AUGUSTA COUNTY SERVICE AUTHORITY

846 LAUREL HILL RD. VERONA, VA

BID DRAWINGS ARE EXCERPT FROM FULL SET OF PROJECT DOCUMENTS, SO MAY DETAIL ADDITIONAL SCOPE OF WORK, NOT PERTINENT TO SHELL BUILDING PROJECT. PROVIDE ONLY BIDS FOR BUILDING SHELL (INCLUDING INSULATION), EXTERIOR DOORS, WINDOWS AND AWNINGS, FOUNDATIONS, SLAB AND UNDER-SLAB PIPING.

PROJECT TEAM

CLIENT	PEED & BORTZ, LLC 20 MIDWAY PLAZA DR. #100 CHRISTIANSBURG, VA 24073 SCOTT BORTZ SCOTT@PEED-BORTZ.COM (540) 394-3214
ARCHITECT	BLUE RIDGE ARCHITECTS, PC, A BLUELINE COMPANY 126 W. BRUCE STREET HARRISONBURG, VA 22801 ANNA CAMPBELL ACAMPBELL@BLUELINE.TEAM (540) 437-1228
STRUCTURAL ENGINEER	ENGINEERING SOLUTIONS 1010 N MAIN STREET HARRISONBURG, VA 22802 BRIAN KOERNER BK@ENGSOLN.COM (540) 442-8787
MECHANICAL/ELECTRICAL & PLUMBING ENGINEER	MEI ENGINEERING, INC. 1592 CF POURS DR. HARRISONBURG, VA 22802 WESLEY SIEVER WFS@MEIEGINEERINGINC.COM (540) 432-6272

RENDERING FOR VISUALIZATION PURPOSED ONLY; NOT INTENDED FOR CONSTRUCTION

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PROJECT LOCATION

VICINITY MAP

PROJECT BUILDING CODES

THE INFORMATION CONTAINED BELOW WAS COMPILED BY AND FOR THE EXCLUSIVE USE OF THE ARCHITECT IN THE DESIGN OF HIS PORTION OF THE WORK. IT IS ALSO INTENDED TO IDENTIFY TO THE CODE OFFICIAL THE ARCHITECT'S INTERPRETATION OF THE CODE. THE INFORMATION IS EXCERPTED FROM THE CODE IDENTIFIED BELOW UNLESS INDICATED OTHERWISE. IT IS INTENDED TO IDENTIFY REQUIREMENTS FOR THIS STRUCTURE PRIMARILY IN TERMS OF OCCUPANCY, CONSTRUCTION TYPE AND EGRESS. MISCELLANEOUS OTHER ISSUES MAY ALSO BE IDENTIFIED. THE INFORMATION IS NOT INTENDED TO INCLUDE ALL APPLICABLE PORTIONS OF THE CODE OR OTHER APPLICABLE CODES AND GOVERNING REGULATIONS. IT IS ALSO NOT INTENDED TO DIMINISH THE IMPORTANCE OR RELEVANCE OF OTHER PORTIONS OF CODES AND REGULATIONS THAT ARE APPLICABLE TO THE WORK CONTAINED IN THE DRAWINGS AND SPECIFICATIONS. CONSULTANTS, CONTRACTORS, MANUFACTURERS AND OTHER PARTIES THAT HAVE OR WILL PERFORM DESIGN OR CONSTRUCTION SERVICES ON THIS STRUCTURE SHALL NOT RELY ON THIS INFORMATION IN THE PERFORMANCE OF THEIR WORK. EACH SUCH PARTY SHALL BE RESPONSIBLE FOR THEIR OWN REVIEW AND COMPLIANCE OF CODES AND REGULATIONS.

PROJECT INFORMATION

PROJECT NUMBER: 01-20-075
PROJECT NAME: AUGUSTA COUNTY SERVICE AUTHORITY NEW MAINTENANCE BUILDING
ADDRESS: 846 LAUREL HILL RD. VERONA, VA

CODES / STANDARDS

2018 VIRGINIA CONSTRUCTION CODE
2018 VIRGINIA PLUMBING CODE
2018 VIRGINIA ELECTRICAL CODE
2018 VIRGINIA MECHANICAL CODE
2018 VIRGINIA FUEL GAS CODE
2018 VIRGINIA ENERGY CONSERVATION CODE
2018 VIRGINIA FIRE PREVENTION CODE

BUILDING DESCRIPTION
ADMINISTRATION OFFICES & WAREHOUSE

CODE COMPLIANCE

CODE REQUIREMENTS		REFERENCES
OCCUPANCY TYPE	**NON SEPARATED B / F-2 / S-1 / S-2**	**VCC 304.1, 306.3, 311.2, 311.3**
CONSTRUCTION TYPE	**IIB**	**VCC TABLE 601**
ALLOWABLE AREA	**UNLIMITED**	**VCC TABLE 507.4**
ACTUAL AREA		
STORAGE MEZZANINE	**448 SQ. FT.**	
MAIN LEVEL	**19,843 SQ. FT.**	
TOTAL	**20,291 SQ. FT.**	
ALLOWABLE NUMBER OF STORIES ABOVE GRADE	**1**	**VCC 507.4**
ACTUAL NUMBER OF STORIES ABOVE GRADE	**1**	
ALLOWABLE HEIGHT	**75'-0"**	**VCC TABLE 503; VCC 504.2**
ACTUAL HEIGHT	**31' - 6"**	
SPRINKLER SYSTEM	**REQUIRED**	**PER VCC 507.4 AND DUE TO MEETING REQUIREMENTS OF FIRE FLOW**
FIRE ALARM	**PROVIDED PER SPRINKLER SYSTEM**	
SMOKE DETECTORS	**NOT REQUIRED**	**VCC 907.1**
OCCUPANT LOAD	**191 (SEE LIFE SAFETY PLANS)**	**VCC TABLE 1004.1.2**
REQUIRED EXITS	**STORAGE MEZZANINE 0 MAIN LEVEL 2+**	**VCC TABLE 1006.2.1 AND 1006.3.1**
PROVIDED EXITS	**STORAGE MEZZANINE 0 MAIN LEVEL 7**	
REQUIRED DOOR WIDTH	**0.15" PER OCCUPANT**	**VCC 1005.3.2 EXC 1**
FIRE SEPARATION	**NOT REQUIRED**	
ACCESS PROVIDED FOR THE DISABLED	**YES**	**VCC 1103.1**

PLUMBING FIXTURE COUNT

PLUMBING FIXTURES FOR: MIXED OCCUPANCY B (BUSINESS)
BASED ON 2018 IBC PLUMBING FIXTURE TABLE 2902.1
CALCULATIONS ARE BASED ON OCCUPANT LOAD

TOTAL OCCUPANCY:191 OCCUPANTS
ASSUMING 95 MEN AND 96 WOMEN.

FIXTURE TYPE	FIXTURES REQUIRED	FIXTURES PROVIDED
WATER CLOSET	MEN: 1 PER 25 FOR FIRST 50 1 PER 50 FOR REMAINDER (50+) 3 REQUIRED	3 PROVIDED
	WOMEN: 1 PER 25 FOR FIRST 50 1 PER 50 FOR REMAINDER (50+) 3 REQUIRED	3 PROVIDED INCLUDING 2 UNISEX SEE BELOW
	UNISEX: NOT REQUIRED	2 PROVIDED
	TOTAL: 6 REQUIRED	**6 PROVIDED**
URINALS*	NOT REQUIRED	4 PROVIDED*
LAVATORY	MEN: 1 PER 40 FOR FIRST 80 1 PER 80 FOR REMAINDER (80+) 3 REQUIRED	3 PROVIDED INCLUDING 1 UNISEX SEE BELOW
	WOMEN: 1 PER 40 FOR FIRST 80 1 PER 80 FOR REMAINDER (80+) 3 REQUIRED	3 PROVIDED INCLUDING 1 UNISEX SEE BELOW
	UNISEX: NOT REQUIRED	2 PROVIDED
	TOTAL: 6 REQUIRED	**6 PROVIDED**
DRINKING FOUNTAIN	1 PER 1,000; 1 REQUIRED	2 PROVIDED
SERVICE SINK	1 REQUIRED	1 PROVIDED

** PER IPC 2018, SECTION 419.2: URINALS SHALL NOT BE SUBSTITUTED FOR MORE THAN 67% OF WATER CLOSETS IN ASSEMBLY OCCUPANCIES AND NO MORE THAN 50% IN OTHER OCCUPANCIES*

THE ELECTRONIC DATA USED TO CREATE THESE DOCUMENTS IS AVAILABLE IN DIGITAL FORM FOR THE PRICE OF $100 PER FILE. RECIPIENT WILL ALSO BE REQUIRED TO SIGN AN ELECTRONIC DATA RELEASE FORM.

Mark	Date	Description
	6/10/2022	REVISED BID DOCUMENTS
	1/6/2022	BID DOCUMENTS
1	Date 1	ADDENDUM 1

BLUELINE
126 West Bruce Street, Suite 102, Harrisonburg, VA 22801

AUGUSTA COUNTY SERVICE AUTHORITY
846 LAUREL HILL RD. VERONA, VA

COMMONWEALTH OF VIRGINIA
Anna Sarnowska-Campbell
No. 014655
6/10/2022
ARCHITECT

PROJ NO: 01-20-075

CS
COVER SHEET

10/26/2022 3:09:11 PM

DOOR SCHEDULE

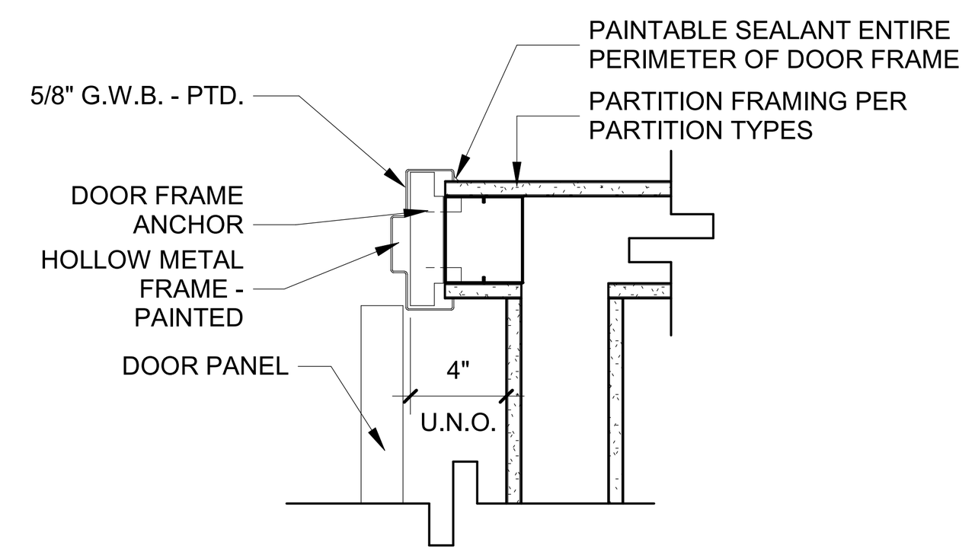
MARK	WIDTH	HEIGHT	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	RATING	PANIC DEVICE	CLOSER	ANSI FUNCTION	REMARKS
101	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
102	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
103	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
104	3'-0"	7'-0"	SF	AL	AN	AL	AL	AN		X	X	F-81	4,5,8, 11
104A	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT		X	X	F-81	6
105	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
106	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
107	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
107A	3'-0"	7'-0"	SF	AL	AN	AL	AL	AN		X	X	F-81	8,10, 11
108	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT			X	F-82	
108A	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT			X	F-82	
109	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT				F-86	
110	3'-0"	7'-0"	-	-	-	HM1	HM	PNT					1
111	3'-0"	7'-0"	-	-	-	HM1	HM	PNT					1
112	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
113	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT			X	F-36	
114	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT			X	F-86	4
115	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT			X	F-86	4
116	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT			X	F-86	4
117	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
118	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
119	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT				F-82	
120	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT			X	F-82	
121	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT			X	-	2
122	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT			X	F-75	
122A	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT				F-86	
123	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT			X	-	2
123A	3'-0"	7'-0"	-	-	-	HM1	HM	PNT					1
123B	3'-0"	7'-0"	-	-	-	HM1	HM	PNT					1
123C	3'-0"	7'-0"	-	-	-	HM1	HM	PNT					1
123D	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT			X	-	2
124	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT		X	X	F-82	9
124A	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT				F-82	
124B	3'-0"	7'-0"	F	WD	SV	HM1	HM	PNT				F-82	
124C	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT		X	X	F-82	9
125A	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT		X	X	F-81	4
125B	3'-0"	7'-0"	SF	AL	AN	AL	AL	AN		X	X	F-81	4,8,11
125C	3'-0"	7'-0"	V	WD	SV	HM1	HM	PNT		X	X	F-81	4
126A	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT		X	X	F-81	4, 12
126B	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT			X	F-82	
126C	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT			X	F-75	
126D	12'-0"	12'-0"	OH	ST	PNT	-	-	PNT					7
126E	12'-0"	12'-0"	OH	ST	PNT	-	-	PNT					7
126F	12'-0"	12'-0"	OH	ST	PNT	-	-	PNT					3
127A	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT		X	X	F-81	4,5,12
127B	10'-0"	10'-0"	OH	ST	PNT	-	-	PNT					7
127C	10'-0"	10'-0"	OH	ST	PNT	-	-	PNT					7
128	3'-0"	7'-0"	F	ST	PNT	HM1	HM	PNT			X	F-36	
129	3'-0"	7'-0"	F	ST	PNT	HM1	HM	PNT				F-86	
130	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT				F-82	
131A	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT		X	X	F-81	4,12
131B	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT			X	F-75	
132A	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT		X	X	F-81	4, 12
132B	12'-0"	14'-0"	OH	ST	PNT	-	-	PNT					3
132C	12'-0"	14'-0"	OH	ST	PNT	-	-	PNT					3
132D	14'-0"	14'-0"	OH	ST	PNT	-	-	PNT					3
132E	12'-0"	14'-0"	OH	ST	PNT	-	-	PNT					7
132F	12'-0"	14'-0"	OH	ST	PNT	-	-	PNT					7
132G	14'-0"	14'-0"	OH	ST	PNT	-	-	PNT					3
133A	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT		X	X	F-81	4,12
133B	3'-0"	7'-0"	V	ST	PNT	HM1	HM	PNT			X	F-75	
133C	14'-0"	14'-0"	OH	ST	PNT	-	-	PNT					7
133D	14'-0"	14'-0"	OH	ST	PNT	-	-	PNT					7

WOOD DOORS

1	SOLID CORE, AWI SECTION 9, 1 ¾" THICK, EXTRA HEAVY DUTY, PREMIUM GRADE
2	FINISHED FACE: WOOD VENEER, PLAIN SLICED WHITE OAK, BOOK & RUNNING MATCHED, PRE-FINISHED PER MANUFACTURER'S STANDARD OPTIONS
3	FACING ADHESIVE: TYPE II – WATER RESISTANT
4	NOT USED
5	FINISH WORK IN ACCORDANCE WITH AWI SECTION 5, PREMIUM GRADE
6	GLAZING STOPS: WOOD, MATCH DOOR FINISH
7	INSTALL PER AWI AND MANUFACTURER'S REQUIREMENTS, PLUMB AND LEVEL
8	PROTECT FROM DAMAGE DURING CONSTRUCTION, REPAIR OR REPLACE DAMAGED FINISHES

METAL DOORS

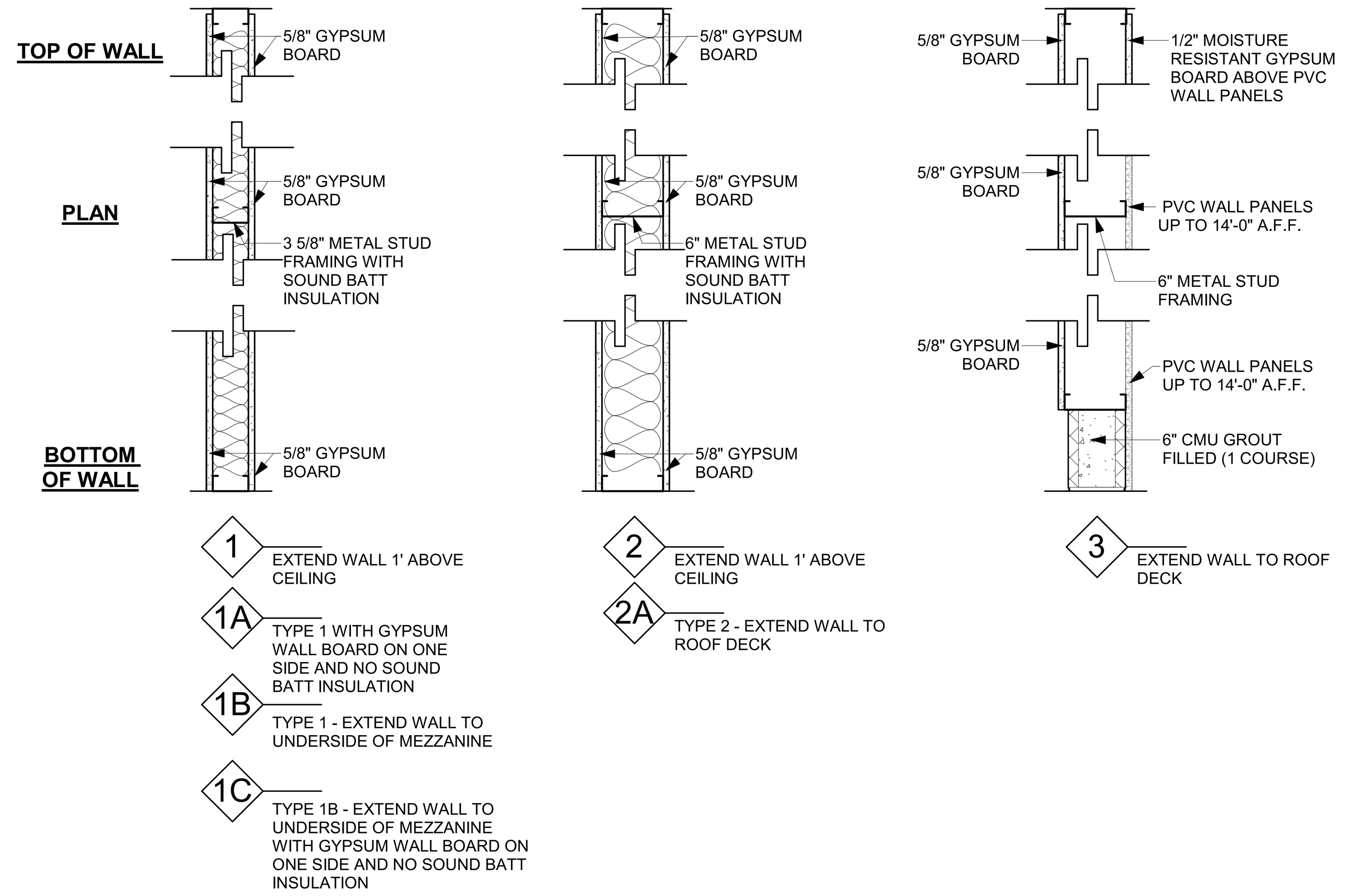
1.	DOOR PANELS, SHEET STEEL ANSI A250.8; HOLLOW METAL, 16GA A60 EXTERIOR, 18GA COLD ROLLED STEEL INTERIOR 1 ¾" THICK, FIELD PAINTED
2.	INSULATE EXTERIOR DOORS, POLYURETHANE FOAM TO R-2.4 MINIMUM
3.	FABRICATE DOORS WITH HARDWARE REINFORCEMENT WELDED IN PLACE
4.	INSTALL DOORS PER ANSI A250.11



13 DETAIL TYPICAL DOOR JAMB
1 1/2" = 1'-0"

PARTITION TYPE GENERAL NOTES

1. ALL PARTITION TYPES TO BE TYPE 1 - UNLESS NOTED OTHERWISE.
2. PROVIDE SLIP CONNECTION AT NON-BEARING PARTITIONS EXTENDING TO UNDERSIDE OF STRUCTURE - TYP.
3. 5/8" CEMENTITIOUS BACKER BOARD AT ALL TILE LOCATIONS, INCLUDING TILE BASE LOCATIONS.
4. DIAGONAL BRACE PARTITIONS ABOVE CEILING.
5. SEE FINISH SCHEDULE FOR APPLIED FINISHES OR ALTERNATE COMPONENTS TO PARTITION TYPES LISTED BELOW
6. PROVIDE MOISTURE RESISTANT G.W.B. AT JANITOR ROOMS, LOCKER ROOMS AND RESTROOMS UNLESS OTHERWISE NOTED.
7. F.R.T. PLYWOOD (PAINTED) FROM 1'-0" A.F.F. TO 9'-0" A.F.F. ON ALL WALLS IN SERVER ROOM.
8. PROVIDE STUD GAUGE AS REQUIRED BY CODE FOR SPAN HEIGHTS



GENERAL NOTES:

1	SIZE AND LOCATION OF MECHANICAL & ELECTRICAL EQUIPMENT PADS & TRENCHES ARE APPROXIMATE. VERIFY FINAL SIZE AND LOCATION WITH FINAL EQUIPMENT REQUIREMENTS.
2	PROVIDE MASONRY CONTROL JOINT AT INSIDE CORNERS AND AS INDICATED ON DRAWINGS.
3	ARCHITECTURAL FINISHED FLOOR ELEVATION 100'-0" IS EQUAL TO FINISHED FLOOR ELEVATION 1246.00 INDICATED ON CIVIL DRAWINGS.
4	ALL WORK SHALL COMPLY THE REQUIREMENTS OF THE VIRGINIA CONSTRUCTION CODE, 2015 EDITION. COMPLY WITH ALL FEDERAL, STATE AND LOCAL ORDINANCES AND REGULATIONS AS APPLICABLE TO THIS PROJECT.
5	THE DRAWINGS ARE DIAGRAMMATIC, INTENDING TO OUTLINE GENERAL DESIGN REQUIREMENTS ONLY, AND ARE NOT INTENDED TO BE COMPLETE IN ALL DETAILS. SPECIFIC IMPLEMENTATION OF THE DRAWINGS SHALL BE THE RESPONSIBILITY OF EACH TRADE ENGAGED UPON THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR OVERALL COORDINATION.
6	BY ENTERING INTO CONTRACT, EACH CONTRACTOR REPRESENTS THAT HE HAS THE SKILL AND EXPERT KNOWLEDGE TO EXECUTE THE WORK REQUIRED, AND THAT THEY ARE LICENSED BY THE VIRGINIA DEPARTMENT OF COMMERCE IN ACCORDANCE WITH THE LATEST REQUIREMENTS THE CODE OF VIRGINIA, AS AMENDED.
7	EACH CONTRACTOR SHALL PROTECT HIS WORK AND EXISTING CONSTRUCTION FROM DAMAGE DUE TO HIS OPERATION AND SHALL REPLACE OR REPAIR, AS REQUIRED, ALL DAMAGED WORK TO THE SATISFACTION OF THE OWNER.
8	TAKE MEASUREMENTS AND VERIFY WORKING CONDITIONS AT THE SITE AND COORDINATE WITH THE DRAWINGS. VERIFICATIONS SHALL TAKE PLACE BEFORE LAYING OUT OR PROCEEDING WITH WORK. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR ERRORS, INCLUDING THE COSTS OF CORRECTIVE WORK, RESULTING FROM HIS FAILURE TO EXERCISE SUCH VERIFICATION.
9	CLEAN UP AND REMOVE SITE FROM DAILY ALL DEBRIS, AND LEAVE THE WORK IN AN ORDERLY CONDITION, BROOM CLEAN.
10	ALL DIMENSIONS ARE FROM FACE OF STUD TO FACE OF STUD OR FACE OF MASONRY, UNLESS OTHERWISE NOTED. VERIFY ALL DIMENSIONS IN THE FIELD.
11	FIREBLOCKING: MATERIALS: 2-INCH (NOMINAL) THICKNESS OF LUMBER WITH TIGHT JOINTS, 2 THICKNESSES OF 1-INCH (NOMINAL) LUMBER WITH BROKEN LAP JOINTS, OR 1 THICKNESS OF 23/32-INCH PLYWOOD OR OSB PANEL WITH JOINTS BACKED BY SAME MATERIAL. REQUIRED: A. IN CONCEALED WALL SPACES AT THE CEILING & FLOOR OR ROOF LEVELS. B. AT CONNECTIONS BETWEEN HORIZONTAL & VERTICAL SPACES, SUCH AS SOFFITS & DROPPED CEILINGS. C. AT OPENINGS AROUND VENTS, PIPES, DUCTS AND OTHER PENETRATIONS THROUGH CEILING AND FLOOR LEVELS. D. WITHIN CONCEALED SPACES OF EXTERIOR WALL FINISH & OTHER EXTERIOR ARCHITECTURAL ELEMENTS AT MAXIMUM INTERVALS OF 20 FEET. E. IN ANY SPACES BEHIND COMBUSTIBLE FINISH & TRIM AT MAXIMUM INTERVALS OF 10 FEET.

SEALED CONCRETE SPECIFICATIONS

1. CONCRETE CURING:
   - A. 'WET' CURE CONCRETE BY USE OF A MOISTURE-RETAINING COVERING APPROVED BY THE LIQUID DENSIFIER AND SEALER MANUFACTURER
   - B. LIQUID DENSIFIER AND SEALER: EUCO DIAMOND HARD
     - i. APPLY WITH HIGH-VOLUME, LOW-PRESSURE SPRAYER, THEN SCRUB INTO CONCRETE SURFACE PER MANUFACTURER'S SPECIFICATIONS
     - ii. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR COMPLETE APPLICATION AND SLAB FLUSH/CLEAN PROCEDURES

GYPSUM BOARD PARTITIONS

1	LIGHT GAGE METAL FRAMING AS INDICATED, GALVANIZED AND CONFORMING TO ASTM A653.
2	STANDARD GYPSUM BOARD 5/8" THICK AT WALL AND CEILING LOCATIONS UNLESS NOTED OTHERWISE
3	USE MOISTURE RESISTANT GYPSUM BOARD BEHIND, ADJACENT TO, AND ABOVE FIXTURES WHICH USE WATER OR GENERATE STEAM.
4	INSTALL GYPSUM BOARD ACCORDING TO ASTM C840
5	FINISH TO GA-214 LEVEL 4 THROUGHOUT, EXCEPT: A. LEVEL 2 ABOVE CEILINGS CONCEALED FROM VIEW
6	PROVIDE CONTROL JOINTS PER GA-216, APPLICATION AND FINISHING OF GYPSUM PANEL PRODUCTS. NOTE THAT ALL CONTROL JOINTS SHALL BE PREMANUFACTURED OR FIELD FABRICATED FROM SUITABLE MATERIALS. A CONTROL JOINT SHALL BE INSTALLED WHERE A PARTITION, WALL, OR CEILING CROSSES A CONSTRUCTION JOINT (EXPANSION, SEISMIC, OR BUILDING CONTROL JOINT) IN THE SUPPORTING BUILDING STRUCTURE. CONTROL JOINTS SHALL BE INSTALLED: A. WHERE A WALL OR PARTITION RUNS IN AN UNINTERRUPTED STRAIGHT PLANE EXCEEDING 30 FT. B. AT CEILINGS WITHOUT PERIMETER RELIEF, CONTROL JOINT SPACING SHALL NOT EXCEED 30 FT.

SUBMITTAL PROCEDURES:

1	SUBMITTALS ARE NOT CONTRACT DOCUMENTS. THE PURPOSE OF SUBMITTALS IS TO DEMONSTRATE THE WAY THE CONTRACTOR INTENDS TO CONFORM TO THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.
2	SUBMITTALS NOT REQUIRED MAY BE RETURNED WITHOUT ACTION.
3	THE CONTRACTOR SHALL PROVIDE A SUBMITTAL SCHEDULE FOR APPROVAL BY THE ARCHITECT. THE SUBMITTAL SCHEDULE SHALL PROVIDE REASONABLE TIME FOR ARCHITECT REVIEW AND IN SEQUENCE SUCH THAT NO DELAY IN THE WORK SHALL RESULT.
4	THE ARCHITECT WILL REVIEW SUBMITTALS FOR THE LIMITED PURPOSE OF CHECKING CONFORMANCE WITH THE INFORMATION GIVEN AND DESIGN INTENT.
5	THE CONTRACTOR SHALL REVIEW SUBMITTALS FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS PRIOR TO SUBMISSION TO THE ARCHITECT.
6	THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK PERTAINING TO A SUBMITTAL PRIOR TO RECEIPT OF THE SUBMITTAL REVIEWED BY THE ARCHITECT.
7	THE WORK SHALL BE IN ACCORDANCE WITH REVIEWED SUBMITTALS. HOWEVER, THE CONTRACTOR IS NOT RELIEVED OF RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE REVIEW OF SUBMITTALS BY THE ARCHITECT. THE CONTRACTOR IS NOT RELIEVED OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SUBMITTALS BY THE ARCHITECTS REVIEW.
8	THE CONTRACTOR SHALL DIRECT SPECIFIC ATTENTION TO ITEMS REQUIRING ARCHITECT SELECTIONS.

DOOR AND HARDWARE NOTES

DOOR SCHEDULE LEGEND (ABBREVIATIONS USED IN SCHEDULE)

PNT = PAINT	WD= WOOD	AN = ANODIZED
HM = HOLLOW METAL	F = FLUSH	ST= STEEL
V = VISION PANEL	OH = OVERHEAD	SV = FACTORY PRE-FINISHED

ANSI FUNCTIONS

F-36 PRIVACY LOCK
F-75 PASSAGE SET
F-81 ENTRANCE LOCK
F-82 OFFICE LOCK
F-84 CLASSROOM LOCK
F-86 STORAGE LOCK

DOOR SCHEDULE GENERAL NOTES

1. GLAZING IN DOORS SHALL BE TEMPERED U.N.O.
2. GLAZING IN EXTERIOR DOORS TO BE INSULATED
3. GLAZING SIZES SHALL COMPLY WITH THE SIZE LIMITATIONS OF NFPA 80
4. EXTERIOR METAL FRAMES AND DOORS TO BE INSULATED.
5. HOLLOW METAL FRAMES TO BE FACE-WELDED
6. CONTRACTOR TO COORDINATE ALL JAMB DEPTHS WITH WALL THICKNESS
7. EXTERIOR ROUGH OPENINGS TO BE SEALED WITH SEALANT AND BACKER-ROD
8. PROVIDE COMMERCIAL GRADE DOOR HARDWARE
9. DOOR HARDWARE TO COMPLY WITH GRASPABILITY AND MOUNTING REQUIREMENTS PER IBC SECTION 1008.
10. PROVIDE REMOVABLE CORES AND KEY TO OWNER'S SYSTEM. LOCKS TO BE SAME MANUFACTURER AS KEY SYSTEM.
11. PROVIDE SOLID F.R.T. WOOD BLOCKING AT WALL STOP LOCATIONS
12. PROVIDE WEATHERSTRIPPING, DOOR SWEEPS, THRESHOLD AND DRIP CAPS AT EXTERIOR DOORS

DOOR SCHEDULE REMARKS:

1. CASED OPENING
2. PUSH-PULL
3. OVERHEAD SECTIONAL DOOR WITH MANUAL CHAIN OPERATOR
4. PROVIDE CARD READER ELECTRIC STRIKE SYSTEM
5. PROVIDE DOOR BELL SYSTEM WITH PROGRAMMABLE ACCESS AUTHORITY FROM NEWMAN OFFICE 108
6. PROVIDE DOOR RELEASE BUTTON IN NEWMAN OFFICE 108
7. OVERHEAD SECTIONAL DOOR TO BE MOTORIZED
8. PROVIDE ELECTRIC STRIKE, POWER TRANSFER THRU DOOR, POWER SUPPLY, REQUEST TO EXIT FEATURE BUILT INTO LOCK, DOOR CONTACTS AND DOOR POSITION SWITCH ON EACH LEAF
9. PROVIDE DOOR HOLD OPEN
10. PROVIDE ROUGH-IN FOR FUTURE CARD READER ELECTRIC STRIKE SYSTEM
11. ALUMINUM STOREFRONT SUPPLIER TO PROVIDE ALL REQUIRED DOOR HARDWARE EXCEPT CYLINDERS. CYLINDERS ARE TO BE BY THE HARDWARE SUPPLIER.
12. PEMB MANUFACTURER PROVIDE INSULATED DOOR & FRAME, HINGES, CLOSERS, WEATHERSTRIPPING, STANDARD DRIP/JAMB FLASHING & THRESHOLDS. PEMB TO PREP/REINFORCE FOR SCHEDULED LOCKS, ACCESS CONTROL & EXIT DEVICES PROVIDED BY DOOR HARDWARE SUPPLIER. PERMANENT CORES AND KEYS PROVIDED BY OWNER.

DOOR HARDWARE SPECIFICATIONS

1. LOCKSETS/LATCHSETS: SCHLAGE ND SERIES, COMMERCIAL GRADE 1, HEAVY DUTY CYLINDRICAL LOCKSET, LEVER STYLE & FINISH: SCHLAGE RHODES, 626 SATIN CHROMIUM FINISH
2. ELECTRIC STRIKES: ASSA ABLOY HES 1600CLB OR SIMILAR AS REQUIRED FOR INSTALL LOCATION. TO BE INSTALLED FAIL SECURE AND BE TIED TO THE BUILDING GENERATOR BACKUP.
3. PERMANENT CORES & KEYS PROVIDED BY OWNER.
4. HINGES: HAGER ECBB1100 US26D, FULL MORTISE, FIVE KNUCKLE, BALL BEARING, STANDARD WEIGHT. PROVIDE ECBB1101NRP US32D AT EXTERIOR DOORS
5. CLOSERS: HAGER 5200 SERIES, ALUMINUM FINISH
6. DOOR SWEEPS, WEATHERSTRIP, THRESHOLD & DRIP CAPS: HAGER
7. FLOOR & WALL STOPS: IVES
8. EXTERIOR EXIT DEVICES ON H MTL DOORS: VON DUPRIN 99 SERIES WITH RIM CYLINDER. COORDINATE WITH OWNER SPECIFIED LOCKSET.

STANDARD HOLLOW METAL FRAMES

1	STANDARD SHOP-FABRICATED STEEL FRAMES, CONFORMING TO ANSI A250.8 A. STEEL EXTERIOR: 16GA GALVANIZED TO ASTM A653M B. STEEL INTERIOR: 16GA COLD-ROLLED STEEL C. FACTORY FINISH: PRIMER, ANSI A250.10 RUST-INHIBITIVE TYPE
2	FABRICATE FRAMES AS FACE-WELDED UNITS UNLESS NOTED OTHERWISE
3	FABRICATE WITH HARDWARE REINFORCEMENT PLATES WELDED IN PLACE
4	NOT USED
5	PROVIDE THREE SINGLE SILENCERS FOR SINGLE DOORS ON STRIKE SIDE AND TWO SINGLE SILENCERS ON FRAME HEAD AT DOUBLE DOORS.
6	PROVIDE WEATHERSTRIPPING WHERE INDICATED IN DOOR SCHEDULE; ALUMINUM WITH NEOPRENE OR SILICONE SEALS
7	COORDINATE JAMB DEPTH WITH WALL THICKNESS
8	COORDINATE FABRICATION AND INSTALLATION WITH HARDWARE REQUIREMENTS
9	INSTALL PLUMB AND LEVEL FOR EASY AND SMOOTH OPERATION

OVERHEAD DOOR SPECIFICATIONS

1. INSULATED STEEL SECTIONAL OVERHEAD DOOR
   - A. DOOR ASSEMBLY:
     - i. PANEL THICKNESS: 1-3/8 INCHES
     - ii. EXTERIOR STEEL: .015 INCH, TEXTURED, ASTM 653
     - iii. END STILES: 20 GAUGE
     - iv. SPRING COUNTERBALANCE SIZED TO WEIGHT OF DOOR
     - v. HIGH CYCLE SPRING - 100K DUTY CYCLE, ASTM 229
     - vi. MIN. R-VALUE OF 13
     - vii. PROVIDE STANDARD SIZE VIEW WINDOWS AS INDICATED
   - B. FINISH AND COLOR: PROVIDE STANDARD TWO COAT BAKED-ON POLYESTER
   - C. LOCK: PROVIDE SLIDE LOCK WITH INTERLOCK SWITCH FOR AUTOMATIC OPERATOR WHERE MOTORIZED DOORS ARE INDICATED.
   - D. WEATHERSTRIPPING: PROVIDE FULL PERIMETER SEAL OF THE OPENING INCLUDING SECTION JOINT SEAL, TRACK-MOUNTED SIDE SEAL, VINYL TOP SEAL AND FLEXIBLE VINYL ASTRAGAL ON BOTTOM EDGE
   - E. TRACK:
     - i. HIGH LIFT
     - ii. TRACK SIZE AS REQUIRED FOR APPLICATION
   - F. OPERATOR:
     - i. ELECTRIC MOTOR OPERATION, AS INDICATED, WITH REQUIRED ENTRAPMENT PROTECTION PER UL 325/2010. OPERATOR CONTROLS TO BE PUSH-BUTTON TYPE, INTERIOR SURFACE MOUNT
     - ii. PROVIDE MANUAL CHAIN HOIST OTHERWISE

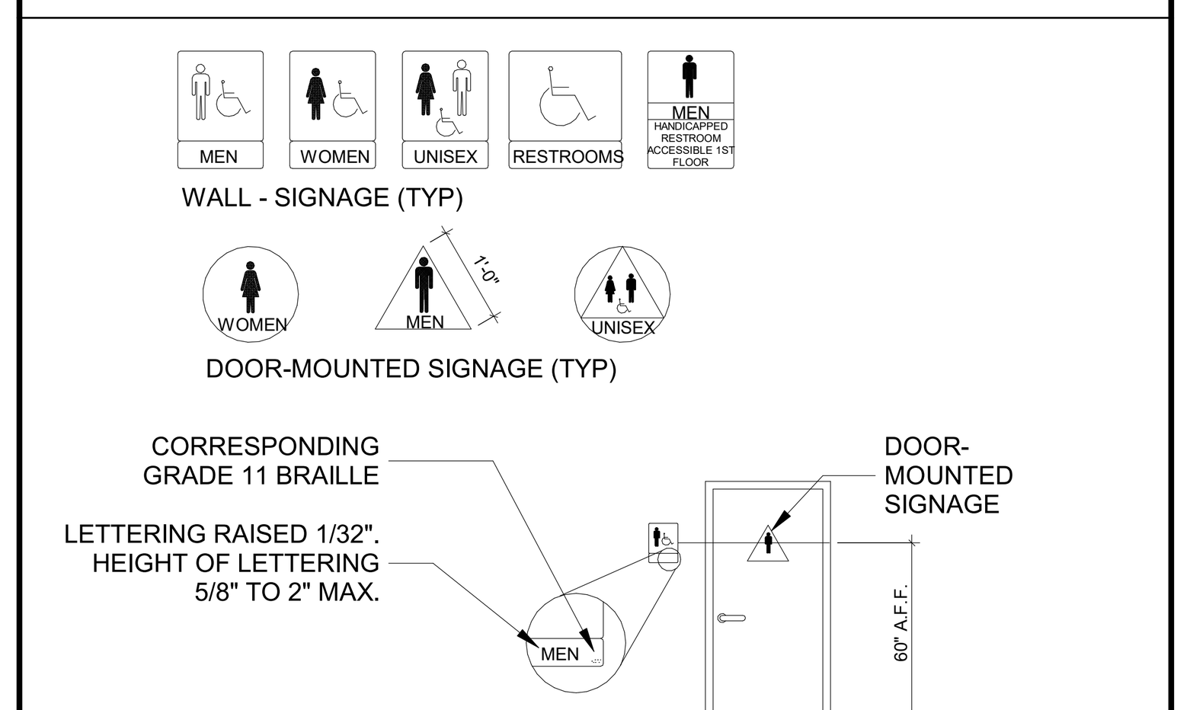
GLAZING

1. TEMPERED GLASS: ASTM C1048, TYPE 1 TRANSPARENT FLAT, QUALITY Q3, FULLY TEMPERED, FLOAT GLASS
2. ALL EXTERIOR LOCATIONS TO BE INSULATED; 1" TOTAL UNIT THICKNESS
   - A. U-FACTOR: 0.38 MINIMUM (ENTRANCE DOORS: 0.77 MINIMUM)
   - B. SHGC: 0.40 MINIMUM
3. SEALANTS: ELASTOMERIC MATERIAL COMPATIBLE WITH ADJACENT MATERIALS, ASTM C920
4. GASKETS: RESILIENT EXTRUDED SHAPE, ASTM C509
5. INSTALL ACCORDING TO GANA GLAZING MANUAL

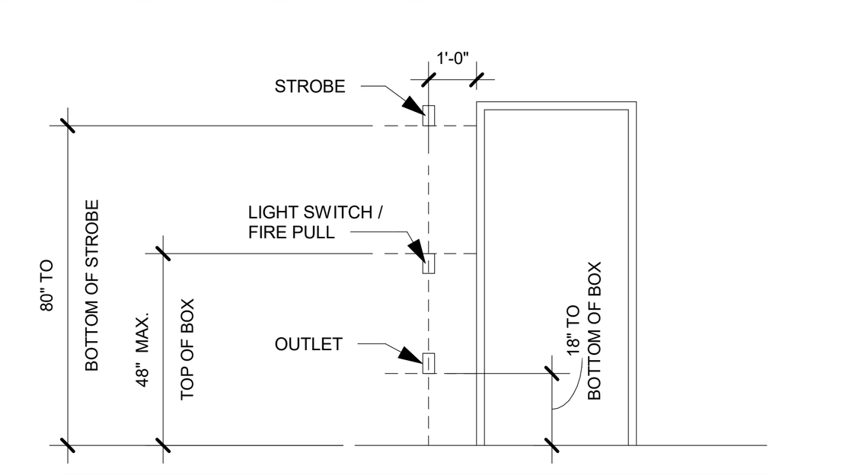
ALUMINUM STOREFRONT

1. DESIGN AND SIZE COMPONENTS TO WITHSTAND LOADING CAUSED BY POSITIVE AND NEGATIVE WIND PRESSURE ACTING NORMAL TO THE PLANE OF WALL, INCLUDING BUILDING CORNERS. SEE S-001 FOR DESIGN WIND LOAD
2. DESIGN AND SIZE GLASS LOCATED LESS THAN 60 FEET ABOVE GRADE TO WITHSTAND (LARGE/SMALL) MISSILE IMPACT TEST.
3. ALUMINUM FRAME: EXTRUDED ASTM B221, THERMALLY BROKEN, CLEAR ANODIZED FINISH
4. MULLIONS: PROFILE AS INDICATED IN THE DRAWINGS, FINISH TO MATCH STOREFRONT DOORS
5. DOORS: ALUMINUM FRAMED GLASS DOORS, STANDARD THICKNESS, STILE AND RAIL WIDTH AS INDICATED IN DOOR TYPES.
6. PROVIDE STANDARD RIM TYPE EXIT DEVICE
7. GLAZING AS SPECIFIED
8. BRACKETS AND REINFORCEMENTS FROM HIGH-STRENGTH ALUMINUM, OR STEEL WHERE REQUIRED
9. FASTENERS AND ACCESSORIES COMPATIBLE WITH ADJACENT MATERIALS, STAINLESS STEEL WHERE EXPOSED.
10. FURNISH MANUFACTURER'S STANDARD HARDWARE INCLUDING WEATHERSTRIPPING, SILL SWEEPS AND FLASHINGS, THRESHOLDS, AND HINGES
11. SEAL THE PERIMETER PER MANUFACTURER'S REQUIREMENTS.
12. INSTALL WALL SYSTEM IN ACCORDANCE WITH AAMA SPECIFICATIONS MANUAL AND IN PROPER RELATION TO WALL FLASHING AND ADJACENT CONSTRUCTION.
13. PROVIDE ALL REQUIRED DOOR HARDWARE EXCEPT CYLINDERS

ADA SIGNAGE MOUNTING:



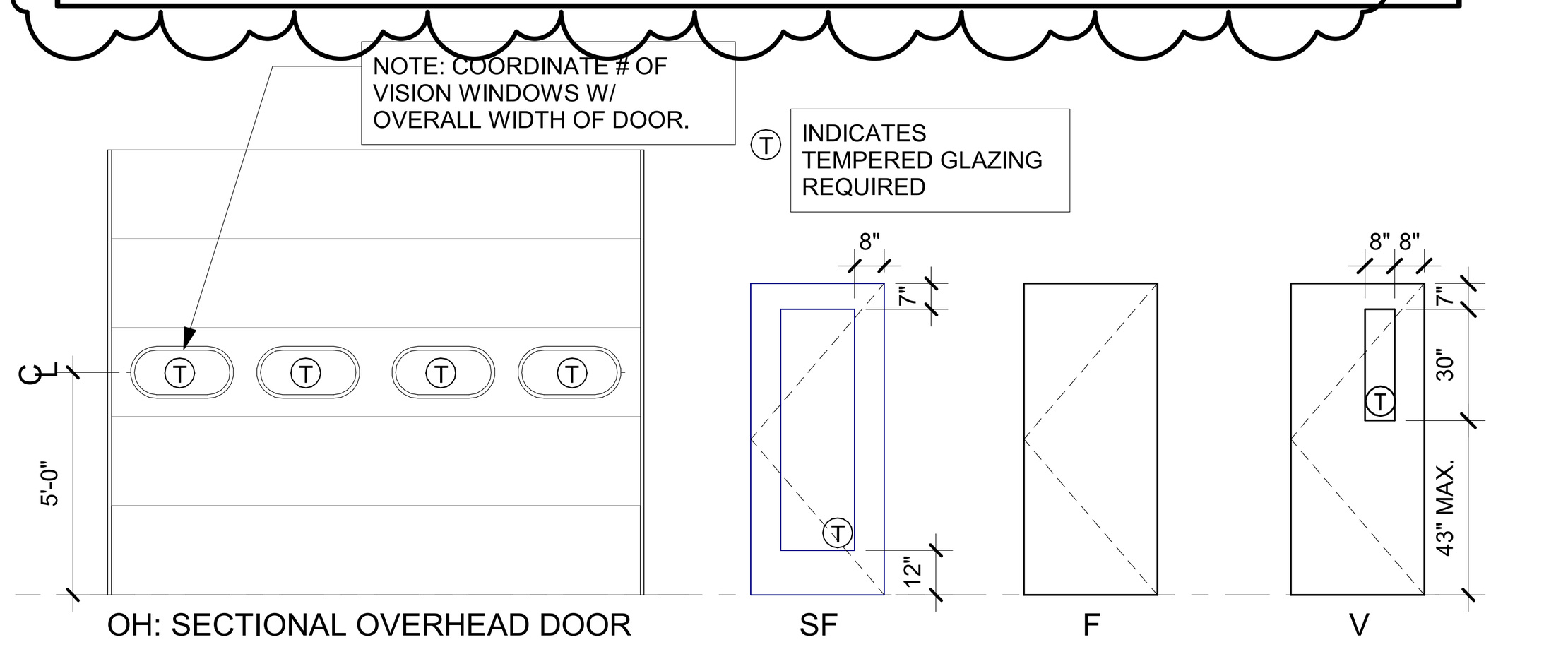
NOTE:
PICTOGRAMS AND/OR LETTERING ARE NOT REQ'D ON DOOR-MOUNTED SIGNAGE. WALL-MOUNTED SIGNAGE TO BE LOCATED ON LATCH SIDE OF DOOR CLEAR OF DOOR-SWING. MOUNT AT 60" TO CENTERLINE OF SIGN FROM FLOOR.



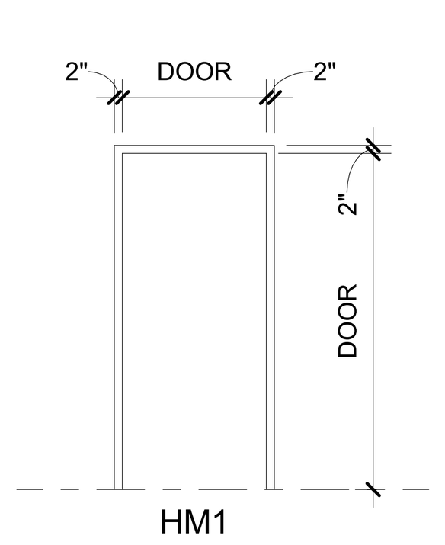
TYPICAL MOUNTING HEIGHTS

ADA SIGNAGE MOUNTING NOTES:

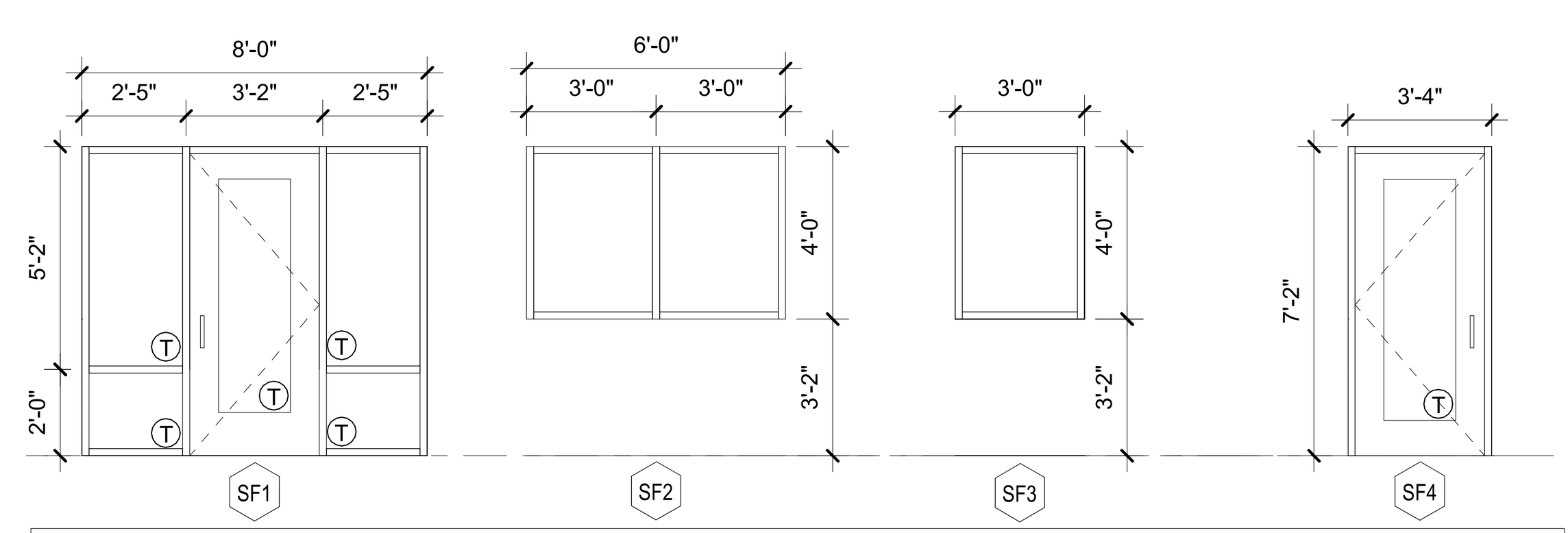
1	SHOP DRAWINGS REQUIRED FOR ACCESSIBLE SIGNAGE PLACEMENT
2	ALL SIGNAGE SHALL CONFORM TO: VIRGINIA UNIFORM STATEWIDE BUILDING CODE (VUSBC) 2018: VIRGINIA CONSTRUCTION CODE (VCC) 2018: *SECTION 1111 SIGNAGE* VIRGINIA EXISTING BUILDING CODE (VEBC) 2018: 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (ASAD) DATED SEPTEMBER 15, 2010: *SECTION 703 SIGNS*



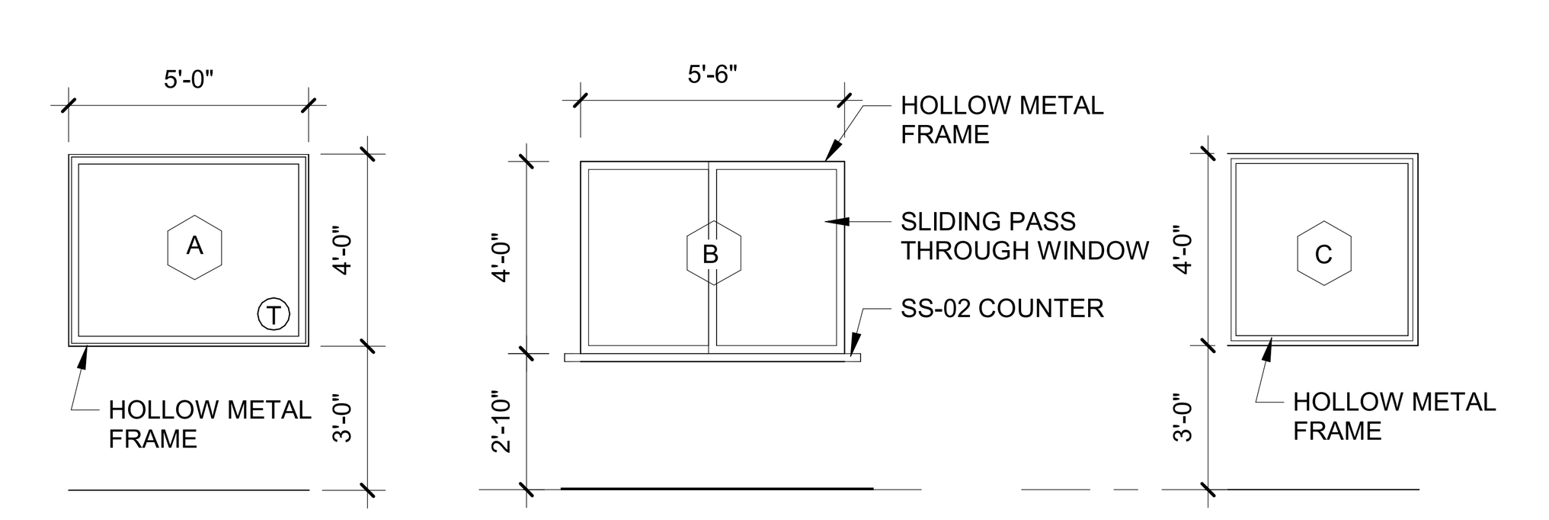
DOOR ELEVATION TYPE



DOOR FRAME TYPE



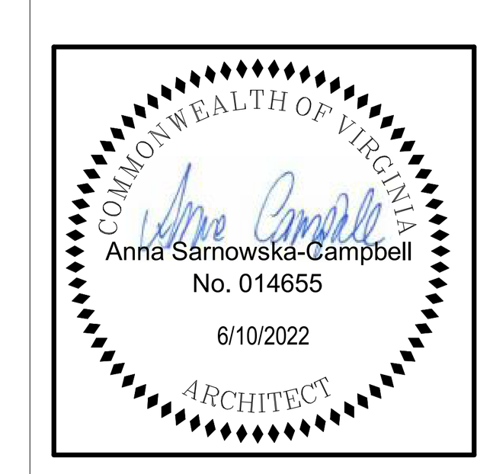
STOREFRONT TYPES



INTERIOR WINDOW TYPES

BLUELINE
126 West Bruce Street, Suite 102, Harrisonburg, VA 22801

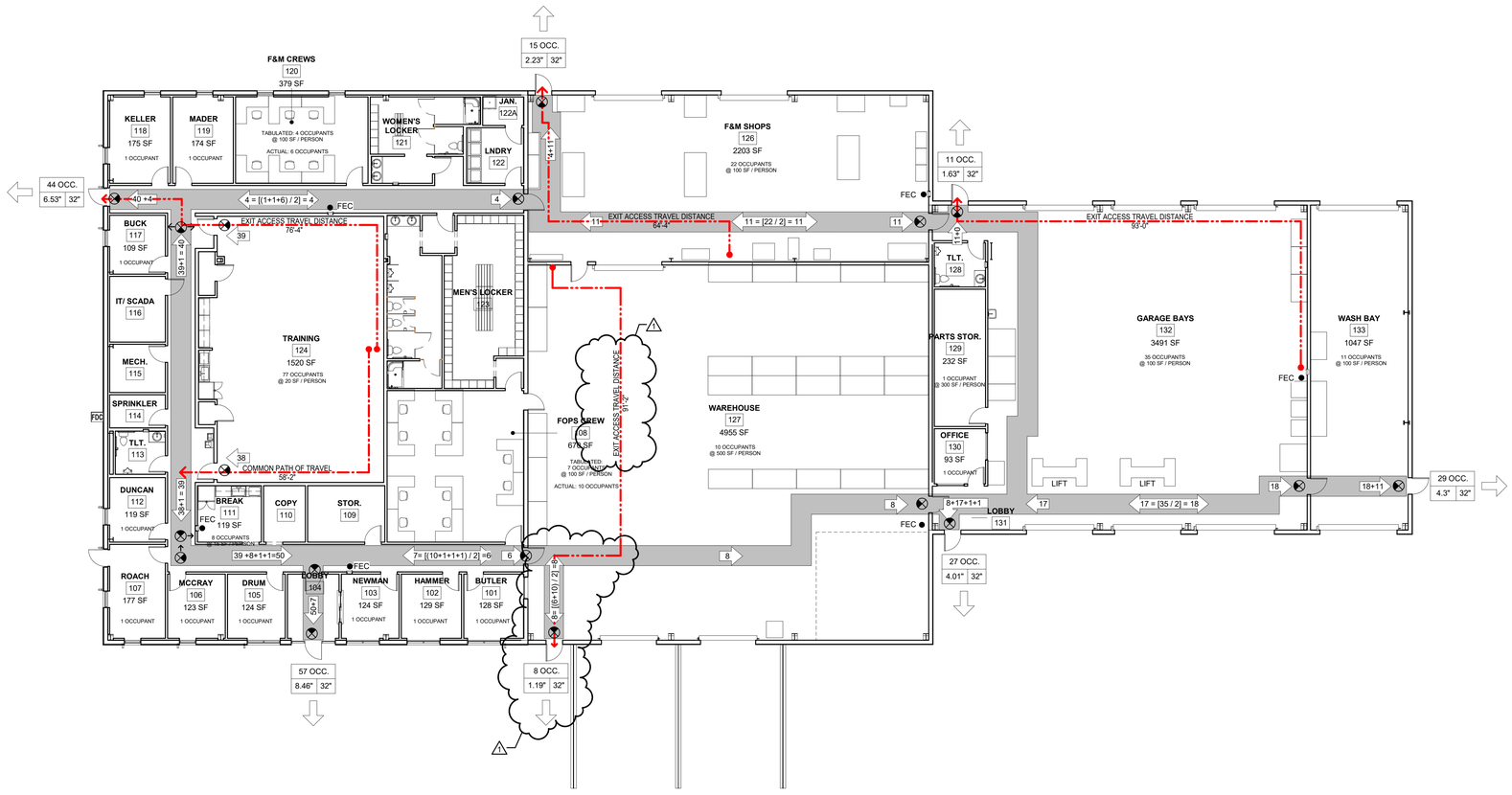
AUGUSTA COUNTY SERVICE AUTHORITY
846 LAUREL HILL RD. VERONA, VA



PROJ NO: 01-20-075

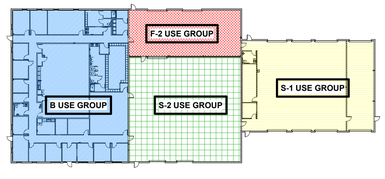
Mark	Date	Description
	6/10/2022	REVISED BID DOCUMENTS
	1/6/2022	BID DOCUMENTS
1	Date 1	ADDENDUM 1

A-010
GENERAL NOTES / SCHEDULES
10/26/2022 3:09:00 PM



1 LEVEL 1 LIFE SAFETY PLAN
3/32" = 1'-0"

USE GROUP KEY PLAN:



FIRE PROTECTION SPECIALTIES:

A. FIRE EXTINGUISHER (UNLESS NOTED OTHERWISE):
   a. LARSEN MANUFACTURING COMPANY MODEL MP5

B. FIRE EXTINGUISHER CABINET:
   a. LARSEN MANUFACTURING COMPANY MODEL 2409-R3 SEMI-RECESSED WITH 2 1/2" ROLLED EDGE TRIM FULL CLEAR ACRYLIC DOOR WITH VERTICAL RED LETTERING

C. INSTALLATION:
   a. PLACE EXTINGUISHERS AND ACCESSORIES IN CABINETS WHERE INDICATED IN THE DRAWINGS

LIFE SAFETY PLAN GENERAL NOTES

1. FIRE EXTINGUISHERS AND CABINETS ARE INDICATED ON THIS SHEET THUS: ● FEC

   DISTANCE TO NEAREST FIRE EXTINGUISHER: 50' FIRE EXTINGUISHERS TO BE RATED WITH CAPACITY OF 2A:10B:C U.N.O. (MINIMUM) OR GREATER. PORTABLE FIRE EXTINGUISHER SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW. WHERE VISUAL OBSTRUCTION CANNOT BE COMPLETELY AVOIDED, PROVIDE MEANS TO INDICATE LOCATIONS OF EXTINGUISHERS

2. EXIT SIGNS ARE INDICATED ON THIS SHEET THUS:

3. 44" WIDE EGRESS PATH IS INDICATED THUS:

4. CONTRACTOR TO FURNISH AND INSTALL KNOX BOX. LOCATION TO BE DETERMINED BY FIRE MARSHALL PRIOR TO INSTALLATION.

5. PROVIDE FIRE DEPARTMENT SIAMESE CONNECTIONS ON WALL OR POST AS REQUIRED BY SPRINKLER SYSTEM DESIGN.

   FDC LOCATION FOR SPRINKLER ROOM ONLY INDICATED ON THIS SHEET THUS: FDC

   NOTE: ADDITIONAL FDC LOCATIONS NOT INDICATED ON THIS SHEET MAY BE REQUIRED. ALL LOCATIONS TO BE REVIEWED AND APPROVED BY THE FIRE MARSHALL PRIOR TO INSTALLATION. FDC LOCATIONS TO BE CLEARLY MARKED AND VISIBLE.

6. PROVIDE A DEDICATED HYDRANT LOCATED WITHIN 50 FEET OF EACH FDC. HYDRANT LOCATION TO BE APPROVED BY FIRE MARSHALL PRIOR TO INSTALLATION.

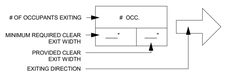
7. COORDINATE EGRESS LIGHTING WITH ELECTRICAL DRAWINGS

8. SEE COVER SHEET FOR CODE COMPLIANCE TABLE

9. COMMON PATH OF EGRESS TRAVEL (<100) INDICATED THUS:

10. EXIT ACCESS TRAVEL DISTANCE (<250) INDICATED THUS:

11. EGRESS DOOR TAG KEY:



Mark	Date	Description
	6/10/2022	REVISED BID DOCUMENTS
	1/6/2022	BID DOCUMENTS
1	Date 1	ADDENDUM 1

BLUELINE
126 West Bruce Street, Suite 102, Harrisonburg, VA 22801

AUGUSTA COUNTY SERVICE AUTHORITY

846 LAUREL HILL RD. VERONA, VA

COMMONWEALTH OF VIRGINIA
Anna Sarnowska-Campbell
No. 014655
6/10/2022
ARCHITECT

PROJ NO: 01-20-075

A-021
LEVEL 1 LIFE SAFETY PLAN
10/26/2022 3:09:04 PM

Design Load and Parameter Table

Design Loads			
	Building Risk Category	II	
Live Loads			
		50 psf	Second Floor Office Space
		125 psf	Shop Mezzanine (Light Storage)
		20 psf	Area above Ceiling
Snow			
	Pg	43	Ground Snow Load
	Pf	30	Flat Roof Snow Load
	Ce	B	Snow Exposure Factor
	Is	1.0	Snow Load Importance Factor
Wind			
	Basic Wind Speed	115mph	
	10-Year MRI	76mph	
	25-Year MRI	84mph	
	50-Year MRI	90mph	
	100-Year MRI	96mph	
	Iw	1.0	Wind Importance Factor
	Exposure	B	Urban Centers
	Cg	+/- 0.18	Internal Pressure Coefficient
Seismic Design Data			
	Is	1.0	Seismic Importance Factor
	Ss	0.162	Short Second Period Mapped Spectral Response Acceleration
	S1	0.065	1-Second Period Mapped Spectral Responce Acceleration
	Site Class	D	Assumed
	Sd-s	0.173	Short Period Response Acceleration
	Sd-1	0.103	1-Second Period Responce Acceleration
	Seismic Design Category	B	

General Notes

1. All structural work shall be coordinated with architectural and mechanical drawings and shall conform to the project specifications, including the 2018 IBC and 2018 IEBC, as modified by the Virginia Uniform Statewide Building Code (VUSBC 2018).
2. The foundation design shown in these drawings is preliminary and for pricing purposes only. The design should be reassessed based on the actual column layout and building reactions by the Pre Engineered Metal Building supplier
3. During the erection of the building, the contractor shall be responsible for the temporary bracing to withstand all loads to which the structure may be subjected, including lateral loads, stockpiles of material and equipment. Such bracing shall be left in place as long as required for safety and until all framing including roof deck is in place.
4. The contract drawings and specifications are complimentary. These notes highlight rather than replace the specifications contained in the project manual. Where discrepancies exist the more stringent as determined by the Structural Engineer of Record (SER) shall govern.
5. The term "provide", where used in these drawings, is to be interpeted as a combination of both "furnish" and "install".
6. Use structural and architectural drawings in close coordination. Direct any dimensional discrepancy or omission to the architect for resolution prior to commencement of construction.
7. Coordinate configuration and location of equipment supports and openings with approved mechanical or other approved shop drawings.
8. Where structural members pass through or above non-load-bearing partitions, provide clearances to permit the structure to deflect without loading the partitions. Where specific clearances are not indicated, provide not less than 1" around the members. Pack the clearance spaces with safing, mineral wool, fiberglass, or specific UL rated or listed assemblies indicated.
9. Where standards are referenced herein, it shall be assumed the edition is the current referenced standard by the governing jurisdiction.

Foundations

1. Design based on soil bearing capacity of 2000 psf.
2. Establish exterior footing elevations such that the bottoms of footings are not less than 30" below final finished grades. Geotechnical engineer may require additional depth if unsuitable soils are encountered.
3. Establish tops of footings on masonry coursing.
4. Provide construction site drainage to prevent surface runoff from entering footing excavations.
5. Consolidate granular fill below slabs on grade with vibrating compactors according to the directions of the geotechnical engineer, but not less than 95% of maximum density in accordance with ASTM D698 or D1557.
6. The contractor shall protect the footing and slabs from damage from frost heave during construction until the final design structure is complete.
7. Steps in wall footings shall have a minimum spacing of double the change in elevation.
8. Backfill against walls spanning vertically between floors shall not be placed until both floors are in place and concrete has reached 75% of its 28-day strength.
9. At non-retaining walls below grade, backfill against both sides of wall simultaneously so that grade difference is no more than 1'-0" at any time.

03300 Cast in Place Concrete

03300.1 General
1.1 All concrete work shall conform to the ACI following governing standards.
a. American Concrete Institute (ACI) "Code Requirements for Structural Concrete" (ACI 318), latest edition per governing building code.
b. ACI "Manual of Concrete Practice", latest edition per governing building code.
c. Concrete Steel Reinforcing Institute (CRSI) "Manual of Standards Practice", latest edition per governing building code.
1.2
a. Concrete Mix Designs - Concrete mix designs shall be prepared in accordance with the most recent edition of ACI 318 and with the information indicated in the mix design table. Submittal shall include which concrete mixes are to be used for mix ID designated below.

Member	f'c(psi)	Density	Durability Exposure Classes			
			F	S	P	C
Footings	3000	Normal	F2	S0	P0	C1
Foundation Piers	4000	Normal	F2	S0	P1	C1
Slabs-on-grade (interior)	4000	Normal	F1	S0	P0	C1
Exterior Slabs	4000	Normal	F2	S0	P1	C1

03300.2 Products
2.1 Refer to specifications for allowable concrete materials including cement, aggregate, water and admixtures.
2.2 Reinforcing steel shall be deformed bars conforming to ASTM A615, Grade 60 or A775 epoxy coated when called out on plan. Reinforcing steel shall be detailed according to the ACI "Details and Detailing of Reinforcement", (ACI 315), latest edition per governing building code.
2.3 Welded wire fabric (WWF) shall conform to ASTM A1064, with a minimum yield strength of 65,000 PSI.
2.4 All grout shall be non-shrink with a minimum compressive strength of 5,000 PSI.
2.5 All concrete exposed to weather with the potential to freeze and thaw should have air entrainment of 4% to 6%
03300.3 Execution
3.1 Provide clearance from face of concrete to reinforcement as follows unless noted otherwise:
a. Slabs: 3/4"
b. Beams and columns: 1-1/2"
c. Footings: 3"
d. Exterior walls: 2" for #6 or larger, 1-1/2" for #5 or smaller
e. Interior walls: 3/4"
3.2 Clean and roughen to 1/4" amplitude all existing concrete surfaces to receive new concrete prior to placement.
3.3 Welded wire fabric reinforcement in composite construction shall have tension splices and be anchored at discontinuous edges.
3.4 Reinforcing dowels, waterstops and other embed items shall be installed and secured prior to concrete. No wet setting of anchors is permitted.
3.5 Coordinate size and location of all openings and pipe sleeves with all other disciplines drawings. Minimum concrete between sleeves shall be 6".
3.6 Aluminum shall not be placed, touching or embedded in concrete.

05400 Cold Formed Metal Framing

05400.1 General
1.1 All cold formed metal framing work shall comply with the AISI "Specification for the Design of Cold Formed Steel Structural Members", latest edition as well as ANSI A42-4 and the metal lath association "Specifications for Metal Lathing and Furring".
1.2 Contractor is responsible for providing all temporary bracing and shoring as required until erection is completed and all attached adjecent framing is complete.
05400.2 Products
2.1 All load bearing studs, joists and accessories shall be made of the minimum type, size, gauge and spacing shown on drawings.
2.2 All galvanized studs and/ or joists, 10, 12, 14 and 16 gage, shall be formed from steel that corresponds to the requirements of ASTM A446, Grade D, with a minimum yield of 50,00 psi.
2.3 All galvanized 18 and 20 gage studs and/ or joists, and all galvanized track, bridging and accessories shall be formed from steel that corresponds to the requirements of ASTM A446, grade A, with a minimum yield 33,000 psi.
2.4 All studs, joists/ rafters and accessories 16 gauge or heavier shall be formed from steel that conforms to ASTM A653 with minimum yield strength of 50 ksi.
2.5 All studs, joists/ rafters and accessories 18 gauge or lighter shall be formed from steel that conforms to ASTM A653 with minimum yield strength of 33 ksi.
2.6 All studs, joists and accessories shall be primed with rust - inhibitive paint meeting the performance requirerments of TT-P-636C, or shall be formed steel having a C-60 galvanized coating.
2.7 All studs, joist/ rafters and accessories to be of the type, size, thickness and spacing as shown on the plans, and shall conform to ASTM C995.
05400.3 Execution
3.1 All plywood applied to metal joists shall be screwed and glued to the joists. The adhesive shall be an APA-approved elastomeric adhesive.
3.2 Install metal framing in accordance with manufacturer's written instructions and recommendations, unless otherwise indicated. All materials shall be galvanized.
3.3 Framing components may be pre-assembled into panels prior to erecting. Prefabricated panels shall be square with components attached in a manner as to prevent cracking.
3.4 Axially loaded studs shall be installed in a manner which will assure the ends of the studs are positioned against the inside track web, prior to stud and track attachment.
3.5 Studs shall be plumbed, aligned and securely attached to the flanges or webs of both upper and lower tracks.
3.6 Wall stud bridging shall be attached in a manner to prevent stud rotation. Bridging rows shall be spaced according to the following schedule.
a. Walls up to 10'-0" height: one row at mid-height.
b. Walls exceeding 10'-0" height: bridging rows spaced not to exceed 5'-0" on center.
3.7 Joists shall be located directly over bearing studs or load distribution member to be provided at the top track.
3.8 Materials to be stored flat and in such a way as to avoid damage. Damaged material shall be removed from the jobsite.
3.9 Fastening:
a. Anchorage of track shall be with methods designed for that specific application. Size, type, spacing and penetration of fasteners shall be as shown on plans.
b. Welds shall conform to the requirements of AWS E1.3, AWS D1.3 and AISI manual. Welds may be butt, fillet, spot or groove type, the appropriateness of which shall be determined by design calculations. All welds are to be touched up with zinc rich paint.
c. Steel drill screws shall be of the minimum diameter indicated by the design of that particular attachment detail. Penetration through joined materials shall be a minimum of 3 exposed threads.
3.10 Provide bracing on all cold formed metal framing at a maximum spacing of 48" or per manufacturer's requirements. Bracing to be installed prior to placing any load on the studs.

04220 Masonry Work

04110.1 General
1.1 Governing Standards:
a. American Society for Testing and Materials
1. ASTM C141/ C141M - Standard Specification for Hydrated Hydraulic Lime for Structural Purposes.
2. ASTM C144 - Standard Specification - Aggregate for Masonry Mortar.
3. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
4. ASTM C476 - Standard Specification for Grout for Masonry.
5. ASTM C1019 - Standard Specification for Method of Sampling and Testing Grout.
b. National Concrete Masonry Association Specifications, latest edition.
c. ACI 530 - Building Code Requirements for Masonry Structures, latest edition.
1.2 Submittals - Submit data on design mix, indicate proportion or property method used, and required enviromental conditions.
04110.2 Products
2.1 Concrete Block
a. ASTM C90, Grade N1
b. Block unit strength shall be 2000 psi minimum, unless otherwise noted on plan.
c. All concrete block dimensions indicated on structural plans are nominal dimensions.
2.2 Clay Masonry
a. Units shall be in accordance with ASTM C216 for facing brick, see arch for weathering and appearance requirements.
1. In absence of Architectural specification, units shall be SW type FBS. Color to be selectd by owner.
b. Clay Masonry Unit strength shall be 1500psi, unless noted otherwise on plan.
c. All clay masonry dimensions indicated on structural plans are nominal dimensions. See arch for dimensions not shown.
2.3 Mortar
a. Mortar shall be ASTM C270, Type N
1. Repair mortar shall in addition be rapid set, example is Simpson FX-263 repair mortar.
2.4 Grout
Grout filling for cells shall be ASTM C476 with minimum compressive strength of 2500 psi but not less than the compressive strength of the masonry assembly, f'm. Where grout cells do not exceed 4" in diameter, fine grout shall be used.
2.5 Sealant
a. Elastomeric sealants used for expansions should conform to ASTM C920 Class 50, Grade NS, Use M.
1. Example is SIKA SIKASIL WS-295.
2.6 Ties
a. Wall (unit) ties
1. "Box ties" and "Z" ties shall be fabricated from cold-drawn steel wire conforming to ASTM A82 and wire shall be W1.7 or 9 gauge, unless otherwise noted.
i. When specified as stainless steel, ties shall conform to ASTM A580.
2. Corrugated sheet steel ties conform to ASTM A1008 and sheet shall be 16 gauge, unless otherwise noted.
i. When specified as stainless steel, ties shall conform to ASTM A240.
b. Helical ties
1. Where helical ties are specified, ties shall be type 304 stainless steel.
i. Example is Simpson Heli-Tie.
2.7 Loose Steel Lintels
a. Steel shall be constructed in accordance with steel notes
b. Lintels shall be in accordance with table below:
04110.3 Execution
3.1 Typical masonry construction
a. Unless otherwise noted on plans and/ or elevations, all masonry walls shall be reinforced with #4 @48" on center vertically. Grout all reinforced cells solid. Provide dowels to match vertical reinforcing at foundation.
b. Install standard weight ladder joint reinforcement at 16" on center (spaced vertically).
c. All concrete block below grade shall be filled solid with grout.
d. Concrete block below beam or truss bearing points shall be filled solid for a minimum of two courses in depth and a minimum of 32" in width, unless otherwise noted.
e. Provide a #4 bond beam at the top of all masonry walls.
f. Where brick veneer is tied to CMU walls, provide rectangular brick ties spaced at 16" on center vertically and 32" on center horizontally. Reinforce ties with ladder type reinforcement assembly. Provide 1" cavity between brick and CMU.

05120 Structural Steel

05120.1 General
1.1 Governing Standards:
a. AISC 360 "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings", latest edition.
b. AISC 303 "Code of Standard Practice for Steel Buildings and Bridges", latest edition.
c. The American Welding Society (AWS D1.1) "Code for Welding in Building Construction", latest edition.
1.2 Shop and erection drawings shall be submitted to the structural engineer for review and approval. No fabrication of steel shall commence without approved shop drawings. This includes but is not limited to steel framed stairs and railing.
a. Shop drawings shall indicate verification of field conditions. Engineer of record is not responsible for discrepancies between drawings and field conditions.
05120.2 Products
2.1 Connections of beams/ girders are to be designed as follows:
a. Standard beam to beam/ girder: A325 or A490 bearing type bolts
b. Bolts shall be 3/4" diameter minimum with hardened washers
c. Steel connection shall be standard AISC framed beam connection and shall be designed by a licensed engineer working for the fabricator, who shall provide calculations utilizing ASD or LRFD loads procedures.
d. For non-composite members, provide connections based on reaction as determined from AISC uniform load table (unless otherwise noted on plans).
e. For composite members, provide connections based on 1.5 x reaction from AISC uniform load table (unless otherwise noted on plans).
f. Reinforcing is to be provided at connections where cuts reduce the shear or moment capacity below that required to sustain the reaction, or if the cut reduces the nominal moment capacity of the member by more than 49%
g. Connections shall be designed for shear and eccentricity, considering that the connection is an extension of the beam and girders.
2.2 Structural steel shall conform to the following ASTM specifications:
a. Structural steel shapes shall conform to preferred material specification outlined in AISC 360.
b. Anchor bolts: ASTM F1554, Grade 36
2.3 Stainless Steel - Structural steel noted to be stainless steel shall be ASTM A276 stainless steel Grade 304
a. Bolts shall conform to ASTM F593 Alloy 304
b. Nuts shall conform to ASTM F94 Alloy 304
c. Welding electrodes for ASTM A276-97 stainless steel, Grade 304, shall conform to AWS A5.4 for shielded metal arc welding, electrode class E304; or AWS A5.9 for gas metal arc welding, electrode Class ER304, Ft=70 KSI.
2.4 Finishing
a. Steel members exposed to the exterior shall be hot dip galvanized. Hot dip galvanizing shall conform to ASTM A123, repair scratches or abraded galvanized surface with zinc rich paint.
b. Interior steel members shall be coated with a zinc rich rust preventative primer.
c. Steel members that are spray fireproofed or coated with intumescent paint shall be coated with a compatibile primer respectively.
05120.3 Execution
3.1 Minimum weld size is 3/16" fillet unless noted otherwise.
3.2 All beams except cantilever beams shall be fabricated and installed with natural camber up. Cantilever beams shall be fabricated an installed so that natural camber raises cantilever end.
3.3 Welding shall be performed by certified licensed, AWS-qualified welders. Electrodes shall be AWS 5.1, class E70XX (use low hydrogen electrodes for A572, Grade 50 steel).
3.4 Field cutting or burning of steel is prohibited except with the express written approval of the Structural Engineer of Record.
3.5 Splice members only where indicated.
3.6 Wet setting of anchor bolts is not permitted.
3.7 Touch up welds and scratches on galvanized members with cold galvanizing compound such as ZRC.

	MATERIAL	INSPECTION ACTIVITY	FREQUENCY: CONTINUOUS PERIODIC NOT APPLICABLE	IBC REFERENCE	INSPECTION/ TEST BY		
					SPECIAL INSPECTIONS ENGINEER OF RECORD (SIER)	A/E OF RECORD	CONTRACTOR/ SUPPLIER
FOUNDATIONS							
	Soil	Classify & Test Existing Soils & Fill Materials		Specs,1705.6	X		
	Soil	Compaction Of Fill Materials		Specs,1705.6	X		
	Soil	Bearing At Bottom Of Fotting Excavations		Specs,1705.6	X		
	Piles	Driving Records, Tip & Cutoff Elevations		1705.7, 1705.9			
	Piles	Load Test		1705.7			
	Caissons	Drilling, Size, Bearing Conditions, Materials		1705.8, 1705.3			
CONCRETE CONSTRUCTION							
	Concrete	Ready-Mix Plant Quality Control		Specs,1704.2.5			X
	Concrete	Mix Design Tests And Certificates		Specs,1705.3			X
	Reinf. Steel	Shop Drawings Of Reinforcing Steel		Specs			
	Reinf. Steel	Placement Of Reinforcing Steel		1705.3	X		
	Reinf. Steel	Welding		1705.2.2	X		
	Formwork	Shape, Location, Dimensions		1705.3	X		X
	Formwork	Removal And Reshoring		1705.3	X		
	Concrete	Test Cylinders & Strength Test		1705.3, 1910.10	X		
	Concrete	Mix Proportions & Mix On Delivery Tickets		1705.3			
	Concrete	Slump Test		1705.3	X		
	Concrete	Placement Procedures		1705.3	X		
	Concrete	Curing Temperatures & Techniques		1705.3	X		
	Post Tensioning	Field Stressing Techniques And Logs		Specs			
	Post Tensioning	Shop Drawings		Specs			
	Precast	Quality Control Of Manufacturer		1704.2.5			
	Precast	Shop Drawings Of Precast		Specs			
	Precast	Erection Of Precast		1705.3			
	Precast	Inspection Of Connection		1705.3			
	Anchors Cast In Concrete	Anchors Cast In Concrete		Specs,1705.2.1, 1909			
MASONRY CONSTRUCTIONS							
	Qality Assurance	Indicate Quality Assurance Level C		ACI 530, 1.19.1, 2, 3			
	Clay Masonry	Certificates, Test & Technical Data		ACI 530, Table 1.19.1			
	Concrete Masonry	Certificates, Test & Technical Data		ACI 530, Table 1.19.1	X		X
	Reinf. Steel	Shop Drawings		Specs	X		X
	Reinf. Steel	Size, Grade, Type, Location, Spacing Of Reinf. Steel		ACI 530, Table 1.19.1	X		X
	Anchors	Manufacturer's Data		ACI 530, Table 1.19.1	X		
	Accessories	Manufacturer's Data		Specs	X		
	Mortar & Grout	Mix Design And Data		Specs	X		
	Mortar & Grout	Field Samples		ACI 530, Table 1.19.1	X		
	Risk Cat. IV	A/E Shall edit list as required by ACI 530		Tables 1.19.2, 1.19.3			
STEEL CONSTRUCTION							
	Fabricator	Quality Control Inspection Of Shop		1704.2.5	X		
	Fasteners	Mfr's Certificate Of Compliance		ASCI 360-10	X		
	Struct. Steel	Mfr's Certificate Of Compliance		ASCI 360-10	X		
	Weld Material	Manufacturer's Certificate Of Compliance		ASCI 360-10	X		
	Metal Decking	Welding To Support		1705.2.2	X		
	Metal Decking	Manufacturer's Certificate Of Compliance		1705.2.2	X		
	Details	Shop Drawings Review		Specs	X		
	Erection	Installation Of High-Strength Bolts		ASCI 360-10	X		
	Erection	Welding		ASCI 360-10	X		
	Erection	Steel Framing And Connection		ASCI 360-10	X		
WOOD AND LIGHT GAGE STEEL CONSTRUCTION							
	Fabrication	Quality Control Inspection Of Shop		1704.2.5	X		X
	Wood	Grade Stamp		Specs,1703.5			
	Wood/ Light Gage	Fastening Per Code And Drawings		1705.2.2, 1705.5.1	X		
	Trusses	Shop Drawings		Specs			
	Trusses	Truss Placement, Bracing And Fastening & Anchorage		Specs,1705.2.4, 1705.5.2			
	Laminates	Shop Drawings		Specs			X
	Laminates	Identification Per Shop Drawings		Specs			X
	Light Gage	Shop Drawings		Specs	X	X	X
	Light Gage	Placement, Bracing And Fastening & Anchorage		Specs,1705.5.2	X		
	Light Gage	Identification Per Shop Drawings		Specs	X		
	Sheathing	Grade Stamp, Thickness & Fastening		Specs,1705.1			

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S-001
GENERAL NOTES
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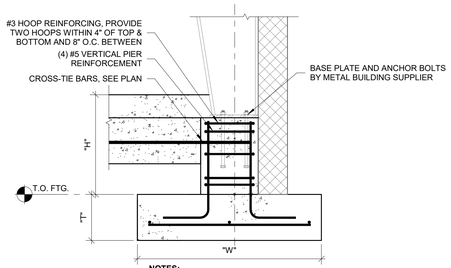
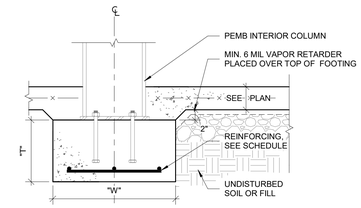
FOOTING SCHEDULE

MARK	WIDTH (W)	THICKNESS (T)	FOOTING REINFORCEMENT	PIER SIZE	PIER HEIGHT (H)
F36	3'-0" x 3'-0"	12"	#5 @ 12" O.C. EACH WAY	15"x15"	2' - 2"
F60	5'-0" x 5'-0"	12"	#5 @ 12" O.C. EACH WAY	15"x15"	2' - 2"
F66	5'-6" x 5'-6"	12"	#5 @ 12" O.C. EACH WAY	15"x15"	2' - 2"
F72	6'-0" x 6'-0"	12"	#5 @ 12" O.C. EACH WAY	15"x15"	2' - 2"
F84	7'-0" x 7'-0"	16"	#5 @ 8" O.C. EACH WAY	15"x15"	2' - 2"
F90	7'-6" x 7'-6"	16"	#5 @ 8" O.C. EACH WAY	15"x15"	2' - 2"



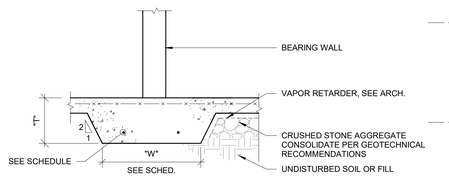
NOTES:
1. FOOTINGS SHALL BEAR ON FIRM UNDISTURBED SOIL WITH A MINIMUM BEARING CAPACITY AS SPECIFIED IN THE GENERAL NOTES.
2. FOR SIZE, DEPTH AND REINFORCING SEE FOOTING SCHEDULE.
3. PIERS NOT REQUIRED FOR INTERIOR FOOTINGS, SEE DETAIL 6, THIS SHEET

2 TYPICAL SPREAD FOOTING WITH PIER
S-101 3/4" = 1'-0"



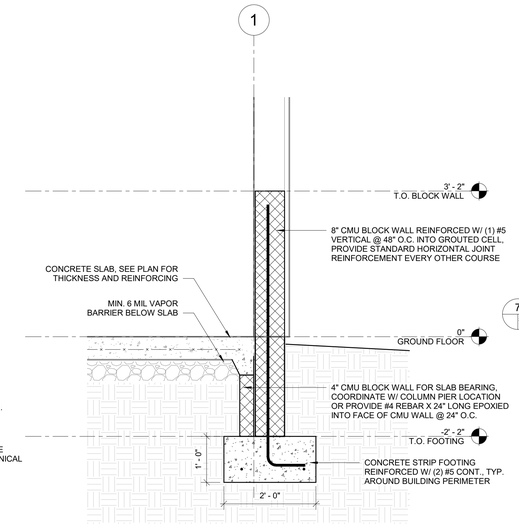
NOTE:
1. SEE FOOTING SCHEDULE IN DETAIL 2 ON THIS SHEET FOR FOOTING SIZE AND OTHER REQUIREMENTS
2. PIERS NOT REQUIRED FOR INTERIOR FOOTINGS

6 TYPICAL SPREAD FOOTING
S-101 1" = 1'-0"

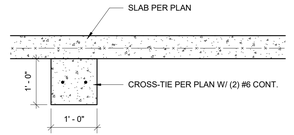


MARK	WIDTH(W)	DEPTH(T)	REINFORCING
TS24	2'-0"	12"	(2) #5 CONT.

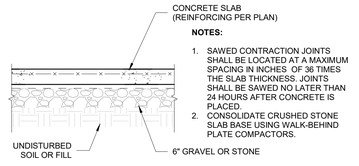
3 TYPICAL THICKENED SLAB
S-102/S-103 3/4" = 1'-0"



4 TYP. STEM WALL SECTION
S-101/S-101 3/4" = 1'-0"

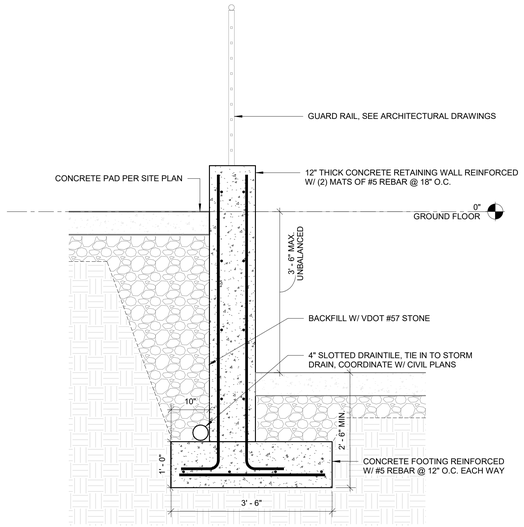


7 CROSS-TIE DETAIL
S-101 3/4" = 1'-0"

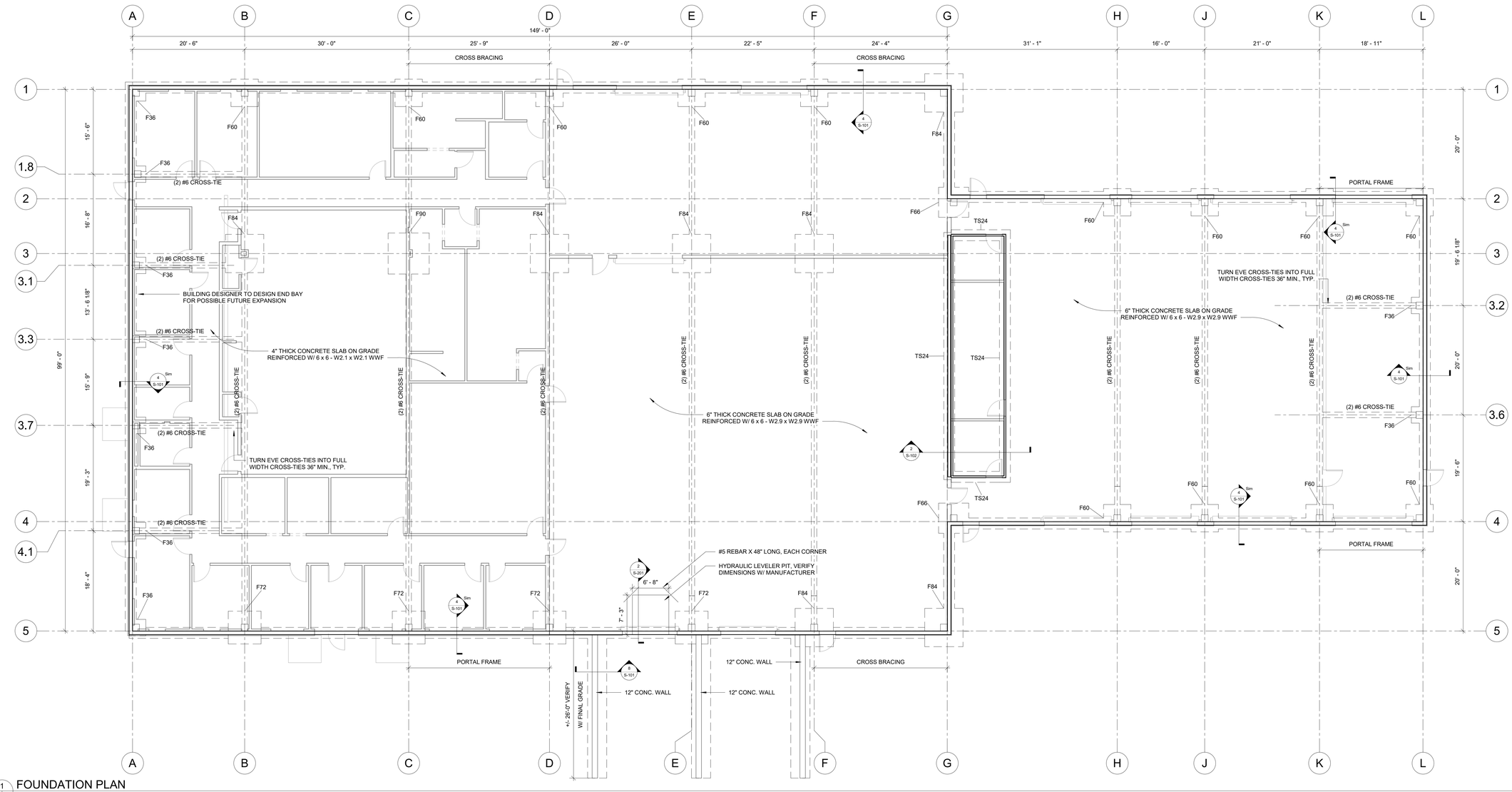


NOTES:
1. SAWED CONTRACTION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING IN INCHES OF 36 TIMES THE SLAB THICKNESS. JOINTS SHALL BE SAWED NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED.
2. CONSOLIDATE CRUSHED STONE SLAB BASE USING WALK-BEHIND PLATE COMPACTORS.

5 TYPICAL SLAB ON GRADE
S-101 3/4" = 1'-0"



8 RETAINING WALL SECTION
S-101/S-101 3/4" = 1'-0"



1 FOUNDATION PLAN
S-101/S-101 1/8" = 1'-0"

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S-101
FOUNDATION PLAN

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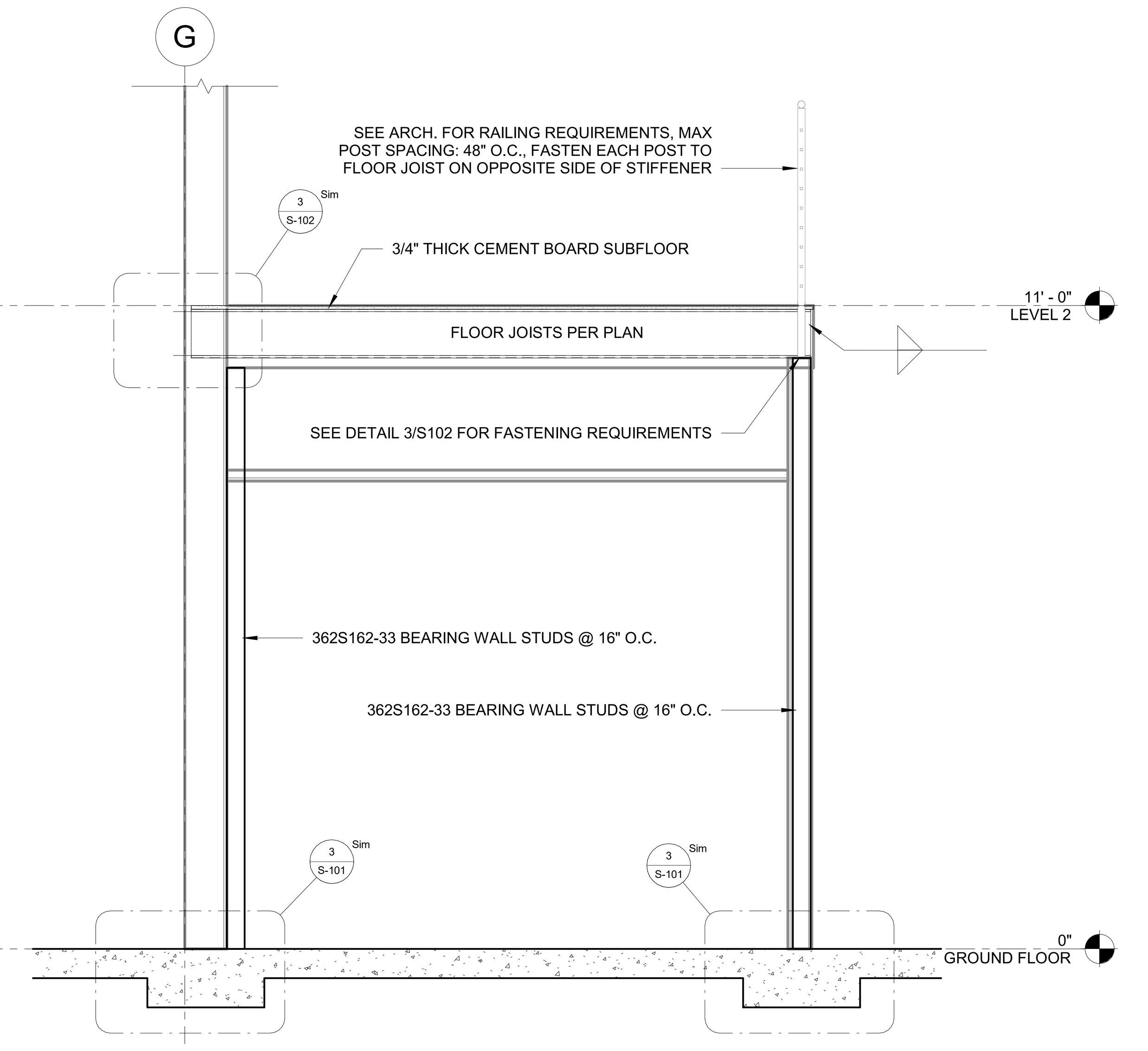
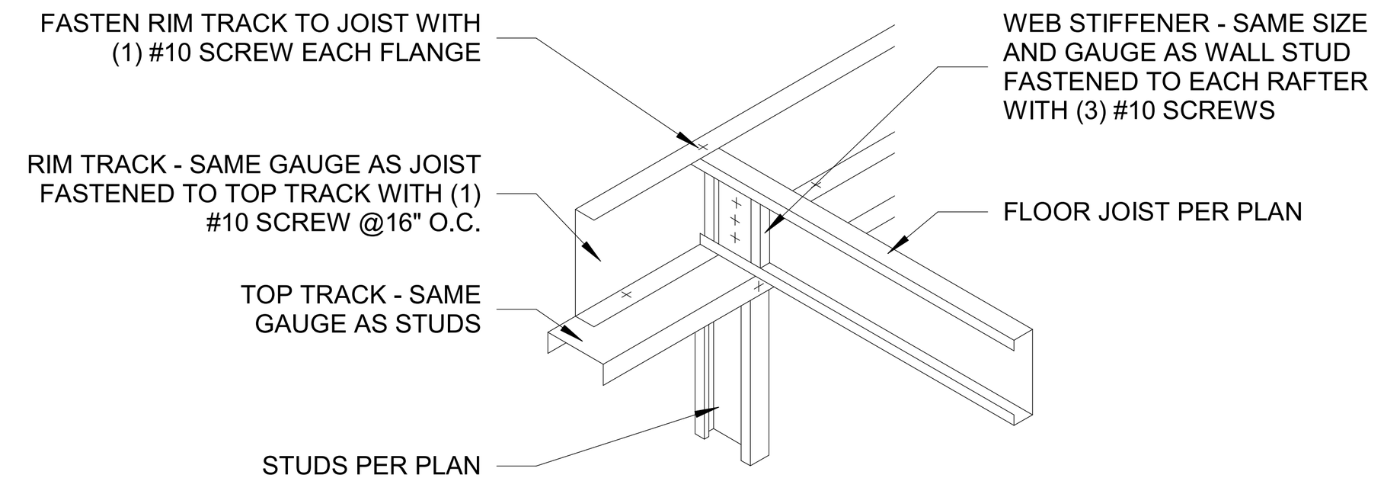

G
SEE ARCH. FOR RAILING REQUIREMENTS, MAX POST SPACING: 48" O.C., FASTEN EACH POST TO FLOOR JOIST ON OPPOSITE SIDE OF STIFFENER
3 S-102 Sim
3/4" THICK CEMENT BOARD SUBFLOOR
11' - 0" LEVEL 2
FLOOR JOISTS PER PLAN
SEE DETAIL 3/S102 FOR FASTENING REQUIREMENTS
362S162-33 BEARING WALL STUDS @ 16" O.C.
362S162-33 BEARING WALL STUDS @ 16" O.C.
3 S-101 Sim
3 S-101 Sim
0" GROUND FLOOR

2 MEZZANINE SECTION
S-101 S-102 1/2" = 1'-0"


FASTEN RIM TRACK TO JOIST WITH (1) #10 SCREW EACH FLANGE
RIM TRACK - SAME GAUGE AS JOIST FASTENED TO TOP TRACK WITH (1) #10 SCREW @16" O.C.
TOP TRACK - SAME GAUGE AS STUDS
STUDS PER PLAN
WEB STIFFENER - SAME SIZE AND GAUGE AS WALL STUD FASTENED TO EACH RAFTER WITH (3) #10 SCREWS
FLOOR JOIST PER PLAN

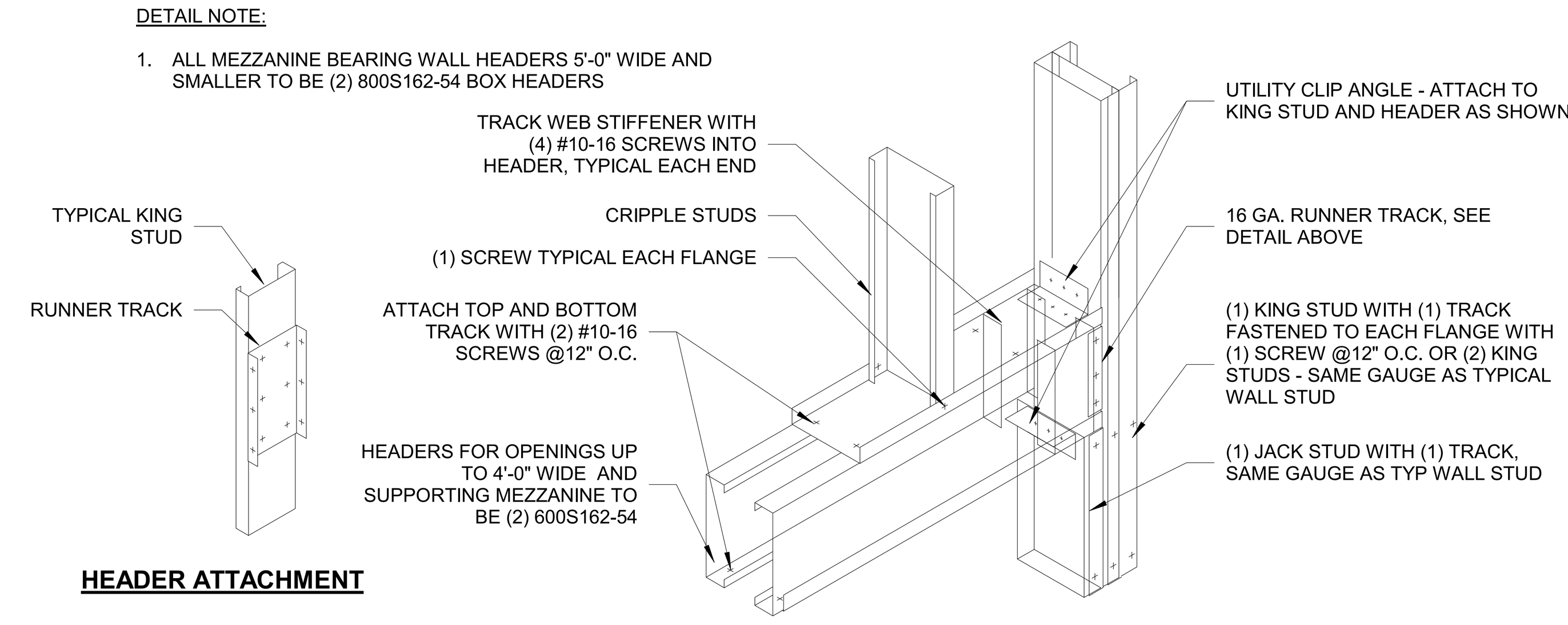
DETAIL NOTE:

1. ALIGN WEB OF EACH FLOOR JOIST TO WEB OF STUD BELOW

3 CFS - JOIST BEARING DETAIL
S-102 S-102 1/2" = 1'-0"

DETAIL NOTE:

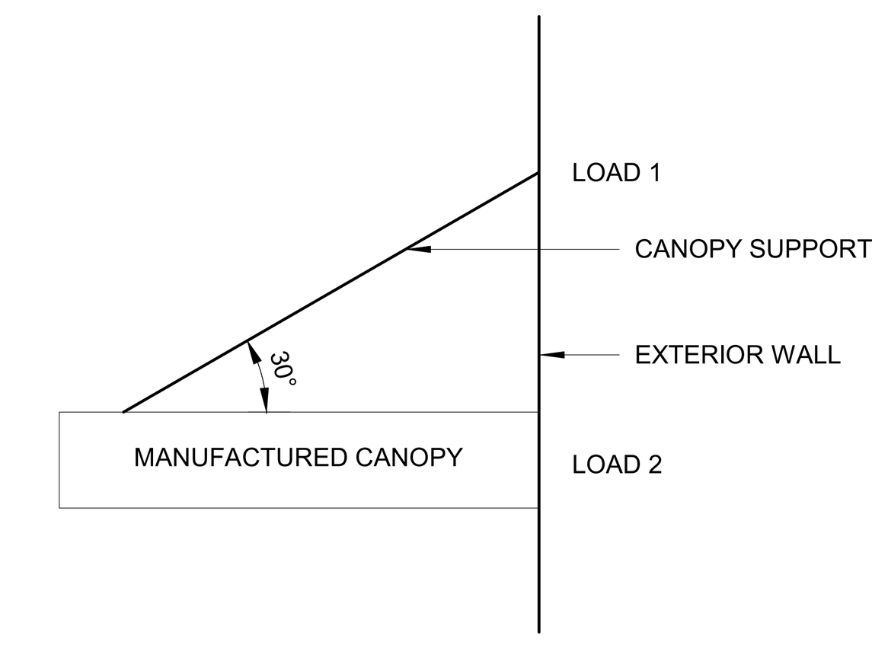
1. ALL MEZZANINE BEARING WALL HEADERS 5'-0" WIDE AND SMALLER TO BE (2) 800S162-54 BOX HEADERS


TYPICAL KING STUD
RUNNER TRACK
HEADER ATTACHMENT
TRACK WEB STIFFENER WITH (4) #10-16 SCREWS INTO HEADER, TYPICAL EACH END
CRIPPLE STUDS
(1) SCREW TYPICAL EACH FLANGE
ATTACH TOP AND BOTTOM TRACK WITH (2) #10-16 SCREWS @12" O.C.
HEADERS FOR OPENINGS UP TO 4'-0" WIDE AND SUPPORTING MEZZANINE TO BE (2) 600S162-54
UTILITY CLIP ANGLE - ATTACH TO KING STUD AND HEADER AS SHOWN
16 GA. RUNNER TRACK, SEE DETAIL ABOVE
(1) KING STUD WITH (1) TRACK FASTENED TO EACH FLANGE WITH (1) SCREW @12" O.C. OR (2) KING STUDS - SAME GAUGE AS TYPICAL WALL STUD
(1) JACK STUD WITH (1) TRACK, SAME GAUGE AS TYP WALL STUD

4 CFS - TYP. BOXED HEADER CONNECTION
S-102 1" = 1'-0"

INTERIOR PARTITION WALL SCHEDULE:

WALL HEIGHT	STUD SIZE	STUD SPACING
30'-0" OR LESS	600S162-54	16" O.C.
UP TO 25'-0"	600S162-33	16" O.C.
UP TO 17'-0"	362S162-33	16" O.C.

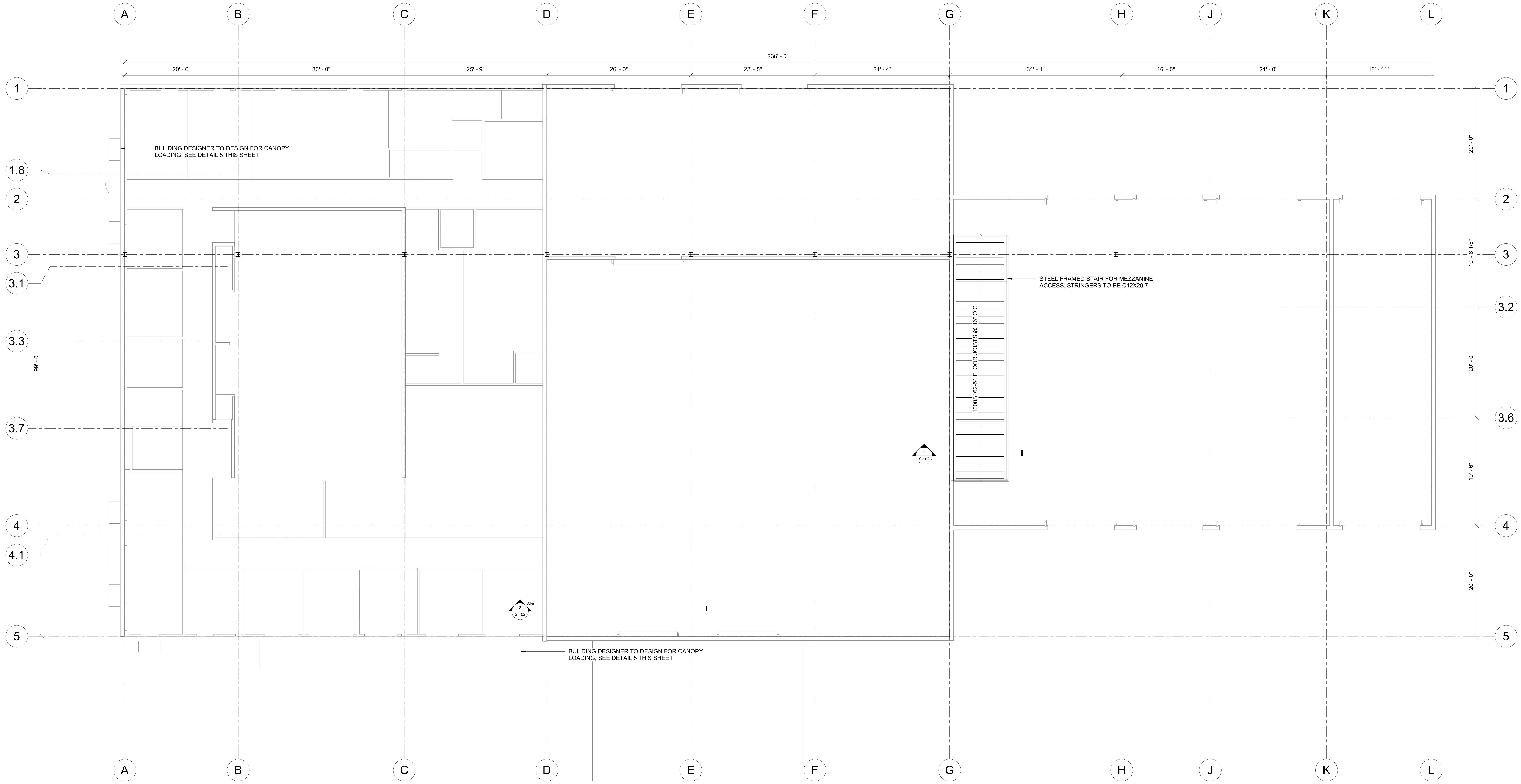


BUILDING DESIGNER TO DESIGN FOR THE FOLLOWING CANOPY LOADING:

CANOPY SIZE	LOCATION	UPWARD FORCE	DOWNWARD FORCE	LATERAL FORCE
24"	LOAD 1	41 LBS	110 LBS	191 LBS
24"	LOAD 2	41 LBS	110 LBS	191 LBS
60"	LOAD 1	410 LBS	1100 LBS	1910 LBS
60"	LOAD 2	410 LBS	1100 LBS	1910 LBS

NOTES:
1. SEE PLAN FOR CANOPY QUANTITY AND LOCATION & COORDINATE W/ ARCHITECTURAL DRAWINGS
2. THE SMALLER, 24" WIDE CANOPIES ARE ASSUMED TO HAVE (2) SUPPORTS AND THE LARGER 60" CANOPY IS ASSUMED TO HAVE SUPPORTS SPACED 8'-0" ON CENTER. ANY CHANGES TO THE NUMBER OF SUPPORTS OR SPACING COULD CHANGE THE LOADING
3. ALL LOADS ARE FACTORED ACCORDING TO ASD LOAD COMBINATIONS
4. THIS LOADING IS PRELIMINARY AND FOR PRICING PURPOSES ONLY, COORDINATE ACTUAL SUPPORT LOCATION AND LOADING WITH CANOPY MANUFACTURER

5 CANOPY LOADING DETAIL
S-102 1/2" = 1'-0"


A
B
C
D
E
F
G
H
J
K
L
236' - 0"
20' - 6"
30' - 0"
25' - 9"
26' - 0"
22' - 5"
24' - 4"
31' - 1"
16' - 0"
21' - 0"
18' - 11"
1
1.8
2
3
3.1
3.3
3.7
4
4.1
5
3.2
3.6
99' - 0"
20' - 0"
19' - 6 1/8"
20' - 0"
19' - 6"
20' - 0"
BUILDING DESIGNER TO DESIGN FOR CANOPY LOADING, SEE DETAIL 5 THIS SHEET
STEEL FRAMED STAIR FOR MEZZANINE ACCESS, STRINGERS TO BE C12X20.7
1000S162-54 FLOOR JOISTS @ 16" O.C.
2 S-102
2 S-102 Sim
BUILDING DESIGNER TO DESIGN FOR CANOPY LOADING, SEE DETAIL 5 THIS SHEET

1 MEZZANINE FRAMING PLAN
S-102 S-102 1/8" = 1'-0"

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S-102
MEZZANINE FRAMING PLAN
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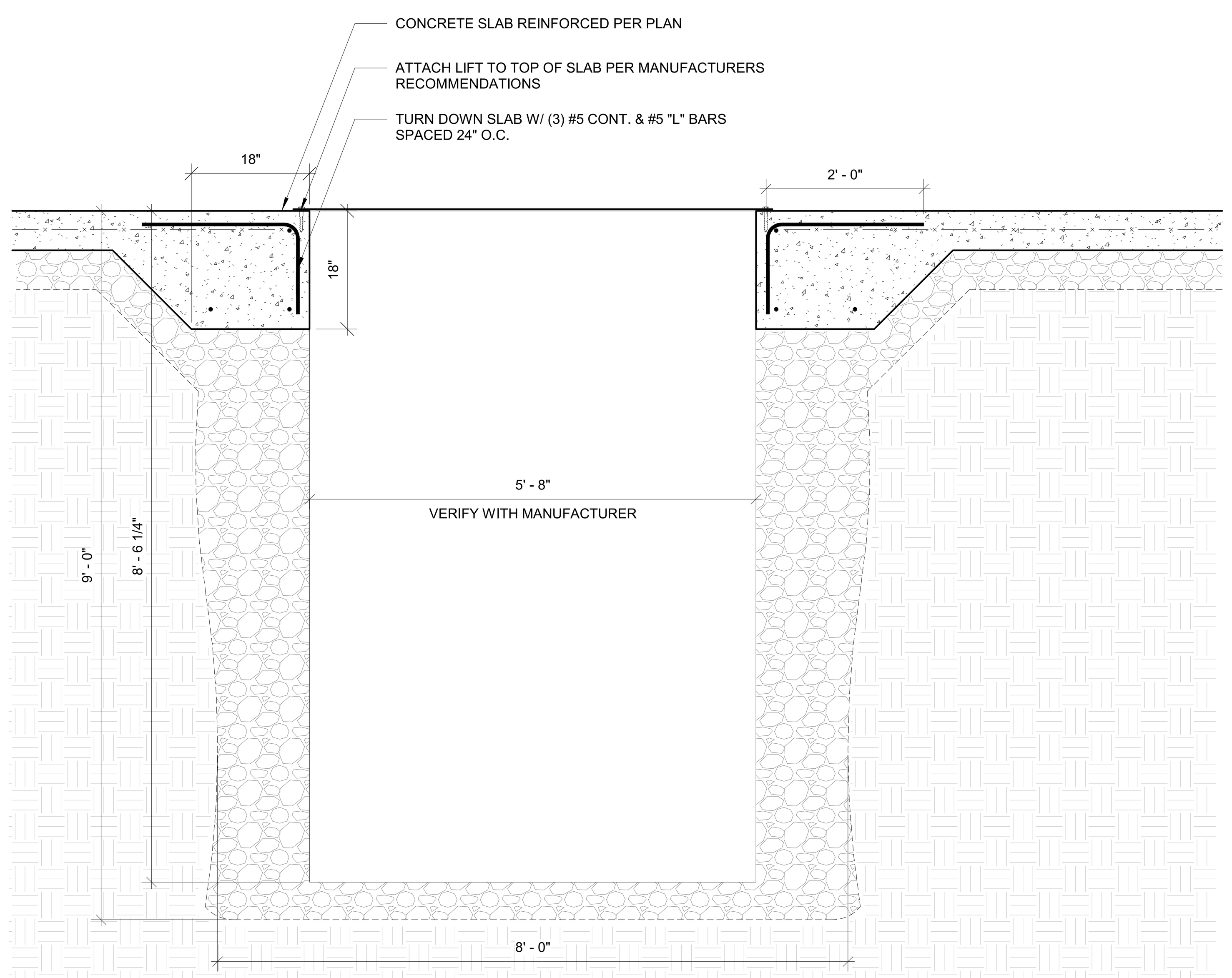
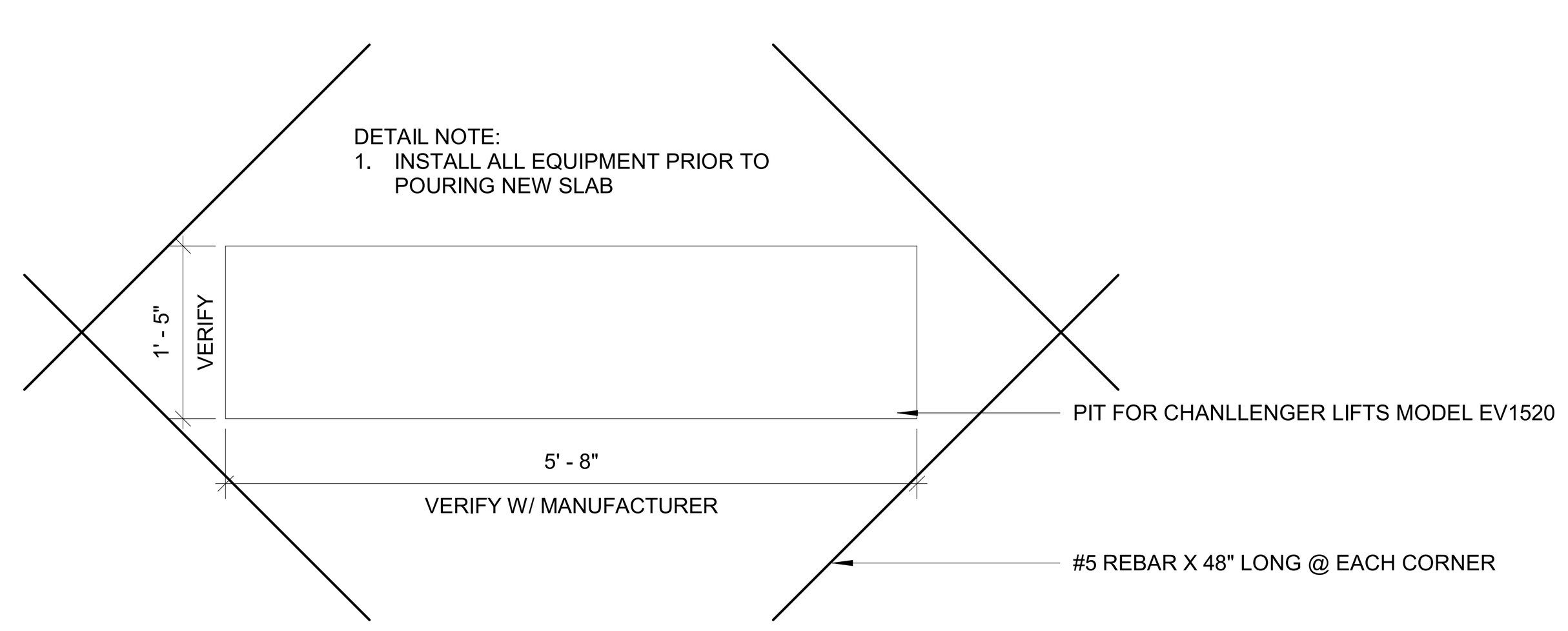


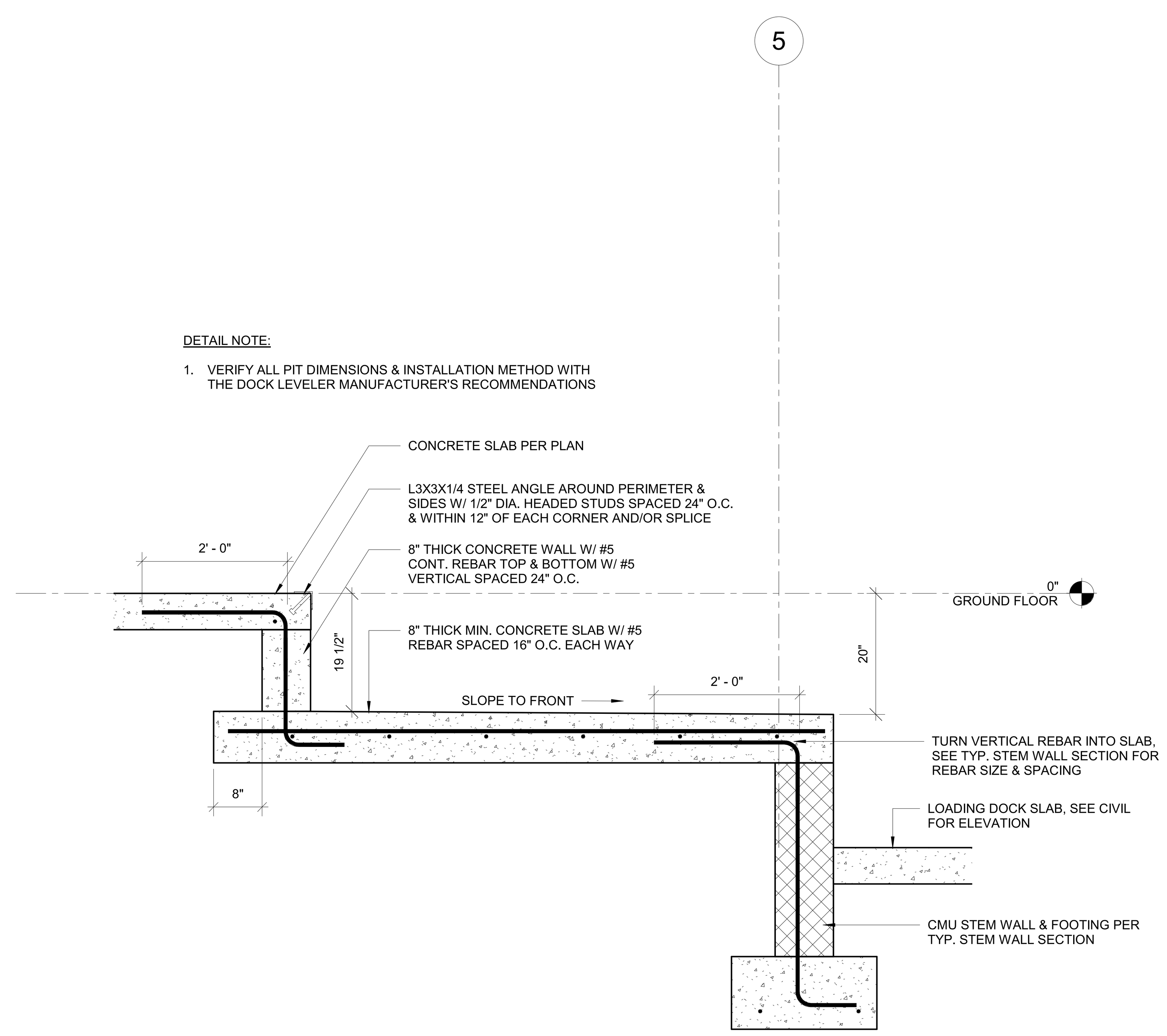
SECTION VIEW



PLAN VIEW

1 S-201 VEHICLE LIFT (MODEL EV1520) FOUNDATION DETAIL

3/4" = 1'-0"


5
DETAIL NOTE:
1. VERIFY ALL PIT DIMENSIONS & INSTALLATION METHOD WITH THE DOCK LEVELER MANUFACTURER'S RECOMMENDATIONS
CONCRETE SLAB PER PLAN
L3X3X1/4 STEEL ANGLE AROUND PERIMETER & SIDES W/ 1/2" DIA. HEADED STUDS SPACED 24" O.C. & WITHIN 12" OF EACH CORNER AND/OR SPLICE
8" THICK CONCRETE WALL W/ #5 CONT. REBAR TOP & BOTTOM W/ #5 VERTICAL SPACED 24" O.C.
8" THICK MIN. CONCRETE SLAB W/ #5 REBAR SPACED 16" O.C. EACH WAY
2' - 0"
0"
GROUND FLOOR
19 1/2"
20"
SLOPE TO FRONT
2' - 0"
8"
TURN VERTICAL REBAR INTO SLAB, SEE TYP. STEM WALL SECTION FOR REBAR SIZE & SPACING
LOADING DOCK SLAB, SEE CIVIL FOR ELEVATION
CMU STEM WALL & FOOTING PER TYP. STEM WALL SECTION

2 S-101 S-201 HYDRAULIC LEVELER PIT SECTION

3/4" = 1'-0"

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S-201

FOUNDATION DETAILS

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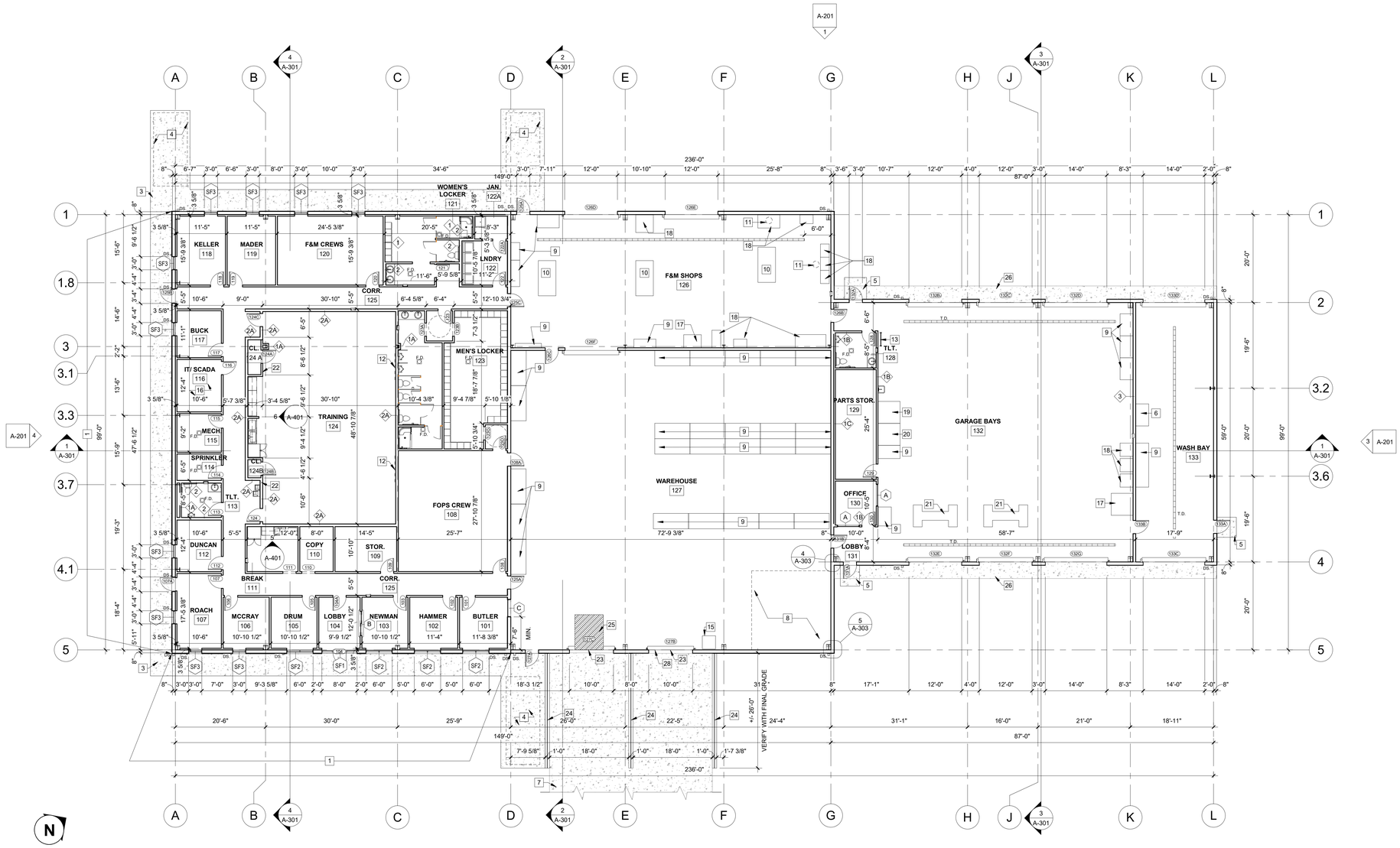

1 LEVEL 1 FLOOR PLAN
3/32" = 1'-0"

GENERAL NOTES

1. VERIFY ALL INFORMATION WITH CIVIL, STRUCTURAL, MEP AND ALL OTHER CONSTRUCTION DOCUMENTS PRIOR TO START OF CONSTRUCTION - IF ANY DISCREPANCIES EXIST, CONSULT THE ARCHITECT, ENGINEER, AND APPLICABLE CONSULTS.
2. STRUCTURAL STEEL COLUMNS ARE SHOWN FOR REFERENCE ONLY. REFER TO STRUCTURAL DRAWINGS FOR DIMENSIONS AND ADDITIONAL INFORMATION
3. DIMENSIONS ARE FROM FACE STUD TO FACE OF STUD, U.N.O.
4. REFER TO ENLARGED PLANS & DETAILS FOR ADDITIONAL INFORMATION AND DIMENSIONS
5. ALL EXPOSED STEEL TO BE PAINTED, U.N.O.

LEGEND

- (101) DOOR IDENTIFICATION, REFER TO DOOR SCHEDULE, SHEET A-010
- (1) WINDOW IDENTIFICATION, REFER TO WINDOW SCHEDULE, SHEET A-010
- 1A PARTITION TYPE, REFER TO SHEET A-010
- F.D. FLOOR DRAIN
- TRENCH DRAIN
- D.S. DOWNSPOUT

CODED NOTES: NOT ALL CODED NOTES APPEAR ON ALL SHEETS

1. PROVIDE 20GA. 7/8" HAT CHANNEL @ EXTERIOR FACE OF GIRTS FOR ATTACHMENT OF METAL WALL PANELS. HAT CHANNEL MIN. 16" O.C. FOR HORIZONTAL METAL PANEL FOR VERTICAL METAL WALL PANELS - HORIZONTAL HAT CHANNEL FRAMING TO ATTACH TO F.O. WALL GIRTS. PROVIDE PERIMETER HAT CHANNEL FRAMING AT CHANGES IN FRAMING DIRECTION
2. 1 1/2" PAINTED STL. PIPE GUARD RAIL @ 42" A.F.F.
3. CONCRETE SIDE WALK, RE: CIVIL DRAWINGS
4. CONCRETE PAD FOR MECHANICAL UNITS. REFER TO CIVIL & MECHANICAL DRAWINGS FOR ADDITIONAL DETAILS & BOLLARD LOCATIONS.
5. 5X5 CONCRETE STOOP, RE: CIVIL DRAWINGS
6. GAS FIRED PRESSURE WASHER - FURNISHED AND INSTALLED BY OWNER
7. CONCRETE LOADING DOCK PAD, RE: CIVIL DRAWINGS
8. SMALL ENCAGED AREA - FURNISHED AND INSTALLED BY OWNER
9. MISC. STORAGE - FURNISHED AND INSTALLED BY OWNER
10. WORK SURFACE - FURNISHED AND INSTALLED BY OWNER
11. WALL MOUNT FUME EXTRACTION ARM
12. PROVIDE BLOCKING FOR WALL MOUNTED FLAT SCREEN TV MONITOR. COORD. EXACT LOCATION WITH OWNER
13. PAINTED STEEL LADDER FOR MEZZANINE STORAGE ACCESS
14. AIR COMPRESSOR - FURNISHED AND INSTALLED BY OWNER
15. ICE MAKER - FURNISHED AND INSTALLED BY OWNER
16. 3/4" THICK - 8'-0" TALL FRT PLYWOOD ON ALL SERVER ROOM WALLS
17. PARTS WASHER - FURNISHED AND INSTALLED BY OWNER
18. MISC. EQUIPMENT - FURNISHED AND INSTALLED BY OWNER
19. TIRE BALANCER - FURNISHED AND INSTALLED BY OWNER
20. TIRE CHANGER - FURNISHED AND INSTALLED BY OWNER
21. VEHICLE LIFT - OWNER FURNISHED, INSTALLED BY CONTRACTOR. COORDINATE EXACT LOCATION WITH OWNER. INSTALL PER MANUFACTURER'S INSTRUCTIONS. COORDINATE WITH STRUCTURAL DETAIL.
22. PROVIDE BLOCKING FOR WALL MOUNTED SPEAKERS. COORD. EXACT LOCATION WITH OWNER
23. PROVIDE (2) ULINE H-2054 DOCK BUMPERS OR EQUAL W/ CONCRETE INSTALLATION KIT AT EACH DOCK
24. 1 1/2" GALVINZIED STL. PIPE GUARD RAIL @ 42" A.F.G. VERIFY LENGTH WITH CIVIL DRAWINGS.
25. HYDRAULIC DOCK LEVELER - OWNER FURNISHED CONTRACTOR INSTALLED. SEE EQUIPMENT CUTSHEETS
26. CONCRETE APRON, RE: CIVIL DRAWINGS
27. NOT USED
28. EDGE OF DOCK LEVELER - SEE EQUIPMENT CUTSHEETS

Mark	Date	Description
	6/10/2022	REVISED BID DOCUMENTS
	1/6/2022	BID DOCUMENTS
3	11/03/2022	ADDENDUM 3
1	10/26/2022	ADDENDUM 1

BLUELINE
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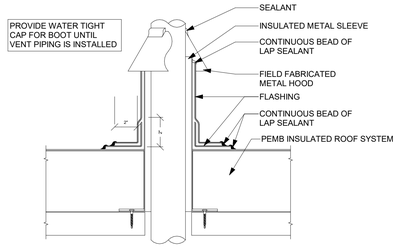
AUGUSTA COUNTY SERVICE AUTHORITY

846 LAUREL HILL RD. VERONA, VA

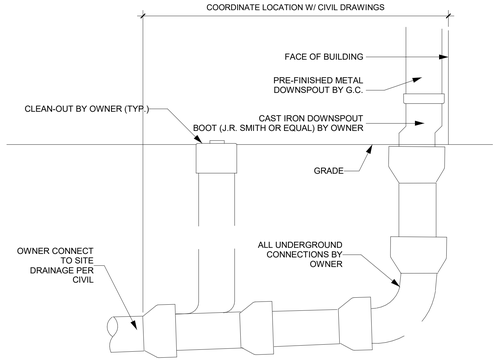
COMMONWEALTH OF VIRGINIA
Anna Sarnowska-Campbell
No. 0146655
6/10/2022
ARCHITECT

PROJ NO: 01-20-075

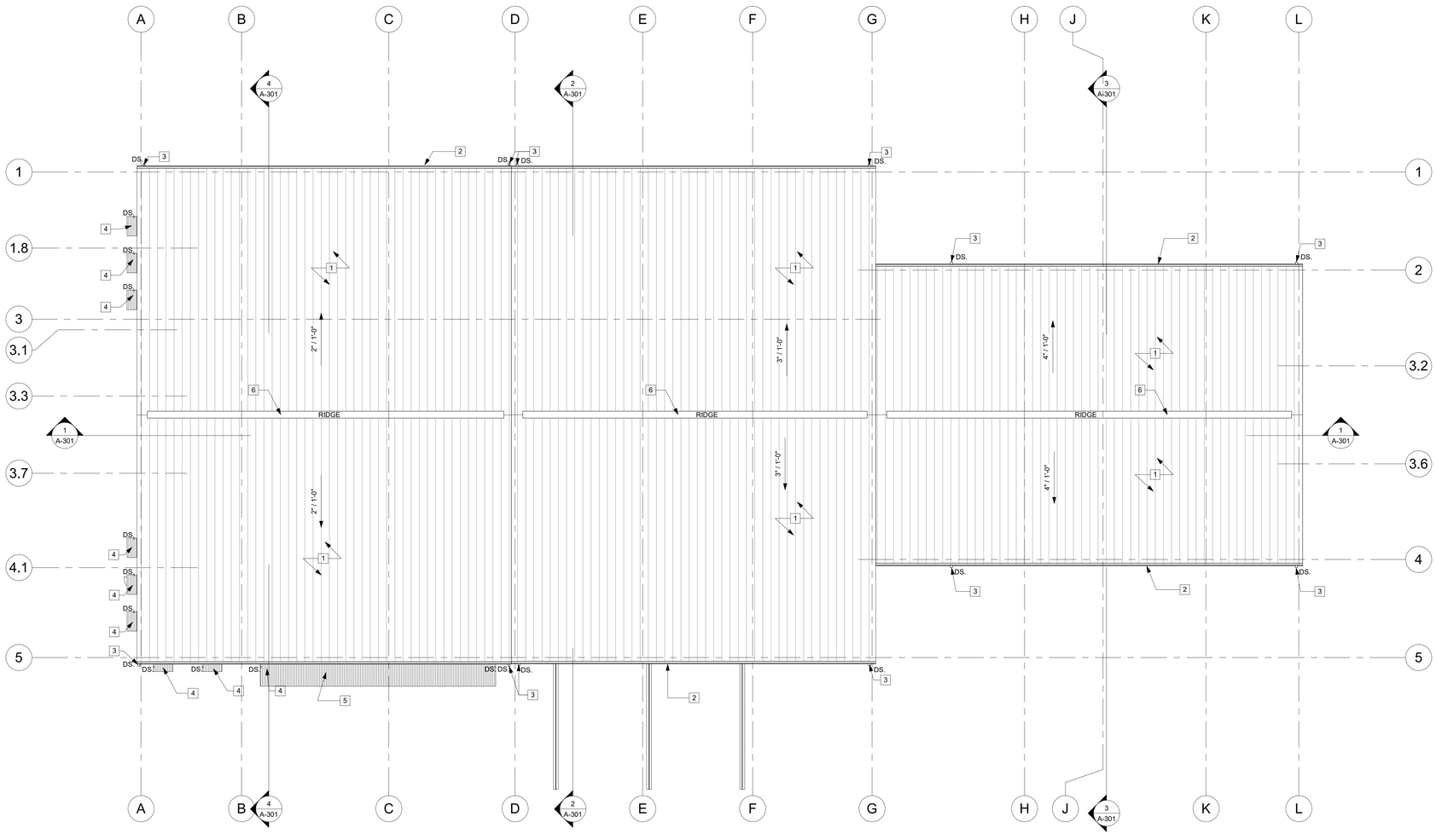
A-101
LEVEL 1 FLOOR PLAN
11/4/2022 8:12:28 AM



3 TYPICAL ROOF PENETRATION DETAILS
3" = 1'-0"



2 SECTION DETAIL_DOWNSPOUT BOOT DETAIL
NOT TO SCALE



1 ROOF PLAN
3/32" = 1'-0"

GENERAL NOTES

1. COORDINATE DOWNSPOUT DRAINAGE, PER LOCATIONS INDICATED, WITH CIVIL DRAWINGS.
2. COORDINATE ROOF PENETRATIONS WITH MECHANICAL AND PLUMBING DRAWINGS.
3. TYPICAL ROOF OVERHANG TO BE 0'- 6" FROM FACE OF WALL.

LEGEND

PRE-FINISHED METAL ROOF PANELS

PRE-FINISHED METAL CANOPY - CEILING HEIGHT TO BE 8'-0" A.F.F.

CODED NOTES

1. PRE-FINISHED 24GA STEEL STANDING SEAM METAL ROOF IN MANUFACTURER'S STANDARD PANEL WIDTHS, PROFILES & COLORS
2. PRE-FINISHED METAL GUTTER - BY PEMB MANUFACTURER
3. 6" PRE-FINISHED METAL DOWNSPOUT- BY PEMB MANUFACTURER
4. SMALL PRE-FINISHED ALUM. CANOPY CENTERED OVER STOREFRONT WINDOW OR DOOR. CONTRACTOR TO PROVIDE DOWNSPOUTS AND COORDINATE SIZE AND CONNECTION POINT WITH CANOPY MANUFACTURER. REFER TO SHEET A-201 FOR FULL SPEC.
5. LARGE PRE-FINISHED ALUM. CANOPY WITH RECESSED LIGHTING OVER STOREFRONT AT ENTRY. CONTRACTOR TO PROVIDE DOWNSPOUTS AND COORDINATE SIZE AND CONNECTION POINT WITH CANOPY MANUFACTURER. REFER TO SHEET A-201 FOR FULL SPEC.
6. RIDGE CAP

Mark	Date	Description
	6/10/2022	REVISED BID DOCUMENTS
	1/6/2022	BID DOCUMENTS
3	11/03/2022	ADDENDUM 3
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PROJ NO: 01-20-075

A-122
ROOF PLAN
11/4/2022 8:12:28 AM

EXTERIOR CANOPIES

1. PREFINISHED ALUMINUM CANOPIES:

   a. SMALL: 4'-0" WIDE X 2'-0" DEEP X 6" THICK PRE-FINISHED ALUM. CANOPY
   MANUFACTURER: LAWRENCE FABRIC AND METAL STRUCTURES INC.
   PRODUCT: LFS-FLA CANOPY
   FASCIA: 6" G STYLE GUTTER FASCIA
   DECKING: CORRUGATED DECKING (M- COR)
   WATER DISPERSAL: INCLUDE SLEEVE TO ACCOMMODATE DOWNSPOUT
   SUPPORT: HANGER RODS 1.0" STAINLESS STEEL ROD WITH CLEVIS ASSEMBLY
   FINISHES: AAMA 2604 COMPLIANT POWDER COAT FINISH: 5-YEAR WARRANTY
   BASIS OF DESIGN - SUBSTITUTIONS PERMITTED

   b. LARGE: 48'- 0" WIDE X 5'-0" DEEP X 12" THICK PRE-FINISHED ALUM. CANOPY
   MANUFACTURER: LAWRENCE FABRIC AND METAL STRUCTURES INC.
   PRODUCT: LFS-FLA CANOPY
   FASCIA: 12" G STYLE GUTTER FASCIA
   DECKING: CORRUGATED DECKING (M- COR)
   WATER DISPERSAL: INCLUDE SLEEVE TO ACCOMMODATE DOWNSPOUT
   SUPPORT: HANGER RODS 1.0" STAINLESS STEEL ROD WITH CLEVIS ASSEMBLY
   FINISHES: AAMA 2604 COMPLIANT POWDER COAT FINISH: 5-YEAR WARRANTY
   BASIS OF DESIGN - SUBSTITUTIONS PERMITTED

GENERAL NOTES

1. INTAKE / EXHAUST LOUVERS, EXHAUST FANS, WALL CAPS AND DRYER VENT LOCATIONS, AND WALL MOUNT EXTERIOR LIGHTING SHOWN ON ELEVATIONS ARE APPROXIMATE. EXACT LOCATION SHOULD BE VERIFIED WITH MECHANICAL AND ELECTRICAL DRAWINGS.

EXTERIOR FINISHES

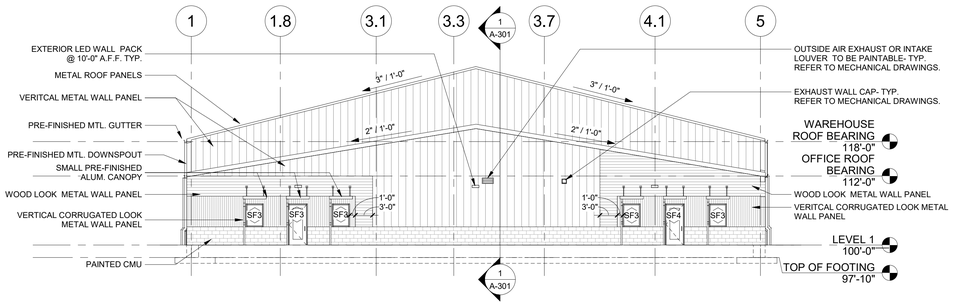
1. METAL WALL PANELS:

   a. VERTICAL METAL WALL PANEL
   MANUFACTURER : CENTRIA - PITTSBURGH, PA
   PRODUCT: EXPOSED FASTENER PANELS TR4-36 VERTICAL PROFILE
   MATERIAL: 22GA STEEL
   COLOR: CYPRESS - 9933
   EXPOSURE: APPROX. 9"
   BASIS OF DESIGN - SUBSTITUTIONS PERMITTED

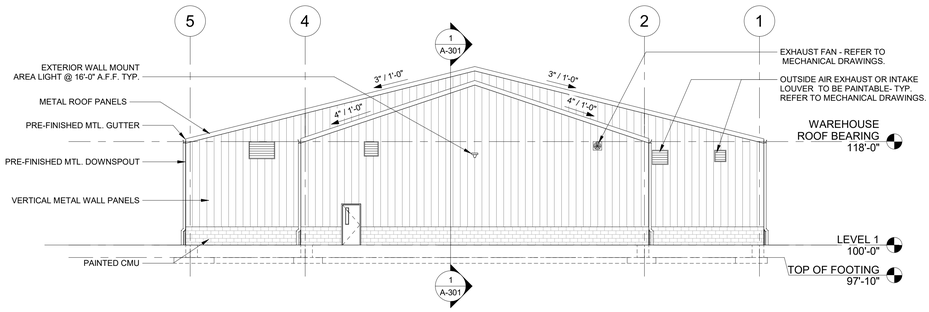
   b. VERTICAL CORRUGATED LOOK METAL WALL PANEL
   MANUFACTURER : CENTRIA - PITTSBURGH, PA
   PRODUCT: CONCEPT SERIES CS-260 VERTICAL PROFILE
   MATERIAL: 22GA STEEL
   COLOR: RICH BLACK - 9916
   EXPOSURE: 12" PANEL (3 RIDGES PER PANEL)
   BASIS OF DESIGN - SUBSTITUTIONS PERMITTED

   c. WOOD LOOK METAL WALL PANEL
   MANUFACTURER : CENTRIA - PITTSBURGH, PA
   PRODUCT: CONCEPT SERIES CS-200 HORIZONTAL PROFILE
   MATERIAL: 22GA STEEL
   EXPOSURE: ILLUSION OF 9.5" WOOD PLANKS
   COLOR: MEDIUM OAK - 851
   BASIS OF DESIGN - SUBSTITUTIONS PERMITTED

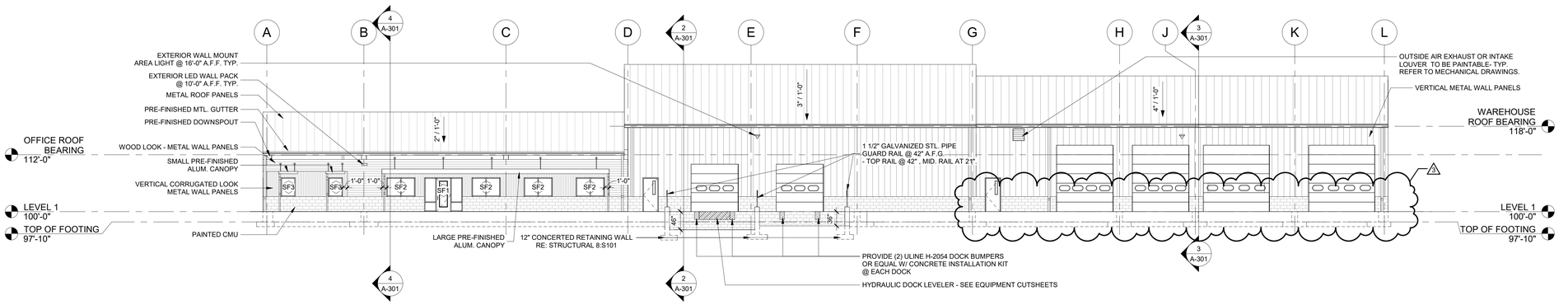
2. METAL ROOF PANELS:
   MANUFACTURER STANDARD OPTIONS
   PRE-FINISHED PER MANUFACTURER'S STANDARD OPTIONS



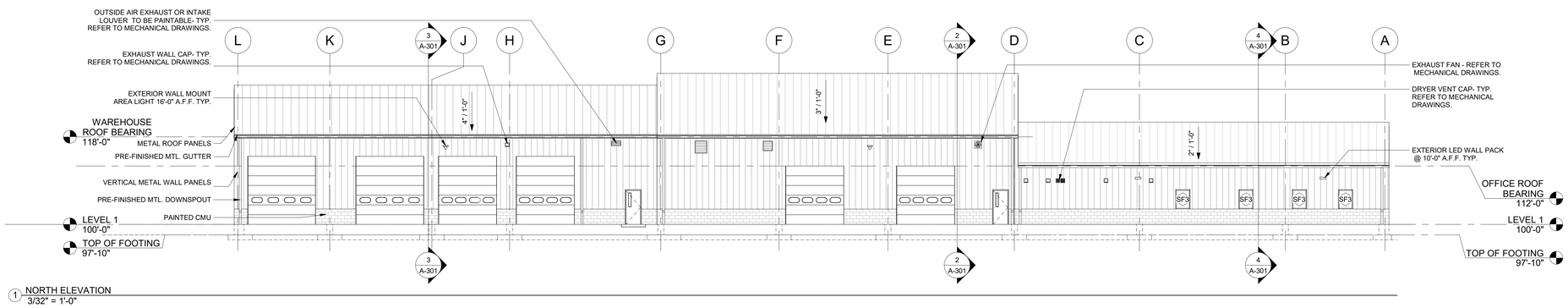
4 WEST ELEVATION
3/32" = 1'-0"



3 EAST ELEVATION
3/32" = 1'-0"



2 SOUTH ELEVATION
3/32" = 1'-0"



1 NORTH ELEVATION
3/32" = 1'-0"

Mark	Date	Description
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3	11/03/2022	ADDENDUM 3
1	10/26/2022	ADDENDUM 1

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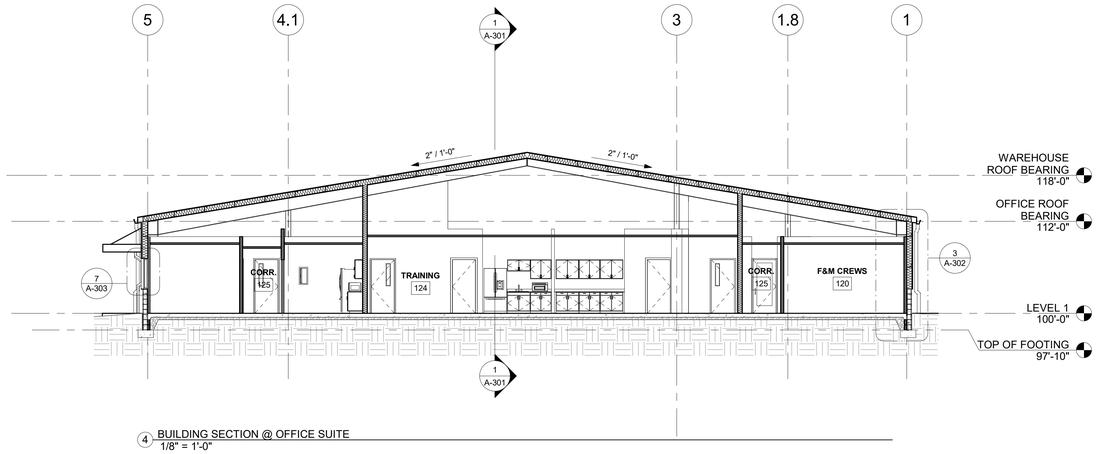
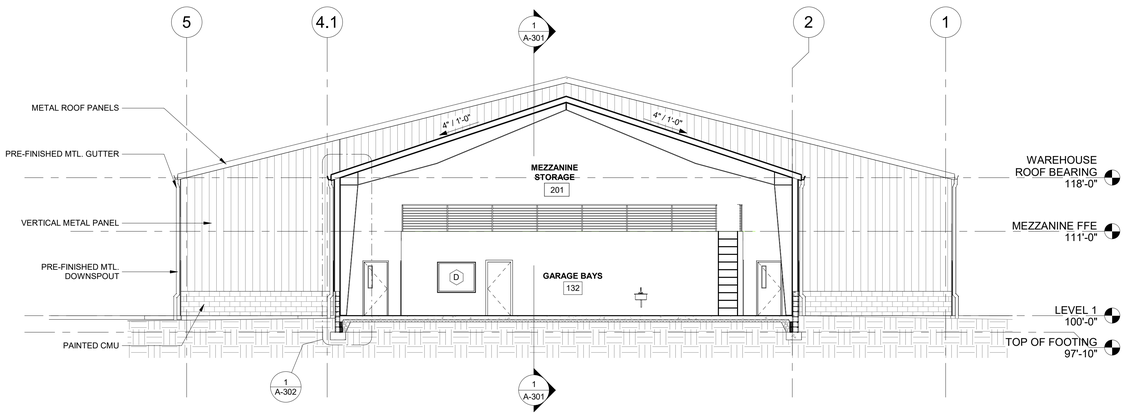
PROJ NO: 01-20-075

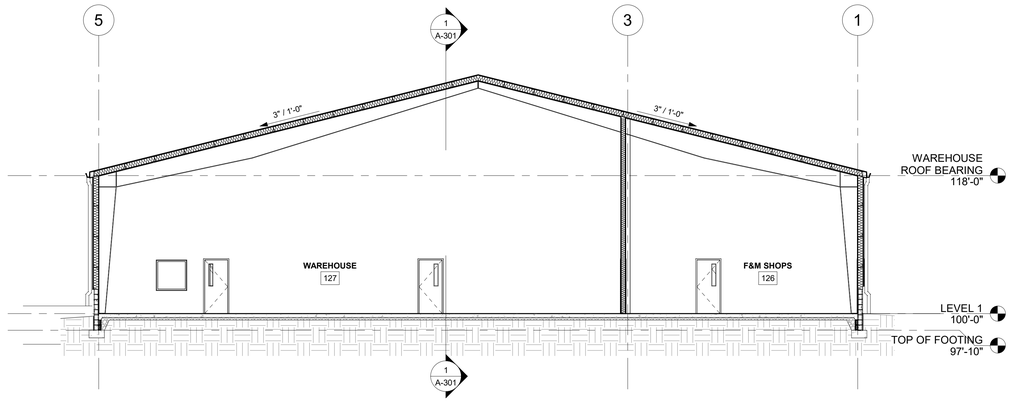
A-201
BUILDING ELEVATIONS
11/4/2022 8:12:30 AM



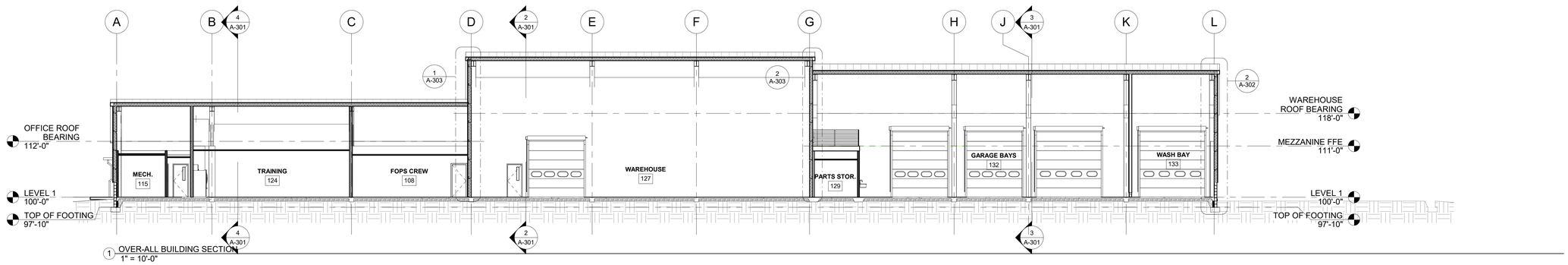
4 BUILDING SECTION @ OFFICE SUITE
1/8" = 1'-0"



3 BUILDING SECTION @ GARAGE
1/8" = 1'-0"



2 BUILDING SECTION @ WAREHOUSE
1/8" = 1'-0"



1 OVER-ALL BUILDING SECTION
1" = 10'-0"

Mark	Date	Description
	6/10/2022	REVISED BID DOCUMENTS
	1/6/2022	BID DOCUMENTS

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PROJ NO: 01-20-075

A-301
BUILDING SECTIONS
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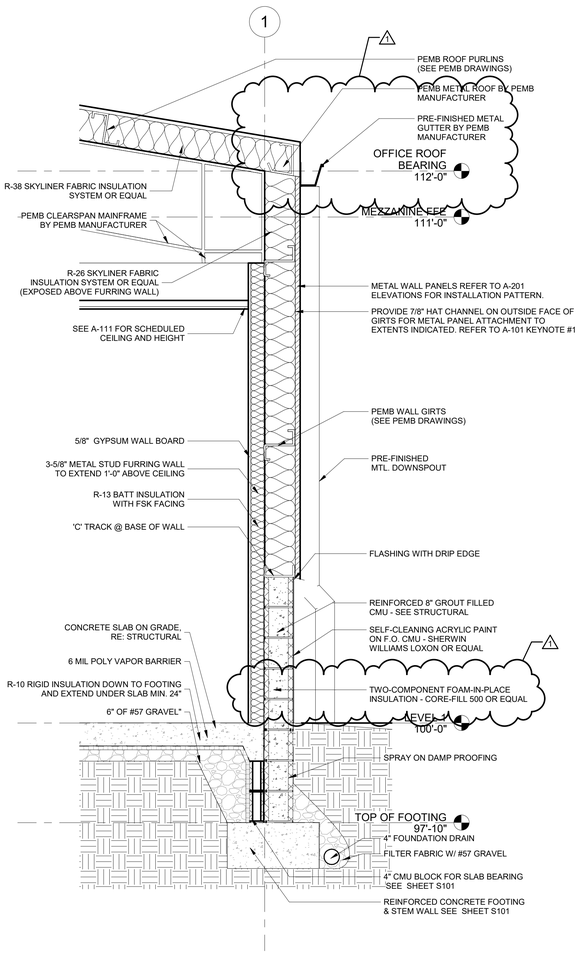
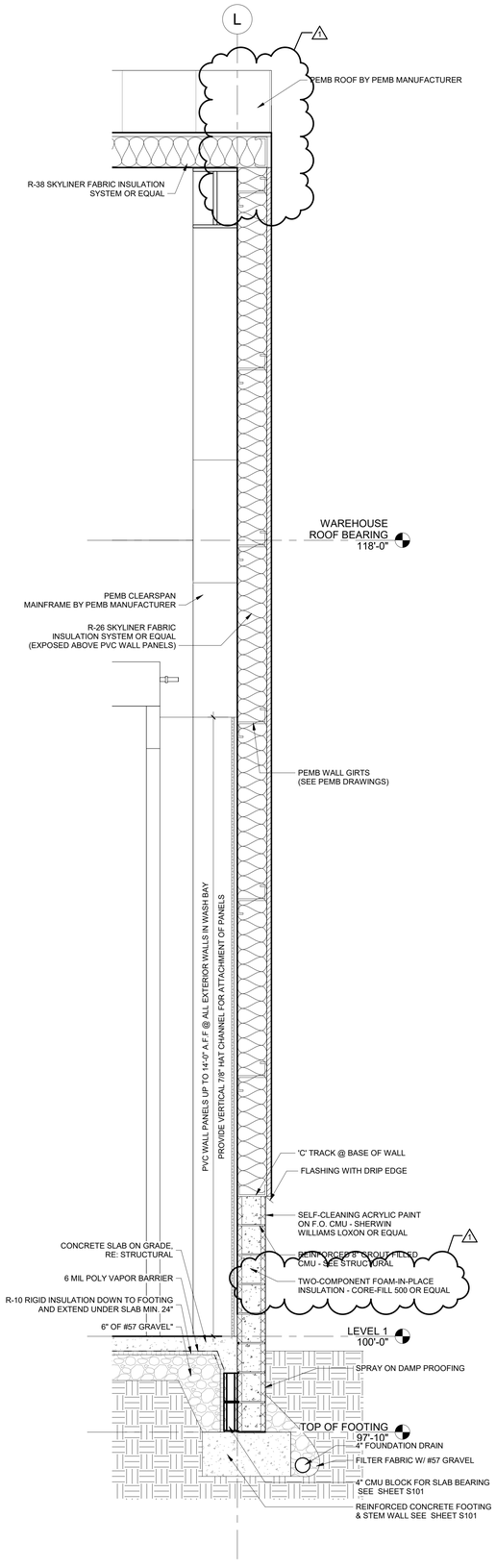
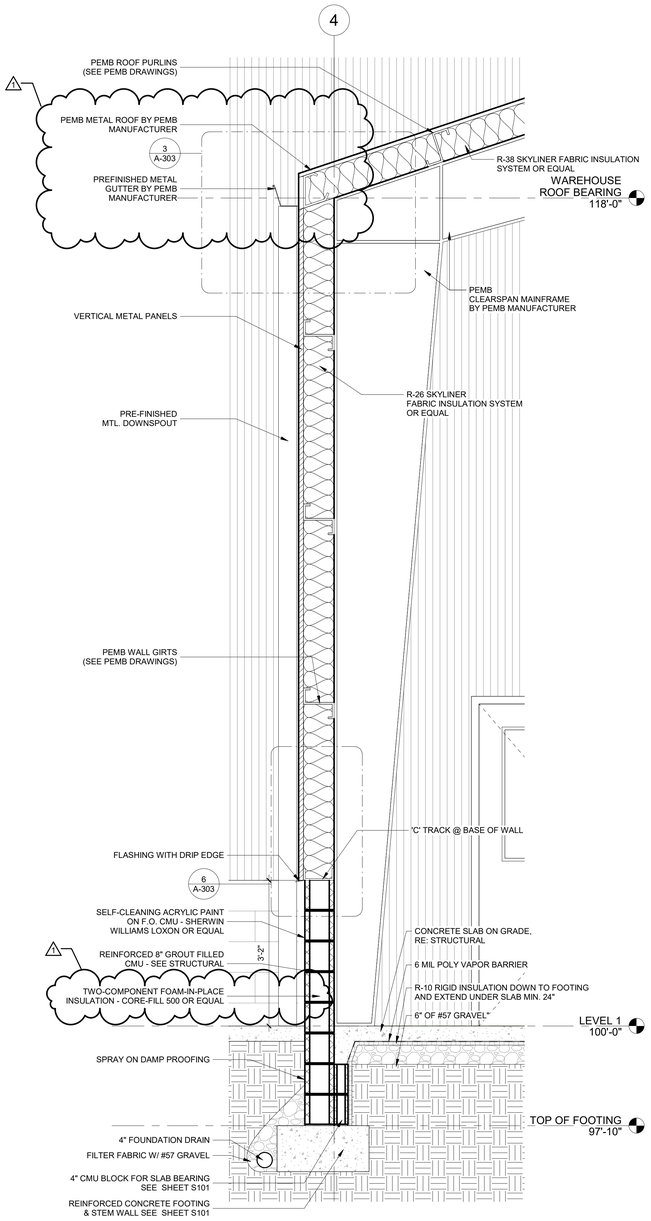


3 TYP. WALL SECTION @ OFFICE SUITE
3/4" = 1'-0"



2 TYP. EXTERIOR WALL SECTION @ WASH BAY
3/4" = 1'-0"



1 TYP. EXTERIOR WALL SECTION @ WAREHOUSE, SHOP, AND GARAGE
3/4" = 1'-0"

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1	Date 1	ADDENDUM 1

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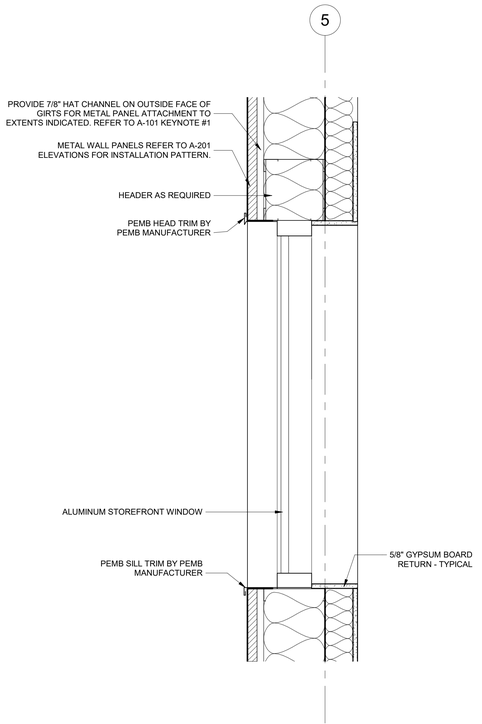
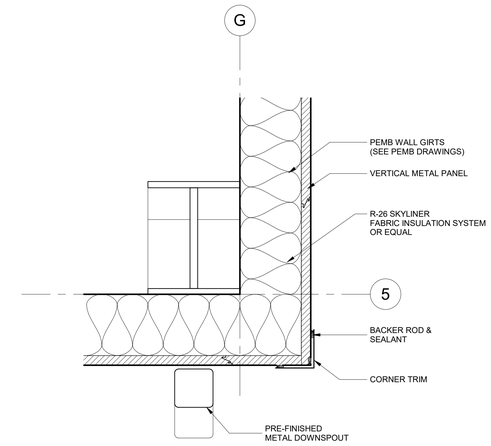
No. 014655
6/10/2022
ARCHITECT

PROJ NO: 01-20-075

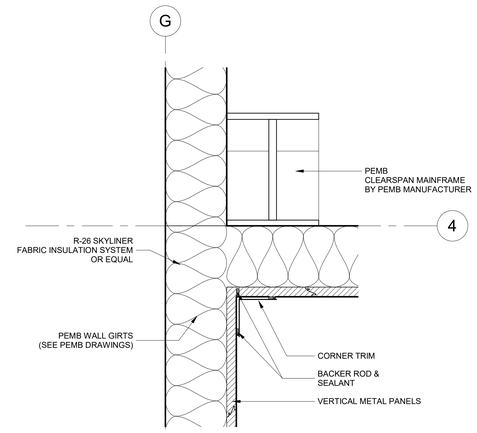
A-302
EXTERIOR WALL SECTIONS
10/26/2022 3:09:09 PM



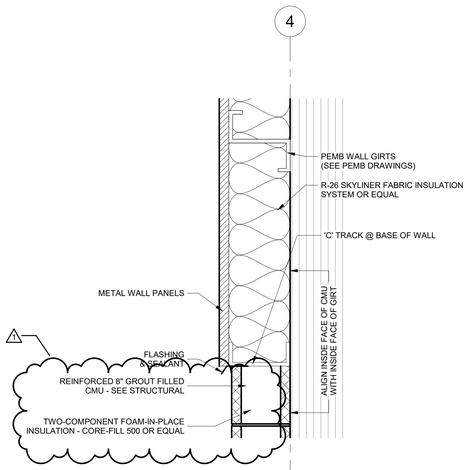
7 TYPICAL STOREFRON HEAD AND SILL DETAIL
1 1/2" = 1'-0"



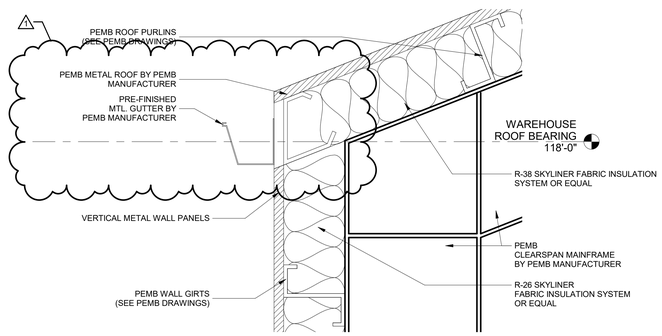
5 PLAN DETAIL - OUTSIDE CORNER
1 1/2" = 1'-0"



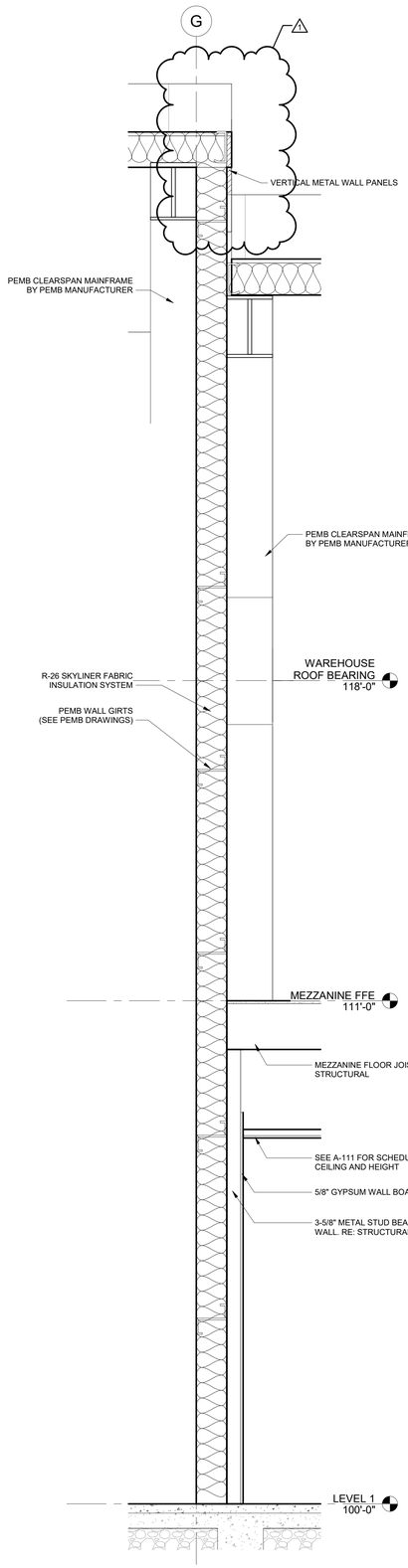
4 PLAN DETAIL - INSIDE CORNER
1 1/2" = 1'-0"



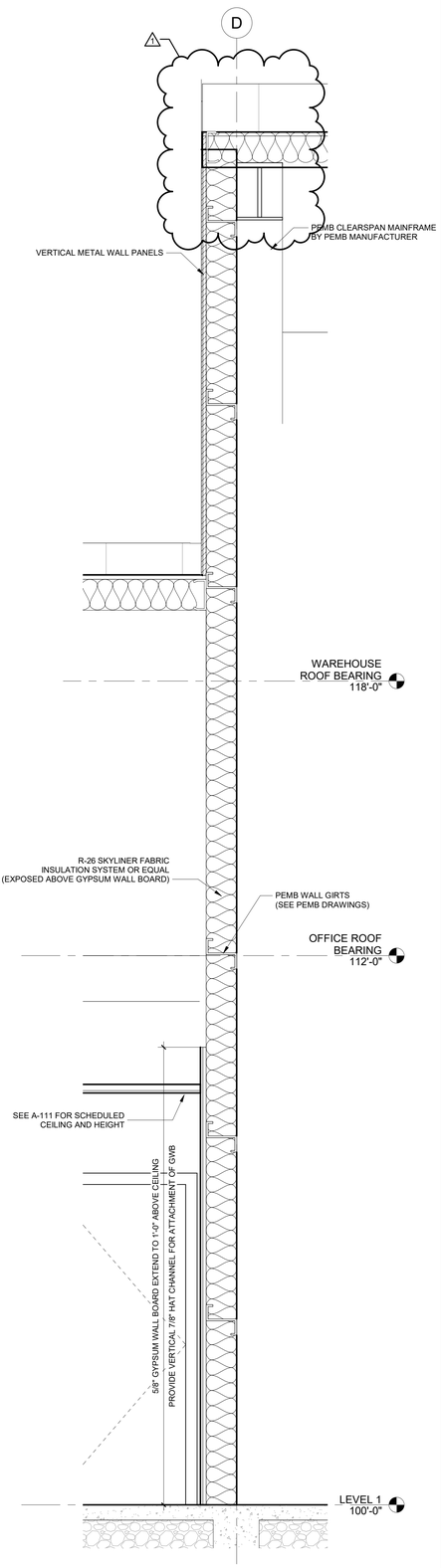
6 CMU / METAL PANEL TRANSITION
1 1/2" = 1'-0"



3 TYPICAL ROOF DETAIL
1 1/2" = 1'-0"



2 WALL SECTION BETWEEN WAREHOUSE AND GARAGE
3/4" = 1'-0"



1 WALL SECTION BETWEEN OFFICE SUITE AND WAREHOUSE
3/4" = 1'-0"

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Mark	Date	Description
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1	Date 1	ADDENDUM 1

A-303
WALL SECTIONS + DETAILS
10/26/2022 3:09:10 PM

COMcheck Software Version 4.1.1.0

Mechanical Compliance Certificate

Project Information

Energy Code:	2018 IECC
Project Title:	Augusta County Service Authority
Location:	Staunton, Virginia
Climate Zone:	4a
Project Type:	New Construction

Construction Site:	Owner/Agent:	Designer/Contractor:
Verona, VA		Michael Irwin MEI Engineering

Additional Efficiency Package(s)

Unspecified

Mechanical Systems List

Quantity	System Type & Description
1	AH-3 (Single Zone) Split System Heat Pump Heating Mode: Capacity = 39 kBtuh, Proposed Efficiency = 8.50 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 39 kBtuh, Proposed Efficiency = 15.00 SEER, Required Efficiency: 14.00 SEER Fan System: FAN SYSTEM 1 – Compliance (Motor nameplate HP method) : Passes
	Fans: FAN 1 Supply, Constant Volume, 1600 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
1	AH-4 (Single Zone) Split System Heat Pump Heating Mode: Capacity = 34 kBtuh, Proposed Efficiency = 8.50 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 36 kBtuh, Proposed Efficiency = 15.00 SEER, Required Efficiency: 14.00 SEER Fan System: FAN SYSTEM 2 – Compliance (Motor nameplate HP method) : Passes
	Fans: FAN 2 Supply, Constant Volume, 1200 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
1	AH-5 (Single Zone) Split System Heat Pump Heating Mode: Capacity = 30 kBtuh, Proposed Efficiency = 8.50 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 30 kBtuh, Proposed Efficiency = 15.00 SEER, Required Efficiency: 14.00 SEER Fan System: FAN SYSTEM 1 – Compliance (Motor nameplate HP method) : Passes
	Fans: FAN 1 Supply, Constant Volume, 1000 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
1	AH-6 (Single Zone) Split System Heat Pump Heating Mode: Capacity = 30 kBtuh, Proposed Efficiency = 8.50 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 30 kBtuh, Proposed Efficiency = 15.00 SEER, Required Efficiency: 14.00 SEER Fan System: FAN SYSTEM 1 – Compliance (Motor nameplate HP method) : Passes

Quantity	System Type & Description
	Fans: FAN 5 Supply, Constant Volume, 1600 CFM, 0.3 motor nameplate hp, 0.0 fan efficiency grade
1	FCU-1 (Single Zone) Split System Heat Pump Heating Mode: Capacity = 36 kBtuh, Proposed Efficiency = 8.50 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 39 kBtuh, Proposed Efficiency = 17.60 SEER, Required Efficiency: 14.00 SEER Fan System: FAN SYSTEM 5 – Compliance (Motor nameplate HP method) : Passes
	Fans: FAN 7 Supply, Single-Zone VAV, 353 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
1	FCU-2 (Single Zone) Split System Heat Pump Heating Mode: Capacity = 9 kBtuh, Proposed Efficiency = 9.00 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 9 kBtuh, Proposed Efficiency = 19.00 SEER, Required Efficiency: 14.00 SEER Fan System: FAN SYSTEM 5 – Compliance (Motor nameplate HP method) : Passes
	Fans: FAN 7 Supply, Single-Zone VAV, 353 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
1	FCU-3 (Single Zone) Split System Heat Pump Heating Mode: Capacity = 17 kBtuh, Proposed Efficiency = 9.00 HSPF, Required Efficiency = 8.20 HSPF Cooling Mode: Capacity = 17 kBtuh, Proposed Efficiency = 19.60 SEER, Required Efficiency: 14.00 SEER Fan System: FAN SYSTEM 5 – Compliance (Motor nameplate HP method) : Passes
	Fans: FAN 7 Supply, Single-Zone VAV, 353 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade
10	UH-1 (Single Zone) Heating: 1 each - Unit Heater, Gas, Capacity = 150 kBtu/h Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et Fan System: FAN SYSTEM 6 – Compliance (Motor nameplate HP method) : Passes
	Fans: FAN 6 Supply, Constant Volume, 2160 CFM, 0.1 motor nameplate hp, 0.0 fan efficiency grade

Quantity	System Type & Description
1	HVAC System 11 (Single Zone) Heating: 1 each - Rooftop Heater, Gas, Capacity = 110 kBtu/h No minimum efficiency requirement applies Fan System: None
1	Water Heater 1 Gas Storage Water Heater, Capacity: 50 gallons, Input Rating: 199 kBtu/h w/ Circulation Pump Proposed Efficiency: 95.00 % Et, Required Efficiency: 80.00 % Et

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Michael Irwin PE	Michael Irwin	11-15-21
Name / Title	Signature	Date

HVAC SPECIFICATIONS

1. GENERAL

1.1 DESCRIPTION OF WORK:

A. ALL FIXTURES, EQUIPMENT, ACCESSORIES, MATERIALS, AND LABOR REQUIRED TO PROVIDE COMPLETE, COORDINATED, AND FULLY FUNCTIONAL HVAC SYSTEMS GENERALLY AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
1. HEATING SYSTEM
2. COOLING SYSTEM
3. VENTILATION SYSTEM
4. EXHAUST SYSTEMS
5. DRYER VENT SYSTEMS

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THE CIVIL, ARCHITECTURAL, STRUCTURAL, PLUMBING AND ELECTRICAL DRAWINGS AND SPECIFICATIONS SHALL APPLY TO AND BE CONSIDERED A PART OF THE HVAC WORK IN–SO–FAR AS THEY APPLY TO THE HVAC WORK AND ARE REQUIRED FOR COORDINATION.

1.3 JOB CONDITIONS:

A. DUE TO THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED TO PROVIDE A COMPLETE INSTALLATION OF THE WORK DESCRIBED AND INDICATED.

B. PROVIDE FITTINGS, OFFSETS, TRANSITIONS, CONTROL TRANSFORMERS AND ACCESSORIES REQUIRED TO MEET CONDITIONS OF THE PROJECT.

C. PROVIDE SERVICE ACCESS FOR EQUIPMENT, CONTROL COMPONENTS, VALVES, FILTERS AND SPECIALTIES.

D. PROVIDE ACCESS PANELS FOR VALVES, ACCESS DOORS, ETC. CONCEALED BEHIND FINISHED SURFACES.

E. MODIFY DUCT DIMENSIONS AS REQUIRED BY BUILDING STRUCTURE OR OTHER WORK AT NO ADDITIONAL COSTS TO THE OWNER. MAINTAIN EQUIVALENT FREE AREA SIZES.

1.4 CONFORMANCE TO REGULATIONS:

A. WORK SHALL CONFORM WITH VIRGINIA UNIFORM STATEWIDE BUILDING CODE, NFPA, AND LOCAL ORDINANCES.

B. COMPLY WITH LANDLORD'S TENANT REQUIREMENTS FOR INSTALLATION OF WORK.

C. COMPLY WITH GSA STANDARDS FOR CONSTRUCTION

1.5 QUALITY ASSURANCE:

A. COMPLY WITH MANUFACTURER'S REQUIREMENTS AND NOTES AND DETAILS SHOWN HEREIN FOR INSTALLATION OF EQUIPMENT.

B. COMPLY WITH RECOMMENDATIONS OF SMACNA AND ASHRAE.

1.6 MATERIALS AND EQUIPMENT:

A. EQUIPMENT PROVIDED FOR THIS PROJECT SHALL BE EQUIVALENT TO PRODUCTS SPECIFIED.

B. CONTRACTOR SHALL GUARANTEE EQUIVALENCE AND IS RESPONSIBLE FOR MODIFICATIONS REQUIRED AND COORDINATION WITH OTHER TRADES TO FIT SUBSTITUTED PRODUCT INTO THE PROJECT.

C. MATERIALS AND EQUIPMENT OF THE SAME TYPE AND USE SHALL BE FROM A SINGLE MANUFACTURER.

D. PROTECT STORED MATERIALS AND EQUIPMENT FROM WEATHER.

E. IF HVAC EQUIPMENT IS OPERATED DURING CONSTRUCTION, PROVIDE TEMPORARY FILTERS TO PROTECT AIR HANDLING EQUIPMENT.

1.7 SUBMITTALS:

A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR EQUIPMENT SPECIFIED HEREIN AND ON THE DRAWINGS. SHOP DRAWINGS AND PRODUCT DATA SHALL BE IDENTIFIED PER INDICATIONS ON DRAWINGS, SHALL BE MARKED TO INDICATED SPECIFIC ITEM BE PROPOSED, AND SHALL BE ORGANIZED IN AN ORDERLY MANNER. SUBMIT IN .PDF FORMAT VIA EMAIL.

B. SUBMIT OPERATING AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT INSTALLED IN THIS PROJECT. INCLUDE COPIES OF SPECIFIC EQUIPMENT WARRANTIES IN MANUAL.

C. UPON COMPLETION OF THE INSTALLATION, AND PRIOR TO ACCEPTANCE BY THE OWNER, CONTRACTOR SHALL FURNISH TWO COPIES OF AS–BUILT DOCUMENTATION. ALL CHANGES TO THE BIDDING DOCUMENTS SHALL BE NEATLY AND CLEARLY IDENTIFIED ON THE AS–BUILT DOCUMENTATION.

1.8 PROJECT CLOSEOUT:

A. REPLACE OR REPAIR DAMAGED EQUIPMENT AND CLEAN ALL EXPOSED SURFACES.

B. TOUCH–UP SHOP APPLIED FINISHES TO RESTORE DAMAGED OR SOILED AREAS.

C. INSTRUCT OWNER'S REPRESENTATIVE IN OPERATION AND MAINTENANCE OF EQUIPMENT UTILIZING OPERATION AND MAINTENANCE MANUAL. MINIMUM INSTRUCTION PERIOD SHALL BE TWO HOURS.

D. REPLACE FILTERS IN AIR HANDLING EQUIPMENT AT TIME OF PROJECT TURNOVER TO OWNER.

E. VACUUM INTERIORS OF DUCTWORK AND EQUIPMENT WHICH BECOMES DIRTY, PRIOR TO PROJECT TURNOVER TO OWNER. CLEAN ANY DIRTY EQUIPMENT COILS.

2. PRODUCTS

2.1 PIPING SYSTEMS:

A. CONDENSATE DRAIN – SCH. 40 PVC WITH SOLVENT WELD FITTINGS

B. REFRIGERANT – TYPE C&C OR ARC COPPER, SILVER SOLDER FITTINGS.

2.2 HVAC EQUIPMENT:

A. REFER TO SCHEDULE SHEETS AND EQUIPMENT LIST FOR MANUFACTURERS AND MODEL NUMBERS.

B. ALTERNATE MANUFACTURER'S ARE: LENNOX, YORK, MCQUAY, TITUS, CARRIER, SANYO, MITSUBISHI, TRANE, COOK, CARNES, TWIN CITY, ACME, METALAIRE

C. PROVIDE MINIMUM MERV 8 RETURN AIR FILTERS FOR AIR HANDLING EQUIPMENT.

2.3 AIR DISTRIBUTION:

A. METAL DUCTWORK: SHOP FABRICATED AS FOLLOWS.
1. MATERIALS: GALVANIZED STEEL SHEET, ASTM A 527–85.
2. CONSTRUCTION: PER SMACNA HVAC DUCT CONSTRUCTION STANDARDS FOR LOW PRESSURE SYSTEM UP TO 2" W.C. CONSTRUCTION.
3. JOINT SEALANT: UL LISTED FOSTER MASTIC, HARDCAST FTA–20, KINGCO 18–136.
4. SUPPLY AIR BRANCH DUCTS RUN IN CONCEALED AREAS MAY BE PRE–INSULATED, UL CLASS 1, FLEXIBLE DUCT – LIMIT LENGTH TO TEN FEET – USE RIGID DUCT FOR REMAINDER OF RUNOUT.
5. DRYER VENT SHALL BE RIGID GALVANIZED STEEL WITH LONG RADIUS ELBOWS AND NO SCREWS PROTRUDING INTO VENT. USE RIVETS AT JOINT AND FITTING CONNECTIONS. USE FLEXIBLE METAL VENT AT CONNECTION TO DRYER. MINIMUM THICKNESS OF VENT TO BE 26 GAUGE. FIRESTOP VENT PENETRATIONS THRU FIRE RATED CONSTRUCTION PER ULC–AJ7063.

B. DAMPERS – AS MANUF. BY RUSKIN, CESCO, ARROW, CREATIVE METALS, PREFCO
1. VOLUME DAMPERS SHALL BE GALVANIZED STEEL, 16 GAUGE, BLADE HEIGHT SHALL NOT EXCEED 12". DAMPER LINKAGE AND LOCKING QUADRANT SHALL BE OUTSIDE OF AIRSTREAM.
2. MOTORIZED DAMPERS – REFER TO EQUIPMENT LIST ON DRAWINGS.
3. SPLITTER DAMPER SHALL BE GALV. STEEL, FULL HEIGHT OF DUCT LESS LINER THICKNESS, W/ PIVOT PINS AND STEEL ROD TO EXTERIOR OF DUCT. PROVIDE LOCKING ADJUSTMENT.
4. FIRE DAMPERS SHALL BE UL LISTED TYPE 'B' WITH BLADE POCKET OUTSIDE OF AIRSTREAM, DYNAMIC TYPE WITH 212F RATED LINK, POTTORF OR EQUAL. DAMPERS IN CEILING TO BE RADIATION TYPE WITH THERMAL BLANKET. SECURE DAMPER TO STRUCTURE SO IN CASE OF DUCT COLLAPSE, DAMPER WILL REMAIN INTACT IN FIRERATED ASSEMBLY. PROVIDE INSTALLATION INSTRUCTIONS ON SITE FOR INSPECTORS.

C. ACCESS DOORS –
1. FACTORY BUILT WITH SASH LOCKS, BUTT HINGE, GASKET, 24 GA. DOOR AND 22 GA. FRAME.
2. ACCESS DOOR IN INSULATED DUCT SHALL BE DOUBLE CONSTRUCTION, WITH INSULATION ENCASED.
3. MINIMUM SIZE TO BE 75% SIZE OF DUCT IN WHICH INSTALLED, OR 10" X 10".
4. CESCO MODEL HAD–10, LOUVERS AND DAMPERS, KEES, INC. OR AIR BALANCE.

2.4 CONTROLS:

A. PROVIDE ALL RELAYS, TRANSFORMERS, CONTROL WIRING, TERMINAL BLOCKS, ETC. FOR A COMPLETE SYSTEM.
1. COMPONENT MANUFACTURER'S AND MODEL NUMBERS AS SPECIFIED ON DRAWINGS.

B. THE WARRANTY PERIOD SHALL COMMENCE AFTER 60 DAYS OF BENEFICIAL USE, MEASURED FROM THE DATE OF ACCEPTANCE FROM THE OWNER.

3. EXECUTION

3.1 PIPING SYSTEMS:

A. VERIFY INVERT ELEVATIONS PRIOR TO EXCAVATION.

B. BACKFILL BURIED PIPE IN TRENCHES WITH DIRT FREE OF ROCK, STONE OR DEBRIS.

C. VERIFY EXACT LOCATION OF EQUIPMENT PRIOR TO ROUGH–IN.

D. COORDINATE ROUTING OF WORK WITH OTHER TRADES AND INSTALL TO ALLOW MAXIMUM HEADROOM CLEARANCES, SERVICE ACCESS AND MAINTAIN PROPER PITCH OF SLOPING LINES.

E. INSULATE PIPING SYSTEMS AS FOLLOWS:
1. REFRIGERANT – 1" THICK CLOSED CELLULAR RUBBER
2. HORIZONTAL CONDENSATE DRAIN – 1/2" THICK FIBERGLASS WITH ASJ.
3. INSULATE HP S&R PIPING WITH 1" THICK FIBERGLASS W/ ASJ.
4. SEAL VAPOR BARRIERS. SECURE WITH ADHESIVE AND SEAL JOINTS WITH SEALANT.
5. PROVIDE GALVANIZED STEEL SADDLE AT HANGERS SURROUNDING INSULATED PIPE.
6. DO NOT COMPRESS INSULATION EXCEPT IN AREAS OF STRUCTURAL INTERFERENCE.
7. INSTALL PRE–FITTED PLASTIC ELBOWS OR APPLY CANVAS JACKET IN THREE LAYERS AT ELBOWS.
8. INSULATE FITTINGS, VALVES AND EQUIPMENT BODIES.
9. PROVIDE 2 COATS OF GREY WEATHERPROOF FINISH ON EXTERIOR REFRIGERANT PIPING.

F. PROVIDE SLEEVES FOR PIPING PENETRATING WALLS. INSULATION SHALL BE CONTINUOUS THROUGH SLEEVES.

G. FIRESTOP PIPING PASSING THROUGH FIRE RATED WALLS OR CEILINGS.

H. PATCH FINISHED AREAS DISTURBED BY WORK TO MATCH SURROUNDING AREAS.

I. WELDING SHALL BE DONE BY CERTIFIED WELDERS FOR THE APPROPRIATE SYSTEM BEING WELDED.

J. MAKE CONNECTIONS OF DISSIMILAR METALLIC PIPING WITH DIELECTRIC UNIONS.

K. DO NOT USE PLASTIC PIPING IN RETURN AIR PLENUM SPACES.

L. PROVIDE SHUT OFF VALVES AT EQUIPMENT CONNECTIONS.

M. HANGERS SUPPORTING COPPER PIPING SHALL BE COPPER PLATED OR PLASTIC COVERED. HANGERS SUPPORTING INSULATED PIPING SHALL BE SIZED TO SURROUND INSULATION AND STEEL SADDLE.

N. CLEAN AND FLUSH PIPING THEN TEST PIPING SYSTEMS AS FOLLOWS:
1. REFRIGERANT PIPING – TO 100 PSIG W/ COMPRESSED NITROGEN FOR FOUR HOURS
2. CONDENSATE DRAIN PIPING – W/ 10 FT. WATER COLUMN OR 5 PSI COMPRESSED AIR FOR 12 HOURS.
3. TESTS SHALL SHOW NO SUBSTANTIAL LOSS IN PRESSURE.
4. PIPING RUN IN CONCEALED AREAS SHALL BE LEAK TESTED PRIOR TO BEING CONCEALED.
5. SUBMIT WRITTEN REPORT OF TEST RESULTS.

3.2 HVAC EQUIPMENT:

A. PROVIDE PERMANENT TAG ON EQUIPMENT INDICATING EXPIRATION DATE OF WARRANTIES. LOCATE TAG IN A READILY VISIBLE LOCATION.

B. PROVIDE FACTORY AUTHORIZED START–UP OF EQUIPMENT AND SUBMIT TEST REPORTS. (INCLUDE IN O&M MANUAL). COMPLY WITH MANUFACTURER REQUIREMENTS AND NOTES STATED ON THE CONSTRUCTION DOCUMENTS FOR INSTALLATION OF EQUIPMENT. BALANCE THE OUTSIDE AIR CFM TO QUANTITIES LISTED.

C. SPLIT SYSTEM UNITS:
1. SUPPORT INDOOR UNIT FROM STRUCTURE WITH ALL THREAD STEEL RODS AND SPRING TYPE VIBRATION ISOLATORS – INSTALL LEVEL. CONNECT DUCTWORK WITH FLEXIBLE DUCT CONNECTIONS. INSTALL TO ALLOW PROPER SERVICE ACCESS.
2. PROVIDE DRAIN PAN BENEATH UNITS . SUPPORT PAN FROM FLOOR STRUCTURE.
3. PROVIDE CONDENSATE DRAIN PIPING AND EXTEND TO HUB DRAIN OR TO EXTERIOR – VERIFY TERMINATION POINT WITH LOCAL CODE OFFICIAL AND ARCHITECT.
4. CONNECT REFRIGERANT PIPING AND CONTROL WIRING.

3.3 AIR DISTRIBUTION:

A. DUCTWORK:
1. SEAL JOINTS IN DUCTWORK WITH COATING OF HARDCAST SEALANT OR UL LISTED FSK DUCT TAPE.
2. INSTALL INTERNAL ENDS OF SLIP JOINTS IN DIRECTION OF AIRFLOWS.
3. MAXIMUM ANGLE OF OFFSETS AND TRANSITIONS SHALL NOT EXCEED 30 DEGREES.
4. ADEQUATELY SUPPORT DUCT AS PER CODE REQUIREMENTS –ELIMINATE SAGGING AND COMPRESSION OF DUCT.
5. TRANSITION DUCTS TO FIT EQUIPMENT. PROVIDE FLEXIBLE FLAME RETARDANT DUCT CONNECTIONS TO FURNACES AND GAS FIRED PACKAGED UNITS.
6. PROVIDE 1/2" THICK ACOUSTICAL SOUNDLINING IN RETURN AIR TRUNK DUCTS WITHIN TWENTY FEET OF AHU'S. SECURE LINER TO DUCTS WITH ADHESIVE AT 70% COVERAGE AND WITH MECHANICAL FASTENERS AT 18" CENTERS, AND WITHIN 6" OF BUTT JOINTS AND EDGES OF DUCT. COAT ALL EXPOSED 'ROUGH' LINER WITH MASTIC. ENLARGE DUCT TO ACCOMMODATE THE LINER – SIZES ON THE PLANS ARE INSIDE FREE AREA DIMENSIONS.
7. USE LONG RADIUS RIGID DUCT FITTINGS AT ELBOWS IN FLEXIBLE DUCT FLEXIBLE DUCT EXCEEDING 60 DEGREE ANGLE. ELBOWS IN FLEXIBLE DUCT LESS THAN 60 DEGREE ANGLE SHALL BE LONG SWEEP TYPE.

B. INSULATE DUCT SYSTEMS PER CODE OR AS FOLLOWS, WHICHEVER IS MORE STRINGENT:
1. WITHIN BUILDING STRUCTURE AND INSIDE OF BUILDING INSULATION ENVELOPE (OUTSIDE AIR, SUPPLY AND RETURN AIR DUCTS): ONE LB./CU.FT. DENSITY, 2" THICK FIBERGLASS, WITH FSK JACKET; OR WITH 3/8" THICK FOIL FACED AIR CELL INSULATION, REFLECTIX OR EQUAL.
2. INSULATE SUPPLY AIR AND RETURN AIR DUCTS OUTSIDE OF BUILDING INSULATION WITH 3" THICK FIBERGLASS WITH FSK JACKET – MINIMUM R = 8.0 INSTALLED.
3. EXHAUST AIR DUCTS: DO NOT INSULATE.
4. SECURE INSULATION TO DUCTS W/ ADHESIVE AT 60% COVERAGE AND SECURE WITH MECHANICAL FASTENERS AND WASHERS AT 18" CENTERS – SEAL VAPOR BARRIER.

C. DAMPERS: ACTUATORS AND PUSH–RODS SHALL BE ACCESSIBLE.
1. ACTUATORS AND PUSH–RODS SHALL BE ACCESSIBLE.
2. PROVIDE COMBINATION DAMPER/EXTRACTOR/SPIN–IN FOR ROUND DUCT CONNECTIONS TO TRUNK DUCTS. PROVIDE 45 DEGREE BEVEL INLET WITH BALANCE DAMPER FOR RECTANGULAR DUCT CONNECTIONS TO TRUNK DUCT. DAMPER ADJUSTMENT TO BE LOCATED ON BOTTOM SIDE OF DUCT.

D. ACCESS DOORS – PROVIDE IN DUCT FOR ACCESS TO COILS, FILTERS, FIRE & MOTORIZED DAMPERS, AND ALL OTHER EQUIPMENT NOT OTHERWISE ACCESSIBLE. INSTALL TO ALLOW SERVICE ACCESS. PROVIDE LABEL ON ACCESS DOOR INDICATING DEVICE SERVED.

E. BALANCE AIR DISTRIBUTION TO WITHIN 10% OF DESIGN AND SUBMIT REPORT.
1. REPORT SHALL IDENTIFY ZONES, DESIGN AIRFLOWS AND FINAL AIRFLOWS (SUPPLY AIR, RETURN AIR AND OUTSIDE AIR). SUPPLY AND RETURN STATIC PRESSURES, ENTERING AND LEAVING AIR TEMPERATURES.
2. INCLUDE EXHAUST FAN SYSTEMS, AND HVAC EQUIPMENT.
3. COMPLY WITH NEBB AND AABC REQUIREMENTS.

3.4 CONTROLS:

A. SEAL PROBE PENETRATIONS FOR DUCT MOUNTED SENSORS.

B. PROVIDE JUNCTION BOX HOUSING FOR CONTROL WIRING INTERLOCK TO COMPONENTS.

C. ROUTE CONDUCTORS NEATLY AND PARALLEL OR PERPENDICULAR TO BUILDING CONSTRUCTION. WIRING AND CONDUCTORS IN FINISHED SPACES TO BE RUN CONCEALED.

D. SEQUENCE OF CONTROL
1. ON A CALL FOR COOLING – BLOWER AND COOL COMPRESSOR SHALL BE ENABLED.
2. ON A CALL FOR HEAT – BLOWER AND GAS HEAT SHALL BE ENABLED. FOR HEAT PUMP, BLOWER AND HEAT COMPRESSOR SHALL BE ENABLED. ON A CALL FOR ADDITIONAL HEAT, AUX. ELECTRIC STRIP HEAT SHALL BE ENABLED AND STAGED.
3. OA TO BE INTRODUCED IN SPACES WHEN BLOWER RUNS. FOR UNITS WITH MOTORIZED OA DAMPER ONLY, THERMOSTAT TO OPEN DAMPER IN OCCUPIED MODES TO MINIMUM SETPOINT, OTHERWISE OA DAMPER TO CLOSE.
4. OUTSIDE AIR TO BE INTRODUCED WHEN BLOWER RUNS. FOR UNITS WITH AIR QUALITY SENSOR, THERMOSTAT TO ENABLE SENSOR TO OPEN MOTORIZED OA DAMPER TO SETPOINT IN CASE OF POOR RA QUALITY (1000 PPM IN OCCUPIED MODES ONLY).

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AUGUSTA COUNTY SERVICE AUTHORITY
846 LAUREL HILL RD. VERONA, VA

COMMONWEALTH OF VIRGINIA
WESLEY FRANKLIN SIEVER
Lic. No. 0402 043863
6-10-22
PROFESSIONAL ENGINEER

PROJ NO. 21069

Mark	Date	Description
–	06/10/2022	REVISED BID DOCUMENTS
–	01/06/2022	BID DOCUMENTS

M-001
MECHANICAL SPECIFICATIONS
6/9/2022 11:45 AM

SYMBOLS

⊠	SUPPLY DUCT
◪	RETURN OR EXHAUST DUCT
(T)	THERMOSTAT-MTD. 48" AFF
(A) 100	INDICATES AIR OUTLET OR INLET. TOP LETTER INDICATES GRID TYPE (SEE SCHEDULE); BOTTOM NUMERAL INDICATES CFM FOR BALANCING
—oCO	DUCT MTD. AIR QUALITY SENSOR
(M)	MOTORIZED DAMPER (MOD)
(S)	REMOTE TEMP SENSOR - MTD. 48" AFF
(100)	NUMERAL INDICATES CFM FOR BALANCING EXISTING CD
□CO	AIR QUALITY SENSOR - MTD. 48" AFF

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
BV	BRICK VENT - 8X4 NECK UNLESS OTHERWISE NOTED, MATCH BUILDING FINISH
CD	CEILING DIFFUSER
DN	DOWN
EA	EXHAUST AIR
EF	EXHAUST FAN
F/L	FAN LIGHT COMBINATION - PROVIDED BY ELECTRICIAN
OA	OUTSIDE AIR
RA	RETURN AIR
RG	RETURN GRILLE
SA	SUPPLY AIR
SF	SUPPLY FAN
SG	SOFFIT GRILLE
TYP	TYPICAL
UH	UNIT HEATER
WC	WALL CAP

VRF EQUIPMENT SCHEDULE

ZONE	OUTDOOR HEAT PUMP	NOMINAL TONS	RATED COOLING	RATED HEATING	SEER	O.U. VOLTS	O.U. MCA/ MOP	INDOOR UNIT I.U. NAME	I.U. MODEL NO.	CFM	MIN. OA	ESP.	RATED COOLING TOTAL	RATED HEATING	BLOWER SPEED	VOLTS	MCA
OHP-1	CARRIER 38MBRBQ36	3	36,000 BTUH	38,000 BTUH	17.6	208/1	30/ 45	FCU-1	CARRIER 40MBCQ36	353	0	N/A	36,000 BTUH	38,000 BTUH	HIGH	208/1	0.8

PROVIDE ALL PIPING; W/ WIRED WALL MOUNTED ROOM THERMOSTAT, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM. WITH LOW AMBIENT CONTROLS TO -5 DEGREES F.

INDOOR UNIT IS POWERED FROM THE OUTDOOR UNIT FOR THIS SYSTEM

ZONE	OUTDOOR HEAT PUMP	NOMINAL TONS	RATED COOLING	RATED HEATING	SEER	O.U. VOLTS	O.U. MCA/ MOP	INDOOR UNIT I.U. NAME	I.U. MODEL NO.	CFM	MIN. OA	ESP.	RATED COOLING TOTAL	RATED HEATING	BLOWER SPEED	VOLTS	MCA
OHP-2	CARRIER 38MHRBQ09AA3	0.75	9,000 BTUH	9,000 BTUH	--	208/1	8/ 15	FCU-2	CARRIER 40MHHC09	329	0	N/A	9,000 BTUH	9,000 BTUH	HIGH	208/1	0.25

PROVIDE ALL PIPING; W/ WIRED WALL MOUNTED ROOM THERMOSTAT, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM.

INDOOR UNIT IS POWERED FROM THE OUTDOOR UNIT FOR THIS SYSTEM

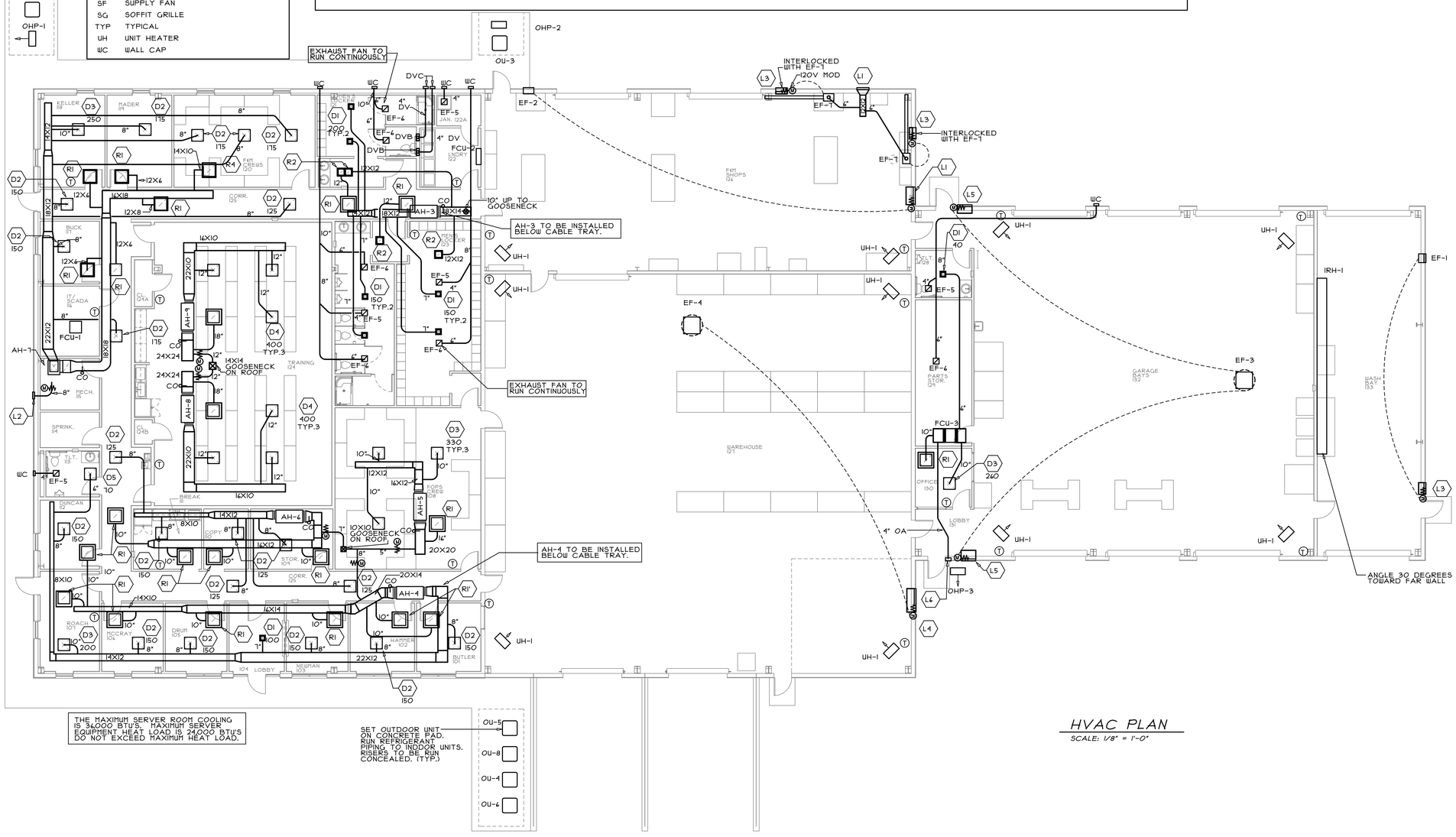
ZONE	OUTDOOR HEAT PUMP	NOMINAL TONS	RATED COOLING	RATED HEATING	SEER	O.U. VOLTS	O.U. MCA/ MOP	INDOOR UNIT I.U. NAME	I.U. MODEL NO.	CFM	MIN. OA	ESP.	RATED COOLING TOTAL	RATED HEATING	BLOWER SPEED	VOLTS	MCA
OHP-3	CARRIER 38MARBQ18	1.5	14,500 BTUH	19,000 BTUH	19.4	208/1	16/ 20	FCU-3	CARRIER 40MBDQ18	300	15	0.4"	14,500 BTUH	19,000 BTUH	LOW	208/1	1.2

PROVIDE ALL PIPING; W/ WIRED WALL MOUNTED ROOM THERMOSTAT, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM.

INDOOR UNIT IS POWERED FROM THE OUTDOOR UNIT FOR THIS SYSTEM

GRILLES, REGISTERS, DIFFUSERS AND LOUVERS

TYPE	DESCRIPTION	NECK	FRAME	FINISH	MFR. MDL.	REMARKS
D1	4-WAY CEILING DIFFUSER	12X12	FLANGE	WHITE	PROSELECT PSA4W1212	
D2		8"	T-BAR LAY-IN		PROSELECT PSVD31BDX	24" SQUARE PANEL
D3		10"			PROSELECT PSVD31BD10	
D4		12"			PROSELECT PSHVD31BD12	
D5	4-WAY CEILING DIFFUSER	6"	T-BAR LAY-IN	WHITE	PROSELECT PSVD31BDU	24" SQUARE PANEL
R1	RETURN AIR GRILLE	22X22	T-BAR LAY-IN	WHITE	PROSELECT PSAH45TB	24" SQUARE PANEL
R2	RETURN AIR GRILLE	14X14		WHITE	PROSELECT PSAH45W1414	24" SQUARE PANEL
L1	OUTSIDE AIR INTAKE LOUVER	36X36	FLANGE	SEL. BY ARCHIT.	DAYTON 20UA19	W/ BIRDSCREEN
L2		18X18			DAYTON 20UA08	
L3		24X24			DAYTON 20UA09	
L4		48X48			DAYTON 20UA11	
L5		30X30			DAYTON 20UA11	
L6		12X12			DAYTON 20UA01	



HVAC PLAN

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

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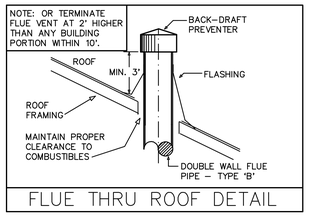
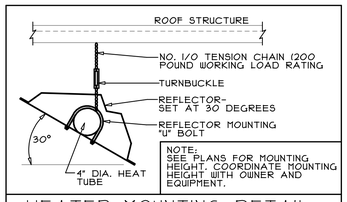
M-101
HVAC PLANS
6/9/2022 1:32 PM

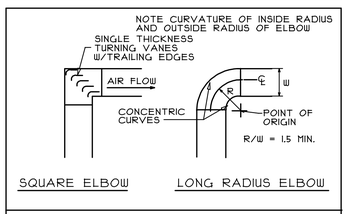


FLUE THRU ROOF DETAIL

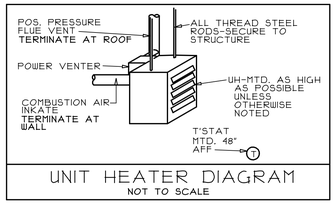


HEATER MOUNTING DETAIL

NOT TO SCALE

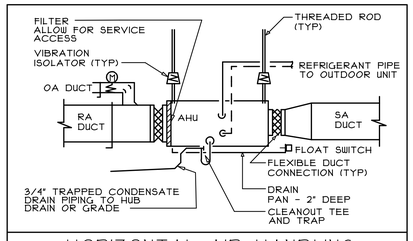


DUCTWORK ELBOW DETAILS

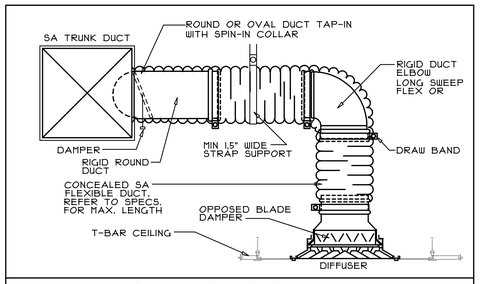


UNIT HEATER DIAGRAM

NOT TO SCALE

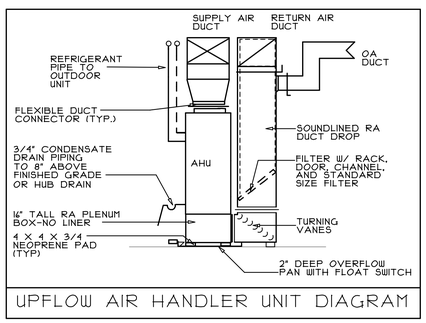


HORIZONTAL AIR HANDLING UNIT DIAGRAM



BRANCH DUCT DETAIL

NOT TO SCALE



UPFLOW AIR HANDLER UNIT DIAGRAM

EQUIPMENT LIST

EQUIPMENT: EQUIVALENT MANUFACTURERS MAY BE SUBSTITUTED. EQUIPMENT TO BE UL OR ETL LISTED.

Ⓣ - THERMOSTAT- SHALL BE 24 VAC. HEATING-COOLING AUTO-CHANGEOVER TYPE, 7 DAY PROGRAMMABLE, (SUITABLE FOR HEAT PUMP USE), OVERRIDE TIMER W/ AUX. CONTACT TO CONTROL OA MOD, MULTI-STAGE HEAT/COOL, HONEYWELL OR EQUAL.

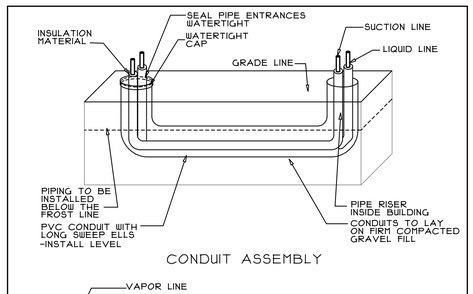
CO_2 SENSOR - CARBON DIOXIDE TYPE, 350 TO 2250 PPM RANGE, NON-GROUNDING, 24V TRANSFORMER, DUCT MOUNT BOX, 2 POSITION CONTROL.

MOD - 24VAC MOTORIZED DAMPER, 2 POSITION TYPE, W/ ACTUATOR AND LINKAGE MTD. OUTSIDE OF AIRSTREAM, NORMALLY CLOSED, SIZE TO FIT DUCT, COMPATIBLE W/ CO SENSOR, HONEYWELL OR EQUAL. HONEYWELL OR EQUAL.

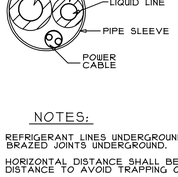
FLOAT SWITCH - LOCATED IN OVERFLOW PAN, SPST, WITH FLOAT, 24 VAC CONTACTS, LITTLE GIANT MDL. ACF-3 OR EQUAL.

UH - LP GAS FIRED UNIT HEATER, HORIZONTAL FLOW, WALL MTD. 24 VAC THERMOSTAT, 80% EFF., POWER VENTER, SEPAREATE COMBUSTION AND FLUE VENT
UH-1 - 150 MBH GAS INPUT, 2180 CFM, 1/8 HP, 115V/60/1PH. MODINE MDL. PDP150

IRH-1- INFRA RED RADIANT HEATER - 31'4" LONG, INPUT 110,000 BTU/HR, DIRECT SPARK IGNITION, 100% SAFETY SHUT-OFF, 120V A.C. 1.3 A, WITH REFLECTORS, TUBE, WALL MOUNTED THERMOSTAT, INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS. INFRASAVE MODEL IWP 110-30. HEATER IS NATURAL GAS FIRED. MOUNT NEAR WALL AT 30 DEGREE ANGLE.



CONDUIT ASSEMBLY



NOTES:

1. REFRIGERANT LINES UNDERGROUND SHALL BE CONTINUOUS WITH NO BRAZED JOINTS UNDERGROUND.
2. HORIZONTAL DISTANCE SHALL BE A MINIMUM OF 3 TIMES THE VERTICAL DISTANCE TO AVOID TRAPPING OF OIL IN THE SYSTEM.
3. LOCATE ALL CONDUIT SYSTEM SERVICE ACCESS POINTS ABOVE THE WATER TABLE AND/OR FLOOD PLAIN.
4. PRESSURE TEST THE REFRIGERANT PIPING BEFORE INSULATING OR SEALING IN THE UNDERGROUND CONDUIT.
5. WHERE THERE IS MORE THAN ON PIPING SYSTEM INVOLVED, USE A SEPARATE CONDUIT ASSEMBLY FOR EACH SET OF REFRIGERANT PIPING.

UNDERGROUND REFRIGERANT PIPING ASSEMBLY DIAGRAM

OUTSIDE AIR VENTILATION TABLE

	ROOM	AREA Az	OCCUPANT DNSTY	ZONE POP	PEOPLE OA RATE Rp	AREA OA RATE Ra	RaAz	RpPz	Vbz	Ez	Voz	SUPPLY AIR Vbz	Zp	Ev
AH-5	FOPS CREWS 108	334	5	1	5	0.06	20.16	5.00	25.16	0.8	31.45	1000	0.03	1.00
		334		1			20.16	5.00	25.16			1000		
				Diversty =	1		Vou =	25.16						
				Ev mn =	1.00		Vot =	25.2 CFM OA						
							% OA =	2.5						
AH-1	ROOM	AREA Az	OCCUPANT DNSTY	ZONE POP	PEOPLE OA RATE Rp	AREA OA RATE Ra	RaAz	RpPz	Vbz	Ez	Voz	SUPPLY AIR Vbz	Zp	Ev
	BUCK 117	124	5	1	5	0.06	1.44	5.00	12.44	0.8	15.55	175	0.09	1.00
	IT/SCADA 116	143	5	1	5	0.06	8.58	5.00	13.58	0.8	16.98	140	0.12	1.00
	KELLER 118	206	5	1	5	0.06	12.36	5.00	17.36	0.8	21.70	250	0.09	1.00
	MADER 119	119	5	1	5	0.06	7.14	5.00	12.14	0.8	15.18	200	0.08	1.00
	FM CREWS 120	430	5	2	5	0.06	25.80	10.00	35.80	0.8	44.75	600	0.07	1.00
	CORR 125	350	0	0	0	0.06	21.00	0.00	21.00	0.8	26.00	175	0.43	0.72
		1312		6			82.32	30.00	112.32			1540		
				Diversty =	1		Vou =	112.32						
				Ev mn =	0.72		Vot =	155.1 CFM OA						
							% OA =	10.1						
AH-3	ROOM	AREA Az	OCCUPANT DNSTY	ZONE POP	PEOPLE OA RATE Rp	AREA OA RATE Ra	RaAz	RpPz	Vbz	Ez	Voz	SUPPLY AIR Vbz	Zp	Ev
	MEN'S LOCKER	393	0	0	0	0	0.00	0.00	0.00	0.8	0.00	600	0.00	1.00
	WOMANS LOCKER	285	0	0	0	0	0.00	0.00	0.00	0.8	0.00	400	0.00	1.00
		1078		0			0.00	0.00	0.00			1000		
				Diversty =	0		Vou =	0				600 M-EX		
				Ev mn =	1.00		Vot =	0.0 CFM OA				200W-EX		
							% OA =	0.0						
AH-8&9	ROOM	AREA Az	OCCUPANT DNSTY	ZONE POP	PEOPLE OA RATE Rp	AREA OA RATE Ra	RaAz	RpPz	Vbz	Ez	Voz	SUPPLY AIR Vbz	Zp	Ev
	TRAINING 124	1722	50	86	5	0.06	103.32	430.00	533.32	0.8	666.65	2400	0.28	0.81
		1722		86			103.32	430.00	533.32			2400		
				Diversty =	1		Vou =	533.32						
				Ev mn =	0.81		Vot =	659.4 CFM OA						
							% OA =	27.5						
AH-4	ROOM	AREA Az	OCCUPANT DNSTY	ZONE POP	PEOPLE OA RATE Rp	AREA OA RATE Ra	RaAz	RpPz	Vbz	Ez	Voz	SUPPLY AIR Vbz	Zp	Ev
	COPY 110	120	4	1	5	0.06	7.20	5.00	12.20	0.8	15.25	450	0.03	1.00
	CORR 125	210	0	0	0	0.06	12.60	0.00	12.60	0.8	15.75	100	0.16	0.99
	STORAGE 109	159	0	0	0	0.12	19.08	0.00	19.08	0.8	23.85	450	0.05	1.00
	TLT. 113	45	0	0	0	0.00	0.00	0.00	0.00	0.8	0.00	35	0.00	1.00
	BREAK 111	134	30	4	5	0.06	8.16	20.00	28.16	0.8	35.20	450	0.08	1.00
	CORRIDOR 125	370	0	0	0	0.06	22.20	0.00	22.20	0.8	27.75	200	0.14	1.00
		1060		5			69.24	25.00	94.24			1685		
				Diversty =	1		Vou =	94.24						
				Ev mn =	0.99		Vot =	95.0 CFM OA						
							% OA =	5.6						
AH-4	ROOM	AREA Az	OCCUPANT DNSTY	ZONE POP	PEOPLE OA RATE Rp	AREA OA RATE Ra	RaAz	RpPz	Vbz	Ez	Voz	SUPPLY AIR Vbz	Zp	Ev
	ROACH 110	211	5	1	5	0.06	12.66	5.00	17.66	0.8	22.08	130	0.17	0.98
	HAMMER 109	142	5	1	5	0.06	8.52	5.00	13.52	0.8	16.90	130	0.13	1.00
	MCCRAY 106	139	5	1	5	0.06	8.34	5.00	13.34	0.8	16.68	130	0.13	1.00
	DRUM 105	139	5	1	5	0.06	8.34	5.00	13.34	0.8	16.68	130	0.13	1.00
	NEWMAN 108	143	5	1	5	0.06	8.58	5.00	13.58	0.8	16.98	130	0.13	1.00
	CORR 125	330	0	0	0	0.06	19.80	0.00	19.80	0.8	24.75	150	0.17	0.99
	LOBBY 103	123	10	1	5	0.06	7.38	5.00	12.38	0.8	15.48	100	0.15	1.00
	DUNCAN 112	142	5	1	5	0.06	8.52	5.00	13.52	0.8	16.90	125	0.14	1.00
	BUTLER 103	146	5	1	5	0.06	8.76	5.00	13.76	0.8	17.20	130	0.13	1.00
		1515		8			90.90	40.00	130.90			1155		
				Diversty =	1		Vou =	130.9						
				Ev mn =	0.98		Vot =	133.5 CFM OA						
							% OA =	11.6						
FCU-3	ROOM	AREA Az	OCCUPANT DNSTY	ZONE POP	PEOPLE OA RATE Rp	AREA OA RATE Ra	RaAz	RpPz	Vbz	Ez	Voz	SUPPLY AIR Vbz	Zp	Ev
	OFFICE 130	105	5	1	5	0.06	6.30	5.00	11.30	0.8	14.13	260	0.05	1.00
	TLT 128	80	0	0	0	0	0.00	0.00	0.00	0.8	0.00	40	0.00	1.00
		185		1			6.30	5.00	11.30			300		
				Diversty =	1		Vou =	11.3						
				Ev mn =	1.00		Vot =	11.3 CFM OA						
							% OA =	3.8						

FAN SCHEDULE

NO.	DESCRIPTION	CFM	E.S.P.	HP	RPM	VOLT/ PHASE	MFR. MDL.	REMARKS
EF-1	SIDEWALL DIRECT DRIVE EXHAUST FAN	110	0.25"	1/4	1,325	208/1	GREENHECK SEI-12-432-VG	NOTES 1,2,3,4
EF-2	SIDEWALL DIRECT DRIVE EXHAUST FAN	2200	0.25"	1/2	1150	208/1	GREENHECK SEI-14-421-A	NOTES 1,2,4
EF-3	CENTRIFUGAL ROOF EXHAUST FAN	3400	0.25"	1/2	526	208/1	GREENHECK GB-220	NOTES 1,2,3
EF-4	CENTRIFUGAL ROOF EXHAUST FAN	4550	0.25"	3/4	574	208/1	GREENHECK GB-240	NOTES 1,2,3
EF-5	CENTRIFUGAL CEILING EXHAUSTER	75	3/16"	48W	1280	120/1	ACME VQ80	NOTES 1,2
EF-6	CENTRIFUGAL CEILING EXHAUSTER	150	3/16"	100W	710	120/1	ACME VQ150	NOTES 1,2
EF-7	WELDING EXTRACTION FAN	1295	-	1.5	-	120/1	KEMPER AMERICA, INC # 79103OO, 79100X	NOTES 5

NOTES

1. WITH SAFETY SWITCH
2. WITH BACKDRAFT DAMPER
3. WITH 12" ROOF CURB-SLOPE TYPE
4. W/ MOTORSIDE GUARD, DISCHARGE SHUTTERS, RAIN HOOD
5. W/ WALL BRACKET, SWIVEL FOR CRANE ARM, EXHAUST HOOD, 10FT FLEXIBLE EXHASTU ARM & DIAMETER, DUCTING AND HOSES FOR EXTENSION ARM 10FT EXHASUT CRANE, MOUNT FOR BOOM TO WALL WITH PIVOT

HVAC EQUIPMENT SCHEDULE

ZONE	OUTDOOR HEAT PUMP	NOMINAL TONS	RATED COOLING	SEER	O.U. VOLTS	O.U. MCA/ MOCP	INDOOR UNIT KW HEAT	INDOOR UNIT MODEL NO.	CFM ②	ESP.	MIN. OA CFM	BLOWER SPEED	HP	I.U. VOLTS	I.U. MCA/ MOCP	I.U. WEIGHT	REMARKS
OU-1/ AH-1	OMITTED																
OU-2/ AH-2	OMITTED																
OU-3/ AH-3	CARRIER 25HBC530	2.5	30,000	15.0	208/1	18.1/ 30	6.8	CARRIER FB4CNF030	1000	0.6"	250	HIGH	1/3	208/3	34.5/ 35	125	①③④
OU-4/ AH-4	CARRIER 25HBC542	3.5	42,000	15.0	208/1	27.6/ 40	13.5	CARRIER FB4CNF042	1400	0.6"	134	HIGH	1/3	208/3	55.5 70	160	
OU-5/ AH-5	CARRIER 25HBC530	2.5	30,000	15.0	208/1	18.1/ 30	6.8	CARRIER FB4CNF030	1000	0.6"	26	HIGH	1/3	208/3	34.5/ 35	125	
OU-6/ AH-6	CARRIER 25HBC5324	2.0	24,000	15.0	208/1	14.5/ 25	6.8	CARRIER FB4CNF030	800	0.6"	95	HIGH	1/3	208/3	34.5/ 35	125	
OU-7/ AH-7	CARRIER 25HBC548	4	48,000	15.0	208/1	28.5/ 40	13.5	CARRIER FB4CNF048	1600	0.6"	154	HIGH	3/4	208/3	55.5/ 70	160	
OU-8/ AH-8	CARRIER 25HBC534	4	34,000	15.0	208/1	22.1 40	11.3	CARRIER FB4CNF034	1200	0.6"	310	HIGH	1/2	208/3	47.7/ 60	125	
OU-9/ AH-9	CARRIER 25HBC534	4	34,000	15.0	208/1	22.1	11.3	CARRIER FB4CNF034	1200	0.6"	310	HIGH	1/2	208/3	47.7/ 60	125	

NOTES:

① COOLING CAPACITIES AT 95F DB/67F EWB TEMPERATURES. PROVIDE 45 TIME DELAY RELAYS, R-410A REFRIGERANT.

② REFER TO DRAWINGS FOR EXACT AIRFLOW QUANTITIES.

③ W/ COMPRESSOR TIME DELAY, COMPRESSOR CRANKCASE HEATER, REFRIGERANT LINE FILTER DRIER, HIGH AND LOW PRESSURE SWITCHES, RA FILTER.

④ W/ LOW AMBIENT CONTROLS

BLUELINE
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AUGUSTA COUNTY SERVICE AUTHORITY
846 LAUREL HILL RD. VERONA, VA

COMMONWEALTH OF VIRGINIA
WESLEY FRANKLIN SIEVER
Lic. No. 0402 043863
6-10-22
PROFESSIONAL ENGINEER

PROJ NO: 21069

Mark	Date	Description
-	06/10/2022	REVISED BID DOCUMENTS
-	01/06/2022	BID DOCUMENTS

M-102
HVAC SCHEDS. AND DETAILS
6/9/2022 11:48 AM

ELECTRICAL SPECIFICATIONS

1. GENERAL

1.1 RELATED DOCUMENTS:

A. REQUIREMENTS OF THE GENERAL CONDITIONS, SUPPLEMENTARY GENERAL CONDITIONS, AND SPECIAL CONDITIONS APPLY TO THIS SECTION.
B. ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND CIVIL DRAWINGS AND SPECIFICATIONS.

1.2 WORK INCLUDED:

A. ELECTRICAL SYSTEMS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.
B. PERMITS AND INSPECTIONS REQUIRED FOR WORK.
C. TEMPORARY ELECTRIC FOR SITE DURING CONSTRUCTION AS REQUIRED.
D. COORDINATION OF FINAL SELECTIONS, LOCATIONS, CONNECTIONS, ELECTRICAL CHARACTERISTICS, ETC. OF EQUIPMENT SUPPLIED BY OTHERS ON PROJECT.

1.3 JOB CONDITIONS:

A. COORDINATE WITH BUILDING CONSTRUCTION AND WITH OTHER TRADES.
B. IN CASE OF CONFLICT BETWEEN SPECIFICATIONS AND DRAWINGS, CONSULT ARCHITECT IMMEDIATELY FOR DETERMINATION OF PROCEDURE METHOD.

1.4 CONFORMANCE TO REGULATIONS:

A. WORK SHALL CONFORM WITH 2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE, NFPA, LOCAL ORDINANCES AND THE RULES AND REGULATIONS OF THE UTILITIES.
B. WORK SHALL BE IN ACCORDANCE WITH THE OWNER'S CRITERIA AND REQUIREMENTS.

1.5 QUALITY ASSURANCE:

A. MEET OR EXCEED RECOMMENDATIONS OF: IEEE, IES, NEMA AND UL.
B. NOTIFY ARCHITECT IMMEDIATELY OF CONFLICTS AND DEFICIENCIES. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN RESOLVED.

1.6 MATERIALS AND EQUIPMENT:

A. PROVIDE NEW MATERIALS AND EQUIPMENT UNLESS OTHERWISE NOTED.
B. FURNISH (INCLUDING FREIGHT AND UNLOADING) AND INSTALL UNLESS OTHERWISE NOTED.
C. EQUIPMENT PROVIDED FOR THIS PROJECT SHALL BE NEW UNLESS NOTED OTHERWISE.

1.7 UTILITIES AND CONNECTIONS:

A. OWNER WILL PAY ANY UTILITY SERVICE FEES DIRECTLY TO THE RESPECTIVE UTILITY COMPANIES.
B. PROVIDE ALL EQUIPMENT, MATERIALS, AND LABOR REQUIRED BUT NOT PROVIDED OR FURNISHED BY THE UTILITY COMPANIES TO BRING SERVICE INTO THE BUILDING.

1.8 SUBMITTALS:

A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR EQUIPMENT IN ACCORDANCE WITH THE ARCHITECT'S REQUIREMENTS.
B. UPON COMPLETION OF THE INSTALLATION, AND PRIOR TO ACCEPTANCE BY THE OWNER, CONTRACTOR SHALL FURNISH AS-BUILT DOCUMENTATION AND O+M MANUALS IN ACCORDANCE WITH THE ARCHITECT'S REQUIREMENTS.
C. PROVIDE WIRING DIAGRAMS SPECIFIC TO THIS PROJECT FOR ALL ROOMS WITH LOW VOLTAGE DEVICES SHOWING INTERCONNECTIONS BETWEEN POWER PACK, SWITCHES, AND OCCUPANCY SENSORS.

1.9 PROJECT CLOSEOUT:

A. REPAIR DAMAGED AND DEFECTIVE EQUIPMENT AND MATERIALS. REPLACE ITEMS THAT CANNOT BE PROPERLY REPAIRED.
B. CLEAN EXPOSED AND SEMI-EXPOSED SURFACES OF EQUIPMENT AND MATERIALS.
C. TOUCH-UP SHOP-APPLIED FINISHES TO RESTORE DAMAGED AND SOILED AREAS.
D. INSTRUCT OWNER'S REPRESENTATIVE IN OPERATION AND MAINTENANCE OF ELECTRICAL SYSTEMS UTILIZING THE OPERATION AND MAINTENANCE MANUAL ARE TIGHT AND SECURE.
L INSTRUCTION PERIOD SHALL OCCUR AFTER SUBSTANTIAL COMPLETION OF ELECTRICAL SYSTEMS AND PRIOR TO COMPLETION OF THE PROJECT. COORDINATE WITH THE ARCHITECT AND OWNER.

2. PRODUCTS

2.1 RACEWAYS AND FITTINGS:

A. CONDUIT SIZES SHALL BE AS REQUIRED BY THE CODE (UNLESS INDICATED OR SPECIFIED OTHERWISE) FOR THE NUMBER AND SIZE OF WIRE INDICATED. MINIMUM SIZE CONDUIT SHALL BE 1/2" ELECTRICAL TRADE SIZE. FLEXIBLE METAL CONDUIT USED FOR LIGHTING FIXTURE WHIPS MAY BE 3/8" WHERE ALLOWED BY THE CODE.
B. USE ELECTRICAL METALLIC TUBING EXCEPT AS FOLLOWS: USE RIGID NONMETALLIC CONDUIT IN OR UNDER ON GRADE CONCRETE SLABS. USE FLEXIBLE METAL CONDUIT FOR MOTOR AND EQUIPMENT CONNECTIONS IN DRY LOCATIONS. USE LIQUIDTIGHT FLEXIBLE METAL CONDUIT IN WET OR DAMP LOCATIONS.

2.2 WIRE AND CABLE:

A. CONDUCTORS SHALL BE COPPER, MINIMUM SIZE NO. 12 AWG. OTHER WIRE SIZES SHALL BE AS NOTED OR AS REQUIRED FOR THE CIRCUIT SIZE. CONDUCTOR INSULATION SHALL BE THHN/THWN.
B. BRANCH CIRCUIT WIRING WHERE CONCEALED IN WALLS AND ABOVE CEILINGS MAY BE TYPE MC (METAL CLAD) CABLE WHERE ALLOWED BY THE CODE.

2.3 BOXES:

A. GALVANIZED SHEET STEEL TYPE. SINGLE DEVICE BOX SHALL BE "NON-GANGABLE" TYPE AND FOR MULTIPLE DEVICES "GANGABLE" TYPE SHALL BE USED. BOXES FOR EXPOSED WORK SHALL BE 4" SQUARE TYPE. BOXES FOR EXPOSED WORK IN WET LOCATIONS SHALL BE DIE CAST TYPE WITH THREADED HUBS. SECTIONAL BOXES SHALL NOT BE USED IN MASONRY OR CONCRETE. SIZED FOR NUMBER OF CONDUCTORS, FITTINGS AND DEVICES AS REQUIRED BY THE CODE.

2.4 WIRING DEVICES:

A. 20 AMPERE SPECIFICATION GRADE.
B. COVERPLATES SHALL BE AS FOLLOWS: INTERIOR RECESSED - SMOOTH UNBREAKABLE NYLON; SURFACE - 4" SQUARE RAISED COVER. GALVANIZED, WEATHERPROOF - DIE CAST ALUMINUM, GFCI TYPE, WATERTIGHT WHILE IN USE TYPE, USE EXTERNAL OPERATING TYPE FOR WEATHERPROOF SWITCHES.
C. DEVICE AND PLATE COLOR SHALL BE AS SELECTED BY ARCHITECT.
D. GFCI OUTLETS TO BE SELF-TESTING TYPE.

2.5 DISCONNECT SWITCHES:

A. SAME MANUFACTURER AS THE PANELBOARDS, NEMA 3R FOR OUTDOOR USE.
B. DISCONNECT SWITCHES SHALL BE FUSED OR NON-FUSED AS INDICATED AND BE VISIBLE BLADE TYPE WITH EXTERNAL OPERATING HANDLE AND COVER INTERLOCK AND PAD LOCKING.
C. ALL LABELING ON EXTERIOR DISCONNECT SWITCHES SHALL BE UV RESISTANT.

2.6 GROUNDING:

A. CONNECTIONS TO BUILDING STEEL, GROUND RODS AND PIPING SYSTEMS SHALL BE MADE WITH BRONZE OR BRASS BOLTED TYPE FITTINGS DESIGNED FOR THE USE.
B. GROUNDING ELECTRODE CONDUCTOR SHALL BE SIZE AS INDICATED ON THE DRAWINGS AND AS DESCRIBED IN ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.

2.7 PANELBOARDS:

A. PANELBOARDS SHALL BE AS SCHEDULED OR BY: SQUARE-D, CUTLER HAMMER, GENERAL ELECTRIC OR SIEMENS. PANELS TO HAVE MINIMUM 20" WIDE CABINETS AND COPPER BUS BARS.
B. CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC, MOLDED CASE, BOLT-ON TYPE. MULTI-POLE SHALL BE COMMON TRIP TYPE. BREAKERS FOR HVAC EQUIPMENT SHALL BE "HACR" RATED WHERE REQUIRED.
C. PANELBOARDS SHALL HAVE LOCKABLE DOORS, LOCKS SHALL BE KEYED ALIKE.
D. PANELBOARDS SHALL BE FULLY RATED OR HAVE A UL LISTED SERIES CONNECTED RATING OF A MINIMUM 65,000 AIC. OBTAIN AND SUBMIT FAULT CURRENT VERIFICATION LETTER FROM THE POWER COMPANY TO THE LOCAL AUTHORITY HAVING JURISDICTION IF REQUIRED.
E. ALL LABELING ON EXTERIOR GEAR SHALL BE UV RESISTANT.

2.8 ELECTRIC SERVICE:

A. SERVICE SHALL BE 120/208 VOLT, 3 PHASE, 4 WIRE.

2.9 LAMPS:

A. NUMBER, SIZE AND TYPE OF LAMPS SHALL BE AS SPECIFIED ON THE DRAWINGS.

2.10 DRIVERS AND ACCESSORIES:

A. LED DRIVERS SHALL BE ELECTRONIC TYPE WITH EQUAL TO OR LESS THAN 10% THD AND A 3 YEAR WARRANTY, VOLTAGE TO MATCH SYSTEM VOLTAGE.
B. ACCESSORIES SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING FOR A COMPLETE LIGHTING FIXTURE INSTALLATION: PLASTER FRAMES, TEE BAR HANGERS, FIXTURE STUDS AND HOLD DOWN CLIPS FOR SUSPENDED CEILINGS.

2.11 LIGHTING FIXTURES:

A. LIGHTING FIXTURES SHALL BE AS SPECIFIED ON THE DRAWINGS.
B. PHOTOCELLS: SWIVEL MOUNT, 1800 WATT. TORK SERIES 2020 OR EQUAL.
C. TIMECLOCKS: ASTRONOMIC, 7 DAY, 100 HOUR BATTERY BACKUP. TORK SERIES EW2100 OR EQUAL.
D. CONTACTOR: MECHANICALLY HELD, ELECTRICALLY OPERATED, NUMBER OF POLES AS REQUIRED.

2.12 EMPTY CONDUIT SYSTEMS:

A. PROVIDE FOR USE BY THE OWNER'S CABLING CONTRACTOR. CONDUIT SYSTEM SHALL BE AS DESCRIBED ON THE DRAWINGS FOR DATA, TELEPHONE, TELEVISION, SOUND, SECURITY, ETC.

2.13 SPRINKLER ALARM SYSTEM:

A. PROVIDE AN ADDRESSABLE SPRINKLER ALARM SYSTEM FOR BUILDING AS INDICATED ON THE PLANS AND NOTED HEREIN.
B. PROVIDE PROPERLY SIZED BATTERY TO BACK UP PANEL UPON LOSS OF NORMAL POWER.
C. PROVIDE CONTROL PANEL WITH INTEGRAL DACT (DIGITAL ALARM COMMUNICATING TRANSMITTER) TO PROVIDE OFF-SITE MONITORING OF THE SYSTEMS. MONITORING SHALL BE AS APPROVED BY THE LOCAL AUTHORITY. POTS LINES AND WIRELESS COMMUNICATOR SHALL BE PROVIDED AS REQUIRED FOR THIS MONITORING.
D. SPRINKLER ALARM CONTRACTOR SHALL PROVIDE ALL DESIGN DRAWINGS, CALCULATIONS, PRODUCT DATA, ETC. TO THE LOCAL AUTHORITY REQUIRED FOR PERMITTING AND INSPECTIONS OF THE SYSTEM.
E. SIGNALING DEVICES SHALL BE ADA COMPLIANT.
F. CABLE SHALL BE FIRE PROTECTIVE SIGNALING TYPE.
G. ALL ACCESSORIES, EXPANDERS, ANNUNCIATORS, GRAPHIC PANELS, ETC. SHALL BE INCLUDED AS REQUIRED FOR A COMPLETE FULLY FUNCTIONING SYSTEM MEETING STATE AND LOCAL CODE REQUIREMENTS.

2.14 LIGHTNING PROTECTION:

A. PROVIDE A COMPLETE LIGHTNING PROTECTION SYSTEM FOR THE BUILDING. CONTRACTOR SHALL PROVIDE DESIGN AND DOCUMENTATION FOR A COMPLETE LIGHTNING PROTECTION SYSTEM. THE SYSTEM DESIGN SHALL COMPLY WITH THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARD #780, THE LIGHTNING PROTECTION INSTITUTE (LPI) STANDARD #175, AND UNDERWRITERS LABORATORIES, INC. (UL) STANDARD #96A.
B. THE SYSTEM SHALL INCLUDE STRIKE TERMINATION DEVICES, INTERCONNECTING CONDUCTORS, A PROPER GROUNDING SYSTEM, INTERCONNECTION WITH OTHER BUILDING GROUNDED SYSTEMS, AND SURGE SUPPRESSION AT SERVICE ENTRANCES.
C. THE MANUFACTURER OF THE MATERIAL COMPONENTS SHALL BE A MANUFACTURER MEMBER OF THE LIGHTNING PROTECTION INSTITUTE, AND ALL MATERIALS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH THE REQUIREMENTS OF A NATIONALLY RECOGNIZED TESTING LABORATORY.

3. EXECUTION:

3.1 RACEWAYS AND FITTINGS:

A. INSTALL CONDUITS CONCEALED IN WALLS, CEILINGS OR FLOORS UNLESS INDICATED OR SPECIFIED OTHERWISE. CONDUITS MAY BE INSTALLED EXPOSED IN UNFINISHED AREAS (IE: EQUIPMENT ROOMS). INSTALL EXPOSED CONDUITS IN RUNS PARALLEL OR PERPENDICULAR TO WALLS OR RUNNING MEMBERS OF INTERSECTIONS OF VERTICAL PLANES OR CEILINGS. EXPOSED AND CONCEALED CONDUITS SHALL PASS THROUGH A FIRE RATED WALL OR FLOOR SHALL NOT LESSEN THE RATING OF THE STRUCTURE THROUGH WHICH THEY PASS. FINAL INSTALLATION OF CONDUITS PENETRATING WATERPROOF CONSTRUCTION SHALL BE COMPLETELY WATERTIGHT.
B. SLEEVE CONDUITS PASSING THROUGH CONCRETE FLOOR SLABS AND CONCRETE, MASONRY, TILE AND GYPSUM WALLS.
E. CONDUIT SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE AT INTERVALS REQUIRED BY THE CODE. USE STANDARD CONDUIT HANGERS, ONE HOLE SNAP STRAPS, THIN WALL CONDUIT CLAMPS, MALLEABLE IRON PIPE STRAPS, STRUT CHANNEL BEAM CLAMPS, U-BOLTS AND ALL-THREAD RODS. DO NOT USE WIRE TIES, STRAPS OR PERFORATED STRAP IRON.
F. PAINT ANY EXPOSED CONDUITS NOT WITHIN UTILITY ROOMS TO MATCH SURROUNDINGS.

3.2 WIRE AND CABLE:

A. SPLICE CONDUCTORS NO. 10 AND SMALLER WITH STEEL SPRING WIRE CONNECTOR WITH THERMOPLASTIC SHELL. SPLICE CONDUCTORS NO.8 AND LARGER WITH MECHANICAL TYPE, TAP CONNECTORS WITH INSULATED COVERS OR SPLIT BOLTS TAPED TO CONDUCTOR INSULATION VALUE.
B. INSTALL CONDUCTORS IN RACEWAYS. CONDUCTORS SHALL BE CONTINUOUS FROM POINT OF ORIGIN TO PANEL OR EQUIPMENT TERMINATION WITHOUT RUNNING SPLICES IN INTERMEDIATE BOXES. CONDUCTORS OF DIFFERENT VOLTAGES SHALL NOT BE PULLED INTO SAME RACEWAY.
C. CABLE SHALL BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE WITH STAPLES OR ONE-HOLE STRAPS AT INTERVALS REQUIRED BY THE CODE. BORED HOLES SHALL NOT EXCEED 1" DIAMETER AND SHALL BE A MINIMUM OF 2'-0" FROM STRUCTURAL BEARING POINTS. NOTCHING OF STRUCTURAL MEMBERS IS PROHIBITED. PROVIDE GUARD STRIPS AT LEAST AS HIGH AS CABLE WHERE RUN ACROSS TOP OF STRUCTURE IN ACCESSIBLE ATTIC SPACES.
D. DO NOT RUN ANY WIRE OR CABLE IN PLUMBING WALLS UNTIL PIPING SYSTEMS HAVE BEEN COMPLETED. PLUMBING SHALL PRESIDE IN THESE WALLS.
E. DO NOT SHARE NEUTRAL CONDUCTORS FOR 120 VOLT CIRCUITS.
F. COLOR CODE CONDUCTORS TO INDUSTRY STANDARDS.
G. INCREASE WIRE SIZES AS REQUIRED TO COMPENSATE FOR VOLTAGE DROP BASED ON FEEDER/BRANCH CIRCUIT LENGTH.

3.3 BOXES:

A. SECURE BOXES TO STRUCTURE BY MEANS OF SCREWS, BOLTS, ROD HANGERS OR OTHER APPROVED MEANS. RACEWAYS ENTERING OR LEAVING BOX SHALL NOT BE USED AS SUPPORT. BOXES SHALL BE LEVEL AND PLUMB. BOXES FOR FLUSH EQUIPMENT SHALL BE PLACED TO WITHIN 1/4" OF THE FINISHED SURFACE. PROVIDE EXTENSIONS OR PLASTER RINGS AS REQUIRED. JUNCTION AND PULL BOXES SHALL BE INSTALLED READILY ACCESSIBLE, UNOBSTRUCTED BY PIPING, DUCTS OR OTHER EQUIPMENT.
B. BOXES SHALL BE MOUNTED AT HEIGHT INDICATED ON THE DRAWINGS OR DIRECTLY ADJACENT TO PIECE OF EQUIPMENT SERVED. SEAL SPARE OR UNUSED OPENINGS IN BOXES WITH APPROVED FITTINGS. FOR BOXES INSTALLED IN WET LOCATIONS PROVIDE CLEAR SILICONE CAULK BETWEEN BOX AND SURROUNDING SURFACE TO PREVENT WATER ENTRY.
C. BOXES IN RATED CONSTRUCTION SHALL BE SUITABLE FOR THE USE AND INSTALLED IN ACCORDANCE WITH THE CODE.
D. LABEL BOXES WITH PANEL AND CIRCUIT NUMBER DESIGNATIONS.

3.4 WIRING DEVICES:

A. INSTALL DEVICES APPROXIMATELY AT THE LOCATIONS INDICATED ON THE DRAWINGS. DETERMINE EXACT LOCATION BY CONDITIONS OF CONSTRUCTION. COORDINATE LOCATIONS TO AVOID CONFLICT WITH OTHER EQUIPMENT BEING INSTALLED. INSTALL DEVICES STRAIGHT AND SOLID TO BOX. MOUNTING HEIGHTS OF WALL OUTLETS SHALL BE AS INDICATED ON THE DRAWINGS AND SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE OUTLET. WHERE DEVICES ARE SHOWN GROUPED TOGETHER, PROVIDE A SINGLE, MULTIPLE GANG PLATE.
B. COORDINATE PLACEMENT IN AND AROUND KNEE SPACES, LAVATORIES AND OTHER EQUIPMENT TO AVOID CONFLICTS WITH MIRRORS AND OTHER APPURTENANCES. REFER TO ARCHITECTURAL DRAWINGS. SWITCHES SHALL BE LOCATED TO STRIKE SIDE OF THE DOOR. VERIFY FINAL DOOR SWINGS.
C. WHERE GFCI OUTLETS ARE USED TO PROVIDE FEED-THRU PROTECTION FOR DOWNSTREAM OUTLETS ON SAME CIRCUIT, DO NOT FEED-THRU WIRE ACROSS PARTITIONS, USE A SEPARATE DEVICE.
D. VERIFY THE NEMA CONFIGURATIONS OF ALL OUTLETS WITH OWNER.
E. LABEL WIRING DEVICES WITH PANEL AND CIRCUIT NUMBER DESIGNATIONS.

3.5 DISCONNECT SWITCHES:

A. MOUNT SWITCHES ON WALL OR AT ASSOCIATED PIECE OF EQUIPMENT. WALL MOUNTED SWITCHES SHALL BE 48 INCHES ABOVE FINISHED FLOOR. PROVIDE ENGRAVED PLASTIC UV RESISTANT LAMINATE NAMEPLATE FOR EACH DISCONNECT SWITCH LOCATED ON FRONT OUTSIDE COVER, NAMEPLATE SHALL INDICATE ITEM SERVED.
B. SWITCHES SCHEDULED ARE FOR DESIGN BASED EQUIPMENT. REVIEW OTHER TRADES' SUBMITTALS TO DETERMINE IF SUBSTITUTIONS HAVE BEEN MADE, PROVIDE SWITCH TO MATCH EQUIPMENT SUPPLIED.

3.6 GROUNDING:

A. CONDUIT SYSTEM SHALL NOT BE USED FOR GROUNDING.
B. FOR BONDING OF SERVICE EQUIPMENT PROVIDE BONDING BUSHINGS AND JUMPERS WHERE REQUIRED. CONDUIT AND FITTINGS WILL NOT BE CONSIDERED ACCEPTABLE FOR THE PURPOSE OF BONDING.
C. PROVIDE PROTECTION FROM PHYSICAL DAMAGE FOR ANY EXPOSED SECTION OF THE GROUNDING ELECTRODE CONDUCTOR SYSTEM.

3.7 PANELBOARDS:

A. NEATLY PRINT CIRCUIT DESIGNATIONS ON DIRECTORY CARD. NOTATIONS SHALL INDICATE THE NATURE AND LOCATION OF LOADS SERVED. DO NOT USE A PERMANENT MARKER TO LABEL CIRCUIT DESIGNATIONS ON PANEL HOUSING.
B. PROVIDE ENGRAVED LAMINATE NAMEPLATE FOR EACH NEW PANELBOARD LOCATED ON OUTSIDE OF DOOR. NAMEPLATE SHALL INCLUDE PANELBOARD DESIGNATION ON THE DRAWINGS, SERVICE VOLTAGE, PHASE AND AMPERAGE.
C. BREAKERS SCHEDULED ARE FOR DESIGN BASED EQUIPMENT. REVIEW OTHER TRADES' SUBMITTALS TO DETERMINE IF SUBSTITUTIONS HAVE BEEN MADE. PROVIDE BREAKERS TO MATCH EQUIPMENT SUPPLIED.

3.8 ELECTRIC SERVICE:

A. PROVIDE LABOR AND MATERIALS NOT FURNISHED BY THE POWER COMPANY. DO WORK REGARDING THE ELECTRICAL SERVICE AND ITS EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE POWER COMPANY. IF THE CONTRACT DOCUMENTS INDICATE WORK THAT IS TO EXCEED THESE REQUIREMENTS, FOLLOW THE CONTRACT DOCUMENTS.
B. LABEL EQUIPMENT FOR THE ELECTRIC SERVICE IN ACCORDANCE WITH THE APPROPRIATE SECTION OF THIS DIVISION. MAIN SWITCHES OR BREAKERS ARE TO BE IDENTIFIED AS SUCH IN ADDITION TO IDENTIFYING THE ITEM FED.

3.9 LAMPS:

A. PERMANENT LAMPS SHALL NOT BE USED AS TEMPORARY LIGHTING DURING CONSTRUCTION. IF FIXTURES ARE TO BE USED, TEMPORARY LAMPS SHALL BE PROVIDED AND PERMANENT LAMPS SHALL NOT BE INSTALLED UNTIL TIME OF OWNER'S ACCEPTANCE OF BUILDING.

3.10 LIGHTING FIXTURES:

A. INSTALLATION OF FIXTURES SHALL BE IN A NEAT, WORKMANLIKE MANNER. PROVIDE STRAPS, SUPPORTS, HANGERS AND OTHER MATERIALS REQUIRED FOR PROPER INSTALLATION.
B. SURFACE MOUNTED FIXTURES SHALL NOT HAVE GAPS BETWEEN THE FIXTURE AND ATTACHING SURFACE UNLESS MOUNTING IS DESIGNED TO HOLD FIXTURE OFF CEILING, OR EXCEPT WHERE REQUIRED BY THE CODE REGARDING CONTINUOUS RONS OF FIXTURES SHALL BE INSTALLED SO AS TO PROVIDE PERFECT ALIGNMENT.
C. SUPPORT SURFACE MOUNTED FIXTURES DIRECTLY FROM THE BUILDING STRUCTURE AND NOT FROM THE CEILING GRID SYSTEM. USE ALL-THREAD RODS, BEAM CLAMPS, PIPE CLAMPS AND PIPE OR PERFORATED STEEL CHANNEL FOR SUPPORT. WIRE TIES AND STAB-ON CLIPS WILL NOT BE ACCEPTED. THE SUPPORT ASSEMBLY SHALL BE CAPABLE OF SUPPORTING 150 POUNDS IN ADDITION TO THE FIXTURE WEIGHT INDEFINITELY.
D. RECESSED FIXTURES SHALL NOT HAVE GAPS BETWEEN THE FIXTURE TRIM AND ADJACENT SURFACE. WHERE LIGHT LEAKS OCCUR, SUITABLE GASKETS SHALL BE INSTALLED.
E. RECESSED LIGHTING FIXTURES INSTALLED IN MODULAR OR INTEGRATED CEILINGS SHALL BE OF THE PROPER TYPE FOR THE TYPE OF CEILING BEING INSTALLED. VERIFY TYPE OF CONSTRUCTION PRIOR TO ORDERING OF FIXTURES. ADDITIONAL CEILING TIES SHALL BE INSTALLED AT EACH CORNER OF THE LIGHTING FIXTURE TO REINFORCE THE CEILING SYSTEM.
F. CONNECT EXIT AND EMERGENCY LIGHTING FIXTURES TO BRANCH CIRCUIT SERVING NORMAL LIGHTING IN AREA AHEAD OF LOCAL SWITCHING.
G. MOUNT PHOTOCELL SENSORS AND TIMECLOCKS ADJACENT TO PANELBOARD AND SET TIMECLOCK TO HOURS DIRECTED BY THE OWNER. PHOTOCELLS SHALL BE LOCATED IN AN ACCESSIBLE LOCATION EITHER BELOW SOFFIT OR ABOVE ROOF LINE FACING NORTH, DO NOT ATTACH PHOTOCELLS ON FACE OF BUILDING.

3.11 EMPTY CONDUIT SYSTEMS:

A. LEAVE CONDUITS WITH PULL CORDS. AT COMPLETION OF THE PROJECT, PROVIDE BLANK COVERPLATES FOR ANY OUTLET BOXES NOT UTILIZED AND LEFT SPARE BY THE OWNER'S CABLING CONTRACTOR.
B. PAINT ALL SIDES AND EDGES OF EQUIPMENT SPACE WITH 2 COATS OF GRAY ENAMEL PAINT PRIOR TO INSTALLATION.
C. COORDINATE WITH THE UTILITIES SELECTED BY THE OWNER AND PROVIDE ALL MEANS REQUIRED FOR SERVICES TO THE BUILDING.

3.12 SPRINKLER ALARM SYSTEM:

A. ON CALL FROM INITIATING DEVICE, SYSTEM SHALL SOUND NOTIFICATION DEVICES AND NOTIFY CENTRAL STATION. SPRINKLER TAMPER SWITCHES TO SOUND TROUBLE SIGNAL.
B. COORDINATE FLOW AND TAMPER SWITCHES WITH SPRINKLER CONTRACTOR AND SHUTDOWN OF ROOF TOP UNITS WITH HVAC CONTRACTOR. VERIFY EXACT QUANTITIES AND LOCATIONS OF FLOW AND TAMPER SWITCHES WITH THE SPRINKLER CONTRACTOR REQUIRED FOR RISER, STANDPIPES, AND FIRE SERVICE LINE.
C. COORDINATE DEVICE ROUGH-IN LOCATIONS WITH FINAL SPRINKLER ALARM DESIGN DRAWINGS.
D. TEST SYSTEM TO INDUSTRY STANDARDS AND PROVIDE WRITTEN DOCUMENTATION TO THE ARCHITECT OF SYSTEM ACCEPTANCE.

3.13 LIGHTNING PROTECTION:

A. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES TO PROVIDE A COMPLETE LIGHTNING PROTECTION SYSTEM FOR THE STRUCTURE INCLUDED IN THIS CONTRACT.
B. THE SYSTEM INSTALLATION SHALL BE MADE UNDER THE SUPERVISION OF AN LPI CERTIFIED MASTER INSTALLER. UPON COMPLETION, THE CONTRACTOR SHALL DELIVER TO THE OWNER AN AS-BUILT DRAWING STAMPED BY THE MASTER INSTALLER AND APPROPRIATE SYSTEM CERTIFICATION DOCUMENTS UNDER THE LPI INSPECTION PROGRAM.
C. COORDINATE ROUGH-INS, CONDUITS, TIE-INS, ETC. WITH FINAL LIGHTNING PROTECTION SYSTEM DESIGN.

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AUGUSTA COUNTY SERVICE AUTHORITY

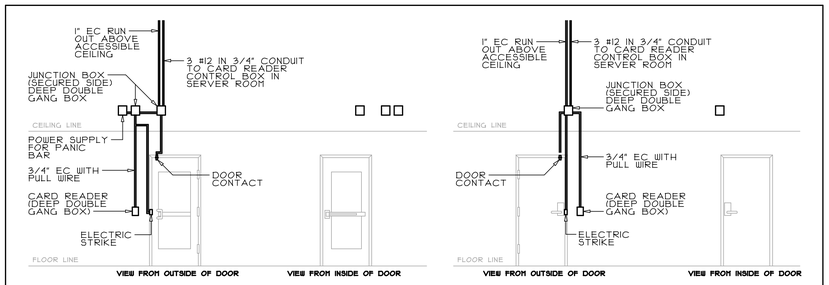
846 LAUREL HILL RD. VERONA, VA

COMMONWEALTH OF VIRGINIA
WESLEY FRANKLIN SIEVER
Lic. No. 0402 043863
6-10-22
PROFESSIONAL ENGINEER

PROJ NO: 21069

Mark	Date	Description
--	06/10/2022	REVISED BID DOCUMENTS
--	01/06/2022	BID DOCUMENTS

E-001
ELECTRICAL SPECIFICATIONS
6/9/2022 10:45 AM



SINGLE DOOR

NOTE: DIAGRAMS ARE GENERAL IN NATURE. COORDINATE WITH FINAL EQUIPMENT SUPPLIER'S INSTALLATION GUIDELINES PRIOR TO ROUGH-IN.

CARD READER ELECTRIC STRIKE DETAIL

NO SCALE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER/CATALOG NO.	LAMPS NO.	LAMPS TYPE	WATTAGE	MOUNTING	REMARKS
1	LITHONIA 2ALL4-48L-EZI-LP835	4800 LUMEN LED		40.0	RECESSED	
2	LITHONIA 2ALL4-40L-EZI-LP835	4000 LUMEN LED		32.0	RECESSED	
3	NOT USED					
4	LITHONIA LDN6-35/20-L06-AR-LSS-MVOLT-EZI	2000 LUMEN LED		22.5	RECESSED	
5	LITHONIA LDN6-35/15-L06-AR-LSS-MVOLT-EZI	1500 LUMEN LED		17.5	RECESSED	
6	LITHONIA ZLIN-L48-ASR-5000LM-FST-MVOLT-35K-80CRI-WH	5000 LUMEN LED		34.0	SURFACE	
7	LITHONIA JHBL-18000LM-PCL-WD-MVOLT-GZIO-40K-80CRI-MSEWWL-X	18,000 LUMEN LED		131.0	SUSPENDED AT 19'-0" AFF	NOTES 1, 2
7A	LITHONIA JHBL-18000LM-PCL-WD-MVOLT-GZIO-40K-80CRI-EI5WCPFMC-MSEWWL-X	18,000 LUMEN LED		131.0	SUSPENDED AT 19'-0" AFF	WITH BATTERY BACK-UP NOTES 1, 2
8	LITHONIA JHBL-24000LM-PCL-WD-MVOLT-GZIO-40K-80CRI-MSEWWL-X	24,000 LUMEN LED		185.0	SUSPENDED AT 19'-0" AFF	NOTES 1, 2
8A	LITHONIA JHBL-24000LM-PCL-WD-MVOLT-GZIO-40K-80CRI-EI5WCPFMC-MSEWWL-X	24,000 LUMEN LED		185.0	SUSPENDED AT 19'-0" AFF	WITH BATTERY BACK-UP NOTES 1, 2
9	NOT USED					
10	LITHONIA OLCFM-15-DDB	1100 LUMEN LED		16.6	SURFACE	
11	LITHONIA ARC2LED-P4-40K-MVOLT-X	4100 LUMEN LED		30.0	WALL 10'-0" AFF	NOTE 1
12	LITHONIA DSXOLED-P4-40K-T3M-MVOLT-WBA-X	10,500 LUMEN LED		92.0	WALL 16'-0" AFF	NOTE 1
13	NOT USED					
14	LITHONIA DSXILED-P3-40K-T3M-MVOLT-SPA-HS-X	12,600 LUMEN LED		102.0	POLE	NOTES 1, 3
15	LITHONIA DSXILED-P3-40K-T4M-MVOLT-SPA-HS-X	12,300 LUMEN LED		102.0	POLE	NOTES 1, 3
WL	LITHONIA WLTE-W-1-R-EL-SD	FURNISHED W/FIXTURE		2.7	WALL ABOVE DOOR	WET LOCATION
	LITHONIA LQM-S-W-3-R-120/277-ELN-SD	FURNISHED W/FIXTURE		0.7I	WALL ABOVE DOOR	
	LITHONIA LQM-S-W-3-R-120/277-ELN-SD	FURNISHED W/FIXTURE		0.7I	SURFACE	SINGLE FACE
	LITHONIA LQM-S-W-3-R-120/277-ELN-SD	FURNISHED W/FIXTURE		0.7I	SURFACE	DOUBLE FACE
A	LITHONIA LHQM-LED-R-SD	FURNISHED W/FIXTURE		4.3	SURFACE	
A	LITHONIA ELM6L-UVOLT-LTP-SDRT	FURNISHED W/FIXTURE		2.78	WALL 7'-0" AFF	1100 LUMEN OUTPUT
A	LITHONIA ELM6L-UVOLT-LTP-SDRT	FURNISHED W/FIXTURE		2.78	SURFACE	1100 LUMEN OUTPUT

SCHEDULE NOTES

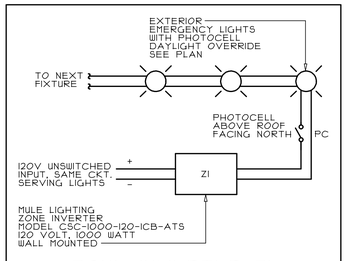
- EQUIVALENT FIXTURES ACCEPTED BY ALTERNATE MANUFACTURERS: AXIS, BARRON LIGHTING GROUP, CREE.
- ALL FIXTURES SPECIFIED HAVE AN INTERGRATED LED ARRAY.
1. VERIFY FIXTURE FINISH WITH THE ARCHITECT.
2. WITH FIXTURE MOUNTED OCCUPANCY SENSOR, COORDINATE WITH MANUFACTURER'S INSTALLATION GUIDELINES.
3. SEE POLE BASE DETAIL ON SHEET E-401.

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

ITEM	DESCRIPTION	VOLTS	PH	FLA	WIRE	GND.	MOCP	DISCONNECT	PNL. & CKT.	REMARKS
1	NOT USED									
2	NOT USED									
3	OU-3	208	1	14.5	2 #10	#10	30A	2P-30A-NFSS	M-29	NEMA 3R
4	OU-4	208	1	22.1	2 #8	#10	40A	2P-60A-NFSS	M-20	NEMA 3R
5	OU-5	208	1	14.5	2 #10	#10	30A	2P-30A-NFSS	M-33	NEMA 3R
6	OU-6	208	1	13.2	2 #10	#10	25A	2P-30A-NFSS	M-32	NEMA 3R
7	OU-7	208	1	22.8	2 #8	#10	40A	2P-60A-NFSS	M-24	NEMA 3R
8	OU-8	208	1	17.1	2 #8	#10	40A	2P-60A-NFSS	M-25	NEMA 3R
9	OU-9	208	1	17.1	2 #8	#10	40A	2P-60A-NFSS	M-28	NEMA 3R
10	AH-3	208	3	21.6	3 #8	#10	35A	3P-60A-NFSS	M-14	
11	AH-4	208	3	44.4	3 #4	#8	70A	3P-100A-NFSS	M-2	
12	AH-5	208	3	21.6	3 #8	#10	35A	3P-60A-NFSS	M-13	
13	AH-6	208	3	21.6	3 #8	#10	35A	3P-60A-NFSS	M-19	
14	AH-7	208	3	44.4	3 #4	#8	70A	3P-100A-NFSS	M-8	
15	AH-8	208	3	38.2	3 #6	#10	60A	3P-60A-NFSS	M-1	
16	AH-9	208	3	38.2	3 #6	#10	60A	3P-60A-NFSS	M-7	
17	OHP/FCU-1	208	1	24.6	2 #8	#10	45A	2P-60A-NFSS	S-11	NEMA 3R NOTE 1
18	OHP/FCU-2	208	1	6.6	2 #12	#12	15A	2P-30A-NFSS	M-36	NEMA 3R NOTE 1
19	OHP/FCU-3	208	1	13.8	2 #12	#12	20A	2P-30A-NFSS	C-21	NEMA 3R NOTE 1
20	UH-1	120	1	5.0	2 #12	#12	20A	TOGGLE SWITCH	SEE PLAN	10 LOCATIONS
21	IRH-1	120	1	1.3	2 #12	#12	15A	WEATHRPROOF TOGGLE SWITCH	C-20	
22	EF-1	208	1	3.3	2 #12	#12	15A	FURNISHED WITH FAN	C-25	NOTES 2, 3
23	EF-2	208	1	5.6	2 #12	#12	15A	FURNISHED WITH FAN	B-18	NOTES 2, 4
24	EF-3	208	1	5.6	2 #12	#12	15A	FURNISHED WITH FAN	C-29	NOTES 2, 4
25	EF-4	208	1	7.9	2 #12	#12	15A	FURNISHED WITH FAN	B-22	NOTES 2, 4
26	EF-7	120	1	20.0	2 #10	#10	30A	TOGGLE SWITCH	B-34, B-34	NOTE 5 2 LOCATIONS
27	GAS WATER HEATER	120	1	5.0	2 #12	#12	20A	TOGGLE SWITCH	M-42	
28	RECIRC. PUMP	120	1	5.0	2 #12	#12	20A	TOGGLE SWITCH	M-42	NOTE 6
29	ELEC. WATER HEATER	208	1	19.1	2 #10	#10	30A	2P-30A-NFSS	C-17	
30	AIR COMPRESSOR	208	3	48.3	3 #4	#10	60A	3P-60A-NFSS	C-2	
31	VEHICLE LIFT	208	3	10.0	3 #12	#12	20A	3P-30A-NFSS	C-8, C-14	NOTE 7 2 LOCATIONS
32	PARTS WASHER	208	1	32.0	2 #8	#10	40A	DIRECT CONNECTION	C-5	
33	TIRE BALANCER	208	1	20.0	2 #10	#10	30A	MATCHING OUTLET	C-13	
34	TIRE CHANGER	120	1	13.0	2 #12	#12	20A	DUPLEX RECEPTACLE	C-30	
35	PRESSURE WASHER	208	1	21.0	2 #8	#10	35A	DIRECT CONNECTION	C-9	
36	DOCK LEVELER	208	1	10.0	2 #12	#12	20A	2P-30A-NFSS	B-14	NOTE 8

SCHEDULE NOTES

- VERIFY FINAL LOCATIONS, CONNECTIONS, ELECTRICAL CHARACTERISTICS, ETC. WITH FINAL EQUIPMENT SELECTIONS. CONTRACTOR IS RESPONSIBLE FOR CORRECTNESS OF ALL BREAKERS, WIRES, ETC.
- OU = OUTDOOR UNIT, AH = AIR HANDLING UNIT, OHP/FCU = OUTDOOR HEAT PUMP/FAN COIL UNIT, UH = UNIT HEATER, IRH = INFRA-RED HEATER, EF = EXHAUST FAN.
1. WIRE INDOOR UNIT THROUGH OUTDOOR UNIT PER MANUFACTURER'S REQUIREMENTS. COORDINATE WITH HVAC. PAINT ANY EXPOSED CONDUITS TO MATCH SURROUNDINGS.
2. INTERLOCK MOTORIZED DAMPER TO OPEN WHEN FAN RUNS. COORDINATE ALL REQUIREMENTS WITH HVAC. PROVIDE RELAYS AS REQUIRED.
3. WIRE THROUGH SPEED CONTROLLER FURNISHED WITH FAN AS SHOWN ON THE POWER PLAN ON SHEET E-101. VERIFY LOCATION OF SPEED CONTROLLER WITH THE OWNER PRIOR TO ROUGH-IN AND PROVIDE "EXHAUST FAN" LABEL.
4. CONTROL FAN WITH WALL SWITCH AS SHOWN ON POWER PLAN ON SHEET E-101. VERIFY LOCATION OF SWITCH WITH THE OWNER PRIOR TO ROUGH-IN AND PROVIDE "BUILDING EXHAUST FAN" LABEL.
5. CONTROL FAN WITH WALL SWITCH AS SHOWN ON POWER PLAN ON SHEET E-101. VERIFY LOCATION OF SWITCH WITH THE OWNER PRIOR TO ROUGH-IN AND PROVIDE "WELDING EXHAUST FAN" LABEL.
6. WIRE THROUGH AQUASTAT AND TIMER. COORDINATE WITH PLUMBING.
7. WIRE TO POWER UNIT PROVIDED ON LIFT AND TO CONTROL POINT AS DIRECTED BY THE MANUFACTURER. PROVIDE DISCONNECT SWITCH NOTED IF REQUIRED OTHERWISE DIRECT CONNECT FEEDER TO THE LIFT. VERIFY ALL REQUIREMENTS PRIOR TO ANY ROUGH-IN.
8. WIRE TO POWER UNIT PROVIDED ON DOCK LEVELER AND TO CONTROLLER AS DIRECTED BY THE MANUFACTURER. LOCATE CONTROLLER AS DIRECTED BY THE OWNER. PROVIDE DISCONNECT SWITCH NOTED IF REQUIRED OTHERWISE DIRECT CONNECT FEEDER TO THE DOCK LEVELER. VERIFY ALL REQUIREMENTS PRIOR TO ANY ROUGH-IN.



ZONE INVERTER ZI WIRING SCHEMATIC

NO SCALE

SYMBOLS LIST

- A-1 — OUTLET FOR CEILING OR WALL MOUNTED FLUORESCENT OR LED LIGHTING FIXTURE WITH CIRCUIT NUMBER
- A-1 — OUTLET FOR CEILING OR WALL MOUNTED INCANDESCENT, COMPACT FLUORESCENT, LED OR HID LIGHTING FIXTURE WITH CIRCUIT NUMBER
- A-1 FL — OUTLET FOR EXHAUST FAN/LIGHT WITH DUCTING BY HVAC, WITH CIRCUIT NUMBER
- A-1 EM — OUTLET FOR CEILING OR WALL MOUNTED EMERGENCY EGRESS LIGHTING FIXTURE WITH BATTERY BACKUP WITH CIRCUIT NUMBER
- A-1 EX — OUTLET FOR CEILING OR WALL MOUNTED EXIT LIGHTING FIXTURE WITH BATTERY BACKUP WITH CIRCUIT NUMBER
- A-1 EM EX — OUTLET FOR CEILING OR WALL MOUNTED EMERGENCY EGRESS LIGHTING FIXTURE WITH BATTERY BACKUP WITH CIRCUIT NUMBER
- A-1 EM EX — OUTLET FOR CEILING OR WALL MOUNTED COMBINATION EXIT/EMERGENCY EGRESS LIGHTING FIXTURE WITH BATTERY BACKUP WITH CIRCUIT NUMBER
- 1 — LIGHTING FIXTURE TYPE SEE SCHEDULE
- S — SINGLE POLE WALL SWITCH AT 48" AFF TO TOP OF BOX
- S3 — THREE-WAY WALL SWITCH AT 48" AFF TO TOP OF BOX
- S4 — FOUR-WAY WALL SWITCH AT 48" AFF TO TOP OF BOX
- Ssc — FAN SPEED CONTROLLER SWITCH FURNISHED BY HVAC, MOUNTED AT 48" AFF TO TOP OF BOX
- A-1 — GENERAL PURPOSE DUPLEX RECEPTACLE AT 18" AFF TO BOTTOM OF BOX WITH CIRCUIT NUMBER
- A-1 — GENERAL PURPOSE DUPLEX RECEPTACLE AT 48" AFF TO TOP OF BOX WITH CIRCUIT NUMBER
- E-1 — GENERAL PURPOSE DUPLEX RECEPTACLE ON GENERATOR, AT 18" AFF TO BOTTOM OF BOX, WITH CIRCUIT NUMBER
- E-1 — GENERAL PURPOSE DUPLEX RECEPTACLE ON GENERATOR, AT 48" AFF TO TOP OF BOX WITH CIRCUIT NUMBER
- GFCI A-1 — GROUND FAULT CIRCUIT INTERRUPTER AT 18" AFF TO BOTTOM OF BOX WITH CIRCUIT NUMBER
- GFCI A-1 — GROUND FAULT CIRCUIT INTERRUPTER AT 48" AFF TO TOP OF BOX WITH CIRCUIT NUMBER
- GFCI E-1 — GROUND FAULT CIRCUIT INTERRUPTER ON GENERATOR, AT 18" AFF TO BOTTOM OF BOX, WITH CIRCUIT NUMBER
- GFCI E-1 — GROUND FAULT CIRCUIT INTERRUPTER ON GENERATOR, AT 48" AFF TO TOP OF BOX WITH CIRCUIT NUMBER
- GFCI A-1 — DOUBLE GROUND FAULT CIRCUIT INTERRUPTER AT 18" AFF TO BOTTOM OF BOX, WITH CIRCUIT NUMBER
- A-1 — 3 WIRE, 250 VOLT DEVICE AT 18" AFF TO BOTTOM OF BOX WITH CIRCUIT NUMBER
- A-1 — 3 WIRE, 250 VOLT DEVICE AT 48" AFF TO TOP OF BOX WITH CIRCUIT NUMBER
- A-1 — 4 WIRE, 250 VOLT DEVICE AT 18" AFF TO BOTTOM OF BOX WITH CIRCUIT NUMBER
- EWC A-1 — OUTLET FOR ELECTRIC WATER COOLER COORDINATE LOCATION WITH PLUMBING ROUGH-IN DRAWINGS, WITH CIRCUIT NUMBER
- W A-1 — OUTLET FOR CLOTHES WASHER HEIGHT TO SUIT APPLIANCE SERVED WITH CIRCUIT NUMBER
- REF. A-1 — OUTLET FOR REFRIGERATOR HEIGHT TO SUIT APPLIANCE SERVED WITH CIRCUIT NUMBER
- ED A-1 — 250 VOLT DEVICE FOR ELECTRIC DRYER HEIGHT TO SUIT APPLIANCE SERVED WITH CIRCUIT NUMBER
- L A-1 — 250 VOLT, 30A DEVICE FOR LATHE AT 48" AFF TO TOP OF BOX WITH CIRCUIT NUMBER
- W A-1 — 250 VOLT, 50A DEVICE FOR WELDER AT 48" AFF TO TOP OF BOX WITH CIRCUIT NUMBER
- DISP. A-1 — SWITCHED OUTLET FOR DISPOSER HEIGHT TO SUIT APPLIANCE SERVED WITH CIRCUIT NUMBER
- A-1 — FLUSH FLOOR OUTLET WITH DUPLEX RECEPTACLE WITH CIRCUIT NUMBER WITH BRASS COVERPLATE
- A-1 — DUAL SERVICE FLUSH FLOOR OUTLET WITH DUPLEX RECEPTACLE WITH CIRCUIT NUMBER AND A 1" EC ROUTED TO CABLE TRAY FOR LOW VOLTAGE CABLE (DATA, TELEPHONE OR TELEVISION), WITH BRASS COVERPLATE
- A-1 — MULTIPLE SERVICE FLUSH FLOOR OUTLET WITH DUPLEX RECEPTACLE WITH CIRCUIT NUMBER AND (2) 1" ECS ROUTED TO CABLE TRAY FOR LOW VOLTAGE CABLE (DATA, TELEPHONE OR TELEVISION), WITH BRASS COVERPLATE
- 1 — JUNCTION BOX AT 18" AFF TO BOTTOM OF BOX OR AT ASSOCIATED PIECE OF EQUIPMENT
- OUTLET FOR LOW VOLTAGE CABLE (DATA, TELEPHONE OR TELEVISION) AT 18" AFF TO BOTTOM OF BOX WITH A 3/4" EC STUBBED INTO ACCESSIBLE CEILING SPACE OR ROUTED TO CABLE TRAY
- W — DOOR ACCESS PAD AT 48" AFF WITH A 3/4" EC TO DOOR CONTROL JUNCTION BOX, SEE DETAIL THIS SHEET. COORDINATE ALL REQUIREMENTS WITH OWNER AND SECURITY SYSTEM PROVIDER PRIOR TO ANY ROUGH-IN
- A-1 — DOOR CONTROL JUNCTION BOX (DEEP DOUBLE GANG BOX) WITH A 1" EC STUBBED INTO ACCESSIBLE CEILING SPACE. A 3/4" EC TO DOOR ACCESS DEVICE, A 3/4" EC TO DOOR CONTACTS AND A 3/4" EC TO ELECTRIC STRIKES. SEE DETAIL THIS SHEET. COORDINATE ALL REQUIREMENTS WITH OWNER AND SECURITY SYSTEM PROVIDE PRIOR TO ANY ROUGH-IN. PROVIDE ADDITIONAL 120V CONNECTION FOR CONTROLLERS, TRANSFORMERS, ETC. AS REQUIRED. WIRE TO CIRCUIT INDICATED
- B — PUSHBUTTON FOR DOOR BELL AT 48" AFF WITH A 3/4" EC TO DOOR BELL. COORDINATE ALL REQUIREMENTS WITH THE SUPPLIER PRIOR TO ANY ROUGH-N
- A-1 B H — OUTLET FOR WALL MOUNTED DOOR BELL ANNUNCIATOR AT 7'-0" AFF WITH A 3/4" EC TO PUSHBUTTON LOCATION. COORDINATE ALL REQUIREMENTS WITH THE SUPPLIER PRIOR TO ANY ROUGH-IN, WITH CIRCUIT NUMBER
- W — PUSHBUTTON FOR DOOR RELEASE AT 48" AFF WITH A 3/4" EC TO DOOR RELEASE JUNCTION BOX. COORDINATE ALL REQUIREMENTS WITH THE SUPPLIER PRIOR TO ANY ROUGH-N
- A-1 — DOOR RELEASE JUNCTION BOX WITH A 3/4" EC TO RELEASE BUTTON LOCATION. COORDINATE ALL REQUIREMENTS WITH THE SUPPLIER PRIOR TO ANY ROUGH-IN WITH CIRCUIT NUMBER
- C — OUTLET FOR SECURITY CAMERA WITH A 1" EC RUN TO SERVER ROOM OR AUXILARY I.T. CABINET (WHICHEVER IS WITHIN 30'-0" OF CAMERA LOCATION). COORDINATE CAMERA LOCATION AND ALL REQUIREMENTS WITH OWNER AND SECURITY SYSTEM PROVIDER PRIOR TO ANY ROUGH-IN
- F — OUTLET FOR FIRE ALARM PULL STATION AT 48" AFF TO TOP OF BOX WITH A 3/4" EC STUBBED INTO ACCESSIBLE CEILING SPACE
- F — OUTLET FOR AUDIO/VISUAL FIRE ALARM SIGNAL DEVICE AT 6'-8" AFF, WITH A 3/4" EC STUBBED INTO ACCESSIBLE CEILING SPACE
- S — OUTLET FOR CEILING MOUNTED SMOKE DETECTOR WITH A 3/4" EC STUBBED INTO ACCESSIBLE CEILING SPACE
- SF — SPRINKLER WATER FLOW SWITCH
- ST — SPRINKLER TAMPERPROOF SWITCH
- A-1 — SAFETY SWITCH AT 48" AFF TO TOP OF BOX OR AT ASSOCIATED PIECE OF EQUIPMENT, CIRCUIT NUMBER SHOWN WHERE APPLICABLE
- M — MOTOR OUTLET
- OD A-1 M — 120V-1PH, 1-1/2HP OVERHEAD DOOR, PROVIDE CONNECTION AND CONTROL INTERFACE CONDUIT REQUIRED FOR COMPLETE INSTALLATION, COORDINATE WITH DOOR SUPPLIER, WITH CIRCUIT NUMBER
- OS — AIR QUALITY SENSOR (120V-1PH) FURNISHED AND INSTALLED BY HVAC WIRED BY ELECTRICAL
- EF — EXHAUST FAN (120V-1PH) FURNISHED AND INSTALLED BY HVAC WIRED BY ELECTRICAL
- MD — MOTORIZED DAMPER (120V-1PH) FURNISHED AND INSTALLED BY HVAC WIRED BY ELECTRICAL
- A-1 PC — PHOTOCELL, LOCATE IN ACCESSIBLE LOCATION AND SHIELD FROM SURROUNDING LIGHT SOURCES, WITH CIRCUIT NUMBER
- PANELBOARD
- 2 — KEYED NOTE DESIGNATION
- 20 — EQUIPMENT CONNECTION DESIGNATION SEE SCHEDULE
- SWITCH LEG WIRING, 2 #12 - CROSS MARKS INDICATE NUMBER OF CONDUCTORS IF MORE THAN TWO
- SWITCH LEG WIRING, 2 #12 - WITH ADDITIONAL DIMMING CONTROL WIRING AS REQUIRED FOR FIXTURE SUPPLIED

AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
C/EC	CONDUIT/EMPTY CONDUIT
DTS	DOWN TO SWITCH
EWH	ELECTRIC WALL HEATER 120 VOLT, 1 PHASE, 1500 WATT SURFACE MOUNT WITH BUILT-IN THERMOSTAT AND DISCONNECT. QMARK AWH SERIES OR EQUAL, FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR
FSS/NFSS	FUSIBLE/NON-FUSIBLE SAFETY SWITCH
NL	NIGHT LIGHT (UNSWITCHED)
UTL	UP TO LIGHT
WP	WEATHERPROOF

LIGHTING FIXTURE CONTROLS SYMBOLS LIST

- PASSIVE INFRARED DUAL TECHNOLOGY MICROPHONIC LOW VOLTAGE CEILING MOUNT SENSOR, EXTENDED RANGE TYPE
- LV — PASSIVE INFRARED DUAL TECHNOLOGY MICROPHONIC LOW VOLTAGE CEILING MOUNT SENSOR WITH LOW VOLTAGE CONTROL CABLE TO RESPECTIVE RELAY POWER PACK, EXTENDED RANGE TYPE
- PASSIVE INFRARED DUAL TECHNOLOGY MICROPHONIC LINE VOLTAGE WALL MOUNT SENSOR, AT 48" AFF TO TOP OF BOX. MANUAL "ON" AUTOMATIC "OFF"
- PASSIVE INFRARED DUAL TECHNOLOGY MICROPHONIC LINE VOLTAGE WALL MOUNT SENSOR WITH 0-10VDC DIMMING CONTROL, AT 48" AFF TO TOP OF BOX, MANUAL "ON" AUTOMATIC "OFF"
- S3LV — 3-WAY, ON-OFF ONLY, WALL MOUNT SWITCH WITH LOW VOLTAGE WIRING TO RELAY POWER PACK, AT 48" AFF TO TOP OF BOX
- S3DLV — 3-WAY WALL MOUNT SWITCH WITH 0-10VDC DIMMING CONTROL AND LOW VOLTAGE WIRING TO RELAY POWER PACK, AT 48" AFF TO TOP OF BOX
- RELAY POWER PACK ABOVE NEAREST ACCESSIBLE LAY-IN CEILING
- OCCUPANCY SENSOR FURNISHED WITH AND MOUNTED TO FIXTURE
- AFF — ABOVE FINISHED FLOOR

LIST NOTES

1. ACCEPTABLE MANUFACTURERS SHALL BE DOUGLAS, LEVITON AND SENSOR SWITCH.
2. ALL COMPONENTS AND WIRING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
3. ADJUST SENSITIVITY, OVERRIDE SWITCHES (WHERE APPLICABLE) AND TIME DELAYS TO THE SATISFACTION OF THE OWNER.

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COMMONWEALTH OF VIRGINIA
WESLEY FRANKLIN SIEVER
Lic. No. 0402 043863
6-10-22
PROFESSIONAL ENGINEER

PROJ NO: 21069

Mark	Date	Description
--	06/10/2022	REVISED BID DOCUMENTS
--	01/06/2022	BID DOCUMENTS

E-002
ELEC. SCHEDS., PANELS, & RISER
6/27/2022 4:18 PM

PANEL A

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 200 | MAIN: LUGS ONLY

BRKR		DESCRIPTION	CIRCUIT			PHASE LOAD			CIRCUIT			DESCRIPTION	BRKR	
P	A		AMPS	DEMAND	NO.	A	B	C	NO.	DEMAND	AMPS		A	P
1	20	RECEPTACLES - 101, 102, 125, EXT.	10.5	100%	1	34.5			2	100%	24.0	CLOTHES DRYER	30	2
1	20	RECEPTACLES - 102, 103	10.5	100%	3		34.5		4	100%	24.0	--	--	--
1	20	RECEPTACLES - 104, 105, 125	7.5	100%	5			31.5	6	100%	24.0	CLOTHES DRYER	30	2
1	20	RECEPTACLES - 105, 106, 107	9.0	100%	7	33.0			8	100%	24.0	--	--	--
1	20	RECEPTACLES - 107, 112	10.5	100%	9		22.5		10	100%	12.0	GENERATOR BLOCK HEATER	20	2
1	20	RECEPTACLES - 109, 110, 111, 124, 125	10.5	100%	11			22.5	12	100%	12.0	--	--	--
1	20	RECEPTACLES - 108	6.0	100%	13	16.0			14	100%	10.0	REFRIGERATOR - 111 (1)	20	1
1	20	RECEPTACLES - 108	6.0	100%	15		16.0		16	100%	10.0	REFRIGERATOR - 124 (1)	20	1
1	20	RECEPTACLES - 108	6.0	100%	17			18.5	18	100%	12.5	WALL HEATER - 114	20	1
1	20	RECEPTACLES - 124	9.0	100%	19	19.0			20	100%	10.0	EWC (1)	20	1
1	20	RECEPTACLES - 113, 114, 115, 125	7.5	100%	21		17.5		22	100%	10.0	COPIER - 110	20	1
1	20	RECEPTACLES - 117, 118, 125	9.0	100%	23			21.0	24	100%	12.0	DOOR CONTROLS	20	1
1	20	RECEPTACLES - 118, 119, EXT.	9.0	100%	25	15.0			26	100%	6.0	CAMERAS - 124	20	1
1	20	RECEPTACLES - 119, 120	7.5	100%	27		17.5		28	100%	10.0	COMPUTER/SERVER - 124A	20	1
1	20	RECEPTACLES - 120, 124, 125	7.5	100%	29			15.5	30	100%	8.0	MONITORS - 124	20	1
1	20	RECEPTACLES - 120, 121, 122, 122A, 125, EXT.	10.5	100%	31	10.5			32	100%	0.0	SPARE	20	1
1	20	RECEPTACLES - 123	7.5	100%	33		10.5		34	100%	3.0	COUNTER - 111	20	1
1	20	LTS. - 101, 102, 103, 104, 105, 106, 107, 108, 125	10.4	125%	35			16.0	36	100%	3.0	COUNTER - 124	20	1
1	20	LIGHTS - 109, 110, 111, 124, 125	9.0	125%	37	12.8			38	100%	1.5	COUNTER - 124	20	1
1	20	LTS. - 112, 113, 114, 115, 116, 117, 118, 119, 120, 125	8.3	125%	39		20.4		40	100%	10.0	CLOTHES WASHER	20	1
1	20	LIGHTS - 121, 122, 122A, 123	10.6	125%	41			23.3	42	100%	10.0	CLOTHES WASHER	20	1
1	20	EXTERIOR LIGHTS	4.2	125%	43	10.3			44	100%	5.0	SPRINKLER ALARM PANEL (2)	20	1
1	20	EXTERIOR LIGHTS (3)	1.8	125%	45		12.3		46	100%	10.0	GENERATOR BATTERY HEATER	20	1
1	20	CO SENSORS	9.0	100%	47			19.0	48	100%	10.0	GENERATOR BATTERY CHARGER	20	1
1	20	SPARE	0.0	100%	49	0.0			50	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	51		0.0		52	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	53			0.0	54	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	55	0.0			56	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	57		0.0		58	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	59			0.0	60	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	61	0.0			62	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	63		0.0		64	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	65			0.0	66	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	67	0.0			68	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	69		0.0		70	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	71			0.0	72	100%	0.0	SPARE	20	1
						151.0	151.1	167.3						

WITH INTEGRAL 160KA TVSS
SQUARE D NQ OR EQUAL
SEE SPEC. NOTES

(1) GFI CIRCUIT BREAKER
(2) PROVIDE WITH RED HANDLE LOCK
(3) RUN CIRCUIT THROUGH PHOTOCELL

PANEL B

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 200 | MAIN: LUGS ONLY

BRKR		DESCRIPTION	CIRCUIT			PHASE LOAD			CIRCUIT			DESCRIPTION	BRKR	
P	A		AMPS	DEMAND	NO.	A	B	C	NO.	DEMAND	AMPS		A	P
1	20	DOOR CONTROLS	4.0	100%	1	41.0			2	100%	37.0	WELDER	50	2
1	20	OVERHEAD DOOR - 127	10.0	100%	3		47.0		4	100%	37.0	--	--	--
1	20	OVERHEAD DOOR - 127	10.0	100%	5			47.0	6	100%	37.0	WELDER	50	2
1	20	ICE MAKER	11.9	100%	7	48.9			8	100%	37.0	--	--	--
1	20	GRINDER	10.0	100%	9		30.0		10	100%	20.0	LATHE	30	2
1	20	SAND BLASTER	10.0	100%	11			30.0	12	100%	20.0	--	--	--
1	20	DRILL PRESS	10.0	100%	13	20.0			14	100%	10.0	DOCK LEVELER	20	2
1	20	BAND SAW	10.0	100%	15		20.0		16	100%	10.0	--	--	--
1	20	PARTS WASHER	10.0	100%	17			17.0	18	125%	5.6	EF-2	15	2
1	20	RECEPTACLES - 127	6.0	100%	19	13.0			20	125%	5.6	--	--	--
1	20	RECEPTACLES - 127	7.5	100%	21		17.4		22	125%	7.9	EF-4	15	2
1	20	RECEPTS. - 126, EXT.	6.0	100%	23			15.9	24	125%	7.9	--	--	--
1	20	RECEPTACLES - 126	7.5	100%	25	17.5			26	100%	10.0	UNIT HEATERS - 126	20	1
1	20	LIGHTS - 126	8.7	125%	27		20.9		28	100%	10.0	UNIT HEATERS - 127	20	1
1	20	LIGHTS - 127	8.7	125%	29			20.9	30	100%	10.0	UNIT HEATERS - 127	20	1
1	20	LIGHTS - 127	8.7	125%	31	10.9			32	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	33		25.0		34	125%	20.0	EF-7	30	1
1	20	SPARE	0.0	100%	35			25.0	36	125%	20.0	EF-7	30	1
1	20	SPARE	0.0	100%	37	0.0			38	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	39		0.0		40	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	41			0.0	42	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	43	0.0			44	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	45		0.0		46	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	47			0.0	48	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	49	0.0			50	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	51		0.0		52	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	53			0.0	54	100%	0.0	SPARE	20	1
						151.3	160.3	155.8						

WITH INTEGRAL 160KA TVSS
SQUARE D NQ OR EQUAL
SEE SPEC. NOTES

2 SECTION PANEL C

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 400 | MAIN: LUGS ONLY

BRKR		DESCRIPTION	CIRCUIT			PHASE LOAD			CIRCUIT			DESCRIPTION	BRKR	
P	A		AMPS	DEMAND	NO.	A	B	C	NO.	DEMAND	AMPS		A	P
						SECTION 1								
2	50	WELDER	37.0	100%	1	85.3			2	100%	48.3	AIR COMPRESSOR	60	3
--	--	--	37.0	100%	3		85.3		4	100%	48.3	--	--	--
2	40	PARTS WASHER (1)	32.0	100%	5			80.3	6	100%	48.3	--	--	--
--	--	--	32.0	100%	7	42.0			8	100%	10.0	VEHICLE LIFT	20	3
2	35	PRESSURE WASHER (1)	27.0	100%	9		37.0		10	100%	10.0	--	--	--
--	--	--	27.0	100%	11			37.0	12	100%	10.0	--	--	--
2	30	TIRE BALANCER	20.0	100%	13	30.0			14	100%	10.0	VEHICLE LIFT	20	3
--	--	--	20.0	100%	15		30.0		16	100%	10.0	--	--	--
2	30	ELEC. WATER HEATER	19.7	125%	17			34.6	18	100%	10.0	--	--	--
--	--	--	19.7	125%	19	25.9			20	100%	1.3	INFRA-RED HEATER - 133	20	1
2	20	OHP/FCU-3	13.8	100%	21		23.8		22	100%	10.0	UNIT HEATERS - 132	20	1
--	--	--	13.8	100%	23			23.8	24	100%	10.0	UNIT HEATERS - 132	20	1
2	15	EF-1	3.3	125%	25	4.1			26	100%	0.0	SPARE	20	1
--	--	--	3.3	125%	27		4.1		28	100%	0.0	SPARE	20	1
2	15	EF-3	5.6	125%	29			20.0	30	100%	13.0	TIRE CHANGER	20	1
--	--	--	5.6	125%	31	7.0			32	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	33		0.0		34	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	35			0.0	36	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	37	0.0			38	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	39		0.0		40	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	41			0.0	42	100%	0.0	SPARE	20	1
						SECTION 2								
1	20	RECEPTACLES - 130, EXT.	7.5	100%	43	7.5			44	100%	0.0	SPARE	20	1
1	20	RECEPTS. - 128, 129, 132	4.5	100%	45		14.5		46	100%	10.0	OVERHEAD DOOR - 132	20	1
1	20	RECEPTACLES - 132	6.0	100%	47			16.0	48	100%	10.0	OVERHEAD DOOR - 132	20	1
1	20	RECEPTACLES - 132	6.0	100%	49	16.0			50	100%	10.0	OVERHEAD DOOR - 133	20	1
1	20	RECEPTACLES - 132	6.0	100%	51		16.0		52	100%	10.0	OVERHEAD DOOR - 133	20	1
1	20	SPARE	0.0	100%	53			6.0	54	100%	6.0	DOOR CONTROLS	20	1
1	20	RECEPTACLES - 132, 133	7.5	100%	55	17.5			56	100%	10.0	I.T. CABINET	20	1
1	20	RECEPTACLES - 201	6.0	100%	57		6.0		58	100%	0.0	SPARE	20	1
1	20	LIGHTS - 132, 133	10.5	125%	59			13.1	60	100%	0.0	SPARE	20	1
1	20	LIGHTS - 132	8.7	125%	61	10.9			62	100%	0.0	SPARE	20	1
1	20	LIGHTS - 128, 129, 130, 201	4.2	125%	63		5.3		64	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	65			0.0	66	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	67	0.0			68	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	69		0.0		70	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	71			0.0	72	100%	0.0	SPARE	20	1
1	--	PROVISION	0.0	100%	73	0.0			74	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	75		0.0		76	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	77			0.0	79	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	79	0.0			80	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	81		0.0		82	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	83			0.0	84	100%	0.0	PROVISION	--	1
						246.2	222.0	230.9						

WITH INTEGRAL 160KA TVSS
SQUARE D NQ OR EQUAL
SECTION 1 OF THE PANEL SHALL HAVE SUB-FEED LUGS
SEE SPEC. NOTES

(1) - CIRCUIT BREAKER WITH HANDLE LOCK

PANEL D

VOLTS: 120/208 | PHASE: 1 | WIRES: 3 | MOUNTING: SURFACE
AMPS: 70 | MAIN: LUGS ONLY | NEMA 3R CABINET

BRKR		DESCRIPTION	CIRCUIT			PHASE LOAD		CIRCUIT			DESCRIPTION	BRKR	
P	A		AMPS	DEMAND	NO.	A	B	NO.	DEMAND	AMPS		A	P
2	25	SUBMERSIBLE PUMP	13.8	100%	1	23.8		2	100%	10.0	DISPENSER #1 (1)	15	1
--	--	--	13.8	100%	3		13.8	4	100%	0.0	--	--	--
2	25	SUBMERSIBLE PUMP	13.8	100%	5	23.8		6	100%	10.0	DISPENSER #2 (1)	15	1
--	--	--	13.8	100%	7		13.8	8	100%	0.0	--	--	--
1	--	PROVISION	0.0	100%	9	0.0		10	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	11		0.0	12	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	13	0.0		14	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	15		0.0	16	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	17	0.0		18	100%	0.0	PROVISION	--	1
						47.6	27.6						

PROVIDE CONTACTOR WITH MANUAL "OFF"
CONTROLS AHEAD OF PANEL

WITH INTEGRAL 160KA TVSS
SQUARE D NQ OR EQUAL
SEE SPEC. NOTES

(1) - SWITCHED NEUTRAL BREAKER

PANEL M

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 400 | MAIN: LUGS ONLY

BRKR		DESCRIPTION	CIRCUIT			PHASE LOAD			CIRCUIT			DESCRIPTION	BRKR	
P	A		AMPS	DEMAND	NO.	A	B	C	NO.	DEMAND	AMPS		A	P
3	60	AH-8	38.2	100%	1	82.6			2	100%	44.4	AH-4	70	3
--	--	--	38.2	100%	3		82.6		4	100%	44.4	--	--	--
--	--	--	38.2	100%	5			82.6	6	100%	44.4	--	--	--
3	60	AH-9	38.2	100%	7	82.6			8	100%	44.4	AH-7	70	3
--	--	--	38.2	100%	9		82.6		10	100%	44.4	--	--	--
--	--	--	38.2	100%	11			82.6	12	100%	44.4	--	--	--
3	35	AH-5	27.6	100%	13	55.2			14	100%	27.6	AH-3	35	3
--	--	--	27.6	100%	15		55.2		16	100%	27.6	--	--	--
--	--	--	27.6	100%	17			55.2	18	100%	27.6	--	--	--
3	35	AH-6	27.6	100%	19	49.7			20	100%	22.1	OU-4	40	2
--	--	--	27.6	100%	21		49.7		22	100%	22.1	--	--	--
--	--	--	27.6	100%	23			50.4	24	100%	22.8	OU-7	40	2
2	40	OU-8	17.7	100%	25	40.5			26	100%	22.8	--	--	--
--	--	--	17.7	100%	27		35.4		28	100%	17.7	OU-9	40	2
2	30	OU-3	14.5	100%	29			32.2	30	100%	17.7	--	--	--
--	--	--	14.5	100%	31	27.7			32	100%	13.2	OU-6	25	2
2	30	OU-5	14.5	100%	33		27.7		34	100%	13.2	--	--	--
--	--	--	14.5	100%	35			21.1	36	100%	6.6	OHP/FCU-2	15	2
1	20	SPARE	0.0	100%	37	6.6			38	100%	6.6	--	--	--
1	20	SPARE	0.0	100%	39		0.0		40	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	41			10.0	42	100%	10.0	WTR. HTR./RECIRC. PUMP	20	1
1	20	SPARE	0.0	100%	43	0.0			44	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	45		0.0		46	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	47			0.0	48	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	49	0.0			50	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	51		0.0		52	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	53			0.0	54	100%	0.0	SPARE	20	1
						344.9	333.2	334.1						

WITH INTEGRAL 160KA TVSS
SQUARE D NQ OR EQUAL
SEE SPEC. NOTES

PANEL OS

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 200 | MAIN: LUGS ONLY | NEMA 3R CABINET

BRKR		DESCRIPTION	CIRCUIT			PHASE LOAD			CIRCUIT			DESCRIPTION	BRKR	
P	A		AMPS	DEMAND	NO.	A	B	C	NO.	DEMAND	AMPS		A	P
1	20	TRUCK HEATER RECEPTS.	10.0	100%	1	22.0			2	100%	12.0	BULK WATER STATION	20	2
1	20	TRUCK HEATER RECEPTS.	10.0	100%	3		22.0		4	100%	12.0	--	--	--
1	20	TRUCK HEATER RECEPTS.	10.0	100%	5			19.6	6	125%	7.7	POLE LIGHTS (1)	20	1
1	20	TRUCK HEATER RECEPTS.	10.0	100%	7	19.6			8	125%	7.7	POLE LIGHTS (1)	20	1
1	20	TRUCK HEATER RECEPTS.	10.0	100%	9		20.0		10	100%	10.0	EQUIPMENT SHED	20	1
1	20	TRUCK HEATER RECEPTS.	10.0	100%	11			20.0	12	100%	10.0	EQP. SHED I.T. CABINET	20	1
1	20	TRUCK HEATER RECEPTS.	10.0	100%	13	20.0			14	100%	10.0	WATER STAT. I.T. CABINET	20	1
1	20	SPARE	0.0	100%	15		10.0		16	100%	10.0	DISPENSER I.T. CABINET	20	1
1	20	SPARE	0.0	100%	17			0.0	18	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	19	0.0			20	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	21		0.0		22	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	23			0.0	24	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	25	0.0			26	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	27		0.0		28	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	29			0.0	30	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	31	0.0			32	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	33		0.0		34	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	35			0.0	36	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	37	0.0			38	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	39		0.0		40	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	41			0.0	42	100%	0.0	SPARE	20	1
						61.6	52.0	39.6						

WITH INTEGRAL 160KA TVSS
SQUARE D NQ OR EQUAL
SEE SPEC. NOTES

(1) - RUN CIRCUIT THROUGH PHOTOCELL

PANEL S

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 100 | MAIN: LUGS ONLY

BRKR		DESCRIPTION	CIRCUIT			PHASE LOAD			CIRCUIT			DESCRIPTION	BRKR	
P	A		AMPS	DEMAND	NO.	A	B	C	NO.	DEMAND	AMPS		A	P
1	20	QUAD OUTLET	5.0	100%	1	5.0			2	100%	0.0	SPARE	20	1
1	20	QUAD OUTLET	5.0	100%	3		10.0		4	100%	5.0	QUAD OUTLET	20	1
1	20	QUAD OUTLET	5.0	100%	5			10.0	6	100%	5.0	QUAD OUTLET	20	1
1	20	DOOR CONTROLS	2.0	100%	7	7.0			8	100%	5.0	QUAD OUTLET	20	1
1	20	SECURITY PANEL	5.0	100%	9		10.0		10	100%	5.0	QUAD OUTLET	20	1
2	45	OHP/FCU-1	24.6	100%	11			24.6	12	100%	0.0	SPARE	20	1
--	--	--	24.6	100%	13	24.6			14	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	15		0.0		16	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	17			0.0	18	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	19	0.0			20	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	21		0.0		22	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	23			0.0	24	100%	0.0	SPARE	20	1
						36.6	20.0	34.6						

WITH INTEGRAL 160KA TVSS
SQUARE D NQ OR EQUAL
SEE SPEC. NOTES

PANEL MDP

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 1200 | MAIN: LUGS ONLY

BRKR		DESCRIPTION	CIRCUIT			PHASE LOAD			CIRCUIT			DESCRIPTION	BRKR	
P	A		AMPS	DEMAND	NO.	A	B	C	NO.	DEMAND	AMPS		A	P
3	400	PANEL C	246.2	100%	1	591.1			2	100%	344.9	PANEL M	400	3
--	--	--	222.0	100%	3		555.2		4	100%	333.2	--	--	--
--	--	--	230.9	100%	5			565.0	6	100%	334.1	--	--	--
3	200	PANEL B	151.3	100%	7	212.9			8	100%	61.6	PANEL OS	200	3
--	--	--	160.3	100%	9		212.3		10	100%	52.0	--	--	--
--	--	--	155.8	100%	11			195.4	12	100%	39.6	--	--	--
3	200	PANEL A	151.0	100%	13	187.6			14	100%	36.6	PANEL S	100	3
--	--	--	151.1	100%	15		171.1		16	100%	20.0	--	--	--
--	--	--	167.3	100%	17			201.9	18	100%	34.6	--	--	--
1	--	PROVISION	0.0	100%	19	5.0			20	100%	5.0	SURGE PROTECTION DEVICE	60	3
2	70	PANEL D	47.6	100%	21		52.6		22	100%	5.0	--	--	--
--	--	--	27.6	100%	23			32.6	24	100%	5.0	--	--	--
1	--	PROVISION	0.0	100%	25	0.0			26	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	27		0.0		28	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	29			0.0	30	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	31	0.0			32	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	33		0.0		34	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	35			0.0	36	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	37	0.0			38	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	39		0.0		40	100%	0.0	PROVISION	--	1
1	--	PROVISION	0.0	100%	41			0.0	42	100%	0.0	PROVISION	--	1
						996.6	991.2	994.8						

SQUARE D I-LINE OR EQUAL
SUITABLE FOR USE AS SERVICE ENTRANCE
SEE SPEC. NOTES

BLUELINE
126 West Bruce Street, Suite 102, Harrisonburg, VA 22801

MEI Engineering, Inc.
Mechanical - Electrical - Industrial Consultants
1592 CF Pours Drive
Harrisonburg, VA 22802
(540) 432-6272
MEIengineeringinc.com

AUGUSTA COUNTY SERVICE AUTHORITY
846 LAUREL HILL RD. VERONA, VA

COMMONWEALTH OF VIRGINIA
WESLEY FRANKLIN SIEVER
Lic. No. 0402 043863
6-10-22
PROFESSIONAL ENGINEER

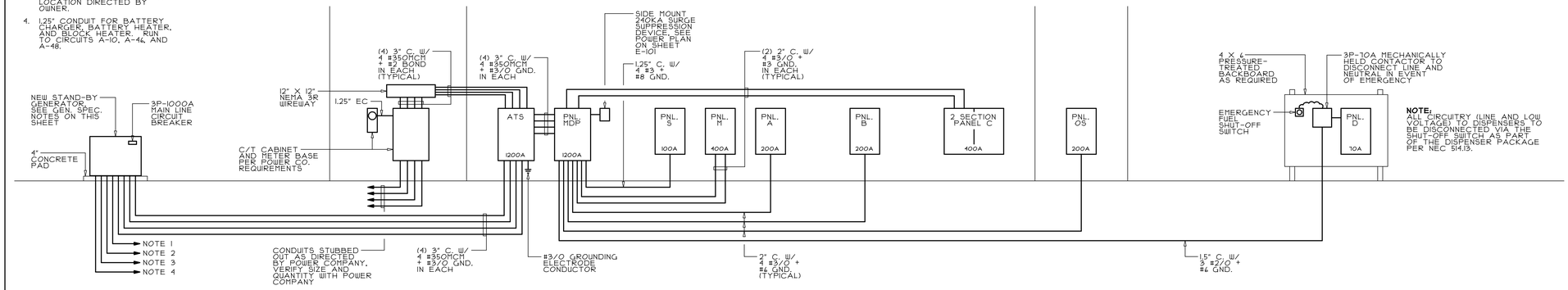
PROJ NO: 21069

Mark	Date	Description
--	06/10/2022	REVISED BID DOCUMENTS
--	01/06/2022	BID DOCUMENTS

E-003
ELEC. PANEL SCHEDULES
6/27/2022 5:02 PM

RISER NOTES:

1. START CIRCUIT TO ATS IN A 1" CONDUIT.
2. SPARE 1" CONDUIT STUBBED UP UNDER ATS AND CAPPED.
3. 1" CONDUIT TO REMOTE ANNUNCIATOR INSTALLED AT LOCATION DIRECTED BY OWNER.
4. 1.25" CONDUIT FOR BATTERY CHARGER, BATTERY HEATER, AND BLOCK HEATER. RUN TO CIRCUITS A-10, A-46, AND A-48.



NOTE: ALL CIRCUITRY (LINE AND LOW VOLTAGE) TO DISPENSERS TO BE DISCONNECTED VIA THE SHUT-OFF SWITCH AS PART OF THE DISPENSER PACKAGE PER NEC 514.13.

POWER RISER DIAGRAM

NO SCALE

COMcheck Software Version 4.1.5.2

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Augusta County Service Authority
Project Type: New Construction

Construction Site:
846 Laurel Hill Road
Verona, VA

Owner/Agent:

Designer/Contractor:
R.B. Propst
MEI Engineering, Inc.
1592 CF Pours Drive
Harrisonburg, VA 22802
540-432-6272

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
Reduced Lighting Power, 1.0 credit

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Office	20712	0.71	14726
		Total Allowed Watts =	14726

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Office				
LED 1: Type 1: 4000L 2 x 4: LED Other Fixture Unit 40W:	1	57	40	2280
LED 2: Type 2: 4000L 2 x 4: LED Other Fixture Unit 36W:	1	32	32	1024
LED 3: Type 4: 2000L Rec. Can: LED Other Fixture Unit 25W:	1	30	22	675
LED 4: Type 5: 1500L Rec. Can: LED Other Fixture Unit 25W:	1	2	18	35
LED 5: Type 6: Strip: LED Other Fixture Unit 36W:	1	5	34	170
LED 6: Types 7 & 7E: 18,000L Hi-Bay: Other:	1	36	131	4716
LED 7: Types 8 & 8E: 24,000L Hi-Bay: Other:	1	4	185	740
			Total Proposed Watts =	9640

Interior Lighting PASSES: Design 35% 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 2018 IECC requirements in COMcheck Version 4.1.5.2 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

R.B. PROPST — Name - Title
R B Propst — Signature
6-10-22 — Date

Project Title: Augusta County Service Authority
Data filename: M:\Current\2021\21069\21069 Ltg.cck
Report date: 06/07/22
Page 1 of 8

COMcheck Software Version 4.1.5.2

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Augusta County Service Authority
Project Type: New Construction
Exterior Lighting Zone 2 (Residential mixed use area (LZ2))

Construction Site:
846 Laurel Hill Road
Verona, VA

Owner/Agent:

Designer/Contractor:
R.B. Propst
MEI Engineering, Inc.
1592 CF Pours Drive
Harrisonburg, VA 22802
540-432-6272

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Entry canopy	216 ft2	0.25	Yes	54
Walkway < 10 feet wide	149 ft of	0.5	Yes	74
Walkway < 10 feet wide	87 ft of	0.5	Yes	44
Walkway < 10 feet wide	60 ft of	0.5	Yes	30
Walkway < 10 feet wide	87 ft of	0.5	Yes	44
Walkway < 10 feet wide	149 ft of	0.5	Yes	74
Walkway < 10 feet wide	100 ft of	0.5	Yes	50
Parking area	34724 ft2	0.04	Yes	3789
Driveway	22040 ft2	0.04	Yes	882
			Total Tradable Watts (a) =	5041
			Total Allowed Watts =	5041
			Total Allowed Supplemental Watts (b) =	400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Entry canopy (216 ft2): Tradable Wattage				
LED 1: Type 10: Surface Drum: LED Other Fixture Unit 25W:	1	5	17	83
Walkway < 10 feet wide (149 ft of walkway length): Tradable Wattage				
LED 2: Type 11: 4100L Wall Pack: LED Other Fixture Unit 36W:	1	1	30	30
LED 3: Type 12: 10,500L Wall Pack: LED Other Fixture Unit 95W:	1	1	92	92
Walkway < 10 feet wide (87 ft of walkway length): Tradable Wattage				
LED 4: Type 12: 10,500L Wall Pack: LED Other Fixture Unit 95W:	1	1	92	92
Walkway < 10 feet wide (60 ft of walkway length): Tradable Wattage				
LED 5: Type 12: 10,500L Wall Pack: LED Other Fixture Unit 95W:	1	1	92	92
Walkway < 10 feet wide (87 ft of walkway length): Tradable Wattage				

Project Title: Augusta County Service Authority
Data filename: M:\Current\2021\21069\21069 Ltg.cck
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A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
LED 6: Type 12: 10,500L Wall Pack: LED Other Fixture Unit 95W:	1	1	92	92
Walkway < 10 feet wide (149 ft of walkway length): Tradable Wattage				
LED 7: Type 11: 4100L Wall Pack: LED Other Fixture Unit 36W:	1	2	30	60
LED 8: Type 12: 10,500L Wall Pack: LED Other Fixture Unit 95W:	1	1	92	92
Walkway < 10 feet wide (100 ft of walkway length): Tradable Wattage				
LED 9: Type 11: 4100L Wall Pack: LED Other Fixture Unit 36W:	1	3	30	90
Parking area (34724 ft2): Tradable Wattage				
LED 10: Type 14: 12,600L Pole Light: LED Roadway-Parking Unit 106W:	1	3	102	306
LED 11: Type 15: 12,300L Pole Light: LED Roadway-Parking Unit 106W:	1	11	102	1122
Driveway (22040 ft2): Tradable Wattage				
LED 12: Type 14: 12,600L Pole Light: LED Roadway-Parking Unit 106W:	1	4	102	408
			Total Tradable Proposed Watts =	2559

Exterior Lighting PASSES: Design 53% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.2 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

R.B. PROPST — Name - Title
R B Propst — Signature
6-10-22 — Date

Project Title: Augusta County Service Authority
Data filename: M:\Current\2021\21069\21069 Ltg.cck
Report date: 06/07/22
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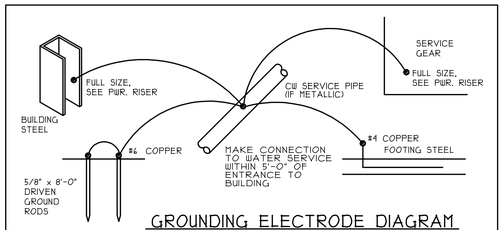

GROUNDING ELECTRODE DIAGRAM

NO SCALE

NOTE:
THIS DIAGRAM IS SCHEMATIC IN NATURE AND IS NOT INTENDED TO BE THE ONLY ACCEPTABLE ROUTING METHOD FOR THE GROUNDING ELECTRODE SYSTEM. ALL ITEMS SHOWN (WHERE AVAILABLE) SHALL BE BONDED TOGETHER

GENERATOR SPECIFICATION NOTES

G1. STAND-BY GENERATOR SHALL BE DIESEL POWERED, 120/208 VOLTS, 3 PHASE, 4 WIRE, 300 KW, 0.8 PF, 1041 AMPS STAND-BY. GENERATOR SHALL BE PROVIDED WITH A STANDARD EQUIPMENT PACKAGE AND THE FOLLOWING ACCESSORIES:

- EXTERIOR WEATHERPROOF SOUND ATTENUATED ENCLOSURE, LEVEL 2.
- COLD WEATHER PACKAGE.
- RESIDENTIAL GRADE MUFFLER WITH CAP.
- WARMER PLATE.
- BATTERY PACK AND TRICKLE CHARGER.
- INTEGRAL ISOLATORS.
- JACKET WATER HEATER.
- BATTERY HEATER.
- HEAVY DUTY AIR CLEANER.
- VIBRATION ISOLATION.
- 3P-1000A MAIN LINE CIRCUIT BREAKER.
- REMOTE ANNUNCIATOR (LOCATE AS DIRECTED BY OWNER).

PROVIDE FACTORY AUTHORIZED START-UP AND TRSTING.

PROVIDE ON-SITE LOAD BANK TESTING AND 12 MONTH WARRANTY.

PROVIDE COORDINATION STUDY WHERE REQUIRED BY LOCALE.

LEAVE GENERATOR WITH A FULL TANK OF FUEL BEFORE TURNING OVER TO THE OWNER.

MANUFACTURER SHALL BE GENERAC, KOHLER OR EQUAL.

G2. AUTOMATIC TRANSFER SWITCH SHALL BE 3 POLE, 4 WIRE, SOLID NEUTRAL, 1000 AMP, SERVICE ENTRANCE RATED, UL-1008 LISTED, WITH STANDARD EQUIPMENT PACKAGE AND THE FOLLOWING ACCESSORIES:

- 65,000 AIC RATED.
- MICRO PROCESSOR BASED CONTROL PANEL WITH AUXILIARY CONTACTS.
- REMOTE ANNUNCIATOR.
- ENGINE START CONTACTS.
- PILOT LIGHTS.
- IN PHASE MONITOR.

MANUFACTURER SHALL BE ASCO, GENERAC, KOHLER OR EQUAL.

BLUELINE
MEI Engineering, Inc.
Mechanical - Electrical - Industrial Consultants
1592 CF Pours Drive
Harrisonburg, VA 22802
(540) 432-6272
MEIengineeringinc.com
126 West Bruce Street, Suite 102, Harrisonburg, VA 22801

AUGUSTA COUNTY SERVICE AUTHORITY

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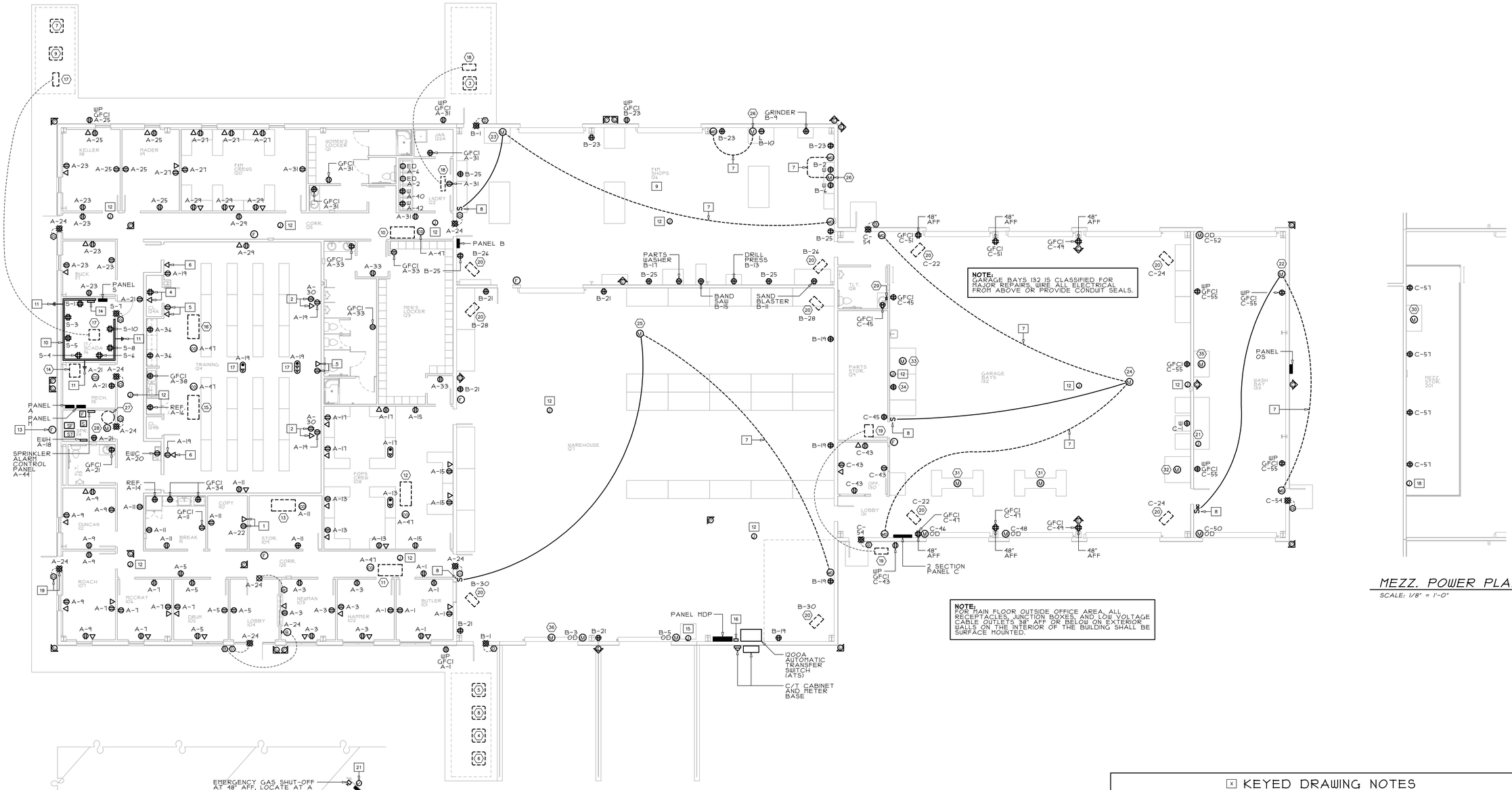
PROFESSIONAL ENGINEER

PROJ NO: 21069

Mark	Date	Description
--	06/10/2022	REVISED BID DOCUMENTS
--	01/06/2022	BID DOCUMENTS

E-004
ELEC. RISERS AND FORMS
6/27/2022 4:35 PM

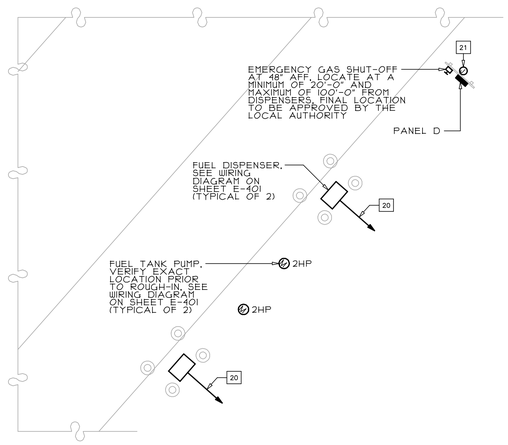


POWER PLAN

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

MEZZ. POWER PLAN

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



FUEL STATION POWER PLAN

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

⊠ KEYED DRAWING NOTES

1. DUPLEX RECEPTACLE AND LOW VOLTAGE OUTLET FOR COPIER. VERIFY EXACT LOCATION WITH THE OWNER PRIOR TO ROUGH-IN.
2. DUPLEX RECEPTACLE AND COMMUNICATIONS OUTLET FOR VIDEO MONITOR. VERIFY LOCATION AND MOUNTING HEIGHT WITH THE OWNER PRIOR TO ROUGH-IN. COORDINATE WITH MOUNTING HARDWARE.
3. NOT USED
4. QUADRAPLEX RECEPTACLE AND COMMUNICATIONS OUTLET FOR COMPUTER AND SERVER RACK. VERIFY LOCATION AND MOUNTING HEIGHT WITH THE OWNER PRIOR TO ROUGH-IN. RUN TO CIRCUIT A-28.
5. DUPLEX RECEPTACLE AND COMMUNICATIONS OUTLET FOR CAMERA. VERIFY LOCATION AND MOUNTING HEIGHT WITH THE OWNER PRIOR TO ROUGH-IN. COORDINATE WITH MOUNTING HARDWARE. RUN TO CIRCUIT A-24.
6. COMMUNICATIONS OUTLET FOR SOUND BAR AND MICROPHONE AT 7'-0" AFF. VERIFY LOCATION AND OTHER REQUIREMENTS WITH THE OWNER PRIOR TO ROUGH-IN.
7. INTERLOCK MOTORIZED DAMPER TO OPEN WHEN EXHAUST FAN RUNS. VERIFY REQUIREMENTS. PROVIDE AND INSTALL RELAY IF REQUIRED. INSTALL ADDITIONAL TOGGLE SWITCH DISCONNECT AT MOTORIZED DAMPER.
8. VERIFY FINAL LOCATION OF SWITCH WITH THE OWNER PRIOR TO ROUGH-IN. LABEL SWITCH "EXHAUST FAN".
9. VERIFY LOCATION OF ALL EQUIPMENT OUTLETS IN SPACE WITH THE OWNER PRIOR TO ANY ROUGH-IN.
10. WRAP (4) WALLS OF SCADA/SERVER 114 WITH 8'-0" X 3/4" FRT PLYWOOD IN LENGTHS AS SHOWN. RUN (2) 3" CONDUITS FROM ROOF TO BUILDING DEMARC LOCATION AS DIRECTED BY THE UTILITIES. VERIFY ALL REQUIREMENTS PRIOR TO ANY ROUGH-IN.
11. 2" X 10" GROUNDING BUS BAR AT TELECOM BACKBOARD. RUN #2 GROUND TO PANEL MDP.
12. JUNCTION BOX IN LAY-IN CEILING, IN CEILING STRUCTURE OR ON WALL FOR WI-FI ROUTER. VERIFY EXACT LOCATION AND REQUIREMENTS WITH THE I.T. CONTRACTOR PRIOR TO ROUGH-IN. STUB OUT A 1" CONDUIT FROM J-BOX AND RUN AS DIRECTED BY THE I.T. CONTRACTOR.
13. WEATHERPROOF WATER FLOW NOTIFICATION DEVICE. LOCATE AS DIRECTED BY THE FIRE MARSHAL.
14. SECURITY SYSTEM PANEL. VERIFY EXACT LOCATION AND REQUIREMENTS WITH THE SECURITY SYSTEM CONTRACTOR PRIOR TO ROUGH-IN. RUN TO CIRCUIT S-9.
15. 120V-1PH. CONNECTION FOR ICE MAKER. VERIFY ALL REQUIREMENTS PRIOR TO ROUGH-IN. RUN TO CIRCUIT B-1.
16. 240KA SIDE MOUNTED SURGE SUPRESSION DEVICE WIRED TO 3P-60A CIRCUIT BREAKER IN PANEL MDP IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION GUIDELINES. SQUARE D SSP02ETH424 OR EQUAL.
17. VERIFY EXACT LOCATION OF FLOOR BOX WITH THE OWNER PRIOR TO ROUGH-IN.
18. 120V-1PH. CONNECTION FOR I.T. CABINET. VERIFY EXACT LOCATION AND ALL REQUIREMENTS WITH I.T. CONTRACTOR PRIOR TO ROUGH-IN. RUN TO CIRCUIT C-54.
19. DOOR CONTROL SYSTEM IS ROUGH-IN ONLY AT THIS LOCATION. PROVIDE COVERPLATES FOR J-BOXES. WIRE NUT END OF POWER CIRCUIT INSIDE J-BOX.
20. 3/4" EC FROM DISPENSER TO SCADA/SERVER 114 FOR COMMUNICATIONS WIRING. SEE CIVIL ENGINEER'S DRAWINGS FOR ROUTING OF CONDUIT.
21. 120V-1PH. CONNECTION FOR NEMA 3R I.T. CABINET MOUNTED ON EQUIPMENT BACKBOARD. RUN TO CIRCUIT OS-14. RUN (2) 4" EC'S FROM CABINET TO I.T. CABINET IN EXISTING WATER BUILDING ON SITE, AND (2) 4" EC'S FROM CABINET TO I.T. CABINET IN EXISTING CONTROL BUILDING ON SITE. SEE SITE PLAN FOR CONDUIT ROUTING. VERIFY ALL REQUIREMENTS WITH I.T. CONTRACTOR PRIOR TO ROUGH-IN.

Mark	Date	Description
–	06/10/2022	REVISED BID DOCUMENTS
–	01/06/2022	BID DOCUMENTS

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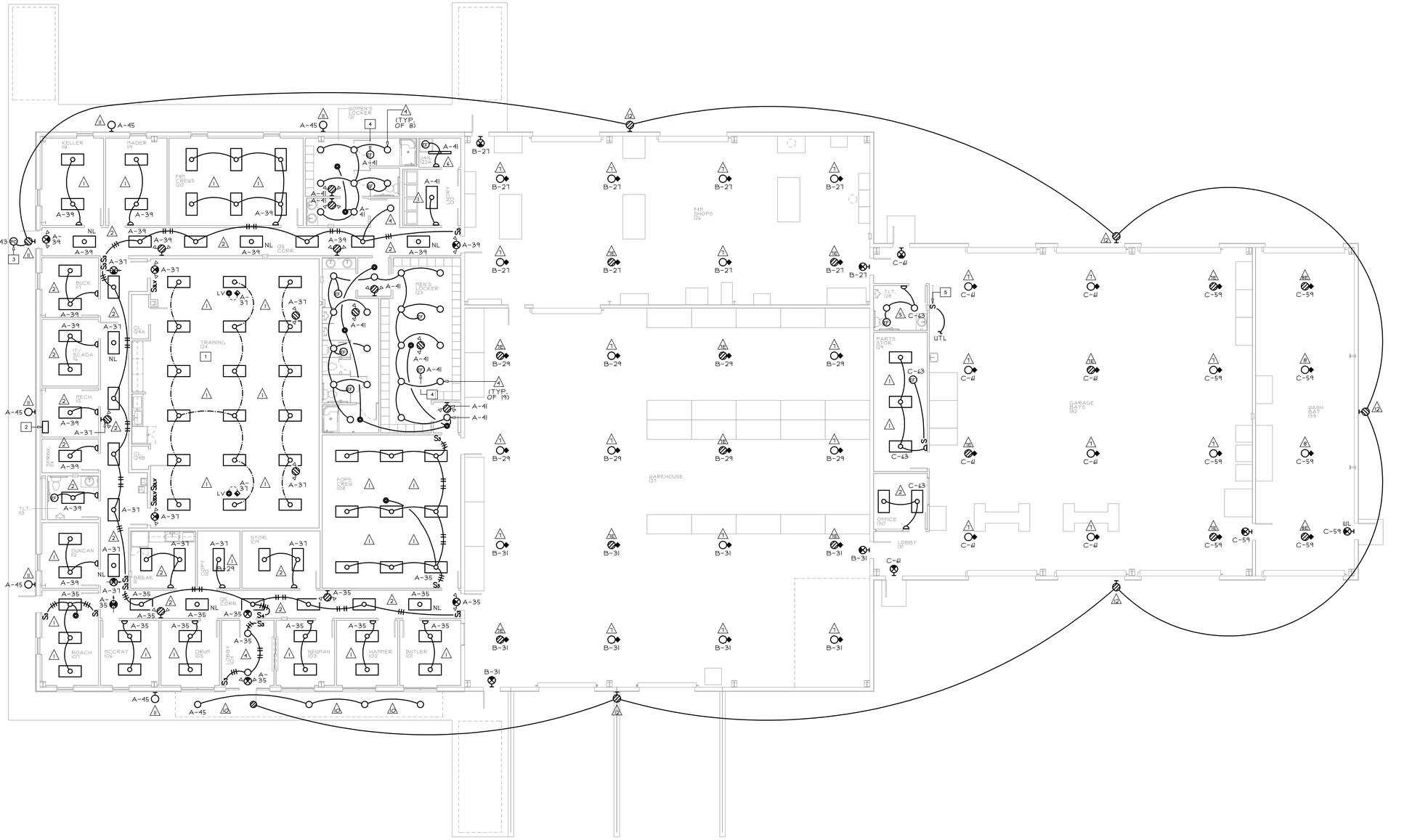
6-10-22
PROFESSIONAL ENGINEER

PROJ NO: 21069

E-101

POWER PLANS

1/24/2023 2:45 PM



KEYED DRAWING NOTES

1. ALL FIXTURES IN TRAINING 124 SHALL BE RUN THROUGH POWER PACKS TIED TO CEILING MOUNTED OCCUPANCY SENSORS. GROUP OF (6) FIXTURES SHALL BE CONTROLLED BY LOW VOLTAGE DIMMER SWITCH. GROUP OF (2) FIXTURES SHALL BE CONTROLLED BY LOW VOLTAGE 3-WAY DIMMER SWITCH AND LOW VOLTAGE 3-WAY SWITCH. COORDINATE ALL REQUIREMENTS WITH MANUFACTURERS AND PROVIDE ALL ACCESSORIES NEEDED FOR A COMPLETE INSTALLATION.
2. EXTERIOR LIGHTING EMERGENCY ZONE INVERTER ZI MOUNTED HIGH ON WALL FOR EMERGENCY LIGHTS. SEE WIRING SCHEMATIC ON SHEET E-002. CONNECT TO CIRCUIT A-43.
3. RUN CIRCUIT VIA ZONE INVERTER ZI. SEE WIRING SCHEMATIC ON SHEET E-002.
4. EXHAUST FAN TO RUN CONTINUOUS.
5. PROVIDE "FOR MEZZANINE LIGHTS" LABEL FOR SWITCH.
6. TYPE 'J' FIXTURES ON MEZZANINE 201 SHALL BE SUSPENDED AT 9'-0" AFF.

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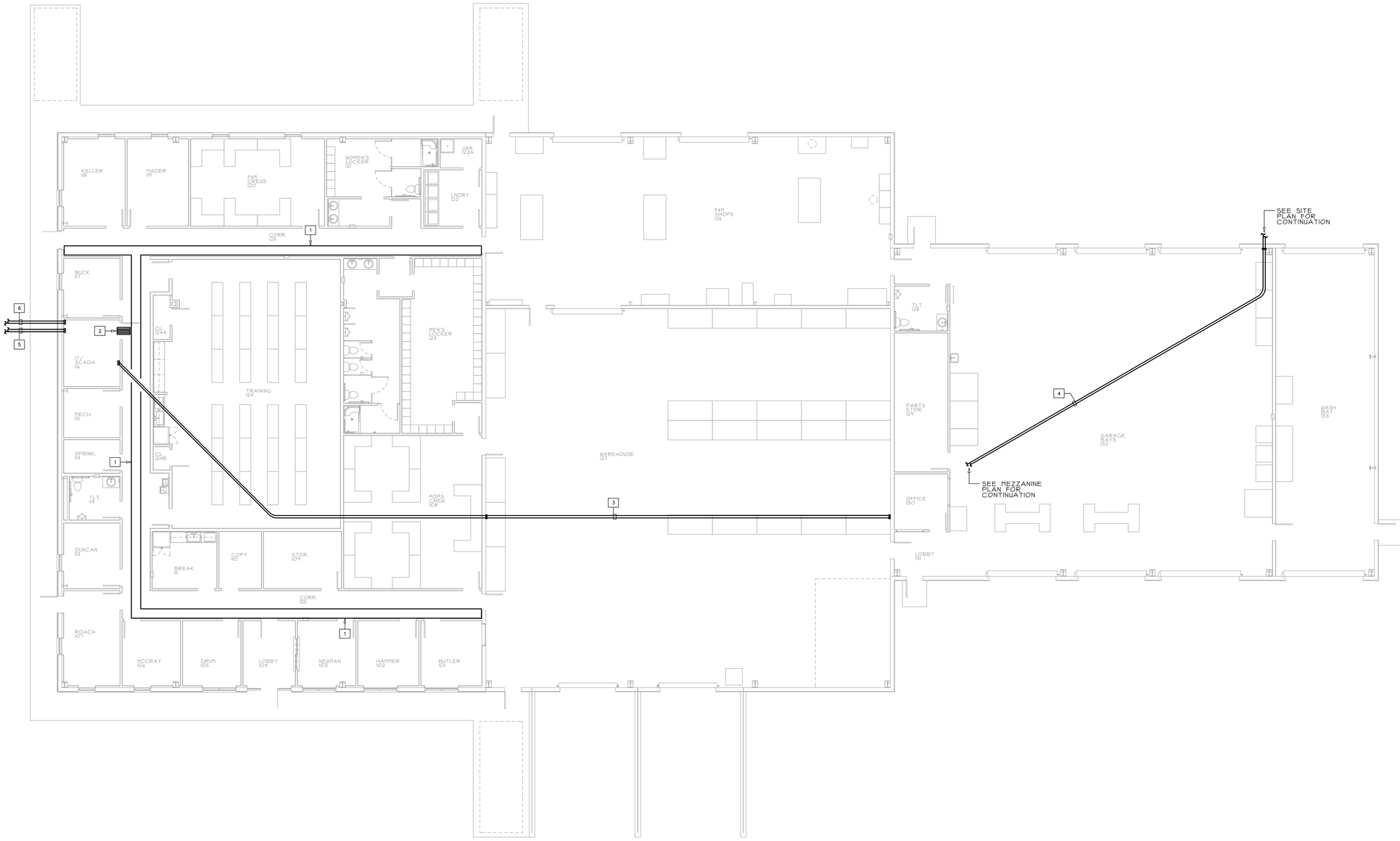
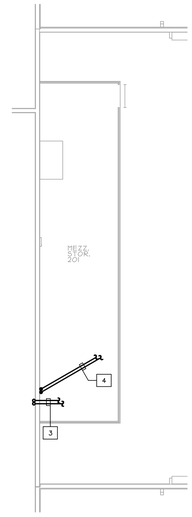
E-201
LIGHTING PLANS
1/24/2023 2:54 PM



CABLE TRAY/CONDUIT PLAN

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



MEZZ. CABLE TRAY CONDUIT PLAN

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

KEYED DRAWING NOTES

1. CABLE TRAY INSTALLED ABOVE CEILING AS DIRECTED BY OWNER'S I.T. REPRESENTATIVE. CABLE TRAY SHALL BE CHATSWORTH TELCO STYLE 20" WIDE WITH A #6 BOND TO BUILDING GROUNDING ELECTRODE SYSTEM. PROVIDE AND INSTALL ALL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION. INSTALL IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES. PROVIDE GROUNDING JUMPERS BETWEEN CABLE TRAY SECTIONS IN ACCORDANCE WITH ANSI/TIA-607 AND ANSI/TIA-942. CABLE TRAY SHALL BE INSTALLED ABOVE HVAC EQUIPMENT AND DUCTWORK. CLOSELY COORDINATE WITH HVAC CONTRACTOR.

2. (4) 3" EC'S STUBBED FROM EDGE OF CABLE TRAY AND INTO SCADA/SERVER 114. TERMINATE AS DIRECTED BY OWNER'S I.T. REPRESENTATIVE.

3. (2) 4" EC'S RUN FROM SCADA/SERVER 114 TO THE I.T. CABINET ON MEZZANINE STORAGE 201. VERIFY EXACT ROUTING AND ALL OTHER REQUIREMENTS WITH THE I.T. CONTRACTOR PRIOR TO ROUGH-IN.

4. (2) 4" EC'S RUN FROM THE I.T. CABINET ON MEZZANINE STORAGE 201 TO THE I.T. CABINET IN EQUIPMENT SHED. VERIFY EXACT ROUTING AND ALL OTHER REQUIREMENTS WITH THE I.T. CONTRACTOR PRIOR TO ROUGH-IN.

5. (2) 4" EC'S RUN FROM SCADA/SERVER 114 TO THE I.T. CABINET AT THE FUELING STATION. SEE SITE PLAN FOR CONDUIT ROUTING. VERIFY ALL OTHER REQUIREMENTS WITH THE I.T. CONTRACTOR PRIOR TO ROUGH-IN.

6. (2) 4" EC'S RUN FROM SCADA/SERVER 114 TO THE I.T. CABINET AT THE BULK WATER STATION. SEE SITE PLAN FOR CONDUIT ROUTING. VERIFY ALL OTHER REQUIREMENTS WITH THE I.T. CONTRACTOR PRIOR TO ROUGH-IN.

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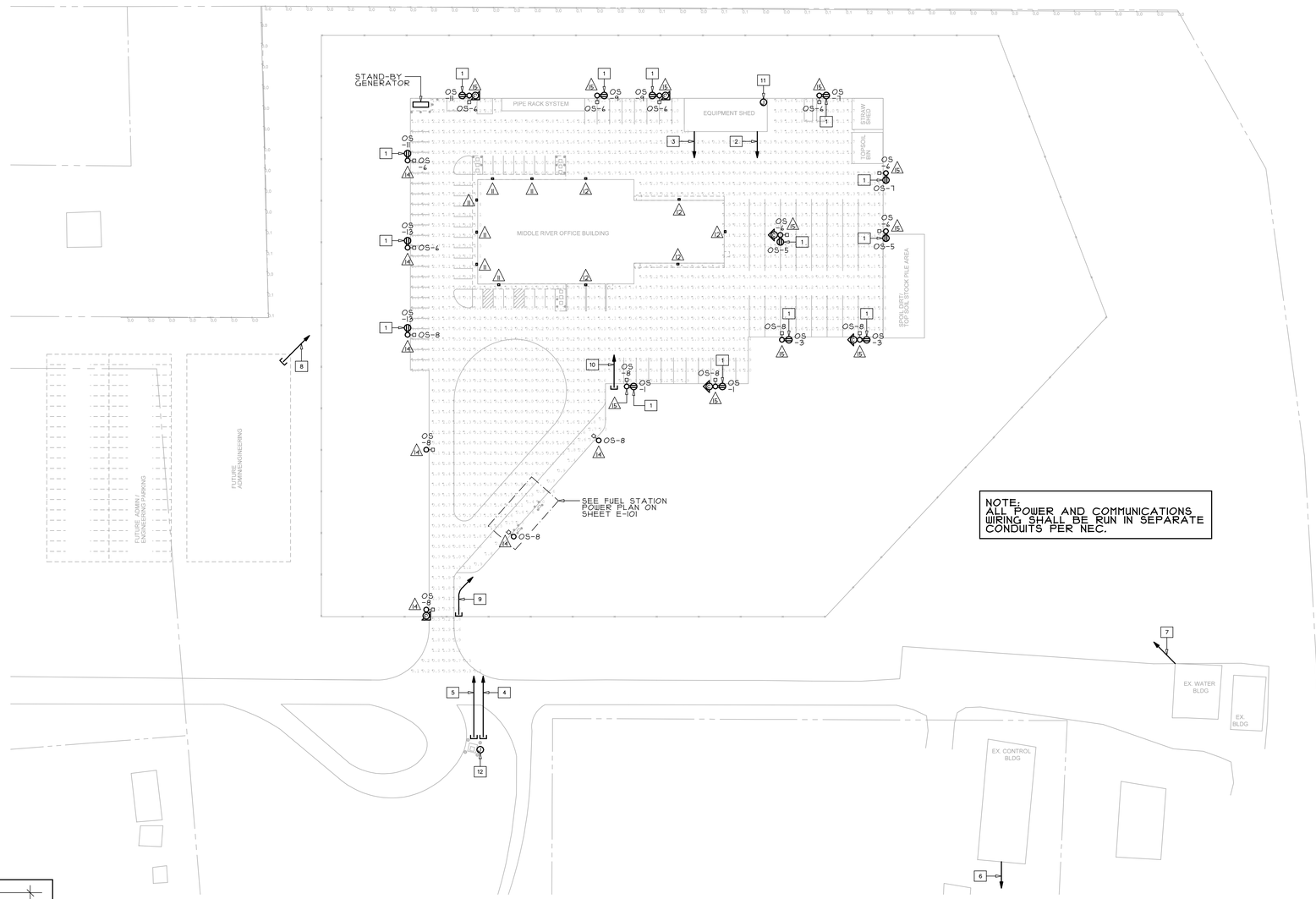
E-301

CABLE TRAY/ CONDUIT PLANS

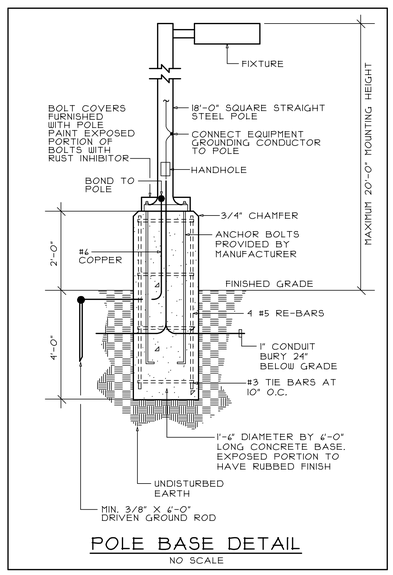
6/28/2022 8:56 AM



SITE ELECTRICAL PLAN

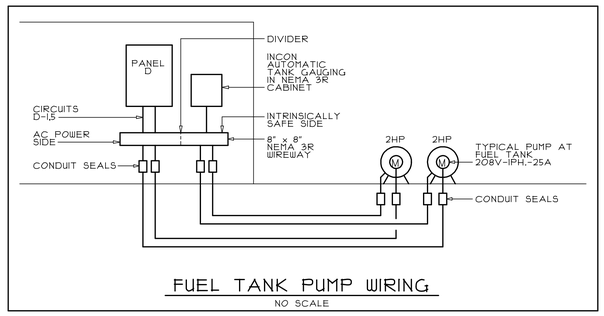
SCALE: 1" = 50'-0"

NOTE:
ALL POWER AND COMMUNICATIONS WIRING SHALL BE RUN IN SEPARATE CONDUITS PER NEC.



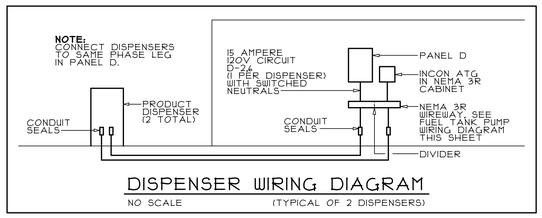
POLE BASE DETAIL

NO SCALE



FUEL TANK PUMP WIRING

NO SCALE



DISPENSER WIRING DIAGRAM

NO SCALE (TYPICAL OF 2 DISPENSERS)

SITE LIGHTING NOTES

S1. CIRCUITRY SHALL GENERALLY BE AS SHOWN ON THE PLAN. CONTRACTOR MAY REWORK TO FIND THE BEST FIELD ROUTING. WIRING FOR CIRCUITS UP TO 100'-0" IN LENGTH SHALL BE #10 AWG. WIRING FOR CIRCUITS UP TO 300'-0" IN LENGTH SHALL BE #6 AWG. WIRING FOR CIRCUITS OVER 300'-0" IN LENGTH SHALL BE #3 AWG.

S2. MINIMUM SIZE FOR CONDUIT SHALL BE 1". PULL GROUND IN ALL CONDUITS.

KEYED DRAWING NOTES

1. WEATHERPROOF, GFCI RECEPTACLE MOUNTED ON LIGHT POLE FOR TRUCK HEATER. VERIFY MOUNTING HEIGHT WITH THE OWNER PRIOR TO ROUGH-IN.

2. CIRCUIT OS-10 RUN IN A 3/4" CONDUIT FOR EQUIPMENT SHED.

3. 3/4" EC FROM EQUIPMENT SHED TO SCADA/SERVER 116 FOR COMMUNICATIONS WIRING. SEE CIVIL ENGINEER'S DRAWINGS FOR ROUTING OF CONDUIT.

4. 3/4" EC RUN TO PANEL OS FOR FUTURE BULK WATER STATION. CAP CONDUIT AT WATER STATION LOCATION AND MARK LOCATION WITH DRIVEN IRON PIN.

5. 3/4" EC FROM FUTURE BULK WATER STATION TO SCADA/SERVER 116 FOR COMMUNICATIONS WIRING. SEE CIVIL ENGINEER'S DRAWINGS FOR ROUTING OF CONDUIT.

6. 2" EC FROM EXISTING CONTROL BUILDING TO SCADA/SERVER 116 FOR COMMUNICATIONS WIRING. SEE CIVIL ENGINEER'S DRAWINGS FOR ROUTING OF CONDUIT.

7. 2" EC FROM EXISTING WATER BUILDING TO SCADA/SERVER 116 FOR COMMUNICATIONS WIRING. SEE CIVIL ENGINEER'S DRAWINGS FOR ROUTING OF CONDUIT.

8. 2" EC RUN TO SCADA/SERVER 116 FOR COMMUNICATIONS WIRING. CAP CONDUIT AT LOCATION OF FUTURE ADMINISTRATION BUILDING AND MARK LOCATION WITH DRIVEN IRON PIN.

9. 1" EC RUN TO PANEL OS FOR FUTURE MOTORIZED GATE. CAP CONDUIT AND MOUNT TO FENCE. VERIFY EXACT LOCATION WITH THE OWNER.

10. 1" EC RUN TO PANEL OS FOR FUTURE CANOPY AND LIGHTING. CAP CONDUIT AND MARK LOCATION WITH DRIVEN IRON PIN.

11. 120V-1PH. CONNECTION FOR NEMA 3R I.T. CABINET. VERIFY EXACT LOCATION AND ALL REQUIREMENTS WITH I.T. CONTRACTOR PRIOR TO ROUGH-IN. RUN TO CIRCUIT OS-12.

12. 120V-1PH. CONNECTION FOR I.T CABINET. VERIFY EXACT LOCATION AND ALL REQUIREMENTS WITH I.T. CONTRACTOR PRIOR TO ROUGH-IN. PROVIDE WITH A NEMA 3R CABINET IF UNIT IS LOCATED OUTSIDE THE BULK WATER STATION KIOSK. RUN TO CIRCUIT OS-14.

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PROJ NO: 21069

E-401

ELECTRICAL SITE PLAN

6/30/2022 2:44 PM

PLUMBING SPECIFICATIONS

1. GENERAL

1.1 DESCRIPTION OF WORK:

A. ALL FIXTURES, EQUIPMENT, ACCESSORIES, MATERIALS, AND LABOR REQUIRED TO PROVIDE COMPLETE, COORDINATED, AND FULLY FUNCTIONAL PLUMBING SYSTEMS GENERALLY AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
1. SANITARY SEWER
2. ROOF STORM WATER
3. FIRE SUPPRESSION
4. DOMESTIC WATER
5. NATURAL GAS – 2 PSI

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THE CIVIL, ARCHITECTURAL, STRUCTURAL, HVAC, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS SHALL APPLY TO AND BE CONSIDERED A PART OF THE PLUMBING WORK IN-SO-FAR AS THEY APPLY TO THE PLUMBING WORK AND ARE REQUIRED FOR COORDINATION.

1.3 JOB CONDITIONS:

A. DUE TO THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED TO PROVIDE A COMPLETE INSTALLATION OF THE WORK DESCRIBED AND INDICATED.

B. PROVIDE FITTINGS, OFFSETS, TRANSITIONS, AND ACCESSORIES REQUIRED TO MEET CONDITIONS OF THE PROJECT.

C. PROVIDE SERVICE ACCESS FOR EQUIPMENT, CONTROL COMPONENTS, VALVES, AND SPECIALTIES.

D. PROVIDE ACCESS PANELS FOR VALVES, ACCESS DOORS, ETC. CONCEALED BEHIND FINISHED SURFACES.

1.4 CONFORMANCE TO REGULATIONS:

A. WORK SHALL CONFORM WITH VIRGINIA UNIFORM STATEWIDE BUILDING CODE, NFPA, AND LOCAL ORDINANCES.

1.5 QUALITY ASSURANCE:

A. COMPLY WITH MANUFACTURER'S REQUIREMENTS AND NOTES AND DETAILS SHOWN HEREIN FOR INSTALLATION OF EQUIPMENT.

1.6 MATERIALS AND EQUIPMENT:

A. EQUIPMENT PROVIDED FOR THIS PROJECT SHALL BE EQUIVALENT TO PRODUCTS SPECIFIED.

B. CONTRACTOR SHALL GUARANTEE EQUIVALENCE AND IS RESPONSIBLE FOR MODIFICATIONS REQUIRED AND COORDINATION WITH OTHER TRADES TO FIT SUBSTITUTED PRODUCT INTO THE PROJECT.

C. MATERIALS AND EQUIPMENT OF THE SAME TYPE AND USE SHALL BE FROM A SINGLE MANUFACTURER.

D. PROTECT STORED MATERIALS AND EQUIPMENT FROM WEATHER.

1.7 UTILITIES AND CONNECTIONS:

A. OWNER WILL PAY FOR ALL WATER AND SEWER UTILITY CONNECTION FEES.

B. COORDINATE CONNECTIONS WITH SITE UTILITY DRAWINGS. WORK TO LOCATIONS AND INVERTS INDICATED ON SITE DRAWINGS. PROVIDE TRANSITIONS IN SIZE AND MATERIAL AT POINT OF CONNECTION.

1.8 SUBMITTALS:

A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR FIXTURES AND EQUIPMENT SPECIFIED HEREIN AND ON THE DRAWINGS. SHOP DRAWINGS AND PRODUCT DATA SHALL BE IDENTIFIED PER INDICATIONS ON DRAWINGS, SHALL BE MARKED TO INDICATED SPECIFIC ITEM BE PROPOSED, AND SHALL BE ORGANIZED IN AN ORDERLY MANNER. SUBMIT SHOP DRAWINGS ELECTRONICALLY IN PDF FORMAT.

B. SUBMIT OPERATING AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT INSTALLED IN THIS PROJECT. INCLUDE COPIES OF SPECIFIC EQUIPMENT WARRANTIES IN MANUAL.

C. UPON COMPLETION OF THE INSTALLATION, AND PRIOR TO ACCEPTANCE BY THE OWNER, CONTRACTOR SHALL FURNISH TWO COPIES OF AS-BUILT DOCUMENTATION. ALL CHANGES TO THE BIDDING DOCUMENTS SHALL BE NEATLY AND CLEARLY IDENTIFIED ON THE AS-BUILT DOCUMENTATION.

1.9 PROJECT CLOSEOUT:

A. REPLACE OR REPAIR DAMAGED EQUIPMENT AND CLEAN ALL EXPOSED SURFACES.

B. TOUCH-UP SHOP APPLIED FINISHES TO RESTORE DAMAGED OR SOILED AREAS.

C. INSTRUCT OWNER'S REPRESENTATIVE IN OPERATION AND MAINTENANCE OF EQUIPMENT UTILIZING OPERATION AND MAINTENANCE MANUAL.

2. PRODUCTS

2.1 PIPING SYSTEMS:

A. DOMESTIC WATER PIPING – TYPE L COPPER W/ NO LEAD SOLDER JOINTS OR CPVC. DOMESTIC WATER PIPING – TYPE L COPPER W/ NO LEAD SOLDER JOINTS OR CPVC.

B. WATER SERVICE – DOCTILE IRON.

C. SANITARY DRAINAGE – SCHEDULE 40 PVC WITH SOLVENT WELD FITTINGS, OR NO-HUB CAST IRON PIPING.

D. VENT PIPING – SCHEDULE 40 PVC W/ SOLVENT WELD FITTINGS, OR COPPER DWV WITH 50/50 SOLDER FITTINGS.

D. VENT PIPING – SCHEDULE 40 PVC W/ SOLVENT WELD FITTINGS, OR COPPER DWV

2.2 PLUMBING FIXTURES AND EQUIPMENT:

A. REFER TO FIXTURE SCHEDULE AND EQUIPMENT LIST ON DRAWINGS FOR MANUFACTURER'S AND MODEL NUMBERS.

3. EXECUTION

3.1 PIPING SYSTEMS

A. VERIFY INVERT ELEVATIONS PRIOR TO EXCAVATION.

B. BACKFILL BURIED PIPE IN TRENCHES WITH DIRT FREE OF ROCK, STONE OR DEBRIS.

C. VERIFY EXACT LOCATION OF EQUIPMENT AND FIXTURES PRIOR TO ROUGH-IN.

D. COORDINATE ROUTING OF WORK WITH OTHER TRADES AND INSTALL TO ALLOW MAXIMUM HEADROOM CLEARANCES, SERVICE ACCESS AND MAINTAIN PROPER PITCH OF SLOPING LINES.

E. INSULATE PIPING SYSTEMS AS FOLLOWS:
1. DOMESTIC WATER – 1/2" FIBERGLASS W/ ASJ UP TO 1.5"; 1" FIBERGLASS W/ ASJ OVER 1.5" PIPE SIZE. HOT WATER – 1" FIBERGLASS W/ ASJ. UNDERSLAB WATER – 3/4" THICK CLOSED CELL RUBBER.
2. SEAL VAPOR BARRIERS. SECURE WITH ADHESIVE AND SEAL JOINTS WITH SEALANT.
3. PROVIDE GALVANIZED STEEL SADDLE AT HANGERS SURROUNDING INSULATED PIPE.
4. DO NOT COMPRESS INSULATION EXCEPT IN AREAS OF STRUCTURAL INTERFERENCE.
5. INSTALL PRE-FITTED PLASTIC ELBOWS OR APPLY CANVAS JACKET IN THREE LAYERS AT ELBOWS.
6. INSULATE FITTINGS, VALVES AND EQUIPMENT BODIES.

F. PROVIDE SLEEVES FOR PIPING PENETRATING WALLS. INSULATION SHALL BE CONTINUOUS THROUGH SLEEVES.

G. FIRESTOP PIPING PASSING THROUGH FIRE RATED WALLS OR CEILINGS.

H. PATCH FINISHED AREAS DISTURBED BY WORK TO MATCH SURROUNDING AREAS.

I. WELDING SHALL BE DONE BY CERTIFIED WELDERS FOR THE APPROPRIATE SYSTEM BEING WELDED.

J. MAKE CONNECTIONS OF DISSIMILAR METALLIC PIPING WITH DIELECTRIC UNIONS.

K. PROVIDE CHROME PLATED ESCUTCHEON FOR EXPOSED PIPING PENETRATING A FINISHED SURFACE.

L. PROVIDE SHUT OFF VALVES AT EQUIPMENT CONNECTIONS. PROVIDE STOPS FOR ALL PLUMBING EQUIPMENT AND FIXTURES.

M. HANGERS SUPPORTING COPPER PIPING SHALL BE COPPER PLATED OR PLASTIC COVERED. HANGERS SUPPORTING INSULATED PIPING SHALL BE SIZED TO SURROUND INSULATION AND STEEL SADDLE.

N. PROVIDE VACUUM BREAKERS AT WALL HYDRANTS.

O. TEST PIPING SYSTEMS AS FOLLOWS:
1. WATER PIPING – TEST AT PRESSURE NOT LESS THAN WORKING PRESSURE OF THE SYSTEM. MAINTAIN SUCH PRESSURE FOR MINIMUM OF 1 HOUR.
2. SANITARY, STORM AND VENT PIPING – W/ 10 FT. HEAD OF WATER, MAINTAINING SUCH PRESSURE FOR MINIMUM OF 1 HOUR.
3. TEST GAS PIPING IN ACCORDANCE WITH IFGC-2015.
4. TESTS SHALL SHOW NO SUBSTANTIAL LOSS IN PRESSURE.
5. PIPING RUN IN CONCEALED AREAS SHALL BE LEAK TESTED PRIOR TO BEING CONCEALED.

3.2 PLUMBING FIXTURES

A. PROVIDE CHROME PLATED STOPS FOR FIXTURES.

B. PROVIDE TAILPIECE AND TRAP WITH CLEANOUT FOR LAVATORIES AND SINKS.

C. PROVIDE REMOVABLE CHROME PLATED BASKET STRAINER FOR SINKS.

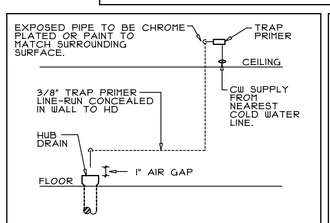
D. CAULK BETWEEN FIXTURE AND FINISHED SURFACES WITH WHITE SILICONE CAULKING.

E. PROVIDE BOLT CAPS FOR WATER CLOSETS AND URINALS.

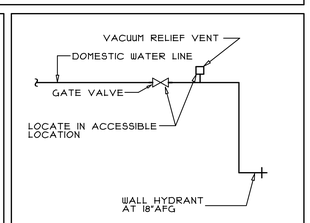
F. MOUNT WALL CLEANOUTS AND PLUGGED OUTLETS AT 18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED ON DRAWINGS.

SPRINKLER SYSTEM SPECS

1. PROVIDE A COMPLETE SPRINKLER SYSTEM FOR THE BUILDING IN ACCORDANCE WITH THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE, THE NATIONAL FIRE CODES, AND LOCAL ORDINANCES AND REGULATIONS.
2. PROVIDE A DRY TYPE SYSTEM WHERE PIPING AND/OR HEADS MUST BE INSTALLED IN AREAS SUBJECT TO FREEZING SUCH AS ATTICS OR CANOPYS. ALLOWING FOR SOMEONE ELSE TO PROVIDE MEANS TO KEEP PIPING FROM FREEZING IS NOT ACCEPTABLE. IT IS THE SPRINKLER CONTRACTORS RESPONSIBILITY TO PROVIDE A SYSTEM THAT WILL INSURE THAT PIPING WILL NOT FREEZE.
3. PROVIDE CALCULATIONS, PLANS, AND EQUIPMENT CUTS AS REQUIRED BY NFPA AND BY THE AUTHORITY HAVING JURISDICTION. SUBMIT TO OWNER'S REPRESENTATIVE FOR COORDINATION, MAKE REQUIRED ADJUSTMENTS, SUBMIT TO AUTHORITY HAVING JURISDICTION, AND OBTAIN STAMPED AND APPROVED DRAWINGS. SUBMIT APPROVED DRAWINGS TO OWNER'S REPRESENTATIVE FOR FINAL COORDINATION.
4. PIPING AND EQUIPMENT GENERALLY SHALL BE PER APPLICABLE CODES EXCEPT AS FOLLOWS:
   A. SPRINKLER HEADS IN FINISHED AREAS SHALL BE SEMI-RECESSED, WHITE FINISH.
   B. AIR COMPRESSORS FOR A DRY SYSTEM SHALL BE BASE MOUNTED TYPE WITH A MINIMUM 10 GALLON STORAGE TANK. UNIT SHALL BE INSTALLED ON SPRING TYPE VIBRATION ISOLATORS AND CONNECTED TO SPRINKLER PIPING WITH FLEXIBLE CONNECTORS.
5. SPRINKLER SYSTEM INSTALLER SHALL NOTE THAT THE BUILDING HAS A MANUAL FIRE ALARM SYSTEM. PROVIDE ALL ALARM DEVICES, FLOW SWITCHES, AND TAMPER SWITCHES REQUIRED. CONNECTIONS BETWEEN THESE DEVICES AND THE FIRE ALARM SYSTEM WILL BE BY THE FIRE ALARM SYSTEM INSTALLER. COORDINATE EXACT REQUIREMENTS OF ALARM DEVICES FOR CONNECTION TO THE FIRE ALARM SYSTEM.
6. COORDINATE ROUTING OF PIPING WITH BUILDING STRUCTURE AND WITH OTHER TRADES. INSURE THAT HEIGHT SELECTED FOR PIPING MAINS WILL ALLOW FOR INSTALLATION OF DUCTS, LIGHTS, AND EQUIPMENT.
7. DO NOT INSTALL PIPING BENEATH AIR HANDLING DEVICES OR IN MANNER THAT WILL INTERFERE WITH ANY TYPE OF ACCESS PANEL. INSTALL PIPING AT LEAST 2" ABOVE LIGHT FIXTURES TO ALLOW FOR FUTURE RELOCATION OF LIGHT FIXTURES WITHOUT REVISION TO PIPING ELEVATIONS.
8. IN SPECIFIC AREAS WHERE ARCHITECT HAS INDICATED SPRINKLER HEADS, INSTALL HEADS IN THOSE LOCATIONS. PRIOR TO DEVELOPMENT OF SHOP DRAWINGS, NOTIFY ARCHITECT IF SPRINKLER HEAD LOCATIONS SHOWN DO NOT SATISFY COVERAGE REQUIREMENTS OF NFPA-13.
9. INSTALL HEADS IN THE CENTER OF CEILING TILES IN SMALLER ROOMS AND CENTERED ONE WAY IN CEILING TILES IN LARGE OPEN AREAS.



HUB DRAIN TRAP PRIMER DIAGRAM



WALL HYDRANT DETAIL

PLUMBING FIXTURE SCHEDULE

NO.	DESCRIPTION	W	V	CW	HW	MFR. MODEL FIXTURE	MFR. MODEL FITTINGS	MFR. MODEL ACCESS.	NTS
W1	ACCESSIBLE TANK TYPE WATER CLOSET	3	1.5	1/2	--	AMER. STD. 2467.016	PROVIDE CORRECT HANDLE ORIENTATION	SEAT: CHURCH 29555C	1
W2	TANK TYPE WATER CLOSET	3	1.5	1/2	--	AMER. STD. 2462.016		SEAT: CHURCH 29555C	
U1	ACCESSIBLE URINAL	2	1.5	3/4	--	AMER. STD. 6541.132	SLOAN ROYAL 186-1-ADA-BG-YC-YK	CARRIER: WADE 400 SERIES	1,2
L1	ACCESSIBLE COUNT. MTD. LAVATORY	1.5	1.5	1/2	1/2	AMER. STD. 0491.019	AMER. STD. 6141111.002		1,3,4
S1	ACCESSIBLE SINGLE BOWL S/S SINK	1.5	1.5	1/2	1/2	MOEN GS201971 4BQ	MOEN 87046		1,3
HS	ACCESSIBLE WALL HUNG S/S HAND WASH SINK	1.5	1.5	1/2	1/2	REGENCY 600HS17DST		CARRIER: WADE 520 SERIES	
SH	ACCESSIBLE SHOWER	2	1.5	1/2	1/2	FREEDOM SHOWERS APF0633BF815L OR APF0633BF815R	MOEN 8342		1,2
EWC	ACCESSIBLE ELEC. WATER COOLER	1.5	1.5	1/2	--	ELKAY LZSTL8WSLK			1,2
MB	MOP BASIN	3	1.5	1/2	1/2	FIAT MSB-2424 W/ 2-E-11-AA	FIAT 830-AA, 832-AA, 881C		2
WM	WASHING MACHINE	2	1.5	1/2	1/2		SIOUX CHIEF 696-2313WR	SIT WM IN 3" DEEP DRAIN PAN. BOX W/ SHOCK ARRESTERS	2
EWH	ELEC. WATER HEATER	--	--	3/4	3/4	EEMAX SPEX4208T	208V, 1PH 4.1kW		
GWH	GAS WATER HEATER	--	--	3/4	3/4	A.O. SMITH BTS 199	50 GALLONS 199,000 BTU	EXPAN. TANK	
HB	HOSE BIBB WITH VACUUM BREAKER	--	--	3/4	--	NIBCO MDL. 442	WATTS 8A		
WH	WALL HYDRANT	--	--	3/4	--	WOODFORD B65			2
SA	WATER HAMMER ARRESTOR	--	--	X	--	WADE SHOKSTOP5			7
WCO	WALL CLEANOUT	X	--	--	--	WADE 8480R			6
FCO1	FLOOR CLEANOUT	X	--	--	--	WADE SERIES 6000			6
FCO2	FLOOR CLEANOUT	X	--	--	--	WADE SERIES 6000Z		(HEAVY DUTY)	6
COTG	CLEANOUT TO GRADE	4	--	--	--	WADE 6000-Z-5			5
FD	FLOOR DRAIN	X	X	--	--	WADE 1100X5TD6-27		W/ TRAP PRIMER	6
FS	FLOOR SINK	3	2	--	--	WADE 9143-6-15-27.		W/ TRAP PRIMER	
TD	TRENCH DRAIN	4	--	--	--	ZURN ---			
TV	TEMPERING VALVE	--	--	1/2	1/2	POWERS LFe480			4
RIM	REFRIGERATOR ICE MAKER BOX	--	--	3/8	--	SIOUX CHIEF 696-1010MR		W/ BACKFLOW PREVENTER	2
IM	ICE MAKER BOX	--	--	1/2	--	SIOUX CHIEF 696-1010MR		W/ BACKFLOW PREVENTER	
AAV	AIR ADMITTANCE VALVE	--	2	--	--	SIOUX CHIEF 250-12A			

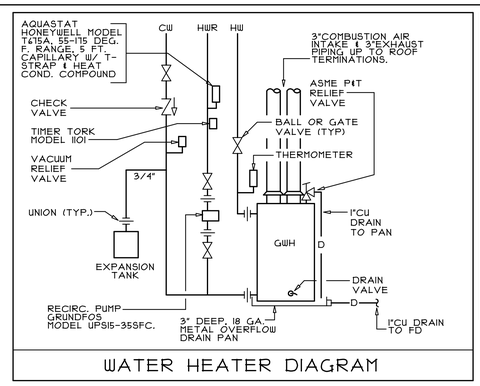
NOTES:
1. INSTALL FIXTURES IN ACCORDANCE WITH APPLICABLE STANDARDS.
2. PROVIDE PROPER ACCESSORIES FOR WALL THICKNESS & CONSTRUCTION.
3. PROVIDE PIPE INSULATION KIT. TRUEBRO MODEL 105W OR EQUAL.
4. PROVIDE TEMPERING VALVE AT FIXTURES AS INDICATED ON PLAN OR RISERS.
5. MOUNT IN 16" ROUND CONCRETE RING FLUSH W/ PAVEMENT OR GRADE.
6. SIZE TO MATCH SEWER SERVED.
7. SIZE PER MANUFACTURER'S RECOMMENDATIONS FOR NUMBER OF FIXTURES SERVED.

LEGEND

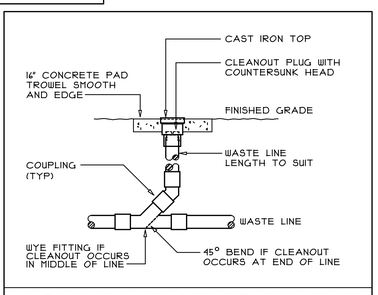
———	SOIL OR WASTE PIPING
—W—	WATER SERVICE PIPING
– – –	VENT PIPING
—·—	COLD WATER PIPING
—··—	HOT WATER PIPING
—···—	HOT WATER RECIRC. PIPING
—G—	GAS PIPING
—A—	COMPRESSED AIR PIPING
—S—	SPRINKLER PIPING
	BALL OR GATE VALVE
	CHECK VALVE
	RPZ BACKFLOW PREVENTER
	PRESSURE REDUCING VALVE
	GLOBE BALANCING VALVE
	GAS COCK
	DROP IN PIPING
	SHOCK ARRESTOR
	DOWNSPOUT BOOT
W 1	RISER MARK - SEE DIAGRAM

ABBREVIATIONS

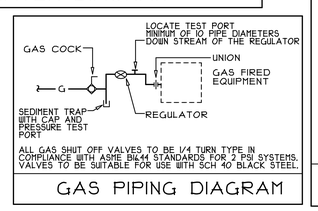
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
WCO	WALL CLEANOUT
FCO	FLOOR CLEANOUT
COTG	CLEANOUT TO GRADE
VTR	VENT THRU ROOF
WH	WALL HYDRANT
HB	HOSE BIBB W/ VACUUM BREAKER
EWH	ELECTRIC WATER HEATER
GWH	GAS WATER HEATER
CW	COLD WATER
HW	HOT WATER
TW	TEMPERED WATER
HWR	HOT WATER RECIRC.
DN	DOWN
WC	WATER CLOSET
UR	URINAL
LAV	LAVATORY
FD	FLOOR DRAIN
DFU	DRAINAGE FIXTURE UNIT
SFU	SUPPLY FIXTURE UNIT



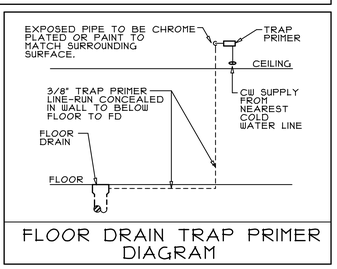
WATER HEATER DIAGRAM



CLEANOUT TO GRADE DIAGRAM



GAS PIPING DIAGRAM



FLOOR DRAIN TRAP PRIMER DIAGRAM

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PROFESSIONAL ENGINEER

PROJ NO: 21069

Mark	Date	Description
--	08/10/2022	REVISED BID DOCUMENTS
--	01/06/2022	BID DOCUMENTS

P-001
PLUMBING SPECS., SCHEDS. & DETAILS
9/30/2022 11:33 AM

NOTE: (3) AIR DROPS ABOVE WORK TABLES TO BE ON HOSE REELS. INSTALL & MOUNT AS DIRECTED BY OWNER. PROVIDE REQUIRED SHUT-OFF VALVES

4"SAN MAIN TO SAN SEWER. SEE SITE PLAN FOR CONTINUATION.

PLUMBING CONTRACTOR TO INSTALL SANITARY PIPING TO 5 FEET OUTSIDE THE BUILDING. SITE UTILITIES TO CONTINUE PIPING PAST 5 FEET BEYOND STRUCTURE.

OIL/WATER SEPARATOR TO BE PROVIDED BY SITE UTILITIES.

OWS - OIL/WATER SEPARATOR TO BE OLD CASTLE PRE-CAST 60-SA-550 OR EQUAL. 550 GALLAON. SERVES 5,240 ft2.

2"VENT OFFSET BELOW SLAB & UP TO 2"VTR.

3/4"AIR DOWN TO EXTERIOR OUTLET. PROVIDE SHUT-OFF VALVE AT 48"AFF. VERIFY MOUNTING HEIGHT W/ OWNER. PROVIDE FREEZE PROTECTION AS REQUIRED.

3/4"AIR CONNECTION FOR OIL STORAGE.

2"HD ON MEZZZNINE FOR AIR COMPRESSOR INDIRECT WASTE. 2"SAN DOWN TO CONNECT TO SAN SEWER.

AIR COMPRESSOR ON MEZZANINE. AIR PIPING TO BE RUN AS HIGH AS POSSIBLE.

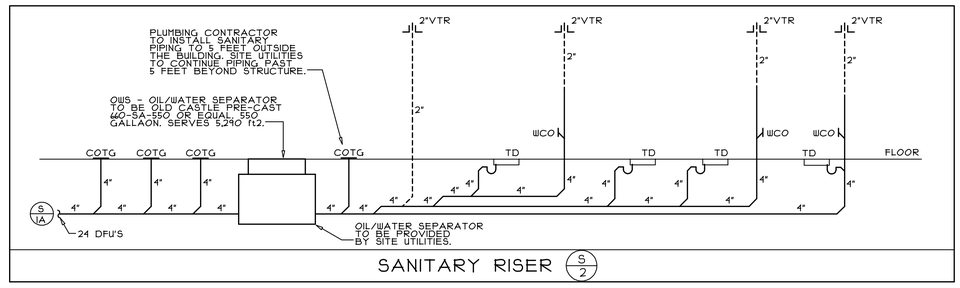
3/4"AIR CONNECTION FOR TIRE CHANGER.

3/4"AIR CONNECTION FOR LIFT.

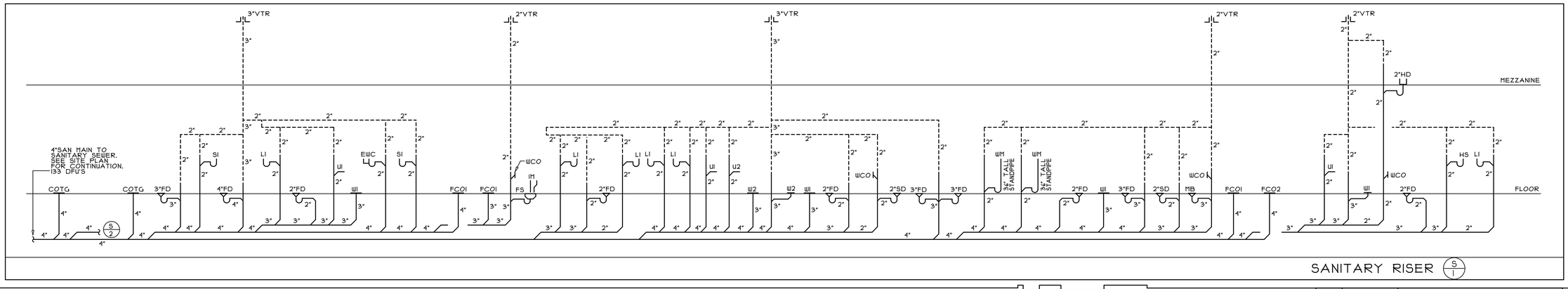
3/4"AIR DOWN TO EXTERIOR OUTLET. PROVIDE SHUT-OFF VALVE AT 48"AFF. VERIFY MOUNTING HEIGHT W/ OWNER. PROVIDE FREEZE PROTECTION AS REQUIRED.

SANITARY/AIR PLAN

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



SANITARY RISER (S/2)



SANITARY RISER (S/1)

Mark	Date	Description
–	06/10/2022	REVISED BID DOCUMENTS
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P-101
SANITARY/AIR PLAN & RISERS

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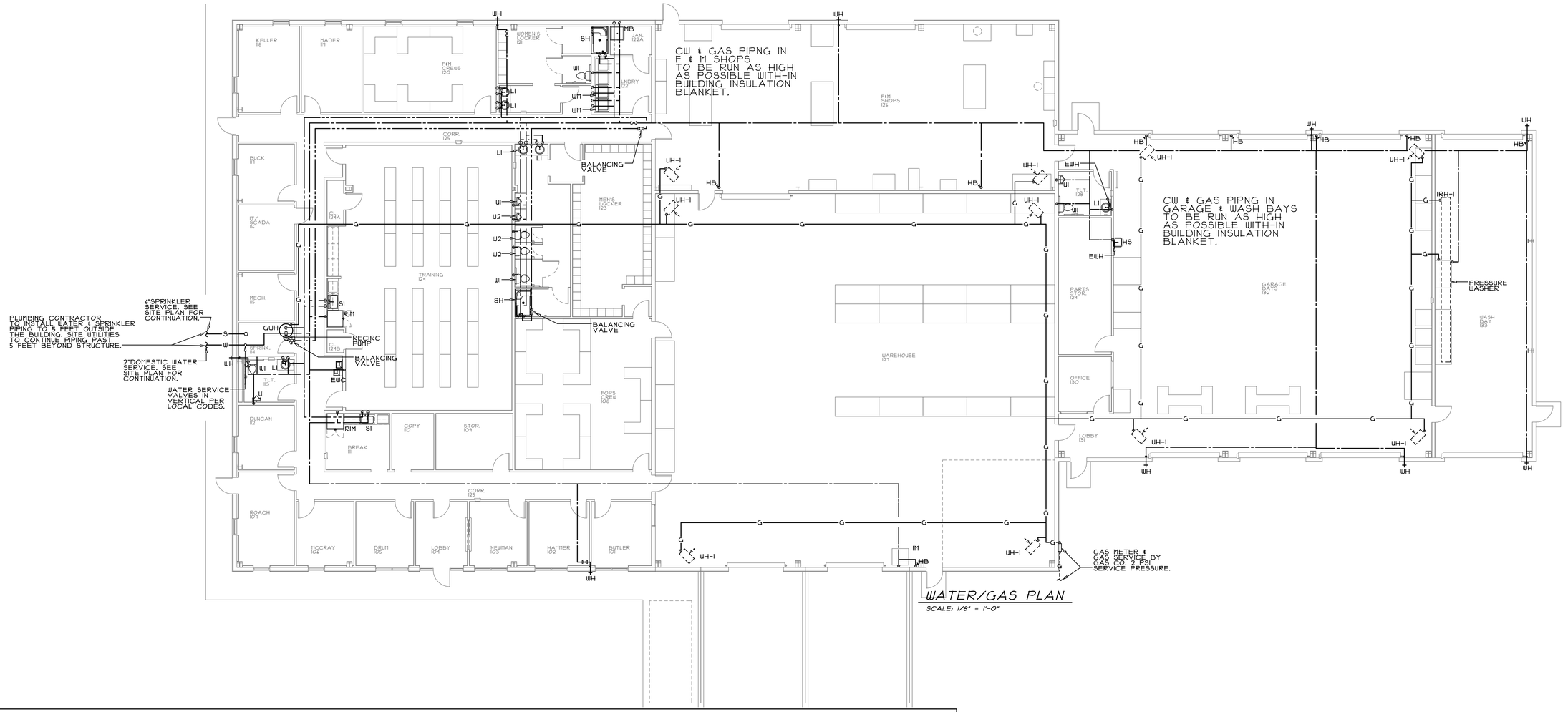
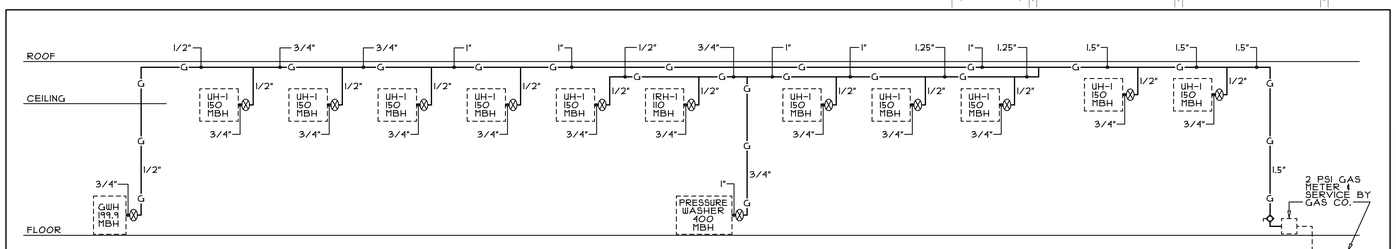
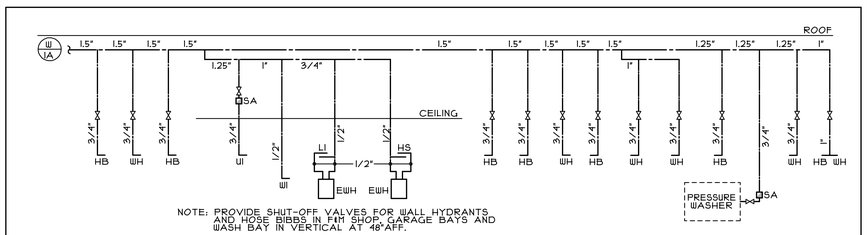




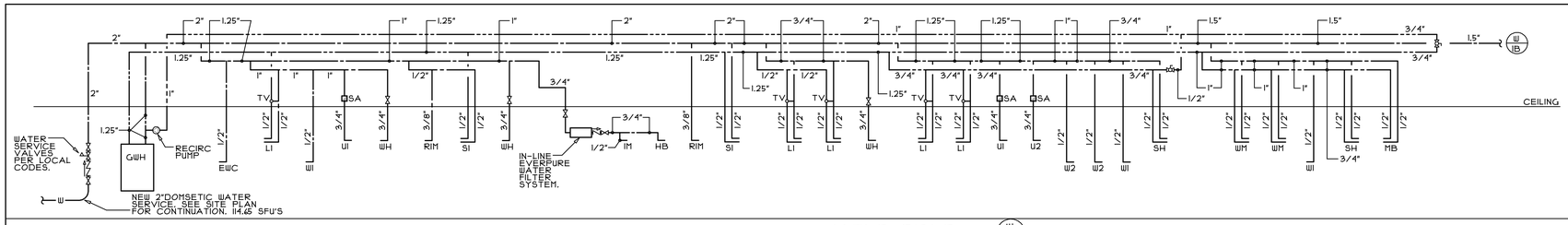
GAS RISER (G/1)

NOTES:

1. THE MAXIMUM TOTAL DEVELOPED LENGTH OF PIPE IS LESS THAN 300 FEET.
2. THE TOTAL CONNECTED GAS LOAD FOR THE BUILDING IS 2,209,900 BTU.
3. PIPE SIZES ARE BASED ON IFGC-2018 TABLE 402.4(5).
4. SERVICE PRESSURE AT METER IS 2 PSI.



WATER RISER (W/1B)



WATER RISER (W/1A)

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WATER/GAS PLAN & RISERS
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