

PROJECT DATA

ADDRESS: 2751 NE DOUGLAS ST, UNIT V
LEES SUMMIT, MO 64064

TYPE IIIB CONSTRUCTION
S-1 BUILDING TYPE
OCCUPANCY - S-1

SINGLE STORY W/ MEZZANINE
AREA: 125' X 95' = 11,875 sq.ft.
Type IIIB allowed 17,000 sq.ft.
55' above grade plan
2 story

NON SPRINKLERED
MAX HEIGHT- 31'-1"
OCCUPANCY
AIRCRAFT HANGER - 9,895sqFT/ 500 = 20 OCCUPANTS
BUSINESS AREA- 1,980sq.ft/ 150 = 13 OCCUPANTS
MEZZANINE BUSINESS AREA- 1,980/ 150 = 13 OCCUPANTS

TOTAL 46 OCCUPANTS

ZONING: AIRPORT ZONE

- THE FOLLOWING REQUIRE SPECIAL INSPECTIONS IN ACCORDANCE WITH THE BUILDING CODE:
CAST-IN-PLACE CONCRETE
STRUCTURAL STEEL
VERIFICATIONS OF SOILS AND INSPECTION OF FILL PLACEMENT
WOOD CONSTRUCTION
PAVEMENT INSPECTION (OWNER SHALL BE INFORMED OF INSPECTION AND SHALL ALSO BE ON SITE) DURING INSPECTION.
FOR ADDITIONAL INFORMATION SEE STRUCTURAL

- SPECIAL INSPECTIONS WILL BE PERFORMED BY A QUALIFIED AGENCY CONTRACTED BY THE OWNER. CONTRACTOR TO COORDINATE SCHEDULE WITH THE INSPECTOR. A COPY OF ALL SPECIAL INSPECTIONS, FIELD TEST, ETC. SHALL BE SENT TO CITY INSPECTIONS DEPARTMENT. SPECIAL INSPECTIONS TO BE PROVIDED ELECTRONICALLY TO THE CITY BUILDING OFFICIAL IN ACCORDANCE WITH IBC 1704.

NOTES:
- DRAWINGS ARE NOT TO BE SCALED.
- TERMITE CONTROL TO BE PROVIDED

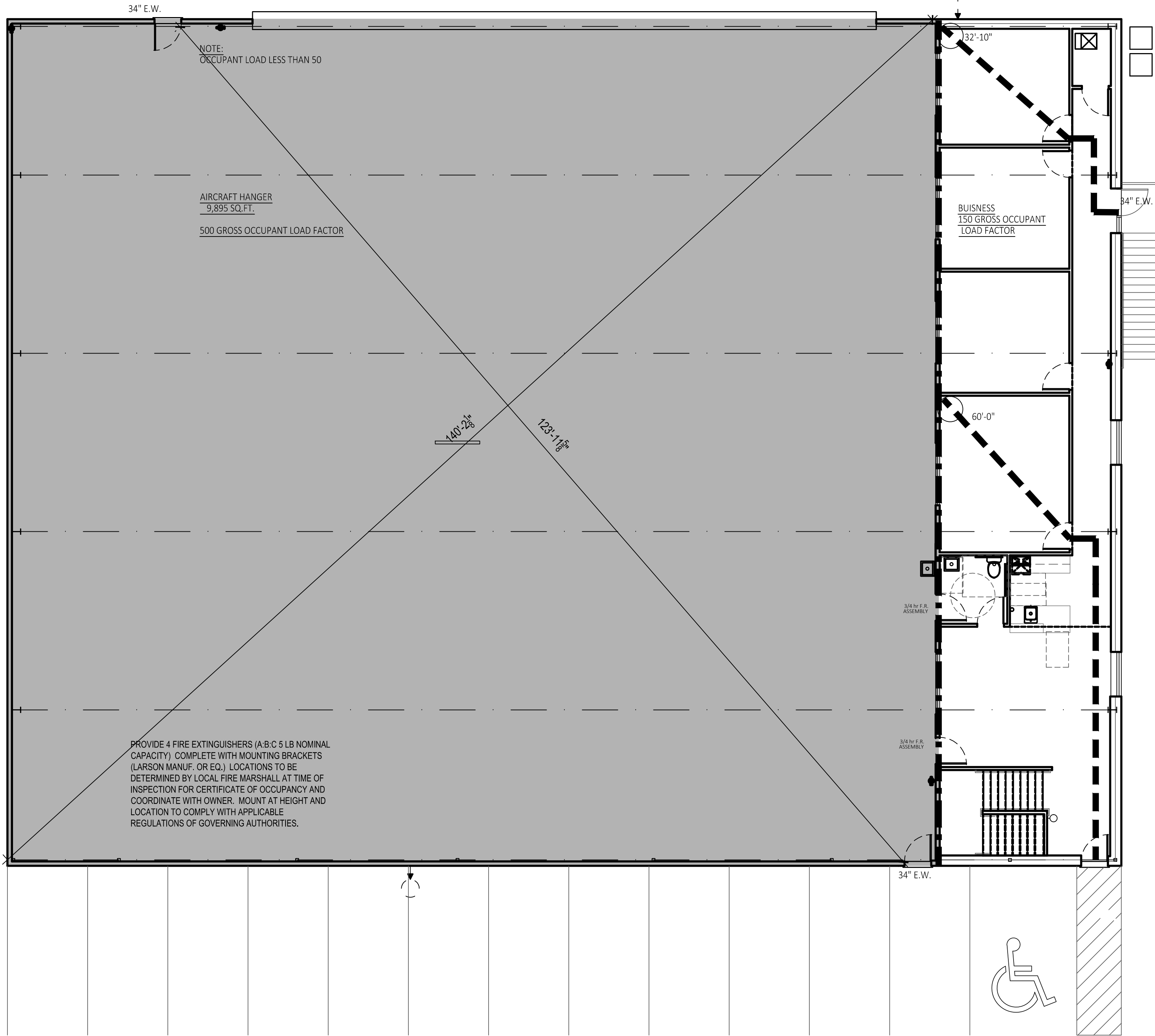
DRAWING INDEX

A100 COVER SHEET, CODES & LS PLAN
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MP000 SPECIFICATIONS
M101 MECHANICAL PLAN
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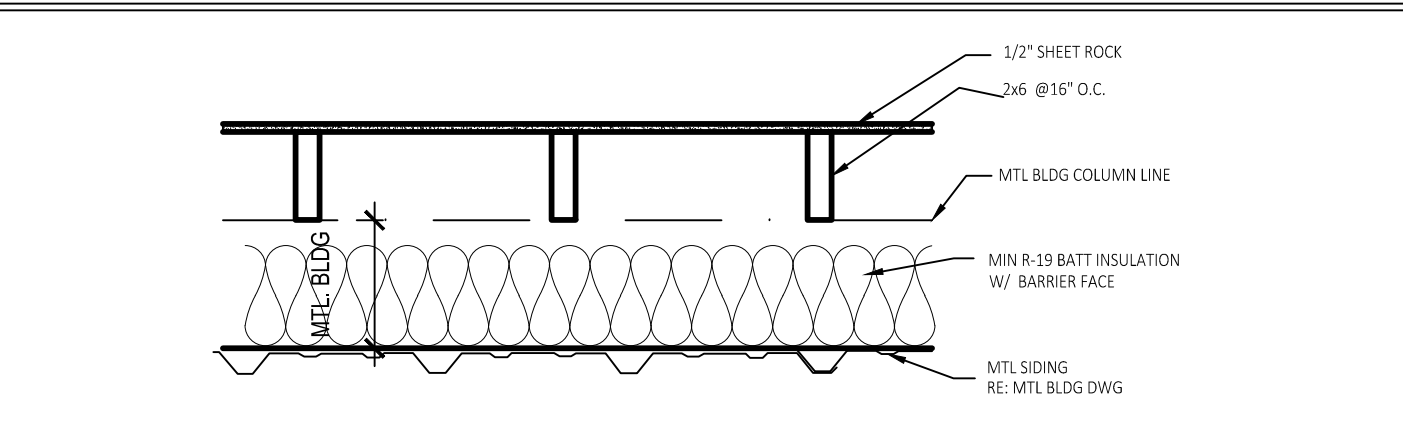
LIFE SAFETY PLAN

SCALE 1/8"=1'-0"

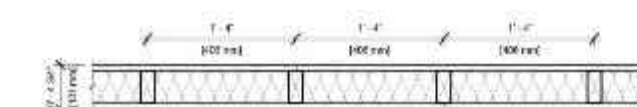
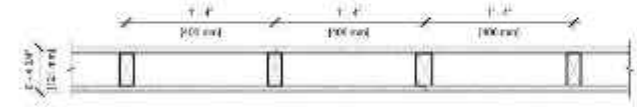
Lee's Summit City Council adopted building code regulations ([Ordinance #8536](#)) and fire code ([Ordinance #8537](#)). These ordinances adopt provisions from the following nationally published construction codes:

- 2018 International Building Code
- 2018 International Plumbing Code
- 2018 International Mechanical Code
- 2018 International Fuel Gas Code
- 2018 International Residential Code
- 2018 International Fire Code
- 2017 National Electrical Code
- ICC/ANSI A117.1-2009, Accessible and Usable Buildings and Facilities

NATIONAL FIRE PROTECTION AGENCY (NFPA) 409 STANDARDS ON HAIRCRAFT HANGERS



OFFICE EXTERIOR WALL DETAIL



UL U305
Interior Partitions - Wood Stud (Load-Bearing)
Fire Rating: **1 hours**
System Thickness: **4 3/4 in.**
STC: **33**

ASSEMBLY DETAILS

Gypsum Board: 5/8" Thick Gypsum Board (UL Type ULIX™)

Wood Studs: 2x4 Wood Studs, 16" O.C.

Gypsum Board: 5/8" Thick Gypsum Board (UL Type ULIX™)

UL U305
Interior Partitions - Wood Stud (Load-Bearing)
Fire Rating: **1 hours**
System Thickness: **4 3/4 in.**
STC: **34**

ASSEMBLY DETAILS

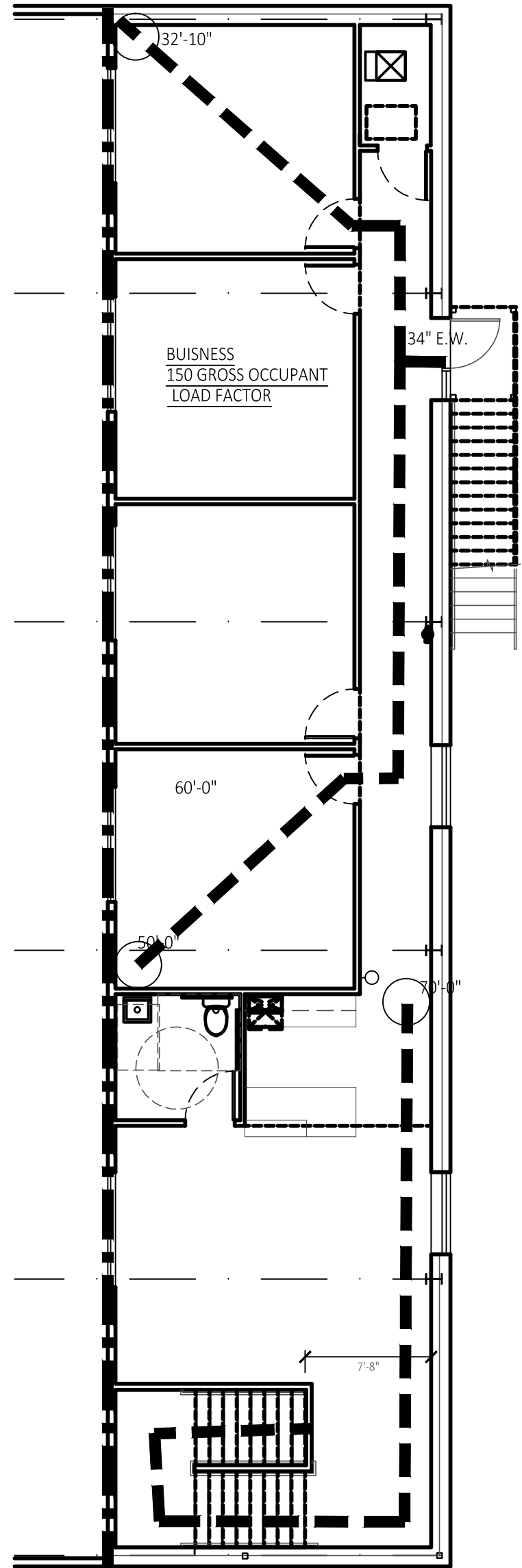
Gypsum Board: 5/8" Thick Gypsum Board (UL Type SCX)

Wood Studs: 2x4 Wood Studs, 16" O.C.

Insulation: 3-1/2" Glass Fiber Batt Insulation

Gypsum Board: 5/8" Thick Gypsum Board (UL Type SCX)

NOTE: STUD SIZE DESIGN CRITERIA LISTED ARE MINIMUMS ONLY. REFER TO PLAN LAYOUT FOR SIZE, UPGRADE SIZE TO 2x6 FOR MEZZANINE STRUCTURAL SUPPORT.



MEZZANINE PLAN

SCALE 1/8"=1'-0"

LEGEND
1 HR FIRE PARTITION WALL
NFPA 409
UL 305
FIRE EXTINGUISHER
WALLS:
2 INTERIOR PARTITION WALLS (non-load bearing) - 2x4 @ 16" O.C.
INTERIOR PARTITION WALL (LOAD BEARING) - 2x6 @ 16" O.C.
EXTERIOR OFFICE WALLS- 2x6 @ 16" O.C.
1/2" GYPSUM BD
MIN R-19 FACE BATT INSULATION
MTL PANEL EXTERIOR (METAL BUILDING PACKAGE)
NOTE: ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED WOOD.

PLUMBING: IPC TABLE 403.1
WATERCLOSETS 1 PER 25 FOR FIRST 50 PROVIDED: 2
LAVATORY 1 PER 40 FIRST 80 PROVIDED: 2
DRINKING FOUNTAIN 1 PER 100 PROVIDED 1
SERVICE SINK 1 PROVIDED 1



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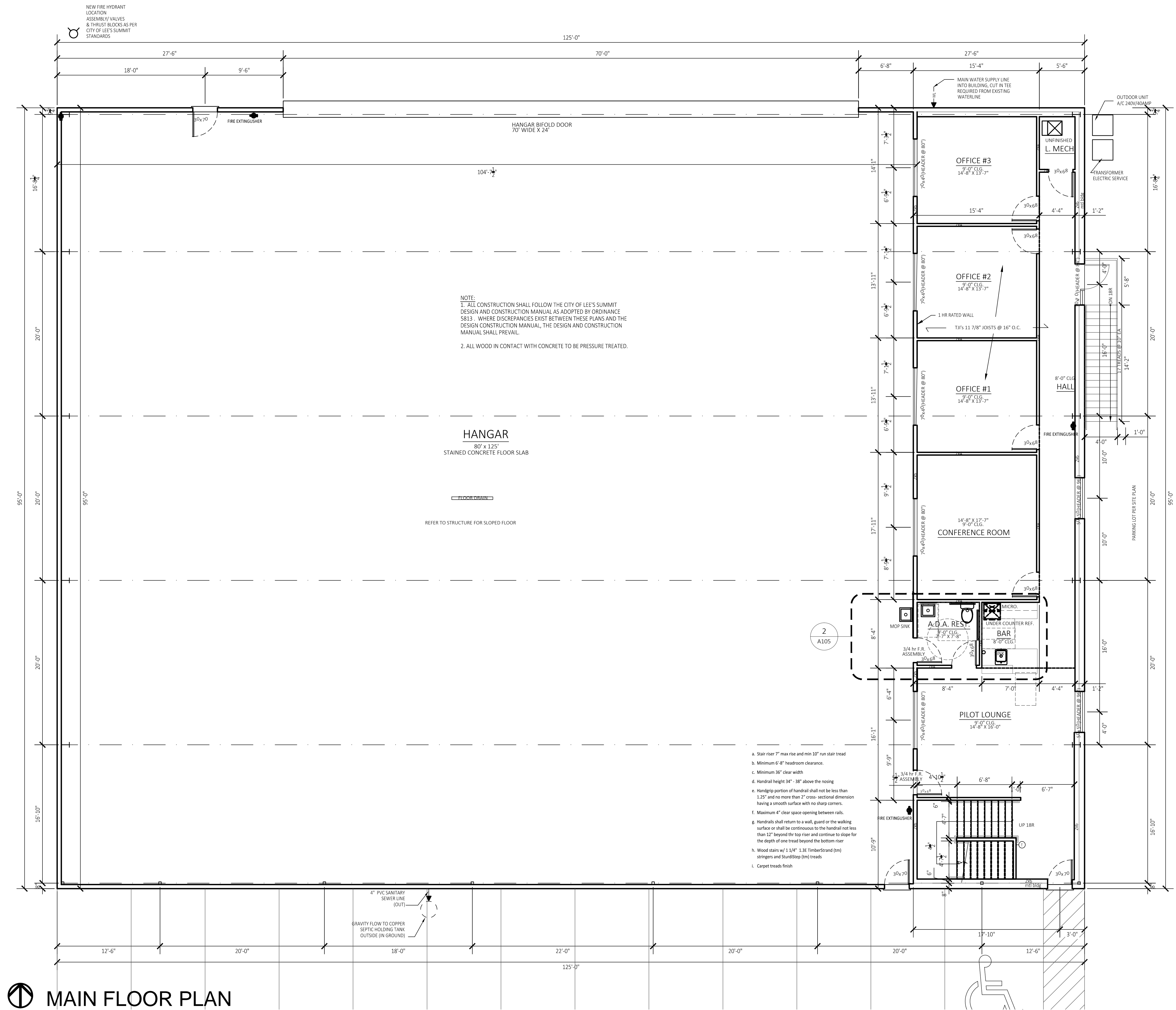
No.	Description	Date
2	2nd City Comments	6/24/2020

CONSTRUCTION DOCUMENTS

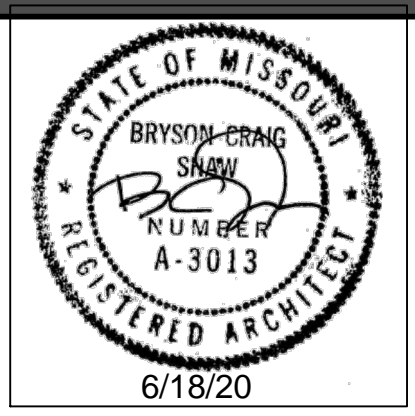
Project Number	LS V
Date	2020 JUNE 19
Drawn By	CCD
Checked By	SBKC

COVER

SHEET SIZE: 24" x 36"



MAIN FLOOR PLAN
NORTH SCALE 3/16"=1'-0"



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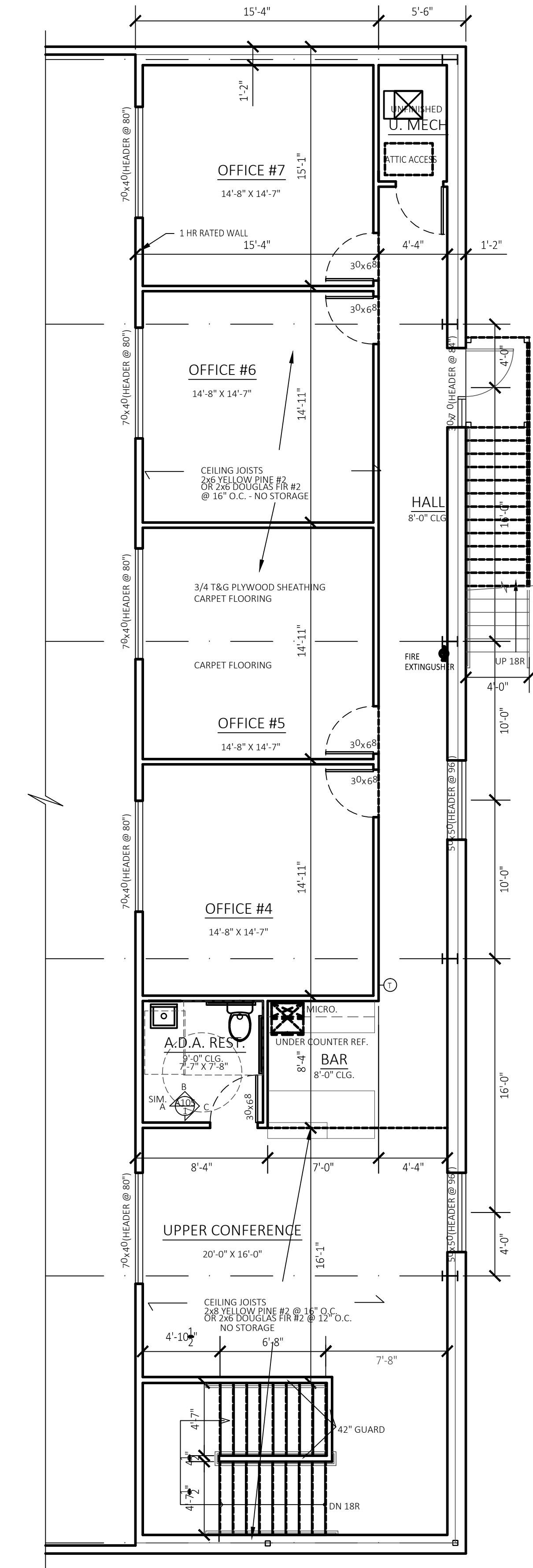


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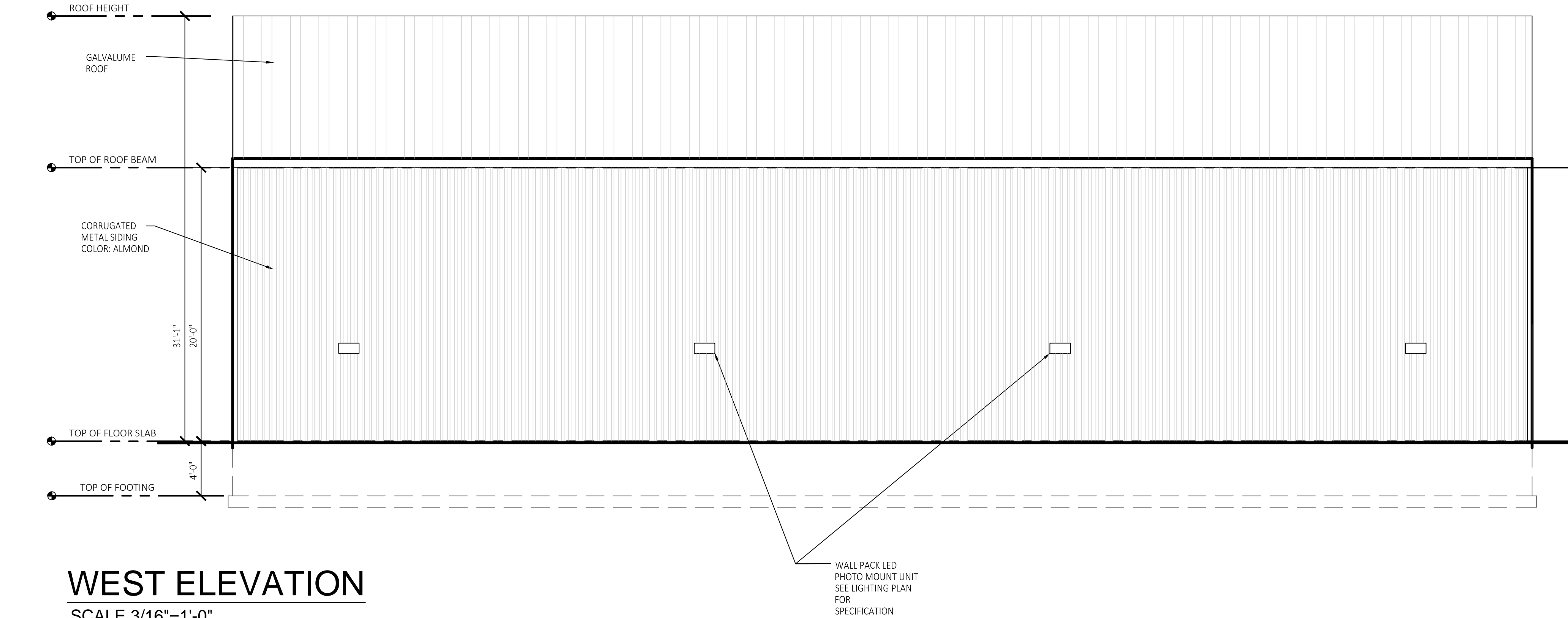
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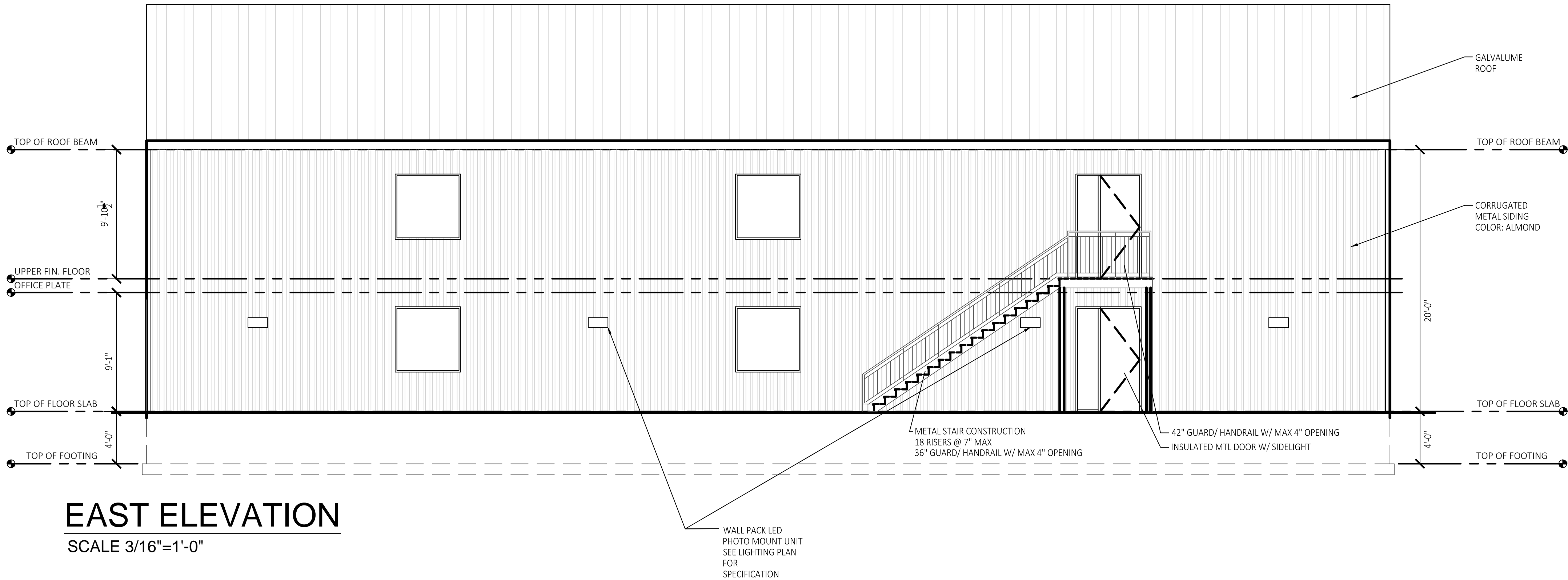
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Project Number	LS V
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A 101	
SHEET SIZE: 24" x 36"	



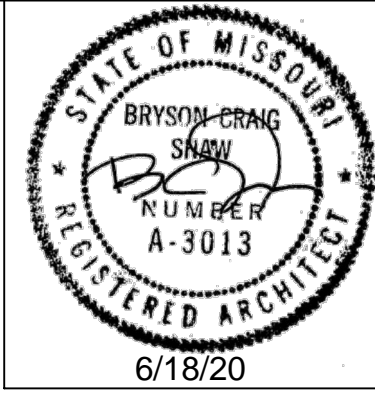
MEZZANINE FLOOR PLAN
SCALE 3/16"=1'-0"



WEST ELEVATION
SCALE 3/16"=1'-0"



EAST ELEVATION
SCALE 3/16"=1'-0"



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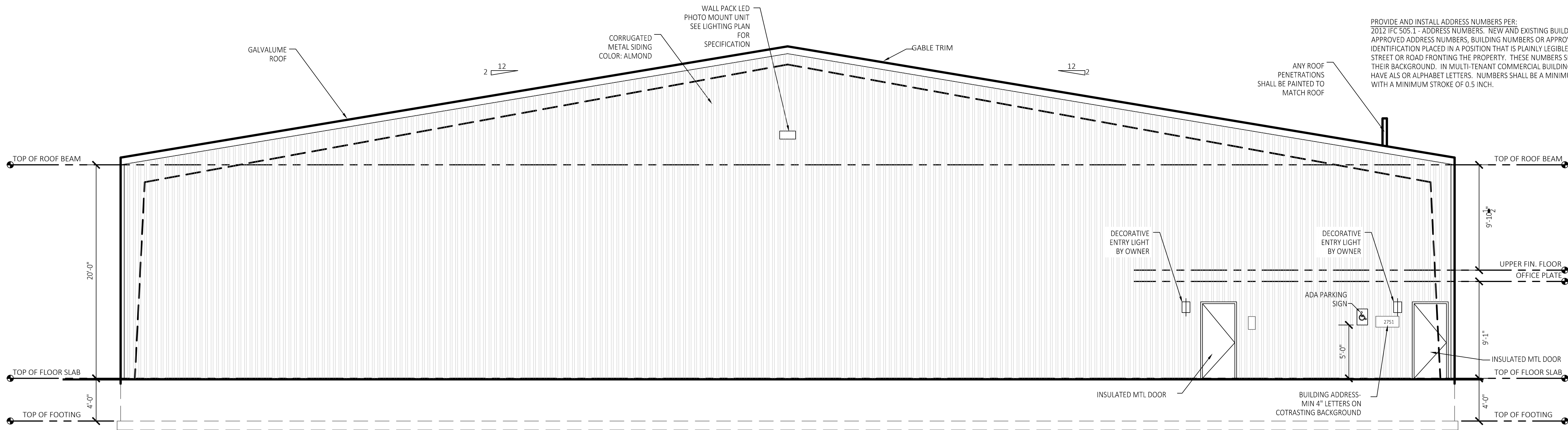
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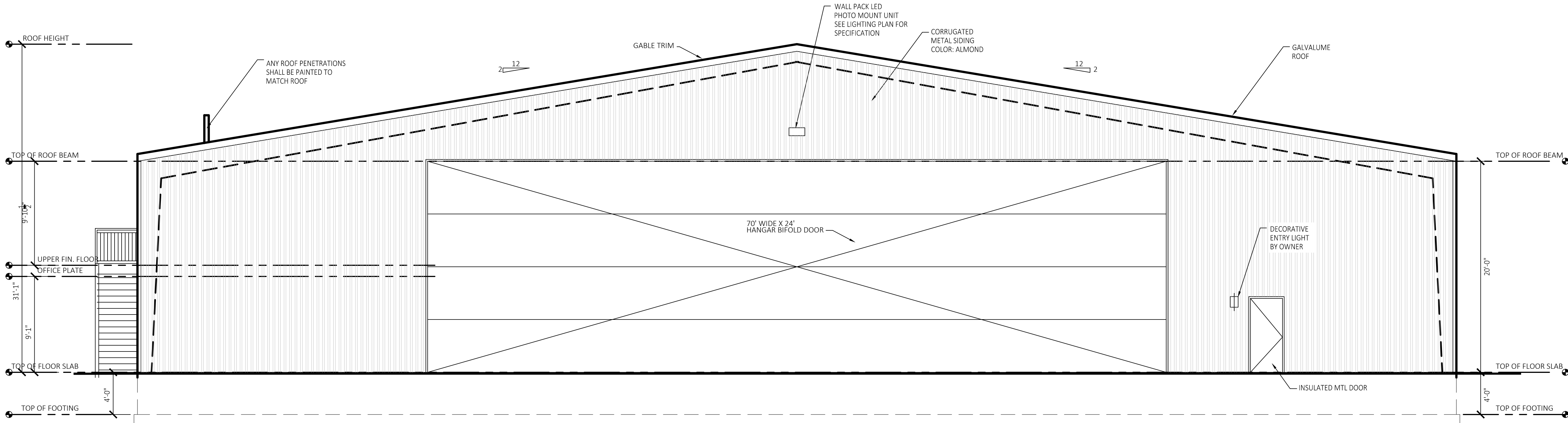
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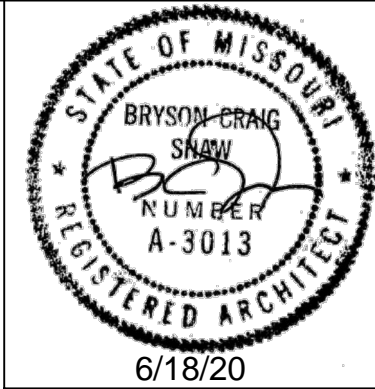
A 102
SHEET SIZE: 24" x 36"



SOUTH ELEVATION
SCALE 3/16"=1'-0"



NORTH ELEVATION
SCALE 3/16"=1'-0"



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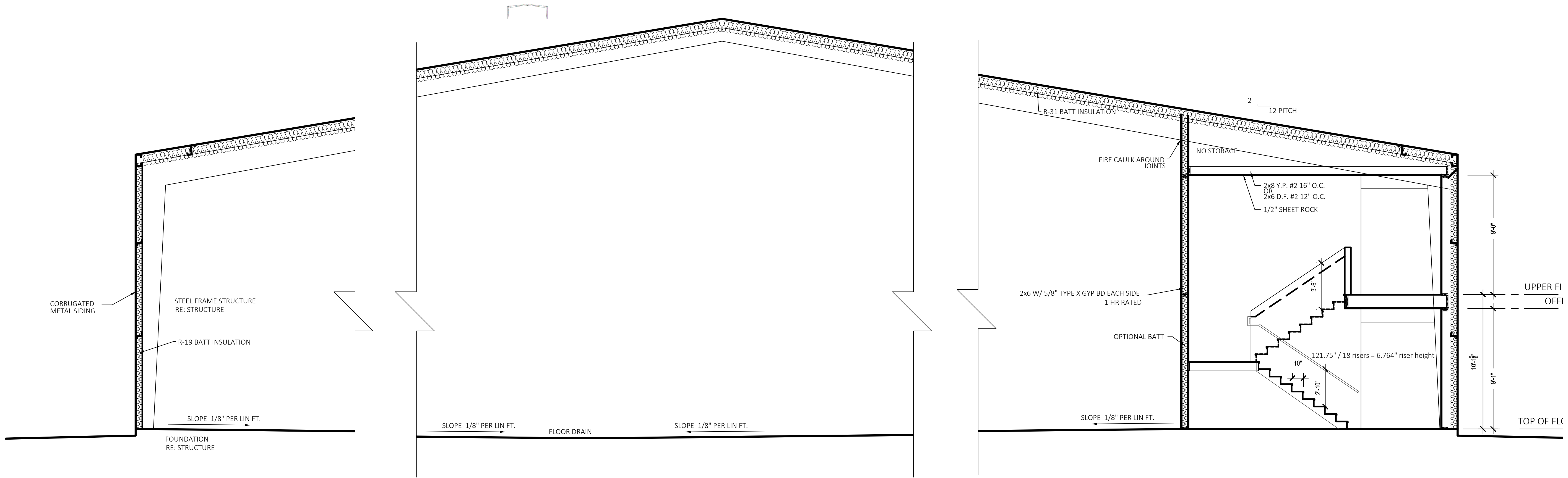
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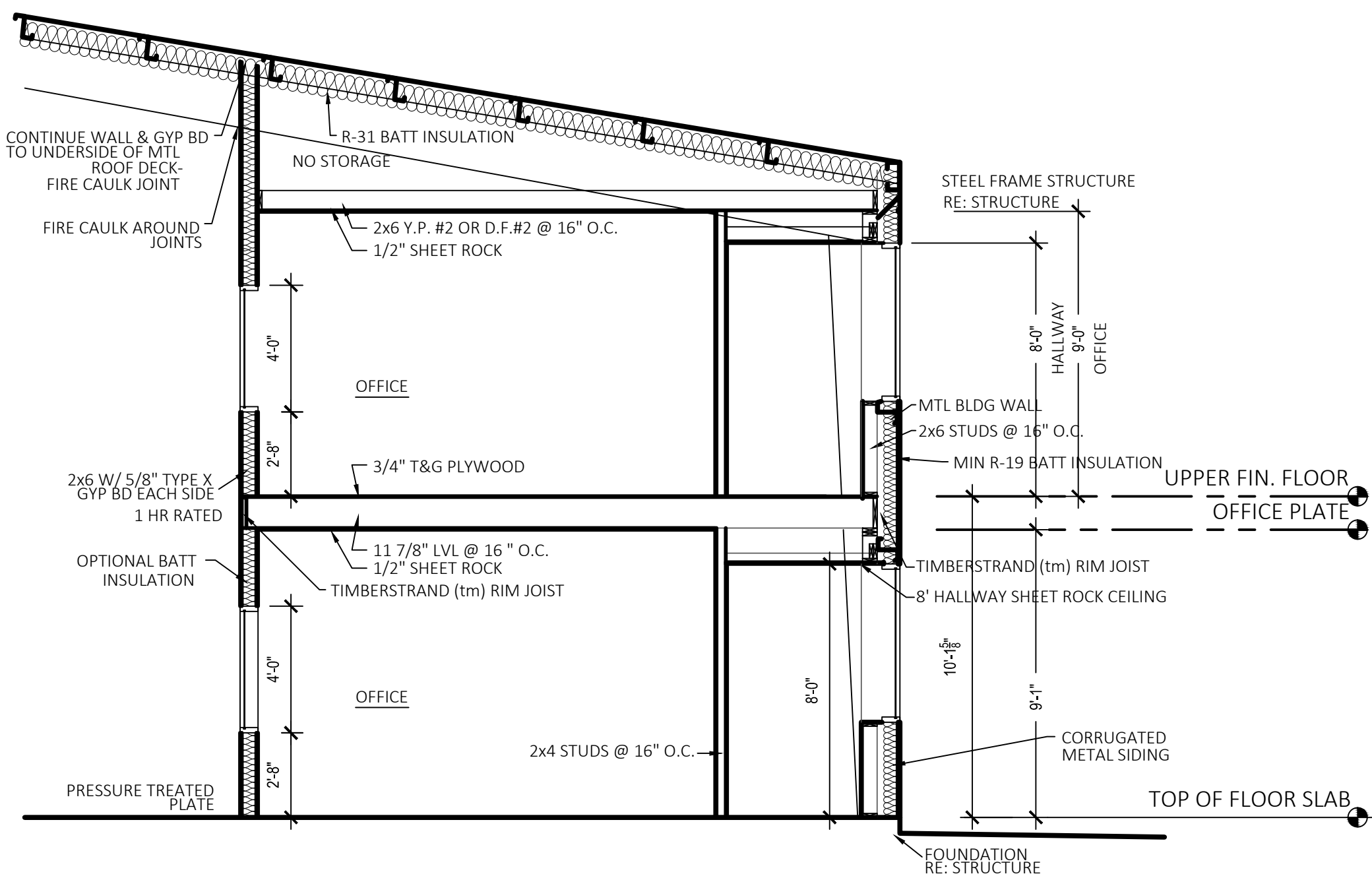
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A 103

SHEET SIZE: 24" x 36"



BLDG SECTION
SCALE 1/4"=1'-0"



BLDG SECTION @ MEZZANINE
SCALE 1/4"=1'-0"



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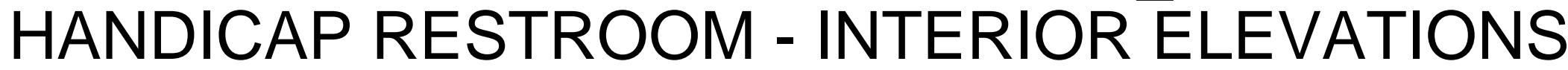
CONSTRUCTION DOCUMENTS

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A 104

SHEET SIZE: 24" x 36"

BI-FOLD DOOR SPEC



RESTROOM FIXTURES AND ACCESSORIES LEGEND AND SPECIFICATIONS



SHEET SIZE: 24" x 36"

DESIGN CRITERIA:

- LIVE LOADS (UNIFORM (PSF) / POINT LOADS (KIPS)):
-- ROOF:.....20 PSF / 1.0 K
- ROOF SNOW LOAD:
-- GROUND SNOW LOAD (Pg):.....20 PSF
-- FLAT ROOF SNOW LOAD (Pi):.....20 PSF
-- SNOW EXPOSURE FACTOR (Ce):.....1.0
-- SNOW LOAD IMPORTANCE FACTOR (I):.....1.0
-- THERMAL FACTOR (Ct):.....1.0
- WIND DESIGN DATA:
-- BASIC WIND SPEED (3 SEC GUST):.....115 MPH
-- WIND IMPORTANCE FACTOR (I):.....1.0
-- WIND EXPOSURE:.....C
-- BUILDING ENCLOSURE:.....ENCLOSED
-- INTERNAL PRESSURE COEFF:.....0.18
-- COMPONENTS AND CLADDING WIND PRESSURE:
PER ASCE 7-16
- EARTHQUAKE DESIGN DATA:
-- SEISMIC IMPORTANCE FACTOR (I):.....1.00
-- BUILDING OCCUPANCY CATEGORY:.....II
-- MAPPED SPECTRAL RESP ACCEL (Ss / S1):.....0.113 / 0.066
-- SITE CLASS:.....D
-- SPECTRAL RESPONSE COEFF (Sds / Sd1):.....0.120 / 0.106
-- SEISMIC DESIGN CATEGORY:.....B
-- SEISMIC FORCE RESISTING SYSTEM:
STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
-- DESIGN BASE SHEAR:.....6.92 K
-- SEISMIC RESPONSE COEFF (C039):.....0.039
-- RESPONSE MODIFICATION FACTOR (R):.....3.0
-- ANALYSIS PROCEDURE:.....ELF
- ADDITIONAL PRE-ENGINEERED METAL BLDG CRITERIA
A. LOADS
-- COLLATERAL ROOF DEAD LOAD:.....4 PSF
B. MEMBER DEFLECTIONS (LIVE LOAD)
-- ROOF, NOT SUPPORTING CEILING:.....L/180
-- ROOF, SUPPORTING PLASTER CEILING:.....L/360
-- ROOF, SUPPORTING OTHER CEILING:.....L/240
-- WALL GIRT, BACKING NON-BRITTLE FINISH:.....L/180
-- WALL GIRT, BACKING BRITTLE FINISH (MASONRY):.....L/600
C. MEMBER DEFLECTIONS (DEAD + LIVE LOAD)
-- ROOF, SUPPORTING PLASTER CEILING:.....L/240
-- ROOF, SUPPORTING OTHER CEILING:.....L/180
D. FRAME DRIFT (BRACED, PORTAL, WIND COL)
-- NON BRITTLE EXTERIOR FINISH:.....H/120
-- BRITTLE EXTERIOR FINISH:.....H/400

STRUCTURAL GENERAL NOTES:

- DESIGN AND CONSTRUCTION SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE, 2015 EDITION. REFER TO THE SPECIAL STRUCTURAL INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS.
 - CONTRACTOR TO VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT IMMEDIATELY.
 - IF DISCREPANCIES EXIST BETWEEN STRUCTURAL PLANS, ARCHITECTURAL PLANS, OTHER PLANS, OR SPECIFICATIONS, THE CONTRACTOR OR SUBCONTRACTOR SHALL PROVIDE A WRITTEN REQUEST FOR CLARIFICATION FROM THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
 - THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO EXECUTE AND DETERMINE FINAL ERECTION PROCEDURES, SEQUENCING AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES WHATEVER SHORING, SHEETING, TEMPORARY BRACING, GUYING OR TIE DOWNS WHICH MIGHT BE NECESSARY.
 - THE STRUCTURE AND FOUNDATIONS ARE NOT DESIGNED FOR FUTURE EXPANSION.
 - FABRICATORS AND SUPPLIERS SHALL CLEARLY NOTE AND HIGHLIGHT CHANGES MADE IN SHOP DRAWINGS, WHICH DO NOT COMPLY WITH THE CONTRACT DOCUMENTS.
 - COLUMNS, BEAMS, JOISTS, OR TRUSSES SHALL NOT BE FIELD CUT OR TRIMMED FOR ANY REASON WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
 - HOLES, PIPES, SLEEVES, ETC. NOT SHOWN ON THE DRAWINGS MUST BE REVIEWED BY THE ARCHITECT BEFORE PLACEMENT THROUGH STRUCTURAL MEMBERS.
 - IF MECHANICAL AND ELECTRICAL EQUIPMENT SIZES, WEIGHTS, OR LOCATIONS DO NOT COINCIDE WITH EQUIPMENT SHOWN ON THE PLANS, COORDINATE ADJUSTMENTS WITH THE ARCHITECT.
 - NO AREA OF THE STRUCTURE SHALL BE LOADED WITH CONSTRUCTION MATERIALS OR EQUIPMENT THAT EXCEEDS FINAL DESIGN CRITERIA.
 - BEAMS, COLUMNS, WALLS AND FOOTING CENTERS SHALL BE CENTERED UNDER SUPPORTING MEMBERS (TYPICAL UNLESS NOTED).
 - FOR DEFERRED SUBMITTALS (EXAMPLES: PREFABRICATED WOOD OR COLD FORMED STEEL JOISTS, PRECAST CONCRETE ELEMENTS, COLD FORMED FRAMING), SHOP DRAWINGS AND CALCULATIONS SEALED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE JURISDICTION OF THE PROJECT SHALL BE FURNISHED TO THE ENGINEER OF RECORD FOR REVIEW.
- PRE-ENGINEERED METAL BUILDING GENERAL NOTES:**
- THE METAL BUILDING MANUFACTURER SHALL BE RESPONSIBLE FOR THE METAL BUILDING DESIGN. THE METAL BUILDING DESIGN AND CALCULATIONS SEALED BY AN ENGINEER LICENSED TO PRACTICE IN THE JURISDICTION OF THE PROJECT SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE FABRICATION AND APPROVED BEFORE ANY CONCRETE FOOTINGS ARE POURED. THE METAL BUILDING MANUFACTURER SHALL PROVIDE ALL ACTUAL COLUMN LOCATIONS AND LOADS AT THE FOUNDATIONS FOR DESIGN VERIFICATION INCLUDING WIND COLUMN/BRACING CONDITIONS.
 - THE METAL BUILDING DESIGN SHALL MEET ALL LOCAL CODE REQUIREMENTS.
 - ROOF LIVE LOADS, INCLUDING SNOW LOADS, SHALL NOT BE REDUCED. DESIGN ROOF AND ROOF MEMBERS FOR ALL REQUIRED UNBALANCED LOADS AND SNOW DRIFTING.
 - COLLATERAL ROOF LOADING IS IN ADDITION TO DEAD LOAD OF PRE-ENGINEERED BUILDING FRAMING, METAL DECK, AND INSULATION
 - CONTRACTOR TO VERIFY ALL BASE PL ELEVATIONS AND GROUTING REQUIREMENTS w/ METAL BUILDING SUPPLIER.

EARTHWORK AND FOUNDATIONS:

- PRESUMPTIVE ALLOWABLE SOIL BEARING PRESSURE = 1500 PSF (PER IBC). GEOTECHNICAL ENGINEER TO CONFIRM MINIMUM BEARING VALUES HAVE BEEN MET PRIOR TO PLACING FOOTINGS.
- ALL PERIMETER AND EXTERIOR FOOTINGS SHALL EXTEND AT LEAST 3'-0" BELOW FINAL ADJACENT GRADE. DEEPEN FOOTINGS AS REQUIRED TO PROVIDE THIS MINIMUM BOTTOM OF FOOTING.
- SURFACE WATER SHALL NOT BE ALLOWED TO STAND ADJACENT TO OR DRAIN TOWARDS THE FOUNDATION UNDER ANY CIRCUMSTANCES. PAVEMENTS OR GRADED SOILS AT THE PERIMETER OF THE BUILDING, EXCEPT AS REQUIRED AT EXITS OR AS NOTED, SHALL BE SLOPED AWAY AT 5% OR 6" MIN FOR THE FIRST TEN FEET.
- FOOTINGS MAY BE POURED TO NEAT LINES OF EXCAVATIONS PROVIDING VERTICAL LINES OF EXCAVATIONS CAN BE MAINTAINED DURING CONCRETE PLACEMENT.
- FOUNDATION CONTRACTOR TO ENSURE PROPER ANCHOR ROD PROJECTION AND THAT ANCHOR RODS ARE HELD SECURELY IN POSITION PRIOR TO CONCRETE PLACEMENT. STRUCTURAL STEEL COLUMN ANCHOR RODS SHALL BE SET WITH A TEMPLATE

CONCRETE AND MASONRY REINFORCING STEEL:

- ALL REINFORCING BARS SHALL MEET ASTM A615 GRADE 60.
- ALL MESH SHALL MEET ASTM A-185; LAP A MINIMUM OF 8" OR ONE FULL MESH, WHICHEVER IS GREATER.
- REINFORCING BARS QUANTITIES SHOWN ARE FOR ESTIMATING PURPOSES ONLY.
- PROVIDE AND ADDITIONAL ALLOWANCE OF 1% OF THE TOTAL REINFORCING SHOWN ON THE FINAL DRAWINGS TO BE FABRICATED AND ERECTED DURING THE PROGRESS OF THE WORK AT THE DIRECTION OF THE STRUCTURAL ENGINEER. FOR THE ADDITIONAL REINFORCING ALLOWANCE, INCLUDE BOTH THE COST OF THE REINFORCING AND THE LABOR TO PLACE IT.
- CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE 3/4" CLEAR FOR SLABS, 2" CLEAR FOR FORMED SURFACES AND 3" CLEAR FOR FOOTINGS (TYPICAL UNLESS NOTED).
- CONTRACTOR SHALL VERIFY THAT ALL REINFORCEMENT, SLAB DOWELS, INSERTS, SLEEVES AND EMBEDDED ITEMS ARE PROPERLY LOCATED AND RIGIDLY SECURED PRIOR TO CONCRETE PLACEMENT, "WET STICKING" DOWELS WILL NOT BE ALLOWED.
- REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH THE LATEST A.C.I. DETAILING MANUAL BY A QUALIFIED AND EXPERIENCED FIRM AND PERSON. PLACE AND SUPPORT REINFORCEMENT WITH ACCESSORIES; MAXIMUM SPACING - 48" CENTERS (PLASTIC) TYPED LEGS FOR EXPOSED SURFACES). USE 3" SBP SUPPORTS AT ALL FOOTINGS.

CAST IN PLACE CONCRETE:

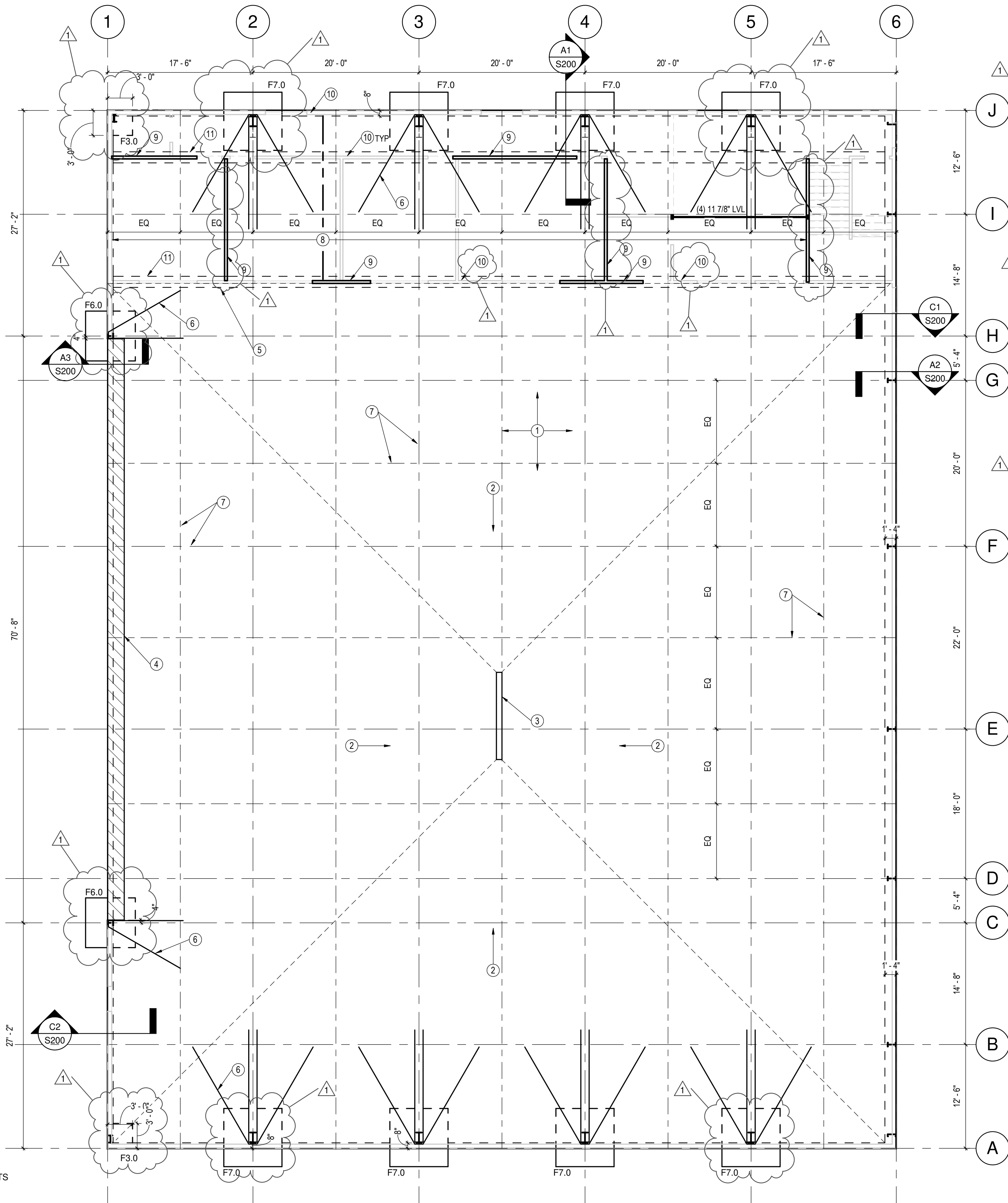
- REQUIRED MINIMUM CONCRETE COMPRESSIVE STRENGTHS AT 28 DAYS:
a. FOOTING, WALL, AND GRADEBEAM CONCRETE.....3000 PSI
b. SLAB ON GRADE AND STRUC SLAB ABOVE GRADE.....3500 PSI
- ALL CONCRETE MIX DESIGNS SHALL HAVE WATER TO CEMENT RATIOS LESS THAN 0.50, WITH A MAXIMUM 60/40 FINE TO COARSE AGGREGATE RATIO. CONCRETE MIX DESIGNS THAT DO NOT CONFORM TO THE ABOVE STANDARD AND/OR CONTAIN WATER REDUCING ADMIXTURES SHALL BE SUBMITTED WITH APPROPRIATE TEST DATA PER A.C.I. ALL CONCRETE SHALL BE IN CONFORMANCE WITH THE LATEST A.C.I. 301 STANDARDS PUBLICATION.
- EXTERIOR CONCRETE (FLOOR SLABS, WALLS, ETC) SHALL HAVE 6% (PLUS/MINUS 1%) ENTRAINED AIR.
- CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" (VERIFY WITH ARCHITECT).
- NO ALUMINUM SHALL BE EMBEDDED IN ANY CONCRETE.
- NO CALCIUM CHLORIDE SHALL BE USED IN CONCRETE
- THE DESIGN, CONSTRUCTION, AND SAFETY OF ALL FORMWORK IS THE RESPONSIBILITY OF THE CONTRACTOR
- ALL CONCRETE IS REINFORCED UNLESS SPECIFICALLY NOTED AS UNREINFORCED. REINFORCE ALL CONCRETE NOT OTHERWISE SHOWN WITH THE SAME REINFORCING AS SIMILAR SECTIONS OR AREAS.
- CONSTRUCTION JOINTS IN GRADE BEAMS, CONTINUOUS FOOTINGS, AND WALLS THAT DO NOT CHANGE DIRECTION SHALL BE SPACED NO GREATER THAN 60'-0". INTERMEDIATE CONTROL JOINTS SHALL BE SPACED AT 25'-0" MAX FOR WALLS. CONTROL JOINTS IN WALLS SHALL ALSO BE LOCATED 15'-0" FROM CORNERS AND AT CHANGES IN WALL THICKNESS
- WHERE FRESH CONCRETE IS DEPOSITED AGAINST HARDENED CONCRETE (GREATER THAN 8 HRS OLD), CLEAN EXISTING SURFACE OF LAITANCE AND FOREIGN MATERIAL AND DAMPEN THE EXISTING SURFACE. IF REQUIRED, ROUGHEN EXISTING CONCRETE TO 1/4" AMPLITUDE.
- SLABS ON GRADE SHALL BE 5" THICK MINIMUM ON 4" OF GRANULAR FILL. REINF SLAB WITH 6 X 6 W2.9XW2.9 W.W.F. IN UPPER 1/3 OF SLAB THICKNESS. SUPPLY WWF IN SHEETS. AT INTERIOR SLABS, AN 10 MIL VAPOR BARRIER SHALL BE PLACED BETWEEN THE CONCRETE AND GRANULAR BASE AND CARE SHOULD BE TAKEN DURING CURING TO PREVENT SLAB CURLING. THIS NOTE SHALL BE TYPICAL UNLESS NOTED OTHERWISE
- SAW CUT JOINTS OR KEYED CONSTRUCTION JOINTS IN SLABS ON GRADE SHALL BE SPACED TO DIVIDE THE SLAB INTO PANELS NOT TO EXCEED 225 SQUARE FEET. THE LONGER DIMENSION OF EACH PANEL SHALL NOT EXCEED THE SHORTER DIMENSIONS BY MORE THAN 50%. JOINTS SHALL BE LOCATED AT COLUMN CENTERLINES WHERE POSSIBLE. CONTRACTOR SHALL SUBMIT JOINT LAYOUT TO ARCHITECT FOR APPROVAL. REFER TO TYP DETAIL RC-001A.
- REINFORCEMENT SHALL BE CONTINUOUS AND LAPPED 53 BAR DIAMETERS (2'-6" MIN.) EXCEPT AS NOTED AND PROVIDE CORNER BARS OF SAME SIZE AND SPACING.

SPECIAL STRUCTURAL INSPECTION NOTES:

- SPECIAL STRUCTURAL INSPECTIONS AND VERIFICATIONS SHALL BE PROVIDED BY THE OWNER OR OWNER'S REPRESENTATIVE MEETING THE REQUIREMENTS OF CHAPTER 17 OF THE CODE.
- SPECIAL INSPECTORS SHALL BE QUALIFIED AND FURNISH THEIR REPORTS TIMELY TO THE BUILDING OFFICIAL, ARCHITECT AND/OR ENGINEER.
- SPECIAL INSPECTIONS AS REQUIRED BY CODE:
a. STEEL: SECTION 1704.3 AND TABLE 1704.3
b. CONCRETE: SECTION 1704.4 AND TABLE 1704.4

SCHEDULE - SPREAD FOOTING

Type	LENGTH	WIDTH	THICK	REINF
F3.0	3' - 0"	3' - 0"	2' - 6"	(4) #6 EA WAY, TOP AND BOT
F6.0	6' - 0"	6' - 0"	2' - 6"	(5) #6 EA WAY, TOP AND BOT
F7.0	7' - 0"	7' - 0"	3' - 0"	(7) #6 EA WAY, TOP AND BOT

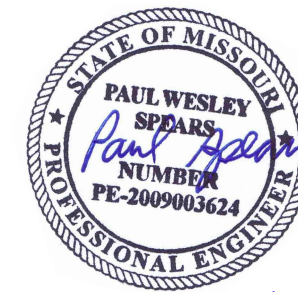


GENERAL SHEET NOTES

- REFERENCE SHEET S200 FOR STRUCTURAL DETAILS
- SEE ARCHITECTURAL DRAWING FOR DETAILS & DIMENSIONS NOT SHOWN.
- FINISH FLOOR ELEVATION = 100'-0" UNO. THIS A REFERENCE ELEVATION AND IS GENERALLY 6" ABOVE GRADE
- ALL EXTERIOR FOOTING SHALL BE 3'-0" MIN. BELOW GRADE. DEEPEN FOOTINGS AS REQUIRED.
- SPREAD FOOTINGS ARE DENOTED "FX.X". REFER TO SCHEDULE ON THIS SHEET FOR SIZE AND REINFORCING.
- REFER TO SCHEDULE ON THIS SHEET FOR ANCHOR ROD SCHEDULE. REFER TO DETAIL D1/S200 FOR ANCHOR ROD DETAIL
- SEE S201 FOR WOOD FRAMING GENERAL NOTES AND HEADER SCHEDULE.

FOUNDATION PLAN NOTES:

- 5" CONC SLAB OVER 3" OF CRUSHED GRAVEL. REINF W/ 6x6-W2.9XW2.9 WWF IN UPPER 1/3 OF SLAB. PROVIDE VAPOR BARRIER BELOW SLAB PER THE GENERAL NOTES.
- SLOPE SLAB TO DRAIN @ 1/8" PER FT MIN
- SLOT DRAIN AS REQD.
- RAMP UP AS REQD. ASSUME EXTERIOR PAVEMENT ELEVATION = 99'-6".
- TRANSITION FROM FLAT SLAB TO SLOPING SLAB TO DRAIN. COORD WITH EXTENTS OF OFFICE SPACES
- #6 HAIR-PIN SLAB REINF. RE: SECTIONS FOR ADDNL INFO AND D2/S200 FOR DIMENSIONS
- SLAB CONTROL JOINTS AT ALL GRID LINES AND AT LOCATIONS DENOTED.
- 11 7/8" I-JOISTS @ 16" O.C. (TJI 210 IS BASIS OF DESIGN). MAY SUBSTITUTE COLD FORMED STEEL JOISTS AT CONTRACTOR'S OPTION (CONTACT ENGINEER).
- GYP BOARD SHEAR WALL. TYPICAL FASTENING AND LAYOUT MAY BE USED.
- 2X4 STUD (MIN) BEARING WALL. PLATE HEIGHT = 10'-0" OR LESS. SEE S201 FOR ADDITIONAL REQUIREMENTS. PROVIDE HEADERS OVER ALL DOORS AND OPENINGS PER TYPICAL DETAILS. MAY SUBSTITUTE COLD FORMED STEEL STUDS AT CONTRACTOR'S OPTION (CONTACT ENGINEER).
- 16" WIDE BY 12" DEEP THICKENED SLAB BENEATH BEARING WALLS. REINFORCE W/2" CONT #4 BARS BOT. CAST MONOLITHICALLY WITH SLAB ON GRADE AND RUN SLAB REINF CONT THROUGH THICKENED SLAB.



6/26/2020

PROJECT INFORMATION:

AIRPLANE HANGER
2751 NE DOUGLAS RD
LEE'S SUMMIT, MO 64064

REVISIONS

DATE	DESCRIPTION
01/28/2020	1 REV 1
06/26/2020	2 REV 2

CLIENT: BILL BARNARD

JOB NO.: 19492
DESIGN BY: PWS
DRAWN BY: PWS

DATE: 01/28/2020

SHEET NAME: STRUCTURAL PLAN AND GENERAL NOTES

SHEET #:

S100

FOUNDATION PLAN

1/8" = 1'-0"

NOTES (PERTAINING TO TABLE):	NOTES (GENERAL):
1. TOP BARS ARE HORIZONTAL BARS THAT HAVE MORE THAN 12" OF EXPOSED BAR LENGTH.	1. STAGGER ALL SPLICES 12 db MIN. BUT NOT LESS THAN 12"
2. ALL BARS ARE HORIZONTAL BARS THAT HAVE MORE THAN 12" OF EXPOSED BAR LENGTH.	2. ALL DIMENSIONS INDICATED IN TABLE ARE IN INCHES
3. ALL BARS THAT ARE NOT "TOP BARS" ARE "OTHER" BARS	3. BARS GREATER THAN #11 SHALL BE MECHANICALLY SPLICED
4. ABBREVIATIONS:	4. ALL SPLICES SHALL BE WIRED IN CONTACT STACKED VERTICAL
-LCE = COMPRESSION EMBEDMENT LENGTH	
-LTE = TENSION EMBEDMENT LENGTH	MULTIPLIERS:
-LCS = COMPRESSION LAP SPLICE LENGTH	ALL EMBEDMENT AND LAP SPLICE LENGTHS SHALL BE INCREASED AS RECD BY THE MULTIPLIERS BELOW.
-LTS = TENSION LAP SPLICE LENGTH	APPLY MULTIPLE MULTIPLIERS IF APPLICABLE.
-LDH = HOOKED BAR TENSION EMBEDMENT LENGTH	1.3 --- IF CONC CONTAINS LIGHT WEIGHT AGGREGATES
	1.5 --- IF EPOXY COATED REBAR USED



D1 ST-001a - TYP ANCHOR ROD
1" = 1'-0"



S200

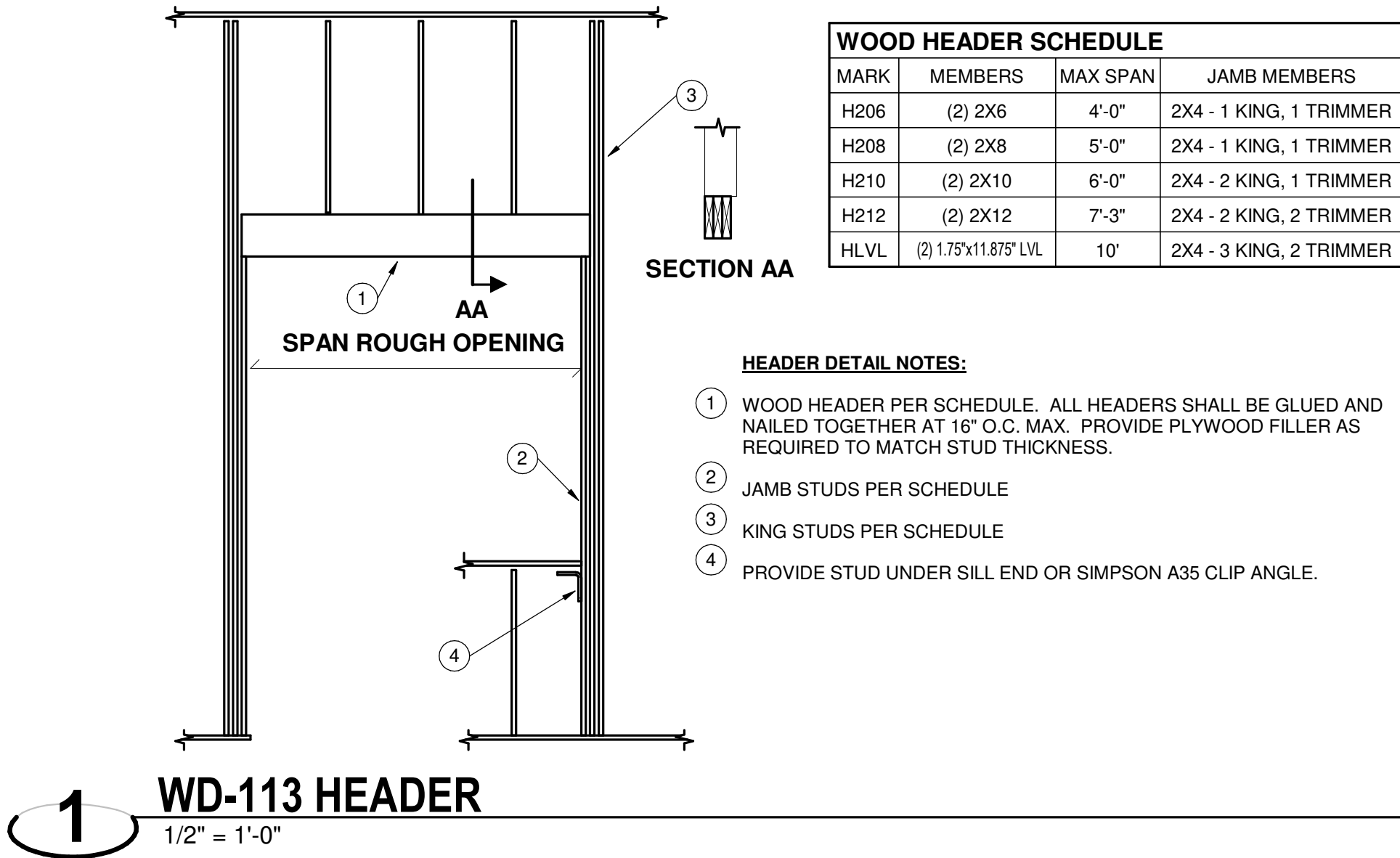
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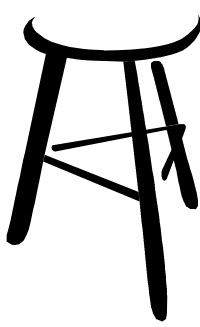
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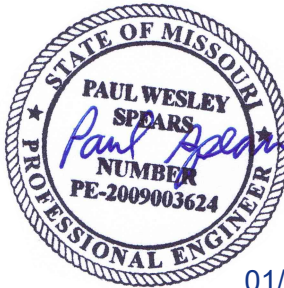
- WOOD:**
- FRAMING MATERIAL:
A. NOMINAL STRUCTURAL LUMBER -- NO. 1 / NO.2 OR BETTER, S-DRY SPF, MIN Fb = 875 PSI, MIN E = 1400 KSI.
B. EXPOSED NOMINAL STRUCT LUMBER -- PRESS TREATED NO.2 OR BETTER, MIN Fb = 1000 PSI, MIN E = 1300 KSI.
C. MICROLAM LVL (LAMINATED VENEER LUMBER) BEAMS SHALL MEET TRUS JOIST SPECIFICATIONS: MINIMUM Fb = 2600 PSI AND MINIMUM E = 1900 KSI.
D. TIMBERSTRAND LSL (LAMINATED STRAND LUMBER) BEAMS SHALL MEET TRUS JOIST SPECIFICATIONS: MINIMUM Fb = 2600 PSI AND MINIMUM E = 1700 KSI.
E. GLULAM FRAMING: 24F-V4 DOUGLAS FIR, ARCHITECTURAL FINISH (COORDINATE WITH ARCH).
 - SUBSTITUTIONS OF SPECIFIED WOOD MEMBERS SHALL NOT BE MADE WITHOUT REVIEW OF THE ARCHITECT/ENGINEER.
 - WOOD SHEATHING:
A. ROOF SHEATHING SHALL BE 15/32" OR 1/2" APA RATED SHEATHING 40/20, EXPOSURE 1, MINIMUM 2 SPAN, FASTEN WITH 10d COMMON NAILS AT 6" CENTERS AT ALL PANEL EDGES AND 12" CENTERS MAXIMUM AT INTERMEDIATE FRAMING MEMBERS (IN THE FIELD). USE PLYCLIPS AT MIDSPAN.
B. WOOD FLOOR DECKING -- 3/4" APA RATED TOUNGE AND GROOVE SHEATHING, 48" SPAN RATING, EXPOSURE 1, MINIMUM 2 SPAN, FASTEN WITH APA APPROVED ADHESIVE AND 10d RING SHANKED NAILS AT 6" ON CENTERS AT ALL PANEL EDGES AND AT 10" ON CENTERS MAXIMUM AT INTERMEDIATE FRAMING MEMBERS (IN THE FIELD).
C. ALL EXTERIOR WOOD WALL SHEATHING EXCEPT WHERE NOTED SHALL BE APA RATED 7/16" SHEATHING. ALL PANEL EDGES SHALL BE BACKED WITH 2 INCH NOMINAL OR WIDER FRAMING. FASTEN WITH 8d COMMON NAILS AT 6" O.C. MAXIMUM AT ALL TOP PLATES, BLOCKING, BOUNDARIES AND 10" O.C. MAXIMUM IN THE FIELD.
 - ALL WOOD SHEATHING TO BE STAGGERED 4'X8' SHEETS. ORIENTED PERPENDICULAR TO SUPPORTING MEMBERS.
 - PROVIDE 1/8" GAP AT ALL SHEATHING PANEL EDGES AND END JOINTS UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. DUE TO CONSTRUCTION CONDITIONS, TEMPORARY EXPANSION JOINTS MAY BE REQUIRED IN FLOOR/ROOF SHEATHING.
 - ALL HEADERS IN EXTERIOR OR INTERIOR BEARING WALLS SPANNING MORE THAN 3'-8" SHALL BE SUPPORTED ON DOUBLE STUDS UNLESS NOTED.
 - MINIMUM NAILING SHALL CONFORM TO IRC TABLE R602.3 (1). USE COMMON NAILS EXCEPT WHERE NOTED. ALL FASTENERS (BOLTS, SCREWS, NAILS, ETC) IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT DIP GALVANIZED.
 - LIGHT GAGE WOOD FRAMING CONNECTORS AS NOTED ON THE PLANS FOR WOOD JOISTS, COLUMNS, BEAMS AND TRUSSES SHALL BE "STRONG - TIE" CONNECTORS BY THE SIMPSON CO. OR REVIEWED EQUIVALENT. CONNECTORS IN DIRECT CONTACT WITH PRESSURE TREATED LUMBER SHALL HAVE "ZMAX" G185 HOT DIP GALVANIZED COATING OR REVIEWED EQUIVALENT.
 - STAINLESS STEEL FASTENERS, ANCHOR BOLTS, LIGHT GAGE CONNECTORS, ETC. MAY BE SUBSTITUTED FOR HOT DIP GALVANIZED MATERIALS AT THE CONTRACTORS OPTION.





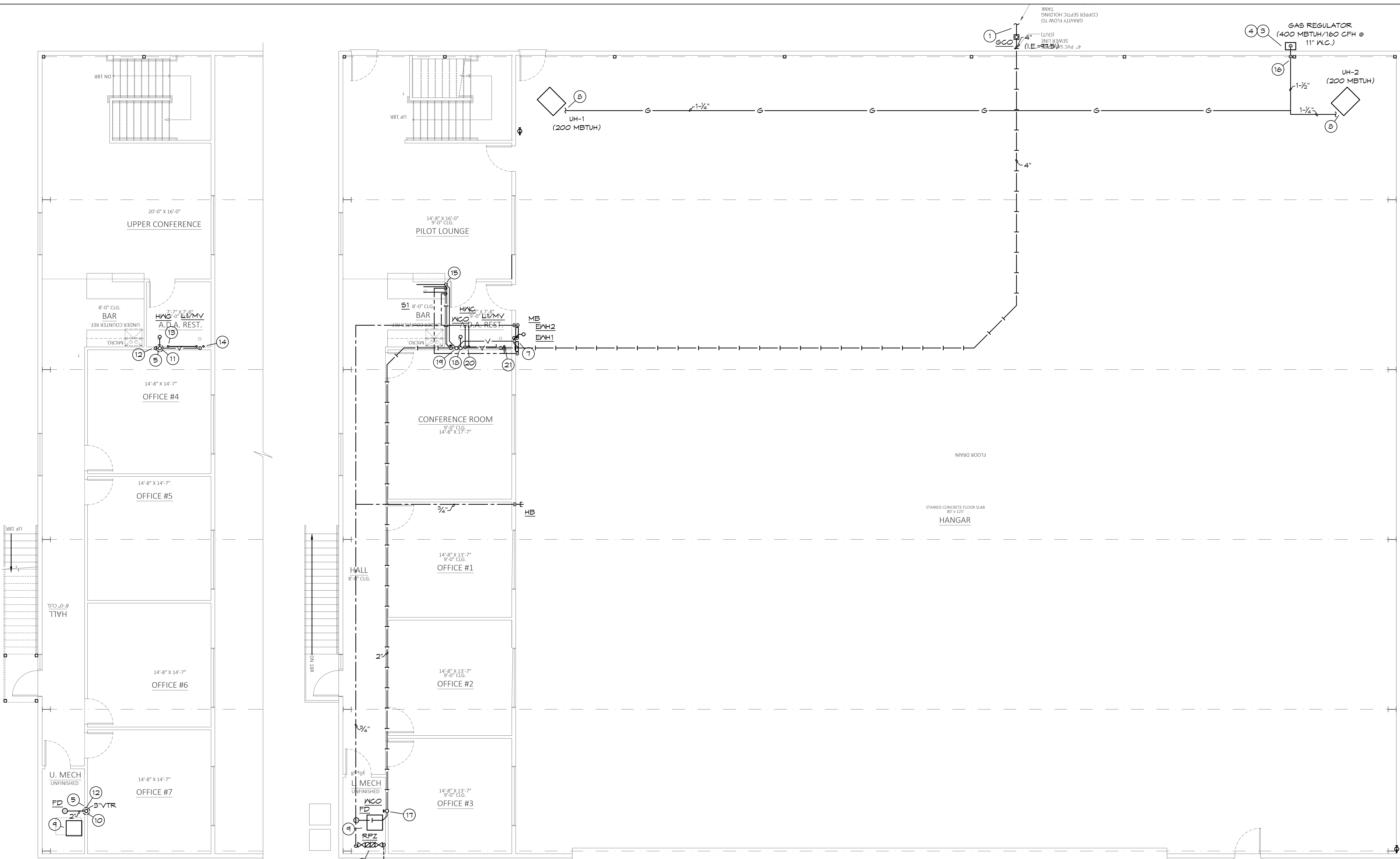
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AIRPLANE HANGER
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REVISIONS		
DATE	Δ	DESCRIPTION
01/28/2020	1	REV 1
CLIENT:	BILL BARNARD	
JOB NO. :	19492	
DESIGN BY :	Designer	
DRAWN BY :	Author	
DATE:	01/28/2020	
SHEET NAME:	WOOD FRAMING GENERAL NOTES AND DETAILS	
SHEET #:	S201	



UPPER FLOOR PLUMBING PLAN
SCALE: 3/16" = 1'-0"

- PLUMBING PLAN NOTES:**
- EXTEND AND CONNECT 4" WASTE TO SEPTIC TANK AND FIELD AS REQUIRED. COORDINATE WITH GC FOR EXACT LOCATION.
 - EXTEND AND CONNECT 3/4" CW TO EXISTING WATER MAIN AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY PIPING. MAINTAIN MINIMUM 48" COVER
 - COORDINATE PROPANE GAS REGULATOR FOR TOTAL CAPACITY OF 400 MBTUH (160 CFH) AT 11" W.C.
 - COORDINATE LOCATION AND SIZE OF PROPANE TANK WITH CIVIL/OWNER/ARCH. CODE DICTATES THAT LARGEST ALLOWABLE SIZE OF TANK IS TO BE 2,000 GALLONS WITH A 25' CLEARANCE FROM "ALL BUILDINGS, PUBLIC WAYS, OR LOT LINES OF ADJOINING PROPERTY THAT CAN BE BUILT UPON". IF THE TANK SIZE IS REDUCED TO 1,200 GALLONS, THAT CLEARANCE REQUIREMENT DROPS TO 10'.
 - LOCATION OF 3" VTR. VERIFY 10' CLEARANCE FROM ALL OUTDOOR AIR INTAKES. SEAL PENETRATION WEATHERTIGHT.

MAIN FLOOR PLUMBING PLAN
SCALE: 3/16" = 1'-0"

- PLUMBING PLAN NOTES: (CONT.)**
- ROUTE 3/4" CW UP FROM BELOW FLOOR AND CONNECT TO RPZ AS REQUIRED. ROUTE DRAIN FROM RPZ TO FLOOR DRAIN AND DISCHARGE WITH AIR GAP AS REQUIRED.
 - SECURE (2) TANKLESS WATER HEATERS ON WALL ABOVE MOP BASIN AS PER MANUFACTURER RECOMMENDATIONS. CONNECT CW AND HW PIPING AS REQUIRED BY MANUFACTURER. REFER TO RISER DIAGRAM FOR ADDITIONAL INFORMATION.
 - CONNECT GAS TO EQUIPMENT AS REQUIRED AND AS DETAILED.
 - ROUTE CONDENSATE FROM AIR HANDLER TO FLOOR DRAIN AND DISCHARGE WITH AIR GAP AS REQUIRED.
 - ROUTE 2" WASTE DOWN. SEE MAIN FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.
 - ROUTE 3" WASTE DOWN. SEE MAIN FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.
 - 2" VENT UP FROM MAIN FLOOR, SEE MAIN FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.

- PLUMBING PLAN NOTES: (CONT.)**
- ROUTE 3/4" CW UP FROM MAIN FLOOR, SEE MAIN FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.
 - ROUTE 1/2" HW UP FROM MAIN FLOOR, SEE MAIN FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.
 - ROUTE 1/2" CW, 1/2" HW, 1-1/2" WASTE AND 1-1/2" VENT IN WALL TO BELOW CASEWORK, EXTEND AND CONNECT TO SINK AS REQUIRED.
 - ROUTE PIPING IN WALL. ALL CONCEALED JOINTS TO BE WELDED, OR APPROVED FOR CONCEALED INSTALLATION.
 - 2" WASTE FROM FLOOR ABOVE, SEE UPPER FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.
 - 3" WASTE FROM ABOVE, PROVIDE CLEANOUT AT BASE OF RISER. SEE UPPER FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.
 - ROUTE 2" VENT UP TO FLOOR ABOVE, SEE UPPER FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.

- PLUMBING PLAN NOTES: (CONT.)**
- ROUTE 3/4" CW UP TO UPPER FLOOR, SEE UPPER FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.
 - ROUTE 1/2" HW UP TO UPPER FLOOR, SEE UPPER FLOOR PLUMBING PLAN FOR ADDITIONAL INFORMATION.

BC PROJECT #: 20388
MISSOURI PE COA #2009003629

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6/18/2020

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PE-2004026504

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New Airplane Hangar

CAD Construction Documents
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mgspencer@sbcglobal.net

Residential AutoCAD Drafting
and Design Services

No.	Description	Date
1	City Comments	6/18/20

CONSTRUCTION DOCUMENTS

Project Number 2019.03

Date 2020 MAY 14

Drawn By SP/BH

Checked By EK/DS

P-101

Scale 3/16" = 1'-0"

PLUMBING GENERAL NOTES:

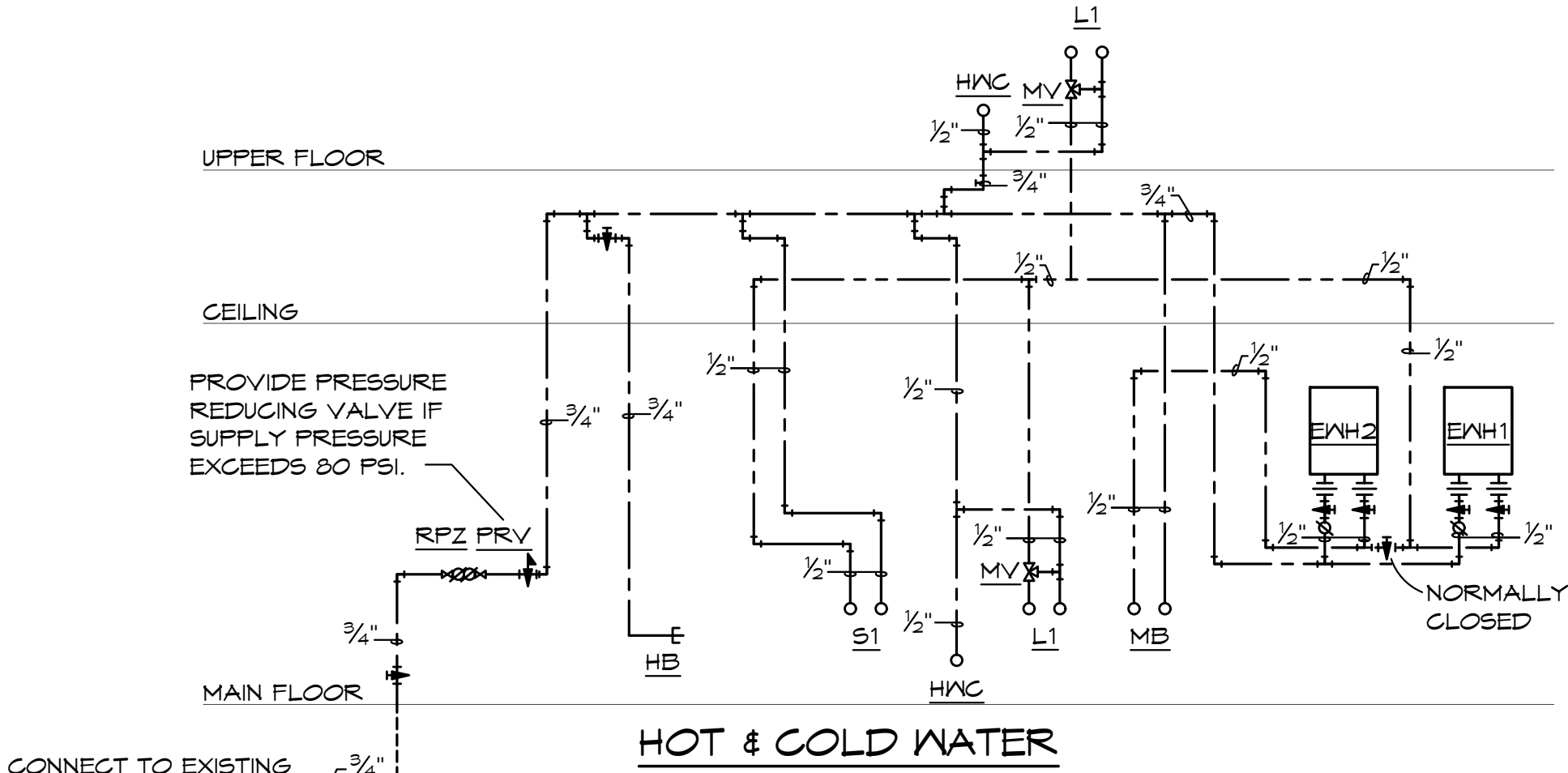
1. INSTALL ALL PIPE, ETC. AS HIGH AS POSSIBLE.
2. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF FIXTURES.
4. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING PIPING, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
5. NO PIPING SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
6. CONTRACTOR TO TEST WATER PRESSURE ON SITE AND PROVIDE PRESSURE REDUCING VALVE ON WATER SERVICE IF PRESSURE IS OVER 80 PSI.

PEX PIPING REQUIREMENTS

PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE. IF PEX PIPING IS USED, INCREASE PEX PIPING ONE SIZE ABOVE LISTED SIZES AS REQUIRED TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER.

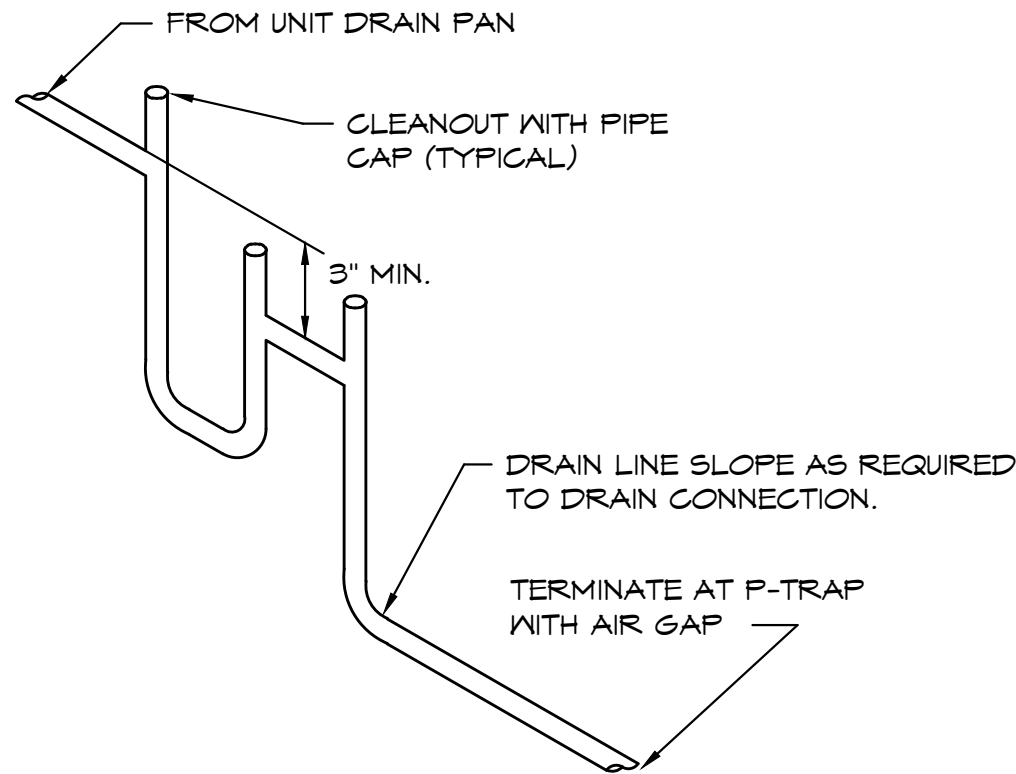
PLUMBING SYMBOLS

	SOIL AND WASTE PIPING BELOW FLOOR/GRADE
	SOIL AND WASTE PIPING ABOVE FLOOR/GRADE
	SANITARY VENT PIPING ABOVE GRADE
	SANITARY VENT PIPING BELOW GRADE
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RECIRCULATION PIPING
	PROPANE GAS PIPING
	EQUIPMENT DRAIN LINE
	PIPING TURNING DOWN
	PIPING TURNING UP
	TEE TOP CONNECTION
	UNION
	BACKFLOW PREVENTER
	FLOOR DRAIN
	FLOOR CLEAN OUT
	WALL CLEAN OUT
	GRADE CLEAN OUT
	VALVE
	BALANCING VALVE
	SOLENOID VALVE
	PRESSURE REGULATOR
	CHECK VALVE
	CONNECT TO EXISTING
	I.E. INVERT ELEVATION OF PIPE
	MATCH MARKS ON PLUMBING RISER DIAGRAM

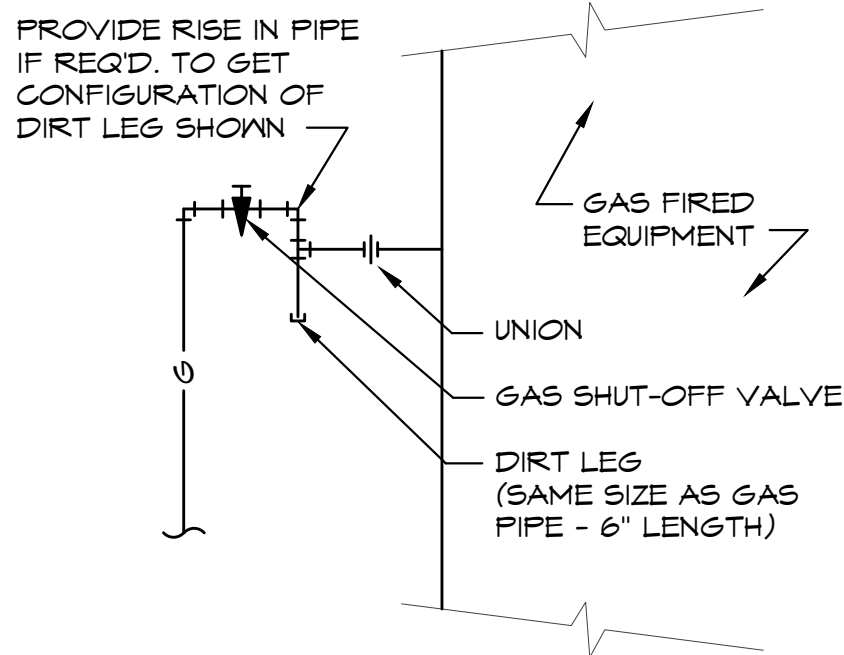


PLUMBING FIXTURE SCHEDULE: (OR EQUAL)

HWC	HANDICAP WATER CLOSET: AMERICAN STANDARD, 1.6 GALLON FLUSH, 16-1/2" HIGH ELONGATED BOWL, FLOOR MOUNTED, FLOOR OUTLET, TANK TYPE, VITREOUS CHINA, SIPHON-JET ACTION, OPEN FRONT SEAT WITH CHECK HINGE AND LESS COVER, CHROME PLATED ANGLE STOP AND RISER, HANDLE ON WIDE SIDE OF FIXTURE.
L1	HANDICAP LAVATORY, WALL HUNG: AMERICAN STANDARD, 20"X 18", VITREOUS CHINA, FRONT OVERFLOW, FAUCET WITH SINGLE METAL LEVER HANDLE, 0.5 GPM AERATOR, OFFSET GRID ELBOW DRAIN AND 1-1/4" TAILPIECE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT (MOUNTED PARALLEL WITH WALL), CHROME PLATED ANGLE STOPS AND RISERS, INSULATE EXPOSED DRAIN, WATER SUPPLIES, AND VALVES WITH PROWRAP SEAMLESS MOLDED CLOSED CELL VINYL INSULATION.
S1	SINK: ELKAY, #LRAD-2222, 19"X18"X 6-1/2" DEEP BOWL, 21-3/8"X 21-3/8" CUT-OUT, ADA COMPLIANT, SINGLE COMPARTMENT, SELF-RIMMING STAINLESS STEEL SINK WITH SATIN FINISH AND SOUND DAMPENING UNDERCOATING, #LK-1000CR FAUCET, SINK SPOUT, 1.0 GPM AERATOR, SINGLE LEVER HANDLE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, CHROME PLATED ANGLE STOPS AND RISERS, IN-SINK-ERATOR #BADGER 5 DISPOSAL, 1/2 HP, 120 VOLT.
MB	MOP BASIN: FIAT, #MSB-2424, MOLDED STONE MOP BASIN, 2" DRAIN, 24"X 24" BASIN, VINYL BUMPER GUARD, STERN WILLIAMS #T-10-YB FAUCET, SPRING CHECKS, VACUUM BREAKER, INTEGRAL STOPS, WALL BRACE & PAIL HOOK, WALL BRACKET WITH 30" HOSE.
HB	HOSE BIBB: WOODFORD, #24, 3/4" HOSE NOZZLE OUTLET, BRASS FINISH, HANDWHEEL OPERATED, INTEGRAL VACUUM BREAKER.
FD	FLOOR DRAIN: JR SMITH, #2005-A, CAST IRON FLOOR DRAIN WITH ADJUSTABLE TOP, 6" NIKALLOY STRAINER. PROVIDE WITH #2692 QUAD CLOSE TRAP SEAL DEVICE.
HWH1	ELECTRIC TANKLESS HOT WATER HEATER: EEMAX #HA018240, 240 VOLT, 18.0 KW.
HWH2	ELECTRIC TANKLESS HOT WATER HEATER: EEMAX #HA018240, 240 VOLT, 18.0 KW.
MV	MIXING VALVE: WATTS, #LFUSG-B, THERMOSTATIC CONTROLLED MIXING VALVE, LEAD FREE BRONZE BODY, LOCKED TEMPERATURE ADJUSTMENT CAP (VANDAL RESISTANT), COPPER ENCAPSULATED THERMOSTAT ASSEMBLY WITH BRASS SHUTTLE, STAINLESSSTEEL SPRINGS, INTEGRAL CHECK VALVES ON HOT AND COLD INLETS. (SET TO 110°F). ASSE 1070 LISTED.
RPZ	REDUCED ZONE PRESSURE BACKFLOW PREVENTOR: WATTS #LF009, LEAD FREE BRONZE BODY CONSTRUCTION, TWO, IN-LINE INDEPENDENT CHECK VALVES, REPLACEABLE CHECK SEATS WITH AN INTERMEDIATE RELIEF VALVE, AND BALL VALVE TEST COCKS.
FCO/MCO	VINYL TILE FLOOR: JR SMITH #4140, OR EQUAL. QUARRY TILE FLOOR: JR SMITH #4200, OR EQUAL. CARPETED FLOOR: JR SMITH #4020-Y, OR EQUAL. UNFINISHED FLOOR: JR SMITH #4020, OR EQUAL. WALL: JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.



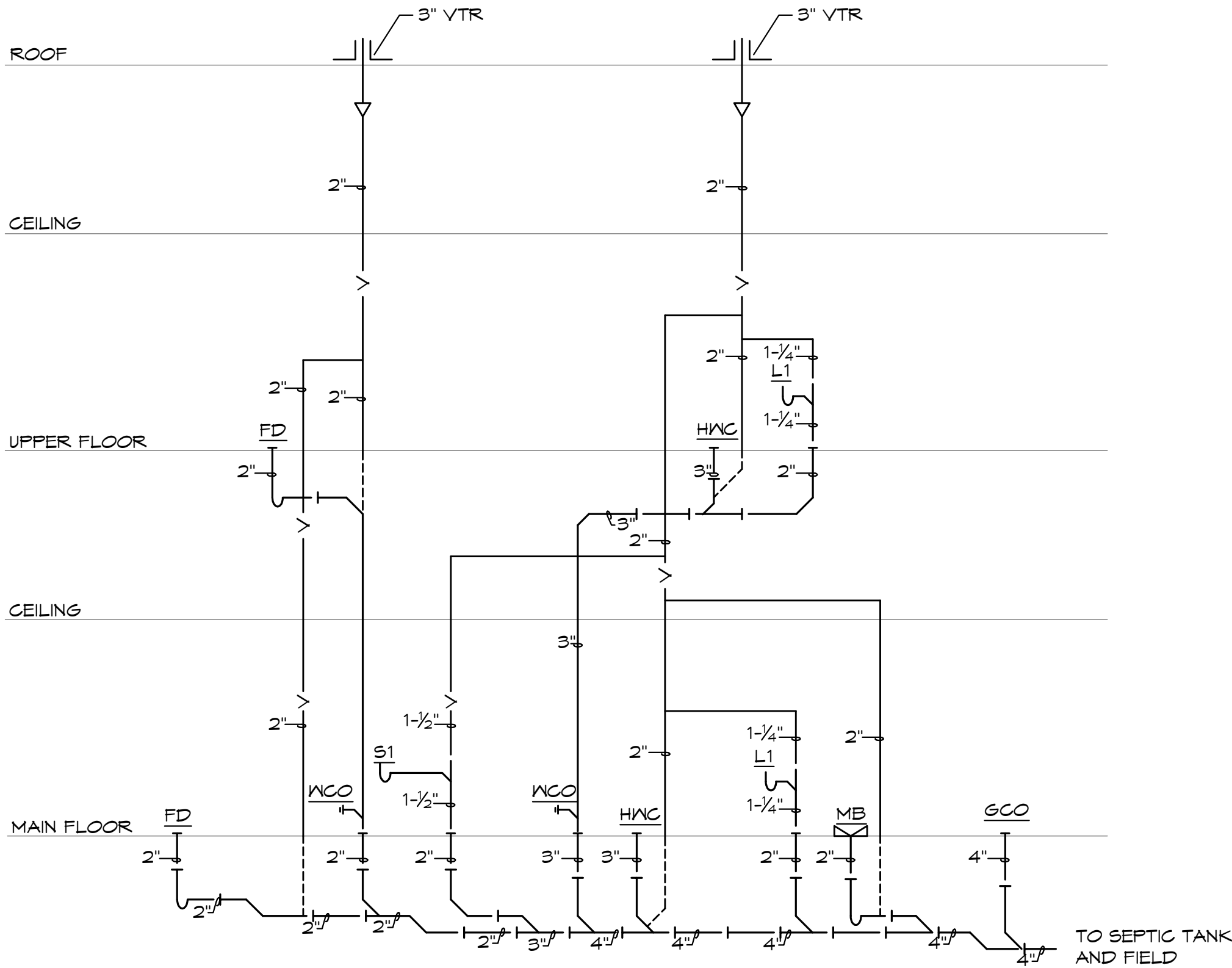
CONDENSATE DRAIN DETAIL
SCALE: NONE



GAS CONNECTION DETAIL
SCALE: NONE

PLUMBING FIXTURE BRANCH PIPING SCHEDULE				
FIXTURE	WASTE	VENT	CN	HN
WATER CLOSET (TANK TYPE)	3"	2"	1/2"	--
LAVATORY	1-1/4"	1-1/4"	1/2"	1/2"
SINK	1-1/2"	1-1/2"	1/2"	1/2"
FLOOR DRAIN	2"	2"	--	--
MOP BASIN	2"	2"	1/2"	1/2"

NOTE: INDIVIDUAL VENTS FOR FIXTURES ON PLANS AND RISER DIAGRAMS HAVE BEEN INCREASED WHERE HORIZONTAL VENT LENGTH IS IN EXCESS OF THE MAXIMUM DISTANCE INDICATED BY THE CODE.



WASTE & VENT

PLUMBING RISER DIAGRAMS
SCALE: NONE



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Residential AutoCAD Drafting
and Design Services

No.	Description	Date
1	City Comments	6/18/20

CONSTRUCTION DOCUMENTS	
Project Number	2019.0
Date	2020 MAY 1
Drawn By	SP/BI
Checked By	EK/D
P-201	
Scale	3/16" = 1'-0"

BC PROJECT #: 20388
MISSOURI PE COA #2009003629

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5720 Reeder Shawnee, Ks. 66203 (913)262-1772

New Airplane Hangar

CAD Construction Documents
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Residential AutoCAD Drafting
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1	City Comments	6/18/20

CONSTRUCTION DOCUMENTS

Project Number	2019.03
Date	2020 MAY 14
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M-101

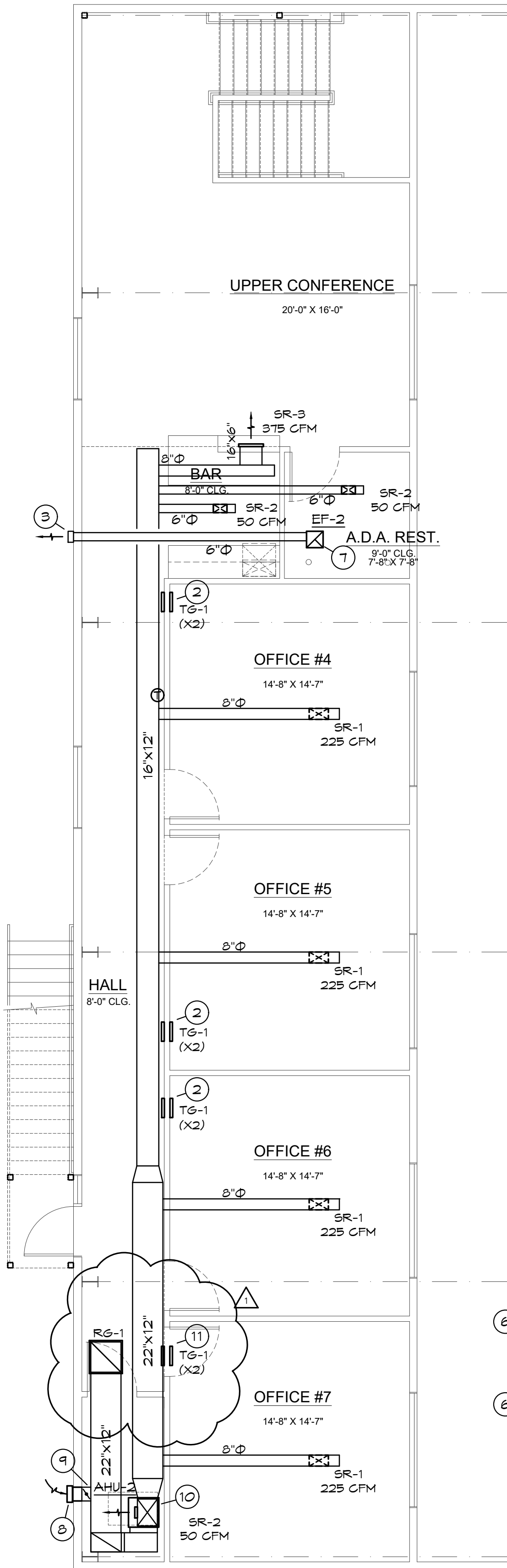
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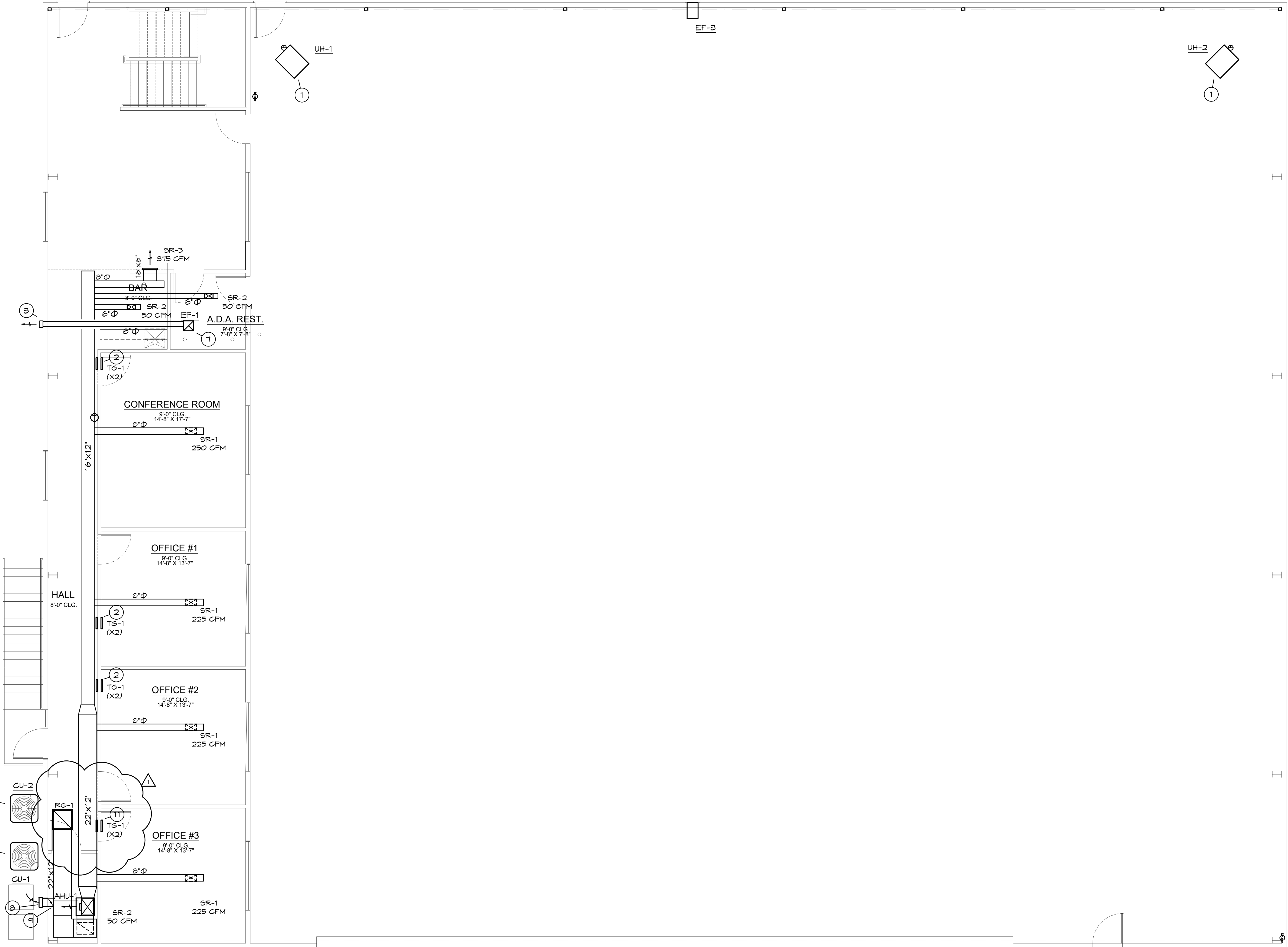
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UPPER FLOOR MECHANICAL PLAN
SCALE: 3/16" = 1'-0"

MECHANICAL PLAN NOTES:

- SUPPORT UNIT FROM STRUCTURE AS REQUIRED. ROUTE 6"Ø TYPE 'B' DOUBLE WALL FLEX UP THROUGH ROOF. PROVIDE ROOF THIMBLE, FLASHING, COUNTER FLASHING & WEATHERHEAD. LOCATE WEATHERHEAD 36" ABOVE EVERYTHING WITHIN 10'. VERIFY 10'-0" FROM ALL OUTDOOR AIR INTAKES. SEAL PENETRATION WEATHERTIGHT.
- HIGH/LOW RETURN AIR GRILLES - OFFICE SIDE GRILLE LOCATED AT 12" AFF. CENTRAL AREA SIDE LOCATED AT 8" AFF. TG-1, SEE DIFFUSER SCHEDULE.
- PROVIDE WALL VENT CAP WITH BACKDRAFT DAMPER FOR EXHAUST FAN. SEAL PENETRATIONS WEATHERTIGHT.
- REFRIGERANT PIPING THROUGH EXTERIOR WALL AT 18" ABOVE GRADE. SEAL WALL PENETRATION WEATHERTIGHT. ROUTE PIPE UP INSIDE WALL TO AS HIGH AS POSSIBLE AND ROUTE TO UNITS.
- CONNECT REFRIGERANT PIPING TO CONDENSING UNIT & COIL AS REQUIRED BY THE MANUFACTURER. PROVIDE AND INSTALL REFRIGERANT PIPING FOR CONDENSING UNIT AS REQUIRED BY MANUFACTURER.



MAIN FLOOR MECHANICAL PLAN
SCALE: 3/16" = 1'-0"

MECHANICAL PLAN NOTES:

- PROVIDE PREFABRICATED PAD FOR CONDENSING UNITS. NO SCREENING ALLOWED AROUND CONDENSING UNITS PER FAA REGULATIONS.
- SUPPORT FAN FROM STRUCTURE AS REQUIRED BY THE MANUFACTURER.
- PROVIDE WALL VENT CAP FOR OUTDOOR INTAKE WITH BIRD SCREEN. SEAL PENETRATIONS WEATHERTIGHT.
- CONNECT 10"Ø OUTDOOR AIR DUCT WITH BALANCING DAMPER AND FLEX DUCT TO RETURN AIR DUCT. REFER TO OUTDOOR AIR CALCULATIONS FOR MINIMUM OUTDOOR AIR VOLUME.
- PROVIDE WATERPROOF GALVANIZED SHEET METAL DRAIN PAN UNDER AIR HANDLER WITH CONDENSATE FLOAT SWITCH TO RE-ENERGIZE UNIT IF DRAIN PAN FILLS WITH WATER.
- INSTALL TRANSFER AIR GRILLES, TG-1, ABOVE DOOR ON BOTH SIDES OF WALL.

HEAT PUMP CONDENSING UNIT SCHEDULE											
MARK	MFG'R	MODEL NO.	COOLING			ELECTRICAL			EVAP. COIL MODEL NO.	SEER	NOTES
			TOTAL BTUH	AMB.	EVAP. EAT DB/WB	VOLT/Ø/HZ	MIN. MCA (AMPS)	MIN. MOCP (AMPS)			
CU-1	LENNOX	ML-14XPI-042	42,000	95	80/67	240/1/60	24.2	40	AHU-1	14	1,2,3,4
CU-2	LENNOX	ML-14XPI-042	42,000	95	80/67	240/1/60	24.2	40	AHU-2	14	1,2,3,4

- NOTES:** 1. PROVIDE TIME DELAY ON COMPRESSOR RE-START, CRANKCASE HEATER, AND COMPRESSOR LOCK-OUT WITH AMBIENT BELOW 35 °F. PROVIDE INDOOR COIL WITH THERMAL EXPANSION VALVE (TXV).
2. MECHANICAL CONTRACTOR SHALL COORDINATE ALL UNIT MOCP'S OF ACTUAL INSTALLED EQUIPMENT WITH ELECTRICAL CONTRACTOR.
3. PROVIDE CONCRETE OR PRE-MANUFACTURED POLYOLEFIN PAD FOR EACH UNIT. SCREENING OF UNIT NOT ALLOWED PER FAA REQUIREMENTS.
4. PROVIDE HAIL GUARDS FOR EACH UNIT.

AIR HANDLING UNIT SCHEDULE												
MARK	MFG'R	MODEL NO.	CFM	E.S.P. IN. WG.	COOLING		HEATING (ELECTRIC) (RESISTANCE)		ELECTRICAL		OUTSIDE AIR (CFM)	NOTES
					TOTAL BTUH	AMB.	EVAP. EAT DB/WB	KVA	STAGES	VOLT/Ø/HZ		
AHU-1	LENNOX	CBA25UH-042	1,400	0.5	42,000	95	80/67	15	2	240/1/60	1	1,2,3,4,5,7,8
AHU-2	LENNOX	CBA25UH-042	1,400	0.5	42,000	95	80/67	15	2	240/1/60	1	1,2,3,4,5,6,7,8

- NOTES:** 1. PROVIDE 1" THICK THROWAWAY TYPE FILTER FOR EACH UNIT.
2. PROVIDE EACH UNIT WITH T-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER THERMOSTAT.
3. CONDENSING UNITS, AND AIR HANDLING UNITS SHALL ALL BE OF THE SAME MANUFACTURER.
4. MECHANICAL CONTRACTOR SHALL COORDINATE ALL UNIT MOCP'S OF ACTUAL INSTALLED EQUIPMENT WITH ELECTRICAL CONTRACTOR.
5. EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO FILTERS AND COILS.
6. PROVIDE GALVANIZED WATERTIGHT DRAIN PAN AND CONDENSATE FLOAT SWITCH TO DE-ENERGIZE THE AHU IF THE DRAIN PAN FILLS WITH WATER.
7. PROVIDE MANUFACTURER'S UNIT STAND FOR SIDE RETURN.
8. PROVIDE SINGLE-POINT POWER CONNECTION.

GAS FIRED UNIT HEATER SCHEDULE								
MARK	MFG'R	MODEL	CFM	HEATING (GAS)		ELECTRICAL		REMARKS
				BTUH INPUT	BTUH OUTPUT	VOLT/Ø/HZ	HP	
UH-1	LENNOX	LF-25-200A	2,650	200,000	166,000	120/1Ø/60	1/3	1,2,3
UH-2	LENNOX	LF-25-200A	2,650	200,000	166,000	120/1Ø/60	1/3	1,2,3

- NOTES:** 1. PROVIDE EACH UNIT ELECTRONIC DIRECT SPARK IGNITION & ALUMINIZED STEEL HEAT EXCHANGER.
2. PROVIDE EACH UNIT WITH UNIT MOUNTED THERMOSTAT & CONTROL VOLTAGE TRANSFORMER.
3. PROVIDE WITH PROPANE CONVERSION KIT.

EXHAUST FAN SCHEDULE										
MARK	MFG'R	MODEL	CFM	EXTERNAL STATIC P. IN. WG.	RPM	ELECTRICAL		FAN TYPE	CONTROLS	NOTES
						VOLT/Ø/HZ	POWER			
EF-1	COOK	GC-12Ø	75	0.1	750	120/1/60	24 W	CEILING EXH.	SWITCH	1
EF-2	COOK	GC-12Ø	75	0.1	750	120/1/60	24 W	CEILING EXH.	SWITCH	1
EF-3	COOK	12A1TD	730	0.1	1725	120/1/60	1/4 HP	WALL PROP	SWITCH	2

- NOTES:** 1. PROVIDE CEILING GRILLE, INTEGRAL BACK DRAFT DAMPER, VARI-SPEED CONTROLLER (NEAR FAN AND ABOVE CEILING), AND WALL CAP.
2. PROVIDE WALL SLEEVE, REAR GUARD HOUSING, BACKDRAFT DAMPER, WEATHER HOOD, BIRD SCREEN.

MECHANICAL GENERAL NOTES:

- COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS.
- INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.
- DUCT SIZES SHOWN ARE ACTUAL SHEET METAL SIZES AND INCLUDE AN ALLOWANCE FOR DUCT LINER WHERE APPLICABLE.
- PROVIDE FLEXIBLE CONNECTION BETWEEN DUCTWORK AND AIR HANDLING UNITS, EXHAUST FANS, AND OTHER MOTORIZED EQUIPMENT.
- NO DUCT SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- ALL MECHANICAL SYSTEMS SHALL BE BALANCED BY A CERTIFIED BALANCING CONTRACTOR. REFER TO SPECIFICATIONS FOR DETAILS.

DIFFUSER SCHEDULE						
MARK	MFG'R	MODEL	NECK SIZE	FACE SIZE	FINISH	NOTES
SR-1	TITUS	300RS	12"x6"	-	WHITE	W/ O.B.D.
SR-2		300RS	8"x6"	-		W/ O.B.D.
SR-3		300RS	16"x6"	-		W/ O.B.D.
TG-1		350RL	14"x8"	-		-
RG-1		FAR/3	22"x22"	24"x24"		W/ TRM

MECHANICAL SYMBOLS

- NEW SUPPLY DIFFUSER
- NEW RETURN AIR GRILLE
- EXHAUST GRILLE/FAN
- THERMOSTAT, MOUNTED AT 48" AFF
- MOTORIZED DAMPER/LOUVER
- NEW DUCTWORK
- SIZE OF RECTANGULAR DUCT
- SIZE OF ROUND DUCT
- FLEXIBLE DUCTWORK
- FLEXIBLE CONNECTION TO FAN
- FLOOR PLAN NOTE DESIGNATION
- S.A. SUPPLY AIR
- R.A. RETURN AIR
- EXH. EXHAUST AIR
- TRANSITION IN DUCT SIZE
- ELBOW WITH TURNING VANES
- MANUAL VOLUME DAMPER
- MOTORIZED CONTROL DAMPER
- SPLITTER DAMPER WITH HORIZONTAL REGULATOR
- SUPPLY AIR DUCT UP/DOWN
- RETURN AIR DUCT UP/DOWN
- EXHAUST AIR DUCT UP/DOWN
- CHANGE IN ELEVATION UP (UP) DOWN (DN) IN DIRECTION OF FLOW
- SCHEDULED MECHANICAL EQUIPMENT



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New Airplane Hangar

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LIGHT FIXTURE SCHEDULE					
MARK NO.	MANUFACTURER & CATALOG NUMBER	VOLTS WATTS	LIGHT SOURCE	DESCRIPTION	
A	8' LED FIXTURE	120 150	LED	8' LED FIXTURE IN HANGER. VERIFY MOUNTING WITH OWNER/ARCHITECT.	
B	8' LED FIXTURE	120 150	LED	8' LED FIXTURE IN HANGER. VERIFY MOUNTING WITH OWNER/ARCHITECT.	
C	WALL MOUNTED FIXTURE	120 50	LED	EXTERIOR RATED EXTERIOR FIXTURE. VERIFY LOCATION WITH OWNER/ARCHITECT.	
D	WALL MOUNTED FIXTURE	120 25	LED	WALL MOUNTED FIXTURE FOR STORAGE UNDER STAIRS.	
F	WALL MOUNTED FIXTURE	120 25	LED	WALL MOUNTED FIXTURE ABOVE VANITY MIRROR IN RESTROOM.	
R	6" IC RATED LED CAN	120 20	LED	6" IC RATED LED CAN	
WP	EXTERIOR WALL PACK	120 75	LED	EXTERIOR WALL PACK WITH INTEGRAL PHOTOCELL. VERIFY EXACT LOCATION WITH OWNER/ARCHITECT	
⚡	WALL MOUNTED EMERGENCY LIGHT	120 1	INCL	EMERGENCY LIGHT WITH TWIN ADJUSTABLE LED HEADS AND BATTERY, MOUNT AT 7'-6", TO CLEAR OBSTACLES.	
⚡	WALL MOUNTED COMBINATION EXIT/EMERGENCY LIGHT	120 3	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN LED EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, BATTERY BACKUP	
⚡	WALL MOUNTED COMBINATION EXIT/EMERGENCY LIGHT AND REMOTE TWIN HEAD EMERGENCY LIGHT	120 5	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, HIGH CAPACITY BATTERY BACKUP AND REMOTE TWIN HEAD OUTDOOR RATED FIXTURE	

PANEL: F		VOLTS: 120/208V			PH: 3Ø		WIRE: 4W		LOCATION: HANGER					MOUNTING: SURFACE		
BUS: 400A		MAIN: 400A MCB			IG: 22,000		RMS SYM AMPS						FEEDER: SEE RISER DIAGRAM			
CKT	DESCRIPTION	AMPS	POLE	WIRE	ØA	ØB	ØC	ØA	ØB	ØC	WIRE	POLE	AMPS	DESCRIPTION	CKT NO	
1	BNH-1	100	2	3	9,000			840			12	1	20	UH-1	2	
3						9,000			840		10	1	20	UH-2	4	
5							9,000			7,020	4	2	70	AHU-1	6	
7	BNH-2	100	2	3	9,000					7,020					8	
9						2,600			7,020	4	2	70	AHU-2	10		
11							2,600			7,020					12	
13	CU-2	40	2	6	2,600			646			12	1	20	EF-3	14	
15						2,600			1,000	10	1	20	EXT LTS	16		
17					OVERHEAD DOOR	20	2	10			1,200		500	12	1	20
19					1,200				720		12	1	20	MAIN FLR GEN/RR RECS	20	
21	HANGER QUAD	20	1	10		360				1,000	12	1	20	MAIN FLR COUNTER/DISP [GF]	22	
23	HANGER QUAD	20	1	10			360				1,500	10	1	20	MAIN FLR MICROWAVE [GF]	24
25	HANGER QUAD	20	1	10	360				1,500		10	1	20	MAIN FLR MICROWAVE [GF]	26	
27	HANGER QUAD	20	1	10		360				1,440	10	1	20	MAIN FLR OFFICE RECS	28	
29	HANGER QUAD	20	1	10			360				1,440	8	1	20	MAIN FLR OFFICE RECS	30
31	HANGER QUAD	20	1	10	360					1,440		8	1	20	MAIN FLR OFFICE RECS	32
33	HANGER QUAD	20	1	10		360				1,440		8	1	20	MAIN FLR OFFICE RECS	34
35	EXT REC	20	1	12			180				900	12	1	20	UPPER FLR GEN/RR RECS	36
37	SPARE	20	1						1,500			10	1	20	UPPER FLR MICROWAVE [GF]	38
39	OFFICE LTS	20	1	12		1,315				1,500		10	1	20	UPPER FLR MICROWAVE [GF]	40
41	HANGER LTS	20	1	12			1,650				1,260	10	1	20	UPPER FLR OFFICE RECS	42
43	SPARE	20	1					1,260				10	1	20	UPPER FLR OFFICE RECS	44
45	SPARE	20	1							1,260		8	1	20	UPPER FLR OFFICE RECS	46
47	SPARE	20	1								1,260	8	1	20	UPPER FLR OFFICE RECS	48
49	BUSSED SPACE												1	20	SPARE	50
51	BUSSED SPACE												1	20	SPARE	52
53	BUSSED SPACE												1	20	SPARE	54
55	BUSSED SPACE														BUSSED SPACE	56
57	BUSSED SPACE														BUSSED SPACE	58
59	BUSSED SPACE														BUSSED SPACE	60
NOTES:					22,520	16,545	15,350	14,976	15,500	20,900						
[HL]-HANDLE LOCK, [GF]-GFCI BRKR 5ma					37,446		32,045		36,250		TOTAL CONNECTED LOAD:		105,841	VA		
										NEG DEMAND LOAD:		104,712	VA			
										DEMAND AMPS @ 208 VOLT / 3Ø:		240.82	A			

- ELECTRICAL GENERAL NOTES:
- COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.

IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.

ALL EXPOSED RACEWAYS SHALL BE EMT CONDUIT, MC CABLE IS NOT PERMITTED IN EXPOSED AREAS.

ELECTRICAL CONTRACTOR TO COORDINATE MANUFACTURER ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT BEING FURNISHED WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. EQUIPMENT DISCONNECTS TO BE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE IN MECHANICAL SCHEDULES.

REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES AND DEVICES.

ELECTRICAL CONTRACTOR TO COORDINATE MANUFACTURER REQUIREMENTS FOR SUPPORTING TRANSFORMERS, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.

ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.

EACH BRANCH CIRCUIT SHALL HAVE A DEDICATED NEUTRAL PER NEC 210.4.

ALL BRANCH CIRCUITS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 3% VOLTAGE DROP. ALL FEEDERS SHALL BE SIZED TO ALLOW FOR A MAXIMUM OF 2% VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL VERIFY WIRING INDICATED IS SUFFICIENT AND INCREASE CONDUCTOR SIZE AS REQUIRED BASED OFF ACTUAL INSTALLED LENGTH OF CONDUCTORS.

REFER TO ELECTRICAL SCOPE OF WORK ON SHEET A102 FOR MORE INFORMATION.

ALL WIRING SHALL BE IN ACCORDANCE WITH 2017 NEC ARTICLE 513 FOR AIRCRAFT HANGARS.

ELECTRICAL SPECIFICATIONS (CONTINUED)

12. FUSES:
- FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING UL CLASS RK-1 FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR RATINGS ABOVE 40 AMPERES.

ALL OTHER FUSES SHALL BE UL CLASS RK-5 DUAL-ELEMENT WITH A MINIMUM TIME DELAY OF 10 SECONDS AT 800% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINES AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.
13. LIGHT FIXTURES:
- WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED.

FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.

ALL FIXTURES SHALL CARRY UL AND ETL LABELS.
14. SLEEVES:
- PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.

INTERIOR PARTITIONS: 16 GAUGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE RATING AND GULF AT EACH END WITH FIRE RESISTANT SEALANT.

ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
15. GROUNDING:
- GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250, AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT.

BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4).
16. BOXES IN FIRE RATED ASSEMBLIES:
- OUTLET BOXES THAT DO NOT EXCEED 16 SQUARE INCHES AND INSTALLED IN FIRE RATED WALLS SHALL NOT BE INSTALLED CLOSER THAN 24" HORIZONTAL INCHES TO OTHER OUTLET BOXES.

IF BOXES MUST BE INSTALLED WITHIN 24" OF EACH OTHER THAN BOTH OUTLET BOXES SHALL BE PROTECTED WITH LISTED PUTTY PADS, 3M FIRE BARRIER MOLDABLE PUTTY, OR EQUAL.

ELECTRICAL SYMBOLS LIST	
CIRCUITING & NOTES	
+48"	SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE OF DEVICE)
GFI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
WP	WEATHERPROOF ENCLOSURE ON DEVICE
WR	WEATHERPROOF RESISTANT DEVICE
X	ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION
2 LP	CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED
⚡	#12 WIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
⚡	GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
⚡	CONDUIT ROUTED UNDER FLOOR/GRADE
LIGHTING	
⚡	EMERGENCY TWIN HEAD LIGHT FIXTURE
⚡	EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED
⚡	STRIP FIXTURE WITH TYPE DESIGNATION
⚡	RECESSED OR SURFACE MOUNTED FIXTURE WITH TYPE DESIGNATION
⚡	NIGHT LIGHT, CONNECT TO UNSWITCHED CIRCUIT
⚡	CEILING OR RECESSED FIXTURE WITH TYPE DESIGNATION
⚡	WALL MOUNTED FIXTURE WITH TYPE DESIGNATION
POWER DEVICES	
⚡	DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
⚡	FOURPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
⚡	DEVICE MOUNTED ABOVE COUNTER AND/OR SPLASH GUARD
⚡	HEAVY DUTY OUTLET - NEMA CONFIGURATION SIZE PER EQUIPMENT MANUFACTURER'S RECOMMENDATION
⚡	PANEL BOARD, TOP OF BOX 6'-0" AFF
⚡	JUNCTION BOX
⚡	NON-FUSED DISCONNECT SWITCH
⚡	FUSED DISCONNECT SWITCH
⚡	MOTOR WITH DESIGNATION
CONTROLS	
S	SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF
S ₂	TWO POLE WALL SWITCH, TOP OF BOX AT 48" AFF
S ₃	THREE-WAY WALL SWITCH, TOP OF BOX AT 48" AFF
S ₄	FOUR-WAY WALL SWITCH, TOP OF BOX AT 48" AFF
S _m	MANUAL MOTOR STARTER WITH OVERLOADS
COMMUNICATIONS	
▼	DATA/TELEPHONE OUTLET WITH MINIMUM 3/4" CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING, BOTTOM OF BOX AT 16", UNLESS NOTED OTHERWISE. PROVIDE WITH PULL STRING
MISCELLANEOUS	
⚡	120V AUDIBLE BASE CEILING MOUNT SMOKE DETECTOR, WIRE TO CIRCUIT F-15 WITH #12AWG.

1. GENERAL PROVISIONS:
- PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS OUTLINED.

OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AND ALL APPLICABLE AWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.

ALL TESTINGS REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.

DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP DRY AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERINGS SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.

PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS STRIKEMAN ADJACENT AREA. COORDINATE WITH ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.

CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.

CONTRACTOR SHALL PROVIDE ACCESS PANELS WHERE NECESSARY FOR CONCEALED ELECTRICAL COMPONENTS.
2. OPERATION AND MAINTENANCE MANUALS:
- DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LIBERATION AND PREVENTATIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.

ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.

ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE COLLATED AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC. CONTRACTORS, ETC. DOCUMENTS SHALL BE COMPILED AND BOUND IN DIGITAL FILE OR 3 RING BINDER.
3. MANUFACTURERS:
- MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS 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 SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.
4. TESTING, AND BALANCING:
- ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNECTING TO THE PROPER PHASE AS DESIGNED TO BALANCE THE LOADS BETWEEN PHASES.

POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD AND SHALL BE CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED.

ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATION AND OPERATION.
5. RACEWAYS:
- CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL, WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS.

CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS.

UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 204 PSI, OF 10 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLAME SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL). CONDUIT AND FITTINGS SHALL BE PROVIDED BY THE SAME MANUFACTURER.

FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".
6. CONDUCTORS:
- WIRES SHALL BE CONTINUOUS WITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRE SHALL BE INSTALLED IN CONDUIT, WIREWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.

CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 A.M.S., 600 VOLT.

NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THHN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.

NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.

SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHW-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED.
7. MC CABLE:
- MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THHN SOLID (16 AWG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS RATED 90°C FOR DRY LOCATIONS, WITH NYLON LISTED JACKET, PER UL STANDARD 83. THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OF ALUMINUM OR GALVANIZED STEEL.
8. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1564 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.
9. WIRING DEVICES:
- WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES.

1) SINGLE POLE: HUBBELL H581221-X, OR EQUAL.

2) THREE WAY: HUBBELL H581223-X, OR EQUAL.

RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL H585923-X, OR EQUAL.

GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL H5F20-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.

ISOLATED GROUND RECEPTACLES (IG) SHALL BE HUBBELL H585923S, ORANGE COLOR. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.

RECEPTACLES OUTSIDE BUILDINGS AND WHERE NOTED AS WEATHERPROOF, SHALL BE LISTED WEATHER-RESISTANT HUBBELL H5FTR20-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC WP1010XND OR WP1010XNDX DIECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.

VERIFY DEVICES AND DEVICE COVERPLATES COLOR AND STYLE WITH ARCHITECT.
10. BOXES:
- HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION.

ALL BOXES SHALL BE FLUSH MOUNTED, UNLESS INDICATED OTHERWISE.
11. PANELBOARDS:
- FURNISH AND INSTALL CIRCUIT BREAKER PANELBOARDS AS SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE LISTED BY UL AND SO LABELED, AND SHALL BE FULLY RATED FOR THE VOLTAGE AND CURRENT CAPACITY INDICATED ON THE PANEL SCHEDULE. PANELBOARDS SHALL BE EQUAL TO SQUARE D TYPE NG OR NF WITH BOLT-IN TYPE BREAKERS. PANELBOARD LUGS SHALL BE RATED AT 75°C.

1) CIRCUIT BREAKER INTERRUPTING CAPACITIES SHALL MEET OR EXCEED THE AVAILABLE RMS SYMMETRICAL FAULT CURRENTS INDICATED AND AS REQUIRED TO MEET OR EXCEED THE AVAILABLE FAULT CURRENT FROM LOCAL UTILITY.

CIRCUIT BREAKERS SHALL MEET APPLICABLE PORTIONS OF UL STANDARD 484 AND NEMA AB-1. CIRCUIT BREAKERS SHALL BE BOLT-ON, GROUND MOUNTED, AMBIENT MAGNETIC, WITH COMMON TRIP, UL RATED TO CARRY 80% OF NAMEPLATE RATING CONTINUOUSLY IN FREE AIR AT 40° C. CIRCUIT BREAKERS SHALL BE TRIP INDICATING AND FULLY INTERCHANGEABLE WITHOUT DISTURBING ADJACENT UNITS. WIRE TERMINALS SHALL BE RATED TO DEGREESS C. THE OPERATING MECHANISM SHALL BE TRIP-FREE SO THAT CONTACTS CANNOT BE HELD CLOSED AGAINST ANY ABNORMAL OVERCURRENT OR SHORT CIRCUIT CONDITION.

BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.

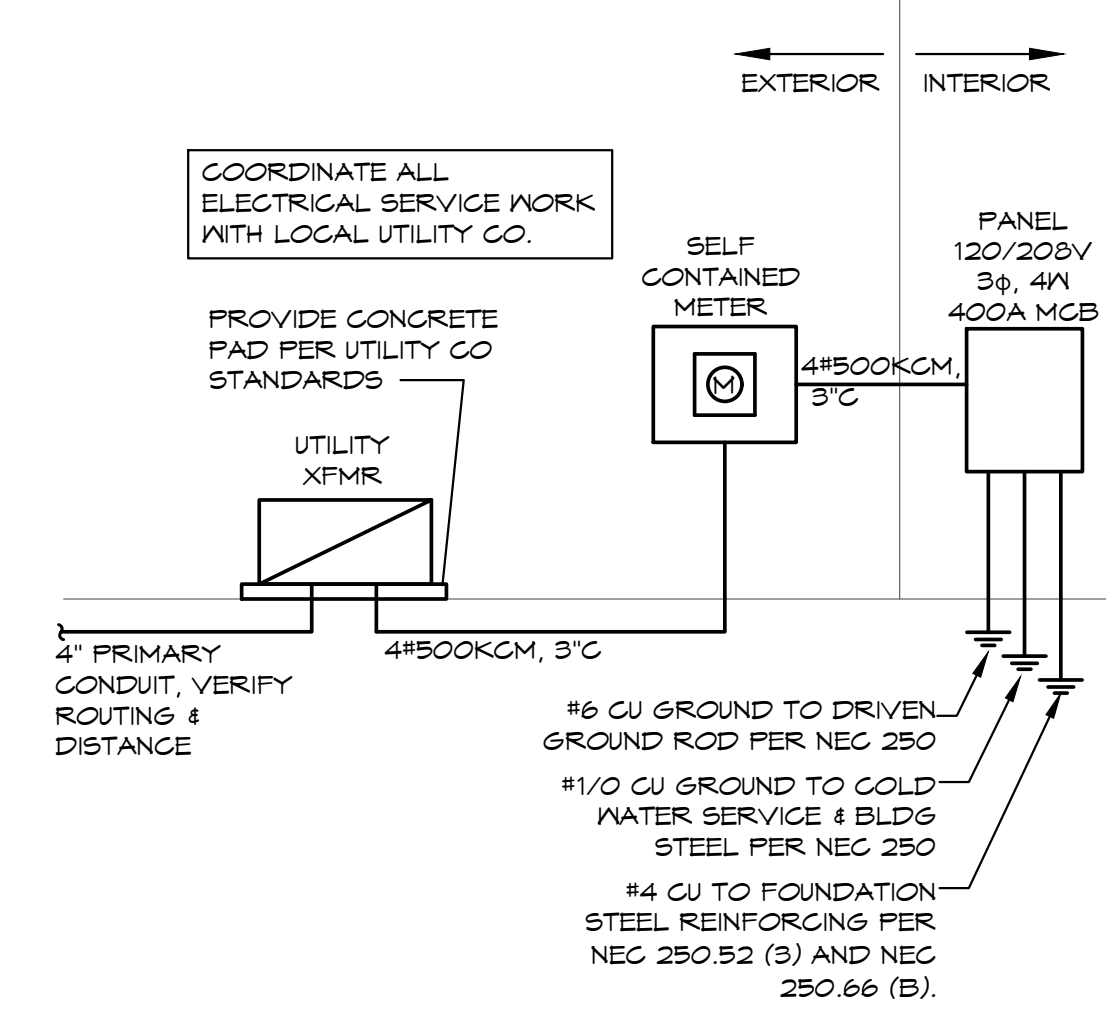
PANELBOARD BOXES SHALL BE GALVANIZED SHEET STEEL WITH AMPLE WIRING GUTTER SPACE IN ACCORDANCE WITH NEC. FRONTS SHALL BE OF SHEET STEEL PAINTED LIGHT GREY OVER A SUITABLE RUST INHIBITOR PRIMER. PANELBOARDS SHALL BE EQUIPPED WITH ONE REECE DOOR, CYLINDER TUMBLER TYPE LOCK, DIRECTORY CARD-HOLDER AND QUARTER-TURN ADJUSTABLE TRIM CLAMPS.

PANELBOARD INTERIORS SHALL CONSIST OF REINFORCED GALVANIZED SHEET STEEL FRAMES WITH ALUMINUM BUS BARS AND CIRCUIT BREAKERS, PROPERLY SUPPORTED TO PREVENT VIBRATIONS AND BREAKAGE IN HANDLING. BUS BARS SHALL BE SEQUENCE PHASED. PANELBOARD SHALL HAVE A FULL SIZED SOLID ALUMINUM NEUTRAL AND GROUND BUS.

BUS BAR BRACING SHALL BE UL LISTED AS INDICATED ON DRAWINGS. ADDITIONAL BRACING SHALL BE PROVIDED AS REQUIRED TO MEET OR EXCEED INDICATED AVAILABLE FAULT CURRENTS.

DIRECTORY CARDS SHALL BE COMPLETELY FILLED IN BY TYPEWRITER, LISTING CIRCUIT NUMBERS AND LOAD SERVICE, INCLUDING EXISTING CIRCUITS. CIRCUIT BREAKERS SHALL BE IDENTIFIED BY CIRCUIT NUMBER LABELS AS HEREINBEFORE SPECIFIED.
12. DISCONNECTS:
- DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED.

INDOOR SWITCHES SHALL BE NEMA 1 AND OUTDOOR SWITCHES SHALL BE NEMA 3R, UNLESS INDICATED OTHERWISE.

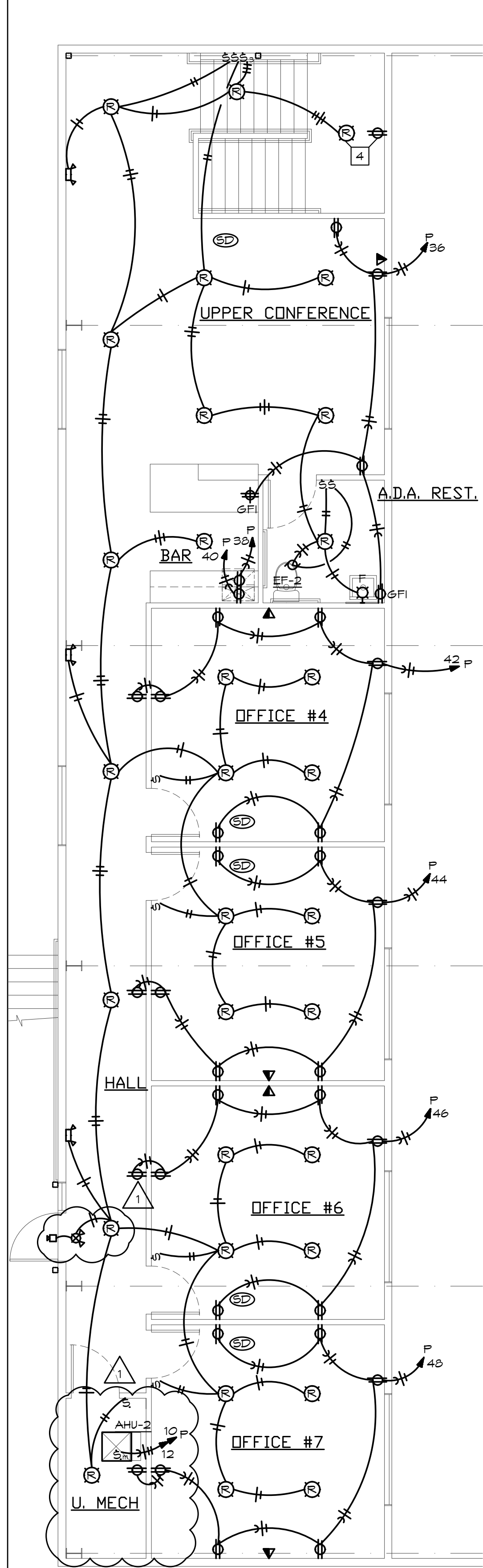


ELECTRICAL RISER DIAGRAM

SCALE: NONE

BC PROJECT #: 20398
MISSOURI PE COA #0209003629

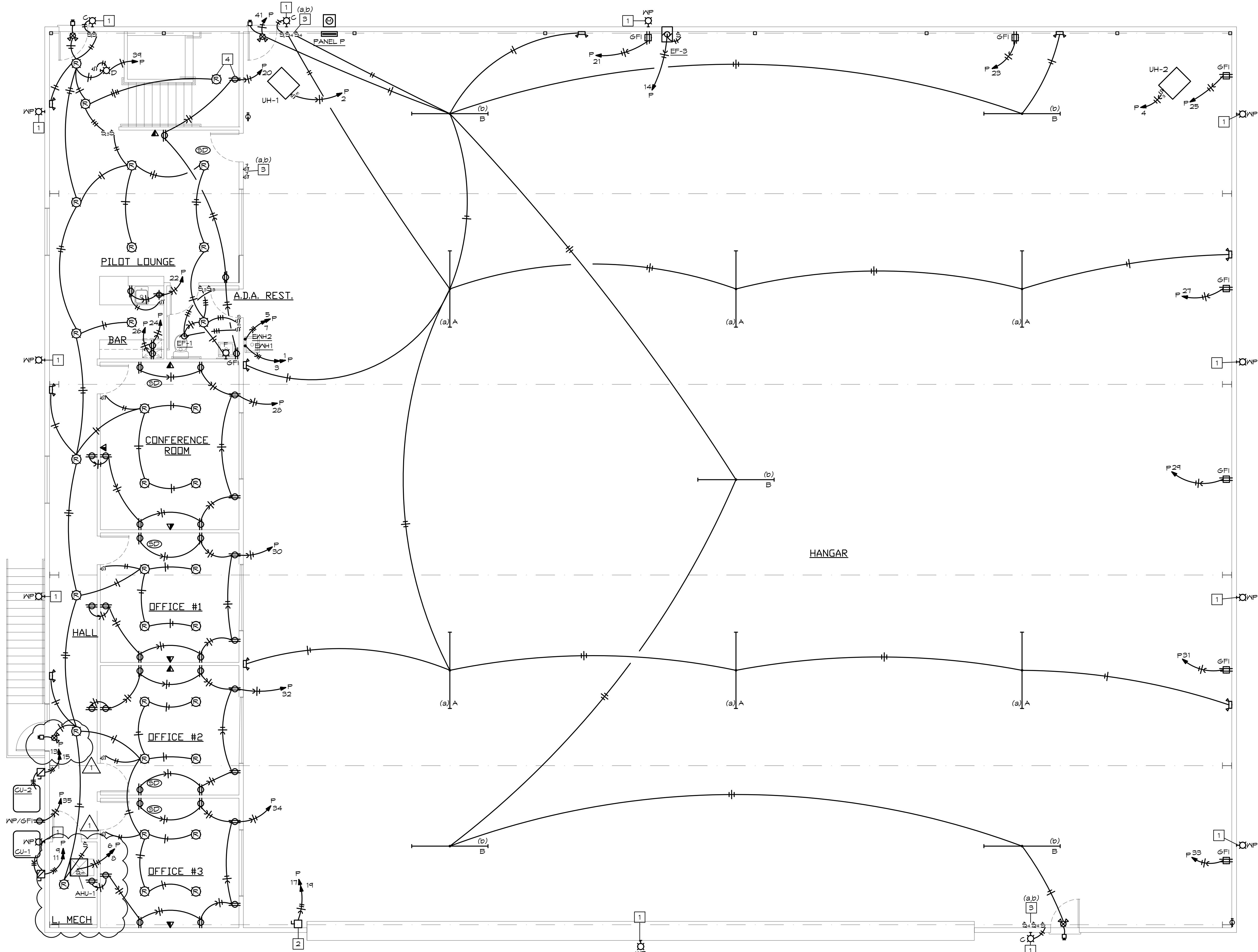
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UPPER FLOOR ELECTRICAL PLAN
SCALE: 3/16" = 1'-0"

ELECTRICAL PLAN NOTES:

- 1 CONNECT EXTERIOR LIGHT TO CIRCUIT P-16 WITH #10AWG.
- 2 CONNECT TO OVERHEAD DOOR OPERATOR PER MANUFACTURERS INSTRUCTIONS. INSTALL COMPLETE. VERIFY EXACT LOCATION AND ELECTRICAL REQUIREMENTS.
- 3 MAKE CONNECTION BETWEEN 3-WAY/4-WAY SWITCHES CONTROLLING HANGER LIGHTS AS INDICATED BY (a,b).
- 4 LIGHT FIXTURE AND RECEPTACLE SHOWN ON BOTH MAIN FLOOR AND UPPER FLOOR PLAN.



MAIN FLOOR ELECTRICAL PLAN
SCALE: 3/16" = 1'-0"

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E-100

Scale 3/16" = 1'-0"