NEW BUILDING FOR:

LS MANAGEMENT SERVICES, LLC

STREET ADDRESS TBD

LEE'S SUMMIT, MO

PERMIT SET

PROJECT SITE GENERAL NOTES

EXTENT OF THE WORK:

1. THE SPECIFICATIONS AND DRAWINGS COVER THE COMPLETE CONSTRUCTION SCOPE. THEY ARE INTENDED TO BE COMPLIMENTARY AND ANYTHING MENTIONED OR IMPLIED BY ONE WILL BE CONSIDERED TO BE INCLUDED AS THOUGH MENTIONED BY ALL

CODES, PERMITS, AND LAWS:

1. COMPLY WITH ALL FEDERAL, STATE, AND MUNICIPAL LAWS, CODES, ORDINANCES APPLICABLE TO THE WORK AND ALL REQUIREMENTS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS HAVING JURISDICTION. IF THE ABOVE LAWS, CODES, OR ORDINANCES CONFLICT WITH THE SPECIFICATIONS, THE LAWS SHALL GOVERN. EXCEPT WHERE THE SPECIFICATIONS EXCEED THEM IN QUALITY OR QUANTITY OF LABOR OR MATERIALS. THE SUBCONTRACTOR WILL OBTAIN AND PAY FOR ALL PERMITS REQUIRED IN CONNECTION WITH THE EXECUTION OF HIS WORK.
2. THE BUILDING IS CLASSIFIED AS PER CODE SHEET IN THE SET. SIZE ALL SPRINKLER PIPING HYDRAULICALLY PER THE LATEST EDITION OF NFPA 13 AND COORDINATING WITH OWNER'S INSURANCE REQUIREMENTS. CONTRACTOR SHALL VERIFY HYDRAULIC REQUIREMENTS WITH THE AUTHORITY HAVING JURISDICTION AND VERIFY AVAILABLE WATER PRESSURE AND FLOW. INSTALL SPRINKLER SYSTEM IN ACCORDANCE WITH LOCAL AND STATE AUTHORITIES AND THE LATEST EDITION OF NFPA 13.

SAFETY:

1. IT IS THE POLICY TO AT ALL TIMES PROVIDE SAFE WORK ENVIRONMENTS. CONDUCT ALL OPERATIONS IN A MANNER THAT ELIMINATES RISK TO ANY TRADES PERSON, MAINTAIN ALL CONDITIONS IN A WAY THAT ELIMINATES ALL RISK TO ANY, MAINTAIN ALL CONDITIONS IN A WAY THAT ELIMINATES ALL RISK TO VISITORS AND TO THE PUBLIC, AND ELIMINATE THE RISK OF DAMAGE TO PROPERTY ON AND ADJACENT TO THE SITE.
2. THIS IS THE FUNDAMENTAL RESPONSIBILITY OF EVERY INDIVIDUAL ON SITE. ALL SUPERVISORS MUST ACCEPT COMPLETE RESPONSIBILITY FOR PREVENTION OF ACCIDENTS AND FOR SAFETY OF ALL WORK UNDER THEIR DIRECTION.
3. BY CONTRACT AND BY LAW, EVERY COMPANY ON THE SITE IS AT A MINIMUM TO CONFORM TO THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT, AND TO THE LAWS OF EVERY ENTITY HAVING JURISDICTION OVER THE WORK.
4. ANY COMPANY OR INDIVIDUAL REFUSING TO CORRECT OBSERVED SAFETY VIOLATIONS WILL BE BANNED FROM THE SITE AT LEAST UNTIL SUCH VIOLATIONS ARE CORRECTED, AND WILL BE HELD COMPLETELY RESPONSIBLE FOR ALL RESULTING EFFECTS.

HAZARDOUS MATERIALS:

1. IN THE EVENT A SUBCONTRACTOR DISCOVERS, AT ANY TIME DURING DEMOLITION, CONSTRUCTION, AND OR REMODELING OPERATIONS, EXISTING CONDITIONS THAT COULD INCLUDE THE PRESENCE OF MOLD, MILDEW, ASBESTOS, OR ANY HAZARDOUS MATERIAL, THE SUBCONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND ARCHITECT/ENGINEER OF RECORD, IN WRITING, OF THE CONCERNS AND OR SUSPICIONS.
2. ONCE DISCOVERY OR SUSPICION OF MOLD, MILDEW, ASBESTOS, OR ANY HAZARDOUS MATERIAL IS MADE, THE SUBCONTRACTOR SHALL TAKE ALL REASONABLE AND PRACTICAL PRECAUTIONS TO PROTECT ALL CONSTRUCTION PERSONNEL AND THE PUBLIC FROM THE EXPOSURE TO ANY HAZARDOUS MATERIAL AND SUCH PRECAUTIONS SHALL REMAIN IN PLACE UNTIL SUCH TIME AS THE OWNER OR HEALTH AUTHORITY DIRECTS OTHERWISE. CONSTRUCTION OPERATIONS SHALL NOT BE STOPPED OR CURTAILED EXCEPT IN THE AREA OF THE HAZARDOUS MATERIAL CONCERN DUE TO THESE REQUIRED PRECAUTIONS.
3. THE SUBCONTRACTOR SHALL MAKE ALL REASONABLE EFFORTS TO AVOID CONDITIONS FAVORABLE TO THE DEVELOPMENT OF MOLD AND MILDEW, ESPECIALLY IN VOIDS WHICH WILL BE CONCEALED AND NOT VENTILATED, IN ALL CASES, INTERIOR SPACES AND INTERIOR FINISHED CONSTRUCTION SHALL BE MAINTAINED AND DRY AND WELL VENTILATED CONDITIONS.
4. THE SUBCONTRACTOR SHALL COMPLY WITH FEDERAL ENVIRONMENTAL AND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS AND ALL LOCAL AND STATE HEALTH DEPARTMENT REQUIREMENTS AND RECOMMENDATIONS REGARDING MOLD, MILDEW, ASBESTOS, OR ANY HAZARDOUS MATERIAL.

CONFLICTS IN DOCUMENTS AND CONDITIONS:

1. THE SUB CONTRACTOR SHALL CAREFULLY STUDY AND COMPARE THE CONTRACT DOCUMENTS WITH EACH OTHER AND SHALL REPORT IMMEDIATELY TO THE SUPERINTENDENT ERRORS, INCONSISTENCIES OR OMISSIONS DISCOVERED. IF THE SUBCONTRACTOR PERFORMS ANY WORK KNOWING IT INVOLVES A RECOGNIZED ERROR, INCONSISTENCY OR OMISSION IN THE CONTRACT DOCUMENTS WITHOUT IMMEDIATE NOTICE TO THE SUPERINTENDENT, THE SUBCONTRACTOR SHALL ASSUME APPROPRIATE RESPONSIBILITY FOR SUCH PERFORMANCE AND SHALL BEAR AN APPROPRIATE AMOUNT OF THE ATTRIBUTABLE COSTS FOR CORRECTION.
2. THE SUBCONTRACTOR SHALL TAKE FIELD MEASUREMENTS AND VERIFY FIELD CONDITIONS AND SHALL CAREFULLY COMPARE SUCH FIELD MEASUREMENTS AND CONDITIONS AND OTHER INFORMATION KNOWN TO THE SUBCONTRACTOR WITH THE CONTRACT DOCUMENTS BEFORE COMMENCING ACTIVITIES. ERRORS, INCONSISTENCIES OR OMISSIONS DISCOVERED SHALL BE REPORTED TO THE SUPERINTENDENT AT ONCE.
3. THE SUB CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SUBMITTALS REVIEWED BY THE DESIGN TEAM AND APPROVED BY THE GENERAL CONTRACTOR. THE SUBCONTRACTOR SHALL PERFORM NO PORTION OF THE WORK AT ANY TIME WITHOUT CONTRACT DOCUMENTS OR, WHERE REQUIRED, APPROVED SHOP DRAWINGS, PRODUCT DATA, OR SAMPLES FOR SUCH PORTION OF THE WORK.

DESIGN CRITERIA

BUILDING CODE:	2018 IBC
MECHANICAL CODE:	2018 IMC
PLUMBING CODE:	2018 IPC
FIRE CODE:	2018 IFC
FUEL GAS CODE:	2018 IFGC
ENERGY CONSERVATION CODE:	2018 IECC
ELECTRICAL CODE:	2017 NEC
ACCESSIBILITY STANDARD:	ICC/ANSI A117.1-2009
USE GROUP (MIXED USE NON-SEPARATED):	S-1 (AIRPLANE HANGAR)
CONSTRUCTION TYPE:	2B
BUILDING- 120'x100'	
TOTAL BUILDING AREA:	12,000 SQ FT GROSS
ZONING DISTRICT:	AIRPORT
FIRE SPRINKLER SYSTEM:	YES

OCCUPANT LOAD (IBC 2018 TABLE 1004.5)
MAXIMUM FLOOR AREA ALLOWED PER OCCUPANT,
AIRPLANE HANGAR 12,000 S.F. / 500 = 24 OCCUPANTS

TABLE 504.3 MAX HEIGHT: 55' ALLOWED, 27'-0" ACTUAL
TABLE 504.4 MAX STORIES: 2 ALLOWED, 1 ACTUAL
TABLE 506.2 MAX SIZE: 17,500SF ALLOWED, 12,000SF ACTUAL

TABLE 2902.1 PLUMBING FIXTURES
REQUIRED-
2 WATER CLOSETS, 2 LAVATORIES,
1 SERVICE SINK, DRINKING WATER

PROVIDED-
2 WATER CLOSETS, 2 LAVATORIES,
1 SERVICE SINK, BOTTLED WATER
2 URINALS

GROUP 2 HANGAR PER NFPA 409

SHEET INDEX

ABBREVIATIONS

A/B	ANCHOR BOLT
A/C	AIR CONDITIONING
ACCOUST.	ACOUSTICAL
ADD'L	ADDITIONAL
A.F.F.	ABOVE FINISH FLOOR
AF	AS FURNISHED
AI	AS INSTALLED
ALT.	ALTERNATE
ALUM	ALUMINUM
ANCH.	ANCHOR
ARCH	ARCHITECT
@	AT
B.B.	BOTTOM OF BEAM
B.F.	BOTTOM OF FOOTING
BD.	BOARD
BKT.	BRACKET
BLDG	BUILDING
BLK	BLOCK
BLK'G	BLOCKING
BM	BEAM
B.M.	BENCH MARK
BOT	BOTTOM
BRG	BEARING
BSMT	BASEMENT
C.S.	COUNTER SUNK
CAB	CABINET
C.C.	CENTER-TO-CENTER
CEM	CEMENT
CF	CONTRACTOR FURNISHED
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CI	CONTRACTOR INSTALLED
CL	CENTERLINE
CLG	CEILING
C.O.	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONF	CONFERENCE
CONN.	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR/CORRUGATED
CTR	CENTER
CYL	CYLINDER
℄	CENTER LINE
C.W.	COLD WATER
DP	DEEP
DBL	DOUBLE
DEG	DEGREE
D.F.	DRINKING FOUNTAIN
DEMO	DEMOLITION
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
D.O.	DO OVER
DTL	DETAIL
DR.	DOOR
D.S.	DOWNSPOUT
EA.	EACH
ELEC	ELECTRICAL
EL	ELEVATION (HEIGHT)
ELEV	ELEVATION (VIEW)
ELEV	ELEVATOR
E.W.C.	ELECTRIC WATER COOLER
EQUIP	EQUIPMENT
EXIST'G	EXISTING
EXP	EXPOSED
EXPAN.	EXPANSION
EXT	EXTERIOR/EXTENSION
F.B.O.	FURNISHED BY OTHERS
F.D.	FLOOR DRAIN
F.E.	FIRE EXTINGUISHER
F.E.C.	FIRE EXTINGUISHER CABINET
F.E.B.	FIRE EXTINGUISHER BRACKET
FIN	FINISH
F.G.	FINISH GRADE
F.L.	FLOW LINE
FLASH'G	FLASHING
FLR	FLOOR
F.O.M.	FACE OF MASONRY
FND	FOUNDATION
FOUND	FOUNDATION
FR	FIRE RETARNDANT
FRM	FRAME
FURN	FURNISHED
F.T.	FIRE TREATED
FTG	FOOTING
FUR	FURRING
GA.	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
G.I.	GALVANIZED IRON
GL.	GLASS
GLAZ.	GLAZING
GOVT	GOVERNMENT
G.S.	GRAVEL STOP
GEN	GENERAL
GYP	GYPSUM
HDWR	HARDWARE
H.D.	HOLLOW CORE
HOL	HOLLOW
HORIZ	HORIZONTAL
H	HIGH
HT.	HEIGHT
HTG	HEATING
HTR	HEATER
H.W.	HOT WATER
I.D.	INSIDE DIAMETER
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JNT	JOINT
JSTS	JOISTS
K.E.S.	KITCHEN EQUIPMENT SUPPLIER
LAM	LAMINATE
LAV	LAVATORY
LG	LONG
LH	LEFT HAND BEVEL
LHR	LEFT HAND REVERSE BEVEL
LIN	LINEAR/LINEAL
LVR	LOUVER
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MEZZ	MEZZANINE
MFRD	MANUFACTURED
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MK	MARK
M.O.	MASONRY OPENING
MTD	MOUNTED
MTL	METAL
MULL	MULLION
NOM	NOMINAL
NTS	NOT TO SCALE
O.A.	OVER ALL/OUTSIDE AIR
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OFCI	OWNER FURNISH/ CONTRACTOR INSTALLED
OFOI	OWNER FURNISH/ OWNER INSTALLED
O/H	OVERHEAD
OPN'G	OPENING
OPP	OPPOSITE
PART	PARTITION
PERIM	PERIMETER
P.G.	PRESENT GRADE
PLAM	PLASTIC LAMINATE
PLAS	PLASTIC
PL	PLATE/PROPERTY LINE
PLUMB'G	PLUMBING
PLY	PLYWOOD
P.P.	POWER POLE
PR	PAIR
PVC	POLYVINYL CHLORIDE
Q.T.	QUARRY TILE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE REINF REINFORCE
RH	RIGHT HAND BEVEL
RHR	RIGHT HAND REVERSE BEVEL
RL	RAIN LEADER
RM	ROOM
R.O.	ROUGH OPENING
RES	RESILIENT TILE
REQ'D	REQUIRED
REQMT	REQUIREMENT
RTV	ROTARY-TURBINEOVENT
REG	REGULAR
SAF	SAFETY
SAN	SANITARY
SCHED	SCHEDULE
S.C.	COULD CORE
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION
STD	STUD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURE
SURF	SURFACE
SUSP	SUSPENDED
SYST	SYSTEM
S.W.	STORM WATER
TEMP	TEMPERATURE/ TEMPORARY
TYP	TYPICAL
VCP	VITRIFIED-CLAY-PIPE
VEST	VESTIBULE
VERT	VERTICAL
VOL	VOLUME
V.T.R.	VENT-THRU-ROOF
VCT	VINYL COMPOSITION TILE
W	WIDE
W/	WITH
WD	WOOD
W.D.	WINDOW DIMENSION
WDW	WINDOW
WWF	WELDED WIRE FABRIC
W.P.	WEATHER PROOF
WT	WEIGHT

GENERAL INTERIOR ELEVATION NOTES

DETAIL DESIGNATION (DETAIL NUMBER / SHEET NUMBER) — 13/A1.0	ELEVATION HEIGHT — T.O. STEEL ELEV: 112'-0"
ROOM TAG — 100	FINISH TAG — WD-06 / 1X DOOR TRIM STAINED ST-83
DOOR TAG — 101-1	ELEVATION TAG — 13/A1.0
SECTION CUT TAG — 13/A1.0	CEILING HEIGHT — 9'-0"
ROOF SLOPE — 12 / 2	WINDOW TAG — W23
PARTITION TYPE — P12	REVISION DELTA — 1 / CCD 4 / 01/01/08
ENLARGED DETAIL — 13 / A3.2	GRID BUBBLE — GRID

MATERIAL INDICATION

CONCRETE	FINISHED WOOD
CONCRETE BLOCK	GYPSUM BOARD
BRICK MASONRY	PLYWOOD
RIGID INSULATION	INSULATION BOARD FOR EIFS
BATT OR BLOWN INSULATION	GLASS
DIMENSIONAL LUMBER	ASPHALT SHINGLES
EARTH/BACKFILL	EIFS
WOOD DECKING	

GENERAL PROJECT NOTES

ARCHITECT IS NOT RESPONSIBLE FOR FIELD ACTIVITIES ON THIS PROJECT WITHOUT DIRECT SUPERVISION OF WORK IN PROGRESS. IT IS NEITHER EXPRESSED NOR IMPLIED THAT THE CONTRACTOR CAN CONSTRUCT THIS PROJECT WITHOUT THE ARCHITECTS FIELD OBSERVATIONS. IF FIELD CONDITIONS ARE UNCOVERED THAT REQUIRE A CHANGE OR ADDITIONAL INFORMATION, THE ARCHITECT DOES NOT DELEGATE HIS AUTHORITY TO ANYONE ELSE FOR DETERMINING THE MEANING OF THESE PLANS OR SPECIFICATIONS.

THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL SITE CONDITIONS.

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATIONS OF EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION.

THE CONTRACTOR SHALL PAY FOR ALL TRADE PERMITS, GOVERNMENTAL FEES, LICENSES, UTILITY CONNECTIONS AND INSPECTIONS.

THE CONTRACTOR SHALL PROVIDE AND PAY FOR LABOR, MATERIALS, CONSTRUCTION EQUIPMENT AND MACHINERY, TOOLS, UTILITIES, TRANSPORTATION FOR THE ABOVE MENTIONED AND ANY OTHER FACILITIES OR SERVICES NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK.

THE CONTRACTOR SHALL CAREFULLY STUDY AND COMPARE THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS WITH THE INFORMATION FURNISHED BY THE OWNER AND IMMEDIATELY NOTIFY THE ARCHITECT OF ANY ERRORS, INCONSISTENCIES OR OMISSIONS DISCOVERED.

IF A MATERIAL CALL-OUT IS ABSENT FROM ANY DRAWING, DETAIL, OR SPECIFICATION IN THE DOCUMENTS, THE CONTRACTOR SHALL REQUEST INFORMATION AND/OR CLARIFICATION FROM THE ARCHITECT IN WRITING PRIOR TO SUBMITTING A BID. FAILURE TO REQUEST INFORMATION AND/OR CLARIFICATION FROM THE ARCHITECT PRIOR TO BIDDING THE PROJECT WARRANTS THAT THE CONTRACTOR HAS THOROUGHLY REVIEWED THE DRAWINGS AND HIS/HER BID INCLUDES ADEQUATE FUNDS TO COMPLETE THE PROJECT AS REASONABLY INFERRED FROM THE DOCUMENTS.

WHENEVER CONFLICTING INFORMATION OR DIRECTION OCCURS IN THE SPECIFICATIONS OR THE DRAWINGS, THE COST FOR THE MORE EXPENSIVE OPTION INCLUDING, BUT NOT LIMITED TO, DETAILS, INSTALLATIONS, PROCEDURES, CALL-OUTS, MATERIALS, SCHEDULES, OR SPECIFICATION SHALL BE USED IN THE CONTRACTOR'S BID PRICE FOR THE PROJECT. IF, THROUGH CLARIFICATION, THE LESSER COST OPTION APPLIES, THEN THE CONTRACTOR SHALL ISSUE A COST CREDIT TO THE OWNER FOR THE ACTUAL COST DIFFERENCE PLUS CONTRACTOR MARKUP INCLUDING OVERHEAD AND PROFIT.

ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO SIMILAR CONDITIONS ELSEWHERE. IF A CONDITION EXISTS IN THE DRAWINGS WHERE THE APPLICABLE CONSTRUCTION DETAIL IS UNCLEAR, THE CONTRACTOR SHALL REQUEST INFORMATION AND/OR CLARIFICATION FROM THE ARCHITECT IN WRITING PRIOR TO SUBMITTING THE BID FOR CONSTRUCTION OF THE PROJECT.

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION SHALL BE BINDING AS PART OF THESE CONSTRUCTION DOCUMENTS.

OWNER TO CONTRACT WITH BORINGS/GEOTECH ENGINEERING COMPANY TO PROVIDE MINIMUM OF SIX (6) SOIL BORINGS, ANALYSIS, AND REPORT OF FINDINGS. PROVIDE ONE (1) COPY OF SIGNED/SEALED DOCUMENTS TO ARCHITECT FOR REVIEW. DO NOT PROCEED WITH FOUNDATION UNTIL ARCHITECT/ENGINEER HAVE REVIEWED AND APPROVED FINDINGS.

THE ARCHITECT AND THE ARCHITECT'S CONSULTANTS SHALL BE DEEMED THE AUTHORS AND OWNERS OF THEIR RESPECTIVE INSTRUMENTS OF SERVICE, INCLUDING THE DRAWINGS AND SPECIFICATIONS, AND SHALL RETAIN ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS, INCLUDING COPYRIGHTS. SUBMISSION OR DISTRIBUTION OF INSTRUMENTS OF SERVICE TO MEET OFFICIAL REGULATORY REQUIREMENTS OR FOR SIMILAR PURPOSES IN CONNECTION WITH THE PROJECT IS NOT BE CONSTRUED AS PUBLICATION IN DEROGATION OF THE RESERVED RIGHTS OF THE ARCHITECT AND THE ARCHITECT'S CONSULTANTS.

GENERAL PLAN NOTES

1. FINISH FIRST FLOOR ELEVATION TO BE 100'-0". THIS IS RELATIVE TO DETERMINING FLOOR HEIGHTS, NOT USGS MEASUREMENTS.
2. ARCHITECTURAL DIMENSIONS ARE GIVEN FROM FACE OF STUDS, CONCRETE, MASONRY, OR COLUMN GRID LINES UNLESS NOTED OTHERWISE
3. EXTERIOR DIMENSIONS ARE GIVEN TO FACE OF WALL, COLUMN GRID LINES, MID POINT OF OPENINGS, OR FACE OF STUDS.
4. ALL INTERIOR PARTITIONS TO BOTTOM OF DECK OR TO BOTTOM OF STRUCTURAL MEMBERS, NEED TO ALLOW FOR 2" DEFLECTION, PROVIDE DEFLECTION TRACK PER SECTION 092600.
5. ANY USE OF MISCELLANEOUS WOOD BLOCKING SHALL BE LIMITED TO FIRE RETARDANT TREATED MATERIAL. ALL PLYWOOD FACING WALL CAVITY SHALL BE FIRE RETARDANT.).
6. FOR PARTITION TYPES NOT SHOWN, REFER TO RELATED BUILDING SECTIONS. REFER TO INTERIOR ELEVATIONS FOR PLYWOOD BACKING LOCATIONS.

GENERAL ELEVATION NOTES

1. GC IS RESPONSIBLE FOR ALL REQUIRED FIRE TREATED BLOCKING WITHIN WALLS AND ROOFS FOR SIGN CONNECTIONS. COORDINATE LOCATIONS WITH SIGN VENDOR PRIOR TO APPLYING WALL FINISHES.
2. ALL SIGNAGE IS OFOI UNLESS NOTED OTHERWISE. ALL SIGN MOUNTING BY SIGN VENDOR. GC TO COORDINATE AND INSTALL ALL REQUIRED SIGNAGE BLOCKING, PRIOR TO APPLYING WALL FINISHES.
3. PAINT ALL EXPOSED SECURITY CAMERAS, CONDUIT, GAS PIPES, METERS, ETC. TO MATCH ADJACENT MATERIAL COLOR.
4. PAINT ALL EXPOSED RTU UNITS/GRILLES TO MATCH WALLS. BLACK OUT INTERIORS OF VISIBLE DUCTS.
5. FINISH ALL EXPOSED INTERIOR EDGES OF TRIM TO BLEND AND MATCH ADJACENT MATERIAL FINISH.
6. RECEPTACLE COVERPLATES, CAMERAS, (NOT ON LENS OR ANY ACRYLIC DOMES) EXPOSED ELECTRICAL AND GAS PIPING SHALL BE PAINTED TO MATCH ADJACENT WALL.
7. SPACE EXPANSION JOINTS EQUALLY AT ALL ELEVATIONS. VERIFY SPACING ON SITE WITH CONSTRUCTION MANAGER, NOT TO EXCEED MANUFACTURERS RECOMMENDED SPACING.

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

BRIGHT DESIGN iDeA ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph:417-724-5853
NATHAN RAPP- ARCHITECT #A-2008000261

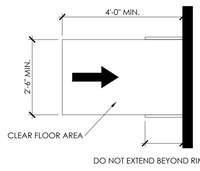
REISSUE DATE

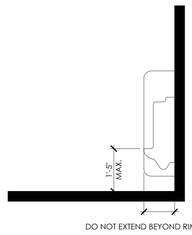
PROFESSIONAL OF RECORD

STATE OF MISSOURI — NATHAN P. RAPP — NUMBER A-2008000261 — ARCHITECT

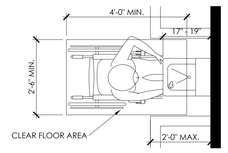
DATE: 04.14.2025

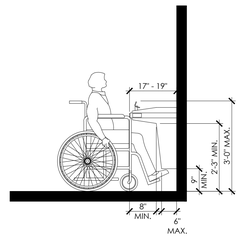
ARCHITECT	RAPP
PROJECT NO.	24-034
DATE	04.14.2025
DRAWING TITLE	COVER SHEET
SHEET NO.	G0.1



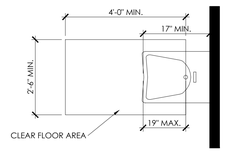


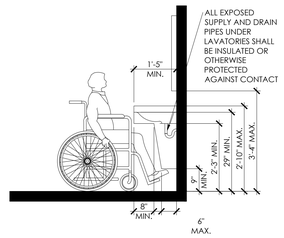
29 HC CLEARANCE
1/2" = 1'-0"
@ URINAL



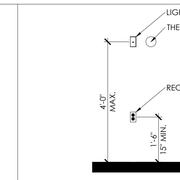


24 HC CLEARANCE
1/2" = 1'-0"
@ WATER FOUNTAIN

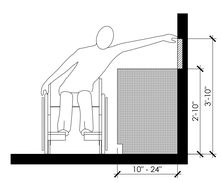




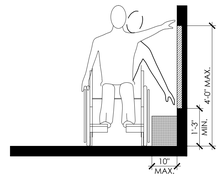
19 HC CLEARANCE
1/2" = 1'-0"
@ LAVATORY



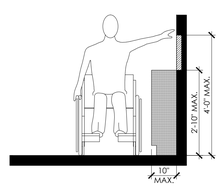
15 CONTROLS
1/2" = 1'-0"



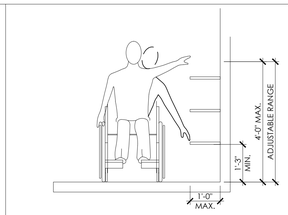
14 SIDE REACH
1/2" = 1'-0"
MAX. SIDE REACH OVER OBSTRUCTION



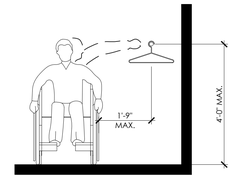
10 SIDE REACH
1/2" = 1'-0"
UNOBSTRUCTED SIDE REACH LIMITS



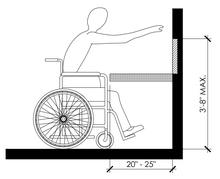
9 SIDE REACH
1/2" = 1'-0"
MAX. SIDE REACH OVER OBSTRUCTION



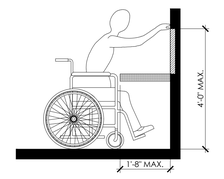
5 SIDE REACH
1/2" = 1'-0"
@ SHELVES



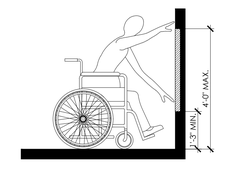
4 SIDE REACH
1/2" = 1'-0"
@ CLOSET



13 FRONT REACH
1/2" = 1'-0"
MAX. FRONT REACH OVER OBSTRUCTION

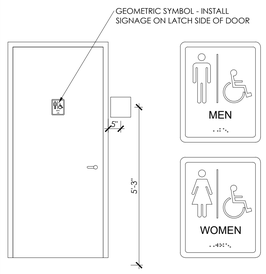


8 FRONT REACH
1/2" = 1'-0"
MAX. FRONT REACH OVER OBSTRUCTION

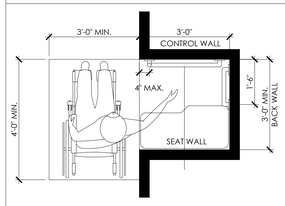


3 FRONT REACH
1/2" = 1'-0"
UNOBSTRUCTED FRONT REACH LIMITS

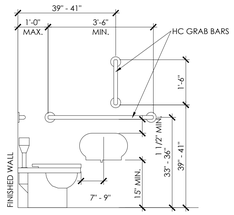
NOTES:
1. PROVIDE (1) SIGN PER TOILET COMPLYING WITH ADA LOCAL CODE
2. SIGN TO HAVE RAISED CHARACTERS AND PICTORIAL SYMBOL OF ACCESSIBILITY
3. SIGN SIZE: 8" X 8"
4. COLOR: GRAY WITH WHITE CHARACTERS

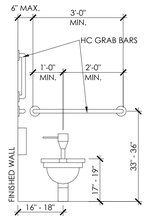


27 RESTROOM SIGNAGE
NTS

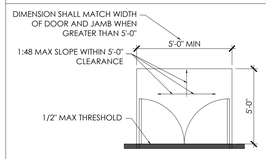


22 HC SHOWER
1/2" = 1'-0"
TRANSFER TYPE SHOWER STALL

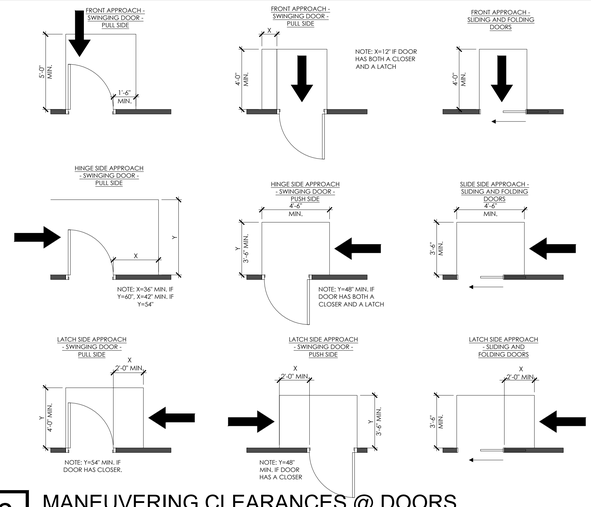




17 HC STALL
1/2" = 1'-0"



12 SLOPE @ EXT DOOR
1/4" = 1'-0"



6 MANEUVERING CLEARANCES @ DOORS
1/4" = 1'-0" GC TO COORDINATE ALL INSTALLATIONS WITH CHAPTER 11 - ADA OF IBC 2006

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

INSIGHT DESIGN iDeA ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph:417-724-5823
NATHAN RAPP - ARCHITECT #A-2008008261

REISSUE DATE

PROFESSIONAL OF RECORD

STATE OF MISSOURI
NATHAN P. RAPP
NUMBER A-2008008261
REGISTERED ARCHITECT

DATE: 04.14.2025

ARCHITECT	RAPP
PROJECT NO.	24-034
DATE	04.14.2025
DRAWING TITLE	ACCESSIBILITY DETAILS
SHEET NO.	G0.2

SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS:

SECTION 01000

GENERAL CONDITIONS AIA DOCUMENTS B-141 LATEST EDITION, SHALL BE CONSIDERED PART OF THIS DOCUMENT AS IF WRITTEN HEREIN. COPY OF THIS DOCUMENT IS ON FILE WITH THE ARCHITECT AND IS AVAILABLE TO CONTRACTOR UPON WRITTEN REQUEST. THIS SPECIFICATION AS IDENTIFIED ON DRAWINGS IS "SHORT FORM". HOWEVER, THE INTENT IS AS THOROUGH AND COMPLETE AS IF WRITTEN OUT IN "EXPANDED" FORM. REFER TO ANY SUPPLEMENTARY CONDITIONS, ADDENDA, ADVERTISEMENT FOR BIDS, BID FORMS OR INSTRUCTIONS THAT ACCOMPANY OR RELATE TO THESE DOCUMENTS. CONTRACTOR SHALL FURNISH EVIDENCE OF COMPLIANCE WITH WORKMEN'S COMPENSATION INSURANCE REQUIREMENTS & PL & FD COVERAGE INCLUDING AUTOMOBILE COVERAGE.

INSURANCE

1. CONTRACTOR'S INSURANCE REQUIREMENTS:
    A. WORKMAN'S COMPENSATION - STATUTORY
    B. EMPLOYER'S LIABILITY - UNLIMITED (AS PER RS. MOP 287.010 ETSEQ) LIABILITY INSURANCE INCLUDING PREMISES, OPERATIONS PRODUCTS AND COMPLETED OPERATIONS, CONTRACTUAL, COLLAPSE, UNDERGROUND PROPERTY DAMAGE. ALSO ENDORSED FOR BLASTING, IF BLASTING REQUIRED: SUCH COVERAGE SHALL APPLY TO BODILY INJURY AND PROPERTY DAMAGE ON AN "OCCURRENCE FORM BASIS" WITH A COMBINED SINGLE LIMIT OF $1,000,000.
    C. AUTOMOBILE LIABILITY INSURANCE COVERING BODILY INJURY AND PROPERTY DAMAGE FOR OWNED, NON-OWNED AND HIRED VEHICLES WITH A COMBINED SINGLE LIMIT OF $1,000,000.

II. CONTRACTOR SHALL REQUIRE ANY AND ALL SUBCONTRACTORS WITH WHOM IT ENTERS INTO A CONTRACT TO PERFORM WORK ON THE CONSTRUCTION PROJECT TO PROTECT THE OWNER THROUGH INSURANCE AGAINST APPLICABLE HAZARDS OR RISKS. EVIDENCE OF INSURANCE TO BE PROVIDED.
III. CONTRACTOR SHALL BE LIABLE FOR ALL DEDUCTIBLE AMOUNTS FROM SUCH INSURANCE AND SHALL INDEMNIFY TO HOLD "OWNER" HARMLESS.
IV. OWNER TO FURNISH AND HOLD "OWNER" HARMLESS.
V. CONSTRUCTION WORK BY CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES AND REGULATIONS.
VI. CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY PHONE, TOILETS, UTILITIES AND DRINKING WATER.

SCOPE OF WORK

WORK OF THIS CONTRACT INCLUDES FURNISHING OF ALL LABOR, MATERIALS, APPLIANCES, TRANSPORTATION AND SERVICES REQUIRED FOR SATISFACTORY CONSTRUCTION OF THIS FACILITY AS INDICATED IN THE DRAWINGS. GENERAL CONTRACTOR OR ANY SUB-CONTRACTORS SHALL INSPECT THE PREMISES AND VERIFY EXISTING CONDITIONS AND DIMENSIONS AND EFFECT ALL ALTERATIONS, ADJUSTMENTS, ETC. TO CONFORM TO CONTRACT DRAWINGS AND SPECIFICATIONS. FAILURE TO DO THIS RELIEVES THE ARCHITECT OR OWNER OF ANY RESPONSIBILITY. CONTRACTOR SHALL SUBMIT, WITH HIS APPLICATION FOR FINAL PAYMENTS, A LIEN RELEASE COVERING ALL LABOR, MATERIALS AND OTHER COSTS INCURRED AS PART OF THE WORK, INCLUDING SUBCONTRACTS, CONTRACTORS SHALL IN THE WORK OF ALL TRADES PERFORM ANY AND ALL CUTTING, PATCHING, REPAIRING, RESTORING AND THE LIKE NECESSARY TO COMPLETE THE WORK AND RESTORE ANY DAMAGE OR AFFECT SURFACES RESULTING FROM THE WORK OF THIS CONTRACT TO THEIR ORIGINAL CONDITION TO THE SATISFACTION OF THE ARCHITECT AND THE OWNER PROTECTION OF THE PUBLIC AND OF CONSTRUCTION AREAS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR SUCH PROTECTION SHALL BE ACCOMPLISHED BY TEMPORARY BARRICADES, SOIL STABILIZATION AND DUST AND AIRBORNE DEBRIS BARRIERS AS REQUIRED.

PERMITS, CODES, TESTS AND INSPECTIONS

ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED, UNLESS SPECIFIED OTHERWISE SHALL BE OBTAINED AND PAID FOR BY CONTRACTOR, INCLUDING BUILDING PERMIT FEES, UNLESS ADVISED OTHERWISE. THE CONTRACTOR SHALL CONFORM TO THE PROVISIONS OF ALL STATE NATIONAL AND MUNICIPAL BUILDING AND SANITARY LAWS, AND ALL MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS BEFORE MAKING ANY VARIATION FROM THE DRAWINGS AND SPECIFICATIONS THAT MAY BE NECESSARY TO CONFORM THERETO, THE CONTRACTOR SHALL GIVE THE OWNER AND ARCHITECT WRITTEN NOTICE OF SPECIFYING THE VARIATION PROPOSED TO BE MADE. THE CONTRACT AMOUNT THEREFORE, AND THE REASON FOR MAKING IT AND SHALL APPLY AND WAIT FOR INSTRUCTION THEREON. COSTS FOR ALL TESTS AND INSPECTIONS (EXCEPT INSPECTIONS PROVIDED BY THE ARCHITECT AND OTHER CONSULTANTS AS STIPULATED IN THE OWNER/ARCHITECT AGREEMENT) SHALL BE PAID FOR BY THE CONTRACTOR. DURING THIS WORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SAFETY AMONG PERSONS IN HIS EMPLOY IN ACCORDANCE WITH THE STANDARDS SET BY THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970. THE OWNER AND ARCHITECT SHALL BE HELD HARMLESS FOR ANY ACCIDENT, INJURY OR ANY OTHER INCIDENT RESULTING FROM NON-COMPLIANCE WITH THE OSHA STANDARDS.

DRAWINGS AND SPECIFICATIONS / SITE OBSERVATION VISITS

SHOULD THE DRAWINGS AND SPECIFICATIONS BE CONTRADICTORY IN ANY PARTICULAR WAY AND SHOULD THERE BE NO APPARENT ERRORS IN EITHER THE CONTRACTOR SHALL REFER THE MATTER TO THE OWNER OR ARCHITECT FOR EXPLANATION AND SHALL ABIDE BY THE DECISION RENDERED. THE CONTRACTOR SHALL NOT MAKE ANY CHANGE IN THE DRAWINGS OR SPECIFICATIONS AND SHALL USE FIGURED DIMENSIONS IN PREFERENCE TO SCALE. MEASUREMENTS FOR ALL WORK SHALL BE TAKEN AT THE BUILDING BY THE CONTRACTOR FOR EACH SEGMENT OF THE WORK BEFORE COMMENCEMENT OF THE WORK CONTRACTOR SHALL VISIT SITE AND FAMILIARIZE HIMSELF WITH ALL EXISTING ON SITE (OR FACILITY) CONDITIONS.

TAXES

THE CONTRACTOR SHALL PAY FOR ALL SALES TAXES, SOCIAL SECURITY TAXES AND ANY OTHER TAX FOR WHICH HE IS LIABLE TO LOCAL, STATE OR FEDERAL GOVERNMENTS AND SHALL GUARANTEE TO HOLD THE OWNER HARMLESS IN EVERY RESPECT AGAINST THE SAME.

GUARANTEE

THE CONTRACTOR GUARANTEES THAT ALL MATERIALS SHALL BE OF THE TYPE AND GRADE SUITABLE FOR ITS USE AND THAT ALL LABOR WILL BE OF SUITABLE SKILL AND THAT ALL WORK WILL BE PERFORMED IN A WORKMANLIKE MANNER AND SHALL BE IN GOOD AND USABLE CONDITION AT THE DATE OF COMPLETION. THE CONTRACTOR GUARANTEES ALL WORK FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF SUBSTANTIAL COMPLETION AND ACCEPTANCE BY THE OWNER, INCLUDING IMMEDIATE REPAIRS.

SECTION 01330 - SUBMITTAL PROCEDURES:

PART 1 - GENERAL
1.1 SUMMARY
    A. THIS SECTION INCLUDES ADMINISTRATIVE AND PROCEDURAL REQUIREMENTS FOR SUBMITTING COORDINATION DRAWINGS, SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND OTHER MISCELLANEOUS SUBMITTALS.
1.2 SUBMITTAL PROCEDURES
    A. COORDINATION: COORDINATE PREPARATION AND PROCESSING OF SUBMITTALS WITH PERFORMANCE OF CONSTRUCTION ACTIVITIES.
        1. COORDINATION DRAWINGS: PRIOR TO COMMENCEMENT OF WORK, ALL CONTRACTORS AND SUB-CONTRACTORS SHALL SUBMIT COORDINATION DRAWINGS IDENTIFYING THE LOCATION(S) OF THEIR SCOPE OF WORK AND THE WORK OF OTHER TRADES WITH WORK IN THE SAME AREA(S). REPORT ANY DISCREPANCIES IN WRITING TO THE ARCHITECT. COMMENCEMENT OF ANY WORK PRIOR TO THE SUBMITTAL OF COORDINATION DRAWINGS WILL INDICATE THAT CONTRACTORS AND SUB-CONTRACTORS CAN INSTALL ALL MEP & PF EQUIPMENT AND MATERIALS AS INDICATED IN THE CONSTRUCTION DOCUMENTS (I.E. ABOVE THE LAY-IN CLGS AT THE HEIGHT GIVEN IN THE ROOM FINISH SCHEDULE). ANY VARIATIONS FROM THE CONSTRUCTION DEPENDING ON THE SEVERITY OF REVISIONS COMPARED TO THE INTENT OF THE CONSTRUCTION DOCUMENTS.
        2. COORDINATE EACH SUBMITTAL WITH FABRICATION, PURCHASING, TESTING, DELIVERY, OTHER SUBMITTALS AND RELATED ACTIVITIES THAT REQUIRE SEQUENTIAL ACTIVITY.
        3. COORDINATE TRANSMITTAL OF DIFFERENT TYPES OF SUBMITTALS FOR RELATED PARTS OF THE WORK SO PROCESSING WILL NOT BE DELAYED BECAUSE OF THE NEED TO REVIEW SUBMITTALS CONCURRENTLY FOR COORDINATION.
        4. ARCHITECT RESERVES THE RIGHT TO WITHHOLD ACTION ON A SUBMITTAL REQUIRING COORDINATION WITH OTHER SUBMITTALS UNTIL RELATED SUBMITTALS ARE RECEIVED.
    B. PROCESSING TIME: ALLOW ENOUGH TIME FOR SUBMITTAL REVIEW, INCLUDING TIME FOR RE-SUBMITTALS; NO LESS THAN 10 BUSINESS DAYS.
    C. DEVIATIONS: HIGHLIGHT, ENCIRCLE, OR OTHERWISE IDENTIFY DEVIATIONS FROM THE CONTRACT DOCUMENT ON SUBMITTALS.
    D. DISTRIBUTION: FURNISH COPIES OF FINAL SUBMITTALS TO MANUFACTURERS, SUB-CONTRACTORS, SUPPLIERS, FABRICATORS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHERS AS NECESSARY FOR PERFORMANCE OF CONSTRUCTION ACTIVITIES. SHOW DISTRIBUTION ON TRANSMITTAL FORMS.
    E. USE FOR CONSTRUCTION: USE ONLY FINAL SUBMITTALS WITH MARK INDICATING ACTION TAKEN BY THE ARCHITECT IN CONNECTION WITH CONSTRUCTION.
    F. SAMPLES: PREPARE PHYSICAL UNITS OF MATERIALS PRODUCTS, INCLUDING THE FOLLOWING:
        1. SAMPLES FOR INITIAL SELECTION. SUBMIT MANUFACTURER'S COLOR CHARTS CONSISTING OF UNITS OR SECTIONS OF UNITS SHOWING THE FULL RANGE OF COLORS, TEXTURES AND PATTERNS AVAILABLE.
        2. SAMPLES FOR VERIFICATION: SUBMIT FULL-SIZE UNITS OR SAMPLES OF SIZE INDICATED, PREPARED FROM THE SAME MATERIAL TO BE USED FOR THE WORK CURED AND FINISHED IN MANNER SPECIFIED, AND PHYSICALLY IDENTICAL WITH THE PRODUCT PROPOSED FOR USE, AND THAT SHOW FULL RANGE OF COLOR AND TEXTURE VARIATIONS EXPECTED. SAMPLES INCLUDE, BUT ARE NOT LIMITED TO, PARTIAL SECTIONS OF MANUFACTURED OR FABRICATED COMPONENTS: SMALL CUTS OR CONTAINERS OF MATERIALS: COMPLETE UNITS OF REPETITIVELY USED MATERIALS: SWATCHES SHOWING COLOR, TEXTURE AND PATTERN: COLOR RANGE SETS: AND COMPONENTS FOR INDEPENDENT TESTING AND INSPECTION.

PART 2 - EXECUTION
2.1 CONTRACTOR'S REVIEW
    A. REVIEW EACH SUBMITTAL AND CHECK FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. NOTE CORRECTIONS AND FIELD DIMENSIONS. MARK WITH APPROVAL. STAMP BEFORE SUBMITTING TO ARCHITECT.
    B. APPROVAL STAMP: STAMP EACH SUBMITTAL WITH A UNIFORM, APPROVAL STAMP. INCLUDING PROJECT, NAME AND LOCATION, SUBMITTAL NUMBER SPECIFICATION SECTION TITLE AND NUMBER, NAME OF REVIEWER, DATE OF CONTRACTOR'S APPROVAL, AND STATEMENT CERTIFYING THAT SUBMITTAL HAS BEEN REVIEWED, CHECKED AND APPROVED FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS.
2.2 ARCHITECT'S ACTION
    A. GENERAL: ARCHITECT WILL NOT REVIEW SUBMITTALS THAT DO NOT BEAR CONTRACTOR'S APPROVAL STAMP AND WILL RETURN WITH WITHOUT ACTION.
    B. ACTION SUBMITTALS: ARCHITECT WILL REVIEW EACH SUBMITTAL, MAKE MARKS TO INDICATE CORRECTIONS OR MODIFICATIONS REQUIRED AND RETURN IT. ARCHITECT WILL STAMP EACH SUBMITTAL WITH AN ACTION STAMP AND WILL MARK STAMP APPROPRIATELY TO INDICATE ACTION TAKEN.
    C. INFORMATION SUBMITTALS: ARCHITECT WILL REVIEW EACH SUBMITTAL AND WILL NOT RETURN IT OR WILL REJECT AND RETURN IT IF IT DOES NOT COMPLY WITH REQUIREMENTS. ARCHITECT WILL FORWARD EACH SUBMITTAL TO APPROPRIATE PARTY.

SECTION 07640 - ROOF FLASHING AT PENETRATIONS AND VENTS

1. PROVIDE METAL FLASHING FOR ALL PIPES, DUCTS, AND CONDUITS PROJECTING THROUGH THE ROOF SURFACE AND FOR EQUIPMENT SUPPORTS, AND SIMILAR ITEMS SUPPORTED BY OR ATTACHED TO THE ROOF DECK.

SECTION 07920 - JOINT SEALANTS

1. TO BE DAP BUTYL TREMCO SILICONE OR APPROVE EQUAL
2. JOINTS TO BE SEALED SHALL BE CLEAN FROM ALL DEBRIS AND DRY. DEPTH = $\frac{1}{2}$" MIN ALL JOINTS TO HAVE A BACKER-ROD; SIZED APPROPRIATELY.
3. ALL CAULK AND SEALANTS TO HAVE A SMOOTH BEAD AND BE RECESSED FROM MATERIAL FACE.
4. SEAL SIDES OF ALL WINDOWS, DOOR FRAMES, EXTERIOR OUTLET OPENINGS, EXTERIOR ELECTRICAL PENETRATIONS AND AS SHOWN ON DRAWINGS.

DIVISION 8 - DOORS AND WINDOWS:

SECTION 08100 - DOORS AND FRAMES

1. DOORS AND FRAMES SHALL BE STRONG AND RIGID, NEAT IN APPEARANCE, AND FREE FROM DEFECTS, WAVES, SCRATCHES, CUTS, DENTS, RIDGES, HOLES, WARP, AND BUCKLE. MOLDED MEMBERS SHALL BE CLEAN CUT, STRAIGHT, AND TRUE, WITH JOINTS COPED OR MITERED, WELL FORMED, AND IN TRUE ALIGNMENT. DRESS EXPOSED WELDED AND SOLDERED JOINTS SMOOTH. DESIGN DOOR FRAME SECTIONS FOR USE WITH THE WALL CONSTRUCTION INDICATED. CORNER JOINTS SHALL BE WELL FORMED AND IN TRUE ALIGNMENT. CONCEAL FASTENINGS WHERE PRACTICABLE.
2. HANG DOORS IN ACCORDANCE WITH CLEARANCES SPECIFIED IN SDI A250.8. AFTER ERECTION AND GLAZING, CLEAN AND ADJUST HARDWARE.
3. PREPARE DOORS TO RECEIVE HARDWARE SPECIFIED IN SECTION FOR DOOR HARDWARE. UNDERCUT WHERE INDICATED. PROVIDE MINIMUM HARDWARE REINFORCING GAGES AS SPECIFIED IN ANSI A250.6. DRILL AND TAP DOORS AND FRAMES TO RECEIVE FINISH HARDWARE. PREPARE DOORS AND FRAMES FOR HARDWARE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF SDI A250.8 AND ANSI A250.6. LOCATE HARDWARE IN ACCORDANCE WITH THE REQUIREMENTS OF SDI A250.8.
4. DOOR FRAMES TO RECEIVE A MINIMUM OF TWO RUBBER OR VINYL DOOR SILENCERS ON LOCK SIDE OF SINGLE DOORS AND ONE SILENCER FOR EACH LEAF AT HEADS OF DOUBLE DOORS. SET LOCK STRIKES OUT TO PROVIDE CLEARANCE FOR SILENCERS.
5. PROVIDE THRESHOLDS $\frac{1}{2}$" THICK BY 2-5/8" WIDE WITH BEVELED SIDES AND CUT TO FIT AT JAMBS ON ALL INSULATED AND EXTERIOR DOORS. FASTEN THRESHOLDS WITH CASING NAILS. SET NAILS FOR PUTTY STOPPING. INSTALL THRESHOLD ONTO (2) BEADS OF SILICONE SEALANT.

SECTION 08102 - STEEL DOOR AND FRAME SELECTION

1. INTERIOR DOORS AND FRAMES:
    FRAMES: GALVANNEALED PAINTED; 16 GA DRYWALL, WELDED OR KNOCK DOWN.
    DOORS GENERAL USES: LIGHT COMMERCIAL; 20 GA
    DOORS PUBLIC USES: EGRESS LOCATION; HEAVY DUTY; 18 GA
    DOORS ENTRANCES: EXTRA HEAVY DUTY; 16 GA
    DOORS LOADING AREAS: MAXIMUM DUTY; 14 GA

SECTION 08110 - INSULATED DOORS

1. INSULATED DOORS SHALL HAVE A CORE OF POLYURETHANE FOAM AND AN R FACTOR OF 10.0 OR MORE
2. PROVIDE ALL ACCESSORIES INCLUDING BUT NOT LIMITED TO MAGNETIC WEATHERSTRIPPING, NON-REMOVABLE PIN HINGES, THERMAL BREAK ALUMINUM THRESHOLD, AND VINYL DOOR BOTTOM.

SECTION 08130 - STANDARD FRAMES

1. SET FRAMES IN ACCORDANCE WITH SDI 105. PLUMB, ALIGN, AND BRACE SECURELY UNTIL PERMANENT ANCHORS ARE SET. PROVIDE SOLID BLOCKING AT NOT MORE THAN 16 INCHES OC FOR EACH JAMB. POSITION BLOCKING TO OCCUR BEHIND HINGES AND LOCK STRIKES. DOUBLE WEDGE FRAMES AND FASTEN WITH FINISHING NAILS. SET NAILS FOR PUTTY STOPPING. ANCHOR BOTTOMS OF FRAMES WITH EXPANSION BOLTS OR POWDER-ACTUATED FASTENERS. BUILD IN OR SECURE WALL ANCHORS TO ADJOINING CONSTRUCTION.

SECTION 08131 - FRAME ANCHORS

1. PROVIDE ANCHORS TO SECURE THE FRAME TO ADJOINING CONSTRUCTION. PROVIDE STEEL ANCHORS, ZINC COATED OR PAINTED WITH RUST INHIBITIVE PAINT, NOT LIGHTER THAN 18 GAGE.
2. PROVIDE AT LEAST THREE WALL ANCHORS FOR EACH JAMB. FOR FRAMES, WHICH ARE MORE THAN 7.5 FEET IN HEIGHT, PROVIDE ONE ADDITIONAL ANCHOR FOR EACH JAMB FOR EACH ADDITIONAL 2.5 FEET OR FRACTION THEREOF.
3. PROVIDE FLOOR ANCHORS DRILLED FOR $\frac{3}{8}$ INCH ANCHOR BOLTS AT BOTTOM OF EACH JAMB MEMBER.

SECTION 08140 - DOOR FINISHES

1. SUBMIT FINISH SAMPLES WHERE COLORS ARE NOT INDICATED, SUBMIT MANUFACTURER'S STANDARD COLORS AND PATTERNS FOR OWNER'S SELECTION AND APPROVAL.

GENERAL CONTRACTOR RESPONSIBILITY

SCOPE OF WORK FOR ALL DISCIPLINES

ITEMS TO INCLUDE IN YOUR BID IF NOT ALREADY NOTED ON PLANS:

- INCLUDE LABOR IN JOB TO COMPLETE YOUR SCOPE OF WORK IN THE TIME ALLOWED BY FIELD SUPERINTENDENT.
- CLEAN UP DAILY OR MORE OFTEN IF NECESSARY TO KEEP SITE CLEAN AND SAFE.
- CONTRACTOR TO SUPPLY AS-BUILT DRAWINGS AT COMPLETION OF PROJECT.
- ALL INFORMATION WILL BE PROVIDED TO ON-SITE SUPERINTENDENT OR THEIR REPRESENTATIVE.
- CONTRACTOR TO BID COMPLETE SET OF DRAWINGS / ALL SHEETS.
- CONTRACTOR MUST INCLUDE AND SHOW SALES TAX ON BIDS.
- CONTRACTOR IS TO PLACE ALL DEBRIS IN THE G.C. PROVIDED DUMPSTER.

DRYWALL AND FRAMING

ITEMS TO INCLUDE IN YOUR BID IF NOT ALREADY NOTED ON PLANS:

- A MINIMUM OF 20 GAUGE METAL TO BE USED ON ALL FRAMING COMPONENTS.
- REFER TO PLANS FOR LOCATIONS OF HEAVIER GAUGE METALS TO BE USED.
- DRYWALL TO BE 5/8" TYPE X, UNLESS NOTED OTHERWISE, TAPED, BEDDED WITH ORANGE PEEL TEXTURE - LIGHT AT RETAIL WALLS, MEDIUM AT BACK OF HOUSE WALLS.
- 5/8" GREEN BOARD OR "M.R.S." (MOISTURE RESISTANT SHEET ROCK) IN REST ROOMS ON WALLS THAT ARE WITHIN 4'-0" OF ANY PLUMBING FIXTURES.
- FURNISH AND INSTALL F.R.P., GLUE MUST BE APPLIED WITH A TROWEL NO EXCEPTIONS. INSTALL F.R.P. CORNERS, JOINTS AND CEILING TRIM CUT TRIM 4" ABOVE FINISH FLOOR FOR COVE BASE INSTALLATION. WHERE APPLICABLE AS SHOWN ON PLANS.
- HARD CEILING AND METAL DECKS TO BE TIED TO ROOF STRUCTURE WITH CEILING WIRE AND 1 1/2" COLD ROLLED STEEL. USE STRUCTURAL GAUGE METAL DECKING ABOVE CASH OFFICE.
- CHECK LOCAL CODES FOR SPECIAL CONDITIONS ON CEILING GRID INSTALLATION.
- FURNISH LABOR TO INSTALL DOORS, JAMBS AND HARDWARE.
- FURNISH LABOR TO INSTALL WAINSCOT WHERE INDICATED.
- FURNISH AND INSTALL WOOD BACKING AT DOOR JAMBS, TOILET PARTITIONS, BABY CHANGING STATION, T.V., TOILET ACCESSORIES, CABINETS, STORE FRONT, AND SIGNAGE IF APPLICABLE.
- FURNISH AND INSTALL WOOD BLOCKING AND FRAMING AT TOP OF PARAPET WALLS IF SHOWN ON PLANS.
- INSTALLATION OF RESTROOM PARTITIONS AND ALL TOILET ACCESSORIES.
- INCLUDE ALL EXTERIOR FRAMING, SHEATHING, AND MOISTURE BARRIER ON ALL EXTERIOR FRAMEWORK.
- USE FIRE RATED CAULKING ON FIRE RATED WALLS, WHERE REQUIRED.
- INSULATE ALL WALLS BELOW CEILING GRID BETWEEN OFFICES, RETAIL, AND RESTROOM WALLS AS SHOWN ON PLANS.
- LABOR AND FASTENERS TO INSTALL G.C. SUPPLIED CABINETS AND SHELVING.
- FURNISH AND INSTALL CEILING WIRE AT ALL LIGHT FIXTURE CEILING BRACKETS. COORDINATE EXACT LOCATION WITH ELECTRICIAN.
- EXPANSION JOINTS RE: SPECS

PLUMBING

ITEMS TO INCLUDE IN YOUR BID IF NOT ALREADY NOTED ON PLANS:

- CAMERA ALL NEW LINES AT COMPLETION OF JOB ON GROUND UP CONSTRUCTION. CAMERA ALL EXISTING LINES AT BEGINNING AND END OF JOBS TO BE REUSED. PROVIDE DVD TO GENERAL CONTRACTOR.
- HOT WATER TANK TO BE AS SPECIFIED.
- CONTRACTOR TO INSTALL CONDENSATE LINES IF NECESSARY.
- HANDICAP SINKS TO RECEIVE WRAPPING ON EXPOSED PIPING PER CODE.
- PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS.
- GAS PIPING ON ROOF TO BE FASTENED DOWN TO APPROVED OR SPECIFIED BLOCKING AWAY FROM CLERESTORY.
- IF A HIGH PRESSURE GAS LINE SYSTEM IS USED THE REGULATORS AND SHUT-OFF VALVES WILL BE FURNISHED BY GAS PIPE INSTALLER.
- IDENTIFY LOCATION OF GAS, WATER AND IRRIGATION SERVICE AND METERS.
- CONFIRM NO CROSS CONNECTIONS ON NATURAL GAS SYSTEM OR WATER TO ADJACENT SPACES IF APPLICABLE.
- IDENTIFY ANY SUB-METERS INSTALLED ON WATER SYSTEM AND DESCRIBE THEIR PURPOSE.
- IDENTIFY LOCATION OF ALL BACK-FLOW PREVENTERS, I.E. FIRE SYSTEMS, IRRIGATION, DOMESTIC WATER, ETC. AND TESTING IF APPLICABLE.
- SUBMITTALS FOR ANY NEW FIXTURES AND EQUIPMENT TO BE SUPPLIED TO OWNER PRIOR TO INSTALLATION.
- SUBCONTRACTOR TO DO ALL EXCAVATING, COMPACTING AND BACK FILLING NECESSARY.
- SUBCONTRACTOR RESPONSIBLE FOR ALL BACKING NECESSARY TO COMPLETE HIS WORK.
- ALL WATER LINES SHALL BE HUNG ON APPROVED HANGERS AND INSULATED.
- ALL PVC SHALL BE SCHEDULE 40.

CONCRETE

ITEMS TO INCLUDE IN YOUR BID IF NOT ALREADY NOTED ON PLANS:

- CONTRACTOR TO SUPPLY OWNER WITH MIX DESIGN OF CONCRETE FROM SUPPLIER OR SUPPLIERS PRIOR TO THE POURING OF ANY CONCRETE. ALLOW 1 WEEK LEAD TIME FOR ENGINEERS APPROVAL.
- IF CONTRACTOR USES ANY COMPANY OR INDIVIDUAL AS A SUBCONTRACTOR TO COMPLETE ANY PORTION OF THEIR CONTRACT, THEY MUST NOTIFY OWNER WITH PROOF OF THEIR INSURANCE PRIOR TO DOING ANY WORK ON THE JOB.
- CONTRACTOR TO SUPPLY AND INSTALL ALL STEEL REINFORCEMENT TO BE USED ON THIS PROJECT. CONTRACTOR IS RESPONSIBLE FOR ANY FABRICATION TO FORM INTO SHAPES AND LENGTHS REQUIRED.
- CONTRACTOR TO SUPPLY ALL CONCRETE, MATERIALS, AND LABOR TO COMPLETE THIS PROJECT. (ANY EXCLUSION MUST BE NOTED ON CONTRACT)
- G.C. WILL HAVE A SURVEYOR SET PINS FOR BUILDING CORNERS, PIERS, BACK OF CURBS, LIGHT POLE BASES, LOADING DOCK WALLS AND REFERENCE FOR OTHER POINTS ALONG WITH ELEVATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO SET BATTER BOARDS OR LINES FOR OTHER TRADES TO USE TO ESTABLISH THE LOCATIONS NEEDED FOR INSTALLATION OF OTHER'S ITEMS AS REQUIRED.
- CONTRACTOR IS TO LAYOUT AND PLACE ALL EMBEDS AND ANCHOR BOLTS IN CONCRETE AS SHOWN BY DRAWINGS.
- CONTRACTOR TO FURNISH AND PUT TO GRADE ALL MATERIALS NEEDED TO BRING SUB GRADE TO FINAL GRADE ONCE SUB GRADE HAS BEEN BROUGHT TO PLUS (+) OR MINUS (-) A TENTH OF A FOOT.
- ANY MATERIALS EXCAVATED BY CONTRACTOR ARE TO BE MOVED TO AN AREA DESIGNATED BY SUPERINTENDENT TO BE USED FOR BACK FILL LATER. (ALL SPOILS TO BE REMOVED FROM JOBSITE BY CONTRACTOR)
- CONTRACTOR TO EXCAVATE DIRT BETWEEN PIERS FOR PANELS THEN BACKFILL AND COMPACT ALL AREAS NEXT TO ANY AND ALL WALLS.
- CONTRACTOR TO MARK PANEL LOCATIONS AND TO HAVE A PERSON PRESENT WHEN PANELS ARE BEING SET TO SURVEY IN PANELS TO ENSURE THEY ARE SET TRUE TO LINE AND GRADE.
- CONTRACTOR WILL BE RESPONSIBLE FOR ENGINEERING OF LIFTING POINTS AND BRACING OF PANELS.
- CONTRACTOR WILL FURNISH AND INSTALL ALL EMBEDS FOR LIFTING AND BRACING.
- CONTRACTOR WILL CLEAN ALL EMBEDS AND REMOVE ANY INSPECTED BY ERECTOR PRIOR TO LIFTING OF ANY PANELS TO INSURE THEY ARE PROPERLY CLEANED AND NO DAMAGE HAS ACCRUED TO LIFTING AND BRACING EMBEDS.
- CONTRACTOR TO SET NUTS ON ANCHOR BOLTS TO GRADE READY FOR PLACEMENTS OF COLUMNS.
- CONTRACTOR WILL BE RESPONSIBLE FOR ANY CHARGES INCURRED DUE TO ANCHOR BOLTS OR EMBED BEING OFF FROM WHERE SHOWN ON DRAWINGS.
- WHEN PANELS ARE SET AND STEEL ERECTED CONTRACTOR TO FURNISH AND POUR CONCRETE ON BOTH SIDES OF PANEL JOINTS TO SECURE THEM. THIS IS TO BE DONE BEFORE ANY BRACING IS REMOVED.
- CONTRACTOR TO FURNISH AND INSTALL ANY BLOCK OUTS FOR ELECTRICAL OR ANCHOR BOLTS. THESE ARE TO BE SET AT GRADE NOT TO EXCEED 1" BELOW FINISH FLOOR AND FILLED WITH SAND TO TOP OF FORM. CONCRETE TO BE POURED OVER THESE. ONCE PANELS ARE LIFTED THESE ARE TO BE CLEANED OUT SO ANY OTHER WORK CAN BE DONE AND THEN FILLED BACK WITH CONCRETE ONCE FINISHED.
- CONTRACTOR TO FURNISH AND INSTALL NON-SHRINK GROUT UNDER ALL COLUMNS.
- ANY JOINTS WHERE POURS MEET ON FLOOR MUST BE A FLAT SURFACE AND ANY RAISED AREAS WILL BE GROUND BACK FLAT BY CONTRACTOR.
- CONTRACTOR WILL FILL ALL PENETRATIONS MADE IN FLOOR. ALL EMBEDS FOR LIFTING OR BRACING THAT WILL BE EXPOSED ABOVE DECK OR IN STAGING AREA WILL BE FILLED IN TO MAKE A SMOOTH SURFACE.
- PANEL EDGES ON THE EXTERIOR WHERE TWO PANELS MEET WILL HAVE A CHAMFERED EDGE.
- ANY IMPERFECTIONS IN PANELS THAT ARE EXPOSED TO OUTSIDE OF BUILDING WILL EITHER BE RUBBED OR FILLED SO THAT THEY WILL NOT SHOW AFTER STO FINISH SYSTEM
- CONTRACTOR TO CAULK A LINE ON PANELS BEFORE LIFTING AT DECK BEARING ELEVATION TO CHECK THAT ALL EMBEDS ARE AT PROPER HEIGHTS.
- ALL CURBS ARE TO BE POURED AS EITHER A CURB AND GUTTER, OR MONOLITHIC WITH PARKING. CURBS MUST BE FORMED TO ENSURE A UNIFORM SHAPE.
- CONTRACTOR TO FURNISH OWNER WITH A SCHEDULE OF WORK TO ENSURE IT MEETS OUR SCHEDULE AND FOR THE SCHEDULING OF OTHER TRADES.
- LOADING DOCK WALLS AND LIGHT POLE BASES WILL BE HAND RUBBED TO A TEXTURE FINISH AS TO NOT SHOW ANY DEFECTS.
- CONTRACTOR IS RESPONSIBLE FOR ANY PRICE INCREASE OR OTHER CHARGES INCURRED TO MAINTAIN THE SCHEDULE OF THIS PROJECT. THESE CHARGES WILL NOT BE PASSED ON TO OWNER.
- CONTRACTOR WILL BE RESPONSIBLE FOR PUMPING OF WATER THAT MIGHT BE TRAPPED IN BLOCK OUTS FOR COLUMNS, LOADING DOCK OR STORM DRAINS UNTIL THEY HAVE COMPLETED THEIR WORK IN THOSE AREAS.
- CONTRACTOR IS TO PAY FOR ALL DRILLING OF PIERS, PUMPING OF CONCRETE, OR THAT OF ANY OTHER EQUIPMENT USED TO COMPLETE THEIR CONTRACT.
- CONTRACTOR TO INSTALL ALL ANCHOR BOLTS FOR LIGHT POLES.
- ALL FINISHES AND TOLERANCES ARE TO BE AS SPELLED OUT IN SPEC. BOOK OR DRAWINGS.
- CONTRACTOR TO SUPPLY AND APPLY A RELEASING COMPOUND WHERE PANELS ARE POURED ON SLAB. THIS IS TO BE APPLIED HEAVY ENOUGH TO ENSURE THAT PANELS WILL NOT STICK. IF COST IS INCURRED DUE TO STICKING OF PANELS, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PAY FOR THIS AT NO ADDITIONAL COST TO OWNER. ANY DAMAGE TO CONCRETE DUE TO THE STICKING PANELS WILL BE REPLACED OR REPAIRED BY CONTRACTOR.
- CONTRACTOR WILL BE RESPONSIBLE FOR ANY BARRICADES TO PREVENT TRAFFIC FROM DRIVING ON PARKING UNTIL IT HAS CURED TO A POINT TO RECEIVE TRAFFIC.
- CONTRACTOR TO INSTALL ALL G.C. SUPPLIED EMBEDS.
- CONTRACTOR TO INSTALL ALL G.C. SUPPLIED PIPE BOLLARDS.
- CONTRACTOR TO BLOCK OUT ALL OPENINGS IN PANELS ON PANEL BOOKS. THESE ARE TO BE SECURED TO MAKE SURE THEY ARE SQUARE.
- CONTRACTOR TO PROVIDE A 10 MIL. VAPOR BARRIER BELOW SLAB.

H.V.A.C.

ITEMS TO INCLUDE IN YOUR BID IF NOT ALREADY NOTED ON PLANS:

- CONTRACTOR AWARDED CONTRACT TO INSTALL NEW R.T.U. EQUIPMENT SHALL COMPLY WITH OWNER AND NATIONAL/LOCAL CODE INSTALLATION CRITERIA.
- MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ASSEMBLY, SPOTTING, INTERNAL INSULATION, AND LEVELING OF ROOF CURBS. INSULATION MATERIAL USED FOR THE INTERIOR SPACE OF THE R.T.U. CURBS WILL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO FURNISH AND INSTALL.
- CUT DECKING AT CURBS FOR DUCT WORK INSTALLATION AND ON NEW R.T.U. UNITS HVAC CONTRACTOR SHALL INCLUDE SPACE FOR INSTALLATION OF 1" CONDUIT BY ELECTRICAL CONTRACTOR FOR CABLING REQUIREMENTS. (SEE ELECTRICAL SCOPE OF WORK)
- MECHANICAL CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATION OF R.T.U. DELIVERY TO JOBSITE WITH JOB SUPERINTENDENT. EQUIPMENT SHOULD BE TRANSFERRED BY CRANE FROM THE DELIVERY TRUCK TO THE R.T.U. CURB AND NOT STORED ON THE GROUND.
- SET ROOF TOP UNITS.
- INSTALL THERMOSTATS AND / OR AUTOMATION SENSORS. TERMINATE WIRING TO REQUIRED UNITS AND THERMOSTATS.
- G.C. WILL WIRE UNITS TO THE BUILDING AUTOMATION SYSTEM. CHECK FOR REQUIREMENT BY SUBCONTRACTOR. (REFER TO DRAWINGS)
- FURNISH AND INSTALL ALL NECESSARY DUCTWORK PER DESIGN ENGINEER SPECIFICATIONS USING HARD ROUND OR RECTANGLE DUCT (A MAXIMUM OF 6 FOOT OF FLEX MAY BE USED PER RUN BETWEEN DIFFUSER AND METAL PIPE) OR PER CODE. BALANCING DAMPERS ARE TO BE INSTALLED IN EACH SUPPLY DUCT RUN FOR BALANCING PURPOSES. FURNISH AND INSTALL ALL DIFFUSERS. BALANCE AIRFLOW TO EACH REGISTER.
- UNITS 7.5 TON AND LARGER WITH CONCENTRIC AIRFLOW DESIGN SHALL USE RECTANGLE METAL CONNECTIONS PER THE MECHANICAL DRAWINGS. ABSOLUTELY NO FLEXIBLE ROUND DUCT OR RIGID ROUND DUCT CONNECTIONS IN ANY CONFIGURATION WILL BE ACCEPTED BETWEEN THE UNIT AND CONCENTRIC PACKAGES.
- MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR SPOTTING AND COORDINATING INSTALLATION OF EXHAUST FAN CURB/S WITH THE ROOFING CONTRACTOR.
- CONTRACTOR SHALL COMPLETE OWNER NEW EQUIPMENT START UP CHECK LIST WHEN INSTALLATION IS COMPLETE. THE COMPLETED FORM, FOR EACH UNIT, IS TO BE GIVEN TO THE OWNER SUPERINTENDENT WITH ALL INFORMATION RECORDED FOR REVIEW.
- CONTRACTOR TO MAINTAIN A CLEAN WORK ENVIRONMENT AND REMOVE TRASH AND DEBRIS FROM WORK AREA DAILY. ANY CHARGES FOR ROOF REPAIR OR CLEAN UP CREATED DUE TO NEGLIGENCE WILL BE WITHHELD FROM CONTRACTORS' RETAINAGE, NO EXCEPTIONS.
- MECHANICAL CONTRACTOR WILL COORDINATE WITH ROOFER THE PLACEMENT OF CURBS AND CUTTING OF THE DECKING MATERIAL.
- INSTALL DUCTWORK IN OPEN CEILING BEFORE PAINT AND INSTALL DUCTWORK IN GRID CEILING BEFORE GRID INSTALLATION.
- MECHANICAL CONTRACTOR WILL BE RESPONSIBLE TO PERFORM TWO FILTER CHANGES IN ALL R.T.U. UNITS OPERATED DURING CONSTRUCTION, USING PLEATED FILTERS WITH A RATING OF NO LESS THAN A MERV 7.
- UNLESS SPECIFIED ELSEWHERE, MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CONDENSATE DRAINS MEETING LOCAL AND NATIONAL CODES. SUPPORTS SHALL BE OF TYPE IDENTIFIED ON DRAWINGS AND ATTACHED TO ROOF MEMBRANE IN A MANNER NOT TO AFFECT ROOF WARRANTY AND TO PREVENT PIPING FROM MOVING OR SAGGING.
- LAY IN SUPPLY DIFFUSERS SHALL BE INSTALLED WITH AN INSULATED METAL ELBOW CONNECTING FROM THE FLEXIBLE DUCT DROP TO THE MATCHING THROAT SIZE OF THE DIFFUSER. DIFFUSER BACKING SURFACE SHALL ALSO BE OF THE INSULATED VARIETY OR INSULATED BY THE MECHANICAL CONTRACTOR.
- EQUIPMENT TO BE REPLACED OR REMOVED FROM STRUCTURE SHALL BE DISPOSED OF IN ACCORDANCE WITH APPROPRIATE EPA GUIDELINES. PROPER DOCUMENTATION WILL BE FURNISHED TO OWNER DESCRIBING MEANS OF RECOVERY AND DISPOSAL
- MECHANICAL CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLATION OF FILTER MEDIA, TO ALL RETURN GRILLES OR UNFINISHED RETURN DUCT OPENINGS OF R.T.U.'S OPERATED DURING CONSTRUCTION. NO UNIT SHALL BE RUN DURING CONSTRUCTION WITHOUT THIS PRECAUTION BEING ADHERED TO.
- MECHANICAL CONTRACTOR WILL COORDINATE WITH JOB SUPERINTENDENT THE ISOLATION AND PROTECTION OF RETURN AIR SMOKE DETECTOR SAMPLING TUBES AND SENSING CHAMBER IMMEDIATELY AFTER PLACEMENT OF EQUIPMENT ON THE ROOF, BEFORE STARTUP. CONTRACTOR WILL BE HELD LIABLE FOR SMOKE DETECTOR FAILURE IF THIS PROCEDURE IS NOT FOLLOWED - NO EXCEPTIONS. PROCEDURE TO BE REVERSED BY THE MECHANICAL CONTRACTOR BEFORE COMMISSIONING OF FIRE ALARM AND TESTING OF SMOKE DETECTORS.
- HVAC CONTRACTOR SHALL WIRE A THERMOSTAT FOR ALL EXISTING AND NEW UNIT HEATERS.

ELECTRICAL

ITEMS TO INCLUDE IN YOUR BID IF NOT ALREADY NOTED ON PLANS:

- WIRE AND INSTALL ALL OWNER PROVIDED PLUG MOLD PER PLANS.
- WIRE AND INSTALL ALL 3 PHASE 208 OR 480 CIRCUITS TO ROOF TOP UNITS. (DISCONNECT PROVIDED IN ALL NEW ROOF TOP UNITS.) CONTRACTOR TO PROVIDE EXTERNAL DISCONNECT IF REQUIRED BY CODE.
- PROVIDE WIRE TO AND INSTALL WEATHER PROOF G.F.I. CIRCUITS PER LOCAL CODE ON R.T.U.'S.
- A 1" CONDUIT IS TO BE INSTALLED ON ALL R.T.U'S FOR THE PURPOSE OF ROUTING ALL COMMUNICATION AND LOW VOLTAGE WIRING. CONDUIT SHALL CONNECT FORM INSIDE THE ELECTRICAL COMPARTMENT OF R.T.U. PENETRATING THE ROOF DECK AND TO EXTEND NO LESS THAN 18" BELOW THE ROOF DECK. CONDUIT ENDS SHALL HAVE A CONNECTOR AND BUSHING ON EACH END.
- PROVIDE ALL CONDUIT STUBS FOR PHONE, DATA, T.V., CAMERAS OR OTHER DEVICES PER PLANS AS WELL AS BOAT SERVICE ENTRY DOOR AND PARTS RECEIVING DOOR.
- PROVIDE WIRE TO AND INSTALL BUZZER SYSTEM TO TRUCK DOCK ENTRANCE PER PLANS.
- WIRE CIRCUITS TO SIGNAGE PER PLANS WITH JUNCTION BOXES.
- PROVIDE WIRE TO INSTALL DEDICATED CIRCUIT FOR SECURITY SYSTEM.
- PROVIDE WIRE TO INSTALL DEDICATED CIRCUIT FOR FIRE ALARM SYSTEM.
- WIRE AND INSTALL ALL OWNER PROVIDED LIGHT FIXTURES PER PRINT.
- ELECTRICAL CONTRACTOR SHALL INSTALL LIGHTING CONTACTOR PANEL (L.C.P.). ALL BUILDING AUTOMATION SYSTEM INTERIOR AND EXTERIOR LIGHTING, POWER POLES, AND CEILING PLUGS ARE TO BE CONNECTED IN THE L.C.P. THEN ROUTED BACK TO APPROPRIATE BREAKER PANEL.
- TEMPORARY LIGHTING AS NEEDED FOR CONSTRUCTION PURPOSES.
- IDENTIFY AND MARK ALL SERVICE GEAR AND PANELS WITH TYPED PRINT.
- RENTAL EQUIPMENT
- ELECTRICAL PERMIT
- IDENTIFY ELECTRIC SERVICE AND METER SUPPLYING POWER TO LOCATION.
- ALL SENSOR AND COMMUNICATION CABLES SHALL BE PULLED THROUGH 1" CONDUIT INTO R.T.U. CABLES ARE NOT TO BE STRETCHED, NICKED, OR CUT. CABLE IS TO BE ROLLED UP AND TAPED INSIDE OF UNIT.
- WIRE EXHAUST FAN FOR RESTROOMS AND CONFIRM VOLTAGE WITH H.V.A.C. CONTRACTOR.
- WIRE WATER HEATER FOR RESTROOMS AND CONFIRM VOLTAGE WITH PLUMBING CONTRACTOR.
- PROVIDE A SEPARATE PRICE FOR EXTERNAL DISCONNECT WHICH MAY BE REQUIRED BY CODE.
- NUMBERING OF R.T.U.'S ARE TO FOLLOW BUILDING AUTOMATION SYSTEM DRAWING.
- R.T.U. DISCONNECTS SHALL BE LOCATED AS INDICATED.
- ALL BREAKERS ARE TO BE LABELED.

STEEL ERECTION

ITEMS TO INCLUDE IN YOUR BID IF NOT ALREADY NOTED ON PLANS:

- CONTRACTOR TO SCHEDULE UNLOADING OF ALL STEEL DELIVERED TO SITE AND STAGE IN DESIGNATED AREA.
- CONTRACTOR IS TO PROVIDE ALL EQUIPMENT AND LABOR NECESSARY FOR INSTALLATION OF ALL STEEL AND ANY WORK RELATED TO CONTRACT.
- CONTRACTOR IS TO CONFIRM MATERIAL LIST AT TIME OF OFF LOAD. SHORTAGES SHOULD BE NOTED ON DELIVERY TICKET.
- CONTRACTOR WILL BE REQUIRED TO CONFIRM PANEL LAYOUT WITH CONCRETE CONTRACTOR.
- CONTRACTOR IS REQUIRED TO INSTALL ALL R.T.U. STRUCTURAL FRAMING SHOWN ON PRINTS AND COORDINATE WITH H.V.A.C. CONTRACTOR.

STOREFRONT

ITEMS TO INCLUDE IN YOUR BID IF NOTE ALREADY NOTED ON PLANS:

- CONTRACTOR IS TO PROVIDE SILL PLATE AT BOTTOMS OF ALL MULLIONS.
- CONTRACTOR IS TO PROVIDE CLOSED BACK JAMB FOR INSTALLATION OF AUTOMATIC DOORS.
- VERIFY ON PRINTS, ANY TINTING REQUIREMENTS BY CODE.
- CONTRACTOR IS TO PROVIDE ALL CAULKING AROUND PERIMETER OF GLASS STOREFRONT INSIDE AND OUT.
- CONTRACTOR WILL BE REQUIRED TO INSTALL STOREFRONT BEFORE AUTOMATIC DOORS ARE INSTALLED. VERIFY FINISHED OPENING BEFORE MANUFACTURING.
- VERIFY THAT ALL FRAMES AND GLAZING MEET APPLICABLE CODES.

ROOFING

ITEMS TO INCLUDE IN YOUR BID IF NOT ALREADY NOTED ON PLANS:

- CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF WOOD NAILERS AND PLYWOOD AT THE TOP OF C.M.U., TILT UP WALL, E.I.F.S., AND STRUCTURAL FRAMING.
- CONTRACTOR IS REQUIRED TO PROVIDE ALL NECESSARY PADS UNDER GAS LINES, CONDENSATE LINES, AND WALK PADS.
- CONTRACTOR IS TO PROVIDE THE ROOF WARRANTY TO OWNER IN THE OWNER'S NAME AND ADDRESS. VERIFY COVERAGE REQUIRED (I.E. 15 OR 20 YEAR WARRANTY)
- CONTRACTOR IS RESPONSIBLE FOR ALL GUTTERING AND DOWNSPOUTS AS PER PLANS. PROVIDE ADAPTORS AT BOTTOM OF DOWNSPOUT TO STORM SEWER SYSTEM IF REQUIRED.
- CONTRACTOR WILL BE REQUIRED TO DO A FINAL SWEEP AFTER STORE IS COMPLETED TO REPAIR DAMAGE OR FAULTY INSTALLATION. A ROOF DAMAGED BY NEGLIGENCE WILL BE BACK CHARGED TO RESPONSIBLE PARTY.
- CONTRACTOR MUST PROVIDE AND INSTALL EXPANSION JOINTS, VERTICAL AND HORIZONTAL WHEN REQUIRED. THEY MUST BE INSTALLED PER DETAILS ON DRAWINGS.

PAINTING

ITEMS TO INCLUDE IN YOUR BID IF NOT ALREADY NOTED ON PLANS (OR SPEC BOOK):

- CONTRACTOR IS REQUIRED TO PROVIDE ALL EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE JOB.
- CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL PAINT OFF OF FLOORS, PARAPETS, AND BAR JOISTS.
- CONTRACTOR WILL BE REQUIRED TO CAULK ALL PRODUCTS FINISHED TO: F.R.P., METAL JAMBS, CABINETS, ETC.
- ALL WALLS, COLUMNS WILL BE REQUIRED TO HAVE ONE COAT PRIMER AND TWO COATS FINISH.
- CONTRACTOR IS REQUIRED TO SUBMIT EXTERIOR PAINT SAMPLES TO BE APPROVED BY OWNER.
- CONTRACTOR NEEDS TO VERIFY THAT WALLS ARE PAINT READY WITH SUPERINTENDENT BEFORE PROCEEDING.
- CONTRACTOR NEEDS TO REPLACE CEILING TILE IF REMOVED WHILE PAINTING.
- CONTRACTOR IS REQUIRED TO IDENTIFY ALL TOUCH UP PAINT WITH PERMANENT MARKER FOR STORE MANAGER. REMOVE ALL OTHER PAINT AND MATERIALS FROM JOB SITE AND DISPOSE OF PROPERLY. LEAVE TOUCH-UP PAINT.
- ALL SPRINKLER HEADS ARE TO BE PROTECTED FROM PAINT OVER SPRAY AND THE METHOD OF PROTECTION OR COVERING REMOVED.
- PAINT ALL EXPOSED METAL ON ROOF INCLUDING ROOF HATCH AND BRACES.
- PAINT ALL GAS LINES ON ROOF.
- IN AN OPEN OR EXPOSED CEILING SITUATION CONTRACTOR IS TO PROTECT OR CLEAN FLOORING AND ALL AREAS NOT TO RECEIVE PAINT.

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

INSIGHT DESIGN
IDeA
ARCHITECTS

112 S. Main St., Nixa, MO 65714 Ph:417-724-8553
NATHAN RAPP, ARCHITECT #A-2008008201

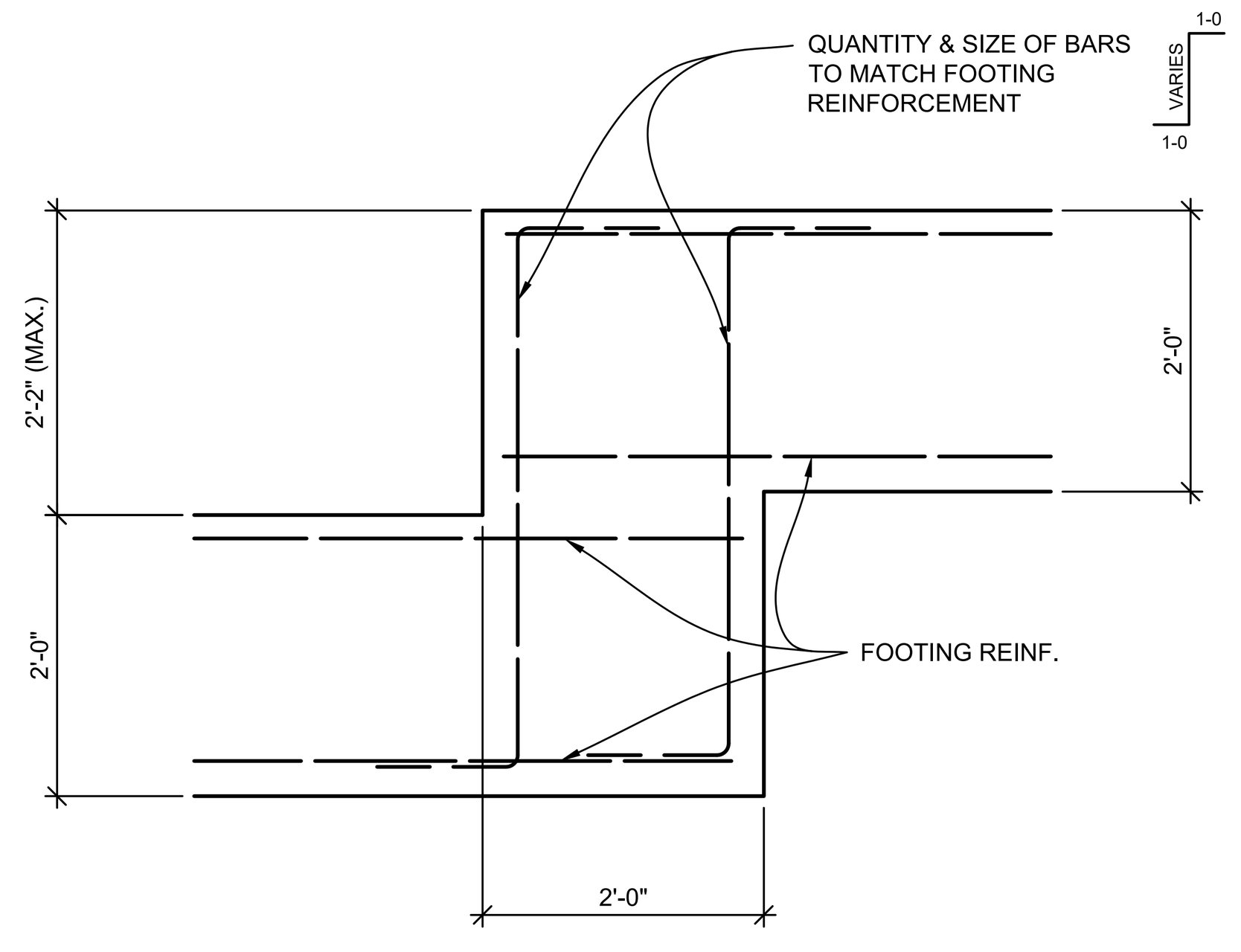
REISSUE DATE

PROFESSIONAL OF RECORD

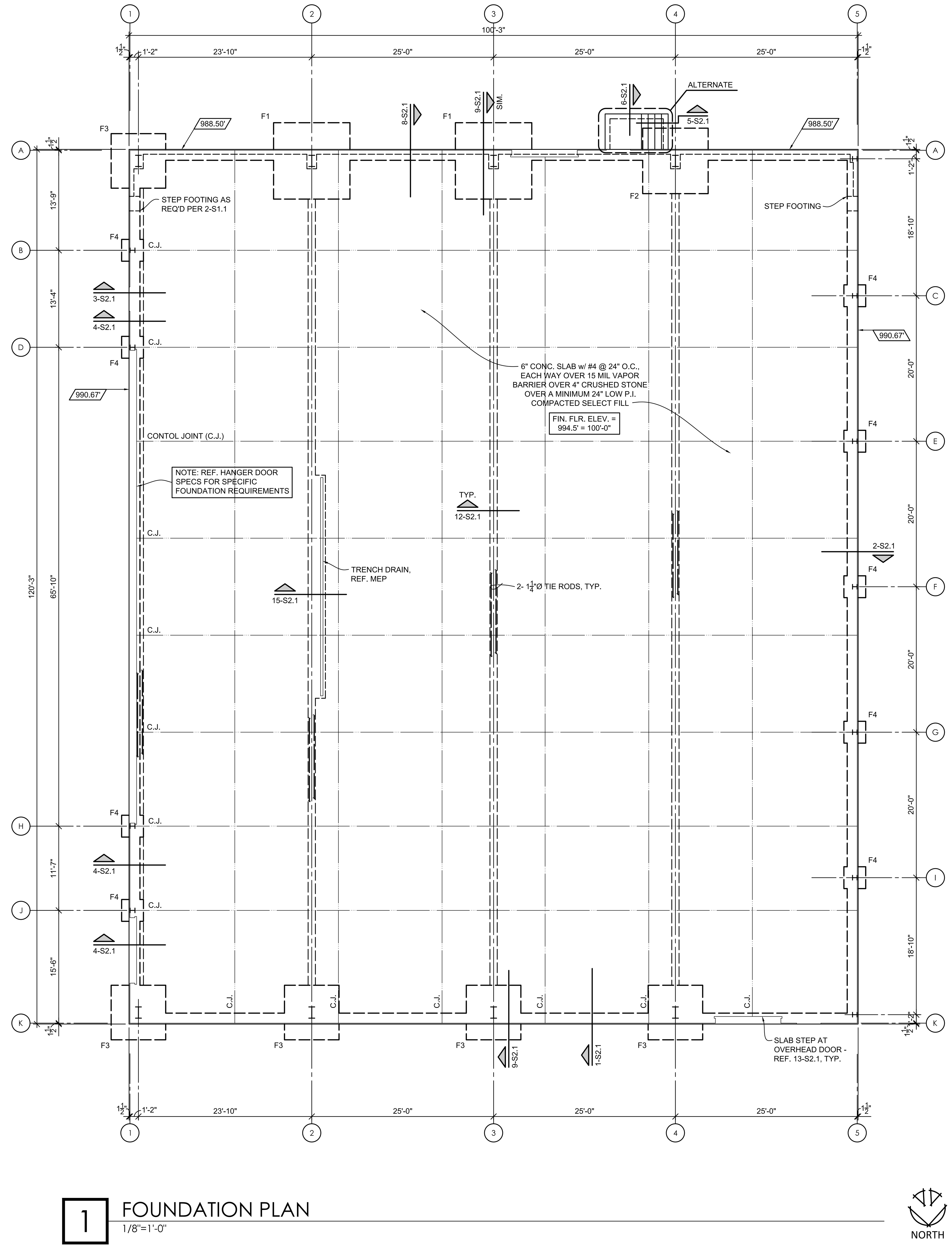
NATHAN P. RAPP

DATE: 04.14.2025

ARCHITECT: RAPP
PROJECT NO.: 24-034
DATE: 04.14.2025
DRAWING TITLE: GENERAL NOTES
SHEET NO.: G0.3



2 TYPICAL STEP FOOTING DETAIL
3/4"=1'-0"



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

LEGEND
988.50' - INDICATES BOTTOM OF FOOTING ELEVATION

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
LEE'S SUMMIT, MO

INSIGHT DESIGN ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph 417-724-8653
NATHAN RAPP, ARCHITECT #A-2008008201

SNOWDEN ENGINEERING
STRUCTURAL CONSULTANTS
MISSOURI C.A. #2008029278
8128 EAST 63RD
TULSA, OKLAHOMA 74133
PHONE: (918)252-4557
FAX: (918)254-0838

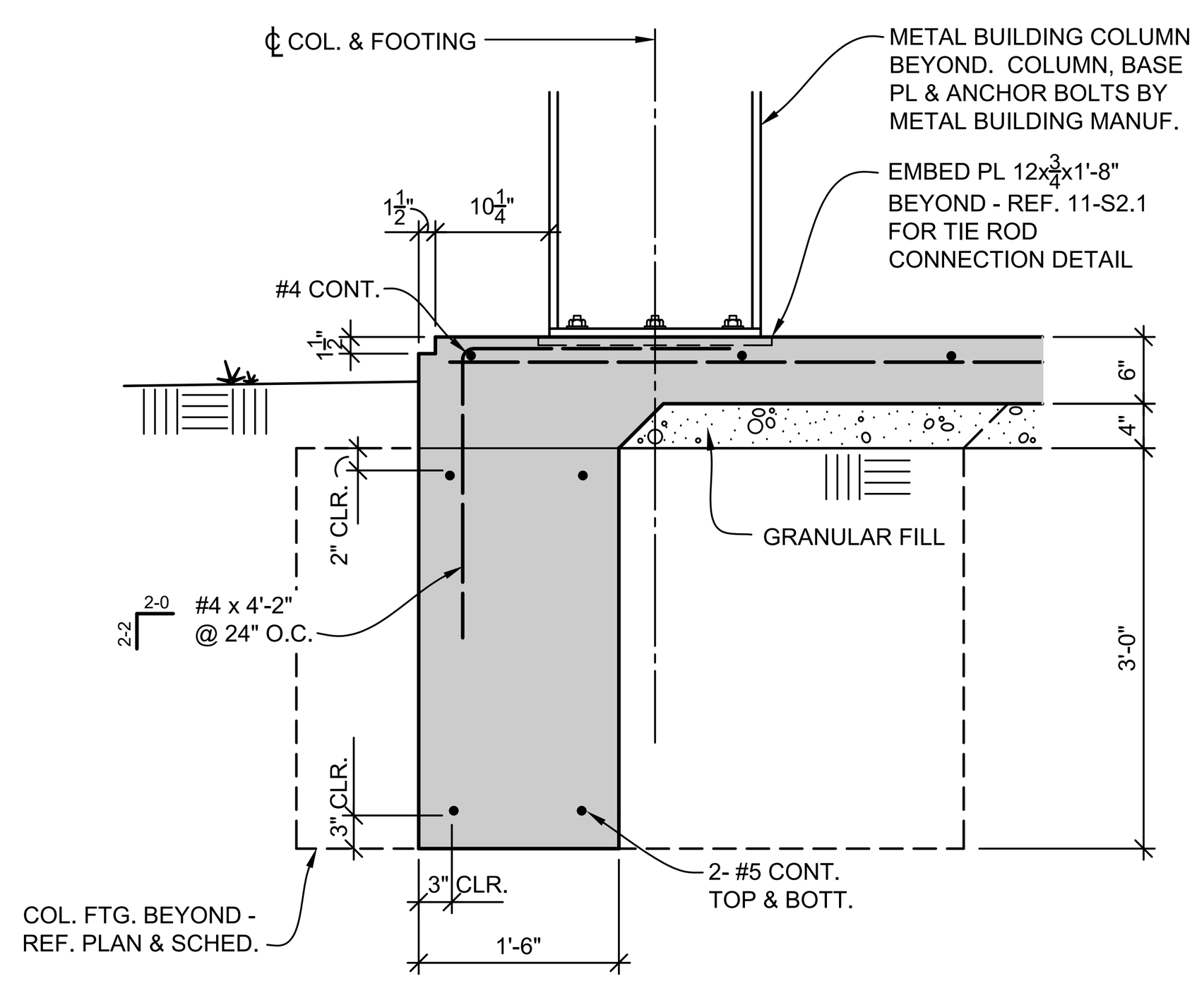
STATE OF MISSOURI
KEVIN W. SNOWDEN
NUMBER PE-2007023880
PROFESSIONAL ENGINEER
4-14-25

REISSUE DATE

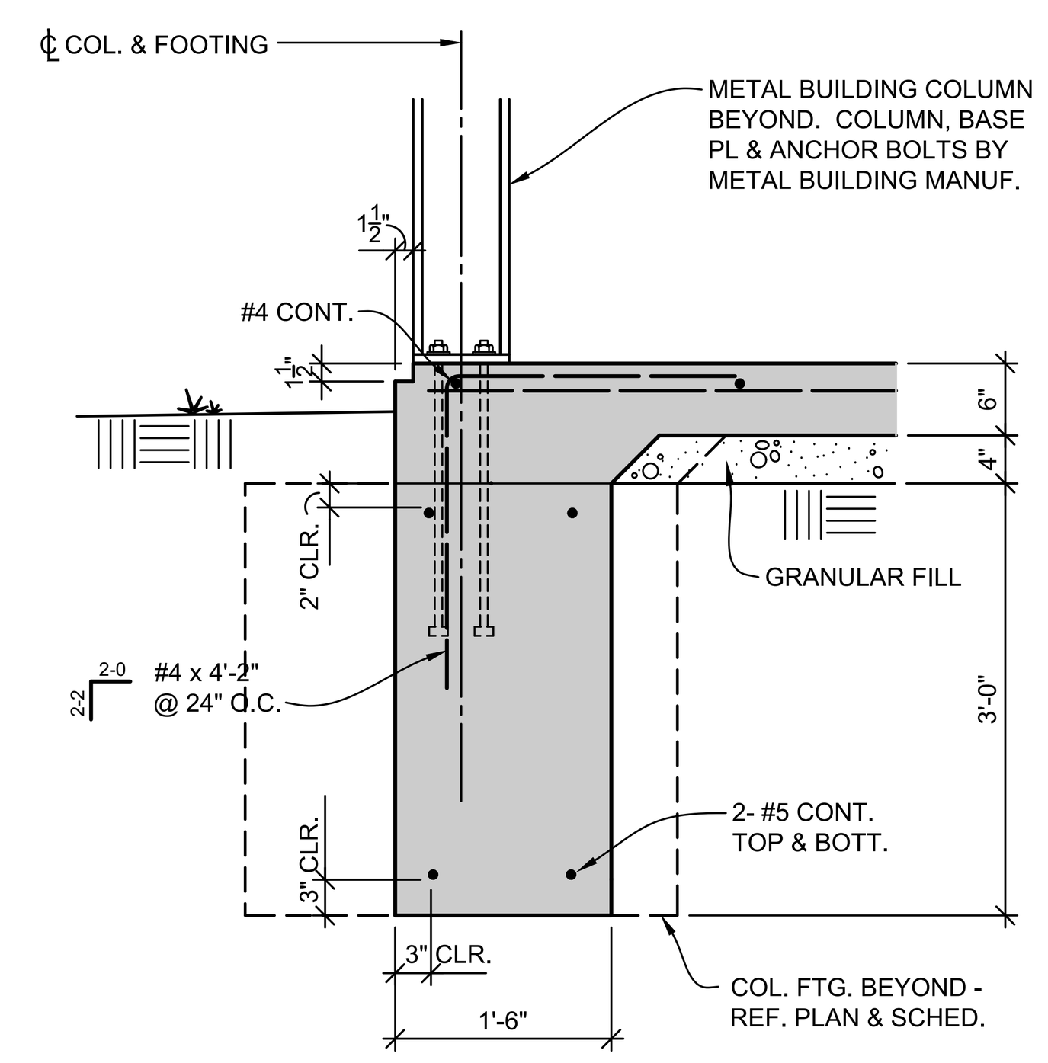
PROFESSIONAL OF RECORD

DATE:

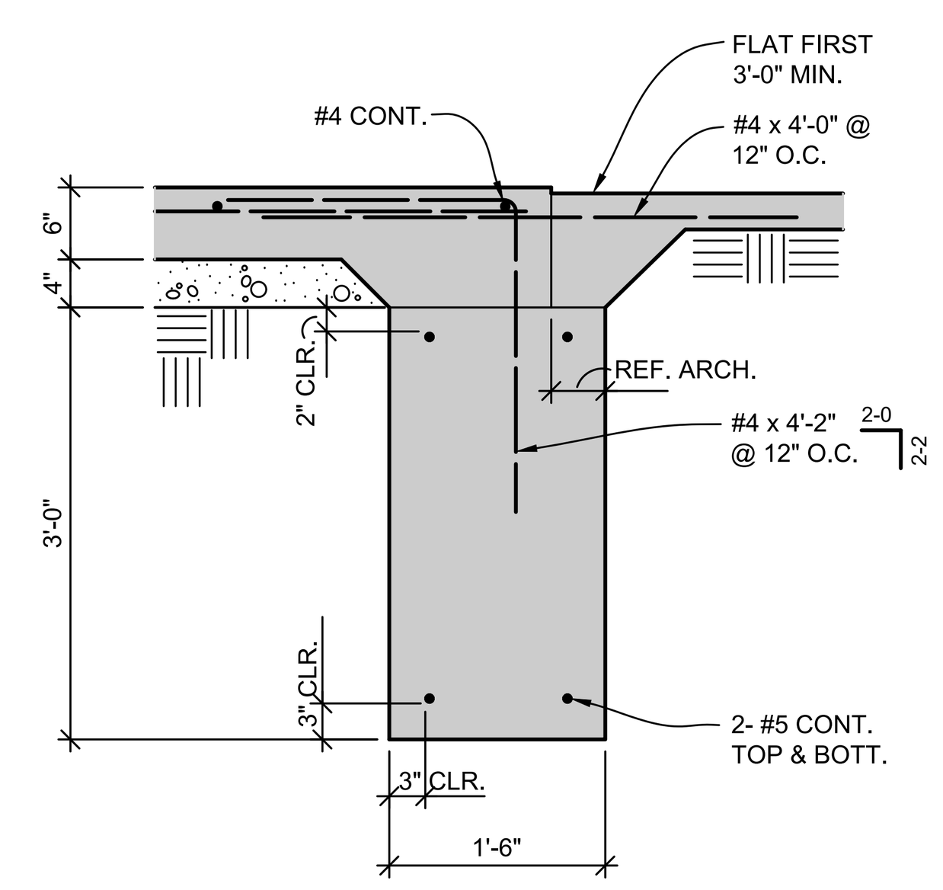
ARCHITECT	RAPP
PROJECT NO.	241098
DATE	04.14.2025
DRAWING TITLE	FOUNDATION PLAN
SHEET NO.	S1.1



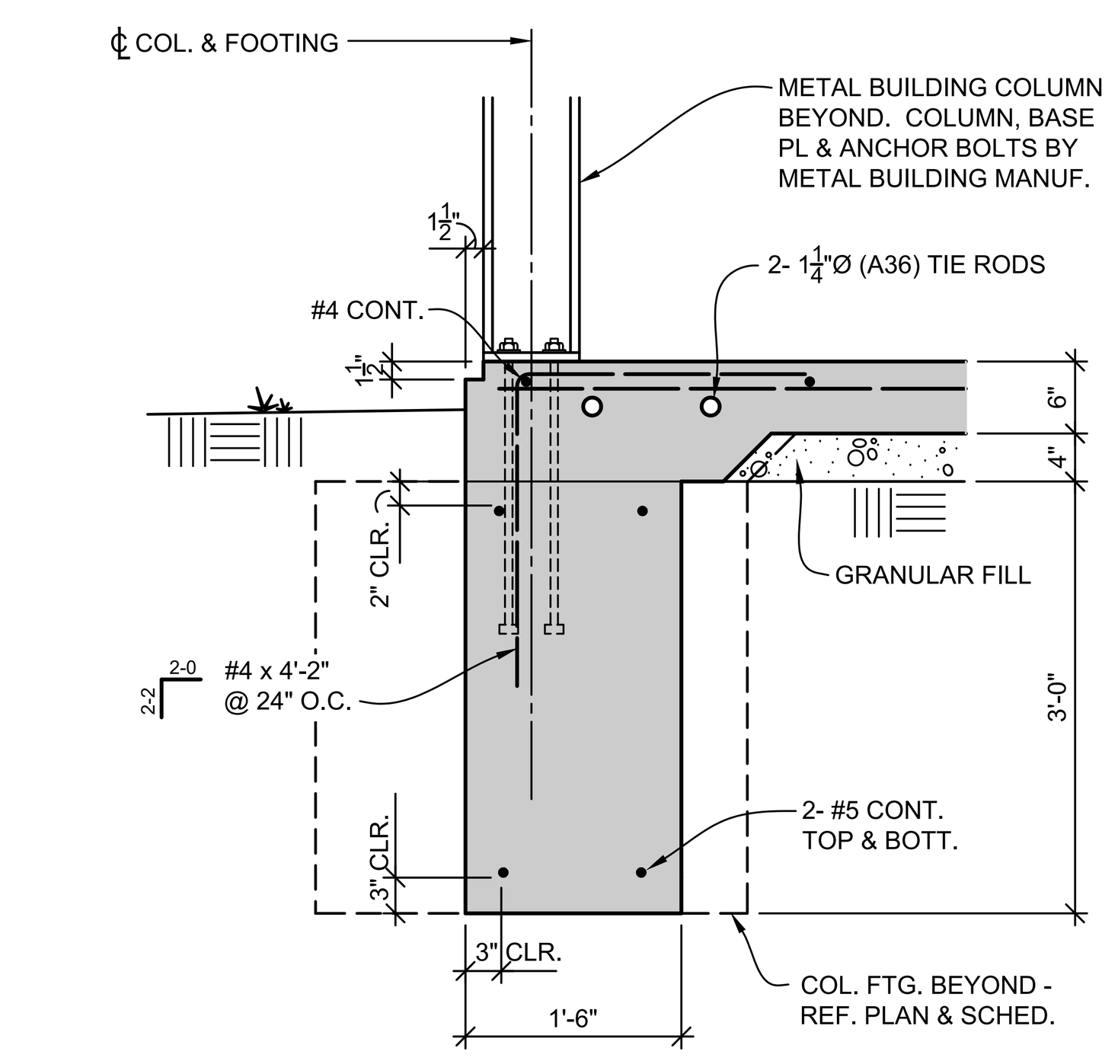
1 FOUNDATION SECTION
3/4"=1'-0"



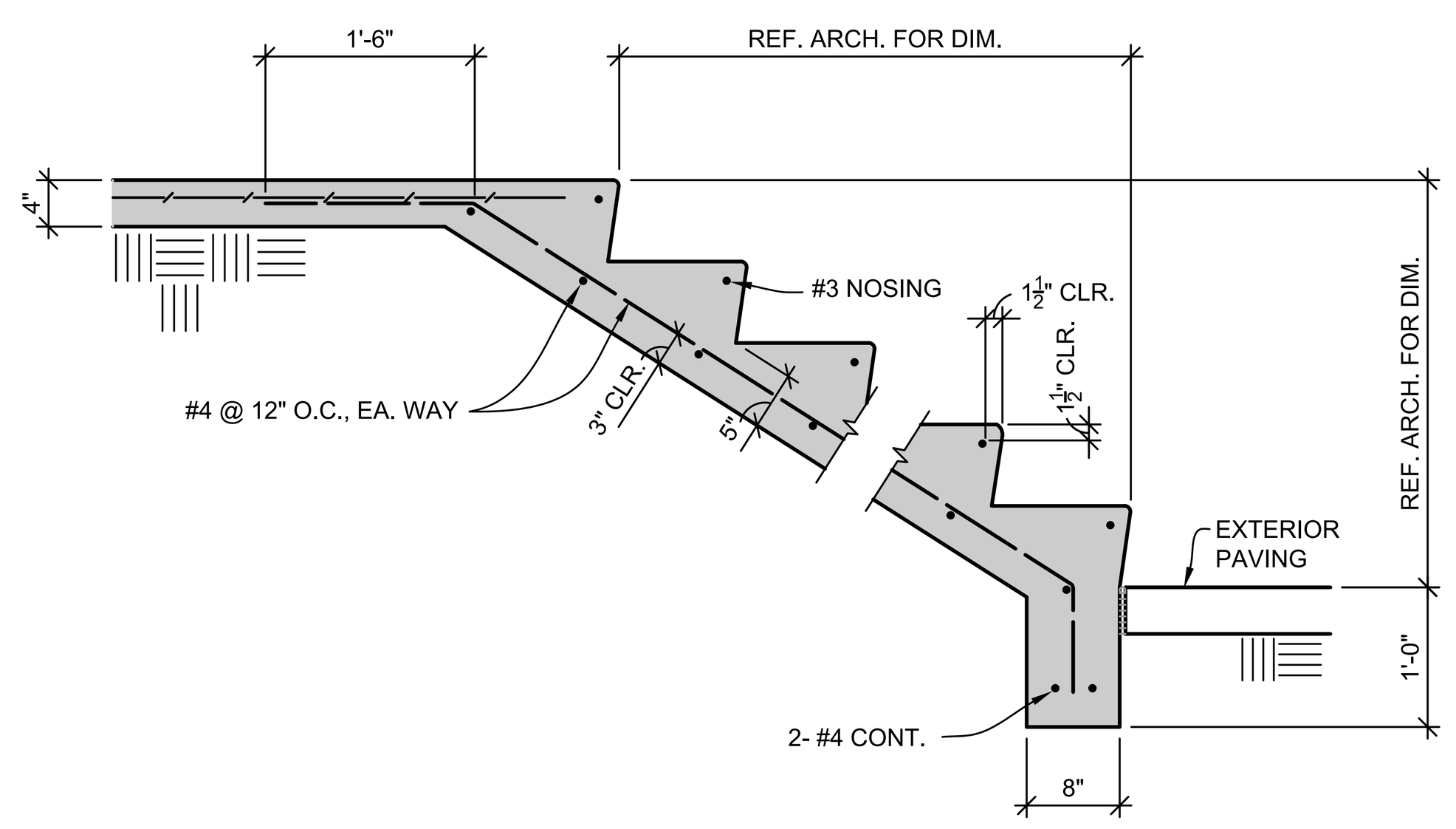
2 FOUNDATION SECTION
3/4"=1'-0"



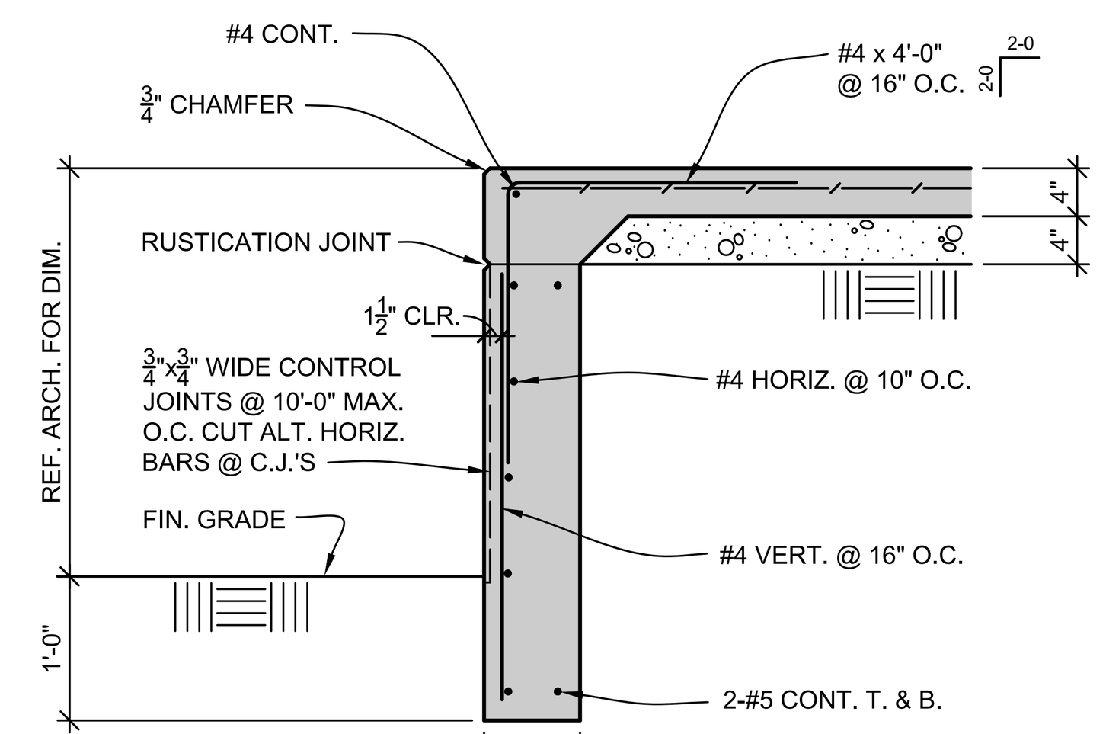
3 FOUNDATION SECTION AT DOOR
3/4"=1'-0"



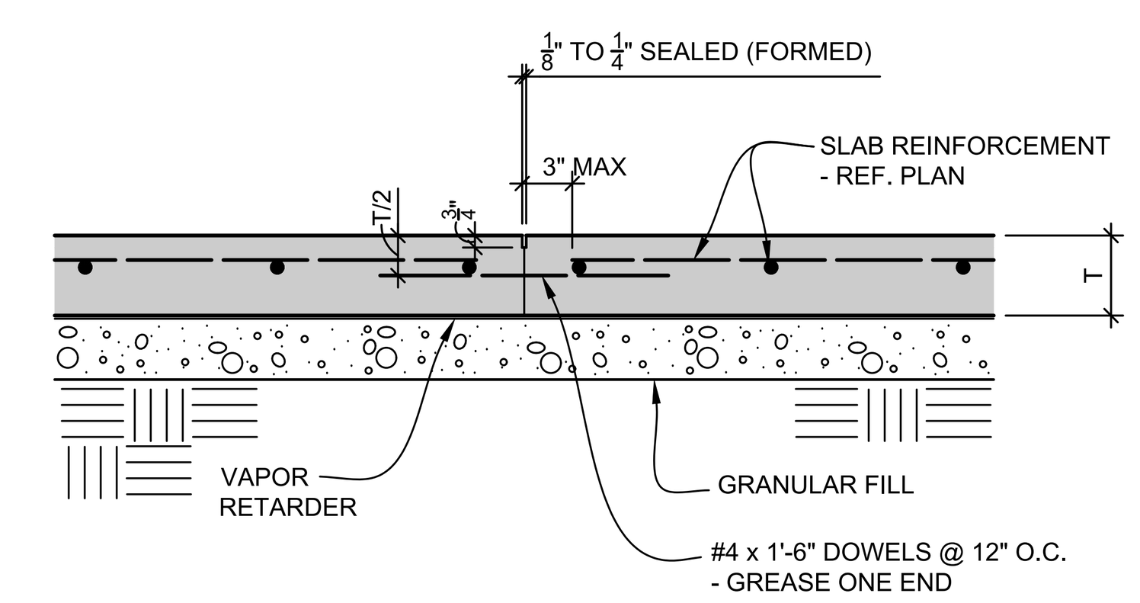
4 FOUNDATION SECTION
3/4"=1'-0"



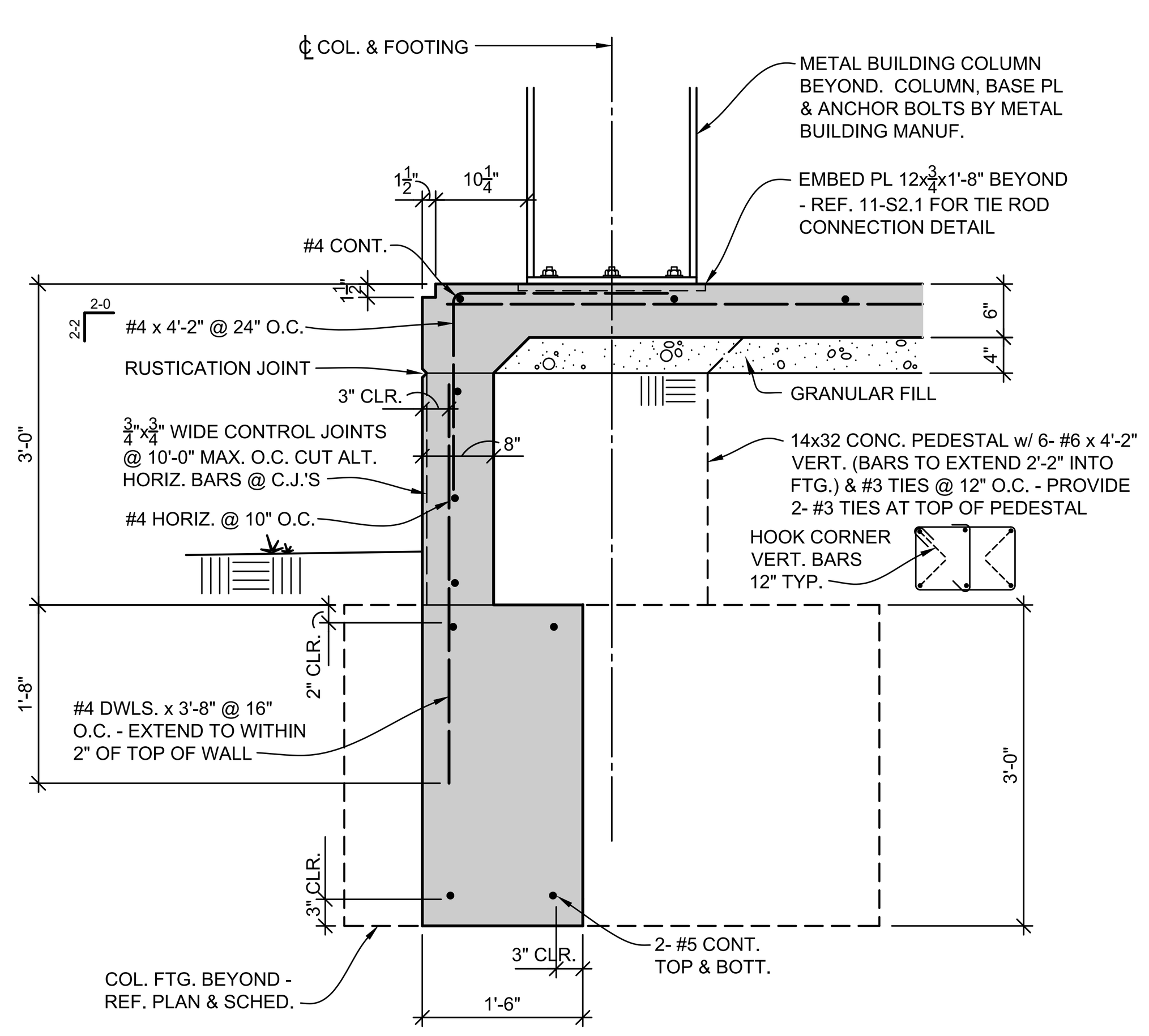
5 EXTERIOR STAIR
3/4"=1'-0"



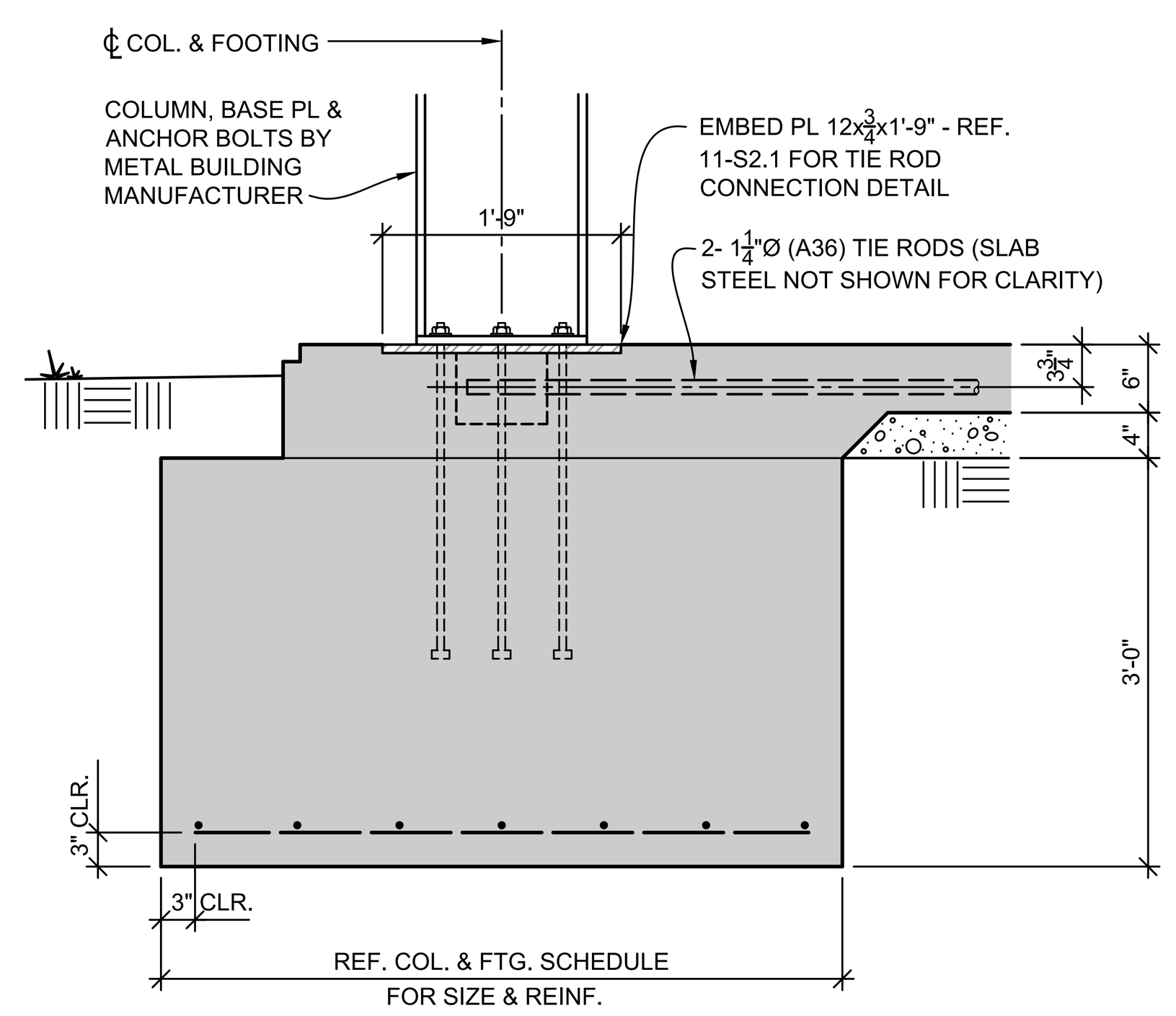
6 FOUNDATION SECTION
3/4"=1'-0"



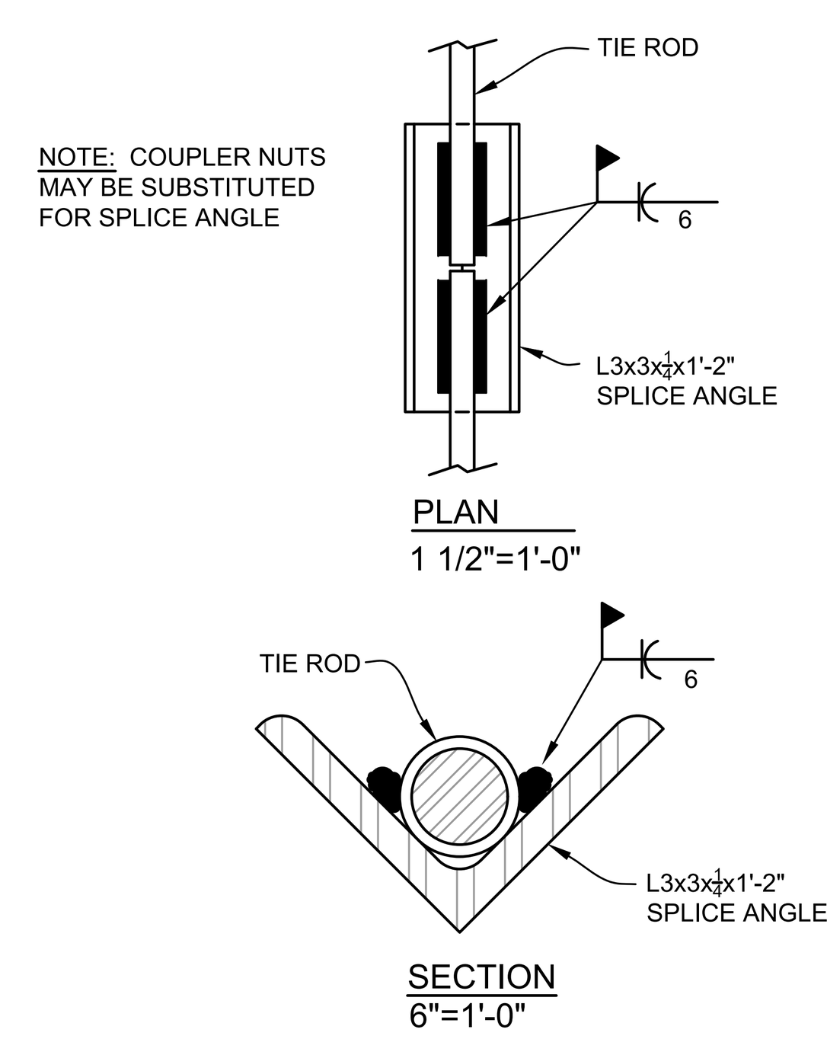
7 TYPICAL CONSTRUCTION JOINT
1"=1'-0"



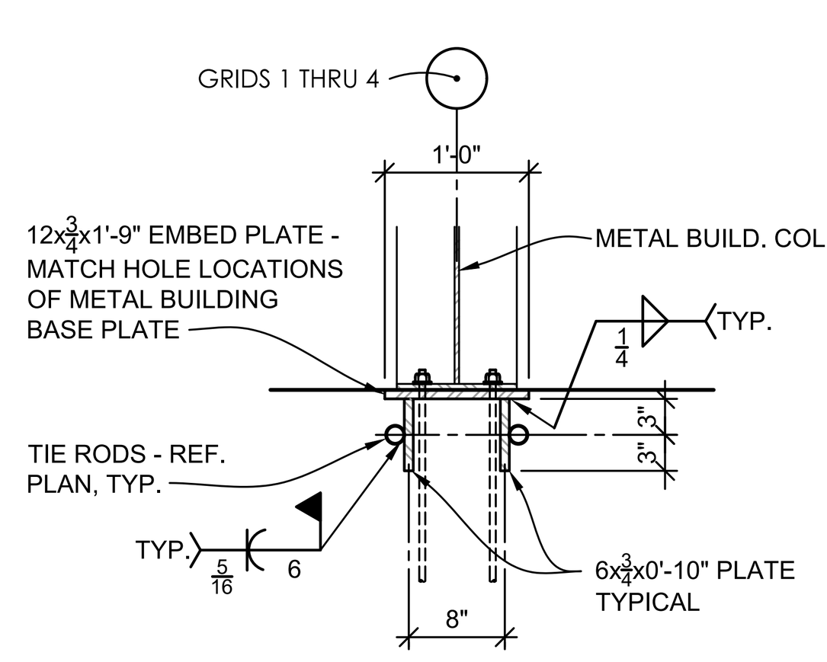
8 FOUNDATION SECTION
3/4"=1'-0"



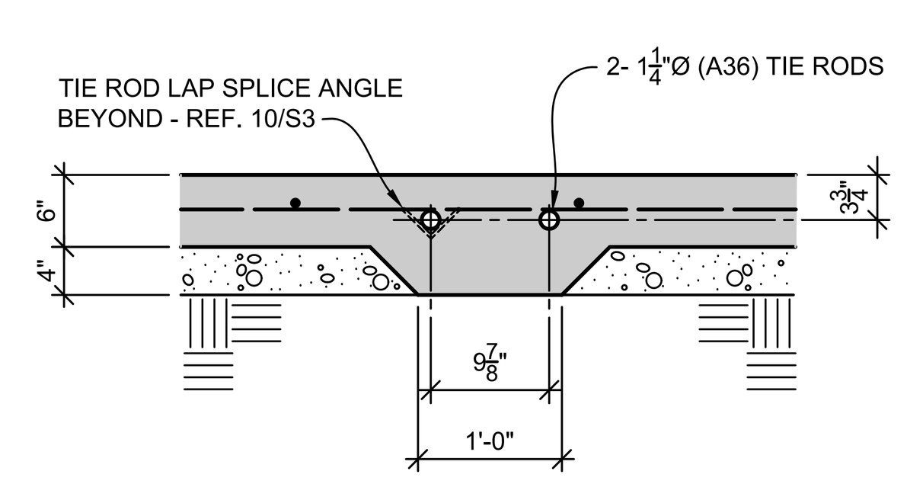
9 FOUNDATION SECTION
3/4"=1'-0"



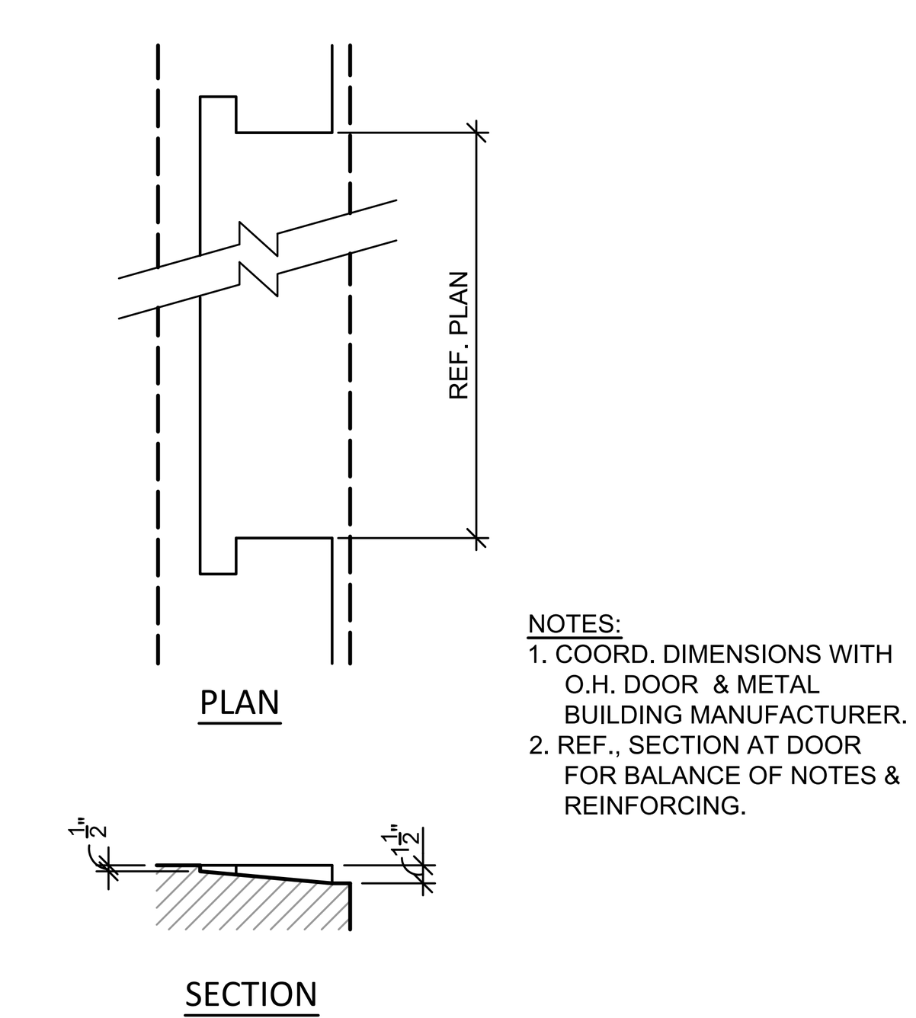
10 TIE ROD SPLICE DETAIL
AS NOTED



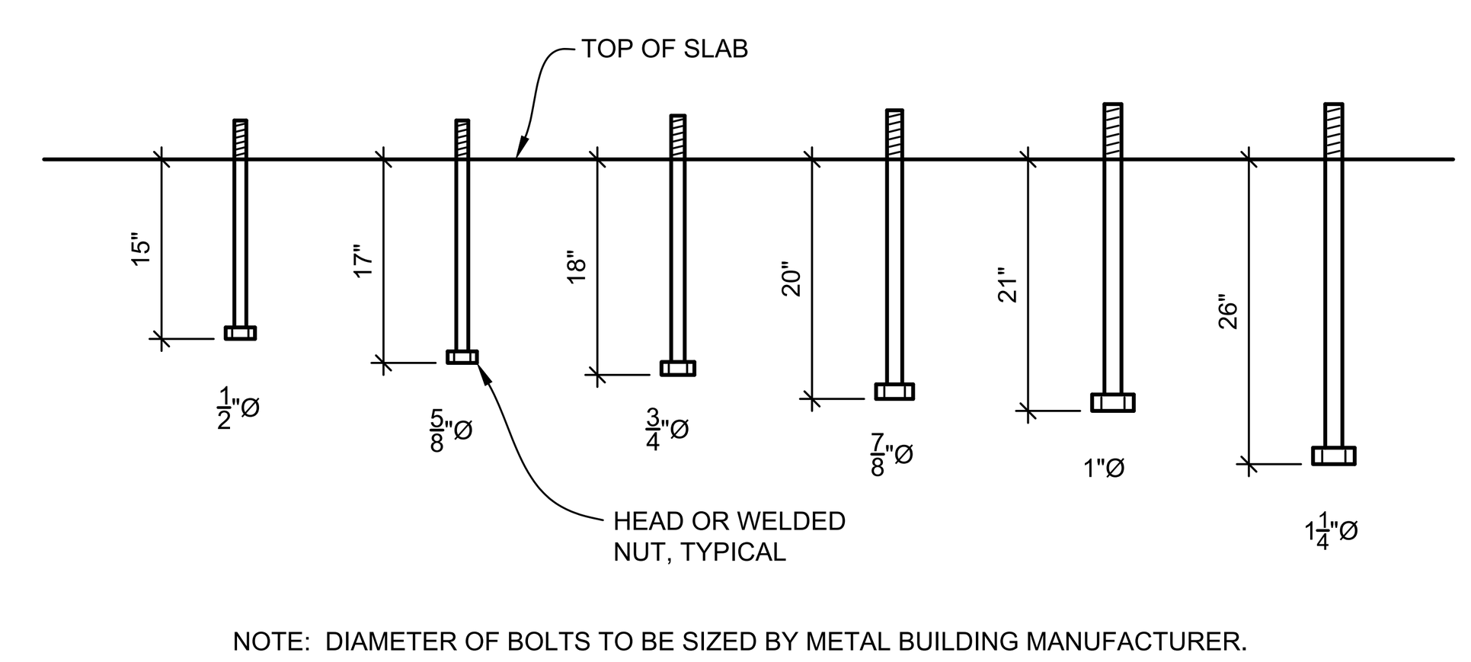
11 TYPICAL TIE ROD TO COLUMN CONNECTION
3/4"=1'-0"



12 THICKENED SLAB AT TIE RODS
3/4"=1'-0"

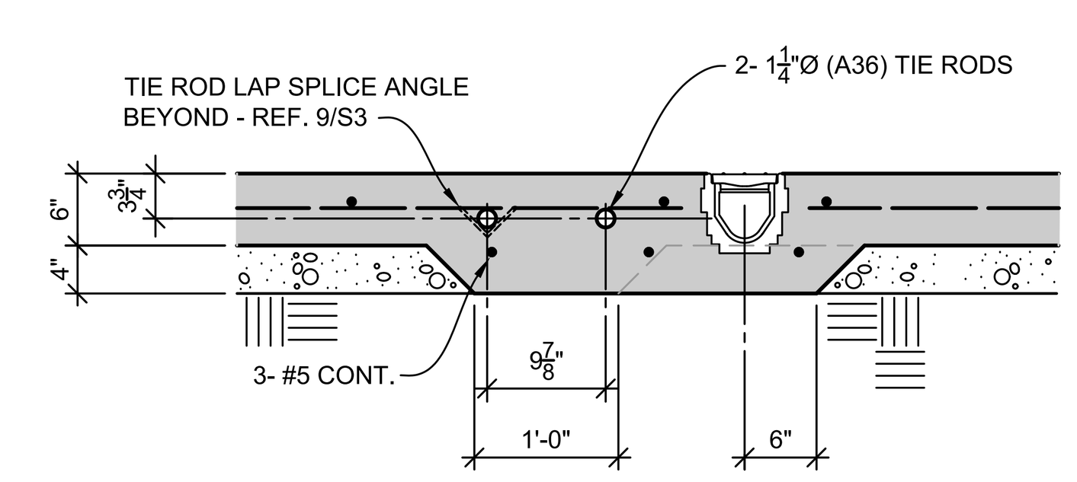


13 SLAB STEP AT OVERHEAD DOOR
3/4"=1'-0"



NOTE: DIAMETER OF BOLTS TO BE SIZED BY METAL BUILDING MANUFACTURER.

14 ANCHOR BOLT DIAGRAM (METAL BUILDING COLUMNS)
NO SCALE



15 THICKENED SLAB AT TIE RODS AND TRENCH DRAWIN
3/4"=1'-0"

SPECIAL INSPECTIONS

REQUIRED SPECIAL INSPECTIONS AND TESTS FOR SOILS		
TYPE	CONTINUOUS	PERIODIC
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	---	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	---	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	---	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	---
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	---	X

REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION		
TYPE	CONTINUOUS	PERIODIC
1. INSPECT REINFORCEMENT AND VERIFY PLACEMENT.	---	X
2. INSPECT ANCHORS CAST IN CONCRETE.	---	X
3. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	---
B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 3A.	---	X
4. VERIFY USE OF REQUIRED DESIGN MIX.	---	X
5. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	---
6. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	---
7. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	---	X
8. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	---	X

REQUIRED SPECIAL INSPECTIONS OF FABRICATED STEEL		
TYPE	CONTINUOUS	PERIODIC
1. AT THE COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING CODE OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.	X	---

REQUIRED SPECIAL INSPECTIONS OF WOOD CONSTRUCTION		
TYPE	CONTINUOUS	PERIODIC
1. INSPECTION OF WOOD FRAMING FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS.	X	---

IN ACCORDANCE WITH CHAPTER 17 OF THE REFERENCE BUILDING CODE, THE OWNER SHALL EMPLOY INSPECTION AGENCIES TO PERFORM SPECIAL INSPECTIONS DURING CONSTRUCTION INCLUDING INSPECTIONS OF SHOP-FABRICATED ITEMS WHEN APPLICABLE. ALL INSPECTION AGENCIES, INCLUDING FABRICATION FACILITIES, WHEN REQUIRED, SHALL BE QUALIFIED AND APPROVED BY THE BUILDING OFFICIAL. REFER TO OTHER DISCIPLINES FOR SPECIAL INSPECTIONS OF NON-STRUCTURAL SYSTEMS.

GENERAL STRUCTURAL NOTES

FOUNDATIONS

1. FOOTING DESIGNS ARE BASED UPON A SOIL BEARING VALUE OF 1,000 POUNDS PER SQUARE FOOT PER GEOTECHNOLOGY, LLC, PROJECT NO. J039991.01 DATED SEPTEMBER 22, 2022.
2. REINFORCING STEEL TO MEET A.S.T.M. SPECIFICATION A-615, LATEST REVISION, GR 60.
3. PROVIDE #4 REBAR AT 24" O.C. EACH WAY FOR ALL CONCRETE SLABS ON GRADE UNLESS OTHERWISE NOTED. PLACE REBAR IN UPPER 1/3 OF CONCRETE SLAB.
4. ALL WALLS SHALL HAVE ADEQUATE TEMPORARY BRACING BEFORE BACKFILL IS PLACED AGAINST WALLS. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL WALL IS PERMANENTLY BRACED.
5. C.J. INDICATES 1¼" DEEP SAW CUT CONTROL JOINT OR CONSTRUCTION JOINT.
6. PROVIDE CORNER BARS FOR ALL CONTINUOUS HORIZONTAL REINFORCING.

CONCRETE

1. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 LBS./SQ. INCH AT END OF 28 DAYS. ALL EXTERIOR FLATWORK TO BE 3500 LBS./SQ. INCH AND HAVE AN AIR-ENTRAINING ADMIXTURE.

WOOD

1. SAWN LUMBER FRAMING MEMBERS ARE TO BE DOUGLAS FIR-LARCH; #2 OR BETTER FOR BEAMS, JOISTS, RAFTERS AND WALL STUDS.
2. LVL (LAMINATED VENEER LUMBER) IS TO BE MICROLAM OR PARALLAM, AS MANUFACTURED BY TRUSJOIST WEYERHAEUSER, OR APPROVED EQUAL. FOR ALL MANUFACTURED WOOD PRODUCTS, INSTALLATION IS TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS - INCLUDING, BUT NOT LIMITED TO, BRIDGING, BLOCKING AND FASTENING OF MULTIPLE MEMBER UNITS. MULTIPLE LVL MEMBERS MAY BE INSTALLED AS SINGLE, FULL WIDTH MEMBERS WHERE AVAILABLE, AND WHERE DETAILING PERMITS.
3. TYPICAL WALL STUDS TO BE AS FOLLOWS, EXCEPT WHERE NOTED OTHERWISE:
   2x4/2x6 AT 16" O.C. - REF. ARCHITECTURAL FOR LOCATION.
4. PROVIDE MULTIPLE STUDS AT BEARING POINTS FOR MULTIPLE MEMBER JOISTS OR BEAMS, I.E. TRIPLE STUD AT TRIPLE MEMBER BEAM, UNLESS OTHERWISE NOTED. MULTIPLE STUDS TO CARRY DOWN TO FOUNDATION. PROVIDE OTHER ADDITIONAL STUDS WHERE NOTED ON DETAILS OR PLANS.
5. MINIMUM NAILING SHALL COMPLY WITH TABLE 2304.10.1 OF THE INTERNATIONAL BLDG. CODE. ALL NAILS SHALL BE COMMON WIRE NAILS. PRE-DRILL HOLES AS REQUIRED TO PREVENT SPLITTING.
6. ALL BOLTS SHALL BE GALVANIZED. BOLT HOLES SHALL BE 1/16" LARGE DIAMETER THAN NOMINAL SIZE OF BOLT USED. RE-TIGHTEN ALL NUTS PRIOR TO CLOSING IN.
7. STANDARD GALVANIZED CUT WASHERS SHALL BE USED UNDER BOLT HEADS AND NUTS AGAINST WOOD.
8. DO NOT BORE OR NOTCH JOISTS, RAFTERS OR BEAMS, EXCEPT WHERE SHOWN IN DETAILS. OBTAIN ARCHITECT'S APPROVAL FOR ANY HOLES OR NOTCHES NOT DETAILED. HOLES THROUGH SILLS, PLATES. STUDS AND DOUBLE PLATES IN INTERIOR, BEARING AND SHEAR WALLS SHALL NOT EXCEED 1/3 THE PLATE, OR STUD WIDTH. USE BORED HOLES LOCATED IN THE CENTER OF THE STUD OR PLATE.
9. PROVIDE STEEL CONNECTORS (SIMPSON OR APPROVED EQUIVALENT) AS REQUIRED, BASED ON MEMBER SIZES AND DESIGN LOADS SHOWN.
10. ALL WOOD IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED.
11. WOOD TRUSSES SHALL BE HANDLED, INSTALLED AND BRACED PER TRUSS PLATE INSTITUTE DOCUMENT HIB-91 RECOMMENDATIONS.

MISCELLANEOUS

1. PROVIDE CONTROL JOINTS @ 30'-0" O.C. (MAX.) IN INTERIOR GYPSUM BOARD WALLS.

METAL BUILDING DESIGN CRITERIA

1. FOOTING DESIGNS ARE BASED ON ESTIMATED COLUMN LOADS. COLUMN BASES SHALL BE ASSUMED TO BE PINNED UNLESS APPROVED BY THE ENGINEER. FOOTINGS WILL BE REVIEWED AND REVISED IF NECESSARY UPON RECEIPT OF FINAL COLUMN REACTIONS.
2. PRE-ENGINEERED STEEL BUILDING DESIGN AND MATERIAL PROVIDED SHALL INCLUDE ALL BEAMS, COLUMNS, AND OTHER FRAMING MEMBERS REQUIRED TO ASSURE A COMPLETE JOB.
3. PROVIDE SUPPORT AND SUPPLEMENTARY FRAMING AS REQUIRED FOR ALL STRUCTURE MOUNTED EQUIPMENT.
4. DRIFT AND DEFLECTION TO BE WITHIN IBC STANDARDS FOR THE STRUCTURE.
5. DESIGN CRITERIA:

CODE
2018 INTERNATIONAL BUILDING CODE

ROOF
LIVE LOAD 20 PSF
COLLATERAL LOAD 6 PSF
GROUND SNOW LOAD 20 PSF

WIND LOAD
110 MPH, EXPOSURE C

SEISMIC
Ss = 0.099
S1 = 0.068
SITE CLASS = D
S.D.C. = B

FOOTING SCHEDULE					
MARK	F1	F2	F3	F4	
FOOTING	10'-6"x10'-6"x3'-0" DP. w/ 13- #5 x 10'-0" EA. WAY, BOTT.	9'-0"x9'-0"x3'-0" DP. w/ 12- #5 x 8'-6" EA. WAY, BOTT.	7'-6"x7'-6"x3'-0" DP. w/ 10- #5 x 7'-0" EA. WAY, BOTT.	3'-0"x3'-0"x3'-0" DP. w/ 4- #5 x 2'-6" EA. WAY, BOTT.	

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
LEE'S SUMMIT, MO

INSIGHT DESIGN IDeA ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph:417-724-8553
NATHAN RAPP, ARCHITECT #A-2008008201

SNOWDEN ENGINEERING
STRUCTURAL CONSULTANTS
MISSOURI C.A. #2008029278
8128 EAST 63RD
TULSA, OKLAHOMA 74133
PHONE: (918)252-4557
FAX: (918)254-0838

STATE OF MISSOURI
KEVIN W. SNOWDEN
NUMBER PE-2007023880
PROFESSIONAL ENGINEER
4-14-25

REISSUE DATE

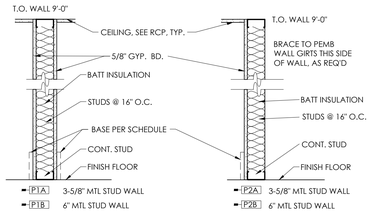
PROFESSIONAL OF RECORD

DATE:

ARCHITECT: RAPP
PROJECT NO.: 241098
DATE: 04.14.2025
DRAWING TITLE: NOTES AND DETAILS
SHEET NO.: S2.1

INTERIOR NON-LOAD BEARING STUD SCHEDULE: FULLY SHEATHED OR BRIDGED @ 48" O.C. ONE SIDES GENERAL STUD SELECTION GUIDELINES UNLESS OTHERWISE NOTED. CONFIRM SIZES WITH MFR. STUDS					
HEIGHT:	3-5/8" STUDS @ 16" O.C.	GAUGE:	HEIGHT:	6" STUDS	GAUGE:
12'-10"	362S162-33	20	14'-9"	600S162-33	20
14'-0"	362S162-43	18	15'-11"	600S162-43	18
15'-4"	362S162-54	16	17'-3"	600S162-54	16
17'-0"	362S162-68	14	18'-11"	600S162-68	14
20'-4"	362S162-97	12	22'-3"	600S162-97	12

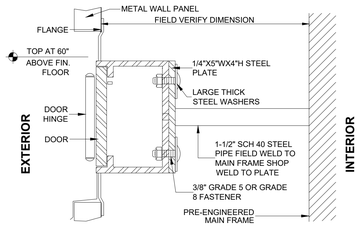
INTERIOR NON-LOAD BEARING STUD SCHEDULE: FULLY SHEATHED OR BRIDGED @ 48" O.C. BOTH SIDES GENERAL STUD SELECTION GUIDELINES UNLESS OTHERWISE NOTED. CONFIRM SIZES WITH MFR. STUDS					
HEIGHT:	3-5/8" STUDS @ 16" O.C.	GAUGE:	HEIGHT:	6" STUDS	GAUGE:
17'-6"	362S162-33	20	26'-0"	600S162-33	20
19'-1"	362S162-43	18	28'-4"	600S162-43	18
20'-5"	362S162-54	16	30'-4"	600S162-54	16
21'-10"	362S162-68	14	32'-7"	600S162-68	14
24'-1"	362S162-97	12	36'-1"	600S162-97	12



GENERAL PARTITION NOTES:

1. ALL JANITORS CLOSETS, TOILET ROOMS, OR OTHER WET AREAS SHALL HAVE WATER RESISTANT GREEN GYPSUM BOARD ON ALL INTERIOR FACES OF PLUMBING WALLS.
2. BATT INSULATION SHALL BE INSTALLED AT PARTITION TYPES DENOTED ON THE FLOOR PLAN WITH A (') SYMBOL.
3. ALL EXTERIOR WALL BATT INSULATION SHALL BE AS THICK AS STUD WALL THICKNESS TO MAXIMIZE R VALUE. THIS NOTE SUPERSEDES ALL OTHER DRAWING NOTES FOR THE INDICATION OF BATT INSULATION
4. PROVIDE ½" PLYWOOD BACKING BETWEEN STUD FACE AND GYP BOARD IN MEN'S AND WOMEN'S RESTROOMS FOR PARTITIONS, ACCESSORIES, AND TRIM ATTACHMENTS. PROVIDE TYPICAL WALL BLOCKING FOR ALL RESTROOMS AS REQUIRED.
5. PROVIDE FRP AT ALL MOP SINKS.

6 PARTITION TYPES
N.T.S.



3 KNOX 3200 SERIES KEY BOX
N.T.S.

4 NOT USED
3/4" = 1'-0"

5 NOT USED
1/2" = 1'-0"

GENERAL PLAN NOTES

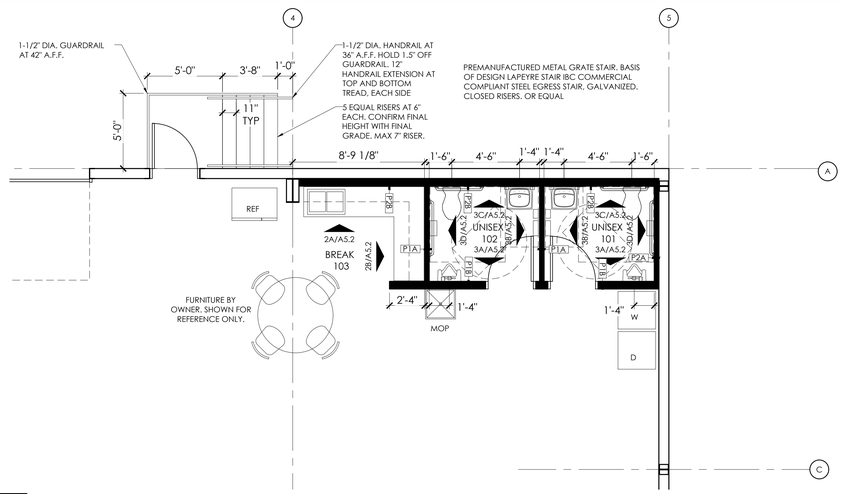
1. ALL DIMENSIONS TO FACE OF STUD, CENTER OF DOOR OR CENTER OF WINDOW, UNO.
2. ALL EXTERIOR WALLS PREENGINEERED METAL BUILDING WALLS. OFFICE AREA WALLS AT EXTERIOR HAVE 3-5/8" METAL STUD FURRING ON THE INSIDE OF THE WALL, UNLESS NOTED OTHERWISE. REFER TO SECTIONS/NOTES
3. ALL INTERIOR WALLS ARE SHOWN AS 6" AND 3-5/8" MTL STUD FRAMING, PER PARTITION TYPE INDICATED.
4. INTERIOR PLUMBING WALLS SHOWN AS 6" MTL STUD FRAMING.
5. ALL FURNITURE SHOWN WILL BE PROVIDED BY OWNER. SHOWN FOR REFERENCE ONLY.
6. CONTRACTOR SHALL PROVIDE ANY CODE REQUIRED ROOM SIGNAGE OR TACTILE SIGNAGE FOR PUBLIC BUILDINGS.

FIRE LEGEND

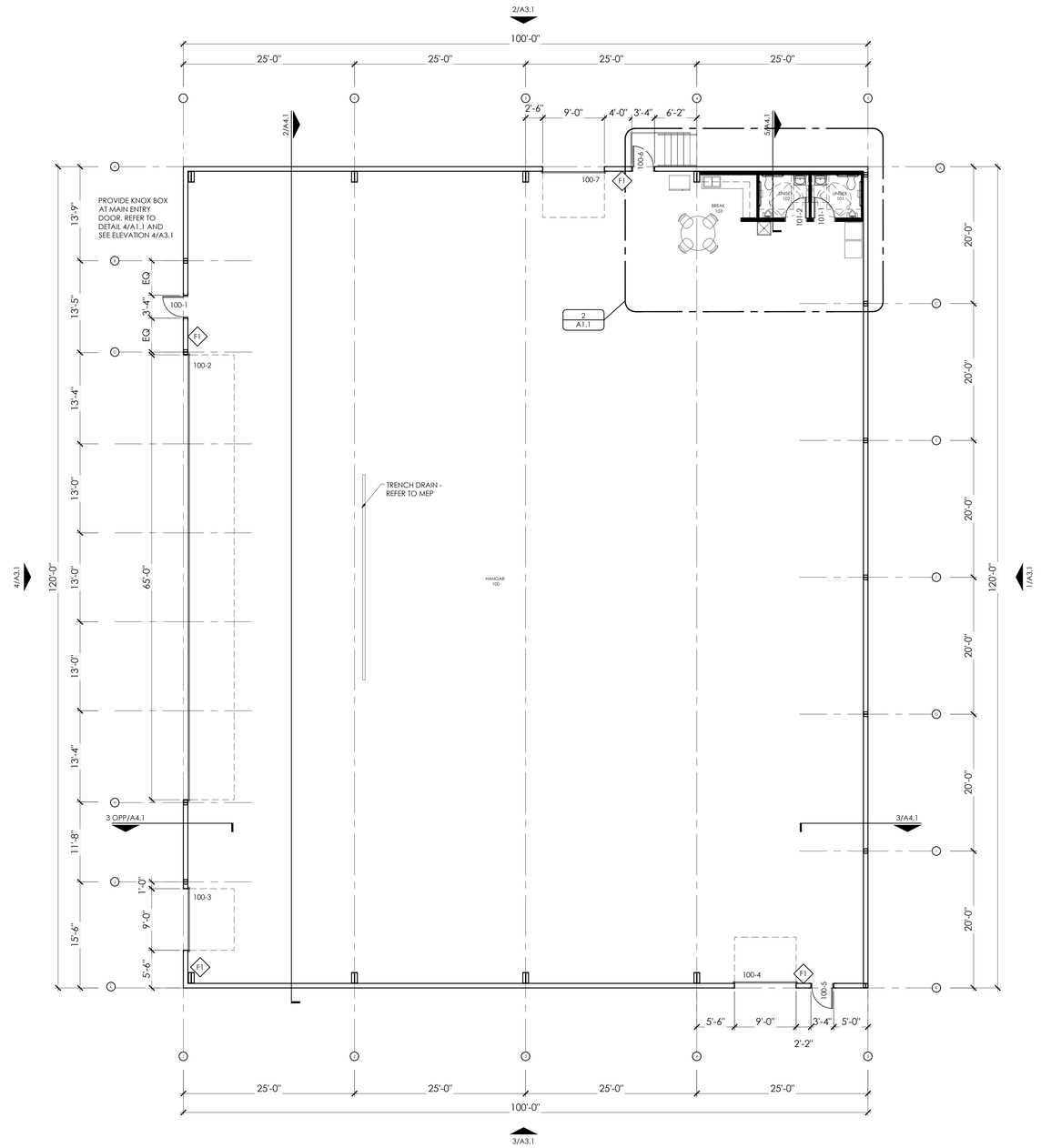
F1 WALL HUNG FIRE EXTINGUISHER MOUNTED WITH HANDLE 48" AFF.

F2 FIRE EXTINGUISHER IN SEMI RECESSED WALL CABINET.

ALL FIRE EXTINGUISHERS SHALL BE MOUNTED AT 48" MAX FROM FINISH FLOOR. PROVIDE CLEAR SPACE OF 30" WIDE AND 48" DEEP IN FRONT OF UNIT.



2 ENLARGED PLAN AT RESTROOM/BREAK AREA
1/4" = 1'-0"



1 FIRST FLOOR PLAN
1/8" = 1'-0"

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

INSIGHT DESIGN iDeA ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph:417-724-8823
NATHAN RAPP - ARCHITECT #A-2008000261

REISSUE DATE

PROFESSIONAL OF RECORD

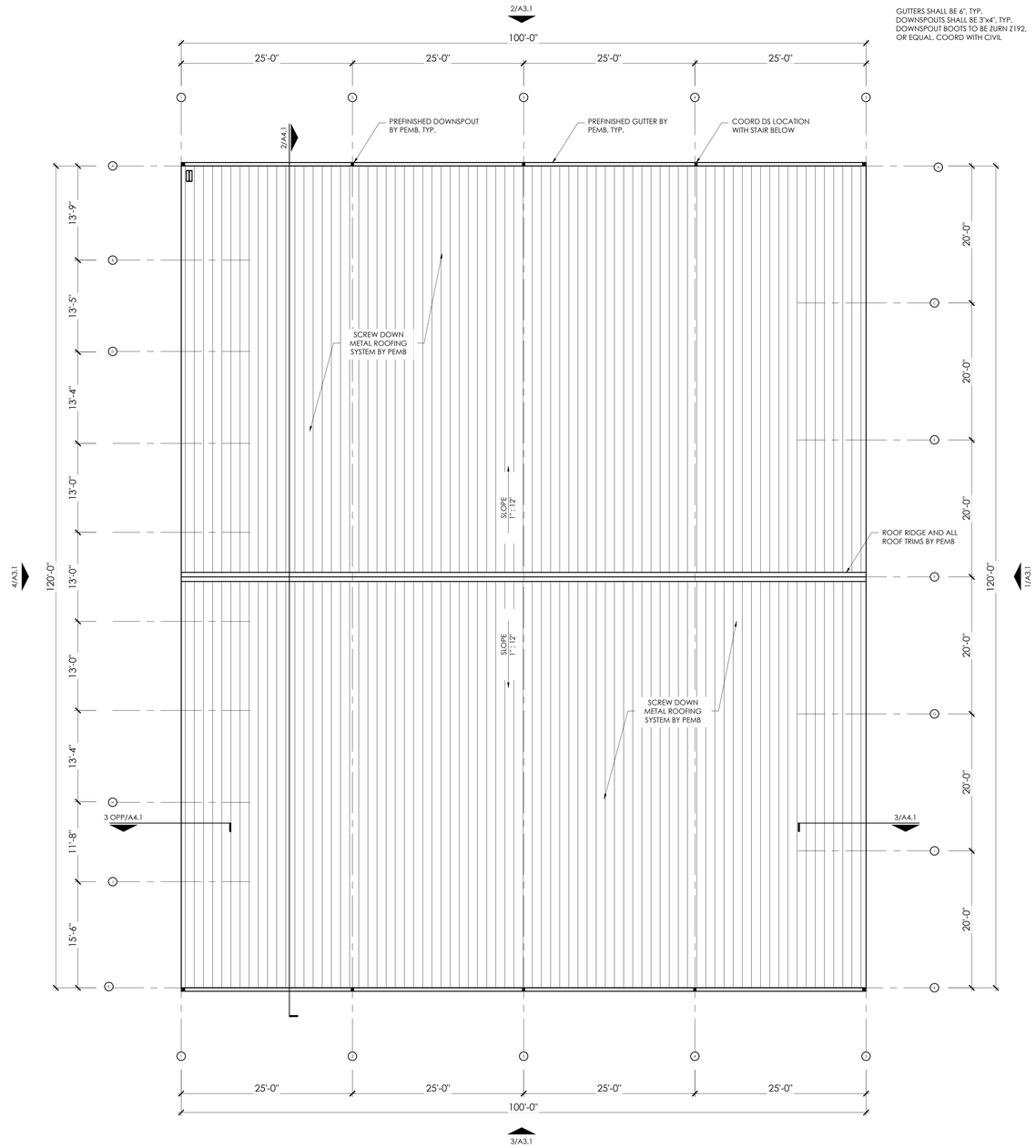
STATE OF MISSOURI NATHAN P. RAPP NUMBER A-2008000261 ARCHITECT

DATE: 04.14.2025

ARCHITECT	RAPP
PROJECT NO.	24-034
DATE	04.14.2025
DRAWING TITLE	FIRST FLOOR PLAN
SHEET NO.	A1.1

GENERAL ROOF PLAN NOTES

1. ROOF DECK SHALL BE COVERED WITH APPROVED ROOF COVERINGS SECURED TO THE BUILDING OR STRUCTURE IN ACCORDANCE WITH THE PROVISIONS OF IBC. ROOF COVERINGS SHALL BE DESIGNED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERINGS SHALL SERVE TO PROTECT THE BUILDING OR STRUCTURE.
2. FLASHING SHALL BE INSTALLED IN SUCH A MANNER SO AS TO PREVENT MOISTURE ENTERING THE WALL AND ROOF THROUGH JOINTS IN COPINGS, THROUGH MOISTURE-PERMEABLE MATERIALS AND AT INTERSECTIONS WITH PARAPET WALLS AND OTHER PENETRATIONS THROUGH THE ROOF PLANE.
3. FLASHING SHALL BE INSTALLED AT WALL AND ROOF INTERSECTIONS, AT GUTTERS, WHEREVER THERE IS A CHANGE IN ROOF SLOPE OR DIRECTION AND AROUND ROOF OPENINGS WHERE FLASHING IS OF METAL. THE METAL SHALL BE CORROSION RESISTANT WITH A THICKNESS OF NOT LESS THAN 0.015 INCH (NO. .26 GALVANIZED SHEET)



1 ROOF PLAN

1/8" = 1'-0"

NEW BUILDING FOR:

LS MANAGEMENT SERVICES, LLC

STREET ADDRESS TBD
LEE'S SUMMIT, MO

INSIGHT DESIGN iDeA ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph:417-724-5823
NATHAN RAPP - ARCHITECT #A-2008008261

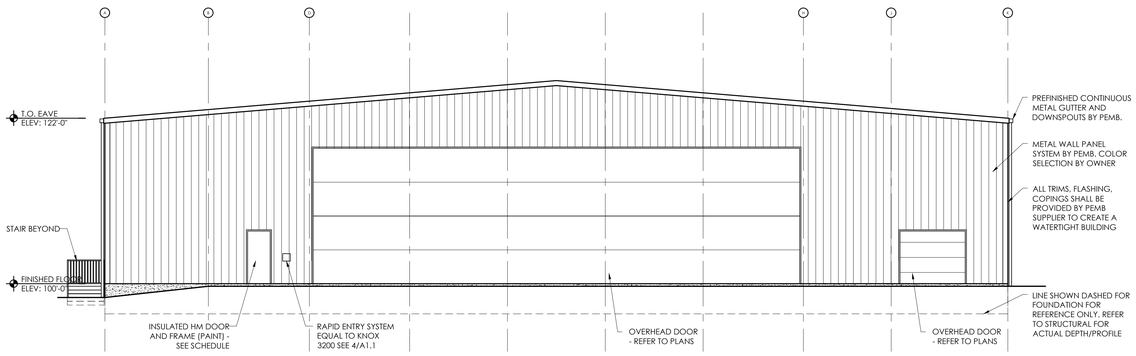
REISSUE DATE

PROFESSIONAL OF RECORD

STATE OF MISSOURI
NATHAN P. RAPP
NUMBER A-2008008261
ARCHITECT

DATE: 04.14.2025

ARCHITECT	RAPP
PROJECT NO.	24-034
DATE	04.14.2025
DRAWING TITLE	ROOF PLAN
SHEET NO.	A2.1



4 FRONT ELEVATION

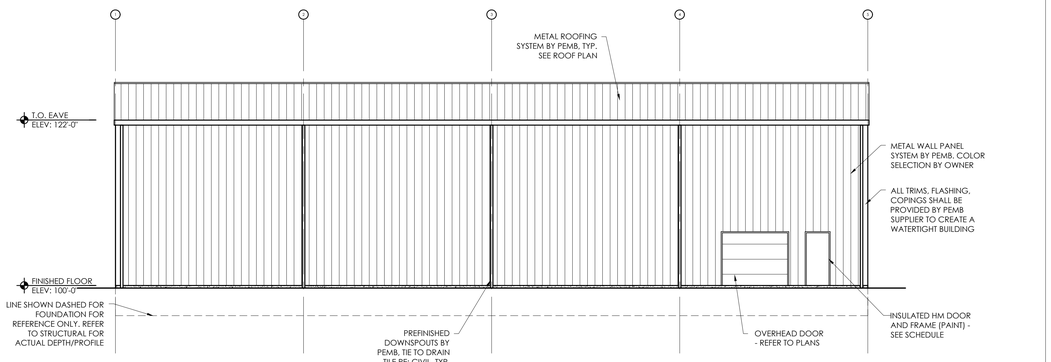
1/4" = 1'-0"

NOTE:
ALL ROOF AND WALL TRIM AND FLASHING SHALL BE PROVIDED BY THE PRE-ENGINEERED METAL BUILDING SUPPLIER.

BATT INSULATION "R" VALUES:
- ROOF INSULATION IS R-35 8" SIMPLE SAVER INSULATION
- WALL INSULATION IS R-13 4" BLANKET INSULATION

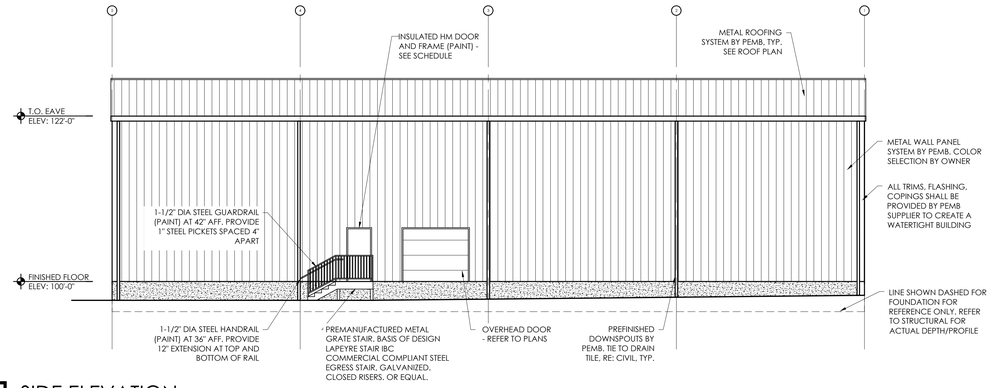
EXPOSED ROOF AND WALL INSULATION FLAME SPREAD AND SMOKE DEVELOPMENT INDEXES:
- FLAME SPREAD FOR FILM SIDE IS 10 AND KRAFT SIDE IS 15
- SMOKE DEVELOPMENT FOR FILM SIDE IS 1- KRAFT SIDE IS 5. PHYSICAL PROPERTIES BASED UPON STATISTICAL AVERAGES. WEIGHT/THICKNESS +/-10%

EXTERIOR FINISHES:
- ROOF PANEL: LIGHTSTONE
- WALL PANEL: LIGHTSTONE
- RAKE TRIM: ROYAL BLUE
- GUTTER: ROYAL BLUE
- EAVE TRIM: ROYAL BLUE
- DOWNSPOUTS: ROYAL BLUE
- CORNER TRIM: ROYAL BLUE
- BASE TRIM: ROYAL BLUE
- ACCESSORY TRIM: ROYAL BLUE
- WALK DOOR: WHITE
- BIFOLD DOOR PANELS: LIGHTSTONE
- BIFOLD DOOR TRIM: ROYAL BLUE



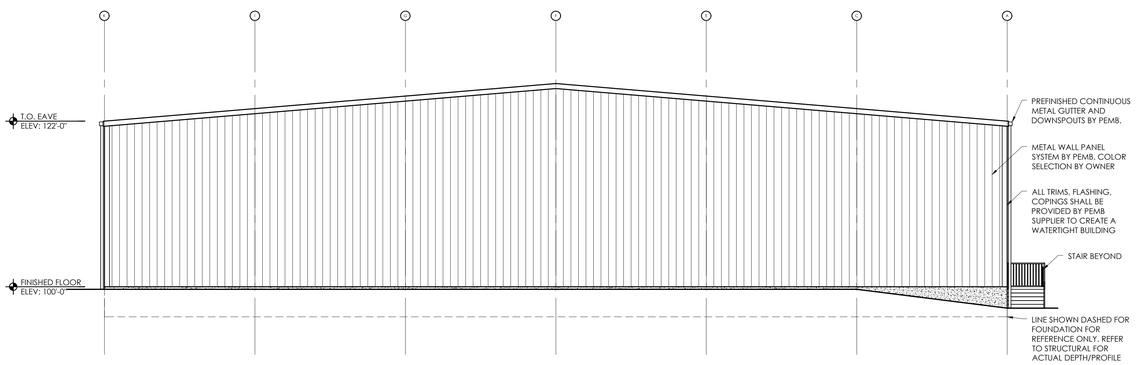
3 SIDE ELEVATION

1/4" = 1'-0"



2 SIDE ELEVATION

1/4" = 1'-0"



1 REAR ELEVATION

1/4" = 1'-0"

NEW BUILDING FOR:
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STREET ADDRESS TBD
LEE'S SUMMIT, MO

INSIGHT DESIGN iDeA ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph:417-724-8823
NATHAN RAPP - ARCHITECT #A-2008008261

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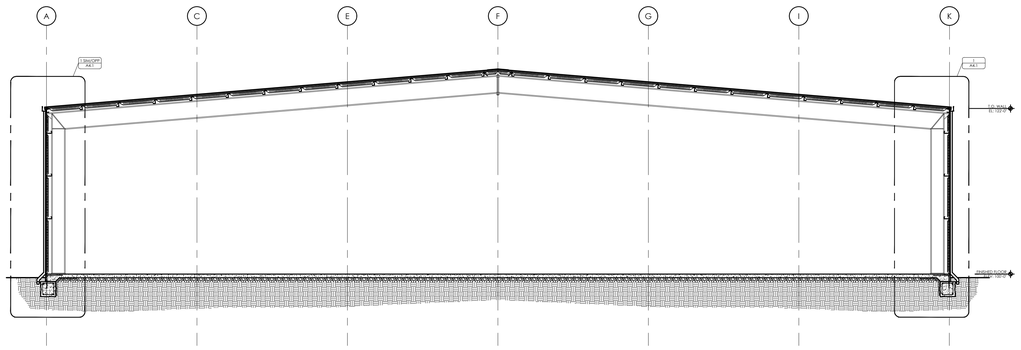
STATE OF MISSOURI
NATHAN P. RAPP
NUMBER A-2008008261
ARCHITECT

DATE: 04.14.2025

ARCHITECT: RAPP
PROJECT NO.: 24-034
DATE: 04.14.2025
DRAWING TITLE: ELEVATIONS
SHEET NO.: A3.1

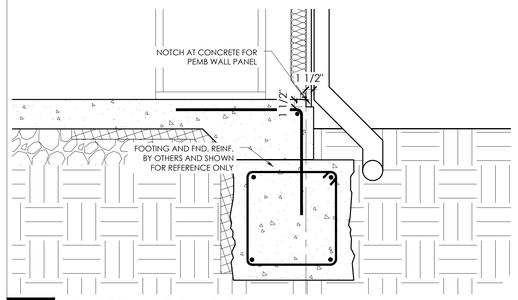


NOTE:
ALL ROOF AND WALL TRIM AND FLASHING SHALL BE PROVIDED BY THE PRE-ENGINEERED METAL BUILDING SUPPLIER.

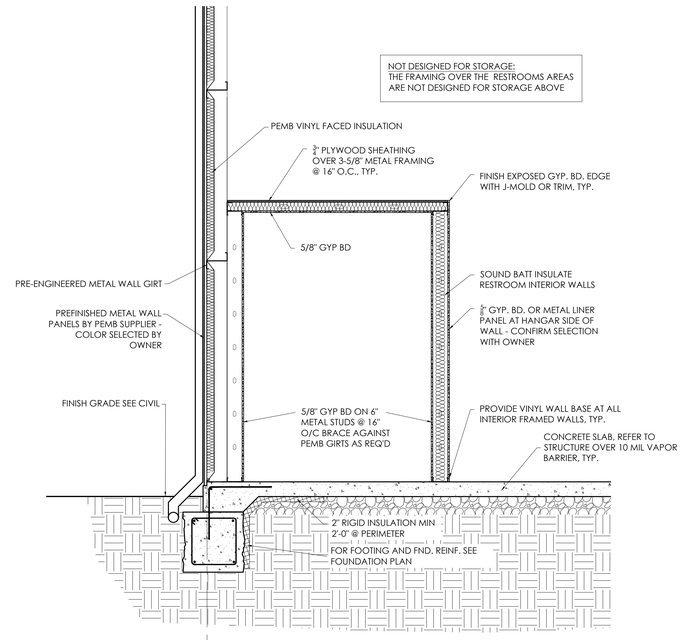
BATT INSULATION "R" VALUES:
- ROOF INSULATION IS R-35 8" SIMPLE SAVER INSULATION
- WALL INSULATION IS R-13 4" BLANKET INSULATION

EXPOSED ROOF AND WALL INSULATION FLAME SPREAD AND SMOKE DEVELOPMENT INDEXES:
- FLAME SPREAD FOR FILM SIDE IS 10 AND KRAFT SIDE IS 15
- SMOKE DEVELOPMENT FOR FILM SIDE IS 1- KRAFT SIDE IS 5, PHYSICAL PROPERTIES BASED UPON STATISTICAL AVERAGES, WEIGHT/THICKNESS +/-10%

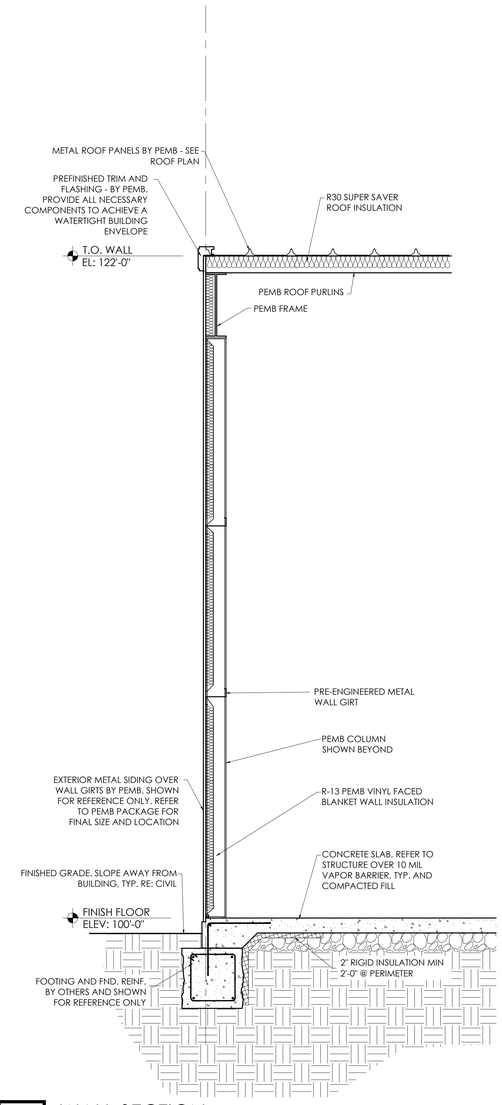
2 BUILDING SECTION
1/8" = 1'-0"



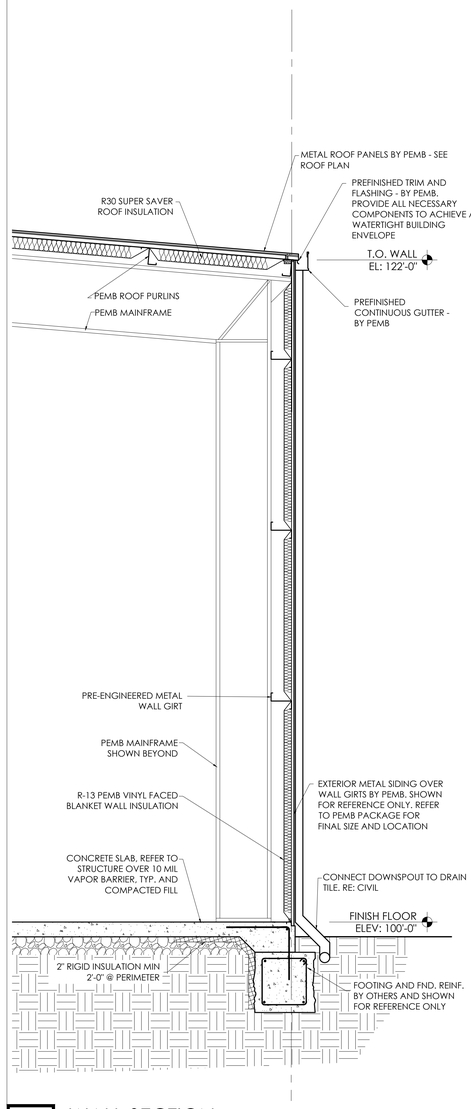
4 SHEET NOTCH DETAIL
1-1/2"=1'-0"



5 WALL SECTION
1/2"=1'-0"



3 WALL SECTION
1/2"=1'-0"



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

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

INSIGHT DESIGN iDeA ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph:417-724-5823
NATHAN RAPP - ARCHITECT #A-2008000261

REISSUE DATE

PROFESSIONAL OF RECORD

STATE OF MISSOURI
NATHAN P. RAPP
NUMBER A-2008000261
ARCHITECT

DATE: 04.14.2025

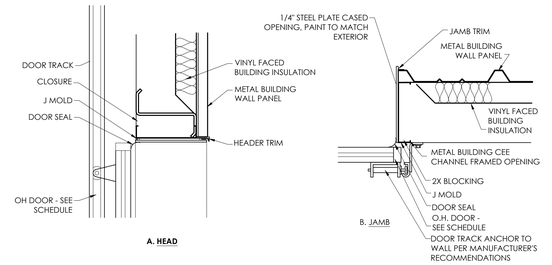
ARCHITECT	RAPP
PROJECT NO.	24-034
DATE	04.14.2025
DRAWING TITLE	SECTIONS
SHEET NO.	A4.1

DOOR AND FRAME SCHEDULE										
NO.	DOOR						FRAME			HARDWARE
	SIZE			ELEV	MATL	FINISH	ELEV	MATL	FINISH	
	WD	HGT	THK							
100-1	3'-0"	7'-0"	1 3/4"	D2	HM	PAINT	F1	HM	PAINT	EXIT LOCK, CLOSER, THRESHOLD, WEATHERSTRIP
100-2	65'-0"	18'-0"		D4						
100-3	9'-0"	7'-0"		D3						
100-4	9'-0"	7'-0"		D3						
100-5	3'-0"	7'-0"	1 3/4"	D2	HM	PAINT	F1	HM	PAINT	EXIT LOCK, CLOSER, THRESHOLD, WEATHERSTRIP
100-6	3'-0"	7'-0"	1 3/4"	D2	HM	PAINT	F1	HM	PAINT	EXIT LOCK, CLOSER, THRESHOLD, WEATHERSTRIP
100-7	9'-0"	7'-0"		D3						
101-1	3'-0"	7'-0"	1 3/4"	D1	WD	STAIN	F1	HM	PAINT	RESTROOM LOCK, CLOSER
102-1	3'-0"	7'-0"	1 3/4"	D1	WD	STAIN	F1	HM	PAINT	RESTROOM LOCK, CLOSER

CONTRACTOR TO REVIEW ALL HARDWARE WITH OWNER PRIOR TO ORDERING

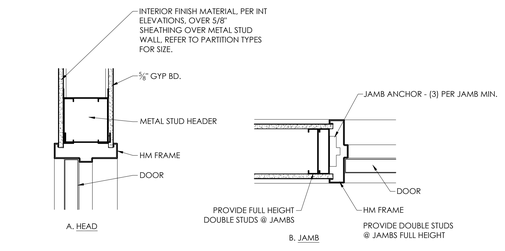
DOOR NOTES

1. LOCK SHALL BE AUTOMATIC ALL RELEASED WHEN INTERIOR LEVER OR THUMB TURN IS OPERATED.
2. ALL DOORS WITH CLOSERS SHALL PUSH AND PULL WITH 5.0 LBS OF FORCE MAX. FIRE DOORS AND EXTERIOR DOORS ARE EXEMPT. THE MAXIMUM FORCE PERTAINS TO THE CONTINUOUS APPLICATION OF FORCE NECESSARY TO FULLY OPEN A DOOR, NOT THE INITIAL FORCE NEEDED TO OVERCOME THE INERTIA OF THE DOOR. THE DOOR MUST TAKE AT LEASE 5 SECONDS TO CLOSE AFTER IT IS OPENED FROM A POINT FULLY OPEN TO A POINT 12" FROM BEING LATCHED.
3. ALL HARDWARE ON LABELED DOORS TO BE U.L. LISTED
4. ALL PUBLIC ACCESS DOORS TO HAVE ADA COMPLIANT LEVER HANDLES. LEVER DESIGN TO BE CONFIRMED BY SHOP DRAWINGS.
5. HARDWARE SUPPLIER SHALL COORDINATE ALL HARDWARE WITH DOORS AND FRAMES.
6. ALL MASTER KEYING SHALL BE DOORDINATED WITH THE OWNER.
7. THRESHOLDS SHALL BE 1/4" HIGH MAX.
8. ALL DOOR HARWARE, INCLUDING BUT NOT LIMITED TO LEVER HANDLES, SHALL BE COMPLIANT WITH THE ICCANSI A117.1 2009 AMERICAN NATIONAL STANDARD CODE AND THE AMERIANS WITH DISABILITIES ACT (ADA), WHICHEVER IS MORE STRINGENT
9. EGRESS DOOR OPERATING HARDWARE FOR ALL OCCUPIABLE SPACES MUST BE ACCESSIBLE, AND FROM THE EGRESS SIDE IT MUST OVERRIDE THE LOCK. UNLATCHING MUST BE WITH A SINGLE MOTION. COMPLY WITH IBC SECTION 1008.1.9 - NOTE 1008.1.9.5 AND A117.1 SECTION 404.2.6



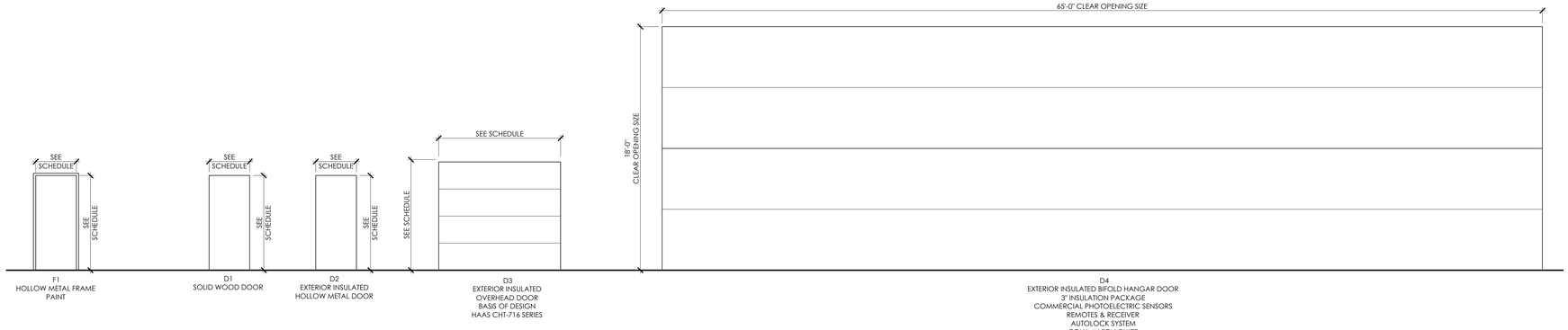
2 FRAME DETAIL @ OVERHEAD DOOR

1 1/2"=1'-0"



1 HM FRAME DETAIL @ INT WD STUD WALL

1 1/2"=1'-0"



3 DOOR AND FRAME ELEVATIONS

1/4" = 1'-0"

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

INSIGHT DESIGN iDeA ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph:417-724-5853
NATHAN RAPP - ARCHITECT #A-2008008261

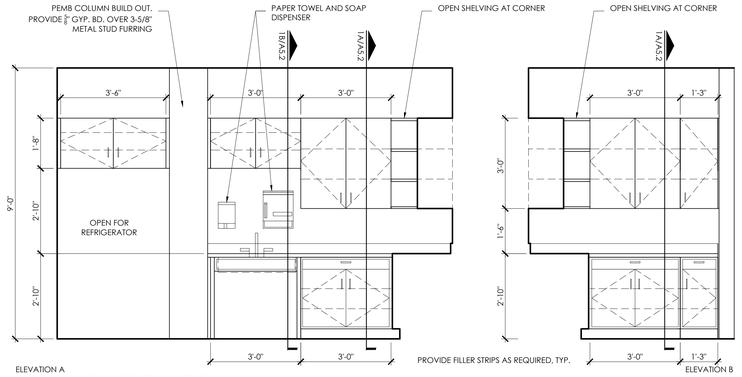
REISSUE DATE

PROFESSIONAL OF RECORD

STATE OF MISSOURI
NATHAN P. RAPP
NUMBER A-2008008261
ARCHITECT

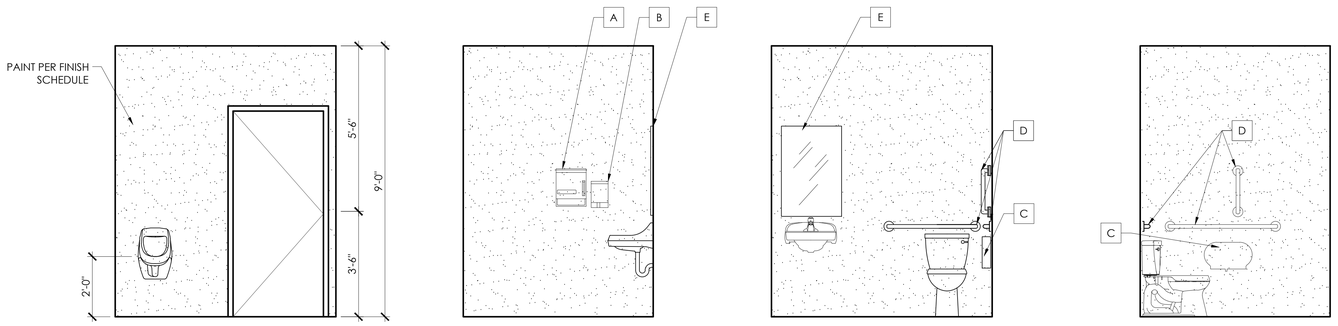
DATE: 04.14.2025

ARCHITECT	RAPP
PROJECT NO.	24-034
DATE	04.14.2025
DRAWING TITLE	DOOR, WINDOW, & RESTROOM DETAILS
SHEET NO.	A5.1



2 MILLWORK ELEVATIONS

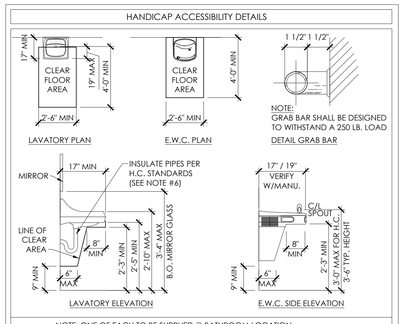
1/2"=1'-0"



3 RESTROOM ELEVATIONS

1/2"=1'-0"

HANDICAP ACCESSIBILITY DETAILS

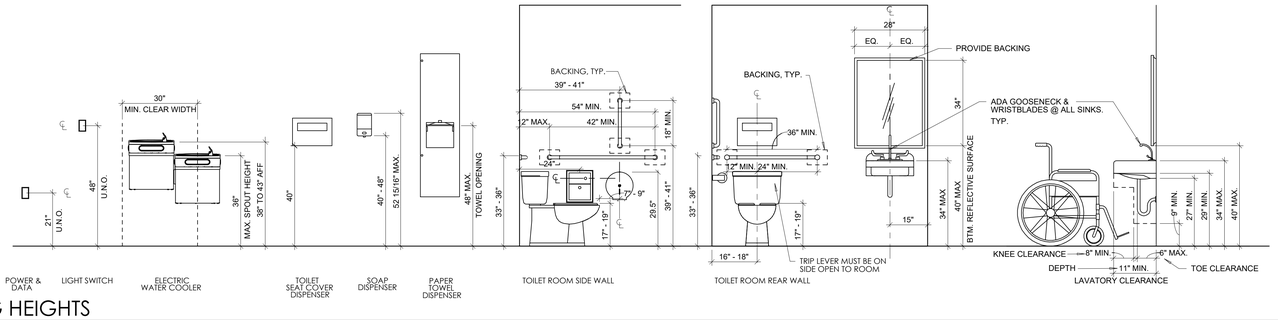


NOTE: ONE OF EACH TO BE SUPPLIED @ BATHROOM LOCATION

KEYED NOTES - TOILET ACCESSORIES

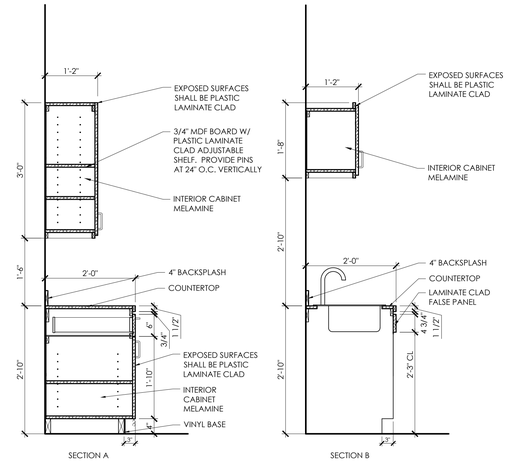
MARK	DESCRIPTION	REMARKS
A	HAND TOWEL DISPENSER BOBRICK	WALL MOUNTED
B	SOAP DISPENSER BOBRICK B-4112	TYP: MOUNT B.O. DISPENSER AT 44" AFF
		HC: MOUNT OPERABLE PARTS AT 44" AFF MAX
C	TOILET TISSUE DISPENSER BOBRICK B-2840	TYP: SEE DETAIL
		HC: SEE DETAIL
D	GRAB BAR BOBRICK B-5806	TYP: SEE DETAIL
		HC: SEE DETAIL
E	MIRROR WELDED FRAME BOBRICK B-290 1836	TYP: MOUNT B.O. REFLECTIVE SURFACE 46" AFF
		HC: MOUNT B.O. REFLECTIVE SURFACE 40" AFF
F	SANITARY NAPKIN DISPOSAL BOBRICK B-270	WALL MOUNTED

GENERAL NOTES:
1. INSTALL PIPE INSULATION AT ALL EXPOSED HOT WATER AND DRAIN PIPING IN TOILET ROOMS
2. PROVIDE BLOCKING AS REQUIRED BEHIND ALL TOILET ACCESSORIES AND TOILET PARTITIONS OCCURRING AT GYPSUM BD. WALLS
3. THE OPERATING PARTS OF ANY DISPENSING / DISPOSAL FIXTURE SHALL BE WITHIN 48" MAX. OF FINISHED FLOOR
4. EACH TOILET ROOM SHALL HAVE HANDICAP STALL NOTED AS H.C. AND SHALL MEET ALL LOCAL / STATE CODES AND COMPLY W/ FEDERAL A.D.A. REQUIREMENTS.
5. SET FLOOR DRAINS (F.D.) ½" BELOW FINISH FLOOR. SLOPE FLOOR SLAB FOR 24" RADIUS AROUND FLOOR DRAIN - TYPICAL
6. ALL EXPOSED SUPPLY AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE PROTECTED AGAINST CONTACT - PAINT INSULATION TO MATCH ADJACENT WALL



4 MOUNTING HEIGHTS

1/2" = 1'-0"



1 MILLWORK SECTION

3/4" = 1'-0"

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NATHAN RAPP - ARCHITECT #A-2008008261

REISSUE DATE

PROFESSIONAL OF RECORD

STATE OF MISSOURI NATHAN P. RAPP NUMBER A-2008008261 ARCHITECT

DATE: 04.14.2025

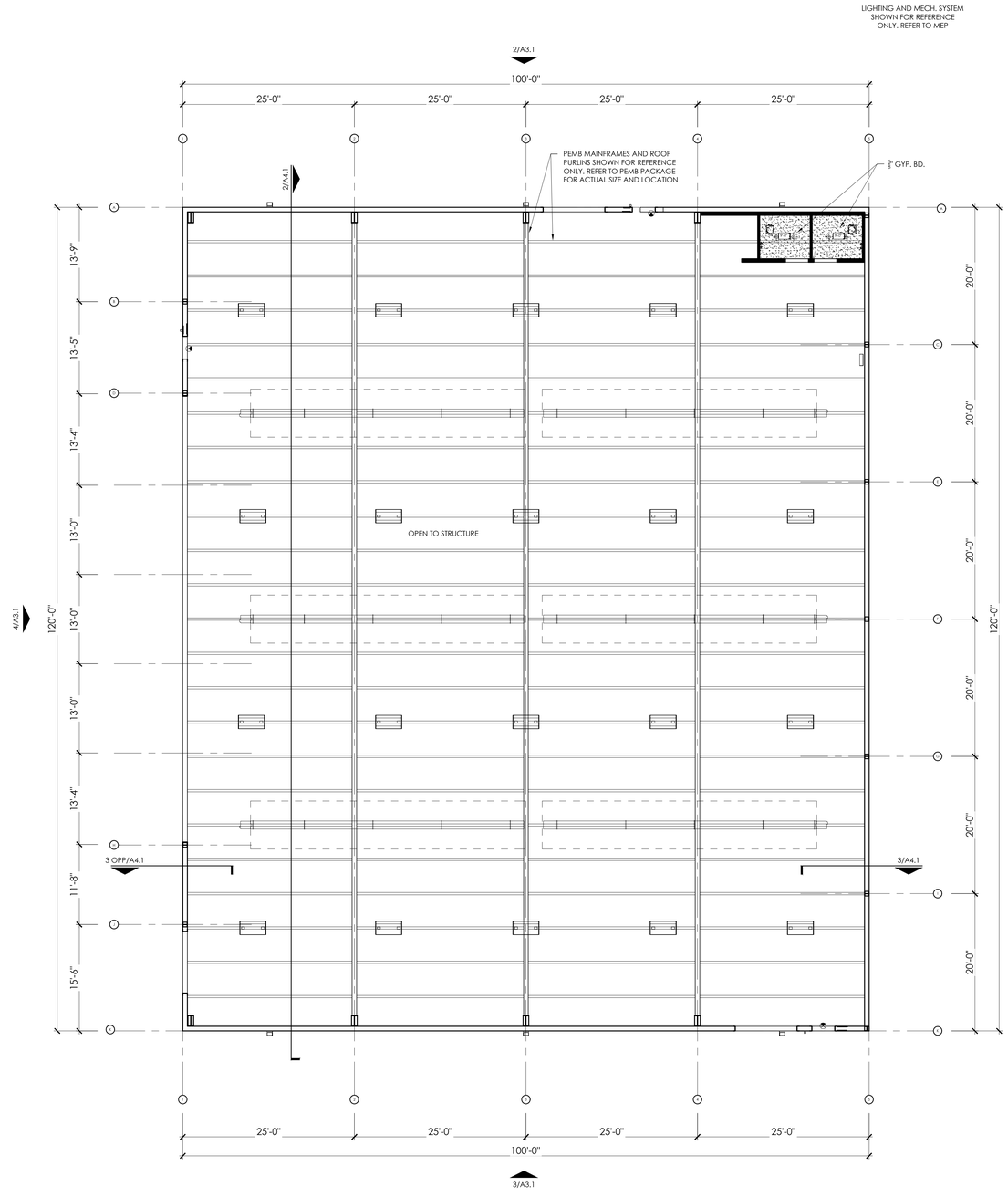
ARCHITECT: RAPP

PROJECT NO.: 24-034

DATE: 04.14.2025

DRAWING TITLE: DOOR, WINDOW, & RESTROOM DETAILS

SHEET NO.: A5.2



1 REFLECTED CEILING PLAN

1/8" = 1'-0"

NEW BUILDING FOR:

LS MANAGEMENT SERVICES, LLC

STREET ADDRESS TBD

LEE'S SUMMIT, MO

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NATHAN RAPP - ARCHITECT #A-2008008261

REISSUE DATE

PROFESSIONAL OF RECORD

STATE OF MISSOURI NATHAN P. RAPP NUMBER A-2008008261 ARCHITECT

DATE: 04.14.2025

ARCHITECT	RAPP
PROJECT NO.	24-034
DATE	04.14.2025
DRAWING TITLE	REFLECTED CEILING PLAN
SHEET NO.	A6.1

HVAC REQUIREMENTS

1. Provide all equipment as shown or noted on the plans. Provide all accessories, controls, or other items as necessary for complete and operating systems. All equipment shall be labeled, bearing designation as shown on the drawings. Labels shall be engraved, white on black laminated plastic plates.
2. All temporary valves, dampers, disconnects, etc. not indicated, but required by phasing, shall be included in the base bid.
3. Provide canvas connections for all duct systems at fan or unit connections.
4. Set floor-mounted air equipment with rotating parts on 3" x 3" x 2" neoprene isolator pads.
5. All ductwork sizes shown on the drawings represent free area. Adjust sheetmetal sizes accordingly to accommodate insulation.
6. Round low pressure air conditioning supply ducts, shall receive an exterior wrap of Certain-Teed SoftTouch, type 150, FSK faced, 1.5 pcf, 1½" thick, R= 6.2, with an installed R-value of 4.8 at 25% compression.
7. Outdoor ductwork shall receive an exterior wrap of 2" thick ArmaTuff White laminated Armaflex sheet and roll insulation. All seams shall be installed in compression and sealed per the manufacturer's instructions.
8. Provide all sheet metal work as specified and indicated on the drawings. All duct construction, gauges, methods of construction, and methods for hanging and supporting shall conform to SMACNA "HVAC Duct Construction Standards" and all applicable codes.
9. Low pressure ducts shall conform to SMACNA Tables 1-5 (2" w.g.) and Tables 1-10 through 1-13. Additional reinforcing shall be installed where necessary to eliminate excessive movement and vibration. All rectangular branch takeoffs in supply ductwork shall be the 45° entry design with a manual damper. Low pressure round ducts 10" and smaller in diameter shall be constructed per SMACNA Table 3-2, 2" w.g. Low pressure round ducts 12" and larger in diameter, and all exposed round ducts, shall be of spiral construction.
10. Flexible ductwork is acceptable where indicated in low pressure ductwork and shall be Flexmaster Type 8M, or approved equal, UL_181 Class I air duct, insulated, flexible duct with manufacturer's minimum working pressure rating of 6" W.G. The use of flexible duct run shall be limited to 6' on any single duct run. INSTALL FLEXIBLE DUCT AS STRAIGHT AS POSSIBLE WITHOUT SAGGING. MAKE BENDS WITH MAXIMUM RADIUS POSSIBLE.
11. Fire dampers, combination fire/smoke dampers, and smoke dampers shall be provided as required per code and where shown on the drawings. Dampers shall be in full compliance with local codes. Provide access doors for access to dampers
12. Provide flues where shown on the drawings. Flue construction shall conform to SMACNA Standards and applicable codes.
13. Drain lines shall be graded at 1/8" per foot. All drains shall be provided with a trap of proper depth in accordance with prevailing system static pressures.
14. All piping shall be concealed in walls, below floors, or above ceilings unless indicated otherwise or shown running through areas with exposed structure. Pipe shall be installed parallel or perpendicular to building surfaces.
15. Provide chrome plated escutcheons on exposed pipes where they pass through walls, ceilings, and base cabinet penetrations.
16. Refrigeration piping:
    - A. Shall be Type L ACR hard copper with silfos joints, or continuous flexible line sets. All elbow fittings, except suction line oil traps, shall be long radius type. Suction line oil traps shall be comprised of short radius elbows to minimize the quantity of oil retained. All refrigerant lines shall be clean and provided with suction line oil traps as recommended by the manufacturer so as to assure proper oil return to the compressor.
    - B. All refrigerant lines shall be charged with nitrogen during all sweating and heating operations.
    - C. All refrigerant systems shall be evacuated with a vacuum pump prior to charging.
    - D. Provide 3/4" closed-cell, elastomeric insulation on refrigeration suction lines.
    - E. Paint all exterior foam insulation with UV resistant finish.
    - F. Refrigerant piping from the BC controller to the individual VRF evaporators shall be pre-manufacturer, pre-insulated line sets. Suction lines shall be supported per section 23 05 29. Liquid lines shall be support from, and secured to, the suction lines with a clamp (taping will not be acceptable) - ONLY FOR VRF SYSTEMS
17. Pipe hangers for lines 1/2" to 2" shall be adjustable swivel ring hangers. Pipe hangers for lines 2 1/2" to 4" shall be light duty clevis hangers. Pipe hangers for lines 6" and larger shall be standard clevis hangers. Provide riser clamps at each floor and at other locations where vertical support is necessary.
18. Before testing begins, the contractor shall: clean ductwork, coils, fans, etc. in the air system to remove all construction dust and debris; provide new air filters.
19. Provide HVAC identification as specified and indicated on the drawings. Equipment Markers shall be engraved, color-coded laminated plastic.
    - A. Duct Markers: Vinyl, 2-inch minimum character height, with permanent pressure sensitive adhesive. Include direction and quantity of airflow and duct service (such as supply, return, and exhaust).
20. Piping Identification Devices
    - A. Manufactured Pipe Markers, General: Preprinted, color-coded, with lettering indicating service, and showing direction of flow.
    - B. Valve Schedules: For each piping system, on standard-size bond paper. Tabulate valve number, piping system, system abbreviation (as shown on temperature control drawings), location of valve (room or space), normal-operating position (open, closed, or modulating) and variations for identification. Mark valves for emergency shutoff and similar special uses.
21. Duct Insulation, refer to Duct Insulation schedule on Mechanical Details sheet.
22. Carbon Monoxide System
    - A. Supply, install and connect at locations ACME Series 01-01E3R (or 01-01E3RE) Detection and control unit with remote sensors. Interconnection between sensor and control unit shall be 6 #18 low voltage wires between identified terminals.
    - B. Units shall be fully electronic incorporating solid state circuitry with electronic board, factory calibrated at LOW (35PPM), HIGH (100PPM) and ALARM (100PPM w/30 min. delay, adjustable 1-60 min.) gas levels. Electronic board shall incorporate LED visual indicators seen through unit cover for "power on", operating status and sensor trouble functions.
    - C. The fail-safe feature of the circuitry shall force the LOW CO operating level to be energized upon a "SENSOR TROUBLE" condition so that the fan(s) will run until trouble is corrected.
    - D. The LOW LEVEL (35PPM) operating level shall close an independent SPDT contact with visual status indicator on unit.
    - E. The HIGH LEVEL (100PPM) operating level shall close another independent SPDT contact with additional visual status indicator on unit.
    - F. The ALARM LEVEL (100PPM w/ 30 min. delay) operating level shall provide visual and audible alarms and also close an independent SPDT contact. Nuisance alarms caused by temporary conditions shall be avoided by providing a field-selectable (30 min. standard) time delay between operating of HIGH and ALARM levels.
23. Nitrogen Dioxide System
    - A. Supply, install and connect at locations shown on plans ACME Series NO2-EN Detection and control unit with either A11 area sampling head or D11 duct sampling head. Connections between control unit and detection head shall be ½" FPT.
    - B. The LOW LEVEL (1PPM) operating level shall close an independent SPDT contact with visual status indicator on unit.
    - C. The MEDIUM LEVEL (2PPM) operating level shall close another independent SPDT contact with additional visual status indicator on unit.
    - D. The HIGH LEVEL (3PPM) operating level shall close another independent SPDT contact with additional visual status indicator on unit.
    - E. The ALARM LEVEL (5PPM) operating level shall provide visual and audible alarms and also close an independent SPDT contact
24. Air Diffusers, Registers and Grills
    - A. Except as otherwise indicated, provide manufacturer's standard ceiling air diffusers where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.
    - B. Provide ceiling air diffusers that have, as minimum, temperature and velocity traverses, throw and drop, and noise criteria ratings for each size device as listed in manufacturer's current data.
    - C. Provide diffusers with border styles that are compatible with adjacent ceiling systems, and that are specifically manufactured to fit into ceiling module with accurate fit and adequate support. Refer to general construction drawings and specifications for types of ceiling systems which will contain each type of ceiling air diffuser.
    - D. Provide ceiling diffusers of type, capacity, and with accessories and finishes as listed on diffuser schedule.
25. Roof Curbs
    - A. Roof curbs shall be Pate, #PC-2b, 18" high with treated nailer, for field installation.
    - B. Curbs shall be constructed of heavy gauge galvanized steel, utilized, full mitered corners, all seams welded, 1½ " thick rigid fiberglass insulation, pressure treated wood nailer strip. All curbs are internally reinforced in larger size dimensions. On **b** style curbs overhang is ½" thick unless otherwise specified.
26. Pipe Portals
    - A. Pipe portals for refrigerant lines passing through roof shall be RPS Corp., 14 gauge G90 galvanized steel, 18" tall roof curb with ABS plastic curb cover with integral EPDM rubber pipe caps with stainless steel clamps.
27. Equipment Support Curb
    - A. Roof mounted condensing unit support curbs shall be Pate, ES-2b, 8" wide, 18" high, and 14 gauge with treated nailer for field insulation.
    - B. Curbs shall be set directly upon structural slab and not insulation.
    - C. Mechanical contractor shall provide shims within the deck flutes per structural plans.
28. Roof Mounted Air Tunnel
    - A. Air tunnel shall be constructed from standard full perimeter style roof curbs, Pate #PC-2b, in heights and dimensions as indicated on plans.
    - B. Air tunnel top shall be constructed of pre-finished sheet steel (in color selected by architect) and shall be pitched to drain water. Top shall include flashing and drip edge. Provide 1" Styrofoam insulation fully adhered to underside of top.

FIRE PROTECTION REQUIREMENTS

1. The fire protection contract includes all labor, materials and equipment required for the complete fire suppression system(s) as shown and herein specified.
2. Provide all devices and accessories as necessary for complete and working systems.
    - A. Install all equipment in strict accordance with NFPA requirements, the manufacturer's recommendations, and the shop drawings reviewed by the Engineer.
3. Above Grade Piping and Fittings (Steel)
    - A. Schedule 40 grade, ASTM A-53, black steel pipe shall be used for all Fire Protection Piping. Victaulic UL listed and FMG approved fittings and couplings shall be used for all joints and fittings. Schedule 10 black steel pipe shall be permitted in lieu of Schedule 40 steel pipe to meet N.F.P.A. 13 requirements, however joining methods will be strictly limited to Victaulic couplings and fittings. The use of threaded lightwall piping (Allied XL), and the use of lightwall materials, is strictly prohibited.
    - B. Rigid type couplings shall be fully installed at visual pad-to-pad offset contact. Tongue and recess couplings, or any couplings that require exact gapping of housings on each side of the coupling at specified torques, are not permitted.
        - a. 1-1/4" through 4": Factory assembled for direct stab installation without field disassembly. Victaulic Style 009 EZ.
        - b. 5" through 8": Victaulic FireLock™ Style 005.
        - c. 10" and Larger: Victaulic Zero-Flex® Style 07.
    - C. Flexible Type: For use in locations where vibration attenuation and stress relief are required, and for seismic applications. Victaulic Style 75 and 77.
4. CPVC Piping: CPVC pipe and fittings (Has be approvied by owner and Engineer prior to bidding) shall be listed by UL and also either rULC or C-UL for use in:
    - A. Light Hazard Occupancies as defined by NFPA 13. Ordinary hazard rooms of otherwise light hazard occupancies where the room does not exceed 400 ft., per section 6.3.6.2 of NFPA 13, Latest adopted Edition.
    - B. Residential Occupancies up to four stories in height as defined by NFPA 13R.
    - C. One and two family dwellings and manufactured homes as defined by NFPA 13D.
    - D. Air handling (plenum) spaces as defined by NFPA 90A.
    - E. Underground water pressure service as defined by NFPA 24.
    - F. Maximum design temperature/pressure rating shall not be less than175 psi at 150°F.
    - G. Refer to UL and FM** (if applicable).
    - H. Refer to CPVC pipe and fitting manufacturers' installation instructions.
5. Sprinkler System:
    - A. The piping indicated on the plans are schematic in nature and are provided mainly for coordination purposes. The actual design and final head placement shall be determined by the fire protection engineer designing the system.
    - B. Provide sprinkler system as indicated. System shall contain, but not be limited to, all piping, valves, test lines, drains and etc., as shown or required by NFPA-13 and NFPA-13R for a complete system.
    - B. Provide a freestanding type polished brass Fire Department connection, equal to Fire End and Croker No. 6510, 2-way clapper, 4" x (2) 2-1/2", where indicated on the Drawings, with hose threads complying with local Fire Department Standards. Installation shall include check valve and ball drip assembly, pipe to drain or discharge onto grade. Connection shall be labeled "Standpipe and Sprinkler".
    - C. Heads shall be Central Sprinkler as listed below. Equivalent sprinkler heads by Viking, Star, Grinnell or Reliable are acceptable for the heads specified. Head temperature ratings shall be 165°F unless otherwise specified. Sprinkler heads in elevator shafts and machine rooms shall be 212° F temperature activated.
    - D. Upright Sprinklers: Central Sprinkler Model GBQR upright automatic sprinkler, rough bronze finish
    - E. Upright Sprinklers with Shields: Central Sprinkler Model GBQR with WSG-2 Guard and Assembly,upright automatic sprinkler, rough bronze finish
    - F. Semi-Recessed Pendants: Central Sprinkler Model GBQR recessed automatic sprinkler, flat white finish, adjustable 2-piece escutcheon
    - G. Fully Recessed Sprinklers: Central Sprinkler Model GB4-FR (concealed) adjustable flush-concealed auto sprinkler, cover plate with flat white finish.
    - H. Side Wall Sprinklers: Central Sprinkler Model GB Sidewall, flat white finish
    - I. Sprinkler heads in areas with sheet rock ceilings shall be fully recessed head type.
    - J. Sprinkler heads in lay-in ceilings shall be located in the center of ceiling tiles with a tolerance of +/- 2 inches.
    - K. All control valves in the sprinkler system shall be provided with supervisory switches. Switches will alarm when a valve is not in its normal operating position.
    - L. Provide water flow alarm apparatus for the system. Alarm device shall be a listed alarm check valve with all necessary attachments required to give an alarm. Flow alarm devices shall be installed per NFPA requirements.
    - M. Provide flow switches as indicated on the drawings and as required by NFPA.
    - N. At the Contractors option, sprinkler system final connections may be FlexHead Industries Inc. flexible piping connections. The flexible connection shall include a fully welded, braided and leak tested connector with a one-piece ceiling bracket, attachment hub and self-securing integrated ceiling grid mounting bracket. The flexible piping system shall be UL listed and FM approved suitable for their intended use.
6. Design and install: a complete automatic sprinkler system for fire protection. All elements and components of the system shall be in compliance with NFPA Pamphlet 13 and 13R, "Standard for the Installation of Sprinkler Systems". Components shall be listed in current Underwriters Laboratories "Fire Protection Equipment List". Final acceptance shall be based on submission of test certificates, and completion of all regulatory body recommendations submitted following their final inspection.Sprinkler head spacing, pipe sizing and flow calculations shall be hydraulically calculated. Design criteria shall be as follows:
    - A. For **Light Hazard**, provide a water density of 0.1 GPM per square foot over the most hydraulically remote 1500 square feet. Light hazard shall be installed in all areas of the building except mechanical rooms, storage rooms, and janitor's closets or others required by NFPA 13.
    - B. For **Ordinary Hazard Group I**, provide a water density of 0.15 GPM per square foot over the most hydraulically remote 1500 square feet. Ordinary hazard, group I includes the following area types: mechanical rooms, storage rooms, janitors closets, restaurant Service areas (Kitchens), Automotive Show rooms/parking areas and as listed in NFPA 13.
    - C. For **Ordinary Hazard Group II**, provide a water density of 0.2 GPM per square foot over the most hydraulically remote 1500 square feet. Ordinary hazard, group II includes Mercantile, Library stack rooms up to 12' in height, manufacturing areas, repair garages, machine shops and as listed in NFPA 13.
    - D. For **Extra Hazard Group I** provide a water density of 0.3 GPM per square foot over the most hydraulically remote 2500 square feet. Refer to NFPA for occupancy area requirements.
    - E. For **Extra Hazard Group II** provide a water density of 0.4 GPM per square foot over the most hydraulically remote 2500 square feet. Refer to NFPA for occupancy area requirements.
    - F. For **Residential Areas** per NFPA 13R and head manufacturers design requirements.
    - C. Size sprinkler piping by hydraulic calculations in accordance with NFPA Standard 13, Chapter 7. Hydraulic calculations shall include inside and outside hose requirements. Hose requirements shall be inserted at the locations in the system per NFPA. Pipe sizing shall provide an allowance of 10 psig in excess of base requirements. Head locations shall conform to the spacing shown on the Mechanical Drawings, Architectural Drawings, the Architectural Details, and elsewhere as required to provide a fully sprinklered building.
    - D. Orifice size, "K" factor, temperature rating, and model identification of installed heads shall be identical to system hydraulic calculation design data. Provide the final design and layout and hydraulic calculations required for the approval of the fire protection systems in accordance with requirements of the insurance interest having jurisdiction, state and local codes. Velocity pressure shall not be considered in the hydraulic calculations.
    - E. Submittals shall be provided showing detailed fire protection drawings and hydraulic calculations per NFPA-13 requirements including complete sprinkler system layout drawings with hydraulic calculation reference points and area of application indicated.
    - F. Sprinklers shall be shown on drawings and submittals and shall be specifically identified with the applicable style or series designation as published in the appropriate agency listing or approval. Trade names or other abbreviated designations are not permitted. The systems shall be designed and installed by a licensed Sprinkler Contractor in full accordance with NFPA and all codes and standards. Shop drawings, layout and design shall be approved by the Local Authority Having Jurisdiction and the Engineer prior to installation.

GENERAL MEP REQUIREMENTS

1. The contract includes all labor, material, and equipment required for the complete systems as shown and specified. Provide all devices and accessories as necessary for complete and working systems.
2. The contractors shall become familiar with the work of all other trades and shall fully coordinate their work prior to ordering equipment or installation of systems.
3. The materials, products and equipment described in these specifications or on the drawings establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution. Listing of these manufacturers shall in no way be construed as a device intended to limit the bidders to those specifically listed.
4. Reference to any article, device, product, material, fixture, form or type of construction by name, make, or catalog number, shall be interpreted as having established a standard of quality and shall not be construed as limiting competition. Articles, fixtures, etc. of equal quality by manufacturers listed in this specification for the applicable use, shall be acceptable, subject to performance, spatial, structural, and electrical constraints of the project design. The Engineer reserves last opinion as to a product's equality or superiority to that specified.
5. Shop drawings shall be submitted for all equipment and major materials supplied and shall include: manufacturer, model number, materials, and miscellaneous data as required to describe the equipment; capacity, voltage, phase, ampacity, and other miscellaneous data to quantify the size of the equipment; dimensional drawings showing layout, connection points, and detailed layout of components; electrical full load amps and minimum circuit ampacities; and other pertinent information needed for complete review by the engineer. Conspicuously mark on each submittal the exact model, fittings, accessories, and devices to be supplied. When a schedule is shown on the drawings or in the specifications, provide a copy of that schedule with the submittal. Contractor shall check all shop drawings to verify that they meet the requirements of the drawings and specifications before forwarding to the architect and engineer. All shop drawings submitted shall bear the stamp of the contractor to show that they have been reviewed in detail. No work shall be fabricated and no equipment ordered until the architect and engineer have returned acceptable reviewed shop drawings.
6. Locations of equipment, piping, and other work are indicated diagrammatically on the drawings. Each contractor shall coordinate exact locations subject to structural conditions, work of other contractors, access requirements, and the approval of the architect and engineer.
7. Drawings and specifications indicate minimum construction standards, but should any work indicated be sub-standard, to any ordinances, laws, codes, rules, or regulations bearing on work, the contractor shall execute work in accordance with such without increased cost to the owner, but not until he has referred such variances to the engineer.
8. The contractors shall secure and pay for the necessary permits and certificates of inspection for their trade. Keep record of all permits and inspections and submit two copies to the engineer with request for final inspection.
9. The owner shall be provided with training on each piece of equipment as to startup, shutdown, normal maintenance, seasonal changeover, and other pertinent information as recommended by the manufacturer.
10. This contractor shall warrant that the complete systems installed under this contract shall be free of defects in workmanship and materials for a period of one (1) year from the date of substantial completion by the arch/owner. If defects occur during the one year guarantee period, this contractor shall repair or replace such defects at no expense to the owner and to the satisfaction of the owner and engineer.
11. Provide 3-1/2" concrete bases for all floor mounted equipment unless shown or noted otherwise. Provide 6x6 welded wire fabric reinforcing minimum or as required by the structural engineer.
12. Adequately protect equipment from damage after delivery to the jobsite. Cover with heavy polyethylene plastic. Elevate equipment when there is danger of water damage. Equipment damaged will be rejected.
13. Any scratches to factory finishes shall be touched up using factory supplied paint before final acceptance. If extensive damage to factory finishes has occurred, equipment panels shall be replaced to the satisfaction of the engineer. If rust has formed, remove as recommended by the manufacturer prior to touch-up.
14. Install all equipment in strict accordance with the manufacturer's recommendations and the shop drawings reviewed by the Engineer. The complete installation shall function as designed and intended with respect to efficiency, capacity, and noise level, etc. Any abnormal noise caused by rattling equipment, conduit, or fixtures will not be acceptable.
15. Contractor shall perform initial start-up of systems and shall provide necessary supervision and labor to make the first seasonal change-over of systems. Owner's operating personnel shall be present during this operation.
16. It is the contractor's responsibility to provide materials and trim which fit properly the types of ceiling, wall, or floor finishes actually installed. Model numbers in specifications or shown on drawings are not intended to designate the required trim.
17. Contractor shall provide all miscellaneous steel, etc., for the proper installation of the systems specified and/or indicated on the plans. Any item connecting to building structure shall be done in a manner accepted by the structural engineer. When bar joists are used for steel construction, items shall be supported from angle iron spanning the top chord of the joists.
18. Periodically during construction and prior to Owner acceptance of the building, Contractor shall remove from the premises and dispose of all packing material and debris.
19. Before submitting his bid, the Contractor shall visit the actual location of the job and shall fully understand the scope of the work to be done and the conditions under which it is to be performed. In no case shall additional compensation be granted when existing conditions could reasonably be determined.
20. Locate and mark all known utilities prior to proceeding with work. Proceed with caution since unmarked utilities may exist on site. Should any existing utilities be damaged or disrupted, immediately notify owner and repair to existing conditions.
21. The Contractor shall closely coordinate all utility downtime with the Owner and Architect giving a minimum fourteen (14) day notice prior to downtime. Downtimes are to be held to a minimum duration with the Owner being notified as to the extent of said downtime. Any work that will affect the building occupants in any way shall be coordinated with that tenant. Such work shall be performed in a satisfactory manner to those affected.
22. The Electrical Contractor shall provide all conduit and wiring and shall connect complete and ready for operation all electrical motors and equipment in the other contracts. The other contractors shall furnish to the Electrical Contractor all switches, electrical controls, and other accessories required. Installation of all motors, equipment, etc., shall be made by the Contractor furnishing the equipment, unless otherwise indicated.
23. Unless integral to the equipment supplied or noted otherwise, the Electrical Contractor shall provide disconnect switches, motor starters, and variable frequency drives as required by code and/or as shown on the drawings. The contractors responsible for installing the associated equipment shall coordinate with the Electrical Contractor to ensure devices of the proper size are furnished. Further, the other trades shall furnish all electric control items needed to the Electrical Contractor for installation and connection.
24. The contractor shall provide openings and chases, cutting and patching, excavation and backfilling, and pipe sleeves as needed for proper execution of the work.
25. The Contractor shall do all excavation and backfilling necessary to complete work under this contract. Trenches close to walls and columns of the building shall not be excavated without the Architect's prior consent. As a minimum, backfill in 6" lifts, compacting to a minimum of 90%. The first 12" of fill above any buried item outside the building shall be sand in order to contrast with other fill material. Provide a yellow warning tape at the top of the sand layer.
26. Sleeves are required in all penetrations through new exterior walls, masonry walls, floors and fire rated gypboard walls. Sleeves shall be either Schedule 5 steel pipe, EMT conduit, field fabricated from minimum 16 gauge steel with 2" overlap at the seam, or as required by UL listed fire-stopping system. Sleeves will not be required in existing wall penetrations of masonry construction when such openings are made by "core-drilling." Space between sleeves and pipe in outside walls shall be sealed using link seals. Space between sleeves and pipe in other wall construction shall be the diameter necessary to provide the clearance required by the UL listed fire stopping method chosen by the contractor.
27. All sidewalks, streets, or alley surfaces that are broken in connection with this contract shall be patched to the satisfaction of the owner.
28. Provide fire stopping to maintain the fire rating of walls, floors, ceilings, or other building component. Fire stopping shall be composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the fire stopping under conditions of service and application, as demonstrated by the fire stopping manufacturer based on testing and field experience. Firestop system installation must meet requirements of ASTM E-814, UL Standard 1479 or UL Standard 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.
29. All installation shall conform with the latest adopted Building Codes and Justification amendments.
30. Description of Work
    - A. The Mechanical Contract includes all labor, materials and equipment required for the complete mechanical systems as shown and herein specified.
    - B. Provide all devices and accessories as necessary for complete and working systems.
    - C. The contractors shall become familiar with the work of all other trades and shall fully coordinate their work prior to ordering equipment or installation of systems.
    - D. The contractors shall become familiar with the work of all other trades and shall fully coordinate their work prior to ordering equipment or installation of systems.
    - E. The Contractor shall coordinate his work with that of all other trades in order to eliminate interferences. He shall examine the drawings in advance to determine the location of sprinklers, electrical systems, ducts, piping, structures, conduits, alarms, and other equipment and services to be installed, and properly coordinate the installation of his work to avoid interferences. The Engineers have considered existing interferences in making the drawings, but it is the responsibility of the Contractor to include in his bid proposal adequate allowances to modify, offset, or otherwise accommodate all equipment to the structure, utilities, and apparatus.
31. Definitions
    - A. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and similar operations."
    - B. Install: The term "install" is used to describe operations at the project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
    - C. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
    - D. Furnished by Owner or Furnished by Others: The item will be furnished by the Owner or Others. It is to be installed and connected under the requirements of this Division, complete and ready for operation, including all items incidental to the Work, including all services necessary for proper installation and operation. The Installation shall be included under the guarantee required by this Division.
32. Operation and Maintenance Manuals
    - A. Before project close-out, submit three copies of installation, operating, maintenance instructions, and parts lists for equipment provided. Include in the manual a list of emergency service organizations capable of rendering service for each piece of equipment.
    - B. Keep in a safe place all keys, wrenches, and other specialty tools furnished with equipment. Present to owner at project close-out and receive a receipt showing he has received the same.
    - C. At the completion of the project furnish to the Architect for the Owner, Operation and Maintenance Manuals in PDF format on CR-ROM and three (3) copies of brochures in three ring notebook form, divided and tabbed, containing all data, diagrams, capacities, spare part numbers, manufacturers service and maintenance data, warranties, guarantees, etc., including local contacts and escalation schedule complete with addresses and telephone numbers, of all equipment, apparatus, and system components furnished and installed under this Division of the specifications.
33. Codes and Ordinances
    - A. All work shall be in accordance with applicable codes, rules, ordinances, and regulations of local, state, and federal governments and other authorities having jurisdiction.
    - B. Drawings and specifications indicate minimum construction standards, but should any work indicated be sub-standard, to any ordinances, laws, codes, rules, or regulations bearing on work, the contractor shall execute work in accordance with such without increased cost to the owner, but not until he has referred such variances to the engineer.
34. Where other than first named products are used, it shall be the responsibility of the contractor to determine prior to bid time that his proposed materials and equipment selections do not require adjustments in the mechanical, electrical , structural, or architectural requirements as shown on the drawings. The contractor shall include in his bid all costs associated with any required adjustments
35. Instillation
    - A. Install all equipment in strict accordance with the manufacturer's recommendations and the shop drawings reviewed by the Engineer.
    - B. Locations of equipment, piping, and other work are indicated diagrammatically on the drawings. Each contractor shall coordinate exact locations subject to structural conditions, work of other contractors, access requirements, and the approval of the architect and engineer.
    - C. item interfering with proper placement of other work shall be removed and relocated without extra cost if reasonable coordination would have eliminated the interference. Damage to other work caused by this contractor shall be restored as specified for new work.
    - D. Final acceptance of work shall be subject to the condition that all systems, equipment, apparatus, and appliances operate satisfactorily as designed and intended. Work shall include required adjustment of systems and control equipment installed under this specification.
    - E. Contractor shall perform initial start-up of systems and shall provide necessary supervision and labor to make the first seasonal change-over of systems. Owner's operating personnel shall be present during this operation.
    - F. It is the contractor's responsibility to provide materials and trim which properly fit the types of ceiling, wall, or floor finishes actually installed. Model numbers in specifications or shown on drawings are not intended to designate the required trim.
    - I. This contractor shall provide all miscellaneous steel, etc., for the proper installation of the systems specified and/or indicated on the plans.
36. Connections to Building Structure
    - A. Any item connecting to building structure shall be done in a manner accepted by the structural engineer.
    - B. When bar joists are used for steel construction, items shall be supported from angle iron spanning the top chord of the joists.

FIRE ALARM REQUIREMENTS

1. Furnish and install a complete Fire Alarm System as described herein and as shown on the plans; to be wired, connected, and left in first class operating condition. The system shall use closed loop initiating device circuits with individual zone supervision, individual notification appliance circuit supervision, incoming and standby power supervision. Include a control panel, manual pull stations (fire alarm boxes), automatic fire detectors, horns, annunciator, remote control devices, all wiring, connections to devices, outlet boxes, junction boxes, and all other necessary material for a complete operating system.
2. Fire Alarm Wiring
    - A. Fire alarm wiring shall be solid, unstranded power limited cable as follows:
        - Non-Plenum Mapnet: West Penn D975, 1PR, 18GA shielded
        - Plenum Network and Mapnet: West Penn 60975, 1PR, 18GA shielded
        - 16GA Non-Plenum: West Penn 991, 1PR unshielded
        - 16GA Plenum: West Penn 60990B, 1PR shielded
        - 14GA Non-Plenum: West Penn 994, 1PR shielded
        - 14GA Plenum: West Penn 60993B, 1PR unshielded
    - B. All wiring shall be installed in strict compliance with all the provisions of National Electrical Code, Article 760 A and C, Power_Limited Fire Protective Signaling Circuits or if required may be reclassified as non_power limited and wired in accordance with National Electrical Code, Article 760 A and B. All required wiring shall have a minimum insulation rating of 600 volts.
    - C. Fire alarm wiring for this system shall be Fire Alarm plenum rated cable, or run in EMT, or ridged conduit. All wiring in walls shall be in conduit with rough-in boxes. All cables located in environmental air plenum will be plenum rated cables.
3. Fire alarm system indicated on plans is a schematic design only, Contractor shall provide Engineered signed and sealed plans by a NICET company specializing in the detection of detection and alarm systems. Provide documentation verifying compliance with the specified certification, that all persons involved with this project shall be NICET Level III certified in the field of "Fire Protection Engineering Technology, 003", and the sub field of "Fire Alarm Systems, 03". This documentation shall be submitted as a part of the submittal package for "approved" suppliers, and shall be submitted as a part of the "request for approval" by all potential suppliers not pre-approved.
4. Plan size, CAD produced system drawings shall include:
    - A. Wiring diagrams/Locations of all equipment.
    - B. Individual device addresses, indicated at all addressable device.
    - C. Interconnection details of all devices, controls and interfaces to equipment supplied by others.
    - D. Complete product data sheets for equipment proposed, with highlighted, or arrowed identifications of component descriptions, finishes, UL listings, and any other pertinent system information.
    - E. Complete sequence of operations of all functions of the system.
    - F. Standby battery sizing documentation. Provide a complete chart, or spreadsheet, listing all components, indicating individual and cumulative power requirements by type, and showing battery standby required, verses actual.
    - G. Any additional documentation required to properly describe all functions and components needed to configure a complete and operable system.

HVAC GENERAL NOTES

A GENERAL NOTES APPLY TO HVAC SHEETS.

B WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION, INCLUDING APPLICABLE SECTIONS OF NFPA, THE MECHANICAL CODE, AND ANY INTERIM AMENDMENTS AT THE TIME OF THE PROPOSAL. PURCHASE PERMITS ASSOCIATED WITH THE WORK. OBTAIN INSPECTIONS REQUIRED BY CODE. SEE ARCHITECTURAL SHEETS FOR THE PREVAILING CODES.

C CONTRACTOR AND SUBCONTRACTORS SHALL REVIEW A COMPLETE SET OF THE CONSTRUCTION DOCUMENTS.

D COORDINATE WORK WITH THE WORK OF OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND OF THE EXISTING CONDITIONS AT THE PROJECT SITE.

E DRAWINGS FOR THE MECHANICAL WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWING SHALL NOT BE SCALED FOR EXACT MEASUREMENTS, REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, OFFSETS, ACCESSORIES, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

F DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF INTERNAL FREE AREA.

G PERFORATED CEILING DIFFUSERS SHALL BE 4-WAY UNLESS NOTED OTHERWISE.

H COORDINATE ROOF WORK WITH THE OWNER'S CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.

I UNLESS NOTED OTHERWISE RECTANGULAR DUCT ELBOWS GREATER THAN 45° SHALL BE MITERED ELBOWS WITH DOUBLE-THICKNESS TURNING VANES AND RECTANGULAR DUCT ELBOWS 45° OR LESS SHALL BE RADIUSED ELBOWS WITH AN INSIDE RADIUS OF AT LEAST 1/2 THE WIDTH OF THE DUCT.

J REPLACE AIR FILTERS WITH NEW, CLEAN MERV 8 AIR FILTERS AT TURNOVER.

K THE TERM "FURNISH" MEANS SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.

L PROVIDE P3000 12 GA. UNISTRUT WITH PG FINISH FOR DUCT SUPPORTS AND OTHER UNISTRUT IN AREAS EXPOSED TO VIEW. SLOTTED UNISTRUT AND OTHER UNISTRUT WITH HOLES IS NOT ACCEPTABLE.

M FIRE PROTECTION SYSTEM IS REQUIRED PER NFPA 13R. CONTRACTOR SHALL PROVIDE A DESIGN BUILD SYSTEM.

HVAC MATERIAL SCHEDULE

	APPLICATION	ALLOWABLE MATERIAL
DUCT		
	CONCEALED, GENERAL EXHAUST	RECT. OR ROUND AS SHOWN
	CONCEALED, RETURN	RECT. OR ROUND AS SHOWN, LINED OR INSULATED
	CONCEALED, SUPPLY	RECT. OR ROUND AS SHOWN, LINED OR INSULATED
	CONCEALED, TYPE I HOOD EXHAUST	RECTANGULAR 16 GA. BLACK IRON W/ WRAP OR UL 1978 FACTORY-MANUFACTURED DUCT W/ WRAP (SUBMIT SHOP DRAWINGS FOR FACTORY-MANUFACTURED DUCT PRIOR TO ORDERING FOR APPROVAL)
	EXPOSED GENERAL EXHAUST	RECTANGULAR, NO EXPOSED DUCT-SEALING MASTIC
	EXPOSED RETURN	RECTANGULAR, NO EXPOSED DUCT-SEALING MASTIC
	EXPOSED SUPPLY	RECT. LINED OR ROUND AS SHOWN, NO EXPOSED DUCT-SEALING MASTIC

HVAC ABBREVIATIONS

(E)	EXISTING
ABV	ABOVE
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
CLG	CEILING
CTE	CONNECT TO EXISTING
DN	DOWN
EXG	EXISTING
FLR	FLOOR
GYP	GYPSUM BOARD
NTS	NOT TO SCALE
O/H	OVERHEAD
OBD	OPPOSED BLADE DAMPER
TYP	TYPICAL
U/G	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
VSC	VARIABLE SPEED CONTROLLER
W/	WITH
C02AS	CO2 ALARM SUPPLIER
GC	GENERAL CONTRACTOR
HES	TENANT'S HVAC EQUIPMENT SUPPLIER
LL	LANDLORD
TAB	TENANT'S TEST AND BALANCE VENDOR
TDC	TENANT'S DUCT CLEANER
TEMS	TENANT'S ENERGY MANAGEMENT SYSTEM SUPPLIER
TPS	TENANT'S PANELBOARD SUPPLIER
TSV	TENANT'S SIGN VENDOR
WHS	TENANT'S WATER HEATER SUPPLIER

HVAC SYMBOLS

CEILING DIFFUSER

CEILING-MOUNTED
RETURN
OR EXHAUST REGISTER

SUPPLY REGISTER

RETURN GRILLE

FLEXIBLE DUCT

MITERED CORNER WITH TURNING VANES

DUCTWORK INTERNAL FREE
DIMENSIONS
(WIDTH/HEIGHT)

RECTANGULAR TO ROUND DUCT TRANSITION

DUCT-MOUNTED SMOKE DETECTOR

MOTOR-OPERATED DAMPER

MANUAL VOLUME DAMPER

GREASE DUCT CLEANOUT

MITERED CORNER WITHOUT TURNING VANES

GRIDPOINT THERMOSTAT

GRIDPOINT ZONE SENSOR MODULE

GRIDPOINT SUPPLY PROBE

PLAN NOTE: SEE PLAN NOTES LISTED ON
THE SAME SHEET FOR NOTE MEANING

CONNECT TO EXISTING

EQUIPMENT TAG: SEE EQUIPMENT SCHEDULE
ON SHEET M600 FOR EQUIPMENT INFORMATION

AUDIO/VISUAL REMOTE SMOKE DETECTOR
ANNUNCIATOR WITH REMOTE KEY OPERATED
RESET

GRILL, REGISTER, OR DIFFUSER TAG:
TAG
NECK SIZE
AIRFLOW [CFM]

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

Blanchard AE Group
1425 WAKARUSA DR. STE B
LAWRENCE, KS 66049
Ph:785-993-0300

112 S. Main St., Nixa, MO 65714 Ph:417-724-8553
NATHAN RAPP, ARCHITECT #A-2008008201

REISSUE DATE

PROFESSIONAL OF RECORD

LAURA MICHELLE BLANCHARD
NUMBER PE-2007032416
4.14.2025

ARCHITECT RAPP
PROJECT NO. 241121
DATE 04/14/2025
DRAWING TITLE HVAC SPECIFICATIONS
SHEET NO. M010

HVAC PLAN NOTES

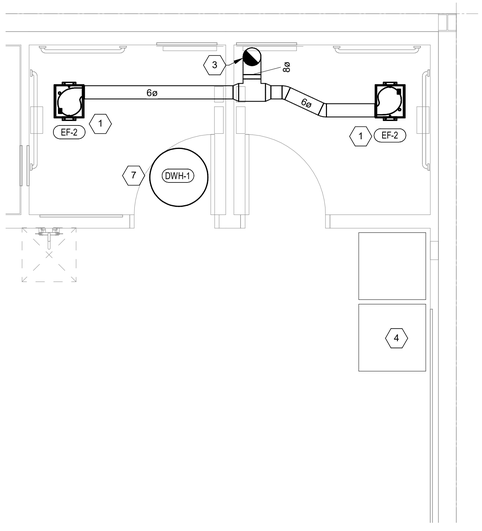
1. INSTALL RESTROOM EXHAUST FAN PER MANUFACTURER RECOMMENDATIONS. UNDERCUT RESTROOM DOOR FOR PRESSURIZATION.
2. PROVIDE 6" FLUE PER MANUFACTURER RECOMMENDATIONS WITH 8" ROOF CAP FOR QTY (3) HEATERS.
3. 8" DIAM. EXHAUST DUCT UP THROUGH ROOF. TERMINATE WITH MANUFACTURER'S STANDARD ROOF CAP.
4. PROVIDE VENT FOR DRYER WITH MANUFACTURERS STANDARD WALL CAP. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.
5. PROVIDE A TOXALERT GVU-6 CONTROLLER WITH AUDIBLE ALARM AND SILENCE SWITCH FOR SECOND STAGE ALARM LEVEL AND LABELED LED INDICATORS ON FACE OF CONTROLLER. PROVIDE GVU-CO SENSOR (0-250 PPM, SET AT 50 PPM) AND GVU-NO2 SENSOR (0-10 PPM, SET AT 2 PPM). BOTH SENSORS SHALL BE MOUNTED AT 6'-0" AFF, TEMPERATURE/HUMIDITY COMPENSATED, AND COMPLETE WITH LED'S INDICATING "NORMAL OPERATION", "HIGH CO", AND "MALFUNCTION".
6. PROVIDE TEMPERATURE SENSOR FOR ROW OF (2) RADIANT HEATERS IN LOCATION SHOWN.
7. INSTALL WATER HEATER ABOVE RESTROOM CEILING PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH IN. REFER TO SHEET P600 FOR MORE INFORMATION.
8. MOUNT RADIANT TUBE HEATER PER MANUFACTURER RECOMMENDATIONS AT 20'-0" AFF.

RADIANT HEATER SCHEDULE

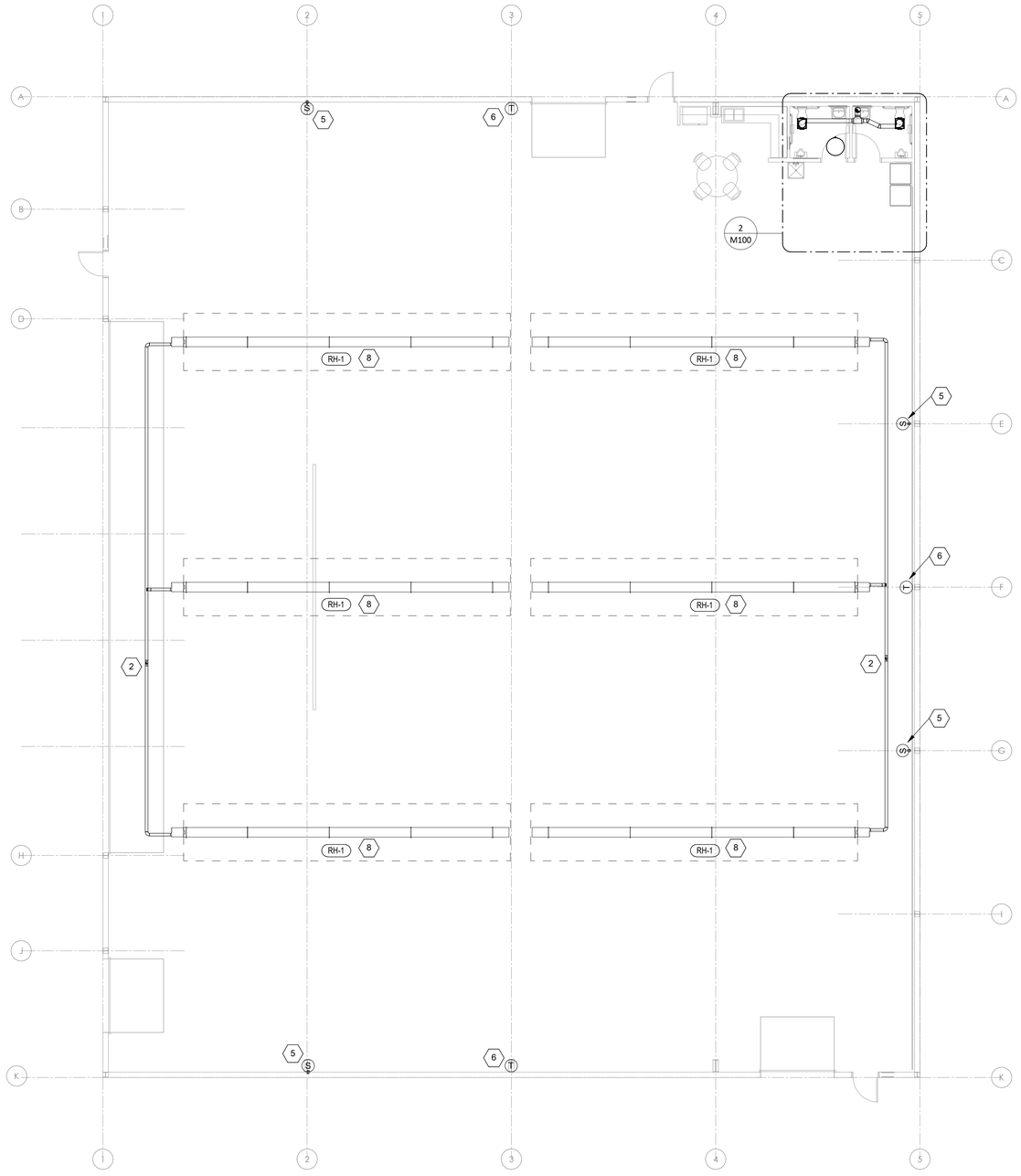
TAG	DESCRIPTION	HEATING (BTU/h)	FUEL TYPE	LENGTH	WEIGHT	BASIS FOR DESIGN		REMARKS
						MANUFACTURER	MODEL	
RH-1	RADIANT TUBE HEATER	100,000	Liquid Propane	40' - 0"	200 lb	DETROIT RADIANT	DX3L-40-100	PROVIDE WITH HANGING CHAIN AND ALL OTHER ACCESSORIES NECESSARY FOR A COMPLETE INSTALLATION. PROVIDE WITH FACTORY MOUNTED AND WIRED DISCONNECT, THERMOSTATS (INSULATED BASES), FLEXIBLE GAS CONNECTORS, ISOLATION VALVES, DIRT LEGS, AND FLUE VENT CAPS.

FAN SCHEDULE

TAG	DESCRIPTION	AIRFLOW	E.S.P.	WEIGHT	ELECTRICAL	BASIS FOR DESIGN		REMARKS
					V/P/H	MANUFACTURER	MODEL	
EF-2	RESTROOM EXHAUST FAN	75 CFM	0.70 in-wg	25 lb	120/1/60	COOK	GC-148	PROVIDE WITH MANUFACTURERS STANDARD 8" ROOF CAP & BACKDRAFT DAMPER(S).



2 M100 **ENLARGED HVAC PLAN**
3/8" = 1'-0"



1 M100 **HVAC FLOOR PLAN**
1/8" = 1'-0"

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

Blanchard AE Group
1425 WAKARUSA DR. STE B
LAWRENCE, KS 66049
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INSIGHT DESIGN IDEA ARCHITECTS
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NATHAN RAPP, ARCHITECT #A-2008092601

REISSUE DATE

PROFESSIONAL OF RECORD

STATE OF MISSOURI
LAURA MICHELLE BLANCHARD
NUMBER PE-2007032414
PROFESSIONAL ENGINEER
4-14-2025

ARCHITECT	RAPP
PROJECT NO.	241121
DATE	04/14/2025
DRAWING TITLE	HVAC PLAN
SHEET NO.	M100

PLUMBING REQUIREMENTS

1. This Contractor shall provide all service piping and accessories required for complete and operating utilities if not furnished by the serving utility. It is the responsibility of this Contractor to coordinate with the serving utility company regarding the items furnished, the work performed, inspections required, and any associated permits.
2. This Contractor shall provide gas, water, storm, and sewer line utility connections required and/or indicated on the drawings. All interior or exterior connections to "mains" and existing service lines shall be installed complete and in strict compliance with the requirements of the codes having jurisdiction and the serving utility involved. This Contractor shall verify the exact location of all utility mains, service lines, and connection points requiring connection in the field, and he shall work in conjunction with the utility involved in the installation of all services.
3. The Contractor shall pay any and all required utility service fees associated with this project.
4. Provide unions or grooved mechanical couplings at all equipment connections, at points where disconnection of piping will be required, and at other locations show on the drawings.
5. Bronze or brass ball valves rated at 150 psi SWP and 600 psi WOG, shall have two or three piece stainless steel, cast bronze, or brass bodies with TFE seats, stainless steel full port ball, separate packing nut with adjustable stem packing, and anti-blowout stem shall be used in 3" and smaller copper and steel lines for domestic water duties.
6. Bronze body, globe style manual valve with flow measuring taps shall be used for all balancing valves 2" and smaller for domestic water duties.
7. All insulated horizontal piping shall be supported from outside the insulation. Provide inserts and saddles as recommended by the insulation manufacturer.
8. Pipe hangers for lines 1/2" to 2" shall be adjustable swivel ring. Pipe hangers for lines 2 1/2" to 4" shall be light duty clevis. Pipe hangers for lines 6" and larger shall be standard clevis. Provide hanger rods in diameters as required by the hanger rod holes. Provide riser clamps at each floor and at other locations where vertical support is necessary.
   - A. Upper ends of hanger rods shall be supported angle iron laid across top chord of bar joists, or from side beam clamps in steel structure. Upper ends of hanger rods in other construction types shall be as recommended by the Structural Engineer of record.
   - B. Hanger and support spacing for horizontal steel and copper piping shall not exceed the values given in the following table:

NOMINAL PIPE SIZE	STEEL PIPE	COPPER PIPE
1/2" to 1-1/4"	7'	5'
1-1/2" to 2"	9'	6'
2-1/2" to 3"	11'	10'
4"	14'	10'
6"	17'	__

   - C. Soil, waste, vent and drain pipe as well as roof drain lines shall have a minimum of one hanger per pipe section at the joints and at changes in direction and branch connections. If FM approved couplings are used, pipe may be hung with one hanger per 10 foot lengths and at every third fitting where they are contiguous in conformance with manufactures installation instructions.
   - D. No pipe hanger rod shall be less than 6" in length unless otherwise shown or approved. Spacing of supports and braces for exposed vertical piping shall not exceed the hanger spacing specified for horizontal pipe, unless otherwise indicated.
9. Roof Piping Supports shall be constructed of 100% recycled rubber and polyurethane prepolymer with a uniform load capacity of 500 pounds per linear foot of support. Steel frame shall be 14 ga. Galvanized strut. Attaching hardware shall be zinc plated threaded rod and nuts. Provide bridge channel, extended height, and/or roller supports as needed for the actual installation.
10. Soil, waste, vent and drain pipe as well as roof drain lines shall have a minimum of one hanger per pipe section at the joints and at changes in direction and branch connections.
11. Piping Systems, Integrity Test The following piping systems shall be fully tested before covering and concealing in the presence of the Owner's representative. All leaks shall be repaired in a satisfactory manner.
    - A. Domestic water piping interior lines shall be tested in accordance with the IPC/UPC as follows:
      - a. Hydrostatically tested at 100 psi (or system pressure) for a period of 1 hour with no drop in water pressure.
      - b. Air tested at minimum 50 psi for 20 minutes with no loss of pressure.
    - B. Compressed air piping shall be tested at 150% of operating pressure but not less than 50 psi for a period of 1 hour.
    - C. Purified water piping shall be tested at 150% of operating pressure but not less that 100 psi for a period of 1 hour.
    - D. All fittings and joints in gas piping shall be soap tested while holding a 50-psi air pressure.
    - E. Soil, waste, vent and roof drain pipe underground shall be tested before complete covering. This test shall be made by extending a 10' length of pipe vertically, temporarily caulking, and filling with water. This test shall remain 12 hours.
      - a. Soil, waste, vent and roof drain pipe in the building shall be tested in accordance with IPC/UPC as follows:
      - b. Minimum hydrostatic pressure of 10 feet of water for a period of 1 hour with no drop in water level. System shall be visually inspected after the 1 hour duration for leaks
      - c. Air tested at minimum 5 psi for 20 minutes with no loss of pressure.
    - F. All flush valves, faucets and other plumbing items shall be properly adjusted.
    - G. All hot water recirulating valves shall be balanced to the flows noted on the drawings using gauges supplied by the valve manufacturer.
    - H. Domestic water piping system shall be purged of deleterious matter and disinfected prior to utilization per IPC as follows:
    - I. The pipe system shall be flushed with clean, potable water until dirty water does not appear at the points of outlets.
    - J. The system, or part thereof, shall be filled with a water/chlorine solution containing at least 50 ppm of chlorine, and the system or part thereof shall be valved off and allowed to stand for 24 hours; or the system or part thereof shall be filled with a water/chlorine solution containing 200 ppm of chlorine and allowed to stand for 3 hours.
    - K. Soil, waste, vent and roof drain pipe underground shall be tested before complete covering. This test shall be made by extending a 10' length of pipe vertically, temporarily caulking, and filling with water. This test shall remain 12 hours. All other piping systems shall be tested with compressed air at 150% of operating pressure but not less than 50 psi for a period of 1 hour.
    - L. Provide 1-1/2" preformed fiberglass pipe insulation with ASJ jacket and SSL self-sealing lap for all domestic water and storm drain piping. Provide a continuous vapor barrier on cold water and roof drain lines.
    - M. Handicapped lavatory and sink P-traps and domestic water lines shall be insulated with Truebro Model 102, fully molded insulation system with 3-piece interlocking trap and 2-piece interlocking angle valve assembly. Color shall be light gray.
    - N. Discharge pipe from relief valves, and non-potable domestic water lines 4" and smaller shall be type L hard copper pipe with sweat type fittings and 50/50 solder connections.
12. Potable domestic water lines above grade shall be type L hard copper pipe with sweat type fittings and 95/5 solder or Silfos brazed connections. Below grade piping shall be type K hard copper piping with Silfos joints for 3" and below and cement lined ductile iron pipe or C900 plastic with mechanical joints for 4" and larger. All domestic water piping within dwelling units shall be allowed to be cross-linked polyethylene (PEX) piping.
13. PEX (Cross-Linked Polyethylene) plastic tubing and fittings for Hot and Cold water Distribution systems: (USE OF SYSTEM MUST BE APPROVED BY ENGINEER & OWNER PRIOR TO BIDDING/INSTALLATION)
    - A. FostaPex Tubing: High-Density Cross-linked polyethylene tubing shall be manufactured from polyethylene compounds that are electronically crosslinked. The degree of crosslinking shall be at a minimum of 65 percent. Cross-linked polyethylene plastic tubing (PEXc) shall be rated for maximum pressure of 100 psi at 180°F or 80 psi at 200°F. Cross-linked polyethylene plastic tubing shall be opaque in color to reduce transmission of visible light. Inner layer shall be fully dimensioned Pexcel tubing conforming to ASTM F876 standards.
    - B. Press Fittings: Cross-linked polyethylene fittings shall be manufactured from bronze. The press sleeve shall be stainless steel. The press sleeve shall have a sight hole to ensure proper insertion.
    - C. Installation in accordance with the manufacturer's installation instructions.
    - D. Field Quality Control: Upon completion of a section or of the entire hot and cold water supply system, it shall be tested and proved tight under a water pressure not less than the working pressure under which it is to be used. The water used for tests shall be obtained from a potable source of supply. The piping shall withstand the test without leaking for a period of not less than 15 minutes.
    - E. Manifolds: Acceptable manifolds shall include:
      - Bronze Manifolds: Shall be bronze material having 1 inch NPT threaded ends. Manifolds shall be non}directional. All outlets shall either be ProPress or Press fittings. Shall be provided by the Cross-linked polyeth}ylene manufacturer.
      - Copper Manifolds: Shall be copper material having a female solder or ProPress inlet. All outlets shall be Press or ProPress fittings. Shall be provided by the Cross-linked polyethylene system manufacturer.
      - Adapter Fittings: Cross-linked polyethylene adapter fittings shall conform to ASTM F877 or CSA CAN3-B137.5. The adapter fittings shall mate to NPT threads, copper tubing, copper fitting or ProPress fittings.
      - Install manifolds in accordance with the manufacturer's installation instructions.
14. Exterior buried piping shall have a minimum of 42" cover.
15. All runs of pipe shall be installed as shown on drawings, unless some condition should arise which would make it necessary or seem advisable to alter same. No piping shall be buried unless shown as such as the drawings.
16. All piping shall be concealed in walls, below floors, or above ceilings unless indicated otherwise or shown running through areas with exposed structure. All pipe shall be installed parallel or perpendicular to building surfaces.
17. Provide Febco 825Y, or approved equal, reduced pressure backflow preventer where indicated at domestic water service entrance.
18. Provide Woodford, or approved equal Zurn, Prier, Wade, Smith, or Josam hose bibbs as follows: Exterior: Woodford #65C (self-draining with vacuum breaker). Interior: Zurn S-1333 key operated, vandal resistant interior hose bibb with vacuum breaker.
19. Shock Stops: Provide Precision Plumbing Products, or approved equal, Model SC water hammer arrestors sizes as noted on the plans and required by the plumbing code.
20. Natural Gas Piping and Fittings
    - A. Above Grade: Schedule 40 grade, ASTM A-53, butt weld black steel pipe with either welded or threaded malleable fittings shall be used for above grade gas piping. Flexible gas piping in maximum 24" lengths will be required at final connections to all gas appliances.
    - B. Above Grade (if approved) Flexible gas piping shall be Gastite corrugated stainless steel tubing, ASTM A240 type 304 - 321, with a minimum wall thickness of .010, complying with ANSI/IAS LC-1 Standard for fuel Gas Piping using Corrugated Stainless Steel Tubing (CSST), CSA International Report No. 1898978-1009875, ICBO Evaluation Report ER-5122, and IAPMO Research Report File No. C-3250. Jacketing shall be Tenite polyethylene meeting the requirements of ASTM E84 for flame spread and smoke density.
    - C. Below Grade: Buried gas piping shall be Plexco PE2406, SDR11, polyethylene with #12 copper tracer wire and anodeless risers where rising above grade.
    - D. Gas piping shall be installed as shown with all exterior buried piping with a minimum of 24" cover. Provide a union, gas valve, and scale pocket at each equipment connection. Final connections to equipment shall be made with a 24" length of flexible gas piping. All fittings in flexible gas lines shall be SAE CA360 brass incorporating double wall flare for sealing and Jacket Lock jacket capturing for steel tubing protection. Installation shall be in full accordance with the current edition of Gastite Design and Installation Guide.
21. Reduced Pressure Style Backflow Preventor
    - A. $\frac{1}{2}$" to 2": Provide Febco 825Y, or approved equal, reduce pressure backflow preventer where indicated at hydronic system make-up connections and domestic water service entrance. Reduced pressure backflow preventer assemblies shall consist of two independent "Y" configured check valves and one differential relief valve.The assembly shall meet or exceed requirements of ASSE Standard 1013, AWWA Standard C511, CSA Standard B64.4 and the USC Foundation for Cross Connection Control and Hydraulic Research.
    - B. 2 $\frac{1}{2}$" to 10": Provide Febco 825YD, or approved equal, reduce pressure backflow preventer where indicated at hydronic system make-up connections and domestic water service entrance. educed pressure backflow preventer assemblies shall consist of two independent "Y" configured check valves and one differential relief valve. By design, the assembly shall automatically reduce the pressure in the zone between the checkvalves. Should the differential between the zone and upstream pressure drop to 2 psi, the differential relief valve will open, maintaining proper zone differential.
22. Double Check Style Backflow Preventers: Provide Febco 850, or approved equal, double check valve assembly where indicated to create potable and non-potable water systems in hydronic system make-up connections.
23. Waste & Vent
    - A. If allowed per Jurisdiction and if the space allows, Schedule 40 PVC drain waste and vent piping with solvent welded joints shall be used for all soil, waste, storm and vents lines located above grade for all concealed piping.
    - B. Cast iron soil pipe with no hub joints shall be used for soil, waste, storm, and vent lines above grade for any exposed piping. Couplings for joining hubless cast iron pipe and fittings conforming to ASTM Q-888, shall be 3 inches wide for nominal pipe sizes 1 ½ to 4 inches in diameter, 4 inches wide for nominal sizes 5 to 10 inch diameter, and 5 5/8 inches wide for couplings 12 and 15 inches in diameter. Shields shall have a minimum thickness of .015 inches, (28 gage) type 304 stainless steel. Worm drive clamps shall be type 304 stainless steel with a minimum clamp torque of 80 in/lbs. Sealing gasket shall be neoprene conforming to ASTM C-564.
    - C. Schedule 40 PVC drain waste and vent piping with solvent welded joints shall be used for all soil, waste, storm, and vents lines located below grade.
    - D. The arrangement of waste and vent systems must be as direct as possible avoiding all unnecessary offsets. All pipe shall run as indicated on the drawings, unless some condition should arise which would make it necessary or seem advisable to alter same. Horizontal lines shall be graded at 1/8" per foot, unless noted otherwise. Where necessary, lines may pitch at 1/10" per foot when approved or noted.
    - E. Every vent for traps shall be connected to the waste line by as short a connection as possible, but in no case shall such connections have a length greater than 2' in length, measuring horizontally from the center of the fixture to the vent. Horizontal vents shall connect into the main stack at least 18" above the highest fixture.
    - F. Each fixture and piece of equipment requiring connection to the sanitary drainage system shall be equipped with a trap. Each trap shall be placed as near the fixture as possible and no fixture shall be double-trapped.
    - G. Provide cleanouts where shown or required by code. Cleanouts shall be the same size pipe for pipe 4" and smaller, and 4" for lines 4" and larger.
    - H. Floor drains and sinks shall have deep seal trap and shall be as scheduled on the drawings. Trap material shall match that of system connection. Unless noted otherwise, or specifically excluded by code, provide trap primers for all floor drains.
24. Plumbing Fixtures and Trim:
    - A. Provide complete, all fixtures indicated. All fixtures shall be set firm and true, connected to all pipe and ready for use.
    - B. Quarter turn stop valves shall be provided on the hot and cold water connections to all plumbing fixtures. No flexible supply connections are allowed.
    - C. Install plumbing fixtures and specified components in accordance with designations and locations indicated on Drawings and in complete compliance with the manufacturer's recommendations and instructions.
    - D. Refer to elevations on the Architect's drawings for installation height of wall-mounted fixtures. Refer to architectural plans to ensure flush valve control handle is mounted for use from the wide side of handicapped toilet stalls.
    - E. Set shower receptors and mop basins in leveling bed of cement grout.
    - F. Install stop valve in an accessible location in each water supply to each fixture.
    - G. Install escutcheons at each wall, floor, and ceiling penetration in exposed finished locations and within cabinets and millwork. Use deep pattern escutcheons where required to conceal protruding pipe fittings.
    - H. Seal fixtures to walls, floors, and counters using a sanitary-type, one-part, mildew-resistant, silicone sealant. Match sealant color to fixture color.
    - I. Operate and adjust all plumbing fixtures and equipment. Replace damaged and malfunctioning fixtures, fittings, and controls. Adjust water pressure at drinking fountains, electric water coolers, and faucets, shower valves, and flush valves having controls, to provide proper flow and stream. All hot water recirculating valves shall be balanced to the flows noted on the drawings using gauges supplied by the valve manufacturer. Clean fixtures, fittings, and spout and drain strainers with manufacturers' recommended cleaning methods and materials.
25. Domestic Water Pumps:
    - A. The basis for the equipment in this specification is Bell and Gossett and shall represent the minimum level of construction. Equipment from Taco, Thrush, Armstrong, and Patterson shall be permitted to bid these specifications
    - B. Circulators shall be horizontal inline, centrifugal, separately-coupled, single-stage, bronze-fitted, radially split case design, with mechanical seals, and rated for 125 psig working pressure and 225 deg F continuous water temperature.
    - C. Pump Couplings: Flexible, capable of absorbing torsional vibration and shaft misalignment.
    - D. Install pumps in locations and arranged to provide access for periodic maintenance, including removal of motors, impellers, couplings, and accessories.
    - E. Pump Couplings: Flexible, capable of absorbing torsional vibration and shaft misalignment.
26. Electric Water Heaters:
    - A. The basis for the water heating equipment in this specification is A.O. Smith and shall represent the minimum level of construction. Equipment from Rheem or State shall be permitted to bid these specifications
    - B. Water heater shall be electric storage type heater as scheduled on the plans. Provide with non-simultaneous, single or three phase element, and glass lined storage tank.
27. Gas Fired Water Heaters:
    - A. The basis for the water heating equipment in this specification is A.O. Smith and shall represent the minimum level of construction. Equipment from Rheem or State shall be permitted to bid these specifications
    - B. Water heater shall be a gas fired storage type heater as scheduled on the plans with glass lined storage tank.
    - C. Provide with 100 % gas safeties, brass drain valve in tapping, temperature pressure relief valve, and ASHRAE 90 tank insulation with painted metal jacketing.
28. Roof Drains:
    - A. Roof Drains: Provide Zurn model ZC-100-EARC roof drain with cast iron domes and all accessories as required for proper installation in roof decks with an overall insulation thickness as indicated on the architectural plans.
    - B. Overflow Drains: Provide Zurn model ZC-100-EARC-W2, overflow roof drain with cast iron domes and all accessories as required for proper installation in roof decks with an overall insulation thickness as indicated on the architectural plans.
    - C. Downspout Nozzle: Provide Zurn model ZANB-199 for all above grade discharge. Where internal surface of visible piping behind downspout nozzle is not black, contractor shall paint visible surfaces matte black.

GENERAL MEP REQUIREMENTS

1. The contract includes all labor, material, and equipment required for the complete systems as shown and specified. Provide all devices and accessories as necessary for complete and working systems.
2. The contractors shall become familiar with the work of all other trades and shall fully coordinate their work prior to ordering equipment or installation of systems.
3. The materials, products and equipment described in these specifications or on the drawings establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution. Listing of these manufacturers shall in no way be construed as a device intended to limit the bidders to those specifically listed.
4. Reference to any article, device, product, material, fixture, form or type of construction by name, make, or catalog number, shall be interpreted as having established a standard of quality and shall not be construed as limiting competition. Articles, fixtures, etc. of equal quality by manufacturers listed in this specification for the applicable use, shall be acceptable, subject to performance, spatial, structural, and electrical constraints of the project design. The Engineer reserves last opinion as to a product's equality or superiority to that specified.
5. Shop drawings shall be submitted for all equipment and major materials supplied and shall include: manufacturer, model number, materials, and miscellaneous data as required to describe the equipment; capacity, voltage, phase, ampacity, and other miscellaneous data to quantify the size of the equipment; dimensional drawings showing layout, connection points, and detailed layout of components; electrical full load amps and minimum circuit ampacities; and other pertinent information needed for complete review by the engineer. Conspicuously mark on each submittal the exact model, fittings, accessories, and devices to be supplied. When a schedule is shown on the drawings or in the specifications, provide a copy of that schedule with the submittal. Contractor shall check all shop drawings to verify that they meet the requirements of the drawings and specifications before forwarding to the architect and engineer. All shop drawings submitted shall bear the stamp of the contractor to show that they have been reviewed in detail. No work shall be fabricated and no equipment ordered until the architect and engineer have returned acceptable reviewed shop drawings.
6. Locations of equipment, piping, and other work are indicated diagrammatically on the drawings. Each contractor shall coordinate exact locations subject to structural conditions, work of other contractors, access requirements, and the approval of the architect and engineer.
7. Drawings and specifications indicate minimum construction standards, but should any work indicated be sub-standard, to any ordinances, laws, codes, rules, or regulations bearing on work, the contractor shall execute work in accordance with such without increased cost to the owner, but not until he has referred such variances to the engineer.
8. The contractors shall secure and pay for the necessary permits and certificates of inspection for their trade. Keep record of all permits and inspections and submit two copies to the engineer with request for final inspection.
9. The owner shall be provided with training on each piece of equipment as to startup, shutdown, normal maintenance, seasonal changeover, and other pertinent information as recommended by the manufacturer.
10. This contractor shall warrant that the complete systems installed under this contract shall be free of defects in workmanship and materials for a period of one (1) year from the date of substantial completion by the arch/owner. If defects occur during the one year guarantee period, this contractor shall repair or replace such defects at no expense to the owner and to the satisfaction of the owner and engineer.
11. Provide 3-1/2" concrete bases for all floor mounted equipment unless shown or noted otherwise. Provide 6x6 welded wire fabric reinforcing minimum or as required by the structural engineer.
12. Adequately protect equipment from damage after delivery to the jobsite. Cover with heavy polyethylene plastic. Elevate equipment when there is danger of water damage. Equipment damaged will be rejected.
13. Any scratches to factory finishes shall be touched up using factory supplied paint before final acceptance. If extensive damage to factory finishes has occurred, equipment panels shall be replaced to the satisfaction of the engineer. If rust has formed, remove as recommended by the manufacturer prior to touch-up.
14. Install all equipment in strict accordance with the manufacturer's recommendations and the shop drawings reviewed by the Engineer. The complete installation shall function as designed and intended with respect to efficiency, capacity, and noise level, etc. Any abnormal noise caused by rattling equipment, conduit, or fixtures will not be acceptable.
15. Contractor shall perform initial start-up of systems and shall provide necessary supervision and labor to make the first seasonal change-over of systems. Owner's operating personnel shall be present during this operation.
16. It is the contractor's responsibility to provide materials and trim which fit properly the types of ceiling, wall, or floor finishes actually installed. Model numbers in specifications or shown on drawings are not intended to designate the required trim.
17. Contractor shall provide all miscellaneous steel, etc., for the proper installation of the systems specified and/or indicated on the plans. Any item connecting to building structure shall be done in a manner accepted by the structural engineer. When bar joists are used for steel construction, items shall be supported from angle iron spanning the top chord of the joists.
18. Periodically during construction and prior to Owner acceptance of the building, Contractor shall remove from the premises and dispose of all packing material and debris.
19. Before submitting his bid, the Contractor shall visit the actual location of the job and shall fully understand the scope of the work to be done and the conditions under which it is to be performed. In no case shall additional compensation be granted when existing conditions could reasonably be determined.
20. Locate and mark all known utilities prior to proceeding with work. Proceed with caution since unmarked utilities may exist on site. Should any existing utilities be damaged or disrupted, immediately notify owner and repair to existing conditions.
21. The Contractor shall closely coordinate all utility downtime with the Owner and Architect giving a minimum fourteen (14) day notice prior to downtime. Downtimes are to be held to a minimum duration with the Owner being notified as to the extent of said downtime. Any work that will affect the building occupants in any way shall be coordinated with that tenant. Such work shall be performed in a satisfactory manner to those affected.
22. The Electrical Contractor shall provide all conduit and wiring and shall connect complete and ready for operation all electrical motors and equipment in the other contracts. The other contractors shall furnish to the Electrical Contractor all switches, electrical controls, and other accessories required. Installation of all motors, equipment, etc., shall be made by the Contractor furnishing the equipment, unless otherwise indicated.
23. Unless integral to the equipment supplied or noted otherwise, the Electrical Contractor shall provide disconnect switches, motor starters, and variable frequency drives as required by code and/or as shown on the drawings. The contractors responsible for installing the associated equipment shall coordinate with the Electrical Contractor to ensure devices of the proper size are furnished. Further, the other trades shall furnish all electric control items needed to the Electrical Contractor for installation and connection.
24. The contractor shall provide openings and chases, cutting and patching, excavation and backfilling, and pipe sleeves as needed for proper execution of the work.
25. The Contractor shall do all excavation and backfilling necessary to complete work under this contract. Trenches close to walls and columns of the building shall not be excavated without the Architect's prior consent. As a minimum, backfill in 6" lifts, compacting to a minimum of 90%. The first 12" of fill above any buried item outside the building shall be sand in order to contrast with other fill material. Provide a yellow warning tape at the top of the sand layer.
26. Sleeves are required in all penetrations through new exterior walls, masonry walls, floors and fire rated gypboard walls. Sleeves shall be either Schedule 5 steel pipe, EMT conduit, field fabricated from minimum 16 gauge steel with 2" overlap at the seam, or as required by UL listed fire-stopping system. Sleeves will not be required in existing wall penetrations of masonry construction when such openings are made by "core-drilling." Space between sleeves and pipe in outside walls shall be sealed using link seals. Space between sleeves and pipe in other wall construction shall be the diameter necessary to provide the clearance required by the UL listed fire stopping method chosen by the contractor.
27. All sidewalks, streets, or alley surfaces that are broken in connection with this contract shall be patched to the satisfaction of the owner.
28. Provide fire stopping to maintain the fire rating of walls, floors, ceilings, or other building component. Fire stopping shall be composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the fire stopping under conditions of service and application, as demonstrated by the fire stopping manufacturer based on testing and field experience. Firestop system installation must meet requirements of ASTM E-814, UL Standard 1479 or UL Standard 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.
29. All installation shall conform with the latest adopted Building Codes and Justification amendments.
30. Description of Work
    - A. The Mechanical Contract includes all labor, materials and equipment required for the complete mechanical systems as shown and herein specified.
    - B. Provide all devices and accessories as necessary for complete and working systems.
    - C. The contractors shall become familiar with the work of all other trades and shall fully coordinate their work prior to ordering equipment or installation of systems.
    - D. The contractors shall become familiar with the work of all other trades and shall fully coordinate their work prior to ordering equipment or installation of systems.
    - E. The Contractor shall coordinate his work with that of all other trades in order to eliminate interferences. He shall examine the drawings in advance to determine the location of sprinklers, electrical systems, ducts, piping, structures, conduits, alarms, and other equipment and services to be installed, and properly coordinate the installation of his work to avoid interferences. The Engineers have considered existing interferences in making the drawings, but it is the responsibility of the Contractor to include in his bid proposal adequate allowances to modify, offset, or otherwise accommodate all equipment to the structure, utilities, and apparatus.
31. Definitions
    - A. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and similar operations."
    - B. Install: The term "install" is used to describe operations at the project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
    - C. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
    - D. Furnished by Owner or Furnished by Others: The item will be furnished by the Owner or Others. It is to be installed and connected under the requirements of this Division, complete and ready for operation, including all items incidental to the Work, including all services necessary for proper installation and operation. The Installation shall be included under the guarantee required by this Division.
32. Operation and Maintenance Manuals
    - A. Before project close-out, submit three copies of installation, operating, maintenance instructions, and parts lists for equipment provided. Include in the manual a list of emergency service organizations capable of rendering service for each piece of equipment.
    - B. Keep in a safe place all keys, wrenches, and other specialty tools furnished with equipment. Present to owner at project close-out and receive a receipt showing he has received the same.
    - C. At the completion of the project furnish to the Architect for the Owner, Operation and Maintenance Manuals in PDF format on CR-ROM and three (3) copies of brochures in three ring notebook form, divided and tabbed, containing all data, diagrams, capacities, spare part numbers, manufacturers service and maintenance data, warranties, guarantees, etc., including local contacts and escalation schedule complete with addresses and telephone numbers, of all equipment, apparatus, and system components furnished and installed under this Division of the specifications.
33. Codes and Ordinances
    - A. All work shall be in accordance with applicable codes, rules, ordinances, and regulations of local, state, and federal governments and other authorities having jurisdiction.
    - B. Drawings and specifications indicate minimum construction standards, but should any work indicated be sub-standard, to any ordinances, laws, codes, rules, or regulations bearing on work, the contractor shall execute work in accordance with such without increased cost to the owner, but not until he has referred such variances to the engineer.
34. Where other than first named products are used, it shall be the responsibility of the contractor to determine prior to bid time that his proposed materials and equipment selections do not require adjustments in the mechanical, electrical , structural, or architectural requirements as shown on the drawings. The contractor shall include in his bid all costs associated with any required adjustments
35. Instillation
    - A. Install all equipment in strict accordance with the manufacturer's recommendations and the shop drawings reviewed by the Engineer.
    - B. Locations of equipment, piping, and other work are indicated diagrammatically on the drawings. Each contractor shall coordinate exact locations subject to structural conditions, work of other contractors, access requirements, and the approval of the architect and engineer.
    - C. item interfering with proper placement of other work shall be removed and relocated without extra cost if reasonable coordination would have eliminated the interference. Damage to other work caused by this contractor shall be restored as specified for new work.
    - D. Final acceptance of work shall be subject to the condition that all systems, equipment, apparatus, and appliances operate satisfactorily as designed and intended. Work shall include required adjustment of systems and control equipment installed under this specification.
    - E. Contractor shall perform initial start-up of systems and shall provide necessary supervision and labor to make the first seasonal change-over of systems. Owner's operating personnel shall be present during this operation.
    - F. It is the contractor's responsibility to provide materials and trim which properly fit the types of ceiling, wall, or floor finishes actually installed. Model numbers in specifications or shown on drawings are not intended to designate the required trim.
    - I. This contractor shall provide all miscellaneous steel, etc., for the proper installation of the systems specified and/or indicated on the plans.
36. Connections to Building Structure
    - A. Any item connecting to building structure shall be done in a manner accepted by the structural engineer.
    - B. When bar joists are used for steel construction, items shall be supported from angle iron spanning the top chord of the joists.

FIRE ALARM REQUIREMENTS

1. Furnish and install a complete Fire Alarm System as described herein and as shown on the plans; to be wired, connected, and left in first class operating condition. The system shall use closed loop initiating device circuits with individual zone supervision, individual notification appliance circuit supervision, incoming and standby power supervision. Include a control panel, manual pull stations (fire alarm boxes), automatic fire detectors, horns, annunciator, remote control devices, all wiring, connections to devices, outlet boxes, junction boxes, and all other necessary material for a complete operating system.
2. Fire Alarm Wiring
   - A. Fire alarm wiring shall be solid, unstranded power limited cable as follows:
     - Non-Plenum Mapnet: West Penn D975, 1PR, 18GA shielded
     - Plenum Network and Mapnet: West Penn 60975, 1PR, 18GA shielded
     - 16GA Non-Plenum: West Penn 991, 1PR unshielded
     - 16GA Plenum: West Penn 60990B, 1PR shielded
     - 14GA Non-Plenum: West Penn 994, 1PR shielded
     - 14GA Plenum: West Penn 60993B, 1PR unshielded
   - B. All wiring shall be installed in strict compliance with all the provisions of National Electrical Code, Article 760 A and C, Power_Limited Fire Protective Signaling Circuits or if required may be reclassified as non_power limited and wired in accordance with National Electrical Code, Article 760 A and B. All required wiring shall have a minimum insulation rating of 600 volts.
   - C. Fire alarm wiring for this system shall be Fire Alarm plenum rated cable, or run in EMT, or ridged conduit. All wiring in walls shall be in conduit with rough-in boxes. All cables located in environmental air plenum will be plenum rated cables.
3. Fire alarm system indicated on plans is a schematic design only, Contractor shall provide Engineered signed and sealed plans by a NICET company specializing in the detection of detection and alarm systems. Provide documentation verifying compliance with the specified certification, that all persons involved with this project shall be NICET Level III certified in the field of "Fire Protection Engineering Technology, 003", and the sub field of "Fire Alarm Systems, 03". This documentation shall be submitted as a part of the submittal package for "approved" suppliers, and shall be submitted as a part of the "request for approval" by all potential suppliers not pre-approved.
4. Plan size, CAD produced system drawings shall include:
   - A. Wiring diagrams/Locations of all equipment.
   - B. Individual device addresses, indicated at all addressable device.
   - C. Interconnection details of all devices, controls and interfaces to equipment supplied by others.
   - D. Complete product data sheets for equipment proposed, with highlighted, or arrowed identifications of component descriptions, finishes, UL listings, and any other pertinent system information.
   - E. Complete sequence of operations of all functions of the system.
   - F. Standby battery sizing documentation. Provide a complete chart, or spreadsheet, listing all components, indicating individual and cumulative power requirements by type, and showing battery standby required, verses actual.
   - G. Any additional documentation required to properly describe all functions and components needed to configure a complete and operable system.

PLUMBING ABBREVIATIONS

(E)	EXISTING
ABV	ABOVE
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
CLG	CEILING
CTE	CONNECT TO EXISTING
CW	DOMESTIC COLD WATER
DN	DOWN
EXG	EXISTING
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FLR	FLOOR
FS	FLOOR SINK
FW	DOMESTIC FILTERED COLD WATER
GCO	GRADE CLEANOUT
GI	GREASE INTERCEPTOR
GT	GREASE TRAP
GW	GREASE WASTE
GYP	GYPSUM BOARD
HW	DOMESTIC HOT WATER
NTS	NOT TO SCALE
O/H	OVERHEAD
SAN	SANITARY WASTE
ST	STORM SEWER
SW	DOMESTIC SOFTENED COLD WATER

PLUMBING ABBREVIATIONS

TYP	TYPICAL
U/G	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
W/	WITH
CO2AS	CO2 ALARM SUPPLIER
GC	GENERAL CONTRACTOR
HES	TENANT'S HVAC EQUIPMENT SUPPLIER
LL	LANDLORD
TAB	TENANT'S TEST AND BALANCE VENDOR
TDC	TENANT'S DUCT CLEANER
TEMS	TENANT'S ENERGY MANAGEMENT SYSTEM SUPPLIER
TPS	TENANT'S PANELBOARD SUPPLIER
TSV	TENANT'S SIGN VENDOR
WHS	TENANT'S WATER HEATER SUPPLIER

PLUMBING MATERIAL SCHEDULE

APPLICATION	ALLOWABLE MATERIAL
NATURAL GAS PIPE	
CONCEALED	SCH. 40 STEEL PIPE, MALLEABLE IRON THREADED FITTINGS
EXPOSED	SCH. 40 STEEL PIPE, MALLEABLE IRON THREADED FITTINGS, PAINTED
SANITARY WASTE & VENT PIPE	
ABOVE GROUND, CONCEALED	PVC PLASTIC DWV PIPE AND FITTINGS
BELOW GROUND	PVC PLASTIC DWV PIPE AND FITTINGS
WATER SUPPLY PIPE	
ABOVE GRADE	TYPE L COPPER TUBE

PLUMBING GENERAL NOTES

A GENERAL NOTES APPLY TO PLUMBING SHEETS.

B PLUMBING WORK SHALL BE DONE IN ACCORDANCE WITH THE PLUMBING CODE, LOCAL HEALTH DEPARTMENT STANDARDS, AND THE AUTHORITY HAVING JURISDICTION. SEE ARCHITECTURAL SHEETS FOR THE PREVAILING CODES.

C PIPING LAYOUTS ON DRAWINGS ARE SCHEMATIC. EXACT LOCATIONS ARE TO BE COORDINATED WITH THE EXISTING CONDITIONS AND THE WORK OF OTHER TRADES.

D CONCEAL PIPING UNLESS NOTED OTHERWISE. WATER SUPPLY PIPES SHALL BE INSTALLED LEVEL.

E PROVIDE SHUT-OFF VALVES FOR ISOLATION OF FIXTURE GROUPS AS SHOWN ON DRAWINGS IN ADDITION TO STOP VALVES AT EACH FIXTURE.

F PROVIDE STOP VALVES AT FIXTURES.

G PROVIDE TRAP PRIMERS IN AN ACCESSIBLE LOCATION FOR ALL FLOOR DRAINS SHOWN.

H WHERE THE WATER OR GAS SUPPLY LINE SIZE SHOWN IN THE PLUMBING DIAGRAMS DIFFERS FROM THE FIXTURE OR EQUIPMENT CONNECTION SIZE, PROVIDE LINE SIZE PIPE TO WITHIN 6" OF THE FIXTURE OR EQUIPMENT BEFORE TRANSITIONING TO THE CONNECTION SIZE.

I PIPING IN EXTERIOR WALLS SHALL BE INSTALLED BETWEEN THE INSULATION AND THE INTERIOR WALL FINISHING MATERIAL.

J INSULATE THE HOT AND COLD WATER, CONDENSATE DRAINAGE, AND STORM PIPING PER THE SPECIFICATIONS AND DETAIL 8/P700.

K PROVIDE GAS SHUT-OFF VALVES AT EACH PIECE OF EQUIPMENT. PROVIDE ACCESSIBLE DIRT LEG AT THE BOTTOM OF VERTICAL SECTIONS OF GAS PIPE AND AT THE CONNECTION TO EACH PIECE OF EQUIPMENT.

L PLUMBING FIXTURES, ACCESSORIES, AND MATERIALS PROVIDED FOR DOMESTIC WATER SHALL BE LEAD FREE.

M PRIOR TO TURNOVER PERFORM A VIDEO INSPECTION OF THE SANITARY AND GREASE LINES FROM THE MAIN LINES WITHIN THE TENANT SPACE TO THE MAIN SEWER TO VERIFY THAT THE SANITARY WASTE SYSTEM IS CONNECTED, CLEAN, AND FREE OF SAGS, BELLIES, BREAKS, AND DEBRIS. DELIVER A REPORT AND COPY OF THE VIDEO TO THE TENANT'S CONSTRUCTION MANAGER PRIOR TO TURNOVER.

N THE TERM "FURNISH" MEANS SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.

O PRIOR TO CONNECTION TO ANY EXISTING SEWER SYSTEM PERFORM A DIE TEST TO VERIFY THE TYPE OF SYSTEM AND THE DIRECTION OF FLOW. REPORT ANY DEVIATION FROM THE CONSTRUCTION DOCUMENTS TO THE TENANT'S CONSTRUCTION MANAGER.

P PROVIDE SANITARY AND GREASE WASTE PIPES AT A MINIMUM SLOPE OF 1/4" PER FOOT UNLESS NOTED OTHERWISE.

Q INSTALL SHUTOFF AND ISOLATION VALVES SHOWN TO BE ABOVE CEILINGS IN ACCESSIBLE LOCATIONS WITHIN 12" OF LAY-IN CEILINGS.

R ALL UNDERGROUND PIPE, CONDUIT, AND LINES SHALL BE PROTECTED WITH CLEANED DIRT, VOID OF ANY ROCKS OR CLEAN SAND, 6" BELOW AND 12" ABOVE SAID PIPE, CONDUIT, OR LINE.

S PROVIDE APPROVED BACKFLOW DEVICE AS NECESSARY FOR ALL FIXTURES CONNECTED TO THE WATER SUPPLY PER LOCAL AHJ REQUIREMENTS.

T FIRE PROTECTION SYSTEM IS REQUIRED PER NFPA 13R. CONTRACTOR SHALL PROVIDE A DESIGN BUILD SYSTEM.

U FIRE PROTECTION SYSTEM IS REQUIRED PER NFPA 13R. CONTRACTOR SHALL PROVIDE A DESIGN BUILD SYSTEM.

PLUMBING SYMBOLS

— · — · —○	ELBOW UP
— · — · —◐	ELBOW DOWN
— · — · —	DOMESTIC COLD WATER
— — F — —	DOMESTIC FILTERED COLD WATER
— — S — —	DOMESTIC SOFTENED COLD WATER
— · · — · · —	DOMESTIC HOT WATER (110 DEGREES)
— · · · — · · · —	DOMESTIC HOT WATER RECIRC.
—— G ——	GAS
— — G — —	GAS (ON ROOF)
—— —— ——	SANITARY WASTE
—— GW ——	GREASE WASTE
— — — — —	SANITARY VENT
—— CD ——	CONDENSATE DRAIN
Ⓧ	PLAN NOTE: SEE PLAN NOTES LISTED ON THE SAME SHEET FOR NOTE MEANING
◕	CONNECT TO EXISTING
⊠	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
(WM)	WATER METER
(GM)	GAS METER
(XX-#)	EQUIPMENT TAG: SEE EQUIPMENT SCHEDULE ON SHEET P600 FOR EQUIPMENT INFORMATION
⋈	VALVE
⋈	SOLENOID-OPERATED VALVE
╪	WALL HYDRANT/ROOF HYDRANT
N	CHECK VALVE
⋈	CIRCUIT-SETTER BALANCE VALVE RATED FOR POTABLE WATER
⊘	FLOOR DRAIN
▨	FLOOR SINK
◎	CLEANOUT

NEW BUILDING FOR:
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REISSUE DATE

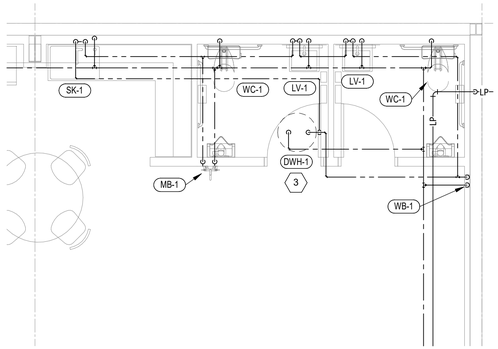
PROFESSIONAL OF RECORD

LAURA MICHELLE BLANCHARD
NUMBER PE-2007032416
Laura Blanchard
4.14.2025

ARCHITECT: RAPP
PROJECT NO.: 241121
DATE: 04/14/2025
DRAWING TITLE: PLUMBING SPECIFICATIONS
SHEET NO.: P010

WATER PLAN NOTES

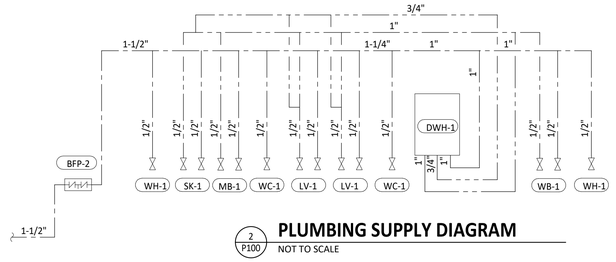
1. SEE CIVIL UTILITY PLAN FOR CONTINUATION OF 1-1/2" DOMESTIC WATER SERVICE LINE TO EXTERIOR 1-1/2" METER.
2. REFER TO SHEET P600 FOR GAS PIPING CONNECTION DETAIL. PROVIDE EACH CONNECTION TO UNIT HEATER WITH AN INDOOR VENTLESS PRESSURE REGULATOR.
3. PROVIDE CONNECTIONS TO WATER HEATER ABOVE CEILING PER MANUFACTURER'S RECOMMENDATIONS. REFER TO DETAIL 4/P600 FOR MORE INFORMATION.
4. REFER TO CIVIL UTILITY PLANS FOR CONTINUATION OF PROPANE LINE TO EXTERIOR TANK.
5. PROVIDE BACKFLOW PREVENTER FOR WATER SERVICE LINE IF NONE EXISTING. BACKFLOW SHALL HAVE INDIRECT DRAIN WITH 2X PIPE DIAMETER AIR GAP INTO FLOOR DRAIN BELOW.



4/P100 **ENLARGED PLUMBING SUPPLY PLAN**
1/4" = 1'-0"

PLUMBING FIXTURE SUPPLY CONNECTIONS

TAG	DESCRIPTION	CONNECTION SIZE CW	CONNECTION SIZE HW	WSFU CW	WSFU HW	WSFU TOTAL	COUNT	TOTAL WSFU
BFP-1	RPZ BACKFLOW PREVENTER	1 1/2"		0	0	0	1	0
FCO-2	FLOOR CLEANOUT (4")						1	0
FD-1	FLOOR DRAIN	1/2"					3	0
LV-1	RESTROOM LAVATORY	1/2"	1/2"	1	1	1.5	4	6
MB-1	MOP BASIN	1/2"	1/2"	1.25	1.25	2	2	4
OS-1	FUTURE OIL/SAND SEPARATOR						1	0
SK-1	KITCHEN SINK	1/2"	1/2"	2	2	2	1	2
TD-1	TRENCH DRAIN						1	0
UR-1	WATERLESS URINAL						2	0
WB-1	WASHING MACHINE BOX	1/2"	1/2"	3	3	4	1	4
WC-1	WATER CLOSET	1/2"		2		2	2	4
WH-1	FREEZE PROOF WALL HYDRANT	3/4"		1		1	2	2
GRAND TOTAL								22

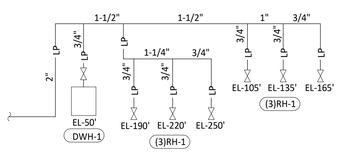


2/P100 **PLUMBING SUPPLY DIAGRAM**
NOT TO SCALE

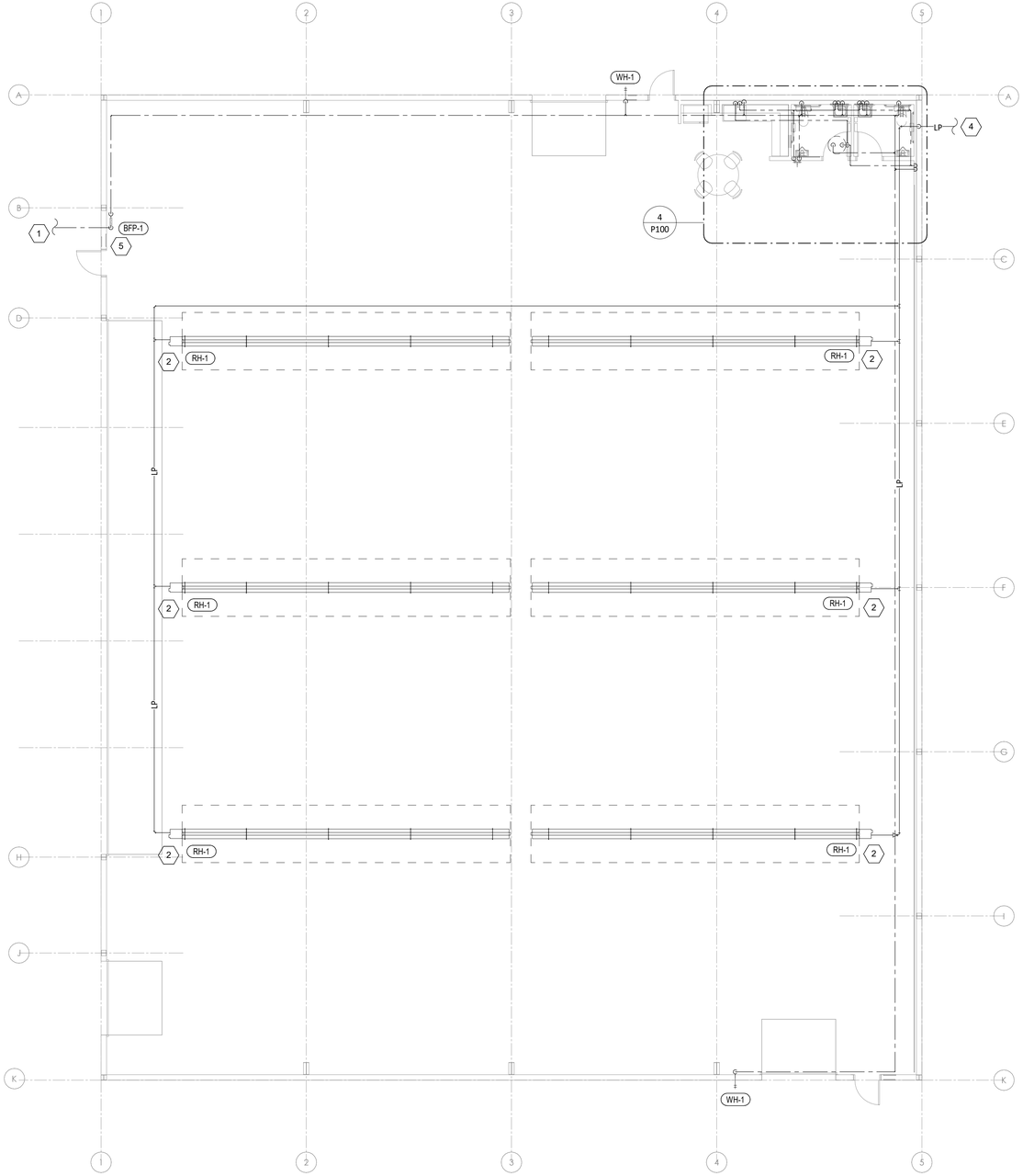
PLUMBING GAS CONNECTIONS

TAG	DESCRIPTION	Count	CONNECTION SIZE	LONGEST LENGTH	INPUT
RH-1	RADIANT TUBE HEATER	6	3/4"	240'	600,000 Btu/h
GRAND TOTAL					600,000 Btu/h

NOTE:
- PIPES SIZED PER TABLE 402.4(28) OF THE 2021 IFGC
- DISTANCES ARE APPROXIMATE
- MAX INLET PRESSURE: 11" W.C., MIN INLET PRESSURE: 14" W.C. - PC TO PROVIDE REGULATOR AS NECESSARY.



3/P100 **PROPANE DISTRIBUTION DIAGRAM**
NOT TO SCALE



1/P100 **PLUMBING SUPPLY PLAN**
1/8" = 1'-0"

NEW BUILDING FOR:
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LEE'S SUMMIT, MO

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REISSUE DATE

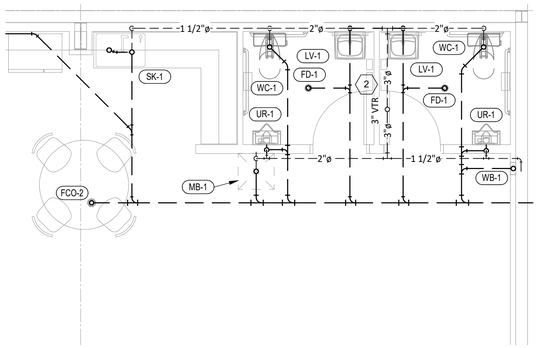
PROFESSIONAL OF RECORD

STATE OF MISSOURI
LAURA MICHELLE BLANCHARD
NUMBER PE-2007033444
PROFESSIONAL ENGINEER
4.14.2025

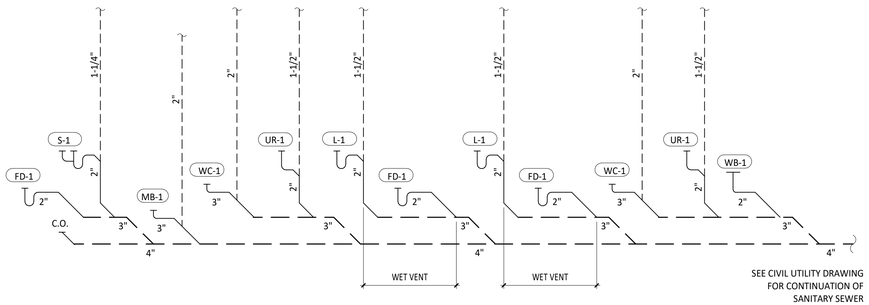
ARCHITECT	RAPP
PROJECT NO.	241121
DATE	04/14/2025
DRAWING TITLE	PLUMBING SUPPLY PLAN
SHEET NO.	P100

PLUMBING WASTE AND VENT PLAN NOTES

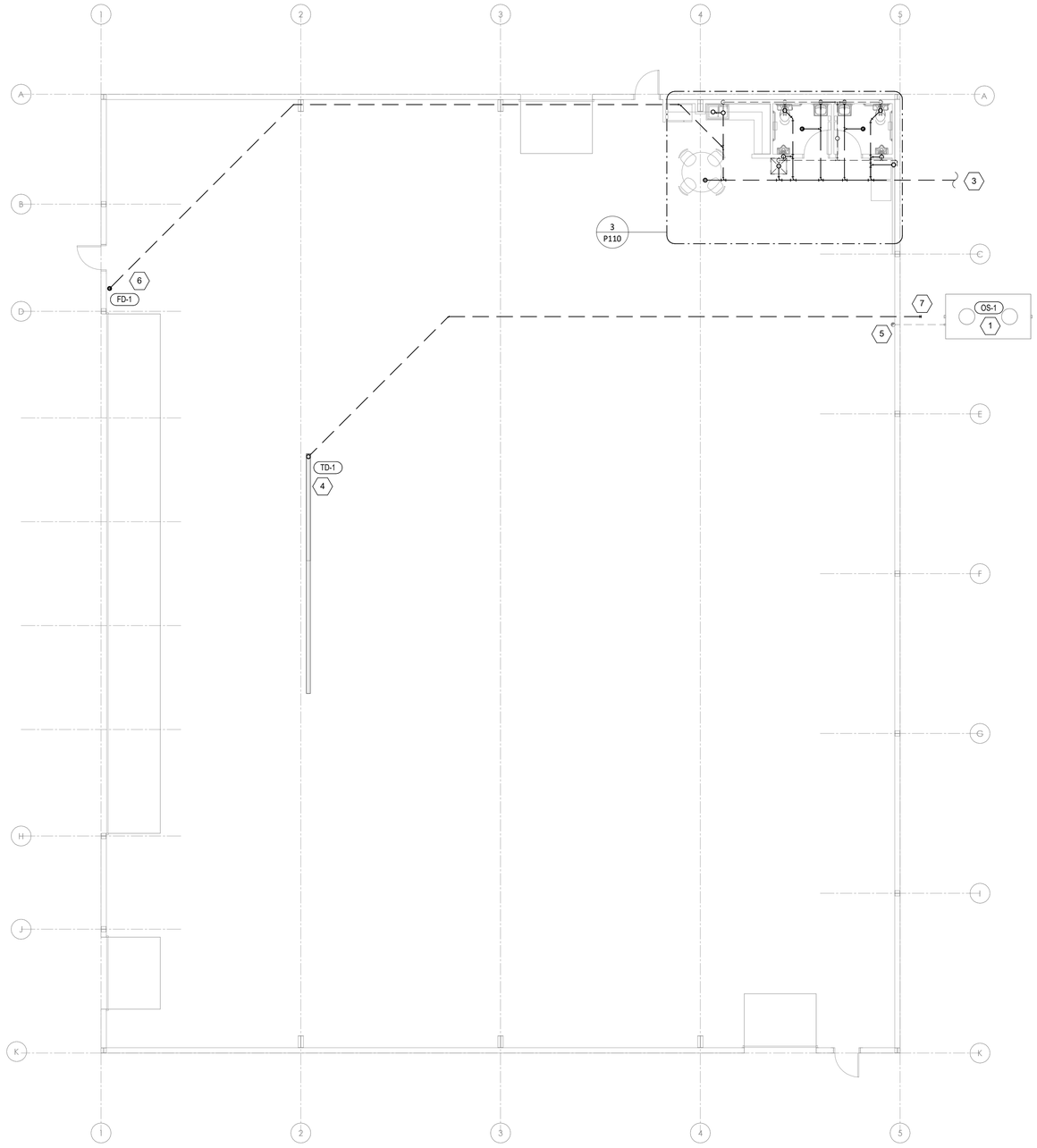
1. FUTURE 500 GALLON OIL/SAND SEPARATOR TO BE INSTALLED. REFER TO DETAILS SHEET P600 FOR MORE INFORMATION.
2. PROVIDE A 3" VENT THROUGH THE ROOF PER DETAIL, SHEET P600.
3. ROUTE 4" LINE FROM OIL/SAND SEPARATOR FOR DAYLIGHT DISCHARGE. FIELD VERIFY EXACT LOCATION OF TERMINATION.
4. TRIM TRENCH DRAIN ENDS PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PRIOR TO INSTALLATION SO THAT GRATE FITS WITHOUT GAPS. INSTALL TRENCH DRAIN WITH SLIGHT POSITIVE SLOPE TOWARD THE DRAIN CONNECTION TO AVOID STANDING WATER IN TRENCH DRAIN.
5. FUTURE 2" VENT PIPING UP THROUGH ROOF AND TIGHT AGAINST WALL FOR FUTURE OIL/SAND SEPARATOR.
6. FLOOR DRAIN FOR BACKFLOW PREVENTER. REFER TO SHEET P100 FOR MORE INFORMATION.
7. CAP 4" TRENCH DRAIN LINE FOR FUTURE CONNECTION TO OIL/SAND SEPERATOR.



3 P110 **ENLARGED PLUMBING WASTE & VENT PLAN**
1/4" = 1'-0"



2 P110 **SANITARY WASTE & VENT DIAGRAM**
NOT TO SCALE



1 P110 **SANITARY WASTE & VENT PLAN**
1/8" = 1'-0"

NEW BUILDING FOR:
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PROFESSIONAL OF RECORD

STATE OF MISSOURI
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PROFESSIONAL ENGINEER
4-14-2025

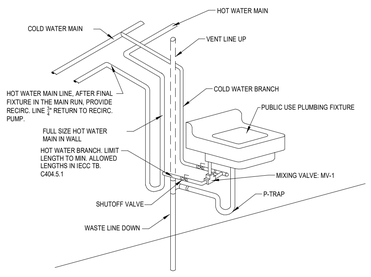
ARCHITECT	RAPP
PROJECT NO.	241121
DATE	04/14/2025
DRAWING TITLE	PLUMBING PLAN WASTE & VENT
SHEET NO.	P110

PLUMBING FIXTURE SCHEDULE

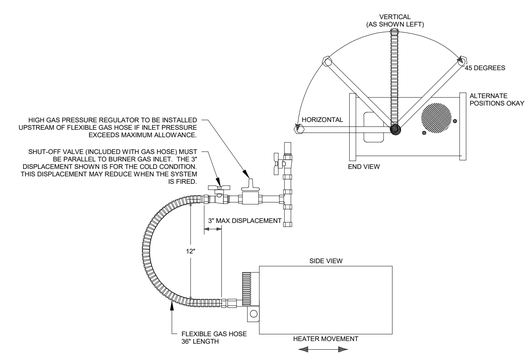
TAG	DESCRIPTION	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS	COUNT	CONNECTION SIZE			WATER SUPPLY FIXTURE UNITS			DRAINAGE
				MANUFACTURER	MODEL			CW	HW	WASTE	CW	HW	TOTAL	FIXTURE UNITS
BFP-1	RPZ BACKFLOW PREVENTER	GC	GC	CONBRACO	4ALF-207	LEAD FREE REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER WITH AUTOMATIC DIFFERENTIAL RELIEF VALVE AND AIR GAP FITTING	1	1 1/2"			0	0	0	
ET-1	EXPANSION TANK	GC	GC	AMTROL	ST-5	2 GALLON CAPACITY	1	3/4"			0		0	
FCO-2	FLOOR CLEANOUT (4")	GC	GC	SIOUX CHIEF	852-4PNR	ON-GRADE ADJUSTABLE CLEANOUT WITH INTERNAL THREADED CLEANOUT PLUG AND ROUND NICKEL-BRONZE RING AND COVER (OR APPROVED EQUAL WITH INTERNAL THREADED CLEANOUT PLUG)	1			4"				0
FD-1	FLOOR DRAIN	GC	GC	SIOUX CHIEF	842-2-PNR	ADJUSTABLE FLOOR DRAIN WITH PVC BODY, ROUND POLISHED METAL RING AND STRAINER, AND TRAP PRIMER PORT	3	1/2"		2"				2
LV-1	RESTROOM LAVATORY	GC	GC	AMERICAN STANDARD	9024.001EC	ADA-ACCESSIBLE, WALL-MOUNTED, PORCELAIN LAVATORY. PROVIDE ZURN Z1231 (Z1231-D FOR BACK-TO-BACK APPLICATIONS) CONCEALED ARM CARRIER IN WALL. PROVIDE METERED FAUCET WITH 0.5 GPM AERATOR AND FURNISHED WITH THERMOSTATIC MIXING VALVE. ADJUST FAUCET CONTROLS FOR 30 SECOND RUN TIME.	4	1/2"	1/2"	2"	1	1	1.5	2
MB-1	MOP BASIN	GC	GC	FIAT	MSB2424	PROVIDE 24"x24"x10" MOLDED-STONE MOP BASIN. INSTALL MOP BASIN IN A BED OF GROUT SO THERE ARE NO VOIDS BETWEEN THE MOP BASIN AND THE SLAB. PROVIDE SERVICE SINK FAUCET WITH BUILT IN STOPS, LEVER HANDLES, WALL BRACE, AND NPT FEMALE INLETS	2	1/2"	1/2"	2"	1.25	1.25	2	3
OS-1	FUTURE OIL/SAND SEPARATOR	N/A	N/A	JENSEN	JP-500-E-OS	500 GALLON OIL/SAND SEPARATOR	1			4"				0
SK-1	KITCHEN SINK	GC	GC	AMERICAN STANDARD	18.DB.9291800	29" x 18" STAINLESS STEEL DOUBLE BOWL SINK PROVIDE WITH AMERICAN STANDARD 2021.634 FAUCET.	1	1/2"	1/2"		2	2	2	
TD-1	TRENCH DRAIN	GC	GC	ZURN	Z886 8606	6" X 360" HDPE TRENCH DRAIN WITH (2) CLOSED END CAPS, (1) 4" NO-HUB BOTTOM OUTLET, AND CLASS-A HEEL-PROOF POLYETHYLENE GRATES.	1			2"				2
UR-1	WATERLESS URINAL	GC	GC	ZURN	Z5795	WATERLESS, WALL-MOUNTED, VITREOUS CHINA. PROVIDE WITH 1 GALLON BOTTLE OF SEALANT REFILL. INSTALL WITH RIM AT 17" AFF.	2			2"				2
WB-1	WASHING MACHINE BOX	GC	GC	GUY GREY	B200	CENTER DRAIN, GALVANIZED	1	1/2"	1/2"	2"	3	3	4	0
WC-1	WATER CLOSET	GC	GC	KOHLER	K-3519 W/ SEAT K-4666-C	WHITE HIGHLINE 1.0 GPF, 17-1/8"-HIGH, ADA ACCESSIBLE, PRESSURE ASSIST WATER CLOSET WITH OPEN-FRONT SEAT. INSTALL TRIP LEVER ON THE TANK TO THE OPEN SIDE OF THE STALL (ADD -RA TO THE MODEL #FOR RIGHT HAND TRIP LEVER).	2	1/2"		3"	2		2	4
WH-1	FREEZE PROOF WALL HYDRANT	GC	GC	WOODFORD	MODEL 65	AUTOMATIC DRAINING, FREEZELESS WALL HYDRANT WITH ANTI-SIPHON VACUUM BREAKER. PROVIDE WITH STEM LONG ENOUGH TO REACH INSIDE THE THERMAL ENVELOPE OF THE BUILDING.	2	3/4"			1		1	

WATER HEATER SCHEDULE

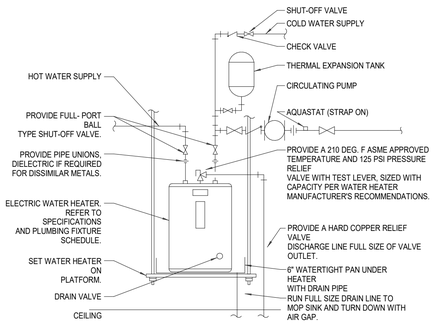
TAG	DESCRIPTION	ELECTRICAL V/P/H	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
					MANUFACTURER	MODEL	
DWH-1	COMPACT ELECTRIC WATER HEATER	120/1/60	GC	GC	AO SMITH	EJC-10	10 GALLON COMMERCIAL GRADE WATER HEATER. FURNISH WITH ALL ACCESSORIES NECESSARY FOR A COMPLETE INSTALLATION.



5 P600 **HOT WATER PIPING DETAIL**
NOT TO SCALE

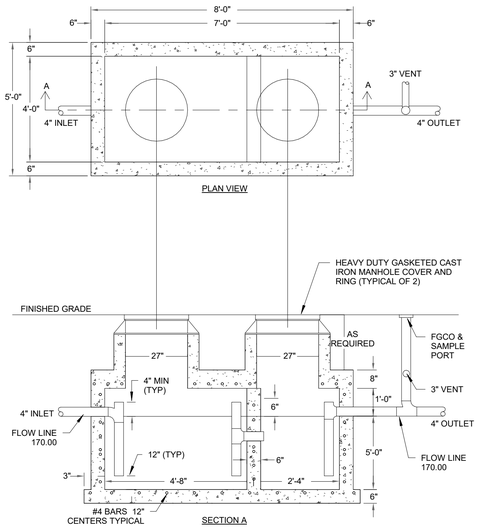


1 P600 **RADIANT HEATER GAS CONNECTION DETAIL**
NOT TO SCALE

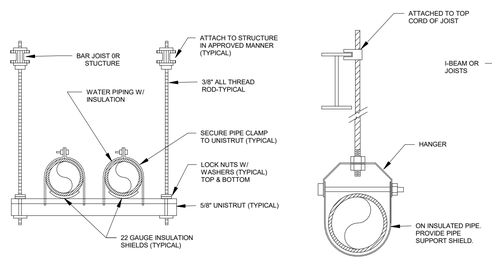


NOTES:
1. PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. REFER TO FLOOR PLANS FOR PIPE SIZES. SET HEATER THERMOSTAT AT 120F. PROVIDE SEISMIC STRAP OR BRACING IF/AS REQUIRED BY LOCAL AUTHORITIES. PROVIDE CLEARANCE, ACCESSIBILITY, AND REMOVABILITY.

4 P600 **WATER HEATER DETAIL**
NOT TO SCALE

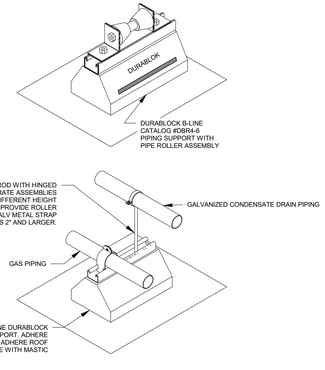


7 P600 **OIL/SAND SEPARATOR DETAIL**
NOT TO SCALE

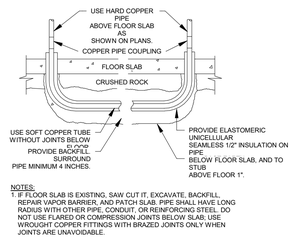


HANGER SPACING TABLE		
PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
CAST-IRON PIPE	5a	15
COPPER OR COPPER-ALLOY PIPE	12	10
COPPER OR COPPER-ALLOY TUBING, 1-1/4" DIA. AND SMALLER	6	10
COPPER OR COPPER-ALLOY TUBING, 1-1/2" DIA. AND LARGER	10	10
STEEL PIPE	12	15
PVC PIPE	4	10

a. The maximum horizontal spacing of cast-iron pipe hangers shall be increased to 10 feet where 10-foot lengths of pipe are installed. Based on INTERNATIONAL PLUMBING CODE 2009.

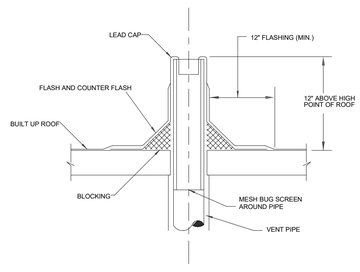


2 P600 **PIPING SUPPORT DETAILS**
NOT TO SCALE



NOTES:
1. IF FLOOR SLAB IS EXISTING, SAW CUT IT, EXCAVATE, BACKFILL, REPAIR VAPOR BARRIER, AND PATCH SLAB. PIPE SHALL HAVE LONG RADIUS WITH OTHER PIPE, CONDUIT, OR REINFORCING STEEL. DO NOT USE FLARED OR COMPRESSION JOINTS BELOW SLAB; USE WROUGHT COPPER FITTINGS WITH BRAZED JOINTS ONLY WHEN JOINTS ARE UNAVOIDABLE.

3 P600 **WATER PIPE UNDER SLAB DETAIL**
NOT TO SCALE



6 P600 **VENT THRU ROOF DETAIL**
NOT TO SCALE

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STATE OF MISSOURI
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PROFESSIONAL ENGINEER
4/14/2025

ARCHITECT	RAPP
PROJECT NO.	241121
DATE	04/14/2025
DRAWING TITLE	PLUMBING SCHEDULES & DETAILS
SHEET NO.	P600

ELECTRICAL REQUIREMENTS

1. The Electrical Contractor shall provide all conduit and wiring and shall connect complete and ready for operation all electrical motors and equipment for other trades as shown on the drawings and as required for complete and operating systems per the latest adopted National Electrical Code.
2. Domestic Water Pumps: The Electrical Contractor shall provide disconnects and motor starter/contactors as indicated. The Electrical Contractor shall make all required electrical connections.
3. Sump Pumps: The PC will provide these pump sets complete with alternator controls. The Electrical Contractor shall make all required electrical connections.
4. Single Phase Exhaust Fans: The MC shall provide the single phase exhaust fans with disconnecting means. The Electrical Contractor shall provide the line voltage thermostat as may be indicated. The Electrical Contractor shall make all required electrical connections.
5. Fan Coil Units: The MC shall provide units complete with factory mounted and wired disconnect, speed control switches, and factory mounted and wired electric heating coil. The Electrical Contractor shall make all required electrical connections.
6. Unit Heaters: The MC shall provide the single phase unit heaters with disconnecting means. The Electrical Contractor shall provide the line voltage thermostat as may be indicated. The Electrical Contractor shall make all required electrical connections.
7. Temperature Controls: The temperature control supplier will provide all low voltage control wiring. The EC shall provide indicated 120 volt power supplies and connection. The EC shall provide all rough-in boxes and conduits for thermostat indicated under the direct supervision of the Temperature Control Contractor. Coordinate all requirements with the Temperature Control Contractor.
8. Range Hoods: The Electrical Contractor shall make all required electrical connections to fan(s), light(s), and switch(es).
9. Fire Alarm: The fire alarm supplier/contractor will provide all low voltage control wiring. The EC shall provide indicated 120 volt power supplies and connections. The EC shall provide all rough-in boxes and conduits for devices as indicated under the direct supervision of the Fire Alarm Contractor. Coordinate all requirements with the Fire Alarm Contractor.
10. Security System: The security system supplier/contractor will provide all low voltage control wiring. The EC shall provide indicated 120 volt power supplies and connections. The EC shall provide all rough-in boxes and conduits for devices as indicated under the direct supervision of the Security Contractor. Coordinate all requirements with the Security Contractor.
11. Structured Cabling System: The structured cabling system supplier/contractor will provide all low voltage control wiring. The EC shall provide indicated 120 volt power supplies and connections. The EC shall provide all rough-in boxes and conduits for devices as indicated under the direct supervision of the Structured Cabling Contractor. Coordinate all requirements with the Structured Cabling Contractor.
12. Handicapped Door Operators: The Electrical Contractor shall provide disconnect as required and make all rough-ins for controllers. The Electrical Contractor shall make all required electrical connections.
13. Security Door Lock System: The Electrical Contractor shall provide disconnect as required and make all rough-ins for controllers. The Electrical Contractor shall make all required 120 volt and low voltage electrical connections.
14. Kitchen Ranges: The range(s) shall be provided by others complete with cord and plug assembly. The Electrical Contractor shall install the cord and plug assembly and shall make all required electrical connections.
15. Washers and Dryers: The Electrical Contractor shall verify NEMA configurations of cord and plugs sets for both washers and dryers provided. The Electrical Contractor shall install cord and plug kits for dryers. The Electrical Contractor shall make all required electrical connections.
16. The contractor shall pay any and all required utility service fees associated with this project direct to the local utility company.
17. Underground Service: Service work shall include secondary conduits and feeders, primary conduits, CT cabinet, meter can, and support pad for transformer and sectionalizing switch as shown on the plans or required by the utility. Electrical Contractor shall leave adequate conductor length at the transformer to allow connections by the Electric Utility. Contractor shall provide all trenching, backfilling, and pavement removal and replacement as necessary for the primary and secondary raceway systems. Local utility company will provide all primary cable from the new sectionalizing switch to the primary compartment of transformer including sectionalizing equipment. Local utility company will provide all connections to primary equipment and shall make all transformer connections. Local utility company will provide the meter. Local utility company will provide all metering equipment CT's, wiring and meter installation.
18. Provide the wire as specified and the circuiting as shown on the drawings. All power wires and cables #10 awg and smaller shall be annealed soft copper, solid construction, code type THWN or THHN. All power wires and cables #8 awg and larger shall be annealed soft copper, compressed strand construction, code type THWN-2 or THHN.
19. At the contractor's option, wires and cables #6 and larger may be Alcan "Stabiloy", or Southwire "Triple E" with Code type XHHW-2 insulation. Cables shall be marked "Al Stabiloy 600V XHHW-2 (UL)" or "Al Triple E 600V XHHW-2". Note that wire and conduit sizes indicated on plans are based on copper. **If aluminum conductors are used, it is the responsibility of the contractor to size the conductors and conduit.** All circuits feeding mechanical equipment are sized based on copper wires, and shall be installed using copper feeders only.
20. All wiring shall be in conduit, unless noted otherwise.
21. All HVAC equipment feeders shall be copper code type THWN/THHN.
22. Grounding and Bonding:
    - A. Supplement the grounded neutral of the electrical distribution system with an equipment grounding system, installed so that metallic enclosures, raceways, junction boxes, outlet boxes, cabinets, machine frames, portable equipment, etc., operate continuously at ground potential and provide a low impedance path for ground fault currents.
    - B. The entire electrical system, including all special power systems, shall be grounded in accordance with the latest adopted version of the National Electrical Code.
    - C. Grounding conductors shall be installed in conduits as shown on the drawings. Provide 100% rated dedicated grounding conductors per each 120-volt outlet circuit.
    - D. Grounding conductors shall be installed in all PVC and Metal conduits.
    - E. Provide grounding plates in hub room and at main service grounding electrode, as indicated on plans.
    - F. Rod electrodes shall be copper, 5/8"diameter and 8'-0" long.
    - G. Provide service grounding per NEC Article 250 of the latest adopted Code version, and as shown on the drawings.
23. Color coding for 120/208 volt systems shall be Black/Blue/Red for phase conductors, White for neutral and green for grounding conductors. Color coding for 277/480 volt systems shall be Brown/Orange/Yellow for phase conductors, Grey/White for neutral and green for grounding conductors.
24. Underground service conduits shall be heavy wall Schedule 40 PVC utility conduit with UL Label. Fittings and bends shall be deep socket type schedule 40 utility elbows with 36" radius. All other exterior conduits shall be rigid steel conduit or intermediate metal conduit with threaded couplings and fittings.
25. All interior conduit shall be E.M.T. Provide setscrew couplings and fittings for NEMA 1 installations and compression couplings and fittings for NEMA 3R installations as a minimum. All conduit shall be run parallel or perpendicular to the building surfaces. All conduit shall be concealed in walls. Overhead conduit shall be concealed except in rooms without ceilings.
26. At the Contractor's option all interior branch circuits may be type MC cable with listed fittings and couplers in lieu of EMT conduit and conductors. Color coding shall be maintained.
27. Each 120 volt outlet circuit shall be provided with dedicated neutral conductors. Three phase, four wire homeruns of 120 volt branch circuits will not be accepted.
28. Each light fixture shall be provided with a dedicated fixture whip from a junction box. The practice of 'daisy-chaining' from fixture to fixture will not be accepted. Multiple fixture whips from a single box is acceptable.
29. Provide conduits and raceways; electrical pull, junction and device boxes as specified and shown on the drawings, as well as those required for a complete and code acceptable installation.
30. The Electrical Contractor shall provide rough-in boxes and ½"conduit for thermostats under the supervision of the temperature controls installation contractor.
31. 120/208 Volt Panelboards: Provide Square D, type NQOD or equal, 3 phase, 4-wire panelboards with circuit breakers as scheduled. Circuit breakers shall be bolt-on thermal-magnetic molded case type. Arc Fault breakers shall be provided for all circuits as required in section 210.12 of the NEC.
32. Circuit Breaker Distribution Panels: Provide Square D or equal, I-Line, 3 phase, 4-wire panelboards with circuit breakers as scheduled. Provide panels with ground bars, surface mounted cabinets and UL label. Circuit breakers shall be Square D, Type KA and FH thermal-magnetic, molded case circuit breakers.
33. Inside each panel door, provide an approved typewritten schedule card showing what each circuit feeds.
34. Provide engraved, white on black, laminated plastic plate, mechanically affixed labels on all panels, transformers, safety switches, motor starter, etc. Where panels, etc., occur in finished rooms, label shall be on inside of the door. Labels shall match designation indicated on the plans.
35. Provide 20 amp, heavy duty commercial wiring devices as shown on the drawings. Device and coverplate colors shall be as directed by the architect. Coverplates shall be nylon. Ground fault interrupter receptacles shall be provided in all locations as required in Section 210.8 of the latest adopted version of the NEC. Tamper resistant receptacles shall be provided at all locations as required by Section 406.11 (dwelling units) and Section 517 (pediatric areas) of the latest adopted version of the NEC.
36. Time switches shall be EZ Controls, or approved equal Paragon or Intermatic, maintained contact time switch with 25 amp rated controls. Time clocks shall be based on solid state technology with 10-year memory retention and rechargeable battery carryover.
37. Provide general-duty safety switches as indicated on the plans and as specified. Provide the appropriate NEMA enclosure rating for the installation location. All safety switches shall be NEMA Type HD and UL listed. Provide fusible devices as shown on the drawings.
38. Provide light fixtures as specified. Material, equipment or services necessary to complete the installation of these fixtures, but not specifically mentioned shall be furnished as though specified.
39. Properly support and align all fixtures and provide all necessary steel shapes for support of the fixtures. Fixtures recessed in ceilings shall be securely connected to the ceiling and structure.
40. Verify all ceiling systems and coordinate fixture type and accessories prior to ordering fixtures. Coordinate and cooperate with ceiling installer in regards to the location and installation of light fixtures.
41. All wall mounted fixtures shall be coordinated with the architectural features of the building. Where specific elevations or dimensions are not indicated, verify the correct location with the Architect prior to beginning any work.
42. At the time of substantial completion, aim all track lights, flood lights, spot lights, etc per the Architect's direction. Provide all scaffolds, lifts etc as required.
43. Transformers:
    - A. Provide Square D Type EE Energy Efficient Transformers Class 7400 dry-type transformers. Three phase transformers shall be 480-volt delta primary and 120/208 volt, 4-wire, wye connected secondary. Transformers shall have a minimum of 4-2.5% full capacity primary taps. Transformers shall be 150° C. temperature rise above 40° C. ambient. All insulating materials to be in accordance with NEMA ST20 Standard for a 220° C. UL component recognized insulation system.
45. 120/208v 3 phase PanelBoards:
    - A. Provide the following Square D, type NQ, 3 phase, 4-wire panelboards with circuit breakers as scheduled. Provide panels with ground bars, surface mounted cabinets and UL label.
    - B. Circuit breakers shall be Square D Type QO (plug-on) or QOB (bolt-on) thermal-magnetic molded case circuit breakers. Type QO-GFI ground fault breakers and QO-CAFI combination arc breakers shall be provided as indicated and required by the NEC. Breakers shall be 1, 2 or 3-pole with an integral crossbar to assure simultaneous opening of all poles in multi-pole circuit breakers. Breakers shall have an overcenter, trip-free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication. Handles shall have "ON," "OFF" and "TRIPPED" positions. Plug-on (QO) and bolt-on (QOB) circuit breakers shall be able to be installed in the panelboard without requiring additional mounting hardware. Circuit breakers shall be UL listed in accordance with UL Standard 489 and shall be rated 240 volts ac maximum with continuous current ratings as noted on the plans. Interrupting ratings shall be 10,000 rms symmetrical amps maximum at 208Y/120 volts ac maximum. Other frames are available with higher AIC ratings, refer to notes in panel schedules on the plans.
    - C. AFCI - Arc Fault breakers shall be provided for all circuits as required in section 210.12 of the NEC
46. 277/480v 3 phase PanelBoards:
    - A. Provide the following Square D type NF, 3 phase, 4-wire panelboards with circuit breakers as scheduled.
    - B. Provide panels with ground bars, surface mounted cabinets and UL label.
    - C. Circuit breakers shall be Square D, Type EDB (bolt-on) thermal magnetic, molded case circuit breakers. Breakers shall be 1, 2 or 3 pole with an integral crossbar to assure simultaneous opening of all poles in multiple circuit breakers. Breakers shall have an overcenter, trip-free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication. Handles shall have "ON", "OFF" and "TRIPPED" positions. Circuit breakers shall be UL listed in accordance with UL Standard 489 and shall be rated 277 volts ac (single pole, 15-30 amps) or 480Y/277 volts ac (2 and 3 pole, 15-100 amps) with continuous current ratings. Interrupting ratings shall be 18,000 rms symmetrical amps at 480Y/277 volts ac maximum. Other frames are available with higher AIC ratings, refer to notes in panel schedules on the plans.
47. Circuit Breaker Distribution PanelBoards (I-lline):
    - A. Provide the following Square D, type I-Line, 3 phase, 4-wire panelboards with circuit breakers as scheduled. Where applicable, panelboard shall be UL Listed for Service Entrance Equipment. Provide panels with ground bars, surface mounted cabinets and UL label. Panelboard assembly shall be enclosed in a steel cabinet. The rigidity and gauge of steel to be as specified in UL Standard 50 for cabinets. The size of wiring gutters shall be in accordance with UL Standard 67. Cabinets to be equipped with latch and tumbler-type lock on door of trim. Doors over 48" long shall be equipped with three-point latch and vault lock. All locks shall be keyed alike. Endwalls shall be removable. Fronts shall be of code gauge steel. Gray baked enamel finish electrodeposited over cleaned phosphatized steel.
    - B. Circuit breakers shall be Square D, Type FA in 100 amp frames, Type HD in 150 amp frames, Type JD is 250 amp frames, and LD in 400 and 600 amp frames. All shall be thermal-magnetic, molded case circuit breakers with factory sealed trip units, unless scheduled otherwise. Breakers shall be 1, 2 or 3 pole with an integral crossbar to assure simultaneous opening of all poles in multiple circuit breakers. Breakers shall have an over-center, trip-free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication. Handles shall have "ON", "OFF" and "TRIPPED" positions. Circuit breakers shall be UL listed in accordance with UL Standard 489 and shall be rated(1 pole FA, 15 to 100) with an interrupting rating as indicated on drawings/schedule with a minimum of 18 Kaic, (2 and 3 pole HD, 15-150 amps) with an interrupting rating as indicated on drawings/schedule with a minimum of 18 Kaic, (2 and 3 pole JD, 150 to 250 amps) with an interrupting rating of as indicated on drawings/schedule with a minimum rating of 18 Kaic, and , (2 and 3 pole LD, 250 to 600 amps) with an interrupting rating of as indicated on drawings/schedule with a minimum rating of 18 Kaic. Other frames are available with higher AIC ratings, refer to notes in panel schedules on the plans.
    - C. Panels shall be as indicated and scheduled on the plans.
48. Wiring Devices:
    - A. The following devices shall be as manufactured by Hubbell, or approved equal. They shall be rated at 20 amps, 120/277 volts, unless specified otherwise. Verify device color with architect before ordering.

Switches:

a.	S.P.S.T.	Hubbell CSB120
b.	2-pole switch	Hubbell CSB220
c.	3_way switch	Hubbell CSB320
d.	4-way switch	Hubbell CSB420
e.	Auto/Off switch	Hubbell CS1221

General Wall Receptacles:

a.	120 volt duplex outlet	Hubbell CR5352AG
b.	Tamper resistant	Hubbell BR20TR
b.	Isolated Ground outlet	Hubbell CR5352IG
c.	Single outlet	Hubbell HBL5361
d.	Drinking fountain/Vending	Hubbell GF20L
e.	GFI outlet	Hubbell GF20L
f.	Weatherproof outlet	Hubbell GF20L with RW57400 cover
g.	Range Outlet (50 amp, 120/240) (NEMA 14-50)	Hubbell RR450F /SS703 cover plate
h.	Dryer Outlet (30 amp, 120/240) plate (NEMA 14-30)	Hubbell RR430F w/SS703 cover

General Wall Tamper-Resistant Receptacles (Dwelling Units):

a.	120 volt duplex outlet	Hubbell BR20TR
b.	Single outlet	Hubbell RR201TR
c.	GFI outlet	Hubbell GFTR20
e.	Weatherproof cover/GFI outlet	Hubbell GF8300RA

Cover Plates

- A. All flush_mounted wiring devices shall be provided with Hubbell SS Series Stainless Steel (back of house, kitchen areas or Mechanical rooms) Hubbell NP Series smooth nylon plate - (in color as selected by Architect) plates in the configuration and number of gangs as required in all common areas. Cover plates for wiring devices in surface_mounted boxes shall be galvanized utility box covers, raised 1/4". Where more than one device is in a single location, a one-piece multi-gang cover plate shall be used. All cover plates for switches controlling mechanical equipment and where indicated on the drawings, shall be stainless steel with standard 1/8" high engraved characters and black filler.

49. Safety Switch
    - A. Provide Square D heavy duty grade safety switches in configuration noted.
    - B. All switches shall have switchblades, which are fully visible in the "OFF" position when the switch door is open. All current carrying parts shall be plated to resist corrosion and promote cool operation. Switches shall have removable arc suppressors where necessary to permit easy access to line side lugs. Lugs shall be front removable and UL listed for 60° C or 75° C aluminum or copper wires. Switches shall be furnished in NEMA 1 heavy duty enclosures unless specified as NEMA 3R on the plans. Covers on NEMA 1 enclosures shall be attached with pin type hinges. NEMA 3R covers shall be securable in the open position. NEMA 3R enclosures for switches through 200 amps shall have provisions for interchangeable bolt-on hubs. Hubs shall be as indicated on the plans. NEMA 3R enclosures shall be manufactured from galvanized steel. Enclosures shall have a gray baked-enamel finish, electrodeposited on cleaned, phosphatized steel.

GENERAL MEP REQUIREMENTS

1. The contract includes all labor, material, and equipment required for the complete systems as shown and specified. Provide all devices and accessories as necessary for complete and working systems.
2. The contractors shall become familiar with the work of all other trades and shall fully coordinate their work prior to ordering equipment or installation of systems.
3. The materials, products and equipment described in these specifications or on the drawings establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution. Listing of these manufacturers shall in no way be construed as a device intended to limit the bidders to those specifically listed.
4. Reference to any article, device, product, material, fixture, form or type of construction by name, make, or catalog number, shall be interpreted as having established a standard of quality and shall not be construed as limiting competition. Articles, fixtures, etc. of equal quality by manufacturers listed in this specification for the applicable use, shall be acceptable, subject to performance, spatial, structural, and electrical constraints of the project design. The Engineer reserves last opinion as to a product's equality or superiority to that specified.
5. Shop drawings shall be submitted for all equipment and major materials supplied and shall include: manufacturer, model number, materials, and miscellaneous data as required to describe the equipment; capacity, voltage, phase, ampacity, and other miscellaneous data to quantify the size of the equipment; dimensional drawings showing layout, connection points, and detailed layout of components; electrical full load amps and minimum circuit ampacities; and other pertinent information needed for complete review by the engineer. Conspicuously mark on each submittal the exact model, fittings, accessories, and devices to be supplied. When a schedule is shown on the drawings or in the specifications, provide a copy of that schedule with the submittal. Contractor shall check all shop drawings to verify that they meet the requirements of the drawings and specifications before forwarding to the architect and engineer. All shop drawings submitted shall bear the stamp of the contractor to show that they have been reviewed in detail. No work shall be fabricated and no equipment ordered until the architect and engineer have returned acceptable reviewed shop drawings.
6. Locations of equipment, piping, and other work are indicated diagrammatically on the drawings. Each contractor shall coordinate exact locations subject to structural conditions, work of other contractors, access requirements, and the approval of the architect and engineer.
7. Drawings and specifications indicate minimum construction standards, but should any work indicated be sub-standard, to any ordinances, laws, codes, rules, or regulations bearing on work, the contractor shall execute work in accordance with such without increased cost to the owner, but not until he has referred such variances to the engineer.
8. The contractors shall secure and pay for the necessary permits and certificates of inspection for their trade. Keep record of all permits and inspections and submit two copies to the engineer with request for final inspection.
9. The owner shall be provided with training on each piece of equipment as to startup, shutdown, normal maintenance, seasonal changeover, and other pertinent information as recommended by the manufacturer.
10. This contractor shall warrant that the complete systems installed under this contract shall be free of defects in workmanship and materials for a period of one (1) year from the date of substantial completion by the arch/owner. If defects occur during the one year guarantee period, this contractor shall repair or replace such defects at no expense to the owner and to the satisfaction of the owner and engineer.
11. Provide 3-1/2" concrete bases for all floor mounted equipment unless shown or noted otherwise. Provide 6x6 welded wire fabric reinforcing minimum or as required by the structural engineer.
12. Adequately protect equipment from damage after delivery to the jobsite. Cover with heavy polyethylene plastic. Elevate equipment when there is danger of water damage. Equipment damaged will be rejected.
13. Any scratches to factory finishes shall be touched up using factory supplied paint before final acceptance. If extensive damage to factory finishes has occurred, equipment panels shall be replaced to the satisfaction of the engineer. If rust has formed, remove as recommended by the manufacturer prior to touch-up.
14. Install all equipment in strict accordance with the manufacturer's recommendations and the shop drawings reviewed by the Engineer. The complete installation shall function as designed and intended with respect to efficiency, capacity, and noise level, etc. Any abnormal noise caused by rattling equipment, conduit, or fixtures will not be acceptable.
15. Contractor shall perform initial start-up of systems and shall provide necessary supervision and labor to make the first seasonal change-over of systems. Owner's operating personnel shall be present during this operation.
16. It is the contractor's responsibility to provide materials and trim which fit properly the types of ceiling, wall, or floor finishes actually installed. Model numbers in specifications or shown on drawings are not intended to designate the required trim.
17. Contractor shall provide all miscellaneous steel, etc., for the proper installation of the systems specified and/or indicated on the plans. Any item connecting to building structure shall be done in a manner accepted by the structural engineer. When bar joists are used for steel construction, items shall be supported from angle iron spanning the top chord of the joists.
18. Periodically during construction and prior to Owner acceptance of the building, Contractor shall remove from the premises and dispose of all packing material and debris.
19. Before submitting his bid, the Contractor shall visit the actual location of the job and shall fully understand the scope of the work to be done and the conditions under which it is to be performed. In no case shall additional compensation be granted when existing conditions could reasonably be determined.
20. Locate and mark all known utilities prior to proceeding with work. Proceed with caution since unmarked utilities may exist on site. Should any existing utilities be damaged or disrupted, immediately notify owner and repair to existing conditions.
21. The Contractor shall closely coordinate all utility downtime with the Owner and Architect giving a minimum fourteen (14) day notice prior to downtime. Downtimes are to be held to a minimum duration with the Owner being notified as to the extent of said downtime. Any work that will affect the building occupants in any way shall be coordinated with that tenant. Such work shall be performed in a satisfactory manner to those affected.
22. The Electrical Contractor shall provide all conduit and wiring and shall connect complete and ready for operation all electrical motors and equipment in the other contracts. The other contractors shall furnish to the Electrical Contractor all switches, electrical controls, and other accessories required. Installation of all motors, equipment, etc., shall be made by the Contractor furnishing the equipment, unless otherwise indicated.
23. Unless integral to the equipment supplied or noted otherwise, the Electrical Contractor shall provide disconnect switches, motor starters, and variable frequency drives as required by code and/or as shown on the drawings. The contractors responsible for installing the associated equipment shall coordinate with the Electrical Contractor to ensure devices of the proper size are furnished. Further, the other trades shall furnish all electric control items needed to the Electrical Contractor for installation and connection.
24. The contractor shall provide openings and chases, cutting and patching, excavation and backfilling, and pipe sleeves as needed for proper execution of the work.
25. The Contractor shall do all excavation and backfilling necessary to complete work under this contract. Trenches close to walls and columns of the building shall not be excavated without the Architect's prior consent. As a minimum, backfill in 6" lifts, compacting to a minimum of 90%. The first 12" of fill above any buried item outside the building shall be sand in order to contrast with other fill material. Provide a yellow warning tape at the top of the sand layer.
26. Sleeves are required in all penetrations through new exterior walls, masonry walls, floors and fire rated gypboard walls. Sleeves shall be either Schedule 5 steel pipe, EMT conduit, field fabricated from minimum 16 gauge steel with 2" overlap at the seam, or as required by UL listed fire-stopping system. Sleeves will not be required in existing wall penetrations of masonry construction when such openings are made by "core-drilling." Space between sleeves and pipe in outside walls shall be sealed using link seals. Space between sleeves and pipe in other wall construction shall be the diameter necessary to provide the clearance required by the UL listed fire stopping method chosen by the contractor.
27. All sidewalks, streets, or alley surfaces that are broken in connection with this contract shall be patched to the satisfaction of the owner.
28. Provide fire stopping to maintain the fire rating of walls, floors, ceilings, or other building component. Fire stopping shall be composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the fire stopping under conditions of service and application, as demonstrated by the fire stopping manufacturer based on testing and field experience. Firestop system installation must meet requirements of ASTM E-814, UL Standard 1479 or UL Standard 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.
29. All installation shall conform with the latest adopted Building Codes and Justification amendments.
30. Description of Work
    - A. The Mechanical Contract includes all labor, materials and equipment required for the complete mechanical systems as shown and herein specified.
    - B. Provide all devices and accessories as necessary for complete and working systems.
    - C. The contractors shall become familiar with the work of all other trades and shall fully coordinate their work prior to ordering equipment or installation of systems.
    - D. The contractors shall become familiar with the work of all other trades and shall fully coordinate their work prior to ordering equipment or installation of systems.
    - E. The Contractor shall coordinate his work with that of all other trades in order to eliminate interferences. He shall examine the drawings in advance to determine the location of sprinklers, electrical systems, ducts, piping, structures, conduits, alarms, and other equipment and services to be installed, and properly coordinate the installation of his work to avoid interferences. The Engineers have considered existing interferences in making the drawings, but it is the responsibility of the Contractor to include in his bid proposal adequate allowances to modify, offset, or otherwise accommodate all equipment to the structure, utilities, and apparatus.
31. Definitions
    - A. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and similar operations."
    - B. Install: The term "install" is used to describe operations at the project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
    - C. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
    - D. Furnished by Owner or Furnished by Others: The item will be furnished by the Owner or Others. It is to be installed and connected under the requirements of this Division, complete and ready for operation, including all items incidental to the Work, including all services necessary for proper installation and operation. The Installation shall be included under the guarantee required by this Division.
32. Operation and Maintenance Manuals
    - A. Before project close-out, submit three copies of installation, operating, maintenance instructions, and parts lists for equipment provided. Include in the manual a list of emergency service organizations capable of rendering service for each piece of equipment.
    - B. Keep in a safe place all keys, wrenches, and other specialty tools furnished with equipment. Present to owner at project close-out and receive a receipt showing he has received the same.
    - C. At the completion of the project furnish to the Architect for the Owner, Operation and Maintenance Manuals in PDF format on CR-ROM and three (3) copies of brochures in three ring notebook form, divided and tabbed, containing all data, diagrams, capacities, spare part numbers, manufacturers service and maintenance data, warranties, guarantees, etc., including local contacts and escalation schedule complete with addresses and telephone numbers, of all equipment, apparatus, and system components furnished and installed under this Division of the specifications.
33. Codes and Ordinances
    - A. All work shall be in accordance with applicable codes, rules, ordinances, and regulations of local, state, and federal governments and other authorities having jurisdiction.
    - B. Drawings and specifications indicate minimum construction standards, but should any work indicated be sub-standard, to any ordinances, laws, codes, rules, or regulations bearing on work, the contractor shall execute work in accordance with such without increased cost to the owner, but not until he has referred such variances to the engineer.
34. Where other than first named products are used, it shall be the responsibility of the contractor to determine prior to bid time that his proposed materials and equipment selections do not require adjustments in the mechanical, electrical , structural, or architectural requirements as shown on the drawings. The contractor shall include in his bid all costs associated with any required adjustments
35. Instillation
    - A. Install all equipment in strict accordance with the manufacturer's recommendations and the shop drawings reviewed by the Engineer.
    - B. Locations of equipment, piping, and other work are indicated diagrammatically on the drawings. Each contractor shall coordinate exact locations subject to structural conditions, work of other contractors, access requirements, and the approval of the architect and engineer.
    - C. item interfering with proper placement of other work shall be removed and relocated without extra cost if reasonable coordination would have eliminated the interference. Damage to other work caused by this contractor shall be restored as specified for new work.
    - D. Final acceptance of work shall be subject to the condition that all systems, equipment, apparatus, and appliances operate satisfactorily as designed and intended. Work shall include required adjustment of systems and control equipment installed under this specification.
    - E. Contractor shall perform initial start-up of systems and shall provide necessary supervision and labor to make the first seasonal change-over of systems. Owner's operating personnel shall be present during this operation.
    - F. It is the contractor's responsibility to provide materials and trim which properly fit the types of ceiling, wall, or floor finishes actually installed. Model numbers in specifications or shown on drawings are not intended to designate the required trim.
    - I. This contractor shall provide all miscellaneous steel, etc., for the proper installation of the systems specified and/or indicated on the plans.
36. Connections to Building Structure
    - A. Any item connecting to building structure shall be done in a manner accepted by the structural engineer.
    - B. When bar joists are used for steel construction, items shall be supported from angle iron spanning the top chord of the joists.

FIRE ALARM REQUIREMENTS

1. Furnish and install a complete Fire Alarm System as described herein and as shown on the plans; to be wired, connected, and left in first class operating condition. The system shall use closed loop initiating device circuits with individual zone supervision, individual notification appliance circuit supervision, incoming and standby power supervision. Include a control panel, manual pull stations (fire alarm boxes), automatic fire detectors, horns, annunciator, remote control devices, all wiring, connections to devices, outlet boxes, junction boxes, and all other necessary material for a complete operating system.
2. Fire Alarm Wiring
    - A. Fire alarm wiring shall be solid, unstranded power limited cable as follows:
        - Non-Plenum Mapnet: West Penn D975, 1PR, 18GA shielded
        - Plenum Network and Mapnet: West Penn 60975, 1PR, 18GA shielded
        - 16GA Non-Plenum: West Penn 991, 1PR unshielded
        - 16GA Plenum: West Penn 60990B, 1PR shielded
        - 14GA Non-Plenum: West Penn 994, 1PR shielded
        - 14GA Plenum: West Penn 60993B, 1PR unshielded
    - B. All wiring shall be installed in strict compliance with all the provisions of National Electrical Code, Article 760 A and C, Power_Limited Fire Protective Signaling Circuits or if required may be reclassified as non_power limited and wired in accordance with National Electrical Code, Article 760 A and B. All required wiring shall have a minimum insulation rating of 600 volts.
    - C. Fire alarm wiring for this system shall be Fire Alarm plenum rated cable, or run in EMT, or ridged conduit. All wiring in walls shall be in conduit with rough-in boxes. All cables located in environmental air plenum will be plenum rated cables.
3. Fire alarm system indicated on plans is a schematic design only, Contractor shall provide Engineered signed and sealed plans by a NICET company specializing in the detection of detection and alarm systems. Provide documentation verifying compliance with the specified certification, that all persons involved with this project shall be NICET Level III certified in the field of "Fire Protection Engineering Technology, 003", and the sub field of "Fire Alarm Systems, 03". This documentation shall be submitted as a part of the submittal package for "approved" suppliers, and shall be submitted as a part of the "request for approval" by all potential suppliers not pre-approved.
4. Plan size, CAD produced system drawings shall include:
    - A. Wiring diagrams/Locations of all equipment.
    - B. Individual device addresses, indicated at all addressable device.
    - C. Interconnection details of all devices, controls and interfaces to equipment supplied by others.
    - D. Complete product data sheets for equipment proposed, with highlighted, or arrowed identifications of component descriptions, finishes, UL listings, and any other pertinent system information.
    - E. Complete sequence of operations of all functions of the system.
    - F. Standby battery sizing documentation. Provide a complete chart, or spreadsheet, listing all components, indicating individual and cumulative power requirements by type, and showing battery standby required, verses actual.
    - G. Any additional documentation required to properly describe all functions and components needed to configure a complete and operable system.

ELECTRICAL SYMBOLS

⌒	CONDUIT CONCEALED ABOVE THE CEILING, IN A WALL, OR IN A RACEWAY
‐ ‐ ‐	CONDUIT CONCEALED BELOW THE SLAB
A-6 →	HOME-RUN TO PANELBOARD AND CIRCUIT NUMBER SHOWN
⬡ #	PLAN NOTE: SEE PLAN NOTES LISTED ON THE SAME SHEET FOR NOTE MEANING
X/Y/Z ▭	DISCONNECT SWITCH: X = SWITCH RATING Y = FUSE SIZE (NF = NON-FUSED) Z = NUMBER OF POLES
(J)	JUNCTION BOX
▬	ELECTRIC PANELBOARD
$	GENERAL PURPOSE 1-POLE SWITCH
○	NEMA 5-20R 1-PLEX RECEPTACLE
⊖	NEMA 5-20R DUPLEX RECEPTACLE
⊖	NEMA 5-20R DUPLEX GFCI RECEPTACLE
⊕	NEMA 5-20R DOUBLE-DUPLEX RECEPTACLES
IG/GFI ⊖	NEMA 5-20R DUPLEX COMBINATION ISOLATED GROUND/GFI RECEPTACLE PASS & SEYMOUR MODEL#2095IGTRGRY (GRAY)
⊘	OTHER RECEPTACLE - SEE PLAN FOR RATING AND TYPE
◁	JUNCTION BOX FOR RJ-45 DATA OUTLETS. PROVIDE 1" CONDUIT WITH PULL STRING FROM J-BOX TO ABOVE OFFICE CEILING. TERMINATE CONDUIT WITH CONDUIT BUSHING.
◁◁	DOUBLE GANG JUNCTION BOX FOR RJ-45 DATA OUTLETS. PROVIDE 1" CONDUIT WITH PULL STRING FROM J-BOX TO ABOVE OFFICE CEILING. TERMINATE CONDUIT WITH CONDUIT BUSHING.
◀	JUNCTION BOX FOR RJ-11 TELEPHONE OUTLETS. PROVIDE 1" CONDUIT WITH PULL STRING FROM J-BOX TO ABOVE OFFICE CEILING. TERMINATE CONDUIT WITH CONDUIT BUSHING.

ELECTRICAL GENERAL NOTES

A GENERAL NOTES APPLY TO ELECTRICAL SHEETS.

B ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH THE ELECTRICAL CODE AND IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION. SEE ARCHITECTURAL SHEETS FOR THE PREVAILING CODES.

C WIRING SHALL BE (2)#12, #12 G IN 3/4" C UNLESS NOTED OTHERWISE.

D INDIVIDUAL CONDUIT HOME RUNS SHOWN SHALL NOT BE CONSOLIDATED.

E CIRCUIT EMERGENCY LIGHTS, ILLUMINATED EXIT SIGNS, AND NIGHT LIGHTS AHEAD OF LOCAL SWITCHING.

F INSTALL WALL SWITCHES AT 48" AFF TO CENTER OF SWITCH AND RECEPTACLES AT 18" AFF TO CENTER OF RECEPTACLE UNLESS NOTED OTHERWISE.

G INSTALL ALL CONDUIT AND LOW VOLTAGE WIRING CONCEALED ABOVE THE CEILING, IN WALLS, OR IN RACEWAYS.

H PROVIDE 1" CONDUIT WITH PULL STRING FROM EACH J-BOX FOR TELEPHONE OR DATA JACKS TO ABOVE OFFICE CEILING. SEE MATERIAL SCHEDULE FOR ALLOWABLE CONDUIT MATERIALS. PROVIDE CONDUITS WITH MINIMAL ELBOWS AND TERMINATE CONDUITS ABOVE OFFICE CEILING WITH CONDUIT BUSHING.

I THE TERM "FURNISH" MEANS SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.

J DIMENSIONS SHOWN IN ELECTRICAL ELEVATIONS ARE FROM THE WALL FRAMING UNLESS NOTED OTHERWISE.

K IF THERE ARE RATED ASSEMBLIES WITHIN CHIPOTLE'S SPACE COORDINATE ANY REQUIRED CONDUIT RUNS WITH SECURITY VENDOR.

L ALL ELECTRICAL METAL CONDUIT SHALL HAVE A GROUND CONDUCTOR. THE METAL CONDUIT WILL NOT ACT AS THE GROUND CONDUCTOR.

M FIRE PROTECTION SYSTEM IS REQUIRED PER NFPA 13R. CONTRACTOR SHALL PROVIDE A DESIGN BUILD SYSTEM.

ELECTRICAL MATERIAL SCHEDULE

	APPLICATION	ALLOWABLE MATERIAL
CONDUCTORS		
	#8 AWG AND LARGER	STRANDED CU, TYPE THHN/THWN OR XHHW
	#10 AWG AND SMALLER	SOLID CU, TYPE THHN/THWN OR XHHW
	FIELD-MADE CORD (EXPOSED INDOOR LOCATIONS)	TYPE SO OR SJO SERVICE CORD WITH CU CONDUCTORS
CONDUITS		
	CONNECTION TO VIBRATING EQUIPMENT (EXPOSED INDOOR DRY LOCATIONS)	FLEXIBLE METAL CONDUIT
	CONNECTION TO VIBRATING EQUIPMENT (EXPOSED WET OR DAMP LOCATIONS)	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
	INDOOR, CONCEALED ABOVE GRADE	ELECTRICAL METALLIC TUBING, FLEXIBLE METAL CONDUIT, OR METAL CLAD CABLE
	INDOOR, EXPOSED	ELECTRICAL METALLIC TUBING U.N.O.
	INDOOR, WITHIN 1-1/2" OF ROOF DECK	INTERMEDIATE METAL CONDUIT
	LOW OR LINE VOLTAGE, BELOW GRADE	RIGID NONMETALLIC CONDUIT (SCHEDULE 40 PVC)
	LOW VOLTAGE, INDOOR, ABOVE GRADE	ELECTRICAL METALLIC TUBING
	OUTDOOR, ABOVE GRADE, EXPOSED OR CONCEALED	INTERMEDIATE METAL CONDUIT
WIRING DEVICES		
	IG OR IG/GFI RECEPTACLES	GRAY DEVICE WITH STAINLESS STEEL COVER PLATE
	IN KITCHEN, OFFICE, OR NON-PUBLIC SPACES	GRAY DEVICE WITH STAINLESS STEEL COVER PLATE
	IN RESTROOMS	WHITE DEVICE WITH WHITE COVER PLATE
	ON DRYWALL IN DINING ROOM	WHITE DEVICE WITH WHITE COVER PLATE
	ON HOT ROLLED STEEL, RICHLITE, OR OTHER BLACK FINISHES	BLACK DEVICE WITH BLACK COVER PLATE

ELECTRICAL ABBREVIATIONS

(E)	EXISTING
ABV	ABOVE
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
CLG	CEILING
CTE	CONNECT TO EXISTING
DN	DOWN
EXG	EXISTING
FLR	FLOOR
GFCI	GROUND FAULT CURRENT INTERRUPTER
GYP	GYPSUM BOARD
IG	ISOLATED GROUND
NF	NON-FUSED
NL	NIGHT LIGHT
NTS	NOT TO SCALE
O/H	OVERHEAD
TYP	TYPICAL
U/G	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
W/	WITH
WP	WEATHERPROOF
C02AS	CO2 ALARM SUPPLIER
GC	GENERAL CONTRACTOR
HES	TENANT'S HVAC EQUIPMENT SUPPLIER
LL	LANDLORD
TAB	TENANT'S TEST AND BALANCE VENDOR
TDC	TENANT'S DUCT CLEANER
TEMS	TENANT'S ENERGY MANAGEMENT SYSTEM SUPPLIER
TPS	TENANT'S PANELBOARD SUPPLIER
TSV	TENANT'S SIGN VENDOR
WHS	TENANT'S WATER HEATER SUPPLIER

20A WIRE SIZING SCHEDULE (VOLTAGE DROP)

ALL WIRE SIZES SHOWN ON BELOW SCHEDULE ARE INTENDED TO BE MINIMUM ACCEPTABLE WIRE SIZE

THE FOLLOWING SCHEDULE IS TO BE USED TO SIZE WIRE FOR 20 AMP CIRCUITS (120 VOLT).
LENGTHS (ONE WAY) ARE INTENDED TO BE MAXIMUM.

120 VOLT CIRCUIT MAX LENGTH (FT)

MAX AMPS	MAX WATTS	WIRE SIZE			
		#12	#10	#8	#6
5	600	200	325	490	770
10	1200	100	160	245	385
15	1800	70	110	165	255

NEW BUILDING FOR:
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NATHAN RAPP, ARCHITECT #A-2008008201

REISSUE DATE

PROFESSIONAL OF RECORD

LAURA MICHELLE BLANCHARD
NUMBER PE-2007032416
4.14.2025

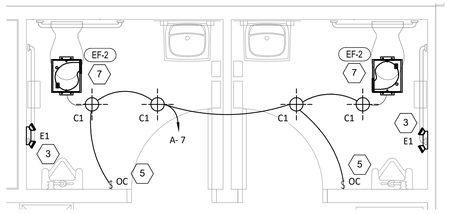
ARCHITECT: RAPP
PROJECT NO.: 241121
DATE: 04/14/2025
DRAWING TITLE: ELECTRICAL SPECIFICATIONS
SHEET NO.: E010

ELECTRICAL LIGHTING PLAN NOTES

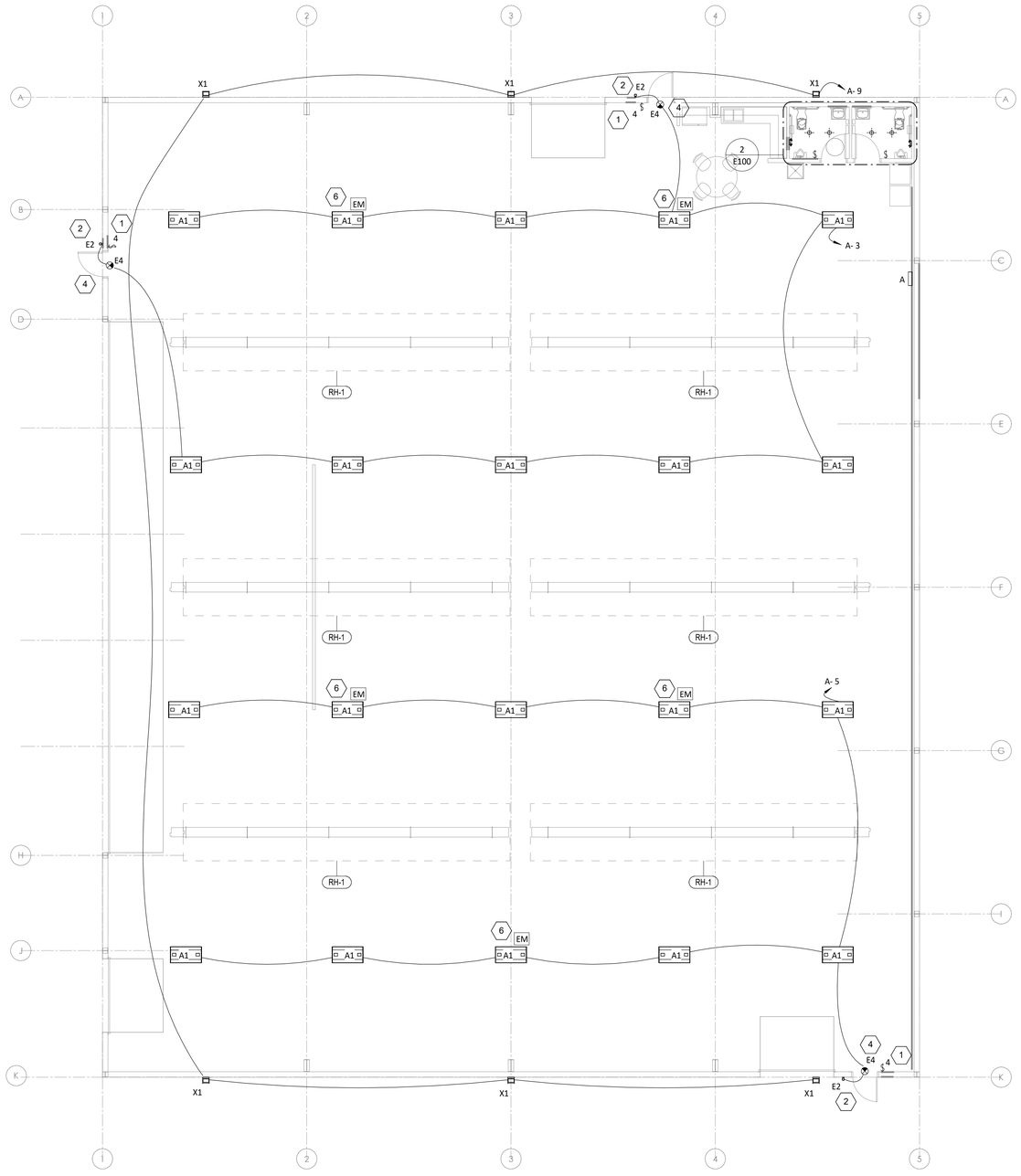
1 PROVIDE 4-WAY SWITCH FOR HIGH BAY HANGAR LIGHTING. VERIFY SWITCH LOCATIONS AND CONTROL ZONES WITH OWNER PRIOR TO INSTALL.
2 PROVIDE REMOTE EMERGENCY LIGHT MOUNTED AT 8'-0" AFF. COORDINATE EXACT LOCATION WITH OWNER AND CONCEAL LOW VOLTAGE WIRING TO INTERIOR EXIT SIGN.
3 WALL MOUNT THE EMERGENCY LIGHT FIXTURE AT 6" BELOW THE CEILING. PROVIDE UNSWITCHED HOT TO FIXTURE, CIRCUITED AHEAD OF ALL LOCAL AND GLOBAL SWITCHING.
4 VERIFY MOUNTING HEIGHT OF EXIT SIGN PRIOR TO ROUGH IN.
5 INSTALL WALL-MOUNTED OCCUPANCY SENSOR AT 42" AFF. ADJUST OCCUPANCY SENSOR TO PROVIDE AUTOMATIC ON/AUTOMATIC OFF OPERATION WITH A FIXED TIMER OF 30 MINUTES AND WITH BOTH THE PASSIVE INFRARED AND ULTRASONIC SENSORS ENABLED.
6 EMERGENCY LIGHT FIXTURE SHALL BE SWITCHED DURING NORMAL OPERATION. UPON LOSS OF POWER, FIXTURE SHALL BE ENERGIZED VIA THE EMERGENCY FIXTURE, ONBOARD EMERGENCY LIGHTING INVERTER.
7 INTERLOCK EXHAUST FAN OPERATION WITH RESTROOM LIGHTING.

LIGHTING FIXTURE SCHEDULE

TAG	COUNT	DESCRIPTION	MOUNTING	VOLTAGE	WATTS	BASIS FOR DESIGN			REMARKS
						MANUFACTURER	MODEL	LAMP	
A1	20	MODULAR HIGH BAY	SUSPENDED	120 V	295 W	GH-4-L400-840-FA-UNIV	HE WILLIAMS	LED	COORDINATE MOUNTING HEIGHT WITH ARCHITECT. REFER TO E100 FOR FIXTURES THAT SHALL BE PROVIDED WITH AN EMERGENCY FEATURE. FIXTURES DENOTED WITH 'EM'.
C1	4	RECESSED 6IN CAN LIGHT	CEILING	120 V	17 W	NORA LIGHTING	NHIC-6G24ATFL WITH NLCBC-65130WW LED TRIM	LED	LED TRIM FURNISHED WITH GU24 SOCKET ADAPTER
E1	2	EMERGENCY LIGHT - DUAL HEAD	WALL	120 V	2 W	EXITRONIX	LED-90	INTEGRAL LED	90 MINUTE BATTERY BACKUP
E2	3	EXTERIOR REMOTE EMERGENCY LIGHT	WALL	4 V	1 W	EXITRONIX	MLED1-WP	INTEGRAL LED	LOW VOLTAGE REMOTE EMERGENCY LIGHT POWERED BY REMOTE-CAPABLE EXIT SIGN WITH MOUNTING PLATE
E4	3	EXIT SIGN WITH EMERGENCY LIGHT -STANDARD RED LETTERS	WALL	120 V	2 W	EXITRONIX	CLED-U	INTEGRAL LED	90 MINUTE BATTERY BACKUP WITH INTEGRAL EMERGENCY LIGHT, REMOTE HEAD CAPABLE
X1	6	EXTERIOR WALL PACK	WALL	120 V	49 W	HE WILLIAMS	WP1-L44-850-PC	LED	COORDINATE MOUNTING HEIGHT AND FINSIH WITH ARCHITECT.



2 E100 **ENLARGED LIGHTING PLAN**
3/8" = 1'-0"



1 E100 **LIGHTING FLOOR PLAN**
1/8" = 1'-0"

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

Blanchard AE Group
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NATHAN RAPP, ARCHITECT #A-2008026201

REISSUE DATE

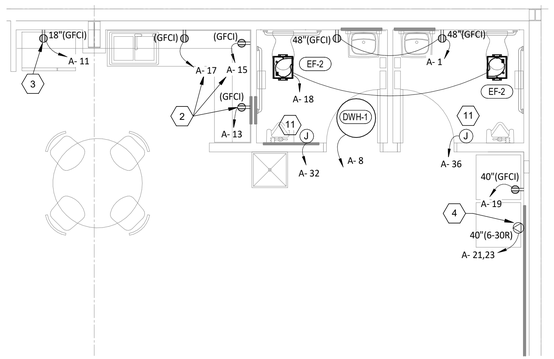
PROFESSIONAL OF RECORD

STATE OF MISSOURI
LAURA MICHELLE BLANCHARD
NUMBER PE-2007032414
PROFESSIONAL ENGINEER
4-14-2025

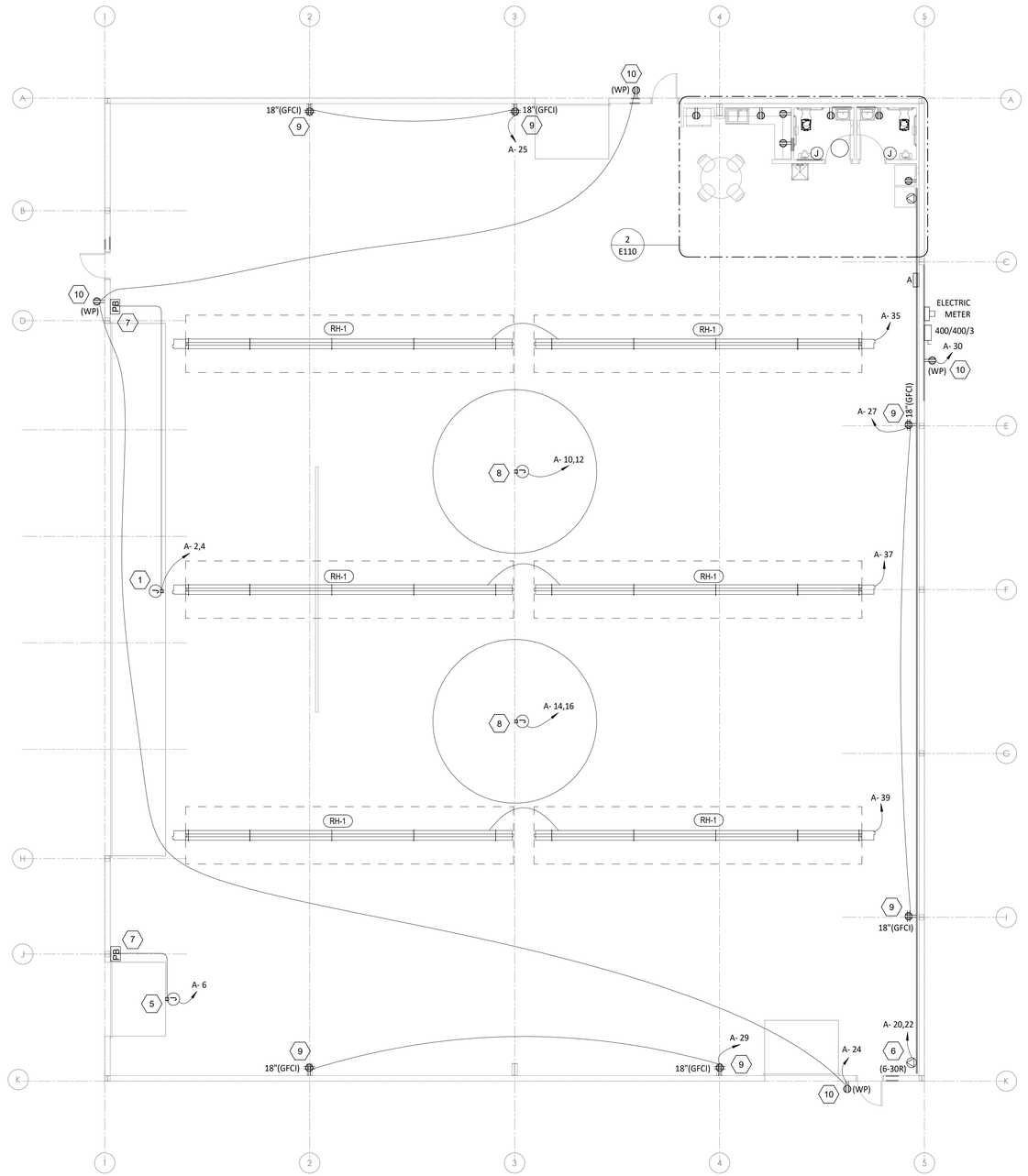
ARCHITECT	RAPP
PROJECT NO.	241121
DATE	04/14/2025
DRAWING TITLE	ELECTRICAL LIGHTING PLAN
SHEET NO.	E100

ELECTRICAL POWER PLAN NOTES

1 PROVIDE POWER FOR BI-FOLD DOOR WITH ACCESSIBLE DISCONNECT SWITCH PER MANUFACTURERS RECOMMENDATIONS. FIELD VERIFY EXACT LOCATION OF MOTOR PRIOR TO ROUGH-IN.
2 INSTALL RECEPTACLES ABOVE COUNTERTOP AND CIRCUIT AS SHOWN. FIELD VERIFY MOUNTING HEIGHT PRIOR TO ROUGH-IN.
3 PROVIDE POWER FOR REFRIGERATOR. VERIFY ELECTRICAL REQUIREMENTS PRIOR TO ROUGH-IN.
4 PROVIDE POWER FOR DRYER PER MANUFACTURERS RECOMMENDATIONS AT 40" AFF. VERIFY PLUG TYPE PRIOR TO ROUGH-IN.
5 VERIFY OVERHEAD DOOR ELECTRICAL REQUIREMENTS AND EXACT LOCATION OF MOTOR PRIOR TO ROUGH-IN. PROVIDE ACCESSIBLE DISCONNECT SWITCH AS NECESSARY.
6 PROVIDE POWER FOR AIR COMPRESSOR PER MANUFACTURERS RECOMMENDATIONS. VERIFY PLUG TYPE AND COORDINATE LOCATION/MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
7 PUSH BUTTON TO BE PROVIDED WITH DOOR OPENER. VERIFY QUANTITY AND LOCATION WITH OWNER PRIOR TO ROUGH-IN.
8 J-BOX FOR FUTURE CONNECTION OF HVLS FAN. VERIFY LOCATION(S) WITH OWNER PRIOR TO ROUGH IN.
9 VERIFY LOCATION OF GENERAL QUAD RECEPTACLE WITH OWNER PRIOR TO ROUGH-IN.
10 PROVIDE EXTERIOR RATE RECEPTACEL WITH WEATHERPROOF WHILE IN USE COVER. VERIFY LOCATION WITH OWNER PRIOR TO ROUGH-IN.
11 PROVIDE J-BOX FOR FUTURE RESTROOM UNIT HEATER. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.



2 E110 **ENLARGED POWER PLAN**
1/4" = 1'-0"



1 E110 **POWER FLOOR PLAN**
1/8" = 1'-0"

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

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REISSUE DATE

PROFESSIONAL OF RECORD

STATE OF MISSOURI
LAURA MICHELLE BLANCHARD
NUMBER PE-2007032414
PROFESSIONAL ENGINEER
4.14.2025

ARCHITECT	RAPP
PROJECT NO.	241121
DATE	04/14/2025
DRAWING TITLE	ELECTRICAL POWER PLAN
SHEET NO.	E110

VOLTS: 208/120V Wye
PHASES: 3
WIRES: 4
MOUNTING: Recessed
ENCLOSURE: Type 1

PANEL: A
MAINS: MCB
AMPERAGE: 400 A
MCB RATING: 400 A

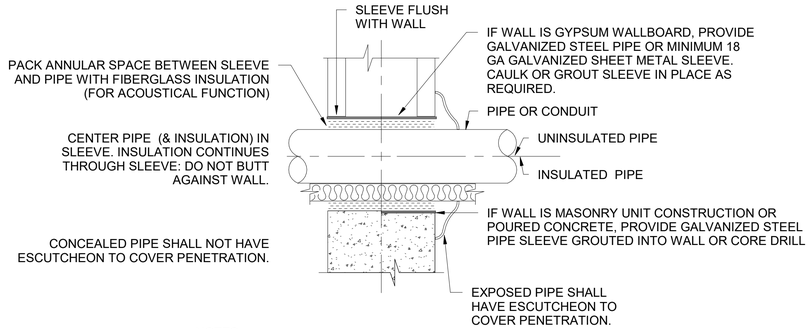
CKT #	DESCRIPTION	C/B [A]	# PLS	NOTES	LOAD [A]	LOAD TYPE	A	B	C	LOAD TYPE	LOAD [A]	NOTES	# PLS	C/B [A]	DESCRIPTION	CKT #
1	RR RECEPTACLES	20	1		3.0	G	0.4 2.0			G	19.2		2	50	BI-FOLD DOOR	2
3	HANGAR LIGHTING	20	1		7.0	A		0.8 2.0								4
5	HANGAR LIGHTING	20	1		7.0	A			0.8 1.0	G	8.3		1	20	SMALL OVERHEAD DOOR	6
7	RESTROOM LIGHTING	20	1		0.6	A	0.1 1.7			E	14.2	GFCI	1	20	WATER HEATER	8
9	EXTERIOR LIGHTING	20	1		2.5	B		0.3 1.1		G	10.6		2	15	FUTURE FAN	10
11	REFRIGERATOR	20	1		8.3	G			1.0 1.1							12
13	COFFEE MAKER	20	1		10.0	G	1.2 1.1			G	10.6		2	15	FUTURE FAN	14
15	MICROWAVE	20	1		10.0	G		1.2 1.1								16
17	KITCHEN RECEPTACLE	20	1		4.2	G			0.5 0.0	E	0.0		1	20	RR EXHAUST	18
19	WASHER	20	1		8.3	G	1.0 0.1			G	0.9		2	20	AIR COMPRESSOR	20
21	DRYER	30	2	GFCI	12.0	G		1.3 0.1								22
23									1.3 0.5	G	4.5		1	20	EXTERIOR RECEPTACLES	24
25	GENERAL RECEPTACLES (SOUTH WALL)	20	1		8.3	G	1.0 0.0			--	--		1	20	SPARE	26
27	GENERAL RECEPTACLES (WEST WALL)	20	1		8.3	G		1.0 0.0		--	--		1	20	SPARE	28
29	GENERAL RECEPTACLES (NORTH WALL)	20	1		8.3	G			1.0 0.2	G	1.5	GFCI	1	20	SERVICE RECEPTACLE (EXTERIOR)	30
31	SPARE	20	1		--	--	0.0 1.5			G	12.5		1	20	RR UNIT HEATER (FUTURE)	32
33	SPARE	20	1		--	--		0.0 0.0		--	--		1	20	SPARE	34
35	RADIANT HEATERS (RH-1 - SOUTH ROW)	20	1		10.0	D			1.2 1.5	G	12.5		1	20	RR UNIT HEATER (FUTURE)	36
37	RADIANT HEATERS (RH-1 - MIDDLE ROW)	20	1		10.0	D	1.2 0.0			--	--		1	20	SPARE	38
39	RADIANT HEATERS (RH-1 - NORTH ROW)	20	1		10.0	D		1.2 0.0		--	--		1	20	SPARE	40
41	SPACE	--	1		--	--			-- --	--	--		1	--	SPACE	42
43	SPACE	--	1		--	--	-- --			--	--		1	--	SPACE	44
45	SPACE	--	1		--	--		-- --		--	--		1	--	SPACE	46
47	SPACE	--	1		--	--			-- --	--	--		1	--	SPACE	48
49	SPACE	--	1		--	--	-- --			--	--		1	--	SPACE	50
51	SPACE	--	1		--	--		-- --		--	--		1	--	SPACE	52
53	SPACE	--	1		--	--			-- --	--	--		1	--	SPACE	54

	A	B	C
PHASE TOTAL [kVA]:	**11.2 kVA**	**10.0 kVA**	**10.0 kVA**
PHASE TOTAL [AMPS]:	**94 A**	**83 A**	**84 A**

TYPE	DESCRIPTION	CONNECTED LOAD	DEMAND FACTOR		ESTIMATED DEMAND
A	INTERIOR LIGHTING	2 kVA	125.00%		2 kVA
B	EXTERIOR LIGHTING	0 kVA	125.00%		0 kVA
C	COMFORT COOLING	0 kVA	0.00%	+ 25% LARGEST MOTOR	0 kVA
D	COMFORT HEATING	4 kVA	100.00%		4 kVA
E	MISC. MOTOR	2 kVA	100.00%		2 kVA
F	KITCHEN EQUIPMENT	0 kVA	0.00%		0 kVA
G	RECEPTACLES	24 kVA	70.78%		17 kVA

PANEL TOTALS

TOTAL CONNECTED kVA: 31 kVA
TOTAL CONNECTED AMPS: 87 A
TOTAL DEMAND kVA: 24.7 kVA
TOTAL DEMAND AMPS: 69 A

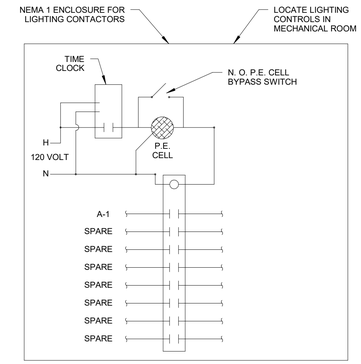


NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR WALL LOCATIONS. REFER TO SPECIFICATIONS FOR ALTERNATIVE INSTALLATIONS. COORDINATE REQUIREMENTS WITH GENERAL CONTRACTOR.

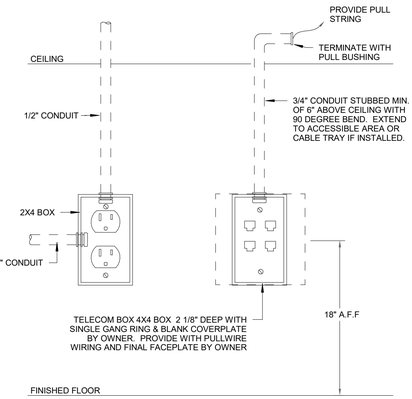
1 E600 Conduit Penetration Through Non-Firewall Detail

NOT TO SCALE



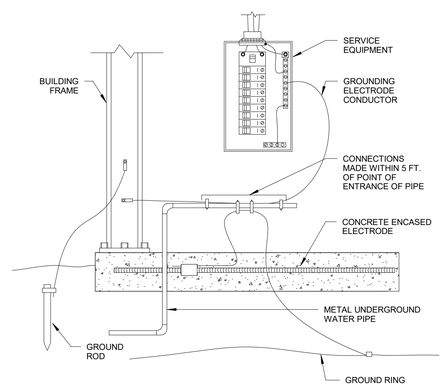
2 E600 Exterior Lighting Control Schematic

NOT TO SCALE



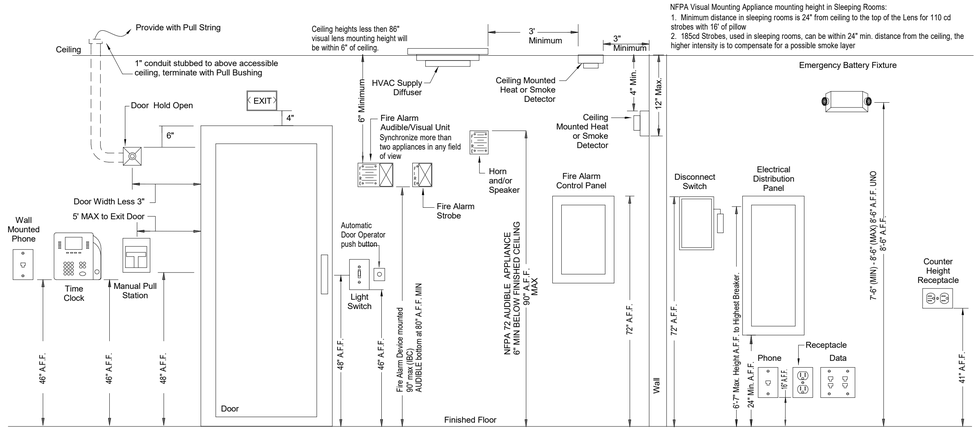
3 E600 Power & Communication Outlet Install Detail

NOT TO SCALE



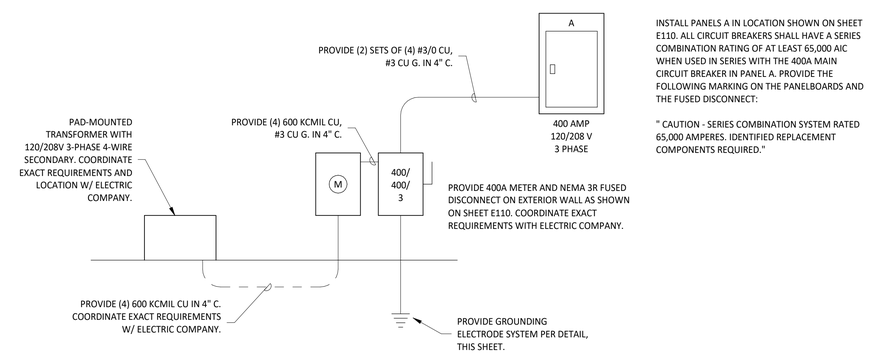
5 E600 Grounding Electrode System Detail

NOT TO SCALE



6 E600 MOUNTING HEIGHTS DETAIL

NOT TO SCALE



INSTALL PANELS A IN LOCATION SHOWN ON SHEET E110. ALL CIRCUIT BREAKERS SHALL HAVE A SERIES COMBINATION RATING OF AT LEAST 65,000 AIC WHEN USED IN SERIES WITH THE 400A MAIN CIRCUIT BREAKER IN PANEL A. PROVIDE THE FOLLOWING MARKING ON THE PANELBOARDS AND THE FUSED DISCONNECT:

" CAUTION - SERIES COMBINATION SYSTEM RATED 65,000 AMPERES. IDENTIFIED REPLACEMENT COMPONENTS REQUIRED."

4 E600 MAIN DISTRIBUTION DIAGRAM

NOT TO SCALE

NEW BUILDING FOR:
LS MANAGEMENT SERVICES, LLC
STREET ADDRESS TBD
LEE'S SUMMIT, MO

Blanchard AE Group
1425 WAKARUSA DR. STE B
LAWRENCE, KS 66049
Ph:785-993-0300

INSIGHT DESIGN IDEA ARCHITECTS
112 S. Main St., Nixa, MO 65714 Ph:417-724-8553
NATHAN RAPP, ARCHITECT #A-2008036201

REISSUE DATE

PROFESSIONAL OF RECORD

STATE OF MISSOURI
LAURA MICHELLE BLANCHARD
NUMBER PE-2007033434
PROFESSIONAL ENGINEER
4.14.2025

ARCHITECT	RAPP
PROJECT NO.	241121
DATE	04/14/2025
DRAWING TITLE	ELECTRICAL SCHEDULES & DETAILS
SHEET NO.	E600

ERECTION NOTES

1. All bracing shown and provided by the Metal Building Provider (MBP) for this building is required and shall be installed by the erector as a permanent part of the structure ("Code of Standard Practice for Steel Buildings" in the ANSI/AISC 303–16; Section 7.10).
2. Temporary supports, such as guys, braces, falsework, cribbing or other elements required for the erection operation shall be determined and furnished by the erector ("Code of Standard Practice for Steel Buildings and Bridges " in the ANSI/AISC 303–16; Section 7.10.3).
3. Normal erection operations include the correction of minor misfits by moderate amounts of reaming, grinding, welding or cutting, and the drawing of elements into line through use of drift pins. Errors which require major changes in the member configuration are to be reported immediately to the Metal Building Provider by the customer to enable whoever is responsible either to correct the error or to approve the most efficient and economic method of correction to be used by others ("Code of Standard Practice for Steel Buildings and Bridges "in the ANSI/AISC 303–16; Section 7.14).
4. Erection tolerances are set forth in the "Code of Standard Practice for Steel Buildings and Bridges "in the ANSI/AISC 303–16; Section 7.13 note that individual members are considered plump, level and aligned if the deviation does not exceed 1:500. Variations in finished overall dimensions of structure steel framing are deemed within the limits of good practice when they do not exceed the cumulative effect of rolling, fabricating, and erection tolerances.
   - 4.1. When crane support systems are part of the metal building system erection tolerances Section 6.8, Erection Tolerances, 2018 MBMA Metal Building Systems manual shall apply. To achieve the required tolerances grouting of the columns and shimming of the runway beams may be required. The customer shall provide grout if required. The contractor erecting the runway beams is responsible for shimming, plumbing, and leveling of the runway system. When aligning the runway beams the alignment shall be with respect to the beam webs so that the center of the aligned rail is over the runway web.
5. As a general rule field welding is not used to assemble a metal building system. In cases where the drawings indicate field welding and in cases where approved corrections are to be made by field welding the following requirements shall be met;
   - 5.1. welders must be qualified by an independent testing agency, with suitable documentation to AWS D1.1 Structural Welding Code – Steel or AWS D1.3 Structural Welding Code – Sheet as applicable, for the processes, positions, and materials involved.
   - 5.2. All welds must be made in conformance to a documented and approved Welding Procedure Specification (WPS). All joints which are not prequalified must be supported by a certified Procedure Qualification Record (PQR) by an independent testing agency.
6. All documentation and records shall be the responsibility of the customer.
7. Any claims or shortages by buyer must be made to the Metal Building Provider within seven (7) working days after delivery, or such claims will be considered to have been waived by the customer and disallowed. All claims should be directed to the Metal Building Provider's Customer Service Department.
8. Claims for correction of alleged misfits will be disallowed unless the Metal Building Provider shall have received prior notice thereof and allowed reasonable inspection of such misfits. Ordinary inaccuracies of shop work shall not be construed as misfits. No part of the building may be returned or charges assessed for alleged misfits without prior approval from the Metal Building Provider.
9. Neither the Metal Building Provider nor the customer will cut, drill or otherwise after their work, or the work of other trades to accommodate other trades unless such work is clearly specified in the contract documents. Whenever such work is specified the customer is responsible for furnishing complete information as to materials, size, location, and number of alterations prior to preparation of shop drawings ("Code of Standard Practice for Steel Buildings and Bridges "in the ANSI/AISC 303–16, Section 7.15).
10. The Metal Building Provider Field Modifications Policy:
    - 10.1. The Metal Building Provider will only be responsible for the field–modified parts designed and approved by the Metal Building Provider's Customer Service Department.
    - 10.2. Any field modifications designed by third parties may not be approved by the Metal Building Provider and may limit the Metal Building Provider's warranty and liability.
    - 10.3. The Metal Building Provider makes no warranty and hereby disclaims any responsibility with respect to the design, engineering, or construction of any field–modified parts performed by third parties.
11. WARNING – SOME PANELS AND TRIM PARTS ARE FURNISHED WITH A PROTECTIVE PEEL–OFF FILM. PARTS PROVIDED WITH THIS FILM CANNOT BE EXPOSED TO SUNLIGHT WITHOUT FIRST REMOVING THE FILM. THIS FILM MUST BE REMOVED PRIOR TO INSTALLATION. FILM MUST ALSO BE REMOVED FROM ALL NON EXPOSED PARTS WITHIN SIX MONTHS FROM FILM APPLICATION OR IRREPARABLE DAMAGE WILL OCCUR TO THE SURFACE CLAIMS WILL NOT BE ACCEPTED FOR THIS ISSUE.

RESPONSIBILITIES

1. The Metal Building Provider Customer, hereafter referred to as the "customer, " obtains and pays for all building permits, licenses, public assessments, paving or utility pro rata, utility connections, occupancy fees and other fees required by any governmental authority or utility in connection with the work provided for in the Contract Documents. The customer provides at his expense all plans and specifications required to obtain a building permit. it is the customer's responsibility to ensure that all plans and specifications comply with the applicable requirements of any governing building authorities.
2. The customer is responsible for identifying all applicable building codes, zoning codes, or other regulations applicable to the Construction Project, including the Metal Building system.
3. It is the responsibility of the customer to interpret all aspects of the End User's specifications and incorporate the appropriate specifications, design criteria, and design loads into the Order Documents submitted to the Metal Building Provider.
4. It is the responsibility of the Metal Building Provider to furnish the metal building system to meet the specifications including the design criteria and design loads incorporated by the Contractor into the Order Documents. The Metal Building Provider is not responsible for making an independent determination of any local codes or any other requirements not part of the Order Document.
5. The Metal Building Provider's standard specifications apply unless stipulated otherwise in the Contract Documents. The Metal Building Provider design, fabrication, quality criteria, standards, practice, methods and tolerances shall govern the work any other interpretations to the contrary not with standing. it is understood by both parties that the customer is responsible for clarifications of inclusions or exclusions from the Architectural plans.
6. In case of discrepancies between the Metal Building Provider's structural steel plans and plans for other trades, the Metal Building Provider's shall govern ("Code of Standard Practice for Steel Buildings and Bridges" in the AISC 303–16; Section 3.3).
7. The customer is responsible for overall project coordination. All interface, compatibility and design considerations concerning any materials not furnished by the Metal Building Provider and the Metal Building Provider's steel system are to be considered and coordinated by the customer. Specific design criteria concerning this interface between materials must be furnished by the customer before release for fabrication or the Metal Building Provider's assumptions will govern.
8. Foundations, anchor rods, and anchor rod embedment are designed, furnished, and set by the customer in accordance with an approved drawing. Dimensional accuracy shall satisfy the requirements of Section 7.5 1 of "Code of Standard Practice for Steel Buildings and Bridges" in the AISC 303–16.
9. All other embedded items or connection materials between the structural steel and the work of other trades are located and set by the customer in accordance with approved location on erection drawings. Accuracy of these items must satisfy the erection tolerance requirements.
10. The Metal Building Provider does not investigate the influence of the metal building system on existing buildings or structures. The End Customer assures that such buildings and structures are adequate to resist snow drifts, wind loads, or other conditions as a result of the presence of the metal building system.

GENERAL SPECIFICATIONS

1. Wall and liner panels are an integral part of the structural system. Unauthorized removal of panels or cutting panels for framed openings not shown is prohibited.
2. Oil–canning, a perceived waviness inherent to light gauge metal, may exist. This condition does not affect the structural integrity or the finish of the panel, and therefor is not a cause for rejection.
3. The Metal Building Provider's red–oxide and gray–oxide primer are designed for short term field protection from exposure to ordinary atmospheric conditions.
4. All bolts are 1/2" x 1–1/4" A307 unless noted. Refer to the erection drawings for specific framing connections and the cross–section(s) for main frame connections.
5. Unless noted otherwise on the frame cross section(s), all bolted joints with ASTM F3125 Grade A325 bolts are specified as snug–tightened joints in accordance with the specification for Structural Joints Using High–Strength Bolts, June 11, 2020. Installation Inspection requirements for Snug–Tight Bolts (Specification for Structural joints, Section 9.1) is suggested.
6. Unless noted otherwise, all bolted connections are designed as bearing type connections with bolt threads not excluded from the shear plane.
7. Any type of suspended or load inducing system(s) is prohibited if zero collateral and zero sprinkler loads are designated on the contract. This would include lights, duct work, piping, and insulation types other than 3" standard duty fiberglass blanket insulation, etc.

Notes on Drawings

The design collateral load has been uniformly applied to the design of the building.
Hanging loads are to be attached to the purlin web. This may not be appropriate for heavily concentrated loads. Any attached load in excess of 150 pounds shall be accounted for by special design performed by a licensed engineer using concentrated loads and may require seperate support members within the roof system.

BOLT TIGHTENTING – All bolted joints with A325–09Type 1 bolts are specified as snug–tightened joints in accordance with the Specification for Structural Joints Using ASTM A325 or A490 Bolts,June 30, 2004. Pretensioning methods, including turn–of–nut, calibrated wrench,twist off type tension control bolts or direct tension indicator are not required. Installation Inspection requirements for Snug Tight Bolts (Specification for Structural Joints Section9.1) is suggested.

X–Bracing is to be installed to a taut condition with all slack removed. Do not tighten beyond this state.

This metal building system is designed as enclosed for the main building. All exterior components (i.e. doors, windows, vents, etc.) must be designed to withstand the specified wind loading for the design of components and cladding in accordance with the specified building code.Doors are to be closed when a maximum of 50% of design wind velocity is reached.

Framed openings, walk doors, and open areas shall be located in the bay and elevation as shown in the erection drawings.
The cutting or removal of girts shown on the erection drawings due to the addition of framed openings, walk doors, or open areas not shown may void the design certifications supplied by the metal building manufacturer.

The rigid frame at Line 1, is designed as a non–expandable rigid frame. Corresponding frame reactions are calculated based upon actual tributary area.

The framing designed by MBM is designed to support future lean–to (120'x100'x22'HS; 1:12) attached to rigid frame columns on grid line(A/1–5).
The lean–to assumed to be an enclosed bldg , the frames on lines 2,3,4 are lean to with modular column offset 40ft from low side of lean–to ,the lew on line 1 is lean to without bearing end wall columns, the rew on line 5 is lean to with bearing end wall column and with the following loading:
DL=2.05 PSF
Coll=6psf
LL=20 psf reducible
The future expansion and the framing designed by MBM are not designed for any mezzanine or crane loads from the future expansion.
Framing at line A will not remain sheeted when future lean–to being added to the structure.girts will be removed also.

The framing designed by MBM is designed to support bi–fold door 65'x18' at lew between line D to H.

BUILDING DESIGN CODES

Building Code:	IBC 18
Steel Specification:	AISC 360–16
Cold–Formed Specification:	AISI S100–16

GENERAL LOADS

Roof Dead Load:	2.05 psf
Roof Collateral Load:	6.00 psf
Roof Live Load:	20.00 psf
Tributary Live Load Reduction:	Yes
Rainfall Intensity (5–minute duration 5–year recurrence):	7.00 in/hr

WIND LOAD

Wind Speed (3–sec gust) Vult:	110 mph
Wind Speed (3 sec Gust), Vasd:	85 mph
Serviceability Wind, Vserv:	76 mph
Wind Exposure Category:	C
Wind Condition:	Enclosed
Internal Pressure Coefficient (GCpi):	0.18, –0.18

SNOW LOAD

Ground Snow Load (Pg):	20.00 psf
Roof Snow Load (Pf):	14.00 psf
Snow Exposure Factor (Ce):	1.00
Snow Load Importance Factor (Is):	1.00
Thermal Factor (Ct):	1.00

DEFLECTION CRITERIA

Main Frames Lateral:	H/60	Roof Panels:	L/60
Main Frames Vertical:	L/180	Purlins:	L/150
Bearing Frame Rafter:	L/180	Wall Panels:	L/60
Endwall Columns:	L/120	Girts:	L/90
W.F. (Horz)	H/60		

SEISMIC LOAD

Risk Category:	II – Normal
Seismic Importance Factor (Ie):	1.00
Spectral Response Acceleration (Ss):	0.099
Spectral Response Acceleration (S1):	0.068
Site Class:	d
Spectral Response Coefficients (Sds):	0.1055
Spectral Response Coefficients (Sd1):	0.1083
Seismic Design Category:	B

Other Loads:
–65'X18' BI–FOLD DOOR AT LEW
–FUTURE LEAN TO 120'X100'X22EH with the following loading:
DL=2.05 PSF
Coll=6psf
LL=20 psf reducible

For components, cladding, and MWFRS, deflections involving wind are based on 10 year serviceability wind pressures.

ROOF PANEL

Profile: Super Span X Gauge: 26 Color: Light Stone
UL580 Class 90: Yes

WALL PANEL

Profile: Super Span X Gauge: 26 Color: Light Stone

PRIMARY FRAMING

Built–Up & Hot–Rolled: Gray Oxide Primer

SECONDARY FRAMING

Purlins, Eave Struts:	Pre–Galvanized
Girts, Light Gage Columns:	Pre–Galvanized
Light Gage Jambs & Headers:	Pre–Galvanized

Hot–Dip Galvanizing conforms to the ASTM A123 specification.
Pre–Galvanized members conform to the ASTM A653, Grade 50, Coating G–90 specification.

APPROVAL SPECIFICATIONS

1. Approval of the Metal Building Provider drawings and/or calculations indicate that the Metal Building Provider has correctly interpreted the contact requirements. This approval constitutes the customer acceptance of the Metal Building Provider design, concepts, assumptions, and loadings.
2. Failure to respond to clouded areas and areas to verify may result in additional costs and/or schedule delays for which the Metal Building Provider will not be responsible.
3. Any changes made after the Metal Building Provider's customer has signed and returned the Metal Building Provider drawings and/or calculations and the project is released for fabrication shall be billed to the Metal Building Provider customer including material, engineering, and other costs. An additional fee may be charged if the project must be moved in the fabrication and/or the shipping schedule.
4. It is the responsibility of the customer to field verify all existing conditions prior to fabrication.
5. It is imperative that any changes to these drawings:
   - 5.1. Be made in contrasting ink.
   - 5.2. Be legible and unambiguous.
   - 5.3. Have all instances of changes clearly indicated.
6. A dated signature, in the designated areas, is required on all pages. The signature must be from the person authorized on the contract or a person authorized, in writing, by the Metal Building Provider customer.
7. The Metal Building Provider reserves the right to resubmit drawings with extensive or complex changes required to avoid misfabrication. This may impact the delivery schedule.
8. Any changes noted on the drawings not in conformance with the terms and requirements of the contract between the Metal Building Provider and its customer are not binding on the Metal Building Provider unless subsequently acknowledged and agreed to in writing by change order or separate documentation.
9. Waiving the approval process by designating the order "For Production" supercedes notes 1,2,5,6, and 8 in this section, and constitutes the customer acceptance of the Metal Building Provider's design, concepts, assumptions, and loadings.

DRAWING SCHEDULE

DWG NO.	ISSUE	DATE	DESCRIPTION
C1	P1	12.18.24	COVER SHEET
F1	0	12.18.24	ANCHOR BOLT PLAN
F2	0	12.18.24	ANCHOR BOLT DETAILS & SECTIONS
F3	0	12.18.24	ANCHOR BOLT REACTIONS
P1	P1	12.18.24	RIGID FRAME ELEVATION
P2	P1	12.18.24	RIGID FRAME ELEVATION
E1	P1	12.18.24	ROOF FRAMING PLAN
E2	P1	12.18.24	ROOF SHEETING PLAN
E3	P1	12.18.24	FRAME & SHEETING ELEVATION
E4	P1	12.18.24	FRAME & SHEETING ELEVATION
E5	P1	12.18.24	FRAME & SHEETING ELEVATION
E6	P1	12.18.24	FRAME & SHEETING ELEVATION
E7	P1	12.18.24	BUILDING SECTIONS
D1	P1	12.18.24	STANDARD DETAILS PAGE
D2	P1	12.18.24	STANDARD DETAILS PAGE
D3	P1	12.18.24	STANDARD DETAILS PAGE
D4	P1	12.18.24	STANDARD DETAILS PAGE

TRIM COLOR:

GUTTER:	Royal Blue	GAUGE:	26
RAKE:	Royal Blue	GAUGE:	26
CORNER:	Royal Blue	GAUGE:	26
ACCESSORY:	Royal Blue	GAUGE:	26
DOWNSPOUT:	Royal Blue	GAUGE:	26
BASE:	Royal Blue	GAUGE:	26

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

DRAWING STATUS

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- ☒ FOR CONSTRUCTION PERMIT: These drawings, being for permit, are by definition not final. Only drawings issued "For Erector Installation" can be considered complete.
- ☐ FOR ERECTOR INSTALLATION: Final drawings for construction.

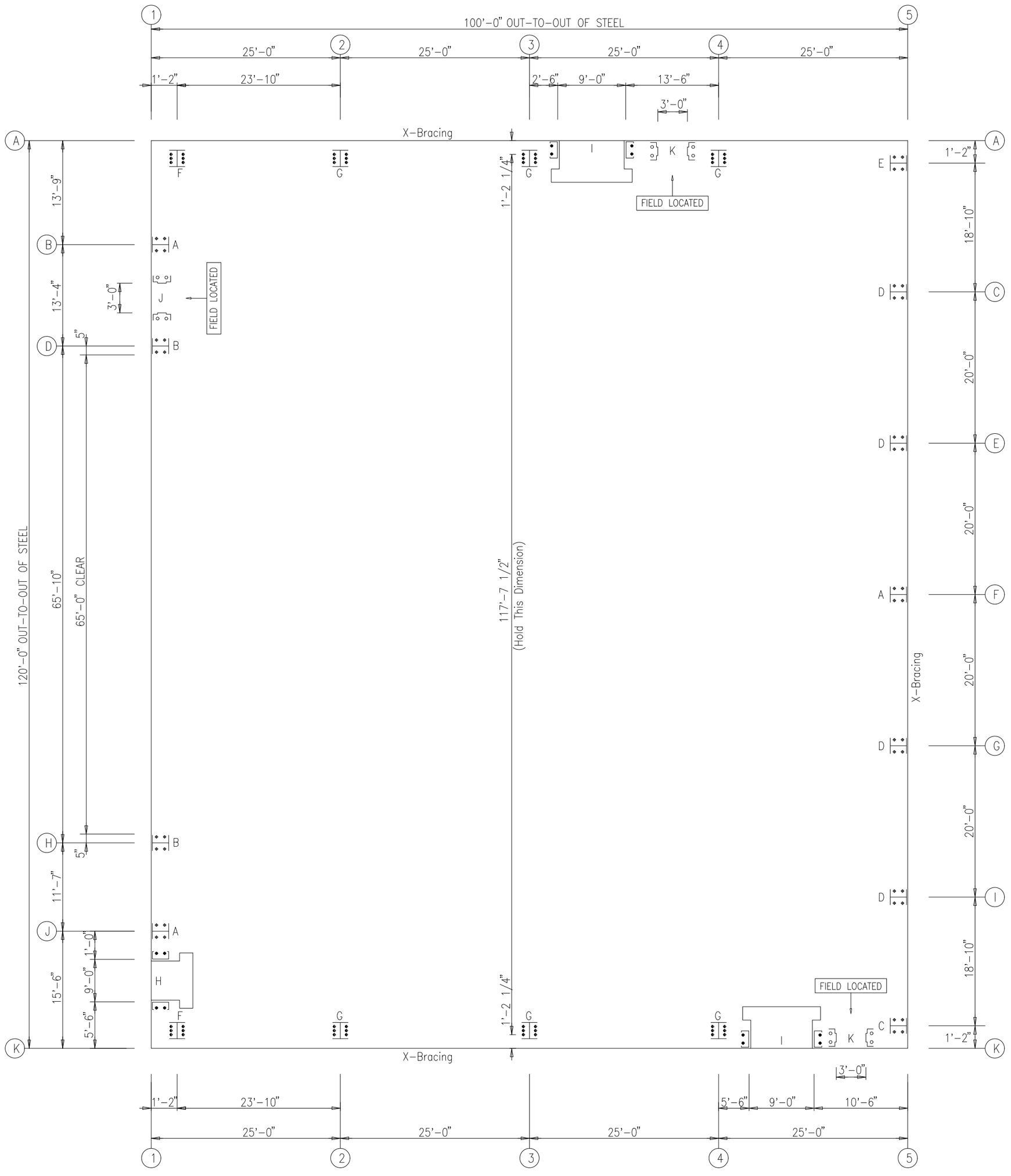
ISSUE	DATE	DESCRIPTION	BY	CHK
P1	12.18.24	FOR CONSTRUCTION PERMIT	DM	AM

SHEET DESCRIPTION: COVER PAGE					BLDG SIZE: 120'–0" x 100'–0" x 22'–0"	
CUSTOMER: LS Management Hangar					CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar						
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064					JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322–35833	DWG NO: C1	ISSUE: P1

The Engineer whose seal and signature appear on these documents represents Whirlwind Steel Buildings, Inc., and is not the Engineer of Record for the overall project. The Engineer's responsibility is limited to material designed and manufactured by Whirlwind Steel Buildings, Inc., and excludes part such as doors, windows, foundation design, and erection of the building.

STATE OF MISSOURI
SIRENE M. CHACON
NUMBER PE-2012036154
PROFESSIONAL ENGINEER

Sirene Chacon
2024.12.20
14:04:25-06'00'



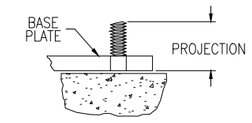
ANCHOR BOLT PLAN

NOTE: All Base Plates @ Finish Floor

ANCHOR BOLT SUMMARY (GRADE 36)

Qty	Locate	Dia (in)	Type	Proj (in)
12	Jamb	5/8"	F1554	2.50
44	Endwall	3/4"	F1554	3.00
48	Frame	1 1/4"	F1554	4.00
12	Walk Door	1/2"	F1554	2.00

THREADED ANCHOR BOLT



NOTE: PROJECTION BASED FROM BOTTOM OF BASE PLATE. ADJUSTMENTS SHOULD BE MADE FOR GROUT AND/OR LEVELING PLATES.

SEE "F2" DWG FOR ANCHOR BOLT DETAILS & SECTIONS

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ISSUE	DATE	DESCRIPTION	BY	CHK
0	12.18.24	FOR ERECTOR INSTALLATION	DM	AM

SHEET DESCRIPTION: ANCHOR BOLT PLAN
BLDG SIZE: 120'-0" x 100'-0" x 22'-0"
CUSTOMER: LS Management Hangar
CUSTOMER LOCATION: Peculiar, MO 64078
PROJECT REFERENCE: LS Management Hangar
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064
JOBSITE COUNTY: Jackson

DWN:	CHK:	DATE:	ENG:	JOB NO:	DWG NO:	ISSUE:
DM	AM	12/18/24	AM	13322-35833	F1	0

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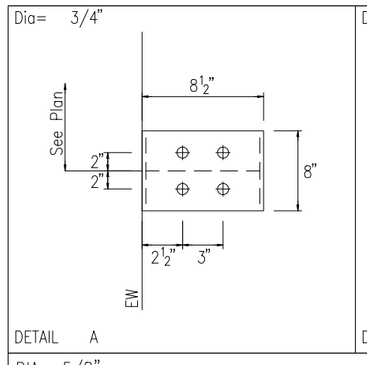
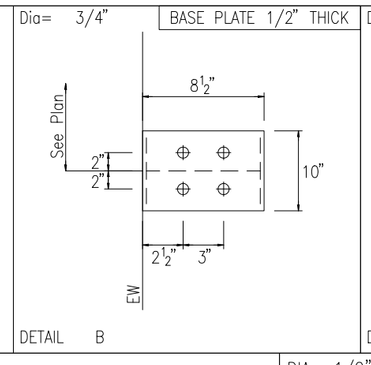
STATE OF MISSOURI
SIRENE M. CHACON NUMBER PE-2012036154
PROFESSIONAL ENGINEER

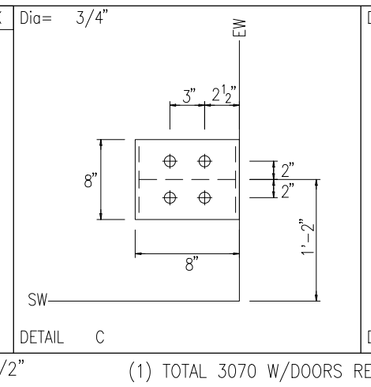
CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081



DETAIL A



DETAIL B



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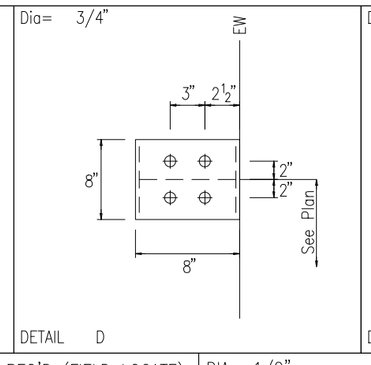

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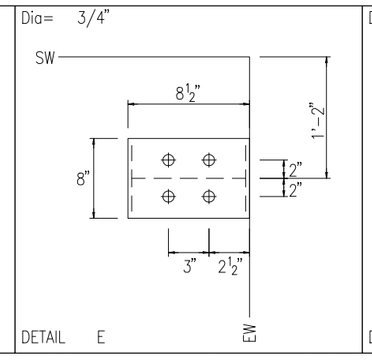

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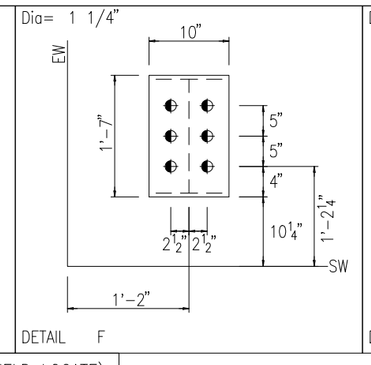
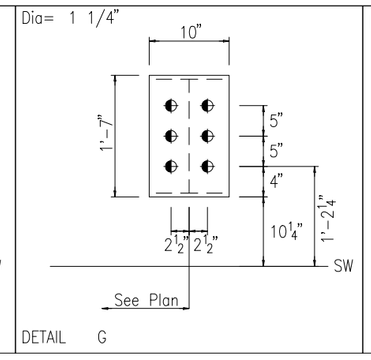
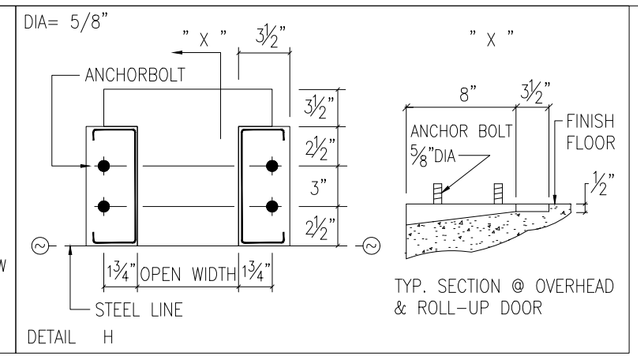


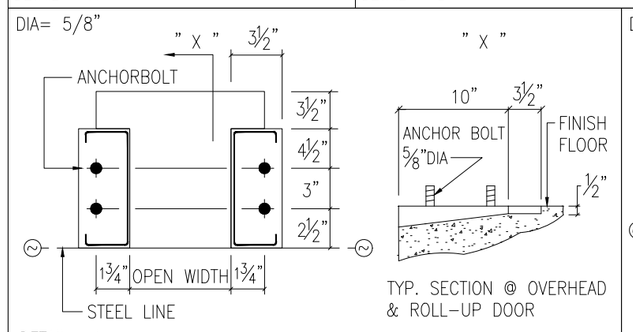
DETAIL F



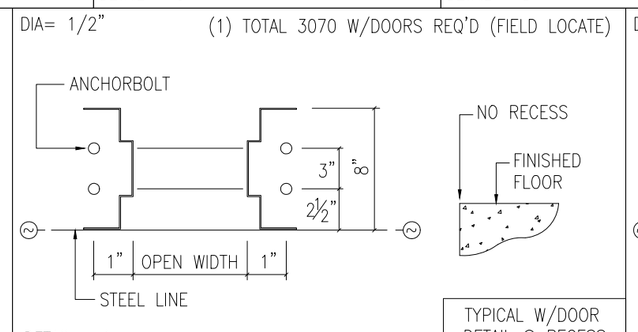
DETAIL G



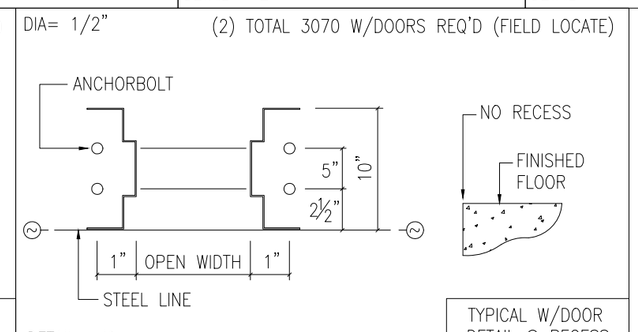
DETAIL H



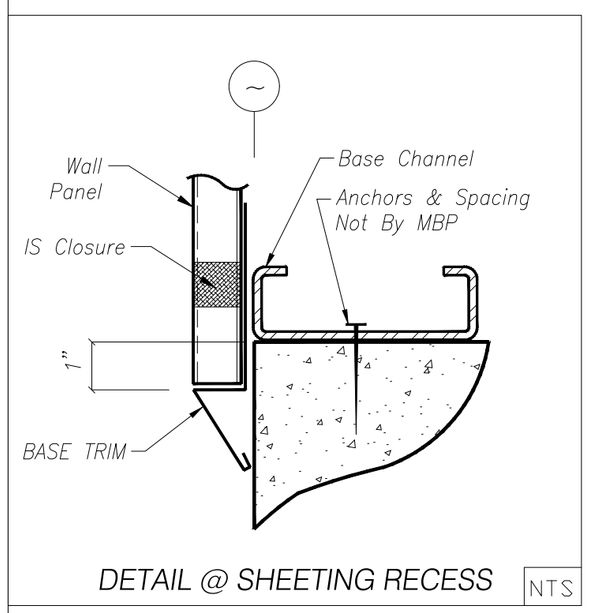
DETAIL I



DETAIL J



DETAIL K



DETAIL @ SHEETING RECESS NTS

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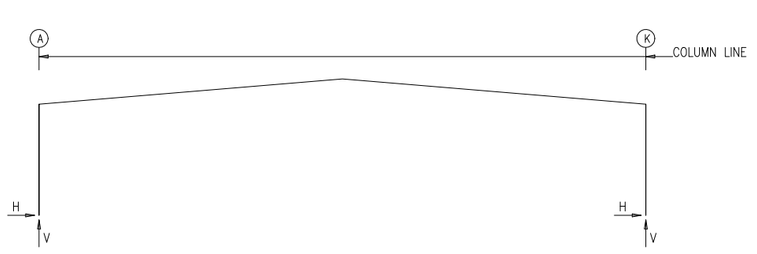
SHEET DESCRIPTION: ANCHOR BOLT DETAILS & SECTIONS					BLDG SIZE: 120'-0" x 100'-0" x 22'-0"	
CUSTOMER: LS Management Hangar					CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar						
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064					JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833	DWG NO: F2	ISSUE: 0

STATE OF MISSOURI
SIRENE M. CHACON
NUMBER PE-2012036154
PROFESSIONAL ENGINEER

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

FRAME LINES: 1 2 3 4



RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick	Elev. (in)
1	A	7	33.3	46.6	3	−1.1	−11.2	6	1.250	10.00	19.00	0.500	0.0
		2	28.8	52.9									
1	K	4	1.3	−3.0	7	−33.3	36.0	6	1.250	10.00	19.00	0.500	0.0
		7	−33.3	36.0	4	1.3	−3.0						

RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick	Elev. (in)
2*	A	7	39.0	58.9	3	−11.9	−25.4	6	1.250	10.00	19.00	0.625	0.0
		2	30.5	68.4	5	−9.4	−39.6						
2*	K	4	12.1	−13.2	7	−39.0	45.8	6	1.250	10.00	19.00	0.625	0.0
		7	−39.0	45.8	5	10.0	−20.4						

2* Frame lines: 2 3 4

NOTES FOR REACTIONS

1. All loading conditions are examined and only maximum/minimum H or V and the corresponding H or V are reported.
2. Positive reactions are as shown in the sketch. Foundation loads are in opposite directions.
3. Bracing reactions are in the plane of the brace with the H pointing away from the braced bay. The vertical reaction is downward.
4. Building reactions are based on the following building data:

Width		(ft)	= 120.0
Length		(ft)	= 100.0
Eave Height		(ft)	= 22.0/ 22.0
Roof Slope	(rise/12)		= 1.00/ 1.00
Roof Dead Load		(psf)	= 2.1
Wall Dead Load			
Left Endwall		(psf)	= 3.0
Right Endwall		(psf)	= 3.0
Front Sidewall		(psf)	= 3.0
Back Sidewall		(psf)	= 3.0
Roof Live Load		(psf)	= 20.0
Frame Live Load		(psf)	= 12.0
Collateral Load		(psf)	= 6.0
Snow Load		(psf)	= 14.0
Minimum Snow		(psf)	= 20.0
Wind Speed		(mph)	= 110.0
Wind Code			= IBC 18
Exposure			= C
Closure			= Enclosed
Internal Wind Coeff			= −0.18, +0.18
Risk Category			= II − Normal
Importance − Wind			= 1.00
Importance − Seismic			= 1.00
Seismic Design Category			= B
Seismic Coeff		(Sms)	= 0.16

5. Loading conditions are:
   1 Dead+Collateral+Live
   2 Dead+Collateral+Snow
   3 0.6Dead+0.6Wind_Left1
   4 0.6Dead+0.6Wind_Right1
   5 0.6Dead+0.6Wind_Long1L
   6 0.6Dead+0.6Wind_Long2L
   7 Dead+Collateral+MIN_SNOW
   8 1.01Dead+1.01Collateral+0.52Seismic_LongR
   9 0.6Dead+0.6Wind_Right2+0.6Wind_Suction
   10 0.6Dead+0.6Wind_Pressure+0.6Wind_Long2L
   11 Dead+0.6Wind_Right2+0.6Wind_Suction
   12 0.6Dead+0.6Wind_Suction+0.6Wind_Long2L
   13 0.6Dead+0.6Wind_Pressure+0.6Wind_Long1L
   14 0.6Dead+0.6Wind_Left1+0.6Wind_Suction
   15 Dead+Collateral+E2PAT_LL_1
   16 Dead+Collateral+E2UNB_SL_L
   17 0.6Dead+0.6Wind_Right1+0.6Wind_Suction
   18 Dead+Collateral+E2PAT_LL_3
   19 Dead+Collateral+E2UNB_SL_R
   20 Dead+Collateral+E2PAT_LL_5
   21 Dead+Collateral+E2PAT_LL_7

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	Dead Horz	Dead Vert	Collateral Horz	Collateral Vert	Live Horz	Live Vert	Snow Horz	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert
1	A	15.6	21.5	4.0	9.4	7.9	18.7	9.3	21.9	−17.4	−40.2	−11.4	−26.3
1	K	−15.6	15.7	−4.0	4.7	−7.9	9.3	−9.3	10.8	11.2	−14.5	17.7	−20.6

Frame Line	Column Line	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seismic_Left Horz	Seismic_Left Vert	Seismic_Right Horz	Seismic_Right Vert
1	A	−13.0	−27.0	−7.0	−13.1	−12.4	−40.2	−13.5	−27.4	−0.5	−0.2	0.5	0.2
1	K	6.7	−7.7	13.2	−13.9	13.3	−15.5	12.7	−20.4	−0.5	0.2	0.5	−0.2

Frame Line	Column Line	MIN_SNOW Horz	MIN_SNOW Vert	F1UNB_SL_L Horz	F1UNB_SL_L Vert	F1UNB_SL_R Horz	F1UNB_SL_R Vert
1	A	13.8	15.7	8.5	11.2	8.5	6.6
1	K	−13.8	15.7	−8.5	6.6	−8.4	11.2

Frame Line	Column Line	Dead Horz	Dead Vert	Collateral Horz	Collateral Vert	Live Horz	Live Vert	Snow Horz	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert
2*	A	5.0	12.0	7.7	16.9	15.3	33.8	17.8	39.5	−24.9	−54.3	−15.3	−37.7
2*	K	−5.0	6.8	−7.7	8.9	−15.3	17.8	−17.8	20.7	15.0	−21.0	25.1	−28.8

Frame Line	Column Line	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seismic_Left Horz	Seismic_Left Vert	Seismic_Right Horz	Seismic_Right Vert
2*	A	−16.7	−31.1	−7.1	−14.0	−20.7	−78.0	−14.4	−57.2	−0.6	−0.2	0.6	0.2
2*	K	6.8	−8.2	16.9	−15.9	21.6	−40.9	13.4	−40.6	−0.6	0.2	0.6	−0.2

Frame Line	Column Line	Seismic_Long Horz	Seismic_Long Vert	MIN_SNOW Horz	MIN_SNOW Vert	F2UNB_SL_L Horz	F2UNB_SL_L Vert	F2UNB_SL_R Horz	F2UNB_SL_R Vert
2*	A	0.0	−2.0	26.3	30.0	16.2	21.3	16.2	12.5
2*	K	0.0	−2.0	−26.3	30.0	−16.2	12.6	−16.2	21.3

2* Frame lines: 2 3 4

GENERAL NOTES

1. All anchor bolts (by others) to have nuts and flat washers.
2. All anchor bolts are designed to full S.A.E. diameters with cut threads. No substitutions are allowed.
3. The Metal Building Provider is not responsible for the design, materials and workmanship of the foundation. Anchor bolt plans prepared by the Metal Building Provider are intended to show only location, diameter, and projection of anchor bolts required to attach the Metal Building System to the foundation. The Metal Building Provider is responsible for providing to the Builder the loads imposed by the Metal Building System on the foundation. It is the responsibility of the End Customer to ensure that adequate provisions are made for specifying bolt embedment, bearing angles, tie rods, and/or other associated items embedded in the concrete foundation, as well as foundation design for the loads imposed by the Metal Building System, other imposed loads, and the bearing capacity of the soil and other conditions of the building site. This is typically the responsibility of the Design Professional or Engineer of Record, which is another reason that their involvement in the Construction Project from the outset is highly recommended. (2012 MBMA Metal Building Systems Manual, Section 3.2.2)

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Horz	Dead Vert	Wind Press Horz	Wind Suct Horz	Wind Long1 Horz	Wind Long2 Horz	Seis Long Vert
1	B	0.0	0.3	−3.2	3.6	0.0	0.0	0.0
1	D	−1.0	6.1	−9.5	10.5	−1.2	1.2	0.0
1	H	−1.0	6.1	−9.3	10.3	−1.2	1.2	0.0
1	J	0.0	0.3	−3.2	3.6	0.0	0.0	0.0

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind Press Horz
5	K	1.1	1.5	3.6	3.4	0.0	−6.2	0.0	−4.1	0.0	−4.1	0.0	−2.0	0.0
5	I	0.9	1.6	5.2	3.8	0.0	−8.0	0.0	−4.6	0.0	−5.7	0.0	−2.3	−4.5
5	G	0.9	1.5	4.7	3.5	−2.8	−11.0	0.0	−0.3	−2.8	−8.8	0.0	1.9	−5.0
5	F	1.0	1.6	4.9	3.6	0.0	−1.4	2.8	−8.7	0.0	0.6	2.8	−6.7	−5.3
5	E	0.9	1.5	4.7	3.5	0.0	−4.0	0.0	−7.4	0.0	−1.9	0.0	−5.3	−5.0
5	C	0.9	1.7	5.3	3.9	0.0	−4.8	0.0	−8.2	0.0	−2.3	0.0	−5.8	−4.5
5	A	0.6	0.6	2.0	1.5	0.0	−2.0	0.0	−3.0	0.0	−0.9	0.0	−2.0	0.0

Frm Line	Col Line	Wind Suct Horz	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	Seis Long Vert	−MIN_SNOW− Horz	−MIN_SNOW− Vert
5	K	0.0	0.0	−6.5	0.0	−4.1	0.0	0.0	0.0	0.0	0.0	0.0	2.1
5	I	5.0	0.0	−8.0	0.0	−4.7	0.0	0.0	0.0	0.0	0.0	0.0	5.6
5	G	5.5	0.0	−6.5	−0.8	−5.0	−0.7	−0.9	0.0	1.0	0.0	0.0	4.9
5	F	5.9	0.8	−6.5	0.0	−4.4	0.0	0.9	0.7	−1.0	0.0	0.0	5.2
5	E	5.5	0.0	−4.0	0.0	−7.5	0.0	0.0	0.0	0.0	0.0	0.0	4.9
5	C	5.0	0.0	−4.8	0.0	−8.2	0.0	0.0	0.0	0.0	0.0	0.0	5.6
5	A	0.0	0.0	−2.0	0.0	−3.3	0.0	0.0	0.0	0.0	0.0	0.0	2.1

Frm Line	Col Line	E2UNB_SL_L− Horz	E2UNB_SL_L− Vert	E2UNB_SL_R− Horz	E2UNB_SL_R− Vert	E2PAT_LL_1− Horz	E2PAT_LL_1− Vert	E2PAT_LL_2− Horz	E2PAT_LL_2− Vert	E2PAT_LL_3− Horz	E2PAT_LL_3− Vert	E2PAT_LL_4− Horz	E2PAT_LL_4− Vert	E2PAT_LL_5− Horz	E2PAT_LL_5− Vert
5	K	0.0	1.5	0.0	0.4	0.0	1.9	0.0	−0.2	0.0	0.0	0.0	0.0	0.0	0.0
5	I	0.0	3.6	0.0	1.3	0.0	5.6	0.0	2.2	0.0	−0.3	0.0	0.1	0.0	0.0
5	G	0.0	5.6	0.0	0.6	0.0	2.3	0.0	5.5	0.0	2.3	0.0	−0.3	0.0	0.1
5	F	0.0	4.0	0.0	4.0	0.0	−0.3	0.0	2.3	0.0	5.5	0.0	2.3	0.0	−0.3
5	E	0.0	0.6	0.0	5.6	0.0	0.1	0.0	−0.3	0.0	2.3	0.0	5.5	0.0	2.3
5	C	0.0	1.3	0.0	3.6	0.0	0.0	0.0	0.1	0.0	−0.3	0.0	2.2	0.0	5.6
5	A	0.0	0.4	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	−0.2	0.0	1.9

Frm Line	Col Line	E2PAT_LL_6− Horz	E2PAT_LL_6− Vert	E2PAT_LL_7− Horz	E2PAT_LL_7− Vert
5	K	0.0	2.3	0.0	−0.3
5	I	0.0	2.6	0.0	2.7
5	G	0.0	2.4	0.0	2.3
5	F	0.0	2.5	0.0	2.5
5	E	0.0	2.3	0.0	2.4
5	C	0.0	2.7	0.0	2.6
5	A	0.0	−0.3	0.0	2.3

ENDWALL COLUMN: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Column_Reactions(k) Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin	Bolt(in) Qty	Dia	Base_Plate(in) Width	Length	Thick	Elev. (in)
1	B	9	2.1	0.2	10	−1.9	0.2	4	0.750	8.000	8.500	0.375	0.0
		11	2.1	0.3									
1	D	12	7.0	3.7	13	−6.5	3.7	4	0.750	10.00	8.500	0.500	0.0
		8	−1.0	6.2									
1	H	12	6.9	3.7	13	−6.3	3.7	4	0.750	10.00	8.500	0.500	0.0
		8	−1.0	6.2									
1	J	9	2.1	0.2	10	−1.9	0.2	4	0.750	8.000	8.500	0.375	0.0
		11	2.1	0.3									
5	K	5	0.0	−3.2	5	0.0	−3.2	4	0.750	8.000	8.000	0.375	0.0
		1	0.0	6.2									
5	I	14	3.0	−4.3	13	−2.7	−4.3	4	0.750	8.000	8.000	0.375	0.0
		15	0.0	8.1	14	3.0	−4.3						
5	G	14	3.3	−6.0	13	−3.0	−3.3	4	0.750	8.000	8.000	0.375	0.0
		16	0.0	8.1	14	3.3	−6.0						
5	F	17	3.5	−4.6	13	−3.2	−3.3	4	0.750	8.000	8.500	0.375	0.0
		18	0.0	8.1	17	3.5	−4.6						
5	E	12	3.3	−3.9	10	−3.0	−3.9	4	0.750	8.000	8.000	0.375	0.0
		19	0.0	8.1	12	3.3	−3.9						
5	C	17	3.0	−4.4	10	−2.7	−4.4	4	0.750	8.000	8.000	0.375	0.0
		20	0.0	8.2	17	3.0	−4.4						
5	A	6	0.0	−1.6	6	0.0	−1.6	4	0.750	8.000	8.500	0.375	0.0
		21	0.0	3.5									

BUILDING BRACING REACTIONS

Loc	Wall Line	Col Line	± Reactions(k) Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	Panel_Shear (lb/ft) Wind	Seis	Note
L_EW	1								(h)
F_SW	K	2,3	19.1	15.3	2.5	2.0			
R_EW	5	G,F	2.8	3.5	0.7	0.9			
B_SW	A	3,2	26.2	21.0	2.5	2.0			

(h)Rigid frame at endwall

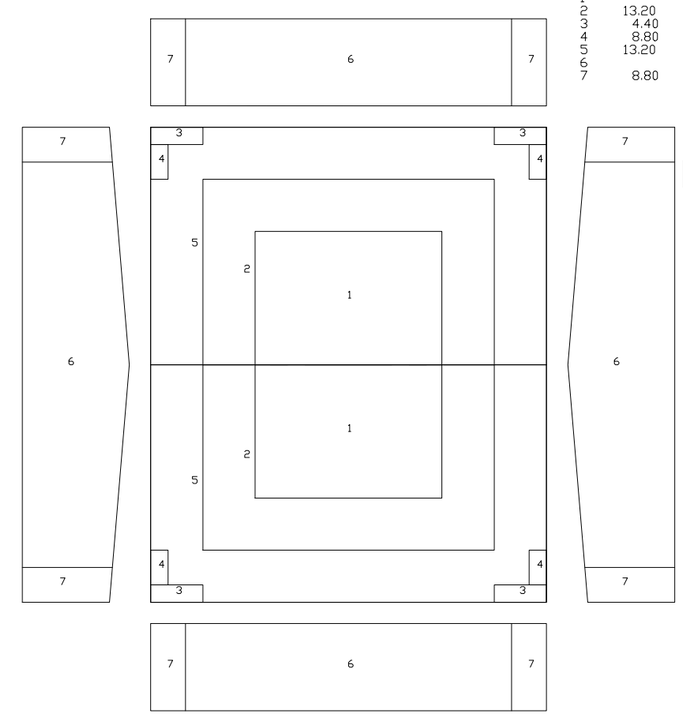
Reactions for seismic represent shear force, Eh
Reaction values shown are unfactored

Components & Cladding

Zone	Width (ft)	Length (ft)	Pressure(psf) Member	Pressure(psf) Panel	Suction(psf) Member	Suction(psf) Panel
1			16.00	16.00	−22.42	−26.05
2	13.20	13.20	16.00	16.00	−32.51	−45.33
3	4.40	13.20	16.00	16.00	−48.20	−81.54
4	8.80	4.40	16.00	16.00	−48.20	−81.54
5	13.20	13.20	16.00	16.00	−43.27	−59.91
6			21.06	26.05	−23.23	−28.22
7	8.80		21.06	26.05	−24.86	−34.71

(+) wind towards surface
(−) wind away from surface

THE SHOWN VALUES ARE ULTIMATE VALUES



Panel Zone: Wind 1

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

The Engineer whose seal and signature appear on these documents represents Whirlwind Steel Buildings, Inc., and is not the Engineer of Record for the overall project. The Engineer's responsibility is limited to material designed and manufactured by Whirlwind Steel Buildings, Inc., and excludes part such as doors, windows, foundation design, and erection of the building.

DRAWING STATUS

- ☐ FOR APPROVAL: These drawings, being for approval, are by definition not final and are for conceptual representation only. Their purpose is to confirm the proper interpretation of the project documents. Only drawings issued "For Erector Installation" can be considered complete.
- ☐ FOR CONSTRUCTION PERMIT: These drawings, being for permit, are by definition not final. Only drawings issued "For Erector Installation" can be considered complete.
- ☒ FOR ERECTOR INSTALLATION: Final drawings for construction.

WORLDWIDE STEEL BUILDINGS

ISSUE	DATE	DESCRIPTION	BY	CHK
0	12.18.24	FOR ERECTOR INSTALLATION	DM	AM

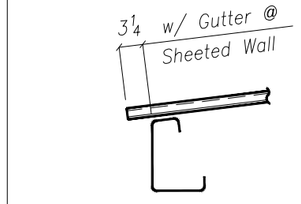
SHEET DESCRIPTION: ANCHOR BOLT REACTIONS
BLDG SIZE: 120'-0" x 100'-0" x 22'-0"
CUSTOMER: LS Management Hangar
CUSTOMER LOCATION: Peculiar, MO 64078
PROJECT REFERENCE: LS Management Hangar
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064
JOBSITE COUNTY: Jackson

DWN:	CHK:	DATE:	ENG:	JOB NO:	DWG NO:	ISSUE:
DM	AM	12/18/24	AM	13322-35833	F3	0

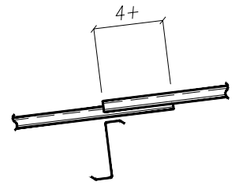
FLANGE BRACE TABLE A=L2x2x14GA B=L2x2x12GA C=L2x2x1/8 D=L3x3x3/16 FRAME LINE: 1						
▽ ID	# SIDES	MARK	LENGTH	OFFSET	DETAIL	CLIP
1	1	FB18D	4'-10 1/2"	4'-0"	G26	AK226
2	1	FB4C	2'-11 5/8"	2'-4"	G26	AK226
3	1	FB2A	2'-8 3/4"	2'-4"	G26	AK226
4	1	FB3A	2'-9 3/4"	2'-4"	G26	AK226
5	1	FB11A	3'-9 1/4"	3'-0"	G26	AK226
6	1	FB15A	4'-1 1/8"	3'-0"	G26	AK226
7	1	FB8A	3'-2 5/8"	2'-4"	G26	AK226
8	1	FB5C	2'-11 3/4"	2'-4"	G26	AK226
9	1	FB10C	3'-6 1/2"	3'-0"	G26	AK227

SPLICE BOLT TABLE						
Mark	Qty Top	Bot	Int	Type	Dia	Length
SP-1	4	4	4	A325	1"	2 3/4"
SP-2	4	4	2	A325	3/4"	2 1/4"
SP-3	4	4	4	A325	3/4"	2 1/4"
SP-4	4	4	4	A325	1"	3 1/4"

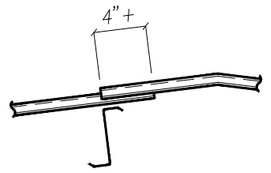
BASE PLATE TABLE			
Col Mark	Plate Size Width	Thick	Length
BP-1	10"	1/2"	1'-7"



DETAIL @ PANEL END

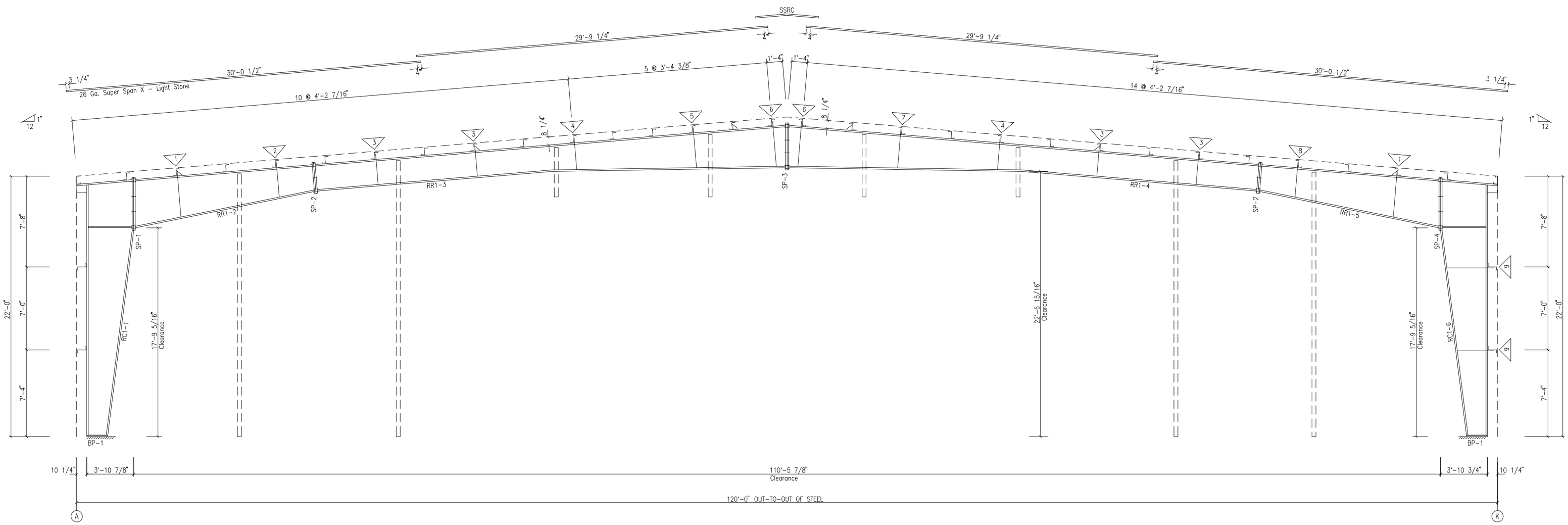


DETAIL @ PANEL SPLICE



DETAIL @ RIDGE CAP

MEMBER TABLE					
Mark	Web Depth Start/End	Web Plate Thick	Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RC1-1	18.0/34.1	0.161	120.0	10 x 3/8" x 231.4	10 x 1/2" x 210.4
	34.1/46.0	0.250	88.6	10 x 3/8" x 24.0	
	46.0/46.0	0.313	50.7	10 x 1/2" x 56.8	
RR1-2	46.0/24.1	0.250	185.9	8 x 5/16" x 182.1	8 x 1/2" x 187.2
RR1-3	24.0/24.0	0.161	240.0	8 x 1/2" x 240.0	8 x 1/2" x 240.0
	24.0/38.6	0.250	216.2	8 x 1/2" x 216.2	8 x 1/4" x 237.4
	38.6/40.0	0.250	24.0	8 x 1/2" x 24.0	
RR1-4	40.0/24.0	0.250	240.0	8 x 1/2" x 240.0	8 x 1/4" x 237.2
	24.0/24.0	0.161	240.0	8 x 1/2" x 240.0	8 x 1/2" x 240.0
RR1-5	24.1/46.0	0.250	185.7	8 x 5/16" x 181.9	8 x 1/2" x 187.0
RC1-6	46.0/46.0	0.313	50.8	8 x 5/8" x 56.6	8 x 1/2" x 210.3
	46.0/34.1	0.250	88.5	8 x 1/4" x 24.0	
	34.1/18.0	0.161	120.0	8 x 1/4" x 231.4	



RIGID FRAME ELEVATION: FRAME LINE 1

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

BOLT TIGHTENING (Snug-Tight)
All bolted joints with ASTM F3125 Grade A325 bolts are specified as Snug-Tightened Joints in accordance with the Specification of Structural Joints Using High-Strength Bolts, June 11, 2020, installation as given in Section 7.1 Washers are not required for Snug-Tightened Joints using standard standard size holes per Section 6.1 of the Specification

Pre-tensioning methods, including Turn-of-Nut, calibrated wrench, twist-off tension control bolts or direct tension indicator are not required. Installation inspection requirements for Snug-Tight Bolt is found in Section 9.1 of the Specification.

DRAWING STATUS

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Final drawings for construction.

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	12.18.24	FOR CONSTRUCTION PERMIT	DM	AM

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SHEET DESCRIPTION: RIGID FRAME ELEVATION						BLDG SIZE: 120'-0" x 100'-0" x 22'-0"		
CUSTOMER: LS Management Hangar						CUSTOMER LOCATION: Peculiar, MO 64078		
PROJECT REFERENCE: LS Management Hangar								
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064						JOBSITE COUNTY: Jackson		
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833		DWG NO: P1	ISSUE: P1	

STATE OF MISSOURI
SIRENE M. CHACON
NUMBER PE-2012036154
PROFESSIONAL ENGINEER

FLANGE BRACE TABLE
A=L2x2x14GA B=L2x2x12GA C=L2x2x1/8 D=L3x3x3/16
FRAME LINE: 2 3 4

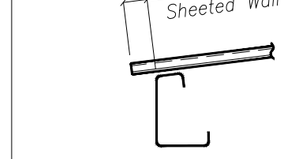
▽ ID	# SIDES	MARK	LENGTH	OFFSET	DETAIL	CLIP
1	2	FB17C	4'-7 1/4"	3'-4"	G26	AK226
2	1	FB12C	3'-10 1/8"	3'-0"	G26	AK226
3	1	FB7A	3'-2 3/8"	2'-4"	G26	AK226
4	1	FB9A	3'-3 1/8"	2'-4"	G26	AK226
5	2	FB14A	4'-0 1/4"	3'-0"	G26	AK226
6	2	FB16A	4'-2 3/4"	3'-0"	G26	AK226
7	1	FB13A	3'-11 5/8"	3'-0"	G26	AK226
8	2	FB6C	3'-1 7/8"	2'-4"	G26	AK227
9	2	FB19C	5'-1 1/8"	4'-0"	G26	AK227

SPLICE BOLT TABLE

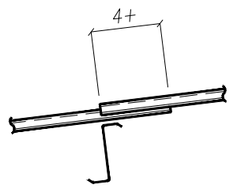
Mark	Qty Top	Bot	Int	Type	Dia	Length
SP-1	4	4	4	A325	1"	2 3/4"
SP-2	4	4	2	A325	3/4"	2 1/4"
SP-3	4	4	4	A325	3/4"	2 1/4"
SP-4	4	4	2	A325	3/4"	2"
SP-5	4	4	4	A325	1"	3 1/4"

BASE PLATE TABLE

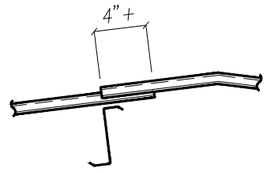
Col Mark	Plate Size Width	Thick	Length
BP-1	10"	5/8"	1'-7"



DETAIL @ PANEL END



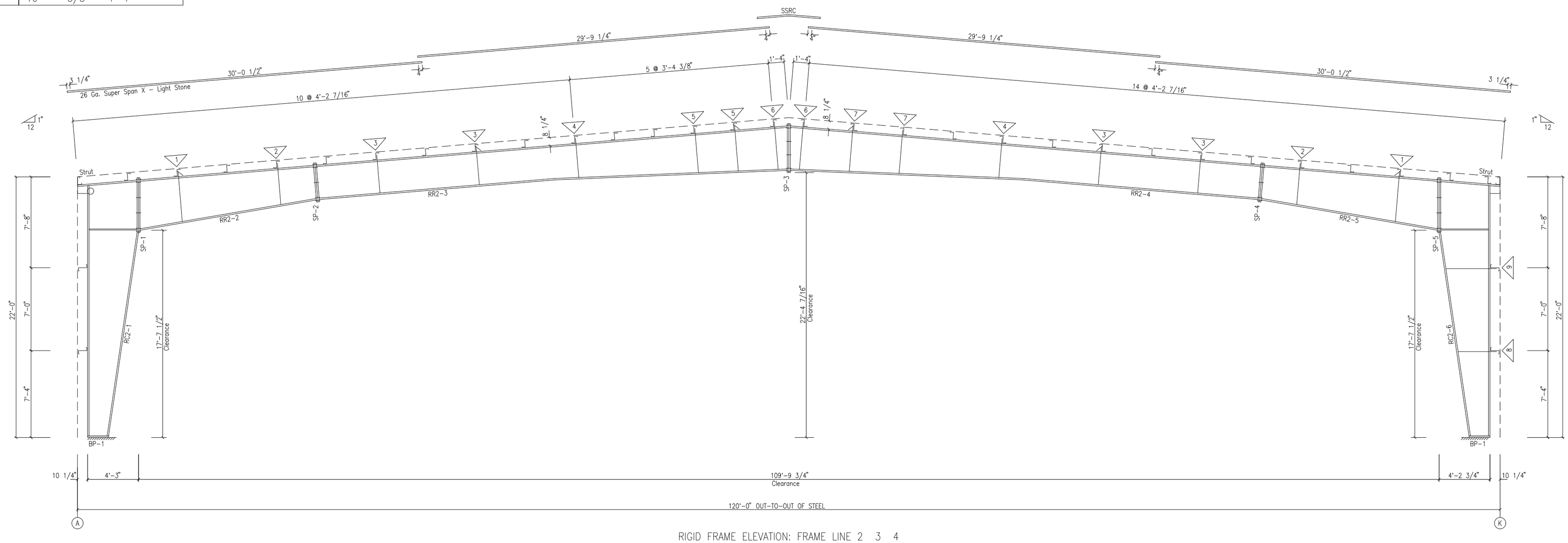
DETAIL @ PANEL SPLICE



DETAIL @ RIDGE CAP

MEMBER TABLE

Mark	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
RC2-1	18.0/50.0	0.250	206.7	10 x 3/8" x 231.3	10 x 1/2" x 121.4
	50.0/50.0	0.313	52.8	10 x 3/8" x 24.0	10 x 5/8" x 87.7
				10 x 1/2" x 60.8	
RR2-2	48.0/32.1	0.250	182.3	8 x 1/4" x 178.3	8 x 5/8" x 62.5
					8 x 1/2" x 120.4
RR2-3	32.0/32.0	0.161	240.0	8 x 1/2" x 240.0	8 x 1/2" x 240.0
	32.0/42.0	0.250	240.0	8 x 1/2" x 240.0	8 x 1/4" x 236.7
RR2-4	42.0/32.0	0.250	240.0	8 x 1/2" x 240.0	8 x 1/4" x 236.7
	32.0/32.0	0.161	240.0	8 x 1/2" x 240.0	8 x 1/2" x 240.0
RR2-5	32.0/48.0	0.250	182.2	8 x 1/4" x 178.1	8 x 1/2" x 120.4
					8 x 5/8" x 62.4
RC2-6	50.0/50.0	0.313	52.8	8 x 5/8" x 60.7	8 x 1/2" x 209.1
	50.0/36.6	0.250	86.7	8 x 1/4" x 24.0	
	36.6/18.0	0.184	120.0	8 x 1/4" x 231.3	



RIGID FRAME ELEVATION: FRAME LINE 2 3 4

BOLT TIGHTENING (Snug-Tight)
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PROJECT REFERENCE: LS Management Hangar						
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064					JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833	DWG NO: P2	ISSUE: P1

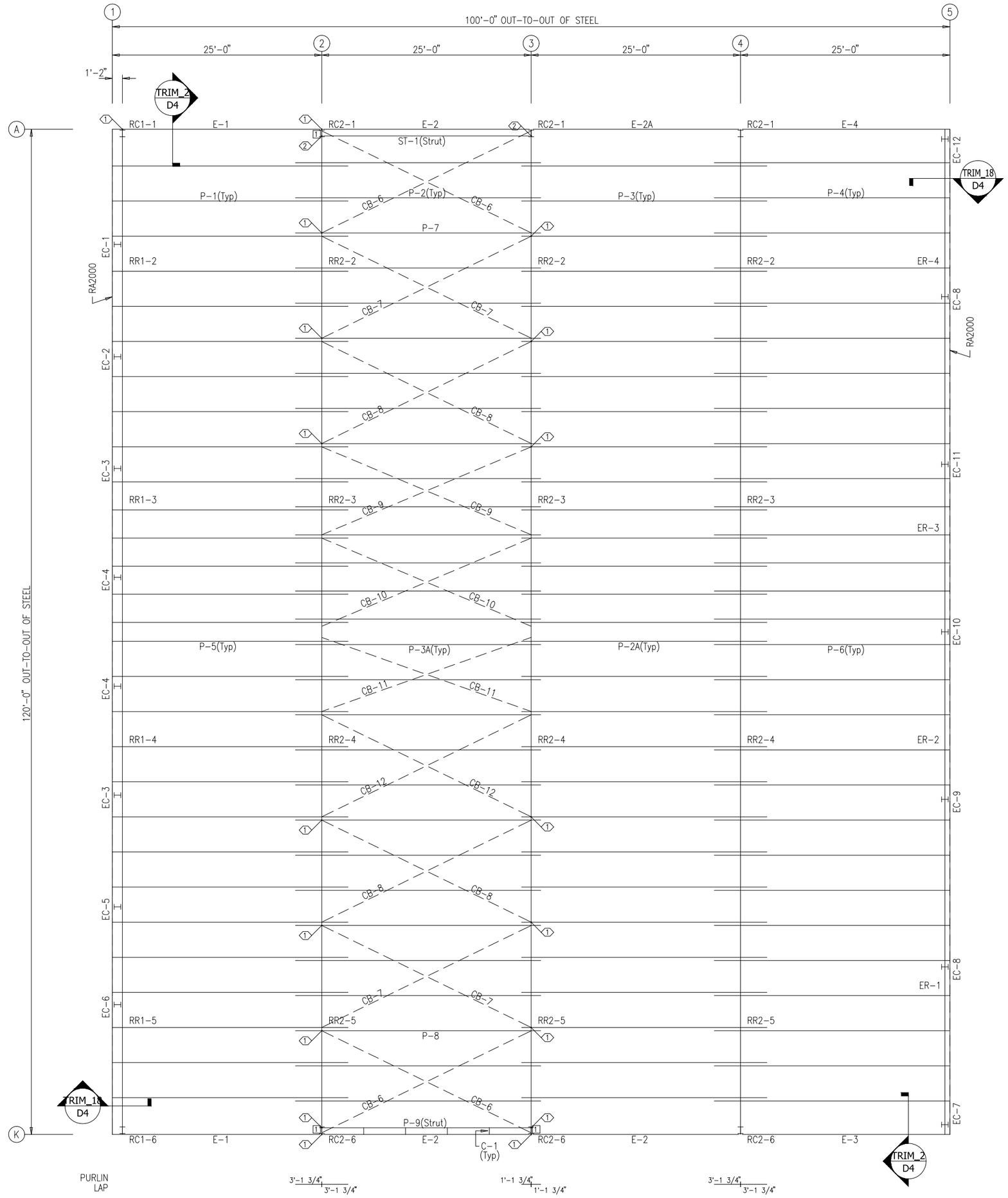
STATE OF MISSOURI ★ PROFESSIONAL ENGINEER ★
SIRENE M. CHACON
NUMBER PE-2012036154

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

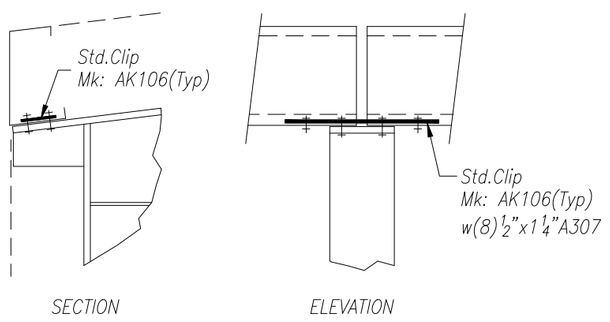
SPECIAL BOLTS ROOF PLAN					
ID	QUAN	TYPE	DIA	LENGTH	WASH
1	4	A307	1/2"	1 1/4"	0
2	2	A325	5/8"	1 3/4"	0

MEMBER TABLE ROOF PLAN	
MARK	PART
P-1	8X25Z14
P-2	8X25Z14
P-2A	8X25Z12
P-3	8X25Z14
P-3A	8X25Z12
P-4	8X25Z12
P-5	8X25Z12
P-6	8X25Z12
P-7	8X25Z12
P-8	8X25Z12
P-9	8X25Z16
E-1	8ES141
E-2	8ES141
E-2A	8ES141
E-3	8ES141
E-4	8ES141
ST-1	P0663280
CB-6	0.50_CBL
CB-7	0.50_CBL
CB-8	0.38_CBL
CB-9	0.31_CBL
CB-10	0.25_CBL
CB-11	0.25_CBL
CB-12	0.31_CBL
C-1	6X25C16

CONNECTION PLATES ROOF PLAN	
ID	MARK/PART
1	AK106



ROOF FRAMING PLAN



EAVE STRUT DETAIL

Special Bolt Attachment

ACCESSORIES			WALKDOORS AND WINDOWS				FRAMED OPENINGS				
MK.	QTY.	SKYLIGHT/WALL LIGHT DESCRIPTION – COLOR	MK.	QTY.	FINISH	DESCRIPTION	MK.	QTY.	WIDTH	HEIGHT	OPENING FOR:
.	.	.	A	3	WHITE	3070(M) With Lever & Dead Bolt,	B	3	9'-0"	7'-0"	Overhead Doors Not By MBP
.	.	.	.	.	.	Keyed Alike	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.
MK	QTY	VENTILATORS	.	.	.	.	.	.	.	.	.
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MK	QTY	LOUVERS	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.

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PROJECT REFERENCE: LS Management Hangar						
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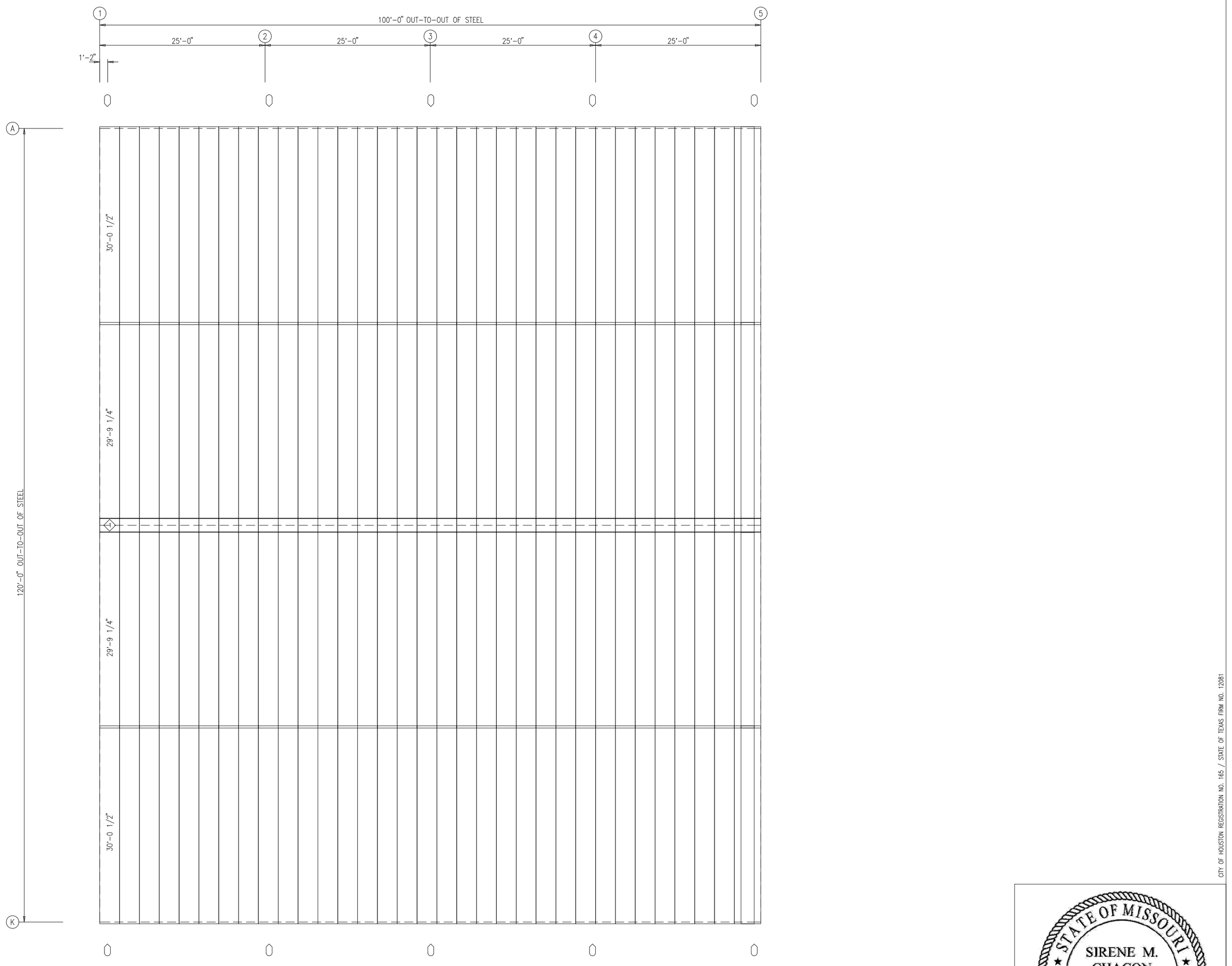
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833	DWG NO: E1	ISSUE: P1

STATE OF MISSOURI
SIRENE M. CHACON
NUMBER PE-2012036154
PROFESSIONAL ENGINEER

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

DOWNSPOUT LOCATIONS

ROOF SHEETING TRIM TABLE			
◇ID	PART	LENGTH	QTY
1	SSRC30	3'-0"	34



ROOF SHEETING PLAN

PANELS: 26 Ga. Super Span X – Light Stone

Gutter Size: 8" x 8"
Downspout Size: 4" x 4"
Maximum Downspout Spacing: 25.0 (ft)
Downspout Located @ ends: (Y)

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DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833	DWG NO: E2	ISSUE: P1

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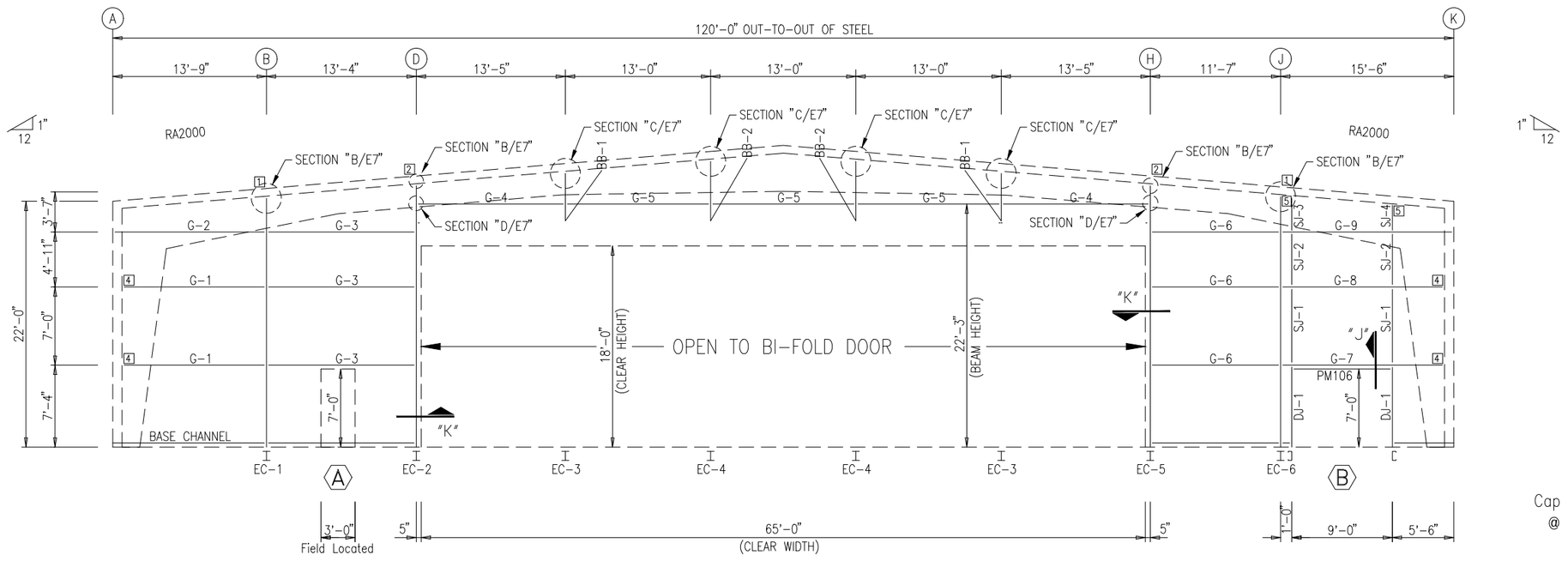
BOLT TABLE FRAME LINE 1				
LOCATION	QUAN	TYPE	DIA	LENGTH
EC-1/FRAME	8	A325	5/8"	1 1/2"
EC-2/FRAME	8	A325	5/8"	1 1/2"
EC-3/FRAME	2	A325	5/8"	1 1/2"
EC-4/FRAME	2	A325	5/8"	1 1/2"
EC-5/FRAME	8	A325	5/8"	1 1/2"
EC-6/FRAME	8	A325	5/8"	1 1/2"
Back Braces	1	A325	5/8"	1 3/4"

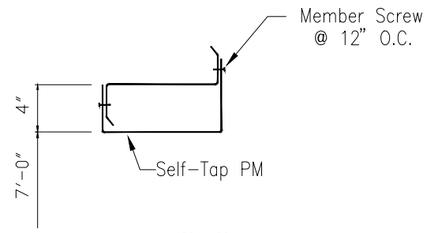
TRIM TABLE - THIS WALL ONLY FRAME LINE - 1			
◇ID	PART	LENGTH	QTY
1	BT-101	10'-3"	5
2	CT-102	10'-3"	2
3	CT-102	12'-0"	2
4	RT-101	20'-3"	6
5	SPB_	8"	1
6	MT-116B	7'-0"	2
7	FL-22	7'-3"	2
8	MT-116B	9'-0"	1
9	FL-850	9'-4"	1

MEMBER TABLE FRAME LINE 1	
MARK	PART
BB-1	P0663280
BB-2	P0663280
EC-1	W8X15
EC-2	W8X48
EC-3	W8X15
EC-4	W8X15
EC-5	W8X48
EC-6	W8X15
DJ-1	8X35C14
PM106	CAP CHANNEL
G-1	8X25Z16
G-2	8X25Z16
G-3	8X25Z16
G-4	HSS6X6X1/4
G-5	HSS6X6X1/4
G-6	8X25Z16
G-7	8X25Z16
G-8	8X25Z16
G-9	8X25Z16
SJ-1	8X35C14
SJ-2	8X35C14
SJ-3	8X35C14
SJ-4	8X35C14

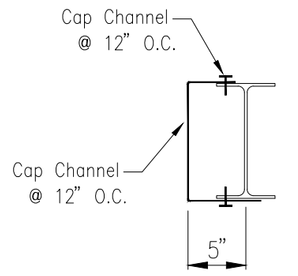
CONNECTION PLATES FRAME LINE 1	
□ID	MARK/PART
1	AC412
2	n2
3	AD249
4	AK245
5	AC411



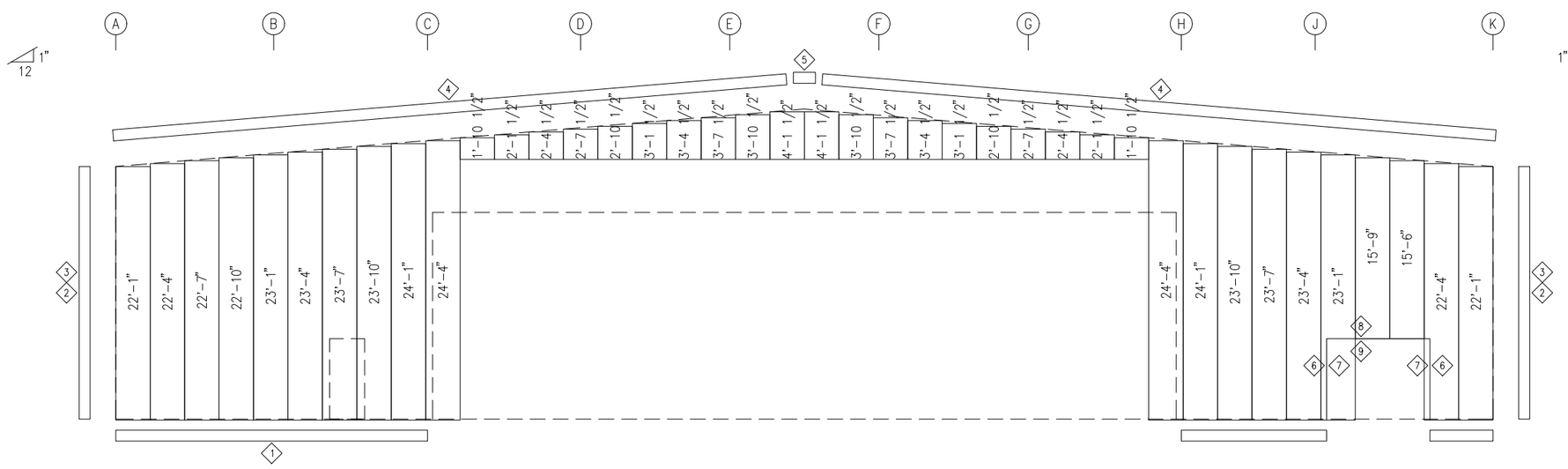
ENDWALL FRAMING: FRAME LINE 1



SECTION"J"

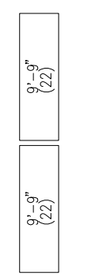


SECTION"K"



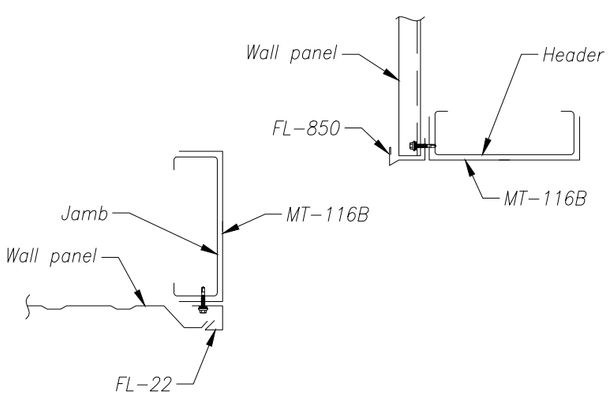
ENDWALL SHEETING & TRIM: FRAME LINE 1

PANELS: 26 Ga. Super Span X - Light Stone



DOOR SHEETING

PANELS: 26 Ga. SSX NEED COLOR
Not By MBP



DETAILS AT FRAMED OPENINGS FOR GLASS

GENERAL SHEETING & TRIM NOTES:

1. Refer to erection drawings for rake angle locations.
2. Roof member screws are on 12" centers at the intermediate purlins. The spacing at the eave, end lap, and peak purlins are as shown.
3. Wall member screws are on 6" centers at the base member and 12" centers for all remaining members.
4. Roof stitch screws are located (1) at each member and (2) between members spaced evenly apart (20" maximum spacing).
5. Wall stitch screws are located (1) at each member then spaced evenly apart between members with the spacing not to exceed 20".
6. Skylight stitch screws are at 6" o.c.
7. Start endwall panels at centerline of bldg. unless noted.
8. Gutter, rake, & eave trim lap 2". All other trims lap 1".
9. Field cut or lap panels as required to fit.
10. Field cut panels for all openings.
11. Pop rivet gutter counterflashing to wall panel on 3'-0" centers and caulk all laps.
12. Gutter support strap spacing: Super Span 36", Super Seam 48", Weather Lok-16 32".
13. Downspout strap spacing: 4" x 4" 8'-0" o.c. max, larger downspouts 5'-0" o.c. max.
14. Corner and/or peak boxes are not furnished with trim profiles. Field miter as required.
15. Hot-Rolled or Built-Up members must be pre-drilled before attaching members screws.
16. Metal shavings must be swept from the roof each day to avoid surface rusting.
17. Windows and louvers must be installed before sheeting the walls.
18. For clarity, tape sealant, closures, etc. may not be shown. Refer to the appropriate standing seam technical/erection manual or standard pull outs for through-fastened (screw-down) type roof systems for additional installation instructions.

GENERAL FRAMING NOTES:

1. Angles are marked by their length in feet and inches.
2. Field cut or lap angles as required to fit.
3. Flange braces are marked by their length in decimal inches.
4. Outside flange of girt turns down unless noted.
5. Endwall girts and eave struts do not lap.
6. Field cut and self-tap girts at walk doors.
7. Field slot girts for brace rods or cables.
8. Field locate windows and walk doors.
9. Field weld all splices at 14 gauge valley gutters.
10. Field Bolt Ak400 base clip to endwall columns:
    (2) 5/8" x 1-1/2" A325 bolts if (1) AK400 required.
    (2) 5/8" x 1-3/4" A325 bolts if (2) AK400 required.
11. Locate top of roof framed openings flush with the pan of the roof panel.
12. Some field drilling at framed openings may be required. Field drill 9/16" diameter holes.
13. Sub-jambs for overhead or roll-up doors, if required, are not furnished by Metal Building Provider.

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CUSTOMER: LS Management Hangar					CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar						
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CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

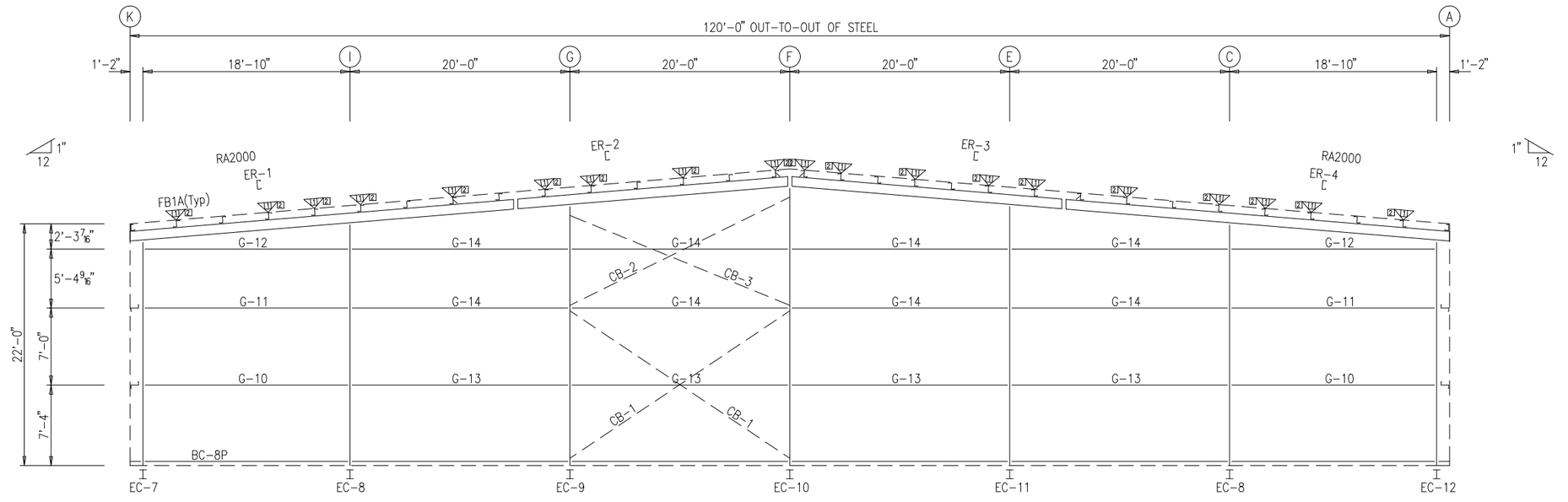
BOLT TABLE FRAME LINE 5				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-1/ER-2	4	A325	5/8"	2"
ER-2/ER-3	4	A325	5/8"	2"
ER-3/ER-4	4	A325	5/8"	2"
Columns/Raf	4	A325	5/8"	1 1/2"

FLANGE BRACE TABLE FRAME LINE 5		
▽ID	MARK	LENGTH
1	FB1A	2'-2 3/4"

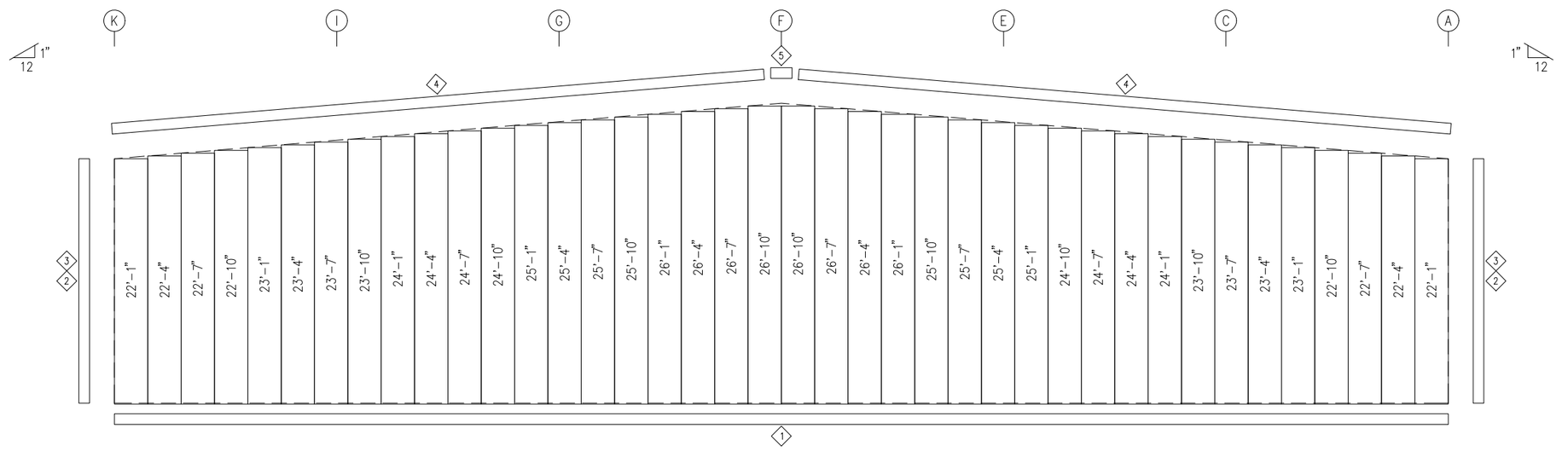
TRIM TABLE - THIS WALL ONLY FRAME LINE - 5			
◇ID	PART	LENGTH	QTY
1	BT-101	10'-3"	12
2	CT-102	10'-3"	2
3	CT-102	12'-0"	2
4	RT-101	20'-3"	6
5	SPB_	8"	1

CONNECTION PLATES FRAME LINE 5	
□ID	MARK/PART
1	AK226
2	AK230

MEMBER TABLE FRAME LINE 5	
MARK	PART
EC-7	W8X10
EC-8	W8X10
EC-9	W8X13
EC-10	W8X15
EC-11	W8X13
EC-12	W8X18
ER-1	12M35C12
ER-2	12M35C12
ER-3	12M35C12
ER-4	12M35C12
G-10	8X25Z12
G-11	8X25Z14
G-12	8X25Z16
G-13	8X25Z12
G-14	8X25Z14
BC-8P	8X25C16
CB-1	0.25_CBL
CB-2	0.25_CBL
CB-3	0.25_CBL



ENDWALL FRAMING: FRAME LINE 5



ENDWALL SHEETING & TRIM: FRAME LINE 5

PANELS: 26 Ga. Super Span X - Light Stone

GENERAL SHEETING & TRIM NOTES:

1. Refer to erection drawings for rake angle locations.
2. Roof member screws are on 12" centers at the intermediate purlins. The spacing at the eave, end lap, and peak purlins are as shown.
3. Wall member screws are on 6" centers at the base member and 12" centers for all remaining members.
4. Roof stitch screws are located (1) at each member and (2) between members spaced evenly apart (20" maximum spacing).
5. Wall stitch screws are located (1) at each member then spaced evenly apart between members with the spacing not to exceed 20".
6. Skylight stitch screws are at 6" o.c.
7. Start endwall panels at centerline of bldg. unless noted.
8. Gutter, rake, & eave trim lap 2". All other trims lap 1".
9. Field cut or lap panels as required to fit.
10. Field cut panels for all openings.
11. Pop rivet gutter counterflashing to wall panel on 3'-0" centers and caulk all laps.
12. Gutter support strap spacing: Super Span 36", Super Seam 48", Weather Lok-16 32".
13. Downspout strap spacing: 4" x 4" 8'-0" o.c. max, larger downspouts 5'-0" o.c. max.
14. Corner and/or peak boxes are not furnished with trim profiles. Field miter as required.
15. Hot-Rolled or Built-Up members must be pre-drilled before attaching members screws.
16. Metal shavings must be swept from the roof each day to avoid surface rusting.
17. Windows and louvers must be installed before sheeting the walls.
18. For clarity, tape sealant, closures, etc. may not be shown. Refer to the appropriate standing seam technical/erection manual or standard pull outs for through-fastened (screw-down) type roof systems for additional installation instructions.

GENERAL FRAMING NOTES:

1. Angles are marked by their length in feet and inches.
2. Field cut or lap angles as required to fit.
3. Flange braces are marked by their length in decimal inches.
4. Outside flange of girt turns down unless noted.
5. Endwall girts and eave struts do not lap.
6. Field cut and self-tap girts at walk doors.
7. Field slot girts for brace rods or cables.
8. Field locate windows and walk doors.
9. Field weld all splices at 14 gauge valley gutters.
10. Field Bolt AK400 base clip to endwall columns:
    (2) 5/8" x 1-1/2" A325 bolts if (1) AK400 required.
    (2) 5/8" x 1-3/4" A325 bolts if (2) AK400 required.
11. Locate top of roof framed openings flush with the pan of the roof panel.
12. Some field drilling at framed openings may be required. Field drill 9/16" diameter holes.
13. Sub-jambs for overhead or roll-up doors, if required, are not furnished by Metal Building Provider.

DRAWING STATUS

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☐ FOR ERECTOR INSTALLATION:
Final drawings for construction.

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	12.18.24	FOR CONSTRUCTION PERMIT	DM	AM

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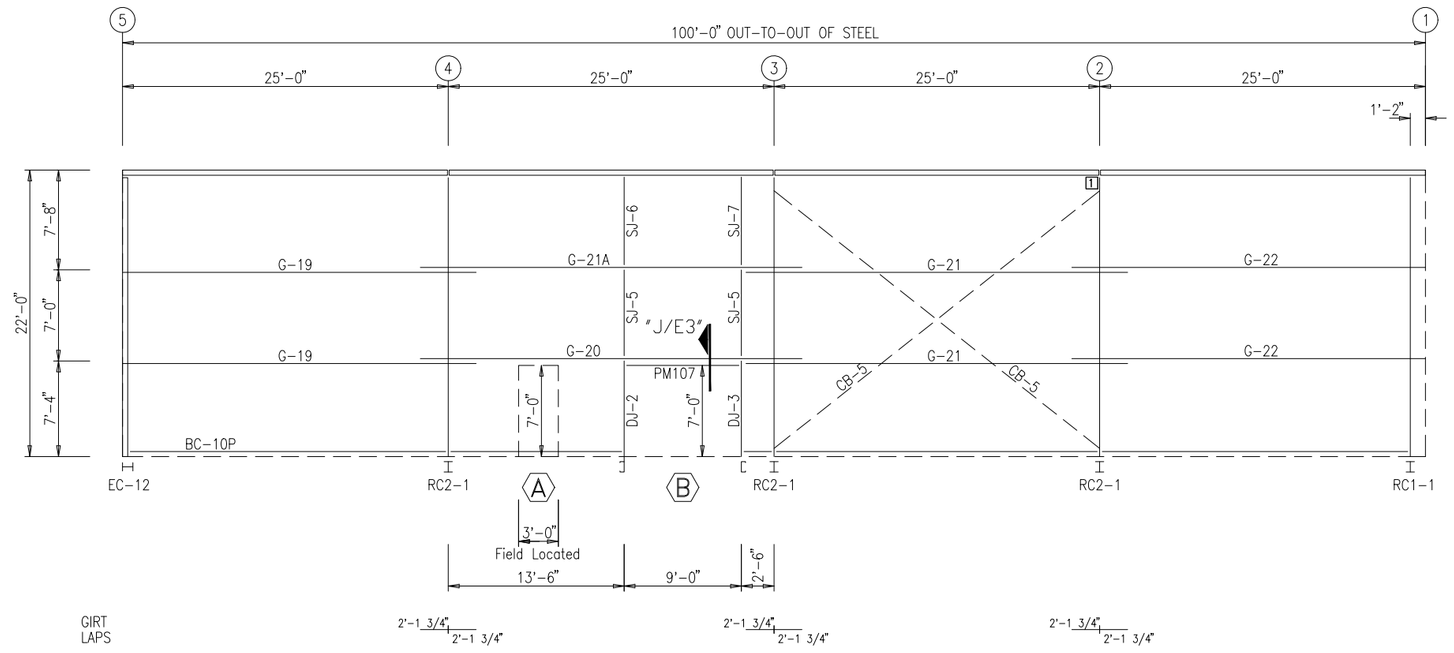
SHEET DESCRIPTION: ENDWALL & SHEETING ELEVATION					BLDG SIZE: 120'-0" x 100'-0" x 22'-0"	
CUSTOMER: LS Management Hangar					CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar						
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064					JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833	DWG NO: E4	ISSUE: P1

STATE OF MISSOURI
SIRENE M. CHACON
NUMBER PE-2012036154
PROFESSIONAL ENGINEER

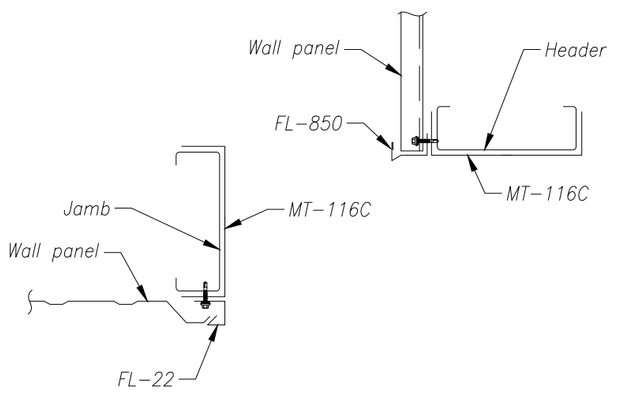
CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

TRIM TABLE – THIS WALL ONLY FRAME LINE – A			
◇ID	PART	LENGTH	QTY
1	BT–101	10'–3"	9
2	CT–102	10'–3"	2
3	CT–102	12'–0"	2
4	GU–12__	20'–3"	5
5	MT–116C	7'–0"	2
6	FL–22	7'–3"	2
7	MT–116C	9'–0"	1
8	FL–850	9'–4"	1

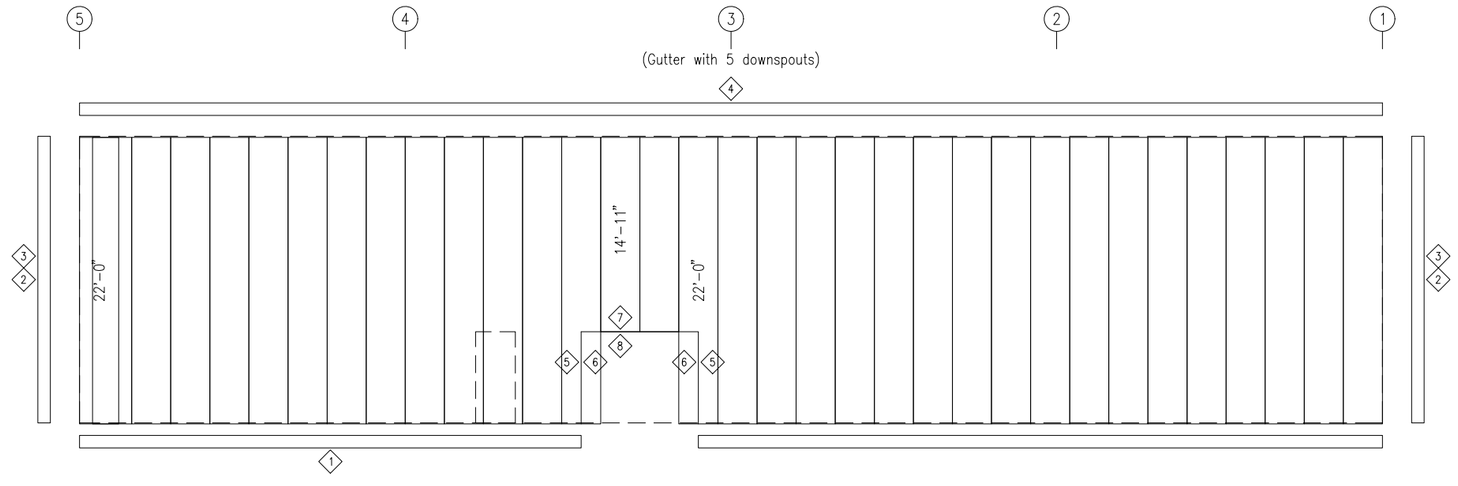
MEMBER TABLE FRAME LINE A	
MARK	PART
DJ–2	10X35C14
DJ–3	10X35C14
PM107	.
G–19	10X25Z14
G–20	10X25Z16
G–21	10X25Z16
G–21A	10X25Z16
G–22	10X25Z16
SJ–5	10X35C14
SJ–6	10X35C14
SJ–7	10X35C14
BC–10P	10X25C16
CB–5	1.25_ROD



SIDEWALL FRAMING: FRAME LINE A



DETAILS AT FRAMED OPENINGS FOR GLASS



SIDEWALL SHEETING & TRIM: FRAME LINE A

PANELS: 26 Ga. Super Span X – Light Stone

GENERAL SHEETING & TRIM NOTES:

1. Refer to erection drawings for rake angle locations.
2. Roof member screws are on 12" centers at the intermediate purlins. The spacing at the eave, end lap, and peak purlins are as shown.
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4. Roof stitch screws are located (1) at each member and (2) between members spaced evenly apart (20" maximum spacing).
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7. Start endwall panels at centerline of bldg. unless noted.
8. Gutter, rake, & eave trim lap 2". All other trims lap 1".
9. Field cut or lap panels as required to fit.
10. Field cut panels for all openings.
11. Pop rivet gutter counterflashing to wall panel on 3'–0" centers and caulk all laps.
12. Gutter support strap spacing: Super Span 36", Super Seam 48", Weather Lok–16 32".
13. Downspout strap spacing: 4" x 4" 8'–0" o.c. max, larger downspouts 5'–0" o.c. max.
14. Corner and/or peak boxes are not furnished with trim profiles. Field miter as required.
15. Hot–Rolled or Built–Up members must be pre–drilled before attaching members screws.
16. Metal shavings must be swept from the roof each day to avoid surface rusting.
17. Windows and louvers must be installed before sheeting the walls.
18. For clarity, tape sealant, closures, etc. may not be shown. Refer to the appropriate standing seam technical/erection manual or standard pull outs for through–fastened (screw–down) type roof systems for additional installation instructions.

GENERAL FRAMING NOTES:

1. Angles are marked by their length in feet and inches.
2. Field cut or lap angles as required to fit.
3. Flange braces are marked by their length in decimal inches.
4. Outside flange of girt turns down unless noted.
5. Endwall girts and eave struts do not lap.
6. Field cut and self–tap girts at walk doors.
7. Field slot girts for brace rods or cables.
8. Field locate windows and walk doors.
9. Field weld all splices at 14 gauge valley gutters.
10. Field Bolt Ak400 base clip to endwall columns:
    (2) 5/8" x 1–1/2" A325 bolts if (1) AK400 required.
    (2) 5/8" x 1–3/4" A325 bolts if (2) AK400 required.
11. Locate top of roof framed openings flush with the pan of the roof panel.
12. Some field drilling at framed openings may be required. Field drill 9/16" diameter holes.
13. Sub–jambs for overhead or roll–up doors, if required, are not furnished by Metal Building Provider.

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ISSUE	DATE	DESCRIPTION	BY	CHK
P1	12.18.24	FOR CONSTRUCTION PERMIT	DM	AM

SHEET DESCRIPTION: SIDEWALL & SHEETING ELEVATION						BLDG SIZE: 120'–0" x 100'–0" x 22'–0"	
CUSTOMER: LS Management Hangar						CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar							
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064						JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322–35833		DWG NO: E5	ISSUE: P1

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STATE OF MISSOURI
SIRENE M. CHACON
NUMBER PE–2012036154
PROFESSIONAL ENGINEER

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

TRIM TABLE – THIS WALL ONLY FRAME LINE – K			
◇ID	PART	LENGTH	QTY
1	BT-101	10'-3"	9
2	CT-102	10'-3"	2
3	CT-102	12'-0"	2
4	GU-12_	20'-3"	5
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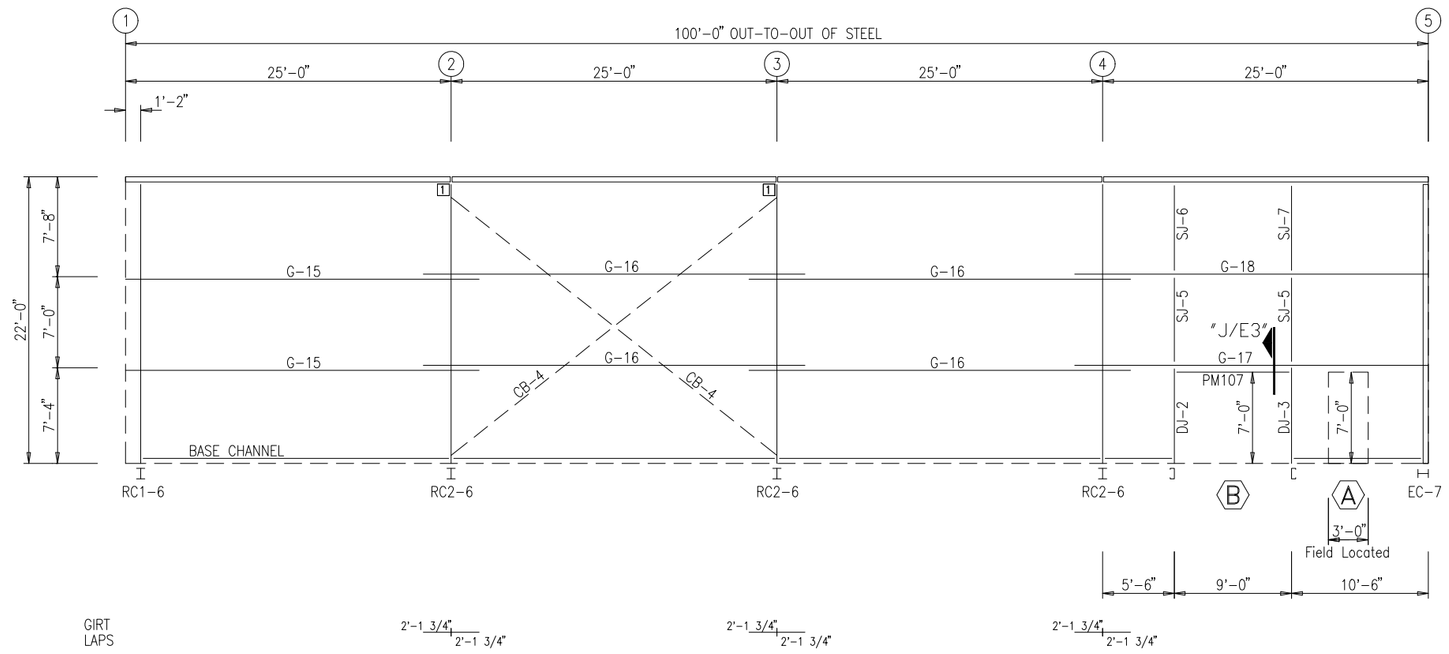
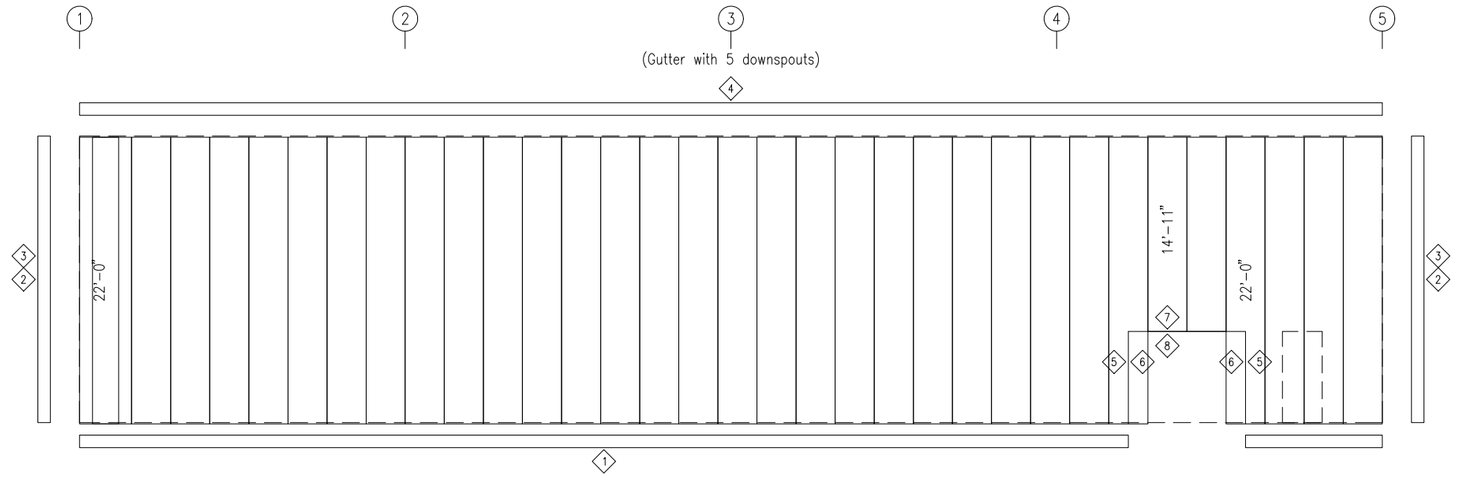
6	FL-22	7'-3"	2
7	MT-116C	9'-0"	1
8	FL-850	9'-4"	1

MEMBER TABLE FRAME LINE K	
MARK	PART
DJ-2	10X35C14
DJ-3	10X35C14
PM107	.
G-15	10X25Z16
G-16	10X25Z16
G-17	10X25Z14
G-18	10X25Z14
SJ-5	10X25Z16
SJ-6	10X25Z16
SJ-7	10X25Z14
BC-10P	10X25Z14
CB-4	1.00_ROD

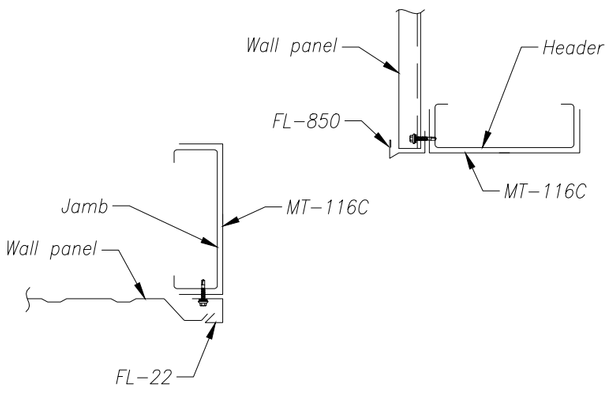


SIDEWALL FRAMING: FRAME LINE K



SIDEWALL SHEETING & TRIM: FRAME LINE K

PANELS: 26 Ga. Super Span X – Light Stone



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- ☐ FOR ERECTOR INSTALLATION: Final drawings for construction.

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	12.18.24	FOR CONSTRUCTION PERMIT	DM	AM

SHEET DESCRIPTION: SIDEWALL & SHEETING ELEVATION						BLDG SIZE: 120'-0" x 100'-0" x 22'-0"	
CUSTOMER: LS Management Hangar						CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar							
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064						JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833		DWG NO: E6	ISSUE: P1

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SIRENE M. CHACON
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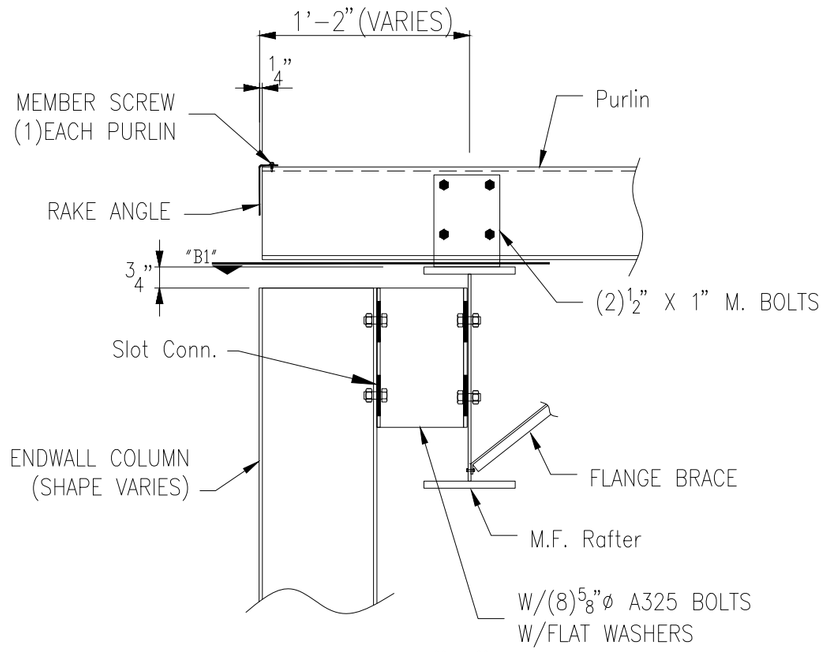
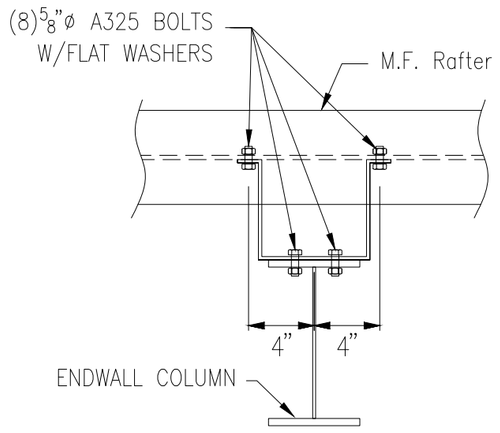
PROFESSIONAL ENGINEER

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081



SECTION "B"



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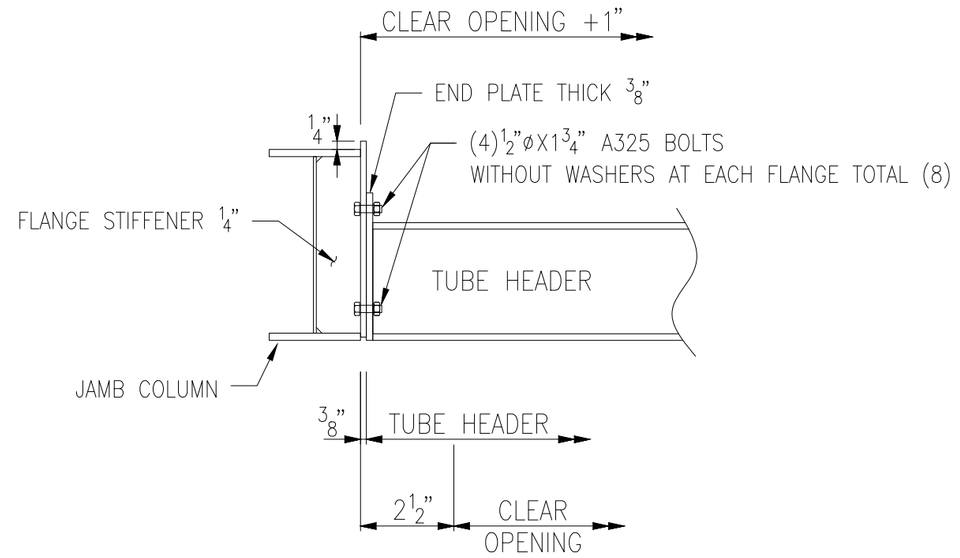

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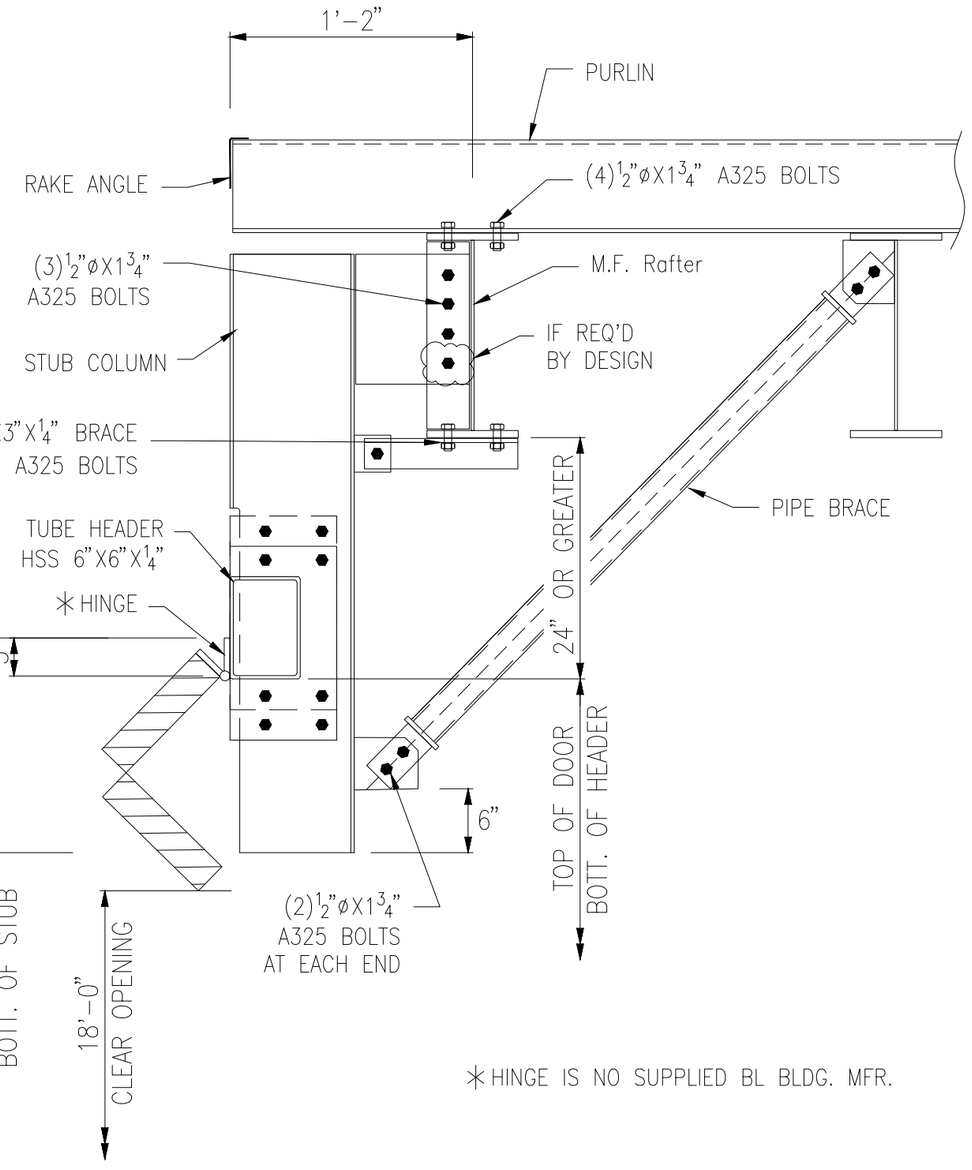

∗HINGE IS NO SUPPLIED BL BLDG. MFR.

SECTION "C"

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

STATE OF MISSOURI
SIRENE M. CHACON
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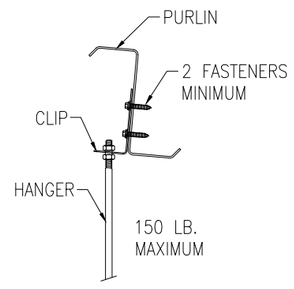
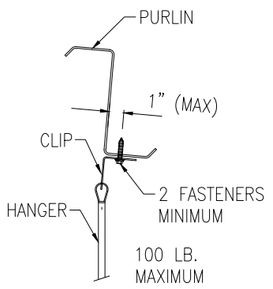
WORLDWIDE STEEL BUILDINGS

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	12.18.24	FOR CONSTRUCTION PERMIT	DM	AM

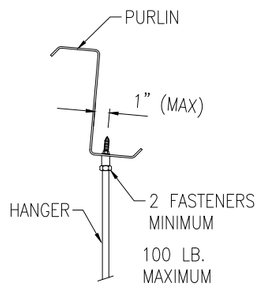
SHEET DESCRIPTION: BUILDING SECTIONS					BLDG SIZE: 120'-0" x 100'-0" x 22'-0"	
CUSTOMER: LS Management Hangar					CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar						
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064					JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833	DWG NO: E7	ISSUE: P1



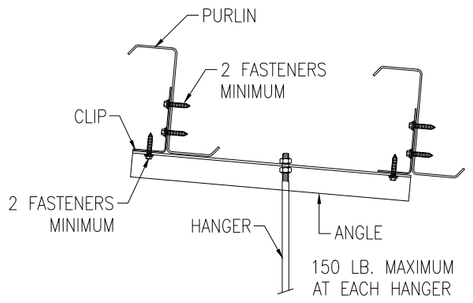
CLIP CONNECTED TO PURLIN WEB



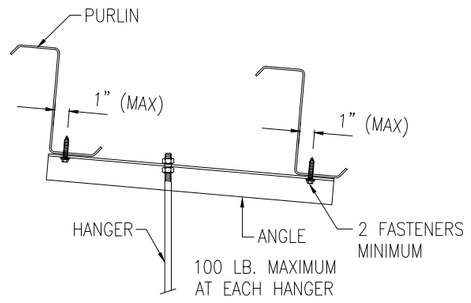
CLIP CONNECTED TO PURLIN FLANGE



FASTENER TYPE ADAPTER TO PURLIN FLANGE



CLIP CONNECTION TO PURLIN WEB



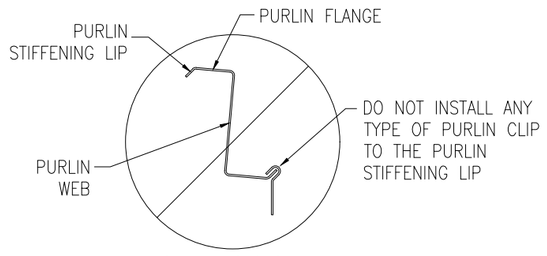
ANGLE CONNECTION TO PURLIN FLANGE

Metal Building Provider is providing the Purlin Only.All other Hardware and Accessories are not by Metal Building Provider.

The total hanger load shall not exceed the Design Collateral Load for the Building.
Example:
5'-0" Purlin Spacing X 5'-0" hanger spacing X
6 Psf Collateral Load = 150 Lbs. Hanger Load

See C1 for the Design Collateral Loads for this Building.

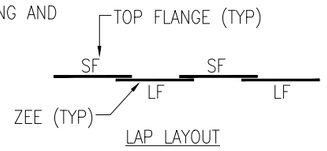
Note: If the building is designed for 0 Psf Collateral then adding any suspended system (i.e. Duct Work, Piping, Lights, Ceiling, Etc..) will correspondingly reduce the Design Live Load.



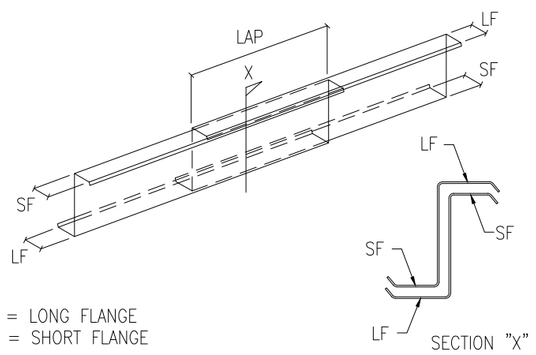
UNDER NO CIRCUMSTANCES CAN THE PURLIN STIFFENING LIP BE FIELD MODIFIED FROM THE FACTORY SUPPLIED CONDITION

ACCEPTABLE CONNECTIONS FOR BUILDING ACCESSORIES TO PURLIN ATTACHMENT

ROTATE EACH ZEE AS REQUIRED TO ALTERNATE BETWEEN THE LONG AND SHORT FLANGE

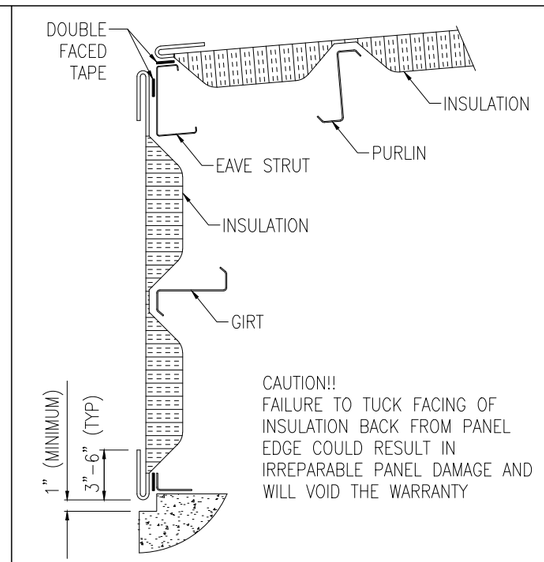


LAP LAYOUT



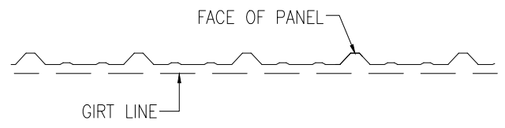
LF = LONG FLANGE
SF = SHORT FLANGE

ZEE LAP AT LONG AND SHORT FLANGES

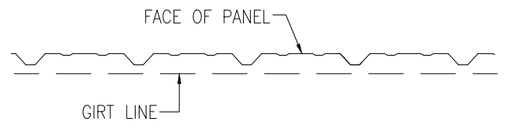


CAUTION!!
FAILURE TO TUCK FACING OF INSULATION BACK FROM PANEL EDGE COULD RESULT IN IRREPARABLE PANEL DAMAGE AND WILL VOID THE WARRANTY

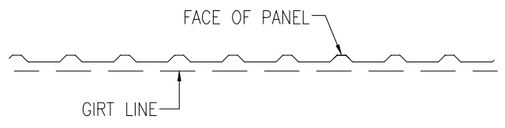
TYPICAL DETAIL AT BLANKET INSULATION



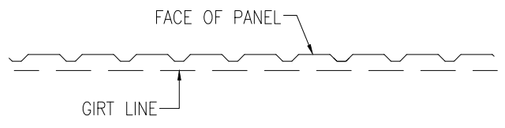
SUPERM SPAN PANEL



REVERSE-ROLL SUPER SPAN PANEL

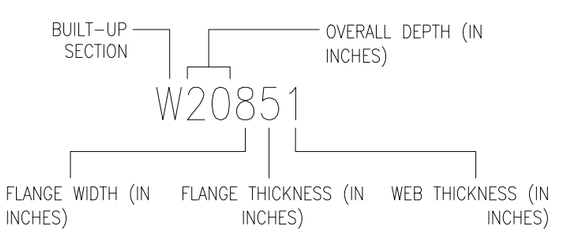


LOW RIB PANEL

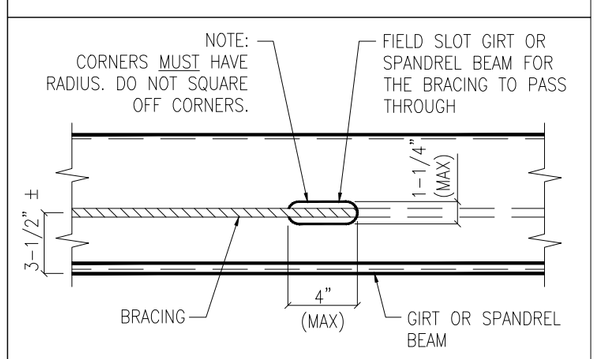


REVERSE-ROLL LOW RIB PANEL

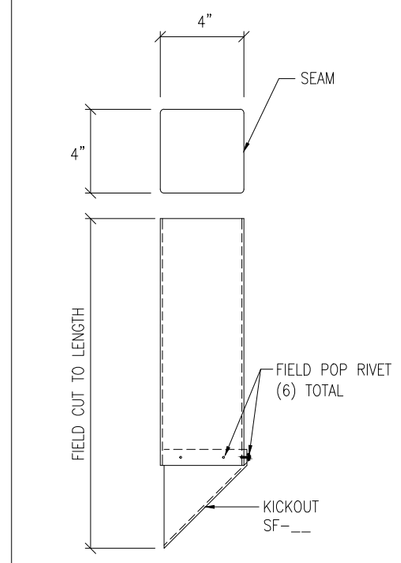
PANEL LAYOUT DETAILS SEE C1 FOR PANEL PROFILES SPECIFIED FOR THIS PROJECT



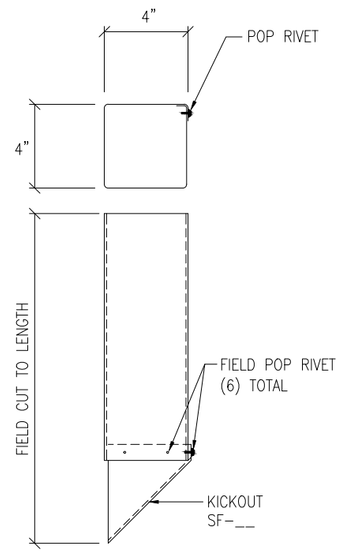
BUILT-UP SECTION LEGEND



DETAIL @ FIELD LOCATED BRACING SLOT



DOWNSPOUT W/SCUPPER
FIELD INSTALL SCUPPER IF REQ'D



DOWNSPOUT W/SCUPPER
FIELD INSTALL SCUPPER IF REQ'D

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

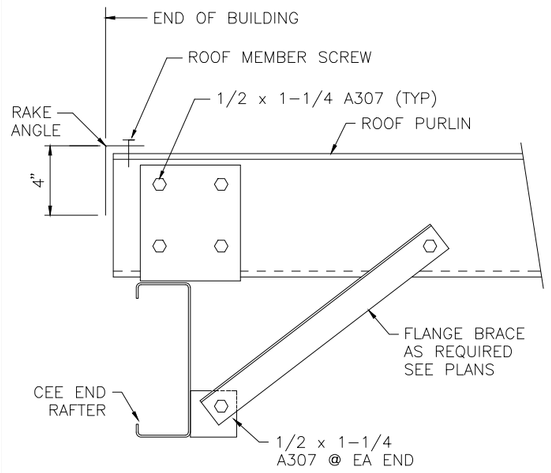
DRAWING STATUS

- ☐ FOR APPROVAL: These drawings, being for approval, are by definition not final and are for conceptual representation only. Their purpose is to confirm the proper interpretation of the project documents. Only drawings issued "For Erector Installation" can be considered complete.
- ☒ FOR CONSTRUCTION PERMIT: These drawings, being for permit, are by definition not final. Only drawings issued "For Erector Installation" can be considered complete.
- ☐ FOR ERECTOR INSTALLATION: Final drawings for construction.

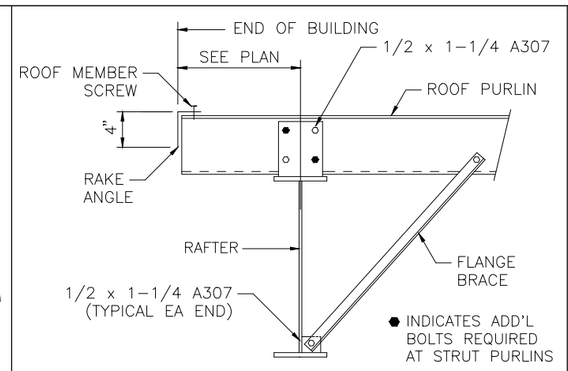
ISSUE	DATE	DESCRIPTION	BY	CHK
P1	12.18.24	FOR CONSTRUCTION PERMIT	DM	AM

SHEET DESCRIPTION: STANDARD DETAILS					BLDG SIZE: 120'-0" x 100'-0" x 22'-0"	
CUSTOMER: LS Management Hangar					CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar						
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064					JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833	DWG NO: D1	ISSUE: P1

The Engineer whose seal and signature appear on these documents represents Whirlwind Steel Buildings, Inc., and is not the Engineer of Record for the overall project. The Engineer's responsibility is limited to material designed and manufactured by Whirlwind Steel Buildings, Inc., and excludes part such as doors, windows, foundation design, and erection of the building.



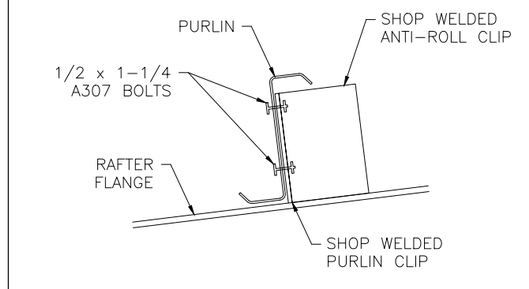
A5 CEE RAFTER TO PURLIN CONNECTION



(2) 1/2 x 1-1/4 A307 REQUIRED AT STANDARD LAPS
(4) 1/2 x 1-1/4 A307 REQUIRED AT STRUT MEMBERS

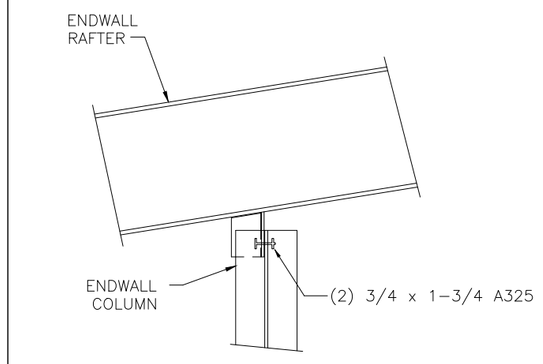
A STRUT PURLIN IS A PURLIN LOCATED AT THE BRACE POINTS. SEE PLANS FOR EXCEPTION TO SIZE & QTY OF BOLTS.

A10 ROOF PURLIN CONNECTION AT MAIN FRAME ENDWALL

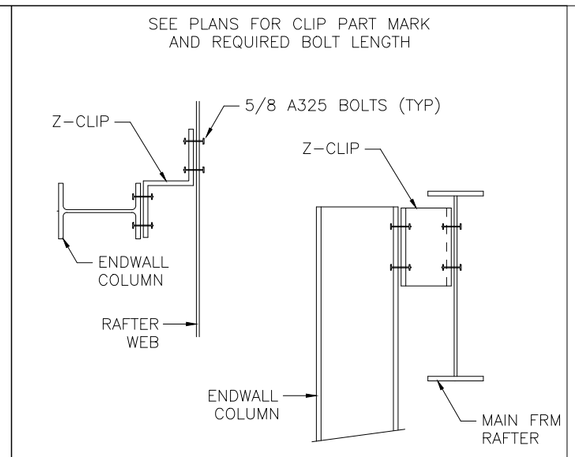


SOME PURLIN CLIPS WILL HAVE AN ADDITIONAL ANTI-ROLL CLIP ATTACHED. THE QUANTITY AND SPACING OF THESE CLIPS IS DETERMINED BY THE DESIGN FOR EACH SPECIFIC BUILDING.

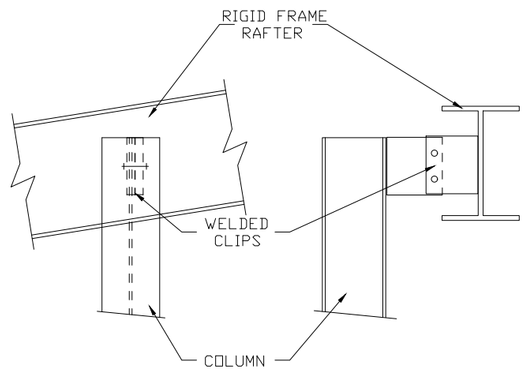
ANTI DETAIL AT ANTI-ROLL CLIP



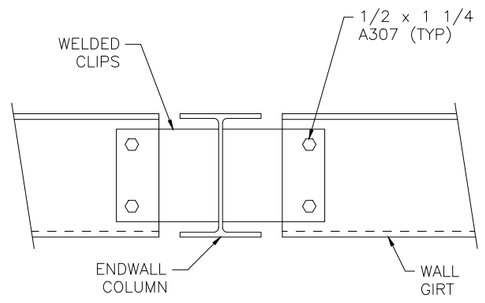
B6 ENDWALL RAFTER TO COLUMN



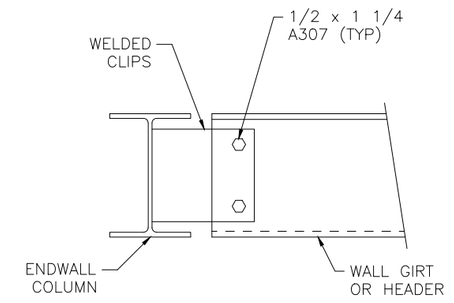
B34 I-SHAPED ENDWALL COLUMN TO MAIN FRAME END RAFTER CONNECTION



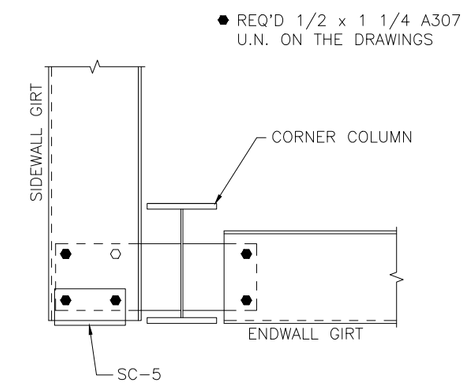
B35 R/W COLUMN TO RIGID FRAME RAFTER



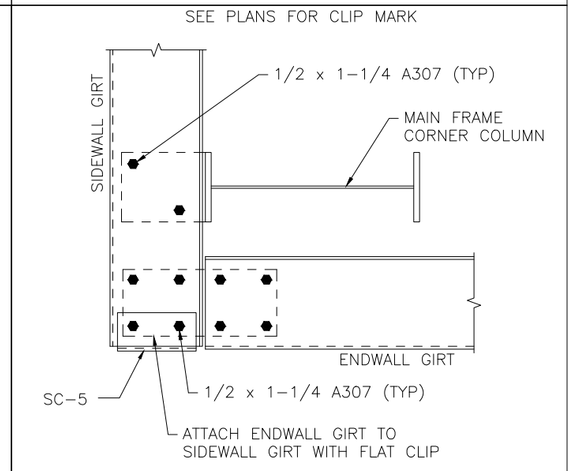
C6 ENDWALL GIRT TO COLUMN



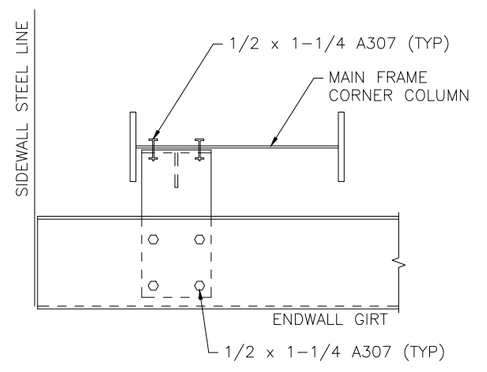
C15 GIRT/HEADER TO COLUMN



D6 CORNER COLUMN TO WALL GIRT

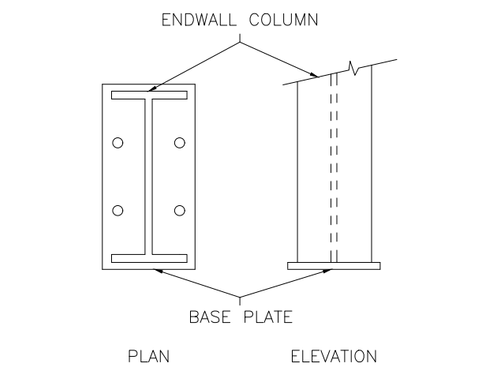


D16 GIRT CONNECTION AT CORNER SW & EW GIRTS AT SAME ELEVATION



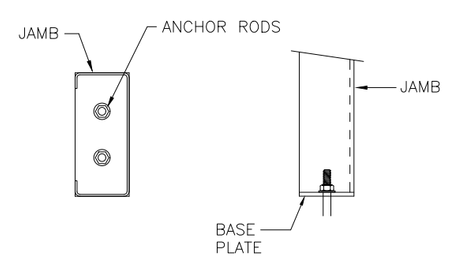
SEE ERECTION PLANS FOR CLIP PART MARKS

D27 GIRT CONNECTION AT CORNER SW & EW GIRTS AT DIFFERENT ELEVS.



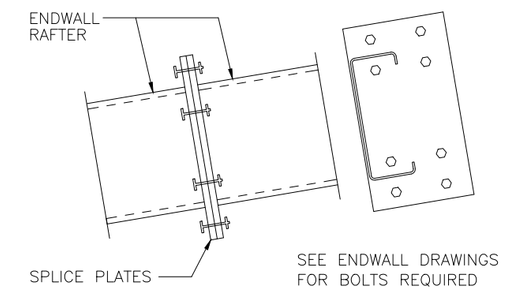
SEE BOLT SETTING PLAN FOR ACTUAL BOLT QTY.

E3 BASE PLATE FOR ENDWALL COLUMN

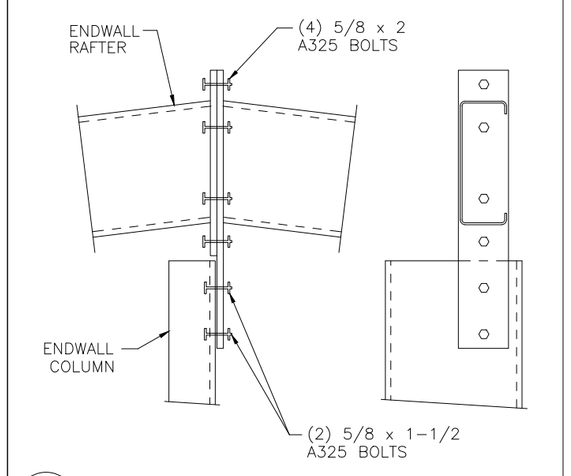


– ALL ANCHOR RODS (BY OTHERS) TO HAVE NUTS AND FLAT WASHERS.

E5 BASE PLATE FOR DOOR JAMB

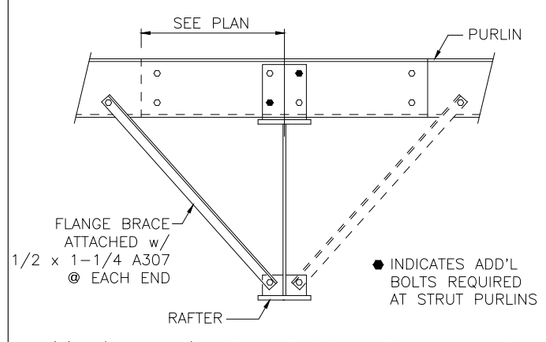


F7 RAFTER SPLICE ALONG SURFACE



F23 RAFTER SPLICE AT SURFACE CHANGE

FLANGE BRACES MAY BE ON ONE OR BOTH SIDES
SEE FRAME CROSS-SECTION FOR LOCATIONS

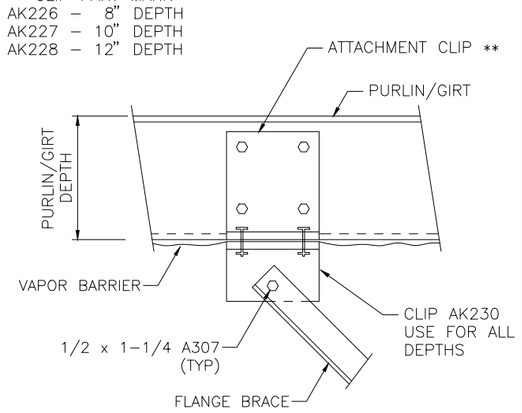


(6) 1/2 x 1-1/4 A307 REQUIRED AT STANDARD LAPS
(8) 1/2 x 1-1/4 REQUIRED AT STRUT MEMBERS

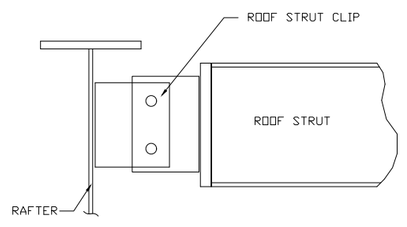
A STRUT MEMBER IS A PURLIN LOCATED AT THE BRACE POINTS. SEE PLANS FOR EXCEPTIONS TO SIZE & QTY OF BOLTS.

G2 ROOF PURLIN TO INTERIOR FRAME RAFTER

** CLIP PART MARK
AK226 – 8" DEPTH
AK227 – 10" DEPTH
AK228 – 12" DEPTH

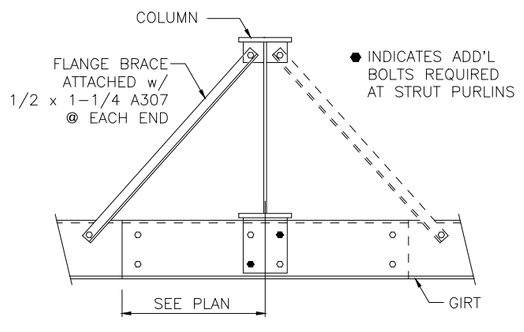


G26 FLANGE BRACE TO PURLIN/GIRT CLIPS OPTIONAL USE WITH VAPOR BARRIER



G31 FLUSH ROOF STRUT TO RIGID FRAME RAFTER

FLANGE BRACES MAY BE ON ONE OR BOTH SIDES
SEE FRAME CROSS-SECTION FOR LOCATIONS



(6) 1/2 x 1-1/4 A307 REQUIRED AT STANDARD LAPS
(8) 1/2 x 1-1/4 A307 REQUIRED AT STRUT MEMBERS

A STRUT MEMBER IS A PURLIN LOCATED AT THE BRACE POINTS. SEE PLANS FOR EXCEPTION TO SIZE & QTY OF BOLTS.

H2 WALL GIRT TO FRAME COLUMN

DRAWING STATUS

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☒ FOR CONSTRUCTION PERMIT:
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☐ FOR ERECTOR INSTALLATION:
Final drawings for construction.

ISSUE	DATE	DESCRIPTION	BY	CHK
P1	12.18.24	FOR CONSTRUCTION PERMIT	DM	AM

SHEET DESCRIPTION: STANDARD DETAILS						BLDG SIZE: 120'-0" x 100'-0" x 22'-0"	
CUSTOMER: LS Management Hangar						CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar							
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064						JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833		DWG NO: D2	ISSUE: P1

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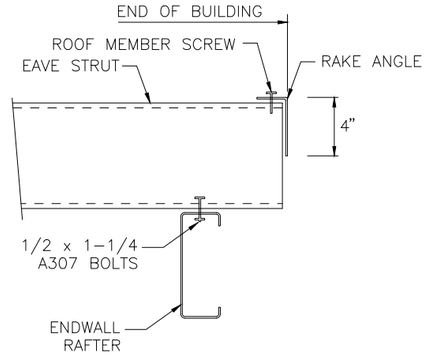
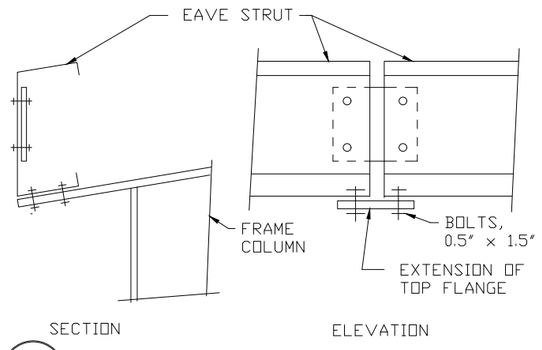
STATE OF MISSOURI
SIRENE M. CHACON
NUMBER PE-2012036154
PROFESSIONAL ENGINEER

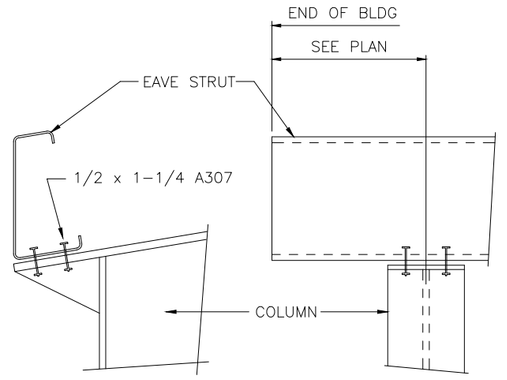
CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081



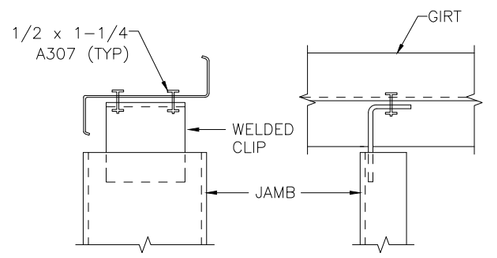
I6 EAVE STRUT TO ENDWALL RAFTER



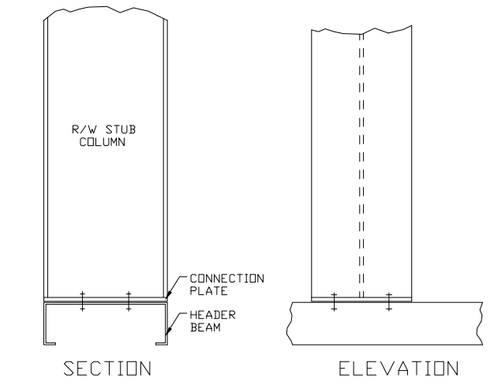
J4 EAVE STRUT TO RIGID FRAME



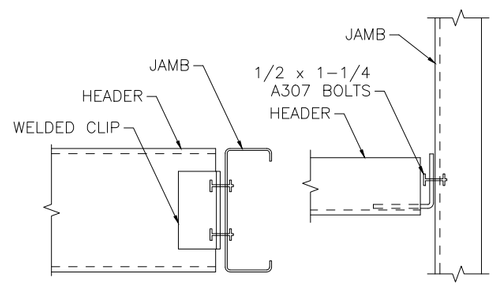
J24 EAVE STRUT TO RIGID FRAME



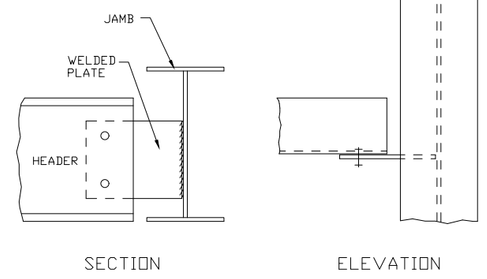
L8 DOOR JAMB TO WALL GIRT



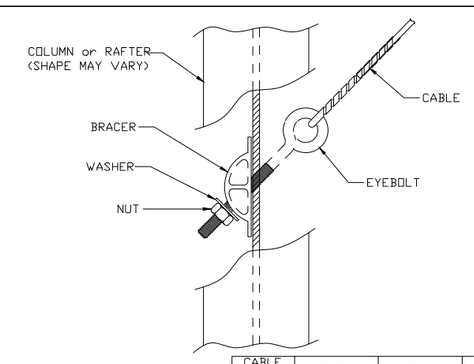
L21 C HEADER BEAM TO R/W STUB COLUMN



M3 HEADER TO CEE JAMB

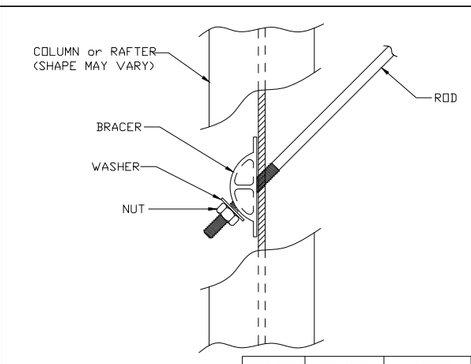


M13 HEADER TO R/W JAMB



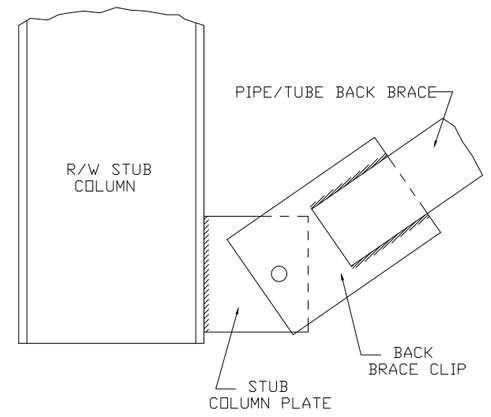
CABLE SIZE	BRACER	WASHER	NUT
1/4"	BRACER #1	F844 1/2"	A563 1/2"
5/16"	BRACER #1	F844 5/8"	A563 5/8"
3/8"	BRACER #2	F844 3/4"	A563 3/4"
1/2"	BRACER #2	F844 7/8"	A563 7/8"

Q2 DIAGONAL CABLE BRACING INSTALLATION

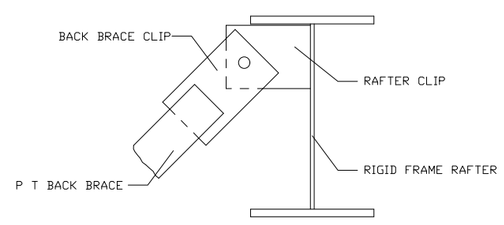


ROD SIZE	BRACER	WASHER	NUT
1/2"	BRACER #1	F844 1/2"	A563 1/2"
5/8"	BRACER #1	F844 5/8"	A563 5/8"
3/4"	BRACER #2	F844 3/4"	A563 3/4"
1"	BRACER #3	F844 1"	A563 1"
1 1/4"	BRACER #4	F844 1 1/4"	A563 1 1/4"

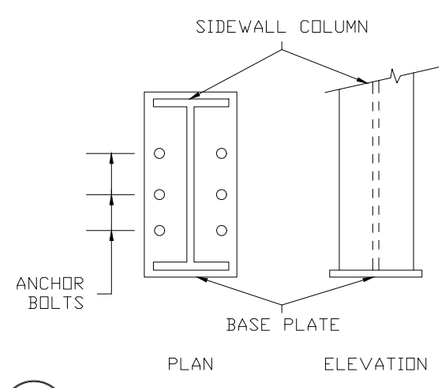
Q3 DIAGONAL ROD BRACING INSTALLATION



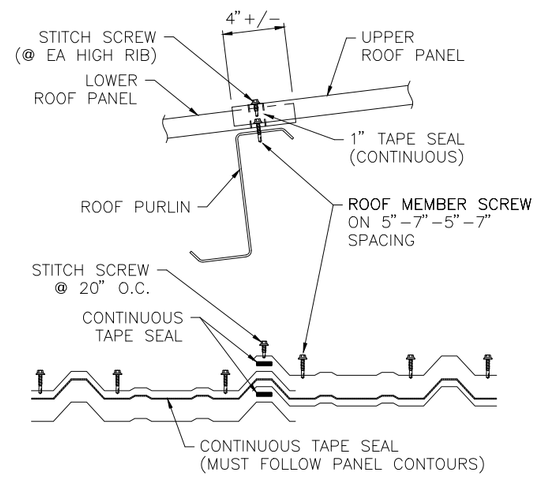
Q12 BACK BRACE TO R/W STUB COLUMN



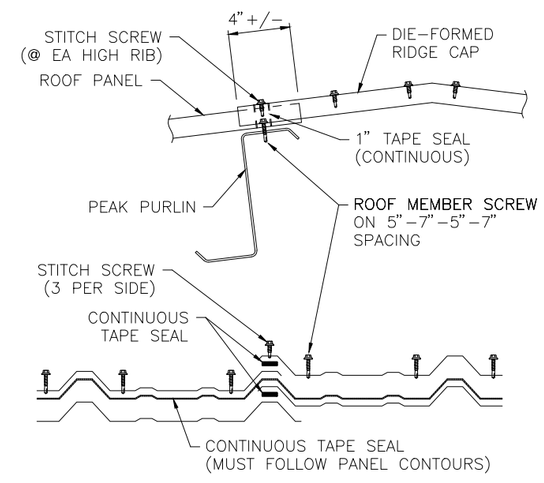
Q31 BACK BRACE TO RIGID FRAME RAFTER



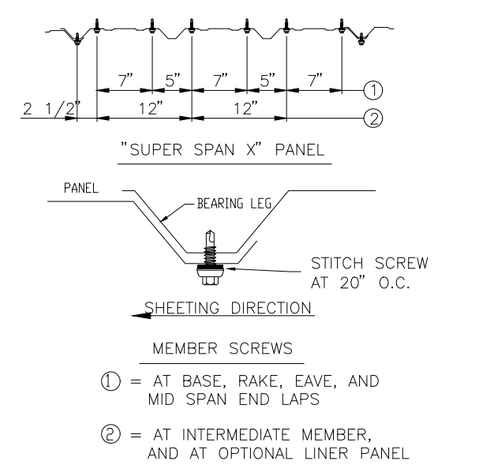
R3 ANCHOR BOLTS AT SIDEWALL COLUMN



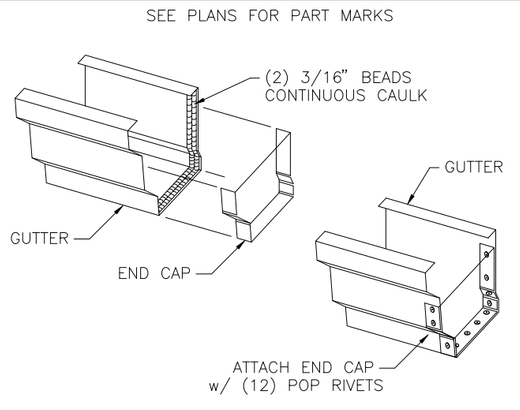
SCREW_2 TYPICAL ROOF PANEL ENDLAP SUPER SPAN X ROOF



SCREW_8 TYPICAL DIE-FORMED RIDGECAP ENDLAP - SUPER SPAN X ROOF

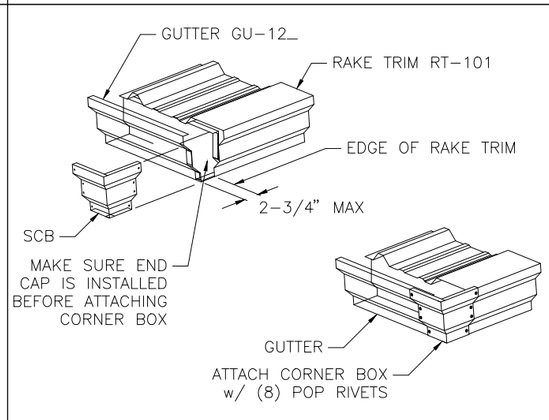


SCREW_25 FASTENER PATTERN FOR WALL PANEL (SUPER SPAN X)



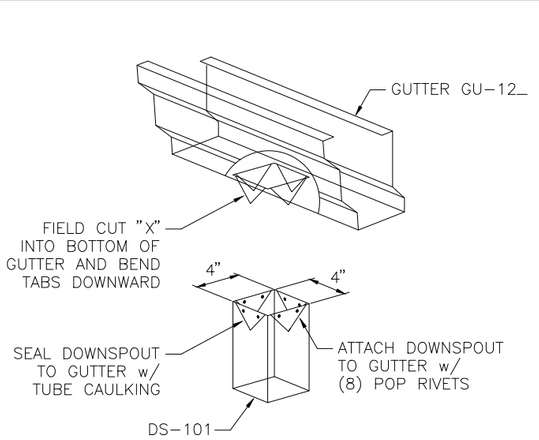
MAKE SURE THE END OF THE GUTTER IS FLUSH WITH THE OUTSIDE FACE OF THE FINISHED END WALL AND THERE ARE NO BREAKS IN THE BEADS OF CAULK

TRIM_4 GUTTER END CAP ATTACHMENT

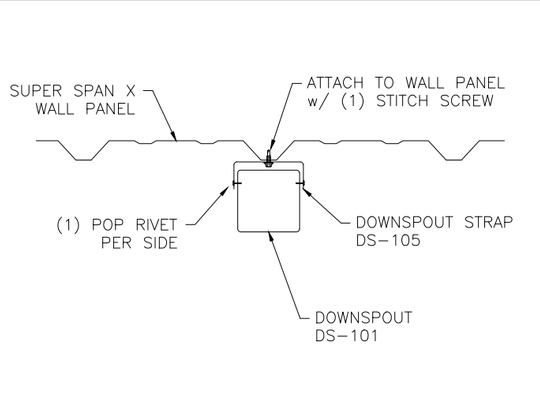


MAKE SURE THE END OF THE GUTTER IS FLUSH WITH THE OUTSIDE FACE OF THE FINISHED END WALL

TRIM_5 CORNER BOX ATTACHMENT



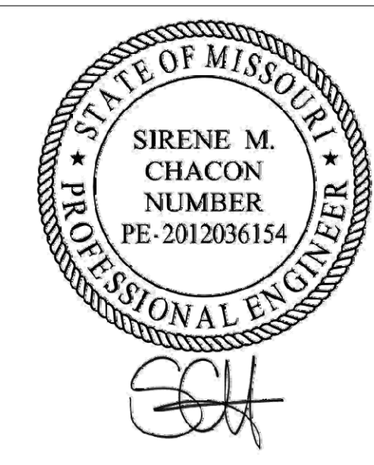
TRIM_6 DOWNSPOUT ATTACHMENT @ GUTTER



ATTACH ONE DS-105 STRAP AT THE BASE OF THE DOWNSPOUT THEN APPROXIMATELY 5'-0" CENTERS (8'-0" MAX.)

TRIM_7 DOWNSPOUT STRAP ATTACHMENT

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081



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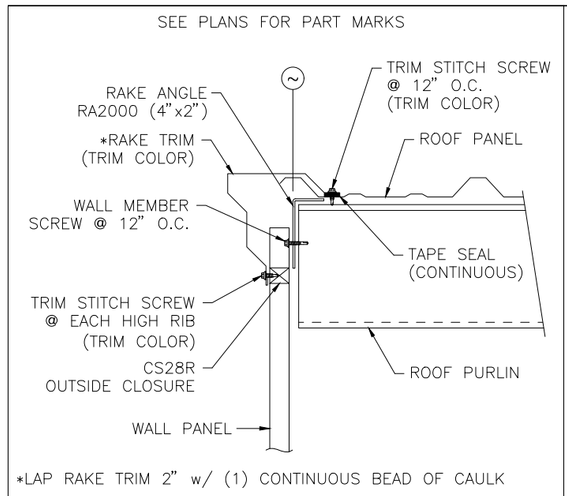
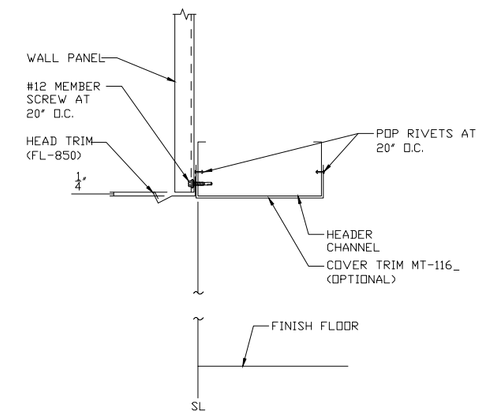
ISSUE	DATE	DESCRIPTION	BY	CHK
P1	12.18.24	FOR CONSTRUCTION PERMIT	DM	AM

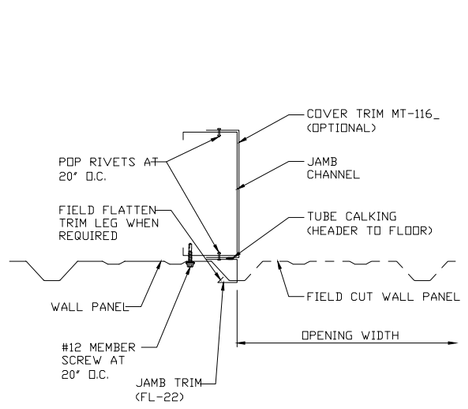
SHEET DESCRIPTION: STANDARD DETAILS					BLDG SIZE: 120'-0" x 100'-0" x 22'-0"	
CUSTOMER: LS Management Hangar					CUSTOMER LOCATION: Peculiar, MO 64078	
PROJECT REFERENCE: LS Management Hangar						
JOBSITE LOCATION: 2751 NE Douglas St, Lee's Summit, MO 64064					JOBSITE COUNTY: Jackson	
DWN: DM	CHK: AM	DATE: 12/18/24	ENG: AM	JOB NO: 13322-35833	DWG NO: D3	ISSUE: P1



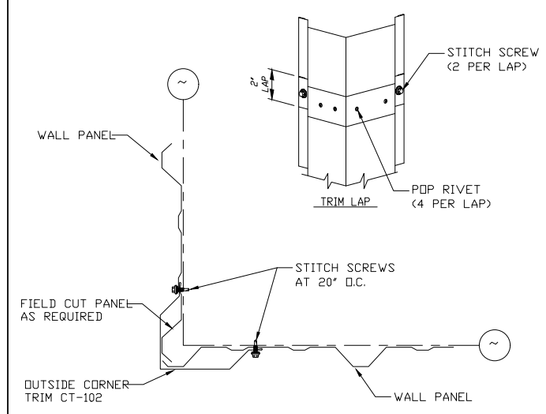
TRIM_18 TYPICAL RAKE DETAIL SUPER SPAN X ROOF & WALLS



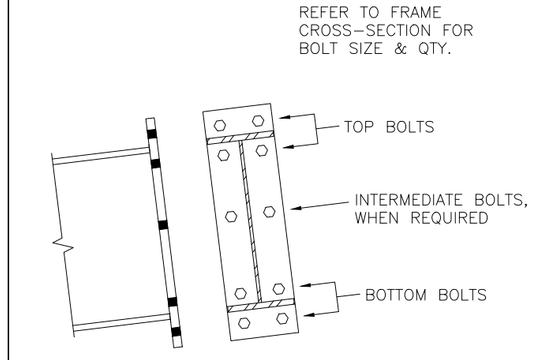
TRIM_178 HEAD TRIM DETAIL (SUPER SPAN X)



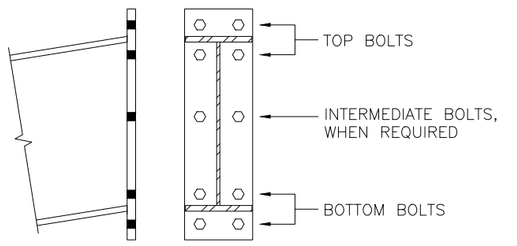
TRIM_179 JAMB TRIM DETAIL (SUPER SPAN X)



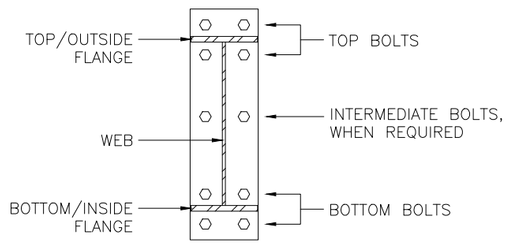
TRIM_203 CORNER TRIM INSTALLATION (SUPER SPAN X)



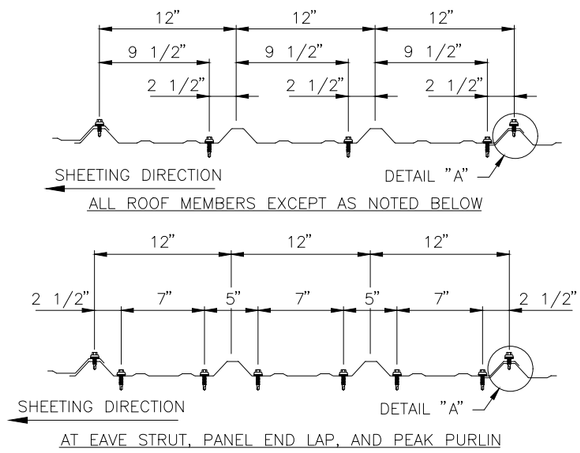
U1 BOLTED END PLATE RAFTER SPLICE



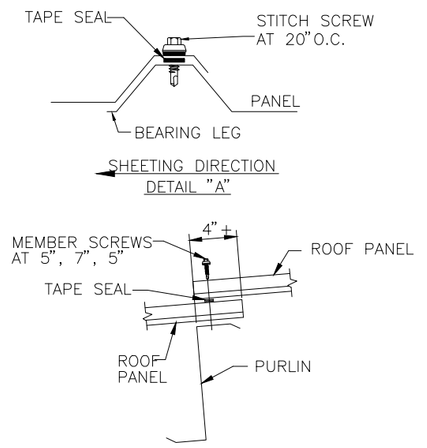
U2 BOLTED END PLATE CONNECTION AT BUILDING PEAK

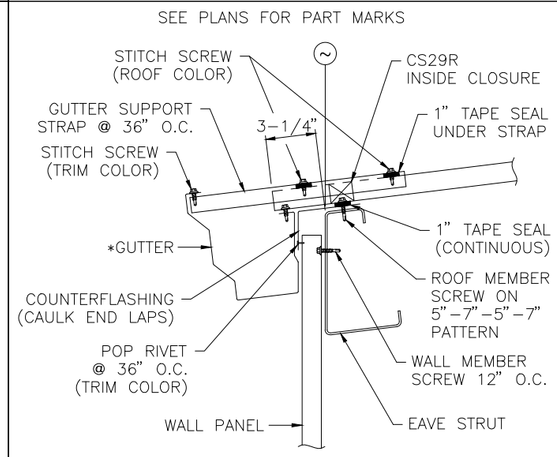


U3 BOLTS FOR RAFTER TO COLUMN CONNECTION



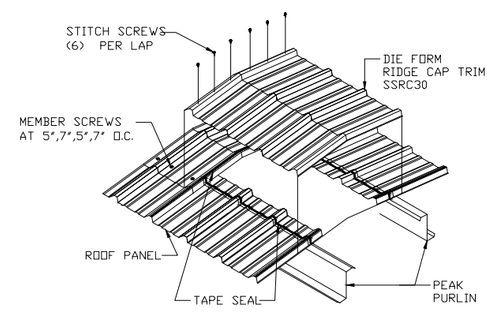
SCREW_30 FASTENER PATTERN FOR "SUPER SPAN X" ROOF PANEL





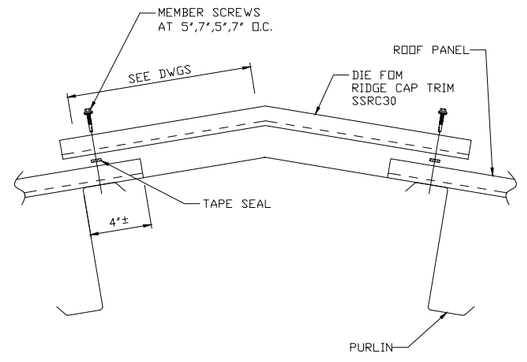
TRIM_2 TYPICAL GUTTER DETAIL SUPER SPAN X ROOF & WALLS

INSULATION NOT BY METAL BUILDING PROVIDER



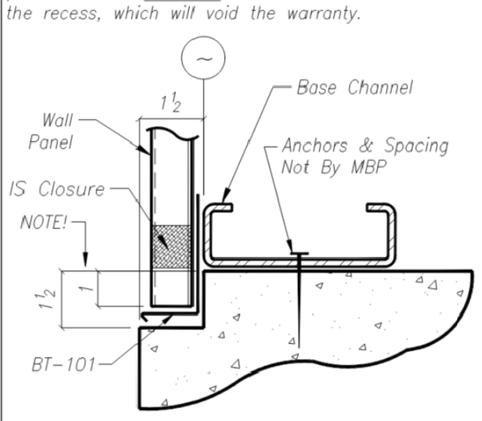
TRIM_54 DIE FORMED RIDGE CAP INSTALLATION (SUPER SPAN X)

INSULATION NOT BY METAL BUILDING PROVIDER



TRIM_55 DIE FORM RIDGE CAP INSTALLATION (SUPER SPAN X)

Horizontal leg of recess must remain flat or slope away from the building. Notch area indicates a recess for metal wall panels. Panels must not touch the bottom of the recess, which will void the warranty.



TYPICAL SHEETING RECESS NTS

CITY OF HOUSTON REGISTRATION NO. 165 / STATE OF TEXAS FIRM NO. 12081

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