMENTS OF CONTRACT DOCUMENTS, QUANTITIES ARE CORRECT, AND PRODUCTS ARE UNDAMAGED.

C20. COMPLIANCE WITH MANUFACTURER'S INSTRUCTIONS:

HANDLE, INSTALL, ERECT, CONNECT, CONDITION, USE, ADJUST, AND CLEAN PRODUCTS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTION AND IN CONFORMITY WITH SPECIFIED REQUIREMENTS, INCLUDING EACH STEP IN SEQUENCE. DO NOT OMIT PREPARATORY STEPS OR INSTALLATION PROCEDURES UNLESS SPECIFICALLY MODIFIED OR EXEMPTED BY CONTRACT DOCUMENTS. SHOULD JOB CONDITIONS OR SPECIFIED REQUIREMENTS CONFLICT WITH MANUFACTURER'S INSTRUCTIONS, REQUEST CLARIFICATION IN WRITING FROM ARCHITECT BEFORE PROCEEDING. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH PROPER APPEARANCE.

C21. MANUFACTURER'S FIELD SERVICES:

WHEN SPECIFIED IN INDIVIDUAL SECTIONS, REQUIRE MATERIAL OR PRODUCT SUPPLIERS OR MANUFACTURERS TO PROVIDE QUALIFIED STAFF PERSONNEL TO OBSERVE SITE CONDITIONS, CONDITIONS OF SURFACES, QUALITY OF WORKMANSHIP, AND CONDITIONS OF INSTALLATION AS APPLICABLE AND TO INITIATE ADDITIONAL INSTRUCTIONS WHEN NECESSARY.

C22. CONTRACTOR SHALL VERIFY, AND BE RESPONSIBLE FOR, ALL WORK AND MATERIALS - INCLUDING THOSE FURNISHED BY SUBCONTRACTORS.

C23. NON-CONFORMING WORK:

REMOVE AND REPLACE WORK THAT DOES NOT CONFORM TO THE CONTRACT DOCUMENTS AT NO ADDITIONAL EXPENSE TO THE OWNER.

C24. PRODUCT IDENTIFICATIONS:

NAMEPLATES, TRADEMARKS, LOGOS, AND OTHER IDENTIFYING MARKS ON PRODUCTS ARE NOT PERMITTED ON SURFACES EXPOSED TO VIEW IN PUBLIC AREAS, INTERIOR OR EXTERIOR. PLUMBING, MECHANICAL, AND ELECTRICAL EQUIPMENT NOT EXPOSED TO PUBLIC VIEW ARE EXECUTED FROM FOREGOING LIMITATION. REQUIRED UL OR FM LABELS ARE ALSO EXCLUDED.

C25. PROTECTION OF ADJACENT WORK:

PROVIDE TEMPORARY PROTECTION FOR ADJACENT AREAS TO PREVENT DAMAGE BY INSTALLATION OF NEW WORK OR DEMOLITION OF EXISTING CONSTRUCTION. PROMPTLY REPAIR ANY DAMAGE AT NO ADDITIONAL COST TO THE OWNER. PROTECT ADJACENT AREAS FROM CONTAMINATION BY CONSTRUCTION DUST AND DEBRIS. PROVIDE TEMPORARY BARRICADES AS NECESSARY TO ENSURE PROTECTION OF THE PUBLIC. MAINTAIN EGRESS WITHIN AND AROUND CONSTRUCTION AREAS.

C26. DAMAGED PRODUCTS:

DO NOT USE PRODUCTS IN WORK, WHICH HAVE DETERIORATED, BECOME DAMAGED, OR ARE OTHERWISE UNFIT FOR USE. RESTORE UNITS DAMAGED DURING INSTALLATION. REPLACE UNITS, WHICH CANNOT BE RESTORED AT NO ADDITIONAL EXPENSE TO THE OWNER.

C27. SECURITY:

PROVIDE FACILITIES TO PROTECT WORK FROM UNAUTHORIZED ENTRY, VANDALISM, AND THEFT. CONDUCT OPERATIONS IN MANNER TO AVOID RISK OF LOSS, THEFT, OR DAMAGE BY VANDALISM. THE GENERAL CONTRACTOR SHALL BARE THE COST TO SECURE THE SITE.

C28. TEMPORARY CONTROLS:

a. HEAT:

PRIOR TO ENCLOSURE, PROVIDE HEATING AS NECESSARY TO PROTECT MATERIALS, PRODUCTS, AND FINISHES FROM DAMAGE DUE TO TEMPERATURE OR HUMIDITY. ENCLOSURE IS DEFINED AS STATE OF CONSTRUCTION WHEN EXTERIOR WALLS ARE ERECTED, DOORS AND WINDOWS ARE INSTALLED AND GLAZED, ROOF DECK AND ROOFING ARE COMPLETE, AND WHEN OTHER OPENINGS IN EXTERIOR ENVELOPE ARE EQUIPPED WITH TEMPORARY CLOSURES. EXCEPT WHERE INDICATED OTHERWISE IN INDIVIDUAL SPECIFICATION SECTIONS, MAINTAIN MINIMUM AMBIENT TEMPERATURE OF 50 DEGREES F. IN AREAS WHERE CONSTRUCTION IS IN PROGRESS.

b. VENTILATION:

VENTILATE ENCLOSED AREAS TO ASSIST CURE OF MATERIALS, TO DISSIPATE HUMIDITY, AND TO PREVENT ACCUMULATION OF DUST, FUMES, VAPORS, OR GASES.

c. BARRIERS AND CLOSURES:

PROVIDE BARRIERS TO PREVENT UNAUTHORIZED ENTRY TO CONSTRUCTION AREAS AND TO PROTECT EXISTING FACILITIES AND ADJACENT PROPERTIES FROM DAMAGE FROM CONSTRUCTION OPERATIONS.

d. FIRE PROTECTION:

COMPLY WITH LOCAL FIRE PROTECTION CODE AND GOVERNING AUTHORITIES. PROVIDE AND MAINTAIN ADEQUATE FIRE PROTECTION INCLUDING, WITHOUT LIMITATION, FIRE EXTINGUISHERS AND OTHER APPROPRIATE EQUIPMENT FOR FIRE EXTINGUISHING READY FOR IMMEDIATE USE. MAINTAIN ANY REQUIRED FIRE ALARM SYSTEMS IN OPERATION DURING CONSTRUCTION. DISTRIBUTE EQUIPMENT AROUND SITE AND PARTICULARLY IN IMMEDIATE VICINITY OF PERFORMANCE OF WELDING OR SIMILAR HAZARDOUS WORK.

C29. INTERRUPTION OF SERVICES:

INTERRUPTIONS TO ANY SERVICE FOR THE PURPOSE OF MAKING OR BREAKING A CONNECTION SHALL BE MADE ONLY AFTER CONSULTATION WITH THE OWNER AND SHALL BE AT SUCH TIME AND OF SUCH DURATION AS MAY BE DIRECTED.

C30. EXCAVATIONS OR TRENCHING:

KEEP THE INTERVALS BETWEEN EXCAVATION OR TRENCHING, INSTALLATION OF CONDUIT OR PIPING, AND BACK FILLING OPERATIONS TO AN ABSOLUTE MINIMUM. PROVIDE SUITABLE TEMPORARY COVERS FOR EXCAVATIONS OR TRENCHING CROSSING ROADWAYS, WALKS, OR OTHER TRAFFIC WAYS AS REQUIRED BY GOVERNING AGENCIES.

C31. CUTTING AND PATCHING:

DO NOT CUT AND PATCH IN A MANNER THAT WOULD RESULT IN A FAILURE OF THE WORK TO PERFORM AS INTENDED, DECREASE FIRE PERFORMANCE, DECREASE ACOUSTICAL PERFORMANCE, DECREASE ENERGY PERFORMANCE, DECREASE OPERATIONAL LIFE, OR DECREASE SAFETY FACTORS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT WRITTEN APPROVAL FROM THE ARCHITECT. CUT WITH TOOLS APPROPRIATE FOR MATERIALS TO BE CUT. PATCH WITH MATERIALS AND METHODS TO PRODUCE PATCH THAT IS NOT VISIBLE FROM A DISTANCE OF THREE FEET.

C32. COORDINATION AND CLEARANCES:

VERIFY AND COORDINATE CLEARANCES, DIMENSIONS, AND INSTALLATION OF ADJOINING CONSTRUCTION, EQUIPMENT, PIPING, DUCTS, CONDUITS, OR OTHER MECHANICAL OR ELECTRICAL ITEMS OR APPARATUS. VERIFY DIMENSIONS FOR PRODUCTS TO BE FITTED INTO WORK.

a. ATTACHMENTS AND CONNECTIONS:

PROVIDE ATTACHMENT AND CONNECTION DEVICES METHODS FOR SECURING AND ANCHORING WORK. SECURE IN PLACE WITH DEVICES DESIGNATED AND SIZED TO WITHSTAND STRESSES, VIBRATION, PHYSICAL DISTORTION, OR DISFIGUREMENT.

b. EXPANSION AND MOVEMENT:

ALLOW FOR EXPANSION OF MATERIALS AND BUILDING MOVEMENT.

c. ISOLATION OF DISSIMILAR ITEMS:

ISOLATE EACH UNIT OF WORK FROM INCOMPATIBLE WORK AS NECESSARY TO PREVENT DETERIORATION AND ELECTROLYTIC ACTION.

d. MAINTENANCE:

CLEAN AND PERFORM MAINTENANCE ON INSTALLED WORK AS FREQUENTLY AS NECESSARY THROUGH REMAINDER OF CONSTRUCTION PERIOD. LUBRICATE OPERABLE COMPONENTS TO ENSURE OPERABILITY WITHOUT DAMAGING EFFECTS.

e. ADJUSTMENTS:

ADJUST OPERATING PRODUCTS AND EQUIPMENT TO ENSURE SMOOTH AND UNHINDERED OPERATION.

C33. EXAMINATION OF CONDITIONS:

EXAMINE SUBSTRATES AND CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. DO NOT COMMENCE WORK OVER UNSATISFACTORY CONDITIONS DETRIMENTAL TO PROPER AND TIMELY EXECUTION OF WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. COMMENCEMENT OF INSTALLATION CONSTITUTES ACCEPTANCE OF CONDITIONS AND COSTS OF ANY CORRECTIVE MEASURES ARE RESPONSIBILITY OF CONTRACTOR.

C34. CONTRACTOR SHALL PROVIDE BACKING SUPPORT OF ALL WALL, CEILING, AND PARTITION MOUNTED ITEMS SUCH AS TABLE BRACKETS, LIGHT FIXTURES, ARTIFACTS, SHELVING, EQUIPMENT, AND TELEVISIONS. COORDINATE LOCATIONS AND REQUIREMENTS WITH THE PLUMBING, MECHANICAL, ELECTRICAL DRAWINGS.

C35. EXTERIOR OPENINGS SHALL COMPLY WITH ALL SECURITY REQUIREMENTS AS OUTLINED IN ALL LOCAL BUILDING CODES AND ORDINANCES.

C36. GLASS AND GLAZING FOR ALL WINDOWS SHALL COMPLY WITH ALL APPLICABLE BUILDING CODES. IN ADDITION ALL WINDOWS MUST MEET THE "AAMA" WINDOW STANDARDS FOR INSTALLATION. THE CONTRACTOR SHALL OBTAIN, AND SHALL FOLLOW ALL REQUIREMENTS OF THE "AAMA" STANDARDS IN ADDITION TO THE MANUFACTURER SPECIFICATIONS AND ARCHITECTURAL DETAILS INCLUDED WITHIN THE DRAWINGS.

C37. ROOFING WORK SHALL BE PERFORMED AND ALL PENETRATIONS THROUGH THE ROOFING MEMBRANE SHALL BE PATCHED OR FLASHED AS PER THE MANUFACTURER'S STANDARDS.

C38. ROOF OBSTRUCTIONS SUCH AS TELEVISION ANTENNAE, SOLAR PANELS, AND GUY WIRES SHALL NOT BE LOCATED OR INSTALLED IN SUCH A WAY AS TO PREVENT FIRE DEPARTMENT ACCESS OR EGRESS IN THE EVENT OF A FIRE.

C39. INTERIOR WALL AND CEILING FINISHES SHALL NOT EXCEED FLAME SPREAD CLASSIFICATIONS DICTATED BY ALL APPLICABLE BUILDING CODES.

C40. GYPSUM BOARD AND SUSPENDED CEILING SYSTEMS SHALL CONFORM TO ALL LOCAL GOVERNING BUILDING CODES AND ORDINANCES.

C41. PIPES, CONDUITS, OR DUCTS EXCEEDING ONE THIRD OF THE SLAB OR MEMBER THICKNESS SHALL NOT BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED. REFER TO MECHANICAL, ELECTRICAL, PLUMBING, AND STRUCTURAL DRAWINGS FOR LOCATION OF SLEEVES AND OTHER ACCESSORIES.

C42. VERIFY FIRE EXTINGUISHER REQUIREMENTS AND LOCATIONS WITH FIRE MARSHAL AND OWNER'S REPRESENTATIVE PRIOR TO THE FINAL INSTALLATION. FAILURE TO OBTAIN PRELIMINARY APPROVALS WITH LOCAL FIRE MARSHALL, AND FIRE EXTINGUISHERS ARE REQUIRED TO BE MOVE UPON FINAL INSPECTION, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COST TO MOVE TO THE DIRECT COSTS.

C43. CONTRACTOR SHALL SEAL ALL GAPS, HOLES, AND CRACKS IN BUILDING CONSTRUCTION AS REQUIRED TO CONTROL INFILTRATION OF INSECTS.

C44. DISPOSAL OF TRASH AND EXCESS EXCAVATION:

DISPOSE OF TRASH, AND DEBRIS AT DESIGNATED AREAS OFF THE PREMISES AT NO ADDITIONAL COST TO THE OWNER. BURNING OF TRASH AND DEBRIS ON THE PREMISES IS PROHIBITED. COORDINATE TRASH REMOVAL WITH LANDLORD WHERE APPLICABLE.

C45. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL WORK TO AVOID CONFLICTS BETWEEN TRADES. THE CONTRACTOR SHALL PERFORM ALL WORK TO PROVIDE COMPLETE FUNCTIONING SYSTEMS IN ACCORDANCE WITH THE INTENT INDICATED ON THE PLANS. THE CONTRACTOR SHALL CONFIRM AND PROVIDE ALL ITEMS WHETHER SPECIFIED ON THE DRAWING OR SPECIFICATION OR NOT TO COMPLETE AND PROVIDE A FULL OPERATIONAL SYSTEM. ALL SYSTEMS SHALL BE FULLY COORDINATED AND INSTALLED AS PER THE INTENT ON THE DRAWINGS. ANY AND ALL CHANGES MADE IN THE FIELD SHALL BE VERIFIED AND CONFIRMED WITH THE ARCHITECT AND DESIGN TEAM PRIOR INSTALLATION TO BEGIN. FAILURE TO CONFIRM CHANGES OR THOSE ITEMS NEEDED FOR THE COMPLETED SYSTEM SHALL BE THE COST TO THE CONTRACTOR AND SHALL NOT BE CONSIDERED AS A CHANGE ORDER TO THE OWNER.

C46. CLEANING MATERIALS AND EQUIPMENT:

PROVIDE ALL REQUIRED PERSONNEL, EQUIPMENT, AND MATERIALS NEEDED TO MAINTAIN THE SPECIFIED STANDARD OF CLEANLINESS. USE ONLY THE CLEANING MATERIALS AND EQUIPMENT WHICH ARE COMPATIBLE WITH THE SURFACE BEING CLEANED, AS RECOMMENDED BY THE MANUFACTURER OF THE MATERIAL.

C47. CAULKING

THE CONTRACTOR SHALL PROVIDE CAULKING AT ALL LOCATIONS OF DIS-SIMILAR MATERIAL BOTH AT INTERIOR AND EXTERIOR CONDITIONS. CAULKING AT WEATHER CONDITIONS SHALL BE SILICONE BASE CAULKING. ALL JOINTS SHALL BE PREPARED TO RECEIVE CAULKING AND SHALL HAVE BACKER RODS AS REQUIRED.

SUBMITTALS/SUBSTITUTIONS

S1. CONTRACTOR SHALL PROVIDE COMPLETE LIST OF SUBMITTALS TO ARCHITECT/OWNER WITHIN 1 WEEK OF OBTAINING BUILDING PERMIT.

S2. ALL SUBMITTALS SHALL BE COMPLETE AND SUBMITTED WITHIN FIRST 90 DAYS OF WORK.

S3. ALL ITEMS NOTED AS DESIGNED "BY MANUFACTURED" IS A DEFERRED DESIGN AND SHALL BE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH MANUFACTURER FOR FINAL DESIGN AND SUBMIT FINAL DESIGN FOR APPROVAL. CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL FIELD DIMENSIONS.

S4. SOURCE QUALITY CONTROL:

PROVIDE PRODUCTS OF ACCEPTABLE MANUFACTURERS, WHICH HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR THREE YEARS, UNLESS MORE STRINGENT CRITERIA ARE SPECIFIED IN INDIVIDUAL SECTIONS. USE OF ANY SUPPLIER IS SUBJECT TO OWNER'S APPROVAL.

S5. SUBSTITUTIONS:

PROPOSALS FOR SUBSTITUTION OF MATERIALS, EQUIPMENT, AND METHODS WILL ONLY BE CONSIDERED WHEN ACCOMPANIED BY FULL AND COMPLETE TECHNICAL DATA AS WELL AS ANY OTHER INFORMATION REQUIRED TO EVALUATE THE PROPOSED SUBSTITUTION. SUBSTITUTIONS ARE UNACCEPTABLE UNLESS SPECIFICALLY APPROVED BY THE ARCHITECT. IN THE EVENT OF SUBSTITUTION PROPOSALS AFTER THE CONTRACT HAS BEEN AWARDED, ALL SUCH PROPOSALS SHALL BE ACCOMPANIED BY SUBSTANTIAL COST SAVINGS FOR THE OWNER.

S6. AVAILABILITY OF PRODUCTS:

VERIFY PRIOR TO CONSTRUCTION START THAT ALL SPECIFIED ITEMS WILL BE AVAILABLE IN TIME FOR INSTALLATION DURING ORDERLY AND TIMELY PROGRESS OF THE WORK. IN THE EVENT SPECIFIED ITEM OR ITEMS WILL NOT BE SO AVAILABLE, NOTIFY THE ARCHITECT PRIOR TO START OF CONSTRUCTION. COST OF DELAYS BECAUSE OF NON-AVAILABILITY OF SPECIFIED ITEMS OR SUBSTITUTED ITEMS, WHEN THE CONTRACTOR COULD HAVE AVOIDED SUCH DELAYS, WILL BE BORNE BY THE CONTRACTOR.

S7. PRODUCTS AND MATERIALS:

PROVIDE PRODUCTS AND MATERIALS SPECIFIED. REQUEST ARCHITECTS SELECTION OF COLORS AND ACCESSORIES IN SUFFICIENT TIME TO AVOID DELAYING PROGRESS OF THE WORK.

TOLERANCES

T1. TOLERANCES:

INSTALL WORK TRUE TO LINE, PLUMB, AND LEVEL. EXCEPT WHERE SPECIFIED OTHERWISE, WORK EXECUTED WITHIN THE FOLLOWING TOLERANCE WILL BE ACCEPTABLE.

a. TRUE TO LINE:

ALLOWED DEVIATION FROM AN ABSOLUTELY STRAIGHT LINE OF SIGHT WITHIN PLUS OR MINUS 1/8 INCH IN 10 FT. AND WITHIN PLUS OR MINUS ¼ INCH FOR ENTIRE LENGTH OF A PARTICULAR ELEMENT OF CONSTRUCTION OVER 20'-0" IN LENGTH.

b. PLUMB:

ALLOWED DEVIATIONS FROM AN ABSOLUTELY VERTICAL PLANE OF PLUS OR MINUS 1/8 INCH IN 10 FT. AND WITHIN PLUS OR MINUS ¼ INCH FOR ENTIRE LENGTH OF A PARTICULAR ELEMENT OF CONSTRUCTION OVER 20'-0" IN LENGTH.

c. LEVEL:

ALLOWED DEVIATIONS FROM AN ABSOLUTELY HORIZONTAL PLANE OF PLUS OR MINUS 1/8 INCH IN 10 FT. AND WITHIN PLUS OR MINUS ¼ INCH FOR ENTIRE LENGTH OF A PARTICULAR ELEMENT OF CONSTRUCTION OVER 20'-0" IN LENGTH.

d. ALLOWED DEVIATIONS FROM AN ABSOLUTELY FLAT IF WITHIN PLUS OR MINUS 1/16 INCH IN ONE SQUARE FOOT, WITHIN PLUS OR MINUS 1/8 INCH IN AN AREA 10 FEET BY 10 FEET, AND WITHIN PLUS OR MINUS ¼ INCH FOR ENTIRE AREA OF A PARTICULAR ELEMENT OF CONSTRUCTION OVER 20'-0" IN LENGTH.

T2. REFER TO SPECIFICATIONS FOR ADDITIONAL TOLERANCE REQUIREMENTS.

PROJECT CONTRACT CLOSEOUT:

P1 IN ADDITION TO THE PROJECT SPECIFICATIONS, PROJECT CLOSEOUT IS AS FOLLOWS:

a. SUBSTANTIAL COMPLETION:

AT SUBSTANTIAL COMPLETION OF THE PROJECT, SCHEDULE AND ATTEND A PUNCH LIST WALK THROUGH OF REMAINING WORK FOR REVIEW WITH THE ARCHITECT AND OWNER. COMPLETE ALL DEFECTS AND OMISSIONS NOTED IN THE FINAL PUNCHLIST PROMPTLY, IN THE TIME PERIOD AGREED UPON WITH THE OWNER, AT NO ADDITIONAL EXPENSE TO THE OWNER.

b. CERTIFICATE OF OCCUPANCY:

PROVIDE THE FINAL CERTIFICATE OF OCCUPANCY FROM THE BUILDING DEPARTMENT.

c. PERMITS/INSPECTION CARDS:

FURNISH COPIES OF PERMITS AND SIGNED INSPECTION CARDS FOR EACH OF THE FOLLOWING AGENCIES: BUILDING DEPARTMENT; PLUMBING/MECHANICAL DEPARTMENT; ELECTRICAL DEPARTMENT; FIRE DEPARTMENT; HEALTH DEPARTMENT; OTHERS AS REQUIRED.

d. FURNISH COPIES OF PERMITS AND SIGNED INSPECTION CARDS FOR EACH OF THE FOLLOWING AGENCIES: BUILDING DEPARTMENT; PLUMBING/MECHANICAL DEPARTMENT; ELECTRICAL DEPARTMENT; FIRE DEPARTMENT; HEALTH DEPARTMENT; OTHERS AS REQUIRED.

e. MAINTENANCE MANUALS AND WARRANTIES:

FURNISH (2) COPIES FOR EACH UNIT OF ALL MANUALS, MAINTENANCE INSTRUCTIONS, CONTRACTORS AND MANUFACTURER'S PRINTED WARRANTIES, AND INSTRUCTIONS FOR OPERATION OF ALL EQUIPMENT SPECIFIED HEREIN OR SHOWN ON DRAWINGS, TRAIN OWNER'S PERSONNEL IN USE OF BUILDING SYSTEMS.

f. TOUCH-UP MATERIAL:

FURNISH OWNER WITH ONE GALLON OF EACH PAINT AND STAIN USED PER UNIT. PROVIDE AN ADDITIONAL 2 PERCENT OF QUANTITY INSTALLED OF ALL FINISH MATERIAL INCLUDING CEILING PANELS, TILE, AND SHEET GOODS.

g. SUBCONTRACTORS:

PROVIDE THE OWNER THE NAMES, ADDRESSES, AND PHONE NUMBERS OF ALL SUBCONTRACTORS, FINAL UNCONDITIONAL LIEN RELEASES, AND WARRANTIES FROM EACH.

h. FINAL CLEANING AND REPAIRS:

REMOVE TEMPORARY FACILITIES AND PROVIDE FINAL CLEANING AND TOUCH-UP. RESTORE PORTIONS OF BUILDING, SITE IMPROVEMENTS, LANDSCAPING AND OTHER ITEMS DAMAGED BY CONSTRUCTION OPERATIONS TO THE SATISFACTION OF THE ARCHITECT, AT NO ADDITIONAL EXPENSE TO THE OWNER.

i. CLOSEOUT DOCUMENTS:

PROVIDE THE OWNER WITH A COMPACT DISK OF ALL RECORD DRAWINGS IN PDF FORMAT, COPY OF ALL SHOP DRAWINGS AND PRODUCT SUBMITTALS, SERVICE CONTRACTS, HVAC AIR BALANCE REPORT, AND WASTELINE VIDEO INSPECTION REPORT.

INSULATION SCHEDULE

ENERGY STRATEGY:

PRESCRIPTIVE PER IBC ☐ **RESCHECK - 2021 IECC** ☐ **RESCHECK - UTAH 2021** ☐

LOCATION	TYPE	THICKNESS	"R" VALUE	REMARKS (AND WRITTEN SPECIFICATION BOOKLET)
1. SLAB ON GRADE	-	-	-	N/A
2. PERIMETER FOUNDATION	-	-	-	N/A
3. INSIDE FACE OF EXTERIOR CMU WALLS - BETWEEN CMU AND METAL FRAMED FURRED WALL.	RIGID BOARD	2-INCHES TOTAL THICKNESS	R-10	EXTERIOR, CONTINUOUS - PERIMETER - OWENS CORNING FORMULAR 250 INSULATION SHALL BE CONT. FROM FINISH FLOOR SLAB TO UNDERSIDE OF ROOF FRAMING. INSULATION TO OCCUR AT PERIMETER OF OCCUPIED/ HEATED SPACES ONLY. DO NOT PROVIDE INSULATION AT UNHEATED SPACES. REFER TO DETAILS ON THE DRAWINGS AND THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. WALL CAVITY INSULATION EXTERIOR FRAMED WALLS - FURRED WALLS.	BATTS	3 1/2-INCHES TOTAL THICKNESS	R-15	CERTAINTEED CERTA PRO ACOUSTI THERM UNFACED FRICTION BATTS or THERMAFIBER SAFE or OWENS CORNING - THERMAL BATT - FILL STUD CAVITY TIGHT AS PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH WALL TYPES AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS - KRAFT PAPER CLASS II VAPOR RETARDER - TAPE SEAMS & EDGES.
5A. ROOF AT TRUSSES / STICK FRAMING	AIR-IMPERMEABLE SPRAY FOAM	1 1/2-INCHES TOTAL THICKNESS	R-5	AIR-IMPERMEABLE SPRAY FOAM INSULATION AT THE UNDERSIDE OF THE ROOF PLYWOOD SHEATHING AT ALL AREAS OF THE ROOF OVER MECHANICALLY CONDITIONED SPACES.
5B. ROOF AT TRUSSES / STICK FRAMING	BATTS	CONTRACTOR VERIFY (APPROXIMATELY 12-INCHES)	R-33 (MINIMUM)	CERTAINTEED CERTA-PRO ACOUSTA-THERM UNFACED FRICTION BATTS OR THERMAFIBER SAFE OR OWENS CORNING - THERMAL BATT.
6. FURRED OUT WALLS AT BASEMENT	-	-	-	N/A
7. BATHROOMS	BATTS - SOUND	3 1/2-INCHES	R-13	CERTAINTEED CERTA PRO ACOUSTI THERM UNFACED FRICTION BATTS or THERMAFIBER SAFE or OWENS CORNING - THERAL BATT - FILL STUD CAVITY TIGHT AS PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE WITH WALL TYPES AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS
8. DUCTWORK/PLUMBING LINES	DBL. FACED 1/2" VINYL FACED OR AS DIRECTED MY MECHANICAL / PLUMBING DRAWINGS	-	-	SEE MECHANICAL AND PLUMBING - FOR ALL INSULATION REQUIREMENTS

NOTES:

1. COORDINATE WITH SPECIFICATION FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. ALL INSULATION SHALL BE TIGHT, AND NO GAPS SHALL BE LEFT.
3. ALL INSULATION AT PIPES SHALL BE INSTALLED AT COLD SIDE ONLY, NO EXCEPTIONS.
4. WHERE INSULATION IS REQUIRED THE MOST RESTRICTIVE BETWEEN THE RESCHECK AND THE INSULATION SCHEDULE SHALL BE INSTALLED. SEE RESCHECK.
5. CONTRACTOR SHALL CAULK ALL ELECTRICAL BOXES AT EXTERIOR WALL FOR AIR LEAKAGE.

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49665
JERED MICHAEL PLOUZEK
4/2/2025
EXPIRES: 06/30/2025

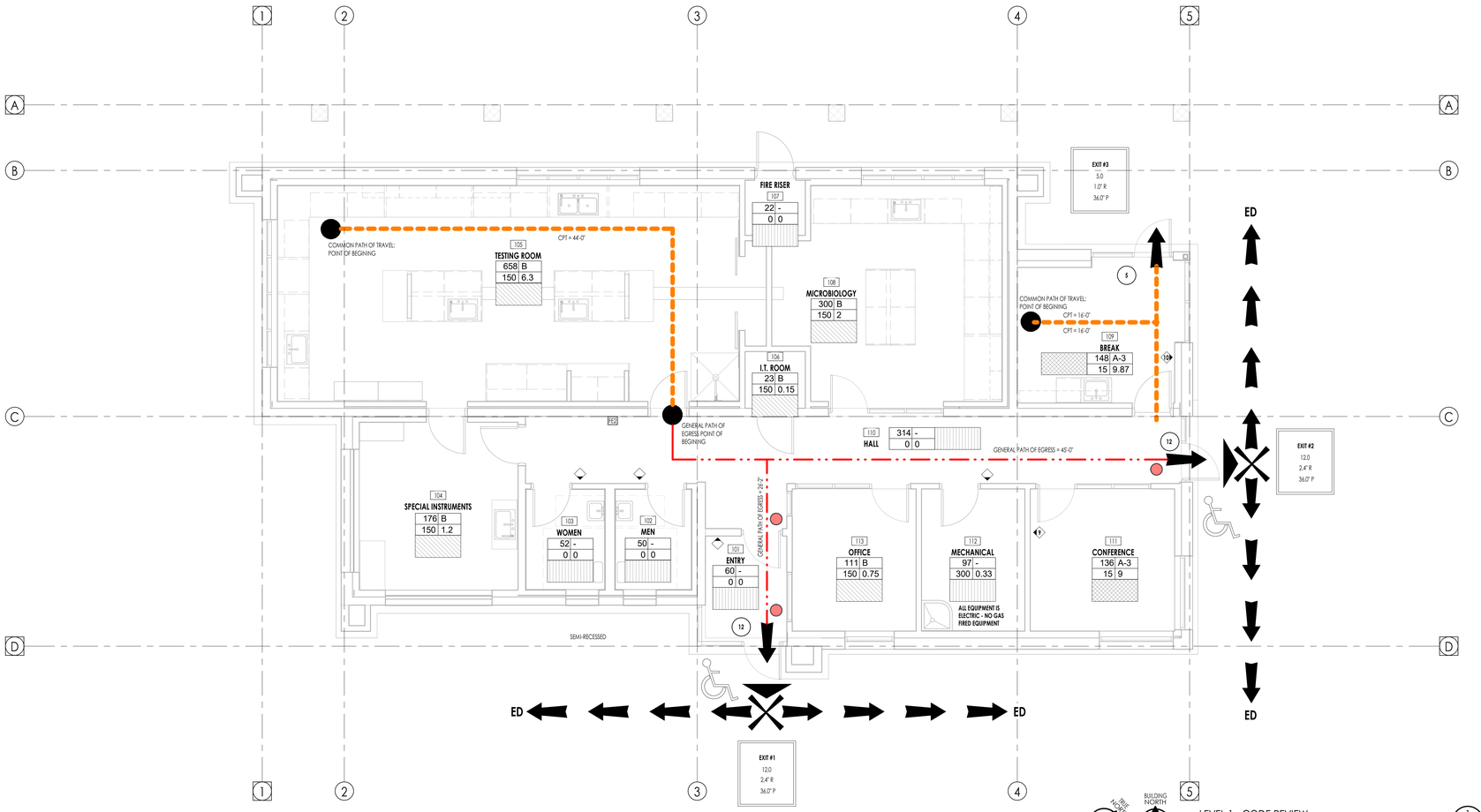
LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
G002

BID SET



CODE ANALYSIS LEGEND

- B - OCCUPANCY
- A - OCCUPANCY
- NOT A SPACE CLASSIFIED WITH AN OCCUPANCY
- STAIR 166 OCC. 4'-6"R 6'-0"P — MAXIMUM OCCUPANT LOAD THRU EXIT; MINIMUM REQUIRED STAIR WIDTH; STAIR WIDTH PROVIDED
- EXIT 166 OCC. 3'-0"R 4'-0"P — (LOCATION SHOWN BY LARGE ARROW) MAXIMUM OCCUPANT LOAD THRU EXIT; MINIMUM REQUIRED EXIT WIDTH; EXIT WIDTH PROVIDED
- 1 HOUR FIRE BARRIER OR PARTITION. SEE WALL TYPES
- 2 HOUR FIRE BARRIER OR PARTITION. SEE WALL TYPES
- 3 HOUR FIRE BARRIER OR PARTITION. SEE WALL TYPES
- CPT — COMMON PATH OF TRAVEL AS PER IBC 1006.2.1
- 3 HOUR FIRE BARRIER OR PARTITION. SEE WALL TYPES
- ROOM/AREA SQUARE FOOTAGE
- SF | OCC — OCCUPANCY GROUP
- OLF | OL — OCCUPANT LOAD
- OCCUPANCY LOAD FACTOR (n=NET sf, g=GROSS SF)
- ROOM/AREA REQUIRED EXIT
- BUILDING REQUIRED EXIT
- GENERAL PATH OF EGRESS
- ED — EXIT DISCHARGE TO PUBLIC WAY - IBC 1027
- CLASS 1 STAND-PIPE (905.3.1 - EXCEPTION #1)
- FIRE DEPARTMENT CONNECTION (FDC)
- KNOX BOX
- FE1 — ONE-HOUR FIRE RATED RECESSED FIRE EXTINGUISHER CABINET AND FIRE EXTINGUISHER; FIRE EXTINGUISHER - 2A: 10BC
- FE2 — NON-RATED SEMI-RECESSED FIRE EXTINGUISHER CABINET AND FIRE EXTINGUISHER; FIRE EXTINGUISHER - 2A: 10BC
- ROOMS WITH AN OCCUPANT LOAD OF 50 OR MORE IN GROUP A OCCUPANCY SHALL HAVE TWO EXITS AND ARE REQUIRED TO HAVE PANIC HARDWARE (IBC 2015 SECTION 1008.1.10)
- # — NUMBER OF OCCUPANTS IN EXIT ROUTE
- REQUIRED EXIT LIGHT LOCATIONS. SEE IBC 2015 SECTION 1011. (SHOWN ON ELECTRICAL DRAWINGS)
- ACCESSIBLE ELEMENT
- NON-ACCESSIBLE ELEMENT
- PANIC HARDWARE REQUIRED
- SIGN LOCATION; WALL SIGN; OCCUPANCY LOAD #

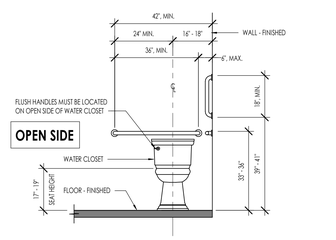


FIGURE 604.5.2

ACCESSIBLE STALLS — 3 G003 — 1/2" = 1'-0"

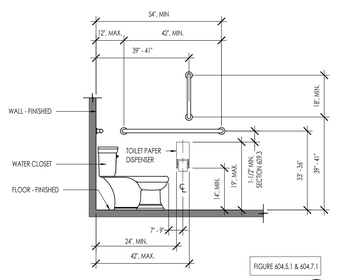
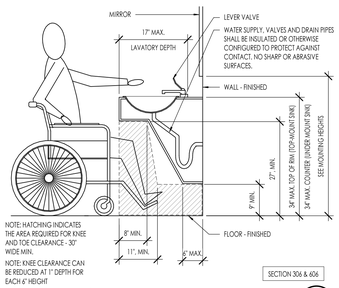


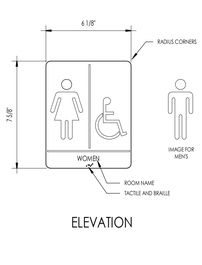
FIGURE 604.5.1 & 604.7.1

ACCESSIBLE STALLS — 4 G003 — 1/2" = 1'-0"



SECTION 306 & 606

PUBLIC LAVATORY — 5 G003 — 3/4" = 1'-0"



ELEVATION

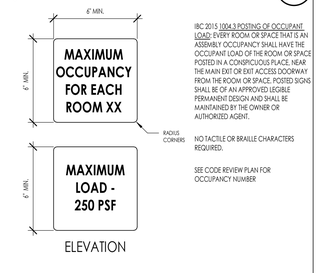
SIGNAGE - RESTROOM PLAQUE — 6 G003 — 3" = 1'-0"

IBC 2015 2902.4 SIGNAGE: A LEGIBLE SIGN DESIGNATING THE SEX SHALL BE PROVIDED IN A READILY VISIBLE LOCATION NEAR THE ENTRANCE TO EACH TOILET FACILITY SHALL COMPLY WITH ICC/ANSI A117.1.

TACTILE AND BRAILLE CHARACTERS REQUIRED (ADAAG 4.1.3 (16))

NOTE: IF NOT ALL TOILET ROOMS ARE ACCESSIBLE, THE INTERNATIONAL SYMBOL OF ACCESSIBLE. MUST BE PROVIDED AT THE ACCESSIBLE TOILET ROOMS AND THOSE TOILET ROOMS THAT ARE NOT ACCESSIBLE WILL REQUIRE DIRECTIONAL SIGNAGE INDICATING THE LOCATION OF THE NEAREST ACCESSIBLE TOILET ROOMS.

NOTE: CHARACTERS AND GRAPHICS SHALL CONTRAST WITH THEIR BACKGROUND. NON-GLARE FINISH IS REQUIRED ON SIGN SURFACE.



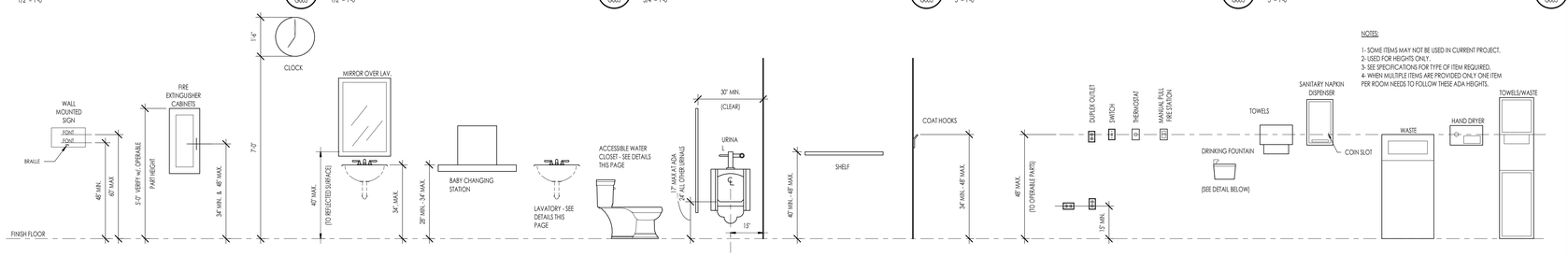
ELEVATION

IBC 2015 1004.3 POSTING OF OCCUPANT LOAD: EVERY ROOM OR SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE ROOM OR SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE ROOM OR SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE PERMANENT DESIGN AND SHALL BE MAINTAINED BY THE OWNER OR AUTHORIZED AGENT.

NO TACTILE OR BRAILLE CHARACTERS REQUIRED.

SEE CODE REVIEW PLAN FOR OCCUPANCY NUMBER

SIGNAGE - OCCUPANCY PLAQUE — 7 G003 — 3" = 1'-0"



NOTES:

1- SOME ITEMS MAY NOT BE USED IN CURRENT PROJECT.
2- USED FOR HEIGHTS ONLY.
3- SEE SPECIFICATIONS FOR TYPE OF ITEM REQUIRED.
4- WHEN MULTIPLE ITEMS ARE PROVIDED ONLY ONE ITEM PER ROOM NEEDS TO FOLLOW THESE ADA HEIGHTS.

ACCESSIBLE MOUNTING HEIGHTS — 8 G003 — 1/2" = 1'-0"

GENERAL NOTES

SEE G002A FOR COMPLETE WRITTEN CODE ANALYSIS & REVIEW - ALL AREAS SHOWN HERE ARE REFERENCED WITHIN CODE ANALYSIS.

1. BUILDING IS FULLY SPRINKLED AS PER NFPR 13 AND CAN THEREFORE BE USED FOR BUILDING AREA INCREAS.
2. SEE CODE ANALYS PLANS FOR THE LOCATION OF FIRE EXTINGUISHERS (FE-1).
3. REFER TO PARTITION AND ASSEMBLY SCHEDULE ON WALL TYPES AND FINISH PLANS.
4. PROVIDE TEMPORARY FIRE PROTECTION DURING CONSTRUCTION AS PER REQUIREMENTS OF THE INTERNATIONAL FIRE CODE.
5. 2015 IBC SEISMIC DESIGN CATEGORY D - SEE STRUCTURAL DRAWINGS.
6. THE ROOFING ON THIS BUILDING IS REQUIRED TO HAVE A CLASS B FLAME SPREAD INDEX.
7. WALL AND CEILING FINISHES ARE REQUIRED TO HAVE A CLASS B FLAME SPREAD INDEX.
8. CONCEALED INSULATING MATERIALS MUST HAVE A FLAME-SPREAD RATING OF NO MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 450. SEE IBC 2015 SECTION 720.2.
9. REFER TO ELECTRRICAL DRAWINGS FOR EMERGENCY EXIT SIGNS AND LIGHTS.

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REGISTERED ARCHITECT — 49665 — JERED MICHAEL PLOUZEK — ARIZONA, U.S.A. — EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

340 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
IBC CODE ANALYSIS - PLAN & DETAILS

SHEET NUMBER:
G003

BID SET

Plot Date: 4/21/2025 6:51:52 AM

GENERAL PROJECT DATA:
1) SEPERATED OCCUPANCIES (508.4)
3) CONSTRUCTION TYPE: V-B (602.5)
5) BUILDING FOOTPRINT: LEVEL 1 = 2,640 SQ FT

CHAPTER 3 – USE AND OCCUPANCY CLASSIFICATION
303.4 ASSEMBLY (BREAK/CONF.) A-3 : 285 SQUARE FEET (RM's 109 AND 111)
304.1 BUSINESS (OFFICE) B : 1,268 SQUARE FEET (RM's 104, 105, 106, 108 & 113

CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

NOT APPLICABLE

CHAPTER 5 – ALLOWABLE HEIGHTS AND BUILDING AREAS
502.1 ADDRESS IDENTIFICATION. SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. FONT, LOCATION, COLOR AND SIZE AS DEFINED ON THE 'G' AND 'A' SHEETS IN THIS SET OF CONSTRUCTION DOCUMENTS - SEE LEVEL 1 SIGNAGE PLAN IN THE 'G' SHEET SECTION OF THESE DOCUMENTS.
504 BUILDING HEIGHT AND NUMBER OF STORIES (TYPE V-B)
TABLE 504.3: ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE (A & B)
ALLOWABLE HEIGHT = A, 60 FEET; B, 60 FEET — **ACTUAL HEIGHT = 18'-4"** (LEVEL 1 T.O. BUILDING HIGH EAVE, GRID C).
TABLE 504.4: ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE(TYPE V-B)
ALLOWABLE STORIES = A, 2 STORIES; B, 3 STORIES — **ACTUAL STORIES = 1** (ABOVE GRADE PLANE)
506 BUILDING AREA
TABLE 506.2 ALLOWABLE AREA FACTOR
ALLOWABLE AREA FACTOR (S1)
A-3 = 24,000 SqFt. ALLOWABLE, 285 SqFt. ACTUAL
B = 36,000 SqFt. ALLOWABLE, 1,268 SqFt. ACTUAL

508.4.2 ALLOWABLE BUILDING AREA. IN EACH STORY, THE BUILDING AREA SHALL BE SUCH THAT THE SUM OF THE RATIOS OF THE ACTUAL BUILDING AREA OF EACH SEPARATED OCCUPANCY DIVIDED BY THE ALLOWABLE BUILDING AREA OF EACH SEPARATED OCCUPANCY SHALL NOT EXCEED 1.
(ACTUAL / ALLOWABLE) + (ACTUAL / ALLOWABLE) ... ≤ 1
LEVEL 1:
A-3,(285/24000)+B,(1268/36000) ≤ 1; 0.012 + 0.035 = 0.047 ≤ 1

508.4.3 MIXED USE ALLOWABLE HEIGHT PER SECTION 503.1

CHAPTER 6 – TYPES OF CONSTRUCTION
602 CONSTRUCTION CLASSIFICATION
602.5 TYPE V. TYPE V CONSTRUCTION IS THAT TYPE OF CONSTRUCTION IN WHICH THE STRUCTURAL ELEMENTS, EXTERIOR WALLS AND INTERIOR WALLS ARE OF ANY MATERIALS PERMITTED BY THIS CODE.
TABLE - 601 FIRE RESISTANCE RATING. NO FIRE RESISTIVE REQUIREMENTS IN TYPE V-B CONSTRUCTION
TABLE - 602 EXTERIOR WALLS. FOR OCCUPANCIES: A-3 & B

NORTH EXTERIOR WALL:	X IS GREATER THAN OR EQUAL TO 30 FEET.	NON-RATED.
SOUTH EXTERIOR WALL:	X IS GREATER THAN OR EQUAL TO 30 FEET.	NON-RATED.
EAST EXTERIOR WALL:	X IS GREATER THAN OR EQUAL TO 30 FEET.	NON-RATED.
WEST EXTERIOR WALL:	X IS GREATER THAN OR EQUAL TO 30 FEET.	NON-RATED.

CHAPTER 7 – FIRE AND SMOKE PROTECTION FEATURES
703.7 MARKING AND IDENTIFICATION. NOT APPLICABLE.
704 FIRE-RESISTANCE RATING OF STRUCTURAL MEMBERS. N/A, NOT REQUIRED IN TYPE V-B CONSTRUCTION
705 EXTERIOR WALLS. NOT REQUIRED IN TYPE V-B CONSTRUCTION WHEN GREATER THAN 10' FROM PROPERTY LINE
705.2 PROJECTIONS. N/A. CORNICES, EAVE OVERHANGS, EXTERIOR BALCONIES AND SIMILAR PROJECTIONS EXTENDING BEYOND THE EXTERIOR WALL SHALL CONFORM TO THE REQUIREMENTS OF THIS SECTION AND SECTION 1405.
TABLE 705.2 MINIMUM DISTANCE OF PROJECTION. N/A.
705.2.2 TYPE III, IV OR V CONSTRUCTION. PROJECTIONS FROM WALLS OF TYPE III, IV OR V CONSTRUCTION SHALL BE OF ANY APPROVED MATERIAL. PROJECT IS: **TYPE V.**
705.8 OPENINGS.

NORTH WALL,	LEVEL 1: 30FEET OR GREATER =	**NO LIMIT** (BUILDING SPRINKLED).
SOUTH WALL,	LEVEL 1: 30FEET OR GREATER =	**NO LIMIT** (BUILDING SPRINKLED).
EAST WALL,	LEVEL 1: 30FEET OR GREATER =	**NO LIMIT** (BUILDING SPRINKLED).
WEST WALL,	LEVEL 1: 30FEET OR GREATER =	**NO LIMIT** (BUILDING SPRINKLED).

706 FIRE WALLS. NOT REQUIRED, ACTUAL BUILDING SF WITHIN ALLOWABLE AREA
707 FIRE BARRIERS. NOT REQUIRED.
708 FIRE PARTITIONS NOT REQUIRED.
709 SMOKE BARRIERS. NOT REQUIRED.
710 SMOKE PARTITIONS. NOT REQUIRED.
711 HORIZONTAL ASSEMBLIES.
711.2.4.1 SEPERATING MIXED OCCUPANCIES: NOT REQUIRED.
712 SHAFT ENCLOSURES. NOT REQUIRED.
714 PENETRATIONS. PENETRATIONS IN FIRE PARTITIONS SEPARATING OCCUPANCIES WILL BE SEALED USING A FIRE-RESISTIVE RATED ASSEMBLY. **NOT REQUIRED.**
715 FIRE-RESISTANT JOINT SYSTEMS. ALL FLOOR PENETRATIONS ARE TO BE SEALED TO RESIST THE FREE PASSAGE OF FLAME AND SMOKE. **NOT REQUIRED.**
716 OPENING PROTECTIVE.
TABLE 716.1 NOT REQUIRED.
717 DUCTS AND AIR TRANSFER OPENINGS NOT REQUIRED
718 CONCEALED SPACES. FIREBLOCKING AND DRAFTSTOPPING SHALL BE INSTALLED IN COMBUSTIBLE CONCEALED LOCATIONS IN ACCORDANCE WITH THIS SECTION.
718.2 FIREBLOCKING. IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE INSTALLED TO CUT OFF CONCEALED DRAFT OPENINGS (BOTH VERTICAL AND HORIZONTAL) AND SHALL FORM AN EFFECTIVE BARRIER BETWEEN FLOORS, BETWEEN A TOP STORY AND A ROOF OR ATTIC SPACE.
718.2.2 CONCEALED WALL SPACES.
1. VERTICALLY AT THE CEILING AND FLOOR LEVELS. 2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET.
718.3 DRAFTSTOPPING IN FLOORS. N/A
718.4 DRAFTSTOPPING IN ATTICS. N/A.

CHAPTER 9 – FIRE PROTECTION SYSTEMS
903.2.8 GROUP A-3. AUTOMATIC FIRE SPRINKLING SYSTEM SHALL BE PROVIDED THROUGHOUT STORIES CONTAINING GROUP A-3 OCCUPANCIES.
903.3.1.1 NFPA 13 SPRINKLER SYSTEM SPRINKLERS ARE TO BE INSTALLED THROUGHOUT IN ACCORDANCE WITH NFPA 13.
903.3.7 FIRE DEPARTMENT CONNECTION FIRE DEPARTMENT CONNECTIONS FOR AUTOMATIC SPRINKLER SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 912.
903.4.1 MONITORING ALARM, SUPERVISORY AND TROUBLE SIGNALS SHALL BE DISTINCTLY DIFFERENT AND SHALL BE AUTOMATICALLY TRANSMITTED TO AN APPROVED SUPERVISING STATION OR, WHERE APPROVED BY THE FIRE CODE OFFICIAL, SHALL SOUND AN AUDIBLE SIGNAL AT A CONSTANTLY ATTENDED LOCATION.
905 STANDPIPE SYSTEMS A STANDPIPE SYSTEM IS NOT REQUIRED BECAUSE HIGHEST STORY **IS NOT** OF A HEIGHT MORE THAN 30FEET.
906 POTABLE FIRE EXTINGUISHERS
906.1 WHERE REQUIRED OCCUPANCIES GROUPS A AND B
TABLE 906.3 FIRE EXTINGUISHERS FOR CLASS A FIRE HAZARDS 75' MAX TRAVEL TO EXTINGUISHERS, LOCATE ALONG EGRESS PATH. **SEE "G" SHEETS FOR LOCATION OF PORTABLE FIRE EXTINGUISHERS.**
907 FIRE ALARM AND DETECTION SYSTEMS.
GROUP A REQUIRED IF OCCUPANCY LOAD IS 300 OR MORE. GROUP A OCCUPANCY IS LESS THAN 300, **NOT REQUIRED.**
GROUP B REQUIRED IF OCCUPANCY LOAD IS 500 OR MORE ON ALL FLOORS OR OCCUPANCY LOAD IS 100 ABOVE OR BELOW THE LOWEST LEVEL OF EXIT DISCHARGE OR FIRE AREA CONTAINS AN AMBULATORY CARE FACILITY. **NOT APPLLICABLE SO, NOT REQUIRED.**
909 SMOKE CONTROL. SMOKE CONTROL IS NOT REQUIRED.

CHAPTER 10 - MEANS OF EGRESS
TABLE 1004.5 - MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT
LEVEL 1:
GROUP A OCCUPANCY: 15 NET (TABLES AND CHAIRS).
GROUP B OCCUPANCY: 150 NET
1005 MEANS OF EGRESS SIZING
1005.3.2 OTHER EGRESS COMPONENTS. SIZE DETERMINED USING A (0.2" CAPACITY FACTOR / OCCUPANTS SERVED).
1006 NUMBER OF EXITS AND EXIT ACCESS DOORWAYS
TABLE 1006.2.1 SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY: N/A
TABLE 1006.3.2 MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY
OCCUPANT LOAD OF 1-500 MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS FROM STORY - 2 EXITS (PROVIDED)
1007 EXIT AND EXIT ACCESS DOORWAY CONFIGURATION
1007.1.1 TWO EXITS OR EXIT ACCESS DOORWAYS
WHERE TWO EXITS, EXIT ACCESS DOORWAYS, EXIT ACCESS STAIRWAYS OR RAMPS, OR ANY COMBINATION THEREOF, ARE REQUIRED FROM ANY PORTION OF THE EXIT ACCESS, THEY SHALL BE PLACED A DISTANCE APART EQUAL TO NOT LESS THAN ONE-HALF OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED MEASURED IN A STRAIGHT LINE BETWEEN THEM.
1010 DOORS, GATES AND TURNSTILES
1010.1.2.1 DIRECTION OF SWING. PIVOT OR SIDE-HINGED SWINGING DOORS SHALL SWING IN THE DIRECTION OF EGRESS TRAVEL WHERE SERVING A ROOM OR AREA CONTAINING AN OCCUPANT LOAD OF 50 OR MORE PERSONS - **ALL EXIT DOOR OPEN IN DIRECTION OF TRAVEL.**
1017 EXIT ACCESS TRAVEL DISTANCE
TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE
GROUP A WITH SPRINKLER = ALLOWED, 250 FEET, MAXIMUM - **PROVIDED**
GROUP B WITH SPRINKLER = ALLOWED, 300 FEET, MAXIMUM - **PROVIDED**
1020 CORRIDORS N/A
1023 INTERIOR EXIT STAIRWAYS AND RAMPS N/A
1030 EMERGENCY ESCAPE AND RESCUE. N/A

CHAPTER 11 – ACCESSIBILITY
1104 ACCESSIBLE ROUTE. AN ACCESSIBLE ROUTE IS PROVIDED ON LEVEL 1.
1105 ACCESSIBLE ENTRANCES.
1105.1 PUBLIC ENTRANCES. AT LEAST 60 PERCENT OF ALL PUBLIC ENTRANCES SHALL BE ACCESSIBLE. **ALL ENTRANCES ARE ACCESSIBLE.**

CHAPTER 29 - PLUMBING SYSTEMS

OCCUPANCY	MALE/FEMALE	FIXTURE		REQUIRED	PROVIDED	
LEVEL 1						
		DRINKING FOUNTAIN	= -	1	0	
		SERVICE SINK	= 1	1	1	
B (BUSINESS)	M/F 15/15	WATER CLOSET	= 1/25 : 1/25	1/1	1/1	**URINAL NOT PROVIDED**
		LAVATORIES	= 1/40 : 1/40	1/1	1/1	
		SHOWER	= -/-	0/0	**N/A**	
		URINALS	= -/-	0/0	**N/A**	

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REGISTERED ARCHITECT — 49665 — JARED MICHAEL PLOUZEK — ARIZONA, U.S.A. — EXPIRES 09/30/2026

LAKE HAVASU CITY WATER QUALITY LABORATORY
340 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

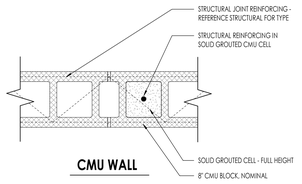
SHEET TITLE:
IBC CODE ANALYSIS - WRITTEN
SHEET NUMBER:
G004

BID SET

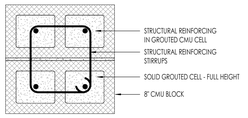
Plot Date: 4/21/2025 6:51:53 AM

WALL TYPE B1

NON-RATED ASSEMBLY



CMU WALL



CMU COLUMN

SYSTEM DESCRIPTION:

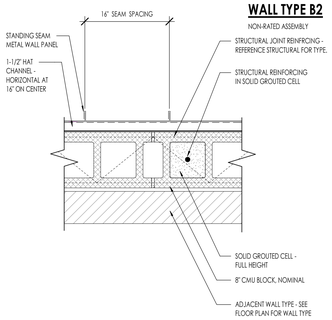
8" (NOMINAL) CMU BLOCK WALL AND CMU BLOCK COLUMN.

CONCRETE MASONRY UNITS
- REFERENCE STRUCTURAL DRAWINGS FOR CMU BLOCK SPECIFICATIONS.
- REFERENCE STRUCTURAL DRAWINGS FOR ALL REINFORCING REQUIREMENTS.
- PROVIDE U BLOCK AT ALL OPENING BOND BEAMS - ALL OPENINGS SHALL HAVE SQUARE CORNERS.
- REFERENCE STRUCTURAL DRAWINGS FOR CMU WALL CONTROL JOINT LOCATIONS.

WALL TYPE B1 - PLAN VIEW
1 1/2" = 1'-0"
1 G005

WALL TYPE B2

NON-RATED ASSEMBLY



SYSTEM DESCRIPTION:

8" (NOMINAL) CMU BLOCK WALL.

CONCRETE MASONRY UNITS
- REFERENCE STRUCTURAL DRAWINGS FOR CMU BLOCK SPECIFICATIONS.
- REFERENCE STRUCTURAL DRAWINGS FOR ALL REINFORCING REQUIREMENTS.
- PROVIDE U BLOCK AT ALL OPENING BOND BEAMS - ALL OPENINGS SHALL HAVE SQUARE CORNERS.
- REFERENCE STRUCTURAL DRAWINGS FOR CMU WALL CONTROL JOINT LOCATIONS.

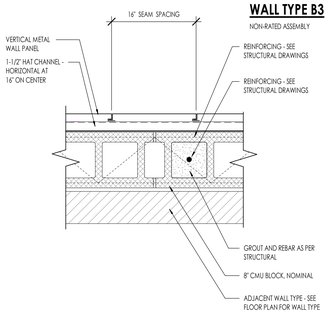
HAT CHANNEL
1-1/2" 20 GAUGE CORROSION-RESISTANT HORIZONTAL FURRING/HAT CHANNEL ATTACHED TO CMU WALL INSTALLED HORIZONTALLY. ATTACHED TO WALLS WITH TAPCON CONCRETE FASTENERS OR FASTENERS PER MANUFACTURERS RECOMMENDATIONS IN PILOT HOLE.

STANDING SEAM METAL WALL PANEL
22 GAUGE STANDING SEAM METAL CONCEALED FASTENER WALL SYSTEM WITH 2" TALL VERTICAL SEAM AT 12-INCHES ON CENTER. SURFACE FINISH SHALL BE SMOOTH WITH SIGNATURE 300 OR KYNAR 500 FINISH SYSTEM. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF COLOR OPTIONS.

WALL TYPE B2 - PLAN VIEW
1 1/2" = 1'-0"
2 G005

WALL TYPE B3

NON-RATED ASSEMBLY



SYSTEM DESCRIPTION:

8" (NOMINAL) CMU BLOCK WALL.

CONCRETE MASONRY UNITS
- REFERENCE STRUCTURAL DRAWINGS FOR CMU BLOCK SPECIFICATIONS.
- REFERENCE STRUCTURAL DRAWINGS FOR ALL REINFORCING REQUIREMENTS.
- PROVIDE U BLOCK AT ALL OPENING BOND BEAMS - ALL OPENINGS SHALL HAVE SQUARE CORNERS.
- REFERENCE STRUCTURAL DRAWINGS FOR CMU WALL CONTROL JOINT LOCATIONS.

HAT CHANNEL
1-1/2" 20 GAUGE CORROSION-RESISTANT HORIZONTAL FURRING/HAT CHANNEL ATTACHED TO CMU WALL INSTALLED HORIZONTALLY. ATTACHED TO WALLS WITH TAPCON CONCRETE FASTENERS OR FASTENERS PER MANUFACTURERS RECOMMENDATIONS IN PILOT HOLE.

VERTICAL METAL WALL PANEL
24 GAUGE. 1-INCH METAL PANEL CONCEALED FASTENER 12-INCH WALL SYSTEM.
SURFACE FINISH SHALL BE SMOOTH WITH SIGNATURE 300 OR KYNAR 500
FINISH SYSTEM. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF COLOR OPTIONS.

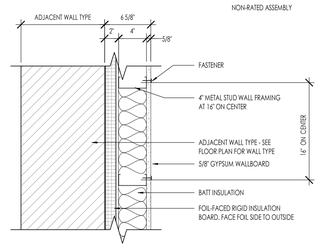
ADJACENT WALL TYPE

FOR ADJACENT WALL TYPE - REFERENCE FLOOR PLAN

WALL TYPE B3 - PLAN VIEW
1 1/2" = 1'-0"
3 G005

WALL TYPE C1

NON-RATED ASSEMBLY



SYSTEM DESCRIPTION:

METAL STUD FRAMED WALL WITH GYPSUM WALLBOARD ONE SIDE.

METAL STUD FRAMING

4-INCH METAL STUD FRAMED WALL 16" ON CENTER SPACING, MAXIMUM.

GYPSUM BOARD

5/8-INCH GYPSUM WALLBOARD, TAPED, SANDED, AND FINISHED AS SPECIFIED - SEE FINISH SCHEDULE FOR WALL FINISH SELECTION.

BATT INSULATION

3-1/2-INCH UNFACED FIBERGLASS BATT FLEXIBLE BLANKET INSULATION. PRESSURE FIT BETWEEN WALL FRAMING. R-15

FOIL-FACED RIGID INSULATION BOARD

1-1/2-INCH FOIL-FACED CLOSED CELL RIGID INSULATION BOARD. FACE FOIL FACE TOWARD EXTERIOR OF THE BUILDING. TAPE SEAL ALL VERTICAL, HORIZONTAL AND PERIMETER JOINTS. R-7.5

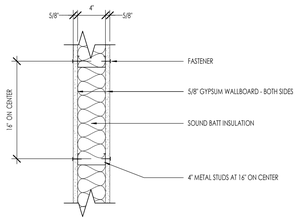
ADJACENT WALL TYPE

FOR ADJACENT WALL TYPE - REFERENCE FLOOR PLAN.

WALL TYPE C1 - PLAN VIEW
1 1/2" = 1'-0"
4 G005

WALL TYPE C2

NON - RATED ASSEMBLY



SYSTEM DESCRIPTION

-METAL STUD PARTITION WITH GYPSUM BOARD BOTH SIDES
-4-INCH METAL STUDS
-4-INCH METAL SPACED 16" ON CENTER
-4-INCH METAL TRACK TOP AND BOTTOM OF WALL. TOP OF WALL TRACK SHALL HAVE A SLIP-TRACK WHERE ATTACHED TO STUCTURAL SYSEMS - SLOTTED.

GYPSUM BOARD

-5/8" GYPSUM WALLBOARD, TAPED, SANDED, AND FINISHED AS SELECTED
- SEE FINISH SCHEDULE FOR FINISH SELECTED

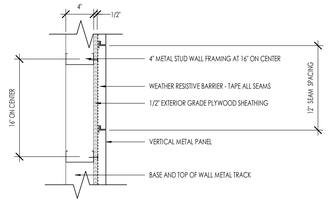
BATTS AND BLANKETS

-SOUND INSULATION IN: TOILET, OFFICE, JANITOR, CONFERENCE AND BREAKROOM

WALL TYPE C2 - PLAN VIEW
1 1/2" = 1'-0"
5 G005

WALL TYPE C3

NON-RATED ASSEMBLY



SYSTEM DESCRIPTION:

METAL STUD FRAMED WALL WITH STANDING SEAM WALL PANEL.

METAL STUD FRAMING

18 GAUGE, 4-INCH METAL STUD FRAMED WALL 16" ON CENTER SPACING, MAXIMUM. 4-INCH METAL TRACK TOP AND BOTTOM OF WALL. TOP OF WALL TRACK SHALL HAVE A SLIP-TRACK WHERE ATTACHED TO STRUCTURAL SYSTEM - SLOTTED.

PLYWOOD SHEATHING

1/2-INCH EXTERIOR GRADE PLYWOOD SHEATHING.

WEATHER RESISTIVE BARRIER

WEATHER RESISTIVE BARRIER, GRADE D, 60 MINUTE OR MEET ASTM E2556, TYPE II

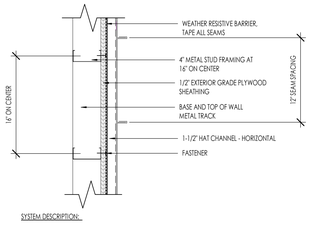
VERTICAL METAL WALL PANEL

24 GAUGE. 1-INCH METAL PANEL CONCEALED FASTENER 12-INCH WALL SYSTEM.
SURFACE FINISH SHALL BE SMOOTH WITH SIGNATURE 300 OR KYNAR 500
FINISH SYSTEM. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF COLOR OPTIONS.

WALL TYPE C3 - PLAN VIEW
1 1/2" = 1'-0"
6 G005

WALL TYPE C4

NON - RATED ASSEMBLY



SYSTEM DESCRIPTION:

METAL STUD FRAMED WALL WITH STANDING SEAM WALL PANEL.

METAL STUD FRAMING

18 GAUGE, 4-INCH METAL STUD FRAMED WALL 16" ON CENTER SPACING, MAXIMUM. 4-INCH METAL TRACK TOP AND BOTTOM OF WALL. TOP OF WALL TRACK SHALL HAVE A SLIP-TRACK WHERE ATTACHED TO STRUCTURAL SYSTEM - SLOTTED.

PLYWOOD SHEATHING

1/2-INCH EXTERIOR GRADE PLYWOOD SHEATHING.

WEATHER RESISTIVE BARRIER

WEATHER RESISTIVE BARRIER, GRADE D, 60 MINUTE OR MEET ASTM E2556, TYPE II.

HAT CHANNEL

1-1/2" 20 GAUGE CORROSION-RESISTANT HORIZONTAL FURRING/HAT CHANNEL ATTACHED TO CMU WALL INSTALLED HORIZONTALLY. ATTACHED TO WALLS WITH TAPCON CONCRETE FASTENERS OR FASTENERS PER MANUFACTURERS RECOMMENDATIONS IN PILOT HOLE.

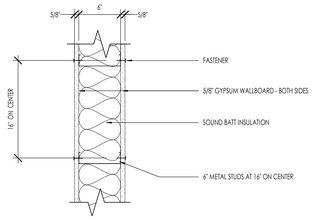
STANDING SEAM METAL WALL PANEL

22 GAUGE STANDING SEAM METAL CONCEALED FASTENER WALL SYSTEM WITH 2" TALL VERTICAL SEAM AT 12-INCHES ON CENTER. SURFACE FINISH SHALL BE SMOOTH WITH SIGNATURE 300 OR KYNAR 500 FINISH SYSTEM. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF COLOR OPTIONS.

WALL TYPE C4 - PLAN VIEW
1 1/2" = 1'-0"
7 G005

WALL TYPE C5

NON - RATED ASSEMBLY



SYSTEM DESCRIPTION

-METAL STUD PARTITION WITH GYPSUM BOARD BOTH SIDES
-6-INCH METAL STUDS
-6-INCH METAL SPACED 16" ON CENTER
-6-INCH METAL TRACK TOP AND BOTTOM OF WALL. TOP OF WALL TRACK SHALL HAVE A SLIP-TRACK WHERE ATTACHED TO STUCTURAL SYSEMS - SLOTTED.

GYPSUM BOARD

-5/8" GYPSUM WALLBOARD, TAPED, SANDED, AND FINISHED AS SELECTED
- SEE FINISH SCHEDULE FOR FINISH SELECTED

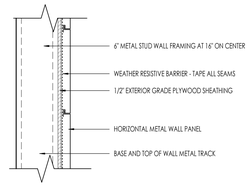
BATTS AND BLANKETS

-SOUND INSULATION IN: TOILET, OFFICE, JANITOR, CONFERENCE AND BREAKROOM

WALL TYPE C5 - PLAN VIEW
1 1/2" = 1'-0"
8 G005

WALL TYPE C6

NON-RATED ASSEMBLY



SYSTEM DESCRIPTION:

METAL STUD FRAMED WALL WITH STANDING SEAM WALL PANEL.

METAL STUD FRAMING

18-GAUGE, 6-INCH METAL STUD FRAMED WALL 16" ON CENTER SPACING, MAXIMUM. 6-INCH METAL TRACK TOP AND BOTTOM OF WALL. TOP OF WALL TRACK SHALL HAVE A SLIP-TRACK WHERE ATTACHED TO STRUCTURAL SYSTEM - SLOTTED.

PLYWOOD SHEATHING

1/2-INCH EXTERIOR GRADE PLYWOOD SHEATHING.

WEATHER RESISTIVE BARRIER

WEATHER RESISTIVE BARRIER, GRADE D, 60 MINUTE OR MEET ASTM E2556, TYPE II

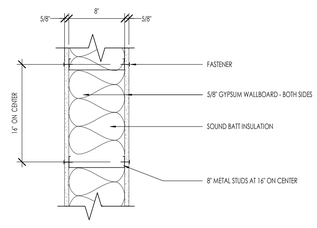
HORIZONTAL METAL WALL PANEL

24 GAUGE. 1-INCH METAL WALL PANEL CONCEALED FASTENER 12-INCH WALL SYSTEM.
SURFACE FINISH SHALL BE SMOOTH WITH SIGNATURE 300 OR KYNAR 500
FINISH SYSTEM. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF COLOR OPTIONS.

WALL TYPE C6 - SECTION VIEW
1 1/2" = 1'-0"
9 G005

WALL TYPE C7

NON-RATED ASSEMBLY



SYSTEM DESCRIPTION

-METAL STUD PARTITION WITH GYPSUM BOARD BOTH SIDES
-8-INCH METAL STUDS
-8-INCH METAL SPACED 16" ON CENTER
-8-INCH METAL TRACK TOP AND BOTTOM OF WALL. TOP OF WALL TRACK SHALL HAVE A SLIP-TRACK WHERE ATTACHED TO STUCTURAL SYSEMS - SLOTTED.

GYPSUM BOARD

-5/8" GYPSUM WALLBOARD, TAPED, SANDED, AND FINISHED AS SELECTED
- SEE FINISH SCHEDULE FOR FINISH SELECTED

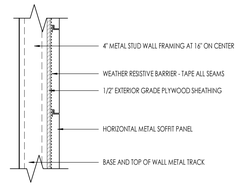
BATTS AND BLANKETS

-SOUND INSULATION IN: TOILET, OFFICE, JANITOR, CONFERENCE AND BREAKROOM

WALL TYPE C7 - PLAN VIEW
1 1/2" = 1'-0"
10 G005

WALL TYPE C8

NON-RATED ASSEMBLY



SYSTEM DESCRIPTION:

METAL STUD FRAMED WALL WITH STANDING SEAM WALL PANEL.

METAL STUD FRAMING

18-GAUGE, 6-INCH METAL STUD FRAMED WALL 16" ON CENTER SPACING, MAXIMUM. 6-INCH METAL TRACK TOP AND BOTTOM OF WALL. TOP OF WALL TRACK SHALL HAVE A SLIP-TRACK WHERE ATTACHED TO STRUCTURAL SYSTEM - SLOTTED.

PLYWOOD SHEATHING

1/2-INCH EXTERIOR GRADE PLYWOOD SHEATHING.

WEATHER RESISTIVE BARRIER

WEATHER RESISTIVE BARRIER, GRADE D, 60 MINUTE OR MEET ASTM E2556, TYPE II

HORIZONTAL METAL SOFFIT PANEL

24 GAUGE. 1-INCH METAL SOFFIT PANEL CONCEALED FASTENER 12-INCH WALL SYSTEM.
SURFACE FINISH SHALL BE SMOOTH WITH SIGNATURE 300 OR KYNAR 500
FINISH SYSTEM. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF COLOR OPTIONS.

WALL TYPE C8 - SECTION VIEW
1 1/2" = 1'-0"
11 G005

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7927 So. Highpoint Parkway, Suite 300
Sandy, Utah 84094
ph. 801.269.0055
fax 801.269.1405
www.thinkaec.com

REGISTERED ARCHITECT
49665
JARED MICHAEL PLOUZEK
ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

340 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

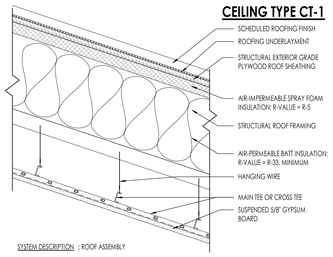
SHEET TITLE:
WALL TYPE DETAILS

SHEET NUMBER:
G005

BID SET

Plot Date: 4/21/2025 6:51:55 AM

CEILING TYPE CT-1



SYSTEM DESCRIPTION : ROOF ASSEMBLY

ROOF SYSTEM : UL CLASS A, B, OR C ROOFING SYSTEM OR PREPARED ROOF COVERING ACCEPTABLE FOR USE OVER WOOD STRUCTURAL PANELS, MIN. GRADE "C-D" OR "SHEATHING", WOOD STRUCTURAL PANELS SECURED TO STRUCTURAL TJI's PER STRUCTURAL ENGINEER'S DRAWINGS

ROOF FRAMING : PRE-ENGINEERED STRUCTURAL ROOF FRAMING. REFERENCE STRUCTURAL DRAWINGS.

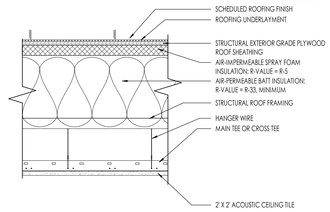
ROOF INSULATION:
ROOF AT JOIST/STICK FRAMING SHALL BE UNVENTED AND SHALL MEET THE FOLLOWING REQUIREMENTS: 2024 IBC, CHAPTER 12, SECTION 1202.3 - UNVENTED ATTICE AND UNVENTED ENCLOSED RAFTER ASSEMBLIES, ITEM 5 -5.1.3: WHERE BOTH AIR-IMPERMEABLE AND AIR PERMEABLE INSULATION ARE PROVIDED, THE AIR-IMPERMEABLE INSULATION SHALL BE APPLIED IN DIRECT CONTACT WITH THE UNDERSIDE OF THE STRUCTURAL ROOF SHEATHING IN ACCORDANCE WITH ITEM 5.1.1 AND SHALL BE IN ACCORDANCE WITH THE R-VALUES IN TABLE 1203.3 FOR CONDENSATION CONTROL. THE AIR-PERMEABLE INSULATION SHALL BE INSTALLED DIRECTLY UNDER THE AIR-IMPERMEABLE INSULATION.

GYPSUM WALLBOARD : NOM. 5/8 IN. THICK BY 4 FT. WIDE GYPSUM PANELS, INSTALLED WITH LONG DIMENSION PERPENDICULAR TO JOISTS WITH TYPE S SCREWS SPACED 8 IN. O.C. AND LOCATED A MIN OF 3/4 IN. FROM SIDE JOINTS AND 3 IN. FROM THE END JOINTS.

NOTE: ROOF CAVITY IS UNVENTED - DO NOT INSTALL A VAPOR RETARDER.

CEILING CT-1 — 1 G006
1 1/2" = 1'-0"

CEILING TYPE CT-2



SYSTEM DESCRIPTION : ROOF ASSEMBLY

ROOF SYSTEM : UL CLASS A, B, OR C ROOFING SYSTEM OR PREPARED ROOF COVERING ACCEPTABLE FOR USE OVER WOOD STRUCTURAL PANELS, MIN. GRADE "C-D" OR "SHEATHING", WOOD STRUCTURAL PANELS SECURED TO TJI'S PER STRUCTURAL ENGINEER'S DRAWINGS.

ROOF FRAMING : PRE-ENGINEERED STRUCTURAL ROOF FRAMING. REFERENCE STRUCTURAL DRAWINGS.

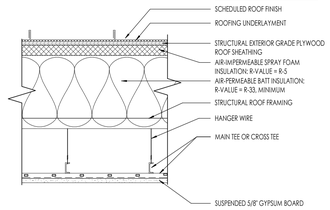
ROOF INSULATION:
ROOF AT JOIST/STICK FRAMING SHALL BE UNVENTED AND SHALL MEET THE FOLLOWING REQUIREMENTS: 2024 IBC, CHAPTER 12, SECTION 1202.3 - UNVENTED ATTICE AND UNVENTED ENCLOSED RAFTER ASSEMBLIES, ITEM 5 -5.1.3: WHERE BOTH AIR-IMPERMEABLE AND AIR PERMEABLE INSULATION ARE PROVIDED, THE AIR-IMPERMEABLE INSULATION SHALL BE APPLIED IN DIRECT CONTACT WITH THE UNDERSIDE OF THE STRUCTURAL ROOF SHEATHING IN ACCORDANCE WITH ITEM 5.1.1 AND SHALL BE IN ACCORDANCE WITH THE R-VALUES IN TABLE 1203.3 FOR CONDENSATION CONTROL. THE AIR-PERMEABLE INSULATION SHALL BE INSTALLED DIRECTLY UNDER THE AIR-IMPERMEABLE INSULATION.

DROP CEILING : 2' x 2' SUSPENDED DROP CEILING ACCOUSTICAL TILE PANELS, INSTALLED ON CROSS TEE FRAMING, CONNECTED TO MAIN TEE FRAMING, SUSPENDED FROM STRUCTURE ABOVE

NOTE: ROOF CAVITY IS UNVENTED - DO NOT INSTALL A VAPOR RETARDER.

CEILING CT-2 — 2 G006
1 1/2" = 1'-0"

CEILING TYPE CT-3



SYSTEM DESCRIPTION : ROOF ASSEMBLY

ROOF SYSTEM : UL CLASS A, B, OR C ROOFING SYSTEM OR PREPARED ROOF COVERING ACCEPTABLE FOR USE OVER WOOD STRUCTURAL PANELS, MIN. GRADE "C-D" OR "SHEATHING", WOOD STRUCTURAL PANELS SECURED TO TJI'S PER STRUCTURAL ENGINEER'S DRAWINGS.

ROOF FRAMING : PRE-ENGINEERED STRUCTURAL ROOF FRAMING. REFERENCE STRUCTURAL DRAWINGS.

ROOF INSULATION:
ROOF AT JOIST/STICK FRAMING SHALL BE UNVENTED AND SHALL MEET THE FOLLOWING REQUIREMENTS: 2024 IBC, CHAPTER 12, SECTION 1202.3 - UNVENTED ATTICE AND UNVENTED ENCLOSED RAFTER ASSEMBLIES, ITEM 5 -5.1.3: WHERE BOTH AIR-IMPERMEABLE AND AIR PERMEABLE INSULATION ARE PROVIDED, THE AIR-IMPERMEABLE INSULATION SHALL BE APPLIED IN DIRECT CONTACT WITH THE UNDERSIDE OF THE STRUCTURAL ROOF SHEATHING IN ACCORDANCE WITH ITEM 5.1.1 AND SHALL BE IN ACCORDANCE WITH THE R-VALUES IN TABLE 1203.3 FOR CONDENSATION CONTROL. THE AIR-PERMEABLE INSULATION SHALL BE INSTALLED DIRECTLY UNDER THE AIR-IMPERMEABLE INSULATION.

DROP CEILING : NOM. 5/8 INCH THICK BY 4 FOOT WIDE GYPSUM PANELS, INSTALLED ON CROSS TEE FRAMING, CONNECTED TO MAIN TEE FRAMING, SUSPENDED FROM STRUCTURE ABOVE.

NOTE: ROOF CAVITY IS UNVENTED - DO NOT INSTALL A VAPOR RETARDER.

CEILING CT-3 — 3 G006
1 1/2" = 1'-0"

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Sandy, Utah 84094
ph. 801.269.0055
fax 801.269.1405
www.thinkaec.com

REGISTERED ARCHITECT — 49665 — JARED MICHAEL PLOUZEK — EXPIRES 09/30/2025 — ARIZONA, U.S.A.

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
CEILING TYPE DETAILS

SHEET NUMBER:
G006

BID SET

Plot Date: 4/21/2025 6:51:56 AM

GENERAL NOTES

1. All work shall be in accordance with the 2018 edition of the Internation Building Code. The contract structural drawings represent the finished structure. They do not indicate the method of construction.
2. It shall be the responsibility of the contractor to provide for the proper design and installation of all required shoring, bracing, and formwork. The methods, techniques, sequence, procedures, supervision, and installation of all shoring and bracing shall be per the most recent OSHA standards. All shoring, bracing, and formwork shall remain in place until all work has been suitably completed.
3. Shawn M. Clarke, P.E. is the engineer of record. All dimensions, elevations, and existing improvements shall be verified and discrepancies reported to Shawn M. Clarke, P.E at 928-732-2252 OR 808-439-5505.
4. The information shown on the site plan does not represent a survey by others and has been compiled from sources of varying reliability. The contractor is cautioned that only excavation, demolition, potholing, or selective construction inspection will reveal the exact locations, elevations, and extents of existing improvements shown.
5. Dimensions shall take precedence over scales on drawings. Notes and details on drawings shall take precedence over general notes and typical details. Where no construction details are noted, details shall be the same as for any other similar work.
6. It shall be the responsibility of the contractor to provide supervision of the construction work to ensure that it is built in conformance with the approved plans and specifications.
7. The approved plans and specifications, including revisions, shall be kept on the construction site at all times.
8. Construction materials shall be spread out if placed on framed floors or roofs. In no event shall loads exceed the design loadings for the supporting members.
9. No changes in the plans shall be made and no extra work performed unless so approved by the architect, civil/structural engineer, soils/geological engineer, county/city inspector and building official.
10. It is the intent of the drawings and specifications to require the completion of the work in a thorough and workmanlike manner in every respect.
11. The contractor shall promptly remove from the building, lot, sidewalks, and streets all rubbish and debris as it accumulates, due to the work done under contract. All combustible debris shall be removed from the building on a daily basis.
12. The contractor shall obtain or otherwise furnish permits, licenses, fees, materials, labor, tools, supplies, equipment, transportation, superintendence, temporary construction of every nature, insurance, taxes and all other services and facilities necessary to complete this project.
13. The contractor shall at all times maintain full and unlimited worker's compensation insurance in accordance with the labor code in the state of California, and shall carry public contingent liability of insurance, in an amount satisfactory to and in companies selected with the consent of the owner.
14. Excavations shall be per the requirements of the State Construction Safety Orders as enforced by the State Division of Industrial Safety.
15. Submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments and similar documents, correspondence for the owner's records.
16. Every item mentioned in the specifications is the intended minimum quality of material that will be demanded. Should the contractor wish to suggest any substitute considered equal in value and efficiency with the one specified, it shall be stated what the item suggested is and the difference in cost, if any.

SITE QUANTITIES

(1) SEWER LINE & CONNECTION PER LHC DETAL 409.	80	LF
(2) UTILITY TRENCH PER STANDARD DETAIL 200. (INCLUDES AC)	30	LF
(3) 1.5" SERVICE CONNECTION WITH WATER METER PER LAKE HAVASU STANDARD DETAIL 304 & 305.	1	EA
(4) INSTALL 4X6 "MJ" X "MJ" TEE WITH MECHANICAL JOINT RESTRAINT AND AUXILARY GATE VALVE ON 4" FIRELINE.	106	LF
(5) INSTALL DOUBLE DETECTOR CHECK BACKFLOW PREVENTER PER LHC DETAIL 307.	1	EA
(6) INSTALL NEW DRIVEWAY 6" PCC PER LAKE HAVASU STANDARD DETAIL 202 FOR UNIMPROVED STREET.	750	SF
(7) CONSTRUCT 2" ASPHALT ON 3" OF BASE MATERIAL	1155	SY
(8) CONSTRUCT GRADED SWALE AT 2% GRADE	262	LF
(9) CONSTRUCT RETENTION POND WITH 3:1 SIDE SLOPES & 6" Rip RAP TO BE INSTALLED ON SIDE SLOPES.	1054	SF
(10) CONSTRUCT VARIABLE HEIGHT CURB.	150	LF
(11) CONSTRUCT SIDEWALK 4" THICK PCC	2020	SF
(12) INSTALL CURB STOP PER SHEET 4.	9	EA
(13) CONSTRUCT SINGLE TRASH ENCLOSURE PER SHEET 5.	1	EA
(14) Earth Work Net Volume (Cut =580 CY, Fill = 182CY)	398	CY
(15) FIBER OPTIC WITH 2" HDPE CONDUIT 3FT DEPTH PER DETAIL 1 0F C5	387	LF
(16) ALTERNATE: CONCRETE SIDEWALK ADA PATH	400	SF

CUT:	+ 580 C.Y.
FILL:	– 182 C.Y.
EXPORT:	398 C.Y. (EXPORT)

LAKE HAVASU CITY GENERAL NOTES:

1. The Contractor is to verify dimensions and elevations prior to work and notify the Engineer of any discrepancies.
2. The Contractor is to verify locations of all utilities prior to starting work..
3. The Contractor shall exercise extreme care during excavation of existing structures to avoid damage to adjacent structures and existing utilities. Contractor is responsible to provide all means and methods required to facilitate construction of work and ensuring safety, stability and integrity of adjacent structures and facilities.
4. The Engineer shall be notified a minimum of 48 hours prior to beginnning any construction.
5. Any work performed without the knowledge and approval by the Engineer and/or work not in comformance with the plans and specifications is subject to removal and replacement at the Contractor's expense.
6. No job will be considered complete until all curbs, pavement and sidewalks have been swept clean.
7. Backfill compaction shall be per MAG 301, unless otherwise noted. Subgrade preperation shall meet the LHC Standard Specificaiton Section 2600.
8. Removal of structures and obstructions as necesary to complete the work, other than scpecifically scheduled in the bid items are to be incidental to the Contract.
9. The Contractor shall be responsible for all costs of testing and quality assurance/control as delineated in the City's project specifications. The cost of testing is incidental to each item of work.
10. The approval of a portion of the work in progress does not guarantee its final acceptance. Testing and evaluation may continue until written final acceptance of a complete and workable unit.
11. Lake Havasu City may suspend the work by written notice when in its judgement progress is unsatisfactory, work being done is unauthorized or defective, weather conditions are unsuitable or there is a danger to the public health or safety.
12. The Contractor shall obtain any additional temporary easements or use agreements that are deemed necessary for construction at no additional cost to the City. Copies of all Contractors obtained easements and use agreements shall be provided to the City's representative prior to the utilization of the site.
13. The Contractor shall grade and resurface all areas disturbed by constructioin including landscape rock in accordance with the specifications and to a condition equal to or better than the pre–construstion condition.
14. The Contractor shall protect all concrete structures to remain. All concrete placement shall be joint to joint (walls, sidewalks) and shall be replaced with 4000 psi conrete. All damaged cocnrete panels must be replaced and shall be the responsibility of the contractor.
15. The Contractor shall provide protection to prevent undermining or damaging to the structural integrity of all fences, retaining walls, street signs, other utilities, or other private or public improvements with in the project area. The Contractor shall make arrangements with the owning utility as necessary to provide temporary improvements without undue disruption. The cost of all such protection, removal and replacement required to complete the project shall be subsidiary to other bid items.
16. It is not the intent of the specifcations to supersede any Federal, State or Local Laws, Regulations and/or ordinances. They shall govern in all instances. It is the Contractor's responsibility to show good faith effort and to protect all existing utilities and structures and to abive by all Federal, State, Local Laws and ordinances in the respect.
17. The Contractor shall protect all existing improvements on private property. All items damaged or removed shall be restored in accordance with the specificaition to a condition equal to or better than their condition prior to the start of the project.

FILL NOTES

1. All fill shall be compacted to the following minimum relative compation criteria;
   a. 90 percent of maximum dry density within 40 feet below finish grade.
   b. 93 percent of maximum dry density deeper than 40 feet below finish grade, unless a lower relative compaction (not less than 90 percent of maximum dry density) is justified by the geotechnical engineer.

   The relative compaction shall be determined by A.S.T.M. soil compaction test D1557–91, Method "D", where applicable: Where not applicable, a test acceptable to the Building Official shall be used. (Section 3313.4 of the Building Code.)
2. Field density shall be determined by a method acceptable to the Building Official. However, not less that 10% of the required density test, uniformly distributed, shall be obtained by the Sand Cone Method.
3. Sufficient tests of the fill soils shall be made to determine the relative compaction of the fill in accordance with the following minimum guidelines:
   a. One test for each two feet vertical lift.
   b. One test for each 1,000 cubic yards of material placed.
   c. One test at the location of the final fill slope for each building site (lot) in each four–foot vertical lift or portion thereof.
   d. One test in the vicinity of each building pad for each four–foot vertical lift or portion thereof.
4. Sufficient tests of fill soils shall be made to verify that the soil properties comply with the design requirements, as determined by the Geotechnical Engineer including soil types, shear strengths parameters and corresponding unit weights in accordance with the following guidelines.
   a. Prior and subsequent to placement of the fill, shear tests shall be taken on each type of soil or soil mixture to be used for all fill slopes steeper that three (3) horizontal to one vertical.
   b. Shear tests results for the proposed fill material must meet or exceed the design values used in the geotechnical report to determine slope stability requirements. Otherwise, the slope must be re–evaluated using the actual shear test value of the fill material that is in place.
   c. Fill soils shall be free of deleterious materials.
5. Fill shall not be placed until stripping of vegetation, removal of unsuitable soils, and installation of subdrain (if any) have been inspected and approved by the Geotechnical Engineer. The Building Official may require a "Standard Test Method for moisture, ash, organic matter, peat or other organic soils" ASTM D–2974–87 on any suspect material. Detrimental amounts of organic material shall not be permitted in fills. Soil containing small amounts of roots may be allowed provided that the roots are in a quantity and distributed in a manner that will not be detrimental to the future use of the site and the use of such material is approved by the soils engineer.
6. Rock or similar material greater that 12 inches in diameter shall not be placed in the fill unless recommendations for such placement have been submitted by the Soil Engineer and approved in advance by the Building Official. Location, extent, and elevation of rock disposal areas must be shown on an "As–Built" grading plan.
7. Continuous inspection by the Soil Engineer, or a responsible representative, shall be provided during all fill placement and compaction operations where fills have a depth greater than 30 feet or slope surface steeper than 2:1.
8. Continuous inspection by the Soil Engineer, or a responsible representative, shall be provided during all subdrain installation.
9. All subdrain outlets are to be surveyed for line and elevation. Subdrain information must be shown on an "As–Built" grading plan.
10. Fill slopes in excess of 2:1 steepness ratio are to constructed by the placement of soil at sufficient distance beyond the proposed finish slope to allow compaction equipment to be operated at the outer limits of the final slope surface. The excess fill is to be removed prior to completion of rough grading. Other construction procedures may be used when it is demonstrated to the satisfaction of the Building Official that the angle of slope, construction method and other factors will have equivalent effect. (Section 3313.4 of the Los Angeles County Building Code.)

ABBREVIATIONS:

BC	BEGIN CURVE
BCR	BEGIN CURB RETURN
BW	BACK OF SIDEWALK
CF	CURB FACE
CL	CENTERLINE
CY	CUBIC YARDS
EA	EACH
EC	END CURVE
ECR	END CURB RETURN
EG	EXIST. GRADE
EP	EDGE OF PAVEMENT
EXIST	EXISTING
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOW LINE
FS	FINISHED SURFACE
GB	GRADE BREAK
INV	INVERT
LF	LINEAR FEET
LNDSCP	LANDSCAPE
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
NG	NATURAL GROUND
OHP	OVER HEAD POWERLINES
PCC	PORTLAND CEMENT CONCRETE
PIP	PROTECT IN PLACE
PL	PROPERTY LINE
PRC	POINT OF REVERSE CURVATURE
PUE/DE	PUBLIC UTILITY EASEMENT/DRAINAGE ESMT.
RPP	REDUCED PRESSURE PRINCIPLE
R/W	RIGHT-OF-WAY
SF	SQUARE FOOT
STA	STATION
TC	TOP OF CURB
TF	TOP OF FOOTING
TG	TOP OF GRATE
TR	TOP OF RAMP
TW	TOP OF WALL
TYP	TYPICAL

SYMBOLS:

- (S) EXISTING SEWER MANHOLE
- TELEPHONE RISER
- WATER VALVE
- BACKFLOW PREVENTER
- EXISTING FIRE HYDRANT
- CENTERLINE
- ---S--- EXISTING SEWER MAIN
- ---W--- EXISTING WATER MAIN
- —W— PROPOSED WATER MAIN
- — S — PROPOSED SEWER MAIN
- (X) CONSTRUCTION NOTE NUMBER
- PROJECT BENCHMARK
- EXISTING POWER POLE
- — OVHE — EXIST. OVERHEAD ELEC. LINE
- (XXX.XX) EXISTING ELEVATION

SHEET INDEX:

TITLE SHEET ____ C1
UTILITY PLAN ____ C2
GRADING PLAN ____ C3
STANDARD DETAILS ____ C4
STANDARD DETAILS ____ C5

ENGINEER'S NOTES:

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

SPECIFICATION REFERENCE NOTE:

THE WORK ON THIS PROJECT SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS AND THESE PLANS. IN THE EVENT OF CONFLICT BETWEEN THE SPECIFICATIONS AND THESE PLANS, THE PLANS SHALL TAKE PRECEDENCE. IN THE ABSENCE OF CONFLICT BETWEEN THE SPECIFICATIONS AND THESE PLANS, THE PLANS WILL SUPPLEMENT AND ADD TO THE SPECIFICATIONS. THE SPECIFICATIONS RELATIVE TO THESE PLANS ARE:

LAKE HAVASU CITY ENGINEERING DIVISION STANDARD DETAILS.

MARICOPA ASSOCIATION OF GOVERNMENTS , "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", CURRENT EDITION (MAG SPECIFICATIONS);

MARICOPA ASSOCIATION OF GOVERNMENTS , "UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", CURRENT EDITION (MAG DETAILS).

THE 2018 IBC, 2018 IPC, ICC/ANSI A117.1-2009.

CITY COUNCIL

CAL SHEEHY	MAYOR
MICHELLE LIN	VICE MAYOR
JIM DOLAN	COUNCIL MEMBER
NANCY CAMPBELL	COUNCIL MEMBER
DAVID DIAZ	COUNCIL MEMBER
CAMERON MOSES	COUNCIL MEMBER
JENI COKE	COUNCIL MEMBER

NO.	REVISIONS / SUBMISSIONS	DATE
1	-	-
2	-	-
3	-	-
4	-	-

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978 •

LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

BID SET

Designed by: SMC
Drawn by: SC
Checked by: MW
Date: 4/21/25
Dwg scale:

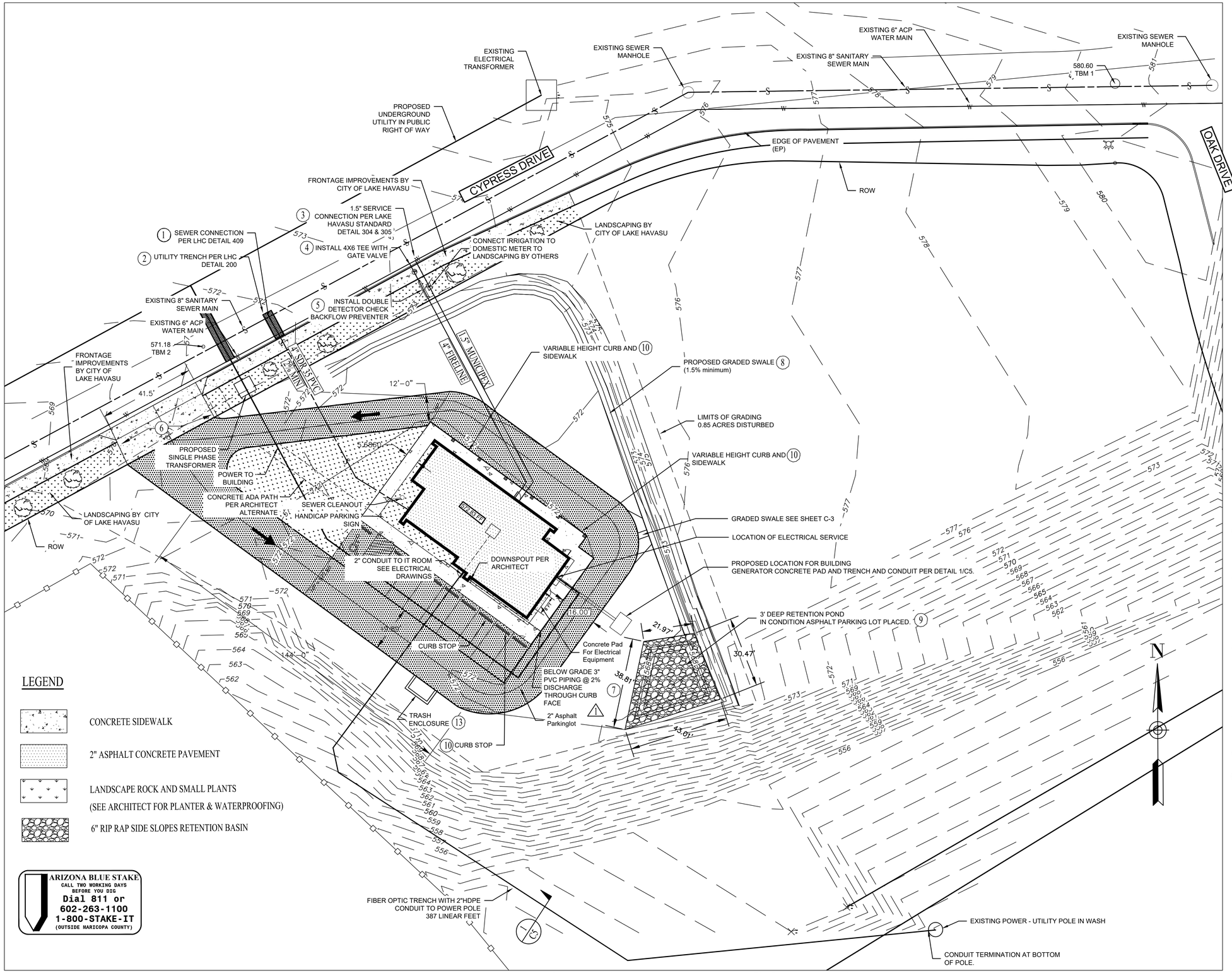
REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 69054 SHAWN M. CLARKE ARIZONA U.S.A.

EXPIRES 06–30–25

Sheet Number:

C-1

Sheet 1 of 5



LEGEND

- CONCRETE SIDEWALK
- 2" ASPHALT CONCRETE PAVEMENT
- LANDSCAPE ROCK AND SMALL PLANTS (SEE ARCHITECT FOR PLANTER & WATERPROOFING)
- 6" RIP RAP SIDE SLOPES RETENTION BASIN

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

WASTEWATER BUILDING SITE PLAN

SCALE 1"=20'

101 Building Pad Calculation:

101 = 580.6 + 1.00 = 581.6 ft

Building Pad = 572.83 ft

Building Pad = 8.77 ft lower than 101 elevation

CITY COUNCIL

CAL SHEEHY	MAYOR
MICHELLE LIN	VICE MAYOR
JIM DOLAN	COUNCIL MEMBER
NANCY CAMPBELL	COUNCIL MEMBER
DAVID DIAZ	COUNCIL MEMBER
CAMERON MOSES	COUNCIL MEMBER
JENI COKE	COUNCIL MEMBER

CONSTRUCTION NOTES:

1. SEWER CONNECTION PER LHC DETAL 409.
2. UTILITY TRENCH PER STANDARD DETAIL 200
3. 1.5" SERVICE CONNECTION WITH WATER METER PER LAKE HAVASU STANDARD DETAIL 304 & 305.
4. INSTALL 4X6 "MJ" X "MJ" TEE WITH MECHANICAL JOINT RESTRAINT AND AUXILARY GATE VALVE ON 4" FIRELINE.
5. INSTALL DOUBLE DETECTOR CHECK BACKFLOW PREVENTER PER LHC DETAIL 307.
6. INSTALL NEW DRIVEWAY 6" PCC PER LAKE HAVASU STANDARD DETAIL 202 FOR UNIMPROVED STREET.
7. CONSTRUCT PAVED PARKING LOT ROAD SECTION PER DETAIL.
8. CONSTRUCT GRADED SWALE
9. CONSTRUCT RETENTION POND WITH 3:1 SIDE SLOPES.
10. CONSTRUCT VARIABLE HEIGHT CURB DETAIL 216.
11. CONSTRUCT 4" THICK PCC SIDEWALK PER DETAIL 216.
12. INSTALL CURB STOP PER SHEET 4.
13. CONSTRUCT SINGLE TRASH ENCLOSURE PER SHEET 5.

GENERAL NOTES:

1. CONTRACTOR SHALL MATCH EXISTING WHERE CONNECTING NEW AC PAVEMENT, CURB OR DRIVEWAY.
2. ACCESS TO BUSINESS AND HOMES SHALL BE MAINTAINED AT ALL TIMES.
3. CONTRACTOR SHALL PROTECT UTILITIES IN PLACE WHERE OCCURS.

NO.	REVISIONS / SUBMISSIONS	DATE
#1	DOWNSPOUT/CURB CULVERT	4/15/25
#	-	-
#	-	-
#	-	-

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978

LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

BID SET

Designed by: SMC
Drawn by: SC
Checked by: MW
Date: 4/21/25
Dwg scale: 1" = 20'

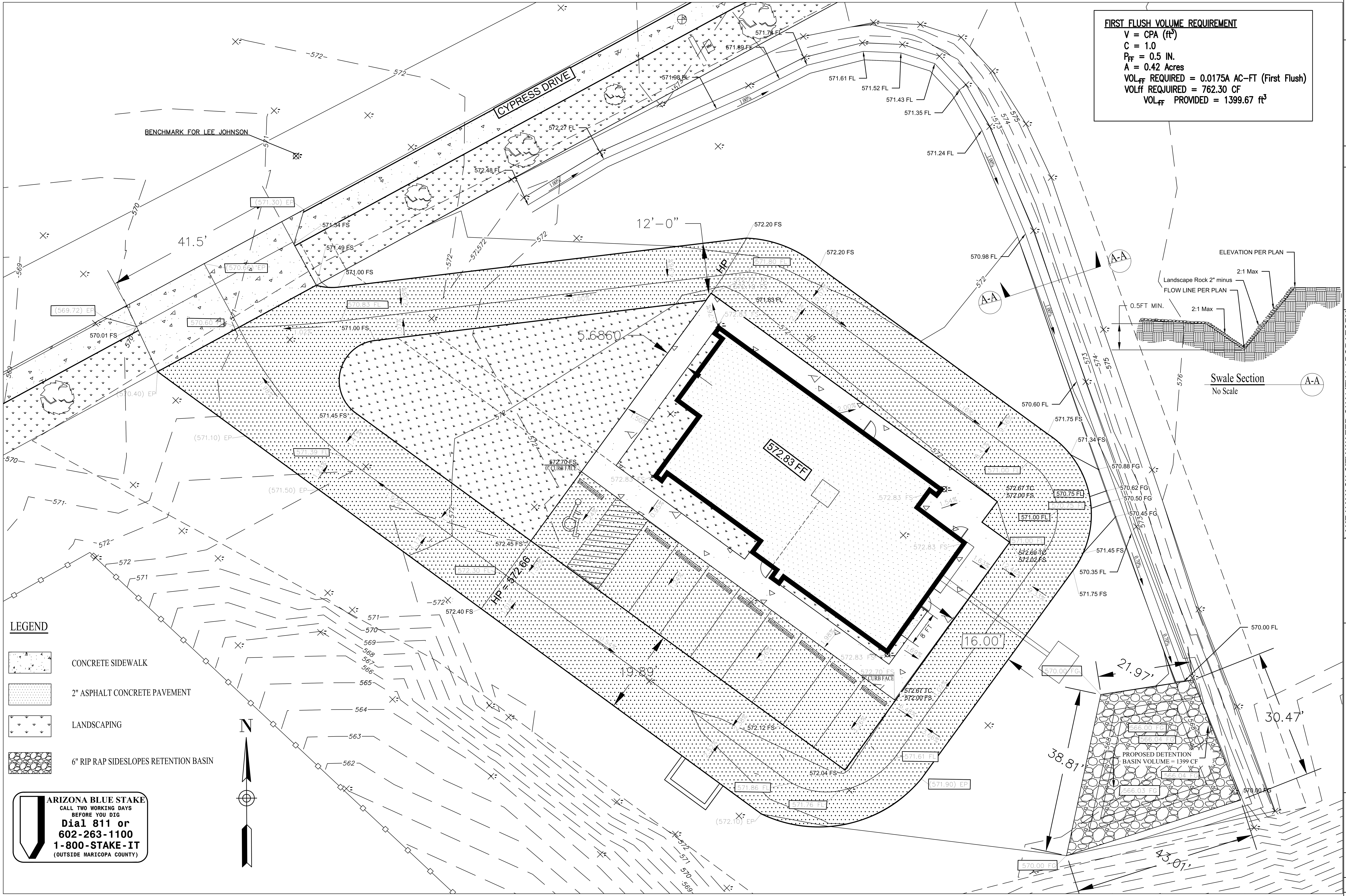
REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
69054
SHAWN M. CLARKE
ARIZONA U.S.A.

EXPIRES 06-30-25

Sheet Number:

C-2

Sheet 2 of 5



FIRST FLUSH VOLUME REQUIREMENT

$V = CPA$ (ft^3)
$C = 1.0$
$P_{FF} = 0.5$ IN.
$A = 0.42$ Acres
VOL_{FF} REQUIRED = 0.0175A AC-FT (First Flush)
VOLff REQJUIRED = 762.30 CF
VOL_{FF} PROVIDED = 1399.67 ft^3

LEGEND

- CONCRETE SIDEWALK
- 2" ASPHALT CONCRETE PAVEMENT
- LANDSCAPING
- 6" RIP RAP SIDESLOPES RETENTION BASIN

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

WASTEWATER BUILDING GRADING

SCALE 1"=10'

NO.	REVISIONS / SUBMISSIONS	DATE
#	-	-
#	-	-
#	-	-
#	-	-

CITY OF LAKE HAVASU, ARIZONA · INCORPORATED 1978

LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

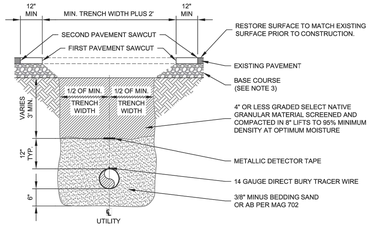
BID SET

Designed by: SMC
Drawn by: SC
Checked by: MW
Date: 4/21/25
Dwg scale: 1"=10'

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 69054 SHAWN M. CLARKE ARIZONA U.S.A.
EXPIRES 06-30-25

Sheet Number:
C-3
Sheet 3 of 5

Issued: 02/01/2019



MINIMUM TRENCH WIDTH TABLE				
PIPE DIAMETER	MINIMUM WIDTH	MINIMUM BETWEEN FIRST SAWCUTS	MINIMUM BETWEEN SECOND SAWCUTS	CONCRETE PAVEMENT
<8 IN.	24"	4'	6'	SECOND SAWCUT SHALL BE AT EXISTING JOINTS. SEE NOTE #5
8IN.-12IN.	30"	4'-6"	6'-6"	
14IN.-18IN.	36"	5'	7'	
20IN.-24IN.	42"	5'-6"	7'-6"	
24IN.-36IN.	1.25 (PIPE OD) PLUS 12IN.	MIN. WIDTH PLUS 2'	MIN. WIDTH PLUS 4'	
>36IN.	PER PLANS	MIN. WIDTH PLUS 2'	MIN. WIDTH PLUS 4'	

NOTES:

1. ALL SAWCUTS TO BE FULL DEPTH OF PAVEMENT.
2. PATCH MATERIAL SHALL MATCH THE EXISTING PAVEMENT MATERIAL (eg CONCRETE PAVEMENT SHALL BE PATCHED WITH CONCRETE AND EXISTING ASPHALT PAVEMENT WITH ASPHALT).
3. FOR ASPHALT PATCHES, BASE COURSE & ASPHALT CONCRETE THICKNESS IS TO MATCH EXISTING BUT IN NO CASE LESS THAN 0" BASE 2" ASPHALT CONCRETE.
4. ALL EXISTING VERTICAL ASPHALT JOINTS SHALL BE TACK COATED.
5. FINAL CONCRETE PAVEMENT REMOVALS SHALL BE TO THE NEAREST EXISTING JOINT (eg FULL PANEL REMOVAL AND REPLACEMENT).
6. TRENCHES ARE SHOWN TO DIAGRAM PATCHING REQUIREMENTS. TRENCHES SHALL BE CONSTRUCTED TO MEET OSHA REQUIREMENTS.
7. PAVEMENT REMOVAL BETWEEN FIRST AND SECOND SAW CUT SHALL BE REMOVED AT TIME OF 'HOT MIX PATCHING'. DENSITY TESTING SHALL BE AT THE EXPENSE OF THE CONTRACTOR AND A COPY OF RESULTS SHALL BE PROVIDED TO THE CITY.
9. MONITOR & MAINTAIN SURFACE CONDITION AND PERFORM ASPHALT REPAIRS UNDER 1-YEAR WARRANTY PROVIDED THROUGH PERMIT.
10. ALL PATCH JOINTS SHOULD BE HENRY ASPHALT RESURFACER SEALED OR APPROVED EQUAL.

LAKE HAVASU CITY	Standard Details: Roadway Improvements	Utility Trench Patch	Scale: N.T.S. Detail No. 200

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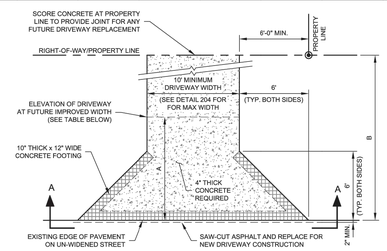
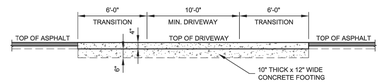
Issued: 02/01/2019



UNIMPROVED STREET



SECTION A - A

DISTANCE & ELEVATION TABLE ('W' SECTION) ABOVE EXISTING EDGE OF PAVEMENT AT 2% SLOPE (BASED ON 12' EXISTING ASPHALT LANE)			
STREET	DISTANCE 'A'	RISE	DISTANCE 'B'
BOULEVARD	15 FEET	4"	30 FEET
AVENUE	10 FEET	3"	23 FEET
DRIVE	9 FEET	3"	18 FEET

NOTES:

1. ELEVATION AT PROPERTY LINE TO REMAIN 11" ABOVE EDGE OF STREET ON 'W' SECTIONS.
2. CONCRETE FOR STRUCTURES IN RIGHT-OF-WAY SHALL BE A 6 SACK PER CUBIC YARD MIX WITH A 4" MAXIMUM SLUMP AND BE ABLE TO PASS A 3,000 PSI COMPRESSIVE STRENGTH TEST AT 28 DAYS.
3. SIDEWALK CROSS-SLOPE (BACK OF SIDEWALK TO CURB) TO BE 1.5% MIN / 2% MAX.

LAKE HAVASU CITY	Standard Details: Roadway Improvements	Driveway Unimproved Street	Scale: N.T.S. Detail No. 202

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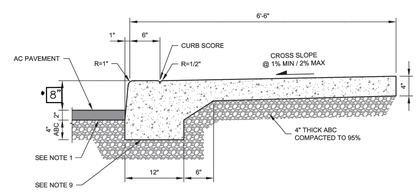

NOTES:

1. FOR NEW INSTALLATION, ASPHALT SHALL BE PLACED AGAINST CONCRETE.
2. CONSTRUCTION JOINTS SHALL BE DEPRESSED ONE INCH.
3. SIDEWALK AND CURB PLACED MONOLITHICALLY.
4. APPROVED CLASS 'A' 3000 PSI CONCRETE.
5. APPROVED CURING PRACTICES, NO DIESEL.
6. EXPANSION JOINTS PLACED AT INTERVALS NOT TO EXCEED 100 FEET.
7. CURB CONTRACTION JOINTS CONSTRUCTED TO DEPTH OF ONE INCH AT 12-FOOT MAX INTERVALS. SIDEWALK CONTRACTION JOINTS REQUIRED AT 6-FOOT INTERVALS.
8. ANY ABOVE-GROUND APPURTENANCE SHALL BE LOCATED OR RELOCATED OUT OF SIDEWALK.
9. BOTTOM OF SIDEWALK CURB SHALL BE PLACED TO SAME SUB-BASE ELEVATION AS ROADWAY.

LAKE HAVASU CITY	Standard Details: Roadway Improvements	Alternate Sidewalk/Curb	Scale: N.T.S. Detail No. 216

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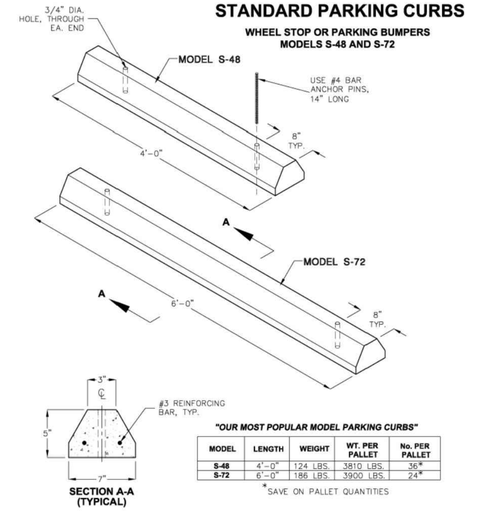


SECTION A-A (TYPICAL)

STANDARD PARKING CURBS

WHEEL STOP OR PARKING BUMPERS
MODELS S-48 AND S-72

OUR MOST POPULAR MODEL PARKING CURBS

MODEL	LENGTH	WEIGHT	WT. PER PALLET	No. PER PALLET
S-48	4'-0"	124 LBS.	3810 LBS.	36*
S-72	6'-0"	186 LBS.	3900 LBS.	24*

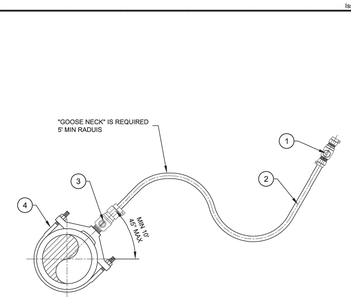
*SAVE ON PALLET QUANTITIES

FOR COMPLETE DESIGN AND PRODUCT INFORMATION CONTACT JENSEN PRECAST.

1/5/2009
STANDARD PARKING CURB_B.DWG
©2009

JENSEN PRECAST

Issued: 02/01/2019



SERVICE TERMINATION DETAIL TABLE			
ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECIFICATIONS	REMARKS
1	1.5" or 2" CURB STOP	FORD 1.5" B44-666-NL - 2" B44-777-NL	OR EQUAL
2	1.5" or 2" POLY TUBING	POLYETHYLENE PLASTIC TUBING (CTS)(200 PSI) STAINLESS STEEL INSERTS MUST BE USED (1.5" FORD INSERT #SA(2" FORD INSERT #55)	
3	1.5" or 2" CORP STOP	FORD 1.5" FB1100-6-NL - 2" FB1100-7-NL	OR EQUAL
4	1.5" or 2" x MAIN SIZE BRASS SADDLE	FORD 202B-xxx-IP6 (AC) OR S91-xx6 (C900) SADDLE WITH IP THREAD FORD 202B-xxx-IP7 (AC) OR S91-xx7 (C900) SADDLE WITH IP THREAD	OR EQUAL

NOTE:

1. ALL PARTS ARE FROM FORD METER BOX COMPANY, EXCEPT THE COPPER PIPING.
2. ALL ASSEMBLIES TO BE LOCATED WITHIN CITY RIGHT-OF-WAY.

LAKE HAVASU CITY	Standard Details: Water Improvements	1.5" - 2" Single Service Tap	Scale: N.T.S. Detail No. 304

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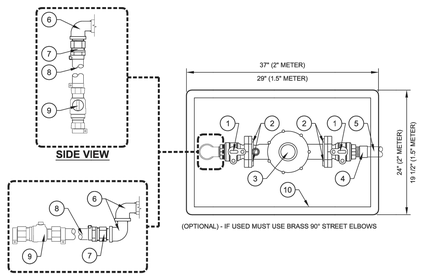

SERVICE METER DETAIL TABLE			
ITEM NO.	SIZE AND DESCRIPTION	MATERIAL SPECIFICATIONS	REMARKS
1	1.5" or 2" BALL METER VALVE	FORD 1.5" BF13-666W-NL - 2" BF13-777W-NL	OR EQUAL
2	BOLTS & NUTS	STAINLESS STEEL	
3	1.5" or 2" WATER METER	BADGER 1.5" M120-150LNSX-HL-GAXX - 2" M170-200LNSX-HL-GAXX	OR EQUAL
4	1.5" or 2" ADAPTOR	FORD CM-PACK JOINT OR PVC MALE ADAPTOR	OR EQUAL
5	1.5" or 2" COPPER TUBE/PVC	TYPE - "K" SOFT COPPER OR PVC (COPPER PIPE SHOULD BE USED IF BACKFLOW PREVENTOR ASSEMBLY IS INSTALLED)	
6	1.5" or 2" 90° STREET ELBOW	BRASS 90° STREET ELBOW	
7	1.5" or 2" PACK JOINT COUPLING	FORD 1.5" CB4-66-NL - 2" CB4-77-NL	OR EQUAL
8	1.5" or 2" POLY TUBING	POLYETHYLENE PLASTIC TUBING (CTS)(200 PSI) STAINLESS STEEL INSERTS MUST BE USED (1.5" FORD INSERT #SA(2" FORD INSERT #55)	
9	1.5" or 2" BALL CURB VALVE	FORD 1.5" B44-666-NL - 2" B44-777-NL	OR EQUAL
10	METER BOX	CHRISTY FL36 MODEL 17x30 (37"x24"x18 7/16")	OR EQUAL

NOTES:

1. COMMERCIAL AND IRRIGATION WATER METERS REQUIRE APPROVED BACKFLOW PREVENTED ASSEMBLIES PER LAKE HAVASU CITY SPECIFICATIONS.

LAKE HAVASU CITY	Standard Details: Water Improvements	1.5" & 2" Water Meter Assembly	Scale: N.T.S. Detail No. 305

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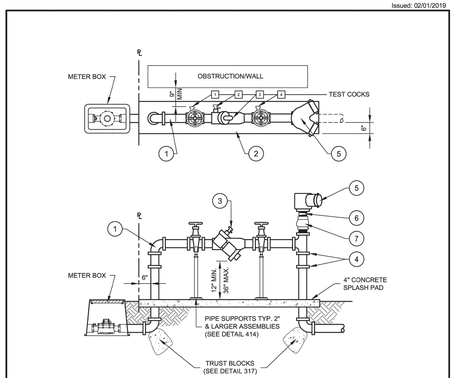
Issued: 02/01/2019



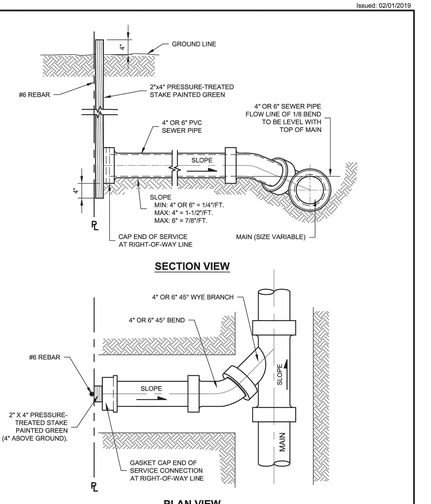
DOUBLE CHECK VALVE DETAIL TABLE	
ITEM NO.	SIZE AND DESCRIPTION
1	ALL 2" OR 3" PIPING ABOVE GROUND TO BE BRASS OR COPPER (TYPE K). ASSEMBLIES 4" AND LARGER TO BE DUCTILE IRON.
2	4" THICK CONCRETE PAD TO BE 2500 PSI FOR 1 1/2 INCH ASSEMBLIES AND ABOVE; NOT REQUIRED FOR LESS THAN 1 1/2 INCH ASSEMBLIES.
3	USC-FCCCHR APPROVED ASSEMBLY.
4	UNION/FLANGE REQUIRED FOR REMOVAL.
5	FIRE DEPARTMENT CONNECTION DOUBLE SNOOT PER LAKE HAVASU CITY FIRE DEPARTMENT.
6	NIPPLE (CLOSE)
7	4" CHECK VALVE (UNITED BRASS WORKS MODEL 68)

NOTE: ALL ASSEMBLIES TO BE LOCATED ON PRIVATE PROPERTY.

LAKE HAVASU CITY	Standard Details: Water Improvements	Commercial Double Check Valve Assembly with Fire Dept. Connection	Scale: N.T.S. Detail No. 307

A:\City Operations and Development\Engineering\Programs\Standards\Developing Public Works Standards\LHC Standard Details\LHC Series 300 Water\DWG\DETAIL 307.dwg

Issued: 02/01/2019



NOTE: USE FOR CONNECTION TO NEW SEWERS

LAKE HAVASU CITY	Standard Details: Wastewater Improvements	Sewer Service Connection Vacant Lot	Scale: N.T.S. Detail No. 409

A:\City Operations and Development\Engineering\Programs\Standards\Developing Public Works Standards\LHC Standard Details\LHC Series 400 Wastewater\DWG\DETAIL 409.dwg

NO.	REVISIONS / SUBMISSIONS	DATE
#	-	-
#	-	-
#	-	-
#	-	-

LAKE HAVASU CITY, ARIZONA • 1978 • INCORPORATED

LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS
LAKE HAVASU CITY, AZ 86403

BID SET

Designed by: SMC
Drawn by: SC
Checked by: MW
Date: 4/21/25
Dwg scale:

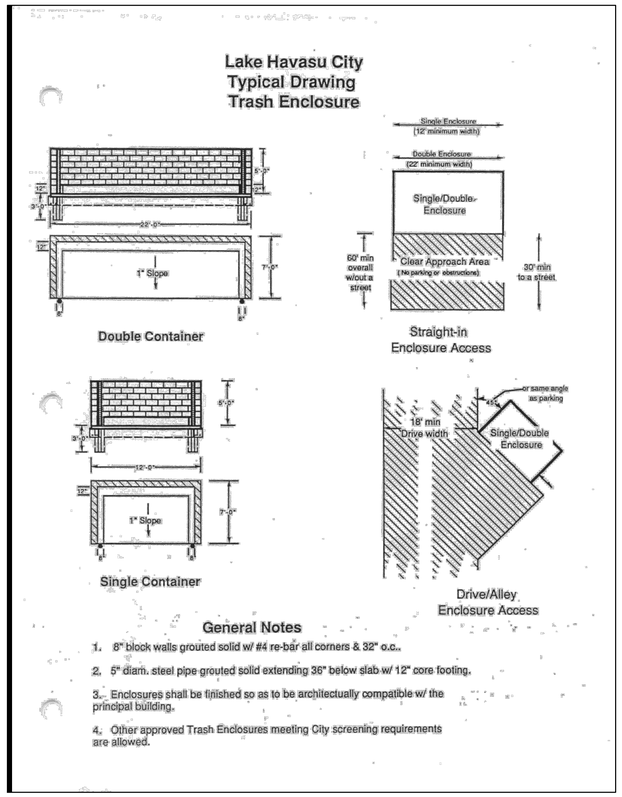
REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 69054 SHAWN M. CLARKE ARIZONA U.S.A.

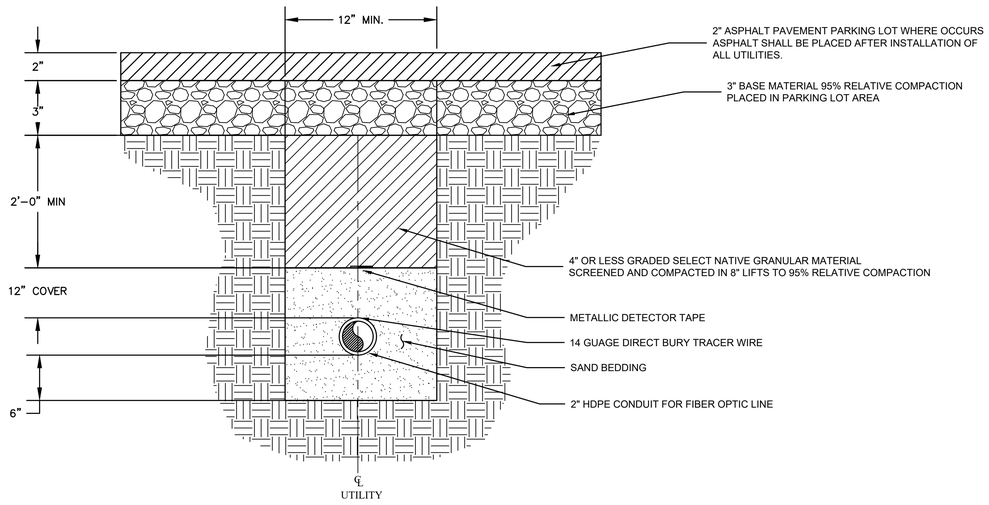
EXPIRES 06-30-25

Sheet Number:

C-4

Sheet 4 of 5





1
C5

Modified Trench Detail for Conduit

No Scale

NO.	REVISIONS / SUBMISSIONS	DATE
#	-	-
#	-	-
#	-	-
#	-	-

LAKE HAVASU CITY, ARIZONA • INCORPORATED 1978 •

Lake Havasu City Water Quality Labratory
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

BID SET

Designed by: SMC
Drawn by: SC
Checked by: MW
Date: 4/21/25
Dwg scale:

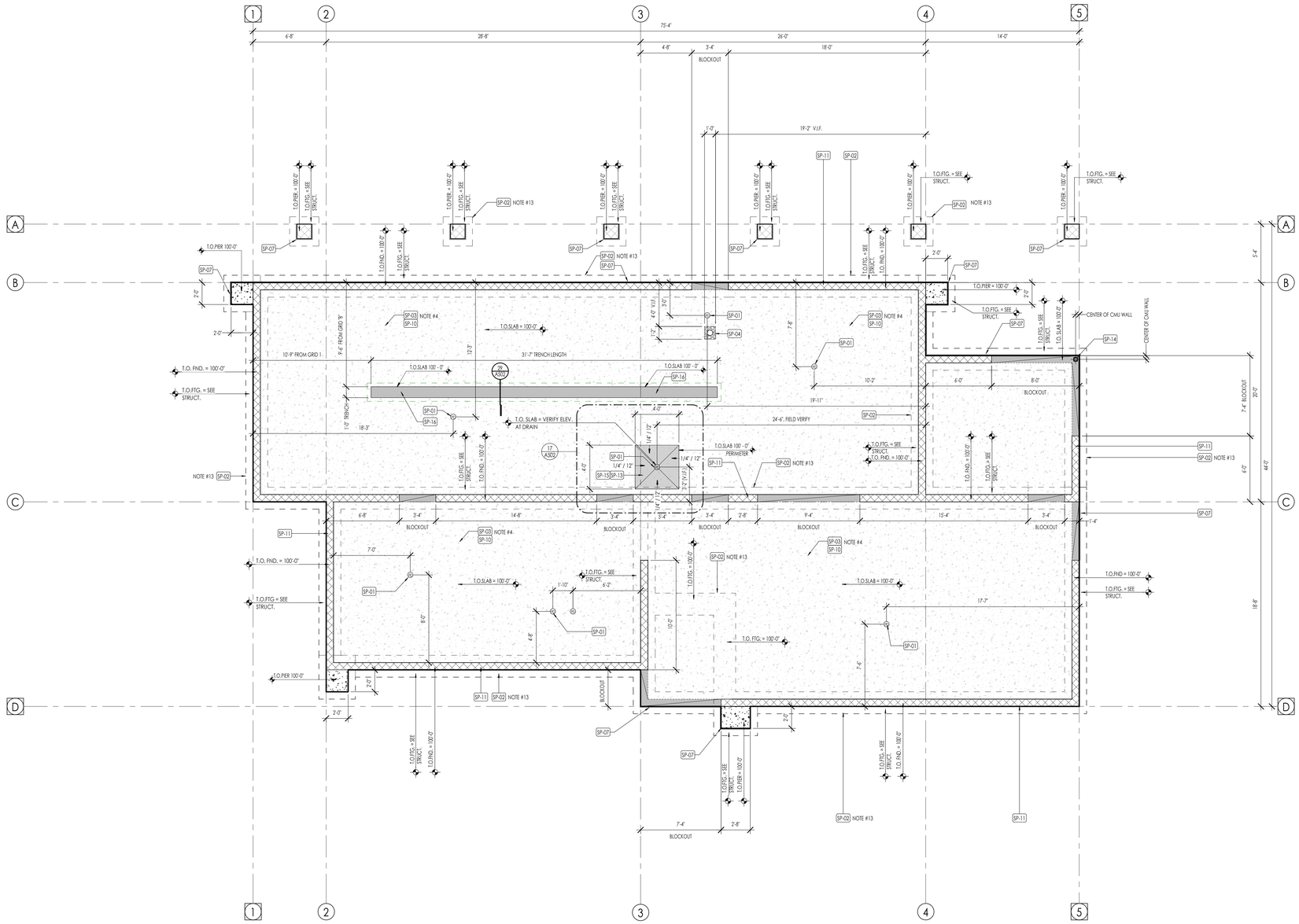
REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
69054
SHAWN M. CLARKE
ARIZONA U.S.A.

EXPIRES 06-30-25

Sheet Number:

C-5

Sheet 5 of 5



TRUE NORTH

BUILDING NORTH

LEVEL 1 - SLAB PLAN

1/4" = 1'-0"

1
A101

FOUNDATION PLAN LEGEND

HATCH PATTERN	DESCRIPTION
░	POURED IN PLACE CONCRETE.
▨	CMU FOUNDATION WALL

FOUNDATION PLAN SYMBOLS LEGEND

SYMBOL	DESCRIPTION
FS— · —FS	FOOTING STEP
WS— · —WS	WALL STEP
T.O.FTG	TOP OF FOOTING ELEVATION
T.O.FND.	TOP OF FOUNDATION ELEVATION
T.O.SLAB	TOP OF SLAB ELEVATION
T.O. PIER	TOP OF PIER ELEVATION

FOUNDATION GENERAL NOTES

1. COORDINATE ARCHITECTURAL FOUNDATION PLAN WITH STRUCTURAL FOUNDATION PLAN. CONTRACTOR SHALL REPORT ANY DISCREPANCIES IN THE PLANS TO THE ARCHITECT PRIOR TO COMMENCING RELATED WORK.
2. COORDINATE MECHANICAL, ELECTRICAL, & PLUMBING PRIOR TO CONSTRUCTION OF FOOTINGS & FOUNDATION.
3. VERIFY ELEVATIONS OF FOUNDATION WALLS & FOOTINGS. COORDINATE WITH SITE PLAN & PROPOSED CONTOURS.
4. CONCRETE FLOOR SLABS, EXCEPT THOSE IN UNHEATED ACCESSORY STRUCTURES, SHALL HAVE A VAPOR RETARDER CONSISTING OF 15 MIL. POLYETHYLENE (OR APPROVED EQUAL) VAPOR RETARDER WITH JOINTS LAPPED NOT LESS THAN 6 INCHES PLACED BETWEEN THE CONCRETE FLOOR SLAB & THE BASE COURSE OF THE PREPARED SUB-GRADE WHERE NO BASE COURSE EXISTS. TAPE ALL SEAMS - CONTINUOUS.
5. FOUNDATION REBAR INSPECTIONS ARE REQUIRED FOR FOUNDATION WALLS OVER 8 FEET HIGH. FORMS ARE NOT TO BE INSTALLED ON ONE SIDE UNTIL AFTER THE REBAR HAS BEEN INSPECTED.
6. REFERENCE STRUCTURAL DRAWINGS FOR FLOOR SLAB CONTROL JOINT AND CONSTRUCTION JOINT DETAILS
7. REFERENCE STRUCTURAL DRAWINGS FOR CONTROL JOINT ON CENTER SPACING.
8. REFERENCE STRUCTURAL DRAWINGS FOR DOOR AND WINDOW FLOOR SLAB BLOCKOUT DETAILS.
9. REFERENCE STRUCTURAL DRAWINGS FOR CONCRETE FLOOR SLAB THICKNESS AND REINFORCEMENT.
10. REFERENCE STRUCTURAL DRAWINGS FOR STEPS IN FOOTINGS.
11. REFERENCE CIVIL DRAWINGS FOR ALL SITE ELEMENTS.
12. REFERENCE STRUCTURAL DRAWINGS FOR TOP OF FOOTING ELEVATIONS.
13. REFERENCE GEOTECHNICAL REPORT FOR FOOTING SUBSOILS PREPARTION AND PREPARATION BENEATH FOOTINGS - VERIFY THE USE OF STRUCTURAL FILL AS STATED IN THE REPORT.

DATUM ELEVATIONS

ARCHITECTURE	CIVIL	LEVEL
100'-0"	572.83	LEVEL 1 - TOP OF FLOOR SLAB

NOTE: REFERENCE CIVIL DRAWINGS FOR EXISTING AND FINISH GRADING.

FOUNDATION PLAN KEYNOTES

KEYNOTES

SP-01	FLOOR DRAIN
SP-02	STRUCTURAL FOOTING
SP-03	STRUCTURAL CONCRETE FLOOR SLAB
SP-04	OPENING IN FLOOR SLAB FOR FIRE RISER PIPING, FILL OPENING WITH LOOSE GRANULAR MATERIAL
SP-07	1/2" EXPANSION JOINT MATERIAL WITH ZIP-STRIP - SEALANT, CONTINUOUS, REFERENCE DETAIL 8/A502
SP-10	SLAB CONTROL JOINTS PER STRUCTURAL
SP-11	CMU BLOCK STRUCTURAL FOUNDATION WALL
SP-13	SLOPE FLOOR SLAB TO DRAIN
SP-14	STRUCTURAL COLUMN
SP-15	RECESSED FLOOR SLAB - VERIFY DEPTH
SP-16	OPEN IN FLOOR SLAB FOR AIR LINE AND WATER PIPING

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REGISTERED ARCHITECT
CERTIFICATE NO.
49665
JERED MICHAEL PLOUZEK
DATE SIGNED 4/2/2025
ARIZONA, U.S.A.
EXPIRES: 06/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025

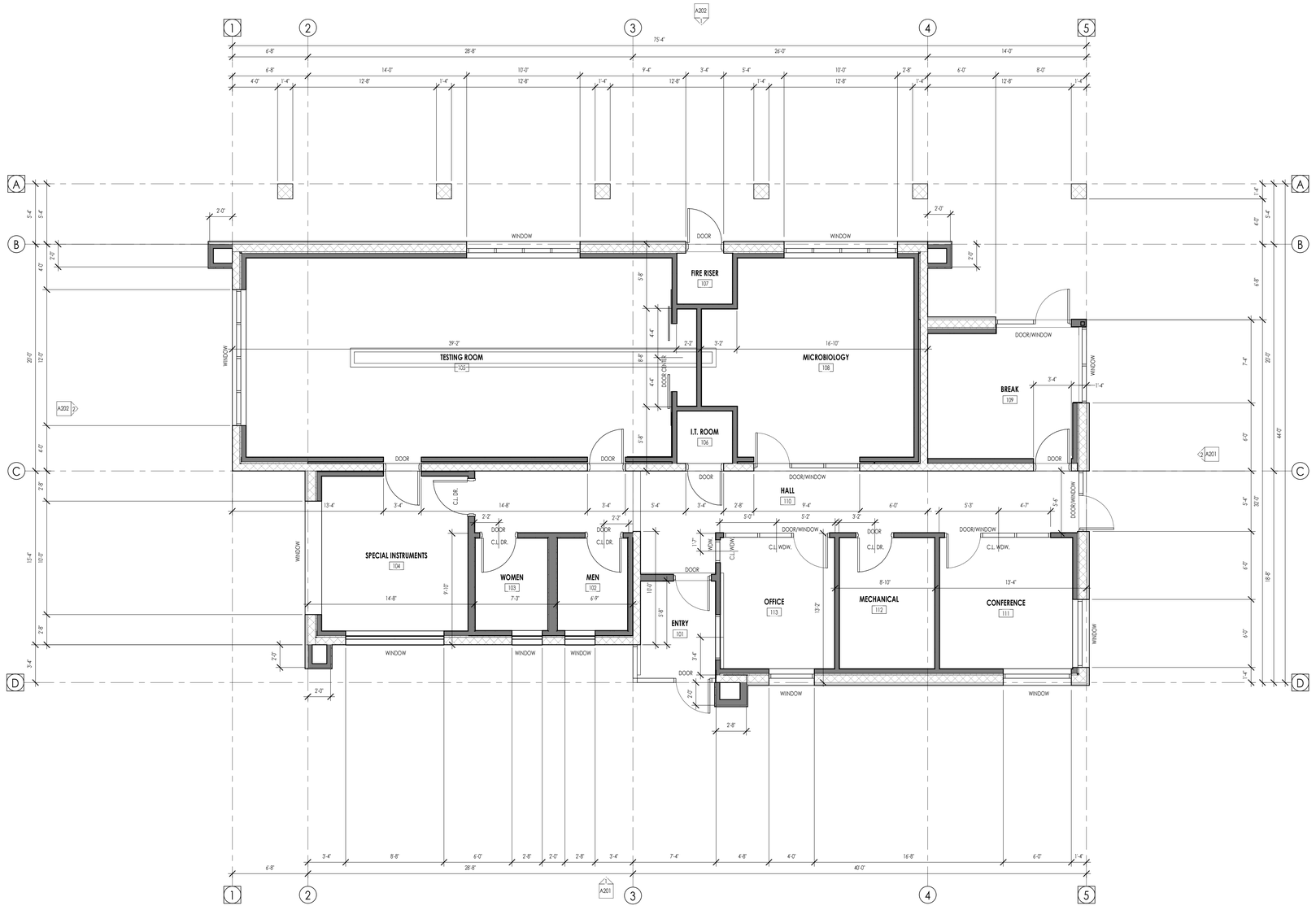
REVISIONS:

SHEET TITLE:
LEVEL 1 - SLAB PLAN

SHEET NUMBER:
A101

BID SET

Plot Date: 4/21/2025 6:54:53 AM



FLOOR PLAN LEGEND

HATCH PATTERN	DESCRIPTION	HATCH PATTERN	DESCRIPTION
	CMU BLOCK WALL		CARPET TILES
	METAL STUD WALL		EXTERIOR CONCRETE SLABS
			LVT
			STAINED CONCRETE

FLOOR PLAN GENERAL NOTES

1. DIMENSIONS ARE TO ROUGH OPENING OF CMU WALLS, FACE OF METAL FRAMING, CENTER OF OPENINGS IN FRAMED WALLS, FACE OF CMU WALLS OR FOUNDATION AND GRID LINES.

2. CEILING HEIGHTS MEASURED FROM CONCRETE FLOOR SLAB TO EXPOSED FACE OF CEILING FINISH.

3. FOR ADDITIONAL DIMENSIONS REFERENCE ENLARGED FLOOR PLANS AND TRELLIS PLAN.

4. COORDINATE WITH ALL ENLARGED PLANS FOR ADDITIONAL INFORMATION AND DETAILS.

5. SEE SHEET A002 FOR PROJECT GENERAL NOTES.

6. COORDINATE WITH STRUCTURAL FRAMING PLANS AND SHEAR WALL PLANS FOR LOCATIONS OF COLUMNS, BEAMS, SHEAR WALLS, ETC.

7. COORDINATE WITH FINISH SCHEDULE.

8. COORDINATE WITH ELECTRICAL DRAWINGS FOR ALL LIGHTING, POWER AND DATA REQUIREMENTS.

9. REFERENCE WALL TYPE AND CEILING TYPE DETAILS.

10. BUILDING TOP OF FLOOR SLAB ELEVATION = **100'-0"** ON ARCHITECTURAL DRAWINGS OR EQUIVALENT OF **573.00** ON CIVIL DRAWINGS.

11. PER KEYNOTE BP-21 AND BP-22, VACUUM HOSE SHALL BE 1/2-INCH POLYURETHANE MATERIAL RATED FOR CHEMICAL, ABRASION AND UV RADIATION RESISTANCE. ATTACH TO SUBSTRATES AS REQUIRED TO STABILIZE HOSE. SECURE HOSE SECTIONS WITH APPLICABLE FITTINGS AND CONNECTORS.

12. COORDINATE WITH MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ALL OPENINGS IN CMU WALLS AND METAL FRAMED WALLS. REFERENCE STRUCTURAL DRAWINGS FOR FRAMING REQUIREMENTS NECESSARY FOR OPENINGS IN CMU WALLS AND METAL FRAMED WALLS, TYPICAL.

13. "ADA SINK" AS NOTED ON THE PLAN REFERS TO WHEELCHAIR ACCESSIBLE REQUIRED FOR THE LOCATION.

KEYNOTES

PRINCIPAL ARCHITECT

BUILDING NORTH

LEVEL 1 - FLOOR PLAN - DIMENSION
1/4" = 1'-0"

1 / A102

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REGISTERED ARCHITECT
49665
JERED MICHAEL PLOUZEK
ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

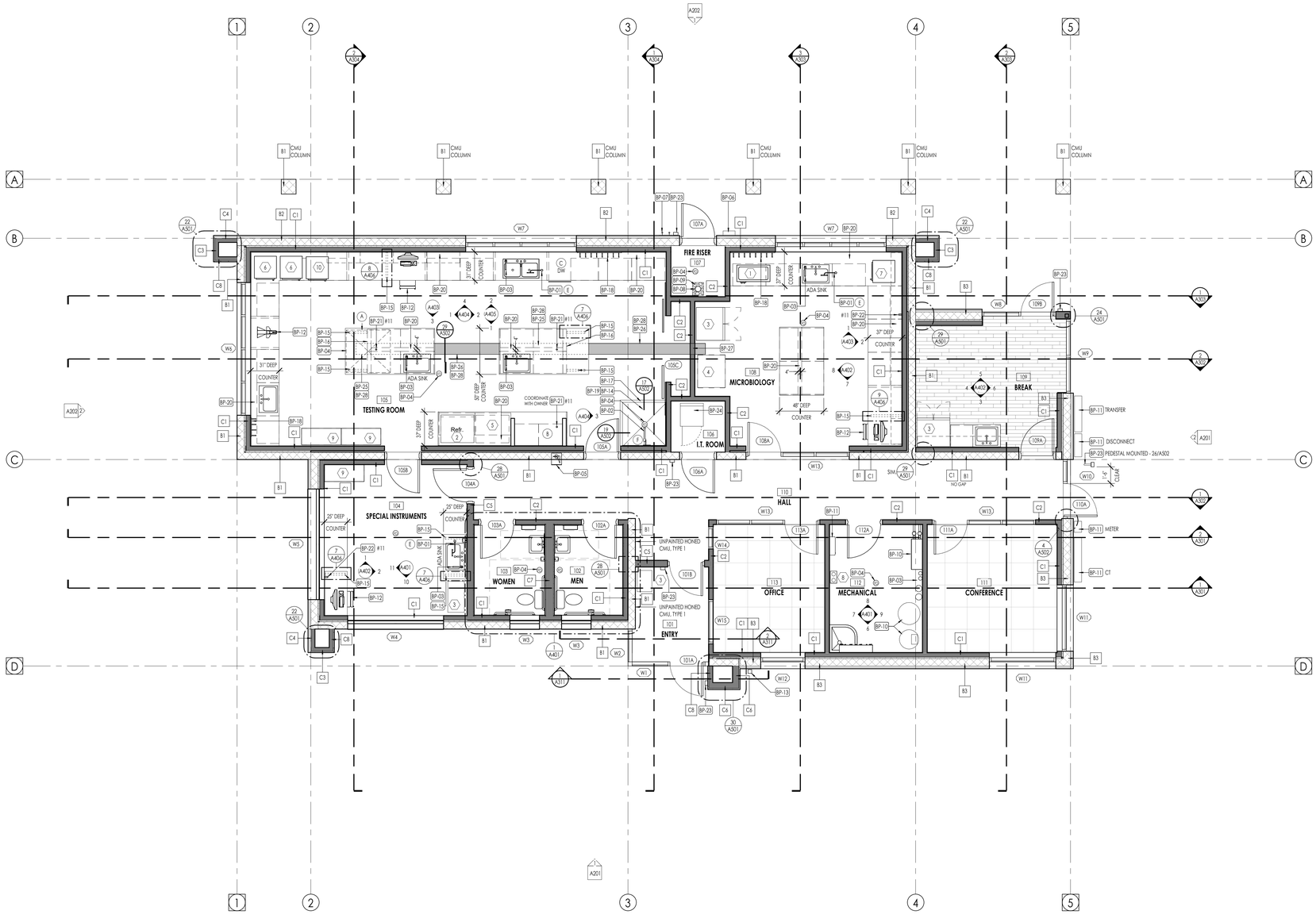
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
LEVEL 1 - FLOOR PLAN - DIMENSIONS

SHEET NUMBER:
A102

Plot Date: 4/21/2025 6:54:56 AM



BUILDING NORTH / TRUE NORTH

LEVEL 1 - FLOOR PLAN - INFORMATION
1/4" = 1'-0"
1 / A103

FLOOR PLAN LEGEND

HATCH PATTERN	DESCRIPTION	HATCH PATTERN	DESCRIPTION
	CMU BLOCK WALL		CARPET TILES
	METAL STUD WALL		EXTERIOR CONCRETE SLABS
			LVT
			STAINED CONCRETE

FLOOR PLAN GENERAL NOTES

1. DIMENSIONS ARE TO ROUGH OPENING OF CMU WALLS, FACE OF METAL FRAMING, CENTER OF OPENINGS IN FRAMED WALLS, FACE OF CMU WALLS OR FOUNDATION AND GRID LINES.

2. CEILING HEIGHTS MEASURED FROM CONCRETE FLOOR SLAB TO EXPOSED FACE OF CEILING FINISH.

3. FOR ADDITIONAL DIMENSIONS REFERENCE ENLARGED FLOOR PLANS AND TRELLIS PLAN.

4. COORDINATE WITH ALL ENLARGED PLANS FOR ADDITIONAL INFORMATION AND DETAILS.

5. SEE SHEET A002 FOR PROJECT GENERAL NOTES.

6. COORDINATE WITH STRUCTURAL FRAMING PLANS AND SHEAR WALL PLANS FOR LOCATIONS OF COLUMNS, BEAMS, SHEAR WALLS, ETC.

7. COORDINATE WITH FINISH SCHEDULE.

8. COORDINATE WITH ELECTRICAL DRAWINGS FOR ALL LIGHTING, POWER AND DATA REQUIREMENTS.

9. REFERENCE WALL TYPE AND CEILING TYPE DETAILS.

10. BUILDING TOP OF FLOOR SLAB ELEVATION = **100'-0"** ON ARCHITECTURAL DRAWINGS OR EQUIVALENT OF **573.00** ON CIVIL DRAWINGS.

11. PER KEYNOTE BP-21 AND BP-22, VACUUM HOSE SHALL BE 1/2-INCH POLYURETHANE MATERIAL RATED FOR CHEMICAL, ABRASION AND UV RADIATION RESISTANCE. ATTACH TO SUBSTRATES AS REQUIRED TO STABILIZE HOSE. SECURE HOSE SECTIONS WITH APPLICABLE FITTINGS AND CONNECTORS.

12. COORDINATE WITH MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ALL OPENINGS IN CMU WALLS AND METAL FRAMED WALLS. REFERENCE STRUCTURAL DRAWINGS FOR FRAMING REQUIREMENTS NECESSARY FOR OPENINGS IN CMU WALLS AND METAL FRAMED WALLS, TYPICAL.

13. "ADA SINK" AS NOTED ON THE PLAN REFERS TO WHEELCHAIR ACCESSIBLE REQUIRED FOR THE LOCATION.

KEYNOTES

BP-01	DECK MOUNTED BARRIER-FREE EYE / FACE WASH
BP-02	FREE STANDING EMERGENCY SHOWER
BP-03	DE-IONIZED WATER
BP-04	FLOOR DRAIN
BP-05	SEMI-RECESSED FIRE EXTINGUISHER CABINET AND EXTINGUISHER
BP-06	EMERGENCY KEY ACCESS BOX - FIRE RISER ROOM
BP-07	FIRE DEPARTMENT CONNECTION (FDC)
BP-08	FIRE RISER LINE
BP-09	BLOCKOUT IN FLOOR SLAB - SEE SLAB PLAN
BP-10	MECHANICAL EQUIPMENT
BP-11	ELECTRICAL EQUIPMENT
BP-12	OWNER PROVIDE FURNISHING - OWNER INSTALLED
BP-13	PRE-FINISHED METAL DOWN SPOUT - MATCH BUILDING PANEL COLOR
BP-14	SLOPE FLOOR SLAB TO DRAIN - SEE SLAB PLAN
BP-15	COUNTERTOP BRACKET - CONCEALED IN WALL
BP-16	2x4 PONY WALL WITH CHEMICAL-RESISTANT PLASTIC LAMINATE PANELS
BP-17	ALUMINUM TILE FLOOR EDGE TRIM - ADA COMPLIANT
BP-18	WALL MOUNTED DRYING / DRAINING RACK
BP-19	FLOOR TILE - SEE DETAIL 12/A502
BP-20	PIPING AND POWER CHASE BETWEEN BASE CABINETS - 4" MINIMUM, CLEAR
BP-21	VACUUM HOOK-UP EQUIPMENT IN COUNTERTOP - RUN VACUUM LINE BACK TO JANITOR 112
BP-22	VACUUM HOOK-UP EQUIPMENT IN WALL - RUN VACUUM LINE BACK TO JANITOR 112
BP-23	CARD ACCESS - COORDINATE EXACT LOCATION WITH OWNER
BP-24	ELECTRICAL NETWORK RACK - SEE ELECTRICAL DRAWINGS
BP-25	TRENCH UNDER MILLWORK FOR AIR LINE AND WATER PIPING WITH COVER PLATE
BP-26	TRENCH FOR AIR LINES AND WATER PIPING WITH COVER PLATE
BP-27	RUN WATER PIPING AND AIR LINES FROM TRENCH UP WALL
BP-28	11/4" ALUMINUM ABRASIVE FILLED TRENCH COVER PLATE - FLUSH INSTALLED

OWNER PROVIDED EQUIPMENT (GENERAL CONTRACTOR INSTALLED)

MARK	EQUIPMENT
1	CIRCULATING WATER BATH
2	REFRIGERATOR
3	CHEST FREEZER
4	BOD REFRIGERATED INCUBATOR
5	HIGH-PERFORMANCE STANDARD E. COLI INCUBATOR
6	GENERAL PROTOCOL OVEN
7	AUTOCLAVE
8	DIAPHRAGM VACUUM PUMP
9	CHEMICAL CABINET
10	MUFFLE FURNACE

CONTRACT PROVIDED EQUIPMENT (GENERAL CONTRACTOR INSTALLED)

MARK	EQUIPMENT
A	OVERHEAD BENCH HOOD w/ PRE-WIRE FOR LIGHTS
B	BENCHTOP MOUNTED LARGE FUME HOOD - ABOVE
C	LABORATORY GLASSWARE DISHWASHER
D	STANDBY GENERATOR - NOT IN CONTRACT (FUTURE)
E	TABLE MOUNTED LABORATORY EYE WASH STATION
F	EMERGENCY COMBINATION SHOWER WITH EYE/FACE WASH STATION

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REGISTERED ARCHITECT — 49665 — JARED MICHAEL PLOUZEK — ARIZONA, U.S.A. — EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

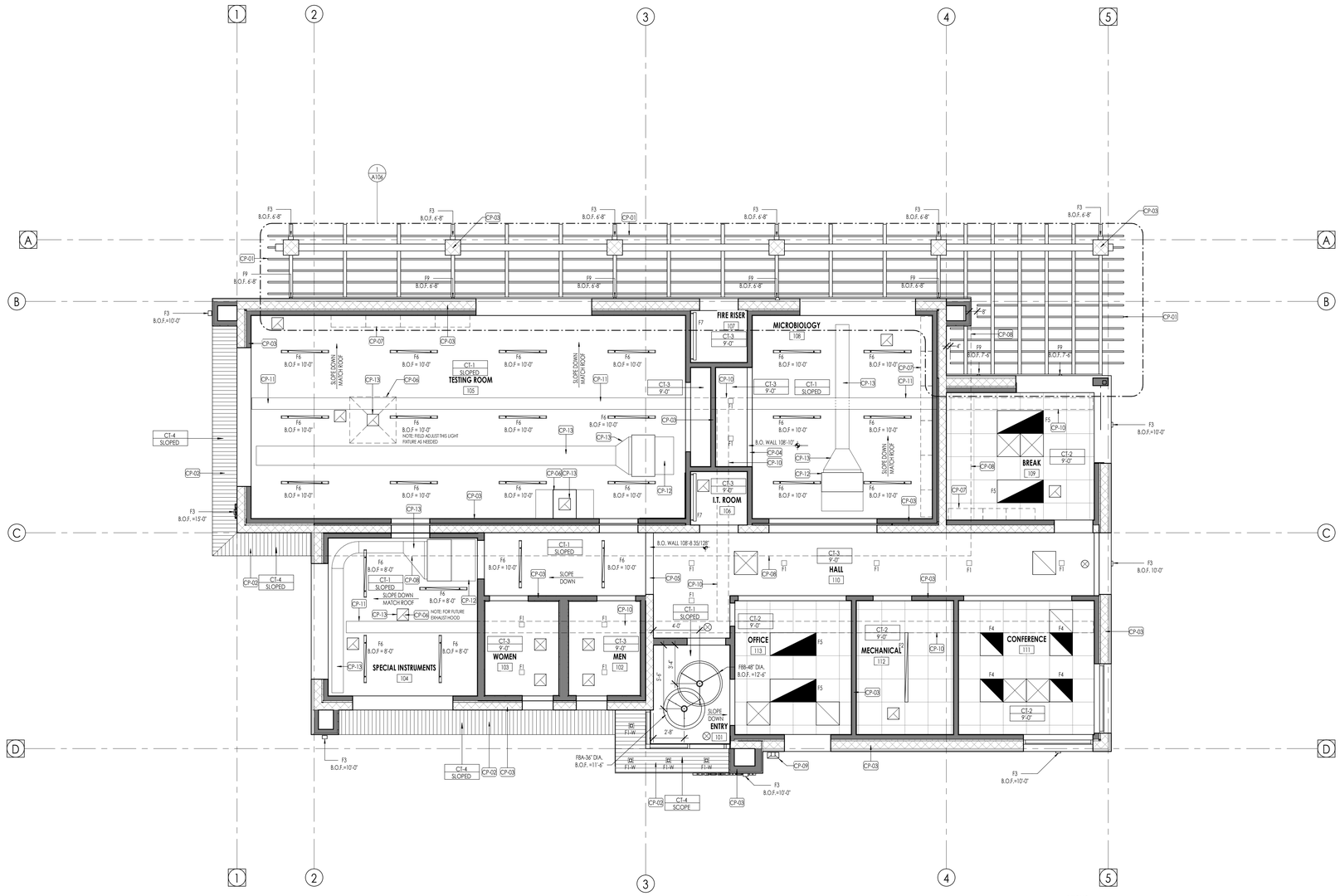
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
LEVEL 1 - INFORMATION PLAN

SHEET NUMBER:
A103

BID SET

Plot Date: 4/21/2025 6:55:00 AM



REFLECTED CEILING PLAN MATERIAL LEGEND

HATCH PATTERN	TYPE	DESCRIPTION	HATCH PATTERN	TYPE	DESCRIPTION
	CT-1	5/8" SUSPENDED GYPSUM BOARD DETAIL 1/G009			
	CT-2	SUSPENDED 2' X 2' ACOUSTIC TILE DETAIL 2/G009			
	CT-3	5/8" SUSPENDED GYPSUM BOARD DETAIL 3/ G009			
	CT-4	VENTED ALUMINUM SOFFIT SEE SHEET A501 DETAILS			

REFLECTED CEILING PLAN GENERAL NOTES

1. REFER TO ENLARGED PLANS, DIMENSION PLAN AND INFORMATION PLAN FOR ALL DIMENSIONS, WINDOW TYPES, DOORS TYPES AND WALLS TYPES.
2. COORDINATE WITH ALL ENLARGED PLANS FOR ADDITIONAL INFORMATION AND DETAILS.
3. REFERENCE SHEET G002 FOR PROJECT GENERAL NOTES. GENERAL CONTRACTOR SHALL REVIEW ALL NOTES PRIOR TO CONSTRUCTION.
4. COORDINATE WITH ELECTRICAL DRAWINGS FOR ALL LIGHTING SCHEDULE, POWER AND DATA REQUIREMENTS.
5. REFERENCE FINISH SCHEDULE FOR ADDITION CEILING INFORMATION.
6. REFERENCE SHEET G009 FOR CEILING TYPES INDICATED ON THIS SHEET.
7. REFERENCE SHEET A104, DETAILS 2, 3, 4 AND 5 FOR SUSPENDED CEILING SYSTEM INSTALLATION REQUIREMENTS.
8. COORDINATE WITH MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ALL OPENINGS IN CMU WALLS AND METAL FRAMED WALLS. REFERENCE STRUCTURAL DRAWINGS FOR FRAMING REQUIREMENTS NECESSARY FOR OPENINGS IN CMU WALLS AND METAL FRAMED WALLS, TYPICAL.

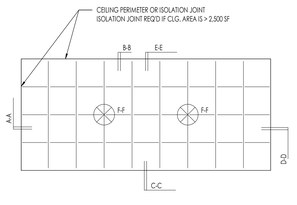
CEILING TAG SYMBOL	DESCRIPTION
CT-# / 9'-0"	CEILING TYPE # HEIGHT

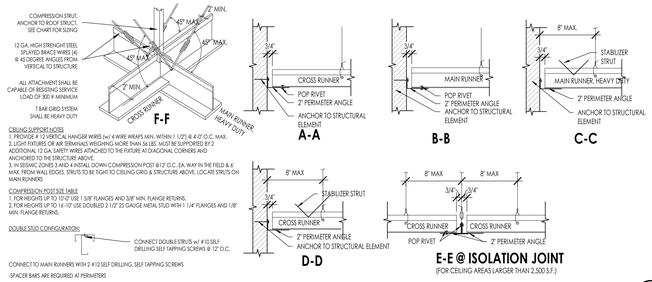
REFLECTED CEILING PLAN KEYNOTES

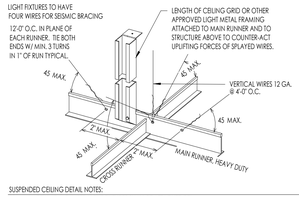
KEYNOTES	
CP-01	TIMBER TRELLIS SYSTEM - PAINTED
CP-02	PRE-FINISHED 1" METAL SOFFIT PANEL
CP-03	SCHEDULED WALL TYPE
CP-04	METAL FRAMED OVERHEAD WALL
CP-05	CMU OVERHEAD WALL
CP-06	MECHANICAL PLUME HOOD
CP-07	WALL MOUNTED CABINETS
CP-08	LINE OF ROOF OVERHANG - ABOVE, DASHED
CP-09	PRE-FINISHED METAL DOWNSPOUT AND CONDUCTOR HEAD - MATCH METAL WALL PANEL COLOR
CP-10	PURPOSED CABLE TRAY LOCATION - ABOVE SUSPENDED CEILING
CP-11	PURPOSED CABLE TRAY LOCATION - BELOW SUSPENDED CEILING
CP-12	MECHANICAL EQUIPMENT - SUSPENDED
CP-13	EXPOSED MECHANICAL DUCTS - PAINTED

REFLECTED CEILING PLAN SYMBOLS

SYMBOL	REMARK
	EXHAUST AIR REGISTER - MECHANICAL
	RETURN AIR REGISTER - MECHANICAL
	SUPPLY AIR REGISTER - MECHANICAL
OR	RECESSED LIGHT FIXTURE
OR	RECESSED CAN FIXTURE - SQUARE
	STRIP LIGHT FIXTURE
	PENDANT HUNG STRIP LIGHT FIXTURE
	PENDANT HUNG DECORATIVE LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE
CEILING OR WALL	EXIT LIGHT

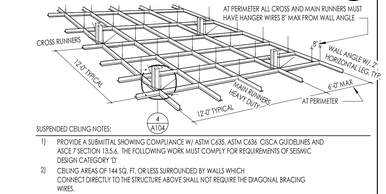






SUSPENDED CEILING DETAIL NOTES:

1) ALL CEILING MOUNTED LIGHT FIXTURES SHALL BE ATTACHED TO SUSPENDED CEILING GRID. IN ADDITION 12 GA. HANGER WIRES SHALL BE ATTACHED TO THE GRID WITHIN 3" OF EACH CORNER OF THE FIXTURE. TWO ADDITIONAL WIRES SHALL BE CONNECTED TO THE LIGHT HOUSING AND TO THE STRUCTURE ABOVE.
2) WIRES SHALL NOT ATTACH TO OR BEND AROUND INTERFEARING MATERIAL OR EQUIPMENT. NOR SHALL THEY BE CLOSER THAN 6" FROM ANY UN-BRACED HORIZONTAL PIPING OR DUCTWORK. A TRAPEZE OR SIMILAR DEVICE SHALL SHALL BE USED WHERE OBSTRUCTIONS OCCUR.
3) EACH VERTICAL WIRE SHALL BE ATTACHED EACH END WITH MIN. 3 TURNS.
4) CEILING GRID SHALL BE INSTALLED LEVEL TO WITHIN 1/8" IN 12 FEET.
5) LOCAL KINKS OR BENDS SHALL NOT BE MADE IN HANGER WIRES AS A MEANS OF LEVELING MAIN RUNNERS.
6) ALL WIRE LOOPS SHALL BE TIGHTLY WRAPPED AND SHARPLY BENT.
7) PROVIDE 4 WIRES (1 EA. CORNER) FOR SUSPENDED LIGHT FIXTURES.



SUSPENDED CEILING NOTES:

1) PROVIDE A SUBMITTAL SHOWING COMPLIANCE W/ ASTM C635, ASTM C636 CISCA GUIDELINES AND ASCE 7 SECTION 13.5.6. THE FOLLOWING WORK MUST COMPLY FOR REQUIREMENTS OF SEISMIC DESIGN CATEGORY 'D'
2) CEILING AREAS OF 144 SQ. FT. OR LESS SURROUNDED BY WALLS WHICH CONNECT DIRECTLY TO THE STRUCTURE ABOVE SHALL NOT REQUIRE THE DIAGONAL BRACING WIRES.

SUSPENDED CEILING GRID DETAIL - 1 — 1/4" = 1'-0" — REFERENCE REFLECTED CEILING PLAN GENERAL NOTE #7 — 2 / A104

SUSPENDED CEILING GRID DETAIL - 2 — 1 1/2" = 1'-0" — REFERENCE REFLECTED CEILING PLAN GENERAL NOTE #7 — 3 / A104

SUSPENDED CEILING GRID DETAIL - 3 — 3/4" = 1'-0" — REFERENCE REFLECTED CEILING PLAN GENERAL NOTE #7 — 4 / A104

SUSPENDED CEILING GRID DETAIL - 4 — 3/4" = 1'-0" — REFERENCE REFLECTED CEILING PLAN GENERAL NOTE #7 — 5 / A104

TRUE NORTH

BUILDING NORTH

LEVEL 1 - REFLECTED CEILING PLAN — 1/4" = 1'-0" — 1 / A104

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LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

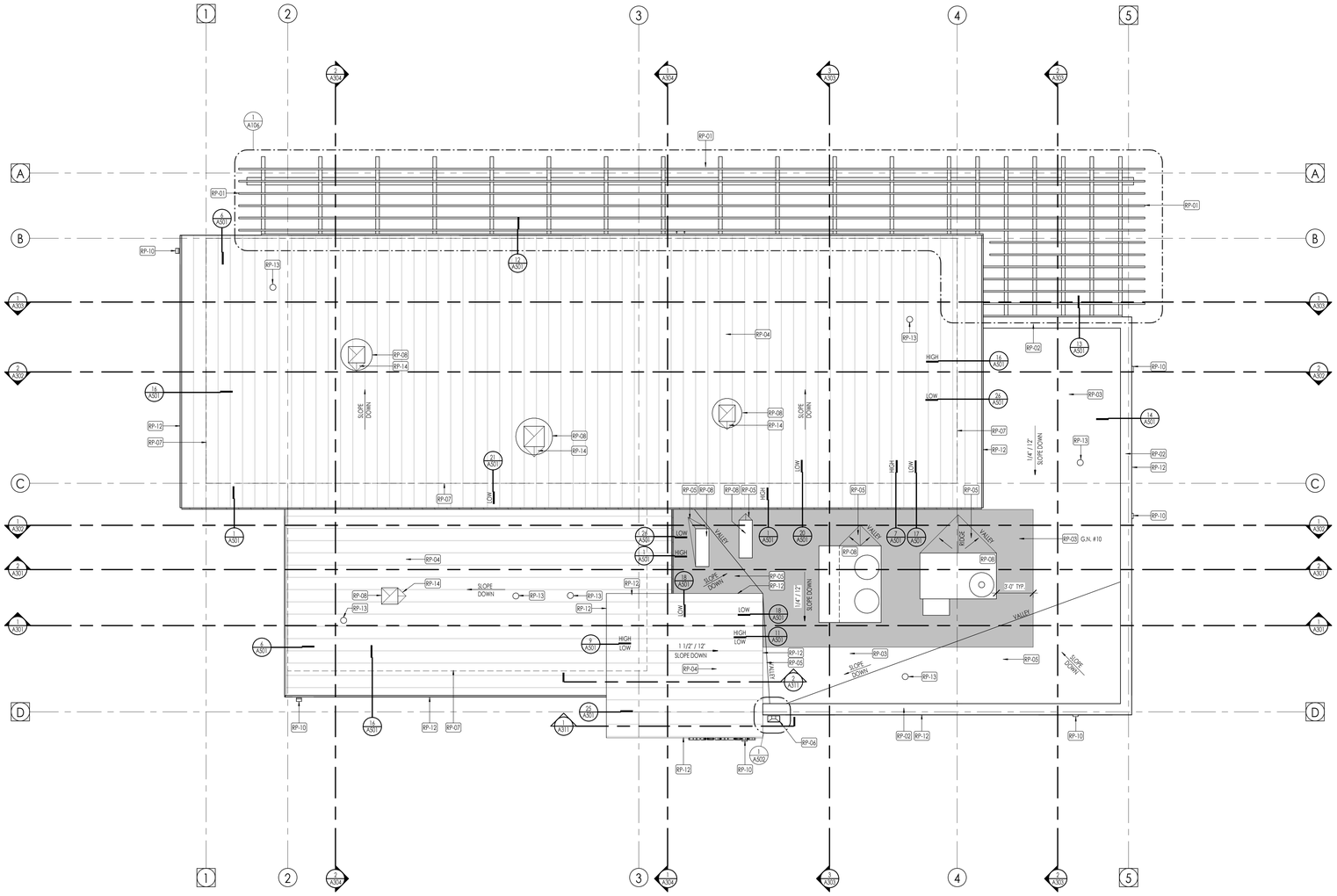
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
REFLECTED CEILING PLAN

SHEET NUMBER:
A104

Plot Date: 4/21/2025 6:55:05 AM



ROOF PLAN
1/4" = 1'-0"

ROOF PLAN LEGEND

HATCH PATTERN	DESCRIPTION	HATCH PATTERN	DESCRIPTION
	TPO ROOFING MEMBRANE		
	STANDING SEAM METAL ROOFING SYSTEM		
	TIMBER TRELLIS SYSTEM		

ROOF PLAN GENERAL NOTES

1. SEE SHEET G002 FOR PROJECT GENERAL NOTES. REVIEW ALL NOTES PRIOR TO CONSTRUCTION.
2. FLASH ALL ROOF PENETRATIONS WHETHER SHOWN OR NOT.
3. COORDINATE WITH MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR ALL ROOF PENETRATIONS.
4. PROVIDE HEAT TRACE IN ALL RAIN GUTTERS, DOWN SPOUTS AND RAIN CHAINS.
5. ROOFING CONTRACTOR SHALL REVIEW ALL SUBSTRATES PRIOR TO BEGINNING WORK.
6. ALL ROOFING SHALL BE REVIEWED PRIOR TO INSTALLATION.
7. CONTRACTOR IS RESPONSIBLE TO ASSUME THAT NO ROOF SLOPES CREATE DEAD SPOTS OR LOW SPOTS THAT WILL PREVENT DRAINAGE.
8. ALL ROOF TRUSSES TO HAVE RAISED ENERGY HEEL CONSTRUCTION TO ALLOW FOR FULL DEPTH INSULATION OVER EXTERIOR WALLS (COORDINATE INSULATION REQUIREMENTS WITH RESCHECKS).
9. DIMENSIONS SHOWN ON THE ROOF PLAN ARE FROM THE EXTERIOR SIDE OF THE STUD FRAMING BELOW.
10. INSTALL 3'-0" WIDTH OF TPO WALKING/WORKING SURFACE AROUND ALL SIDES OF ROOF TOP MECHANICAL EQUIPMENT. THIS ONLY INCLUDES ROOF TOP MECHANICAL EQUIPMENT LOCATED ON ROOFS WITH TPO ROOFINT MEMBRANE.
11. ALL "SLOPE ARROWS" SHOWN ON ROOF PLAN REPRESENT A DOWNWARD SLOPE, UNLESS NOTED OTHERWISE.

ROOF PLAN KEYNOTES

KEYNOTES	
RP-01	TIMBER TRELLIS SYSTEM - PAINTED
RP-02	PRE-FINISHED METAL CAP FLASHING - MATCH METAL WALL PANEL COLOR
RP-03	SINGLE-PLY TPO ROOFING MEMBRANE
RP-04	PRE-FINISHED STANDING SEAM METAL ROOF
RP-05	ROOF INSULATION CRICKET
RP-06	PRE-FINISHED METAL DOWNSPOUT AND CONDUCTOR - MATCH METAL WALL PANEL COLOR
RP-07	WALL LINE - DASHED BELOW
RP-08	ROOF TOP MECHANICAL UNIT - ON CURB. SEE DETAIL 6/A502
RP-10	LIGHT FIXTURE - SEE ELECTRICAL PLANS AND RCP
RP-12	DRIP EDGE FLASHING - MATCH ROOF OR WALL FINISH COLOR
RP-13	EXHAUST DUCT VENT PIPE PENETRATION
RP-14	METAL ROOF CRICKET AND EQUIPMENT CURB - REFERENCE DETAIL 6/A502

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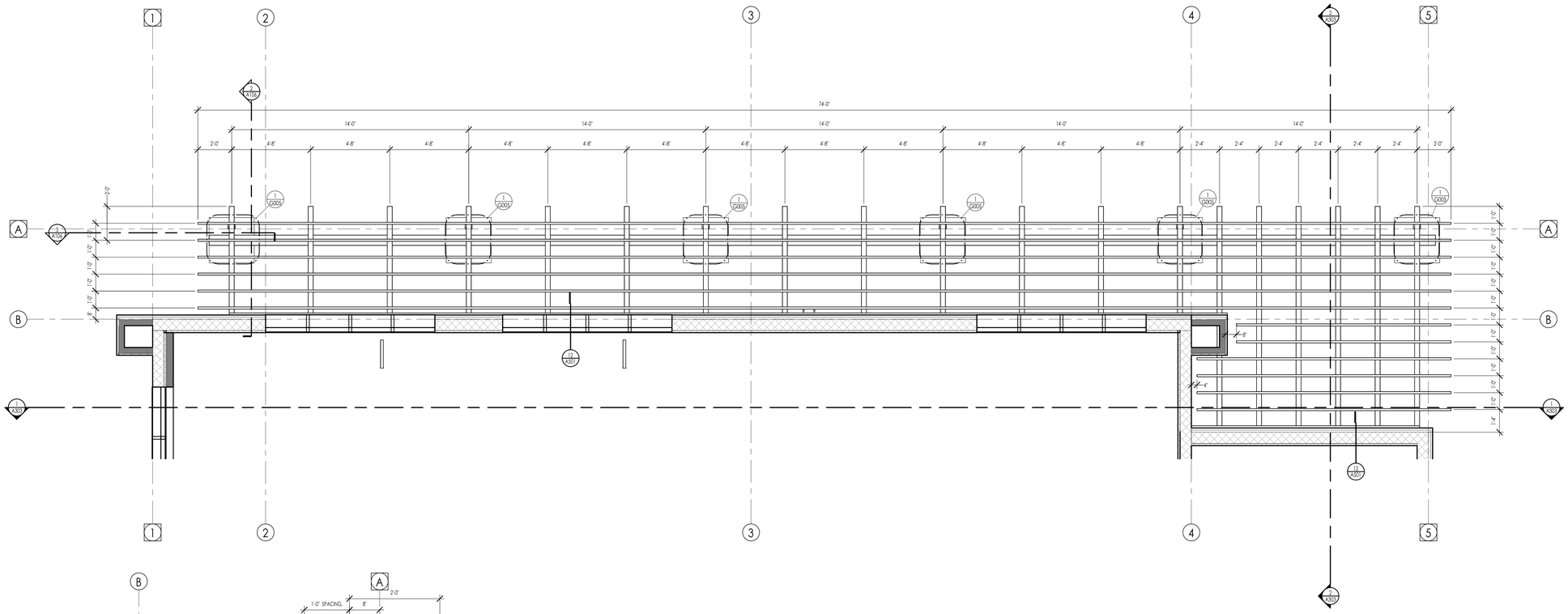
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

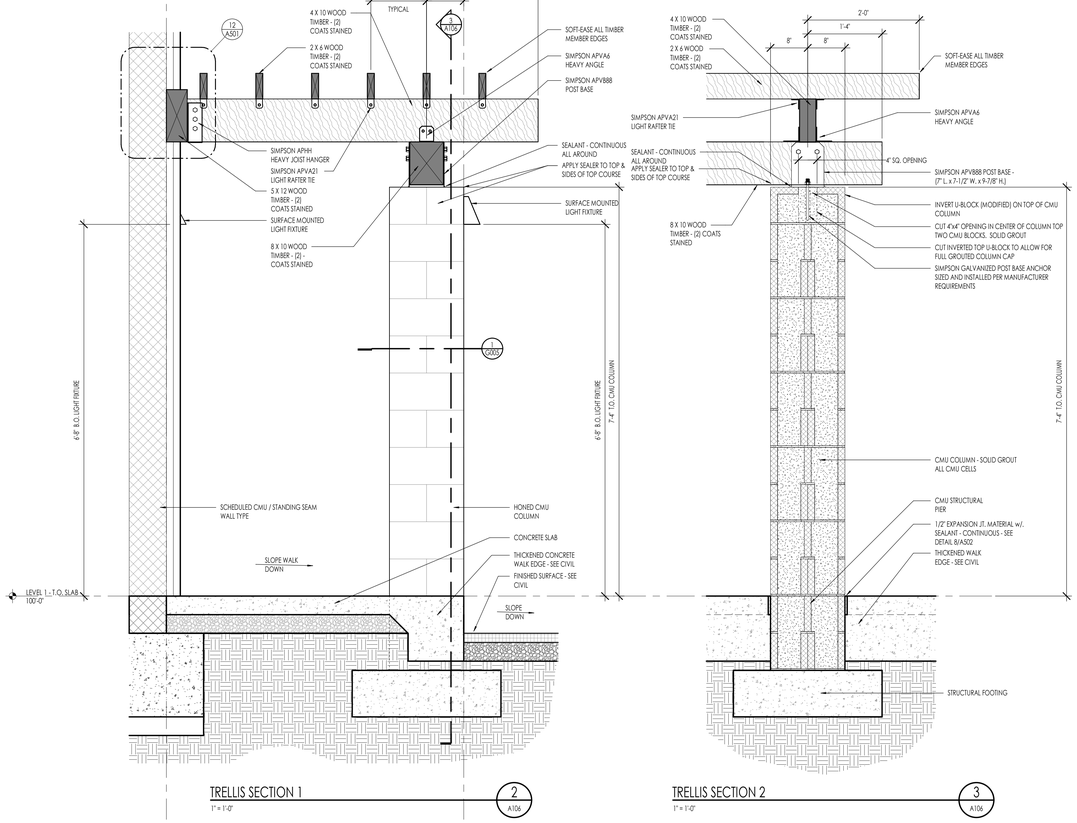
SHEET TITLE:
ROOF PLAN

SHEET NUMBER:
A105

Plot Date: 4/21/2025 6:55:08 AM



TRELLIS PLAN
3/8" = 1'-0"



TRELLIS SECTION 1
1" = 1'-0"

TRELLIS SECTION 2
1" = 1'-0"

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LAKE HAVASU CITY WATER QUALITY LABORATORY

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LAKE HAVASU CITY, AZ. 86403

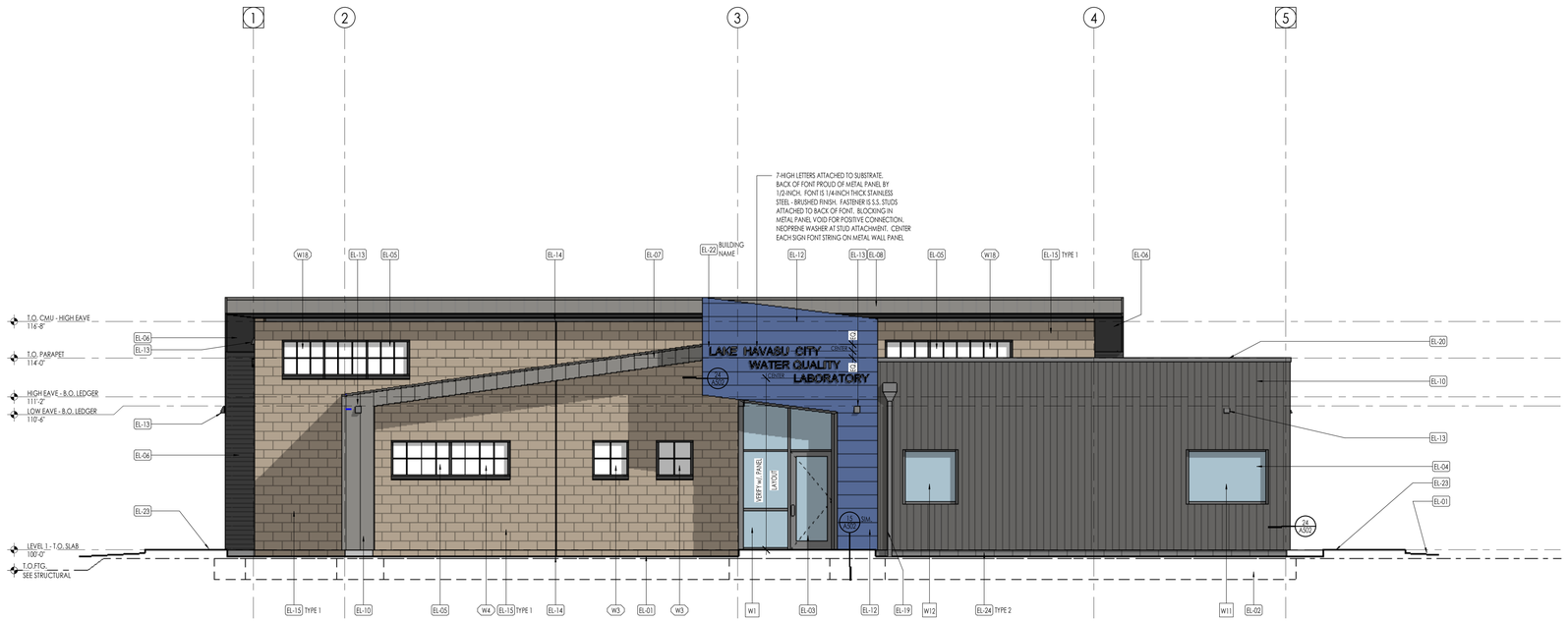
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
TRELLIS PLAN AND DETAILS

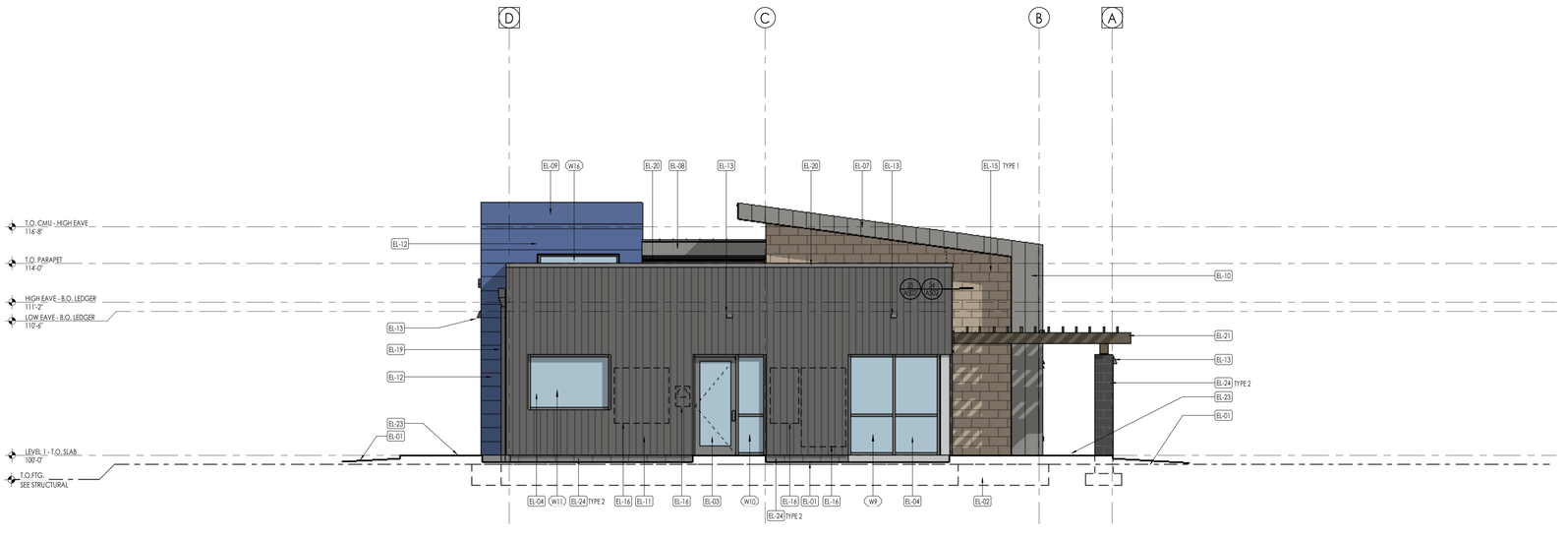
SHEET NUMBER:
A106

BID SET

Plot Date: 4/21/2025 6:55:10 AM



FRONT ELEVATION
1/4" = 1'-0"
1 / A201



RIGHT ELEVATION
1/4" = 1'-0"
2 / A201

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
EL-01	FINISH GRADE. SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
EL-02	STRUCTURAL FOOTING
EL-03	SCHEDULED DOOR
EL-04	SCHEDULED WINDOW
EL-05	TRANSLUCENT WALL PANEL
EL-06	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
EL-07	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE "A" (SAME AS PANEL TYPE 1)
EL-08	PRE-FINISHED STANDING SEAM METAL FASCIA PANAL - TYPE "B" (SAME AS PANEL TYPE 2)
EL-09	PRE-FINISHED STANDING SEAM METAL ROOFING
EL-10	PRE-FINISHED 1-INCH VERTICAL SEAM FLAT METAL WALL PANEL - TYPE 1
EL-11	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
EL-12	PRE-FINISHED 1-INCH HORIZONTAL SEAM FLAT METAL WALL PANEL - TYPE 3
EL-13	SCHEDULED LIGHT FIXTURE
EL-14	CMU CONTROL JOINT - FLANGED OR UNFLANGED WITH SEALANT AND BACKER ROD AT JOINT FACES
EL-15	INTEGRAL COLORED GROUND FACE (BURNISHED) CMU - TYPE 1
EL-16	ELECTRICAL SERVICE EQUIPMENT
EL-19	CONDUCTOR AND DOWNSPOUT - SEE DETAILS 1/A502 AND 2/A502
EL-20	PRE-FINISHED METAL CAP FLASHING WITH DRIP EDGE - MATCH WALL COLOR
EL-21	TIMBER TRELLIS SYSTEM - SEE DRAWING SHEET A106
EL-22	WALL SIGN
EL-23	4" CONCRETE SIDEWALK OVER 4" COMPACTED GRANULAR FILL - BROOM FINISH
EL-24	INTEGRAL COLORED GROUND FACE (BURNISHED) CMU - TYPE 2

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EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY
340 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

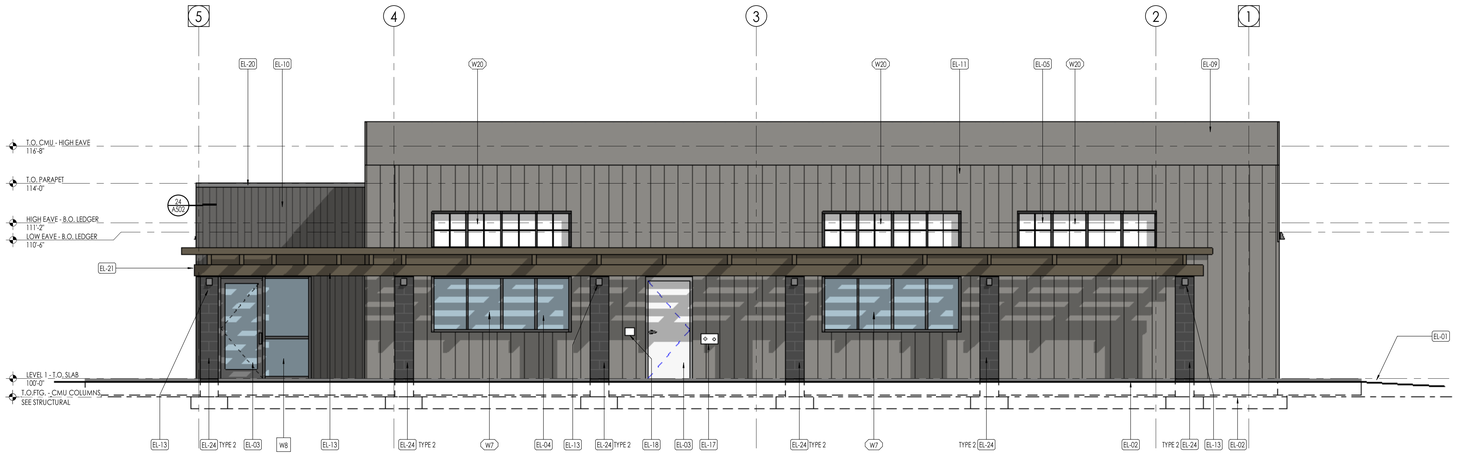
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

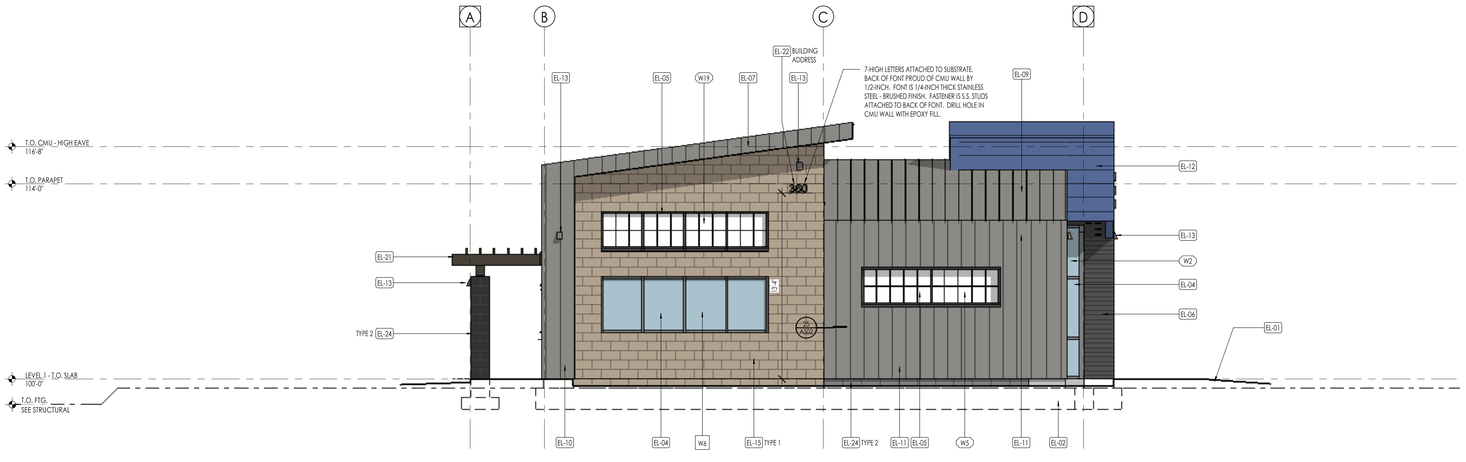
SHEET TITLE:
EXTERIOR ELEVATIONS

SHEET NUMBER:
A201

Plot Date: 4/21/2025 6:55:15 AM



BACK ELEVATION
1/4" = 1'-0"
1 A202



LEFT ELEVATION
1/4" = 1'-0"
2 A202

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
EL-01	FINISH GRADE. SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
EL-02	STRUCTURAL FOOTING
EL-03	SCHEDULED DOOR
EL-04	SCHEDULED WINDOW
EL-05	TRANSLUCENT WALL PANEL
EL-06	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
EL-07	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE "A" (SAME AS PANEL TYPE 1)
EL-09	PRE-FINISHED STANDING SEAM METAL ROOFING
EL-10	PRE-FINISHED 1-INCH VERTICAL SEAM FLAT METAL WALL PANEL - TYPE 1
EL-11	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
EL-12	PRE-FINISHED 1-INCH HORIZONTAL SEAM FLAT METAL WALL PANEL - TYPE 3
EL-13	SCHEDULED LIGHT FIXTURE
EL-15	INTEGRAL COLORED GROUND FACE (BURNISHED) CMU - TYPE 1
EL-17	FIRE DEPARTMENT CONNECTION (FDC)
EL-18	EMERGENCY KEY ACCESS BOX - FIRE RISER ROOM
EL-20	PRE-FINISHED METAL CAP FLASHING WITH DRIP EDGE - MATCH WALL COLOR
EL-21	TIMBER TRELLIS SYSTEM - SEE DRAWING SHEET A106
EL-22	WALL SIGN
EL-24	INTEGRAL COLORED GROUND FACE (BURNISHED) CMU - TYPE 2

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LAKE HAVASU CITY WATER QUALITY LABORATORY

340 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
EXTERIOR ELEVATIONS

SHEET NUMBER:
A202

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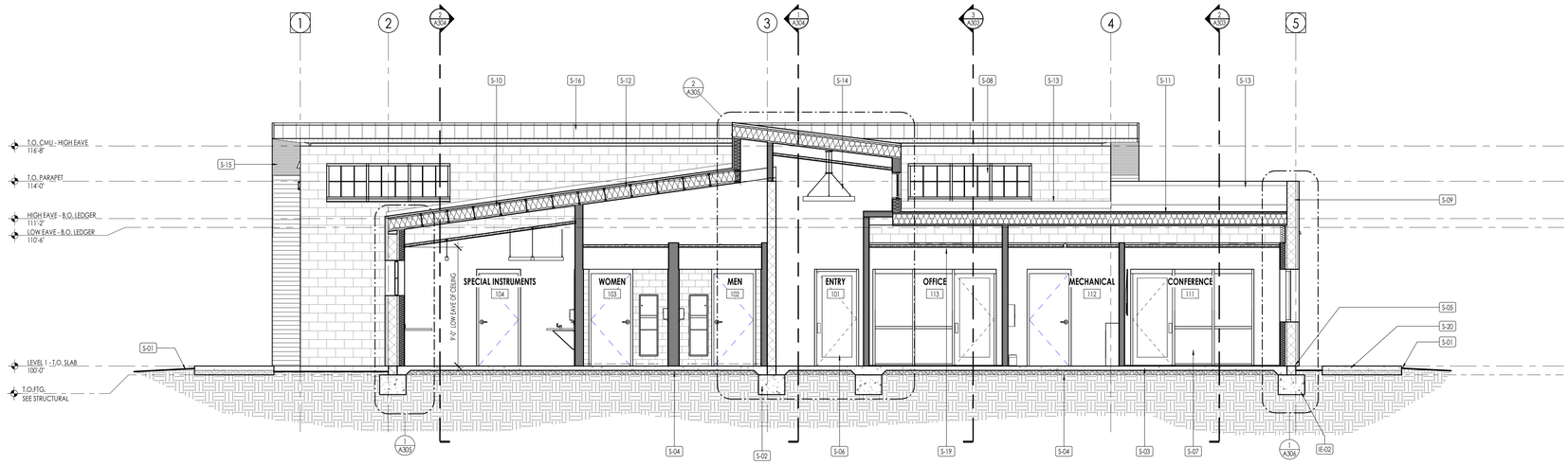
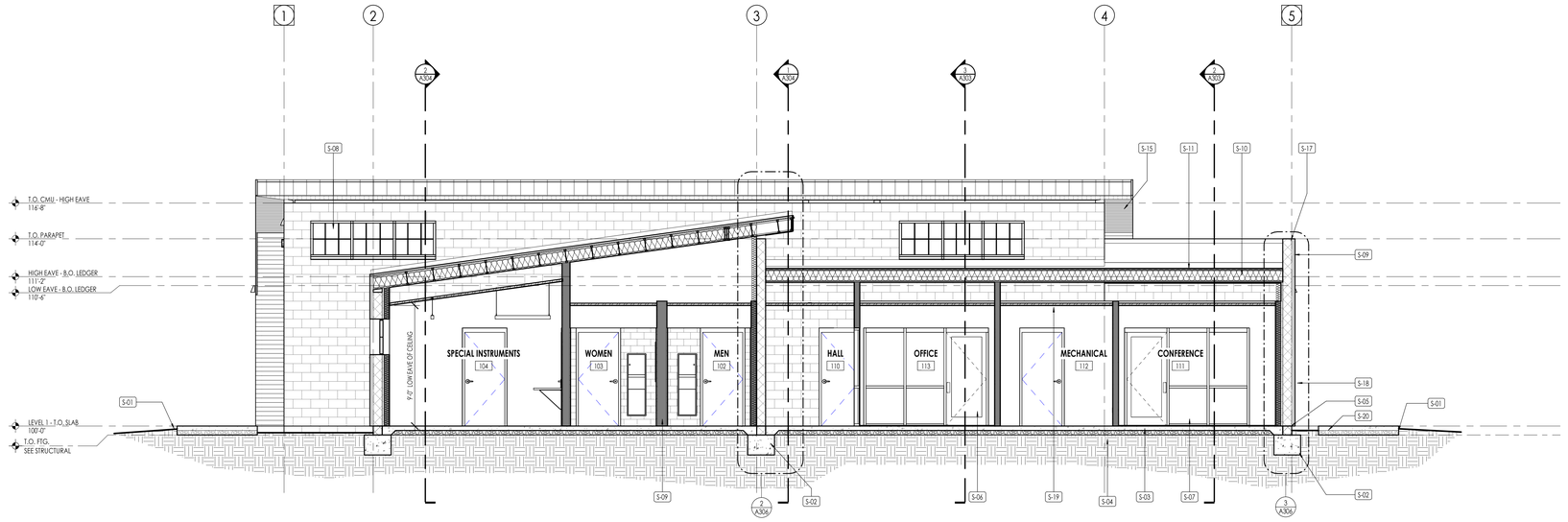
Plot Date: 4/21/2025 6:35:19 AM



LONGITUDINAL SECTION 1
1/4" = 1'-0"
1 A301



LONGITUDINAL SECTION 2
1/4" = 1'-0"
2 A301

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
IE-02	COUNTERTOP BRACKET CONCEALED IN WALL - PAINTED
S-01	FINISH GRADE. SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
S-02	STRUCTURAL CONCRETE FOOTING
S-03	STRUCTURAL CONCRETE FLOOR SLAB
S-04	4" COMPACTED GRANULAR FILL
S-05	STRUCTURAL FOUNDATION WALL
S-06	SCHEDULED DOOR
S-07	SCHEDULED WINDOW
S-08	TRANSLUCENT WALL PANEL
S-09	SCHEDULED WALL TYPE
S-10	SCHEDULED ROOF INSULATION
S-11	SINGLE-PLY TPO MEMBRANE ROOFING
S-12	PREFINISHED STANDING SEAM METAL ROOFING
S-13	RETURN TPO UP WALL AND UNDER CAP FLASHING
S-14	SCHEDULED LIGHT FIXTURE
S-15	PREFINISHED METAL SOFFIT
S-16	PREFINISHED STANDING SEAM METAL FASCIA
S-17	PREFINISHED METAL CAP FLASHING
S-18	PREFINISHED METAL WALL PANEL
S-19	SCHEDULED CEILING SYSTEM
S-20	CONCRETE SIDEWALK OVER COMPACTED GRANULAR FILL

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LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

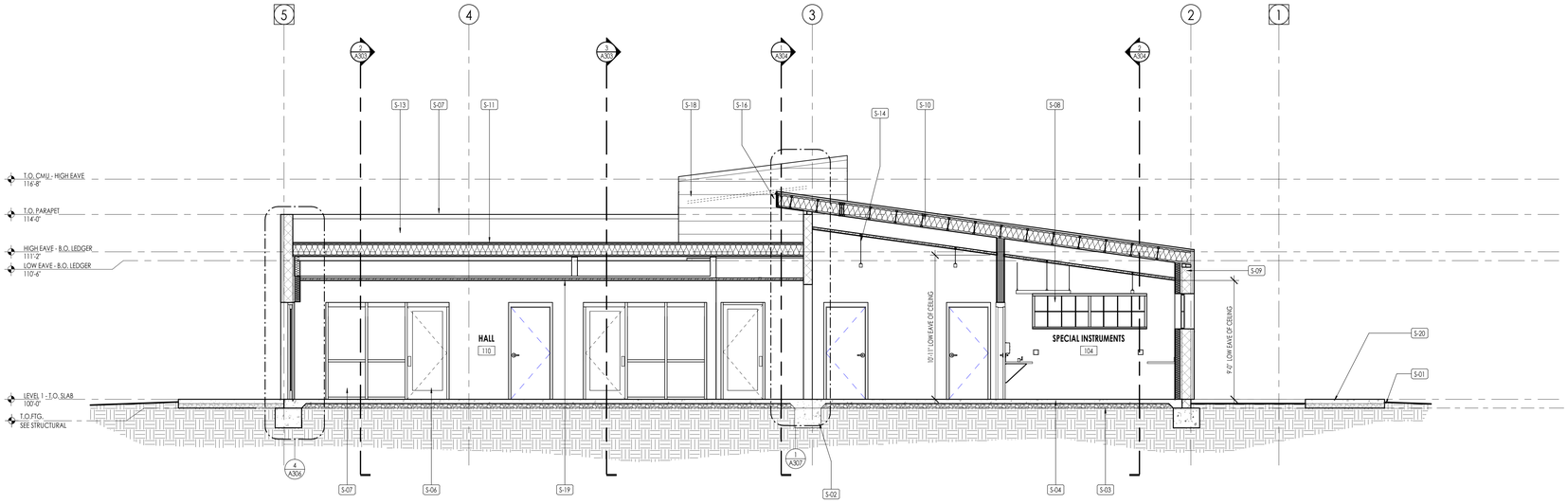
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
BUILDING SECTIONS

SHEET NUMBER:
A301

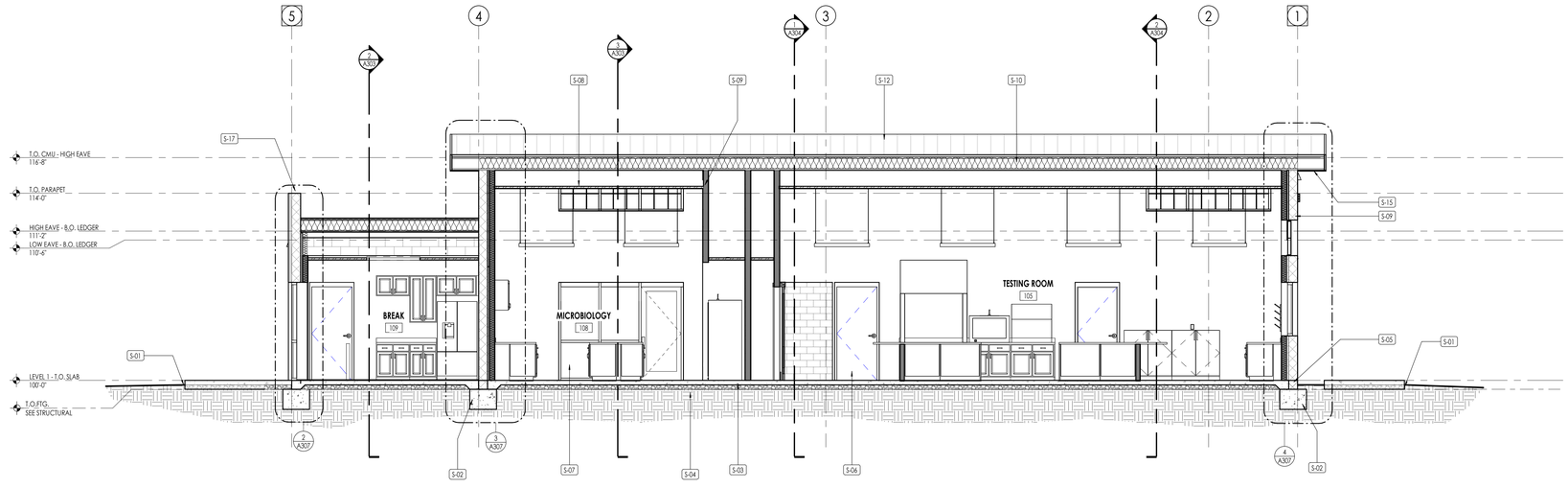
Plot Date: 4/21/2025 6:55:22 AM



LONGITUDINAL SECTION 3

1/4" = 1'-0"

1 A302



LONGITUDINAL SECTION 4

1/4" = 1'-0"

2 A302

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
S-01	FINISH GRADE - NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION ON GRADING & FINISH MATERIAL
S-02	STRUCTURAL CONCRETE FOOTING - COORDINATE WITH CIVIL DRAWINGS
S-03	STRUCTURAL CONCRETE SLAB ON GRADE - 4" CONCRETE
S-04	STRUCTURAL FOUNDATION WALL
S-05	SCHEDULED DOOR
S-06	SCHEDULED WINDOW
S-07	TRANSLUCENT WALL PANEL
S-08	SCHEDULED WALL TYPE
S-09	SCHEDULED ROOF INSULATION
S-10	SINGLE-PLY TPO MEMBRANE ROOFING
S-11	PREFINISHED STANDING SEAM METAL ROOFING
S-12	RETURN TPO UP WALL AND UNDER CAP FLASHING
S-13	SCHEDULED LIGHT FIXTURE
S-14	PREFINISHED METAL SOFFIT
S-15	PREFINISHED STANDING SEAM METAL FASCIA
S-16	PREFINISHED METAL CAP FLASHING
S-17	PREFINISHED METAL WALL PANEL
S-18	SCHEDULED CEILING SYSTEM
S-19	CONCRETE SIDEWALK OVER COMPACTED GRANULAR FILL
S-20	

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EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

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LAKE HAVASU CITY, AZ. 86403

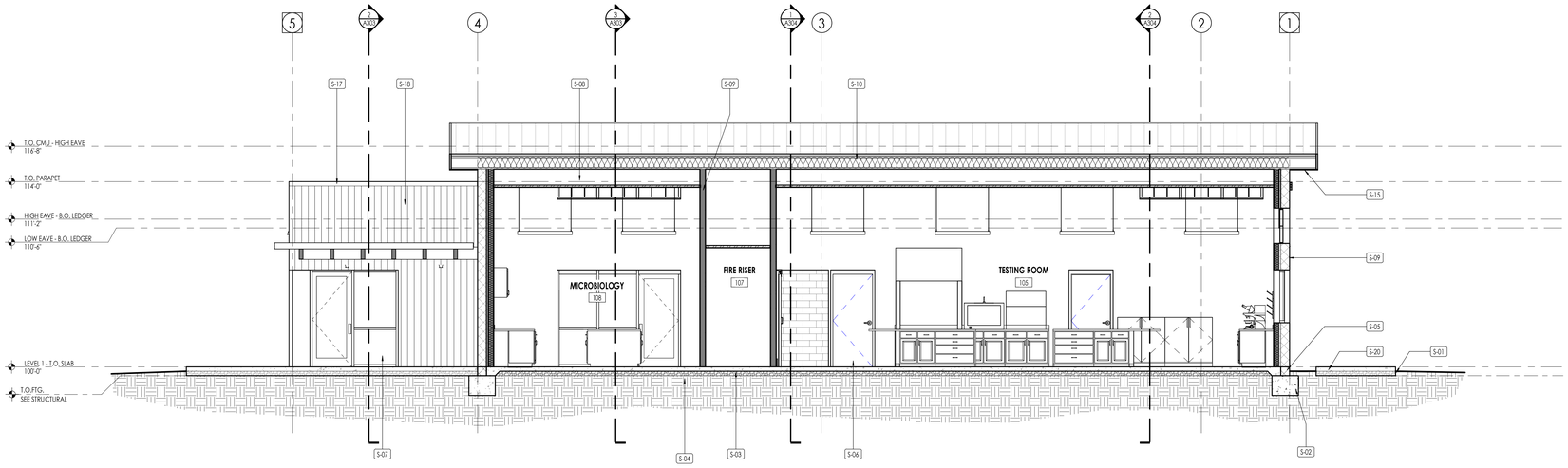
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
BUILDING SECTIONS

SHEET NUMBER:
A302

BID SET

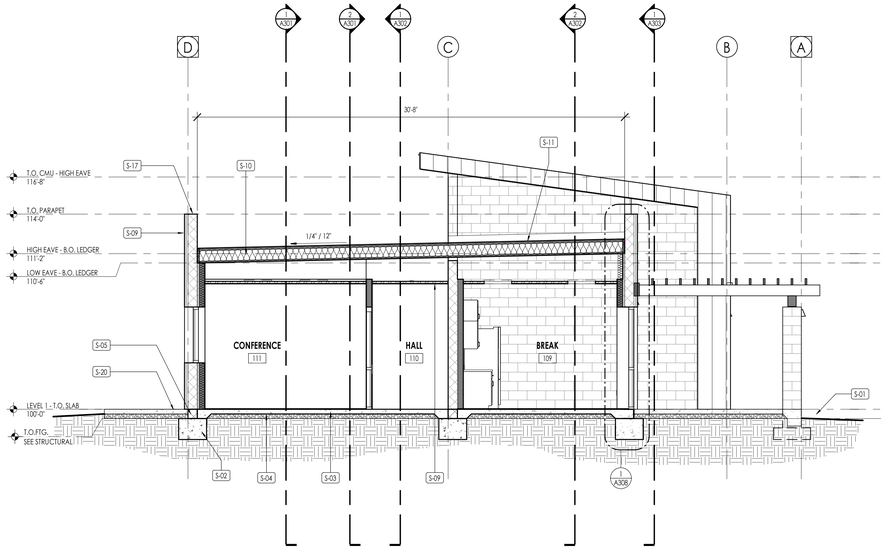
Plot Date: 4/21/2025 6:55:26 AM



LONGITUDINAL SECTION 5

1/4" = 1'-0"

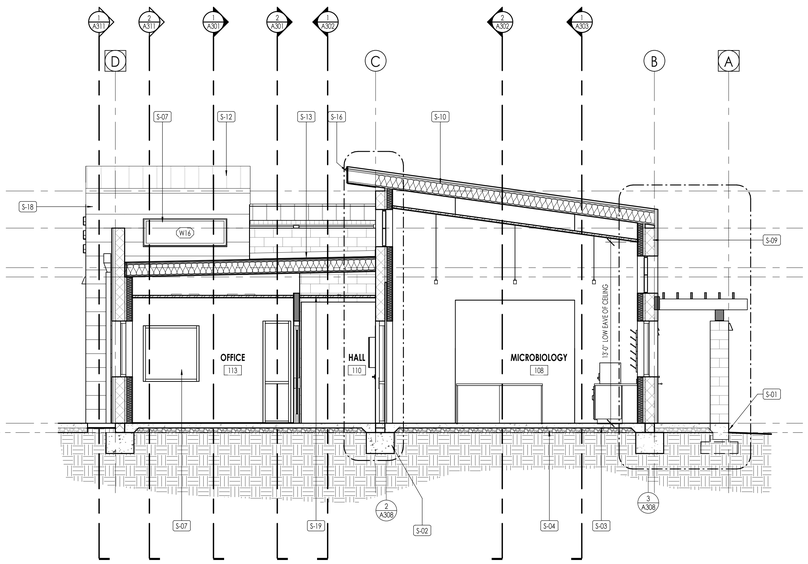
1 A303



CROSS SECTION 1

1/4" = 1'-0"

2 A303



CROSS SECTION 2

1/4" = 1'-0"

3 A303

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
S-01	FINISH GRADE. SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
S-02	STRUCTURAL CONCRETE FOOTING
S-03	STRUCTURAL CONCRETE FLOOR SLAB
S-04	4" COMPACTED GRANULAR FILL
S-05	STRUCTURAL FOUNDATION WALL
S-06	SCHEDULED DOOR
S-07	SCHEDULED WINDOW
S-08	TRANSLUCENT WALL PANEL
S-09	SCHEDULED WALL TYPE
S-10	SCHEDULED ROOF INSULATION
S-11	SINGLE-PLY TPO MEMBRANE ROOFING
S-12	PREFINISHED STANDING SEAM METAL ROOFING
S-13	RETURN TPO UP WALL AND UNDER CAP FLASHING
S-15	PREFINISHED METAL SOFFIT
S-16	PREFINISHED STANDING SEAM METAL FASCIA
S-17	PREFINISHED METAL CAP FLASHING
S-18	PREFINISHED METAL WALL PANEL
S-19	SCHEDULED CEILING SYSTEM
S-20	CONCRETE SIDEWALK OVER COMPACTED GRANULAR FILL

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EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

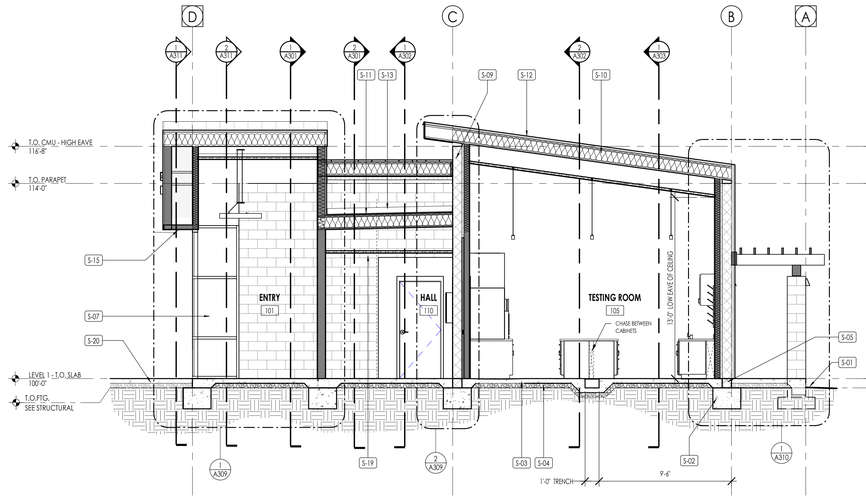
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
BUILDING SECTIONS

SHEET NUMBER:
A303

BID SET

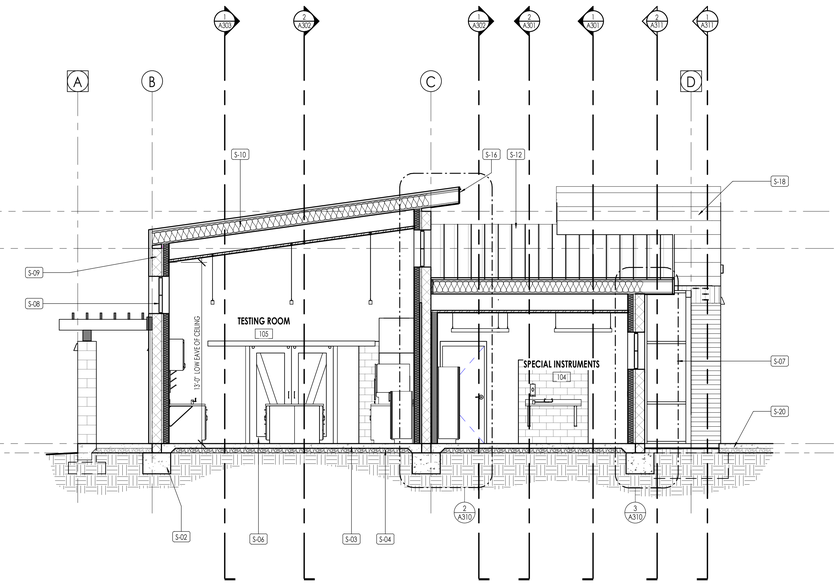
Plot Date: 4/21/2025 6:55:30 AM



CROSS SECTION 3

1/4" = 1'-0"

1 A304



CROSS SECTION 4

1/4" = 1'-0"

2 A304

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
S-01	FINISH GRADE, SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
S-02	STRUCTURAL CONCRETE FOOTING
S-03	STRUCTURAL CONCRETE FLOOR SLAB
S-04	4" COMPACTED GRANULAR FILL
S-05	STRUCTURAL FOUNDATION WALL
S-06	SCHEDULED DOOR
S-07	SCHEDULED WINDOW
S-08	TRANSLUCENT WALL PANEL
S-09	SCHEDULED WALL TYPE
S-10	SCHEDULED ROOF INSULATION
S-11	SINGLE-PLY TPO MEMBRANE ROOFING
S-12	PREFINISHED STANDING SEAM METAL ROOFING
S-13	RETURN TPO UP WALL AND UNDER CAP FLASHING
S-15	PREFINISHED METAL SOFFIT
S-16	PREFINISHED STANDING SEAM METAL FASCIA
S-18	PREFINISHED METAL WALL PANEL
S-19	SCHEDULED CEILING SYSTEM
S-20	CONCRETE SIDEWALK OVER COMPACTED GRANULAR FILL

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REGISTERED ARCHITECT
49665
JERED MICHAEL PLOUZEK
ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025

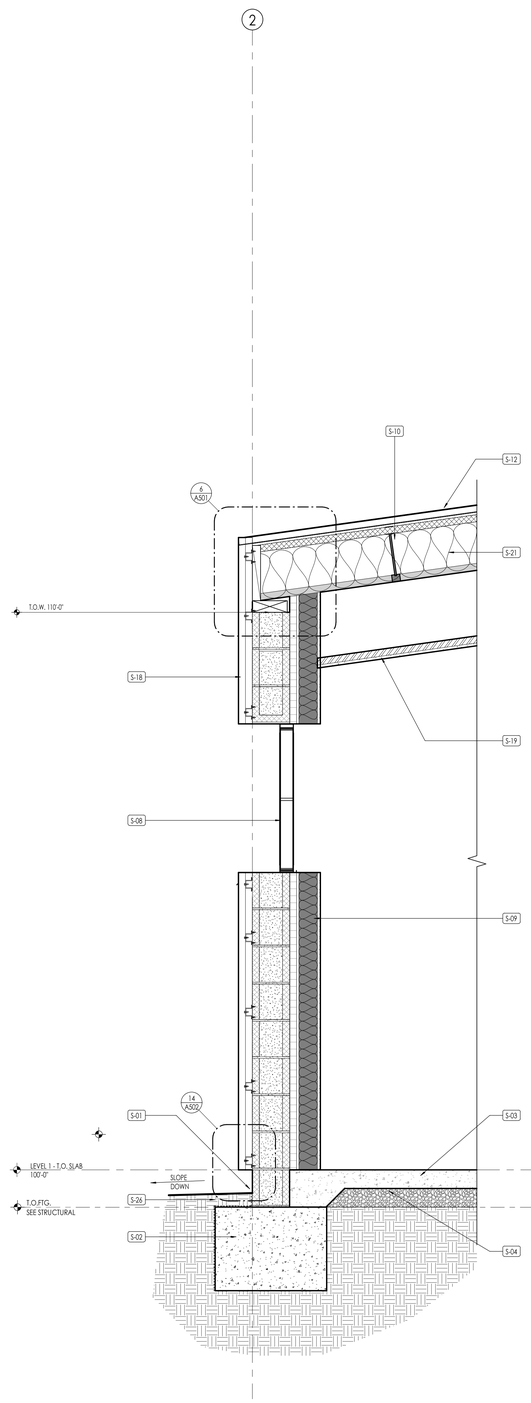
REVISIONS:

SHEET TITLE:
BUILDING SECTIONS

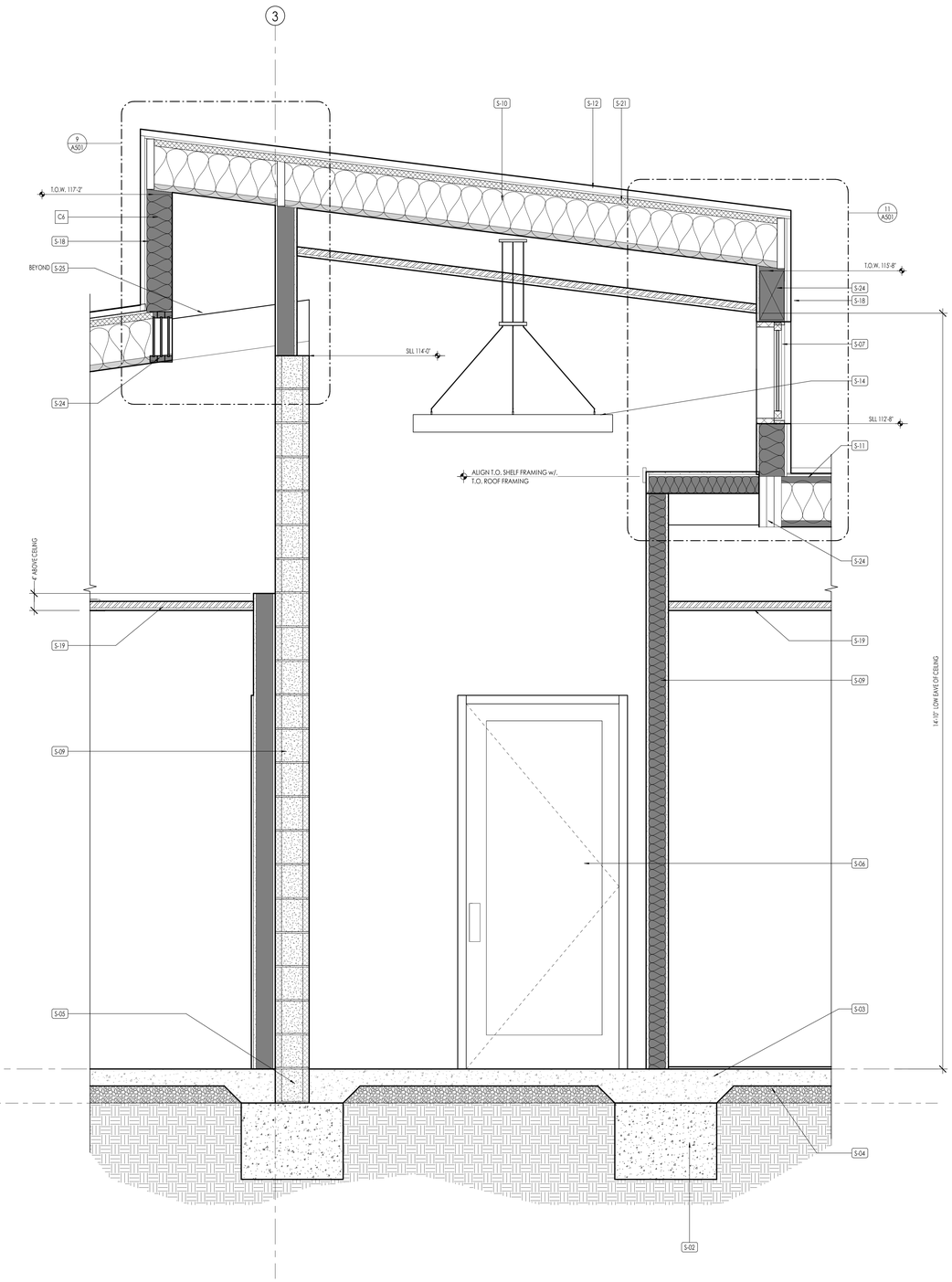
SHEET NUMBER:
A304

BID SET

Plot Date: 4/21/2025 6:55:33 AM



WALL SECTION 1
1" = 1'-0"
1
A305



WALL SECTION 2
1" = 1'-0"
2
A305

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
S-01	FINISH GRADE, SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
S-02	STRUCTURAL CONCRETE FOOTING
S-03	STRUCTURAL CONCRETE FLOOR SLAB
S-04	4" COMPACTED GRANULAR FILL
S-05	STRUCTURAL FOUNDATION WALL
S-06	SCHEDULED DOOR
S-07	SCHEDULED WINDOW
S-08	TRANSLUCENT WALL PANEL
S-09	SCHEDULED WALL TYPE
S-10	SCHEDULED ROOF INSULATION
S-11	SINGLE-PLY TPO MEMBRANE ROOFING
S-12	PREFINISHED STANDING SEAM METAL ROOFING
S-14	SCHEDULED LIGHT FIXTURE
S-18	PREFINISHED METAL WALL PANEL
S-19	SCHEDULED CEILING SYSTEM
S-21	STRUCTURAL ROOF FRAMING
S-24	STRUCTURAL BEAM
S-25	STRUCTURAL LINTEL
S-26	LIQUID APPLIED DAMP PROOFING - BELOW GRADE APPLIED AS SHOWN

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LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

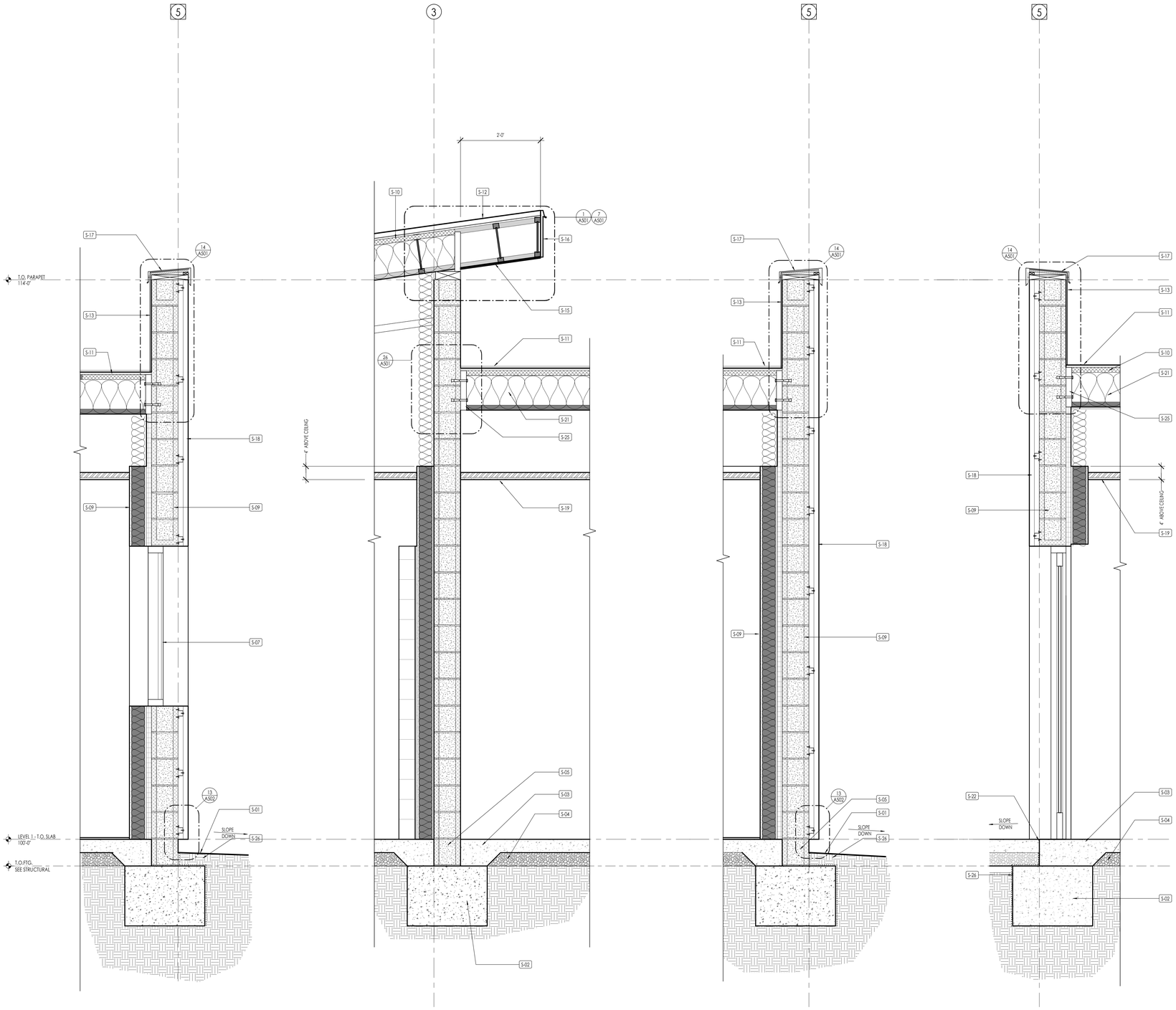
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
WALL SECTIONS

SHEET NUMBER:
A305

BID SET

Plot Date: 4/21/2025 6:55:36 AM



WALL SECTION 3 — 1 A306 — 1" = 1'-0"

WALL SECTION 4 — 2 A306 — 1" = 1'-0"

WALL SECTION 5 — 3 A306 — 1" = 1'-0"

WALL SECTION 6 — 4 A306 — 1" = 1'-0"

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
S-01	FINISH GRADE. SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
S-02	STRUCTURAL CONCRETE FOOTING
S-03	STRUCTURAL CONCRETE FLOOR SLAB
S-04	4" COMPACTED GRANULAR FILL
S-05	STRUCTURAL FOUNDATION WALL
S-07	SCHEDULED WINDOW
S-09	SCHEDULED WALL TYPE
S-10	SCHEDULED ROOF INSULATION
S-11	SINGLE-PLY TPO MEMBRANE ROOFING
S-12	PREFINISHED STANDING SEAM METAL ROOFING
S-13	RETURN TPO UP WALL AND UNDER CAP FLASHING
S-15	PREFINISHED METAL SOFFIT
S-16	PREFINISHED STANDING SEAM METAL FASCIA
S-17	PREFINISHED METAL CAP FLASHING
S-18	PREFINISHED METAL WALL PANEL
S-19	SCHEDULED CEILING SYSTEM
S-21	STRUCTURAL ROOF FRAMING
S-22	1/2" EXPANSION JOINT MATERIAL - SEALANT CONTINUOUS
S-25	STRUCTURAL LINTEL
S-26	LIQUID APPLIED DAMP PROOFING - BELOW GRADE APPLIED AS SHOWN

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EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

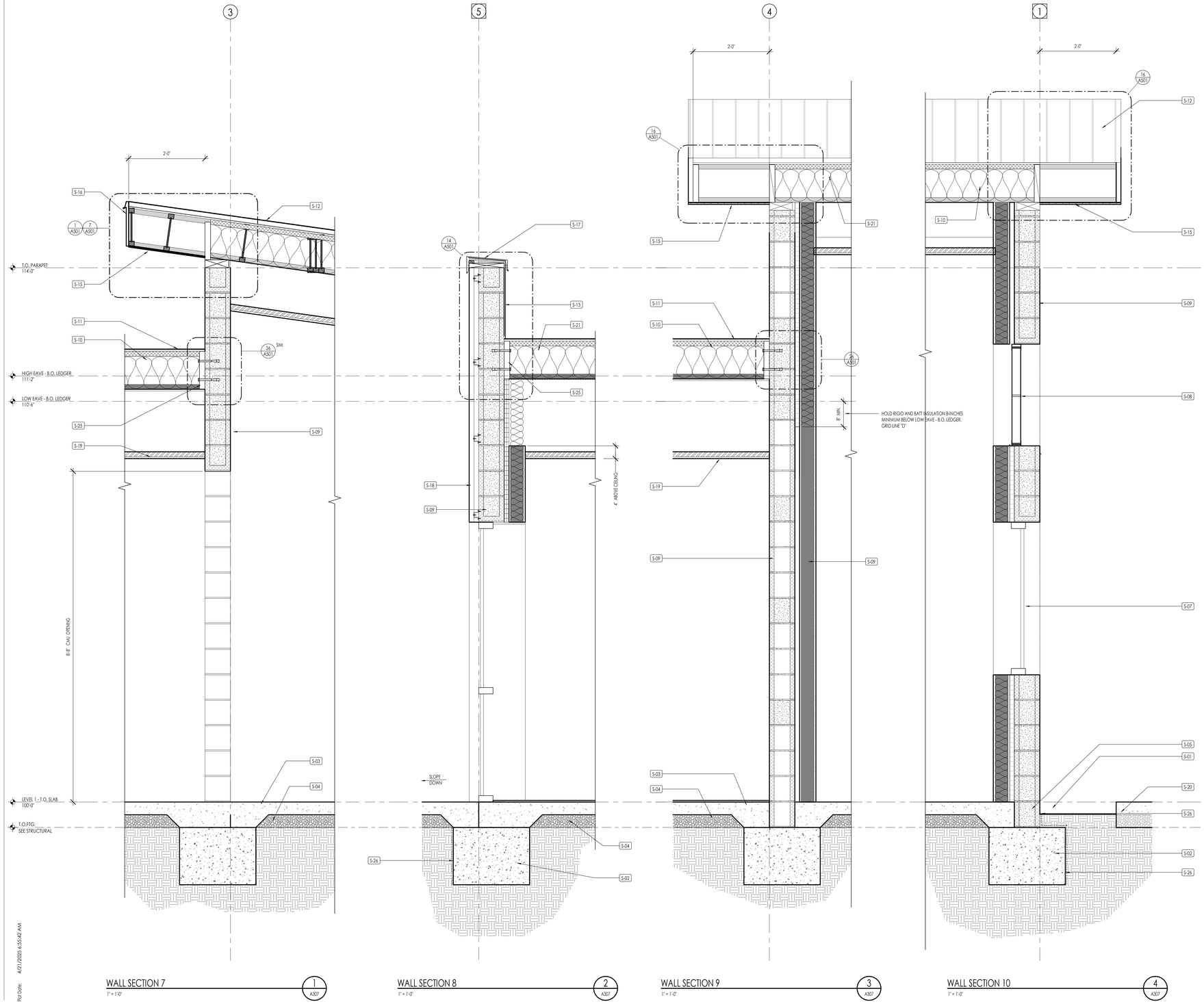
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
WALL SECTIONS

SHEET NUMBER:
A306

BID SET

Plot Date: 4/21/2025 6:55:39 AM



WALL SECTION 7 — 1 / A307 — 1" = 1'-0"

WALL SECTION 8 — 2 / A307 — 1" = 1'-0"

WALL SECTION 9 — 3 / A307 — 1" = 1'-0"

WALL SECTION 10 — 4 / A307 — 1" = 1'-0"

Plot Date: 4/21/2025 6:55:42 AM

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES

S-01	FINISH GRADE. SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
S-02	STRUCTURAL CONCRETE FOOTING
S-03	STRUCTURAL CONCRETE FLOOR SLAB
S-04	4" COMPACTED GRANULAR FILL
S-05	STRUCTURAL FOUNDATION WALL
S-07	SCHEDULED WINDOW
S-08	TRANSLUCENT WALL PANEL
S-09	SCHEDULED WALL TYPE
S-10	SCHEDULED ROOF INSULATION
S-11	SINGLE-PLY TPO MEMBRANE ROOFING
S-12	PREFINISHED STANDING SEAM METAL ROOFING
S-13	RETURN TPO UP WALL AND UNDER CAP FLASHING
S-15	PREFINISHED METAL SOFFIT
S-16	PREFINISHED STANDING SEAM METAL FASCIA
S-17	PREFINISHED METAL CAP FLASHING
S-18	PREFINISHED METAL WALL PANEL
S-19	SCHEDULED CEILING SYSTEM
S-20	CONCRETE SIDEWALK OVER COMPACTED GRANULAR FILL
S-21	STRUCTURAL ROOF FRAMING
S-25	STRUCTURAL LINTEL
S-26	LIQUID APPLIED DAMP PROOFING - BELOW GRADE APPLIED AS SHOWN

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REGISTERED ARCHITECT — 49665 — JARED MICHAEL PLOUZEK — ARIZONA, U.S.A. — EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

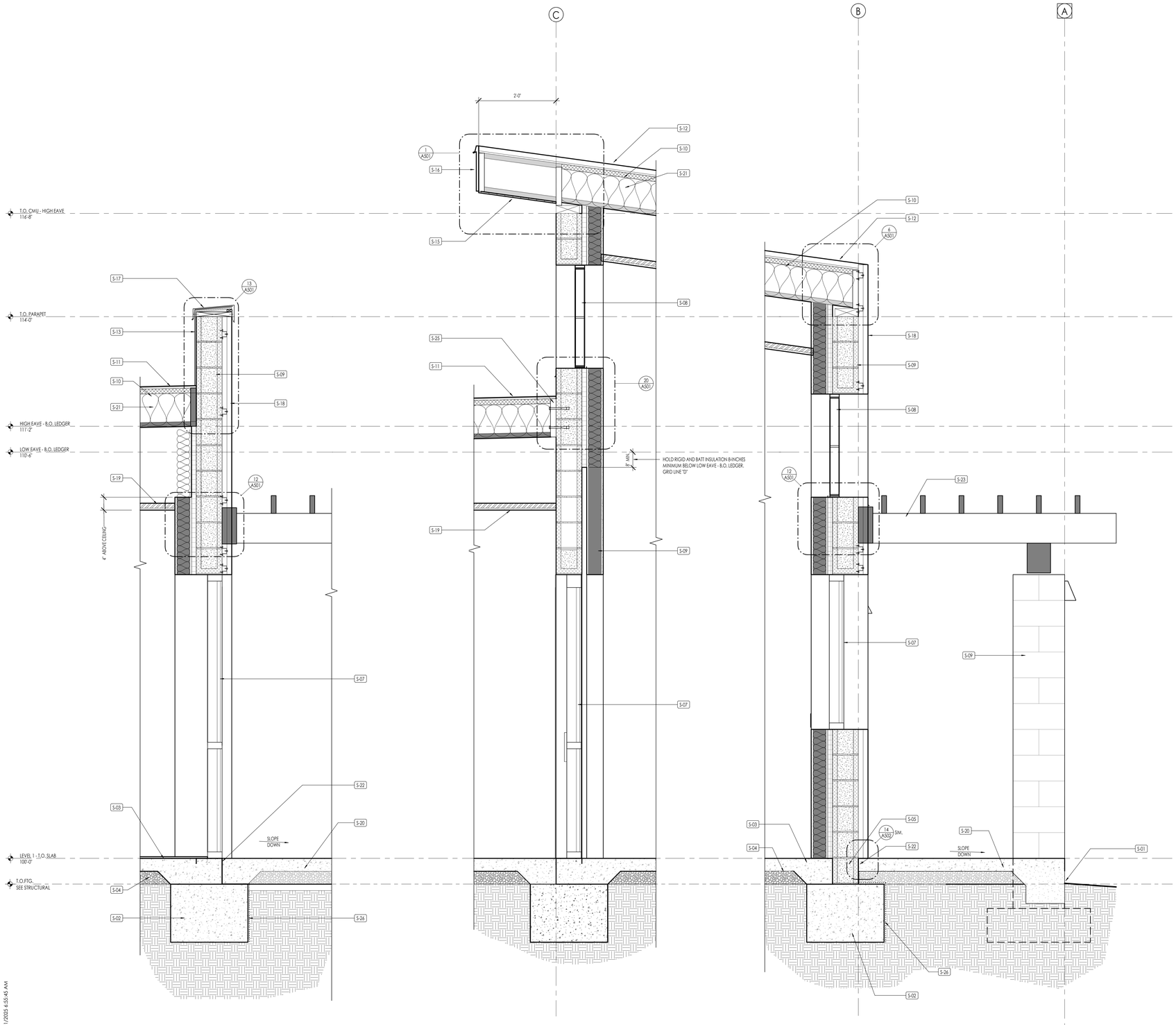
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
WALL SECTIONS

SHEET NUMBER:
A307



WALL SECTION 11
1" = 1'-0"
1 A308

WALL SECTION 12
1" = 1'-0"
2 A308

WALL SECTION 13
1" = 1'-0"
3 A308

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
S-01	FINISH GRADE, SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
S-02	STRUCTURAL CONCRETE FOOTING
S-03	STRUCTURAL CONCRETE FLOOR SLAB
S-04	4" COMPACTED GRANULAR FILL
S-05	STRUCTURAL FOUNDATION WALL
S-07	SCHEDULED WINDOW
S-08	TRANSLUCENT WALL PANEL
S-09	SCHEDULED WALL TYPE
S-10	SCHEDULED ROOF INSULATION
S-11	SINGLE-PLY TPO MEMBRANE ROOFING
S-12	PREFINISHED STANDING SEAM METAL ROOFING
S-13	RETURN TPO UP WALL AND UNDER CAP FLASHING
S-15	PREFINISHED METAL SOFFIT
S-16	PREFINISHED STANDING SEAM METAL FASCIA
S-17	PREFINISHED METAL CAP FLASHING
S-18	PREFINISHED METAL WALL PANEL
S-19	SCHEDULED CEILING SYSTEM
S-20	CONCRETE SIDEWALK OVER COMPACTED GRANULAR FILL
S-21	STRUCTURAL ROOF FRAMING
S-22	1/2" EXPANSION JOINT MATERIAL - SEALANT CONTINUOUS
S-23	TIMBER TRELLIS - STAINED, SEE SHEET A106
S-25	STRUCTURAL LINTEL
S-26	LIQUID APPLIED DAMP PROOFING - BELOW GRADE APPLIED AS SHOWN

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ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

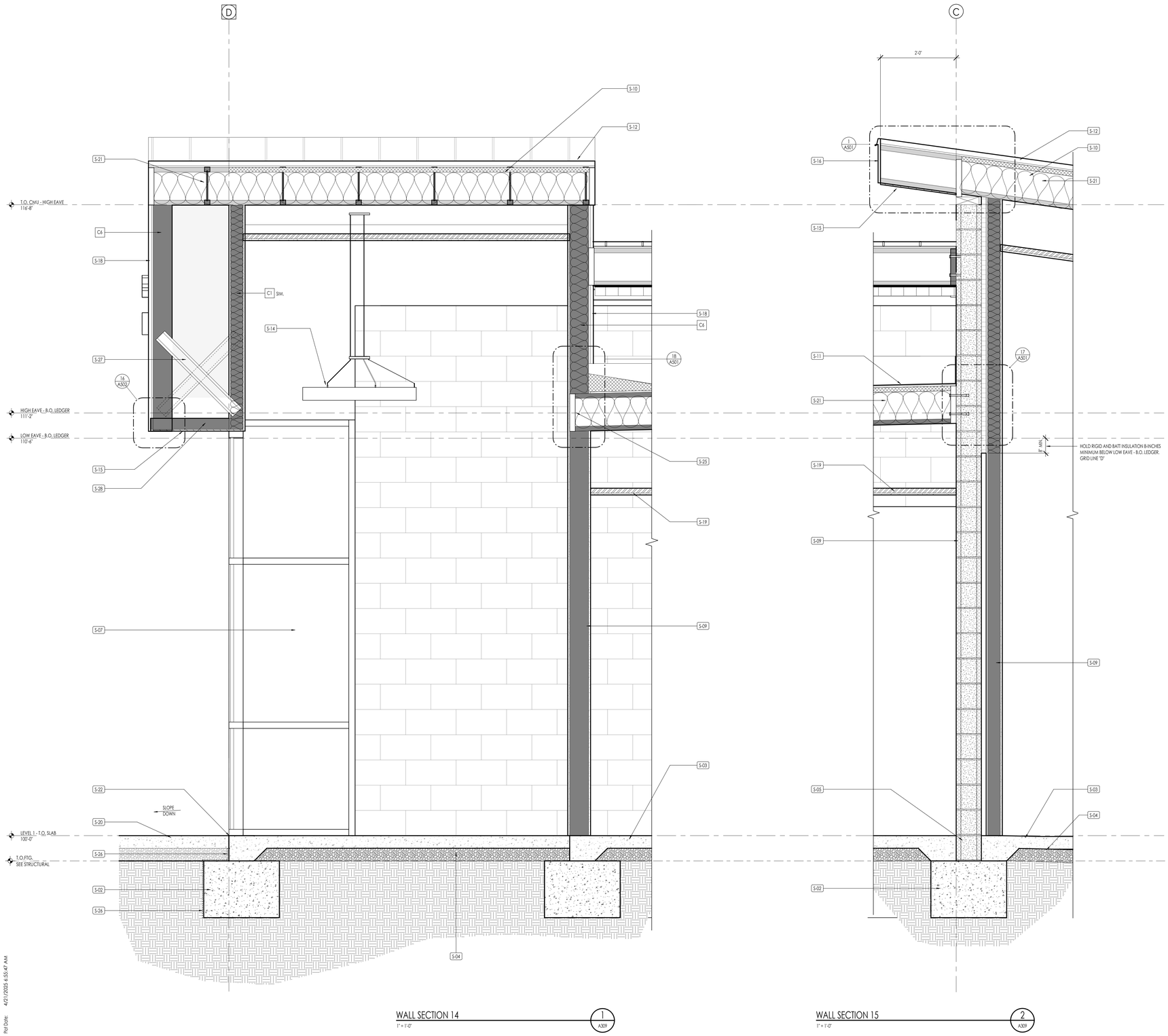
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
WALL SECTIONS

SHEET NUMBER:
A308

Plot Date: 4/21/2025 6:55:45 AM



WALL SECTION 14
1" = 1'-0"
1 A309

WALL SECTION 15
1" = 1'-0"
2 A309

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
S-02	STRUCTURAL CONCRETE FOOTING
S-03	STRUCTURAL CONCRETE FLOOR SLAB
S-04	4" COMPACTED GRANULAR FILL
S-05	STRUCTURAL FOUNDATION WALL
S-07	SCHEDULED WINDOW
S-09	SCHEDULED WALL TYPE
S-10	SCHEDULED ROOF INSULATION
S-11	SINGLE-PLY TPO MEMBRANE ROOFING
S-12	PREFINISHED STANDING SEAM METAL ROOFING
S-14	SCHEDULED LIGHT FIXTURE
S-15	PREFINISHED METAL SOFFIT
S-16	PREFINISHED STANDING SEAM METAL FASCIA
S-18	PREFINISHED METAL WALL PANEL
S-19	SCHEDULED CEILING SYSTEM
S-20	CONCRETE SIDEWALK OVER COMPACTED GRANULAR FILL
S-21	STRUCTURAL ROOF FRAMING
S-22	1/2" EXPANSION JOINT MATERIAL - SEALANT CONTINUOUS
S-25	STRUCTURAL LINTEL
S-26	LIQUID APPLIED DAMP PROOFING - BELOW GRADE APPLIED AS SHOWN
S-27	4" METAL FRAMED BRACING
S-28	4" METAL FRAMING AT 16-INCHES ON CENTER

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EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

340 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

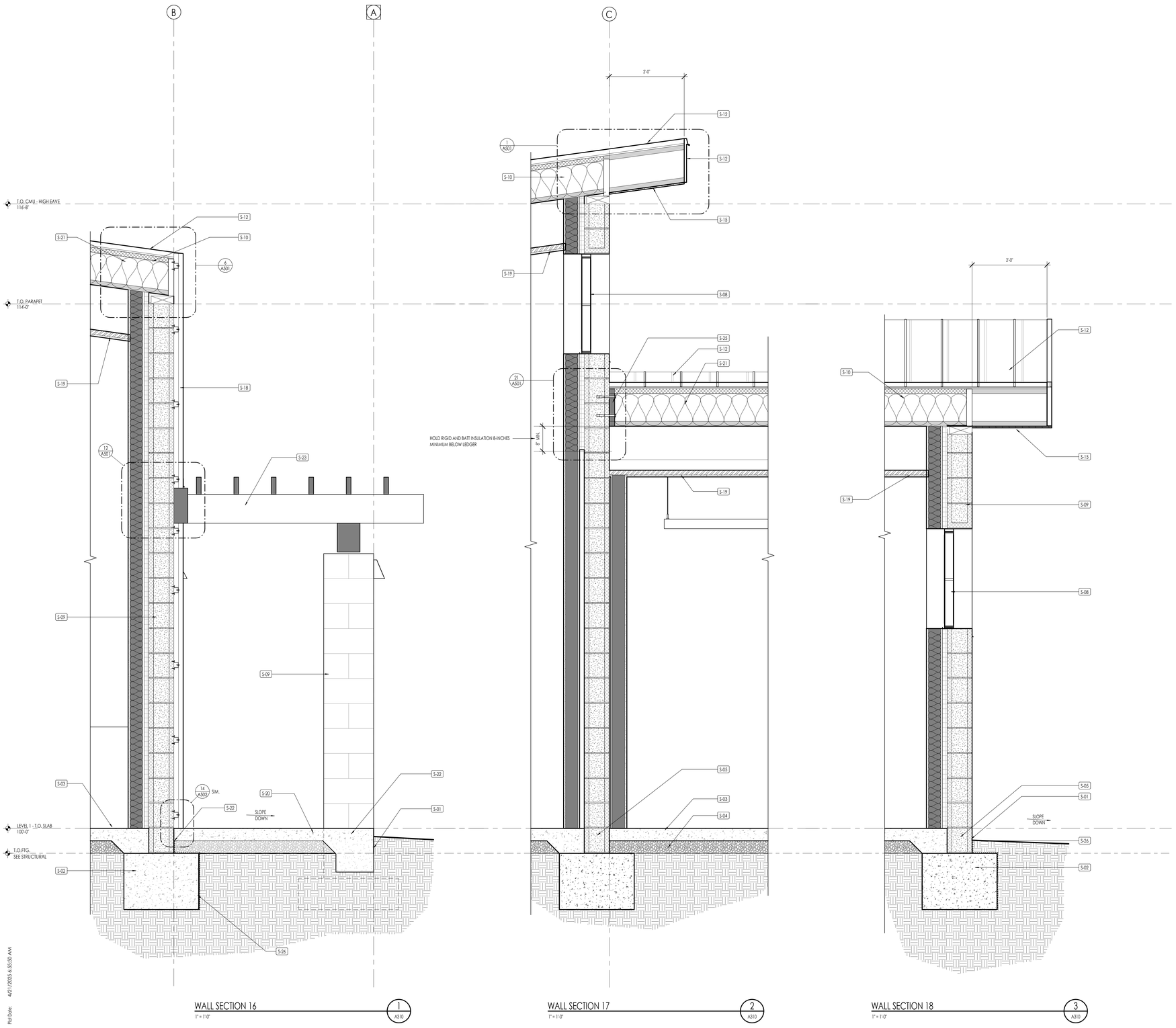
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
WALL SECTIONS

SHEET NUMBER:
A309

BID SET

Plot Date: 4/21/2026 6:55:47 AM



WALL SECTION 16 — 1" = 1'-0" — 1 / A310

WALL SECTION 17 — 1" = 1'-0" — 2 / A310

WALL SECTION 18 — 1" = 1'-0" — 3 / A310

Plot Date: 4/21/2026 6:55:50 AM

ELEVATION/ SECTION MATERIAL LEGEND

HATCH PATTERN	DESCRIPTION
	PRE-FINISHED VERTICAL METAL WALL PANEL - TYPE 1
	PRE-FINISHED STANDING SEAM METAL WALL PANEL - TYPE 2
	PRE-FINISHED HORIZONTAL METAL WALL PANEL - TYPE 3
	PRE-FINISHED 1-INCH METAL FASCIA PANEL - TYPE A
	PRE-FINISHED STANDING SEAM METAL FASCIA PANEL - TYPE B
	PRE-FINISHED 1-INCH METAL SOFFIT PANEL
	INTEGRAL COLORED HONED CMU
	COMPACTED GRANULAR BASE
	EARTH
	CONCRETE
	RIGID INSULATION
	IMPERMEABLE SPRAY FOAM INSULATION

NOTE: REFER TO MATERIAL SPECIFICATIONS DOCUMENT FOR DETAILED INFORMATION REGARDING EACH FINISH MATERIAL

ELEVATION/ SECTION KEYNOTES

KEYNOTES	
S-01	FINISH GRADE. SLOPE DOWN AWAY FROM BUILDING - COORDINATE WITH CIVIL DRAWINGS
S-02	STRUCTURAL CONCRETE FOOTING
S-03	STRUCTURAL CONCRETE FLOOR SLAB
S-04	4" COMPACTED GRANULAR FILL
S-05	STRUCTURAL FOUNDATION WALL
S-08	TRANSLUCENT WALL PANEL
S-09	SCHEDULED WALL TYPE
S-10	SCHEDULED ROOF INSULATION
S-12	PREFINISHED STANDING SEAM METAL ROOFING
S-15	PREFINISHED METAL SOFFIT
S-18	PREFINISHED METAL WALL PANEL
S-19	SCHEDULED CEILING SYSTEM
S-20	CONCRETE SIDEWALK OVER COMPACTED GRANULAR FILL
S-21	STRUCTURAL ROOF FRAMING
S-22	1/2" EXPANSION JOINT MATERIAL - SEALANT CONTINUOUS
S-23	TIMBER TRELLIS - STAINED, SEE SHEET A106
S-25	STRUCTURAL LINTEL
S-26	LIQUID APPLIED DAMP PROOFING - BELOW GRADE APPLIED AS SHOWN

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EXPIRES 09/30/2026

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
WALL SECTIONS

SHEET NUMBER:
A310

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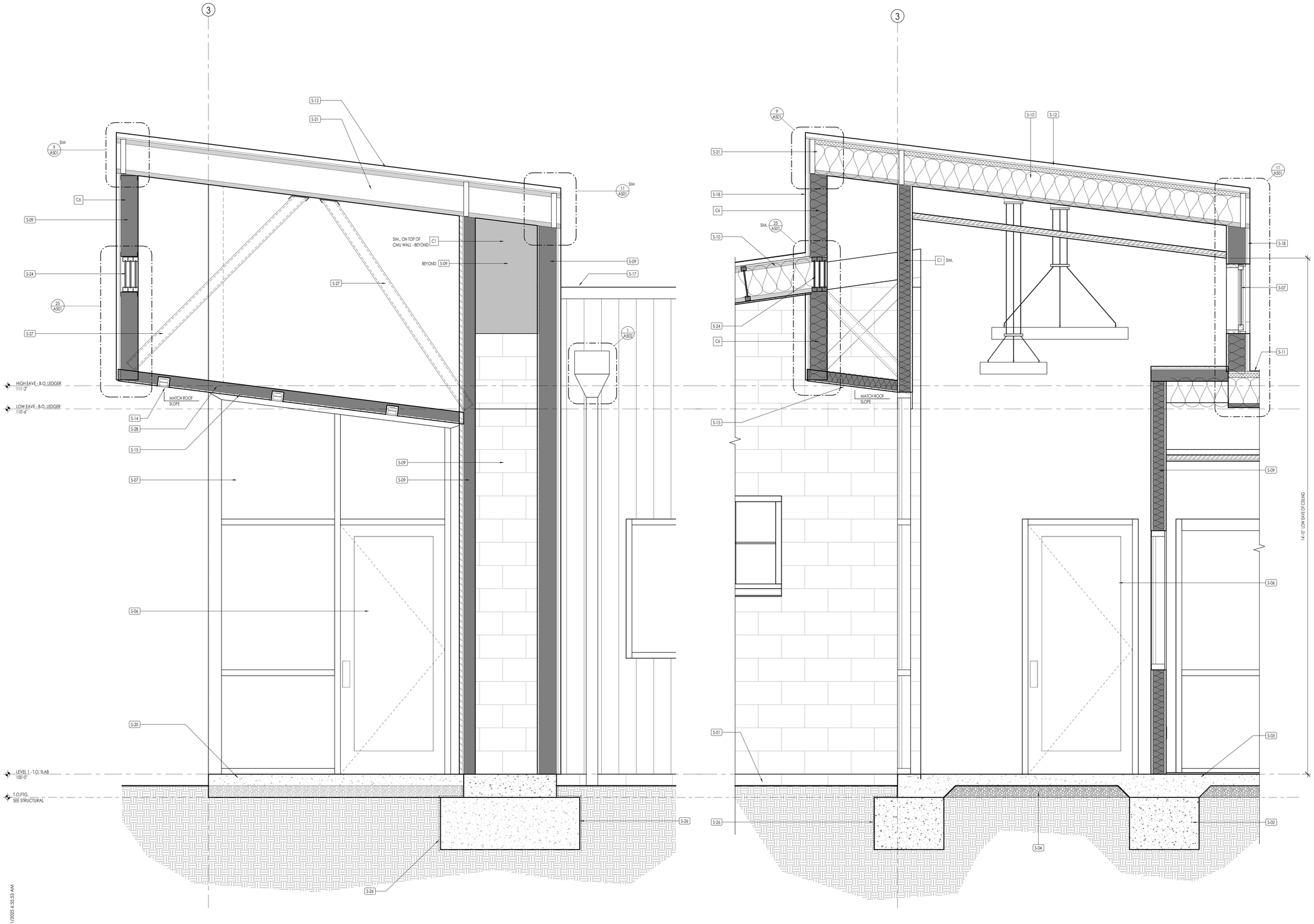

WALL SECTION 19
1" = 1'-0"
1 / A311

WALL SECTION 20
1" = 1'-0"
2 / A311

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EXPIRES 09/30/2025

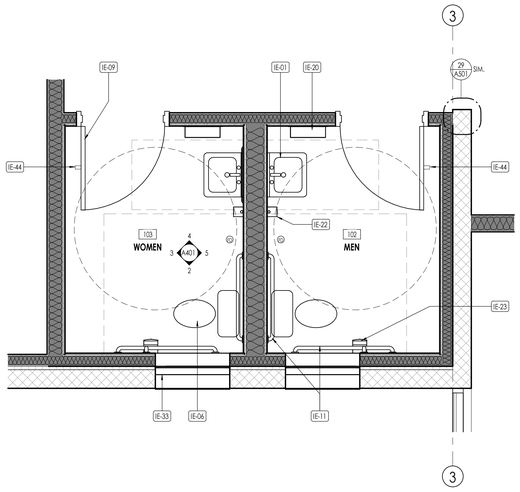
LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

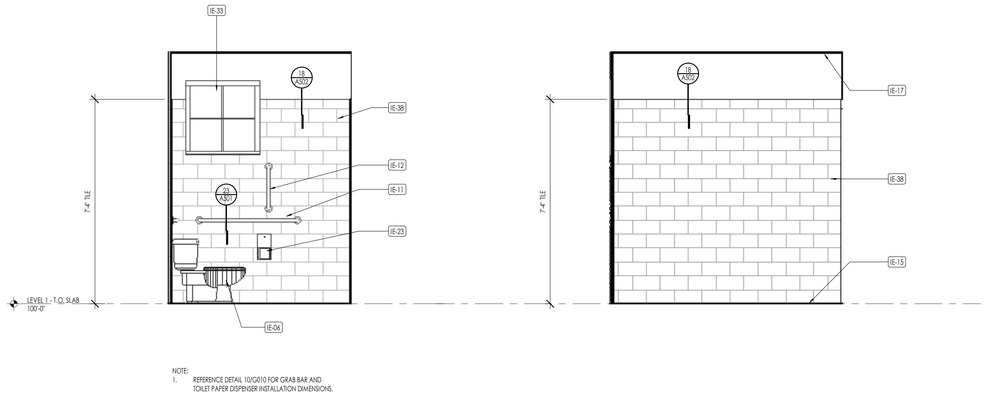
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
WALL SECTIONS

SHEET NUMBER:
A311



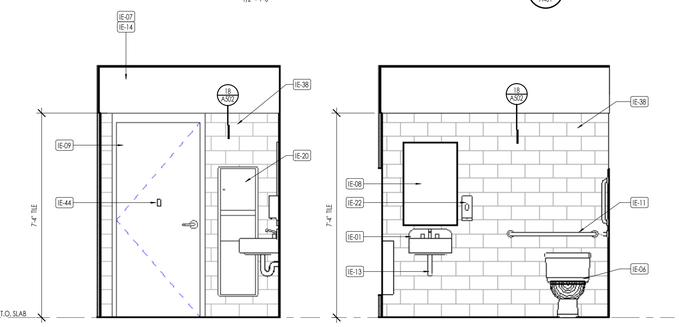
LEVEL 1 - ENLARGED RESTROOMS
1/2" = 1'-0"
1 A401



NOTE:
1. REFERENCE DETAIL 10/G010 FOR GRAB BAR AND TOILET PAPER DISPENSER INSTALLATION DIMENSIONS.

ENLARGED RESTROOM ELEVATION "A" - WOMEN
1/2" = 1'-0"
MEN'S RESTROOM - SIMILAR
2 A401

ENLARGED RESTROOM ELEVATION "B" - WOMEN
1/2" = 1'-0"
MEN'S RESTROOM - SIMILAR
3 A401

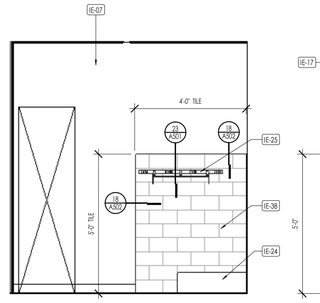


ENLARGED RESTROOM ELEVATION "C" - WOMEN
1/2" = 1'-0"
MEN'S RESTROOM - SIMILAR
4 A401

NOTE:
1. REFERENCE DETAILS 6/G010 AND 7/G010 FOR PUBLIC LAVATORY INSTALLATION DIMENSIONS AND CLEARANCE.
2. REFERENCE DETAIL 1/G010 FOR PAPER TOWEL DISPENSER AND RECEPTICAL INSTALLATION DIMENSIONS.

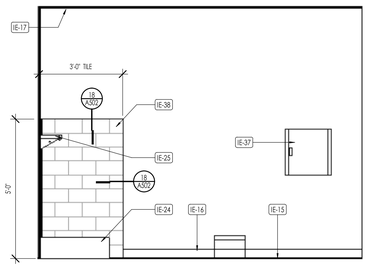
ENLARGED RESTROOM ELEVATION "D" - WOMEN
1/2" = 1'-0"
MEN'S RESTROOM - SIMILAR
5 A401

NOTE:
1. REFERENCE DETAILS 6/G010 AND 7/G010 FOR PUBLIC LAVATORY INSTALLATION DIMENSIONS AND CLEARANCE.
2. REFERENCE DETAIL 11/G010 FOR TOILET GRAB BAR INSTALLATION DIMENSIONS AND TOILET HEIGHT.
3. REFERENCE DETAIL 1/G010 FOR MIRROR INSTALLATION DIMENSIONS
4. REFERENCE DETAIL 1/G010 FOR SOAP DISPENSER INSTALLATION DIMENSIONS.



JANITOR ELEVATION "A"
1/2" = 1'-0"
6 A401

NOTE:
1. REFERENCE DETAIL 1/G010 FOR JANITOR SHELF INSTALLATION DIMENSIONS.



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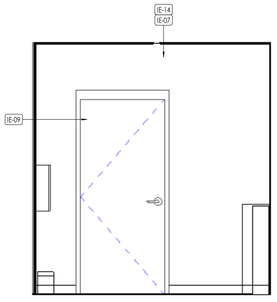
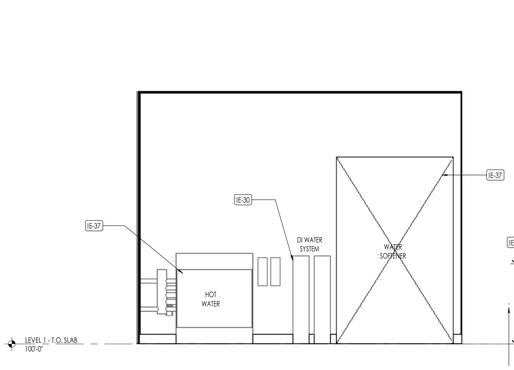
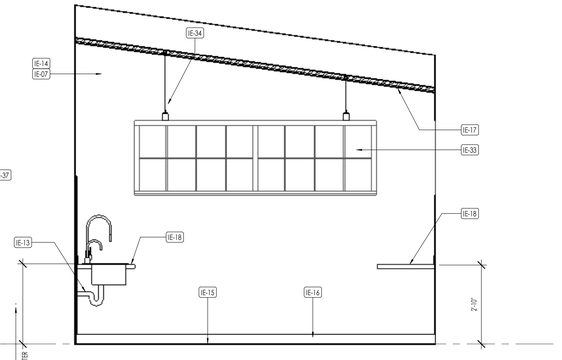
1/2" = 1'-0"
7 A401



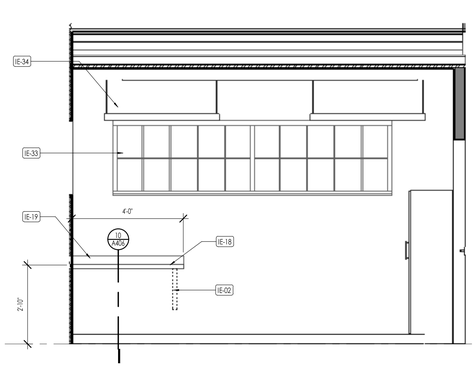
JANITOR ELEVATION "C"
1/2" = 1'-0"
8 A401



JANITOR ELEVATION "D"
1/2" = 1'-0"
9 A401



SPECIAL INSTRUMENTS ELEVATION "A"
1/2" = 1'-0"
10 A401



SPECIAL INSTRUMENTS ELEVATION "B"
1/2" = 1'-0"
11 A401

Plot Date: 4/21/2025 6:55:57 AM

FLOOR PLAN LEGEND

HATCH PATTERN	DESCRIPTION	HATCH PATTERN	DESCRIPTION
	CMU BLOCK WALL		CARPET TILES
	METAL STUD WALL		EXTERIOR CONCRETE SLABS
			LVT
			STAINED CONCRETE

ENLARGED FLOOR PLAN GENERAL NOTES

1. DIMEMESIONS ARE TO ROUGH OPENING OF CMU WALLS. FACE OF METAL FRAMING, CENTER OF OPENINGS IN FRAMED WALLS. FACE OF CMU WALLS OR FOUNDATION AND GRID LINES.
2. CEILING HEIGHTS MEASURED FROM CONCRETE FLOOR SLAB TO EXPOSED FACE OF CEILING FINISH.
3. FOR ADDITIONAL DIMENSIONS REFERENCE ENLARGED FLOOR PLANS AND TRELLIS PLAN.
4. COORDINATE WITH ALL ENLARGED PLANS FOR ADDITIONAL INFORMATION AND DETAILS.
5. SEE SHEET A002 FOR PROJECT GENERAL NOTES.
6. COORDINATE WITH STRUCTURAL FRAMING PLANS AND SHEAR WALL PLANS FOR LOCATIONS OF COLUMNS, BEAMS, SHEAR WALLS, ETC.
7. COORDINATE WITH FINISH SCHEDULE.
8. COORDINATE WITH ELECTRICAL DRAWINGS FOR ALL LIGHTING, POWER AND DATA REQUIREMENTS.
9. REFERENCE WALL TYPE AND CEILING TYPE DETAILS.
10. VERIFY WITH MECHANICAL PLUMBING DRAWINGS PRIOR TO FABRICATION OF BASE CABINETS TO DETERMINE IF THE SINKS ARE DROP-IN OR UNDER-MOUNT SPECIFICATION.
11. F.E. = FINISHED END - MATCH FINISH MATERIAL OF BASE CABINET OR WALL HUNG CABINET

INTERIOR ELEVATION KEYNOTES

KEYNOTES	
IE-01	SINK
IE-02	COUNTERTOP BRACKET CONCEALED IN WALL - PAINTED
IE-06	WATER CLOSET
IE-07	SCHEDULED WALL TYPE - REFERENCE WALL TYPE FLOOR PLAN
IE-08	24"x36" WALL MOUNTED MIRROR
IE-09	SCHEDULED DOOR
IE-11	ADA COMPLIANT HORIZONTAL GRAB BAR - PROVIDE WOOD BLOCKING AS NEEDED
IE-12	ADA COMPLIANT VERTICAL GRAB BAR - PROVIDE WOOD BLOCKING AS NEEDED
IE-13	ADA COMPLIANT EXPOSED PIPE AND VALVE PROTECTION
IE-14	SCHEDULED WALL FINISH
IE-15	SCHEDULED FLOOR FINISH
IE-16	SCHEDULED WALL BASE
IE-17	SCHEDULED CEILING FINISH
IE-18	CHEMICAL-RESISTANT PHENOLIC RESIN COUNTERTOP
IE-19	CHEMICAL-RESISTANT PHENOLIC RESIN BACKSPLASH
IE-20	RECESSED PAPER TOWEL DISPENSER WITH TRASH RECEPTICAL
IE-22	WALL MOUNTED SOAP DISPENSER
IE-23	WALL MOUNTED TOILET PAPER DISPENSER - PROVIDE WOOD BLOCKING AS NEEDED
IE-24	JANITOR FLOOR SINK
IE-25	MOP RACK WITH SHELF - 3'-0" LONG
IE-30	DESCRIBED DI WATER EQUIPMENT
IE-33	SCHEDULED TRANSLUCENT WALL PANEL
IE-34	LIGHT FIXTURE
IE-37	EQUIPMENT - REFERENCE SHEET A103
IE-38	WALL TILE - SEE DETAIL 11/A502
IE-44	ADA COMPLIANT ROBE HOOK

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REGISTERED ARCHITECT
49665
JERED MICHAEL PLOUZEK
ARIZONA, U.S.A.
EXPIRES 09/30/2025

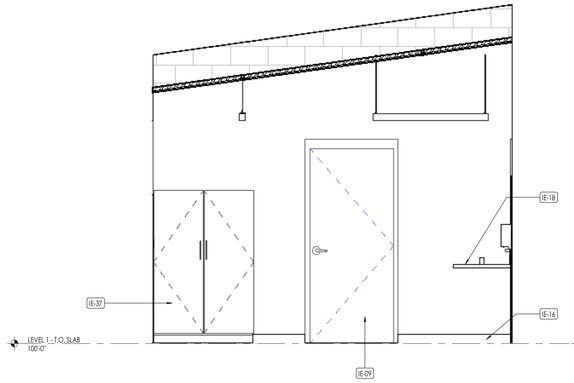
LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

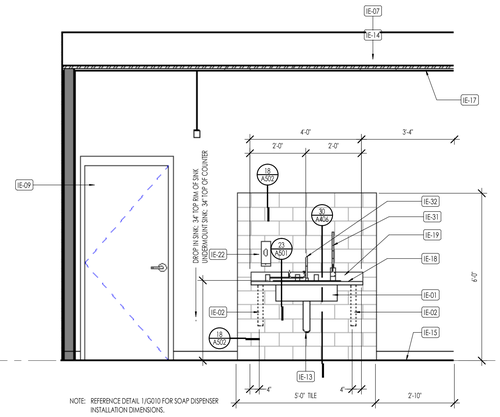
SHEET TITLE:
ENLARGED PLANS / ELEVATIONS

SHEET NUMBER:
A401

BID SET

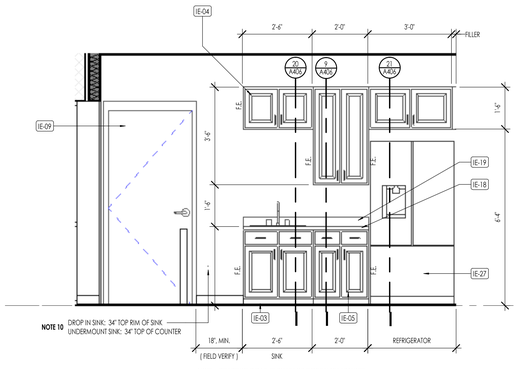


SPECIAL INSTRUMENTS ELEVATION "C"
1/2" = 1'-0"
1 A402



NOTE: REFERENCE DETAIL 1/G010 FOR SOAP DISPENSER INSTALLATION DIMENSIONS.

SPECIAL INSTRUMENTS ELEVATION "D"
1/2" = 1'-0"
2 A402



NOTE 10 DROP IN SINK: 34" TOP RIM OF SINK
UNDERMOUNT SINK: 34" TOP OF COUNTER

NOTE: REFERENCE DETAIL 18/G010 FOR KITCHEN CLEARANCES.

BREAK ELEVATION "A"
1/2" = 1'-0"
3 A402

NOTE 10 DROP IN SINK: 34" TOP RIM OF SINK
UNDERMOUNT SINK: 34" TOP OF COUNTER

BREAK ELEVATION "B"
1/2" = 1'-0"
4 A402

BREAK ELEVATION "C"
1/2" = 1'-0"
5 A402

BREAK ELEVATION "D"
1/2" = 1'-0"
6 A402

NOTE 10 DROP IN SINK: 34" TOP RIM OF SINK
UNDERMOUNT SINK: 34" TOP OF COUNTER

MICROBIOLOGY ELEVATION "A"
1/2" = 1'-0"
7 A402

NOTE 10 DROP IN SINK: 34" TOP RIM OF SINK
UNDERMOUNT SINK: 34" TOP OF COUNTER

MICROBIOLOGY ELEVATION "B"
1/2" = 1'-0"
8 A402

FLOOR PLAN LEGEND

HATCH PATTERN	DESCRIPTION	HATCH PATTERN	DESCRIPTION
	CMU BLOCK WALL		CARPET TILES
	METAL STUD WALL		EXTERIOR CONCRETE SLABS
			LVT
			STAINED CONCRETE

ENLARGED FLOOR PLAN GENERAL NOTES

1. DIMEMESIONS ARE TO ROUGH OPENING OF CMU WALLS. FACE OF METAL FRAMING, CENTER OF OPENINGS IN FRAMED WALLS. FACE OF CMU WALLS OR FOUNDATION AND GRID LINES.

2. CEILING HEIGHTS MEASURED FROM CONCRETE FLOOR SLAB TO EXPOSED FACE OF CEILING FINISH.

3. FOR ADDITIONAL DIMENSIONS REFERENCE ENLARGED FLOOR PLANS AND TRELLIS PLAN.

4. COORDINATE WITH ALL ENLARGED PLANS FOR ADDITIONAL INFORMATION AND DETAILS.

5. SEE SHEET A002 FOR PROJECT GENERAL NOTES.

6. COORDINATE WITH STRUCTURAL FRAMING PLANS AND SHEAR WALL PLANS FOR LOCATIONS OF COLUMNS, BEAMS, SHEAR WALLS, ETC.

7. COORDINATE WITH FINISH SCHEDULE.

8. COORDINATE WITH ELECTRICAL DRAWINGS FOR ALL LIGHTING, POWER AND DATA REQUIREMENTS.

9. REFERENCE WALL TYPE AND CEILING TYPE DETAILS.

10. VERIFY WITH MECHANICAL PLUMBING DRAWINGS PRIOR TO FABRICATION OF BASE CABINETS TO DETERMINE IF THE SINKS ARE DROP-IN OR UNDER-MOUNT SPECIFICATION.

11. F.E. = FINISHED END - MATCH FINISH MATERIAL OF BASE CABINET OR WALL HUNG CABINET

INTERIOR ELEVATION KEYNOTES

KEYNOTES	
IE-01	SINK
IE-02	COUNTERTOP BRACKET CONCEALED IN WALL - PAINTED
IE-03	CHEMICAL-RESISTANT PLASTIC LAMINATE TOE KICK
IE-04	CHEMICAL-RESISTANT PLASTIC LAMINATE WALL CABINET
IE-05	CHEMICAL-RESISTANT PLASTIC LAMINATE BASE CABINET
IE-07	SCHEDULED WALL TYPE - REFERENCE WALL TYPE FLOOR PLAN
IE-09	SCHEDULED DOOR
IE-10	SCHEDULED WINDOW
IE-13	ADA COMPLIANT EXPOSED PIPE AND VALVE PROTECTION
IE-14	SCHEDULED WALL FINISH
IE-15	SCHEDULED FLOOR FINISH
IE-16	SCHEDULED WALL BASE
IE-17	SCHEDULED CEILING FINISH
IE-18	CHEMICAL-RESISTANT PHENOLIC RESIN COUNTERTOP
IE-19	CHEMICAL-RESISTANT PHENOLIC RESIN BACKSPLASH
IE-22	WALL MOUNTED SOAP DISPENSER
IE-27	REFRIGERATOR
IE-31	DEIONIZED (DI) WATER FAUCET
IE-32	POTABLE WATER FAUCET
IE-33	SCHEDULED TRANSLUCENT WALL PANEL
IE-36	4" METAL WALL BRACE FRAMING - ATTACH TO STRUCTURE, ABOVE.
IE-37	EQUIPMENT - REFERENCE SHEET A103
IE-39	WALL MOUNTED DRYING / DRAINING RACK

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EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

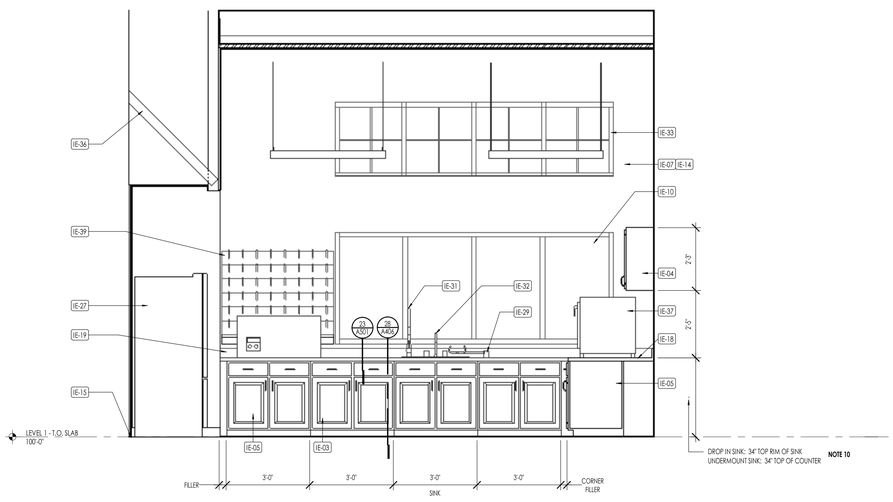
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
INTERIOR ELEVATIONS

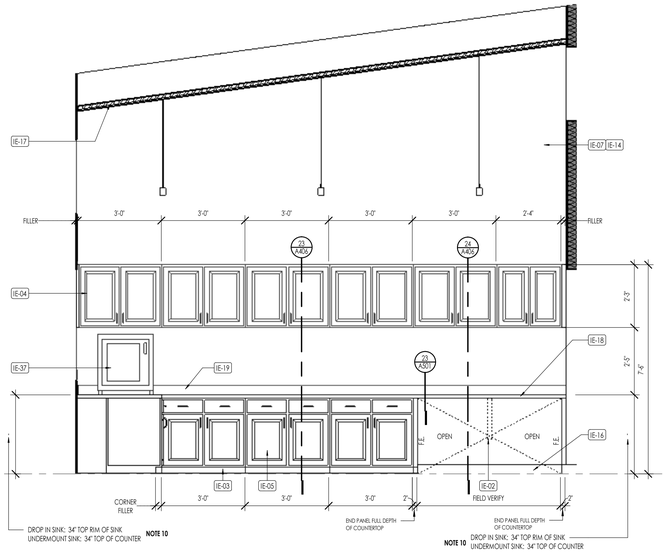
SHEET NUMBER:
A402

BID SET

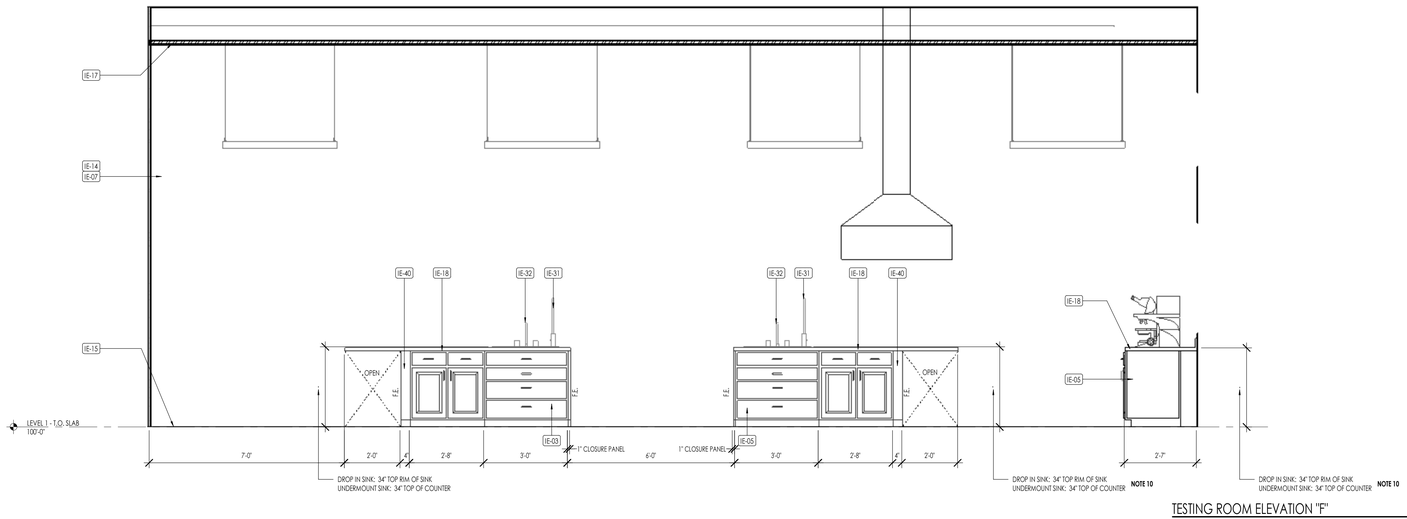
Plot Date: 4/21/2025 6:56:01 AM



MICROBIOLOGY ELEVATION "C"
1/2" = 1'-0"
1 A403



MICROBIOLOGY ELEVATION "D"
1/2" = 1'-0"
2 A403



TESTING ROOM ELEVATION "F"
1/2" = 1'-0"
3 A403

FLOOR PLAN LEGEND

HATCH PATTERN	DESCRIPTION	HATCH PATTERN	DESCRIPTION
	CMU BLOCK WALL		CARPET TILES
	METAL STUD WALL		EXTERIOR CONCRETE SLABS
			LVT
			STAINED CONCRETE

ENLARGED FLOOR PLAN GENERAL NOTES

1. DIMEMESIONS ARE TO ROUGH OPENING OF CMU WALLS. FACE OF METAL FRAMING, CENTER OF OPENINGS IN FRAMED WALLS. FACE OF CMU WALLS OR FOUNDATION AND GRID LINES.

2. CEILING HEIGHTS MEASURED FROM CONCRETE FLOOR SLAB TO EXPOSED FACE OF CEILING FINISH.

3. FOR ADDITIONAL DIMENSIONS REFERENCE ENLARGED FLOOR PLANS AND TRELLIS PLAN.

4. COORDINATE WITH ALL ENLARGED PLANS FOR ADDITIONAL INFORMATION AND DETAILS.

5. SEE SHEET A002 FOR PROJECT GENERAL NOTES.

6. COORDINATE WITH STRUCTURAL FRAMING PLANS AND SHEAR WALL PLANS FOR LOCATIONS OF COLUMNS, BEAMS, SHEAR WALLS, ETC.

7. COORDINATE WITH FINISH SCHEDULE.

8. COORDINATE WITH ELECTRICAL DRAWINGS FOR ALL LIGHTING, POWER AND DATA REQUIREMENTS.

9. REFERENCE WALL TYPE AND CEILING TYPE DETAILS.

10. VERIFY WITH MECHANICAL PLUMBING DRAWINGS PRIOR TO FABRICATION OF BASE CABINETS TO DETERMINE IF THE SINKS ARE DROP-IN OR UNDER-MOUNT SPECIFICATION.

11. F.E. = FINISHED END - MATCH FINISH MATERIAL OF BASE CABINET OR WALL HUNG CABINET

INTERIOR ELEVATION KEYNOTES

KEYNOTES	
IE-02	COUNTERTOP BRACKET CONCEALED IN WALL - PAINTED
IE-03	CHEMICAL-RESISTANT PLASTIC LAMINATE TOE KICK
IE-04	CHEMICAL-RESISTANT PLASTIC LAMINATE WALL CABINET
IE-05	CHEMICAL-RESISTANT PLASTIC LAMINATE BASE CABINET
IE-07	SCHEDULED WALL TYPE - REFERENCE WALL TYPE FLOOR PLAN
IE-10	SCHEDULED WINDOW
IE-14	SCHEDULED WALL FINISH
IE-15	SCHEDULED FLOOR FINISH
IE-16	SCHEDULED WALL BASE
IE-17	SCHEDULED CEILING FINISH
IE-18	CHEMICAL-RESISTANT PHENOLIC RESIN COUNTERTOP
IE-19	CHEMICAL-RESISTANT PHENOLIC RESIN BACKSPLASH
IE-27	REFRIGERATOR
IE-29	EYE WASH STATION
IE-31	DEIONIZED (DI) WATER FAUCET
IE-32	POTABLE WATER FAUCET
IE-33	SCHEDULED TRANSLUCENT WALL PANEL
IE-36	4" METAL WALL BRACE FRAMING - ATTACH TO STRUCTURE, ABOVE.
IE-37	EQUIPMENT - REFERENCE SHEET A103
IE-39	WALL MOUNTED DRYING / DRAINING RACK
IE-40	2x4 PONY WALL WITH CHEMICAL-RESISTANT PLASTIC LAMINATE PANELS

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REGISTERED ARCHITECT
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EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

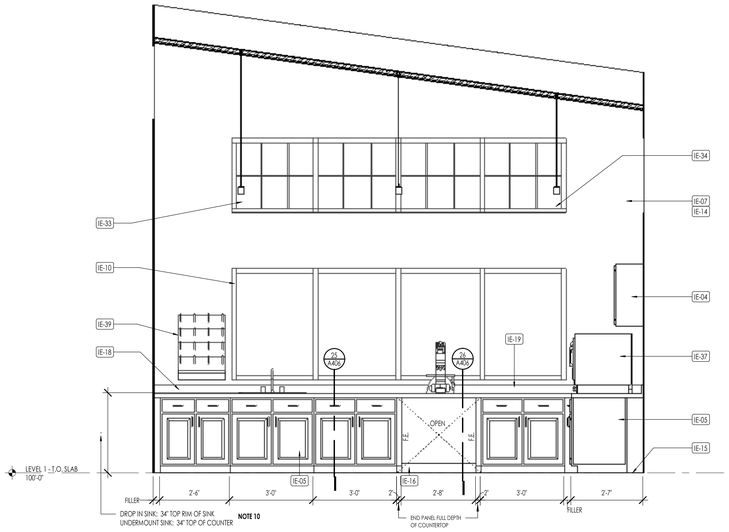
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
INTERIOR ELEVATIONS

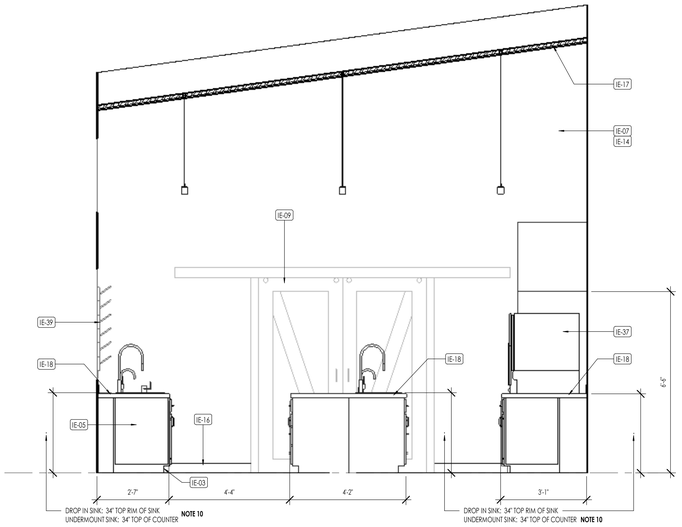
SHEET NUMBER:
A403

BID SET

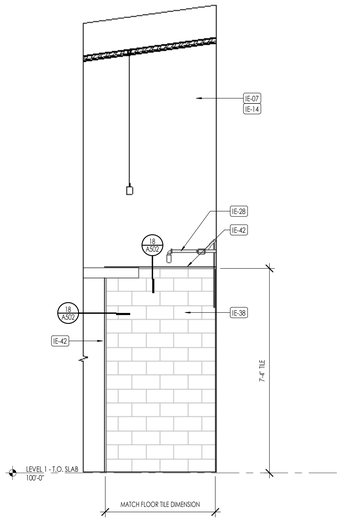
Plot Date: 4/21/2025 6:56:04 AM



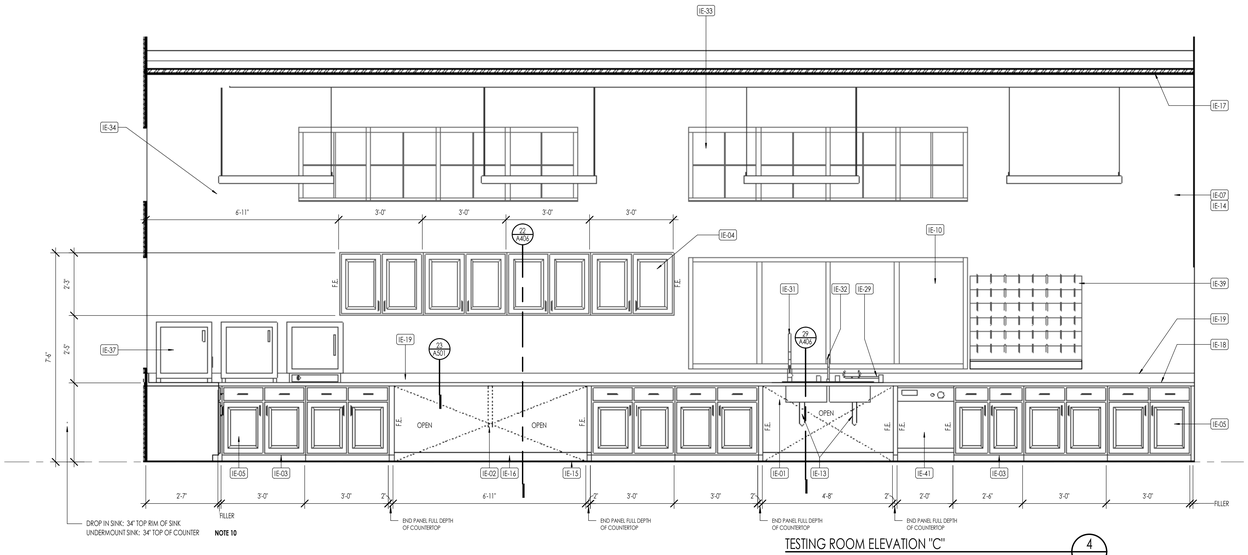
TESTING ROOM ELEVATION "B"
1/2" = 1'-0"
1 / A404



TESTING ROOM ELEVATION "D"
1/2" = 1'-0"
2 / A404



TESTING ROOM ELEVATION "G"
1/2" = 1'-0"
3 / A404



TESTING ROOM ELEVATION "C"
1/2" = 1'-0"
4 / A404

FLOOR PLAN LEGEND

HATCH PATTERN	DESCRIPTION	HATCH PATTERN	DESCRIPTION
	CMU BLOCK WALL		CARPET TILES
	METAL STUD WALL		EXTERIOR CONCRETE SLABS
			LVT
			STAINED CONCRETE

ENLARGED FLOOR PLAN GENERAL NOTES

1. DIMENSIONS ARE TO ROUGH OPENING OF CMU WALLS, FACE OF METAL FRAMING, CENTER OF OPENINGS IN FRAMED WALLS, FACE OF CMU WALLS OR FOUNDATION AND GRID LINES.

2. CEILING HEIGHTS MEASURED FROM CONCRETE FLOOR SLAB TO EXPOSED FACE OF CEILING FINISH.

3. FOR ADDITIONAL DIMENSIONS REFERENCE ENLARGED FLOOR PLANS AND TRELLIS PLAN.

4. COORDINATE WITH ALL ENLARGED PLANS FOR ADDITIONAL INFORMATION AND DETAILS.

5. SEE SHEET A002 FOR PROJECT GENERAL NOTES.

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7. COORDINATE WITH FINISH SCHEDULE.

8. COORDINATE WITH ELECTRICAL DRAWINGS FOR ALL LIGHTING, POWER AND DATA REQUIREMENTS.

9. REFERENCE WALL TYPE AND CEILING TYPE DETAILS.

10. VERIFY WITH MECHANICAL PLUMBING DRAWINGS PRIOR TO FABRICATION OF BASE CABINETS TO DETERMINE IF THE SINKS ARE DROP-IN OR UNDER-MOUNT SPECIFICATION.

11. F.E. = FINISHED END - MATCH FINISH MATERIAL OF BASE CABINET OR WALL HUNG CABINET

INTERIOR ELEVATION KEYNOTES

KEYNOTES	
IE-01	SINK
IE-02	COUNTERTOP BRACKET CONCEALED IN WALL - PAINTED
IE-03	CHEMICAL-RESISTANT PLASTIC LAMINATE TOE KICK
IE-04	CHEMICAL-RESISTANT PLASTIC LAMINATE WALL CABINET
IE-05	CHEMICAL-RESISTANT PLASTIC LAMINATE BASE CABINET
IE-07	SCHEDULED WALL TYPE - REFERENCE WALL TYPE FLOOR PLAN
IE-09	SCHEDULED DOOR
IE-10	SCHEDULED WINDOW
IE-13	ADA COMPLIANT EXPOSED PIPE AND VALVE PROTECTION
IE-14	SCHEDULED WALL FINISH
IE-15	SCHEDULED FLOOR FINISH
IE-16	SCHEDULED WALL BASE
IE-17	SCHEDULED CEILING FINISH
IE-18	CHEMICAL-RESISTANT PHENOLIC RESIN COUNTERTOP
IE-19	CHEMICAL-RESISTANT PHENOLIC RESIN BACKSPLASH
IE-28	EYE WASH AND SHOWER STATION
IE-29	EYE WASH STATION
IE-31	DEIONIZED (DI) WATER FAUCET
IE-32	POTABLE WATER FAUCET
IE-33	SCHEDULED TRANSLUCENT WALL PANEL
IE-34	LIGHT FIXTURE
IE-37	EQUIPMENT - REFERENCE SHEET A103
IE-38	WALL TILE - SEE DETAIL 11/A502
IE-39	WALL MOUNTED DRYING / DRAINING RACK
IE-41	DISHWASHER
IE-42	STAINLESS STEEL TILE WALL EDGE TRIM

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360 CYPRESS DRIVE
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PROJECT NO. 24-077
DATE: 21 APRIL 2025
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SHEET TITLE:
INTERIOR ELEVATIONS

SHEET NUMBER:
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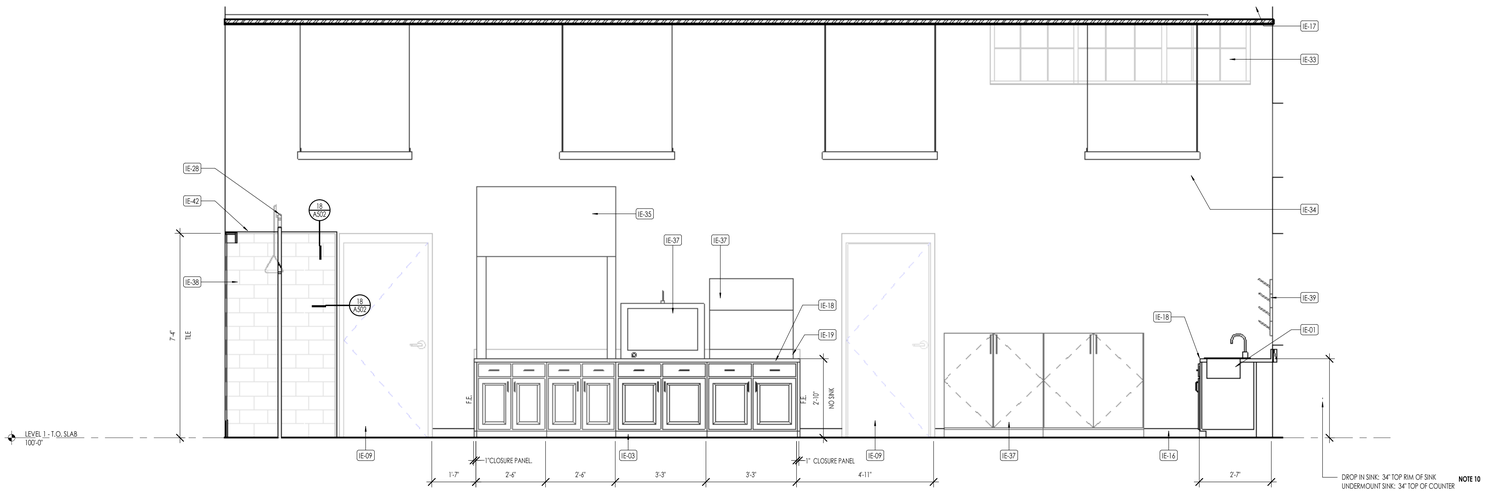
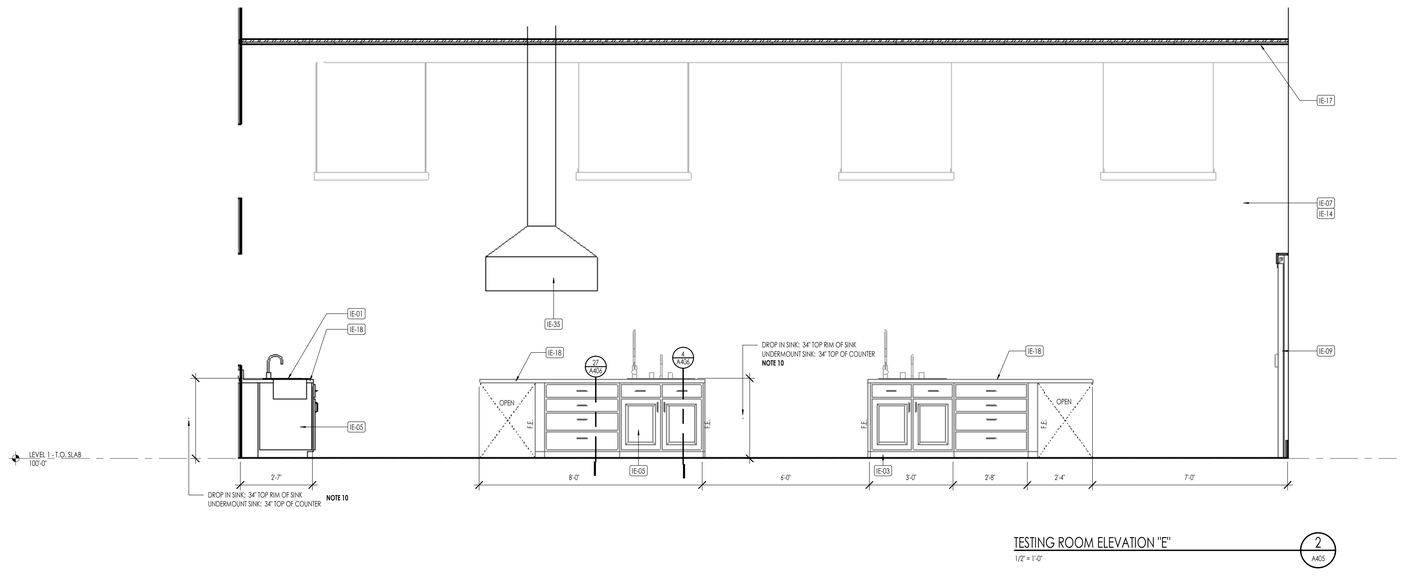
BID SET

Plot Date: 4/21/2025 6:56:07 AM



TESTING ROOM ELEVATION "A"
1/2" = 1'-0"
1 / A405



TESTING ROOM ELEVATION "E"
1/2" = 1'-0"
2 / A405

FLOOR PLAN LEGEND

HATCH PATTERN	DESCRIPTION	HATCH PATTERN	DESCRIPTION
	CMU BLOCK WALL		CARPET TILES
	METAL STUD WALL		EXTERIOR CONCRETE SLABS
			LVT
			STAINED CONCRETE

ENLARGED FLOOR PLAN GENERAL NOTES

1. DIMENSIONS ARE TO ROUGH OPENING OF CMU WALLS, FACE OF METAL FRAMING, CENTER OF OPENINGS IN FRAMED WALLS, FACE OF CMU WALLS OR FOUNDATION AND GRID LINES.

2. CEILING HEIGHTS MEASURED FROM CONCRETE FLOOR SLAB TO EXPOSED FACE OF CEILING FINISH.

3. FOR ADDITIONAL DIMENSIONS REFERENCE ENLARGED FLOOR PLANS AND TRELLIS PLAN.

4. COORDINATE WITH ALL ENLARGED PLANS FOR ADDITIONAL INFORMATION AND DETAILS.

5. SEE SHEET A002 FOR PROJECT GENERAL NOTES.

6. COORDINATE WITH STRUCTURAL FRAMING PLANS AND SHEAR WALL PLANS FOR LOCATIONS OF COLUMNS, BEAMS, SHEAR WALLS, ETC.

7. COORDINATE WITH FINISH SCHEDULE.

8. COORDINATE WITH ELECTRICAL DRAWINGS FOR ALL LIGHTING, POWER AND DATA REQUIREMENTS.

9. REFERENCE WALL TYPE AND CEILING TYPE DETAILS.

10. VERIFY WITH MECHANICAL PLUMBING DRAWINGS PRIOR TO FABRICATION OF BASE CABINETS TO DETERMINE IF THE SINKS ARE DROP-IN OR UNDER-MOUNT SPECIFICATION.

11. F.E. = FINISHED END - MATCH FINISH MATERIAL OF BASE CABINET OR WALL HUNG CABINET

INTERIOR ELEVATION KEYNOTES

KEYNOTES	
IE-01	SINK
IE-03	CHEMICAL-RESISTANT PLASTIC LAMINATE TOE KICK
IE-05	CHEMICAL-RESISTANT PLASTIC LAMINATE BASE CABINET
IE-07	SCHEDULED WALL TYPE - REFERENCE WALL TYPE FLOOR PLAN
IE-09	SCHEDULED DOOR
IE-14	SCHEDULED WALL FINISH
IE-16	SCHEDULED WALL BASE
IE-17	SCHEDULED CEILING FINISH
IE-18	CHEMICAL-RESISTANT PHENOLIC RESIN COUNTERTOP
IE-19	CHEMICAL-RESISTANT PHENOLIC RESIN BACKSPLASH
IE-28	EYE WASH AND SHOWER STATION
IE-33	SCHEDULED TRANSLUCENT WALL PANEL
IE-34	LIGHT FIXTURE
IE-35	MECHANICAL EXHAUST HOOD
IE-37	EQUIPMENT - REFERENCE SHEET A103
IE-38	WALL TILE - SEE DETAIL 11/A502
IE-39	WALL MOUNTED DRYING / DRAINING RACK
IE-42	STAINLESS STEEL TILE WALL EDGE TRIM

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REGISTERED ARCHITECT
49665
JERED MICHAEL
PLOUZEK
ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

340 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025

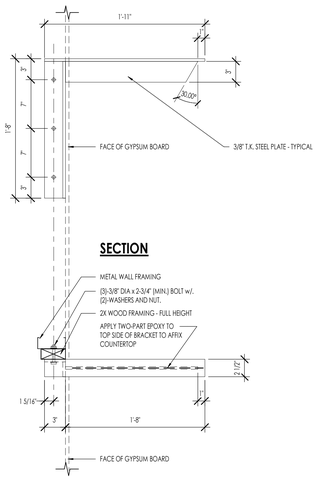
REVISIONS:

SHEET TITLE:
INTERIOR ELEVATIONS

SHEET NUMBER:
A405

BID SET

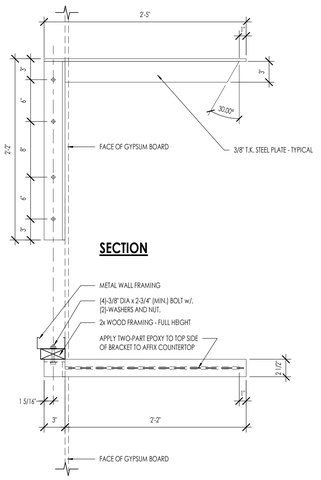
Plot Date: 4/21/2025 6:56:09 AM



SECTION

PLAN

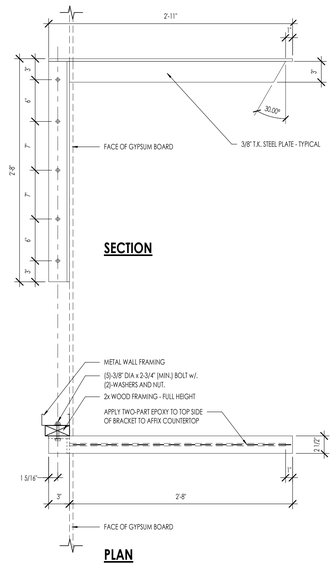
25" DEEP COUNTERTOP BRACKET DETAIL — 7 / A406
1 1/2" = 1'-0"



SECTION

PLAN

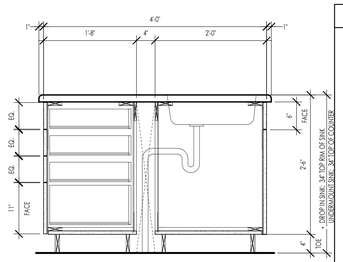
31" DEEP COUNTERTOP BRACKET DETAIL — 8 / A406
1 1/2" = 1'-0"



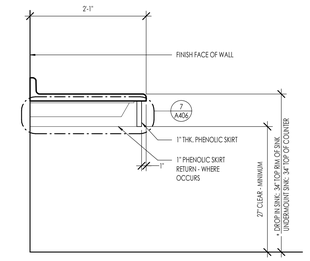
SECTION

PLAN

37" DEEP COUNTERTOP BRACKET DETAIL — 9 / A406
1 1/2" = 1'-0"



CABINET DETAIL - ISLAND CABINETS WITH SINK — 4 / A406
1" = 1'-0"



CABINET DETAIL - 25" COUNTERTOP — 10 / A406
1" = 1'-0"

MATERIAL FINISH GENERAL NOTES

1. SLIP-RESISTANT SURFACE WITH A COEFFICIENT OF FRICTION (COF) OF 0.6 OR HIGHER.
2. CARPET TILE PATTERN SHALL BE "BRICK ASHLAR" INSTALLATION METHOD.
3. LVT PATTERN SHALL BE "STAGGER".
4. COVED
5. INSTALL COVED INSIDE AND OUTSIDE CORNERS.
6. ARCHITECTURAL GRADE RUBBER WALL BASE - 3/8-INCH THICK. HOLD BOTTOM OF BASE 1/8-INCH ABOVE FINISHED FLOOR THEN INSTALL A CONTINUOUS BEAD OF SEALANT - FULL DEPTH. MITER ALL CORNERS
7. TWO-COAT EGGSHELL PAINT FINISH PLUS ONE-COAT PRIMER.
8. SEE DETAILS 18/A502 AND 19/A502 FOR TILE TRIM AT WALL AND FLOOR - RESPECTIVELY.
9. RUNNING BOND WITH 1/8-INCH TO 3/16-INCH GROUT JOINTS.
10. BEVELED EDGE - TEGULAR
11. UNPAINTED HONED CMU WALL
12. EMERGENCY SHOWER FLOOR AREA - TESTING ROOM 105
13. CERAMIC TILE TYPE: TILE-1, SEE SPECIFICATION
14. CERAMIC TILE TYPE: TILE-2, SEE SPECIFICATION

FINISH LEGEND - FLOOR

MARK CODE	MATERIAL	FINISH	MATERIAL SIZE	MATERIAL FINISH GENERAL NOTES
FL-01	EPOXY FLOOR COATING	SEALED	N/A	1
FL-02	LUXURY VINYL TILE (LVT)	FACTORY	6" x 48"	1, 3
FL-03	CARPET TILE	FACTORY	12" X 36"	2
FL-04	CERAMIC TILE-MOSAIC	FACTORY	2" x 2"	12, 14

FINISH LEGEND - BASE

BASE CODE	MATERIAL	FINISH	SIZE	MATERIAL FINISH GENERAL NOTES
BF-01	RUBBER-ONE	FACTORY	4"	4, 5
BF-02	RUBBER-TWO	FACTORY	3/8" x 4-1/4"	6
BF-03	CERAMIC TILE	FACTORY	8" x 24"	9, 13

FINISH LEGEND - WALL

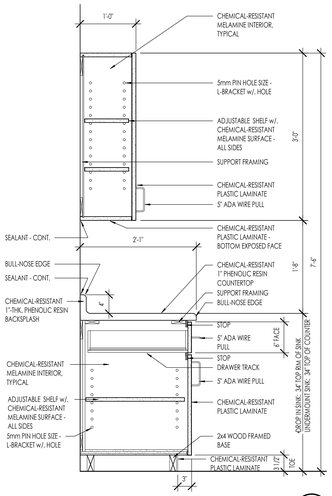
WALL CODE	MATERIAL	FINISH	MATERIAL SIZE	MATERIAL FINISH GENERAL NOTES
WF-01	GYPSUM BOARD	ACRYLIC PAINT	N/A	7
WF-02	GYPSUM BOARD	EPOXY PAINT	N/A	7
WF-03	CMU	ACRYLIC PAINT	N/A	7
WF-04	CERAMIC TILE	FACTORY	8" x 24"	8, 9, 13
WF-05	CMU	HONED FINISH	N/A	11

FINISH LEGEND - CEILING

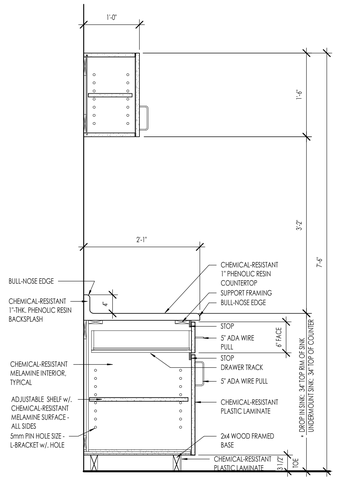
CEILING CODE	MATERIAL	FINISH	MATERIAL SIZE	MATERIAL FINISH GENERAL NOTES
CT-1	SUSPENDED GYPSUM BOARD	ACRYLIC PAINT	N/A	7
CT-2	SUSPENDED ACOUSTIC TILE	FACTORY	2' x 2'	10
CT-3	SUSPENDED GYPSUM BOARD	ACRYLIC PAINT	N/A	7

FINISH LEGEND - ROOM

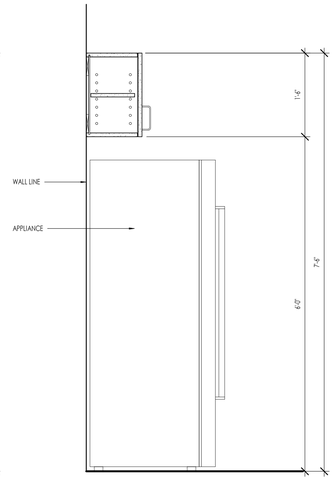
ROOM NUMBER	ROOM NAME	FLOOR	BASE	NORTH WALL	SOUTH WALL	EAST WALL	WEST WALL	CEILING
101	ENTRY	FL-01	BF-02	WF-01	-	WF-01	WF-01, WF-05	CT-01
102	MEN	FL-01	BF-03	WF-01, WF-04	WF-01, WF-04	WF-01, WF-04	WF-01, WF-04	CT-03
103	WOMEN	FL-01	BF-03	WF-01, WF-04	WF-01, WF-04	WF-01, WF-04	WF-01, WF-04	CT-03
104	SPECIAL INSTRUMENTS	FL-01	BF-02	WF-02	WF-02	WF-02	WF-02	CT-01
105	TESTING ROOM	FL-01	BF-02	WF-02	WF-02, WF-04	WF-02, WF-04	WF-02	CT-01
106	LT. ROOM	FL-01	BF-01	WF-01	WF-03	WF-01	WF-01	CT-03
107	FIRE RISER	FL-01	BF-01	WF-03	WF-01	WF-01	WF-01	CT-03
108	MICROBIOLOGY	FL-01	BF-02	WF-02	WF-02	WF-02	WF-02	CT-01
109	BREAK	FL-02	BF-01	WF-01	WF-01	WF-01	WF-01	CT-02
110	HALL	FL-01	BF-01	WF-03	WF-01	WF-01	WF-01, WF-05	CT-03
111	CONFERENCE	FL-03	BF-01	WF-01	WF-01	WF-01	WF-01	CT-02
112	MECHANICAL	FL-01	BF-02	WF-02	WF-02	WF-02	WF-02	CT-02
113	OFFICE	FL-03	BF-01	WF-01	WF-01	WF-01	WF-01	CT-02



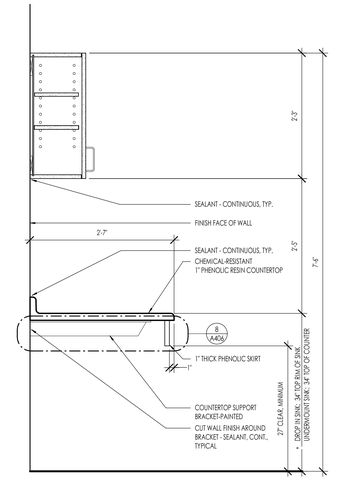
CABINET DETAIL - BASE AND UPPER — 19 / A406
1" = 1'-0"



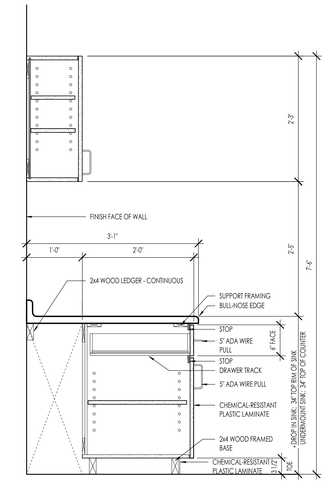
CABINET DETAIL - BASE AND 1'-6" UPPER — 20 / A406
1" = 1'-0"



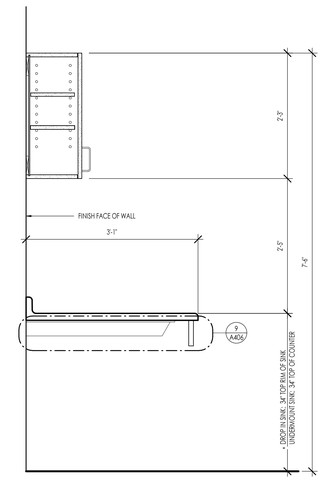
CABINET DETAIL - UPPER CABINET — 21 / A406
1" = 1'-0"



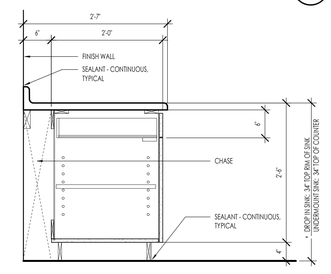
CABINET DETAIL - 31" COUNTERTOP WITH UPPER — 22 / A406
1" = 1'-0"



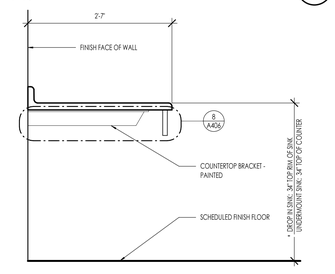
CABINET DETAIL - 37" COUNTERTOP - BASE AND UPPER — 23 / A406
1" = 1'-0"



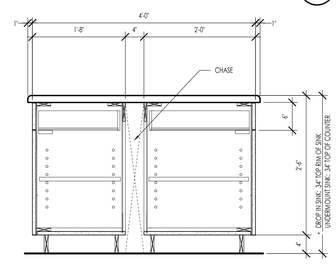
CABINET DETAIL - 37" COUNTERTOP WITH UPPER — 24 / A406
1" = 1'-0"



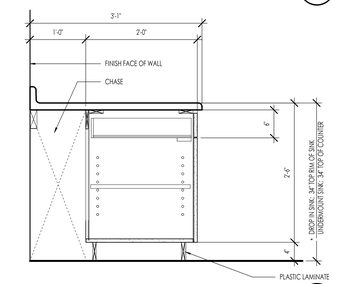
CABINET DETAIL - 31" COUNTERTOP W/ BASE CABINET — 25 / A406
1" = 1'-0"



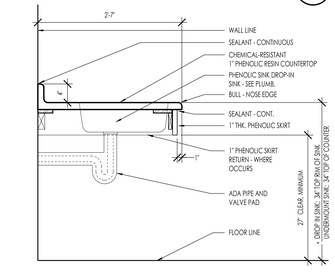
CABINET DETAIL - 31" COUNTERTOP — 26 / A406
1" = 1'-0"



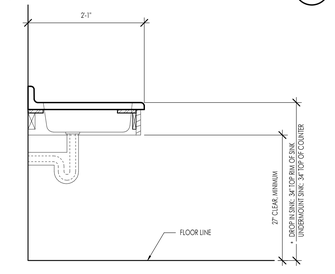
CABINET DETAIL - ISLAND CABINETS — 27 / A406
1" = 1'-0"



CABINET DETAIL - 37" COUNTERTOP W/ BASE CABINET — 28 / A406
1" = 1'-0"



CABINET DETAIL - 31" COUNTERTOP W/ SINK — 29 / A406
1" = 1'-0"



CABINET DETAIL - 25" COUNTERTOP W/ SINK — 30 / A406
1" = 1'-0"

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REGISTERED ARCHITECT
49665
JARED MICHAEL PLOUZEK
ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

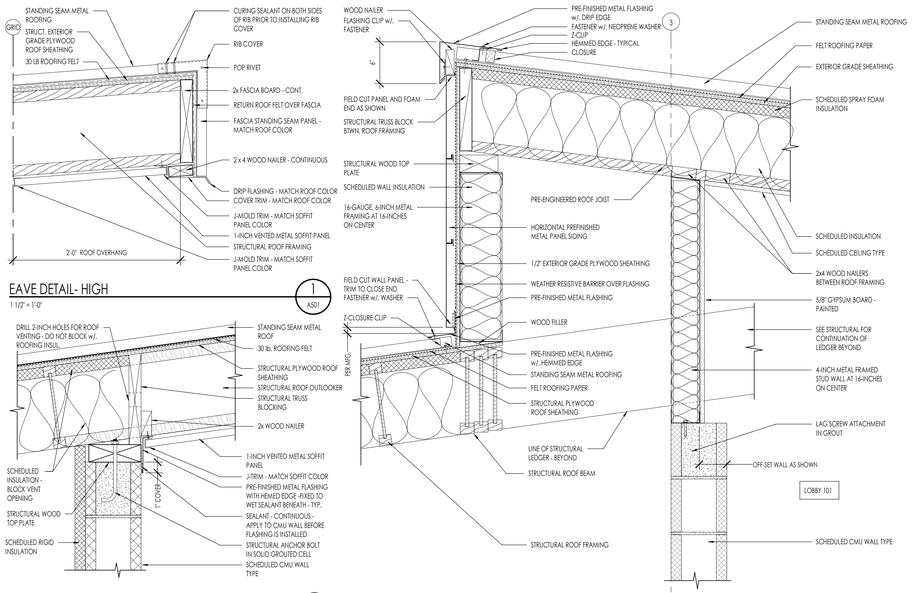
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
CABINET SECTIONS & FINISH SCHEDULES

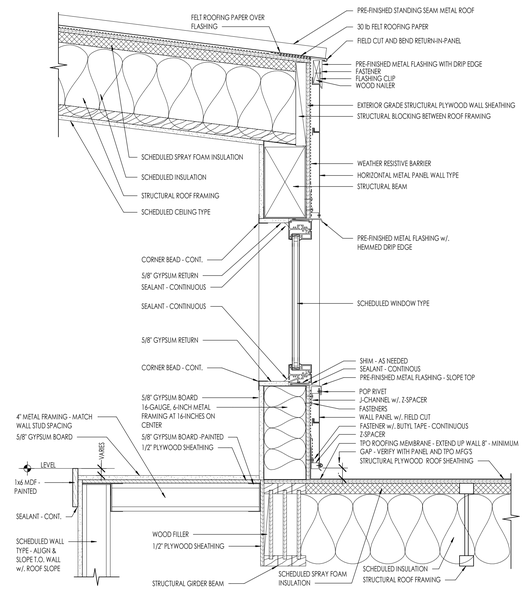
SHEET NUMBER:
A406

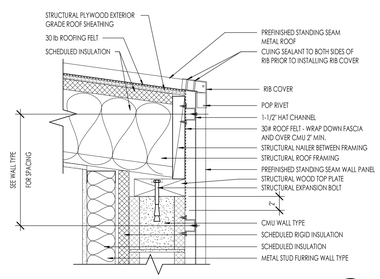
BID SET

Plot Date: 4/21/2025 6:56:15 AM

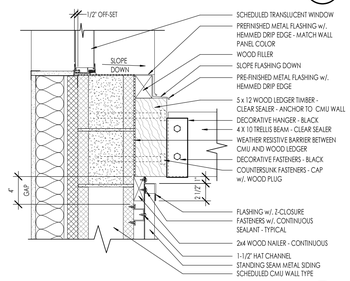


EAVE DETAIL- HIGH
1 1/2" = 1'-0" — 1 / A501

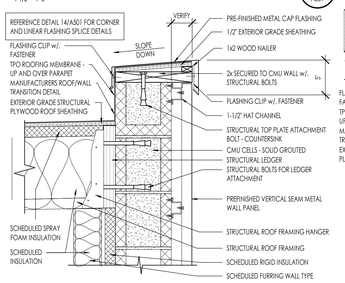


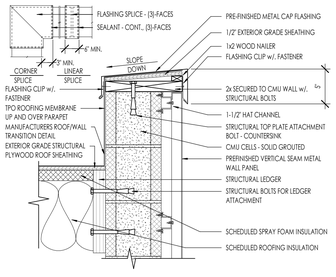


EAVE DETAIL - LOW 1
1 1/2" = 1'-0" — 6 / A501

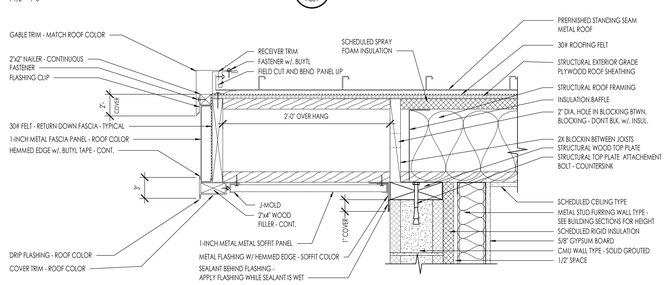


TOP OF WALL DETAIL
1 1/2" = 1'-0" — 7 / A501

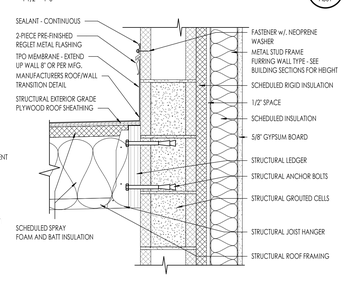




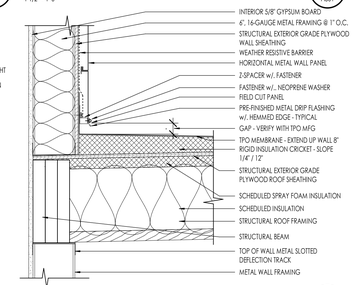
OVERBUILD EAVE DETAIL - HIGH
1 1/2" = 1'-0" — 9 / A501



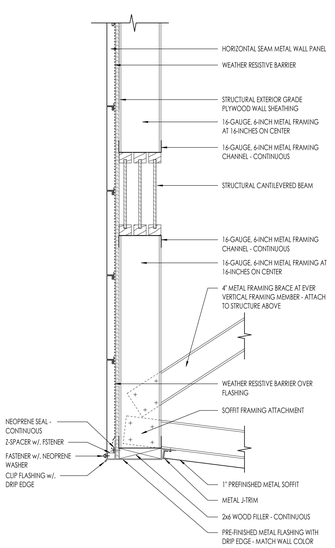
EAVE DETAIL - LOW 2
1 1/2" = 1'-0" — 11 / A501



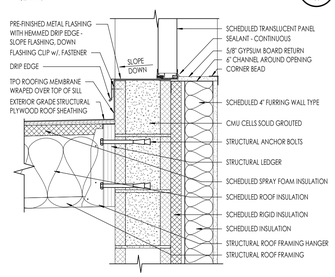
TRELLIS FLASHING DETAIL - AT WALL
1 1/2" = 1'-0" — 12 / A501



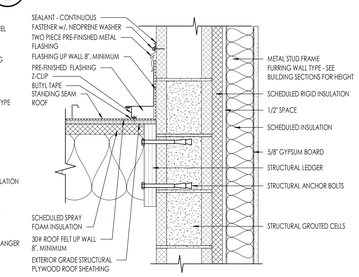
PARAPET DETAIL - HIGH
1 1/2" = 1'-0" — 13 / A501



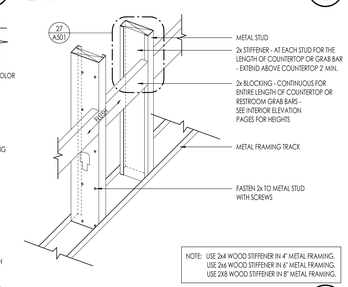
PARAPET DETAIL - RAKE
1 1/2" = 1'-0" — 14 / A501



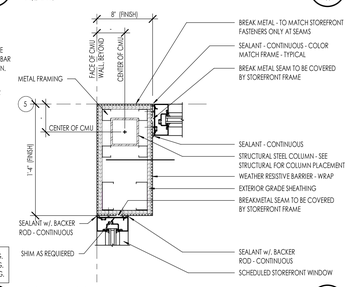
EAVE DETAIL - RAKE
1 1/2" = 1'-0" — 16 / A501



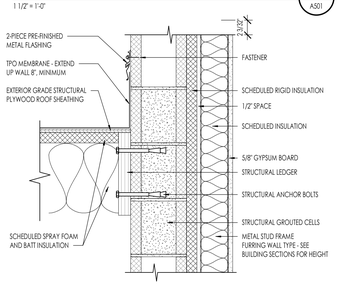
TPO ROOF AT WALL DETAIL
1 1/2" = 1'-0" — 17 / A501



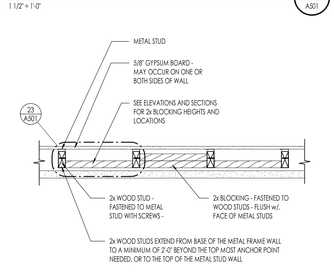
ROOF CRICKET AT METAL PANEL WALL
1 1/2" = 1'-0" — 18 / A501



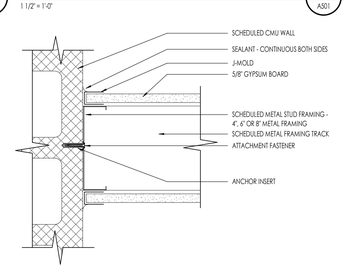
ROOF/WALL CONNECTION AT WINDOW SILL - HIGH
1 1/2" = 1'-0" — 20 / A501



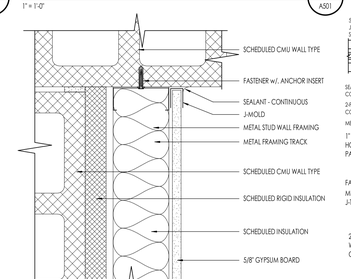
ROOF/WALL CONNECTION - STANDING SEAM RAKE
1 1/2" = 1'-0" — 21 / A501



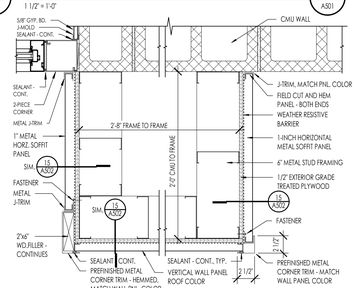
WALL OVERBUILD - 1
1 1/2" = 1'-0" — 22 / A501



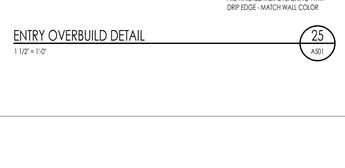
BLOCKING DETAIL - ISOMETRIC VIEW
1" = 1'-0" — 23 / A501



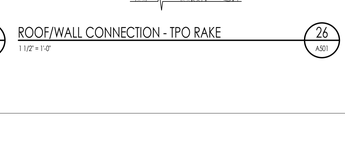
CORNER COLUMN DETAIL
1 1/2" = 1'-0" — 24 / A501



ENTRY OVERBUILD DETAIL
1 1/2" = 1'-0" — 25 / A501



ROOF/WALL CONNECTION - TPO RAKE
1 1/2" = 1'-0" — 26 / A501



BLOCKING DETAIL - PLAN VIEW
1" = 1'-0" — 27 / A501

METAL/CMU WALL CONNECTION
3" = 1'-0" — 28 / A501

CMU/CMU WALL CONNECTION w/, FURRED WALL
3" = 1'-0" — 29 / A501

WALL OVERBUILD - 2
1 1/2" = 1'-0" — 30 / A501

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REGISTERED ARCHITECT
49665
JARED MICHAEL PLOUZEK
ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

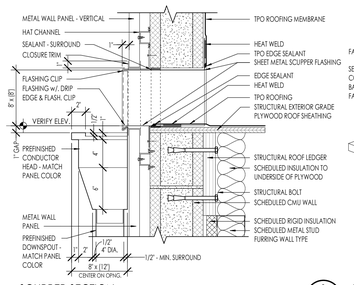
340 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

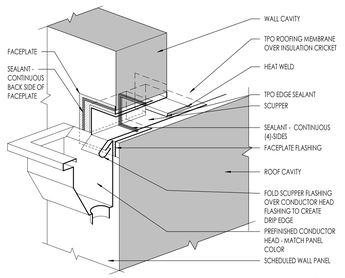
SHEET TITLE:
DETAILS

SHEET NUMBER:
A501

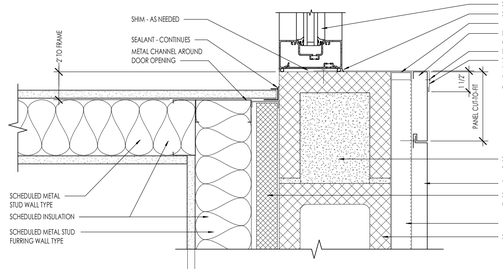
BID SET



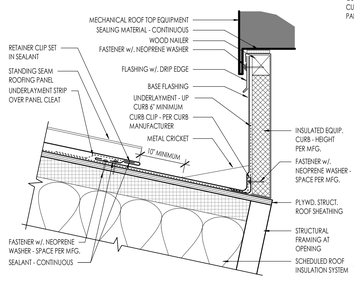
SCUPPER SECTION
1 1/2" = 1'-0"
1 A502



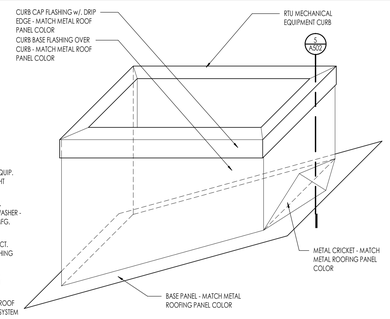
SCUPPER FLASHING DETAIL
1 1/2" = 1'-0"
2 A502



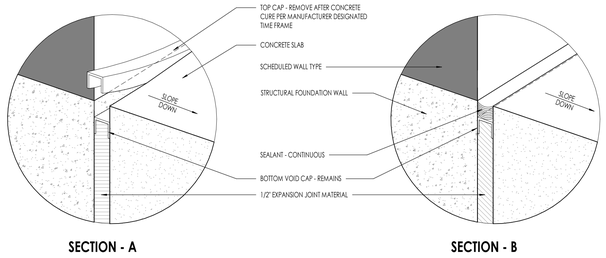
DOOR 110A JAMB DETAIL
3" = 1'-0"
4 A502



RTU CURB DETAIL
3/4" = 1'-0"
5 A502

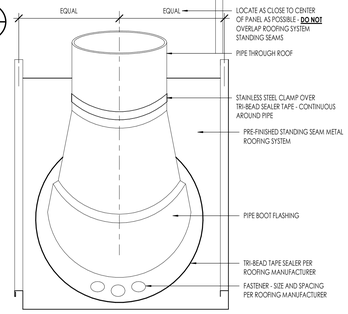


RTU CURB DETAIL - AXONOMETRIC
3/4" = 1'-0"
6 A502

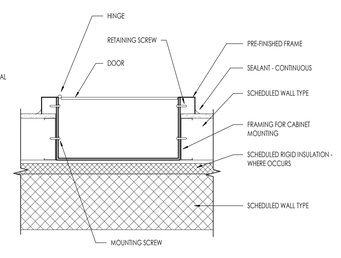


SECTION - A

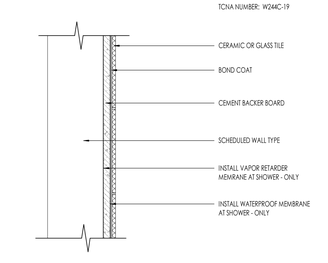
SECTION - B



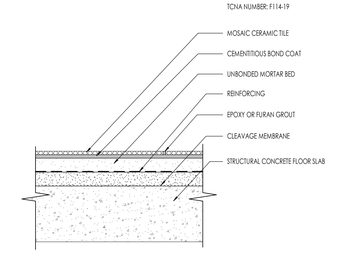
EXPANSION JOINT DETAIL
1 1/2" = 1'-0"
8 A502



ROOF PIPE PENETRATION DETAIL
1/4" = 1'-0"
9 A502



TILE WALL DETAIL
3" = 1'-0"
11 A502



TILE FLOOR DETAIL
3" = 1'-0"
12 A502

FLUSH PANEL VERTICAL SEAM - SILL
3" = 1'-0"
13 A502

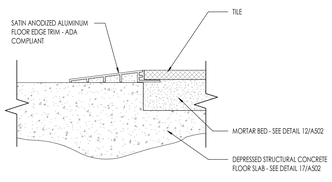
STANDING SEAM VERTICAL PANEL - SILL
3" = 1'-0"
14 A502

FLUSH PANEL HORIZONTAL SEAM - SILL
6" = 1'-0"
15 A502

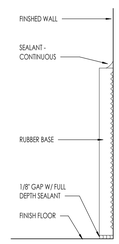
ENTRY OVERBUILD SOFFIT DETAIL
1 1/2" = 1'-0"
16 A502

TILE BASE/FLOOR DETAIL
1 1/2" = 1'-0"
17 A502

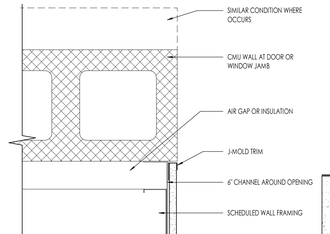
TILE WALL EDGE TRIM DETAIL
6" = 1'-0"
18 A502



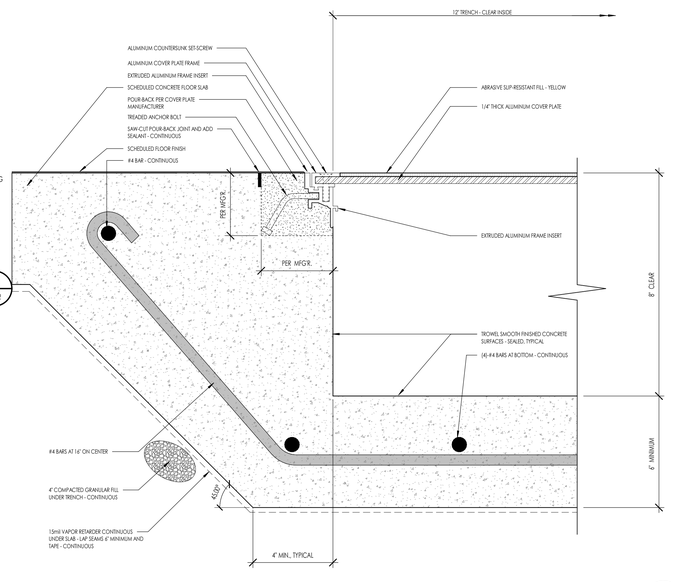
TILE FLOOR EDGE TRIM
6" = 1'-0"
19 A502



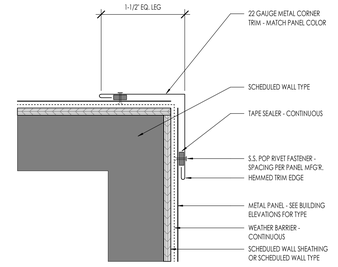
WALL BASE DETAIL
6" = 1'-0"
20 A502



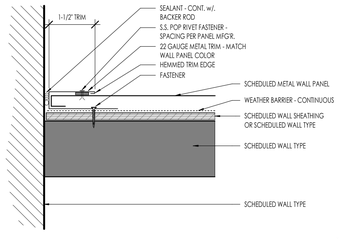
WALL CLOSURE DETAIL
3" = 1'-0"
21 A502



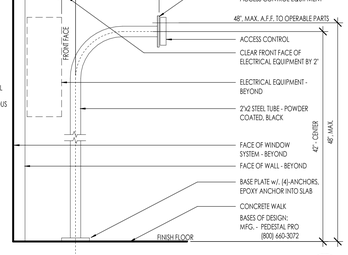
PIPING TRENCH AND COVER DETAIL
6" = 1'-0"
29 A502



OUTSIDE CORNER TRIM - DETAIL
3" = 1'-0"
24 A502
INSIDE CORNER TRIM - SIMILAR



INSIDE - CORNER TRIM DETAIL
3" = 1'-0"
25 A502



PEDESTAL DETAIL
1 1/2" = 1'-0"
26 A502

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REGISTERED ARCHITECT
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JARED MICHAEL PLOUZEK
ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
DETAILS

SHEET NUMBER:
A502

BID SET

Plot Date: 4/21/2025 6:36:23 AM

NEEDS TO BE REVIEWED AND UPDATED

DOOR SCHEDULE

MARK	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SIZE THICKNESS	DOOR MATERIAL	DOOR TYPE	DOOR FINISH	FRAME MATERIAL	FRAME TYPE	FRAME FINISH	FIRE RATING	HARDWARE	HEAD	JAMB	SILL	REMARKS
101A	3'-0"	7'-0"	1 3/4"	ALUM	D1	FACTORY	ALUM	W1	FACTORY	NON-RATED	01				ELECTRONIC ACCESS
101B	3'-0"	7'-0"	1 3/4"	ALUM	D1	FACTORY	ALUM	F4	FACTORY	NON-RATED	01				ELECTRONIC ACCESS
102A	3'-0"	7'-0"	1 3/4"	WOOD	D2	STAIN	H.M.	F2	PAINT	NON-RATED	04				
103A	3'-0"	7'-0"	1 3/4"	WOOD	D2	STAIN	H.M.	F2	PAINT	NON-RATED	04				
104A	3'-0"	7'-0"	1 3/4"	WOOD	D5	STAIN	H.M.	F2	PAINT	NON-RATED	07				
105A	3'-0"	7'-0"	1 3/4"	WOOD	D5	STAIN	H.M.	F1	PAINT	NON-RATED	07				
105B	3'-0"	7'-0"	1 3/4"	WOOD	D5	STAIN	H.M.	F1	PAINT	NON-RATED	08				
105C	6'-0"	7'-0"	1 3/4"	WOOD	D3	STAIN	GYP. BD.	F3	PAINT	NON-RATED	09				
106A	3'-0"	7'-0"	1 3/4"	WOOD	D4	STAIN	H.M.	F1	PAINT	NON-RATED	05				ELECTRONIC ACCESS
107A	3'-0"	7'-0"	1 3/4"	H.M.	D6	PAINT	H.M.	F1	PAINT	NON-RATED	03				ELECTRONIC ACCESS
108A	3'-0"	7'-0"	1 3/4"	WOOD	D5	STAIN	H.M.	W13	FACTORY	NON-RATED	07				
109A	3'-0"	7'-0"	1 3/4"	WOOD	D5	STAIN	H.M.	F1	PAINT	NON-RATED	08				
109B	3'-0"	7'-0"	1 3/4"	ALUM	D1	FACTORY	ALUM	W8	FACTORY	NON-RATED	02				
110A	3'-0"	7'-0"	1 3/4"	ALUM	D1	FACTORY	ALUM	W10	FACTORY	NON-RATED	01				ELECTRONIC ACCESS
111A	3'-0"	7'-0"	1 3/4"	WOOD	D5	STAIN	H.M.	W13	FACTORY	NON-RATED	07				
112A	3'-0"	7'-0"	1 3/4"	WOOD	D2	STAIN	H.M.	F2	PAINT	NON-RATED	06				
113A	3'-0"	7'-0"	1 3/4"	WOOD	D5	STAIN	H.M.	W13	FACTORY	NON-RATED	07				

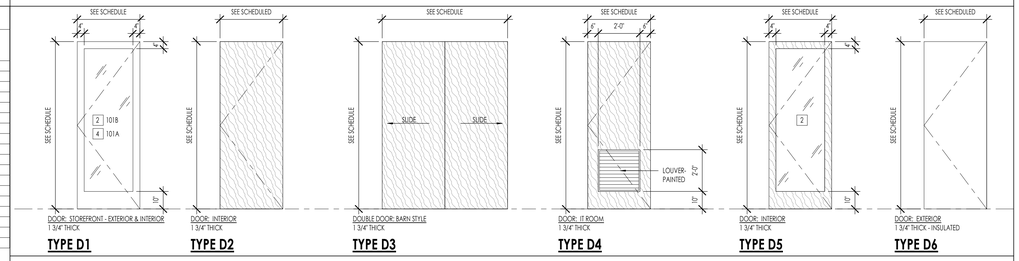
DOOR SCHEDULE GENERAL NOTES

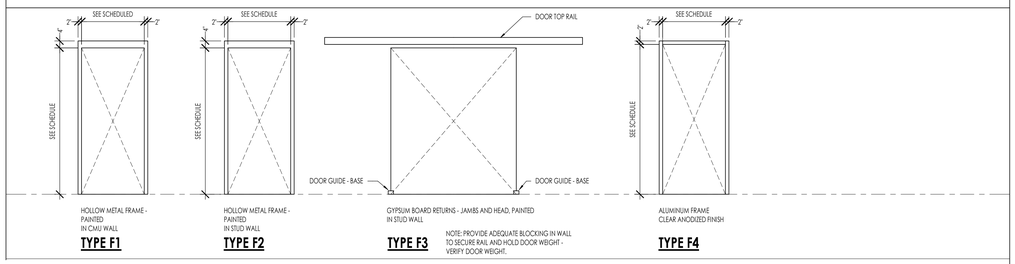
1. SEE SHEET A601 FOR DOOR AND FRAME TYPES.
2. CONTRACTOR SHALL FIELD VERIFY ALL DOOR OPENINGS PRIOR TO ORDERING ALL DOORS.
3. CONTRACTOR SHALL SUBMIT COMPLETE DOOR AND HARDWARE SHOP DRAWINGS AND SUBMITTALS FOR APPROVAL PRIOR TO ORDERING AND TAKING RECEIPT OF DOOR ORDER.
4. ALL DOORS SHALL BE INSTALLED SO AS NOT TO HAVE MORE THAN 1/2" THRESHOLD AT EACH DOOR.
5. SEE SPECIFICATION FOR DOOR HARDWARE SCHEDULE.
6. REFER TO SPECIFICATION FOR CORRECT DOOR STYLES, SPECIES, AND FINISHES.
7. SEE SHEETS A602 AND A603 FOR STOREFRONT ELEVATIONS WITH DOORS.

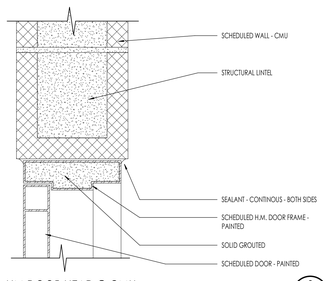
GLAZING SCHEDULE

MARK	GLAZING
1	1/4" THICK GLAZING
2	1/4" THICK TEMPERED GLAZING
3	1" LOW-E INSULATED GLAZING
4	1" LOW-E INSULATED TEMPERED GLAZING
5	2-3/4" INSULATED TRANSLUSCENT PANEL

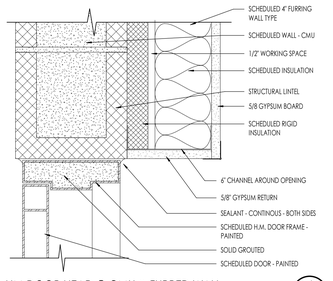
DOOR TYPES (D) AND FRAME TYPES (F)



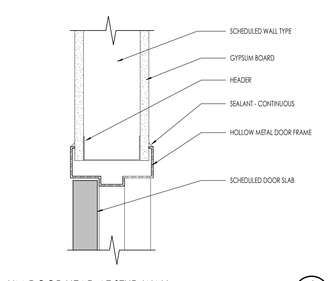




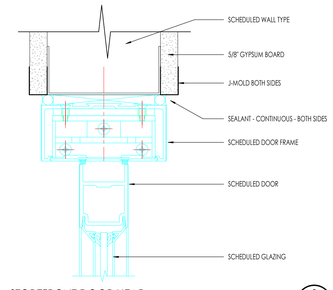
HM DOOR HEAD @ CMU — 3" = 1'-0" — 2 / A601



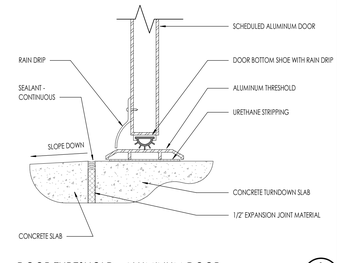
HM DOOR HEAD @ CMU & FURRED WALL — 3" = 1'-0" — 4 / A601



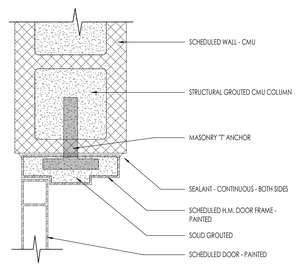
HM DOOR HEAD AT STUD WALL — 3" = 1'-0" — 6 / A601



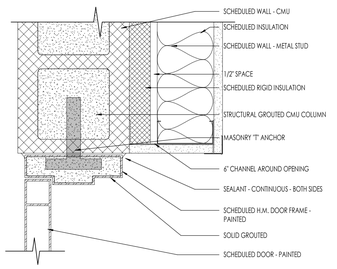
STOREFRONT DOOR HEAD — 6" = 1'-0" — 8 / A601



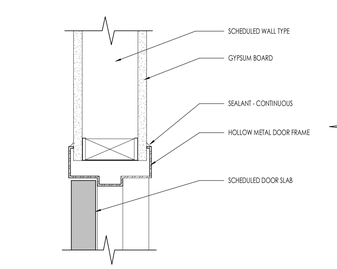
DOOR THRESHOLD - ALUMINUM DOOR — 3" = 1'-0" — 1 / A601



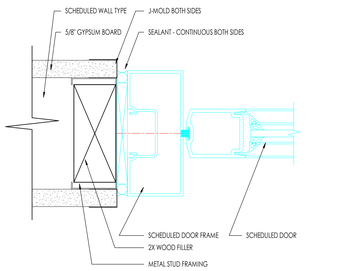
HM DOOR JAMB @ CMU — 3" = 1'-0" — 3 / A601



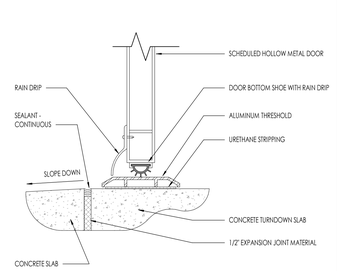
HM DOOR JAMB @ CMU & FURRED WALL — 3" = 1'-0" — 5 / A601



HM DOOR JAMB @ STUD WALL — 3" = 1'-0" — 7 / A601



STOREFRONT DOOR JAMB — 6" = 1'-0" — 9 / A601



HM DOOR THRESHOLD — 3" = 1'-0" — 10 / A601

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REGISTERED ARCHITECT — 49665 — JARED MICHAEL PLOUZEK — ARIZONA, U.S.A. — EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

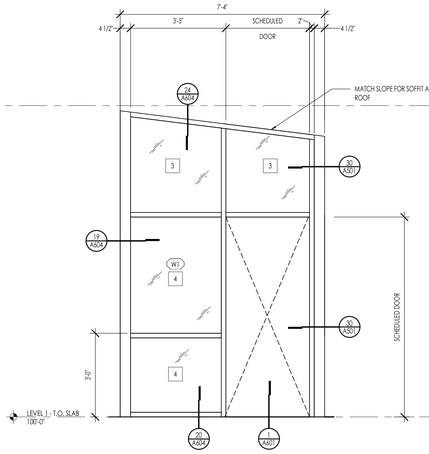
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

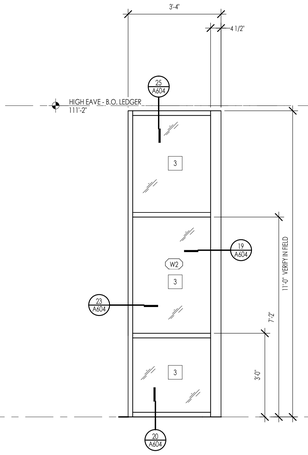
BID SET

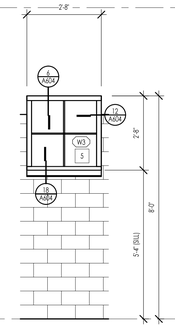
SHEET TITLE:
DOOR SCHEDULE, ELEVATIONS & DETAILS

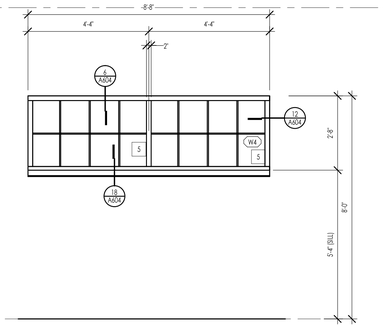
SHEET NUMBER:
A601

Plot Date: 4/21/2025 6:36:27 AM

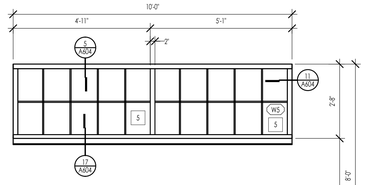




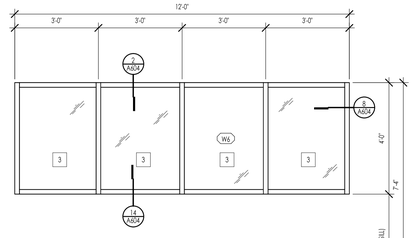




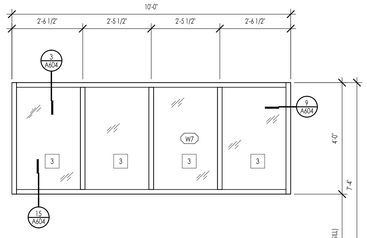
WINDOW W1 - ALUMINUM
1/2" = 1'-0"
1 A602



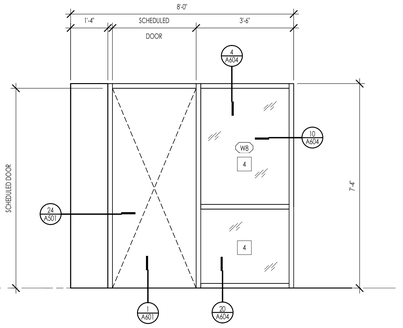
WINDOW W2 - ALUMINUM
1/2" = 1'-0"
2 A602



WINDOW W3 - ALUMINUM
1/2" = 1'-0"
3 A602



WINDOW W4 - ALUMINUM
1/2" = 1'-0"
4 A602

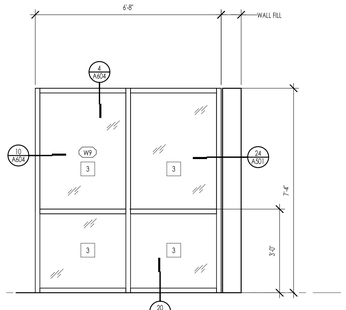


WINDOW W5 - ALUMINUM
1/2" = 1'-0"
5 A602

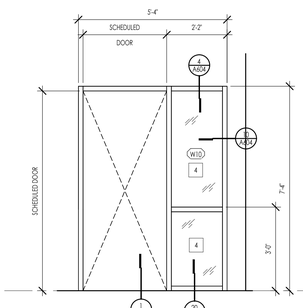
WINDOW W6 - ALUMINUM
1/2" = 1'-0"
6 A602

WINDOW W7 - ALUMINUM
1/2" = 1'-0"
7 A602

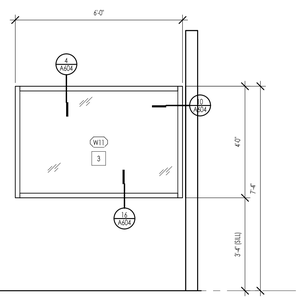
WINDOW W8 - ALUMINUM
1/2" = 1'-0"
8 A602



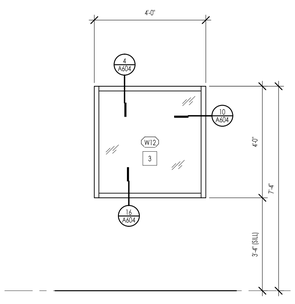
WINDOW W9 - ALUMINUM
1/2" = 1'-0"
9 A602



WINDOW W10 - ALUMINUM
1/2" = 1'-0"
10 A602



WINDOW W11 - ALUMINUM
1/2" = 1'-0"
11 A602



WINDOW W12 - ALUMINUM
1/2" = 1'-0"
12 A602

WINDOW LEGEND

SYMBOL	DESCRIPTION
(T)	TEMPERED GLAZING. COORDINATE WITH PROJECT KEYNOTES AND BUILDING CODE FOR ALL LOCATIONS.
	DIRECTION OF OPERABLE WINDOW/ DOOR.
(E)	WINDOW IS REQUIRED TO MEET EMERGENCY EGRESS.

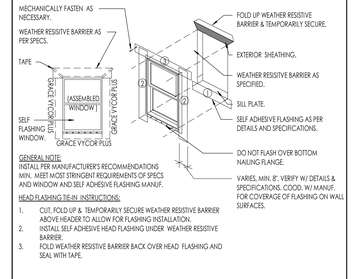
WINDOW SPECIFICATIONS

APPROVED MANUFACTURERS:	MINIMUM U-VALUE:
	SCREENS REQUIRED:
	SCREEN COLOR:
BASIS OF DESIGN:	TYPICAL JAMB WIDTH:
WINDOW TYPE:	SDL WIDTH:
WINDOW COLOR:	SDL TYPE:
WINDOW GLAZING:	

WINDOW GENERAL NOTES

1. EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL MEET THE FOLLOWING REQUIREMENTS. SEE I.R.C. SECTION R310.
   - A. BASEMENTS WITH HABITABLE SPACES SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY ESCAPE AND RESCUE WINDOW OR DOOR OR ACCESS TO AN ADJOINING BEDROOM WITH AN EMERGENCY ESCAPE AND RESCUE WINDOW.
   - B. ALL EMERGENCY OPENINGS SHALL HAVE A MINIMUM NET CLEAR OPENING AREA OF 5.7 SQUARE FEET. THE MINIMUM NET CLEAR OPENING HEIGHT SHALL BE 24 INCHES. THE MINIMUM NET CLEAR OPENING WIDTH SHALL BE 20 INCHES. EMERGENCY OPNINGS SHALL BE OPERATIONAL FROM THE INSIDE OF THE ROOM WITHOUT THE USE OF KEYS OR TOOLS. EXCEPT GROUND FLOOR, NET CLEAR AREA OF 5.0 SQUARE FEET. R310.1.1 TO R310.1.4.
   - C. WINDOW SHALL HAVE A SILL HEIGHT OF NOT MORE THAN 44 INCHES ABOVE THE FLOOR. OPENINGS WITH A FINISHED SILL HEIGHT BELOW THE ADJACENT GROUND ELEVATION SHALL BE PROVIDED WITH A WINDOW WELL. R310.2.2
   - D. WINDOW WELLS REQUIRED FOR ESCAPE OR RESCUE SHALL HAVE HORIZONTAL DIMENSIONS THAT ALLOW THE DOOR OR WINDOW TO BE FULLY OPENED. THE HORIZONTAL DIMENSION FOR THE WINDOW WELL SHALL PROVIDE A MINIMUM NET CLEAR AREA OF 9 SQUARE FEET WITH A MINIMUM HORIZONTAL PROJECTION AND WIDTH OF 36 INCHES. R310.2.3
   - E. WINDOW WELLS WITH A VERTICAL DEPTH GREATER THAN 44 INCHES BELOW THE ADJACENT GROUND LEVEL SHALL BE EQUIPPED WITH A PERMANENTLY AFFIXED LADDER OR STEPS USEABLE WITH THE WINDOW IN THE FULLY OPENED POSITION. LADDERS OR RUNGS SHALL HAVE AN INSIDE WIDTH OF AT LEAST 12 INCHES, SHALL PROJECT AT LEAST 3 INCHES FROM THE WALL AND SHALL BE SPACED NOT MORE THAN 18 INCHES ON CENTER VERTICALLY FOR THE FULL HEIGHT OF THE WINDOW WELL. R310.2.3.1
   - F. BARS, GRILLS, COVERS, SCREENS, ETC. SHALL BE PERMITTED TO BE PLACED OVER THE EMERGENCY EGRESS OPENING WINDOW WELL PROVIDED THE NET CLEAR OPENING SIZE IS NOT COMPROMISED AND THAT SUCH DEVICES SHALL BE RELEASED OR REMOVABLE FROM THE INSIDE WITHOUT THE USE OF A KEY, TOOL OR FORCE GREATER THAN THAT WHICH IS REQUIRED FOR NORMAL OPERATION. R310.4
2. SAFETY GLAZING SHALL BE INSTALLED IN HAZARDOUS LOCATIONS AND SHALL MEET THE FOLLOWING REQUIREMENTS. SEE I.R.C. SECTION R308. FOR EXCEPTIONS SEE I.R.C. R308.4.
   - A. EACH PANE OF GLASS INSTALLED IN HAZARDOUS LOCATIONS SHALL BE PERMANENTLY IDENTIFIED BY MANUFACTURER, DESIGNATING THE TYPE, THICKNESS, AND SAFETY GLAZING STANDARD. THE LABEL SHALL BE ACID ETCHED, SANDBLASTED, CERAMIC FIRED OR EMBOSSED ON GLASS AND BE VISIBLE WHEN THE UNIT IS GLAZED. FOR EXCEPTIONS SEE I.R.C. R308.1.
   - B. PROVIDE SAFETY GLAZING IN FIXED AND OPERABLE PANELS OF SWINGING, SLIDING AND BIFOLDING DOORS (R308.4.1.). SAFETY GLAZING SHALL BE PROVIDED WHEN GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE THE FLOOR OR WALKING SURFACE AND IS WITHIN 24 INCHES OF EITHER SIDE OF THE DOOR IN THE PLANE OF THE DOOR IN A CLOSED POSITION OR WHERE THE GLAZING IS ON A WALL PERPENDICULAR TO THE PLANE OF THE DOOR IN A CLOSED POSITION AND WITHIN 24 INCHES OF THE HINGE SIDE OF AN IN-SWINGING DOOR. (I.R.C. R308.4.2)
   - C. PROVIDE SAFETY GLAZING WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 36 INCHES ABOVE THE PLANE OF THE ADJACENT WALKING SURFACE OF STAIRWAYS, LANDINGS BETWEEN FLIGHTS OF STAIRS AND RAMPS. (I.R.C. R308.4.4)
   - D. PROVIDE SAFETY GLAZING IN DOORS AND ENCLOSURES FOR HOT TUBS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS AND SHOWERS. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING THESE COMPARTMENTS WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE A STANDING OR WALKING SURFACE. (I.R.C. R308.4.5)
   - E. PROVIDE SAFETY GLAZING IN RAILINGS REGARDLESS OF AN AREA OR HEIGHT. (I.R.C. R308.4.4)
   - F. PROVIDE SAFETY GLAZING IN WALLS AND FENCES ENCLOSING SWIMMING POOLS OR HOT TUBS WHERE THE THE BOTTOM EDGE OF THE POOL OR SPA GLASS IS LESS THAN 60 INCHES ABOVE THE WALKING SURFACE. (I.R.C. R308.4.5)
   - G. PROVIDE SAFETY GLAZING IN FIXED OR OPERABLE PANELS THAT MEETS ALL OF THE FOLLOWING CONDITIONS: AREAS GREATER THAN 9 SQUARE FEET, BOTTOM EDGE LESS THAN 18 INCHES ABOVE THE FLOOR, TOP EDGE GREATER THAN 36 INCHES ABOVE FLOOR, AND WITHIN 36 INCHES OF WALKING SURFACE. (I.R.C. R308.4.3)
3. THE GENERAL CONTRACTOR AND WINDOW SUPPLIER ARE RESPONSIBLE TO FIELD MEASURE ALL WINDOW OPENINGS AND PROVIDE SHOP DRAWINGS BEFORE MANUFACTURERING. SHOP DRAWINGS SHALL BE PROVIDED FOR EACH BUILDING INDIVIDUALLY AND SHALL NOT BE COMBINED WITH ANY OTHER BUILDING.
4. THE WINDOW SUPPLIER SHALL BE RESPONSIBLE TO VERIFY ALL EMERGENCY EGRESS, LIGHT AND VENTILATION, AND TEMPERED GLASS LOCATION REQUIREMENTS PRIOR TO EACH SUBMITTAL.
5. THE GENERAL CONTRACTOR AND WINDOW SUPPLIER ARE RESPONSIBLE TO VERIFY THAT EACH OF THE ABOVE LISTED REQUIREMENTS HAVE BEEN MET AND NOTE ANY DESCREPANCIES ON SUBMITTAL.
6. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

TYPICAL DETAILS



GENERAL NOTE:
INSTALL PER MANUFACTURER'S RECOMMENDATIONS MIN. MEET MOST STRINGENT REQUIREMENTS OF SPECS AND WINDOW AND SELF ADHESIVE FLASHING MANUF.

HEAD FLASHING TIE-IN INSTRUCTIONS:
1. CUT, FOLD UP & TEMPORARILY SECURE WEATHER RESISTIVE BARRIER ABOVE HEADER TO ALLOW FOR FLASHING INSTALLATION.
2. INSTALL SELF ADHESIVE HEAD FLASHING UNDER WEATHER RESISTIVE BARRIER.
3. FOLD WEATHER RESISTIVE BARRIER BACK OVER HEAD FLASHING AND SEAL WITH TAPE.

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Interior Design
Landscape Architecture
Land Planning
Construction Management
7927 So. Highpoint Parkway, Suite 300
Sandy, Utah 84094
ph. 801.269.0055
fax 801.269.1405
www.thinkaec.com

REGISTERED ARCHITECT
49665
JARED MICHAEL PLOUZEK
ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

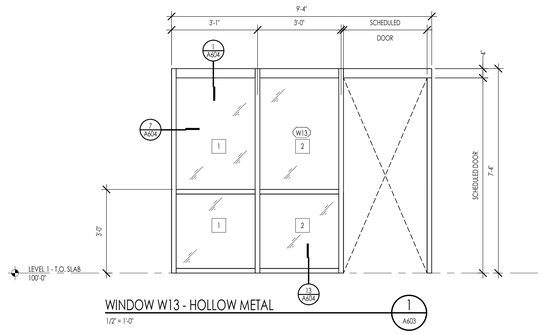
PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
WINDOW ELEVATIONS

SHEET NUMBER:
A602

BID SET

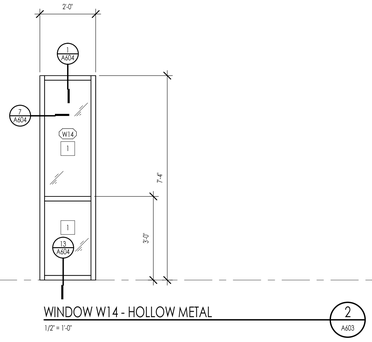
Plot Date: 4/21/2025 6:56:31 AM



WINDOW W13 - HOLLOW METAL

1/2" = 1'-0"

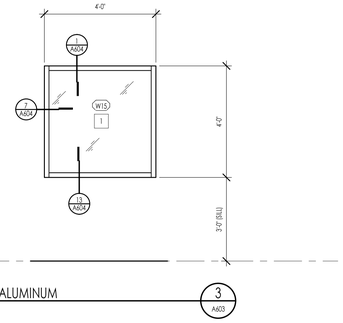
1 A603



WINDOW W14 - HOLLOW METAL

1/2" = 1'-0"

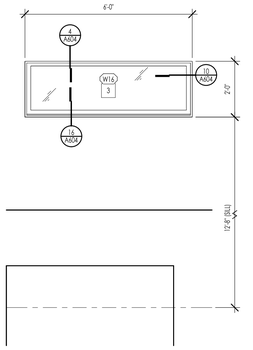
2 A603



WINDOW W15 - ALUMINUM

1/2" = 1'-0"

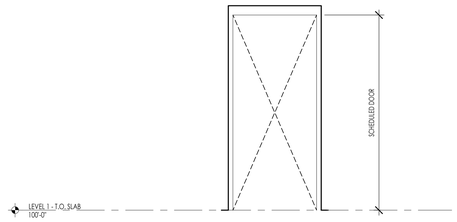
3 A603



WINDOW W16 - ALUMINUM

1/2" = 1'-0"

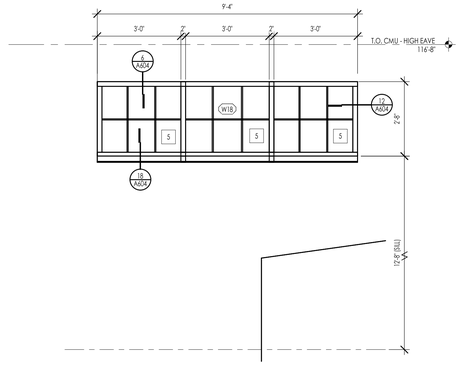
4 A603



WINDOW W17 - HOLLOW METAL

1/2" = 1'-0"

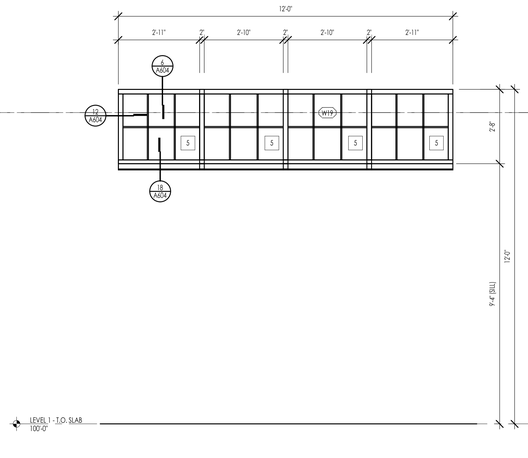
5 A603



WINDOW W18 - ALUMINUM

1/2" = 1'-0"

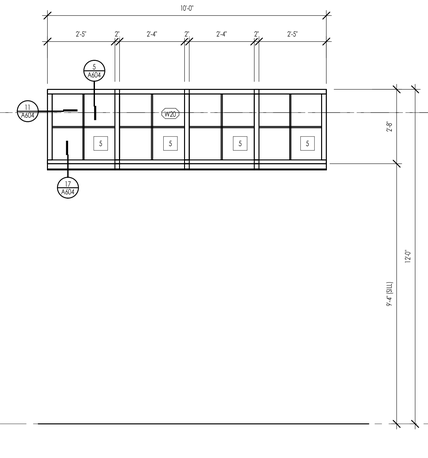
6 A603



WINDOW W19 - ALUMINUM

1/2" = 1'-0"

7 A603



WINDOW W20 - ALUMINUM

1/2" = 1'-0"

8 A603

WINDOW LEGEND

SYMBOL	DESCRIPTION
T	TEMPERED GLAZING. COORDINATE WITH PROJECT KEYNOTES AND BUILDING CODE FOR ALL LOCATIONS.
	DIRECTION OF OPERABLE WINDOW/ DOOR.
E	WINDOW IS REQUIRED TO MEET EMERGENCY EGRESS.

WINDOW SPECIFICATIONS

APPROVED MANUFACTURERS: _____

BASIS OF DESIGN: _____

WINDOW TYPE: _____

WINDOW COLOR: _____

WINDOW GLAZING: _____

MINIMUM U-VALUE: _____

SCREENS REQUIRED: _____

SCREEN COLOR: _____

TYPICAL JAMB WIDTH: _____

SDL WIDTH: _____

SDL TYPE: _____

WINDOW GENERAL NOTES

1. EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL MEET THE FOLLOWING REQUIREMENTS. SEE I.R.C. SECTION R310.
   - A. BASEMENTS WITH HABITABLE SPACES SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY ESCAPE AND RESCUE WINDOW OR DOOR OR ACCESS TO AN ADJOINING BEDROOM WITH AN EMERGENCY ESCAPE AND RESCUE WINDOW.
   - B. ALL EMERGENCY OPENINGS SHALL HAVE A MINIMUM NET CLEAR OPENING AREA OF 5.7 SQUARE FEET. THE MINIMUM NET CLEAR OPENING HEIGHT SHALL BE 24 INCHES. THE MINIMUM NET CLEAR OPENING WIDTH SHALL BE 20 INCHES. EMERGENCY OPNINGS SHALL BE OPERATIONAL FROM THE INSIDE OF THE ROOM WITHOUT THE USE OF KEYS OR TOOLS. EXCEPT GROUND FLOOR, NET CLEAR AREA OF 5.0 SQUARE FEET. R310.1.1 TO R310.1.4.
   - C. WINDOW SHALL HAVE A SILL HEIGHT OF NOT MORE THAN 44 INCHES ABOVE THE FLOOR. OPENINGS WITH A FINISHED SILL HEIGHT BELOW THE ADJACENT GROUND ELEVATION SHALL BE PROVIDED WITH A WINDOW WELL. R310.2.2
   - D. WINDOW WELLS REQUIRED FOR ESCAPE OR RESCUE SHALL HAVE HORIZONTAL DIMENSIONS THAT ALLOW THE DOOR OR WINDOW TO BE FULLY OPENED. THE HORIZONTAL DIMENSION FOR THE WINDOW WELL SHALL PROVIDE A MINIMUM NET CLEAR AREA OF 9 SQUARE FEET WITH A MINIMUM HORIZONTAL PROJECTION AND WIDTH OF 36 INCHES. R310.2.3
   - E. WINDOW WELLS WITH A VERTICAL DEPTH GREATER THAN 44 INCHES BELOW THE ADJACENT GROUND LEVEL SHALL BE EQUIPPED WITH A PERMANENTLY AFFIXED LADDER OR STEPS USEABLE WITH THE WINDOW IN THE FULLY OPENED POSITION. LADDERS OR RUNGS SHALL HAVE AN INSIDE WIDTH OF AT LEAST 12 INCHES, SHALL PROJECT AT LEAST 3 INCHES FROM THE WALL AND SHALL BE SPACED NOT MORE THAN 18 INCHES ON CENTER VERTICALLY FOR THE FULL HEIGHT OF THE WINDOW WELL. R310.2.3.1
   - F. BARS, GRILLS, COVERS, SCREENS, ETC. SHALL BE PERMITTED TO BE PLACED OVER THE EMERGENCY EGRESS OPENING WINDOW WELL PROVIDED THE NET CLEAR OPENING SIZE IS NOT COMPROMISED AND THAT SUCH DEVICES SHALL BE RELEASED OR REMOVABLE FROM THE INSIDE WITHOUT THE USE OF A KEY, TOOL OR FORCE GREATER THAN THAT WHICH IS REQUIRED FOR NORMAL OPERATION. R310.4
2. SAFETY GLAZING SHALL BE INSTALLED IN HAZARDOUS LOCATIONS AND SHALL MEET THE FOLLOWING REQUIREMENTS. SEE I.R.C. SECTION R308. FOR EXCEPTIONS SEE I.R.C. R308.4.
   - A. EACH PANE OF GLASS INSTALLED IN HAZARDOUS LOCATIONS SHALL BE PERMANENTLY IDENTIFIED BY MANUFACTURER DESIGNATING THE TYPE, THICKNESS, AND SAFETY GLAZING STANDARD. THE LABEL SHALL BE ACID ETCHED, SANDBLASTED, CERAMIC FIRED OR EMBOSSED ON GLASS AND BE VISIBLE WHEN THE UNIT IS GLAZED. FOR EXCEPTIONS SEE I.R.C. R308.1.
   - B. PROVIDE SAFETY GLAZING IN FIXED AND OPERABLES PANELS OF SWINGING, SLIDING AND BIFOLDING DOORS (R308.4.1.). SAFETY GLAZING SHALL BE PROVIDED WHEN GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE THE FLOOR OR WALKING SURFACE AND IS WITHIN 24 INCHES OF EITHER SIDE OF THE DOOR IN THE PLANE OF THE DOOR IN A CLOSED POSITION OR WHERE THE GLAZING IS ON A WALL PERPENDICULAR TO THE PLANE OF THE DOOR IN A CLOSED POSITION AND WITHIN 24 INCHES OF THE HINGE SIDE OF AN IN-SWINGING DOOR. (I.R.C. R308.4.2)
   - C. PROVIDE SAFETY GLAZING WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 36 INCHES ABOVE THE PLANE OF THE ADJACENT WALKING SURFACE OF STAIRWAYS, LANDINGS BETWEEN FLIGHTS OF STAIRS AND RAMPS. (I.R.C. R308.4.6)
   - D. PROVIDE SAFETY GLAZING IN DOORS AND ENCLOSURES FOR HOT TUBS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS AND SHOWERS. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING THESE COMPARTMENTS WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE A STANDING OR WALKING SURFACE. (I.R.C. R308.4.5)
   - E. PROVIDE SAFETY GLAZING IN RAILINGS REGARDLESS OF AN AREA OR HEIGHT. (I.R.C. R308.4.4)
   - F. PROVIDE SAFETY GLAZING IN WALLS AND FENCES ENCLOSING SWIMMING POOLS OR HOT TUBS WHERE THE THE BOTTOM EDGE OF THE POOL OR SPA GLASS IS LESS THAN 60 INCHES ABOVE THE WALKING SURFACE. (I.R.C. R308.4.5)
   - G. PROVIDE SAFETY GLAZING IN FIXED OR OPERABLE PANELS THAT MEETS ALL OF THE FOLLOWING CONDITIONS: AREAS GREATER THAN 9 SQUARE FEET, BOTTOM EDGE LESS THAN 18 INCHES ABOVE THE FLOOR, TOP EDGE GREATER THAN 36 INCHES ABOVE FLOOR, AND WITHIN 36 INCHES OF WALKING SURFACE. (I.R.C. R308.4.3)
3. THE GENERAL CONTRACTOR AND WINDOW SUPPLIER ARE RESPONSIBLE TO FIELD MEASURE ALL WINDOW OPENINGS AND PROVIDE SHOP DRAWINGS BEFORE MANUFACTURERING. SHOP DRAWINGS SHALL BE PROVIDED FOR EACH BUILDING INDIVIDUALLY AND SHALL NOT BE COMBINED WITH ANY OTHER BUILDING.
4. THE WINDOW SUPPLIER SHALL BE RESPONSIBLE TO VERIFY ALL EMERGENCY EGRESS, LIGHT AND VENTILATION, AND TEMPERED GLASS LOCATION REQUIREMENTS PRIOR TO EACH SUBMITTAL.
5. THE GENERAL CONTRACTOR AND WINDOW SUPPLIER ARE RESPONSIBLE TO VERIFY THAT EACH OF THE ABOVE LISTED REQUIREMENTS HAVE BEEN MET AND NOTE ANY DESCREPANCIES ON SUBMITTAL.
6. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

TYPICAL DETAILS

Think Architecture

Architecture
Interior Design
Landscape Architecture
Land Planning
Construction Management

7927 So. Highpoint Parkway, Suite 300
Sandy, Utah 84094
ph. 801.269.0055
fax 801.269.1405
www.thinkaec.com

REGISTERED ARCHITECT — 49665 — JERED MICHAEL PLOUZEK — ARIZONA, U.S.A. — EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

340 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025

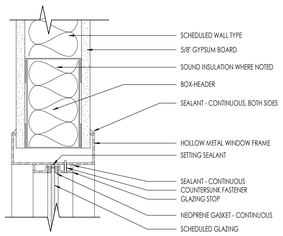
REVISIONS:

SHEET TITLE:
WINDOW ELEVATIONS

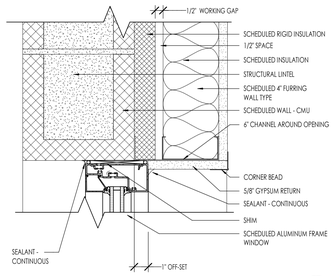
SHEET NUMBER:
A603

BID SET

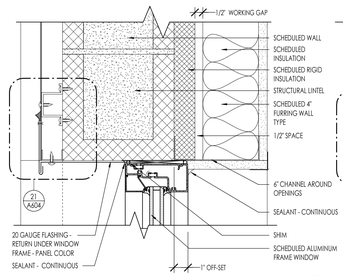
Plot Date: 4/21/2025 6:56:33 AM



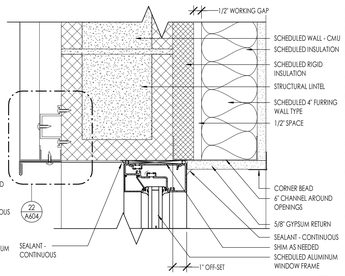
HOLLOW METAL - WINDOW FRAME HEAD 1 A604
3" = 1'-0"



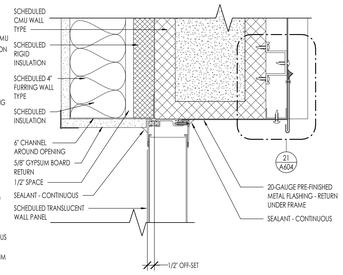
ALUMINUM - WINDOW HEAD @ CMU & FURRED 2 A604
3" = 1'-0"



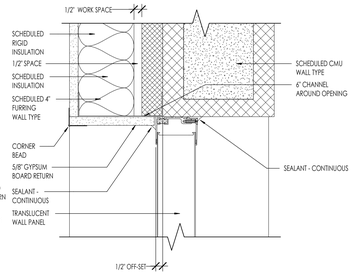
ALUMINUM - WINDOW HEAD @ CMU & PANEL 3 A604
3" = 1'-0"



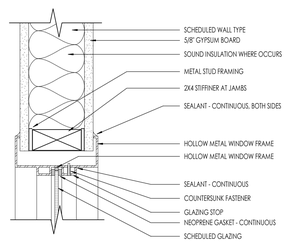
STOREFRONT HEAD @ CMU & METAL PANEL 4 A604
3" = 1'-0"



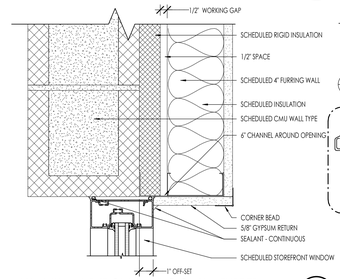
TRANSLUCENT PANEL HEAD @ CMU & STANDING SEAM 5 A604
3" = 1'-0"



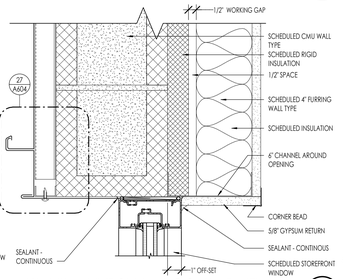
TRANSLUCENT PANEL HEAD @ CMU 6 A604
3" = 1'-0"



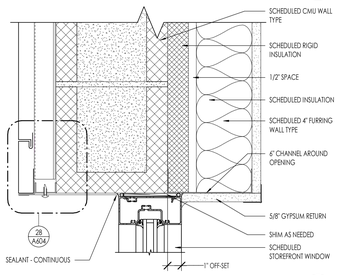
HOLLOW METAL - WINDOW FRAME JAMB 7 A604
3" = 1'-0"



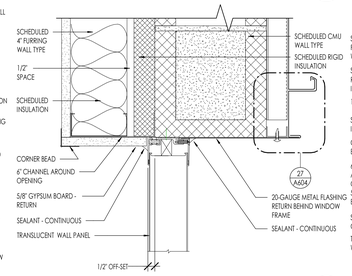
ALUMINUM - WINDOW JAMB @ CMU & FURRED 8 A604
3" = 1'-0"



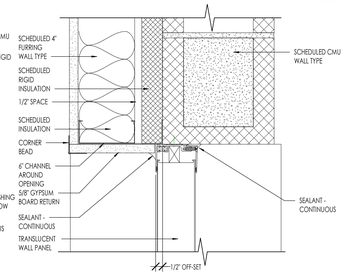
ALUMINUM - WINDOW JAMB @ CMU & PANEL 9 A604
3" = 1'-0"



STOREFRONT JAMB @ CMU & METAL PANEL 10 A604
3" = 1'-0"



TRANSLUCENT PANEL JAMB @ CMU & STANDING SEAM 11 A604
3" = 1'-0"

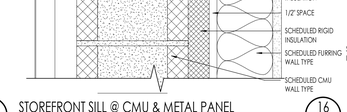


TRANSLUCENT PANEL JAMB @ CMU 12 A604
3" = 1'-0"

HOLLOW METAL - WINDOW FRAME SILL 13 A604
3" = 1'-0"

ALUMINUM - WINDOW SILL @ CMU & FURRED 14 A604
3" = 1'-0"

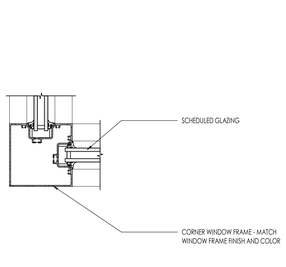
ALUMINUM - WINDOW SILL @ CMU & PANEL 15 A604
3" = 1'-0"



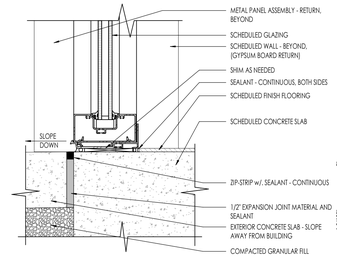
STOREFRONT SILL @ CMU & METAL PANEL 16 A604
3" = 1'-0"

TRANSULCENT PANEL SILL @ CMU & STANDING SEAM 17 A604
3" = 1'-0"

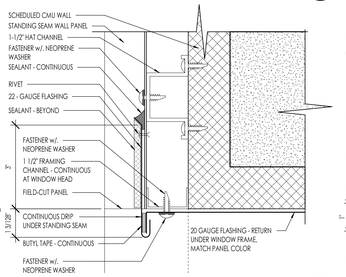
TRANSLUCENT PANEL SILL @ CMU 18 A604
3" = 1'-0"



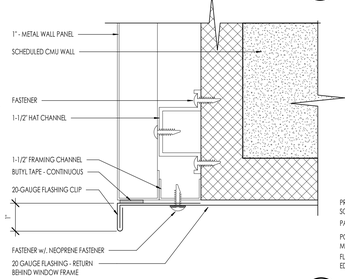
ALUMINUM - WINDOW CORNER 19 A604
3" = 1'-0"



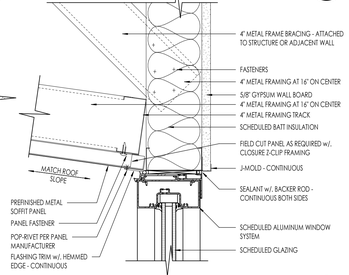
ALUMINUM - WINDOW SILL 20 A604
3" = 1'-0"



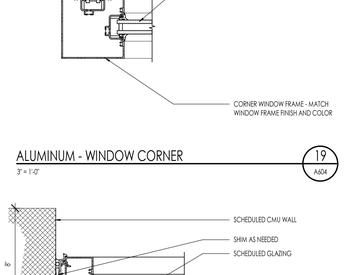
STANDING SEAM FLASHING DETAIL - HEAD 21 A604
6" = 1'-0"



1"- PANEL FLASHING DETAIL - HEAD 22 A604
6" = 1'-0"



ALUMINUM - WINDOW HEAD @ ENTRY SOFFIT 2 25 A604
3" = 1'-0"



ALUMINUM - WINDOW JAMB @ CMU WALL 23 A604
3" = 1'-0"

ALUMINUM - WINDOW HEAD @ ENTRY SOFFIT 1 24 A604
3" = 1'-0"

STANDING SEAM FLASHING DETAIL - SILL 27 A604
6" = 1'-0"

1" - PANEL FLASHING DETAIL - SILL 28 A604
6" = 1'-0"

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ARIZONA, U.S.A.
EXPIRES 09/30/2025

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
WINDOW DETAILS

SHEET NUMBER:
A604

BID SET

Plot Date: 4/21/2025 6:56:38 AM

GENERAL STRUCTURAL NOTES

A. GENERAL

1. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE STRUCTURAL ENGINEERS IN THIS OR SIMILAR LOCALITIES. THEY ASSUME THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKMEN WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

2. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, LAGGING, SHORING, BRACING, FORM-WORK, ETC. AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. CONSTRUCTION MATERIALS SHALL BE UNIFORMLY SPREAD OUT SUCH THAT DESIGN LIVE LOAD PER SQUARE FOOT AS NOTED HEREIN IS NOT EXCEEDED.

3. DESIGN OF ITEMS NOT PART OF THE PRIMARY STRUCTURAL SYSTEM (SUCH AS STAIRS, RAILINGS, NON-STRUCTURAL WALLS) AND PREFABRICATED STRUCTURAL ITEMS (SUCH AS FLOOR, ROOF TRUSSES) SHALL BE PROVIDED BY OTHERS UNLESS SPECIFICALLY NOTED ON THESE DRAWINGS. REFER TO SUBMITTALS SECTION FOR ITEMS THAT MUST BE SUBMITTED FOR REVIEW AND FOR SUBMITTAL REQUIREMENTS.

4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONDITIONS AND ELEVATIONS WITH ARCH'L. DRAWINGS AND RESOLVE ANY DISCREPANCIES WITH THE ARCHITECT PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCH'L., MECH., PLUMBING AND ELECTRICAL WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.

5. TYPICAL DETAILS AND NOTES SHALL APPLY, THOUGH NOT NECESSARILY INDICATED AT A SPECIFIC LOCATION ON PLANS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT. DETAILS MAY SHOW ONLY ONE SIDE OF CONNECTION OR MAY OMIT INFORMATION FOR CLARITY.

6. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.

7. STANDARDS AND CODE REFERENCES NOTED IN THESE CONSTRUCTION DOCUMENTS REFER TO THE EDITIONS ADOPTED BY THE BUILDING CODE SPECIFIED IN THE BASIS FOR DESIGN. REFERENCES NOT SPECIFICALLY ADOPTED BY SAID BUILDING CODE REFER TO THE LATEST EDITION.

8. ALL INSPECTIONS REQUIRED BY THE BUILDING CODES, JURISDICTION, OR THESE PLANS SHALL BE PROVIDED BY AN INDEPENDENT INSPECTION COMPANY OR THE BUILDING DEPARTMENT. SITE VISITS BY THE ENGINEER DO NOT CONSTITUTE AN INSPECTION.

B. BASIS FOR DESIGN

1. BUILDING CODE: INTERNATIONAL BUILDING CODE 2018 w/ LOCAL AMENDMENTS

2. ROOF LOADS:
DEAD LOAD: 15 PSF
LIVE LOAD (REDUCIBLE): 20 PSF

3. WIND LOADS:
99 MPH BASIC WIND SPEED (V_{asd} = 77 MPH)
EXPOSURE C
INTERNAL PRESSURE COEFFICIENT (GC_{pi}) = 0.18
COMPONENT AND CLADDING WIND PRESSURE PER ASCE 7-16

4. SEISMIC LOADS:
SITE CLASS D (MEASURED)
SEISMIC DESIGN CATEGORY C
R = 2.0
SS = 0.188
S1 = 0.113
SDS = 0.200
SD1 = 0.178
SYSTEM: ORDINARY REINFORCED MASONRY SHEAR WALLS
ANALYSIS: EQUIVALENT LATERAL FORCE PROCEDURE
BASE SHEAR, V = CsW = 0.100 W

5. SNOW LOADS: NONE

6. RISK CATEGORY:
RISK CATEGORY II
SEISMIC IMPORTANCE FACTOR = 1.0

7. RAIN INTENSITY: 1 1/2"/HR (BASED ON 100-YR RAIN CYCLE)

C. FOUNDATION

1. FOUNDATIONS DESIGNED PER RECOMMENDATIONS BY WESTERN TECHNOLOGIES, REPORT NO. 25-224210-0, DATED AUGUST 9, 2024. SITE PREPARATION, GRADING, TESTS, INSPECTIONS, FIELD OBSERVATIONS, OR APPROVAL FROM THE GEOTECHNICAL ENGINEER RECOMMENDED BY THE GEOTECHNICAL REPORT AND ANY ADDENDA SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF FOUNDATIONS.

2. ALLOWABLE DEAD PLUS LIVE LOAD SOIL PRESSURE = 2000 PSF.

3. FOOTING EXCAVATIONS SHALL BE CLEAN AND FREE FROM LOOSE DEBRIS, STANDING WATER, OR UNCOMPACTED MATERIAL AT TIME OF CONCRETE PLACEMENT.

4. TRENCHES AND EXCAVATIONS UNDER OR ADJACENT TO FOUNDATIONS SHALL BE PROPERLY BACKFILLED AND COMPACTED.

5. WATER PROOFING AS MAY BE REQUIRED AT SOIL FACE OF WALLS BELOW GRADE SHALL BE BY OTHERS.

D. CONCRETE

1. ALL CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ACI 318 AND ACI 301, EXCEPT AS MODIFIED BY THE CONSTRUCTION DOCUMENTS.

2. DUE TO MODERATE SULFATE CONTENT OF THE ON-SITE SOILS, MIN. 28 DAY COMPRESSIVE STRENGTH, f'c, SHALL BE 4000 PSI AND MAX. WATER/CEMENT RATIO SHALL BE 0.50 FOR ALL CONCRETE IN CONTACT WITH SOIL. (FOUNDATION DESIGN BASED ON 2500 PSI.)

3. CONCRETE MIXES SHALL BE DESIGNED BY A CERTIFIED LABORATORY, STAMPED BY AN APPROPRIATELY LICENSED SPECIALTY ENGINEER, AND APPROVED BY THE ENGINEER OF RECORD. MIX DESIGNS SHALL INCLUDE THE PROJECT NAME AND INDICATE THEIR USE WITHIN THE STRUCTURE. MIX DESIGNS SHALL BE PROPORTIONED TO MINIMIZE SHRINKAGE AND HAVE PROVEN SHRINKAGE CHARACTERISTICS OF 0. 05% OR LESS BASED ON TESTING PER ASTM C157.

4. IF USED, EARLY STRENGTH CONCRETE SHALL BE PROPORTIONED TO DEVELOP THE 28 DAY COMPRESSIVE STRENGTH AT THE AGE REQUIRED BY THE CONTRACTOR. CONTRACTOR SHALL SUBMIT TEST DATA FOR REVIEW BY THE STRUCTURAL ENGINEER TO SUBSTANTIATE THE CONCRETE STRENGTH AT THE REQUIRED AGE.

5. ALL CONCRETE SHALL BE NORMAL WEIGHT OF 145 POUNDS PER CUBIC FOOT USING HARD ROCK AGGREGATES CONFORMING TO ASTM C33 U.N.O. THE AGGREGATE IN THE CONCRETE SHALL BE WELL GRADED. THE NOMINAL MAXIMUM SIZE OF THE COARSE AGGREGATE SHALL BE 1 1/2" FOR SLABS ON GRADE (1 1/2" MIX) AND 3/4" OR LESS FOR ALL OTHER CONCRETE, U.N.O.

6. MAX. SLUMP SHALL BE 5 INCHES (EXCEPTION: WHERE ADMIXTURES/PLASTICIZERS HAVE BEEN INCLUDED IN MIX DESIGN TO IMPROVE WORKABILITY, SLUMP LIMIT SHALL BE BASED ON ADMIXTURE MFR'S RECOMMENDATIONS). MIX WATER SHALL BE CLEAN AND POTABLE.

7. PORTLAND CEMENT SHALL CONFORM TO ASTM C150. TYPE V CEMENT SHALL BE USED FOR CONCRETE IN CONTACT WITH EARTH. TYPE II CEMENT MAY BE USED ELSEWHERE. CEMENT SHALL BE TYPE V WITH POZZOLAN WHERE CONCRETE IS IN CONTACT WITH SOIL CONTAINING VERY SEVERE SULFATE EXPOSURE.

8. FLY ASH MAY BE USED IN CONCRETE, SUBJECT TO APPROVAL BY THE ARCHITECT, PROVIDED THE FOLLOWING CONDITIONS ARE MET:

8.1. FLY ASH SHALL COMPLY WITH ASTM C618.

8.2. CEMENT CONTENT SHALL BE REDUCED A MINIMUM OF 15 PERCENT UP TO A MAXIMUM OF 25 PERCENT WHEN COMPARED TO AN EQUIVALENT CONCRETE MIX DESIGN WITHOUT FLY ASH. FLY ASH CONTENT SHALL NOT COMPRISE MORE THAN 35 PERCENT OF THE TOTAL CEMENTITIOUS CONTENT. THE WATER-CEMENT RATIO SHALL BE CALCULATED BASED ON THE TOTAL CEMENTITIOUS MATERIAL IN THE MIX.

8.3. CLASS F FLY ASH SHALL BE USED IN SULFATE RESISTANT CONCRETE WITH f'c EQUAL TO OR GREATER THAN 4000 PSI. CLASS C FLY ASH MAY BE USED ELSEWHERE.

9. WATER SOLUBLE CHLORIDE ION CONCENTRATIONS IN CONCRETE SHALL BE LIMITED PER ACI 318, SECTION 19.3.2.1, EXPOSURE CLASS "C1".

10. CALCIUM CHLORIDE SHALL NOT BE ADDED TO THE CONCRETE MIX.

11. TIME BETWEEN CONCRETE BATCHING AND PLACEMENT SHALL BE IN ACCORDANCE WITH ASTM C94.

12. CONCRETE MIXING, PLACEMENT AND QUALITY SHALL BE PER ACI 318. SYSTEMATICALLY MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED. SLABS ON GRADE NEED BE VIBRATED ONLY AROUND AND UNDER FLOOR DUCTS OR SIMILAR ELEMENTS. REMOVE ALL DEBRIS FROM FORMS BEFORE PLACING CONCRETE. CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL SO AS TO CAUSE SEGREGATION OF AGGREGATES. UNCONFINED FALL OF CONCRETE SHALL NOT EXCEED 5 FEET.

13. PROTECT CONCRETE FROM DAMAGE OR REDUCED STRENGTH DUE TO COLD OR HOT WEATHER IN ACCORDANCE WITH ACI 305 AND 306. CONTRACTOR SHALL TAKE SPECIAL CURING PRECAUTIONS TO MINIMIZE SHRINKAGE CRACKING OF CONCRETE SLABS.

14. ALL ITEMS TO BE CAST IN CONCRETE SUCH AS REINFORCEMENT, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC., SHALL BE SECURELY POSITIONED IN THE FORMS.

D. CONCRETE (CONT'D.)

15. CONSTRUCTION JOINT SURFACES SHALL BE CLEANED AND LAITANCE REMOVED. HORIZONTAL JOINT SURFACES SHALL BE ROUGHENED TO 1/4" AMPLITUDE. THOROUGHLY WET ALL JOINT SURFACES AND REMOVE STANDING WATER IMMEDIATELY PRIOR TO NEW CONCRETE PLACEMENT.

16. CONCRETE SHALL BE CURED IN ACCORDANCE WITH ACI 318, SECTION 26.5.3.2, UNLESS ALTERNATE METHODS HAVE BEEN APPROVED BY THE ARCHITECT AND ENGINEER. WHERE CURING COMPOUNDS HAVE BEEN APPROVED FOR SLAB CURING, CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING COMPATIBILITY OF COMPOUNDS WITH ANTICIPATED FLOOR FINISH (e.g., RESILIENT TILE) PRIOR TO CURING COMPOUND APPLICATION.

17. GROUT BENEATH COLUMN BASES OR BEARING PLATES SHALL BE 5000 PSI (MIN.) NON-SHRINK FLOWABLE GROUT. INSTALL GROUT BENEATH BEARING PLATES BEFORE FRAMING MEMBER IS INSTALLED. AT COLUMNS, INSTALL GROUT BENEATH BASE PLATES AFTER COLUMN HAS BEEN PLUMBED. FRAMING (NOT INCLUDING CONCRETE OVER STEEL DECK OR CONCRETE TOPPING AS OCCURS) MAY BE INSTALLED ONE LEVEL ABOVE BASE PLATE PRIOR TO PLACING GROUT BENEATH BASE PLATES. GROUT SHALL BE PLACED BENEATH BASE PLATES PRIOR TO INSTALLATION OF ANY FRAMING TWO OR MORE LEVELS ABOVE BASE PLATE. GROUT DEPTH SHALL BE 1 1/2" TYPICAL, OR SHALL BE SUFFICIENT TO ALLOW GROUT OR DRYPACK TO BE PLACED BENEATH PLATE WITHOUT VOIDS.

E. MASONRY

1. ALL MASONRY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH IBC 2104 AND TMS 602.

2. MASONRY COMPRESSIVE STRENGTH, f'm, SHALL BE 2000 PSI U.N.O. 28 DAY COMPRESSIVE STRENGTHS OF INDIVIDUAL COMPONENTS (i.e., BLOCK, GROUT, AND MORTAR) SHALL BE AS NOTED BELOW. BLOCK STRENGTH SPECIFIED IS BASED ON NET AREA. ALTERNATIVELY, STRENGTHS OTHER THAN THOSE LISTED BELOW MAY BE USED IF THE COMBINED SYSTEM ACHIEVES SPECIFIED VALUE OF f'm, AND MASONRY COMPRESSIVE STRENGTH IS VERIFIED BY THE PRISM TEST METHOD IN ACCORDANCE WITH ASTM C1314.

f'm:	BLOCK:	GROUT:	MORTAR:	MORTAR TYPE:
2000 PSI	2000 PSI	2000 PSI	2000 PSI	TYPE S

3. STRUCTURAL MASONRY SHALL BE HOLLOW, MEDIUM WEIGHT (115 PCF), LOAD-BEARING CONCRETE MASONRY UNITS CONFORMING TO ASTM C90. BLOCK TEST DATA BY A CERTIFIED LABORATORY SHALL BE SUBMITTED FOR REVIEW. ALL BLOCKS SHALL BE PLACED IN RUNNING BOND CONSTRUCTION U.N.O. WITH ALL VERTICAL CELLS IN ALIGNMENT.

4. GROUT SHALL CONFORM TO REQUIREMENTS OF IBC 2103.3. USE SUFFICIENT WATER FOR GROUT TO FLOW INTO ALL JOINTS OF THE MASONRY WITHOUT SEGREGATION. ONLY SOLID GROUT CELLS WITH REINFORCING UNLESS REQUIREMENT TO SOLID GROUT ENTIRE WALL IS SPECIFICALLY NOTED ON PLANS OR SCHEDULE. HOLD GROUT DOWN 1-1/2" BELOW TOP OF BLOCK AT GROUT LIFT JOINTS.

5. MORTAR MIX SHALL CONFORM TO REQUIREMENTS OF IBC 2103.2. SEE TABLE ABOVE FOR MORTAR TYPE. MORTAR THICKNESS SHALL NOT EXCEED 5/8 INCH.

6. GROUT AND MORTAR MIXES SHALL BE DESIGNED BY A CERTIFIED LABORATORY, STAMPED BY AN APPROPRIATELY LICENSED SPECIALTY ENGINEER, AND APPROVED BY THE ENGINEER OF RECORD. MIX DESIGNS SHALL INCLUDE THE PROJECT NAME AND INDICATE THEIR USE WITHIN THE STRUCTURE.

7. LAP REINFORCING BARS PER TYPICAL REBAR LAP SCHEDULE (MASONRY) U.N.O.

8. REINFORCING SHALL BE SECURED IN ITS PROPER POSITION WITHIN THE CELL TO PREVENT LATERAL DISPLACEMENT PRIOR TO GROUTING BY WIRE POSITIONERS OR OTHER SUITABLE DEVICES AT INTERVALS NOT EXCEEDING 10'-0" o.c. MAX.

9. MIN. WALL VERT. REINF., U.N.O. ON PLANS OR DETAILS, SHALL BE #5 BAR VERT. FULL HEIGHT IN CENTER OF GROUTED CELL AT ALL WALL INTERSECTIONS, CORNERS, WALL ENDS, JAMBS AT WALL OPENINGS, AND AT EACH SIDE OF CONTROL JOINTS. REFER TO PLAN FOR TYPICAL WALL VERT. REINF. SIZE AND SPACING. DOWEL ALL VERT. REINF. TO FOUNDATION WITH DOWELS TO MATCH AND LAP VERT. REINF.

10. MIN. WALL HORIZ. REINF., U.N.O. ON PLANS OR DETAILS, SHALL BE (2) #5 BARS IN CENTER OF 32" DEEP (MIN.) CONTINUOUS GROUTED BOND BEAM AT ELEVATED FLOOR AND ROOF LINES AND SINGLE #5 BAR IN CENTER OF 16" DEEP CONTINUOUS GROUTED BOND BEAM AT TOP OF PARAPET OR FREE STANDING WALL AND AT INTERVALS NOT TO EXCEED 48" o.c. PLACE BARS AT ELEVATED FLOOR AND ROOF LINES CONTINUOUS THROUGH CONTROL JOINTS. PROVIDE BENT BARS PER TYPICAL DETAILS TO MATCH AND LAP HORIZ. BOND BEAM REINF. AT CORNERS AND WALL INTERSECTIONS TO MAINTAIN BOND BEAM CONTINUITY. USE BOND BEAM UNITS AT HORIZ. REINF.

11. MIN. LINTEL, WHERE NOT NOTED ON PLANS, SHALL HAVE A MIN. OF (2) #5 CONTINUOUS HORIZ. BARS IN BOTTOM OF BOND BEAM OR LINTEL BLOCK AND SHALL BE GROUTED SOLID TO A MIN. DEPTH OF 24". SILLS SHALL BE REINFORCED WITH SINGLE #5 BAR IN BOND BEAM BLOCK GROUTED SOLID TO MIN. DEPTH OF 8". ALL LINTEL OR SILL REINF. AND GROUT SHALL EXTEND 2'-0" MIN. PAST JAMBS U.N.O. ON PLANS OR DETAILS.

12. MECH., ELECT., AND PLUMBING PENETRATIONS THRU MASONRY SHALL COMPLY WITH THE FOLLOWING:

12.1. DO NOT CUT ANY REINF. THAT MAY INTERFERE WITH PENETRATIONS. INSTALL ANY SLEEVES REQUIRED BY MECH., ELECT., OR PLUMBING PRIOR TO GROUTING.

12.2. PENETRATIONS SHALL NOT BE CORED OR CUT INTO MASONRY WITHOUT PRIOR WRITTEN APPROVAL OF ENGINEER THRU THE ARCHITECT.

12.3. PENETRATIONS THRU LINTELS, PILASTERS, AND JAMBS ARE PERMITTED ONLY WHERE SPECIFICALLY DETAILED.

12.4. CONDUIT AND PIPING PARALLEL TO PLANE OF WALL SHALL NOT BE EMBEDDED IN WALL U.N.O.

F. REINFORCING STEEL

1. REINFORCING STEEL SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH CURRENTLY ADOPTED ACI 318 AND CRSI'S MANUAL OF STANDARD PRACTICE.

2. REINFORCING STEEL SHALL CONFORM TO ASTM A615 OR ASTM A706 (A706 REQUIRED FOR ALL REINFORCING TO BE WELDED) AND SHALL BE GRADE 60 (f_y = 60 KSI) DEFORMED BARS U.N.O. REINFORCING IN SLABS ON GRADE MAY BE GRADE 40 (f_y = 40 KSI) DEFORMED BARS FOR ALL BARS #4 AND SMALLER U.N.O. ON PLANS OR DETAILS.

3. RECTANGULAR PLATE DOWELS AND SMOOTH ROUND DOWELS USED AT CONTROL AND CONSTRUCTION JOINTS IN SLABS ON GRADE SHALL CONFORM TO ASTM A36. REFER TO TYPICAL CONTROL JOINTS IN SLAB ON GRADE DETAIL FOR SIZE, PLACEMENT, SPACING, ETC. RECTANGULAR PLATE DOWELS SHALL BE BY PNA CONSTRUCTION TECHNOLOGIES (800-542-0214) OR OTHER MFR. APPROVED BY ENGINEER. INSTALL ALL PLATE DOWEL BASKET ASSEMBLIES PER MFR'S RECOMMENDATIONS.

4. ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLEAR" OR "CLR." ARE TO CENTER OF STEEL. CLEAR COVER FOR NON-PRESTRESSED CONCRETE REINFORCING SHALL BE AS NOTED BELOW, U.N.O. ON PLANS OR DETAILS. CLEAR COVER FOR PRESTRESSED CONCRETE AND FOR PRECAST CONCRETE MANUFACTURED UNDER PLANT CONTROL CONDITIONS SHALL BE PER ACI 318, SECTIONS 20.6.1.3.2 AND 20.6.1.3.3, RESPECTIVELY.

EXPOSURE CONDITION:	COVER:
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
EXPOSED TO EARTH OR WEATHER (INCLUDING SLABS ON GRADE)	
NO. 5 AND SMALLER	1 1/2"
NO. 6 AND LARGER	2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
STRUCTURAL SLABS, WALLS, JOISTS	
NO. 11 AND SMALLER	3/4"
NO. 14 AND LARGER	1 1/2"
BEAMS, COLUMNS (PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS)	1 1/2"

5. LAP SPLICES OF REINFORCING STEEL SHALL CONFORM TO TYPICAL REBAR LAP SCHEDULE U.N.O. NO TACK WELDING OF REINFORCING BARS ALLOWED. LATEST ACI CODE AND DETAILING MANUAL APPLY. AT WALLS AND FOOTINGS, PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZ. BARS AT ALL CORNERS AND INTERSECTIONS U.N.O. VERT. WALL BARS SHALL BE SPLICED AT OR NEAR FLOOR LINES. SPLICE TOP BARS AT CENTER LINE OF SPAN AND BOTTOM BARS AT THE SUPPORT IN SPANDRELS, BEAMS, GRADE BEAMS, ETC., U.N.O. ON PLANS OR DETAILS.

6. ALL REINFORCING SHALL BE BENT COLD. BARS SHALL NOT BE UN-BENT AND RE-BENT. FIELD BENDING OF REBAR SHALL NOT BE ALLOWED UNLESS SPECIFICALLY NOTED.

7. WELDING OF REINFORCING BARS, METAL INSERTS, AND CONNECTIONS SHALL BE MADE ONLY AT LOCATIONS SHOWN ON PLANS OR DETAILS. SEE WELDING SECTION OF G.S.N. FOR ADDITIONAL REQUIREMENTS.

8. REINFORCING BAR SPACINGS SHOWN ON PLANS ARE MAX. ON CENTER DIMENSIONS. DOWEL ALL VERT. REINFORCING TO FOUNDATION. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE. MIN. CLEAR SPACING BETWEEN PARALLEL REINFORCEMENT SHALL BE THE LARGER OF 1-1/2 TIMES NOMINAL BAR DIA. OR 1-1/3 TIMES MAX. AGGREGATE SIZE OR 1-1/2". CLEAR SPACING LIMITATION APPLIES ALSO TO CLEAR DISTANCE BETWEEN A CONTACT LAP SPLICE AND ADJACENT SPLICES OR BARS.

G. COLD-FORMED STEEL

1. ALL COLD-FORMED STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH MFR'S RECOMMENDATIONS AND IN ACCORDANCE WITH THE LATEST EDITION OF "NORTH AMERICAN SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" BY AISI.

2. STRUCTURAL DRAWINGS TYPICALLY SHOW ONLY THE PRIMARY STRUCTURAL FRAMING ELEMENTS OF THE SYSTEM. CONTRACTOR SHALL PROVIDE ALL ACCESSORIES INCLUDING TRACKS, WEB STIFFENERS, BLOCKING, LINTELS, CLIP ANGLES, REINFORCEMENTS, FASTENING DEVICES, BRACING, AND OTHER ACCESSORIES AS RECOMMENDED BY THE MFR. TO PROVIDE A COMPLETE FRAMING SYSTEM.

3. STEEL FOR 54, 68, 97 AND 118 MILS THICK (16, 14, 12 AND 10 GAGE) STUDS AND JOISTS SHALL HAVE A MIN. YIELD STRENGTH OF 50 KSI. STEEL FOR ALL THINNER STUDS AND JOISTS, ALL THICKNESSES OF TRACK, ALL DIAGONAL TENSION STRAPS AND BRACES, AND BRIDGING SHALL HAVE A MIN. YIELD STRENGTH OF 33 KSI. STEEL SHALL BE GALVANIZED OR THOROUGHLY COATED WITH RUST INHIBITIVE PAINT AT ALL LOCATIONS.

4. FASTENING OF COMPONENTS SHALL BE WITH SELF-TAPPING SCREWS OR WELDS. ALL WELDS OF GALVANIZED STEEL SHALL BE TOUCHED UP WITH ZINC-RICH PAINT. ALL WELDS OF CARBON SHEET STEEL SHALL BE TOUCHED UP WITH RUST INHIBITIVE PAINT.

5. SCREWS SHALL BE SELF-TAPPING PAN HEAD, HEX HEAD, OR WAFER HEAD SHEET METAL SCREWS. SCREWS WHICH ARE REMOVED SHALL BE REPLACED BY A SCREW OF A LARGER DIA. WHERE THE REPLACEMENT IS MADE INTO AN EXISTING HOLE. REPLACE ALL SCREWS WHICH STRIP OUT MATERIAL. SCREWS SHALL BE SPACED NO CLOSER THAN 5/8" o.c. AND WITH A MIN. FREE EDGE DISTANCE OF 1/2". CLIP ANGLES OR FLAT CLIPS USED FOR ATTACHMENTS SHALL BE 20 GAGE MIN., U.N.O. SIZE CLIP ANGLES AND FLAT CLIPS TO MAINTAIN MIN. SCREW SPACING AND EDGE DISTANCES NOTED ABOVE. ALL SCREWS #8 AND LARGER SHALL HAVE A MIN. HEAD SIZE OF 5/16".

6. ALL WELDING SHALL BE PERFORMED BY WELDERS EXPERIENCED IN COLD-FORMED STEEL FRAMING WORK. ALL WELDING SHALL USE E60 SERIES ELECTRODES (MIN. ROD DIA. = 1/8") AND SHALL CONFORM WITH THE LATEST AMERICAN WELDING SOCIETY STANDARDS.

7. ALL STUDS SHALL BE SECURELY SEATED FOR FULL END BEARING ON TOP AND BOTTOM TRACK. U.N.O., PROVIDE DOUBLE STUDS AT ALL JAMBS, CORNERS, INTERSECTIONS, AND BEAM BEARING.

8. WALL STUD BRIDGING AS RECOMMENDED BY THE STUD MFR. SHALL BE INSTALLED TO PREVENT BOTH WEAK AXIS BENDING AND STUD ROTATION AT 4'-0" MAX. INTERVALS. WALLS 8'-0" AND SHORTER SHALL HAVE A SINGLE ROW OF BRIDGING AT MID-HEIGHT. ADDITIONALLY, BRIDGING SHALL BE PROVIDED AT ROOF LINES AND WHERE NOTED ON THE DRAWINGS. SOLID BLOCKING SHALL BE INSTALLED IN LIEU OF BRIDGING WHERE NOTED ON THE DRAWINGS.

9. STUDS, JAMBS AND TRIMMERS SIZES WHERE NOT SPECIFICALLY NOTED ON DRAWINGS SHALL BE 350S162-33 MIN. TRACK SIZE WHERE NOT SPECIFICALLY NOTED SHALL BE 350T125-33 MIN.

10. JOISTS, STUDS, TRACK, ETC. SHALL HAVE STEEL THICKNESS AND EFFECTIVE SECTION PROPERTIES AS LISTED IN THE STEEL STUD MFR.'S ASSOCIATION PRODUCT TECHNICAL GUIDE, ICC ESR-3064P, OR EQUIVALENT.

H. STRUCTURAL STEEL BOLTS, ANCHORS, HEADED STUDS

1. STRUCTURAL STEEL BOLTS, ANCHORS, ETC., SHALL CONFORM TO THE FOLLOWING STANDARDS AND MATERIAL PROPERTIES U.N.O.:

COMPONENT:	STANDARD:	Fy:
BOLTS	ASTM F3125, GRADE A325	---
	OR GRADE A490 WHERE NOTED	---
NUTS	ASTM A563	---
WASHERS	ASTM F436	---
ANCHOR RODS	ASTM F1554, GRADE 36	36 KSI
	OR GRADE 55 WHERE NOTED	55 KSI
	OR GRADE 105 WHERE NOTED (GRADE 55 RODS SHALL COMPLY WITH WELDABILITY SUPPLEMENT S1)	105 KSI
WASHERS (AT ANCHOR RODS)	ASTM A36	36 KSI
	OR ASTM F844 (USS STANDARD) (F844 WASHERS PERMITTED ONLY FOR 3/4" DIA. RODS AT 1 1/16" MAX. DIA. PUNCHED HOLES IN BASE PLATE WHERE NO WELD REQ'D BETWEEN WASHER AND BASE PLATE)	---

2. ALL BOLTS SHALL BE INSTALLED AS SNUG-TIGHTENED JOINTS WITH THREADS EXCLUDED FROM SHEAR PLANE (TYPE 'X' CONNECTION) U.N.O. HIGH-STRENGTH BOLT ASSEMBLIES SHALL BE IN ACCORDANCE WITH THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS" AND SHALL BE SNUG TIGHTENED USING ANY AISC APPROVED METHOD U.N.O. ALL BOLTS IN SLOTTED OR OVERSIZED HOLES AND ALL HIGH-STRENGTH BOLTS SHALL BE INSTALLED WITH HARDENED WASHERS.

3. THE STEEL DETAILER SHALL COORDINATE ALL FIELD-INSTALLED ERECTION BOLTS AT STEEL JOIST BEARING LOCATIONS WITH THE STEEL JOIST SUPPLIER.

4. ALL ANCHOR RODS AT STEEL COLUMN BASE PLATES SHALL BE RODS WITH THREADS BOTH ENDS WITH HEAVY HEX NUT FULLY THREADED ONTO EMBEDDED END. TACK WELD NUT TO ROD OR SPOIL THREADS TO PREVENT NUT FROM BACKING OFF. ANCHOR RODS SHALL NOT BE REPAIRED, REPLACED OR FIELD-MODIFIED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OF RECORD.

5. ALL CONNECTIONS INVOLVING WOOD MEMBERS, INCLUDING THOSE WITH THREADED ROD, THREADED STUDS, FOUNDATION ANCHOR BOLTS, THRU-BOLTS, ETC., SHALL USE ASTM A307 MATERIAL U.N.O. ALL BOLTS, ANCHOR BOLTS, EXPANSION BOLTS, ETC., SHALL BE INSTALLED WITH STEEL WASHERS AT FACE OF WOOD.

6. HEADED STEEL STUDS AND AUTOMATIC WELDED DOWELS SHOWN ON PLANS OR DETAILS SHALL BE BY NELSON STUD WELDING, INC., PER ICC ESR-2856 AND ICC ESR-2907, RESPECTIVELY. STUDS SHALL HAVE FLUXED ENDS AND BE AUTOMATICALLY END-WELDED WITH SUITABLE EQUIPMENT (NO FILLET WELDING OF STUDS PERMITTED U.N.O.) AT SPACINGS INDICATED ON THE PLANS OR DETAILS. WELDING OF STUDS SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1 AND AWS C5.4. HEADED STUDS AND AUTOMATIC WELDED DOWELS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY ARE OF EQUIVALENT CAPACITY FOR THE INTENDED APPLICATION AND HAVE CURRENT ICC APPROVAL.

7. WHERE A SPECIFIC EXPANSION ANCHOR, SCREW ANCHOR, OR EPOXY PRODUCT IS SPECIFIED ON PLANS OR DETAILS, ONLY THE SPECIFIED PRODUCT SHALL BE USED AND NO SUBSTITUTIONS ARE ALLOWED. WHERE AN EXPANSION ANCHOR, SCREW ANCHOR, OR EPOXY PRODUCT IS SPECIFIED ON PLANS OR DETAILS BUT A SPECIFIC PRODUCT IS NOT STATED, ANY OF THE RESPECTIVE PRODUCTS LISTED BELOW ARE ACCEPTABLE. THE USE OF PRODUCTS NOT INCLUDED BELOW IS NOT ALLOWED. ALL PRODUCTS SHALL BE INSTALLED WITH SPECIAL INSPECTION.

7.1. EXPANSION ANCHORS IN CONCRETE SHALL BE HILTI KB-TZ2 (ICC ESR-4266), SIMPSON STRONG-BOLT 2 (ICC ESR-3037), OR DEWALT POWER-STUD+ SD2 (ICC ESR-2502) U.N.O. EXPANSION ANCHORS IN MASONRY SHALL BE SIMPSON STRONG-BOLT 2 (IAPMO ER-0240), HILTI KWIK BOLT 3 (ICC ESR-1385) OR DEWALT POWER-STUD+ SD1 (ICC ESR-2966). EXPANSION ANCHORS SHALL BE INSTALLED WITH SPECIAL INSPECTION.

7.2. SCREW ANCHORS SHALL BE DEWALT SCREW-BOLT+ PER ICC ESR-4042 FOR MASONRY AND ICC ESR-3889 FOR CONCRETE, SIMPSON TITEN HD PER ICC ESR-1056 FOR MASONRY AND ICC ESR-2713 FOR CONCRETE, HILTI KWIK HUS-EZ PER ICC ESR-3056 FOR MASONRY AND ICC ESR-3027 FOR CONCRETE. SCREW ANCHORS SHALL BE INSTALLED WITH SPECIAL INSPECTION.

7.3. EPOXY ANCHORS IN CONCRETE (ALL-THREAD, REBAR, ETC.) SHALL USE HILTI HIT-RE 500 V3 (ICC ESR-3814), SIMPSON SET-3G (ICC ESR-4057), OR DEWALT PURE110+ (ICC ESR-3298) U.N.O. ALL EPOXY ANCHORS IN MASONRY (ALL-THREAD, REBAR, ETC.) SHALL USE SIMPSON SET-XP (IAPMO ER-0265), HILTI HIT-HY 270 (ICC ESR-4143) OR DEWALT AC100+ GOLD (ICC ESR-3200) U.N.O. EPOXY ANCHORS SHALL BE INSTALLED WITH SPECIAL INSPECTION.

I. WOOD

1. SAWN FRAMING LUMBER SHALL COMPLY WITH THE GRADING RULES OF THE WESTERN WOOD PRODUCTS ASSOCIATION OR THE WEST COAST LUMBER INSPECTION BUREAU. ALL SAWN LUMBER SHALL BE STAMPED WITH THE GRADE MARK OF AN APPROVED LUMBER GRADING AGENCY. SAWN LUMBER SHALL HAVE THE FOLLOWING MIN. GRADE, U.N.O.:

USE:	MATERIAL:
2x4 TOP PLATES	DOUGLAS FIR STANDARD GRADE
2x6 TOP PLATES	DOUGLAS FIR NO. 2
ALL STUDS, BLOCKING	DOUGLAS FIR NO. 2
2x BOTTOM PLATES	DOUGLAS FIR STANDARD GRADE
6x BEAMS AND 6x POSTS	DOUGLAS FIR NO. 1
JOISTS AND ALL OTHER SAWN LUMBER	DOUGLAS FIR NO. 2

2. ALL FRAMING LUMBER SHALL HAVE A MAXIMUM 19% MOISTURE CONTENT AT TIME OF INSTALLATION AND FABRICATION.

3. LUMBER RESTING ON CONCRETE OR MASONRY SHALL COMPLY WITH IBC 2304.12. FASTENERS IN PRESERVATIVE-TREATED WOOD SHALL COMPLY WITH EITHER IBC 2304.10.5 OR ICC REPORT APPLICABLE TO THE WOOD PRESERVATIVE TREATMENT.

4. GLUE-LAMINATED (GLULAM) BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4 U.N.O. FABRICATION AND HANDLING SHALL CONFORM WITH THE LATEST AITC AND ASTM STANDARDS. BEAMS SHALL BEAR AN APPROPRIATE GRADE STAMP CLEARLY NOTING ITS DESIGN PROPERTIES. BEAMS SHALL BE MFR'D WITH 3500 FT. RADIUS OF CURVATURE UNLESS ALTERNATE CAMBER IS SPECIFICALLY NOTED ON THE DRAWINGS. GLULAM BEAMS WITH 1/2" DIMENSION WIDTHS MAY BE USED IN LIEU OF THE 1/8" DIMENSION WIDTHS SPECIFIED ON PLANS (i.e. 5 1/2" WIDTH MAY BE USED IN LIEU OF 5 1/8" WIDTH AND NOT VICE VERSA).

I. WOOD (CONT'D.)

5. LAMINATED STRAND LUMBER (LSL) SHALL BE WEYERHAUSER TIMBERSTRAND LSL (ICC ESR-1387). MINIMUM GRADE SHALL BE AS FOLLOWS:

MEMBER WIDTH:	MEMBER DEPTH:	MINIMUM GRADE:
1 1/2"	ALL	1.6E
2 1/2"	ALL	1.6E
1 3/4"	ALL	1.55E
3 1/2"	9 1/4" OR MORE	1.55E
3 1/2"	8 5/8" OR LESS	1.3E

6. LAMINATED VENEER LUMBER (LVL) SHALL BE WEYERHAUSER MICROLLAM LVL (ICC ESR-1387), LOUISIANA PACIFIC GANG-LAM (ICC ESR-2403), OR BOISE CASCADE VERSA-LAM (ICC ESR-1040). GRADE SHALL BE 1.9E OR HIGHER. EXCEPTION: LVL RIM BOARD SHALL BE GRADE 1.3E OR HIGHER. CONNECTION OF MULTIPLE PLY BEAMS SHALL BE PER MFR'S. SPECIFICATIONS.

7. DO NOT NOTCH OR DRILL TRUSSES, JOISTS, OR BEAMS U.N.O. WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER THROUGH THE ARCHITECT. PROVIDE 2" (NOMINAL) SOLID BLOCKING BETWEEN 2x JOISTS AT BEARING, U.N.O.

8. ALL BOLTS SHALL BE INSTALLED IN HOLES BORED WITH A BIT 1/16 INCH LARGER THAN THE DIA. OF THE BOLT. BOLTS AND NUTS SEATING ON WOOD SHALL HAVE CUT STEEL WASHERS UNDER HEADS AND NUTS. SPOIL THREADS TO PREVENT LOOSENING. LAG BOLTS SHALL BE INSTALLED IN PRE-DRILLED HOLES BY TURNING WITH A WRENCH.

9. PREFABRICATED WOOD I-JOISTS SHALL BE LOUISIANA PACIFIC LPI SERIES (ICC ESR-1305), TRUS JOIST TJI SERIES (ICC ESR-1153), OR BOISE BCI SERIES (ICC ESR-1336). REFER TO FRAMING PLAN NOTES FOR SPECIFIC DEPTHS, SPACING, AND SERIES. I-JOISTS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE APPROPRIATE ICC REPORT. I-JOIST HANGERS SHALL BE SIMPSON ITS OR MIT SERIES OR EQUAL, U.N.O. ON PLAN. ALL I-JOIST AND HANGER SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER.

10. ALL WOOD CONSTRUCTION CONNECTORS SHOWN ON PLANS OR DETAILS SHALL BE SIMPSON STRONG-TIE OR EQUAL U.N.O. HARDWARE BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY ARE OF EQUIVALENT CAPACITY FOR THE INTENDED APPLICATION AND HAVE CURRENT ICC APPROVAL. SUCH SUBSTITUTIONS MUST BE APPROVED BY THE EOR. HARDWARE SHALL BE INSTALLED WITH ALL REQ'D. FASTENERS PER MFR'S. SPEC'S. STRAPS OF HEAVIER GAGE THAN SPECIFIED ON PLANS MAY BE USED w/ MIN. FASTENER REQUIREMENTS PER PLAN (e.g. CS16 w/ (16) 0.131x2 1/2" NAILS IN LIEU OF CS20 w/ (16) 0.131x2 1/2" NAILS).

11. SEE FOUNDATION PLAN FOR BOTTOM PLATE ANCHORAGE REQUIREMENTS.

12. ALL NAILS EXCEPT 16d NAILS SHALL BE COMMON NAILS U.N.O. 16d NAILS MAY BE 16d SINKER, 16d BOX, 10d-131 OR 12d COMMON U.N.O. (EXCEPTION: WOOD CONSTRUCTION CONNECTORS SHALL BE PER MFR'S. SPECIFICATIONS.) NAILS SHALL BE DRIVEN SO THAT HEADS ARE FLUSH WITH WOOD SURFACE. OVER-OR UNDER-DRIVEN SHEATHING NAILS AT SHEAR WALL, ROOF, AND FLOOR SHEATHING PANELS, WHERE THICKNESS IS MINIMAL, CAN RESULT IN REDUCED CAPACITY. IF NO MORE THAN 20% OF THE FASTENERS AROUND THE PERIMETER OF PANELS ARE OVERDRIVEN BY UP TO 1/8", THE PANEL IS ACCEPTABLE. IF MORE THAN 20% OF THE FASTENERS AROUND THE PERIMETER OF PANELS ARE OVERDRIVEN, OR IF ANY ARE OVERDRIVEN BY MORE THAN 1/8", ADDITIONAL FASTENERS SHALL BE DRIVEN. FOR EVERY TWO FASTENERS OVERDRIVEN, ONE ADDITIONAL FASTENER SHALL BE DRIVEN. ALL OTHER CONDITIONS WHERE 1-1/2" OR GREATER MEMBERS ARE FASTENED TOGETHER (GENERAL FRAMING), OVERDRIVEN FASTENERS DO NOT AFFECT THE CAPACITY OF THE CONNECTION.

NAIL SIZE:	SHANK DIA:	LENGTH:	NAIL SIZE:	SHANK DIA.:	LENGTH:
16d COMMON	.162"	3 1/2"	12d COMMON	.148"	3 1/4"
16d SINKER	.148"	3 1/4"	10d COMMON	.148"	3"
16d BOX	.135"	3 1/2"	8d COMMON	.131"	2 1/2"
10d-131	.131"	3"			

13. ALL PLYWOOD SHALL BE LAID WITH FACE GRAIN PERPENDICULAR TO SUPPORTS, SHALL BE C-D OR C-C SHEATHING CONFORMING TO IBC 2303.1.5 AND SHALL CONFORM TO THE FOLLOWING NOMINAL THICKNESS, SPAN RATING AND NAILING PATTERN U.N.O.:

THICKNESS:	SPAN RATING	EDGE NAILING:	FIELD NAILING:
3/8"	24/0	8d AT 6" o.c.	8d AT 12" o.c.
7/16"	24/16	8d AT 6" o.c.	8d AT 12" o.c.
15/32"	32/16	8d AT 6" o.c.	8d AT 12" o.c.
19/32"	40/20	10d AT 6" o.c.	10d AT 12" o.c.
3/4"	48/24	10d AT 6" o.c.	10d AT 12" o.c.
1"	60/48	10d AT 6" o.c.	10d AT 12" o.c.
1 1/8"	60/48	10d AT 6" o.c.	10d AT 12" o.c.

14. A.P.A. PERFORMANCE RATED SHEATHING (OSB) MAY BE USED AS AN ALTERNATE TO PLYWOOD. RATED SHEATHING SHALL COMPLY WITH PRP-108 OR USDOC-PS2, EXPOSURE 1, AND SHALL HAVE A SPAN RATING EQUIVALENT TO OR BETTER THAN THE PLYWOOD IT REPLACES. ATTACHMENT AND THICKNESS SHALL BE THE SAME AS THE PLYWOOD IT REPLACES. INSTALL PER MFR'S RECOMMENDATIONS.

15. FOR PLYWOOD OR A.P.A. RATED SHEATHING: FULL WIDTH PANELS SHALL BE USED WHEREVER POSSIBLE. AT ROOF SHEATHING, PANELS 16" TO 24" WIDE SHALL HAVE EDGES SUPPORTED BY 2x BLOCKING OR (2) PSCL CLIPS BETWEEN EACH SUPPORTING MEMBER AND PANELS 12" TO 16" WIDE SHALL HAVE EDGES SUPPORTED BY 2x BLOCKING. PROVIDE EDGE NAILING AT ALL BLOCKED PANEL EDGES.

16. SHEAR PANEL BLOCKING NOTED ON PLANS OR DETAILS SHALL BE CONSTRUCTED OF 2x SOLID FRAMING w/ 3/8" MIN. PLYWOOD w/ 8d AT 6" o.c. U.N.O. AND SHALL BE NAILED TO ADJACENT TRUSSES w/ MIN. (2) 16d TOP AND BOTTOM. ALL SHEAR PANEL BLOCKS MAY HAVE (1) 4" MAX. DIA. HOLE IN THE CENTER OF THE PANEL. (1) SHEAR PANEL BLOCK ABOVE EACH SW1-SW13 MAY HAVE A 17" MAX. DIA. HOLE IF THE SHEAR PANEL BLOCKS ABOVE THE SHEAR WALL HAVE BOUNDARY FASTENERS AT 3" o.c. SHEAR PANEL BLOCKS ABOVE A SW14 OR GREATER MAY NOT BE PENETRATED w/ A HOLE LARGER THAN 4" IN DIA. SHEAR PANEL BLOCKS NOT ABOVE A SHEAR WALL MAY HAVE (1) 17" MAX. DIA. HOLE IF THE BLOCKS EXTEND 8'-0" OR MORE, U.N.O.

17. WHERE BRIDGING INTERFERES WITH MECH. OR OTHER INSTALLATIONS, REMOVE BRIDGING AFTER DECK IS IN PLACE AND REPLACE WITH ADDITIONAL MFR. SUPPLIED HORIZ. STRUT BRACING AT TOP AND BOTTOM CHORDS.

18. BEAMS OR TWO PLY (OR LARGER) GIRDER TRUSSES BEARING ON TOP PLATES SHALL BE ATTACHED TO TOP PLATES WITH A34 ONE SIDE AND (2) 16d TOENAILS OTHER SIDE, U.N.O. ON PLAN.

19. THE FOLLOWING IS A LIST OF ICC-ES OR IAPMO ES REPORTS NOT SPECIFIED ELSEWHERE:

REPORT:	HARDWARE:
IAPMO-0112	LTP4, A35, A34, 44, H2A, H2.5T, L, RBC
ESR-2236	SDS SCREWS
ESR-2330	DHU, PHD, HDQ8, HHDQ
ESR-2105	ST, HST, MST, LSTA, MSTA, MSTC, MSTI, CS, CMST, CMSTC16
ESR-2549	LU, U, HU, HUC, LUS, MUS, HUS, HHUS, SUR/L, HGUS
ESR-2613	H, LTS, MTS, HTS, SPH
ESR-1622	AB, ABA, ABE, ABU
ESR-2604	CC, ECC, CCQ, ECCQ, AC, EAC, LPC, PC, EPC
ESR-2553	JB, LB, W, WNP, WNPU, HW, HWU, HUTF
ESR-2615	GLTV, HGLTV, HHB, GB, HGB, HHBD, W, WP, WPU, WNP, WNPU, HW, HWU, GLT, HGLT, GLS, HGLS, GLST, HGLST, EG, MEG, LEG, MSC
ESR-2608	SS, HSS, RPS
ESR-2551	LSU, LSSU, LSSUI, THS, THAC, THAI, VPA
ESR-2552	IUS, OUT, U, HU, HUS, HUS, HHUS, SUR/L, HSUR/L
ESR-2555	MASA

STANDARD ABBREVIATIONS

A.B.	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
A.C.S.	ALL COMMON SURFACES
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALT.	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
A.R.	ANCHOR ROD
ARCH'L.	ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATS	ANCHOR TIE-DOWN SYSTEM
AWS	AMERICAN WELDING SOCIETY
B.F.	BOUNDARY FASTENERS
B.F.F.	BELOW FINISH FLOOR
BOT.	BOTTOM
BRG.	BEARING
CANT.	CANTILEVERED
C.J.	CONTROL JOINT
C.J.P.	COMPLETE JOINT PENETRATION
℄	CENTER LINE
CLR.	CLEAR DIMENSION TO FACE OF REBAR
COL.	COLUMN
CONT.	CONTINUOUS
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
DIA.	DIAMETER
DIAG.	DIAGONAL
DWG.	DRAWING
E.F.	EACH FACE
ELECT.	ELECTRICAL
ELEV.	ELEVATION
E.O.R.	ENGINEER OF RECORD
EQ.	EQUAL
EP	END POST
ES	END STUD(S)
ESR	EVALUATION SERVICE REPORT
E.W.	EACH WAY
F.F.	FINISH FLOOR
FLR.	FLOOR
FT.	FOOT
FTG.	FOOTING
GA.	GAUGE
GLB	GLULAM BEAM
G.S.N.	GENERAL STRUCTURAL NOTES
G.T.	GIRDER TRUSS
HORIZ.	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS
IBC	INTERNATIONAL BUILDING CODE
ICC	INTERNATIONAL CODE COUNCIL
I.D.	INSIDE DIAMETER
INFO.	INFORMATION
JT.	JOINT
K	KIP (1,000 LBS)
K.O.	KNOCKOUT
KP	KING POST
KS	KING STUD(S)
KSI	KIPS PER SQUARE INCH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSL	LAMINATED STRAND LUMBER
LVL	LAMINATED VENEER LUMBER
MFR.	MANUFACTURER
MAX.	MAXIMUM
MECH.	MECHANICAL
MIN.	MINIMUM
MISC.	MISCELLANEOUS
N.T.S.	NOT TO SCALE
o.c.	ON CENTER
O.D.	OUTSIDE DIAMETER
OPP.	OPPOSITE
P	POST
PL.	PLATE
PLF	POUNDS PER LINEAR FOOT
PLYWD.	PLYWOOD
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
RCSC	RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS
REQ'D.	REQUIRED
SIM.	SIMILAR
SLRS	SEISMIC LOAD RESISTING SYSTEM
SPEC.	SPECIFICATION
STD.	STANDARD
STK	STACKED
SW	SHEAR WALL
T & B	TOP AND BOTTOM
T & G	TONGUE AND GROOVE
THRU	THROUGH
T.O.	TOP OF
T.O.D.	TOP OF DECK
T.O.F.	TOP OF FOOTING
T.O.L.	TOP OF LEDGER
T.O.S.	TOP OF STEEL
T.O.W.	TOP OF WALL
TP	TRIMMER POST
TS	TRIMMER STUD(S)
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
w/	WITH
w/o	WITHOUT
WT.	WEIGHT

SHEET INDEX

- INDICATES PREVIOUSLY / CURRENTLY ISSUED SETS

PLAN CHECK

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☐	●	S0.2	GENERAL STRUCUTRAL NOTES CONT'D.
☐	●	S0.3	SCHEDULES AND NOTES
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PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
GENERAL STRUCTURAL NOTES AND ABBREVIATIONS

SHEET NUMBER:
S0.1

GENERAL STRUCTURAL NOTES (CONT'D.)

J. EXTERIOR ANCHOR BOLT SUBSTITUTIONS

1. EXTERIOR ANCHOR BOLTS ARE DEFINED AS ANCHOR BOLTS LOCATED LESS THAN 6" FROM SLAB EDGES, STEPS, TURN DOWNS, OPENINGS, OR SIMILAR DISCONTINUITIES AND DO NOT INCLUDE ANCHORS FOR HOLDOWNS. EXTERIOR ANCHOR BOLT SUBSTITUTIONS ARE PERMITTED AS LISTED IN THIS SECTION.

2. BOLT-TYPE SUBSTITUTIONS IN SHEAR WALLS SHALL BE INSTALLED w/ PLATE WASHERS PER SHEAR WALL SCHEDULE.

3. SIMPSON MASA STRAPS MAY BE SUBSTITUTED (1) STRAP FOR (1) ANCHOR BOLT AT NON-SHEAR WALLS AND PER THE FOLLOWING SUBSTITUTION TABLE AT SHEAR WALLS. BLOCKING W/ CLIP SHALL BE INSTALLED PER MFR. RECOMMENDATIONS WHERE MASA IS INSTALLED OVER SHEATHING. DF SILL PLATE ONLY.

SHEARWALL:	MASA (OVER 8W SHEATHING)	MASA (TYP. INSTALL BENEATH 8W SHEATHING) (2) MIN. PER 8W
8W9	38" o.c.	33" o.c.
8W11	17" o.c.	14" o.c.
8W12	13" o.c.	11" o.c.
8W13	12" o.c.	10" o.c.
8W14	11" o.c.	10" o.c.
8W15	10" o.c.	8" o.c.
8W16	10" o.c.	8" o.c.

4. 1/2" DIA. THREADED CONCRETE ANCHORS AT THE SAME SPACING MAY BE USED IN LIEU OF UET-SET ANCHOR BOLTS AT EXTERIOR NON-SHEAR WALLS. 1/2" DIA. THREADED CONCRETE ANCHORS AT 2:1 (THREADED ANCHORS : UET SET ANCHORS) RATIO MAY BE USED IN LIEU OF UET-SET ANCHORS AT EXTERIOR SHEAR WALLS. ALL THREADED CONCRETE ANCHORS SHALL BE EMBEDDED 4", SHALL BE SPACED NOT CLOSER THAN 5 1/2" o.c. AND SHALL BE SIMPSON TITEN HD (ICC ESR-2713). AT 3x OR LARGER BOTTOM PLATES, SCREW ANCHORS AND PLATE WASHERS MAY BE COUNTERSUNK UP TO 1/2" INTO BOTTOM PLATE TO ACHIEVE REQ'D EMBEDMENT.

K. SPECIAL INSPECTION

1. IN ADDITION TO STANDARD INSPECTIONS BY THE BUILDING OFFICIAL REQUIRED PER IBC SECTION 110, THE OWNER SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS WHO SHALL PROVIDE INSPECTIONS DURING CONSTRUCTION FOR THE TYPES OF WORK LISTED IN THIS SECTION.

2. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE SPECIAL INSPECTOR AT LEAST 24 HOURS NOTICE PRIOR TO PERFORMING ANY WORK REQUIRING SPECIAL INSPECTION.

4. THE SPECIAL INSPECTOR SHALL INSPECT THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED CONTRACT DRAWINGS AND SPECS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, THE ENGINEER OF RECORD, AND OTHER DESIGNATED PERSONS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE ENGINEER AND THE BUILDING OFFICIAL. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE, IN CONFORMANCE WITH THE APPROVED PLANS AND SPECS AND THE APPLICABLE CODE PROVISIONS.

5. INSPECTORS SHALL INSPECT FROM AN APPROVED SET OF CONTRACT DRAWINGS. SHOP DRAWINGS SHALL NOT BE USED IN LIEU OF THE APPROVED CONTRACT DRAWINGS FOR INSPECTION PURPOSES.

6. TYPES OF WORK TO BE INSPECTED BY THE SPECIAL INSPECTOR ARE AS FOLLOWS:

6.1. EPOXY ANCHORS IN CONCRETE - INSPECTION OF EPOXY ANCHORS IN CONCRETE SHALL BE PERIODIC, U.N.O. INSTALLATIONS SHALL BE PERFORMED BY QUALIFIED PERSONNEL TRAINED (BY MANUFACTURER) TO INSTALL ADHESIVE ANCHORS AND THEY SHALL FOLLOW THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII). AT THE TIME OF INSTALLATION, THE CONCRETE SHALL HAVE ACHIEVED A MINIMUM AGE OF 28 DAYS, BE DRY, AND BE BETWEEN 50 DEGREES F AND 104 DEGREES F. THE HOLES SHALL BE DRILLED WITH A HAMMER DRILL TO THE DIMENSIONS LISTED IN THE MPII AND SHALL BE CLEANED USING THE BLOW-BRUSH-BLOW TECHNIQUE REQUIRED IN THE MPII. WHERE ANCHORS ARE INSTALLED INTO LIGHTWEIGHT CONCRETE, IT IS ASSUMED THAT THE CONCRETE IS CLASSIFIED AS ALL-LIGHTWEIGHT CONCRETE AS DEFINED IN ACI 318. ANY ADHESIVE ANCHORS INSTALLED HORIZONTALLY (EXCEPT FOR ANCHORS IN A SLAB-ON-GRADE) OR UPWARDLY INCLINED SHALL BE INSTALLED BY PERSONNEL WITH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM, OR EQUIVALENT AND SHALL BE INSTALLED WITH CONTINUOUS SPECIAL INSPECTION.

6.2. EPOXY ANCHORS IN MASONRY - EPOXY ANCHORS IN MASONRY SHALL BE INSTALLED WITH PERIODIC SPECIAL INSPECTION. INSTALLATIONS SHALL BE PERFORMED BY QUALIFIED PERSONNEL TRAINED (BY MANUFACTURER) TO INSTALL ADHESIVE ANCHORS AND THEY SHALL FOLLOW THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII).

6.3. SCREW ANCHORS AND EXPANSION ANCHORS IN CONCRETE OR MASONRY - SCREW ANCHORS AND EXPANSION ANCHORS SHALL BE INSTALLED WITH PERIODIC SPECIAL INSPECTION. INSTALLATIONS SHALL BE PERFORMED BY QUALIFIED PERSONNEL TRAINED (BY MANUFACTURER) TO INSTALL SCREW/EXPANSION ANCHORS AND THEY SHALL FOLLOW THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII).

6.4. CONCRETE CONSTRUCTION PER IBC SECTION 1705.3 AND TABLE 1705.3.

CONCRETE CONSTRUCTION SPECIAL INSPECTIONS			
	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
1.	INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT.	-	X
2.	REINFORCING BAR WELDING:	-	
	A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	-	X
	B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"	-	X
	C. INSPECT ALL OTHER WELDS	X	-
3.	INSPECT ANCHORS CAST IN CONCRETE	-	X
4.	INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.		
	A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	-
	B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.	-	X
5.	VERIFYING USE OF REQUIRED DESIGN MIX.	-	X
6.	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-
7.	INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-
8.	VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X
9.	INSPECTION OF PRESTRESSED CONCRETE:		
	A. APPLICATION OF PRESTRESSING FORCES.	X	-
	B. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC-FORCE-RESISTING SYSTEM	X	-
10.	INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	-	X
11.	VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	-	X
12.	INSPECTION OF FORM WORK FOR SHAPE, LOCATION, AND DIMENSION OF THE CONCRETE MEMBER BEING FORMED.	-	X

L. SPECIAL INSPECTION (CONT'D.)

6.5. MASONRY CONSTRUCTION PER IBC SECTION 1705.4 AND TMS 602 TABLES 3 AND 4.
1. PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS.
2. PRIOR TO CONSTRUCTION, VERIFICATION OF f'm AND f'AAC, EXCEPT WHERE SPECIFICALLY EXEMPTED BY CODE.
3. DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO PROJECT SITE.

TMS 602 TABLE 4 - LEVEL 2			
	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
1.	AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:		
	A. PROPORTIONS OF SITE-PREPARED MORTAR	-	X
	B. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES	-	X
	C. GRADE, TYPE AND SIZE OF REINFORCEMENT CONNECTORS, ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	-	X
	D. PRESTRESSING TECHNIQUE	-	X
	E. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X	-
	F. SAMPLE PANEL CONSTRUCTION	-	X
2.	PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:		
	A. GROUT SPACE	-	X
	B. PLACEMENT PRESTRESSING TENDONS AND ANCHORAGES	-	X
	C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	-	X
	D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	X
3.	VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:		
	A. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	-	X
	B. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	-	X
	C. SIZE AND LOCATION OF STRUCTURAL MEMBERS	-	X
	D. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	-	X
	E. WELDING OF REINFORCEMENT	X	-
	F. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)	-	X
	G. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X	-
	H. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	X	-
	I. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X	-
4.	OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS	-	X

6.6. STEEL CONSTRUCTION AND WELDING PER IBC SECTION 1704.3 AND TABLE 1704.3.

IBC TABLE 1704.3			
	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
1.	MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:		
	A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X
	B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	X
2.	INSPECTION OF HIGH-STRENGTH BOLTING:		
	A. BEARING-TYPE CONNECTIONS.	-	X
	B. SLIP-CRITICAL CONNECTIONS.	X	X
3.	MATERIAL VERIFICATION OF STRUCTURAL STEEL:		
	A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	-
	B. MANUFACTURER'S CERTIFIED MILL TEST REPORTS.	-	-
4.	MATERIAL VERIFICATION OF WELD FILLER MATERIALS:		
	A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	-
	B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	-
5.	INSPECTION OF WELDING:	-	-
	A. STRUCTURAL STEEL:	-	-
	1) COMPLETE AND PARTIAL PENETRATION GROOVE WELDS.	X	-
	2) MULTIPASS FILLET WELDS.	X	-
	3) SINGLE-PASS FILLET WELDS > 5/16"	X	-
	4) SINGLE-PASS FILLET WELDS ≤ 5/16"	-	X
	5) FLOOR AND DECK WELDS.	-	X
	B. REINFORCING STEEL:	-	-
	1) VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.	-	X
	2) REINFORCING STEEL-RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL REINFORCED CONCRETE SHEAR WALLS AND SHEAR REINFORCEMENT.	X	-
	3) SHEAR REINFORCEMENT.	X	-
	4) OTHER REINFORCING STEEL.	-	X
6.	INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS:	-	X
	A. DETAILS SUCH AS BRACING AND STIFFENING.	-	-
	B. MEMBER LOCATIONS.	-	-
	C. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	-	-

7. CERTIFICATE OF APPROVAL REGARDING MATERIALS AND INSPECTION OF PREFABRICATED ITEMS SHALL BE PROVIDED IN ACCORDANCE WITH IBC SECTION 1704.

M. SUBMITTALS

1. SHOP DRAWINGS OR REPORTS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD PRIOR TO FABRICATION OR CONSTRUCTION (AS APPLICABLE) U.N.O.:

   HIGH STRENGTH GROUT/DRYPACK
   MASONRY BLOCK TEST DATA
   MASONRY PRISM TESTS
   REINFORCING STEEL
   STRUCTURAL STEEL

2. CONTRACTOR SHALL REVIEW AND STAMP SHOP DRAWINGS PRIOR TO SUBMITTING. CONTRACTOR'S REVIEW SHALL CHECK FOR COMPLETENESS/COMPLIANCE WITH CONTRACT DOCUMENTS.

3. SHOP DRAWINGS ARE REVIEWED BY ENGINEER ONLY FOR GENERAL COMPLIANCE WITH THE STRUCTURAL DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR. SHOP DRAWINGS DO NOT SUPERSEDE OR REPLACE THE CONTRACT DRAWINGS OR SPECIFICATIONS. CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DRAWINGS AND/OR SPECIFICATIONS WILL NOT BE ACCEPTED VIA SHOP DRAWING REVIEW. ALL SUCH MODIFICATIONS SHALL BE SUBMITTED SEPARATELY FOR ENGINEER'S REVIEW.

4. PREFABRICATED COMPONENTS, SPECIALTY ITEMS, OR DESIGN-BUILD ELEMENTS NOTED ON THE STRUCTURAL DRAWINGS, BUT WHICH REQUIRE THE MFR. OR SUPPLIER TO PROVIDE THE DESIGN, SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ARCHITECT AND/OR ENGINEER FOR REVIEW AS A DEFERRED SUBMITTAL. DEFERRED SUBMITTALS REQ'D BY THE STRUCTURAL ENGINEER OF RECORD SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

   CONCRETE MIX DESIGNS
   ENGINEERED WOOD JOISTS AND BEAMS
   MASONRY GROUT AND MORTAR MIX DESIGNS
   NON-BEARING METAL STUDS
   SUPPORT/ANCHORAGE OF MECH, ELECT, AND PLUMBING EQUIPMENT AND COMPONENTS

5. DEFERRED SUBMITTALS SHALL INCLUDE CALCULATIONS AND DRAWINGS PREPARED AND STAMPED BY AN APPROPRIATELY LICENSED ENGINEER (SPECIALTY ENGINEER) SHOWING LOCATION AND MAGNITUDE OF LOADS, CONFIGURATION AND SIZE OF MEMBERS, AND COMPATIBILITY OF SUBMITTAL ITEM WITH THE PRIMARY STRUCTURAL SYSTEM.

6. THE PURPOSE OF THE STRUCTURAL ENGINEER'S REVIEW OF DEFERRED SUBMITTALS SHALL BE LIMITED TO DETERMINING THAT THE DRAWINGS AND CALCULATIONS HAVE BEEN PROPERLY SEALED, THAT THE LOAD CRITERIA IS IN GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS AND WITH THE REFERENCED BUILDING CODE, THAT CONNECTIONS TO THE PRIMARY STRUCTURE ARE COMPATIBLE WITH THE PRIMARY DESIGN AND THAT THE PRIMARY STRUCTURE IS CAPABLE OF SUPPORTING THE IMPOSED LOADS.

7. THE STRUCTURAL ENGINEER WILL RELY UPON THE SPECIALTY ENGINEER'S SEAL AS CERTIFICATION THAT THE ITEMS DESIGNED BY THE SPECIALTY ENGINEER COMPLY WITH THE CRITERIA SET FORTH IN THE CONTRACT DOCUMENTS AND APPLICABLE CODES AND STANDARDS. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ADEQUACY OF DESIGNS PROVIDED BY OTHERS.

8. FOR ALL SUBMITTALS, ANY CORRECTIONS NOTED WILL BE MARKED ON ONE (1) COPY SET ONLY AND RETURNED. ADDITIONAL COPIES OF ANY SUBMITTAL WILL BE RETURNED UNMARKED. CONTRACTOR SHALL BE RESPONSIBLE FOR REPRODUCING ENGINEER'S CORRECTIONS ON ADDITIONAL COPIES REQ'D. ONE COPY SET MAY BE RETAINED FOR THE ENGINEER'S RECORDS. ALLOW FIVE (5) TO TEN (10) WORKING DAYS FOR THE ENGINEER'S REVIEW.

9. REFER TO APPLICABLE G.S.N. SECTIONS FOR FURTHER REQUIREMENTS SPECIFIC TO INDIVIDUAL SUBMITTALS.

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PROJECT NO. 24-077
DATE: 21 APRIL 2025

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BID SET

SHEET TITLE:
GENERAL STRUCUTRAL NOTES CONT'D.

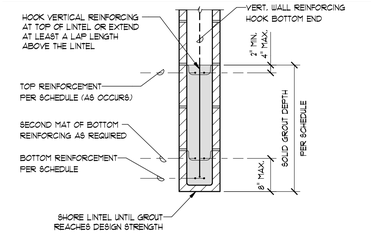
SHEET NUMBER:
S0.2

JOIST (J) SCHEDULE

NOTE: JOISTS MAY BEAR DIRECTLY ON BEAMS, WALLS, ETC OR MAY HANG PER SCHEDULE BELOW AT THE CONTRACTORS DISCRETION EXCEPT WHERE SHOWN SPECIFICALLY IN THE TYPICAL DETAILS.

MARK	JOIST SIZE	SPACING	OPTIONAL JOIST HANGER(S)	NOTES
J1	11 7/8" TJI 210	24" o.c.	IT82.06/11.88	MFR. TO PROVIDE LATERAL BRACING AS REQ'D
J2	11 7/8" TJI 360	19.2" o.c.	IT82.37/11.88	MFR. TO PROVIDE LATERAL BRACING AS REQ'D
J3	11 7/8" TJI 360	16" o.c.	-	MFR. TO PROVIDE LATERAL BRACING AS REQ'D

MASONRY LINTEL (ML) SCHEDULE



A. EXTEND GROUT, OPEN END MASONRY UNITS AND REINFORCING 2'-0" MIN. PAST EACH EDGE OF OPENING WHERE POSSIBLE. AT WALL CORNERS OR OTHER INTERFERENCE, EXTEND REINFORCEMENT AS FAR AS POSSIBLE INTO ADJACENT MASONRY AND HOOK ENDS WITH STANDARD 90 DEGREE HOOK.

B. ENDS OF LINTEL TO BE BUILT INTO ADJACENT WALL OR PILASTER WITH RUNNING BOND JOINT.

C. VERTICAL REINFORCING SPACING IN LINTEL SHALL NOT BE GREATER THAN VERTICAL REINFORCING SPACING IN ADJACENT WALL.

MARK	GROUT DEPTH	REINFORCING	VERTICAL REINFORCING	NOTES
ML1	16"	(2) #5 AT BOTTOM	#5 AT 8" o.c.	-
ML2	24"	(2) #5 AT BOTTOM	#5 AT 8" o.c.	-
ML3	24"	(2) #5 AT BOTTOM	#5 AT 8" o.c.	REFER TO DETAIL 2018/S4.1

MASONRY JAMB (MJ) SCHEDULE

EXAMPLE DESIGNATION: MJ1 (6) #5 - 32"
① ② ③ ④

① MASONRY JAMB TYPE PER SCHEDULE BELOW

② TOTAL NUMBER OF JAMB BARS AS NOTED ON PLAN. ACTUAL NUMBER OF BARS SPECIFIED ON PLAN MAY BE MORE OR LESS THAN SHOWN IN EXAMPLE PROFILES BELOW

③ JAMB BAR SIZE AS NOTED ON PLAN (EX: #4, #5, #6, ETC.)

④ SOLID GROUT DISTANCE AS NOTED ON PLAN. MASONRY JAMB TYPE "MJ2" SHALL BE SOLID GROUTED BETWEEN OPENINGS.

⑤ EDGE OF WALL OPENING

⑥ CENTER OF BEAM OR GIRDER BEARING LOCATION

⑦ CENTER JAMB REINFORCING AND SOLID GROUT ON BEAM OR GIRDER BEARING LOCATION

⑧ PROFILES SHOWN IN SCHEDULE BELOW ARE FOR ILLUSTRATION PURPOSES ONLY. ACTUAL BAR QUANTITY, SIZE, AND GROUT DISTANCE SHALL CONFORM TO ACTUAL PLAN DESIGNATIONS.

MARK	PROFILE ⑧
MJ1	
MJ2	
MJ3	

STEEL COLUMN (SC) SCHEDULE

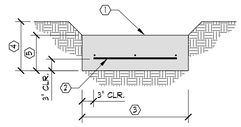
A. FOR BASE PLATE CONFIGURATION, A.R. PATTERN, AND COLUMN-TO-BASE- PLATE CONNECTION, SEE TYPICAL COLUMN BASE PLATE SCHEDULE OR DETAIL

B. STANDARD EFFECTIVE ANCHOR ROD EMBEDMENT = 1 1/2" U.N.O. EFFECTIVE EMBEDMENT SPECIFIED DENOTES MIN. DISTANCE REQ'D. BETWEEN T.O. CONCRETE AND T.O. EMBEDDED NUT U.N.O.

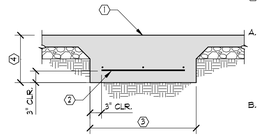
C. ORIENT LONG DIMENSION OF BASE PLATE PARALLEL TO WEB OF WIDE FLANGE COLUMN U.N.O.

MARK	SIZE	BASE PLATE	NOTE
SC1	HSS4x4x1/4	1/2"x10"x10" w/ (4) 3/4" DIA. A.R.	-

FOOTING (F) SCHEDULE



ISOLATED / CONTINUOUS FOOTING



THICKENED SLAB FOOTING

① SEE PLAN AND DETAILS FOR EMBEDDED ITEMS AND CONSTRUCTION ABOVE FOOTING

② REBAR

③ WIDTH / LENGTH

④ THICKNESS PER SCHEDULE OR EMBEDMENT DEPTH PER FOUNDATION PLAN NOTES

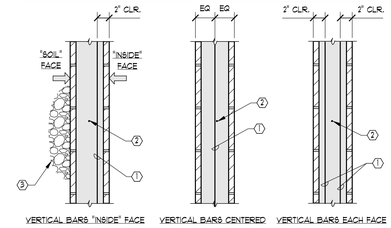
⑤ THICKNESS

A. REBAR IN CONTINUOUS FOOTINGS SHALL EXTEND THROUGH ISOLATED FOOTINGS WHERE BOTH FOOTINGS OCCUR AT THE SAME LOCATION

B. B. REFER TO REFERENCED SOILS REPORT FOR PREPARATION OF SOIL

MARK	WIDTH	LENGTH	THICKNESS	FOOTING REBAR	NOTES
FC1	1'-6"	CONT.	1'-6"	(2) #5 TOP AND BOTTOM BARS	-
F1	2'-3"	2'-3"	1'-0"	(3) #4 TOP AND BOTTOM BARS, EACH WAY	HOOK BARS AT END OF FOOTING PER DETAIL 01

MASONRY WALL (MW) SCHEDULE



① VERT. REINFORCING

② HORIZ. REINFORCING

③ BACKFILL AT "SOIL" FACE AS OCCURS

MARK	NOMINAL THICKNESS	VERT. REINFORCING FULL WALL HEIGHT	HORIZ. REINFORCING	NOTES
MW1	8"	#5 AT 32" o.c. CENTERED	#5 AT 32" o.c.	SPECIAL INSPECTION GROUT SOLID
MW2	8"	#5 AT 16" o.c. CENTERED	#5 AT 32" o.c.	SPECIAL INSPECTION GROUT SOLID
MW3	8"	#5 AT 16" o.c. EACH FACE	#5 AT 32" o.c.	SPECIAL INSPECTION GROUT SOLID
MW4	8"	#5 AT 8" o.c. EACH FACE	#5 AT 32" o.c.	SPECIAL INSPECTION GROUT SOLID

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PROJECT NO. 24-077
DATE: 21 APRIL 2025

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SHEET TITLE:
SCHEDULES AND NOTES

SHEET NUMBER:
S0.3

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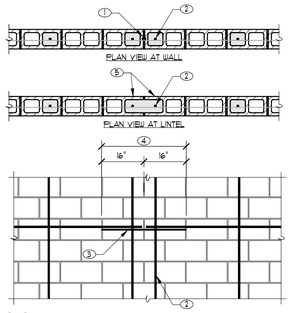


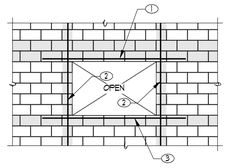
1. FILLER MATERIAL PER ARCH'L
2. VERTICAL REINFORCING EACH SIDE OF C.J.
3. 1/2" DIA. x 32" LONG SMOOTH ROD AT EACH HORIZONTAL REINFORCING BAR. GREASE BOTH ENDS
4. STOP TYPICAL HORIZONTAL REINFORCING AT CONTROL JOINTS. ONLY HORIZONTAL REINFORCING AT THE FLOOR LINE, ROOF LINE AND TOP OF WALL TO RUN THROUGH THE CONTROL JOINT
5. OPEN END BLOCK BACK TO BACK

A. LOCATE CONTROL JOINTS WHERE SHOWN ON PLAN. WHERE NOT SPECIFICALLY NOTED ON PLAN, LOCATE AT 24'-0" MAX. o.c. VERIFY LOCATION COMPATIBILITY WITH ARCH'L PRIOR TO PLACEMENT

B. CONTROL JOINTS IN LINTELS SHALL BE LOCATED AT MID-SPAN U.N.O. LINTEL REINFORCING AT BOTTOM OF LINTEL TO BE CONTINUOUS THROUGH CONTROL JOINT

09 TYPICAL MASONRY CONTROL JOINT (MCJ)

M01-01 181204 — NO SCALE

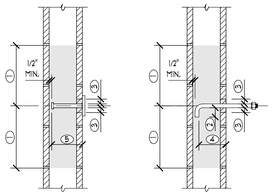


1. LINTEL PER PLAN SCHEDULE, OR G.B.N. EXTEND 24" MIN. PAST EDGE OF OPENING
2. JAMB PER PLAN SCHEDULE, OR G.B.N.
3. SILL PER G.B.N. EXTEND 24" MIN. PAST EDGE OF OPENING

A. BEND HORIZONTAL BARS AT INTERFERENCE AT CORNERS AS OCCURS

10 TYPICAL OPENING IN MASONRY WALL

M01-04 080304 — NO SCALE



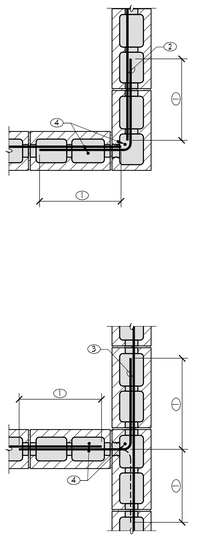
1. MASONRY WALL SHALL BE SOLID GROUTED 12" MIN. IN EACH DIRECTION
2. 3 TIMES THE DIAMETER OF THE ANCHOR BOLT
3. 1" CLEAR BETWEEN BOLT AND MASONRY. FILL w/ GROUT
4. EMBEDMENT PER TABLE, U.N.O.

BOLT DIA.	EMBEDMENT
1/2"	4"
5/8"	5"
3/4"	5"
7/8"	7"
1"	8"

5. HEADED STUD LENGTH PER PLAN/DETAIL

11 TYPICAL EMBEDDED BOLT OR HEADED STUD

M01-15 191118 — NO SCALE



1. LENGTH PER TYPICAL REBAR LAP SCHEDULE
2. BENT REBAR SIZE TO MATCH HORIZ. WALL REINF.
3. BENT REBAR SIZE TO MATCH HORIZ. WALL REINF. ALTERNATE DIRECTIONS
4. VERTICAL REINF. PER G.B.N.
5. STANDARD HOOK OR OPTIONAL 180° HOOK AT EACH END OF HORIZONTAL BARS. PLACE HOOK VERTICALLY OR INCLINED AS REQ'D.
6. JAMB REINF. PER PLAN OR G.B.N. AS OCCURS

A. WHERE WALL HORIZ. REINF. ARE AT DIFFERENT ELEVATIONS FROM EACH OTHER, PROVIDE BENT BAR IN SOLID-GROUTED CELLS AT EACH HORIZ. BAR S/M. TO THIS DETAIL.

12 TYPICAL MASONRY WALL INTERSECTION AND OPENINGS

M01-17 080304 — NO SCALE

1. CENTER BARS ARE BARS PLACED AT MID-THICKNESS OF CMU
2. USE EDGE BAR LAP LENGTHS FOR BARS NOT MEETING CENTER BAR CRITERIA AND WHERE CLR. COVER TO END OF WALL IS LESS THAN CLR. COVER TO FACE OF WALL

NORMAL CMU THICKNESS	BAR SIZE	REBAR LAP LENGTH 1 2 f'm = 2000 PSI		f'm = 2500 PSI		f'm = 1500 PSI	
		CENTER BARS	EDGE BARS	CENTER BARS	EDGE BARS	CENTER BARS	EDGE BARS
6"	#3	12	13	12	12	12	15
	#4	18	22	16	20	20	26
	#5	28	35	25	31	32	40
	#6	53	54	47	54	54	54
8"	#3	12	13	12	12	12	15
	#4	17	22	12	20	17	26
	#5	20	35	18	31	23	40
	#6	38	54	34	54	43	54
	#7	52	63	47	63	60	63
	#8	72	72	71	72	72	72
10"	#3	12	13	12	12	12	15
	#4	12	22	12	20	12	26
	#5	16	35	14	31	18	40
	#6	29	54	26	54	34	54
	#7	40	63	36	63	46	63
	#8	61	72	55	72	71	72
	#9	78	82	71	82	82	82
12"	#3	12	13	12	12	12	15
	#4	12	22	12	20	12	26
	#5	13	35	12	31	15	40
	#6	24	54	21	54	28	54
	#7	33	63	29	63	38	63
	#8	50	72	45	72	57	72
	#9	64	82	57	82	74	82

A. ALL TABULATED VALUES ARE IN UNITS OF INCHES U.N.O.

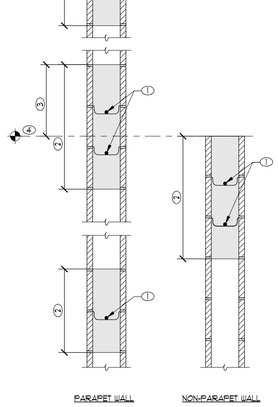
B. AT CONTRACTOR'S OPTION, MECHANICAL SPLICE COUPLERS PER G.B.N. MAY BE USED IN LIEU OF LAP SPLICES

C. BAR DEVELOPMENT LENGTH, WHERE NOTED ON PLANS OR DETAILS, SHALL BE EQUAL TO TABULATED LAP LENGTH

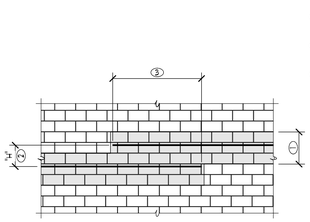
D. SCHEDULED VALUES ARE BASED ON UNCOATED REINF. FOR EPOXY COATED REBAR, MULTIPLY TABULATED VALUES BY 1.5

06 TYPICAL REBAR LAP SCHEDULE (MASONRY)

BCH02-06A 191112 — NO SCALE



1. HORIZONTAL REINFORCING PER PLAN OR G.B.N.
2. GROUT DEPTH PER PLAN OR G.B.N. CENTER REINFORCING AT APPROXIMATE CENTER OF GROUT
3. GROUT 8" MIN. ABOVE ELEVATED FLOOR OR ROOF LINE
4. ELEVATED FLOOR OR ROOF LINE
5. TOP OF PARAPET



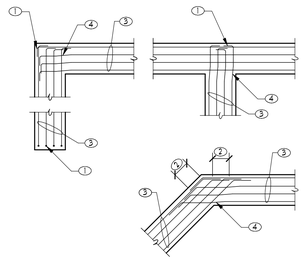
1. BOND BEAM DEPTH AND REINFORCING PER PLAN OR G.B.N.
2. STEP IN BOND BEAM "H" AS OCCURS. 24" MAX. PER STEP
3. SPECIAL LAP LENGTH EQUAL TO LAP LENGTH PER SCHEDULE PLUS "H"

A. SHADED AREA INDICATES EXTENT OF BOND BEAM GROUT

B. VERTICAL REINFORCING AND ADDITIONAL GROUTED CELLS AS OCCURS NOT SHOWN FOR CLARITY

08 TYPICAL STEP IN HORIZONTAL BOND BEAM

M01-03 080304 — NO SCALE



1. STANDARD 90° HOOK, TYP.
2. LAP LENGTH PER SCHEDULE
3. TOP AND BOTTOM REINF. PER FOOTING SCHEDULE
4. STANDARD REBAR OFFSET WHERE BARS CROSS, TYP.

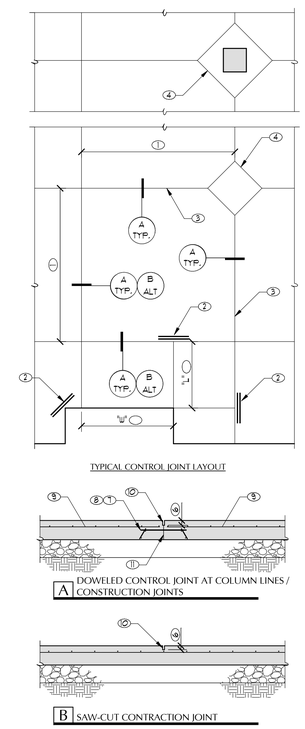
04 FOOTING REINFORCING AT CORNERS AND INTERSECTIONS (PLAN VIEW)

F01-32 200506 — NO SCALE

C. WHERE COLUMN LINES ARE NOT PRESENT, SPACING OF DOWELED CONTROL JOINTS AS SHOWN IN SECTION "A" SHALL NOT EXCEED 120 x SLAB THICKNESS OR 50', WHICHEVER IS LESS. BAY LENGTH TO WIDTH RATIO SHALL NOT EXCEED 1.5. PROVIDE SAW-CUT CONTROL JOINTS BETWEEN DOWELED JOINTS AT MAX. SPACING NOTED IN SCHEDULE

D. WHERE SLAB IS UNREINFORCED OR CONTAINS ONLY FIBER REINF. PER G.B.N., ALL CONTROL JOINTS SHALL BE MADE PER SECTION "A"

DOWEL SCHEDULE				
SLAB THICKNESS	DOWEL DIMENSIONS		MAX. o.c. SPACING	
	RECT.	ROUND	RECT.	ROUND
4" TO 6"	3/8" x 2" x 12"	3/4" DIA. x 14"	24"	24"
7" TO 8"	1/2 x 2 1/2" x 12"	1" DIA. x 16"	24"	24"
9" TO 11"	3/4" x 2 1/2" x 12"	1 1/4" DIA. x 18"	24"	24"



1. JOINTS TO BE EQUALLY SPACED BETWEEN COLUMN LINES EACH DIRECTION NOT TO EXCEED MAX. SPACING PER SCHEDULE

JOINT SPACING SCHEDULE	
SLAB THICKNESS	MAX. SPACING
4"	11'
5"	13'
6"	14'
7"	16'
8"	17'
9"	18'
10"	20'
11"	21'

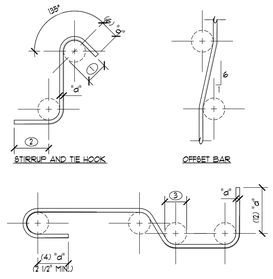
2. PLACE (2) #4 x 48" BARS AT MID-HEIGHT OF SLAB ADJACENT TO ALL DISCONTINUOUS JOINT LOCATIONS. CENTER ON JOINT
3. ALIGN CONTROL JOINT IN EACH DIRECTION w/ COLUMN, TYP. AT INTERIOR COLUMNS. AT EDGE COLUMNS, ALIGN CONTROL JOINT IN DIRECTION PERPENDICULAR TO SLAB EDGE
4. COLUMN ISOLATION JOINT PER TYPICAL DETAIL
5. WHERE CONTROL JOINT SECTIONS ARE RECTANGULAR, WIDTH "W" SHALL NOT EXCEED 1.5 TIMES LENGTH "L"
6. DEPTH EQUAL TO 1/4 SLAB THICKNESS
7. RECTANGULAR PLATE DOWEL (PREFERRED) OR SMOOTH ROUND DOWEL (PERMITTED ALTERNATE) PER G.B.N. w/ SIZE AND SPACING PER SCHEDULE. CENTER ACROSS JOINT AT MID-HEIGHT OF SLAB. FOR PLATE DOWELS, INSTALL DOWELS AND CLIPS PER MFR'S RECOMMENDATIONS. FOR ROUND DOWELS, APPLY THIN BOND BREAKER COATING FULL LENGTH OF DOWEL
8. DOWELS SHALL BE PERPENDICULAR TO CONTROL JOINT AND PLACED 6" CLR. MIN. (PLATE DOWELS) OR 12" CLR. MIN. (ROUND DOWELS) FROM JOINT INTERSECTIONS. DOWEL BASKETS SHALL BE USED TO MAINTAIN ALIGNMENT OF DOWELS WHILE CONCRETE IS POURED (USE DOWEL ALIGNERS AT CONSTRUCTION JOINTS)
9. STOP SLAB REINF. (AS OCCURS) EACH SIDE OF JOINT. SUPPORT OF TYP. SLAB REINF. SHALL BE INDEPENDENT FROM DOWELS
10. SAW-CUT JOINT. SAW CUT SHALL BE MADE w/ EARLY ENTRY SAW SOON ENOUGH TO PREVENT SHRINKAGE CRACKING, BUT NOT SO SOON AS TO CAUSE SPALLING
11. CONSTRUCTION JOINT NEED ONLY OCCUR AT EXPOSED EDGES OF DISCONTINUOUS SLAB PLACEMENT U.N.O. APPLY BOND BREAKER TO JOINT PRIOR TO SECOND POUR (DO NOT ROUGHEN JOINT). IF CONSTRUCTION JOINT IS TO BE FILLED, TOOL TOP EDGE TO 1/8" MAX. RADIUS AND SAW CUT JOINT TO A DEPTH OF 1"

A. TOOLED JOINT OF EQUIVALENT DEPTH MAY BE USED IN LIEU OF SAW-CUT JOINT

B. AS AN ALTERNATE TO RECTANGULAR PLATE DOWELS SPECIFIED ABOVE, USE FNA.9 FD3 TAPERED PLATE DOWELS OF EQUIVALENT SIZE SPACED AT 21" o.c. MAX. INSTALL BASKET ASSEMBLIES PER MFR.'S RECOMMENDATIONS

05 TYPICAL CONTROL JOINTS IN SLAB ON GRADE

F01-26 080908 — NO SCALE



1. MINIMUM FINISHED BEND DIA. FOR STIRRUPS AND TIES ONLY (4) "d" FOR #3 BAR AND SMALLER, (6) "d" FOR #6 THRU #8. TYPICAL
2. (6) "d" FOR #3 AND SMALLER (12) "d" FOR #6 THRU #8
3. MINIMUM FINISHED BEND DIA. FOR ALL REINFORCING EXCEPT STIRRUPS AND TIES (6) "d" UP TO #8 BAR, (8) "d" FOR #9 THRU #11, (12) "d" FOR #14 AND #18

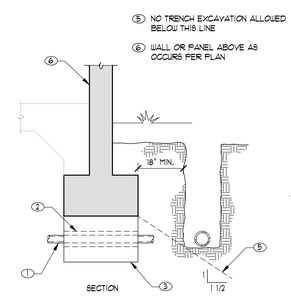
A. "d" = BAR DIA.

B. ALL REINFORCEMENT SHALL BE BENT COLD UNLESS NOTED OTHERWISE ON PLANS OR DETAILS

C. REINFORCING PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS SPECIFICALLY NOTED ON PLANS OR DETAILS

01 STANDARD REBAR BEND DETAILS

C01-01 091104 — NO SCALE



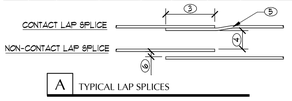
5. NO TRENCH EXCAVATION ALLOWED BELOW THIS LINE
6. WALL OR PANEL ABOVE AS OCCURS PER PLAN
1. PIPE/CONDUIT
2. SLEEVE. SIZE TO PROVIDE 1/2" MIN. CLEARANCE AROUND UTILITY PIPE/CONDUIT
3. LEAN CONCRETE FILL. MATCH WIDTH OF FOOTING
4. CLEARANCE EQUAL TO SLEEVE DIA. (6" MIN.)

02 PIPE/CONDUIT AT CONTINUOUS FOOTING

F01-01A 080913 — NO SCALE

6. FOR NON-CONTACT LAP SPLICES, MIN. CLR. DISTANCE BETWEEN SPLICED BARS SHALL BE PER G.B.N. MAX. CLR. DISTANCE SHALL BE 1/5 THE TABULATED LAP LENGTH OR (6" - "d$_b$"), WHICHEVER IS LESS. WHERE "d$_b$" = BAR DIA.
4. CLR. DISTANCE BETWEEN ADJACENT BARS OR SPLICES TO BE USED IN DETERMINING APPLICABLE LAP LENGTH FROM SCHEDULE
5. OPTIONAL OFFSET. SEE STANDARD REBAR BEND DETAILS FOR OFFSET REQUIREMENTS
1. TOP BARS ARE HORIZ. BARS PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN MEMBER BELOW SPLICE
2. CASES 1 AND 2: BARS w/ CLR. COVER AND CLR. SPACING GREATER THAN OR EQUAL TO MIN. VALUES SHOWN. CASE 3: BARS w/ CLR. COVER AND CLR. SPACING NOT MEETING CRITERIA FOR CASE 1 OR 2
3. LAP SPLICE LENGTH PER SCHEDULE

BAR SIZE	CASE 2	MIN. CLR. COVER	MIN. CLR. SPACING	REBAR LAP LENGTH 1 f'c = 2500 PSI		f'c = 4000 PSI		f'c = 4500 PSI	
				TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	1	3/4	1 1/2	19	16	16	16	16	16
	2	3/8	3/4	31	24	25	19	23	18
	3	-	-	-	-	-	-	-	-
#4	1	1	2	25	19	20	16	19	16
	2	1/2	1	41	32	33	25	31	24
	3	-	-	-	-	-	-	-	-
#5	1	1 1/4	2 1/2	31	24	25	19	23	18
	2	5/8	1 1/4	51	39	41	31	38	30
	3	-	-	77	59	61	47	57	44
#6	1	1 1/2	3	37	29	29	23	28	21
	2	3/4	1 1/2	61	47	48	37	46	35
	3	-	-	92	71	73	56	69	53



A TYPICAL LAP SPLICES

A. ALL TABULATED VALUES ARE IN UNITS OF INCHES U.N.O.

B. AT CONTRACTOR'S OPTION, MECHANICAL SPLICE COUPLERS PER G.B.N. MAY BE USED IN LIEU OF LAP SPLICES

C. CONCRETE STRENGTHS AND MIN. CLR. COVER / CLR. SPACING DISTANCES SHOWN ARE FOR SCHEDULING PURPOSES ONLY. SEE G.B.N. FOR ACTUAL CONCRETE SPECIFICATIONS AND MIN. CLR. COVER / CLR. SPACING REQUIREMENTS

D. WHERE BARS OF UNEQUAL SIZE LAP ONE ANOTHER, USE TABULATED LAP LENGTH FOR SMALLER BAR U.N.O.

E. SCHEDULED VALUES ARE BASED ON CLASS "B" TENSION LAP SPLICES U.N.O., NORMAL WT. CONCRETE, AND UNCOATED GRADE 60 REINF. FOR OTHER CONDITIONS NOTED BELOW, MODIFY TABULATED VALUES AS INDICATED:
- E1. FOR DEVELOPMENT LENGTH AND CLASS "A" LAP SPLICES, WHERE SPECIFICALLY NOTED ON PLANS OR DETAILS, DIVIDE TABULATED VALUES BY 1.3. CLASS "A" SPLICES SHALL BE LOCATED SUCH THAT NO MORE THAN 1/2 OF THE TOTAL REINF. IS LAPPED WITHIN THE REQUIRED LAP LENGTH
- E2. FOR LIGHTWEIGHT CONCRETE, MULTIPLY TABULATED VALUES BY 1.3
- E3. FOR EPOXY COATED REBAR, MULTIPLY TABULATED VALUES BY 1.5

03 TYPICAL REBAR LAP SCHEDULE (CONCRETE)

BCH02-05 080227 — NO SCALE

Think
Architecture
Architecture
Interior Design
Landscape Architecture
Land Planning
Construction Management
7927 So. Highpoint Parkway, Suite 300
Sandy, Utah 84094
ph. 801.269.0055
fax. 801.269.1425
www.thinkaec.com

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 80309 — BRANDON N. QUINTON — ARIZONA, U.S.A.

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
TYPICAL DETAILS

SHEET NUMBER:
S0.4

BID SET

WRIGHT STRUCTURAL ENGINEERS
ENGINEERED IN THE USA
2 Venture, Suite 200
Irvine, California 92618
phone (949) 477-4001
CA@wrightengineers.com
wrightengineers.com
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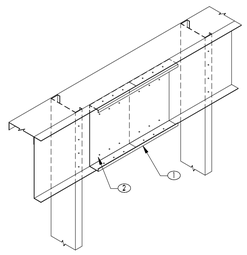
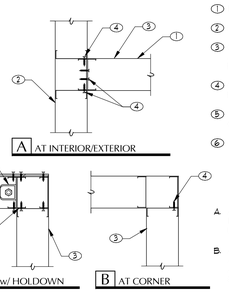


1. XXXS162-XX x 10' STUD BLOCKING TO MATCH LEDGER DEPTH AND GAUGE
2. (3) #8x1/2" SCREWS TOP AND BOTTOM TO LEDGER TRACK FLANGE AND WEB, EACH SIDE OF SPLICE

A. PERPENDICULAR FRAMING NOT SHOWN FOR CLARITY

19 CFS LEDGER TRACK SPLICE
CFS01-10 — NO SCALE



A AT INTERIOR/EXTERIOR

C AT CORNER w/ HOLDOWN

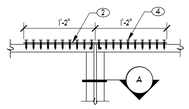
B AT CORNER

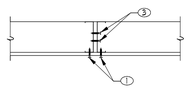
1. INTERIOR WALL
2. EXTERIOR WALL
3. COPE WALL TOP TRACK FLANGE TO LAP EXTERIOR WALL TRACK AND FASTEN w/ (2) #10x1" SCREWS
4. (2) #10x1" SCREWS AT 24" o.c. TO FULL HEIGHT STUD(S)
5. DOUBLE JAMB STUD (JS) PER PLAN OR SCHEDULE
6. HOLDOWN PER PLAN

A. APPLICABLE AT ALL INTERIOR/EXTERIOR INTERSECTIONS U.N.O. ON PLANS

B. ADDITIONAL STUD(S) AS REQUIRED AT THE ENDS OF SHEAR WALLS AND SHEATHING NOT SHOWN FOR SIMPLICITY

20 TYPICAL CFS WALL INTERSECTION
CFS01-11 — NO SCALE

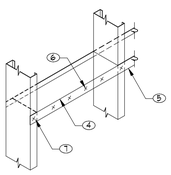




A AT PANEL JOINT

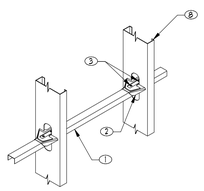
1. EDGE FASTENERS AS OCCUR
2. SPLICE PLATE TO MATCH TOP TRACK WIDTH AND GAUGE PER PLAN OR SCHEDULE, U.N.O.
3. (2) #10x1" SCREWS AT 6" o.c. OR MATCH SHEAR WALL EDGE FASTENER SPACING (WHICHEVER IS MORE STRINGENT)
4. (20) #10x1" SCREWS EACH SIDE OF SPLICE ((40) TOTAL SCREWS)

21 TYPICAL CFS TOP TRACK SPLICE AND PANEL JOINT
CFS01-20 — NO SCALE



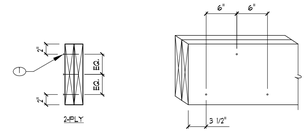
B BLOCKING

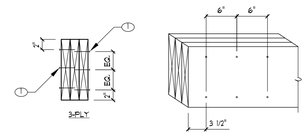
1. 150U050-54, 33 U-CHANNEL BRIDGING
2. SIMPSON SUBH33S BRIDGING CONNECTOR AT 33 MIL TO 54 MIL STUDS. SIMPSON MSUBH43S BRIDGING CONNECTION AT 68 MIL TO 97 MIL STUDS
3. (2) #10-16 SCREWS
4. COPED XXXT150-43 AT EACH END OF WALL, AT 12'-0" o.c. ADJACENT TO WALL OPENINGS AND SHEAR WALL JAMB STUDS
5. CONT. 20 GA. x 2" HORIZONTAL STRAP, EACH SIDE OF WALL
6. (4) #10x1/2" SCREWS, STRAP TO BLOCK
7. (2) #10x1/2" SCREWS, STRAP TO STUD
8. METAL STUD, 8" MAX DEPTH 33 MIL TO 54 MIL

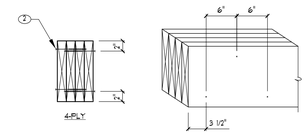


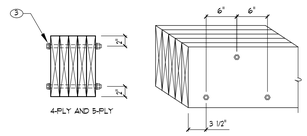
A BRIDGING

22 CFS STUD WEB BRACING
CFS01-15 — NO SCALE









1. 16d NAILS AT 12" o.c. STAGGERED
2. (2) SDWZ2600 SCREWS AT 12" o.c. STAGGERED ON OPPOSITE SIDES
3. (2) 3/8" DIA. THRU-BOLTS w/ WASHERS AT 12" o.c. STAGGERED

A. ATTACHMENT APPLIES TO UNIFORMLY LOADED BEAMS. CONTACT ENGINEER FOR BOLTED CONNECTION AT POINT LOADS

B. NAIL FROM THIS SIDE
NAIL FROM OPPOSITE SIDE

C. FOR 4-PLY, CONTRACTOR HAS OPTION TO USE THROUGH BOLT PER DETAIL AT 4-PLY AND 3-PLY

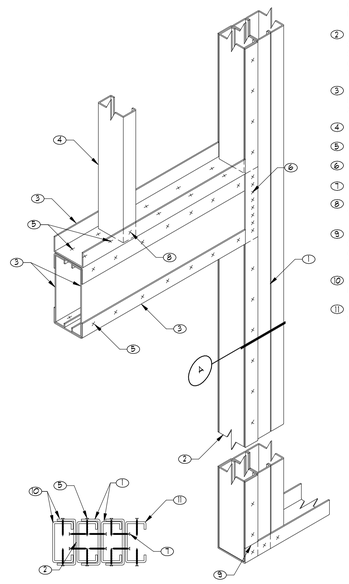
16 TYPICAL BUILT-UP MEMBER
WD6-222481 - RCAD — NO SCALE

CONNECTION	FASTENERS
BRIDGING TO JOIST	SEE TYPICAL DETAIL 22/SD05
BOTTOM TRACK TO RIM OR TOP TRACK (AT SHEAR WALLS, SEE SHEAR WALL SCHEDULE)	#10x1 1/2" AT 16" o.c.
BOTTOM TRACK/TOP TRACK TO STUD	(2) #8x1/2"
TOP AND BOTTOM TRACK TO POST	(2) #8x1/2" SCREWS, EACH MEMBER
DOUBLE OR MULTIPLE BUILT-UP STUDS (POST)	SEE TYPICAL BUILT-UP JAMB STUD DETAIL
TOP TRACK, LAPS, AND INTERSECTIONS	COPE INTERSECTING TRACK AND FASTEN w/ (2) #8 SCREWS
BUILT-UP CORNER STUDS	SEE TYPICAL DETAIL 20/SD05
JAMB STUD TO HEADER	SEE CFS BUILT-UP HEADER SCHEDULE

A. MINIMUM FASTENERS THIS SCHEDULE APPLIES U.N.O. ON PLANS AND DETAILS

B. SEE PLAN OR G.S.N. FOR TOP TRACK SPLICE CONNECTION

17 TYPICAL CFS FASTENER SCHEDULE
CFS01-01 100726 — NO SCALE



A PLAN VIEW

1. 600S200-54 (50 KSI) BACK-TO-BACK KING STUD FOR OPENINGS NO LARGER THAN 8'-0", U.N.O. ON PLAN
2. TRIMMER STUD SHALL MATCH KING STUD GAUGE AND DEPTH. TRIMMER STUDS SHALL HAVE FULL BEARING CONTACT AGAINST TRACK WEBS TOP AND BOTTOM.
3. INTERIOR BUILT-UP HEADER SHALL BE BOXED 600S200-54 (50 KSI) w/ XXXT125-54 (50 KSI), U.N.O. ON PLAN
4. CRIPPLE STUD PER PLAN OR G.S.N.
5. #10 SCREW AT 6" o.c. TYP.
6. #10 SCREW AT 1 1/2" o.c. TYP.
7. #10 SCREW AT 3" o.c. STAGGERED
8. #10 SCREW EACH SIDE EACH STUD, TYP.
9. TRIM FLANGES OF VERT. TRACK SECTION TO ALLOW FULL BEARING CONTACT OF WEB TO BOTTOM TRACK
10. ADDITIONAL TRIMMER STUDS, AS NOTED PER PLAN
11. ADDITIONAL KING STUDS, AS NOTED PER PLAN

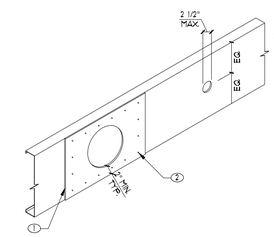
18 TYPICAL BUILT-UP HEADER AT METAL STUD WALL
SD01-13 080912 — NO SCALE

CONNECTION	MINIMUM NAILING, U.N.O. ON PLANS OR DETAILS
JOIST OR TRUSS TO TOP PLATE, SILL, ETC.	(3) 16d OR (3) 3" x 0.131", TOENAIL
BRIDGING TO JOIST	(2) 8d COMMON OR (2) 3" x 0.131", TOENAIL EACH END
BOTTOM PLATE TO JOIST OR BLOCKING (AT SHEAR WALLS, SEE SHEAR WALL SCHEDULE)	16d AT 16" o.c. OR 3" x 0.131" AT 8" o.c. FACE NAIL
TOP PLATE TO STUD	(2) 16d COMMON (3) 3" x 0.131", END NAIL
TOP AND BOTTOM PLATE TO POST	(2) 16d COMMON (3) 3" x 0.131", END NAIL
STUD TO BOTTOM PLATE	TOENAIL: (4) 8d COMMON OR (4) 3" x 0.131", (4) 16d AT 3x, AND LARGER END NAILS: (2) 16d COMMON OR (3) 3" x 0.131", (2) 20d AT 3x
DOUBLE OR MULTIPLE BUILT-UP STUDS (POST)	16d AT 16" o.c. OR 3" x 0.131" AT 8" o.c. FACE NAIL
DOUBLE OR MULTIPLE TOP PLATES	16d AT 16" o.c. OR 3" x 0.131" AT 12" o.c. FACE NAIL
BLOCKING BETWEEN JOIST OR RAFTERS TO TOP PLATE	(3) 16d OR (3) 3" x 0.131", TOENAIL
RIM JOIST TO TOP PLATE	16d AT 6" o.c. OR 3" x 0.131" AT 6" o.c. TOENAIL
TOP PLATES, LAPS AND INTERSECTIONS	(2) 16d COMMON OR (3) 3" x 0.131" FACE NAIL
CONTINUOUS HEADER, TWO OR MORE LAMINATIONS	16d COMMON AT 16" o.c. ALONG EACH EDGE
CEILING JOISTS TO PLATE	(3) 16d OR (3) 3" x 0.131", TOENAIL
CONTINUOUS HEADER TO INTERMEDIATE SUPPORT(S)	(4) 8d COMMON TOENAIL
CEILING JOISTS, LAPS OVER PARTITIONS	(3) 16d COMMON OR (4) 3" x 0.131", FACE NAIL
CEILING JOISTS TO PARALLEL RAFTERS	(3) 16d COMMON OR (4) 3" x 0.131", FACE NAIL
RAFTER OR TRUSS TO PLATE	(3) 16d OR (3) 3" x 0.131", TOENAIL
CORNER 2X RAFTER TO PLATE	(4) 16d, TOENAIL
BUILT-UP CORNER STUDS	16d AT 16" o.c. OR 3" x 0.131" AT 16" o.c.

B. MISC. NAILING SHALL BE PER IBC TABLE 2304.10.1.

A. SEE PLAN OR G.S.N. FOR TOP PLATE SPLICE CONNECTION

13 TYPICAL NAILING SCHEDULE
14-242878 — NO SCALE



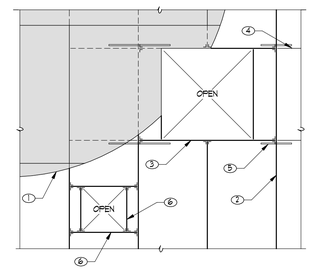
1. AT PENETRATIONS LARGER THAN 2 1/2" DIA. PROVIDE 18" x 12 GA. PLATE TO MATCH JOIST DEPTH AT HOLE
2. #10x1/2" SCREWS AT 1" o.c. ALL SIDES

A. CUT OPENING w/ SAW OR DRILL ONLY, DO NOT TORCH

B. DO NOT NOTCH OR CUT FLANGES OF JOIST

C. SPACE PENETRATIONS 24" MIN. w/ NO PENETRATIONS WITHIN 12" OF END OF JOIST

14 TYPICAL CFS JOIST PENETRATIONS
CFS01-01B — NO SCALE



C. EDGE NAIL SHEATHING AT PERIMETER OF OPENING

1. PLYWOOD SHEATHING
2. TYP. I-JOIST PER PLAN
3. I-JOIST MFR TO PROVIDE BOX-OUT FRAMING AROUND OPENINGS OVER 2'-0" WIDE. OPENING SHALL NOT EXCEED 4'-0" x 4'-0"
4. SOLID 2x BLOCKING TO EXTEND BETWEEN I-JOIST (1) BAY EACH SIDE OF OPENING. EDGE NAIL SHEATHING AT BLOCKING, TYP.
5. SIMPSON ST18 STRAP FRAMING TO BLOCKING TYP. WHERE SHOWN. INSTALL STRAP ON TOP OF SHEATHING
6. 2x6 FRAMING AT OPENINGS UP TO 2'-0" x 2'-0". TOENAIL HUNG MEMBERS w/ (3) 16d OR USE SIMPSON FJ6P OR LBI6 HANGER

A. MINOR OPENINGS 12" SQUARE OR LESS REQUIRE NO SPECIAL FRAMING

B. CONSULT STRUCTURAL ENGINEER FOR OPENINGS OVER 4'-0" x 4'-0" NOT SPECIFICALLY DETAILED ON PLAN.

15 TYPICAL OPENING IN ROOF DECK
WA01-28 030711 — NO SCALE

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PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

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BID SET

SHEET TITLE:
TYPICAL DETAILS

SHEET NUMBER:
S0.5

Plot Date: 4/23/2025 2:22:10 PM

FOUNDATION PLAN NOTES

A. VERIFY ALL DIMENSIONS, ELEVATIONS, SLOPES, ETC. w/ ARCH'L. AND/OR CIVIL PRIOR TO CONSTRUCTION. RESOLVE DISCREPANCIES WITH ARCHITECT.

B. VERIFY LOCATION AND SIZE OF ALL INSERTS AND OPENINGS IN SLAB WITH ARCH'L, MECH, PLUMBING, AND ELECT. PRIOR TO CONSTRUCTION.

C. ALL EXTERIOR FOOTINGS SHALL BE EMBEDDED 18 INCHES MIN. BELOW EXTERIOR PAD GRADE AND ALL INTERIOR FOOTINGS (AS OCCUR) SHALL BE EMBEDDED 18 INCHES MIN. BELOW THE TOP OF SLAB. EXTERIOR PAD GRADE IS DEFINED AS LOWEST ADJACENT COMPACTED SUBGRADE (PAD GRADE BEFORE LANDSCAPING) OR NATURAL GRADE WITHIN 5 FEET OF BUILDING FOR PERIMETER FOOTINGS. CONTRACTOR SHALL COORDINATE FOOTING EMBEDMENT WITH CIVIL GRADING PLANS TO ENSURE THAT MINIMUM EMBEDMENT SPECIFIED ABOVE IS MAINTAINED.

D. FINISH FLOOR ELEVATION VARIES. SEE CIVIL DWGS.

E. T.O.F. ELEVATION AT STEEL COLUMNS = 1'-0" BELOW F.F. U.N.O.

F. F1, F2, F3, . . . AND FC1, FC2, FC3, . . . DENOTES FOOTING PER SCHEDULE ON SHEET S0.3. TYPICAL FOOTING SHALL BE MARK "F1" U.N.O. ON PLAN.

G. MU1, MU2, MU3, . . . DENOTES MASONRY WALL PER SCHEDULE ON SHEET S0.3. ALL MASONRY WALLS SHALL BE MARK "MU1" U.N.O. ON PLAN.

H. MJX (X) "X'-XX" INDICATES MASONRY JAMB PER MASONRY JAMB SCHEDULE ON SHEET S0.3. TYPICAL JAMB SHALL BE MJ1 (2) #5@24" U.N.O.

I. MASONRY CONTROL JOINTS (MCJ) PER TYPICAL DETAIL SHALL BE PLACED WHERE SPECIFICALLY SHOWN ON PLANS AND, AS A MINIMUM, AT INTERVALS NOT TO EXCEED 24'-0" o.c. COORDINATE EXACT LOCATION OF CONTROL JOINTS WITH ARCH'L.

J. SEE G.S.N. PLANS, AND DETAILS FOR SPECIAL REINF. REQUIRED AT MASONRY CORNERS, JAMBS, WALL OPENINGS, TOP OF WALL, AND FOR REQUIRED LOCATION OF VERT. BARS WITHIN THE CELL. SEE FRAMING PLAN NOTES FOR HORIZ. REINF. PLACED IN CONT. GROUTED BOND BEAMS AT ELEVATED FLOOR AND ROOF LEVELS.

K. ANCHOR BOTTOM PLATE AT CONCRETE w/ 1/2" MIN. DIA. "J" BOLT w/ ROUND CUT WASHER AND NUT w/ 7" MIN. EMBEDMENT. PROVIDE MIN. (2) A.B. PER BOTTOM PLATE PIECE. LOCATE A.B. WITHIN 12" OF EACH END OF EACH PIECE. A.B. SPACING SHALL NOT EXCEED 48" o.c. AT LOAD-BEARING WALLS AND 72" o.c. AT INTERIOR NON-LOAD-BEARING WALLS. HOLDDOWN ANCHORS DO NOT COUNT AS REPLACING ANCHOR BOLTS. SEE SHEAR WALL SCHEDULE ON FRAMING PLAN FOR ADD'L. ANCHORAGE REQUIREMENTS AT SHEAR WALLS.

L. SC1, SC2, SC3, . . . DENOTES STEEL COLUMN PER SCHEDULE ON SHEET S0.3.

M. PLACE SLAB(S) ON GRADE OVER SUBGRADE AND VAPOR RETARDER (AS REQ'D.) PER THE GEOTECHNICAL REPORT REFERENCED ON G.S.N.

N. INTERIOR CONCRETE SLAB ON GRADE SHALL BE AS FOLLOWS, U.N.O.:

SLAB THICKNESS	SLAB REINF.	REINF. CLR. COVER FROM TOP OF SLAB
4"	#3 AT 24" o.c. E.W.	1 1/2"

O. CRANES SHALL NOT BE ALLOWED ON THE SLAB ON GRADE.

P. INSTALL SLAB CONTROL JOINTS PER DETAIL 05/S0.4. MATCH CLOSURE POUR (WHERE PRESENT) CONTROL JOINTS WITH SLAB CONTROL JOINTS.

Q. SEE G.S.N. FOR ANCHOR BOLT SUBSTITUTIONS AND HOLDDOWN ANCHORAGE.

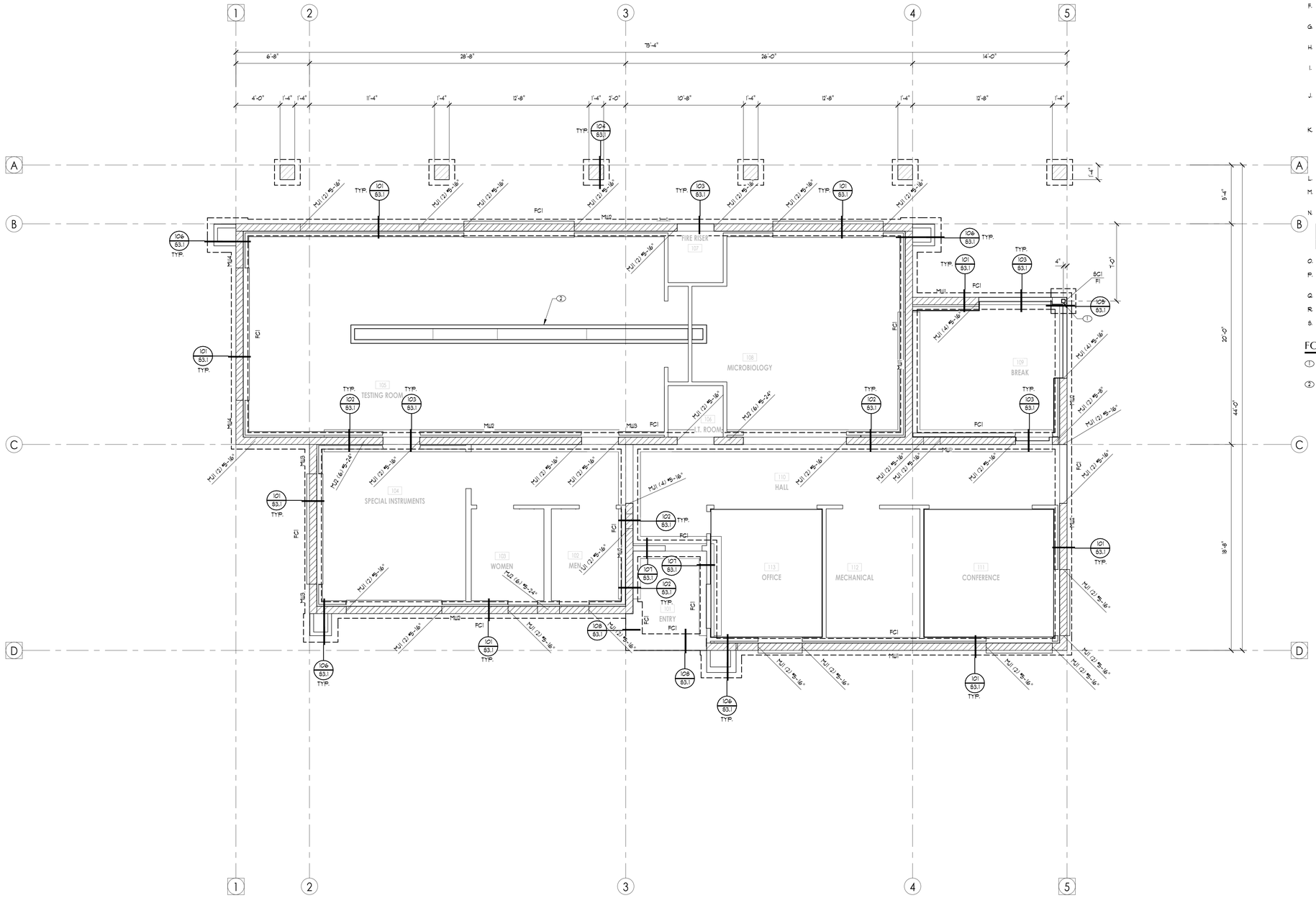
R. SEE CIVIL DWGS. FOR EXTERIOR SLABS, WALLS, ETC.

S. SEE DETAIL 02/S0.4 FOR PIPES/CONDUIT AT FTGS. PIPES/CONDUIT SHALL NOT PASS THRU NOR BE LOCATED BENEATH ISOLATED PAD FOOTINGS.

FOUNDATION PLAN NOTES

① CENTER COLUMN IN CORNER MASONRY CELL ABOVE. CONTRACTOR TO COORDINATE w/ ARCH'L.

② REFER TO ARCH'L PLANS FOR TRENCH DRAIN DETAILING



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

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LAKE HAVASU CITY, AZ 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
FOUNDATION PLAN

SHEET NUMBER:
S1.1

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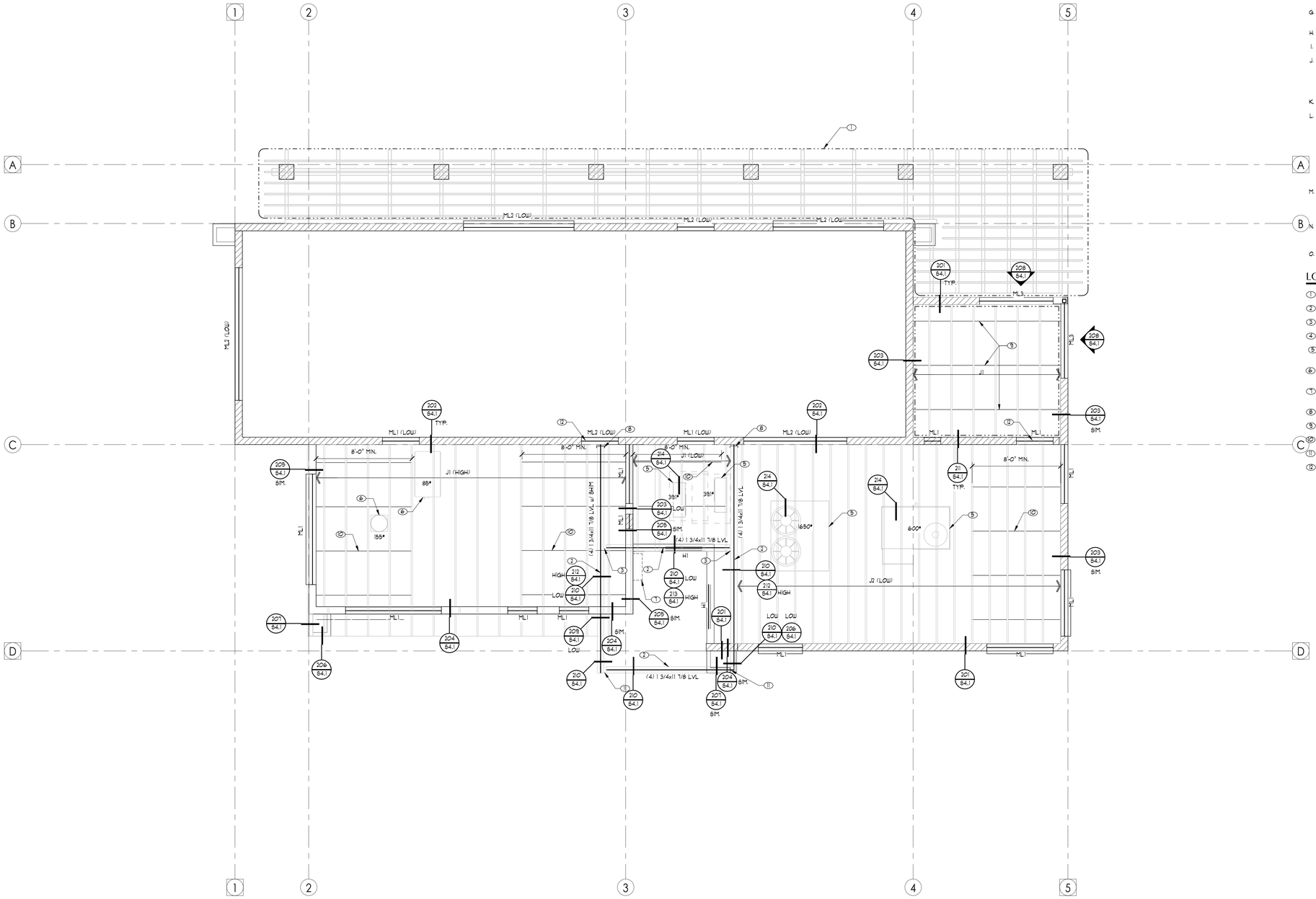

FRAMING PLAN NOTES

A. VERIFY ALL DIMENSIONS, ELEVATIONS, SLOPES, ETC. w/ ARCH'L. PRIOR TO CONSTRUCTION. RESOLVE DISCREPANCIES WITH ARCHITECT.

FRM_003 ITRACT

B. VERIFY LOCATION AND SIZE OF ALL INSERTS AND OPENINGS IN ROOF WITH ARCH'L, MECH, PLUMBING, AND ELECT. PRIOR TO CONSTRUCTION.

C. SEE TYPICAL DETAILS FOR FRAMING REQUIREMENTS AT OPENINGS IN FLOOR OR ROOF. ALL OPENINGS MAY NOT NECESSARILY BE SHOWN ON PLANS.

D. MISC. ITEMS SUCH AS STAIRS, LANDINGS, RAILINGS, MECH EQUIPMENT ATTACHMENT TO PRIMARY STRUCTURAL FRAMING, ETC., SHALL BE DESIGNED BY OTHERS AND SUBMITTED FOR REVIEW AS DEFERRED SUBMITTALS PRIOR TO CONSTRUCTION. SEE G.S.N. FOR DEFERRED SUBMITTAL REQUIREMENTS.

E. ML1, ML2, ML3, . . . DENOTES MASONRY LINTEL PER SCHEDULE ON SHEET S0.3.

F. MASONRY CONTROL JOINTS (MCJ) SHALL BE PLACED IN MASONRY WALLS. SEE FOUNDATION PLAN NOTES FOR ADDITIONAL INFO.

G. WALL FRAMING, SHEAR WALLS, HEADERS, ETC. NOTED ON PLAN ARE FOR FRAMING BENEATH CURRENT PLAN LEVEL U.N.O.

H. ▨ DENOTES LOAD BEARING WALLS THAT MAY NOT APPEAR OBVIOUS.

I. PLACE (2) #5 CONT. IN 16" DEEP (MIN.) GROUTED BOND BEAM AT ROOF LEVEL.

J. ALIGN (2) STUDS (MIN.) BENEATH ALL GIRDER TRUSSES AT BEARING WALL. NAIL STUDS TOGETHER PER TYPICAL NAILING SCHEDULE. HIP GIRDERS w/ UP TO 8'-0" SETBACK AND UP TO 20'-0" SPAN MAY HAVE (1) STUD, U.N.O. PROVIDE CONTINUOUS BEARING TO FOUNDATION FOR ALL BEAMS AND GIRDER TRUSSES SUPPORTED BY (2) 2x OR LARGER POSTS.

K. J1, J2, J3, . . . DENOTES TJI JOIST PER SCHEDULE ON SHEET S0.3.

L. ROOF SHEATHING AND FASTENERS SHALL BE AS FOLLOWS U.N.O. ON PLAN:
1. 15/32" PLYWOOD PER G.S.N.
2. 8d AT 6" o.c. BOUNDARY FASTENERS (DIAPHRAGM BOUNDARIES, SHEAR PANEL BLOCKING, SOLID BLOCKING AND DRAG MEMBERS AS NOTED ON FRAMING DETAILS).
3. 8d AT 6" o.c. EDGE FASTENERS (AT SUPPORTED PANEL EDGES).
4. 8d AT 12" o.c. FIELD FASTENERS (ALONG INTERMEDIATE FRAMING MEMBERS).
5. DO NOT USE STAPLES (EXCEPTION: STAPLES MAY BE USED TO FASTEN SHEATHING TO TRUSS TAILS AND FASCIA AT EXPOSED EAVE OVERHANGS).
6. ▨ HATCHED AREA INDICATES BLOCKED DIAPHRAGM w/ 8d AT 4" o.c. AT EDGES AND BOUNDARIES AND 12" o.c. FIELD U.N.O.

M. FASTENERS SHALL BE PLACED NOT LESS THAN 3/8" FROM PANEL EDGES AND SHALL BE FIRMLY DRIVEN INTO FRAMING MEMBERS. PANEL JOINT SHALL BE CENTERED ON FRAMING MEMBER. NO UNBLOCKED PANELS LESS THAN 24" WIDE SHALL BE USED. PROVIDE 1/8" GAP BETWEEN ROOF SHEATHING PANELS.

N. TYPICAL METAL STUD WALL FRAMING SHALL BE 600S162-54 (50 KSI) STEEL STUDS AT 16" o.c. U.N.O. SHEATHE WALLS w/ 15/32" PLYWOOD w/ #10 EDGE SCREWS AT 6" o.c. AND #10 FIELD SCREWS AT 12" o.c.

O. REFER TO G.S.N. SECTION F.12/60.1 FOR PENETRATIONS THRU MASONRY NOT NOTED ON PLANS.

LOW ROOF FRAMING PLAN KEYNOTES

1. TRELLIS FRAMING AND ATTACHMENT TO BUILDING AND PILASTERS PER ARCH'L PLANS
2. ALIGN BEAM w/ WALL FRAMING ABOVE
3. ATTACH BEAM TO BEAM w/ HGUS HANGER
4. FASTEN JOIST TO BEAM w/ IUS2.06/11.88 HANGER
5. CONTRACTOR SHALL VERIFY w/ MECHANICAL DRAWINGS FOR EXACT LOCATION OF ROOFTOP MECHANICAL UNIT. REFER TO DETAIL 214/S4.1 FOR MECHANICAL UNIT PLATFORM.
6. CONTRACTOR SHALL VERIFY w/ MECHANICAL DRAWINGS FOR EXACT LOCATION OF EXHAUST DUCT
7. CONTRACTOR SHALL VERIFY w/ MECHANICAL DRAWINGS FOR EXACT LOCATION OF 20" WALL MOUNTED UNIT
8. ATTACH BEAM TO LEDGER w/ HUC412 HANGER
9. 4x6 BLOCKING AT 4'-0" o.c. EXTEND FULL LENGTH OF DIAPHRAGM
10. 4x6 BLOCKING AT 4'-0" o.c. EXTEND LENGTH PER PLAN
11. ATTACH BEAM TO BEAM w/ HUC412-2 HANGER
12. PROVIDE ML1 AT DUCT PENETRATIONS IN MASONRY WALL. MAX WIDTH OF OPENING SHALL NOT EXCEED 3'-4" AND SHALL BE ALIGNED w/ LINTEL OPENING BELOW OR ABOVE, U.N.O. ON PLAN

LOW ROOF FRAMING PLAN

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

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PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE: LOW ROOF FRAMING PLAN

SHEET NUMBER: S2.1

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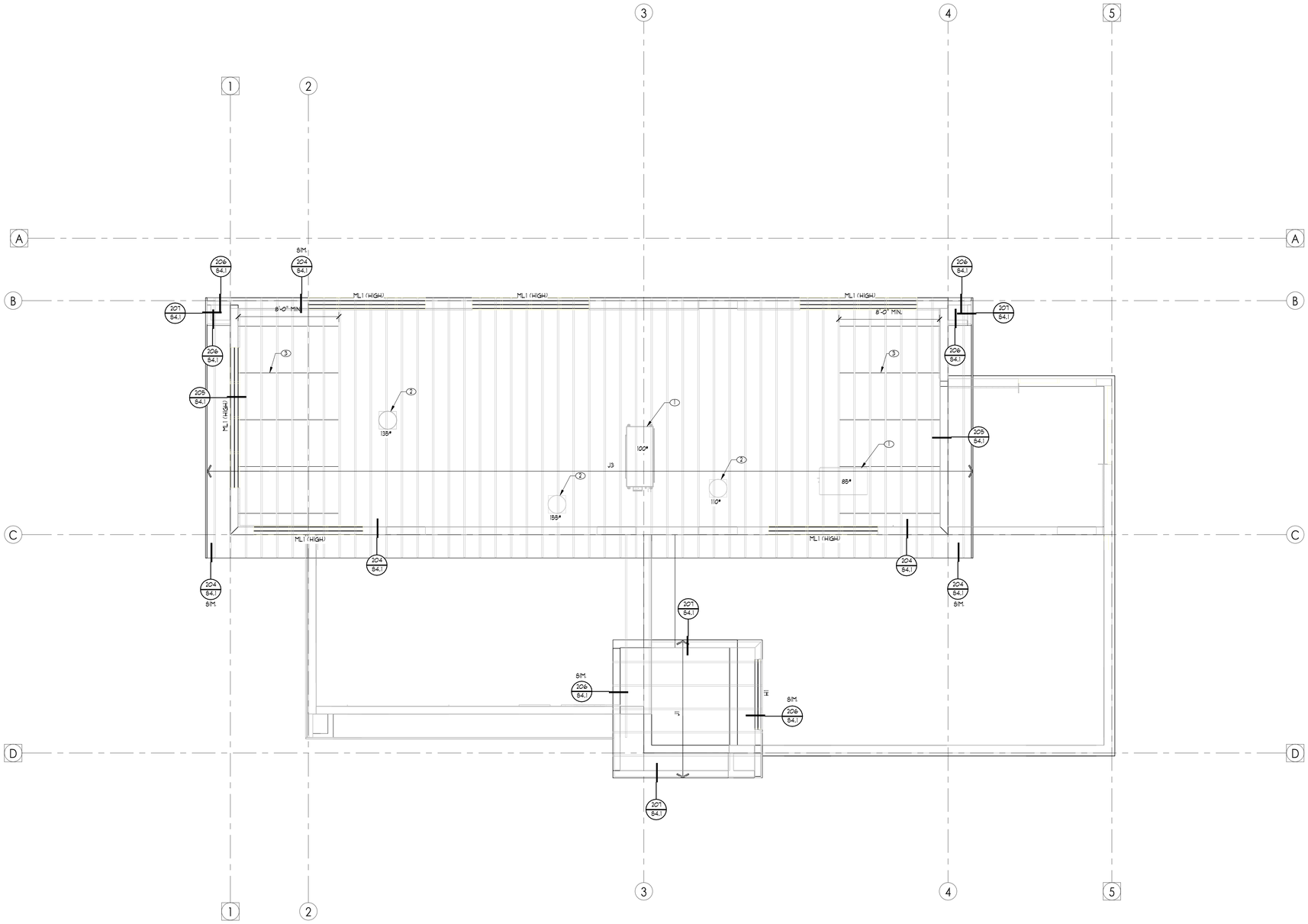

HIGH ROOF FRAMING

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

BUILDING NORTH

FRAMING PLAN NOTES

A. VERIFY ALL DIMENSIONS, ELEVATIONS, SLOPES, ETC. w/ ARCH'L. PRIOR TO CONSTRUCTION. RESOLVE DISCREPANCIES WITH ARCHITECT.

C. SEE TYPICAL DETAILS FOR FRAMING REQUIREMENTS AT OPENINGS IN FLOOR OR ROOF. ALL OPENINGS MAY NOT NECESSARILY BE SHOWN ON PLANS.

D. MISC. ITEMS SUCH AS STAIRS, LANDINGS, RAILINGS, MECH. EQUIPMENT ATTACHMENT TO PRIMARY STRUCTURAL FRAMING, ETC., SHALL BE DESIGNED BY OTHERS AND SUBMITTED FOR REVIEW AS DEFERRED SUBMITTALS PRIOR TO CONSTRUCTION. SEE G.S.N. FOR DEFERRED SUBMITTAL REQUIREMENTS.

E. ML1, ML2, ML3, . . . DENOTES MASONRY LINTEL PER SCHEDULE ON SHEET S03.

F. MASONRY CONTROL JOINTS (MCJ) SHALL BE PLACED IN MASONRY WALLS. SEE FOUNDATION PLAN NOTES FOR ADDITIONAL INFO.

G. WALL FRAMING SHEAR WALLS, HEADERS, ETC. NOTED ON PLAN ARE FOR FRAMING BENEATH CURRENT PLAN LEVEL U.N.O.

H. ▨ DENOTES LOAD BEARING WALLS THAT MAY NOT APPEAR OBVIOUS.

I. PLACE (2) #5 CONT. IN 16" DEEP (MIN.) GROUTED BOND BEAM AT ROOF LEVEL.

J. ALIGN (2) STUDS (MIN.) BENEATH ALL GIRDER TRUSSES AT BEARING WALL. NAIL STUDS TOGETHER PER TYPICAL NAILING SCHEDULE. HIP GIRDERS w/ UP TO 8'-0" SETBACK AND UP TO 20'-0" SPAN MAY HAVE (1) STUD, U.N.O. PROVIDE CONTINUOUS BEARING TO FOUNDATION FOR ALL BEAMS AND GIRDER TRUSSES SUPPORTED BY (2) 2x OR LARGER POSTS.

K. J1, J2, J3, . . . DENOTES TJI JOIST PER SCHEDULE ON SHEET S03.

L. ROOF SHEATHING AND FASTENERS SHALL BE AS FOLLOWS U.N.O. ON PLAN:
1. 15/32" PLYWOOD PER G.S.N.
2. 8d AT 6" o.c. BOUNDARY FASTENERS (DIAPHRAGM BOUNDARIES, SHEAR PANEL BLOCKING, SOLID BLOCKING AND DRAG MEMBERS AS NOTED ON FRAMING DETAILS).
3. 8d AT 6" o.c. EDGE FASTENERS (AT SUPPORTED PANEL EDGES).
4. 8d AT 12" o.c. FIELD FASTENERS (ALONG INTERMEDIATE FRAMING MEMBERS).
5. DO NOT USE STAPLES (EXCEPTION: STAPLES MAY BE USED TO FASTEN SHEATHING TO TRUSS TAILS AND FASCIA AT EXPOSED EAVE OVERHANGS).
6. ▨ MATCHED AREA INDICATES BLOCKED DIAPHRAGM w/ 8d AT 4" o.c. AT EDGES AND BOUNDARIES AND 12" o.c. FIELD U.N.O.

M. FASTENERS SHALL BE PLACED NOT LESS THAN 3/8" FROM PANEL EDGES AND SHALL BE FIRMLY DRIVEN INTO FRAMING MEMBERS. PANEL JOINT SHALL BE CENTERED ON FRAMING MEMBER. NO UNBLOCKED PANELS LESS THAN 24" WIDE SHALL BE USED. PROVIDE 1/8" GAP BETWEEN ROOF SHEATHING PANELS.

N. TYPICAL METAL STUD WALL FRAMING SHALL BE 600S162-54 (50 KSI) STEEL STUDS AT 16" o.c. U.N.O. SHEATHE WALLS w/ 15/32" PLYWOOD w/ #10 EDGE SCREWS AT 6" o.c. AND #10 FIELD SCREWS AT 12" o.c.

HIGH ROOF FRAMING PLAN KEYNOTES

1. CONTRACTOR SHALL VERIFY w/ MECHANICAL DRAWINGS FOR EXACT LOCATION OF ROOFTOP MECHANICAL UNIT. REFER TO DETAIL 214/S4.1 FOR MECHANICAL UNIT PLATFORM
2. CONTRACTOR SHALL VERIFY w/ MECHANICAL DRAWINGS FOR EXACT LOCATION OF EXHAUST DUCT
3. BLOCKING PER DETAIL AT 4'-0" o.c. EXTEND LENGTH PER PLAN

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PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
HIGH ROOF FRAMING PLAN

SHEET NUMBER:
S2.2

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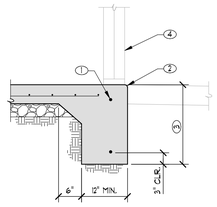
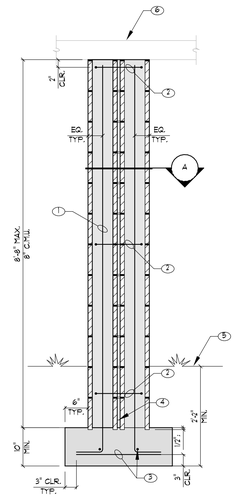
Plot Date: 4/23/2025 2:22:22 PM



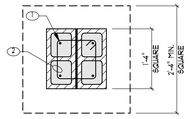
1. #4 CONT. TOP AND BOTTOM
2. TOOLED EDGE AS OCCURS PER ARCH'L
3. MINIMUM EMBEDMENT PER FOUNDATION PLAN NOTES OR PLAN(S)
4. FRAMING AS OCCURS

108 TYPICAL TURNED DOWN SLAB EDGE

R01-17 1706/19 — NO SCALE



1. #4 VERT. EACH CORNER CELL w/ STANDARD HOOK INTO FOOTING. GROUT REINFORCED CELL SOLID
2. #3 TIE IN 8" MIN. BOND BEAM AT 48" o.c. PROVIDE 2" MIN. GROUT COVER ALL AROUND.
3. #4 CONT. AT 16" o.c. E.W.
4. VOID BETWEEN WALLS SHALL BE FILLED TO MATCH LEVEL OF ADJACENT NATURAL GRADE
5. NATURAL GRADE OR COMPACTED SUBGRADE
6. PERGOLA FRAMING AND ATTACHMENT TO PILASTER PER ARCH'L



A. SEE G.S.N. FOR ADDITIONAL REQUIREMENTS AND ITEMS SHOWN BUT NOT NOTED.

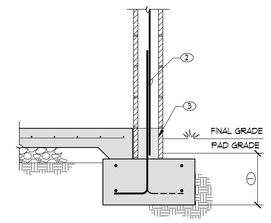
B. GROUT ALL REINFORCED CELLS SOLID.

C. ALL REBAR LAP LENGTHS PER SCHEDULE, U.N.O.

D. PILASTER SHALL NOT BE USED TO RETAIN SOIL OR IN A STACKED CONFIGURATION OR AS A FLOOD WALL OR OTHERWISE SURCHARGED UNLESS SPECIFICALLY NOTED. SEE G.S.N. FOR CLARIFICATION.

104 1'-4" x 1'-4" x 8'-0" PILASTER

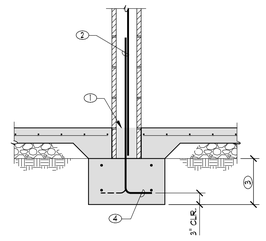
104-242578 - RCAD — NO SCALE



1. SEE FOUNDATION PLAN NOTES OR PLAN(S) FOR MINIMUM EMBEDMENT
2. DOWEL TO MATCH AND LAP WITH VERTICAL WALL REINFORCING
3. GROUT SOLID BELOW FINISH FLOOR

101 MASONRY WALL AT FOOTING

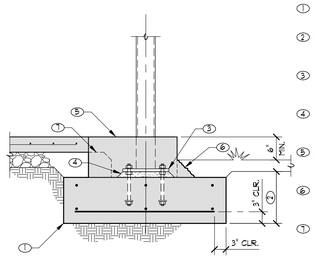
101-242578 — NO SCALE



1. GROUT SOLID BELOW FINISH FLOOR LINE
2. DOWEL TO MATCH AND LAP VERT. REINFORCING. ALTERNATE BENDS
3. SEE PLAN FOR MIN. EMBEDMENT
4. ALTERNATE BENDS

102 INTERIOR MASONRY WALL AT FOOTING

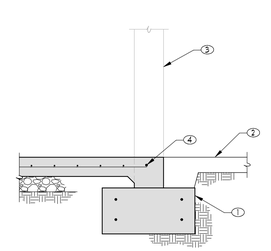
M901-01 1706/19 — NO SCALE



1. FOOTING SIZE AND REINF. PER FOOTING SCHEDULE U.N.O.
2. SEE FOUNDATION PLAN NOTES OR PLAN(S) FOR MIN. EMBEDMENT OR T.O.F. ELEVATION
3. BASE PLATE w/ ANCHOR RODS PER STEEL COLUMN SCHEDULE U.N.O.
4. GROUT BELOW BASE PLATE PER G.S.N. AND APPLICABLE COLUMN BASE PLATE DETAIL
5. COLUMN ISOLATION JOINT AND CLOSURE POUR PER TYPICAL DETAIL
6. CLOSURE POUR SHALL PROVIDE 3" MIN. CLR. COVER TO BASE PLATE AND ANCHOR RODS
7. LINE OF SLAB AND TURNED DOWN EDGE BEYOND

105 STEEL COLUMN AT FOOTING

SF01-17-HSS 1706/19 — NO SCALE

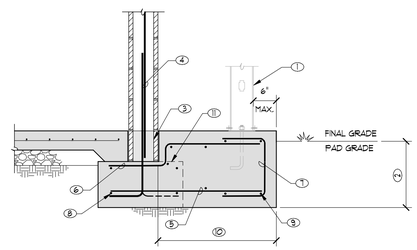


1. FOOTING CONTINUOUS FROM BEYOND
2. FINISH GRADE OR EXTERIOR SLAB AS OCCURS
3. LINE OF WALL BEYOND AS OCCURS
4. #4 CONTINUOUS EDGE BAR

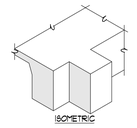
A. SEE ARCH'L FOR EDGE TOOLING REQUIREMENTS

103 TYPICAL SLAB AT WALL OPENING

M901-11 080304 — NO SCALE



12. SEE ARCH'L FOR POPOUT DIMENSIONS AND ADDITIONAL INFO.



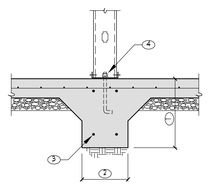
11. LINE OF CONTINUOUS FOOTING BEYOND

A. SEE TYPICAL EDGE OF SLAB DETAILS FOR INFO SHOWN BUT NOT NOTED.

1. FRAMING AND ANCHORAGE TO SLAB OR POPOUT AS OCCURS. SEE FOUNDATION PLAN NOTES FOR ANCHORAGE REQUIREMENTS
2. SEE FOUNDATION PLAN NOTES OR PLAN(S) FOR MINIMUM EMBEDMENT
3. GROUT SOLID BELOW FINISH FLOOR
4. DOWEL TO MATCH AND LAP WITH VERTICAL WALL REINFORCING
5. #5 BOTTOM BAR AT 6" o.c.
6. #5 "Z" DOWEL AT 6" o.c. MAX. (MINIMUM (2) DOWELS PER POPOUT)
7. #5 "C" DOWEL AT 6" o.c. MAX. (MINIMUM (2) DOWELS PER POPOUT)
8. CONT. REINFORCEMENT FROM BEYOND
9. #5 CONT. BAR TOP AND BOTTOM AT 6" o.c.

106 EXTERIOR CFS POPOUT AT FOOTING

106-242578 — NO SCALE



1. MINIMUM EMBEDMENT PER FOUNDATION PLAN NOTES OR PLAN(S)
2. WIDTH PER PLAN OR SCHEDULE
3. REINFORCING PER PLAN OR SCHEDULE
4. ANCHOR BOLT PER PLAN

107 INTERIOR CFS STUD WALL AT FOOTING

106-220361 - RCAD — NO SCALE

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PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

BID SET

SHEET TITLE:
FOUNDATION DETAILS

SHEET NUMBER:
S3.1

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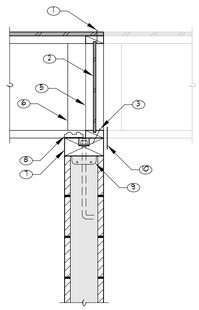
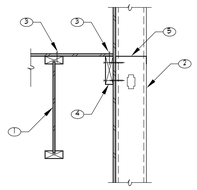


1. (2) ROWS OF BOUNDARY FASTENERS
2. 1 3/4" LSL BLOCKING TO MATCH JOIST DEPTH
3. (3) 16d PER BLOCK
4. STAGGERED JOIST AS OCCURS
5. LINE OF STAGGERED JOIST BEYOND AS OCCURS
6. WEB STIFFENER WHERE REQ'D BY MFR.
7. 3x NAILER w/ 5/8" x 10" EMBED ANCHOR BOLTS AT 32" o.c. MAX.
8. A34 CLIP AT EACH JOIST w/ (8) #9 x 1 1/2" SD
9. CONTINUOUS GROUTED BOND BEAM PER G.S.N.
10. (2) LTP4 EACH BLOCK, U.N.O. ON PLAN

211 STAGGERED I-JOIST AT MASONRY WALL

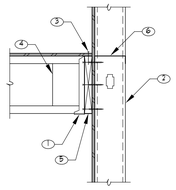
211-242978 - RCAD — NO SCALE



1. ROOF JOIST PER PLAN
2. METAL STUD WALL FRAMING PER PLAN
3. BOUNDARY FASTENER
4. FASTEN 2x6 LEDGER TO EACH STUD AND EACH BLOCK w/ (2) #10 SCREWS
5. 6OOT125-54 MIL BLOCKING

212 STEP IN ROOF FRAMING

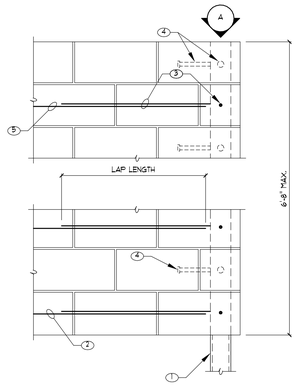
212-242978 - RCAD — NO SCALE



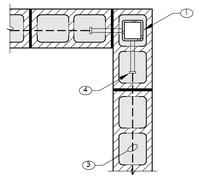
1. HANGER PER PLAN OR SCHEDULE
2. METAL STUD WALL FRAMING PER PLAN
3. BOUNDARY FASTENER
4. WEB STIFFENER WHERE REQ'D BY MFR.
5. FASTEN 2x12 LEDGER TO EACH STUD AND EACH BLOCK w/ (3) #10 SCREWS
6. 6OOT125-54 MIL BLOCKING

213 I-JOIST AT METAL STUD WALL

213-242978 - RCAD — NO SCALE



1. STEEL COLUMN PER PLAN CENTERED IN CELL
2. (2) #5 BOTTOM BARS
3. #5 x 3'-0" DEFORMED WELDABLE REBAR AT 16" o.c. TO MATCH AND LAP HORIZONTAL WALL REINFORCING
4. 3/4" DIA. x 6" NELSON STUD AT 16" o.c. (15) MIN.)
5. #5 AT 16" o.c.

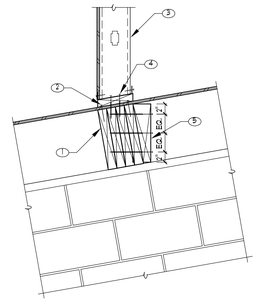


A. REFER TO MASONRY LINTEL SCHEDULE FOR ADDITIONAL INFORMATION
B. GROUT SHALL BE FULLY CURED TO DESIGN STRENGTH PRIOR TO INSTALLING ROOF FRAMING
C. WALL VERTICAL REINF. NOT SHOWN FOR CLARITY

A SECTION

208 MASONRY LINTEL AT STEEL COLUMN

208-242978 - RCAD — NO SCALE

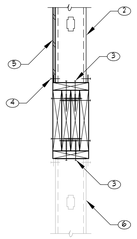


1. BEAM PER PLAN
2. FASTEN 2x SHIM TO TOP OF BEAM w/ (2) 16d NAILS AT 16" o.c.
3. METAL STUD WALL FRAMING PER PLAN
4. FASTEN BOTTOM TRACK TO 2x SILL PLATE w/ #10 SCREWS STAGGERED AT 6" o.c.
5. BEAM w/ (12) SDS25600 SCREWS AT 6" o.c. TO RECEIVE FRAMING BEAM PER PLAN

A. REFER TO DETAIL 204 FOR ADDITIONAL INFORMATION SHOWN BUT NOT CALLED OUT FOR CLARITY.

209 METAL STUD WALL AT SKEWED BEAM

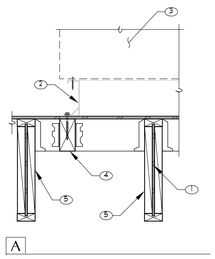
209-242978 - RCAD — NO SCALE



1. BEAM PER PLAN
2. METAL STUD WALL FRAMING PER PLAN
3. FASTEN TRACK TO 2x PLATE w/ #10 SCREWS STAGGERED AT 6" o.c.
4. BOUNDARY SCREW FASTENER
5. 15/32" PLYWOOD SHEATHING
6. REFER TO ARCH'L PLANS FOR SOFFIT FRAMING AS OCCURS

210 METAL STUD WALL AT BEAM

210-242978 - RCAD — NO SCALE



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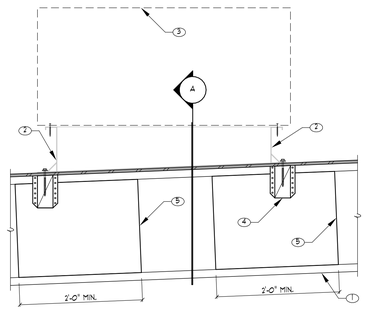
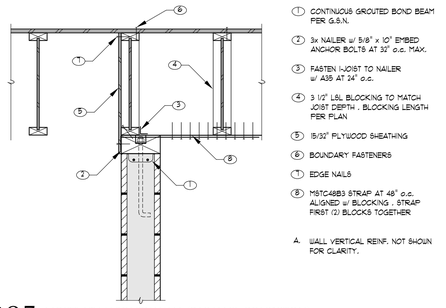


1. I-JOIST PER PLAN
2. FACTORY ROOF CURB BY OTHERS (18 GA. MIN). ATTACH TO SUPPORT BEAM BELOW w/ 1/2" LAG SCREW AT 24" o.c. AND WITHIN 4" OF EACH CORNER. PROVIDE 4" MIN. EMBEDMENT
3. LINE OF MECH. UNIT. VERIFY LIT., DIMENSIONS, AND LOCATION WITH ARCH'L. AND MECH. ATTACH MECH. UNIT CURB TO CURB w/ (2) #14 SCREWS AT EA. CORNER OF MECH. UNIT
4. 4x6 SUPPORT BEAM w/ SIMPSON HUS7.5 HANGER
5. WEB STIFFENER

A. FRAME FOR DECK OPENINGS PER TYPICAL DETAIL.
B. PLATFORMS SHALL SPAN OVER (3) I-JOIST MIN.

214 MECHANICAL UNIT PLATFORM AT WOOD I-JOIST

214-242978 — NO SCALE

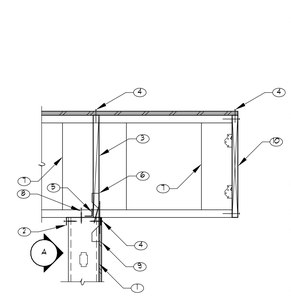


1. CONTINUOUS GROUTED BOND BEAM PER G.S.N.
2. 3x NAILER w/ 5/8" x 10" EMBED ANCHOR BOLTS AT 32" o.c. MAX.
3. FASTEN I-JOIST TO NAILER w/ A35 AT 24" o.c.
4. 3 1/2" LSL BLOCKING TO MATCH JOIST DEPTH - BLOCKING LENGTH PER PLAN
5. 15/32" PLYWOOD SHEATHING
6. BOUNDARY FASTENERS
7. EDGE NAILS
8. MSTC48B3 STRAP AT 48" o.c. ALIGNED w/ BLOCKING - STRAP FIRST (2) BLOCKS TOGETHER

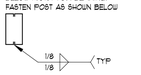
A. WALL VERTICAL REINF. NOT SHOWN FOR CLARITY.

205 I-JOIST AT MASONRY WALL (PARALLEL CONDIITON)

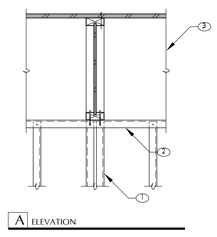
205-242978 - RCAD — NO SCALE



1. ALIGN 6OOS200-54 BOXED POST BELOW I-JOIST FOR BEARING. FASTEN POST AS SHOWN BELOW



2. CONTINUOUS TOP TRACK AT BOXED POST BETWEEN FULL HEIGHT STUDS MATCHING STUD DEPTH AND GAUGE. FASTEN TRACK TO ADJACENT STUDS w/ #10 SCREWS EACH STUD
3. 1 3/4" MIN. LSL BLOCKING w/ (3) #10 SCREWS PER BLOCK
4. BOUNDARY FASTENER
5. SIMPSON HGAI0KT AT EACH BLOCK. ATTACH ANGLE TO BLOCK w/ (4) 1/4 x 1 1/2 SDS SCREWS AND TO TRACK w/ (4) 1/4" x 2 3/4" TITEN TURBO SCREWS
6. SIMPSON H2A AT EACH JOIST. ATTACH TIE TO STUD w/ (5) #10 SCREWS, ATTACH TIE TO TRACK w/ (1) #10 SCREW, AND ATTACH TIE TO JOIST w/ (5) 0.131 x 1 1/2 NAILS
7. WEB STIFFENER PER MFR.
8. FASTEN BOTTOM CHORD TO TOP TRACK w/ (2) #10 SCREWS
9. SHEATHE WALL PER PLAN NOTE
10. 1 3/4" MIN. LSL FASCIA TO MATCH JOIST DEPTH w/ 16d TO EACH JOIST AND (2) A34

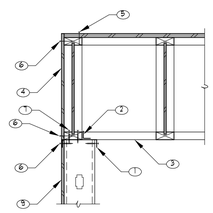


A ELEVATION

A. LSL BLOCKING AND RIM MAY BE REPLACED w/ LVL BLOCKING AND RIM OF THE SAME DEPTH AND THICKNESS.

206 CANTILEVER I-JOIST AT METAL STUD WALL

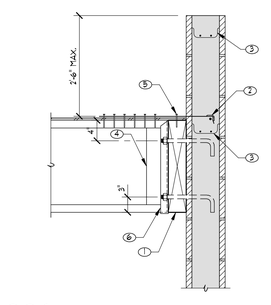
206-242978 - RCAD — NO SCALE



1. CONTINUOUS TOP TRACK AT BOXED POST BETWEEN FULL HEIGHT STUDS MATCHING STUD DEPTH AND GAUGE. FASTEN TRACK TO ADJACENT STUDS w/ #10 SCREWS EACH STUD
2. SIMPSON HGAI0KT AT 24" o.c. ATTACH ANGLE TO JOIST w/ (4) 1/4 x 1 1/2 SDS SCREWS AND TO TRACK w/ (4) 1/4" x 2 3/4" TITEN TURBO SCREWS AT 24" o.c.
3. JOIST BLOCKING PER MFR. AT FIRST 2 BAYS AT 24" o.c.
4. 15/32" PLYWOOD SHEATHING
5. BOUNDARY FASTENERS
6. EDGE FASTENERS
7. FASTEN BOTTOM CHORD TO TOP TRACK w/ (2) #10 SCREWS AT 6" o.c.

207 I-JOIST AT METAL STUD WALL (PARALLEL CONDITION)

207-242978 - RCAD — NO SCALE

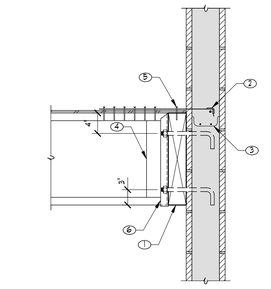


1. 4x12 LEDGER w/ (2) 1" DIA. x 5" EMBEDMENT ANCHOR BOLTS AT 24" o.c.
2. FA23 STRAP EA. JOIST. HOOK AROUND AND TIE TO #4 x 24" TIE BAR
3. CONTINUOUS GROUTED BOND BEAM PER G.S.N.
4. WEB STIFFENER WHERE REQ'D BY MFR.
5. BOUNDARY FASTENERS
6. HANGER PER PLAN OR SCHEDULE

A. WALL VERTICAL REINF. NOT SHOWN FOR CLARITY.

201 WOOD I-JOIST AT MASONRY WALL

201-242978 — NO SCALE

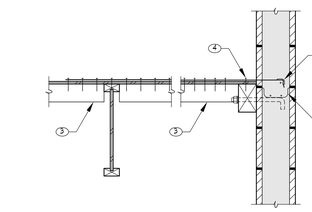


1. 4x12 LEDGER w/ (2) 1" DIA. x 5" EMBEDMENT ANCHOR BOLTS AT 24" o.c.
2. FA18 STRAP TO JOIST AT 48" o.c. HOOK AROUND AND TIE TO #4 x 24" TIE BAR
3. CONTINUOUS GROUTED BOND BEAM PER G.S.N.
4. WEB STIFFENER WHERE NOTED ON PLANS
5. BOUNDARY FASTENERS
6. HANGER PER PLAN OR SCHEDULE

A. WALL VERTICAL REINF. NOT SHOWN FOR CLARITY.

202 WOOD I-JOIST AT MASONRY WALL

202-242978 — NO SCALE

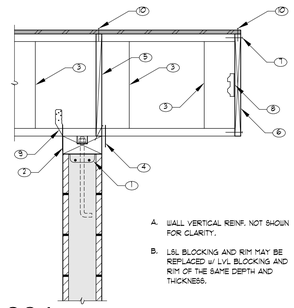


1. CONTINUOUS BOND BEAM PER PLAN OR G.S.N.
2. FA18 STRAP TO JOIST AT 48" o.c. HOOK AROUND AND TIE TO #4 x 24" TIE BAR
3. BLOCKING PER PLAN
4. BOUNDARY FASTENERS

A. WALL VERTICAL REINF. NOT SHOWN FOR CLARITY.
B. PARAPET SHALL NOT EXCEED 2'-6" MAX. WHERE OCCURS.

203 WOOD LEDGER AT MASONRY WALL

203-242978 - RCAD — NO SCALE



1. CONTINUOUS GROUTED BOND BEAM PER G.S.N.
2. 3x NAILER w/ 5/8" x 10" EMBED ANCHOR BOLTS AT 32" o.c. MAX.
3. WEB STIFFENER WHERE REQ'D BY MFR.
4. LTP4 AT 24" o.c., U.N.O. ON PLAN
5. 1 3/4" MIN. LSL BLOCKING w/ (3) 16d PER BLOCK
6. 1 3/4" LSL FASCIA TO MATCH JOIST DEPTH
7. 16d EACH JOIST
8. A35 CLIP EACH JOIST, U.N.O. ON PLAN
9. H8 AT EACH JOIST
10. BOUNDARY FASTENERS

A. WALL VERTICAL REINF. NOT SHOWN FOR CLARITY.
B. LSL BLOCKING AND RIM MAY BE REPLACED w/ LVL BLOCKING AND RIM OF THE SAME DEPTH AND THICKNESS.

204 CANTILEVER I-JOIST AT MASONRY WALL

204-242978 - RCAD — NO SCALE

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Interior Design
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Land Planning
Construction Management

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LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

PROJECT NO. 24-077
DATE: 21 APRIL 2025
REVISIONS:

SHEET TITLE:
FRAMING DETAILS

SHEET NUMBER:
S4.1

BID SET

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Plot Date: 4/23/2025 2:22:30 PM

GENERAL NOTES (APPLIES TO ALL SHEETS):

1. ALL WORK SHALL BE PROVIDED IN ACCORDANCE WITH 2018 INTERNATIONAL BUILDING CODES AND ALL APPLICABLE NATIONAL AND STATE CODES, AND SAFETY STANDARDS, INCLUDING ANY LOCAL AMENDMENTS ADOPTED BY THE STATE OF ARIZONA.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS PRIOR TO EXECUTION OF ANY WORK ON THE PROJECT.

3. ALL MECHANICAL EQUIPMENT SCHEDULED/SHOWN ON PLANS HAS BEEN SIZED IN ACCORDANCE WITH ASHRAE STANDARD 183, "PEAK COOLING AND HEATING LOAD CALCULATIONS IN BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS," USING INDUSTRY STANDARD SOFTWARE: I.E. ELITE SOFTWARE CHVAC, TRANE TRACE, ETC.

4. PROJECT/BUILDING(S) MINIMUM VENTILATION RATES HAVE BEEN CALCULATED IN ACCORDANCE WITH INTERNATIONAL MECHANICAL CODE (IMC) TABLE 403.3.1.1.

5. WORK INCLUDED: FURNISH MATERIAL, LABOR AND SERVICES NECESSARY FOR AND INCIDENTAL TO THE INSTALLATION OF THE FOLLOWING SYSTEMS WHERE SHOWN ON THE PLANS AND AS HEREINAFTER SPECIFIED. INCLUDE ALL NECESSARY WORK, MATERIALS, AND EQUIPMENT TO PERFORM WORK COMPLETELY.
   A. AIR HANDLING EQUIPMENT INCLUDING, BUT NOT LIMITED TO, PACKAGED DX ROOFTOP AIR HANDLING UNITS, DEDICATED OUTDOOR UNITS, HEAT PUMPS, FAN COILS, TERMINAL UNITS, AND EXHAUST FANS.
      a. ALL HVAC EQUIPMENT SHALL BE LABELED ON THE EXTERIOR AND INTERIOR OF BUILDING FOR EASE OF IDENTIFICATION. CONTRACTOR SHALL USE NAMING CONVENTION USED PROVIDED WITHIN THE THESE CONTRACTOR DOCUMENTS UNLESS DIRECTED OTHERWISE BY OWNER/TENANT/BUILDING MANAGEMENT.
         - EXTERIOR LABELS SHALL BE AN ENGRAVED PLATE MADE OF RUST AND UV FADE RESISTANT MATERIALS PERMANENTLY APPLIED TO EXTERIOR OF EQUIPMENT IN LOCATION EASILY SEEN, AN WHICH DOES NOT IMPACT PERFORMANCE OF EQUIPMENT. SIZE OF LETTERING/NUMBERING ON LABEL SHALL BE A MINIMUM OF 2" TALL, OR OTHERWISE APPROVED BY THE OWNER/TENANT/BUILDING MANAGEMENT.
         - INTERIOR LABELING IN OPEN TO CEILING AREAS SHALL BE PAINTED STENCIL, OR OTHERWISE APPROVED APPLICATION. PAINT SHALL BE A BRIGHT COLOR (I.E. WHITE, ETC.) DISSIMILAR TO COLOR OF DUCT/EQUIPMENT BEING LABELED. SIZE OF LABEL SHALL BE VISIBLE/LEGIBLE FROM FLOOR. POSITION OF LABEL SHALL BE UNDERSIDE OF DUCT/DIFFUSER/EQUIPMENT. FINAL COORDINATION OF LABEL POSITION SHALL BE DONE IN THE FILED IN COORDINATION WITH OWNER/TENANT/BUILDING MANAGEMENT.
         - LABELING FOR EQUIPMENT LOCATED ABOVE CEILING SHALL BE APPLIED TO THE CEILING. LABELS SHALL BE PRINTED WITH CLEAN EDGES. SIZE AND POSITION OF LABEL SHALL BE DETERMINED IN THE FIELD. LABEL SHALL BE VISIBLE FROM FLOOR, BUT NOT DISTRACTING FROM CEILING AESTHETICS.
   B. SHEET METAL DUCTWORK, SHEET METAL PLENUMS, DUCT LININGS, FLEXIBLE DUCTWORK, DAMPERS AND ACCESSORIES.
   C. AIR DEVICES INCLUDING ADJUSTING THE PATTERN CONTROLLERS.
   D. LOUVERS, LOUVERED PENTHOUSES, INTAKE/RELIEF HOODS.
   E. INSTALLING ACCESSORIES SPECIFIED IN REFERENCED SECTIONS ABOVE.
   F. SMOKE STOPPING OF ALL PENETRATIONS OF DUCTWORK, AND FIRESTOPPING OF THE SAME THROUGH FIRE RATED PARTITIONS AS SHOWN ON THE ARCHITECTURAL DRAWINGS INCLUDING, BUT NOT LIMITED TO STAIRWAYS, SHAFTS, CORRIDORS, FLOORS, ROOFS, AND REQUIRED EXITS.
   G. INSTALLATION OF ALL REFRIGERANT SYSTEMS INCLUDING, BUT NOT LIMITED TO, PIPING, PIPING SPECIALTIES, AND REQUIRED REFRIGERANT CHARGE.
   H. CHARGING AND LEAK TESTING OF ALL FIELD PIPED REFRIGERANT SYSTEMS.
   I. CLEANING AND PRESSURE TESTING OF ALL EQUIPMENT, PIPING, AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS AS WELL AS INDUSTRY STANDARDS/PRACTICES.

6. MECHANICAL CONTRACTOR (MC) SHALL COORDINATE WITH THE PLUMBING CONTRACTOR (PC) REGARDING EQUIPMENT SUPPLIED BY MC TO BE INSTALLED BY THE PC. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF OTHER TRADES, AND WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.MECHANICAL CONTRACTOR (MC) SHALL BE RESPONSIBLE FOR PERFORMING A FIELD REVIEW OF ALL WORK IDENTIFIED WITHIN THE CONTRACT DOCUMENTS IN COORDINATION WITH ALL OTHER DISCIPLINES ON THE PROJECT PRIOR TO THE COMMENCEMENT OF ANY WORK. MC SHALL ALSO BE RESPONSIBLE FOR FINAL ROUTING OF ALL EQUIPMENT IN COORDINATION WITH ALL OTHER SYSTEMS PRESENT WITHIN SCOPE OF WORK.

7. ALL PENETRATIONS THROUGH FIRE/SMOKE RATED ASSEMBLIES SHALL BE SEALED AND PROTECTED IN ACCORDANCE WITH ALL NATIONAL, STATE, AND MUNICIPALLY ADOPTED CODES INCLUDING AMENDMENTS. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ASSEMBLY LOCATIONS AND RATINGS. FIRE/SMOKE RATED ASSEMBLIES INCLUDE, BUT NOT LIMITED TO STAIRWAYS, SHAFTS, CORRIDORS, FLOORS, ROOFS, AND REQUIRED EXITS. CONTRACTOR SHALL INSTALL PER MANUFACTURER'S UL LISTED INSTALLATION INSTRUCTIONS.

8. A FULL TEST AND BALANCE OF THE COMPLETE MECHANICAL SYSTEMS (AIRSIDE, REFRIGERANT, ETC.) SHALL BE REQUIRED FOLLOWING THE COMPLETION OF ALL WORK OUTLINED WITHIN THE CONTRACT DOCUMENTS. THE TEST AND BALANCE CONTRACTOR SHALL BE A THIRD PARTY AND SHALL BE NEBB AND/OR TAB CERTIFIED .A COMPLETE TEST AND BALANCE REPORT SHALL BE SUBMITTED TO OWNER AND ENGINEER FOR REVIEW AND APPROVAL. ENGINEER SHALL PROVIDE FINAL APPROVAL OF THE TEST AND BALANCE WORK.

9. MC SHALL REFER TO THE SCHEDULES ON THE M5 SERIES SHEETS FOR ALL SPECIFIED HVAC PIPING, EQUIPMENT, AND ASSOCIATED COMPONENTS/MATERIALS.

10. MC SHALL PROVIDE SEISMIC RESTRAINT FOR ALL EQUIPMENT AS REQUIRED BY CODE. MC SHALL DESIGN ALL SUPPORTS TO WITHSTAND SEISMIC LOADS AS SPECIFIED IN THE IBC. PROVIDE REQUIRED SHOP DRAWINGS TO BUILDING AUTHORITY PRIOR TO INSTALLATION.

11. TEMPERATURE CONTROLS (TC) WORK REQUIRED SHALL FALL UNDER THE PURVIEW OF THE MECHANICAL CONTRACTOR PERFORMING A CONTROLS CONTRACTOR (CC). ADDITIONAL INFORMATION FOR THE MC AND CC CONTROLS CONTRACTOR (CC)
    a. PROVIDE WALL MOUNTED THERMOSTATS WITH DIGITAL DISPLAY. (THERMOSTAT SHALL BE COMPATIBLE WITH THE BUILDINGS EXISTING HVAC CONTROL SYSTEM.) THERMOSTATS SHALL BE 10,000-OHM THERMISTOR WITH AN ACCURACY OF ±0.36°F. ROOM TEMPERATURE SENSOR COVERS SHALL ALL MATCH ON THE PROJECT. THERMOSTATS SHALL BE PROVIDED WITH THE FOLLOWING: LOCAL TEMPERATURE ADJUSTMENT ONLY (TEMPERATURE BAND TO BE DEFINED BY OWNER IN COORDINATION WITH CONTROLS CONTRACTOR) WITH LOCAL DIGITAL TEMPERATURE DISPLAY CONFIGURED TO DISPLAY WHOLE NUMBERS ONLY – NO DECIMAL POINTS OF PRECISION.
       - THERMOSTAT INSTALLATION HEIGHT SHALL BE IN ACCORDANCE WITH ADA GUIDELINES.
       - FINAL LOCATION OF THERMOSTATS SHALL DETERMINED IN THE FIELD IN COORDINATION WITH THE OWNER.
       - IF THERMOSTAT IS INSTALLED ON AN EXTERIOR WALL, THERMOSTAT SHALL BE PROVIDED WITH AN INSULATED BASE PLATE. ENGINEER DOES NOT ADVISE THAT THERMOSTATS BE PLACED ON EXTERIOR WALLS.
    b. PROVIDE 120V TO 24V TRANSFORMERS IN COORDINATION WITH ELECTRICAL CONTRACTOR.

12. ***IF REQUIRED*** CONTROLS CONTRACTOR (CC) SHALL PROVIDE ALL VFD'S, MC SHALL COORDINATE WITH C.C. ON INSTALLATION.

13. MC SHALL PROVIDE FIRE DAMPERS AS INDICATED ON THE DRAWINGS. ALL DAMPERS SHALL BE U.L. 555 LISTED UNDER NFPA STANDARD 90-A. DAMPERS FOR RECTANGULAR / SQUARE DUCTWORK SHALL BE STYLE 'B', ROUND OR OVAL DUCTWORK SHALL BE STYLE 'C'. ALL DAMPER CURTAINS SHALL BE LOCATED OUTSIDE OF THE AIRSTREAM REGARDLESS OF STYLE. FACTORY APPLIED WALL SLEEVES ARE NOT PERMITTED FOR BOTH HORIZONTAL AND VERTICAL INSTALLATIONS. SLEEVES SHALL BE FABRICATED AND INSTALLED IN THE FIELD. CONTRACTOR SHALL INSTALL PER MANUFACTURER'S UL LISTED INSTALLATION INSTRUCTIONS FOR FIRE DAMPERS AND SHALL MAINTAIN A COPY ON SITE.

14. SEE ARCHITECTURAL DRAWINGS FOR INFORMATION REGARDING ROOF TOP EQUIPMENT FLASHING, CURB, AND CRICKET DETAILS.

DUCTWORK AND AIR DISTRIBUTION (APPLIES TO ALL SHEETS):

1. WORK FOR THIS SECTION HAS BEEN DESIGNED, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS:
   A. ASHRAE, "HANDBOOK 2017 FUNDAMENTALS", CHAPTER 21 - DUCT DESIGN.
      a. ALL DUCTWORK SIZING SHOWN ON THE PLANS HAS BEEN PERFORMED IN ACCORDANCE WITH ASHRAE'S 'EQUAL FRICTION METHOD.
      b. UNLESS OTHERWISE NOTED ON THE PLANS, ALL DUCTWORK IS DESIGNED IN ACCORDANCE WITH LOW STATIC PRESSURE REQUIREMENTS. STANDARD DUCTWORK DESIGN PRESSURE DROP CRITERIA IS AS FOLLOWS:
         - SUPPLY AIR DUCTWORK: 0.08 "W.C. PER 100'
         - RETURN AIR DUCTWORK: 0.06 "W.C. PER 100'
         - EXHAUST AIR DUCTWORK: 0.06 "W.C. PER 100'
   B. ASHRAE, "HANDBOOK 2020 HVAC SYSTEMS AND EQUIPMENT", CHAPTER 19 - DUCT CONSTRUCTION.
   C. ASHRAE, "HANDBOOK 2020 HVAC SYSTEMS AND EQUIPMENT", CHAPTER 20 - ROOM AIR DISTRIBUTION EQUIPMENT.
   D. SMACNA "HVAC DUCT CONSTRUCTION STANDARD - METAL AND FLEXIBLE" - LATEST EDITION
   E. UL 33, "HEAT RESPONSIVE LINKS FOR FIRE PROTECTION SERVICE."
   F. UL 555, "FIRE DAMPERS AND CEILING DAMPERS."
   G. UL 181, "FACTORY MADE AIR DUCTS AND CONNECTORS."

2. MATERIALS:
   A. ALL DUCTS UNLESS OTHERWISE OTHERWISE SHALL BE CONSTRUCTED FROM G-90 OR BETTER-GALVANIZED STEEL, LFQ, ETC. FIBERGLASS DUCTBOARD IS PROHIBITED.
      a. ALL ROUND AND/OR FLAT OVAL DUCTS SHALL HAVE SPIRAL SEAMS OR CONTINUOUSLY WELDED LONGITUDINAL SEAMS.
   B. EXHAUST DUCTS FOR SHALL BE CONSTRUCTED FROM 3003-H14 SERIES ALUMINUM.
   C. ALL SUPPLY DUCTWORK, UNLESS SPECIFIED OTHERWISE, SHALL BE CONSTRUCTED OF GAUGES AND REINFORCEMENT TO 2" W.C. STATIC PRESSURE IN SMACNA DUCT CONSTRUCTION STANDARD - LATEST EDITION.
   D. ALL RETURN, EXHAUST, OUTDOOR AIR, RELIEF, AND SUPPLY DUCTWORK DOWNSTREAM OF TERMINAL UNITS SHALL BE CONSTRUCTED OF GAUGES AND REINFORCEMENT TO 2" W.C. STATIC PRESSURE IN SMACNA DUCT CONSTRUCTION STANDARD - LATEST EDITION. PANELS IN ALL DUCTS 12" AND LARGER SHALL BE CROSS-BROKEN OR BEADED ON 12" CENTERS.
   E. WHERE LOCAL CODE REQUIRES GAUGES HEAVIER THAN REQUIRED BY SMACNA THEN THE LOCAL CODE SHALL GOVERN.

3. DUCT CONSTRUCTION AND INSTALLATION:
   A. ALL DUCTWORK SHALL BE NEATLY CONSTRUCTED, STIFFENED, ON THE OUTSIDE SURFACES WHERE NECESSARY TO PREVENT PERCEPTIBLE VIBRATION OR BUCKLING. ALL DUCTS, HOUSINGS, ETC., SHALL BE FABRICATED AS DETAILED ON THE DRAWINGS AND IN THE SMACNA DUCT CONSTRUCTION MANUAL -LATEST EDITION.
   B. DUCTS SHALL BE SECURELY SUPPORTED IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION MANUAL - LATEST EDITION AND MAY NOT BE SUPPORTED FROM ANY DUCT BRANCH/TAP UNLESS NOTED OTHERWISE ON THE PLANS.
   C. DUCTS THAT ARE TO BE EXTERNALLY INSULATED SHALL NOT BE SUPPORTED ON U/NISTRUT CHANNEL UNLESS IT REQUIRED BASED UPON LOADING. HANGER RODS FOR TRAPEZE BARS SHALL BE SPACED TO ALLOW FOR INSULATION INSTALLATION.
   D. SIZE OF DUCTWORK IDENTIFIED ON THE DRAWINGS SHALL BE THE FREE AREA DIMENSION OF THE DUCTWORK. (SHEET METAL DUCTWORK (I.E. PRESSURE SHELL) DIMENSIONS MAY VARY BASED UPON INSULATION REQUIREMENTS] OR [SHEETMETAL DIMENSIONS PROVIDED TAKE INTO ACCOUNT ANY INTERNAL ACOUSTICAL LINING THICKNESS SPECIFIED FOR THE DUCT SYSTEM OR SUB-SYSTEM.]
   E. MC SHALL PROVIDE TURNING VANES AT ALL SQUARE/RECTANGULAR SUPPLY AND RETURN AIR DUCTWORK ELBOWS.
   F. MC SHALL PROVIDE HIGH EFFICIENCY TAKEOFFS WITH INTEGRAL LOCKABLE QUADRANT VOLUME DAMPERS AT EVERY SUPPLY, RETURN, AND EXHAUST AIR DUCT BRANCH/TAP UNLESS NOTED OTHERWISE ON THE PLANS.
   G. UNLESS OTHERWISE NOTED (U.N.O.) WITHIN THE DRAWINGS, ALL MANUAL VOLUME DAMPERS SHALL BE LOCKABLE QUADRANT TYPE.
   H. FLEX-DUCT LENGTHS SHALL NOT EXCEED 8'-0" FOR DIFFUSERS, AND 3'-0" AT VAV BOX INLETS.
      a. SUPPORT FLEX-DUCT ON 4'-0" CENTERS MAXIMUM.
      b. FLEX-DUCT SHALL BE FLEXMASTER TYPE 8M, THERMAFLEX M-KE, OR EQUIVALENT.
   I. ALL EXPOSED DUCTWORK SHALL BE PAINTED. MC SHALL BE RESPONSIBLE FOR PROVIDING PAINTED DUCTWORK EITHER FROM THE MANUFACTURER, OR FIELD APPLIED. IF DUCTWORK IS FIELD PAINTED, MC SHALL PROVIDE PAINTGRIP TYPE DUCTWORK. MC SHALL COORDINATE WITH THE ARCHITECT FOR THE FINAL PAINT COLOR AND APPLICATION.
   J. ALL SUPPLY DUCTWORK UNLESS SPECIFIED OTHERWISE SHALL BE SMACNA'S SEAL CLASS A.

4. DUCT INSULATION:
   A. ALL DUCTWORK LOCATED ABOVE CEILINGS WITHIN AN UNCONDITIONED SPACE SHALL BE PROVIDED WITH A MINIMUM R-6 INSULATION.
      a. EXCEPTION: ALL DUCTWORK LOCATED IN ATTICS (ABOVE BUILDING INSULATION) WITHIN AN UNCONDITIONED SPACE SHALL BE PROVIDED A MINIMUM R-8 INSULATION.
      b. EXCEPTION: ALL DUCTWORK SERVING FRESH OUTSIDE AIR SHALL BE PROVIDED A MINIMUM R-8 INSULATION WITH VAPOR BARRIER.
      c. ALL SQUARE/RECTANGULAR DUCTWORK ABOVE CEILINGS SHALL BE PROVIDED WITH EITHER 1-1/2" THICK R-6 INTERNAL LINING OR MINIMUM 2" THICK R-6 EXTERNAL GLASS FIBER, FOIL BACKED INSULATION WITH A VAPOR BARRIER.
         - ALL DUCT LINERS USED SHALL BE TESTED IN ACCORDANCE WITH TEST METHOD ASTM C423.
      d. ALL ROUND DUCTWORK ABOVE CEILINGS SHALL BE WRAPPED WITH A MINIMUM 2" THICK R-6 GLASS FIBER, FOIL BACKED INSULATION WITH A VAPOR BARRIER.

5. AIR DEVICES:
   A. DEVICES DESCRIBED WITHIN THE DRAWINGS AND ASSOCIATED SCHEDULES ARE BASED ON TITUS. SIMILAR DESIGN CHARACTERISTICS AS MANUFACTURED BY PRICE, KRUEGER, CARNES, METAL AIRE, NAILOR, OR TUTTLE & BAILEY WILL ALSO BE ACCEPTABLE. SUCH SUBSTITUTE EQUIPMENT SHALL BE SIZED ON THE BASIS OF ADPI PERFORMANCE, AND SHALL BE SELECTED FOR A MAXIMUM OF 0.05 INCHES W.C. STATIC PRESSURE DROP AND A MAXIMUM NOISE CRITERION CURVE NOT GREATER THAN NC30. RETURN OR EXHAUST DEVICES SHALL NOT BE SMALLER THAN SIZES SHOWN.
   B. UNLESS NOTED OTHERWISE (U.N.O.) WITH FLOW ARROWS ON THE DRAWINGS, ALL DIFFUSERS SHOWN ON THE DRAWINGS ARE 4-WAY THROW PATTERNS. MC SHALL REFER TO DRAWINGS AND AIR DEVICE SCHEDULE TO DETERMINE WHICH DIFFUSERS REQUIRE A DIFFERENT THROW PATTERN. ALL DIFFUSERS NOT 4-WAY PATTERN ARE IDENTIFIED ON THE DRAWINGS WITH FLOW ARROWS ILLUSTRATING THE THROW NUMBER, AND DIRECTION OF FLOW.
   C. UNLESS NOTED OTHERWISE (U.N.O.) ON THE DRAWING, HET FITTING AND FLEX-DUCT SHALL BE THE SAME SIZE AS DIFFUSER CONNECTION.
   D. MC SHALL PROVIDE PLENUM RETURN SOUND BOOTS ON ALL RETURN AIR DEVICES. CONTRACTOR SHALL REFER TO THE 'AIR DEVICE' SCHEDULE FOR RETURN AIR DEVICE SPECIFIED TO COORDINATE REQUIRED SOUND BOOT TYPE. REFER TO DETAILS WITHIN M5 SERIES SHEETS (OR MP IF COMBINED DISCIPLINES).

HEAT PUMP NOTES (APPLIES TO ALL SHEETS):

1. IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR (MC) TO OBTAIN A MANUFACTURER PRODUCED, ENGINEER APPROVED HEAT PUMP PIPING SCHEMATIC WHICH SHALL INCLUDING ALL PIPING SIZES, LENGTHS, ETC., PRIOR TO MATERIAL ACQUISITION AND INSTALLATION. THE MECHANICAL CONTRACTOR SHALL BE HELD FULLY LIABLE FOR ANY COST, MATERIALS AND LABOR, ASSOCIATED TO HEAT PUMP SYSTEM ISSUES / PROBLEMS RESULTING FROM THE MECHANICAL CONTRACTORS FAILURE TO OBTAIN AN APPROVED PIPING SCHEMATIC.
   A. MC SHALL PROVIDE A DRAWING WITH THE LOCATION OF ALL VRF EQUIPMENT, INCLUDING DIMENSIONS, TO THE MANUFACTURERS REPRESENTATIVE TO COMPLETE AN ACCURATE PIPING SCHEMATIC PRIOR TO MATERIAL ACQUISITION AND INSTALLATION.

2. MC SHALL INSTALL ALL HEAT PUMP REFRIGERANT PIPING IN ACCORDANCE WITH THE MANUFACTURERS GUIDELINES/REQUIREMENTS/SPECIFICATIONS. PIPING SHALL BE INSTALLED PLUMB AND LEVEL, AND BRACED IN ACCORDANCE WITH MANUFACTURER GUIDELINES/REQUIREMENTS/SPECIFICATIONS.

3. MC SHALL VALVE ALL HEAT RECOVERY UNIT (HR) PORTS AND CAP ALL UNUSED PORTS.

4. MC SHALL PROVIDE SERVICE VALVES AT REFRIGERANT CONNECTIONS TO FAN COILS.

5. EXPOSED EXTERIOR REFRIGERANT PIPING SHALL BE COVERED IN A UV RESISTANT WRAP. WRAP SHALL BE 3M VENTURECLAD, OR APPROVED EQUAL.

6. AT MC OPTION, PRIOR ENGINEER APPROVED PRESS FITTINGS MAY BE USED IN LIEU OF BRAISING COPPER REFRIGERANT PIPING. PRESS FITTINGS SHALL BE ZOOMLOCK OR APPROVED EQUAL.

7. MC SHALL PROVIDE SERVICE VALVES ON REFRIGERANT PIPING (R2 OR R3) AT EACH PIECE OF EQUIPMENT TO PROVIDE EASE OF SERVICE. EQUIPMENT INCLUDES, BUT NOT LIMITED TO FAN COILS, CASSETTES, HEAT PUMPS, HYDRO UNITS, ETC.

8. ***IF REQUIRED*** MC SHALL PROVIDE REFRIGERANT LINE SET PIPE CHASE WEATHER HOOD. MC SHALL REFER TO THE DRAWINGS FOR THE LOCATION AND DETAIL M.07.01 ON M5 SERIES SHEETS FOR INSTALLATION GUIDELINES.

9. ***IF REQUIRED*** PRE-INSULATED REFRIGERANT PIPING SHALL BE PLENUM RATED.

10. ALL HEAT PUMPS INSTALLED ON GRADE OR THE ROOF SHALL BE MOUNTED ON EQUIPMENT STANDS. IF THE HEAT PUMP IS MOUNTED ON GRADE, THE EQUIPMENT STAND SHALL SIT ATOP A CONCRETE HOUSEKEEPING PAD - THE PAD SHALL BE A MINIMUM OF 3-1/2" THICK. IF THE HEAT PUMP IS MOUNTED TO A WALL, IT SHALL BE AFFIXED TO THE WALL VIA BRACKETS CONSTRUCTED IN SUPPORT AT MINIMUM 1.15 X THE WEIGHT OF THE HEAT PUMP. HEAT PUMP INSTALLATION, INCLUDING CLEARANCES SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS.

MECHANICAL ABBREVIATIONS INDEX

NOTE: ALL ABBREVIATIONS MAY NOT BE USED ON THIS PROJECT.

AD	ACCESS DOOR
A.F.F.	ABOVE FINISHED FLOOR
AP	ACCESS PANEL
APRX	APPROXIMATE
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
D	DAMPER
DN	DOWN
EA	EXHAUST AIR
EF	EXHAUST FAN
FCU	FAN COIL UNIT
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
MA	MAKE-UP AIR
OA	OUTSIDE AIR
RA	RETURN AIR
RTU	ROOF TOP UNIT
SA	SUPPLY AIR

MECHANICAL PIPE FITTING SYMBOLS

NOTE: ALL SYMBOLS AND ABBREVIATIONS MAY NOT BE USED.

SYMBOL	ABBREVIATION	EXPLANATION
	UP	PIPE, TURNED UP
	DN	PIPE, TURNED DOWN
	TDN	PIPE, TEE DOWN
	SV	SERVICE VALVE
	BV	BALANCE VALVE
	CAP	CAP

MECHANICAL CALLOUTS

NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT.

SYMBOL	ABBREVIATION
XX / ##	EQUIPMENT DESIGNATION NUMBER
X# / ###	AIR DEVICE DESIGNATION CFM
# / X## #	SECTION DESIGNATION SHEET NUMBER
# / X##	CALLOUT DESIGNATION SHEET NUMBER
	CONNECT TO EXISTING
	POINT OF DEMOLITION
#	KEYED NOTE DESIGNATION
#	REVISION DELTA
	ROUND DUCT WORK
	OVAL DUCT WORK
T# #" / B# #"	DUCT ELEVATION TAG
T / X-#	THERMOSTAT WITH EQUIPMENT NUMBER

MECHANICAL PIPE SYMBOLS

NOTE: ALL SYMBOLS AND ABBREVIATIONS MAY NOT BE USED.

SYMBOL	EXPLANATION
CD	CONDENSATE DRAIN
R2	REFRIGERANT 2-PIPE

DESIGN CONTACTS

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DESIGNER	JAREN TICE

MECHANICAL SHEET LIST

M0.1	MECH NOTES SYMBOLS & ABBREVIATIONS
M2.1	LEVEL 1 MECHANICAL PLAN
M2.2	MECHANICAL & PLUMBING ROOF PLAN
M5.1	MECHANICAL SCHEDULES & DETAILS
M5.2	MECHANICAL DETAILS
TECH-1	K-TECH DRAWINGS
TECH-2	K-TECH CONTROLS

MECHANICAL DUCT SYMBOLS

NOTE: ALL SYMBOLS AND ABBREVIATIONS MAY NOT BE USED.

SYMBOL	EXPLANATION
AP	ACCESS DOOR/PANEL
AP X"xX"	BACK DRAFT DAMPER
BDD / M / D	MANUAL BALANCE DAMPER MOTORIZED DAMPER
FSD FRD	FIRE RATED DAMPER FIRE SMOKE DAMPER
	DIRECTION OF FLOW
	DROP IN DIRECTION OF ARROW
D	DUCT 45° TAKE-OFF CONNECTION WITH DAMPER
XX" x XX"	INTERNALLY INSULATED DUCT WORK. (EXTERIOR DIMENSION.)
XX" x XX"	RECTANGULAR SHEET METAL DUCT. (EXTERIOR DIMENSION.)
XX" x XX"	K-27 DOUBLE WALL ROUND DUCT WORK. (EXTERIOR DIMENSION.)
	FLEXIBLE DUCT WORK
	TURNING VANES (RECTANGULAR)
	TURNING VANES (RECTANGULAR), SMOOTH RADIUS
	SUPPLY AIR DUCT, DOWN
	SUPPLY AIR DUCT, UP
	SUPPLY AIR DUCT ROUND, DOWN
	SUPPLY AIR DUCT ROUND, UP
	RETURN AIR DUCT, DOWN
	RETURN AIR DUCT, UP
	RETURN AIR DUCT ROUND, DOWN
	RETURN AIR DUCT ROUND, UP
	EXHAUST AIR DUCT, DOWN
	EXHAUST AIR DUCT, UP
	EXHAUST AIR DUCT ROUND, DOWN
	EXHAUST AIR DUCT ROUND, UP
	DEMO DUCTWORK
	EXISTING DUCTWORK
	SQUARE SUPPLY DIFFUSER ROUND CONNECTION
	SQUARE RETURN GRILLE ROUND CONNECTION
	SQUARE EXHAUST GRILLE ROUND CONNECTION
	PLENUM RETURN WITH SOUND BOOT
	PLENUM RETURN
	SQUARE SUPPLY DIFFUSER SQUARE CONNECTION
	SQUARE RETURN GRILLE SQUARE CONNECTION
	SQUARE EXHAUST GRILL SQUARE CONNECTION
	ROUND DIFFUSER
	LINEAR SLOT DIFFUSER
	LOUVER GRILLE
	DUCT MOUNTED DIFFUSER (SEE PLANS FOR DIFFUSER INSTALLATION ANGLE.)

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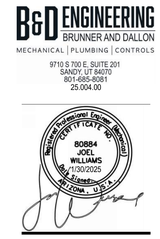


LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

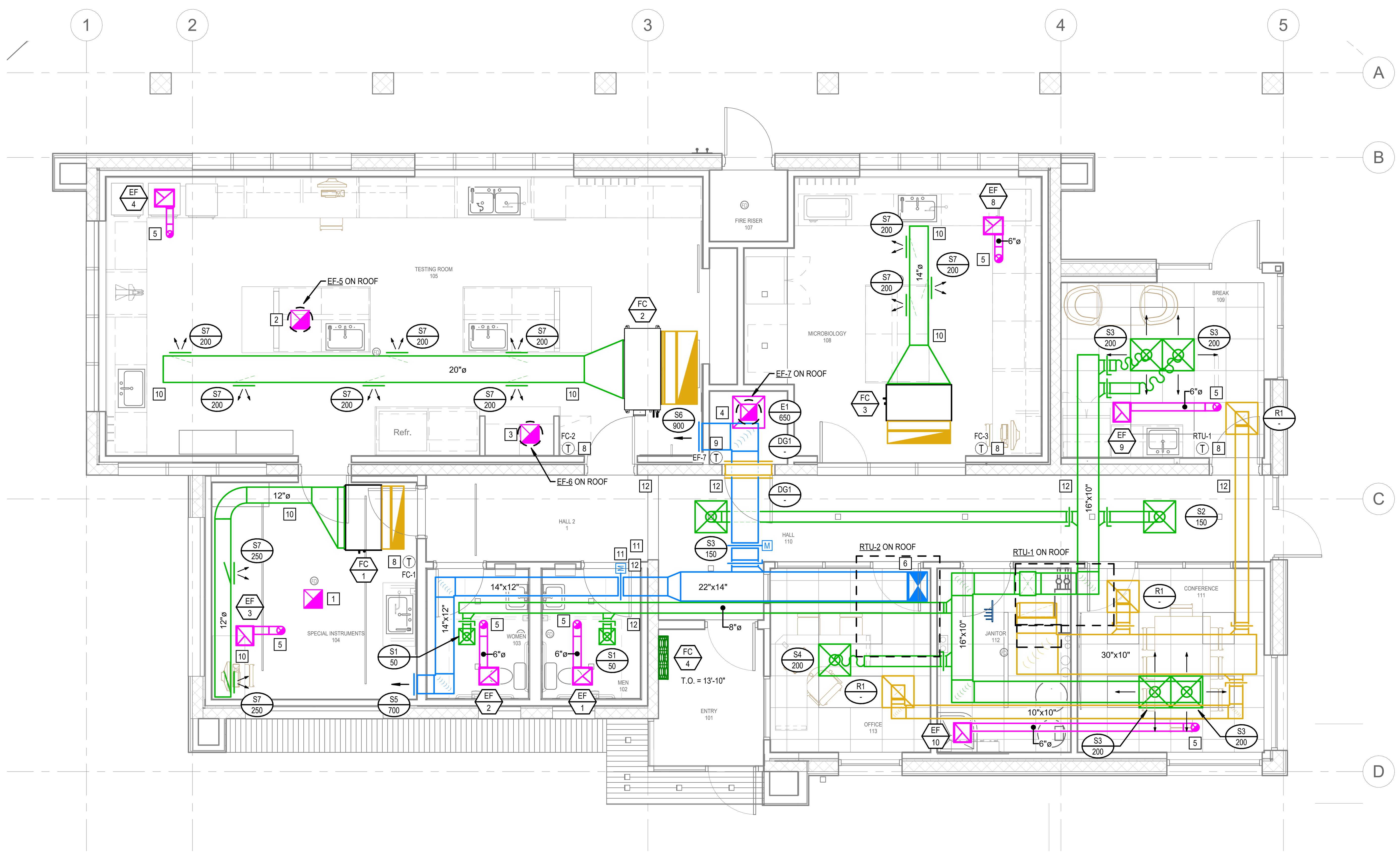
PROJECT NO. 24-077
DATE 21 APRIL 2025
REVISIONS:

SHEET TITLE:
MECH NOTES SYMBOLS & ABBREVIATIONS

SHEET NUMBER:
M0.1

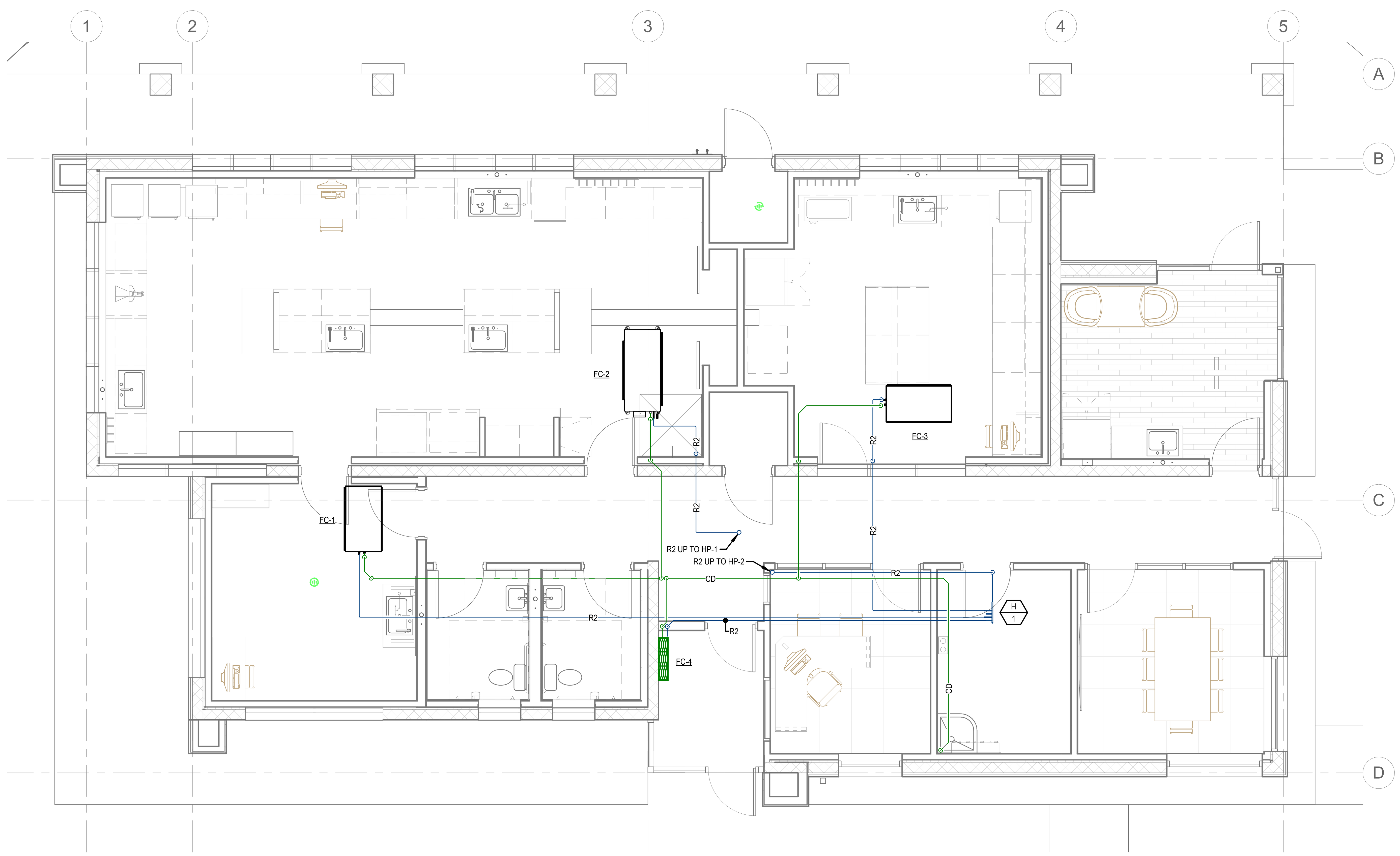
BID SET

Plot Date: 4/15/2025 10:51:34 AM



NOTE:
CONTRACTOR SHALL INSTALL DUCT TIGHT TO STRUCURE. COORDINATE WITH ALL TRADES.

1 M2.1 MECHANICAL FLOOR PLAN
1/4" = 1'-0"



2 M2.1 MECHANICAL PIPING FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES

1. REFER TO ALL NOTES, SYMBOLS & ABBREVIATIONS ON SHEET M0.1. REFER TO ALL SCHEDULES & DETAILS WITHIN P5 SERIES SHEETS.

KEYED NOTES

1. 12"Ø FOR FUTURE HOOD. ROUTE UP TO ROOF, TRANSITION AND CONNECT TO CURB OPENING. FOR FUTURE EXHAUST FAN. STUB DUCT 12" BELOW CEILING AND CAP.
2. CONNECT 12"Ø DUCT TO HOOD. ROUTE UP TO ROOF, TRANSITION AND CONNECT TO CURB OPENING OF EF-6.
3. CONNECT 10"Ø DUCT TO HOOD. ROUTE UP TO ROOF, TRANSITION AND CONNECT TO CURB OPENING OF EF-5.
4. ROUTE 12"x12" EXHAUST DUCT UP TO ROOF, TRANSITION AND CONNECT TO CURB OPENING OF EF-7.
5. ROUTE 6"Ø EXHAUST DUCT UP THRU ROOF AND CAP.
6. ROUTE 20"x16" DUCT UP THRU ROOF, TRANSITION AND CONNECT TO RTU-2 OPENING.
7. ROUTE 20"x16" SUPPLY DUCT AND 30"x10" RETURN DUCT UP THRU ROOF, TRANSITION AND CONNECT TO RTU-1 OPENING.
8. CONTRACTOR SHALL PROVIDE COMPATIBLE 7-DAY PROGRAMMABLE THERMOSTAT. COORDINATE FINAL LOCATION WITH ARCHITECT/OWNER BEFORE FINAL INSTALLATION.
9. PROVIDE LINE VOLTAGE, CLOSE ON RISE THERMOSTAT. THERMOSTAT TO CLOSE AT 85 DEGREES F. AND OPEN AT 80 DEGREES F. (ADJUSTABLE)
10. CENTER OF DUCT TO BE MOUNTED 12'-0" A.F.F. COORDINATE WITH LIGHTS TO ENSURE DUCT IS INSTALLED ABOVE. CONTRACTOR SHALL CONFIRM FINAL HEIGHT WITH OWNER BEFORE INSTALLATION.
11. RTU-2 IS A TWO SPEED UNIT. ON INITIAL SETUP UNIT IS TO RUN ON LOW SPEED ONLY, WITH LOW VOLTAGE, NORMALLY CLOSED MOTORIZED DAMPER TO TESTING ROOM OPEN AND DAMPER TO SPECIAL INSTRUMENTS LAB CLOSED. IN THE FUTURE WHEN SPECIAL INSTRUMENTS LAB IS OPERATIONAL, UNIT SHALL OPERATE ON LOW SPEED WHEN HOOD IS ONLY OPERATIONAL IN ONE LAB AND ON HIGH SPEED WHEN HOODS IN BOTH LABS ARE OPERATING. WHEN ONE HOOD IS OPERATIONAL AUTOMATIC DAMPER TO THAT LAB SHALL OPEN AND DAMPER TO OTHER LAB SHALL CLOSE.
12. COORDINATE WITH MASONRY SUBCONTRACTOR FOR OPENING IN CMU WALL.

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Registered Professional Engineer (Mechanical)
CERTIFICATE NO.
80884
JOEL
WILLIAMS
1/30/2025
Date Signed
ARIZONA, U.S.A.

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

PROJECT NO. 24-077
DATE 21 APRIL 2025
REVISIONS:

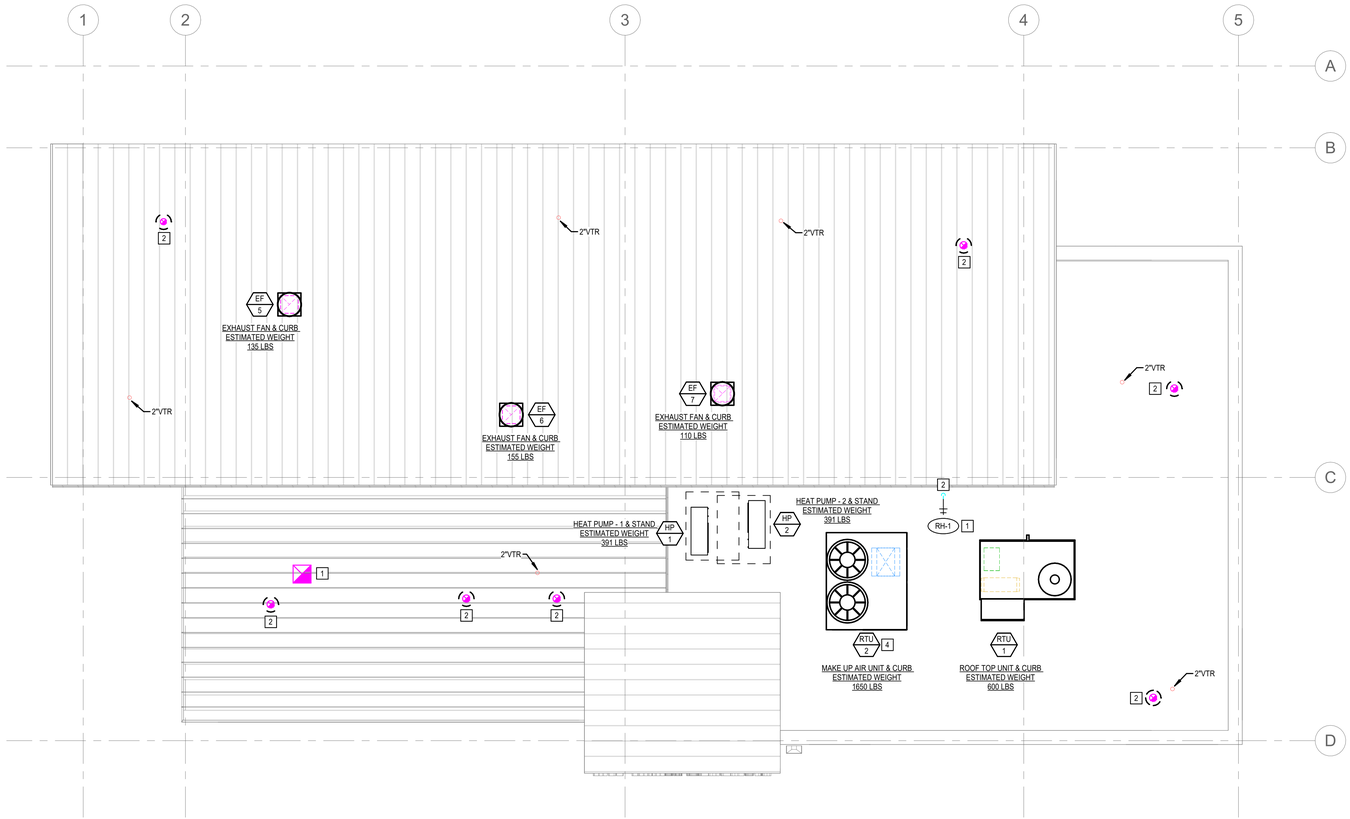
SHEET TITLE:
LEVEL 1 MECHANICAL PLAN

SHEET NUMBER:
M2.1

BUILDING NORTH

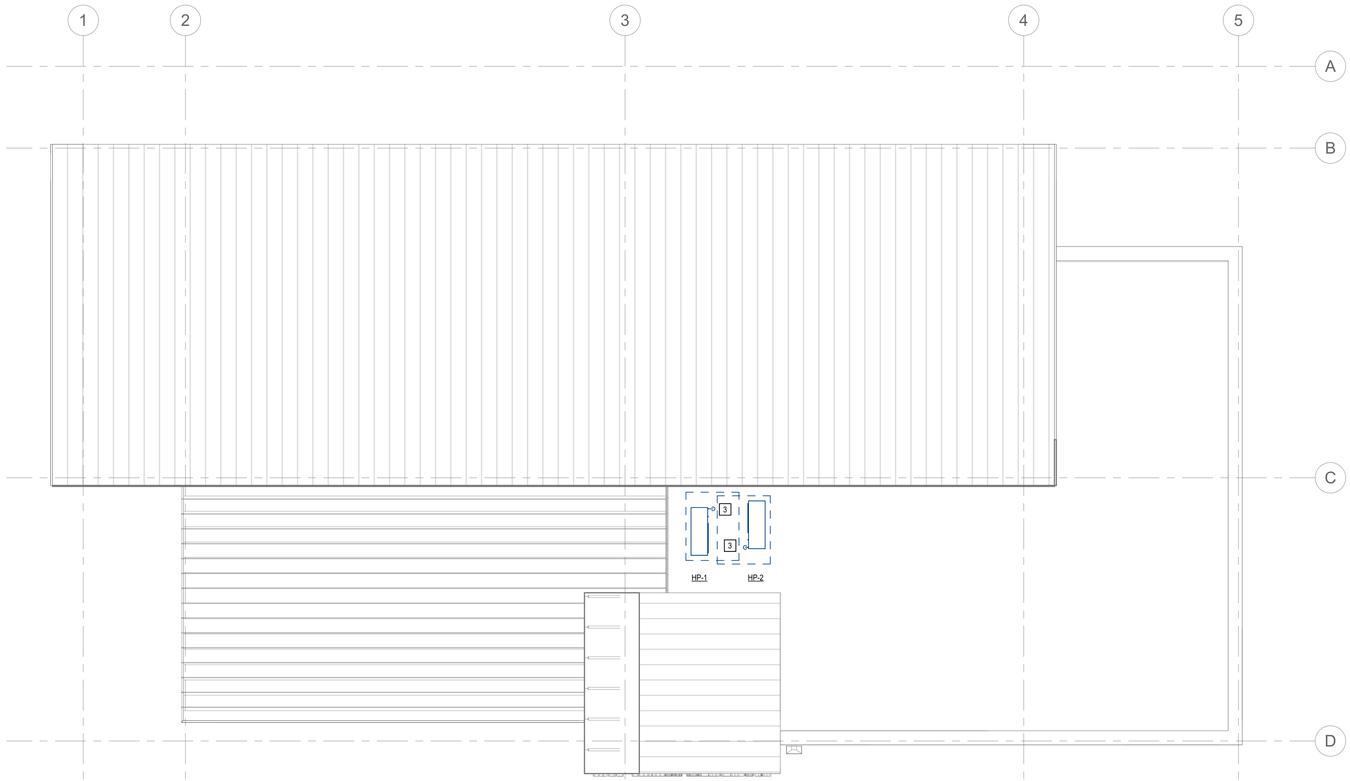
BID SET

Plot Date: 4/17/2025 12:40:01 PM



1 M2.2 MECHANICAL & PLUMBING ROOF PLAN
1/4" = 1'-0"

1/4" = 1'-0"
1' 2' 4' 8'



2 M2.2 MECHANICAL PIPING ROOF PLAN
1/4" = 1'-0"

1/4" = 1'-0"
1' 2' 4' 8'

BUILDING NORTH

BID SET

Plot Date: 4/15/2025 10:51:43 AM

GENERAL NOTES

1. REFER TO ALL NOTES, SYMBOLS & ABBREVIATIONS ON SHEET M0.1. REFER TO ALL SCHEDULES & DETAILS WITHIN PS SERIES SHEETS.
2. ALL EXHAUST PENETRATIONS TO BE LOCATED A MINIMUM OF 10'-0" FROM ALL AIR INTAKES.

KEYED NOTES

1 CONTRACTOR TO INSTALL MINIMUM 14" ROOF CURB. SECURE TO ROOF DECK. ROOFING CONTRACTOR TO FLASH AND SEAL ALL PENETRATIONS TO FIT FUTURE EXHAUST FAN MODEL: COOK 150RH15D.

2 6" EXHAUST DUCT FROM BELOW. PROVIDE ROOF CAP.

3 R2 PIPING FROM BELOW. SEE SHEET M2.1 FOR CONTINUATION.

4 SEE ROOFTOP SCHEDULE ON SHEET M5.1 FOR NOTES.

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Professional Engineer Stamp
CERTIFICATE NO.
80884
JOEL
WILLIAMS
EXPIRES: 11/30/2025
STATE OF UTAH

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE 21 APRIL 2025
REVISIONS:

SHEET TITLE:
MECHANICAL & PLUMBING ROOF PLAN

SHEET NUMBER:
M2.2

AIR DEVICE SCHEDULE

UNIT DESIG.	SERVICE	MANUFACTURER & MODEL NO.	TYPE	THROW	NECK SIZE (IN.)	FACE SIZE (IN.)	FINISH	NOTES
S1	SUPPLY	TITUS TDC	GYP.	4-WAY	6"Ø	12"x12"	VERIFY WITH OWNER	2,8
S2	SUPPLY	TITUS TDC	LAY-IN	2-WAY	8"Ø	24"x24"	VERIFY WITH OWNER	1,8
S3	SUPPLY	TITUS TDC	LAY-IN	3-WAY	8"Ø	24"x24"	VERIFY WITH OWNER	1,8
S4	SUPPLY	TITUS TDC	LAY-IN	4-WAY	8"Ø	24"x24"	VERIFY WITH OWNER	1,8
S5	SUPPLY	TITUS 1700	WALL MOUNTED	2-WAY	14"x12"	16"x14"	VERIFY WITH OWNER	3,7,8
S6	SUPPLY	TITUS 1700	WALL MOUNTED	2-WAY	20"x10"	22"x12"	VERIFY WITH OWNER	3,7,8
S7	SUPPLY	TITUS S300FL ASD	DUCT MOUNTED	2-WAY	14"x6"	16"x8"	VERIFY WITH OWNER	5,6
R1	RETURN	TITUS PAR	LAY-IN	-	10"x10"	24"x24"	VERIFY WITH OWNER	1,4,8
E1	EXHAUST	TITUS PAR	LAY-IN	-	12"x12"	24"x24"	VERIFY WITH OWNER	1,8
DG1	TRANSFER	TITUS CT-700L	DOOR GRILLE	-	22"x22"	24"x24"	VERIFY WITH OWNER	3,7

NOTES:

1. PROVIDE BORDER FOR LAY-IN CEILING
2. PROVIDE BORDER FOR GYP. CEILING
3. PROVIDE BORDER FOR WALL MOUNTED DIFFUSER
4. PROVIDE WITH SOUND BOOT. SEE DETAIL M.02.05 ON MS SERIES SHEETS.
5. ADJUST TO 30° BELOW HORIZONTAL CENTERLINE, OR AS DESCRIBED ON PLANS. PROVIDE WITH OPTIONAL AIR SCOOP DEVICE.
6. PROVIDE REAR BLADES WITH 22.5° DEFLECTION.
7. APPROVED MANUFACTURERS: TITUS, CARNES, NAILOR, PRICE, KRUEGER, METALAIRE, HART & COOLEY. (SUBJECT TO PROJECT DOCUMENT CONFORMANCE)
8. PROVIDE REAR BLADES WITH 0° DEFLECTION.
9. PROVIDE WITH ALUMINUM OPPOSED BLADE DAMPER.
10. GRILLE SHALL BE INSTALLED WITH BLADES FACING UP TO PREVENT LINE OF SIGHT.

EXHAUST FAN SCHEDULE

UNIT DESIG.	LOCATION	MANUFACTURER & MODEL NO.	FAN TYPE	AIRFLOW (CFM)	FSP (IN. W.C.)	SONES	MOTOR				CONTROL	SIZE		OPERATING WEIGHT (LBS.)	ACCESSORIES	NOTES
							HP	WATTS	RPM	VOLTS/PH		INLET L x W	FAN L x W x H			
EF-1	MEN - 102	COOK GC-146	CEILING	75	0.40	1.5	-	34	900	115/1	LIGHTS / OCC. SENSOR	6"Ø	14"x12"x8.5"	15	1	A,B,D
EF-2	WOMEN - 103	COOK GC-146	CEILING	75	0.40	1.5	-	34	900	115/1	LIGHTS / OCC. SENSOR	6"Ø	14"x12"x8.5"	15	1	A,B,D
EF-3	SPECIAL INSTRUMENTS - 104	COOK GC-622	CEILING	200	0.35	1.1	-	71	990	115/1	LIGHTS / OCC. SENSOR	6"Ø	17"x12"x12"	30	1,3	A,D
EF-4	CHEMICAL / TESTING - 105	COOK GC-622	CEILING	200	0.35	1.1	-	71	990	115/1	LIGHTS / OCC. SENSOR	6"Ø	17"x12"x12"	30	1,3	A,D
EF-5	ROOF	COOK 120R15D	UPBLAST	800	0.50	7.9	1/4	-	1550	115/1	SWITCH	16" x 16"	31"Ø	135	1,2,3	A,C,D
EF-6	ROOF	COOK 120R15D	UPBLAST	1000	0.75	11.8	1/3	-	1550	115/1	SWITCH	20" x 20"	35"Ø	155	1,2,3	A,C,D
EF-7	ROOF	COOK 120C15D	DOWNBLAST	650	0.50	5.9	1/4	-	1550	115/1	THERMOSTAT	16" x 16"	29"Ø	110	1,2,3	A,D
EF-8	MICROBIOLOGY - 108	COOK GC-622	CEILING	200	0.35	1.1	-	71	990	115/1	LIGHTS / OCC. SENSOR	6"Ø	17"x12"x12"	30	1,3	A,D
EF-9	BREAK - 109	COOK GC-542	CEILING	200	0.50	2.5	-	78	1315	115/1	SWITCH	6"Ø	17"x12"x12"	30	1,3	A,D
EF-10	JANITOR - 112	COOK GC-186	CEILING	200	0.50	5.0	-	86	1100	115/1	SWITCH	6"Ø	17"x12"x12"	30	1,3	A,D

ACCESSORIES:

1. GRAVITY BACKDRAFT DAMPER
2. CONTRACTOR TO SECURE MINIMUM 14" ROOF CURB TO ROOF DECK. FLASH AND SEAL ALL PENETRATIONS.
3. DIRECT DRIVE MOTOR WITH SPEED CONTROL. ADJUST TO LISTED CFM.

NOTES:

A. FAN SHALL BE AMCA RATED.
B. 5 MINUTE OFF DELAY AFTER OCCUPANCY.
C. INTERLOCK FAN WITH MAU-1.
D. APPROVED MANUFACTURERS: PENN-BARRY, COOK, GREENHECK, DOMEX, TWIN CITY. (SUBJECT TO PROJECT DOCUMENT CONFORMANCE)

MECHANICAL PIPING SCHEDULE

SERVICE DESIG.	SERVICE	MATERIAL	LOCATION	INSULATION	FITTINGS	NOTES
R2	REFRIGERANT PIPING 2 PIPE	COPPER TYPE "K" - SOFT - LINE SET	INTERIOR - ABOVE GRADE	REFRIGERANT PIPING PRE-INSULATED BY MANUFACTURER	BRAISED	1,2,3,4,5

NOTES:

1. ZOOMLOCK PRESS FITTINGS CAN BE USED AT CONTRACTOR OPTION WITH OWNER APPROVAL. ALTERNATE PRESS FITTINGS SHALL BE APPROVIDE BY ENGINEER PRIOR TO USE.
2. ALL INSULATION ON REFRIGERANT PIPING SHALL BE PLENUM RATED.
3. PROVIDE MINIMUM 1" INSULATION WITH VAPOR BARRIER. CONTRACTOR SHALL VERIFY FINAL REQUIRED INSULATION THICKNESS WITH MANUFACTURER PRIOR TO INSTALLATION.
4. EXPOSED EXTERIOR REFRIGERANT PIPING SHALL BE COVERED IN A UV RESISTANT WRAP. WRAP SHALL BE 3M VENTURECLAD, OR APPROVED EQUAL.
5. REFRIGERANT PIPING SHALL BE INSTALLED, AND SIZED AS PER MANUFACTURER REQUIREMENTS. PIPING SHALL BE INSTALLED PLUMB AND LEVEL, AND BRACED IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS/SPECIFICATIONS.

HVAC EQUIPMENT SCHEDULE

UNIT DESIG.	LOCATION	SERVES	MANUFACTURER & MODEL NO.	TYPE	CAPACITY	MCA/MOCP	VOLTS/PH	STARTER OR SWITCH BY	UNIT WEIGHT (LBS.)	REFRIG. TYPE	AIR FLOW (SPD = HIGH)	FAN STATIC (MIN / MAX)	ACCESSORIES/COMMENTS	NOTES
FC-1	SEE PLANS	SPECIAL INSTRUMENTS - 104	LG ZRNU183MAAA	HORIZONTAL	19,100 CLG / 21,500 HTG	2.3 / 15	230/1	E.C.	96	R32	675	0.16 / 0.71	SERVED BY HP-1	1,2,3,4,5,6
FC-2	SEE PLANS	TESTING ROOM - 105	LG ZRNU483M3AA	HORIZONTAL	48,100 CLG / 54,200 HTG	2.5 / 15	230/1	E.C.	106	R32	1,482	0.16 / 0.79	SERVED BY HP-2	1,2,3,4,5,6
FC-3	SEE PLANS	MICROBIOLOGY - 108	LG ZRNU243M2AAA	HORIZONTAL	24,200 CLG / 27,300 HTG	1.7 / 15	230/1	E.C.	75	R32	706	0.1 / 0.59	SERVED BY HP-1	1,2,3,4,5,6
FC-4	SEE PLANS	ENTRY - 101	LG ZRNU153SJSA	WALL	15,400 CLG / 17,100 HTG	.25 / 15	230/1	E.C.	22	R32	371	-	SERVED BY HP-1	1,2,3,4,5,6
HP-1	ROOF	-	LG ZRUM060GSS0	-	60,000 CLG / 67,000 HTG	32.9 / 40	230/1	E.C.	391	R32	4,238	-		5,7
HP-2	ROOF	-	LG ZRUM060GSS0	-	60,000 CLG / 67,000 HTG	32.9 / 40	230/1	E.C.	391	R32	4,238	-		5,7
H-1	JANITOR - 112	-	LG ARBL104	-	-	-	-	-	-	-	-	-	SERVED BY HP-1	-

NOTES:

1. FAN COIL SHALL BE INSTALLED WITH DISCONNECT SWITCH PROVIDED AND INSTALLED IN THE FIELD BY ELECTRICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL COORDINATE WITH E.C.
2. FAN COIL SHALL BE PROVIDED WITH SERVICE VALVES ON REFRIGERANT PIPING FOR EASY ISOLATION.
3. PROVIDE LG THERMOSTAT/ZONE CONTROLLER APPROVED BY LG REPRESENTATIVE.
4. CONTROLS CONTRACTOR SHALL COORDINATE WITH LG REPRESENTATIVE ON CONTROLS SEQUENCE PRIOR TO INSTALLAION.
5. APPROVED MANUFACTURERS: LG.
6. PROVIDE WITH CONDENSATE PUMP MODEL: SILENT+ MINI ORANGE
7. HEAT PUMP DOES NOT NEED TO BE LG RED IF AVAILABLE.

ROOF TOP UNIT SCHEDULE (RTU)

UNIT DESIG.	LOCATION	SERVICE	MANUFACTURER & MODEL NO.	AIRFLOW (CFM)	MIN O.A. FLOW (CFM)	MINIMUM NOMINAL SIZE (TONS)	ESP (IN. W.C.)	VFD	COOLING							HEATING				ELECTRICAL			DIMENSIONS	MAX. OPERATING WEIGHT (LBS)	NOTES
									TOTAL (MBH)	SENSIBLE (MBH)	EAT DB/WB (°F)	LAT DB/WB (°F)	SEER2 / IEER	EER	REFRIG.	ELECTRIC HEAT CAPACITY (KW)	HEAT PUMP CAPACITY (MBH)	EAT DB (°F)	LAT DB (°F)	VOLTS/PH/HZ	UNIT MCA	UNIT MOCP	L"xW"xH"		
RTU-1	ROOF	102, 103, 109, 110, 111, 112, 113	CARRIER 50FCQA05B2A6-8B1A0	1,700	340	4.0	1.0	N	48.42	48.42	89.8 / 67.4	60.8/57.7	13.4	-	R-454B	2.79	40.73	56.2	80.4	230/1/60	37	50	75"x45"x34"	600	1,2,3,4,5,6,7,8,9
RTU-2	ROOF	104 & 105	K-TECH	1,800	1,800	MAKE-UP AIR UNIT - SEE K-TECH MUA DRAWINGS																	78"x41"x58"	1500	10,11

NOTES:

1. SITE CONDITIONS ARE 110°F DB / 71°F WB SUMMER, 36°F DB WINTER AND ELEVATION OF 750 FEET ABOVE SEA LEVEL.
2. PROVIDE MINIMUM 14" ROOF CURB OR CURB ADAPTOR AS REQUIRED.
3. PROVIDE SMOKE DETECTOR IN SUPPLY AND RETURN AIR DUCT.
4. COORDINATE WITH OWNER FOR BACnet COMPATIBLE REQUIREMENTS BEFORE PURCHASING. PROVIDE CARRIER PROGRAMMABLE THERMOSTAT.
5. ELECTRICAL CONTRACTOR SHALL VERIFY CONNECTION REQUIREMENTS (i.e. VOLTAGE, PHASE, MCA, MOCP, ETC.) WITH MECHANICAL EQUIPMENT SUBMITTALS BEFORE BEGINNING ROUGH IN.
6. FACTORY INSTALLED CONVENIENCE OUTLET. (NON POWERED) SEPARATE CIRCUIT SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.
7. ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECT SWITCH.
8. PROVIDE WITH MERV 8 FILTER.
9. APPROVED MANUFACTURERS: YORK, CARRIER, LENNOX, TRANE, AAON. (SUBJECT TO PROJECT DOCUMENT CONFORMANCE)
10. MAKE-UP AIR UNIT SHALL BE EQUIPPED WITH THE FOLLOWING OPTIONS: HEAT PUMP W/ ELECTRIC HEAT, MIN. TWO STAGE COOLING, BACNET CONTROLS, MIN. 20" CURB, VFD CONTROLLED SUPPLY FAN, INSULATED CABINET, HAIL GUARDS, ETC. FINAL ACCESSORIES LIST SHALL BE COORDINATED W/ OWNER PRIOR TO ORDERING.
11. MAKE-UP AIR UNIT APPROVED MANUFACTURERS: CAPTIVEAIRE, RENEWAIRE, OR OTHERWISE APPROVED EQUAL.

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Registered Professional Engineer — CERTIFICATE AUTHENTICITY — 80884 JOEL WILLIAMS 11/30/2025 — MECHANICAL — UTAH

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE 21 APRIL 2025

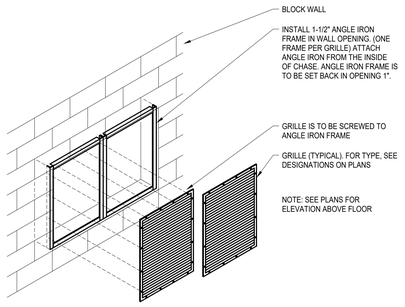
REVISIONS:

SHEET TITLE:
MECHANICAL SCHEDULES & DETAILS

SHEET NUMBER:
M5.1

BID SET

Plot Date: 4/17/2025 12:40:04 PM



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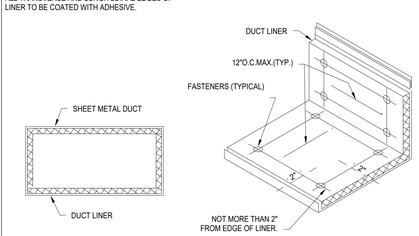
SCALE: NO SCALE

GRILLE INSTALLATION IN BLOCK WALL

NOTE:
ALL TRANSVERSE AND LONGITUDINAL EDGES OF LINER TO BE COATED WITH ADHESIVE.



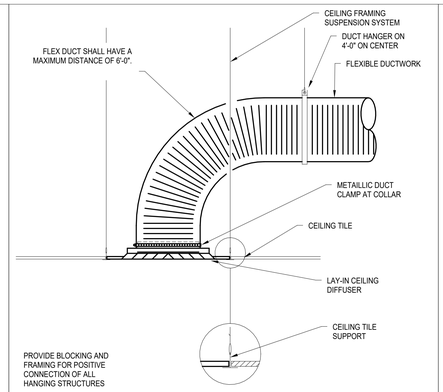
MINIMUM DUCT INSULATION R-VALUES FOR UNCONDITIONED SPACES PER 2015 IECC C403.2.9
SUPPLY = R6
RETURN = R6

MINIMUM DUCT INSULATION R-VALUES WHEN LOCATED OUTSIDE THE BUILDING PER 2015 IECC C403.2.9
SUPPLY = R8 (ZONE 1-4) R12 (ZONE 5-8)
RETURN = R8 (ZONE 1-4) R12 (ZONE 5-8)

THERMAL AND SOUND INSULATION AND COVERINGS, LININGS AND ADHESIVES (WHEN USED) INSTALLED IN CONCEALED AND EXPOSED SPACES SHALL MEET THE REQUIREMENTS OF ASTM E 84. FLAME SPREAD INDEX THAT IS NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.

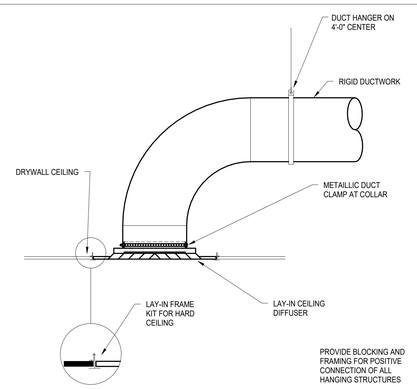
FILE NAME: M.04.13
SCALE: NONE

DUCT LINER



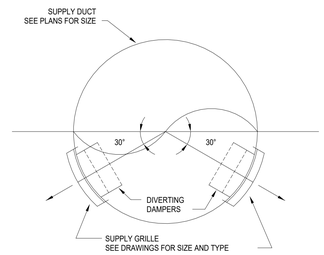
FILE NAME: M.03.03
SCALE: NONE

DIFFUSER/GRILLE LAY-IN CEILING INSTALLATION



FILE NAME: M.03.04
SCALE: NONE

DIFFUSER/GRILLE LAY-IN DRYWALL CEILING INSTALLATION



NOTES:
1. DUCT MOUNTED GRILLES SHALL BE PROVIDED WITH ADJUSTABLE DAMPERS TO ALLOW FOR AIRFLOW BALANCING. SEE THE DRAWINGS AND SCHEDULES FOR DIFFUSER, SIZES, AIRFLOW REQUIREMENTS, AND SPECIFICATIONS.

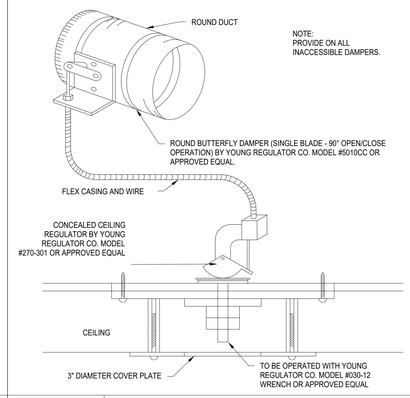
FILE NAME: M.03.12
SCALE: NONE

DUCT MOUNTED DIFFUSER 30° BELOW CENTER MOUNTING ANGLE

Dia.	Maximum Spacing	Wire Dia.	Rod	Strap
10 in. dn 250 mm dn	12 ft 3.7 m	One 12 ga One 2.75 mm	1/4 in. 6.4 mm	1 in. x 22 ga 25.4 x 0.85 mm
11-18 in. 460 mm	12 ft 3.7 m	Two 12 ga or One 8 ga One 4.27 mm	1/4 in. 6.4 mm	1 in. x 22 ga 25.4 x 0.85 mm
19-24 in. 610 mm	12 ft 3.7 m	Two 10 ga Two 3.51 mm	1/4 in. 6.4 mm	1 in. x 22 ga 25.4 x 0.85 mm
25-36 in. 900 mm	12 ft 3.7 m	Two 8 ga Two 2.7 mm	3/8 in. 9.5 mm	1 in. x 20 ga 25.4 x 1.00 mm
37-50 in. 1270 mm	12 ft 3.7 m	→	Two 3/8 in. Two 9.5 mm	Two 1 in. x 20 ga (2) 25.4 x 1.00 mm
51-60 in. 1520 mm	12 ft 3.7 m	→	Two 3/8 in. Two 9.5 mm	Two 1 in. x 18 ga (2) 25.4 x 1.31 mm
61-84 in 2130 mm	12 ft 3.7 m	→	Two 3/8 in. Two 9.5 mm	Two 1 in. x 26 ga (2) 25.4 x 1.61 mm
85-96 in. 2400 mm	12 ft 3.7 m	→	Two 1/2 in. Two 12 mm	Two 1-1/2 in. x 16 ga (2) 25.4 x 1.61 mm

FILE NAME: M.04.26
SCALE: NONE

MINIMUM HANGER SIZES FOR ROUND DUCT



FILE NAME: M.04.15
SCALE: NONE

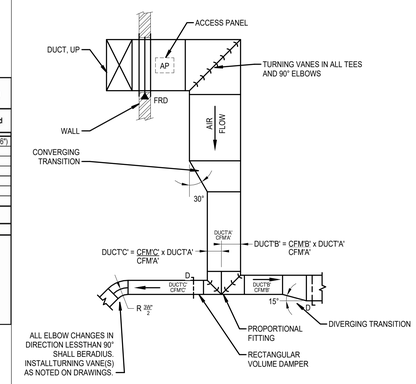
DAMPER AND REGULATOR

Maximum Half of Duct Perimeter	Pair at 10 ft Spacing		Pair at 8 ft Spacing		Pair at 5 ft Spacing		Pair at 14 ft Spacing	
	Strap	Wire/ Rod	Strap	Wire/ Rod	Strap	Wire/ Rod	Strap	Wire/ Rod
P/2 = 30"	1" x 22 ga	10 ga (0.135")	1" x 22 ga	10 ga (0.135")	1" x 22 ga	12 ga (0.106")	1" x 22 ga	12 ga (0.106")
P/2 = 72"	1" x 16 ga	3/8"	1" x 20 ga	1/4"	1" x 22 ga	1/4"	1" x 22 ga	1/4"
P/2 = 96"	1" x 16 ga	3/8"	1" x 18 ga	3/8"	1" x 20 ga	3/8"	1" x 22 ga	1/4"
P/2 = 120"	1-1/2" x 16 ga	1/2"	1" x 16 ga	3/8"	1" x 18 ga	3/8"	1" x 20 ga	1/4"
P/2 = 168"	1-1/2" x 16 ga	1/2"	1-1/2" x 16 ga	1/2"	1" x 16 ga	3/8"	1" x 18 ga	3/8"
P/2 = 192"	Not Given	1/2"	1-1/2" x 16 ga	1/2"	1" x 16 ga	3/8"	1" x 16 ga	3/8"
P/2 = 193" UP	Special Analysis Required							

When Straps are Lap Joined Use These Minimum Fasteners:	Single Hanger Maximum Allowable Load	
	Strap	Wire or Rod (Dia.)
1" x 18,20,22 ga - two #10 or one 1/4" bolt 1" x 16 ga - two 1/4" dia. 1-1/2" x 16 ga - two 3/8" dia. Place fasteners in series, not side by side.	1" x 22 ga - 260lbs. 1" x 20 ga - 320lbs. 1" x 18 ga - 420lbs. 1" x 16 ga - 700lbs. 1-1/2" x 16 ga - 1100lbs.	0.106" - 80lbs. 0.135" - 120lbs. 0.162" - 160lbs. 1/4" - 270lbs. 3/8" - 680lbs. 1/2" - 1250lbs. 5/8" - 2000lbs. 3/4" - 3000lbs.

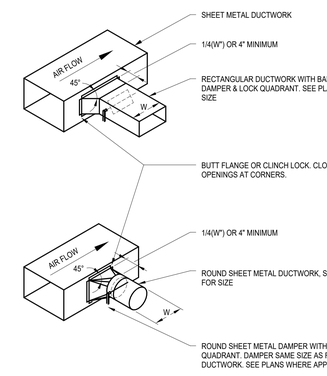
FILE NAME: M.04.25
SCALE: NONE

RECTANGULAR DUCT HANGERS MINIMUM SIZE



FILE NAME: M.04.01
SCALE: NONE

TYPICAL DUCTWORK

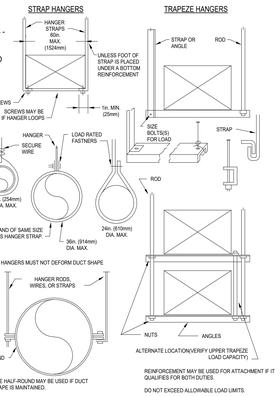


FILE NAME: M.04.02
SCALE: NONE

45 DEGREE TAKE-OFF

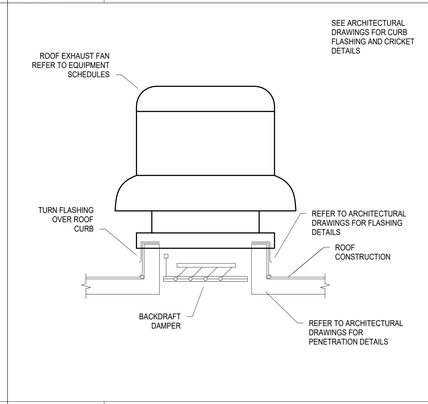
PAINT ALL EXPOSED DUCTS, STRAPS AND HANGING COMPONENTS - TYPICAL.

PROVIDE BLOCKING AND FRAMING FOR POSITIVE CONNECTION OF ALL HANGING STRUCTURES.



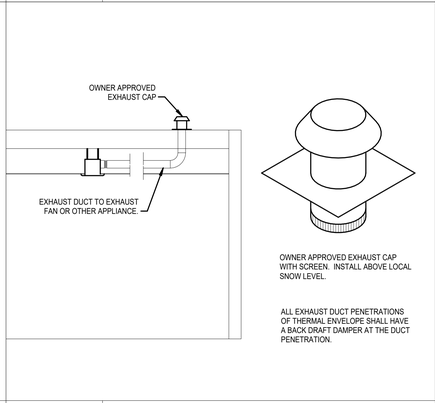
FILE NAME: M.04.27
SCALE: NONE

LOWER HANGER ATTACHMENTS SMACNA STANDARDS



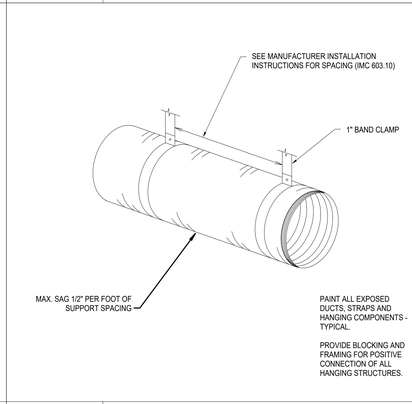
FILE NAME: M.05.06
SCALE: NONE

ROOF MOUNTED EXHAUST FAN



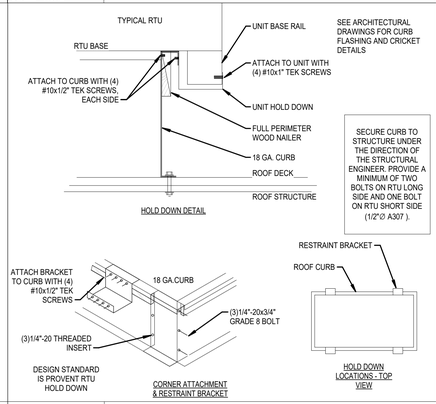
FILE NAME: M.08.08
SCALE: NONE

TYPICAL ROOF CAP FLAT ROOF



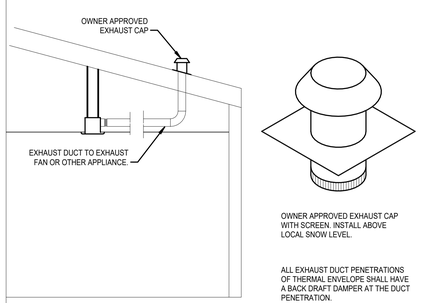
FILE NAME: M.04.06
SCALE: NONE

FLEXIBLE DUCT STRAP HANGER



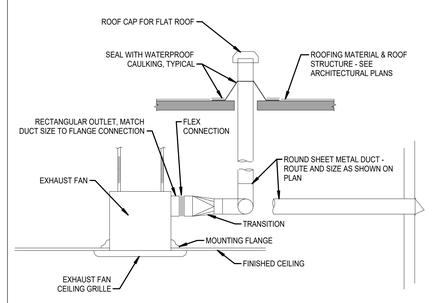
FILE NAME: M.06.03
SCALE: NONE

TYPICAL ROOF CURB



FILE NAME: M.08.09
SCALE: NONE

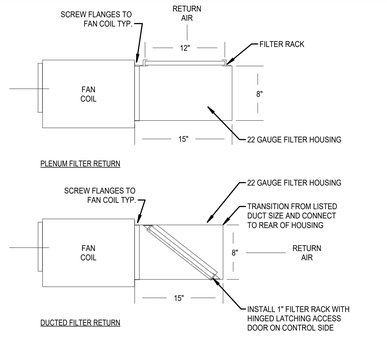
TYPICAL ROOF CAP PITCHED ROOF



NOTE:
ALL EXHAUST DUCT PENETRATIONS OF THERMAL ENVELOPE SHALL HAVE A BACK DRAFT DAMPER AT THE DUCT PENETRATION.

FILE NAME: M.09.03
SCALE: NONE

CEILING MOUNTED EXHAUST FAN



NOTES:
1. FILTER MEDIA SIZE USED SHALL BE CONSISTENT FOR BOTH THE PLENUM FILTER RETURN AND DUCTED FILTER RETURN APPLICATIONS.
2. FILTER MEDIA USED SHALL BE MERV 8 FOR BOTH THE PLENUM FILTER RETURN AND DUCTED FILTER RETURN APPLICATIONS.

FILE NAME: M.10.04
SCALE: NONE

TYPICAL FAN COIL RETURN/FILTER PLENUM

Think©
Architecture
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Interior Design
Landscape Architecture
Land Planning
Construction Management
7927 So. Highpoint Parkway, Suite 300
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801-685-80681
25.004.00

Registered Professional Engineer
CERTIFICATE NUMBER
80884
JOEL WILLIAMS
EXPIRES 11/30/2025
STATE OF UTAH

LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE 21 APRIL 2025
REVISIONS:

SHEET TITLE:
MECHANICAL DETAILS

SHEET NUMBER:
M5.2

BID SET

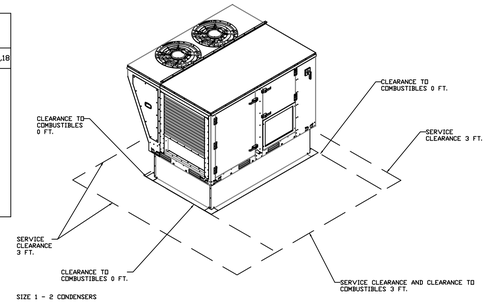
PLOT Date: 4/15/2025 10:51:52 AM

DOAS/RTU FAN SCHEDULE - JOB#7333822

FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	ELECTRICAL INFORMATION HP	PHASE	VOLT	MCA	MOCP	COOLING INFORMATION OUTSIDE AIR DB	WB	LEAVING AIR DB	WB	DP	CAPACITY TOTAL	SENS.	IEER	ISMRE	REHEAT INFORMATION DISCHARGE DB	WB	CAPACITY DESIRED	MAX	MOISTURE REMOVAL RATE	ELECTRIC HEAT INFORMATION DSGN. KW'S	MAX. KW'S	VOLTS	AMPS	MCA	MOCP	TEMP RISE	HEAT PUMP INFORMATION ENTERING TEMP	MAX TEMP RISE	DISCHARGE TEMP	COP	A2L MINIMUM ROOM VOLUME ROOM AREA (FT2)	AIRFLOW (CFM)	HEIGHT (FT)	NOTES
1		1	KTRTU1-E.201-16-7.5T-DOAS	K-TECH	16Z-1	0	1800	1800	1477	0.500	1.75	1	240	55.7A	60A	98.9°F	75.9°F	61.8°F	59.3°F	57.9°F	98.9 MBH	65.0 MBH	18.6	12.2	90.0°F	68.4°F	52.7 MBH	0.1 MBH	30.8 LBS/HR	20	20	240	83.3	104.2	110	35 °F	40.0°F	38.0°F	78.0°F	3.5	274.9	476	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18

NOTES:
1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
5. EC MOTOR CONDENSING FANS
6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
7. SUCTION LINE ACCUMULATOR
8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY
9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
10. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
11. FULLY MODULATING ELECTRIC REHEAT
12. 15 DEGREE LOW AMBIENT OPERATION
13. -20 DEGREE LOW AMBIENT OPERATION
14. 1" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-4.3 INSULATION-MINIMUM 24GA EXTERIOR W/ 18GA BASE
15. DOWN DISCHARGE/NO RETURN
16. DIRECT DRIVE ECM PLENUM BLOWER. BELT DRIVEN AND NON-ECM BLOWERS ARE NOT ACCEPTABLE
17. SEPARATE POWER CONNECTION FOR MAIN UNIT & ELECTRIC HEATER

18. MINIMUM ROOM AREA ASSUMED 7.2' SUPPLY DIFFUSER HEIGHT AND IS CALCULATED PER UL60335-2-40 4TH ED. VALUES BASED ON FACTORY CHARGE. ACTUAL SITE CHARGE MAY DIFFER.



SIZE 1 - 2 CONDENSERS

FOR QUESTIONS, CALL THE
Utah OFFICE
REGION 87
PHONE: (801) 878 - 3677
EMAIL: reg87@ktechhoods.com

FAN #1 KTRTU1-E.201-16Z-7.5T-DOAS - HEATER

NOTES:
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. ( ) DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
4. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.

*NOTE: INTEGRAL CO2 MONITORING AND CONTROL CAPABILITIES FOR ALL SPACE MOUNTED THERMOSTATS.

FAN OPTIONS

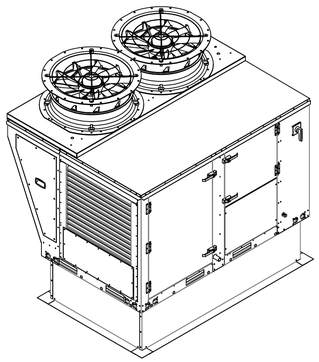
FAN UNIT NO	TAG	QTY	DESCRIPTION
1		1	COOLING OVERRIDE
		1	SEPARATE ELECTRIC HEAT CONNECTION - RTU. 750VA TRANSFORMER USED FOR CONTROLS. TWO PRIMARY CONNECTIONS REQUIRED FOR RTU WITH ELECTRIC HEAT. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DO NOT PROVIDE SUPPLY STARTER IN PREWIRE
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	CONSTRUCTION MODE - MODIFIES START-UP SETTINGS TO ALLOW TEMPERING A BUILDING STILL UNDER CONSTRUCTION
		1	RTU BLOWER DOOR SWITCH
		1	2" MERV 13 FILTERS FOR RTU1 (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU1 (QTY. 4)
		1	OVERHEAT STAT
		1	TOTAL CFM MONITORING
		1	RTU1 DOWN DISCHARGE ELECTRIC HEAT, 10-45KW
		1	RTU FIXED 100% OA INTAKE CONTROL
		1	INTAKE FIRESTAT SET TO 135°F
		1	FREEZESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	RTU1 CURB DUCT HANGER
		1	24VAC FIRE INPUT
		1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS
		1	ECM BUILDING SP CONTROL RTU MUA BOARD
		1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
		1	RTU1 CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J BOX
		1	EXTREME LOW AMBIENT COOLING OPERATION - DOWN TO -20F AMBIENT
		1	LOW AMBIENT COOLING OPERATION - DOWN TO 0F AMBIENT
		1	HIGH AMBIENT - 7.5 TON MODULATING COOLING OPTION WITH HEAT PUMP, 208/230V - 1 PHASE, R454B REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS 630MM MOUNTED ON TOP OF LID. USED FOR SUMMER CONDITIONS ABOVE 100F DEGREES
		1	ECM FAN DOAS - 1 PHASE
		1	R454B LEAK DETECTOR OPTION FOR RTUS
		1	RTU1 NO RETURN - 100% OA
		1	AUXILIARY REHEAT - ELECTRIC HEATER
		1	REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR
		1	REHEAT - ELEC ONLY REHEAT
		1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT

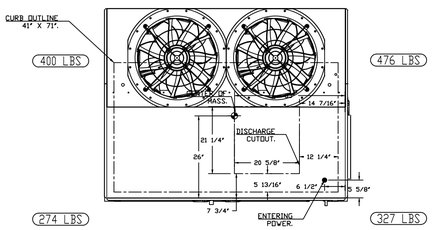
CURB ASSEMBLIES

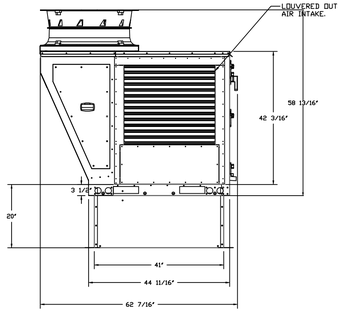
NO	ON FAN	WEIGHT	ITEM	SIZE
1	# 1	172 LBS	CURB	41.000"W X 71.000"L X 20.000"H INSULATED 16 GAUGE.

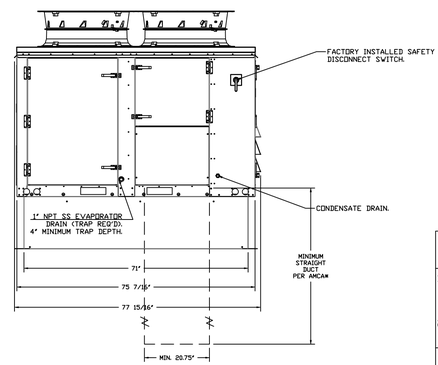
HMI SCHEDULE				
UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #1	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55
FAN #1	HMI #2 - SPACE	WASH ROOM	AVERAGED	56

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.
SUGGESTED STRAIGHT DUCT SIZE IS 20.75" x 21.5".

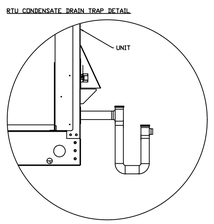


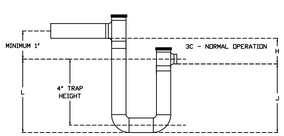




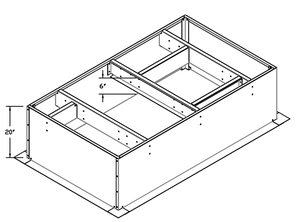


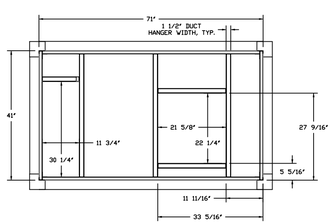
RTU CONDENSATE DRAIN TRAP DETAIL





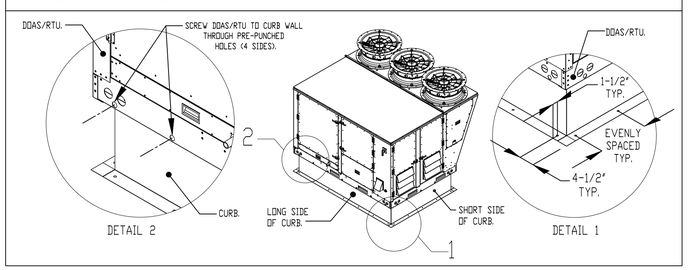
H = (1" FOR EACH 1" OF MAXIMUM NEGATIVE STATIC PRESSURE) + 1"
J = HALF OF H
L = H + J + PIPE DIAMETER + INSULATION





TYPICAL DOAS/RTU ROOF MOUNTING INSTALLATION INSTRUCTIONS

1. SECURE THE CURB TO THE ROOF FRAMING MEMBERS BY DRILLING 1/4" PILOT HOLES IN THE CURB FLANGES AT LOCATIONS SHOWN IN THE DIAGRAM BELOW. USING 3/8" X 2" ZINC PLATED STEEL LAG BOLTS, AND ZINC PLATED WASHERS, SCREW THROUGH THE CURB FLANGES AND INTO THE ROOF FRAMING MEMBERS. A MINIMUM OF (5) LAG BOLTS ON EACH SHORT SIDE, AND (7) LAG BOLTS ON EACH LONG SIDE IS REQUIRED.
2. SECURE THE UNIT BASE TO THE SIDE WALLS OF THE CURB USING (24) 1/4"-14 X 2" SELF-DRILLING, STEEL ZINC PLATED SCREWS. PRE-PUNCHED HOLES HAVE BEEN PROVIDED FOR EACH SCREW LOCATION.



REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

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Utah Office
2698 S. Redwood Rd., Suite S, West Valley, UT, 84119 PHONE: (801) 878 - 3677 FAX: 9192275953 EMAIL: reg87@ktechhoods.com

Lake Havasu Public Works
LAKE HAVASU CITY, AZ, 86404

DATE: 2/13/2025

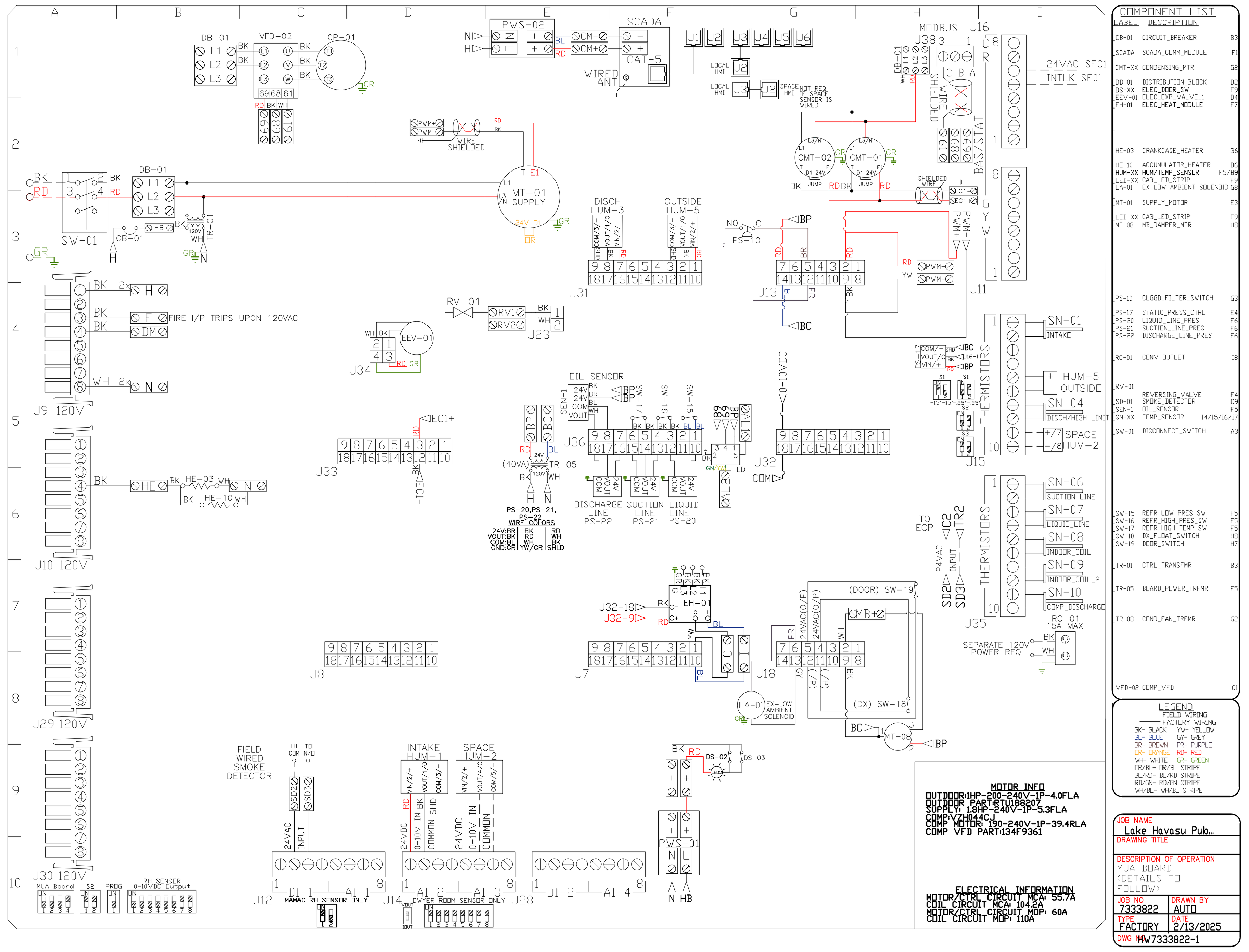
DWG.#: 7333822

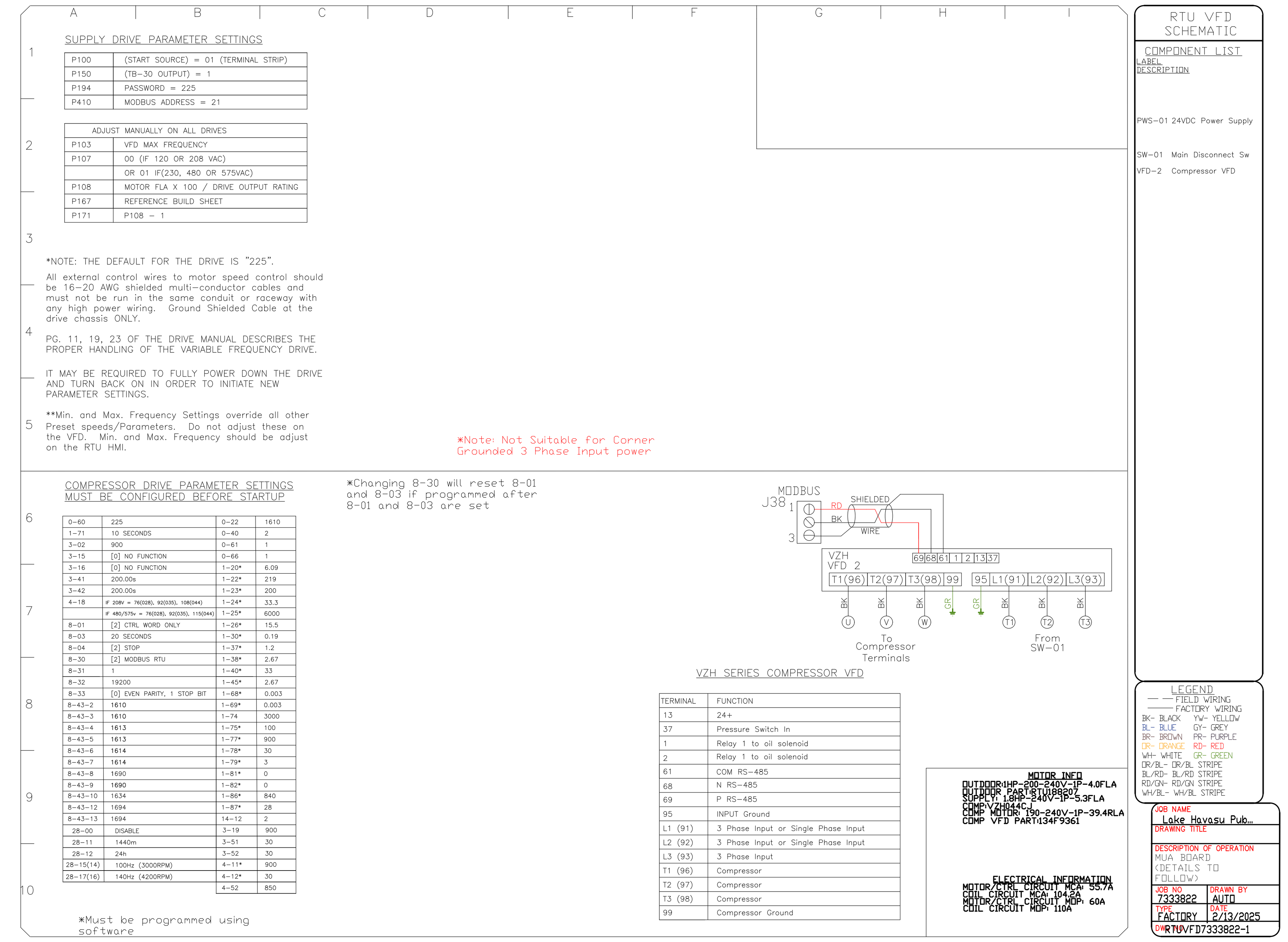
DRAWN BY: EH

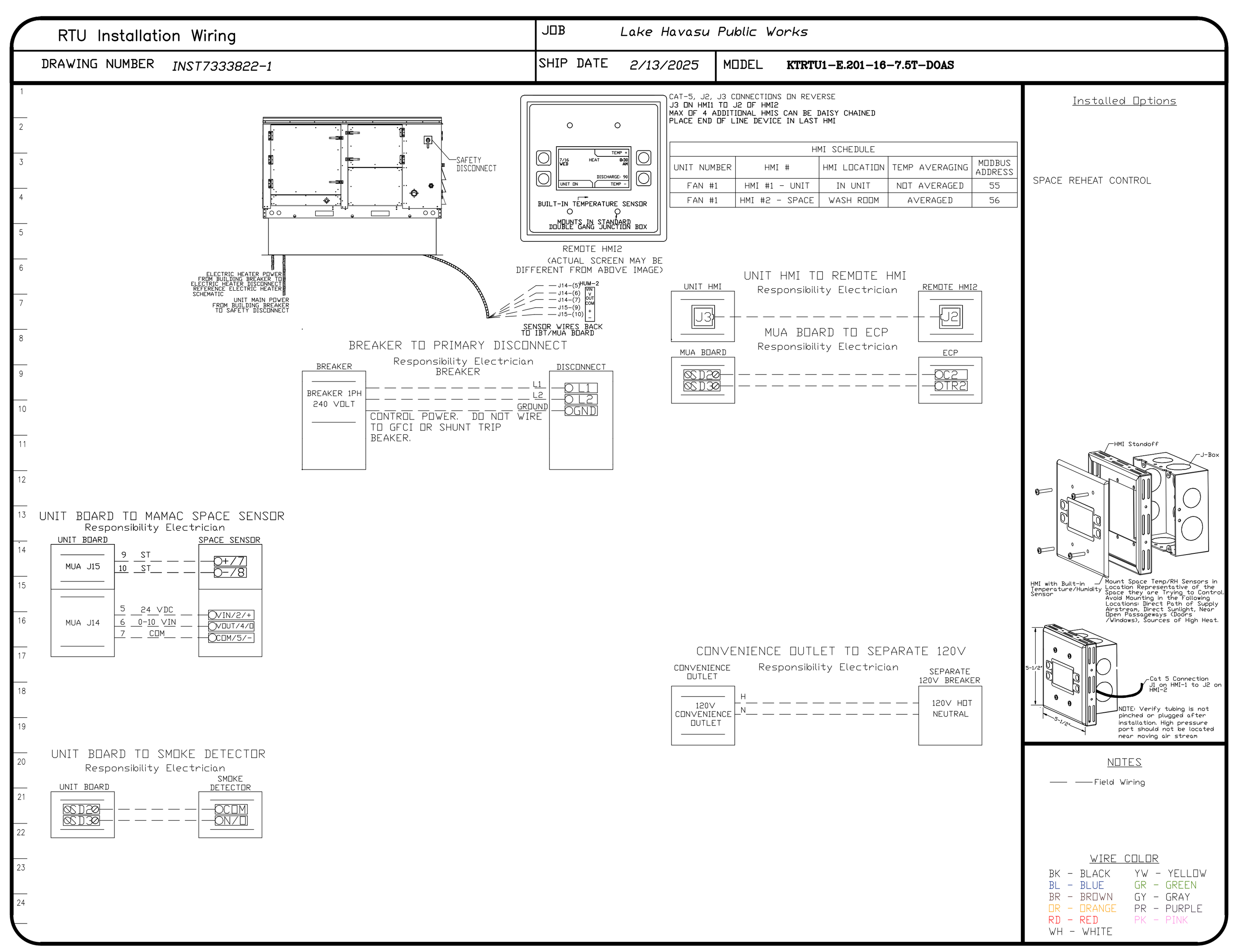
SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. TECH-1







SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

REVISIONS	
DESCRIPTION	DATE:

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Utah Office
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Lake Havasu Public Works
LAKE HAVASU CITY, AZ, 86404

DATE: 2/13/2025

DWG.#: 7333822

DRAWN BY: EH

SCALE: 3/4" = 1'–0"

MASTER DRAWING

SHEET NO. TECH-2

GENERAL NOTES (APPLIES TO ALL SHEETS):

1. ALL WORK SHALL BE PROVIDED IN ACCORDANCE WITH 2018 INTERNATIONAL BUILDING CODES AND ALL APPLICABLE NATIONAL AND STATE CODES, AND SAFETY STANDARDS, INCLUDING ANY LOCAL AMENDMENTS ADOPTED BY THE STATE OF ARIZONA.

2. PLUMBING CONTRACTOR (PC) SHALL BE RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS PRIOR TO EXECUTION OF ANY WORK ON THE PROJECT.

3. ALL PLUMBING SYSTEMS WITHIN THESE CONTRACT DOCUMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 2021 INTERNATIONAL PLUMBING CODE. ANY FIELD ADJUSTMENT MADE BY THE PC IN THE FIELD SHALL COMPLY WITH THE 2021 INTERNATIONAL PLUMBING CODE REQUIREMENTS.

4. WORK INCLUDED: FURNISH MATERIAL, LABOR AND SERVICES NECESSARY FOR AND INCIDENTAL TO PROVIDING THE FOLLOWING PLUMBING WORK WHERE SHOWN ON THE PLANS AND AS HEREINAFTER SPECIFIED. INCLUDE ALL NECESSARY WORK, MATERIALS, AND EQUIPMENT TO PERFORM WORK COMPLETELY.
   A. SANITARY WASTE SYSTEM, INCLUDING BUT NOT LIMITED TO, SANITARY PIPING, VENT PIPING, PLUMBING FIXTURES, FLOOR DRAINS, AND CLEANOUTS.
   B. STORM WATER DRAINAGE SYSTEM, INCLUDING BUT NOT LIMITED TO, STORM WATER PIPING, ROOF DRAINS, OVERFLOW DRAINS, AND CLEANOUTS.
   C. POTABLE DOMESTIC WATER SYSTEM, INCLUDING BUT NOT LIMITED TO, BACKFLOW PREVENTERS. PRESSURE REGULATORS, WATER METER, COLD WATER PIPING, HOT WATER PIPING, HOT WATER RETURN PIPING, AND CONNECTION TO ALL PLUMBING FIXTURES, EQUIPMENT OR SPECIALTIES.
   D. DOMESTIC HOT WATER SYSTEM, INCLUDING BUT NOT LIMITED TO, GAS ELECTRIC TANKED WATER HEATER, CIRCULATOR PUMP, THERMOSTATIC MIXING VALVES, AND EXPANSION TANK.
   E. TEPID WATER SYSTEM, INCLUDING BUT NOT LIMITED TO, EMERGENCY EYEWASH/SHOWER, EMERGENCY EYEWASH, SERVICE VALVES, THERMOSTATIC MIXING VALVES, ETC.
   F. WATER SOFTENER SYSTEM INCLUDING, BUT NOT LIMITED TO MINERAL TANK, BRINE TANK, AUTOMATIC CONTROLS, UNSOFTENED AND SOFTENED WATER PIPING.
   G. CONDENSATE DRAIN PIPING FROM HVAC EQUIPMENT.
   H. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF OTHER TRADES, AND WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
   I. DRAINING, FILLING, AND VENTING OF ALL MODIFIED SYSTEMS AS REQUIRED FOR THE ABOVE WORK. THIS INCLUDES SCHEDULING SHUTDOWNS WITH THE OWNER.
   J. PLUMBING CONTRACTOR (PC) SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR (MC) REGARDING EQUIPMENT SUPPLIED BY MC TO BE INSTALLED BY THE PC.
   K. PROVIDE SUFFICIENT LABOR AND RESOURCES REQUIRED FOR THE TESTING AND BALANCING OF THE DOMESTIC WATER, EMERGENCY SHOWER AND EYEWASH STATIONS, ETC.
   L. CLEANING AND PRESSURE TESTING EQUIPMENT, PIPING, AND ACCESSORIES INSTALLED IN ACCORDANCE WITH CODE AND INDUSTRY BEST PRACTICES.
   M. ALL SEISMIC RESTRAINTS FOR THE ABOVE WORK.
   N. INSTALLING ACCESSORIES SPECIFIED UNDER OTHER SECTIONS CONTAINED WITHIN THE CONTRACT DOCUMENTS.
   O. ***VACUUM TESTING SYSTEM*** SHALL BE PROVIDED BY CONTRACTOR AND VENDOR IN ACCORDANCE WITH OWNERS SYSTEM REQUIRES. SYSTEM SHALL BE DESIGNED BY A CERTIFIED VENDOR AND INSTALLED BY A CERTIFIED CONTRACTOR. THIS SYSTEM FALLS OUTSIDE THE ENGINEER OF RECORD SCOPE OF WORK. OUTLET LOCATIONS HAVE BEEN SHOWN ON THE PLANS FOR REFERENCE ONLY. FINAL INSTALLATION OF ALL EQUIPMENT, OUTLETS, AND ASSOCIATED MATERIALS SHALL BE THE RESPONSIBILITY OF THE EQUIPMENT VENDOR AND INSTALLING CONTRACTOR.
   P. ***DI WATER SYSTEM*** SHALL BE PROVIDED BY CONTRACTOR AND VENDOR IN ACCORDANCE WITH OWNERS SYSTEM REQUIRES. SYSTEM SHALL BE DESIGNED BY A CERTIFIED VENDOR AND INSTALLED BY A CERTIFIED CONTRACTOR. THIS SYSTEM FALLS OUTSIDE THE ENGINEER OF RECORD SCOPE OF WORK. OUTLET LOCATIONS HAVE BEEN SHOWN ON THE PLANS FOR REFERENCE ONLY. FINAL INSTALLATION OF ALL EQUIPMENT, OUTLETS, AND ASSOCIATED MATERIALS SHALL BE THE RESPONSIBILITY OF THE EQUIPMENT VENDOR AND INSTALLING CONTRACTOR.

5. PC RESPONSIBILITY FOR PLUMBING PIPING INSTALLATION, SANITARY, STORM, DOMESTIC, ETC., SHALL END AT 5'-0" OUTSIDE THE BUILDING. PC SHALL BE RESPONSIBLE FOR CAPPING AND TESTING PIPING AT 5'-0" OUTSIDE THE BUILDING IN ACCORDANCE WITH CODE.
   A. IT SHALL BE THE RESPONSIBILITY OF THE CIVIL CONTRACTOR TO MAKE THE FINAL CONNECTION OF ALL PLUMBING PIPING FROM 5'-0" OUTSIDE THE BUILDING TO SITE UTILITIES. THIS INCLUDES ALL REQUIRED FITTINGS AND ACCESSORIES.
   B. IT SHALL BE THE RESPONSIBILITY OF BOTH THE PC AND THE CIVIL CONTRACTOR TO COORDINATE THE REQUIRED INVERT ELEVATIONS (I.E.) OF THE PLUMBING PIPING PRIOR TO INSTALLATION.

6. ALL PENETRATIONS THROUGH FIRE/SMOKE RATED ASSEMBLIES SHALL BE SEALED AND PROTECTED IN ACCORDANCE WITH ALL NATIONAL, STATE, AND MUNICIPALLY ADOPTED CODES INCLUDING AMENDMENTS. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR ASSEMBLY LOCATIONS AND RATINGS. FIRE/SMOKE RATED ASSEMBLIES INCLUDE, BUT NOT LIMITED TO STAIRWAYS, SHAFTS, CORRIDORS, FLOORS, ROOFS, AND REQUIRED EXITS. CONTRACTOR SHALL INSTALL PER MANUFACTURER'S UL LISTED INSTALLATION INSTRUCTIONS.

7. PC SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR TO ENSURE ALL PLUMBING EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS IS PROVIDED SERVICE. PC AND E.C. SHALL REFER TO THE PLUMBING FIXTURE SCHEDULE FOR ALL EQUIPMENT REQUIRING ELECTRICAL SERVICE.

8. EACH PLUMBING FIXTURE, ACCESSORY, EQUIPMENT ITEM AND SPECIALTY SHALL BE INSTALLED IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S RECOMMENDATIONS.

9. PLUMBING FIXTURES, EQUIPMENT AND SPECIALTIES SHALL BE PROTECTED AGAINST DAMAGE IN THE PERIOD BETWEEN INSTALLATION AND ACCEPTANCE. ANY ITEM DAMAGED SHALL BE REMOVED, REPAIRED AND/OR REPLACED AT NO ADDITIONAL COMPENSATION.

10. ALL OPERABLE DEVICES AND FEATURES OF PLUMBING FIXTURES, ACCESSORIES, EQUIPMENT AND SPECIALTIES PROVIDED FOR IN THE SCOPE OF WORK OUTLINED IN THE FOLLOWING DOCUMENTS SHALL BE OPERATED AND PROVED TO FUNCTION SATISFACTORILY FOR A PERIOD OF EIGHT (8) HOURS. ADJUST, BALANCE, LUBRICATE AS REQUIRED. CONTRACTOR SHALL INSTRUCT THE OWNER IN THE PROPER OPERATION AND MAINTENANCE OF EACH DEVICE.

11. THE PLUMBING SYSTEM SHALL COMPLY WITH THE 2011 REDUCTION OF LEAD IN DRINKING WATER ACT. COMPONENTS SHALL BE 'LEAD FREE' EQUIVALENT OF MODEL NUMBER SPECIFIED REGARDLESS IF MANUFACTURER'S PREFIX AND SUFFIX HAVE BEEN INCLUDED.

PLUMBING PIPING SYSTEM (APPLIES TO ALL SHEETS):

1. FURNISH AND INSTALL THE PIPING SYSTEMS SHOWN ON THE PLANS AND AS HEREINAFTER SPECIFIED IN THE RESPECTIVE SCHEDULES. INCLUDE ALL NECESSARY CONSIDERATIONS FOR THE RELATED SYSTEMS TO PROVIDE FOR COMPLETE SYSTEMS.

2. REFER TO P5 SERIES SHEETS FOR ALL SCHEDULES AND DETAILS.

3. ALL DRAINAGE PIPES SHALL BE FLUSHED CLEAN AT THE COMPLETION OF THE WORK. ROD OUT ANY OBSTRUCTIONS ENCOUNTERED.

4. ALL DOMESTIC WATER PIPES SHALL BE FLUSHED CLEAN AT THE COMPLETION OF THE WORK. REFER TO 'CLEANING OF PIPING SYSTEMS' NOTES ON SAME SHEET.

5. PRESSURE TEST EACH RESPECTIVE PIPING SYSTEM FOR TIGHTNESS TO THE TEST PRESSURE INDICATED WITHOUT LOSS. REPAIR ANY LEAKS AND RETEST, AS REQUIRED. IF TEST PRESSURE IS NOT INDICATED, HYDROSTATICALLY TEST TO 1.5 TIMES THE SYSTEM OPERATING PRESSURE. REFER TO 'PRESSURE TESTING' NOTES ON SAME SHEET.

6. THE PLANS INDICATE THE APPROXIMATE LOCATION AND ARRANGEMENT OF ROUGHING-IN FOR WASTE, VENT AND DOMESTIC WATER PIPING TO SERVE THE RESPECTIVE PLUMBING FIXTURE, EQUIPMENT AND SPECIALTIES. FINAL LOCATIONS AND ARRANGEMENTS SHALL BE DETERMINED FROM APPROVED SHOP DRAWINGS OF THE RESPECTIVE ITEM.

7. PROVIDE APPROVED BACKFLOW PREVENTERS IN ALL BRANCH PIPES IN THE DOMESTIC WATER SYSTEM FOR CONNECTIONS TO NON-DOMESTIC APPLICATIONS.

8. MAIN WASTE VENT THRU ROOF (VTR) PIPES SHALL EXTEND 12" MIMIMUM ABOVE THE ROOF, AND MINIMUM VTR SHALL BE 2" SIZE.

9. INSTALL ALL PIPING WITH PITCH TO VENT OR DRAIN. PROVIDE DRAIN VALVES AT LOW POINTS AND AIR VENTS AT HIGH POINTS. DRAIN VALVES AND AIR VENTS SHALL BE 3/4" BRONZE, 2 PIECE BODY BALL VALVES WITH 3/4" HOSE END ADAPTER, CAP, AND CHAIN. IN 1/2" THROUGH 2" PIPE, CONTRACTOR MAY USE WEBSTONE MODEL T-DRAIN.

10. THE PLUMBING SYSTEM SHALL COMPLY WITH THE 2011 REDUCTION OF LEAD IN DRINKING WATER ACT.

11. WATER HAMMER ARRESTORS SHALL BE PROVIDED ON ALL DOMESTIC WATER QUICK OPENING/CLOSING DEVICES. FOR MULTI-FIXTURE APPLICATIONS, WATER HAMMER ARRESTORS SHALL BE EQUAL TO JAY R. SMITH 5005-5050. FOR SINGLE FIXTURE APPLICATIONS, WATER HAMMER ARRESTORS SHALL BE EQUAL TO JAY R. SMITH 5201-5250.

12. DRAINAGE PIPING REQUIREMENTS ARE AS FOLLOWS (2021 IPC):
   A. CONDENSATE DRAIN:
      a. 1/8" PER 1'-0" (1% SLOPE)
      b. PROVIDE AN AIR GAP ON THE PRIMARY CONDENSATE PIPING AT THE APPROVED TERMINATION DRAIN. THE AIR GAP SHALL HAVE A MINIMUM SEPARATION DISTANCE FROM THE DRAIN OF 2 TIMES THE PIPE DIAMETER.
      c. THE END OF THE PIPE AT THE TERMINATION POINT SHALL BE CUT AT A 30-45 DEGREE ANGLE TO ALLOW FOR FREE DISCHARGE OF THE LIQUID.
   B. SANITARY DRAIN:
      a. 2-1/2" OR LESS = 1/4" PER 1'-0" (2% SLOPE)
      b. 3" TO 6" = 1/8" PER 1'-0" (1% SLOPE)
      c. 8" OR LARGER = 1/16" PER 1'-0" (0.5% SLOPE)
      d. NOTE 1: FOR INVERT ELEVATION (I.E.) CALCULATION PURPOSES, THE FINISHED FLOOR (F.F.) ELEVATION SHALL BE ASSUMED AS 100.00' - SEE PLANS FOR F.F. LOCATION. ACTUAL ELEVATIONS ARE CONTAINED WITH THE ARCHITECTURAL AND CIVIL PLANS IF REQUIRED.
   C. STORM DRAIN: SEE TABLE 1106.2 WITHIN 2021 IPC.
      a. NOTE 1: THE STORM DRAIN PIPING FOR THE PROJECT HAS BEEN DESIGNED USING 1/8" PER 1'-0" (1% SLOPE) TO MINIMIZE TOTAL PIPING FALL. PC SHALL BE RESPONSIBLE FOR PROVIDING CODE COMPLIANT CALCULATIONS IF STORM DRAINAGE SYSTEM IS MODIFIED FROM CONTRACT DOCUMENTS - I.E. CHANGE IN PIPE SIZES, CHANGE IN PIPE SLOPE, ETC.
      b. NOTE 2: FOR INVERT ELEVATION (I.E.) CALCULATION PURPOSES, THE FINISHED FLOOR (F.F.) ELEVATION SHALL BE ASSUMED AS 100.00' - SEE PLANS FOR F.F. LOCATION. ACTUAL ELEVATIONS ARE CONTAINED WITH THE ARCHITECTURAL AND CIVIL PLANS IF REQUIRED.

CLEANING AND PRESSURE TESTING OF PIPING SYSTEMS (APPLIES TO ALL SHEETS):

1. CLEANING OF PIPING SYSTEMS
   A. THE CONTRACTOR SHALL CLEAN THE RESPECTIVE PIPING SYSTEM(S) THAT ARE INCLUDED IN THEIR SCOPE OF WORK. ALL SYSTEMS SHALL BE FLUSHED WITH WATER OR AIR (DEPENDING ON ULTIMATE USE) TO RELIEVE ANY CONGESTION AND INTERNALLY CLEANSE THE RESPECTIVE PIPING SYSTEM. THE CONTRACTOR SHALL PROVIDE ALL FLUSHING MEDIA IN SUFFICIENT QUANTITY, INLET CONNECTIONS, DISCHARGE OR DRAINAGE OUTLETS AND ANY TEMPORARY PROVISIONS TO PROTECT COMPONENTS, OR REMOVE IT, TO FACILITATE THE FLUSHING. CLEAN AND REPLACE ALL STRAINER SCREENS AND FILTERS. FLUSH CLEAN AND DRAIN ALL LOW POINTS IN THE PIPING.
   B. AN INDEPENDENT WITNESS AND/OR REPRESENTATIVE OF THE OWNER SHALL BE PRESENT ALL FOR FLUSHING, CLEANING, AND RINSING. WATER TREATMENT REPRESENTATIVE MUST CHECK WATER AFTER RINSING TO INSURE ALL CHEMICAL CLEANER HAS BEEN REMOVED AND THE ALKALINITY OF THE RINSE WATER IS EQUAL TO THAT OF THE MAKE-UP WATER.
   C. NEW OR REPAIRED POTABLE WATER SYSTEMS SHALL BE PURGED OF DELETERIOUS MATTER AND DISINFECTED PRIOR TO UTILIZATION. THE METHOD FOLLOWED SHALL BE THAT PRESCRIBED BY THE HEALTH AUTHORITY HAVING JURISDICTION OR, IN THE ABSENCE OF A PRESCRIBED METHOD, THE PROCEDURE DESCRIBED IN EITHER AWWA C651 OR AWWA C652, OR AS DESCRIBED IN THIS SECTION. THIS REQUIREMENT SHALL APPLY TO "ON-SITE" OR "IN-PLANT" FABRICATION OF A SYSTEM OR TO A MODULAR PORTION OF A SYSTEM.
      a. THE PIPE SYSTEM SHALL BE FLUSHED WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT THE POINTS OF OUTLET.
      b. THE SYSTEM OR PART THEREOF SHALL BE FILLED WITH A WATER/CHLORINE SOLUTION CONTAINING AT LEAST 50 PARTS PER MILLION (50 MG/L) OF CHLORINE, AND THE SYSTEM OR PART THEREOF SHALL BE VALVED OFF AND ALLOWED TO STAND FOR 24 HOURS; OR THE SYSTEM OR PART THEREOF SHALL BE FILLED WITH A WATER/CHLORINE SOLUTION CONTAINING AT LEAST 200 PARTS PER MILLION (200 MG/L) OF CHLORINE AND ALLOWED TO STAND FOR 3 HOURS.
      c. FOLLOWING THE REQUIRED STANDING TIME, THE SYSTEM SHALL BE FLUSHED WITH CLEAN POTABLE WATER UNTIL THE CHLORINE IS PURGED FROM THE SYSTEM.
      d. THE PROCEDURE SHALL BE REPEATED WHERE SHOWN BY A BACTERIOLOGICAL EXAMINATION THAT CONTAMINATION REMAINS PRESENT IN THE SYSTEM.

2. PRESSURE TESTING
   A. THE CONTRACTOR SHALL SUBMIT A SCHEDULE AT THE BEGINNING OF THE WORK OF THE PIPING SYSTEMS THAT ARE TO BE PRESSURE TESTED, AND INDICATE WHETHER TESTS WILL BE FOR AN ENTIRE OR PARTIAL SYSTEM. ENTIRE PIPING SYSTEMS SHALL BE PRESSURE TESTED AT ONE TIME UNLESS IT IS NOT POSSIBLE OR PRACTICAL.
   B. ALL PIPING TO BE INSULATED OR CONCEALED SHALL BE PRESSURE TESTED PRIOR TO THE APPLICATION OF THE INSULATION OR CONCEALMENT.
   C. AN INDEPENDENT WITNESS AND/OR REPRESENTATIVE OF THE OWNER SHALL WITNESS ALL PRESSURE TESTING. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AT LEAST THREE (3) DAYS PRIOR TO THE TEST DATE.
   D. EACH PIPING SYSTEM SHALL BE TESTED PER THE METHOD, TEST PRESSURE, AND TEST DURATION AS SPECIFIED IN THE PIPING MATERIAL SCHEDULES.
   E. THE CONTRACTOR SHALL PROVIDE ALL TEST MEDIA, MEASURING DEVICES, INLET CONNECTIONS, TEST MEASUREMENT CONNECTIONS, AND DISPOSAL OF TEST MEDIA. THE CONTRACTOR SHALL PROTECT, ISOLATE AND/OR REMOVE PIPING SYSTEM COMPONENTS THAT CAN NOT BE SUBJECTED TO TEST PRESSURES.
   F. HAMMER EACH JOINT IN WELDED OR SOLDERED PIPING WHILE UNDER TEST. LEAKS SHALL BE REPAIRED AND THE TEST(S) REPEATED UNTIL THE RESPECTIVE PIPING SYSTEM IS TIGHT.

PLUMBING ABBREVIATIONS INDEX

NOTE: ALL ABBREVIATIONS MAY NOT BE USED ON THIS PROJECT.

AD	AREA DRAIN
AP	ACCESS PANEL
AW	ACID WASTE
AV	ACID VENT
BV	BALANCE VALVE
CB	CATCH BASIN
CFS	CUBIC FEET PER SECOND
CO	CLEANOUT
CWV	COMBINATION WASTE & VENT
CGRWV	COMBINATION GREASE WASTE & VENT
CUSP	CUSPIDOR
CHV	CHECK VALVE
CW	COLD WATER
DD	DECK DRAIN
ODD	OVERFLOW DECK DRAIN
DF	DRINKING FOUNTAIN
DN	DOWN
DS	DOWNSPOUT
DV	DRAIN VALVE
DWH	DOMESTIC WATER HEATER
ET	EXPANSION TANK
EWC	ELECTRIC WATER COOLER
EX	EXISTING PIPING OR EQUIPMENT
F	FLANGE CONNECTION
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FS	FLOOR SINK
GA	GAUGE
GC	GAUGE COCK
GW	GREASE WASTE
HB	HOSE BIB
HW	HOT WATER
HWR	HOT WATER RECIRCULATION
ICW	ICE COLD WATER
IDW	INDIRECT WASTE
I.E.	INVERT ELEVATION
L	LAVATORY
LV	LOOP VENT
MH	MANHOLE
MS	MOP SINK
N.I.C.	NOT IN CONTRACT
NPC	NON-POTABLE COLD WATER
NPH	NON-POTABLE HOT WATER
OD	OVERFLOW DRAIN / OVERFLOW DRAIN PIPNG
PR	PRESSURE REGULATOR
RD	ROOF DRAIN / ROOF DRAIN PIPNG
RI	ROUGH-IN (ONLY)
RI&C	ROUGH-IN AND CONNECT
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
S	SANITARY WASTE
SBD	SHOWER BASINS AND DRAIN
SCW	SOFT COLD WATER
SH	SHOWER HEAD
SHW	SOFT HOT WATER
SS	SERVICE SINK
SSD	SUBSOIL DRAIN
STW	SOFT TEMPERED WATER
SV	SERVICE VALVE
TD	TRENCH DRAIN
TH	THERMOMETER
TT	TEST TEE
TWC	TEMPERED WATER CIRCULATING
U	UNION
UR	URINAL
V	VENT
VTR	VENT THROUGH ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
WF	WASH FOUNTAIN
WH	WALL HYDRANT
WM	WATER MAIN
YCO	YARD CLEANOUT
YD	YARD DRAIN

PLUMBING ABBREVIATIONS INDEX

NOTE: ALL ABBREVIATIONS MAY NOT BE USED ON THIS PROJECT.

SYMBOL	ABBREVIATION
XX-#	FIXTURE DESIGNATION
# / X#.#	SECTION DESIGNATION / SHEET NUMBER
	CONNECT TO EXISTING
	POINT OF DEMOLITION
#	KEYNOTE DESIGNATION
#	REVISION DELTA
# / X#.#	ENLARGED PLAN / CALL OUT
#	PLUMBING RISER DESIGNATION

DESIGN CONTACTS

ENGINEER	JOEL WILLIAMS
DESIGNER	JAREN TICE

PLUMBING SHEET LIST

P0.1	PLUMBING NOTES SYMBOLS & ABBREVIATIONS
P2.1	PLUMBING FLOOR PLAN
P5.1	PLUMBING SCHEDULES & DETAILS
P5.2	PLUMBING DETAILS

PLUMBING PIPE FITTING SYMBOLS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED ON THIS PROJECT.

SYMBOL	ABBREVIATION	EXPLANATION
	UP	PIPE LINE, TURNED UP
	DN	PIPE LINE, TURNED DOWN
	TDN	PIPE LINE, TEE DOWN
	SV	SERVICE VALVE
	BV	BALANCE VALVE
	CV	2 WAY CONTROL VALVE
	3CV	3 WAY CONTROL VALVE
	CHV	CHECK VALVE
	DV	DRAIN VALVE
	AAV	AUTOMATIC AIR VALVE
	MAV	MANUAL AIR VALVE
	FCO	FLOOR CLEANOUT
	WCO	WALL CLEANOUT
	RD/OD	ROOF DRAIN
	OFN	OVERFLOW NOZZLE
	FS	FLOOR SINK
	FD	SQUARE FLOOR DRAIN
	FD	ROUND FLOOR DRAIN
	F	FLANGE CONNECTION
GA GC	GA / GC	GAUGE / GAUGE COCK
	MC	MECHANICAL COUPLING
	P	PETE'S PLUG
	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
	PR	PRESSURE REGULATOR
	PRV	PRESSURE REDUCING VALVE
		SOLENOID VALVE
	RV	RELIEF VALVE
	STR	STRAINER
	TH	THERMOMETER
	TW	THERMOMETER WELL
	U	UNION
		METER
		CAP
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER (BOTTOM & TOP LEVEL)
	PA	PIPE ANCHOR
	PG	PIPE GUIDE
	ARR	WATER HAMMER ARRESTOR

PLUMBING PIPE SYMBOLS

NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT.

SYMBOL	EXPLANATION
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RECIRCULATION
CD	CONDENSATE DRAIN
S	SANITARY WASTE (ABOVE GRADE)
S	SANITARY WASTE (BELOW GRADE)
V	VENT

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LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE 21 APRIL 2025

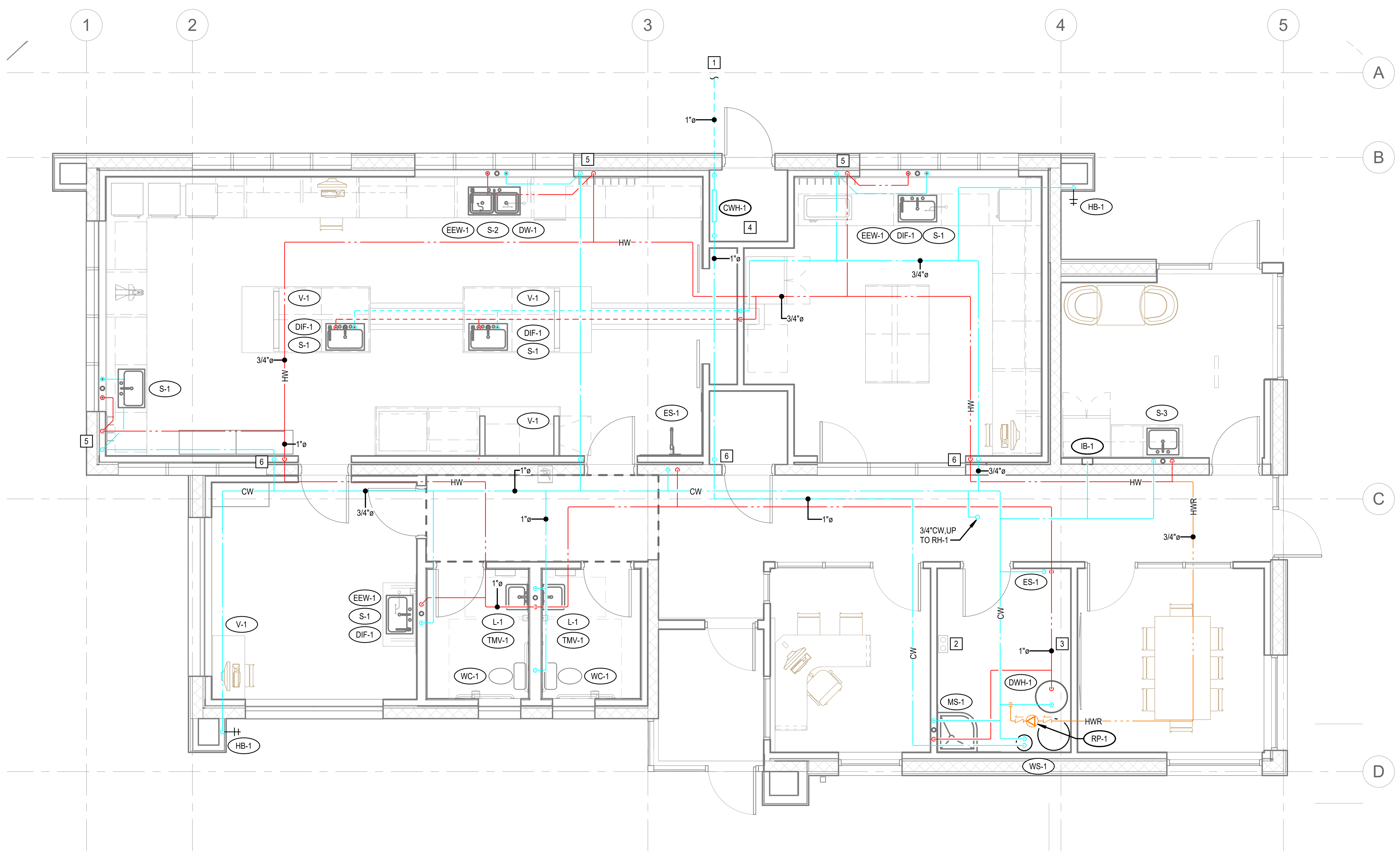
REVISIONS:

BID SET

SHEET TITLE:
PLUMBING NOTES SYMBOLS & ABBREVIATIONS

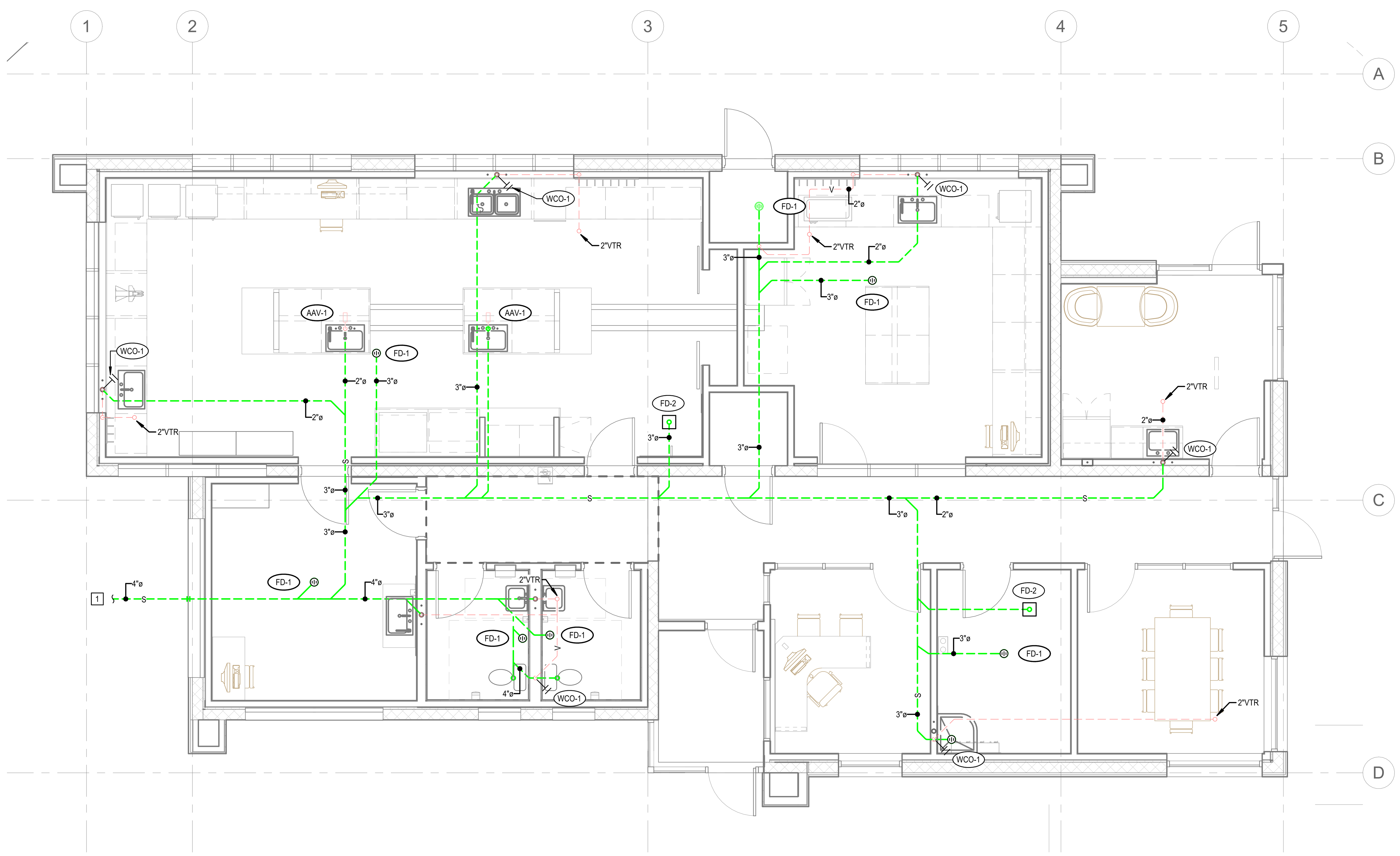
SHEET NUMBER:
P0.1

Plot Date: 4/15/2025 10:51:56 AM



1 LEVEL 1 SUPPLY PLAN
P2.1 1/4" = 1'-0"

3/16" = 1'-0"



2 LEVEL 1 WASTE & VENT PLAN
P2.1 1/4" = 1'-0"

3/16" = 1'-0"

GENERAL NOTES

1. REFER TO ALL NOTES, SYMBOLS & ABBREVIATIONS ON SHEET P0.1. REFER TO ALL SCHEDULES & DETAILS WITHIN P5 SERIES SHEETS.
2. REFERENCE ARCHITECTURAL DRAWINGS FOR VACUUM VALVE AND VACUUM LINE LOCATIONS IN THE THREE LABORITORIES.

KEYED NOTES

1 SEE CIVIL FOR PIPE CONTINUATION.
2 VACUUM SYSTEM SHOWN FOR LOCATION ONLY. PROVIDED AND INSTALLED BY OTHERS. REFERENCE ARCHITECTURAL DRAWINGS.
3 DEIONIZED WATER SYSTEM SHOWN FOR LOCATION ONLY. PROVIDED AND INSTALLED BY OTHERS.
4 FIRE RISER LINE. SEE ARCHITECTURAL / FIRE PROTECTION DRAWINGS FOR DETAILS.
5 DOMESTIC HOT AND COLD WATER TO DROP IN WALL TO BELOW COUNTERTOP. ROUTE PIPING IN CABINET TO SINK.
6 DROP DOWN AND ROUTE IN CEILING OF LOWER STRUCTURE.

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Registered Professional Engineer (Mechanical)
CERTIFICATE NO.
80884
JOEL
WILLIAMS
1/30/2025
Date Signed
ARIZONA, U.S.A.

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

PROJECT NO. 24-077
DATE 21 APRIL 2025
REVISIONS:

SHEET TITLE:
PLUMBING FLOOR PLAN

SHEET NUMBER:
P2.1

BUILDING NORTH

BID SET

Plot Date: 4/15/2025 10:52:03 AM

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	SUPPLY PIPE SIZE						FIXTURE UNITS		ELECTRICAL CONNECTION	FIXTURE SPECS / REMARKS	FIXTURE SELECTION	TRIM				NOTES
		TRAP	WASTE	VENT	COLD	HOT	GAS	DFU	SFU				VALVE	DRAIN	STOP	MISCELLANEAOUS	
CWH-1	COLD WATER HEADER	-	-	-	1-1/2"	-	-	-	-	NO	COLD WATER HEADER SHALL BE INSTALLED IN THE FOLLOWING ARRANGEMENT: STRAINER, BACKFLOW PREVENTER, PRV. SET PRV 60 PSI. CHW IS DESIGNED BASED ON A 1" WATER METER W/ 1-1/2" DISTRIBUTION PIPE TO THE BUILDING.	1-1/2" WATTS 009M2QT-LF,1-1/2" WATTS U5B-Z3-GG,1-1/2" WATTS LF777S.	INCL.	-	BALL VALVE	PROVIDE BACKFLOW PREVENTER SHALL BE PROVIDED WITH AIR GAP. CONTRACTOR SHALL REFER TO PLANS FOR CLARIFICATION.	
DIF-1	DEIONIZED FAUCET	-	-	-	1/2"	-	-	-	-	NO	DEIONIZED WATER SYSTEM SHOWN FOR LOCATION ONLY. PROVIDED AND INSTALLED BY OTHERS						
DW-1	DISHWASHER CONNECTION	-	-	-	-	1/2"	-	-	-	NO	PROVIDE ONE OF THE FOLLOWING: A SEPARATE TAP WITH SERVICE VALVE OFF OF HOT WATER PIPE AT SINK, OR A THREE WAY VALVE WITH SERVICE VALVE ON HOT WATER PIPE AT SINK. HW PIPE TO DW SHALL MATCH DW MANUF. REQUIREMENTS.	CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING REQUIRED INSTALLATION METHOD IN THE FIELD - REFER TO REMARKS.	-	INCL	BALL VALVE		
DWH-1	DOMESTIC WATER HEATER ELECTRIC TANK	-	-	-	3/4"	3/4"	-	-	-	YES	50 GA CAPACITY. 240 V 4500 W ELEMENT.	A.O. SMITH PROLINE ELECTRIC PNT-50 & AMTROL ST-12 EXPANSION TANK OR APPROVED EQUAL.	-	-	BALL VALVE	INSTALL ST-12 ON COLD WATER INLET.	3
EEW-1	EMERGENCY EYEWASH	1-1/2"	1-1/2"	1-1/2"	1/2" TEPID	1/2" TEPID	-	-	-	NO	COUNTER MOUNTED, SWING ACTIVATED EYE WASH FIXTURE.	BRADLEY S19-270C OR APPROVED EQUAL.	INCL.	INCL.	YES CW & HW	PROVIDE TEMPERING VALVE BRADLEY S59-4007. INSTALL PER MANUFACTURERS REQUIREMENTS. COORDINATE WITH OWNER FOR FINAL LOCATION.	
ES-1	EMERGENCY SHOWER & EYEWASH	1-1/2"	1-1/2"	1-1/2"	1" TEPID	1" TEPID	-	-	-	NO	STAINLESS STEEL COMBINATION DRENCH SHOWER AND EYEWASH. PROVIDE FLOW SWITCH ALARM SYSTEM	SHOWER: ULINE H-6618 ALARM: BRADLEY S19-320B OR APPROVED EQUAL.	INCL.	INCL.	YES CW & HW	PROVIDE TEMPERING VALVE BRADLEY S59-2250 HIGH/LOW. INSTALL PER MANUFACTURERS REQUIREMENTS. COORDINATE WITH OWNER FOR FINAL LOCATION.	
FD-1	FLOOR DRAIN FINISHED FLOOR	3"	3"	2"	-	-	-	0	-	NO	CAST IRON BODY W/FLASHING FLANGE, INT. REVERSIBLE CLAMPING COLLAR, SEEPAGE OPENINGS, 6"x6" SQ. ADJ. SATIN NICKEL BRONZE STRAINER W/VR FASTENERS 3" OUTLET	J.R. SMITH 2005Y-B-U-NB, OR EQUAL BY WADE, ZURN, MIFAB	-	-	-	PROVIDE SURE SEAL TRAP GUARD.	
FD-2	EMERGENCY SHOWER DRAIN	3"	3"	2"	-	-	-	0	-	NO	10"x10" CAST IRON BODY WITH FLASHING COLLAR AND TRAP GUARD. NICKLE BRONZE TOP. 3" OUTLET	J.R. SMITH 2010-B, OR APPROVED EQUAL.	-	-	-	PROVIDE SURE SEAL TRAP GUARD.	
IB-1	ICE MAKER BOX	-	-	-	1/2"	-	-	-	-	NO	1/4 TURN VALVES (SWEAT), 20 GA POWDER COATED STEEL.	GUY GRAY MIB4 OR APPROVED EQUAL.	INCL.	-	INCL.	INSTALL PER MANUF. REQS. FINAL MOUNTING HEIGHT A.F.F SHALL BE COORD. IN FIELD W/OWNER/ARCH. CONTRACTOR SHALL BE RESPONISBLE FOR DETERMING PIPE CONNECTION METHOD.	
L-1	LAVATORY-ADA WALL HUNG	1-1/4"	1-1/2"	1-1/2"	1/2"	1/2"	-	1	2	NO	FRONT OVERFLOW W/FAUCET LEDGE, CONCEALED CARRIER ARMS, SELF-DRAINING DECK W/CONTOURED BACK AND SPLASH SHIELDS. MOUNT FIXTURE AT ADA HEIGHT. VITREOUS CHINA.	KOHLER "CHESAPEAKE" MODEL K-1728, 4" CENTERS, W/WALL HANGER.	CHICAGO 420 T45E2805 OR APPROVED EQUAL	GRID	YES	PROVIDE CARRIER. WATTS TC-411 OR APPROVED EQUAL. PROVIDE INSULATION KIT, TRUEBRO LAV GUARD 2 103 E-Z.	1
MS-1	MOP SINK BASIN	3"	3"	2"	1/2"	1/2"	-	2	3	NO	28"x28"x13" ENAMELED CAST IRON ONE PIECE BASIN, GROUTED AND SEALED. PROVIDE WITH REMOVABLE VINYL RIM GUARD.	AMERICAN STANDARD "FLORWELL" MODEL 7745.811	SEE MISCELLANEOUS	INCL.	INCL.	FAUCET: OVERHEAD SUPPLY. AMERICAN STANDARD MODEL 8344212.004	
RP-1	DOMESTIC HOT WATER RECIRCULATION PUMP	-	-	-	-	3/4"	-	-	-	YES	PUMP BODY SHALL BE LEAD FREE BRASS. CERAMIC SHAFT & BEARINGS, CERTIFIED NSF-61 AND NSF-372 STANDARDS. ELEC. REQ. 115V/208-230/60HZ.	GRUNDFOS ALPHA1 15-55SF UP 10-16 PM OR APPROVED EQUAL BY BELL AND GOSSETT, TACO, ARMSTRONG.	-	-	BALL VALVE	PUMP SHALL DELIVER 2 GPM @ 1.5 FT.HD. PUMP SHALL BE PROVIDED W/2 BALL VALVES, CHECK VALVE, STRAINER AND STRAP ON THERMOSTAT (SEE PLANS).	
RH-1	ROOF HYDRANT	-	-	-	3/4"	-	-	-	-	NO	NO DRAIN REQUIRED, DUAL CHECK BFP & DRAIN, AIR VENT BOOT COVERS WELL SEAL.	WOODFORD SRH-MS OR APPROVED EQUAL.	INCL.	-	BALL VALVE	INSTALL PER MANUFACTURERS REQUIREMENTS.	
S-1	SINK SINGLE COMPARTMENT	1-1/2"	2"	1-1/2"	1/2"	1/2"	-	2	1.4	NO	SINK SHALL BE PROVIDED BY COUNTER TOP SUPPLIER. SINK SHALL BE INTEGRATED INTO COUNTER TOP AND OF SAME MATERIAL.		KINGSTON MODEL CENTURION FB8498EFL	GRID	YES		
S-2	SINK DOUBLE COMPARTMENT	1-1/2"	2"	1-1/2"	1/2"	1/2"	-	2	1.4	NO	SINK SHALL BE PROVIDED BY COUNTER TOP SUPPLIER. SINK SHALL BE INTEGRATED INTO COUNTER TOP AND OF SAME MATERIAL.		KINGSTON MODEL CENTURION FB8498EFL	GRID	YES		
S-3	SINK-ADA SINGLE COMPARTMENT	1-1/2"	2"	1-1/2"	1/2"	1/2"	-	2	1.4	NO	18-GA, TYPE 304SS, SELF-RIM SINGLE BOWL. INSIDE BOWL DIM: 21"Lx15-3/4"Wx7-1/2"D. FAUCET DECK W/3 HOLES ON 4" CENTERS.	ELKAY LR-2522 OR JUST SLF-2225-A-GR	KINGSTON MODEL CENTURION FB8498EFL	GRID	YES		
TMV-1	THERMOSTATIC MIXING VALVE-INDIVIDUAL FIXTURE	-	-	-	1/2"	1/2"	-	-	-	NO	INTEGRAL CHECK VALVES, REMOVABLE CARTRIDGE STRAINERS, STAINLESS STEEL PISTONS. THERMAL BELLOWS, ROUGH BRONZE FINISH.	WATTS LFMMV-M1 OR APPROVED EQUAL.	INCL.	-	BALL VALVE ALL 3 SIDES	INSTALL PER MANUFACTURERS REQUIREMENTS.	1,2
V-1	VACUUM	-	-	-	-	-	-	-	-	NO	VACUUM SYSTEM SHOWN FOR LOCATION ONLY. PROVIDED AND INSTALLED BY OTHERS						
WC-1	WATER CLOSET - FLUSHTANK FLOOR MOUNT - ADA	INT	3"	2"	1"	-	-	4	5	NO	FLOOR MOUNTED TOP SPUD FLUSHOMETER BOWL. 1-1/2" TOP SPUD	KOHLER: 96057-0 HIGHCLIFF ULTRA	KOHLER: 10TH00N10-CP	-	INC. W/ VALVE	PROVIDE SEAT: KOHLER 4731-C-0	
WCO-1	WALL CLEANOUT FINISHED SPACES	-	-	-	-	-	-	-	-	NO	PROVIDE CLEANOUT FITTING W/SCREWED PLUG OPENING & COUNTERSUNK PLUG. PROVIDE 8"x8" SQ. ACCESS COVER, PLOISHED NICKEL BRONZE & S.S., VANDAL PROOF SCREWS.	WADE 8480ST-179, ZURN ZNAB-1462-8-VP, J.R. SMITH 4730-U-NB, MIFAB C1460-S-3-6, OR APPROVED EQUAL.	-	-	-		
WS-1	WATER SOFTENER	-	-	-	1"	-	-	-	-	YES	CONTRACTOR SHALL COORDINATE WITH OWNER TO PROVIDE AND INSTALL WATER SOFTENER SYSTEM TO MATCH EXISTING WATER SOFTENER SYSTEM IN OWNERS EXISTING BUILDING.		-	-	-		

NOTES:

1. PROVIDE WITH TMV-1. MIXING VALVE SHALL COMPLY WITH ASSE 1062 AND 1070. SET MIXING VALVE TO MAX. OF 105 F.
2. MIXING VALVE SHALL BE INSTALLED UNDER SINK IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS.
3. CONTRACTOR SHALL PROVIDE A MIN. OF TWO (2) SEISMIC RESTRAINTS/STRAPS AT THE TOP AND BOTTOM 1/3 POINTS OF DOMESTIC WATER HEATER.

2021 IPC TABLE 314.2.2 GRAVITY CONDENSATE DRAIN SIZING

EQUIPMENT CAPACITY	MINIMUM CONDENSATE PIPE DIAMETER (INCH)
Up to 20 tons of refrigeration	3/4 inch
Over 20 tons to 40 tons of refrigeration	1 inch
Over 40 tons to 90 tons of refrigeration	1 1/4 inch
Over 90 tons to 125 tons of refrigeration	1 1/2 inch
Over 125 tons to 250 tons of refrigeration	2 inch

MINIMUM CONDENSATE PIPE SIZE SHALL BE 3/4"

PLUMBING PIPING SCHEDULE

SERVICE DESIG.	SERVICE	MATERIAL	LOCATION	INSULATION	FITTINGS	NOTES
CD	CONDENSATE DRAIN	COPPER TYPE "L" - HARD	INTERIOR - ABOVE GRADE	NONE	WROUGHT COPPER - SOLDER ENDS	4,7,8
CW	DOMESTIC COLD WATER	COPPER TYPE "L" - HARD	INTERIOR - ABOVE GRADE	1-1/2" FIBERGLASS	WROUGHT COPPER - SOLDER ENDS	1,3,4
HW	DOMESTIC HOT WATER	COPPER TYPE "L" - HARD	INTERIOR - ABOVE GRADE	1-1/2" FIBERGLASS	WROUGHT COPPER - SOLDER ENDS	2,3,4
		COPPER TYPE "L" - HARD	INTERIOR - ABOVE & BELOW CEILING	SEE NOTES	WROUGHT COPPER - SOLDER ENDS	2,3,4
S	SANITARY SEWER	CAST IRON - DWV	INTERIOR - ABOVE & BELOW GRADE	NONE	CAST IRON - DWV	6
V	PLUMBING VENT	CAST IRON - DWV	INTERIOR - ABOVE & BELOW GRADE	NONE	CAST IRON - DWV	

NOTES:

1. INSULATION SIZING PER 2021 IECC TABLE C403.11.3 (40°F - 60°F) -- PIPE < 1" = 0.5" INSUL., PIPE 1" TO < 1.5" = 1" INSUL., PIPE 1.5" TO < 4" = 1.5" INSUL.
2. INSULATION SIZING PER 2021 IECC TABLE C403.11.3 (105°F - 140°F) -- PIPE < 1" = 1" INSUL., PIPE 1" TO < 1.5" = 1" INSUL., PIPE 1.5" TO < 4" = 1.5" INSUL.
3. ALL VALVES SHALL BE LEAD FREE
4. PRIOR ENGINEER APPROVED COPPER PRESS FITTINGS CAN BE USED AT CONTRACTORS OPTION.
5. NATURAL GAS PIPING SHALL BE INSTALLED PER THE CURRENT ADOPTED IFGC.
6. SANITARY DRAINAGE SLOPE: 2" AND SMALLER = 1/4" PER 1'-0" (2%), 3" AND LARGER 1/8" PER 1'-0" (1%).
7. MINIMUM CONDENSATE PIPE SIZE SHALL BE 3/4".
8. CONDENSATE PIPE SHALL SLOPE PIPE 1/8" PER 1' (1%) TOWARDS DRAIN.

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Registered Professional Engineer (Mechanical)
CERTIFICATE NO. 80884
JOEL WILLIAMS
Date Signed 1/30/2025
ARIZONA, U.S.A.

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

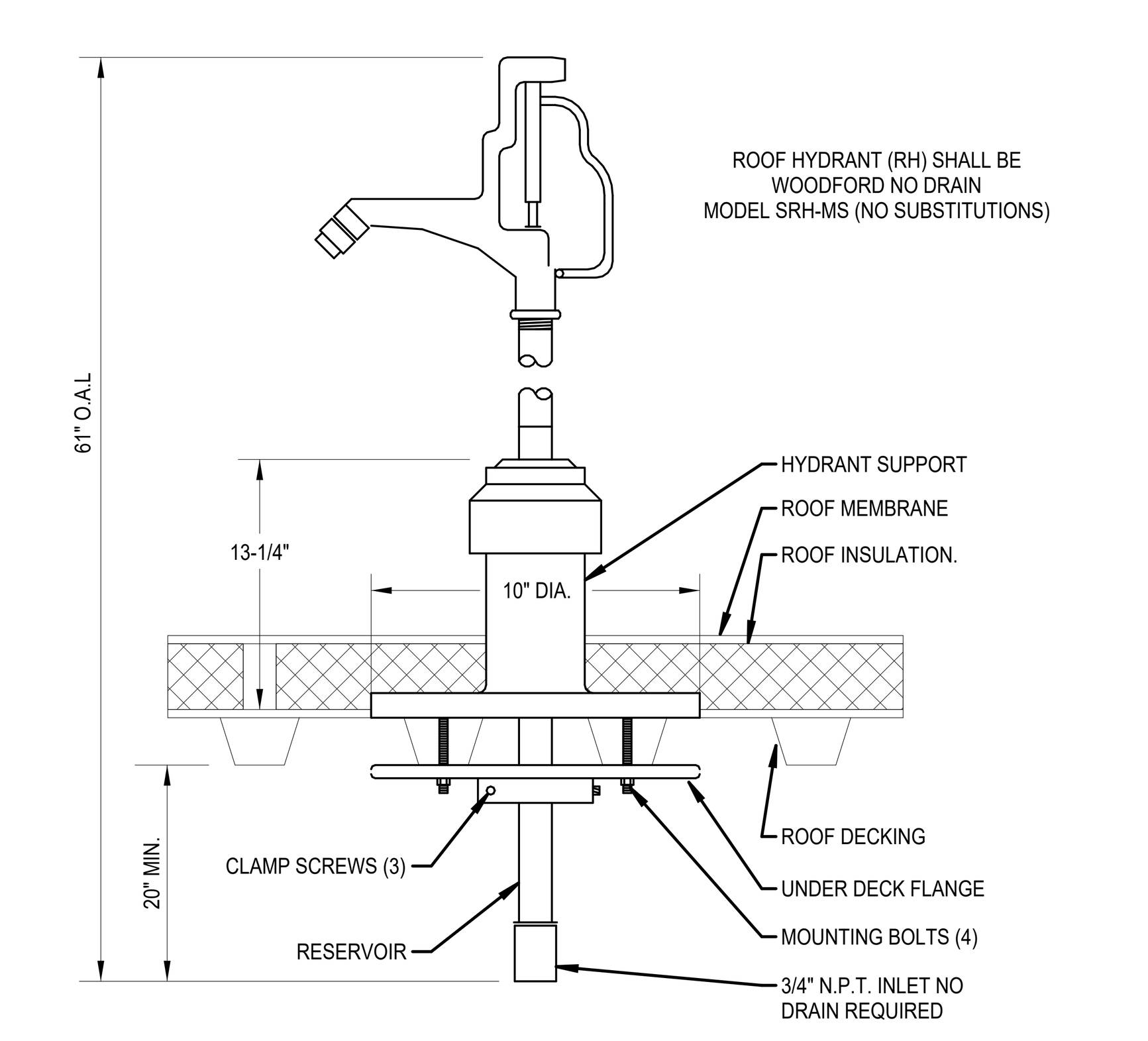
PROJECT NO. 24-077
DATE 21 APRIL 2025
REVISIONS:

SHEET TITLE:
PLUMBING SCHEDULES & DETAILS

SHEET NUMBER:
P5.1

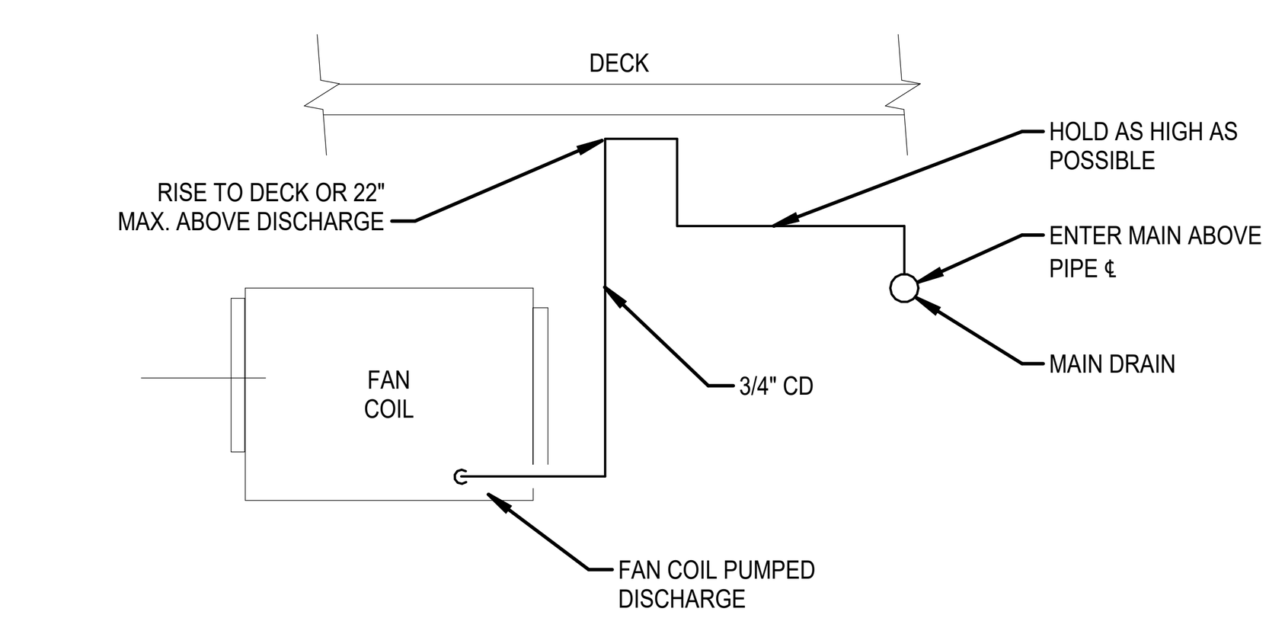
BID SET

Plot Date: 4/15/2025 10:52:06 AM



FILE NAME: P.03.01 SCALE: NONE

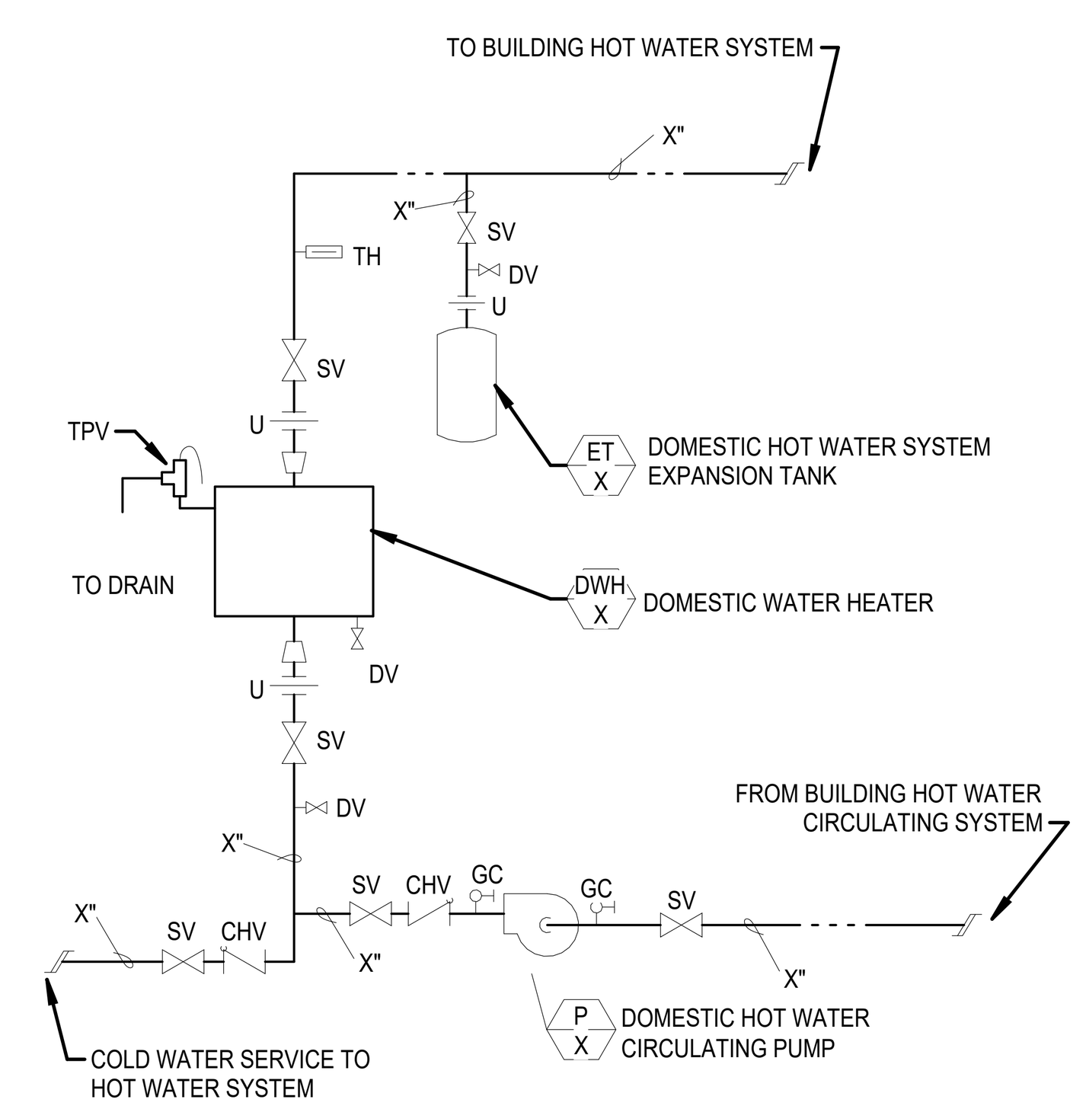
ROOF HYDRANT DETAIL NO DRAIN REQUIRED



NOTE:
1. MAIN DRAIN TO START AS HIGH AS POSSIBLE AND SLOPE UNIFORMLY TO DROP AT POINT OF DISCHARGE. PUMPED DRAIN HAS NO MINIMUM SLOPE REQUIREMENT.

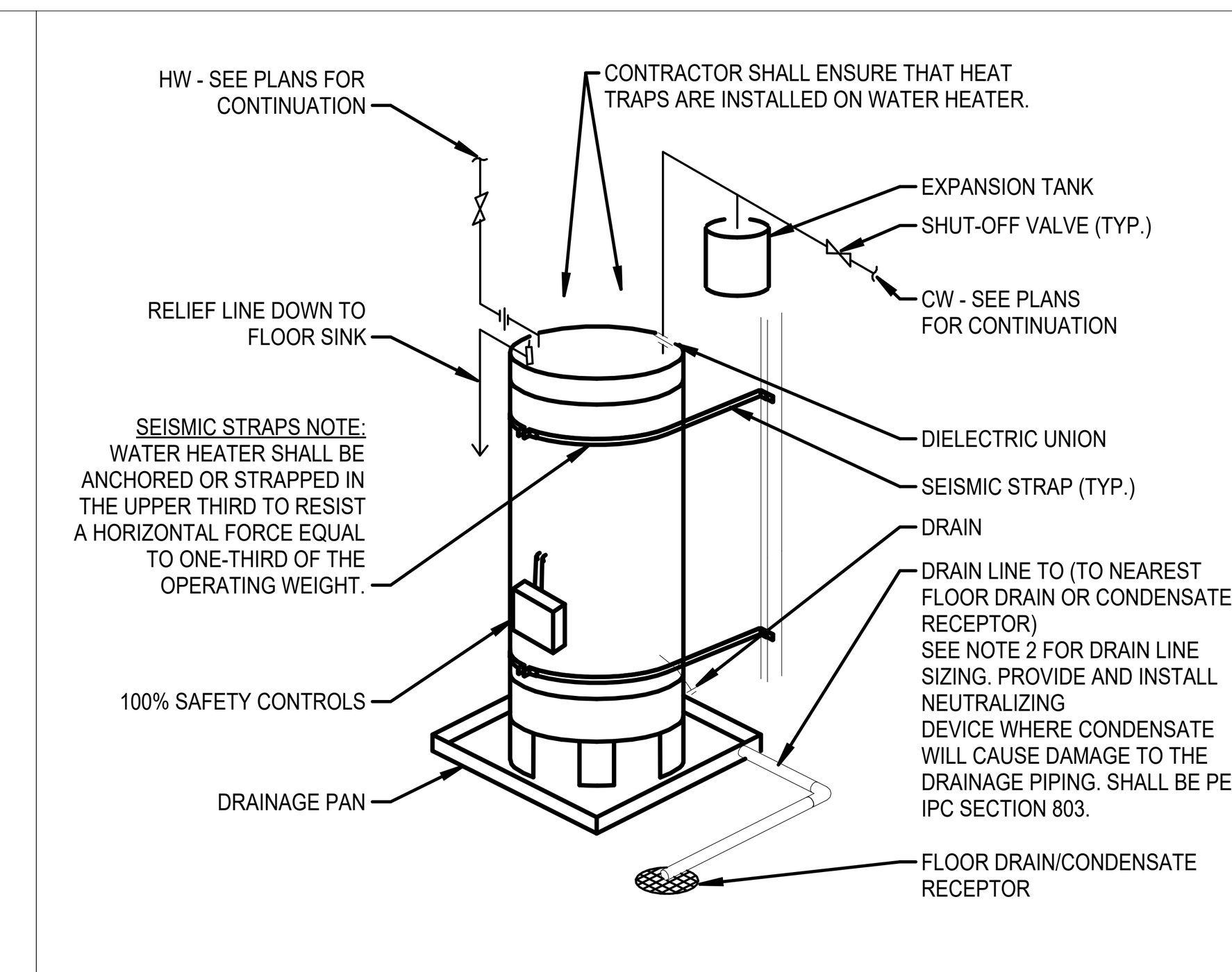
FILE NAME: MP.02.05 SCALE: NONE

TYPICAL FAN COIL PUMPED CONDENSATE



FILE NAME: P.01.01 SCALE: NONE

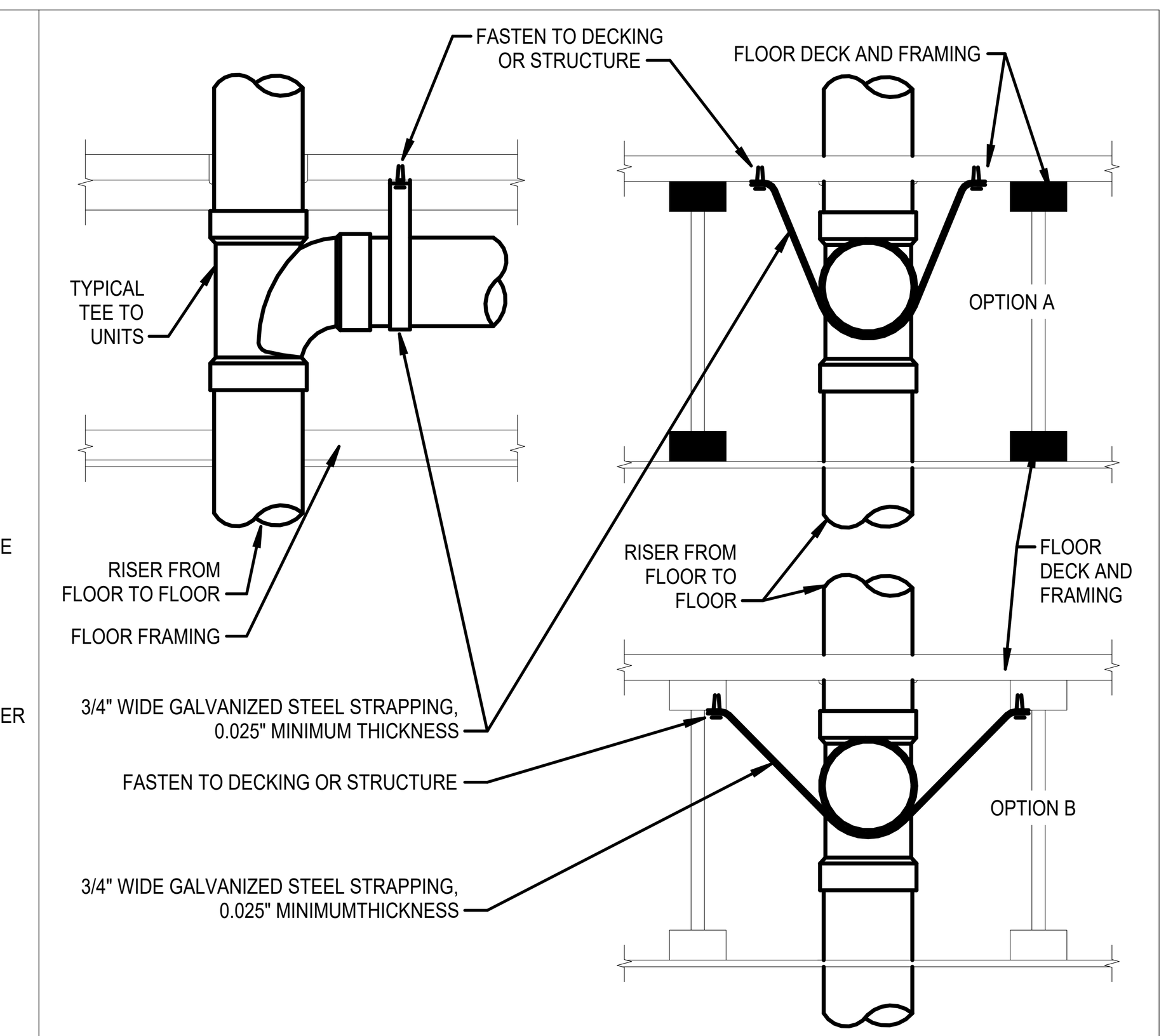
DOMESTIC HOT WATER PIPING DETAIL



NOTES:
1. PROVIDE AND INSTALL 2 SEISMIC STRAPS WITH TENSIONING BUCKLES ANCHORED TO STRUCTURE. INSTALL PER MANUFACTURERS REQUIREMENTS.
2. PROVIDE AND INSTALL PAN W/DRAIN WHERE REQUIRED, OR WHERE LEAK DAMAGE MAY OCCUR. DRAIN LINE SHALL BE 1 1/2" DIAMETER FOR PROJECTS LOCATED IN UTAH, 3/4" DIAMETER FOR OTHER PROJECT LOCATIONS.
3. PROVIDE HEAT TRAPS ON SUPPLY AND DISCHARGE PIPES.

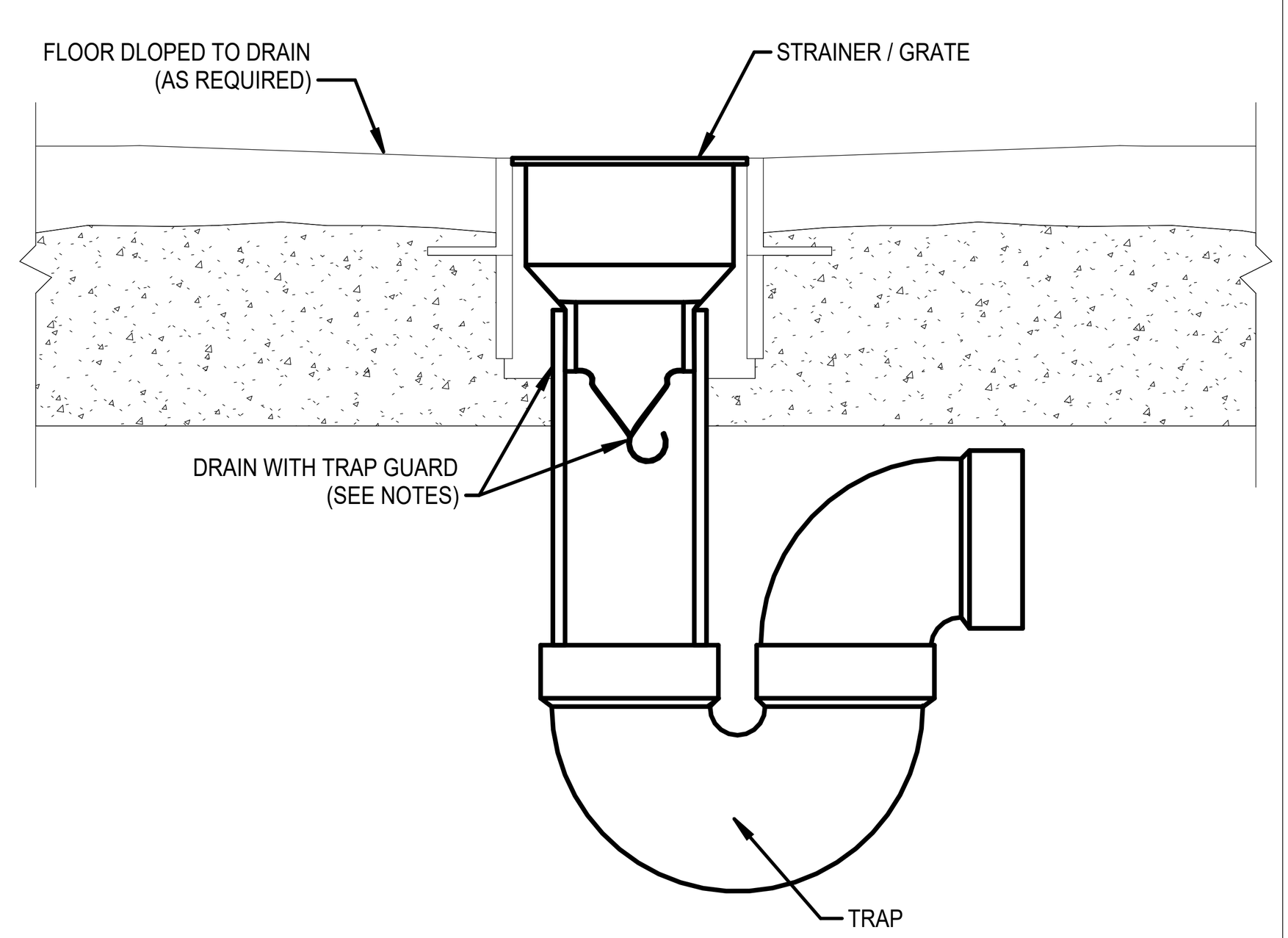
FILE NAME: P.01.07 SCALE: NONE

ELECTRIC WATER HEATER



FILE NAME: P.02.10 SCALE: NONE

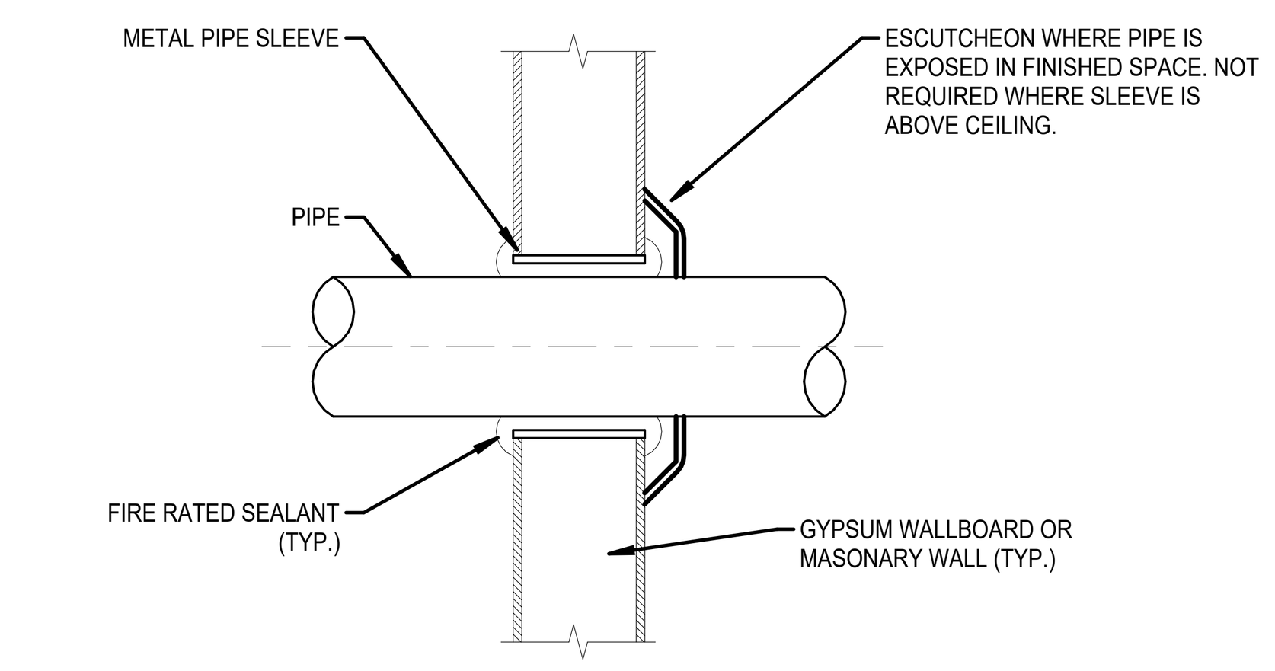
TYPICAL PLUMBING SUPPORT



NOTES:
1. DESIGN GUIDE: TRAP GUARD FLOOR DRAIN BY PROSET SYSTEMS INC.
2. FOLLOW ALL MANUFACTURER INSTALLATION AND OTHER INSTRUCTIONS.

FILE NAME: P.04.03 SCALE: NONE

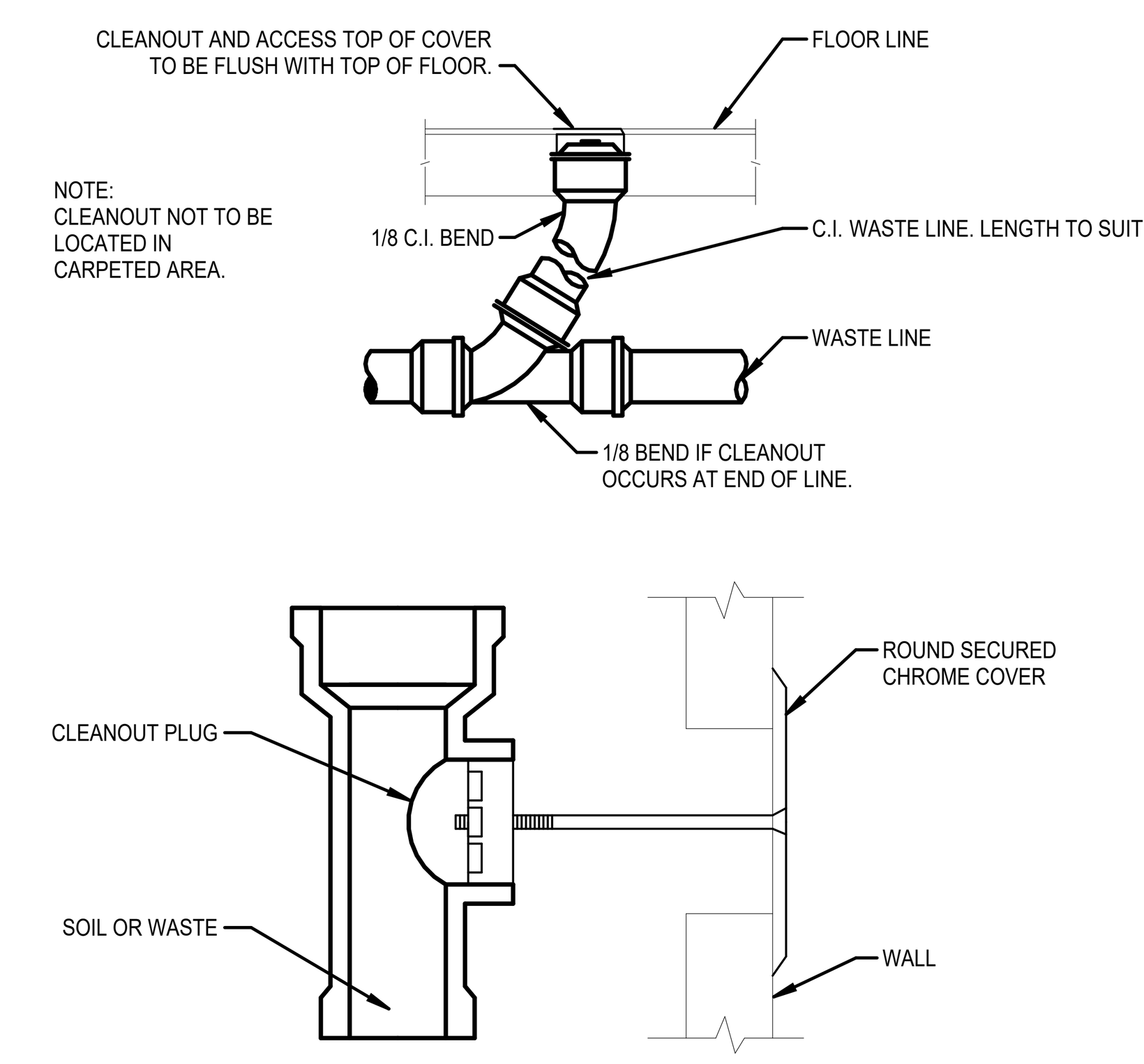
FLOOR DRAIN WITH TRAP GUARD IN CONCRETE FLOOR



NOTE:
PIPE SLEEVES ARE REQUIRED ON THIS PROJECT. CONTRACTOR SHALL BE REQUIRED TO REMOVE ANY PIPE INSTALLED WITHOUT A PIPE SLEEVE. INSTALL THE SLEEVE AND REINSTALL THE PIPE AT NO ADDITIONAL COST TO THE OWNER.

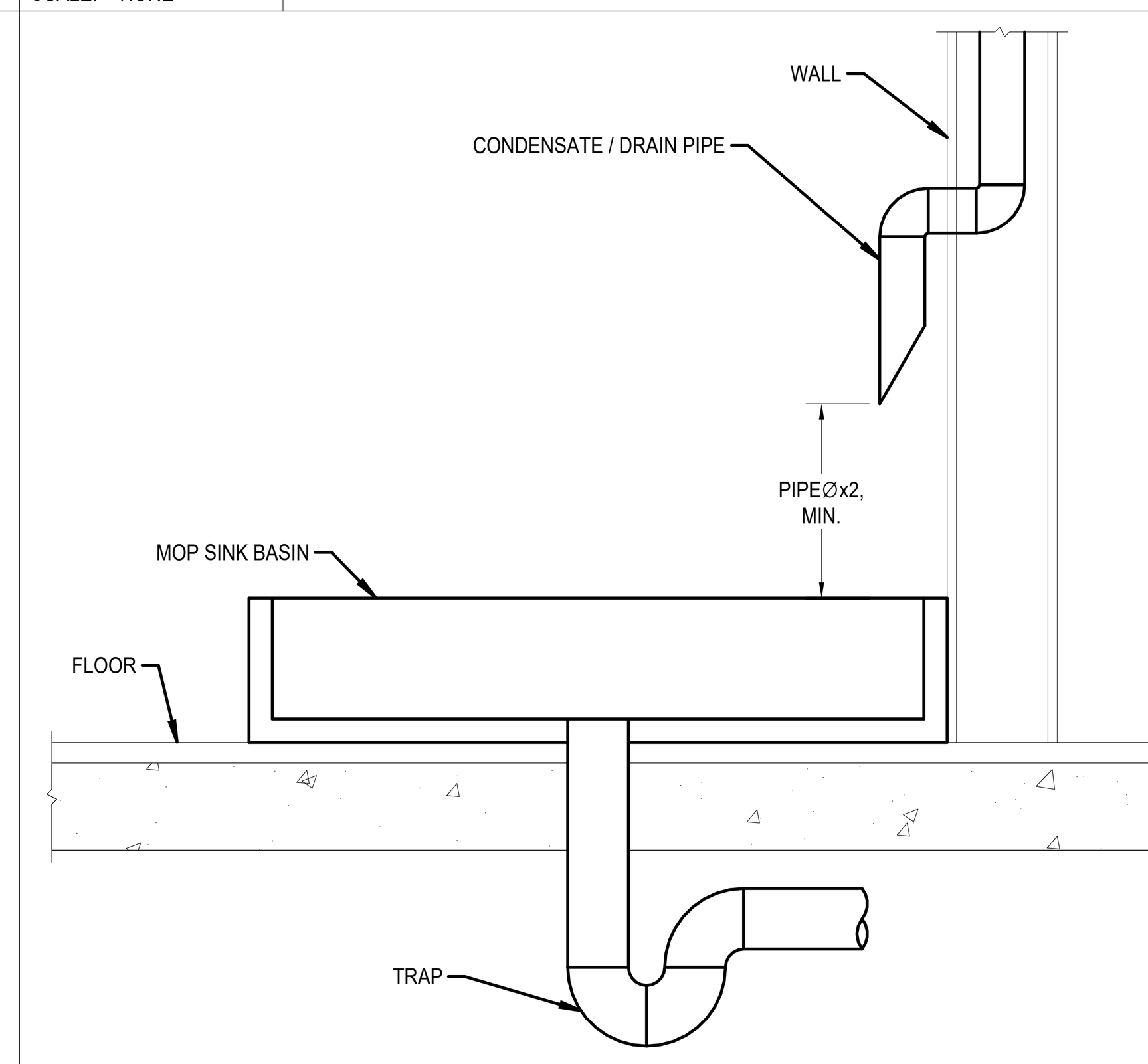
FILE NAME: P.05.03 SCALE: NONE

PIPING THROUGH GYPSUM WALL



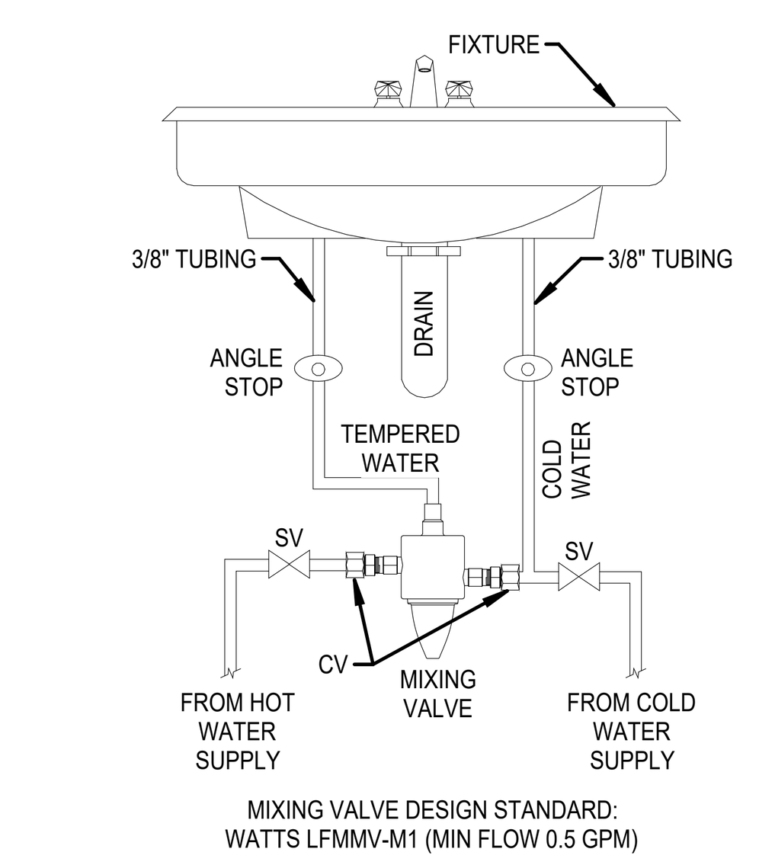
FILE NAME: P.03.03 SCALE: NONE

TYPICAL FLOOR AND WALL CLEANOUTS



FILE NAME: P.04.01 SCALE: NONE

INDIRECT CONDENSATE / DRAIN DISCHARGE TO MOP SINK



SINGLE LOCATION

NOTES:
1. PROVIDE WITH SEPARATE CHECKS AND WALL MOUNTING BRACKET.
2. SHALL CONFORM TO ASSE 1070 - LIMIT THE TEMPERED WATER TEMPERATURE TO A MAXIMUM OF 110 deg F. IPC 2015, 607.1.2.
3. SET MIXING VALVE TEMPERATURE WHEN INSTALLATION IS COMPLETE.
4. FOLLOW ALL MANUFACTURER INSTALLATION AND OTHER INSTRUCTIONS.
5. APPROVED MANUFACTURERS: SYMMONS, POWERS, LEONARD, BRADLEY, WATTS, LAWLER. INSTALL HANDY-SHIELD, AS MANUFACTURED BY PLUMBEREX SPECIALTY PRODUCTS, SAFETY COVERS ON ALL SUPPLY PIPING AND WASTE PIPING BENEATH HANDICAPPED LAVATORIES. SHIELDS SHALL MEET THE REQUIREMENTS OF UNIFORM FEDERAL ACCESSIBILITY STANDARDS 4.19.4 GSA AND ANSI DOCUMENT A117-1-1980.

FILE NAME: P.06.07 SCALE: NONE

WATER TEMPERING MANUAL FAUCET

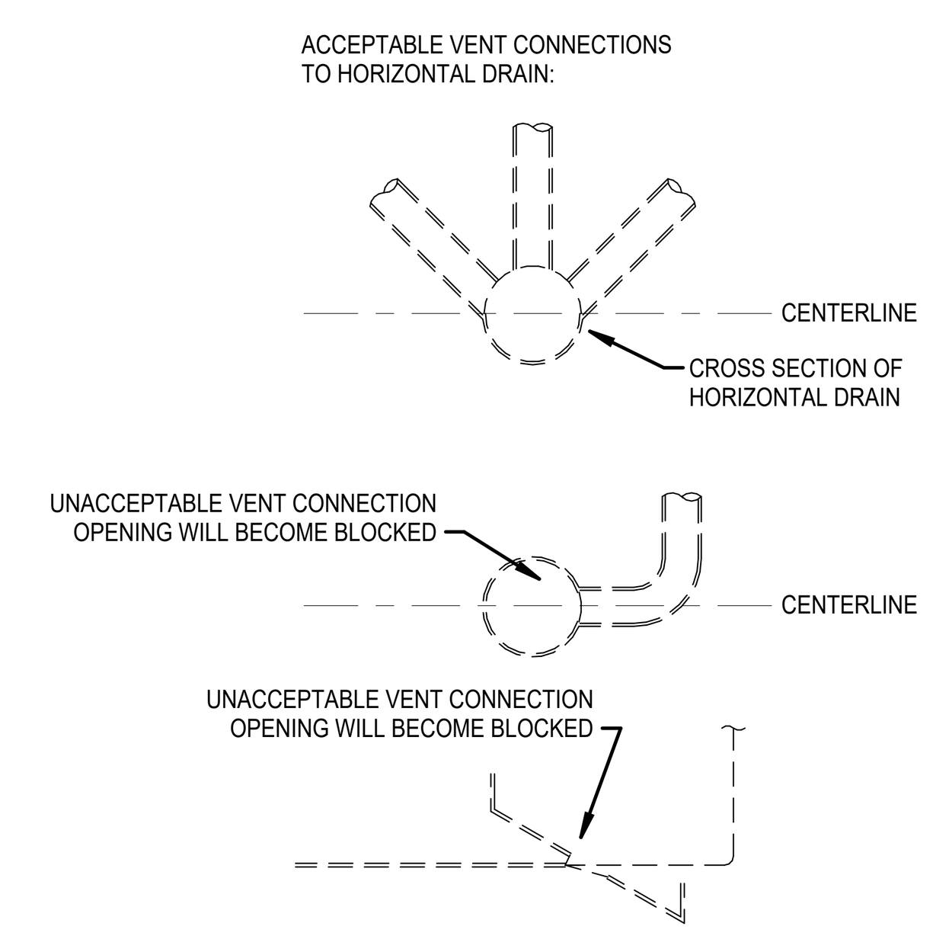


FIGURE 905.3 IPC

FILE NAME: P.09.02 SCALE: NONE

IPC VENT CONNECTIONS ACCEPTED / UNACCEPTED

NOTES:
1. SANITARY END VENTING SIZES SHOWN IN DETAIL P.09.05 ARE FOR REFERENCE ONLY. CONTRACTOR SHALL REFER TO PLANS AND ISOMETRICS FOR PROJECT PIPE SIZES.
2. A MAXIMUM OF EIGHT (8) FIXTURES CONNECTED TO A HORIZONTAL BRANCH DRAIN SHALL BE PERMITTED TO BE CIRCUIT BENT IN ACCORDANCE WITH SECTION 914 OF THE INTERNATIONAL PLUMBING CODE.
3. CIRCUIT VENT SHALL BE PLACED BETWEEN THE FIRST AND SECOND FIXTURE ACCORDANCE WITH IPC CIRCUIT VENTING REQUIREMENTS.

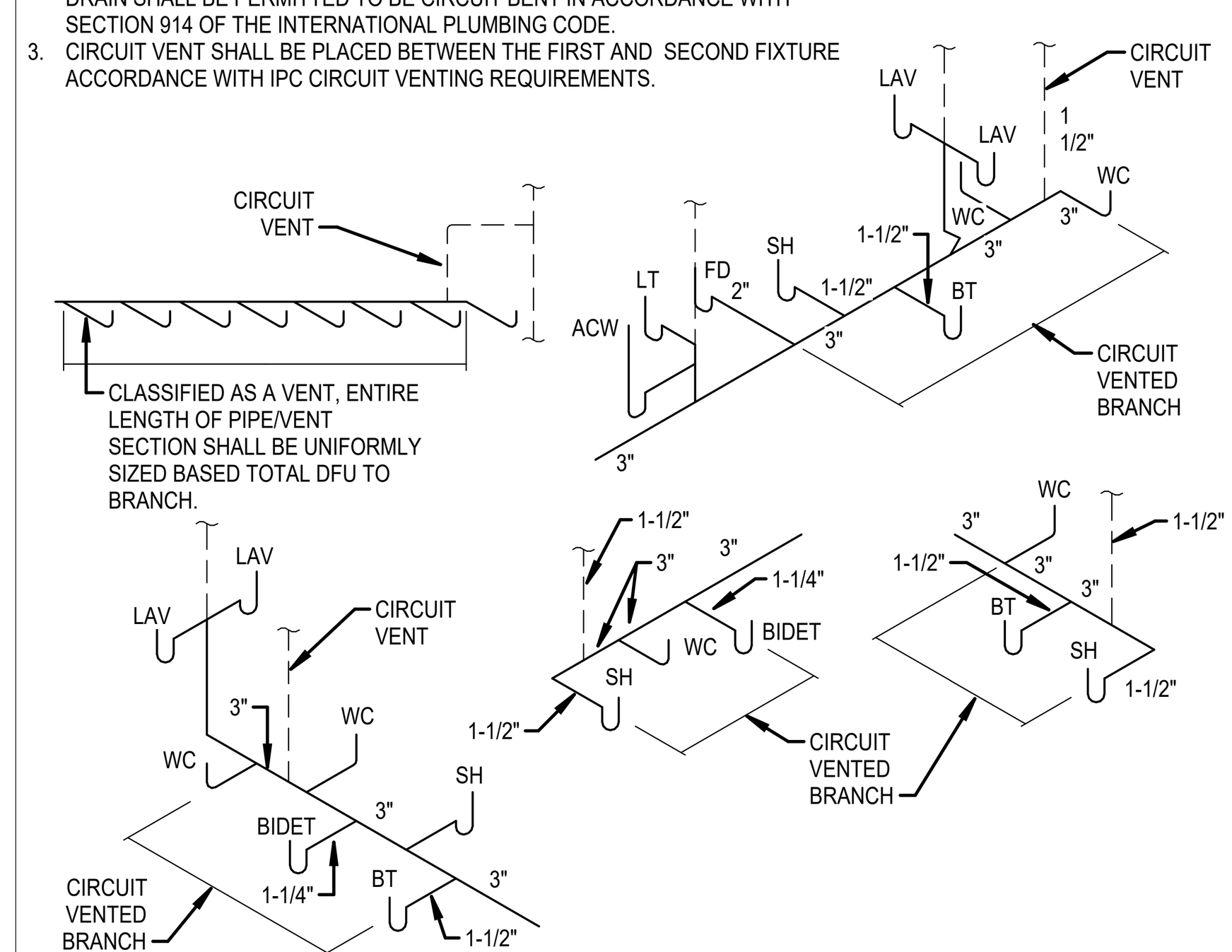
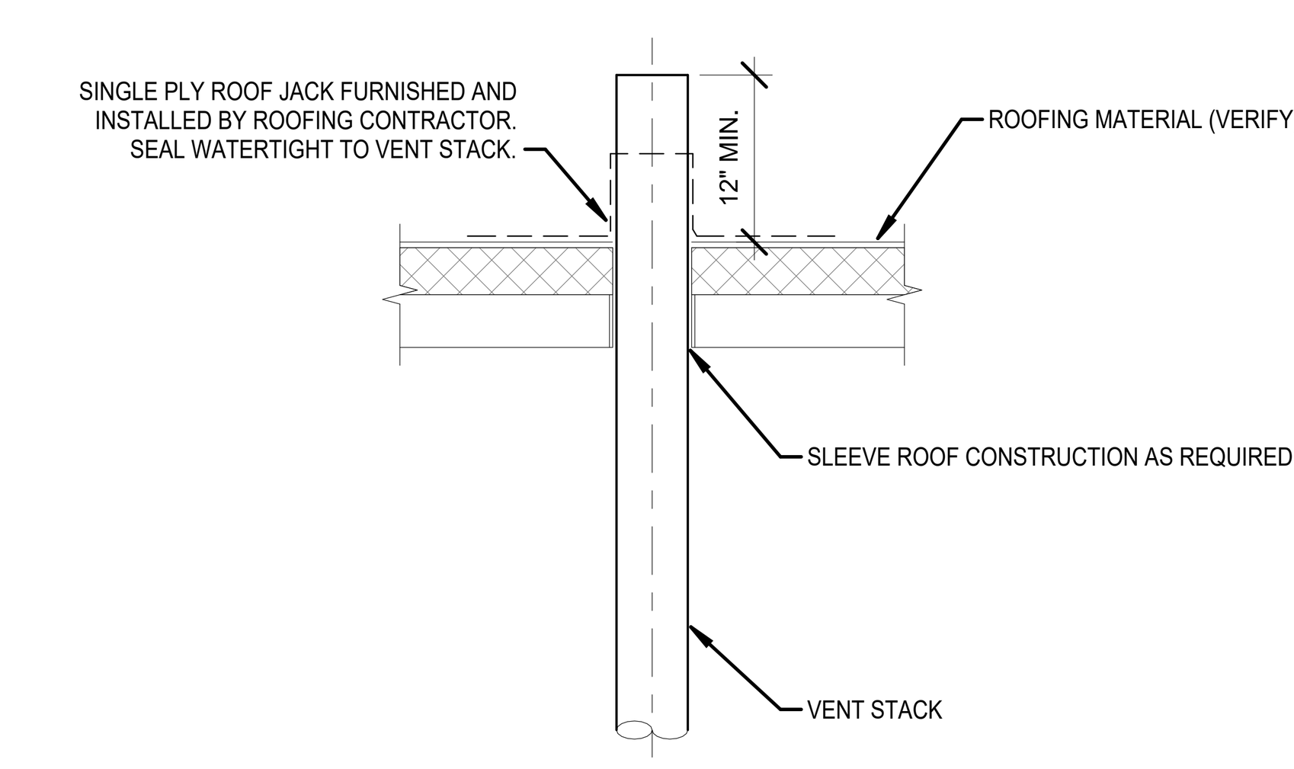


FIGURE 914.1(1)IPC

FILE NAME: P.09.05 SCALE: NONE

CIRCUIT VENTING BRANCH DRAIN ILLUSTRATIONS



FILE NAME: P.05.06 SCALE: NONE

TYPICAL VENT THROUGH FLAT ROOF

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80884 JOEL WILLIAMS 1/30/2025

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360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ 86403

PROJECT NO. 24-077
DATE 21 APRIL 2025
REVISIONS:

SHEET TITLE:
PLUMBING DETAILS

SHEET NUMBER:
P5.2

BID SET

Plot Date: 4/15/2025 10:52:12 AM

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLTS	LAMPS QTY	LAMPS MODEL	MOUNTING	VA	NOTES
F1	4" SQUARE	COOPER	RSQ4LS9FSDZW1EWH SET TO 3500K	MVOLT	LED	SUPPLIED W/UNIT	RECESSED	10	3
F2	2' RECESSED LINEAR	COOPER	SQ2R F 100D 835 UNV STD W 4	MVOLT	LED	SUPPLIED W/UNIT	RECESSED	38	
F3	OUTDOOR WALL SCONCE	WATSON	WTNW0506L30D2BK	MVOLT	LED	SUPPLIED W/UNIT	WALL	12	1
F4	2'X2' TROFFER	COOPER	D3X WD 31L835 LD5 UNV 22 T1 STD	MVOLT	LED	SUPPLIED W/UNIT	RECESSED	27	
F5	2'X4' TROFFER	COOPER	D3X WD 42L835 LD5 UNV 24 T1 STD	MVOLT	LED	SUPPLIED W/UNIT	RECESSED	32	
F6	4' LINEAR DIRECT/INDIRECT	UTOPIA	LINEA 4 D35L U15L D35W U15W 3T UNV WH X2 AC48	MVOLT	LED	SUPPLIED W/UNIT	SUSPENDED	50	1,2
F7	PENDANT	UTOPIA	CUBE2 IND 9 1U18L UBAT 35K UNV X2 AC48	MVOLT	LED	SUPPLIED W/UNIT	WALL	18	
F8A	36" GEO RING PENDANT	COOPER	DFN2DIP RG3F0 030D0 30US935 FLL FLL 1DUD D W	MVOLT	LED	SUPPLIED W/UNIT	SUSPENDED 11'-6"	65	1,2
F8B	48" GEO RING PENDANT	COOPER	DFN2DIP RG4F0 040D0 40US935 FLL FLL 1DUD D W	MVOLT	LED	SUPPLIED W/UNIT	SUSPENDED 12'-6"	89	1,2
F9	KYLO OUTDOOR SCONCE	AFX	KYLW0305LAJENBK	MVOLT	LED	SUPPLIED W/UNIT	WALL 6'-8" AFG	9	1,2
F10	EXIT LUMINAIRE	ISOLITE	CMB-EM-G-U-WH-MTEBP-0-SD	MVOLT	LED	INCLUDED	WALL 7'-6" AFF	10	2
F11	EMERGENCY BUG EYE	LITHONIA	ELM6L	UVOLT	LED	INCLUDED	WALL 8'-0" AFF	5	
F12	EXIT EMERGENCY EGRESS	ISOLITE	CMB-EM-G-U-WH-MTEBP-L1-SD-EB	MVOLT	LED	INCLUDED	WALL 7'-6" AFF	10	

NOTES: THE FIXTURES LISTED IN THIS SCHEDULE REPRESENT THE QUALITY AND TYPE OF FIXTURES DESIRED. EQUALS OF THOSE MANUFACTURERS NOTED IN THE REMARKS ARE ACCEPTED. FOR THOSE FIXTURES WITHOUT A MANUFACTURE DESIGNATION IN THE REMARK COLUMN THE SUPPLIER MAY SUBMIT A FIXTURE THEY BELIEVE TO BE EQUAL TO THE ONE SPECIFIED. TO BE ACCEPTABLE THE FIXTURES SUBMITTED MUST BE OF THE SAME TYPE AND MATERIAL AS THAT SPECIFIED AND MUST RECEIVE APPROVAL FROM THE ENGINEER BY ADDENDUM PRIOR TO BID.

1) SEE DRAWING FOR MOUNTING HEIGHT.
2) MOUNTING HEIGHTS ARE TO BOTTOM OF FIXTURE
3) PROVIDE TRIM AS DIRECTED BY THE ARCHITECT. PROVIDE HOUSING AS REQUIRED FOR THE INSTALLATION LOCATION.

EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ELECTRICAL V/PH	LOAD (kW)	HP	FLA	MCA	MOCP	DISCONNECT SIZE/POLE	FUSE SIZE	CONNECTION TYPE	NOTES
1	Water Bath	120/1	1800								
2	Refrigerator	120/1	1800								
3	Refrigerator	120/1	1800								
4	BOD Incubator	120/1	1800								
5	E. Coli Incubator	120/1	1800								
6	Oven	120/1	1800								
7	Autoclave	120/1	1800								
8	Vacuum Pump	120/1	0.18	0.24	3.4						
9	Chemical Cabinet	120/1	1800								
10	Muffulle Furnace	120/1	1800								
22	Large Fume Hood										
23	Benchtop Fume Hood										
24	Laboratory Dishwasher		1800								
25	Generator										
26	Eye Wash										
27	Safety Shower										

V/PH/Hz = VOLTAGE / PHASE / HERTZ
MCA = MINIMUM CIRCUIT AMPACITY
MOCP = MAXIMUM OVER CURRENT PROTECTION LISTED BY THE MANUFACTURER
NOTES:
1) SEE DRAWINGS FOR SWITCHING
2) PROVIDE NON-FUSED DISCONNECT RATED FOR THE MAX MOCP AS LISTED BY THE MANUFACTURER
3) CONFIRM EXACT HEIGHT OF UNIT PRIOR TO ROUGH-IN AND MAKE FINAL CONNECTION TO UNIT

MECHANICAL EQUIPMENT SCHEDULE

MARK	DESCRIPTION	ELECTRICAL V/PH	LOAD (kW)	HP	FLA	MCA	MOCP	DISCONNECT SIZE/POLE	FUSE SIZE	NOTES
EF-1	Ceiling Exhaust Fan	115/1	0.034							2
EF-2	Ceiling Exhaust Fan	115/1	0.034							2
EF-3	Ceiling Exhaust Fan	115/1	0.071							2
EF-4	Ceiling Exhaust Fan	115/1	0.071							2
EF-5	Roof Exhaust Fan	115/1		1/4	5.8					2,5
EF-6	Roof Exhaust Fan	115/1		1/3	7.2					2,5
EF-7	Roof Exhaust Fan	115/1		1/4	5.8					5
EF-8	Ceiling Exhaust Fan	115/1	0.071							2
EF-9	Ceiling Exhaust Fan	115/1	0.078							2
EF-10	Ceiling Exhaust Fan	115/1	0.086							2
FC-1	Fan Coil	230/1				2.3	15			5
FC-2	Fan Coil	230/1				5.2	15			5
FC-3	Fan Coil	230/1				2.3	15			5
FC-4	Fan Coil	230/1				0.25	15			5
HP-1	Roof Heat Pump	230/1				25.4	40	60/2	40	1
HP-2	Roof Heat Pump	230/1				25.4	40	60/2	40	1
RTU-1	Rooftop Unit	230/1				37	50	60/2	50	1,4
RTU-2	Rooftop Unit	240/1				55.7	60	60/2	60	3,4
RTU-2.1	Rooftop Elec. Heat	240/1				104.2	110	200/2	110	1,4
DWH-1	Electric Water Heater	240/1	4.5							
RP-1	Recirc. Pump	120/1			1					6

V/PH/Hz = VOLTAGE / PHASE / HERTZ
MCA = MINIMUM CIRCUIT AMPACITY
MOCP = MAXIMUM OVER CURRENT PROTECTION LISTED BY THE MANUFACTURER
NOTES:
1) PROVIDE FUSED DISCONNECT WITH FUSE SIZED TO THE MAX. LISTED BY THE MANUFACTURER.
2) SEE DRAWINGS FOR SWITCHING.
3) UNIT PROVIDED WITH DISCONNECT.
4) COORDINATE WITH MC AND ACTUAL SUBMITALS FOR THE MCA AND MOCP AND PROVIDE CIRCUIT ACCORDINGLY.
5) PROVIDE A DISCONNECT AT THE UNIT AS REQUIRED BY THE NEC.
6) MAKE CONNECTION TO AQUASTAT AND CONTROLS. COORDINATE WITH MC PRIOR TO ROUGH-IN.

ELECTRICAL SYMBOL SCHEDULE

SYMBOL	DEVICE/FIXTURE DESCRIPTION	CATALOG NUMBER	MOUNTING	COMMENTS
	LIGHT FIXTURE	SEE LIGHTING FIXTURE SCHEDULE	CEILING	(1) (2) (3)
	EMERGENCY LIGHT FIXTURE	SEE LIGHTING FIXTURE SCHEDULE	CEILING	(1) (2) (3) (4)
	EXIT FIXTURE – WALL MOUNT	SEE LIGHTING FIXTURE SCHEDULE	WALL	(1) (2) (4)
	EXIT FIXTURE – CEILING MOUNT	SEE LIGHTING FIXTURE SCHEDULE	CEILING	(1) (2) (4)
	RECESSED LIGHT FIXTURE	SEE LIGHTING FIXTURE SCHEDULE	CEILING	(1) (2) (3)
	WALL LIGHT FIXTURE	SEE LIGHTING FIXTURE SCHEDULE	WALL	(1) (2)
	PENDANT/CHANDELIER LIGHT FIXTURE	SEE LIGHTING FIXTURE SCHEDULE	SUSPENDED	(1) (2) (3)
	1 CIRCUIT ECO DIMMING CONTROLLER	WATTSTOPPER LMRC–111	ABOVE CEILING	(11) (30) (32)
	1 CIRCUIT DIMMING CONTROLLER	WATTSTOPPER LMRC–211	ABOVE CEILING	(11) (30) (32)
	2 CIRCUIT DIMMING CONTROLLER	WATTSTOPPER LMRC–212	ABOVE CEILING	(11) (30) (32)
	3 CIRCUIT DIMMING CONTROLLER	WATTSTOPPER LMRC–213	ABOVE CEILING	(11) (30) (32)
	DUAL TECHNOLOGY OCCUPANCY SENSOR	WATTSTOPPER LMDC–100	CEILING	(11)
	MOTOR	SEE MECHANICAL SCHEDULE	SEE MECH	(22)
S	SINGLE POLE SWITCH	HUBBELL BS120W	4' – 0"	(6) (11)
S_{OD}	WALL SWITCH OCCUPANCY SENSOR PIR	WATTSTOPPER PW–301	4'–0"	(7) (11)
S_T	WALL SWITCH TIMER – 7 DAY	INTERMATIC EI600WC	4' – 0"	(10) (11)
S_{OD}	WALL DIMMING OCCUPANCY PIR	WATTSTOPPER PW–311	4'–0"	(7) (11)
S_{WD}	DIMMING SWITCH	WATTSTOPPER LMDM–101	4'–0"	(11) (32)
S_{WS1}	SINGLE SWITCH, LM SYSTEM	WATTSTOPPER LMSW–101	4'–0"	(11) (32)
S_{WS2}	DOUBLE SWITCH, LM SYSTEM	WATTSTOPPER LMSW–102	4'–0"	(11) (32)
S_{WS5}	FIVE SCENE, LM SYSTEM	WATTSTOPPER LMSW–105	4'–0"	(11)
	DUPLEX RECEPTACLE, TR, GROUNDING TYPE	HUBBELL BR20WTR	18" UNO	(6) (11)
	DUPLEX OUTLET, GROUNDING TYPE	HUBBELL BR20W	18" UNO	(6) (11)
	DUPLEX OUTLET – GFI, TR	HUBBELL GFTRST20W	18" UNO	(6) (11)
	DUPLEX OUTLET – GFI	HUBBELL GF5352–IA	18" UNO	(6) (11)
	DUPLEX USB OUTLET	HUBBELL USB20C5W	44" UNO	(6) (11)
	DOUBLE DUPLEX OUTLET	(2) HUBBELL BR20W	18" UNO	(6) (11)
	DOUBLE DUPLEX CONVENIENCE OUTLET – GFI	HUBBELL GFR5352IA, HBL2162W	18" UNO	(6) (20) (11)
	DUPLEX OUTLET – FLOOR AND COUNTERTOP	HUBBELL BR20W	FLOOR	(6) (27)
	JUNCTION BOX	4" x 4" SEE SPEC.	CEILING	(12)
	JUNCTION BOX	4" x 4" OR AS NOTED, SEE SPEC.	18"	(12) MOUNT AS NOTED
	MULTI–MEDIA J–BOX	4" x 4" OR AS NOTED, SEE SPEC.	18"	(11) (31)
	MULTI–MEDIA J–BOX – FLUSH MOUNT	4" x 4" OR AS NOTED, SEE SPEC.	CEILING	(11) (31)
	CARD READER J–BOX	4" x 4" OR AS NOTED	48"	(11) (31)
	DISCONNECT SWITCH	SQUARE D – GENERAL DUTY	5' – 0"	(8) (13)
	FUSED DISCONNECT SWITCH	SQUARE D, GENERAL DUTY	5' – 0"	(8) (13)
	WALL MOUNTED SECURITY CAMERA	SEE SPECIFICATION	6'–6" TO TOP	(11) (31)
	WI–FI ACCESS POINT	OFCI	CEILING	(11)(31)
	PANEL BOARD	SEE PANEL SCHEDULE	6'–6" TO TOP	
	EQUIPMENT OTHER THAN MECHANICAL	SEE EQUIPMENT SCHEDULE		
	MECHANICAL EQUIPMENT	SEE MECHANICAL SCHEDULE		

	WIRING IN CND IN CEILING OR WALL		WIRING IN CND IN GROUND OR FLOOR
	CONDUIT TURNED UP		CONDUIT TURNED DOWN
	CIRCUIT HOME RUN TO PANEL. 3 CONDUCTORS INCLUDING THE EQUIPMENT GROUND CONDUCTOR.		
	CIRCUIT HOME RUN TO PANEL. NUMBER OF ARROW HEADS INDICATE NUMBER OF CIRCUITS. SLASH MARKS INDICATE NUMBER OF CONDUCTORS. EX. TWO CIRCUITS, FOUR CONDUCTORS, COMMON NEUTRAL AND THREE CIRCUITS WITH 7 CONDUCTORS (SEPERATE NEUTRAL PER CIRCUIT). BOTH EX. INCLUDE AN EQUIP. GROUND.		
	CAT5/CAT6 CABLE IN CONDUIT OR FREE–AIR		

INSTALL CONDUIT AS DRAWN ON THE PLANS. THE ONLY EXCEPTIONS ARE THOSE AUTHORIZED IN WRITING BY THE ENGINEER.
ALL CONDUITS SHALL INCLUDE AN EQUIPMENT GROUND CONDUCTOR SIZED PER NEC.

ABBREVIATIONS/NOTES

AFF – ABOVE FINISHED FLOOR, AFG – ABOVE FINISHED GRADE, AIC – AMPS INTERUPTING CAPACITY, AL – ALUMINUM, BC – BARE COPPER, BFC – BELOW FINISHED CEILING, BFG – BELOW FINISHED GRADE, CND. OR C. – CONDUIT, CLG – INSTALLED IN CEILING, CFCI – CONTRACTOR FURNISHED CONTRACTOR INSTALLED, CT – CURRENT TRANSDUCER, CU – COPPER, DFA – DROP FROM ABOVE, (E) – EXISTING, EC – ELECTRICAL CONTRACTOR, EV – ELECTRO VOICE, GC – GENERAL CONTRACTOR, GND – GROUND, MC – MECHANICAL CONTRACTOR, MCA – MINIMUM CIRCUIT AMPS, (N) – NEW, OFCI – OWNER FURNISHED CONTRACTOR INSTALLED, P.C. – PLUMBING CONTRACTOR, POC – POINT OF CONNECTION, POS – POINT OF SALES, RMC – RIGID METAL CONDUIT, SCA – SHORT CIRCUIT AMPERES, TC – TEMP. CONTROL CONTRACTOR, UNO – UNLESS NOTED OTHERWISE, VA – VOLT/AMPS, VIF – VERIFY IN FIELD, WP – WEATHER PROOF/NEMA 3R

1. SEE LIGHTING FIXTURE SCHEDULE FOR TYPE AND SPECIFICS.
2. SEE LIGHTING FIXTURE SCHEDULE FOR MOUNTING OF FIXTURE.
3. PROVIDE AND WIRE FROM ADJACENT J–BOX AS REQUIRED BY THE FIXTURE AND NUMBER OF CONDUITS.
4. PROVIDE UN–SWITCHED CONDUCTOR TO EMERGENCY BALLAST OR FIXTURE.
5. PROVIDE DIRECTIONAL ARROWS AS SHOWN.
6. ACCEPTABLE EQUALS ARE P&S, LEVITON, COOPER, HUBBELL
7. ACCEPTABLE EQUALS ARE HUBBELL, WATT STOPPER, SENSOR SWITCH
8. ACCEPTABLE EQUALS ARE GENERAL ELECTRIC, ALLEN–BRADLEY, SQUARE D
9. PROVIDE ONE B2432, ONE S3825, ONE S3826, ONE SB3084, AND ONE FCX244W
10. ACCEPTABLE EQUALS ARE INTERMATIC, PARAGON, EZ–CONTROL
11. USE A 4"X4"X1 1/8" FOR POWER, 4 11/16"X4 11/16"X2 1/8" FOR DATA/VOICE, WITH A MUD RING TO MATCH THE DEVICE AND INSTALLATION.
12. PROVIDE MUD RING AND/OR BOX COVER APPROPRIATE FOR DEVICE/FIXTURE SERVED.
13. USE HEAVY DUTY FOR 480 VOLT.
14. SIZE TO THE EQUIPMENT BEING CONTROLLED
15. PROVIDE A FLOOR BOX HUBBELL S1PFB/SISP, TWO HBLSBK, ONE IM2K1BK, AND FIVE IMB1BK W/FLANGE TO MATCH FLOOR TYPE.
16. PROVIDE A FLOOR BOX HUBBELL S1PFB/SISP WITH ONE IM2K1BK, TWO IMB1BK AND ONE HBL2162BK.
17. ACCEPTABLE EQUALS ARE HUBBELL, ORTRONICS, SIEMON
18. MATCH THE VOLTAGE OF THE RELAY WITH THAT OF THE CONTROLLING CIRCUIT.
19. MOUNT SWITCH AT DOOR JAM PER MANUFACTURERS INSTRUCTIONS.
20. FEED THE STYLE LINE RECEP. FROM THE GFCI OUTLET SO BOTH ARE GFCI PROTECTED.
21. PROVIDE HANDY BOX (RACO 663 OR EQUAL) MOUNT DIRECTLY TO FURNACE FUSE 15 AMP OR AS INDICATED ON PLANS.
22. IF EXHAUST FAN, SWITCH WITH LIGHTS UNLESS INDICATED OTHERWISE.
23. PROVIDE DEVICE UL LISTED TO BE USED WITH THE FIRE ALARM PANEL/SYSTEM.
24. PROVIDE HUBBELL: ONE OUTLET FRAME ISF20W, ONE COVERPLATE NP26W.
25. PROVIDE ONE BR20W
26. PROVIDE HUBBELL: TWO JACKS HXJ60W
27. PROVIDE A FLOOR BOX HUBBELL S2431 WITH (1) SB3083.
28. PROVIDE TIMER INTERVAL AS SHOWN ON DRAWINGS OR LISTED IN SPECIFICATIONS.
29. PROVIDE RACEWAY WITH OUTLETS 12" ON CENTER. UNO.
30. INSTALL UNIT ABOVE ACCESSIBLE CEILING AND CONNECT TO ALL ASSOCIATED DEVICES WITH NETWORK CABLE AS LISTED BY THE MANUFACTURER.
31. PROVIDE 3/4" CONDUIT FROM J–BOX TO ABOVE CEILING TO CABLE TRAY. SEE ELECTRICAL SPECIFICATIONS.
32. # CONTROL SYSTEM GROUP ALL COMPONENTS IN SAME GROUP CONNECT TOGETHER

CONDUIT/CONDUCTOR SCHEDULE

MARK	AMPS	CONDUIT CABLE	CONDUCTOR QTY	CONDUCTOR SIZE	CONDUCTOR INSUL	REMARKS
212	20	3/4"	2	12	(1)	(2)
312	20	3/4"	3	12	(1)	(2)
412	20	3/4"	4	12	(1)	(2)
20	30	3/4"	2	10	(1)	(2)
30	30	3/4"	3	10	(1)	(2)
40	30	3/4"	4	10	(1)	(2)
201	30	1"	2	10	(1)	(2)
301	30	1"	3	10	(1)	(2)
28A	40	3/4"	2	8	(1)	(2)
38A	40	1"	3	8	(1)	(2)
48A	40	1"	4	8	(1)	(2)
26A	50	1"	2	6	(1)	(2)
36A	50	1"	3	6	(1)	(2)
46A	50	1"	4	6	(1)	(2)
24A	65	1 1/4"	2	4	(1)	(2)
34A	65	1 1/4"	3	4	(1)	(2)
44A	65	1 1/4"	4	4	(1)	(2)
23A	75	1 1/4"	2	3	(1)	(2)
33A	75	1 1/4"	3	3	(1)	(2)
43A	75	1 1/2"	4	3	(1)	(2)
22A	90	1 1/2"	2	2	(1)	(2)
32A	90	1 1/2"	3	2	(1)	(2)
42A	90	1 1/2"	4	2	(1)	(2)
31A	100	1 1/2"	3	1	(1)	(2)
41A	100	2"	4	1	(1)	(2)
310A	120	2"	3	1/0	(1)	(2)
410A	120	2"	4	1/0	(1)	(2)
320A	135	2"	3	2/0	(1)	(2)
420A	135	2"	4	2/0	(1)	(2)
330A	155	2 1/2"	3	3/0	(1)	(2)
430A	155	2 1/2"	4	3/0	(1)	(2)
240A	180	2"	4	4/0	(1)	(2)
340A	180	2 1/2"	3	4/0	(1)	(2)
440A	180	2 1/2"	4	4/0	(1)	(2)
325A	205	2 1/2"	3	250	(1)	(2)
425A	205	3"	4	250	(1)	(2)
3–3A	230	3"	3	300	(1)	(2)
4–3A	230	3"	4	300	(1)	(2)
335A	250	3"	3	350	(1)	(2)
435A	250	3"	4	350	(1)	(2)
3–4A	270	3"	3	400	(1)	(2)
4–4A	270	3 1/2"	4	400	(1)	(2)
350A	310	3 1/2"	3	500	(1)	(2)
450A	310	4"	4	500	(1)	(2)
440A2	360	2 1/2"	4	4/0	(1)	(2)
480A	395	4"	4	800	(1)	(2)
325A2	410	3"	3	250	(1)	(2)
425A2	410	3"	4	250	(1)	(2)
350A2	620	4"	3	500	(1)	(2)
4–4A3	810	3 1/2"	3	400	(1)	(2)

NOTE:
(1) THHN/THWN–2.
(2) ALL CONDUIT SHALL CONTAIN A SEPARATE EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC. ACCOUNT FOR PARALLEL RUNS.

SUFFIX.
"A" INDICATES ALUMINUM CONDUCTORS
"M" INDICATED MC CABLE
"Y" INDICATES YELLOW ISOLATED GROUND CONDUCTOR IN ADDITION TO THE GROUND CONDUCTOR IN NOTE ABOVE.

LEGEND:
OF CONDUCTORS NOT COUNTING EQUIP GRND
425A4M4
A=ALUMINUM, BLANK=COPPER
# OF PARALLEL RUNS, BLANK=1 RUN
CABLE TYPE; B=NM, S=SER, M=MC, BLANK=CONDUIT
SIZE OF CONDUCTORS

ELECTRICAL SHEET LIST

TITLE	NUMBER
ELECTRICAL SCHEDULES AND NOTES	E0.0
LIGHTING PLAN	E1.0
POWER PLAN	E2.0
ROOF ELECTRICAL PLAN	E3.0
ELECTRICAL PANELS AND RISER DIAGRAM	E4.0
ELECTRICAL DETAILS	E5.0
ELECTRICAL SPECIFICATIONS	E6.0
COMPLIANCE REPORT	E7.0

GENERAL NOTES

1. THE ELECTRICAL SYSTEMS DEFINED BY THESE PLANS AND SPECIFICATIONS ARE TO BE CONSTRUCTED AS COMPLETE AND OPERABLE SYSTEMS AND SHALL BE BID WITH THIS INTENT. THE CONTRACTOR SHALL VISIT THE SITE, READ ALL THE RELEVANT DOCUMENTS AND BECOME FAMILIAR WITH THE TYPE OF CONSTRUCTION AND WORK TO BE ACCOMPLISHED. SHOULD ANY ERROR, OMISSION OR CONFLICT EXIST IN EITHER THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING BEFORE SUBMITTING HIS BID PRICE SO A CHANGE CAN BE ISSUED IN A PRE–BID ADDENDUM. OTHERWISE, THE CONTRACTOR AND/OR EQUIPMENT SUPPLIER SHALL SUPPLY THE PROPER MATERIALS AND LABOR TO INSTALL COMPLETE AND OPERABLE SYSTEMS AT THEIR OWN EXPENSE. WHEN EACH ELECTRICAL SYSTEM IS COMPLETE, THE CONTRACTOR SHALL TEST AND CONFIRM IT'S PROPER OPERATION. ANY INCOMPLETE SYSTEM SHALL BE MADE COMPLETE AND OPERABLE.
2. THE ARCHITECTURAL AND MECHANICAL PLANS ARE CONSIDERED A PART OF THE ELECTRICAL DOCUMENTS SO FAR AS THEY APPLY. THE ELECTRICAL CONTRACTOR SHALL REFER TO AND COORDINATE WITH THEM. NO EXTRA COST SHALL BE ALLOWED FOR FAILURE TO COORDINATE THE CONTRACT DOCUMENTS WITH OTHER TRADES AND/OR IF EQUIPMENT DIMENSIONS ARE GREATER THAN SPECIFIED AND/OR DIMENSIONED ON THE PLANS.
3. NO ADDITIONS TO THE CONTRACTOR BID WILL BE ALLOWED FOR CHANGES MADE NECESSARY BY INTERFERENCE WITH OTHER WORK.
4. THE ELECTRICAL CONTRACTOR SHALL PROVIDE EQUIPMENT, MATERIALS AND LABOR FOR THE CONNECTIONS OF ALL EQUIPMENT SHOWN ON THE PLANS – ARCHITECTURAL, MECHANICAL, ETC.
5. THIS PROJECT IS TO BE INSTALLED IN STRICT ACCORDANCE WITH CURRENTLY ADOPTED LOCAL AND STATE CODES AND THE NEC. IF AT ANY TIME DURING CONSTRUCTION, OR AFTER, SOMETHING IS FOUND TO BE INSTALLED IN VIOLATION OF THE CODES LISTED ABOVE, IT SHALL BE CORRECTED AT THE CONTRACTORS EXPENSE.
6. ELECTRICAL CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF THE POWER COMPANY SERVICE TRANSFORMER, BEFORE INSTALLING THE PAD AND SERVICE CONDUIT.
7. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE SERVICE FEEDER TO THE BUILDING WITH THE LOCAL UTILITY. PROVIDE LABOR AND CONDUIT, CONDUCTORS, WEATHER HEAD (IF AERIAL FEED), WIRE WAYS, TRANSFORMER LUGS, METER BASES, METER CONDUIT, CONDUCTORS, ETC., AS NEEDED FOR A COMPLETE ELECTRIC SERVICE TO THIS FACILITY.
8. THE EC SHALL INSTALL A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT RUN. CONDUIT SHALL NOT BE USED AS AN EQUIPMENT GROUNDING CONDUCTOR. THE EC SHALL GROUND THE ELECTRICAL SYSTEM IN ACCORDANCE WITH LOCAL AND NATIONAL CODES.
9. THE CONTRACTOR SHALL NOTIFY THE MANUFACTURER THAT THE LAYOUT AND DIMENSIONS ARE CRITICAL FOR ALL PANELS, SWITCHGEAR, ETC. AND NO PIECE OF EQUIPMENT SHALL EXCEED THE PHYSICAL SIZE INDICATED ON THE PLANS.
10. ELECTRICAL CONTRACTOR SHALL CONFIRM MINIMUM CODE (NEC) WORKING CLEARANCE BEFORE INSTALLING ANY ELECTRICAL PANELS OR CABINETS AND SHALL MOVE THE PANELS AT HIS EXPENSE IF REJECTED BY AN INSPECTOR. IF CLEARANCE IS NOT POSSIBLE, THE DESIGNER SHALL BE NOTIFIED IMMEDIATELY IN WRITING.
11. THE CONTRACTOR SHALL ALLOW THE MOVEMENT, BEFORE ROUGH–IN, OF ANY ELECTRICAL PANEL, DEVICE, LIGHT FIXTURE, ETC. A DISTANCE OF 10 FEET WITHOUT REQUIRING ADDITIONAL COST TO THE PROJECT.
12. THE ELECTRICAL CONTRACTOR SHALL SECURE ALL CONDUIT/CABLE TO THE STRUCTURE AS IT IS SET IN PLACE USING INDUSTRY STANDARD METHODS AND PRACTICES.
13. TO ASSURE ALL DEVICES ARE RIGIDLY SET, THE ELECTRICAL CONTRACTOR SHALL SECURE ALL DEVICE BOXES WITH BRACKETS, HANGERS, ETC. DESIGNED FOR THE APPLICATION. ANY DEVICE BOXES NOT SECURED WILL BE MADE SECURE AT THE CONTRACTORS EXPENSE.
14. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SERVICE CONDUIT WITH A NYLON PULL CORD INSTALLED. EC SHALL CONFIRM ROUTING, SIZE, AND LOCATION OF THE COM/DATA SERVICE CONDUIT, AND THE NETWORK RACK WITH THE COM/DATA COMPANY AND EACH COM/DATA CABLING OUTLET WITH OWNER PRIOR TO ROUGH–IN.
15. EC SHALL INSTALL A 3/4" CONDUIT WITH (1) #6 BARE COPPER CONDUCTOR FROM NETWORK RACK TO THE MAIN GROUNDING BUS.
16. BEFORE ANY ELECTRICAL CONDUIT, BOXES, ETC. ARE COVERED (FLOOR, CEILINGS, WALLS, ETC.), THEY SHALL BE APPROVED BY THE INSPECTING OFFICER (INSPECTOR). THE UNCOVERING AND REPLACEMENT OF ELECTRICAL WORK FOR THE INSPECTION PURPOSES WILL BE AT THE COST OF THE ELECTRICAL CONTRACTOR.
17. DO NOT INSTALL CONDUIT IN BOND BEAMS.
18. ALL BATTERY POWERED OR CONTINUOUS BURN LIGHT FIXTURES SHOWN ON THE PLANS, SUCH AS EXIT LIGHTS, NIGHT LIGHTS, OR EMERGENCY LIGHTS, SHALL BE CONNECTED TO THE UN–SWITCHED LEG OF THE LIGHTING CIRCUIT FEEDING THAT AREA.
19. ALL SURFACE/LAYIN MOUNTED FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE AND NOT THE CEILING GRID.
20. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL THE CABLING FROM EACH COM/DATA OR MULTIMEDIA OUTLET TO THE NETWORK RACK. THE CABLE SHALL BE LABELED ON EACH END FOR PROPER IDENTIFICATION BEFORE THE CABLE ENDS ARE TERMINATED. THE ELECTRICAL CONTRACTOR SHALL TERMINATE THE CABLES IN THE OUTLET AND IN THE PATCH PANEL OR BLOCK IN THE NETWORK RACK.
21. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE KITCHEN OR EQUIPMENT SUPPLIER ON THE EXACT LOCATIONS OF ALL EQUIPMENT AND ELECTRICAL CONNECTIONS PRIOR TO ROUGH–IN. THE EC SHALL MAKE THE FINAL CONNECTION TO ALL KITCHEN AND/OR EQUIPMENT.

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LAKE HAVASU CITY WATER QUALITY LABORATORY
360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21, APRIL 2025
REVISIONS:

SHEET TITLE:
ELECTRICAL SCHEDULES AND NOTES

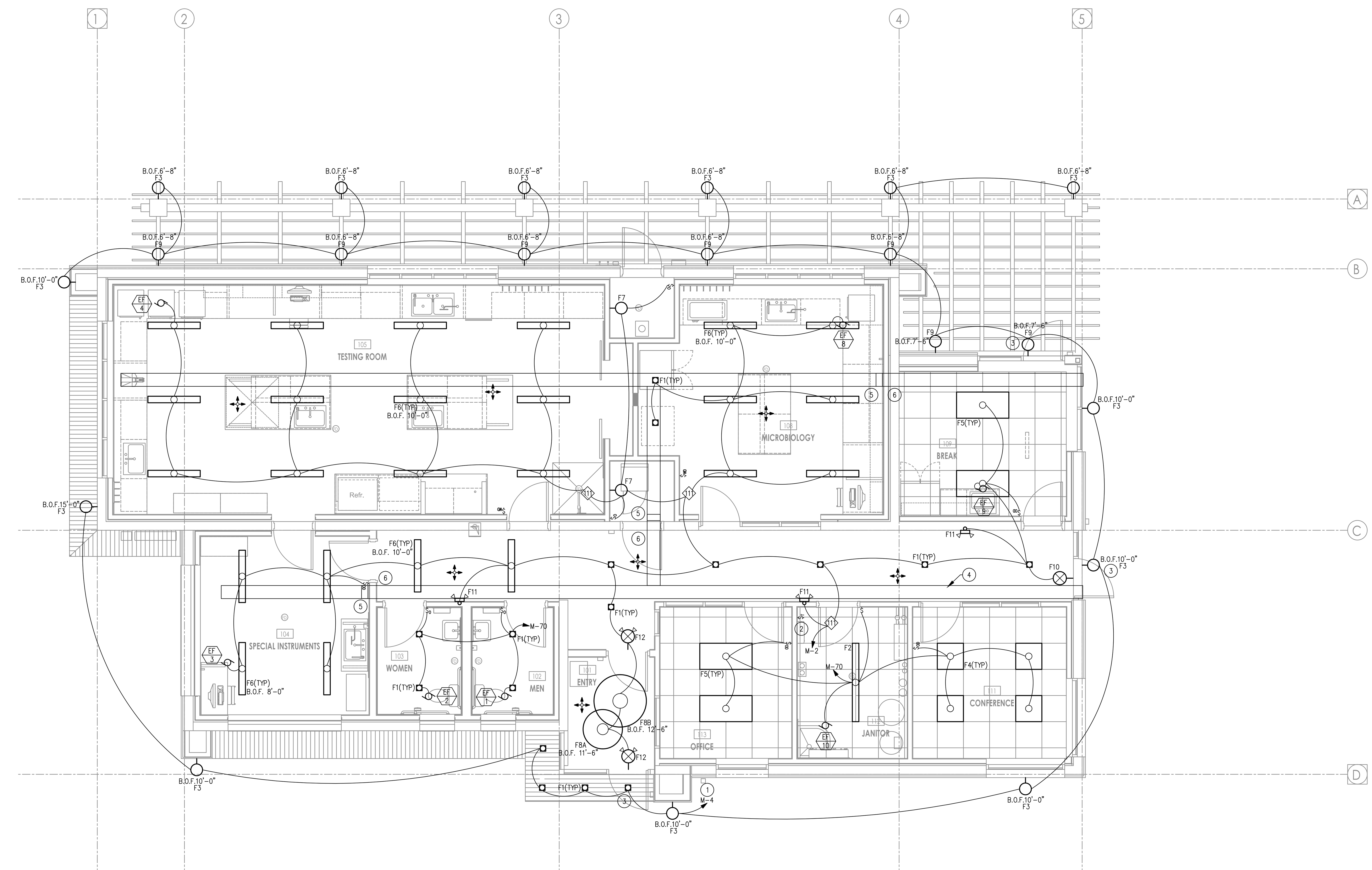
SHEET NUMBER:
E0.0

BID SET

Plot Date:

(#) KEYED NOTES

1. INSTALL THROUGH TIME–SWITCH AT PANEL M.
2. TIME–SWITCH FOR EXTERIOR LIGHTING.
3. EC SHALL PROVIDE AN EMERGENCY LIGHTING SERIES MICRO INVERTER (MYERS LVU–2–RT OR EQUAL) AND INSTALL IT JUST INSIDE THE BUILDING IN A NON–CONSPICUOUS ACCESSIBLE LOCATION (PREFERABLY ABOVE LAY–IN CEILING) AND CONNECT TO THIS FIXTURE. POWER THE DRIVER FROM A NON–SWITCHED LEG OF THE LIGHTING CIRCUIT.
4. PROVIDE WIRE MESH ELECTRO–PLATED ZINC CABLE–TRAY (CABLOFIL CF105 4" X 12" OR EQUAL) AS SHOWN. EC SHALL COORDINATE THE INSTALLATION WITH WALL OPENINGS, LIGHT FIXTURES, MECHANICAL AND PLUMBING. THIS IS CRITICAL. COORDINATE WITH ARCHITECTURAL DRAWINGS.
5. PROVIDE A CABLE–TRAY VERTICAL DROP FROM HORIZONTAL RUN. COORDINATE EXACT LOCATION AND LENGTH WITH OWNER PRIOR TO ROUGH–IN.
6. CONFIRM EXACT CABLE–TRAY WALL PENETRATIONS PRIOR TO ROUGH–IN. COORDINATE WITH CMU SUBCONTRACTOR FOR CABLE TRAY MASONRY WALL OPENINGS.



N
BUILDING NORTH

1 E1.0 LIGHTING PLAN

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

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Interior Design
Landscape Architecture
Land Planning
Construction Management

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Registered Professional Engineer (Electrical)
CERTIFICATE NO. 40189
STAN W. JOHNS
Date Signed 4/17/25
ARIZONA U.S.A.

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21, APRIL 2025
REVISIONS:

SHEET TITLE:
LIGHTING PLAN

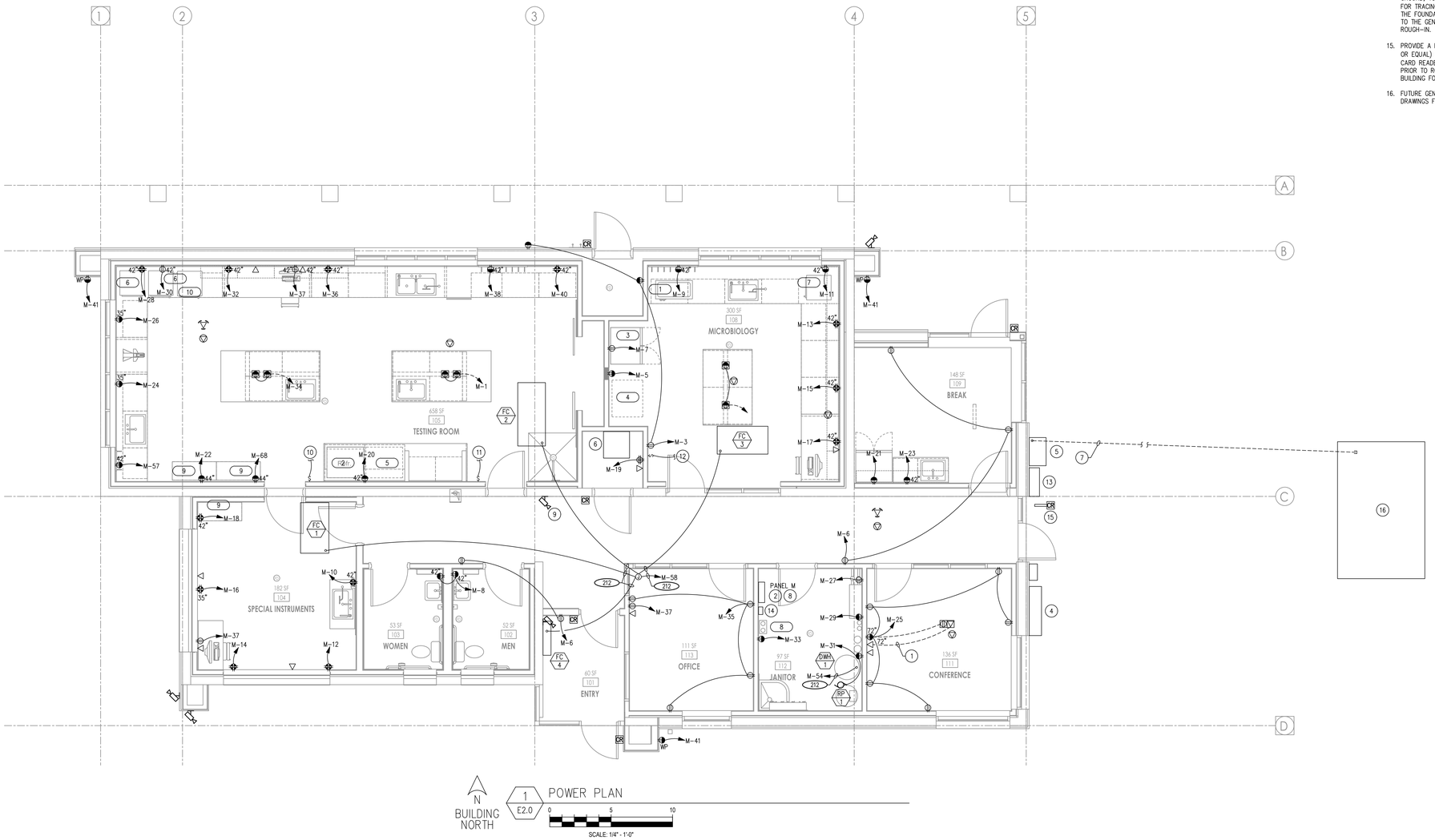
SHEET NUMBER:
E1.0

BID SET

Plot Date:

KEYED NOTES

1. PROVIDE 1 ½" CONDUIT FOR HDMI AND/OR DATA CABLE.
2. PANEL M. SEE SHEET E5.0 FOR PANEL SCHEDULE AND DETAILS.
3. OWNER SHALL FURNISH CARD READERS. GC SHALL INSTALL THEM AND MAKE THEM OPERATIONAL. TYPICAL.
4. CT CABINET AND CT METER BASE. SEE SHEET E5.0.
5. AUTOMATIC TRANSFER SWITCH (ATS). SEE SHEET E5.0.
6. PROVIDE A NETWORK RACK (TRIPP–LITE SRW26USDP/SRW26USDPG AS REQUIRED BY OWNER) AND INSTALL IN THE IT ROOM. CONFIRM THE LOCATION FOR INSTALLATION AND THE POWER RECEPTACLE WITH OWNER PRIOR TO ROUGH–IN.
7. STUB ONE 1" CONDUIT AND TWO 4" CONDUITS EACH WITH A PULL CORD AND A #12CU CONDUCTOR FOR TRACING FROM ATS OUT TOWARD THE FUTURE GENERATOR LOCATION 24' PAST THE FOUNDATION OF THE BUILDING UNTIL UNDER ACCESSIBLE SOIL FOR CONNECTION TO THE GENERATOR. CAP THE CONDUIT. CONFIRM CONDUIT ROUTING PRIOR TO ROUGH–IN.
8. STUB TWO 1" CONDUITS WITH PULL CORD AND #12CU CONDUCTOR FOR TRACING FROM PANEL M OUT TOWARD THE FUTURE GENERATOR LOCATION 24' PAST THE FOUNDATION OF THE BUILDING UNTIL UNDER ACCESSIBLE SOIL FOR FUTURE CONNECTION TO THE GENERATOR. CAP THE CONDUIT. CONFIRM CONDUIT ROUTING PRIOR TO ROUGH–IN.
9. OWNER SHALL FURNISH CAMERAS. GC SHALL INSTALL THEM AND MAKE THEM OPERATIONAL. GC SHALL SCHEDULE TIME TO COORDINATE WITH OWNER I.T. PERSONNEL PRIOR TO AND DURING INSTALLATION. TYPICAL.
10. PROVIDE CONDUIT AND CONDUCTORS UP TO EF–5 FOR CONTROL.
11. PROVIDE CONDUIT AND CONDUCTORS UP TO EF–6 FOR CONTROL.
12. PROVIDE CONDUIT AND CONDUCTORS UP TO EF–7 FOR CONTROL.
13. 600A SERVICE DISCONNECT.
14. REMOTE GENERATOR CONTROLLER. PROVIDE A REMOTE GENERATOR CONTROLLER AND ANNUNCIATOR FROM GENERATOR MANUFACTURER WITH A 1" CONDUIT, UNDER GROUND, TO THE ATS AND A 1" CONDUIT WITH PULL CORD AND #12CU CONDUCTOR FOR TRACING FROM IT OUT TOWARD THE FUTURE GENERATOR LOCATION 24' PAST THE FOUNDATION OF THE BUILDING UNTIL UNDER ACCESSIBLE SOIL FOR CONNECTION TO THE GENERATOR. CAP THE CONDUIT. CONFIRM CONDUIT ROUTING PRIOR TO ROUGH–IN.
15. PROVIDE A PEDESTAL FOR THE CARD READER (PEDESTALPRO 22PE1–2NIP–04–CRS OR EQUAL) IN COLOR BLACK WITH THE CARD READER MOUNT COMPATIBLE WITH THE CARD READER. CONFIRM EXACT INSTALLATION LOCATION WITH OWNER/ARCHITECT PRIOR TO ROUGH–IN. PROVIDE CONDUIT FROM PEDESTAL BASE UNDERGROUND INTO BUILDING FOR CARD READER WIRING.
16. FUTURE GENERATOR AND GENERATOR CONCRETE PAD LOCATION. REFERENCE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.



1 E2.0 POWER PLAN

0 5 10

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

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PROJECT NO. 24-077
DATE: 21, APRIL 2025

REVISIONS:

SHEET TITLE:
POWER PLAN

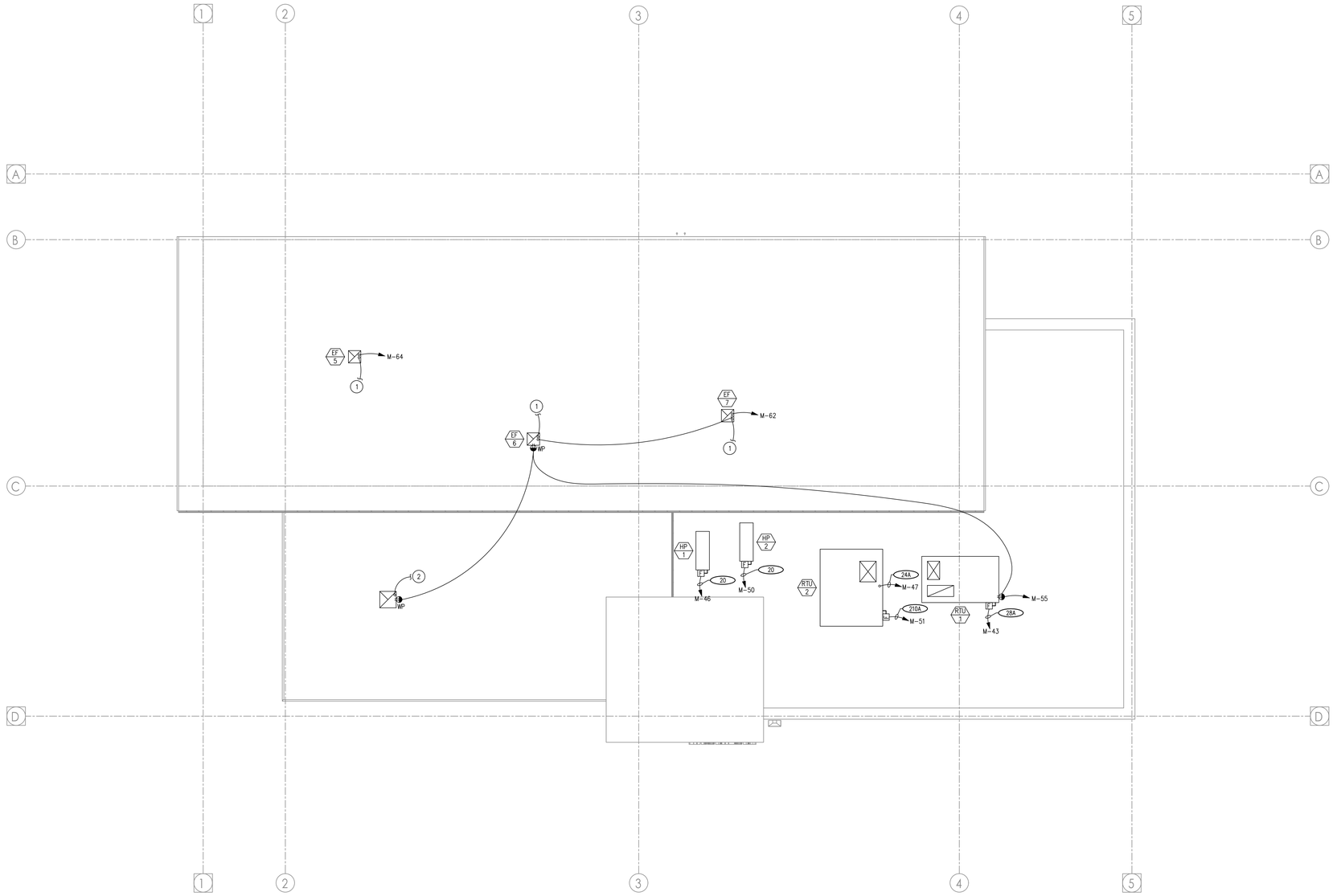
SHEET NUMBER:
E2.0

BID SET

Plot Date:

(#) KEYED NOTES

1. CONDUIT AND CONDUCTORS DOWN TO SWITCH FOR CONTROL. SEE SHEET E2.0.
2. PROVIDE CONDUIT WITH PULL-CORD TO PANEL M FOR FUTURE EXHAUST FAN. COORDINATE FUTURE EXHAUST FAN LOCATION WITH MECHANICAL DRAWINGS.



N
BUILDING NORTH

1 E3.0 ROOF ELECTRICAL PLAN

0 5 10

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

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PROJECT NO. 24-077
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BID SET

SHEET TITLE:
ROOF ELECTRICAL PLAN

SHEET NUMBER:
E3.0

Plot Date:

FAULT CURRENT CALCULATIONS

Power Co Transformer
Feed From Infinite Bus

%Z	1.55
KVA	167.00
Multiplier	71.68
$I_{F.L.A.}$	696
Secondary Voltage	240
I s.c. at -10% %Z	49881

240 Volt L-L
240

Panel	Service Disc.	Panel M
Feed From	Utility	Service Disc.
Available Fault Current	49881	14000
(L) Length to panel	209	24
Conduit Type (P,S)	P	P
Conductor Size	500	500
Conductor Type (c,a)	A	A
No of Runs	2	2
C - from chart	21391	21391
Voltage	240	240
f	2.030668856	0.065448086
m	0.329960166	0.938572243
RK1 FUSE	14000	
I s.c. at PaneL	16459	13140

240 Volt L-N
240

Panel	Service Disc.	Panel M
Feed From	Utility	Panel A
Available Fault Current	74821.5	11000
(L) Length to panel	209	24
Conduit Type (P,S)	P	P
Conductor Size	500	500
Conductor Type (c,a)	A	A
No of Runs	2	2
C - from chart	21391	21391
Voltage	120	120
f	6.092006568	0.089065495
m	0.141003818	0.918218422
RK1 FUSE	11000	
I s.c. at PaneL	10550.11713	10100

PANEL M — **TYPE NQ** — **LOCATION ROOM 112**

VOLTAGE 240 / 120 — **PHASE 1 WIRES 3** — **AIC 22,000 AMPS**

MOUNTING: **X FLUSH** / **SURFACE**

FEED: **TOP** / **X BOTTOM**

MAINS: **600 AMP** — **X LUGS** / **BREAKER**

DIMS.: **20" W** — **6" D** — **80" H**

SPECIAL EQUIPMENT: **X GROUND BUS** / **SUB-FEED BRKR** / **NEMA 3R** / **SURGE PROTECTOR**

CIR NO.	CIRCUIT DESCRIPTION	CODE	OUTLETS LTS	OUTLETS CO	OUTLETS MIS	BRKR P	BRKR AMP	WIRE SIZE	CIRCUIT LOAD	COMBINED PHASES A	COMBINED PHASES C	CIRCUIT LOAD	WIRE SIZE	BRKR AMP	BRKR P	OUTLETS MIS	OUTLETS CO	OUTLETS LTS	CODE	CIRCUIT DESCRIPTION	CIR NO.
1	RM 105 Mid E				1	1	20	12	1800	3620		1820	12	20	1	4		40		Interior Lighting	2
3	RM 108, Rcec. ext.		3			1	20	12	540		759	219	12	20	1			20		Exterior Lighting	4
5	RM 108 W				1	1	20	12	1800	2700		900	12	20	1		5			RM 101,109,Corridor	6
7	RM 108 WN				1	1	20	12	1800		2160	360	12	20	1		2			RM 102,103	8
9	RM 108 NW				1	1	20	12	1800	3600		1800	12	20	1	1				RM 104 E	10
11	RM 108 NE				1	1	20	12	1800		3600	1800	12	20	1	1				RM 104 SE	12
13	RM 108 EN				1	1	20	12	1800	3600		1800	12	20	1	1				RM 104 SW	14
15	RM 108 E				1	1	20	12	1800		3600	1800	12	20	1	1				RM 104 W	16
17	RM 108 ES				1	1	20	12	1800	3600		1800	12	20	1	1				RM 104 NW	18
19	IT RM				1	1	20	12	1800		3600	1800	12	20	1	1				RM 105 S	20
21	Refrigeratbr				1	1	20	12	1250	3050		1800	12	20	1	1				RM 105 SW	22
23	Counter				1	1	20	12	1500		3300	1800	10	20	1	1				RM 105 W	24
25	Conf.111		6			1	20	12	1080	2880		1800	10	20	1	1				RM 105 WN	26
27	RM 112 EN				1	1	20	12	1800		3600	1800	10	20	1	1				RM 105 NW3	28
29	RM 112 E				1	1	20	12	1800	3600		1800	10	20	1	1				RM 105 NW2	30
31	RM 112 ES, RP-1				2	1	20	12	1800		3600	1800	10	20	1	1				RM 105 NW	32
33	8; Vacuum Pump				1	1	15	12	408	2208		1800	10	20	1	1				RM 105 Mid W	34
35	Office 113		4			1	20	12	720		2520	1800	10	20	1	1				RM 105 N	36
37	RM 104,105,113 Comp.				3	1	20	12	561	2361		1800	10	20	1	1				RM 105 NE	38
39	Gen Block Heater				1	1	20	10	1500		3300	1800	10	20	1	1				RM 105 NE2	40
41	Exterior			3		1	20	10	540	540		0		20	1					SPARE	42
43	RTU-1	1			1	2	50		4440			1500	10	20	1	1				Gen, Battery Charger	44
45	-----						-		4440	7488		3048		40	2	1		1		HP-1	46
47	RTU-2	1			1	2	60		6848		9896	3048		-						-----	48
49	-----						-		6848	9896		3048		40	2	1		1		HP-2	50
51	RTU-2.1	1			1	2	110		12504		15552	3048		-						-----	52
53	-----						-		12504	14754		2250		20	2	1		1,6		DWH-1	54
55	Roof		2			1	20	10	360		2610	2250		-						-----	56
57	RM 105 SW				1	1	20	10	1800	3105		1305		15	2	1		1		FC-1 thru 4	58
59	SPARE					1	20				1305	1305		-						-----	60
61	SPARE					1	20			1702		1702	12	15	1	2				EF-6 & 7	62
63	SPARE					1	20				667	667	12	15	1	1				EF-5	64
65	SPACE					-				0				20	1					SPARE	66
67	SPACE					-					1800	1800	12	20	1	1				RM 105, 9	68
69	SPACE					-				404		404	12	20	1	3		11		RM 111,112,113	70
71	SPACE					-					0			20	1					SPARE	72
73	SPACE					-				0				-						SPACE	74
75	SPACE					-					0			-						SPACE	76
77	SPACE					-				0				-						SPACE	78
79	SPACE					-					0			-						SPACE	80
81	SPACE					-				0				-						SPACE	82
83	SPACE					-					0			-						SPACE	84
									VA	69108		67809	138	KVA	CODES						
									DIV	69990		68190	AV. AMPS		1 = SEE DRAWINGS FOR CONDUIT & CONDUCTOR SIZE						
									AMPS	583		568	576 A		2 = GFCI BREAKER				3 = GFEP BREAKER		
															4 = SUBFEED BREAKER				5 = SHUNT-TRIP BREAKER		
															6 = PROVIDE LOCK OFF DEVICE						

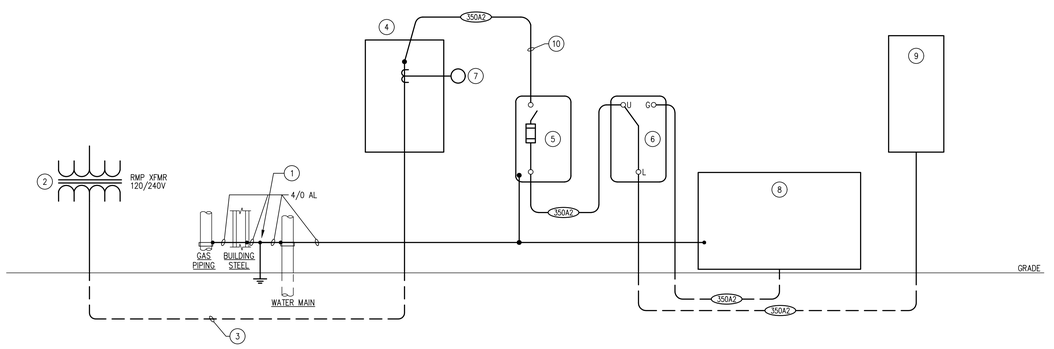
THIS PANEL, ALL OF ITS LUGS, BREAKERS, ETC. SHALL BE RATED FOR 75 DEG C

SERVICE LOAD CALCULATIONS

DESCRIPTION	LOAD	DEMAND	NEW LOAD	AMPS
CONTINUOUS	2443	1.25	3054	
NON-CONTINUOUS	121837	1	121837	
KITCHEN	2750	1*	2750	
RECEPTACLES	4500	1	4500	
LARGEST MOTOR	2610	1.25	3263	
MOTORS	2777	1	2777	
TOTAL SERVICE LOAD (240 VOLTS)			138180 ÷ 575.8	

(#) KEYED NOTES

1. PROVIDE A CONCRETE-ENCASED ELECTRODE AS REQUIRED BY NEC 250.52(A)(3).
2. NEW POWER COMPANY PAD MOUNTED TRANSFORMER WITH 120/240V SECONDARY.
3. PROVIDE CONDUIT AND CONDUCTORS, IN TRENCH, AS REQUIRED BY POWER COMPANY.
4. 600A, SINGLE PHASE, 240/120V CT CABINET AS REQUIRED BY THE POWER COMPANY.
5. PROVIDE A 600A, NEMA3R, SERVICE RATED, FUSED DISCONNECT FUSED 600A.
6. AUTOMATIC TRANSFER SWITCH (ATS). PROVIDE 600A 250V RATED, SINGLE PHASE, NEMA3R ATS WITH SOLIDLY CONNECTED NEUTRAL BUS. SEE SHEET E2.0 FOR INSTALLATION LOCATION.
7. PROVIDE AS CT METER BASE WITH CONDUIT AND CONDUCTORS TO THE CT'S AS REQUIRED BY THE POWER COMPANY.
8. FUTURE 150 KW GENERATOR, 240/120V SINGLE PHASE WITH 600A MAIN BREAKER IN OUTDOOR ENCLOSURE WITH CRITICAL SOUND DAMPENING WITH FEEDER AS SHOWN TO THE TRANSFER SWITCH. FIELD CONFIRM EXISTING CONDITIONS. STUB FEEDER CONDUITS SHOWN WITH PULL CORD AND #12CU CONDUCTOR FOR TRACING, UNDER GROUND, FROM THE TRANSFER SWITCH TOWARD THE FUTURE GENERATOR LOCATION 24' PAST THE FOUNDATION OF THE BUILDING UNTIL UNDER ACCESSIBLE SOIL FOR FUTURE CONNECTION TO THE GENERATOR. CAP THE CONDUIT. CONFIRM CONDUIT ROUTING PRIOR TO ROUGH-IN. CONFIRM WITH GC AND OWNER PRIOR TO ROUGH-IN.
9. PANEL M. PROVIDE PANEL AS SHOWN IN SCHEDULE THIS SHEET. SEE LOCATION ON SHEET E2.0.
10. INSTALL FEEDER FROM CT CABINET TO SERVICE DISCONNECT UNDERGROUND.



RISER DIAGRAM
NO SCALE

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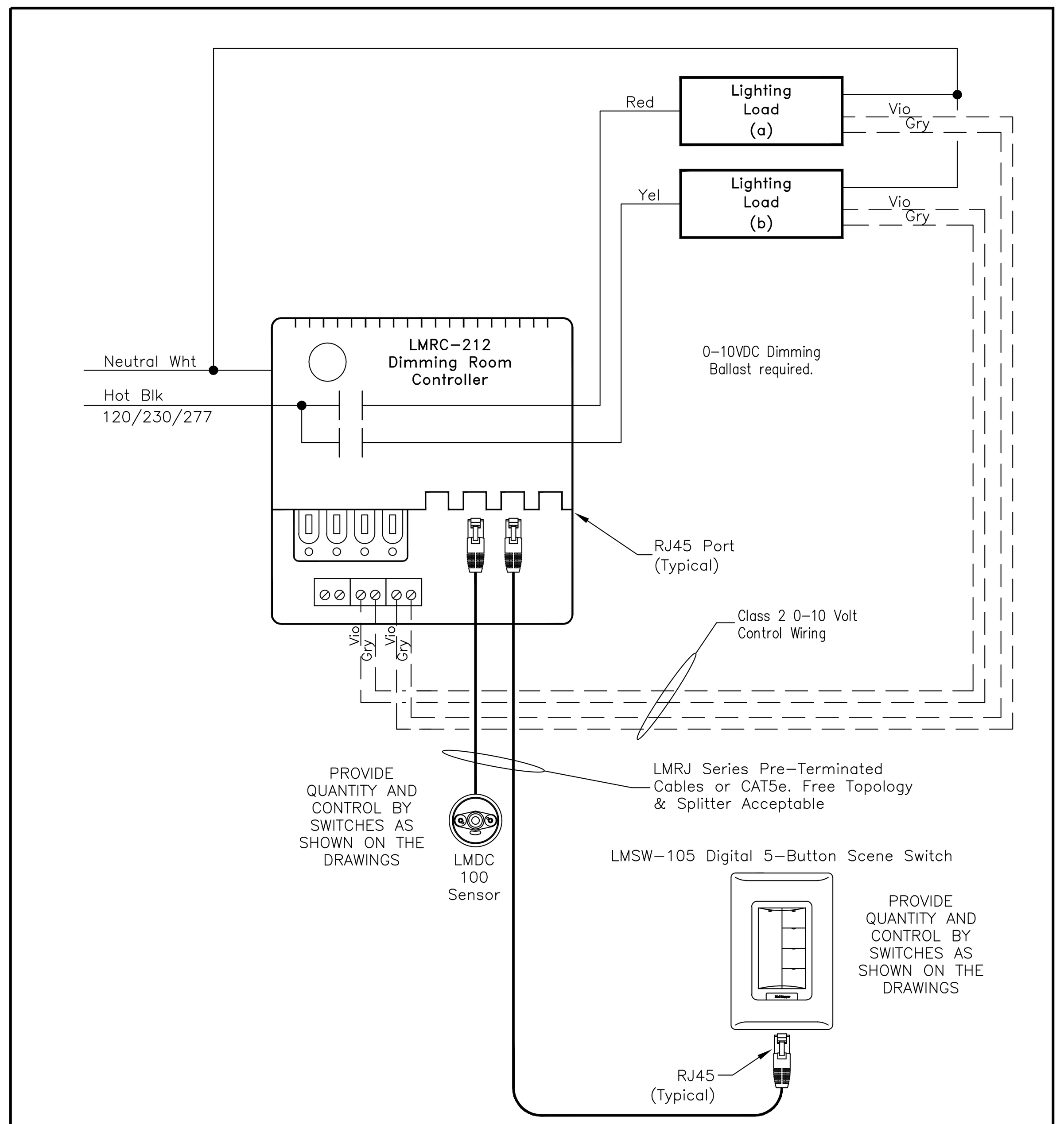
PROJECT NO. 24-077
DATE: 21, APRIL 2025
REVISIONS:

SHEET TITLE:
ELECTRICAL PANELS AND RISER DIAGRAM

SHEET NUMBER:
E4.0

BID SET

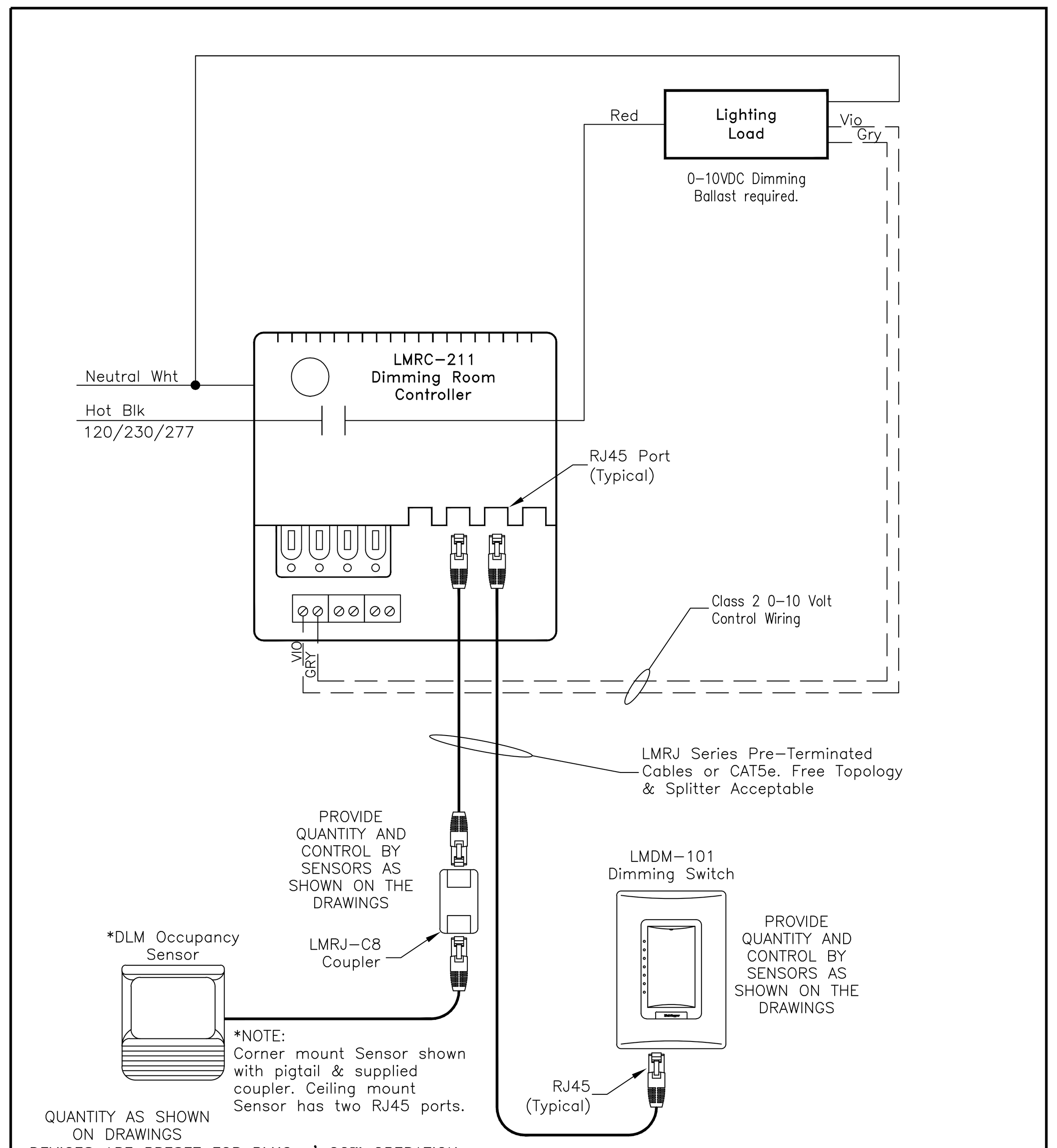
Plot Date:



DEVICES ARE PRESET FOR PLUG n' GO™ OPERATION, ADJUSTMENT IS OPTIONAL.
Sequence of Operation: The LMLS-400 monitors the daylight contribution through a window or skylight and works with the room controller(s) to maintain design light levels in each lighting zone. WattStopper's exclusive control algorithm uses on/off or dimming setpoints and other control parameters to establish the correct light levels throughout the day regardless of changing daylight contribution. For full operational details, adjustments and more features of the product, see the DLM System Installation Guide at www.wattstopper.com

LMLS-400 Single-Zone Closed Loop Digital Photosensor

2 CIRCUIT 0-10V DIMMING CONTROL DETAIL
SCALE: NONE
3 / E5.0

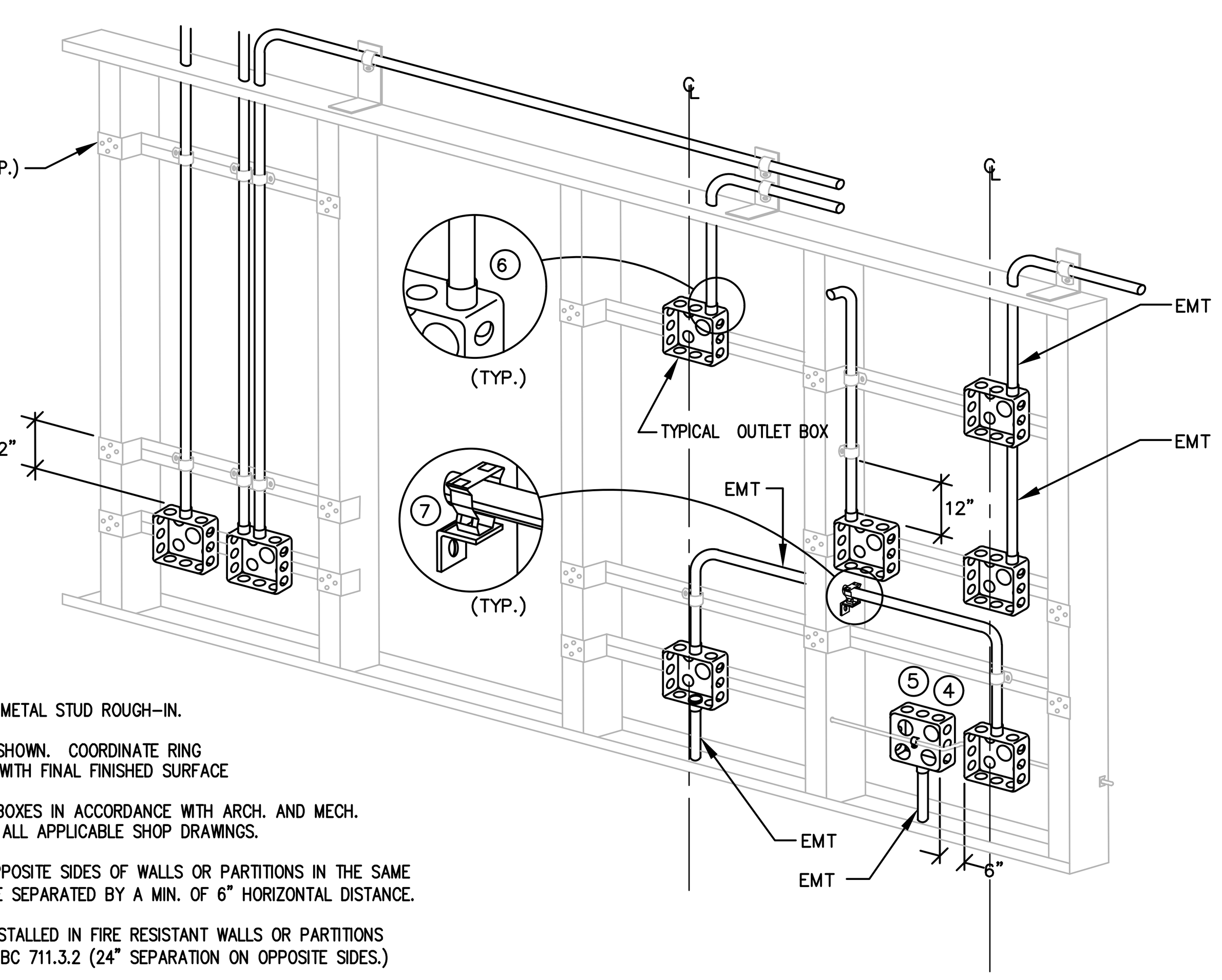


DEVICES ARE PRESET FOR PLUG n' GO™ OPERATION, ADJUSTMENT IS OPTIONAL.
Sequence of Operation: The LMLS-400 monitors the ambient light in the controlled space and works with the room controller(s) to maintain the design light level. WattStopper's exclusive control algorithm uses on/off or dimming setpoints and other control parameters to establish the correct light levels throughout the day regardless of changing daylight contribution. For full operational details, adjustments and more features of the product, see the DLM System Installation Guide at www.wattstopper.com

LMLS-400 Single Zone Closed Loop Digital Photosensor

1 CIRCUIT 0-10V DIMMING CONTROL DETAIL
SCALE: NONE
1 / E5.0

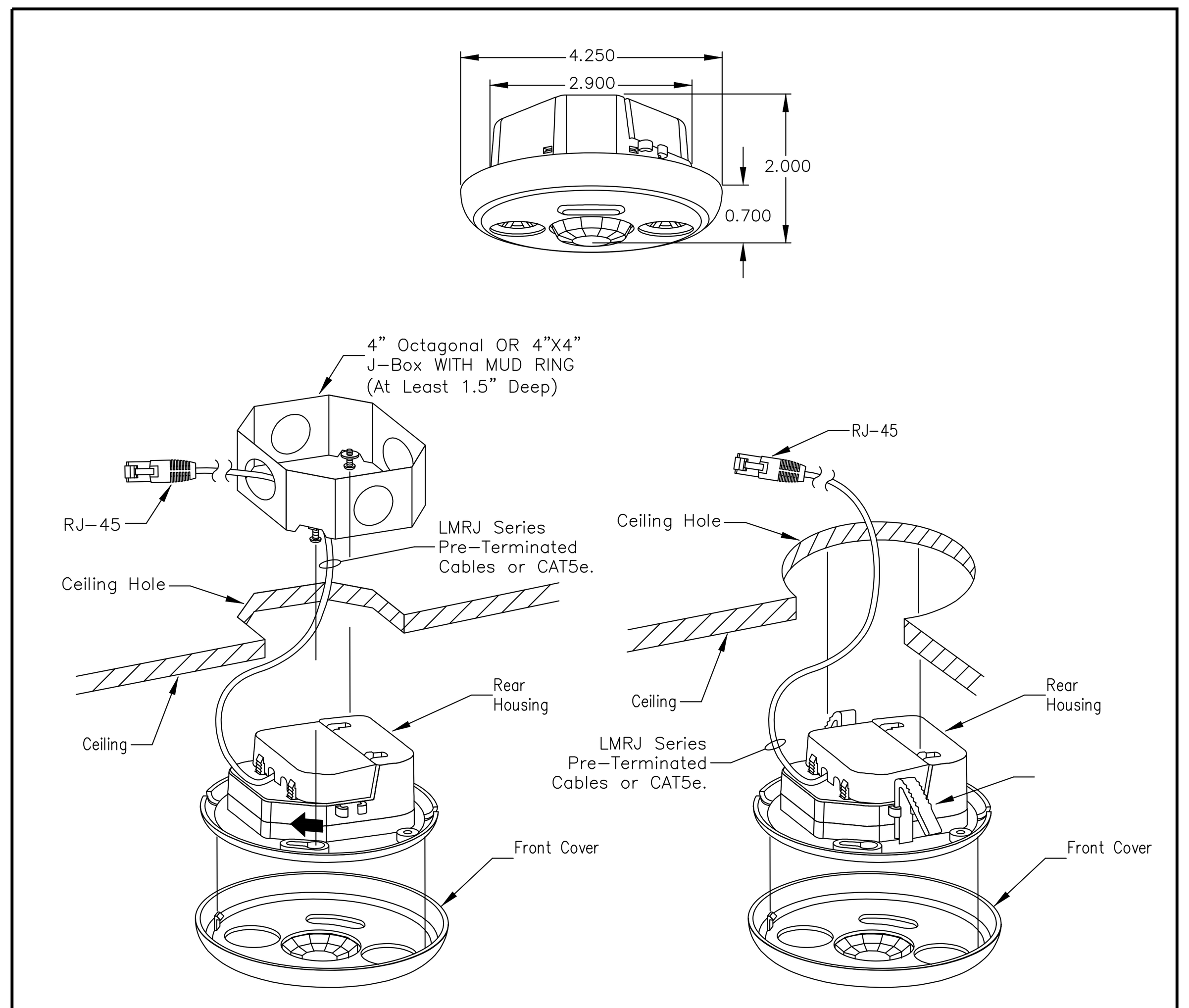
ADJUSTABLE BAR HANGER (TYP.)



NOTES:

1. TYP. FOR WOOD AND METAL STUD ROUGH-IN.
2. PLASTER RINGS NOT SHOWN. COORDINATE RING DEPTH TO BE FLUSH WITH FINAL FINISHED SURFACE
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCH. AND MECH. DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. OUTLET BOXES ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 6" HORIZONTAL DISTANCE.
5. ELECTRICAL BOXES INSTALLED IN FIRE RESISTANT WALLS OR PARTITIONS SHALL COMPLY WITH IBC 711.3.2 (24" SEPARATION ON OPPOSITE SIDES.)
6. INSULATED THROAT EMT CONNECTOR.
7. CADDY FASTENER, THROUGH STUD CABLE/CONDUIT SUPPORT "FB12P".
8. OUTLET BOXES SHALL BE MOUNTED ON HANGARS THAT SPAN TWO STUDS.

TYP ROUGH IN DETAIL
SCALE: NONE
4 / E5.0



LMDC-100 Dimension and Mounting

SENSOR MOUNT DETAIL
SCALE: NONE
2 / E5.0

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SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER:
E5.0

BID SET

Plot Date:

ELECTRICAL SPECIFICATIONS

PART 1 – GENERAL

A. DESCRIPTION
1. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND TRANSPORTATION AS REQUIRED TO PROPERLY INSTALL A COMPLETE AND OPERABLE ELECTRICAL SYSTEM AS DEFINED BY THESE DRAWINGS AND APPLICABLE CODES.

B. RULES AND REGULATIONS
1. ALL WORK AND MATERIALS SHALL BE INSTALLED AS SHOWN AND HEREIN SPECIFIED.
2. THE LATEST EDITIONS OF THE FOLLOWING SPECIFICATIONS, STANDARDS, AND AMENDMENTS, AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION, SHALL FORM A PART OF THIS SPECIFICATION THE SAME AS IF HEREIN WRITTEN OUT IN FULL (ALL MATERIALS AND INSTALLATIONS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS THEREOF):
   a) NFPA (NATIONAL FIRE PROTECTION ASSOCIATION), PUBLICATION NUMBER 70, "NATIONAL, ELECTRICAL CODE"; PUB. NO. 72E, "AUTOMATIC FIRE DETECTORS".
   b) UL (UNDERWRITERS LABORATORIES, INC.).
   c) NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION).
   d) UBC (UNIFORM BUILDING CODE) AND STANDARD BUILDING CODE.
   e) IBC (INTERNATIONAL BUILDING CODE)
   f) IFC (INTERNATIONAL FIRE CODE)
   g) IECC (INTERNATIONAL ENERGY CONSERVATION CODE)
   h) IEC (INTERNATIONAL ELECTRICAL CODE)
   i) STATE AND LOCAL BUILDING AUTHORITY AND CODES
3. NO REQUIREMENT TO THESE DRAWINGS AND SPECIFICATIONS SHALL BE CONSTRUCTED TO VOID ANY OF THE PROVISIONS OF THE ABOVE SPECIFICATIONS AND STANDARDS.

C. PERMITS AND INSPECTIONS UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL APPLY, PAY FOR AND SCHEDULE ALL APPLICABLE PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY AND ALL PUBLIC AUTHORITIES HAVING JURISDICTION AND REQUIRING INSPECTION AND THE OWNER.

D. WORKMANSHIP AND MATERIALS
1. WORKMANSHIP SHALL BE OF THE BEST QUALITY AND NONE BUT COMPETENT PERSONNEL SKILLED IN THEIR TRADE SHALL BE EMPLOYED. THE CONTRACTOR SHALL FURNISH THE SERVICES OF AN EXPERIENCED SUPERINTENDENT, WHO WILL BE IN CHARGE OF THE EXECUTION OF WORK, UNTIL COMPLETED AND ACCEPTED.
2. UNLESS OTHERWISE HEREIN AFTER SPECIFIED, ALL MATERIALS AND EQUIPMENT UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE NEW, OF BEST GRADE AND AS LISTED IN PRINTED CATALOGS OF THE MANUFACTURER. EACH ARTICLE OF IT'S KIND SHALL BE THE STANDARD PRODUCT OF A SINGLE MANUFACTURER.
3. THE OWNER'S REPRESENTATIVE SHALL HAVE THE RIGHT TO ACCEPT OR REJECT MATERIAL EQUIPMENT AND/OR WORKMANSHIP AND DETERMINE WHEN THEY HAVE COMPLIED WITH THE REQUIREMENTS HEREIN SPECIFIED.
4. ALL MANUFACTURED MATERIALS SHALL BE CLEARLY MARKED OR STAMPED WITH THE MANUFACTURER'S NAME AND RATING.
5. REFERENCE TO STANDARDS ARE INTENDED TO BE THE LATEST REVISION OF THE STANDARD SPECIFIED, OR THAT ACCEPTED BY THE AUTHORITY HAVING JURISDICTION

E. MANUFACTURER'S RECOMMENDATIONS
1. EQUIPMENT INSTALLED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED.

F. GUARANTEE

ALL MATERIALS AND EQUIPMENT PROVIDED AND INSTALLED UNDER THIS SECTION SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR. SHOULD ANY TROUBLE OR MALFUNCTIONS DEVELOP DURING THIS PERIOD DUE TO DEFECTIVE MATERIALS OR FAULTY WORKMANSHIP, THE CONTRACTOR WILL BE HELD LIABLE AND SHALL FURNISH LABOR, MATERIALS AND EQUIPMENT NECESSARY TO CORRECT THE TROUBLE OR MALFUNCTION WITHOUT ADDITIONAL COST TO THE OWNER. ALL DEFECTIVE MATERIAL OR INFERIOR WORKMANSHIP NOTICED DURING THE TIME OF INSTALLATION SHALL BE CORRECTED IMMEDIATELY TO THE ENTIRE SATISFACTION OF THE ARCHITECT, ENGINEER AND OWNER, AT NO ADDITIONAL COST.

G. DEFINITIONS
1. FURNISH: TO SUPPLY AND DELIVER, UNLOAD, INSPECT FOR DAMAGE.
2. INSTALL: TO UNPACK, ASSEMBLE, ERECT, APPLY, PLACE, FINISH, CURE, PROTECT, CLEAN, AND MAKE READY FOR USE.
3. PROVIDE: TO FURNISH AND INSTALL.

H. SUBMITTALS
1. PROVIDE SHOP DRAWINGS AND MANUFACTURER'S LITERATURE OF MATERIALS AND EQUIPMENT AS REQUIRED IN THE GENERAL CONDITIONS, AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND AS LISTED BELOW:
2. CATALOG CUTS
   a) CONDUIT AND FITTINGS
      1) RIGID METAL
      2) INTERMEDIATE METAL
      3) ELECTRICAL METALLIC TUBING
      4) FLEXIBLE METALLIC
      5) LIQUID TIGHT FLEXIBLE METALLIC
      6) FITTINGS (EACH TYPE)
   b) WIRE AND CABLE
   c) SWITCHES
      1) SNAP
      2) OCCUPANCY SENSOR
   d) RECEPTACLE OUTLETS
      1) GENERAL PURPOSE
      2) GROUND FAULT CIRCUIT INTERRUPTION
   e) TRIM AND COVER PLATES (EACH TYPE AND STYLE)
   f) PANEL BOARDS
   h) SAFETY SWITCHES
   i) LIGHTING FIXTURES
   j) NAMEPLATES

I. SHOP DRAWINGS
1. PANEL BOARDS
2. LIGHTING FIXTURES

THE ABOVE IS A STANDARD SUBMITTAL REQUIREMENT LIST. ELECTRICAL CONTRACTOR SHALL SUBMIT ALL APPLICABLE ITEMS FOR REVIEW. MATERIAL NOT SUBMITTED AND APPROVED BY THE ARCHITECT, ENGINEER OR OWNER'S REPRESENTATIVE SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTORS COST IF DIRECTED BY THE ARCHITECT, ENGINEER OR THE OWNER'S REPRESENTATIVE.

PART 2 – MATERIALS

A. GENERAL
1. MATERIALS AND EQUIPMENT SHALL BE STANDARD CATALOGED PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE MANUFACTURE OF THE PRODUCT. UL LISTED, AND SHALL BE THE LATEST STANDARD DESIGN THAT CONFORMS TO SPECIFIED MATERIALS AND EQUIPMENT.

B. RACEWAY AND CABLE
1. ELECTRICAL METALLIC TUBING (EMT) OR MC CABLE SHALL BE USED IN INTERIOR DRY LOCATIONS. MC CABLE FOR POWER TO LUMINAIRES.
2. GALVANIZED FLEXIBLE STEEL (FMC) OR LIQUID TIGHT STEEL (LFMC) CONDUIT SHALL BE USED FOR CONNECTIONS TO MECHANICAL EQUIPMENT AND TRANSFORMERS AND AS INDICATED. LIQUID TIGHT CONDUIT SHALL BE USED IN EXTERIOR AND WET/DAMP LOCATIONS.
3. SCHEDULE 40 PVC (WITH PVC COATED OR VINYL TAPE DOUBLE WRAPPED RIGID STEEL ELBOWS AND RISES) SHALL BE USED FOR RUNS THAT ARE IN CONTACT WITH THE EARTH.
4. 3/4" CONDUIT SHALL BE THE MINIMUM SIZE CONDUIT.
5. OUTDOOR AND WET OR DAMP LOCATIONS: PROVIDE RIGID STEEL CONDUIT OR LFMC.
6. NM TYPE CABLE AS ALLOWED BY THE NEC.
7. SER TYPE CABLE AS ALLOWED BY THE NEC.
8. ALL CABLES AND CONDUITS ALLOWED BY THE NEC FOR THE APPLICATION.

C. FITTINGS
1. ALL FITTINGS SHALL BE STEEL/MALLEABLE IRON WITH INSULATING BUSHINGS.

D. OUTLET AND JUNCTION BOXES
1. BOXES IN INTERIOR DRY LOCATIONS SHALL BE GALVANIZED ONE–PIECE PRESSED STEEL, KNOCKOUT TYPE, NOT LESS THAN 4 INCHES SQUARE AND 2 1/8" DEEP; APPLETON, RACO, OR EQUAL AND AS SHOWN ON THE DRAWINGS.
2. BOXES SHALL BE EQUIPPED WITH PLASTER RINGS, EXTENSION RINGS, AND FIXTURE STUDS AS REQUIRED.
3. PROVIDE FLUSH MOUNTING OUTLET BOX IN FINISHED AREAS.
4. BOXES FOR STRUCTURED CABLING (DATA & PHONE) IN INTERIOR DRY LOCATIONS SHALL BE GALVANIZED ONE–PIECE PRESSED STEEL, KNOCKOUT TYPE 4 11/16" x 2 1/8"; APPLETON, RAYCO OR EQUAL.
5. ALL BOXES IN FINISHED SPACES SHALL BE PROVIDED WITH MUD RINGS AS REQUIRED FOR THE DEVICE AND WALL MATERIAL.
6. OUTDOOR AND WET OR DAMP LOCATIONS: PROVIDE CAST METAL OR PVC OUTLET, JUNCTION, AND PULL BOXES.
7. ALL DEVICE BOXES SHALL BE SUPPORTED FROM A MINIMUM OF TWO SEPARATE STUDS OR FRAMING MEMBERS.

E. CONDUCTORS
1. SOFT DRAWN, ANNEALED COPPER IN RACEWAY OR CABLE SIZED AS SHOWN ON THE PLANS. MINIMUM #12 AWG UNLESS NOTED OTHERWISE. #8 AWG AND LARGER SHALL BE STRANDED.
2. ALUMINUM CONDUCTORS IN RACEWAY OR CABLE MAY BE USED FOR CONDUCTORS SIZED #8 OR LARGER WHERE THE CONNECTORS USED ARE LISTED FOR USE WITH THE ALUMINUM CONDUCTORS.
3. CONDUCTORS SHALL XHHW–2, THHN OR THWN–2 COLOR CODED IN ACCORDANCE WITH PART 3, SECTION C. 1. OF THESE SPECIFICATIONS OR AS INDICATED ON THE DRAWINGS.
4. CONDUCTORS SHALL BE USED AS LISTED BY THE NEC.

F. WIRING CONNECTIONS
1. MAKE ALL ELECTRICAL CONNECTIONS.
2. MAKE CONNECTION TO DEVICES USING "PIG–TAILS". DO NOT USE A DEVICE AS A CONNECTION OR A SPLICE UNIT.
3. DO NOT PLACE STRANDED CONDUCTORS DIRECTLY UNDER SCREWS. INSTALL CRIMP–ON, INSULATED, FORK TERMINALS FOR CONDUCTOR TERMINATIONS, OR INSTALL SOLID CONDUCTORS.

G. NAMEPLATES
1. PROVIDE EACH PANEL BOARD AND DISCONNECT SWITCH WITH A MICARTA PLASTIC NAMEPLATE MADE OF WHITE–FACED BLACKCORE PLASTIC LAMINATE WITH 1/4" HIGH LETTERING. NAMEPLATE SHALL INCLUDE DESIGNATION, DRAWING, PHASE, VOLTAGE, AND PANEL IT IS FED FROM. FASTEN WITH SCREWS OR RIVETS. NO OTHER ATTACHMENT METHOD IS ALLOWED. SEE DETAIL ON DRAWINGS.

H. COMMUNICATIONS AND STRUCTURED CABLING
1. PROVIDE COMPLETE SYSTEM AS INDICATED ON THE DRAWINGS.
2. PROVIDE NETWORK RACK AS SHOWN ON THE DRAWINGS.
3. PROVIDE A 2" COMMUNICATION CONDUIT FROM THE NETWORK RACK TO THE COMMUNICATIONS SERVICE PROVIDER POINT OF CONNECTION ON THE SITE. COORDINATE WITH THE COMMUNICATIONS PROVIDER AND OWNER.
4. PROVIDE A 3/4" CONDUIT WITH TWO CAT6 CABLES FROM THE NETWORK RACK VIA CABLE TRAY TO EACH COMMUNICATIONS OUTLET UNLESS NOTED OTHERWISE.
5. PROVIDE COMMUNICATIONS OUTLETS WHERE SHOWN ON THE DRAWINGS.
6. MAKE CONNECTIONS ON BOTH ENDS OF EACH CABLE ACCORDING TO 568B STANDARDS.

I. WIRING DEVICES
1. PLATES – COLOR OF PLATE SHALL BE WHITE.
2. TELEPHONE AND DATA OUTLETS SHALL BE PROVIDED WITH CONNECTORS AS INDICATED ON THE DRAWINGS.
3. SWITCHES – SHALL BE AS SHOWN ON THE PLANS OR EQUAL OF P&S, LEVITON OR COOPER 20 AMP, SILENT TYPE. COLOR SHALL BE WHITE.
4. RECEPTACLES – SHALL BE AS SHOWN ON PLANS OR EQUAL OF P&S, LEVITON OR COOPER 20AMP. COLOR SHALL BE WHITE.
5. SPECIAL PURPOSE OUTLETS SHALL BE AS INDICATED ON THE DRAWINGS.

J. PANEL BOARDS
1. DEAD FRONT TYPE, EQUIPPED WITH BOLT – ON CIRCUIT BREAKERS AND PROVISIONS FOR FUTURE BREAKERS, AS INDICATED. SQARE D OR CUTLER HAMMER. THE NUMBER OF POLES, TYPE, VOLTAGE, AND AMP RATING SHALL BE AS INDICATED ON THE PLANS. BUS BARS SHALL BE COPPER OR ALUMINUM. PROVIDE FULL SIZE GROUND BUS. NEUTRAL WIRES SHALL BE CONNECTED TO A COMMON NEUTRAL BUS WITH BINDING SCREWS OR LUGS, THE NEUTRAL BUS SHALL BE INSULATED FROM THE CABINET.
2. FURNISH COMPLETE WITH DOOR, KEYED LOCK AND TYPE WRITTEN, LAMINATED DIRECTORY. CABINETS SHALL BE RIGIDLY SUPPORTED INDEPENDENT OF CONDUITS.
3. PROVIDE FULLY RATED PANEL BOARDS WITH A MINIMUM AIC RATING AS INDICATED ON THE DRAWINGS.
4. PROVIDE NEW BREAKERS IN EXISTING PANELBOARDS/SWITCHGEAR AS INDICATED ON THE PANEL SCHEDULES. THE BREAKERS SHALL HAVE AN AIC RAITING AS SHOWN ON THE PANEL SCHEDULE OR TO MATCH EXISTING BREAKERS WHICHEVER IS LARGER.
5. INSTALL PANELS WITH TOP CIRCUIT BREAKER AT 48" AFF IN UNITS DESIGNATED AS ACCESSIBLE AND AS REQUIRED BY CODE.

K. INTERIOR AND EXTERIOR LUMINAIRES
1. PROVIDE LIGHTING SYSTEM COMPLETE WITH LAMPS AND ACCESSORIES, AS INDICATED IN THE CONTRACT DOCUMENTS.
2. LUMINAIRES
   a) PROVIDE COMPLETE LUMINAIRE ASSEMBLIES OF TYPE INDICATED ON THE DRAWINGS WITH FEATURES, OPTIONS AND ACCESSORIES AS SCHEDULED AND AS NEEDED FOR A COMPLETE ASSEMBLY AND INSTALLATION.
3. LIGHTING CONTROLS
   a) PROVIDE LIGHTING CONTROLS AS INDICATED ON THE DRAWINGS WITH EQUALS OF WATTSTOPPER AND NLIGHT.
   b) ALL SENSORS SHALL BE PROGRAMMED AS OCCUPANCY SENSORS WITH A 20 MINUTE DELAY BEFORE OFF UNO.
   c) LOCATE CEILING OCCUPANCY SENSORS IN A LOCATION THAT SEES THE ROOM BUT DOES NOT SEE PEOPLE WALKING PAST THE OPEN DOOR.

L. SECTION NOT USED

M. SAFETY SWITCHES
1. THE ELEECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL SAFETY SWITCHES AS INDICATED ON THE DRAWINGS OR AS REQUIRED. ALL SAFETY SWITCHES SHALL BE UL LISTED. THE SWITCHES SHALL BE FUSED SAFETY SWITCHES OR NON–FUSED SAFETY SWTICHES AS SHOWN ON THE DRAWINGS OR REQUIRED BY CODE AND SHALL BE MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, SIEMENS OR CUTLER HAMMER.
2. SWITCHES SHALL HAVE A QUICK–MAKE AND QUICK–BREAK OPERATING HANDLE AND MECHANISM WHICH SHALL BE AN INTEGRAL PART OF THE BOX. PADLOCKING PROVISIONS SHALL BE PROVIDED FOR PADLOCKING IN THE OFF POSITION WITH AT LEAST THREE PADLOCKS. SWITCHES SHLL BE HORSEPOWER RATED FOR 250 VOLTS AC OR DC OR 600 VOLTS AC AS REQUIRED. LUGS SHALL BE UL LISTED FOR COPPER AND ALUMINUM CABLE AND SHALL HAVE A TEMPERATURE RATING OF AT LEAST 75 DEGREES C.
3. SWITCHES SHALL BE FURNISHED IN NEMA 1 GENERAL PURPOSE ENCLOSURES WITH KNOCKOUTS UNLESS OTHERWISE NOTED OR REQUIRED. SWITCHES LOCATED ON THE EXTERIOR OF THE BUILDING OR IN "WET" LOCATIONS SHALL HAVE NEMA 3R ENCLOSURES (WP).
4. THE SAFETY SWITCHES SHALL BE SECURELY MOUNTED IN ACCORDANCE WITH THE NEC. THE CONTRACTOR SHALL PROVIDE ALL MOUNTING MATERIALS AND INSTALL FUSES IN THE FUSED SAFETY SWITCHES. THE FUSES SHALL BE DUAL ELEMENT ON MOTOR CIRCUITS.
5. PROVIDE FUSES AS SPECIFIED BELOW. FUSES SHALL BE INSTALLED SO THAT THE RATING IS CLEARLY VISIBLE WITHOUT REMOVING FUSE. PROVIDE A SPARE FUSE FOR EACH FUSE INSTALLED.
6. PROVIDE A NAMEPLATE ON EACH DISCONNECT SWITCH AS SPECIFIED IN "NAMEPLATES".

N. FUSES
1. FUSES SHALL BE CLASS "RK–1" REJECTION TYPE OR TYPE KLLU OR AS NOTED ON THE DRAWINGS. FUSES SERVING MOTOR LOADS SHALL BE DUAL ELEMENT WITH A MINIMUM TIME DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL BE CURRENT LIMITING TIME DELAY TYPE WITH INTERRUPTING CAPACITY OF 200,000 AMP RMS SYMMETRICAL.
2. FUSES SERVING SWITCH OR CIRCUIT BREAKER DISTRIBUTION PANELS, LIGHTING PANEL BOARDS AND OTHER NON–MOTOR LOADS NEED NOT BE TIME DELAY TYPE, BUT SHALL BE CURRENT LIMITING WITH THE INTERRUPTING CAPACITY OF 200,000AMP RMS SYMMETRICAL MINIMUM. FUSES SHALL BE BUSSMAN, GOULD OR LITTELFUSE.
3. PROVIDE FUSES SIZED TO THE MAXIMUM SIZE RECOMMENDED BY THE MANUFACTURER OF THE EQUIPMENT OR AS SHOWN ON THE DRAWINGS IF THE MANUFACTURER DOES NOT HAVE A RECOMMENDED SIZE.

PART 3 – EXECUTION

A. GENERAL
1. ALL MATERIALS SHALL BE INSTALLED IN A PROFESSIONAL MANNER INDICATIVE OF THE TRADE.
2. ALL PENETRATIONS OF THE WALLS, FLOORS AND ROOF SHALL BE SEALED WITH APPROPRIATE BOOTS, SEALANT OR CAULK FOR THE PARTICULAR SURFACE INVOLVED AND AS REQUIRED TO MAINTAIN A FIRE PROOF SEAL.

B. RACEWAYS
1. RACEWAYS SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE INDICATED. EXPOSED RACEWAY RUNS SHALL BE PARALLEL WITH SUPPORTING WALLS, BEAMS, AND CEILINGS AND WITH EACH OTHER AND SHALL NOT BE INSTALLED CLOSER THAN 6 INCHES TO ANY WATER PIPE OR HEATER FLUME.
2. RACEWAY ENDS SHALL BE REAMED AFTER THREADING AND AFTER CUTTING AND BE MADE TO BUTT IN THE CENTER OF THE COUPLING. THE USE OF RUNNING THREADS IS PROHIBITED.
3. RACEWAYS SHALL BE INSTALLED AS A COMPLETE SYSTEM, CONTINUOUS FROM OUTLET TO OUTLET, CABINET, BOX OR FITTINGS, AND SHALL BE MECHANICALLY CONNECTED SO THAT ADEQUATE ELECTRICAL CONTINUITY FROM ONE TO ANOTHER IS OBTAINED. CONDUITS SHALL BE SUPPORTED WITH ONE OR TWO HOLE STAMPED STEEL OR MALLEABLE IRON STRAPS (SUCH AS MANUFACTURED BY RACO) DESIGNED FOR SUPPORTING CONDUIT. THE SIZE OF STRAP SHALL MATCH THE SIZE OF THE CONDUIT. NAILS, PERFORATED STRAP, OR PLUMBERS TAPE SHALL NOT BE USED FOR SUPPORT OF RACEWAY.
4. PROVIDE 1/8" POLY PULL CORD IN RACEWAYS WITHOUT CONDUCTORS.
5. FOUR 90 DEGREE BENDS MAXIMUM BETWEEN TERMINATIONS OR BOXES.
6. ANY METAL CONDUIT IN CONTACT WITH EARTH SHALL BE PVC COATED OR DOUBLE WRAPPED WITH VINYL OR OTHER TAPE LISTED FOR THE PURPOSE OF PROTECTING THE CONDUIT.
7. COMMUNICATIONS OUTLETS: PROVIDE A 3/4" CONDUIT FROM EACH OUTLET STUBBED UP ABOVE THE CEILING AND BENT TOWARD THE HALLWAY, CABLE TRAY OR IT ROOM UNO. PROVIDE AN INSULATED THROAT CONNECTOR ON BOTH ENDS OF THE CONDUIT.

C. CONDUCTORS
1. ALL CONDUCTORS SHALL BE INSTALLED IN CONDUIT AND COLOR CODED AS FOLLOWS:

PHASE	120/240	208/120	480/277
PHASE A	BLACK	BLACK	BROWN
PHASE B	RED	RED	ORANGE
PHASE C		BLUE	YELLOW
NEUTRAL	WHITE	WHITE	GREY
GROUND	GREEN	GREEN	GREEN

2. MAKE JOINTS, SPLICES, TAPS AND CONNECTIONS IN CONDUCTORS WITH SOLDERLESS CONNECTORS.
3. ALL CIRCUITS THAT REQUIRE A NEUTRAL SHALL BE PROVIDED WITH A DEDICATED NEUTRAL. DO NOT SHARE NEUTRALS.
4. CONDUCTORS SHALL BE INSTALLED SO THAT THEY MAINTAIN THEIR CURRENT RATING AND ARE NOT DE–RATED FOR BUNDLING (CONDUCTORS AND CABLES), CONDUIT FILL, AMBIENT TEMPERATURE OR ANY OTHER REASON.
5. PROVIDE CONDUCTORS SIZED FOR A MAXIMUM VOLTAGE DROP OF 5% FROM THE SERVICE TO THE LOAD(S) AT THE END OF THE CIRCUIT. BASED ON THE LOAD(S) ON THE CIRCUIT.

D. JUNCTION AND PULL BOXES
1. PULL BOXES SHALL BE PROVIDED WHERE INDICATED AND WHERE NECESSARY TO FACILITATE THE PULLING OF CONDUCTORS.

E. GROUNDING
1. INSTALL A CODE SIZED GROUNDING CONDUCTOR IN ALL RACEWAYS AND CABLES. DO NOT USE THE RACEWAY FOR GROUNDING. MAKE GOOD CONTACT AT ALL PANEL BOARDS, OUTLET BOXES, AND JUNCTION OR PULL BOXES TO THE RACEWAY SYSTEM. USE APPROVED BONDING MATERIALS.
2. PROVIDE A CODE SIZED UFER GROUND AT THE MAIN SERVICE ON ALL NEW BUILDINGS..

F. BONDING
1. BOND ALL PIPING (GAS WATER, ETC) AS REQUIRED BY THE NEC. CONFIRM SYSTEMS TO BE USED WITH MC.
2. PROVIDE BONDING FOR COMMUNICATION SYSTEMS WITH AN INTERSYSTEM BONDING TERMINATION DEVICE AS REQUIRED AND ALLOWED BY THE NEC.

G. LUMINAIRE INSTALLATION
1. ALL FIXTURES RECESSED AND SURFACE SHALL BE SUPPORTED FROM THE STRUCTURE AND NOT FROM THE CEILING FRAMING OR GRID CEILING.
2. INSTALL RECESSED LUMINAIRES TO PERMIT REMOVAL FROM BELOW.
3. LOCATE LUMINAIRES AS INDICATED ON THE DRAWINGS.
4. INSTALL ACCESSORIES FURNISHED WITH AND REQUIRED FOR EACH LUMINAIRE.
5. INSTALL GRID CEILING CLIPS ON RECESSED LUMINAIRES.

H. SEISMIC REQUIREMENTS
1. RECESSED TYPE LIGHTING FIXTURES, IN ADDITION TO THE STANDARD SEISMIC CLIPS AND SUPPORT ON T–BAR GRID SYSTEM, SHALL HAVE 2#12 STEEL SAFETY WIRES PER FIXTURE. ONE END OF EACH SAFETY WIRE SHALL BE SECURELY FASTENED TO THE BUILDING STRUCTURE. THE OTHER END (6 INCHES LONGER THAN THE T–BAR GRID SUPPORT WIRES) SHALL BE FASTENED TO DIAGONAL CORNERS OF EACH LIGHTING FIXTURE.

I. CUTTING AND PATCHING
1. PERFORM DRILLING, CUTTING, AND PATCHING OF THE GENERAL CONSTRUCTION WORK WHETHER EXISTING OR NEW, AS REQUIRED FOR THE INSTALLATION OF ELECTRICAL WORK. PATCH WITH THE SAME MATERIALS, WORKMANSHIP, AND FINISH AS THE ORIGINAL WORK AND ACCURATELY MATCH ALL SURROUNDING WORK. SUCH WORK WILL BE DONE BY A CRAFTSMAN ACCREDITED IN THE APPLICABLE TRADE UNDER THE CONTRACTOR'S SUPERVISION AND BE ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. COORDINATE WITH OTHER TRADES AND GENERAL CONTRACTOR PRIOR TO CUTTING, DRILLING, OR CORING.

J. WIRING DEVICES
1. MOUNTING HEIGHTS TO THE CENTER OF THE DEVICE AND ORIENTATION SHALL BE AS FOLLOWS:

LIGHT SWITCHES ——————————————————————— 48" AFF

CONVENIENCE & TELEPHONE OUTLETS
ABOVE COUNTER ——————————————————————— 42" AFF

DATA, TELEPHONE, TV AND
CONVENIENCE OUTLETS (TYPICAL) ———————————— 18" AFF

ALL PANELS ARE TO BE MOUNTED/
INSTALLED AT AN ACCESSIBLE HEIGHT
FOR BOTH TYPE A AND TYPE B UNITS ————————— 48" AFF

ALL MOUNTING HEIGHTS ARE TYPICAL UNLESS NOTED OTHERWISE ON THE PLANS. ALL SWITCHES AND THERMOSTATS TO BE MOUNTED AS CLOSE TO DOOR JAMB AS POSSIBLE. COORDINATE ALL DEVICES WITH ARCHITECTURAL PLANS AND DETAILS. RECEPTACLES SHALL BE ORIENTED WITH THE GROUND TERMINAL UP WHEN INSTALLED VERTICAL AND WITH THE NEUTRAL TERMINAL(S) UP WHEN INSTALLED HORIZONTAL.

K. ARCFLASH
1. ELECTRICAL CONTRACTOR SHALL PROVIDE AN ARCFLASH STUDY FOR THE ELECTRICAL SYSTEM AND ARCFLASH LABELS AS REQUIRED BY NEC 110.16.

L. TESTING
1. DEMONSTRATE THAT ALL COMPONENTS OF THE WORK OF THIS DIVISION HAVE BEEN PROVIDED AND THAT THEY OPERATE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
2. TEST WIRING AND CONNECTORS FOR CONTINUITY, SHORT CIRCUITS AND IMPROPER GROUNDS. TEST EACH LIGHTING AND APPLIANCE PANEL WITH MAINS DISCONNECTED FROM FEEDERS, BRANCHES CONNECTED, WALL SWITCHES CLOSED AND FIXTURES PERMANENTLY CONNECTED AND COMPLETE WITH LAMPS. TEST EACH INDIVIDUAL POWER CIRCUIT WITH THE POWER EQUIPMENT CONNECTED FOR PROPER OPERATION.
3. PROVIDE DETAILED DOCUMENTATION OF EACH TEST PERFORMED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE, WITH THE NAMES AND THE SIGNATURES OF QUALIFIED INDIVIDUALS WHO CONDUCTED AND WITNESSED EACH TEST.

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Registered Professional Engineer (Electrical)
CERTIFICATE NO. 40189
STAN W. JOHNS
Date Signed 4/17/25
ARIZONA U.S.A.

LAKE HAVASU CITY WATER QUALITY LABORATORY

360 CYPRESS DRIVE
LAKE HAVASU CITY, AZ. 86403

PROJECT NO. 24-077
DATE: 21, APRIL 2025

REVISIONS:

SHEET TITLE:
ELECTRICAL SPECIFICATIONS

SHEET NUMBER:
E6.0

BID SET

Plot Date:

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.1.1 [FI57][3]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5 [FI16][3]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.3 [FI33][3]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3.1 [EL22][3]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1, C405.2.1.1 [EL18][3]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, corridors, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.2 [EL19][3]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more within 20 minutes of when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor. Lights not turned off by occupant sensors is done so by time-switch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.3 [EL20][3]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) general lighting in each zone permitted to turn on upon occupancy in control zone, 3) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 4) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.2, C405.2.2.1 [EL21][3]	Each area not served by occupancy sensors (per C405.2.1.1) have time-switch controls and functions detailed in sections C405.2.2.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

COM*check* Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: Lake Havasu
Project Type: New Construction

Construction Site: Lake Havasu, Arizona
Owner/Agent: THINK Architecture
Designer/Contractor: Stan Johns Maxx LLC

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Workshop	2655	0.91	2416
		Total Allowed Watts =	2416

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
1-Workshop				
LED: F1: 4" Square: Other:	1	12	10	120
LED: F2: 2" Recessed Linear: Other:	1	1	38	38
LED: F4: 2'x2' Troffer: Other:	1	4	27	108
LED: F5: 2'x4' Troffer: Other:	1	4	32	128
LED: F6: 4' Linear Direct/Indirect: Other:	1	24	50	1200
LED: F7: Pendant: Other:	1	2	18	36
LED: F8: 3ft Ring Pendant: Other:	1	1	65	65
LED: F10: 4ft Ring Pendant: Other:	1	1	89	89
		Total Proposed Watts =		1784

Interior Lighting PASSES: Design 26% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2021 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Stan W. Johns — Name - Title
Signature
1/10/25 — Date

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.4, C405.2.4.1, C405.2.4.2 [EL23][3]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.5 [EL27][3]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.7 [EL26][3]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8 [EL27][3]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9.1, C405.9.2 [EL28][3]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.10 [EL29][3]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.1.1 [EL30][3]	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.11, C405.11.1 [EL31][3]	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

COM*check* Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 0.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][3]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C406 [PR9][3]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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360 CYPRESS DRIVE
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PROJECT NO. 24-077

DATE: 21, APRIL 2025

REVISIONS:

SHEET TITLE:
COMPLIANCE REPORT

SHEET NUMBER:
E7.0

BID SET

Plot Date: