



307B SW Market St. Lee's Summit, MO, 64063 P: 816.249.2270 (www.collinsandwebb.com)

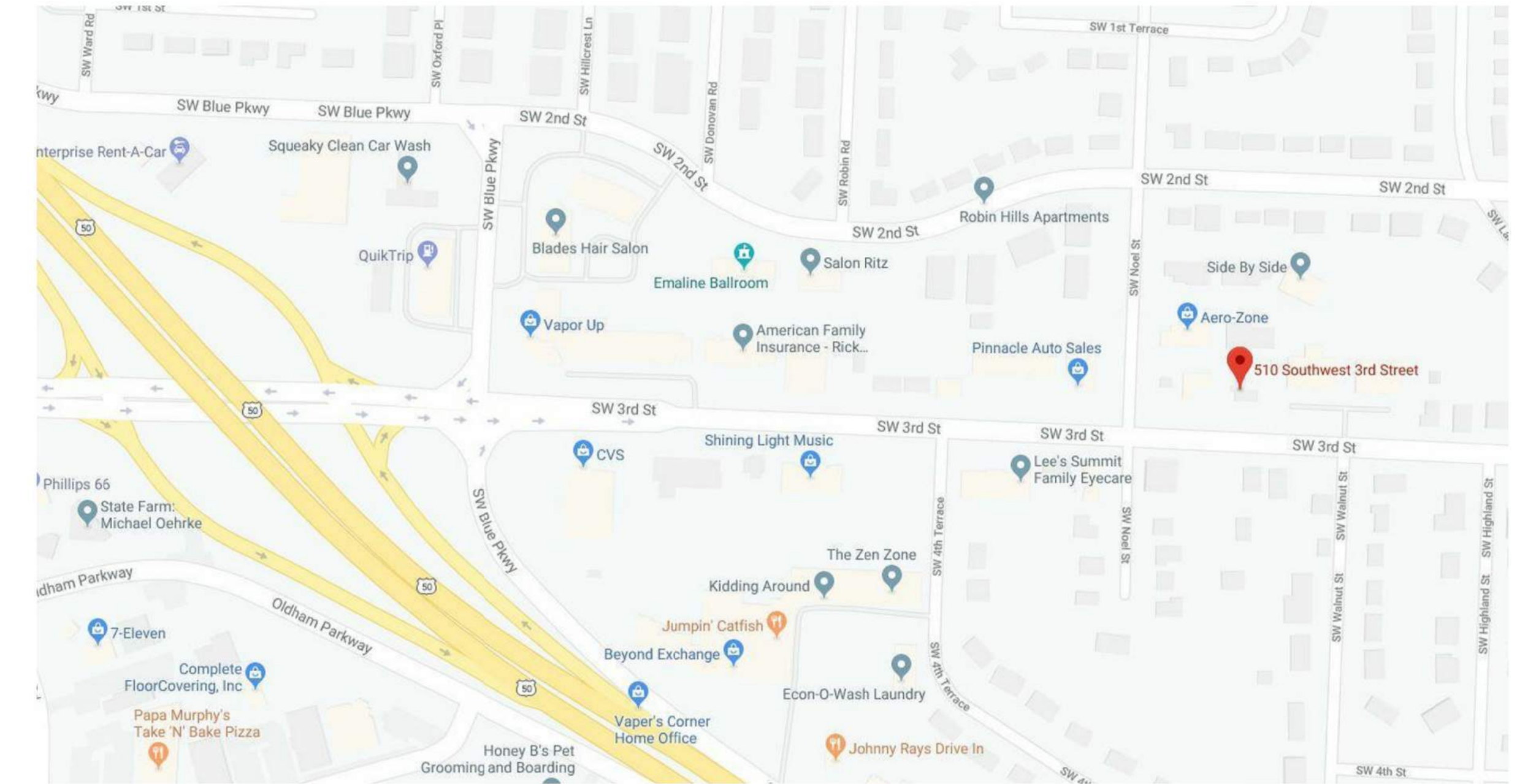
# 3RD STREET DISPENSARY - ADDITION

510 SW 3rd St., Lee's Summit, MO 64063

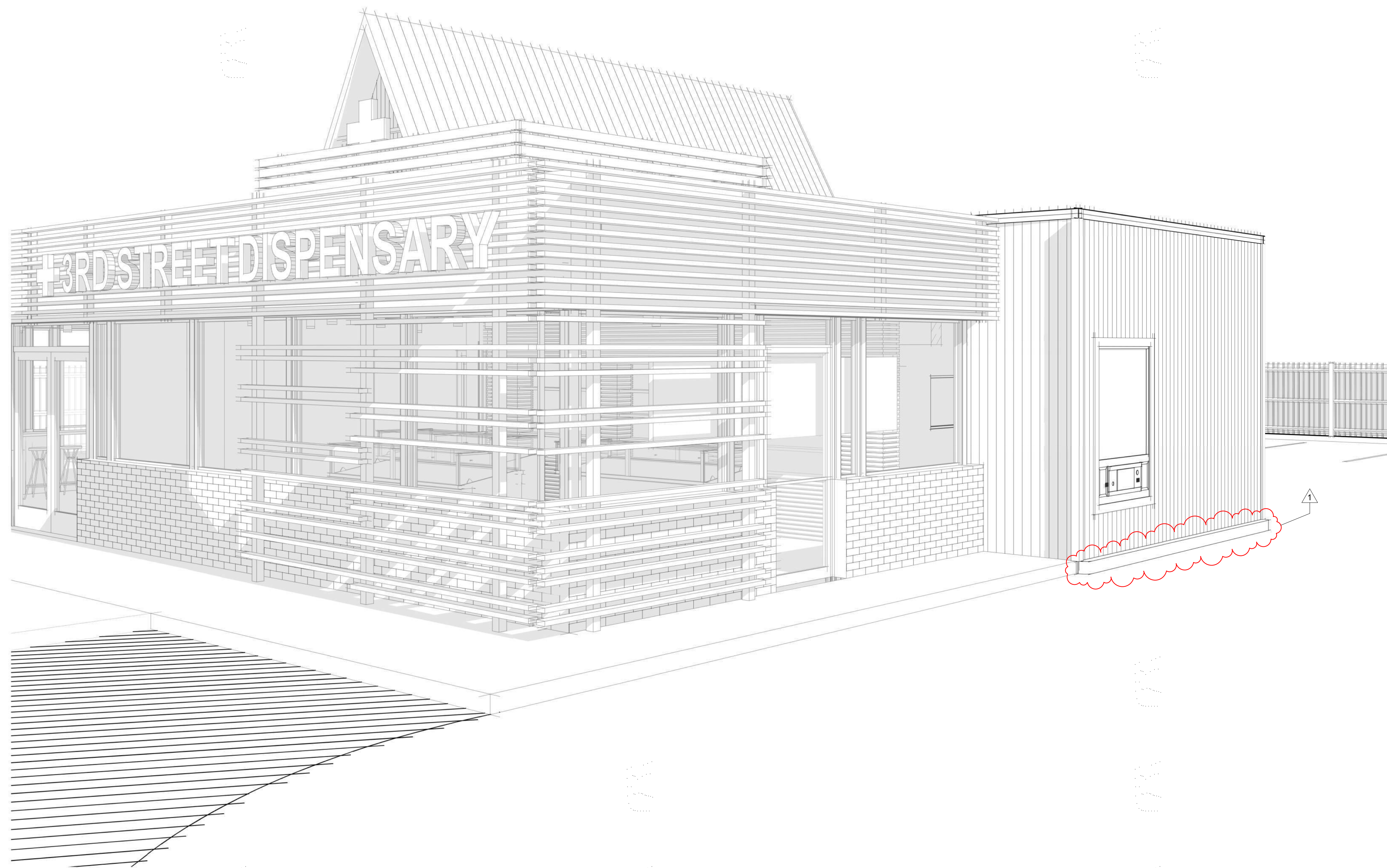
## PERMIT SET

06/10/2022

COLLINS WEBB #: 22038



VICINITY MAP



GENERAL	
SHEET NUMBER	SHEET NAME
CS	COVER SHEET
G001	GENERAL INFORMATION
G002	LIFE SAFETY PLAN AND PROJECT INFO.
STRUCTURAL	
SHEET NUMBER	SHEET NAME
S001	STRUCTURAL GENERAL NOTES
S100	FOUNDATION AND ROOF FRAMING PLAN
ARCHITECTURAL	
SHEET NO.	SHEET NAME
A100	ARCHITECTURAL SITE PLAN
A101	FIRST FLOOR PLAN AND ROOF PLAN
A201	EXTERIOR ELEVATIONS, SECTIONS, AND DETAILS
MEP	
SHEET NUMBER	SHEET NAME
E101	ELECTRICAL NOTES, SYMBOLS & ABBREVIATIONS
E102	ELECTRICAL DETAILS
E201	ELECTRICAL POWER & LIGHTING PLAN
E301	ELECTRICAL RISER DIAGRAM & SCHEDULES
E401	ELECTRICAL SPECIFICATIONS
E402	ELECTRICAL SPECIFICATIONS
M101	MECHANICAL NOTES, SYMBOLS & ABBREVIATIONS
M201	MECHANICAL FLOOR PLAN
M301	MECHANICAL SPECIFICATIONS

**FINAL DEVELOPMENT PLANS**

- MISSOURI ONE CALL SYSTEM 1-800-DIG-RITE "CALL BEFORE YOU DIG."

- THE CONTRACTOR SHALL CONTACT THE CITY'S DEVELOPMENT SERVICES ENGINEERING INSPECTION TO SCHEDULE A PRE-CONSTRUCTION MEETING WITH A FIELD ENGINEERING INSPECTOR PRIOR TO ANY LAND DISTURBANCE WORK AT (816) 969-1200.

- ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF LEE'S SUMMIT'S DESIGN AND CONSTRUCTION MANUAL.

- "PER FEMA FIRM PANEL 29095C0417G, EFFECTIVE JANUARY 20, 2017, THE SITE IS IN ZONE X (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 1% ANNUAL CHANCE FLOODPLAIN."

### OWNER

MARK WESTHUES  
MC PROPERTIES OF MISSOURI, LLC  
704 NE LAKE POINTE DR.  
LEE'S SUMMIT, MISSOURI 64064  
P: 816.215.5180  
mark@westhues.com

### ARCHITECT

COLLINS WEBB ARCHITECTURE  
307B SW MARKET ST.  
LEE'S SUMMIT, MISSOURI 64063  
P: 816.249.2270  
www.collinsandwebb.com

### STRUCTURAL ENGINEER

STAND STRUCTURAL ENGINEERING INC.  
8234 ROBINSON ST.  
OVERLAND PARK, KANSAS 66214  
P: 913.214.2169  
www.stand-sei.com

### MEP ENGINEER

ENGINEERED BUILDING SOLUTIONS, LLC  
11320 W 79TH STREET  
OVERLAND PARK, KS 66214  
P: 913.735.5654  
www.ebslutionskc.com

### CONTRACTOR

WOLF 21 INC.  
812A W 17TH ST.  
KANSAS CITY, MO 64108  
P: 913.207.3643  
www.wolf21.net



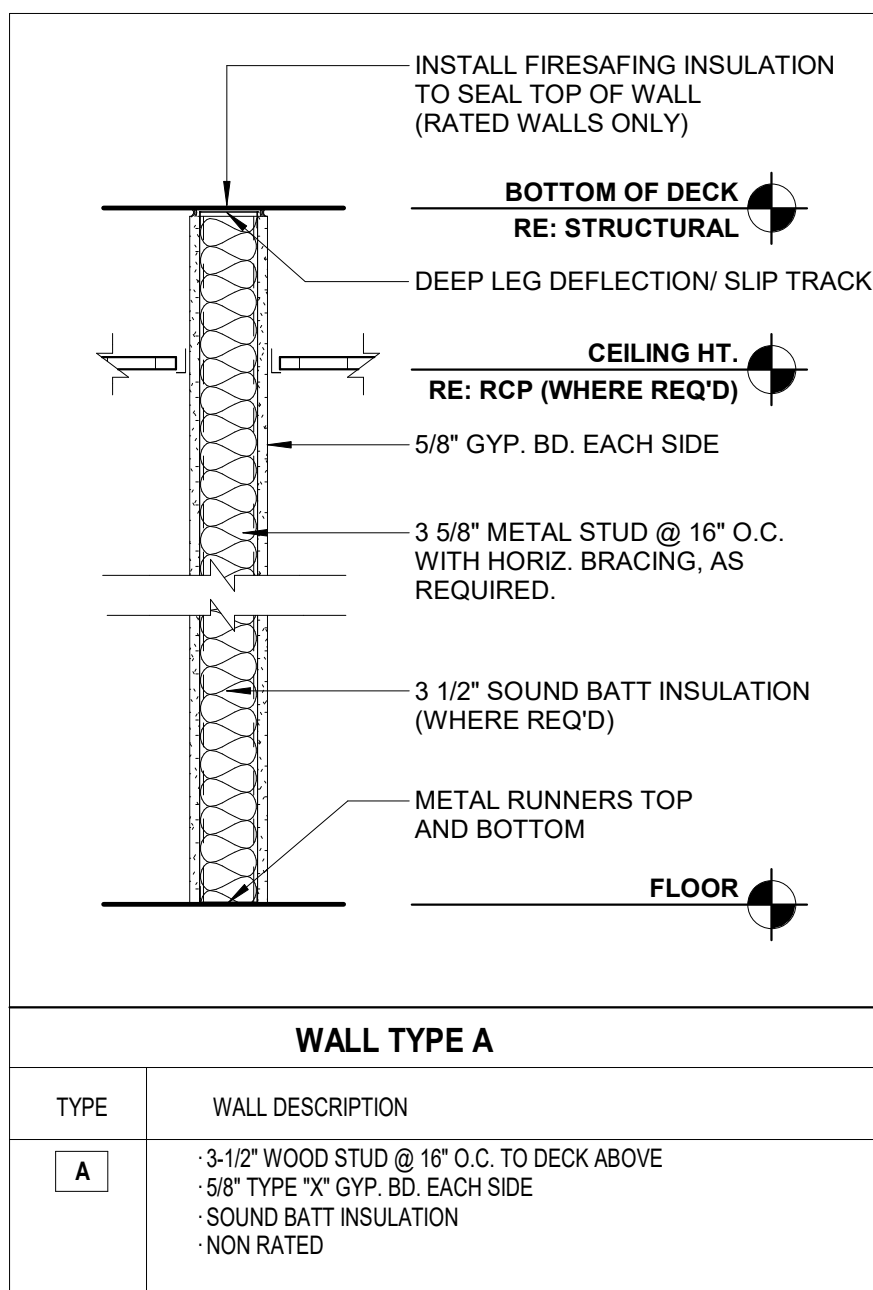




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A12 OVERALL - DEMO PLAN  
1/4" = 1'-0"

A6 OVERALL - LIFE SAFETY PLAN  
1/4" = 1'-0"



WALL PRIORITY LEGEND	
<b>NOTE: THIS LEGEND IS FOR GRAPHIC REPRESENTATION ONLY.</b>	
FOUR HOUR FIRE WALL (4FW) THREE HOUR FIRE WALL (3FW) TWO HOUR FIRE WALL (2FW) FOUR HOUR FIRE BARRIER (4FB) THREE HOUR FIRE BARRIER (3FB)	
TWO HOUR FIRE BARRIER (2FB) (INCLUDES THE FOLLOWING) • TWO HOUR SHAFT ENCLOSURE (2SE) • ONE HOUR FIRE BARRIER (1FB) (INCLUDES THE FOLLOWING) • ONE HOUR SHAFT ENCLOSURE (1SE)	
SMOKE TIGHT PARTITION (X) (INCLUDES THE FOLLOWING) • SMOKE TIGHT PARTITION TO SMOKE TIGHT CEILING (XC) • SMOKE TIGHT PARTITION WITHIN PLENUM ABOVE CEILING (XP) • SMOKE TIGHT PARTITION SEPARATION OF INTERSTITIAL SPACES (XI)	
DETAIL ABUTMENT OF DISSIMILAR WALL	
LOWER PRIORITY WALL	HIGHER PRIORITY WALLS SHALL PASS THROUGH A LOWER PRIORITY WALL
INTERSECTION OF RATED WALLS	
TAPE & JOINT COMPOUND (TYP) LOWER PRIORITY WALL	TAPE & SEAL HIGHER PRIORITY WALL BEHIND INTERSECTING LOWER PRIORITY WALL (TYP) HIGHER PRIORITY WALL TAPE & JOINT COMPOUND (TYP) HIGHER PRIORITY WALL
NOTES: 1. THE HIGHER PRIORITY WALL SHALL PASS THROUGH THE LOWER PRIORITY WALL. 2. TAPING AND SEALING OF HIGHER PRIORITY WALLS SHALL BE CONTINUOUS. 3. ALTERNATE LAYERS OF GYPSUM BOARD SHALL OVERLAP AT CORNER INTERSECTIONS OF MULTI-LAYERED RATED GYPSUM BOARD PARTITIONS.	

GENERAL DESCRIPTION	
PROJECT NAME: 3RD STREET DISPENSARY - ADDITION PROJECT LOCATION: 510 SW 3RD ST., LEE'S SUMMIT, MO, 64063	
ARCHITECT: COLLINS WEBB ARCHITECTURE 307B SW MARKET STREET LEE'S SUMMIT, MISSOURI 64063	
APPLICABLE CODES: 2018 INTERNATIONAL BUILDING CODE 2018 INTERNATIONAL PLUMBING CODE 2018 INTERNATIONAL MECHANICAL CODE 2018 INTERNATIONAL FUEL GAS CODE 2018 INTERNATIONAL FIRE CODE 2017 NATIONAL ELECTRICAL CODE ICC/ANSI A117.1-2009, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES	
CODE INFORMATION	TABLE/SECTION/REFERENCE
BUILDING/PROJECT USE: CONSTRUCTION TYPE OCCUPANCY CLASSIFICATION BASE ALLOWABLE AREA ACTUAL TENANT AREA (GROSS) NUMBER OF STORIES	(NO CHANGE) VB (NO CHANGE) (NO CHANGE) 6,000 SF 2,095 SF 1
FIRE RESISTIVE REQUIREMENTS	
PRIMARY FRAME NON-BEARING WALLS BEARING WALLS INT./EXT. FLOOR CONSTRUCTION CEILING/ROOF CORRIDORS	TABLE 601 TABLE 601 TABLE 601 TABLE 601 TABLE 601 TABLE 1018.1
FIRE EXTINGUISHERS	
1. PROVIDE PORTABLE FIRE EXTINGUISHERS IN OCCUPANCIES AND LOCATIONS AS REQUIRED BY THE FIRE CODE. SEE PLANS FOR SUGGESTED LOCATIONS. NOTIFY ARCHITECT OF ANY PROPOSED RELOCATION OR IF A CONFLICT IS ENCOUNTERED. 2. PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED, INSPECTED, AND MAINTAINED IN ACCORDANCE WITH NFPA 10, STANDARD FOR PORTABLE FIRE EXTINGUISHERS.	
CEILING HEIGHT NOTES: (IBC 1207)	
1. ALL MEANS OF EGRESS TO HAVE A MINIMUM CEILING HEIGHT OF 7'-6" A.F.F., NOR SHALL HAVE ANY PROJECTION FROM THE CEILING BE LESS THAN 6'-8" A.F.F. 2. OCCUPIED SPACES, HABITABLE SPACES AND CORRIDORS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-6" A.F.F. 3. BATHROOMS, TOILET ROOMS, KITCHENS, STORAGE ROOMS AND LAUNDRY ROOMS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'-0" A.F.F.	
INTERIOR FINISHES	
GROUP A EXIT ENCLOSURES LOBBIES & CORRIDORS ALL OTHER SPACES TEXTILES SMOKE DEVELOPED	MAX. FLAME SPREAD CLASS A CLASS A CLASS B CLASS A (0-25) 0-450
	803.13 IBC 803.13 IBC 803.13 IBC IBC 803.1.2 IBC 803.1.2

GENERAL EXITING REQUIREMENTS	
EXIT TRAVEL DISTANCE DEAD END CORRIDOR COMMON PATH OF TRAVEL MIN. CORRIDOR WIDTH	200 FEET 20 FEET - GROUP M 75' IF OCC. < 50 44", OR 36" IF OCC. < 50
TABLE 1017.2 IBC SECTION 1020.4 IBC SECTION 1006.2.1 IBC SECTION 1020.2 IBC	
POSTING OF OCCUPANT LOAD	
EVERY ROOM OR SPACE THAT IS AN ASSEMBLY OCCUPANCY SHALL HAVE THE OCCUPANT LOAD OF THE ROOM OR SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT OR EXIT ACCESS DOORWAY FROM THE ROOM OR SPACE. POSTED SIGNS SHALL BE OF AN APPROVED LEGIBLE PERMANENT DESIGN AND SHALL BE MAINTAINED BY THE OWNER OR AUTHORIZED AGENT.	
EXIT REQUIREMENTS	
A. REQUIRED CAPACITY 1. STAIRS - 0.3" / PERSON 2. OTHER COMPONENTS - 0.2" / PERSON	1006.1 1006.1
B. MINIMUM NUMBER 1. OCCUPANT LOAD OF 1-500 PERSONS - 2 EXITS PER STORY 2. OCCUPANT LOAD OF 501-1000 PERSONS - 3 EXITS PER STORY 3. OCCUPANT LOAD OF MORE THAN 1000 PERSONS - 4 EXITS PER STORY	1006.3.1 1006.3.1 1006.3.1
OCCUPANT LOAD	
STORAGE - ADDITION CONSULT - ADDITION STORAGE AREAS (NO CHANGE) BACK OF HOUSE (NO CHANGE) RETAIL FLOOR (NO CHANGE) TOTAL:	2 OCC 1 OCC 4 OCC 4 OCC 18 OCC 29 OCCUPANTS
	TABLE 1004.1.2
EXITS REQUIRED EXITS PROVIDED	1 EXITS 2 EXITS
	TABLE 1006.3.2

LAND USE SCHEDULE:

- LOT AREA: 18,726 GROSS SQ.FT.
- TOTAL FLOOR AREA:
  - EXISTING - 1,698 GROSS SQ.FT.
  - PROPOSED - 397 GROSS SQ.FT.
  - TOTAL - 2,095 GROSS SQ.FT.
- FLOOR AREA RATIO:
  - EXISTING - .09%
  - TOTAL - .02%
- NUMBER OF PARKING SPACES:
  - REQUIRED - 11
  - PROPOSED - 33

NEW ADDITION IS LESS THAN 25% OF THE EXISTING BUILDING SQUARE FOOTAGE.

MAX. EGRESS DISTANCE	
MAX EXIT TRAVEL DISTANCE	200
MAX. EXIT TRAVEL DISTANCE	71' - 4"

FIRE RESISTIVE LEGEND	
NUMBER OF OCCUPANTS EXITING EXIT WIDTH PROVIDED (IN.)	DESCRIPT. 200 40" 60" CALCULATED EXIT WIDTH REQ'D (IN.)
NUMBER OF OCCUPANTS EXITING CALCULATED EXIT WIDTH REQ'D (IN.)	200 40" 32" 68" MIN. WIDTH OF MEANS OF EGRESS COMPONENT (IN.)
ACCESSIBLE EGRESS COMPONENT	
FE-1	INDICATES FIRE EXTINGUISHER CABINET(FE) LOCATION WITH 75'-0" RADIUS COVERAGE AREA. SEE SPECIFICATIONS FOR FE TYPE.
WALL TYPE NOTES:	
1. RE: LIFE SAFETY PLANS) FOR RATED WALL LOCATIONS. 2. RE: WALL TYPE DETAIL SHEET FOR TYPICAL WALL DETAILS AND ADDITIONAL WALL TYPE INFORMATION. 3. FOR TYPICAL TOP-OF-WALL CONDITIONS AT JOISTS AND BEAMS, REFER TO THE CLOSURE DETAILS ON THE WALL TYPE DETAILS SHEET. 4. COORDINATE METAL STUD GAUGE WITH PRE-APPROVED EQUIPMENT ANCHORAGE WHERE A DISCREPANCY OCCURS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN. 5. WHERE "ACOUSTIC SEALANT" IS INDICATED ON WALL TYPES: PROVIDE ACOUSTIC (SOUND) SEALANT ABOVE TOP TRACK, UNDER BOTTOM TRACK, AND AT ALL PENETRATIONS (BOTH SIDES). 6. WHERE "FIRE-RATED SEALANT" IS INDICATED ON WALL TYPES: PROVIDE FIRE-RATED SEALANT ABOVE TOP TRACK, UNDER BOTTOM TRACK, AT ALL PENETRATIONS (BOTH SIDES), AND AS REQUIRED BY FIRE RATING UL NUMBER. 7. EXTEND FIRE-RATED WALL CONSTRUCTION BEHIND RECESSED OR BUILT-IN EQUIPMENT, SUCH AS FIRE EXTINGUISHER CABINETS (FEC), ELECTRICAL WATER COOLERS (EWC), ELECTRICAL PANELS, ETC., UNLESS NOTED OTHERWISE. 8. PROVIDE AND INSTALL ALL STIFFENERS, BRACING, BACK-UP PLATES AND SUPPORTING BRACKETS REQUIRED FOR THE INSTALLATION OF ALL CASEWORK AND OF ALL FLOOR MOUNTED OR SUSPENDED MECHANICAL, ELECTRICAL OR LABORATORY EQUIPMENT. 9. WHERE HVAC OR OTHER MECHANICAL, ELECTRICAL AND PLUMBING ITEMS PENETRATE PARTITIONS, STUDS SHALL BE BRACED AND FRAMED TO STRUCTURE AS REQUIRED TO PROVIDE ADEQUATE SUPPORT. ALL PENETRATIONS THROUGH ACOUSTICAL AND FIRE RATED WALLS SHALL BE SEALED TO PROVIDE FIRE, SMOKE AND/OR ACOUSTICAL ISOLATION OF SPACES WITH APPROPRIATE ACOUSTICAL/ FIRESTOP MATERIAL. 10. THERE SHALL BE NO BACK-TO-BACK ELECTRICAL, TELEPHONE, OR OTHER OUTLETS, EXCEPT WHERE SPECIFICALLY SHOWN. 11. WALL BASE IS NOT SHOWN ON ALL WALL TYPES FOR CLARITY. REFER TO FINISH SCHEDULE. 12. PROVIDE GLASS-MAT, WATER RESISTANT BACKING BOARD AT ALL WET LOCATIONS. 13. EXCEPT AT FIRE-RATED PARTITIONS, ALL WALL AND COLUMN GYPSUM BOARD FACING SHALL BE HELD AT 5/8 INCH BELOW STRUCTURE, UNLESS NOTED OR SHOWN OTHERWISE. 14. PROVIDE AND INSTALL BLOCKING REQUIRED FOR ALL A.V. EQUIPMENT. G.C. TO COORDINATE WITH TI CONSULTANT FOR FINAL LOCATIONS AND SIZE REQUIREMENTS. 15. COMPRESSIBLE FILLER - ACCEPTABLE MATERIALS WOULD BE FIBERGLASS INSULATION OR FIRESTOPPING. VOIDS TO BE COMPLETELY FILLED AND A FIRESTOP SEALANT OVER ANY ENDS. THIS IS TYPICAL FOR ALL ACOUSTICAL WALL ASSEMBLIES WHERE "COMPRESSIBLE FILLER" IS CALLED FOR. THERE CAN BE NO VOIDS IN THE INSTALLATION. 16. MUD AND TAPE ALL 1ST AND 2ND LAYER GYP. BOARD JOINTS. PROVIDE 3RD LAYER FINISH PER GENERAL NOTES: FLOOR PLAN. 17. PROVIDE A MIN. MSG-12 STUD FOR ALL VERTICAL LONG SPAN WALL TYPES. 18. PROVIDE HORIZONTAL LATERAL BRACING WIRE WELDED TO STUD FOR ALL WALLS, AT APPROPRIATE GAGE AND SPACING SPECIFIED BY SUPPLIER. 19. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND SPECIFICATIONS - CONTACT ARCHITECT FOR CLARIFICATION. 20. FOR BIDDING PURPOSES: THE MOST EXPENSIVE AND/OR STRICTEST REQUIREMENTS SHALL GOVERN. FOR CLARIFICATIONS DURING CONSTRUCTION, THE MOST EXPENSIVE AND/OR STRICTEST REQUIREMENTS, AS INDICATED BY THE ARCHITECT, SHALL GOVERN.	

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collinswebb ARCHITECTURE

3RD STREET DISPENSARY - ADDITION

510 SW 3rd St., Lee's Summit, MO 64063

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REVISION DATES:  
1 City Comments 07/05/22

PROFESSIONAL SEAL

G002

ISSUE DATE: 06/10/2022  
COLLINS WEBB #: 22038

LIFE SAFETY PLAN AND PROJECT INFO.

PERMIT SET



03. Abbreviation Schedule	
Abbreviation	Abbreviation Name
+	PLUS OR MINUS
ADDNL	ADDITIONAL
ADJ	ADJACENT
ASSESS	ARCHITECTURALLY EXPOSED
STR	STRUCTURAL STEEL
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AR	ANCHOR ROD
ARCH	ARCHITECT OR ARCHITECTURAL
B	BOTTOM OF
BW	BETWEEN
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM
BOT	BOTTOM
BRG	BEARING
BWP	BRACED WALL PANEL
CFS	COLD FORMED STEEL
CHKD	CHECKED
CP	CAST IN PLACE
CJ	CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
CTR	CENTER
Ø	DIA OF REINFB BAR, DIA OF BOLT
DBA	DEFORMED BAR ANCHOR
DIA or Ø	DIAMETER
DIAG	DIAGONAL
DIR	DIRECTION
DWL	DOWEL
EA	EACH
EE	EXTENDED END
EJ	EXPANSION JOINT
ELEV	ELEVATION
ENGR	ENGINEER
EOJ	EDGE OF DECK
EOS	EDGE OF SLAB
EQ	EQUAL
EW	EACH WAY
EXIST	EXISTING
EXT	EXTERIOR
FDN	FOUNDATION
FLG	FLANGE
FLR	FLOOR
FS	FAR SIDE
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
HORIZ	HORIZONTAL
HSA	HEADED STUD ANCHOR
HSS	HOLLOW STRUCTURAL SECTION
INSIDE	INSIDE FACE
INT	INTERIOR
JST	JOIST
K	KIPS (1000 LBS)
LCE	COMPRESSION EMBEDMENT LENGTH
LCS	COMPRESSION LAP SLICE LENGTH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LTE	TENSION EMBEDMENT LENGTH
LTS	TENSION LAP SLICE LENGTH
LW	LIGHTWEIGHT
MFCR	MANUFACTURER
MTL	METAL
NIC	NOT IN CONTRACT
NS	NEAR SIDE
NIS	NOT TO SCALE
OC	ON CENTER
OF	OUTSIDE FACE
OPP	OPPOSITE
OVS	OVERSIZED
PIC	PRECAST
PAF	POWDER ACTUATED FASTENER
PAR	PARALLEL
PEMB	PRE-ENGINEERED METAL BUILDING
PEN	PENETRATION
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAR FOOT
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
RC	REINFORCED CONCRETE
RE	REFER TO
REINF	REINFORCING
REQD	REQUIRED
RF	RIGID FRAME
SC	SLIP CRITICAL
SDS	SELF DRILLING SCREW
SM	SIMILAR
SLV	SHORT LEG VERTICAL
SOG	SLAB ON GRADE
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STR	STRUTS
STL	STEEL
SW	SHEAR WALL
SYM	SYMMETRIC
T&B	TOP AND BOTTOM
TOP	TOP OF
TRANS	TRANSVERSE
Typ	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
WTH	WITH
WO	WITHOUT
WF	WIDE FLANGE
WP	WORK POINT
WWR	WELDED WIRE REINFORCEMENT

**STRUCTURAL DESIGN CRITERIA (2018 IRC AND ASCE 7-16):**

- BUILDING OCCUPANCY RISK CATEGORY II.
- LIVE LOADS (UNIFORM (PSF) / POINT LOADS (KIPS)):  
-- ROOF.....20 PSF / 300K
- ROOF SNOW LOAD:  
-- GROUND SNOW LOAD (Pg).....20 PSF  
-- FLAT ROOF SNOW LOAD (Pi).....15.4 PSF W/ DRIFT  
-- MIN UNIFORM ROOF SNOW LOAD (Pm).....20 PSF (NO DRIFT OR RAIN)  
-- RAIN ON SNOW CATEGORY (Prs).....3.0 PSF  
-- SNOW EXPOSURE FACTOR (Ce).....1.0, EXPOSURE B & C  
-- SNOW LOAD IMPORTANCE FACTOR (Is).....1.0  
-- THERMAL FACTOR (Tc).....1.1 (just above freezing)  
-- SLOPE FACTOR (Cs).....1.0 (for ¼ per foot roof)
- WIND DESIGN DATA:  
-- BASIC WIND SPEED (3 SEC GUST).....115 MPH  
-- ASD WIND SPEED (VASD).....90 MPH  
-- WIND IMPORTANCE FACTOR (Iw).....1.0  
-- WIND EXPOSURE.....B  
-- GROUND ELEVATION ABOVE SEA LEVEL.....1,000 FT  
-- DIRECTIONAL FACTOR (Kd).....0.85  
-- INTERNAL PRESSURE COEFF.....0.18  
-- COMPONENTS AND CLADDING WIND (ULTIMATE 1.0W) PRESSURES (BASED ON TRIB 10 S.F., EXP. B. MAY BE REDUCED FOR COMPONENTS WITH LARGER TRIB PER BUILD CODE)  
WALLS AT CORNERS & EDGES.....+21 / -28 PSF  
ALL OTHER MAIN WALL CONDITIONS.....+21 / -23 PSF  
ROOF CORNERS.....+8 / -26 PSF  
ROOF EDGES.....+8 / -26 PSF  
ALL OTHER MAIN ROOF CONDITIONS.....+8 / -22 PSF

- EARTHQUAKE DESIGN DATA:  
-- SEISMIC IMPORTANCE FACTOR (Ie).....1.0  
-- MAPPED SPECTRAL RESP ACCEL (Sa / Sd1).....2.12 / 0.07  
-- SITE CLASS.....D  
-- SPECTRAL RESPONSE COEFF (Ss / Sd1).....0.13 / 0.11  
-- SEISMIC DESIGN CATEGORY (SDC).....B  
-- SEISMIC FORCE RESISTING SYSTEM.....R=5, WOOD  
-- DESIGN BASE SHEAR.....0.8 K (ELF AND ASD)  
-- SEISMIC RESPONSE COEFF (Cs).....0.03  
-- ANALYSIS PROCEDURE.....ELF

**STRUCTURAL GENERAL NOTES:**

- DESIGN AND CONSTRUCTION SHALL CONFORM TO THE "INTERNATIONAL BUILDING CODE, 2018 EDITION" AS AMENDED BY THE CITY OF (LEE SUMMIT, MO). 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 PRIOR TO COMMENCING WORK.
- 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 CONTRACTORS RESPONSIBILITY TO EXECUTE AND DETERMINE FINAL ERECTION PROCEDURES, SEQUENCING AND TO ENSURE 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/ENGINEER BEFORE PLACEMENT THROUGH STRUCTURAL MEMBERS.
- IF MECHANICAL AND ELECTRICAL EQUIPMENT SIZES, WEIGHTS, OR LOCATIONS DO NOT CORRELATE WITH THE ELEVATION 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 OTHERWISE).
- TYPICAL DETAILS ARE SHOWN ON SHEETS DESIGNATED "SD0X". THE INCLUDED "TYPICAL" DETAILS MAY OR MAY NOT BE CUT / REFERENCED ON PLANS OR SECTIONS, BUT ARE TO BE USED AS APPLICABLE.

**EARTHWORK AND FOUNDATIONS:**

- ALL FOOTINGS SHALL BEAR A MINIMUM DEPTH BELOW GRADE OF 3'-0" ON FIRM NATIVE MATERIALS, COMPACTED OR ENGINEERED FILL CAPABLE OF SUPPORTING AN ALLOWABLE BEARING PRESSURE OF 1,500 PSF PER THE PRESUMPTIVE VALUES IN IRC. DEEPEN FOOTINGS AND REMOVE ALL FILL BACKFILL TO GRADE. SOILS WITH ENGINEERED FILL AS REQUIRED TO PROVIDE THIS MINIMUM DEPTH AND SUITABLE BEARING.
- UNDERCUT THE PAD TO A DEPTH OF 18-INCHES BELOW BOTTOM OF FLOOR SLAB ELEVATION AND REPLACE WITH LOW-VOLUME-CHANGE MATERIALS PER THE ARCHITECT'S REPORT.
- FILL PLACEMENT, COMPACTION, AND SOIL BEARING TESTS SHALL BE PERFORMED BY A GEOTECHNICAL ENGINEER PRIOR TO INSTALLING FOOTINGS TO ENSURE DESIGN ALLOWABLE BEARING VALUES AND SLAB SUBGRADE REQUIREMENTS ARE SATISFIED. IF ACTUAL SITE CONDITIONS DO NOT SATISFY THESE REQUIREMENTS, COORDINATE ADJUSTMENTS WITH ARCHITECT/ENGINEER/GEOTECHNICAL ENGINEER.
- SURFACE WATER SHALL NOT BE ALLOWED TO STAND ADJACENT TO OR DRAIN TOWARDS THE FOUNDATION AND SLAB SUBGRADES 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 AND AS REQUIRED TO PROVIDE POSITIVE DRAINAGE.
- FOOTINGS MAY BE POURED TO MEET LINES OF EXCAVATIONS PROVIDING VERTICAL LINES OF EXCAVATIONS CAN BE MAINTAINED DURING CONCRETE PLACEMENT.
- FOUNDATION WALL BACKFILL SHALL NOT BE UNBALANCED BY MORE THAN TWO FEET ON EITHER SIDE AT ANY TIME. BASEMENT WALL AND RESTRAINED RETAINING WALL BACKFILL SHALL NOT BE PLACED, UNLESS THE WALL IS ADEQUATELY BRACED. RETAINING WALL AND BASEMENT WALL BACKFILL SHALL BE FREE DRAINING GRANULAR BACKFILL ACCEPTABLE TO THE GEOTECHNICAL ENGINEER.

**CONCRETE REINFORCING STEEL:**

- SUBMIT SHOP DRAWINGS FOR REBAR. 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 BAR QUANTITIES SHOWN ARE FOR ESTIMATING PURPOSES ONLY.
- CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE ¾" 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-TIPPED LEGS FOR EXPOSED SURFACES). USE 3" SBP SUPPORTS AT ALL FOOTINGS.
- ALL STRUCTURAL ADHESIVE SHALL BE SIMPSON SET 3G OR HILTI HY-200 R OR EQUIVALENT. ALL STRUCTURAL ADHESIVE SHALL BE INSTALLED PER THE MANUFACTURER'S REQUIREMENTS. SUBSTITUTIONS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL WITH APPROPRIATE ICBO EVALUATION REPORTS.

**CAST IN PLACE CONCRETE:**

- SUBMIT PROPOSED MIXED DESIGNS OF EACH TYPE FOR REVIEW. REQUIRED MINIMUM CONCRETE COMPRESSIVE STRENGTHS AT 28 DAYS:  
a. FOOTING AND GRADE BEAM CONCRETE.....4000 PSI  
b. SLAB ON GRADE AND STRUC SLAB ABOVE GRADE.....4000 PSI
- ALL CONCRETE MIX DESIGNS SHALL HAVE WATER TO CEMENT RATIOS LESS THAN 0.52 (0.45 FOR MOISTURE SENSITIVE FLOORING), WITH A MAXIMUM #640 FINE TO COARSE AGGREGATE RATIO. CONCRETE MIX DESIGNS THAT DO NOT CONFORM TO THE ABOVE STANDARD AND/OR CONTAIN WATER REDUCING LATANCE AREAS SHALL BE SUBMITTED WITH APPROPRIATE TEST DATA PER A.C.I. ALL CONCRETE SHALL BE IN CONFORMANCE WITH THE A.C.I. 301 STANDARD THAT IS REFERENCED IN THE BUILDING CODE AT THE TIME OF PERMITTING THE PROJECT..
- EXTERIOR CONCRETE (FLOOR SLABS, WALLS, ETC) SHALL HAVE 6.5% (PLUS/MINUS 1.5%) 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 6 HRS OLD), CLEAN EXISTING SURFACE OF LATANCE AND FOREIGN MATERIAL AND DAMPEN THE EXISTING SURFACE. IF REQUIRED, ROUGHEN EXISTING CONCRETE TO ¼" AMPLITUDE.
- SLABS ON GRADE SHALL BE 4" THICK MINIMUM ON 4" OF GRANULAR FILL. REINF SLAB WITH 6 X 6 W2 1xW2 1 WWR OR #3 BARS @ 18" OC EA WAY. PLACE REINF IN UPPER 1/3 OF SLAB THICKNESS. AT INTERIOR SLABS, A 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 KEYS 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 40%. JOINTS SHALL BE LOCATED AT COLUMN CENTERLINES WHERE POSSIBLE. SPACING BETWEEN JOINTS SHALL NOT EXCEED 15 FEET. CONTRACTOR SHALL SUBMIT JOINT LAYOUT TO ARCHITECT FOR APPROVAL. REFER TO TYPICAL DETAILS.

- REINFORCEMENT SHALL BE CONTINUOUS AND LAPPED #3 BAR DIAMETERS (2'-6" MIN) EXCEPT AS NOTED AND PROVIDE CORNER BARS OF SAME SIZE AND SPACING.

- MINIMUM CONCRETE WALL REINFORCING (WALL 10" OR GREATER) SHALL BE #5 AT 10" CENTERS EACH WAY, EACH FACE

- MINIMUM REINFORCING AROUND CONCRETE WALL OPENINGS 2'-0" OR GREATER (TYPICAL UNLESS NOTED): 2-#5, EXTEND REINF 2'-0" PAST OPENINGS. PROVIDE 2-#5 X 4'-0" DIAGONAL BARS AT CORNERS

- CONTRACTOR SHALL COORDINATE ALL CURING COMPOUNDS WITH FLOOR FINISH REQUIREMENTS TO ENSURE COMPATIBILITY.

- FOUNDATION CONTRACTOR TO ENSURE PROPER ANCHOR ROD PROJECTION AND THAT ANCHOR RODS ARE HELD SECURELY IN POSITION PRIOR TO CONCRETE PLACEMENT. INSTALL ANCHOR RODS TO THE STRICT DIMENSIONAL TOLERANCES PER ASC REQUIREMENTS. STRUCTURAL STEEL COLUMN ANCHOR RODS SHALL BE SET WITH A RIGID TEMPLATE.

- AGGREGATES AND/OR CONCRETE MIXES SHALL BE CERTIFIED TO BE FREE OF AND ELIMINATE DAMAGE OF CONCRETE DUE TO ALKALI-SILICA REACTION OR ALKALI-AGGREGATE REACTIONS WHEN EXPOSED TO SOILS AND/OR AN EXTERIOR ENVIRONMENT.

- ALL CONCRETE MIX DESIGNS EXPOSED TO AN EXTERIOR ENVIRONMENT SHALL MEET THE REQUIREMENTS OF THE KANSAS CITY METRO MATERIALS BOARD (KCMMB) OR THE JOHNSON COUNTY CONCRETE BOARD (JCCB).

- ANY CONCRETE WALLS EXPOSED TO VIEW OR TO BE FORMED WITH A FORM LINER SHALL BE CONSIDERED "ARCHITECTURAL CONCRETE" PER ACI 301 CHAPTER 6. A MOCKUP SHALL BE MADE AND REVIEWED FOR ACCEPTANCE BY THE ARCHITECT AND OR THE CLIENT FOR CONFORMANCE WITH FINISH INTENT. THE IN-PLACE CONCRETE SHOULD BE REVIEWED AT SEVERAL INTERVALS DURING CONSTRUCTION TO CONFIRM THAT THE FINISH IS MATCHING THE APPROVED MOCKUP STANDARD FOR FINISH. THE INTERVALS SHALL BE DETERMINED BY THE ARCHITECT.

**WOOD:**

- FRAMING MATERIAL: ALL WOOD FRAMING SHALL MEET OR EXCEED THE FOLLOWING:  
A. NOMINAL STRUCTURAL LUMBER: DOUG. FIR - NO 2 OR BETTER, KILN-DRIED, MIN Fb = 900 PSI, MIN E = 1400 KSI.  
B. EXPOSED TO WEATHER: NOMINAL STRUCT LUMBER - PRESS TREATED NO 2 OR BETTER, MIN Fb = 1000 PSI, MIN E = 1300 KSI

- LUMBER IN DIRECT CONTACT WITH CONCRETE OR MASONRY, SUCH AS SILL PLATES AND BEARING PLATES BELOW BEAMS POCKETED IN CMU, SHALL BE TREATED LUMBER.

- WOOD SHEATHING:  
A. ROOF SHEATHING SHALL BE 15/32" OR 12" WITH AN APA SPAN RATING OF 3216, 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. WALL SHEATHING FOR EXTERIOR WALLS SHALL BE 7/16" WITH AN APA SPAN RATING OF 2416, UNLESS NOTED OTHERWISE. ALL PANEL EDGES SHALL BE BACKED WITH 2 INCH NOMINAL OR WIDER FRAMING. FASTEN WITH 6d COMMON NAILS AT 6" OC MAXIMUM AT ALL TOP PLATES, BLOCKING, BOUNDARIES AND 10" OC MAXIMUM IN THE FIELD.

- WOOD SHEATHING TO BE STAGGERED 4X8 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 2304.1.1 USE COMMON NAILS EXCEPT WHERE NOTED. ALL FASTENERS (BOLTS, SCREWS, NAILS, ETC) IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT DIP GALVANIZED.

- LIGHT GAUGE 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.

- CONNECTORS IN DIRECT CONTACT WITH PRESSURE TREATED LUMBER SHALL HAVE "ZMAX" G185 HOT DIP GALVANIZED COATING OR REVIEWED EQUIVALENT.

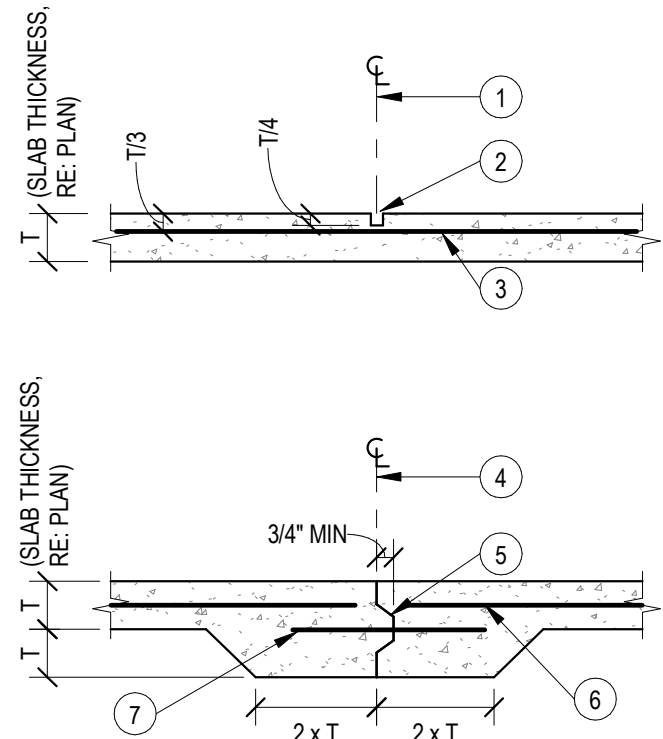
- STAINLESS STEEL FASTENERS, ANCHOR BOLTS, LIGHT GAUGE CONNECTORS, ETC. MAY BE SUBSTITUTED FOR HOT DIP GALVANIZED MATERIALS AT THE CONTRACTORS OPTION.

- PROVIDE UPLIFT CONNECTORS AT EACH ROOF JOISTS TO WALL CONNECTIONS PER IRC.

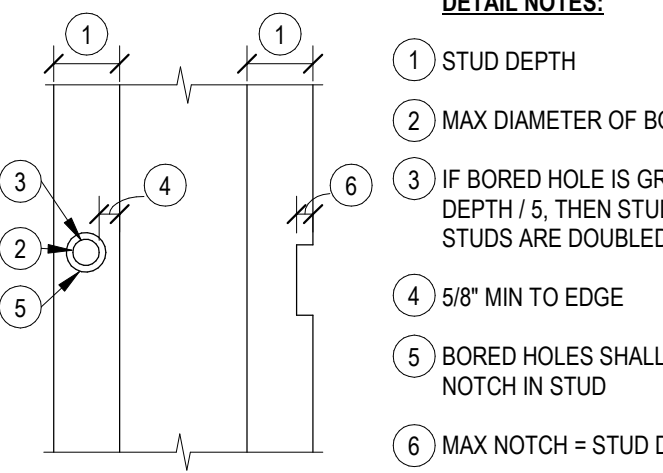
- STUDS SHALL BE CONTINUOUS BETWEEN EACH DIAPHRAGM LEVEL. EXTERIOR WALL STUDS AT GROUND FLOOR SHALL BE BRACED BY KICKERS AND/OR STRUCTURAL CEILING FRAMING.

- TYPICAL SILL ANCHOR RODS SHALL BE GALVANIZED 1/2" DIAMETER EMBEDDED 7" MIN INTO CONCRETE, SPACED NO FURTHER THAN 3'-0" OC. AND SHALL OCCUR WITHIN 12" OF THE ENDS OF A SILL PLATE. SPACE ANCHOR RODS MORE CLOSELY TOGETHER AT SHEAR WALLS AS SHOWN ON THE DRAWINGS. EACH SILL PLATE SHALL HAVE A MINIMUM OF 2 ANCHOR RODS. PROVIDE 2" SQUARE PLATE WASHERS AND NUTS.

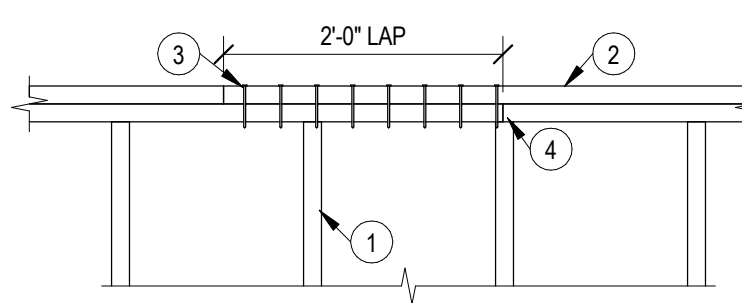
- SUBSTITUTIONS OF SPECIFIED WOOD MEMBERS SHALL NOT BE MADE WITHOUT REVIEW OF THE ARCHITECT/ENGINEER.

**7 SLAB ON GRADE CONTROL JOINTS**

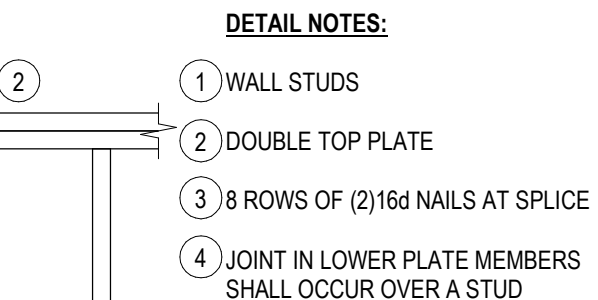
3/4" = 1'-0"

**6 BORED HOLE & NOTCHES - VERT FRAMING**

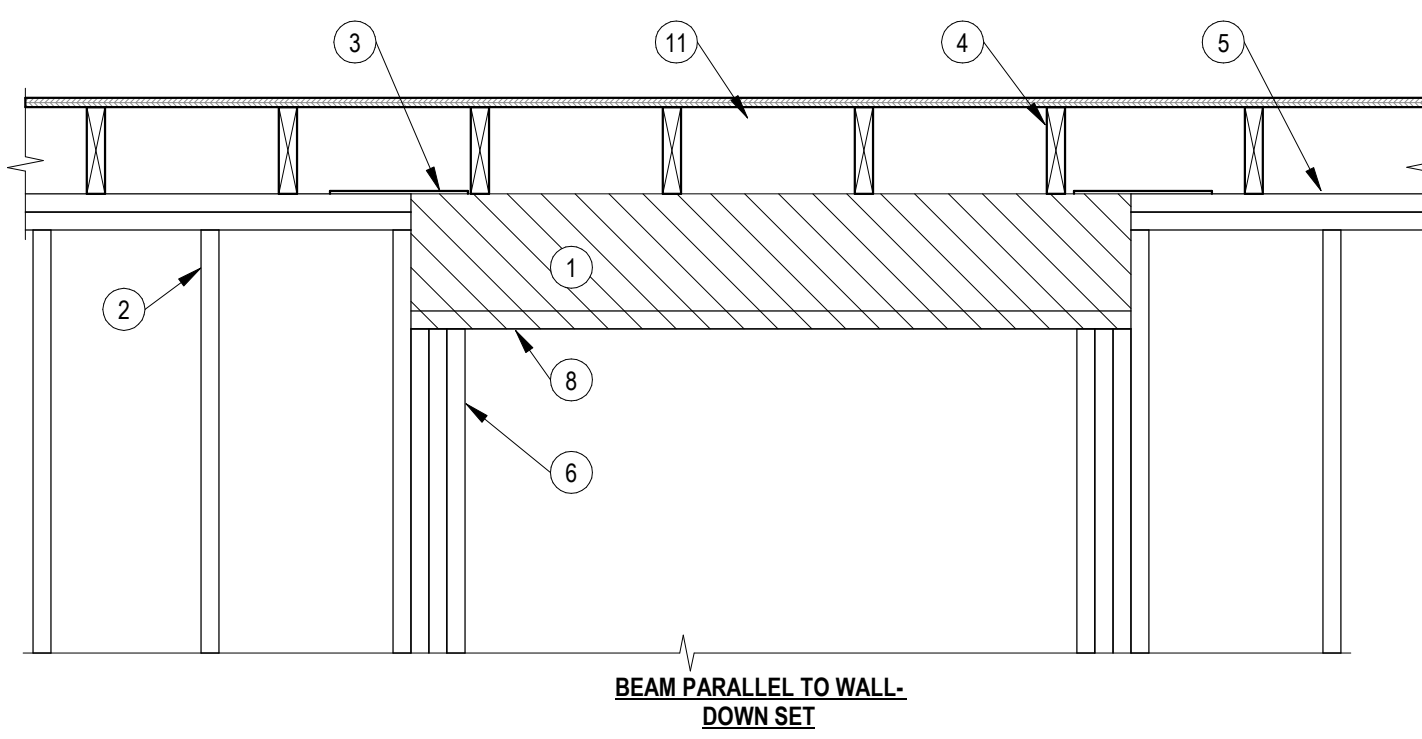
3/4" = 1'-0"

**5 TOP PLATE SPLICE**

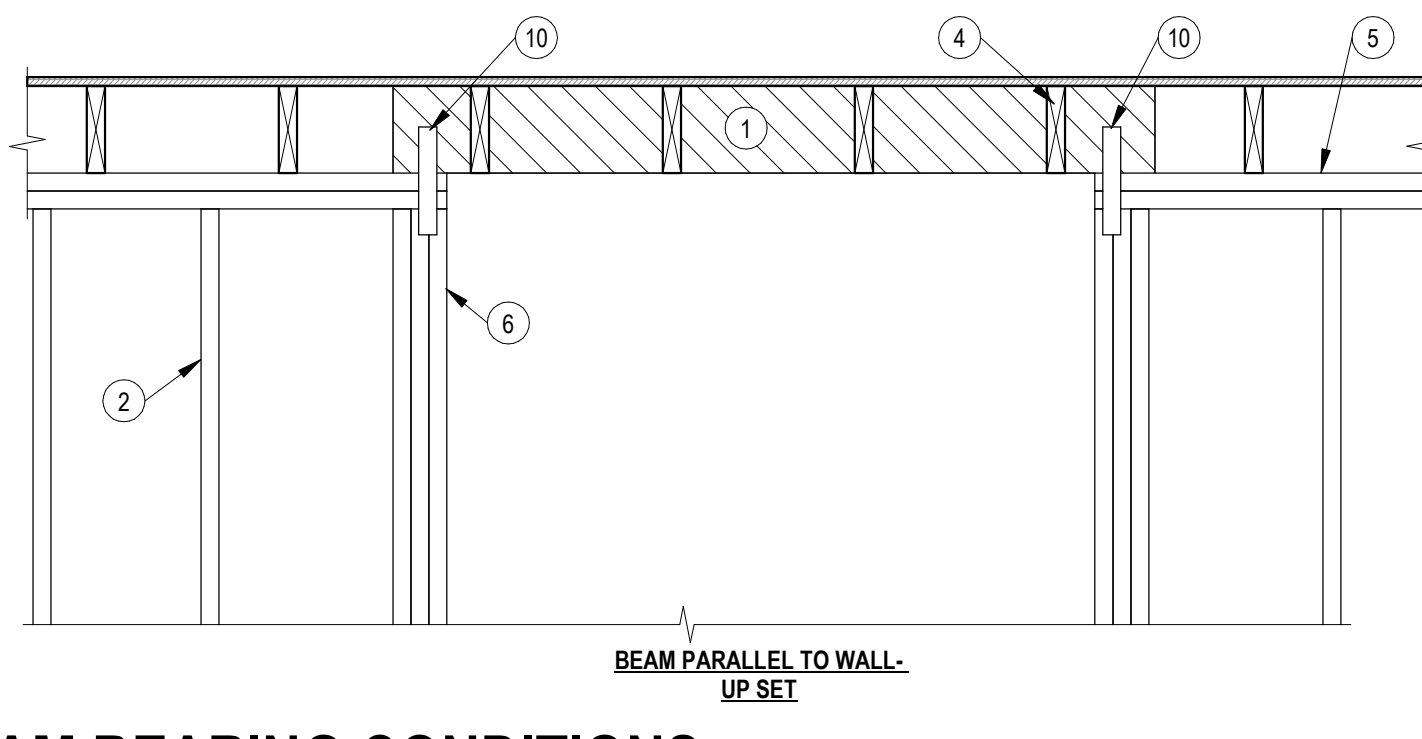
3/4" = 1'-0"

**3 EDGE FRAMING DETAIL**

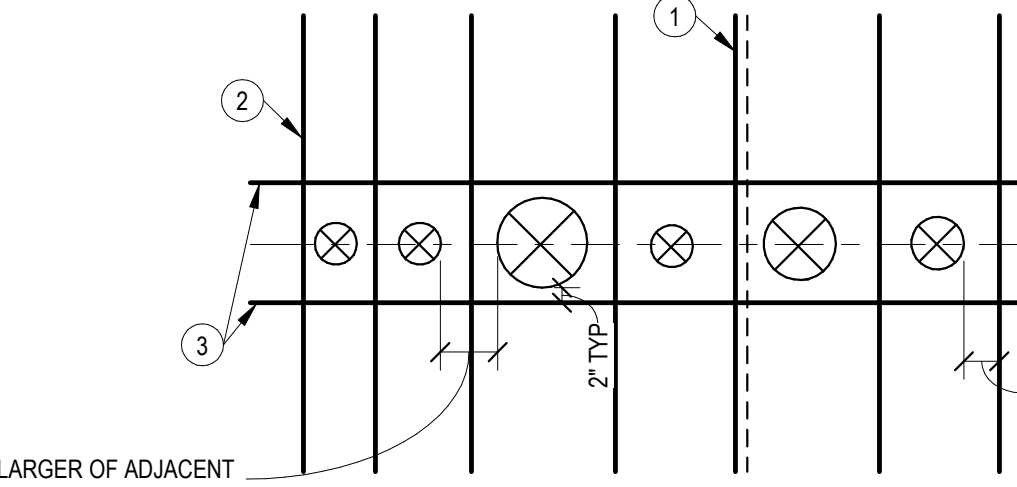
1 1/2" = 1'-0"

**2 BORED HOLE & NOTCHES - HORIZ FRAMING**

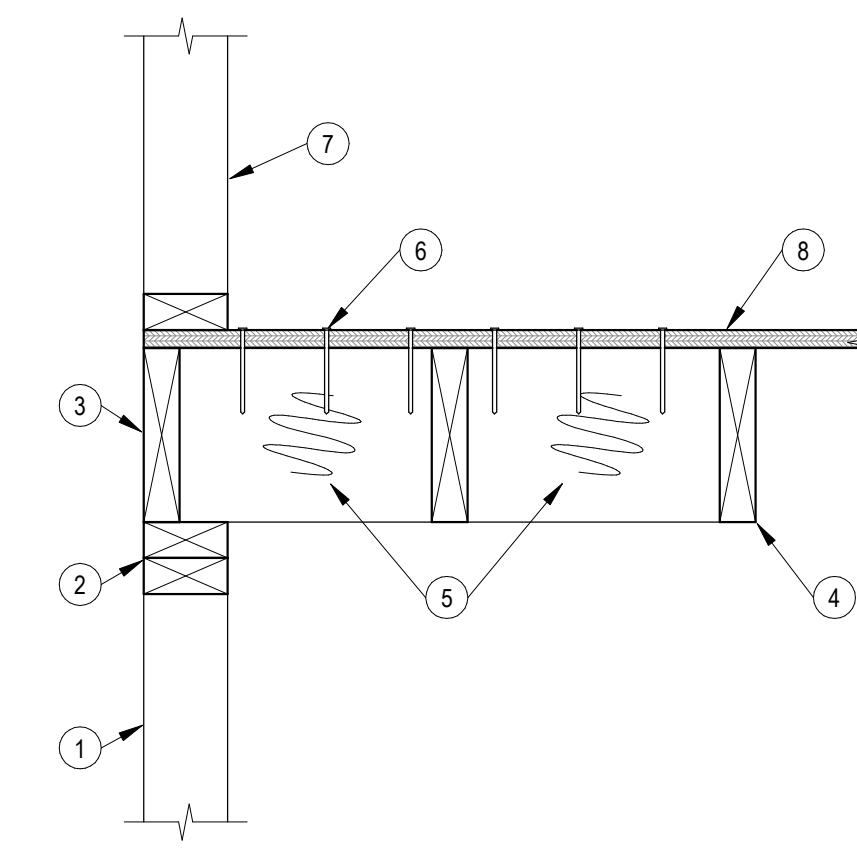
3/4" = 1'-0"

**1 BEAM BEARING CONDITIONS**

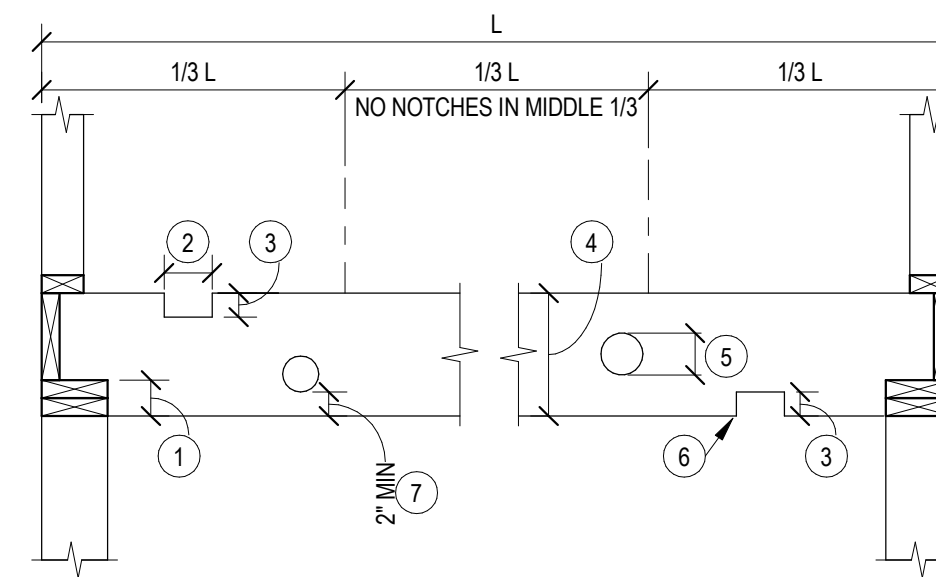
3/4" = 1'-0"

**4 REINF @ SLAB PENETRATIONS**

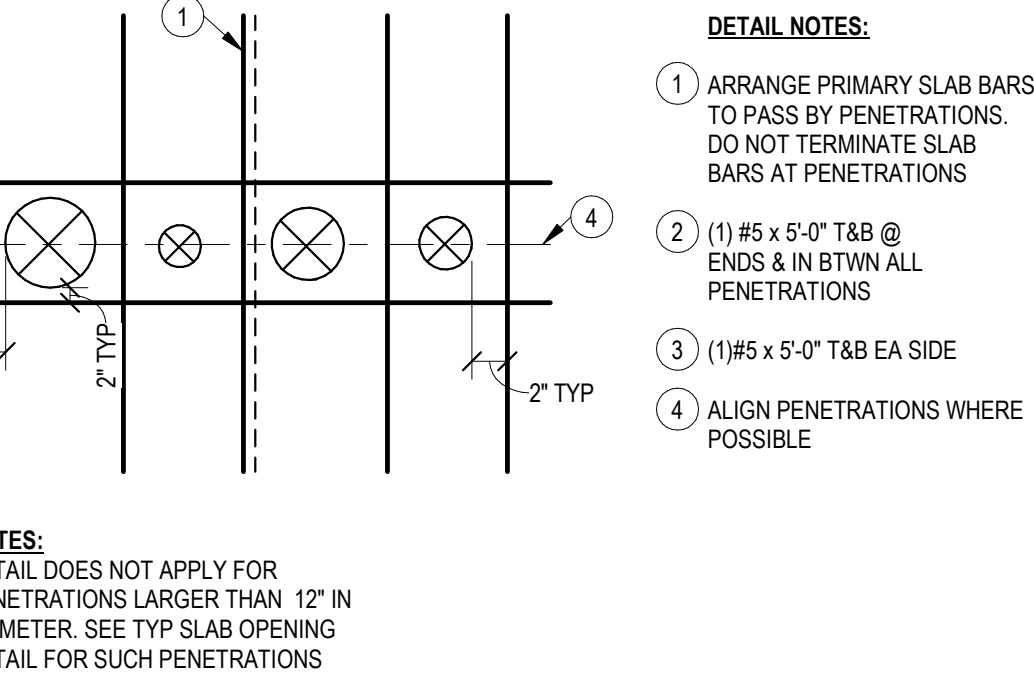
3/4" = 1'-0"

**3 EDGE FRAMING DETAIL**

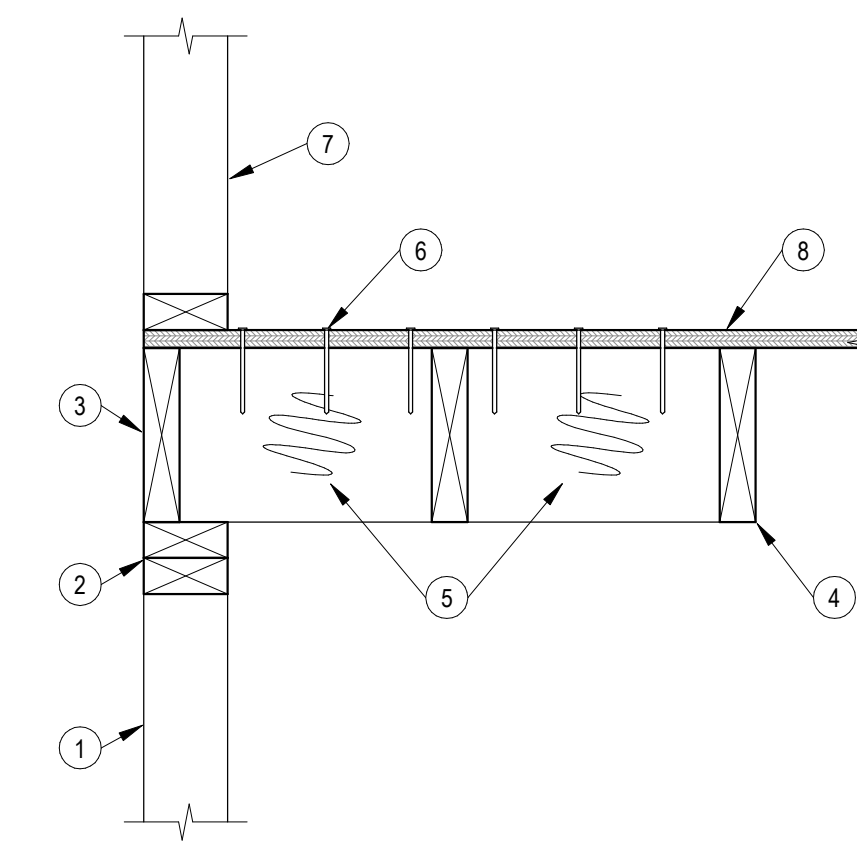
1 1/2" = 1'-0"

**2 BORED HOLE & NOTCHES - HORIZ FRAMING**

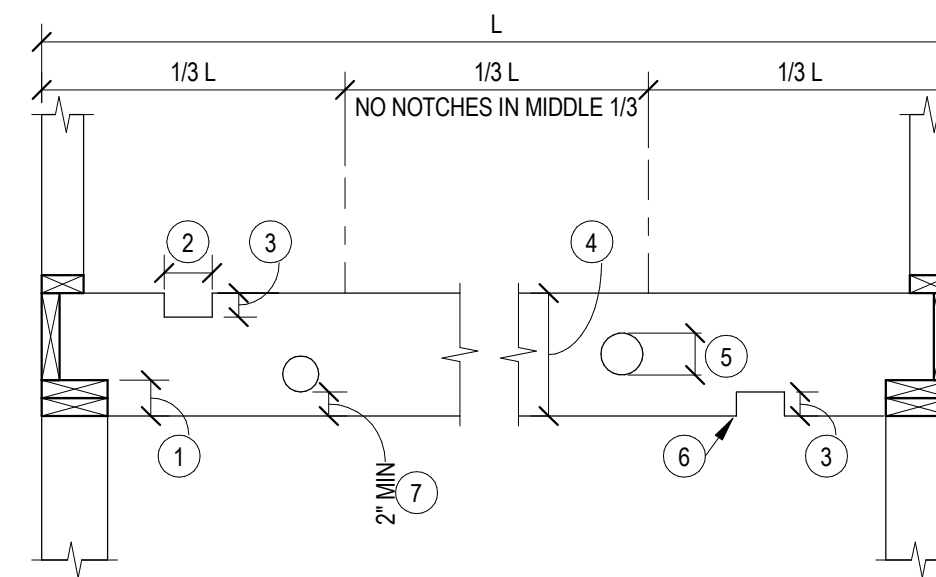
3/4" = 1'-0"

**4 REINF @ SLAB PENETRATIONS**

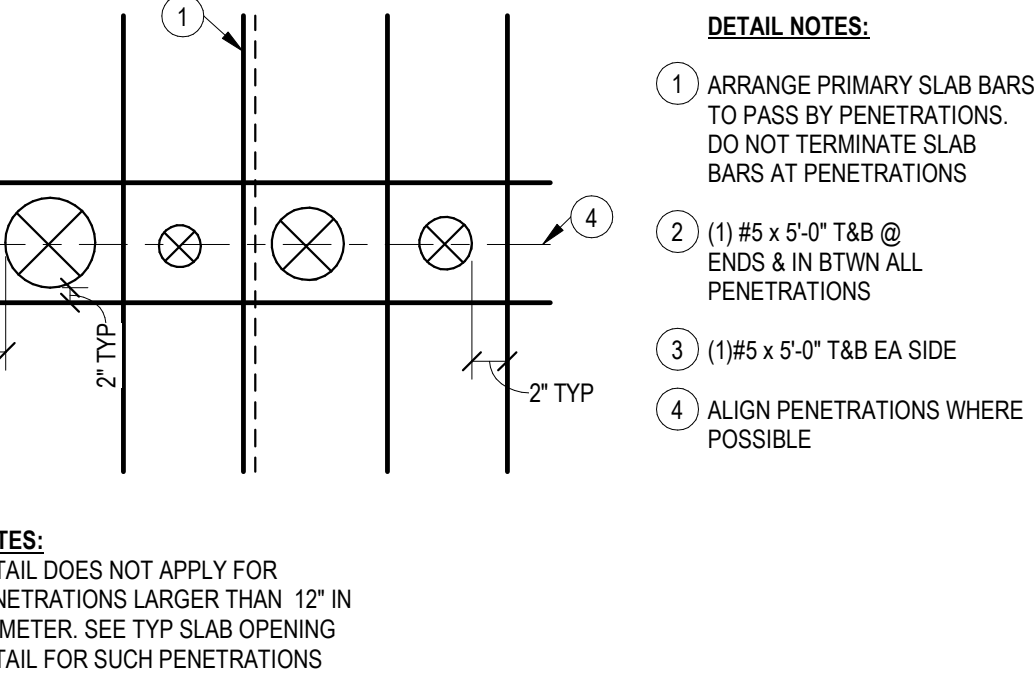
3/4" = 1'-0"

**3 EDGE FRAMING DETAIL**

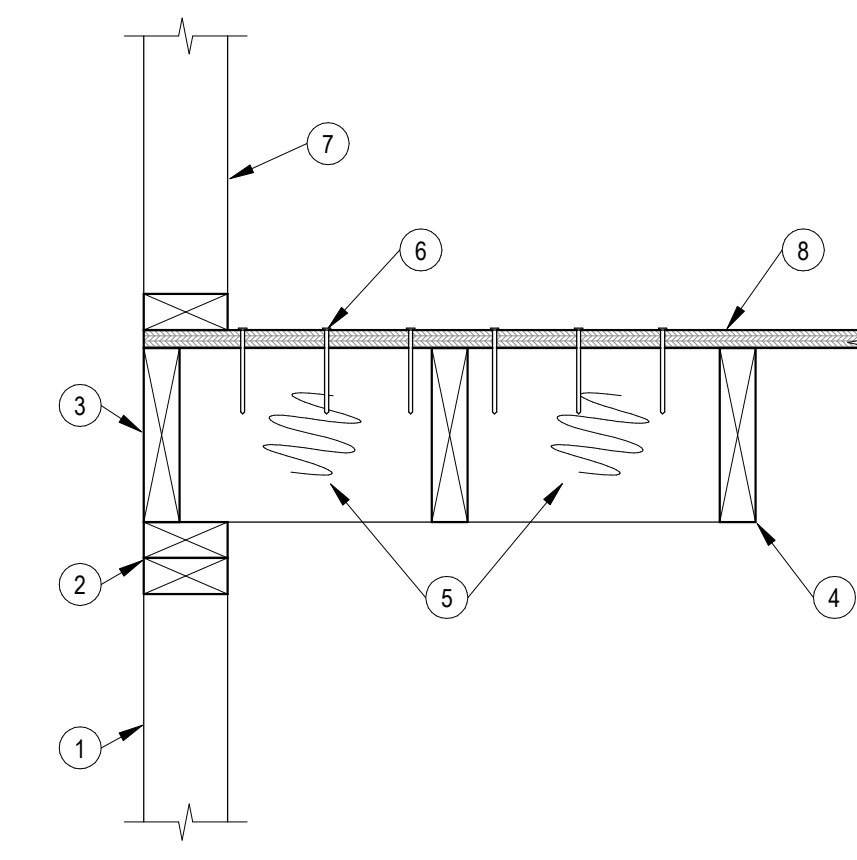
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**2 BORED HOLE & NOTCHES - HORIZ FRAMING**

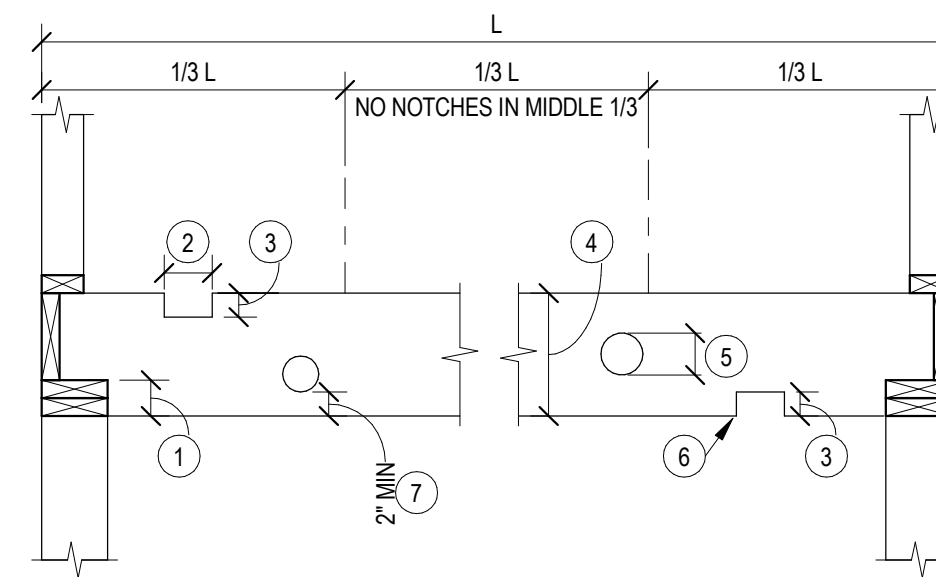
3/4" = 1'-0"

**4 REINF @ SLAB PENETRATIONS**

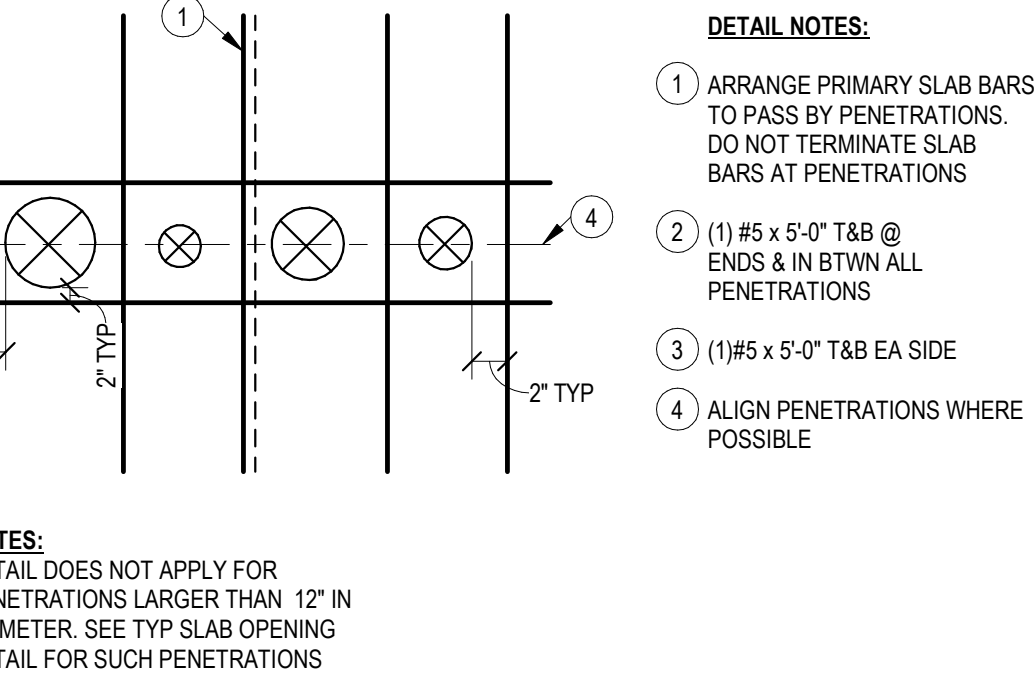
3/4" = 1'-0"

**3 EDGE FRAMING DETAIL**

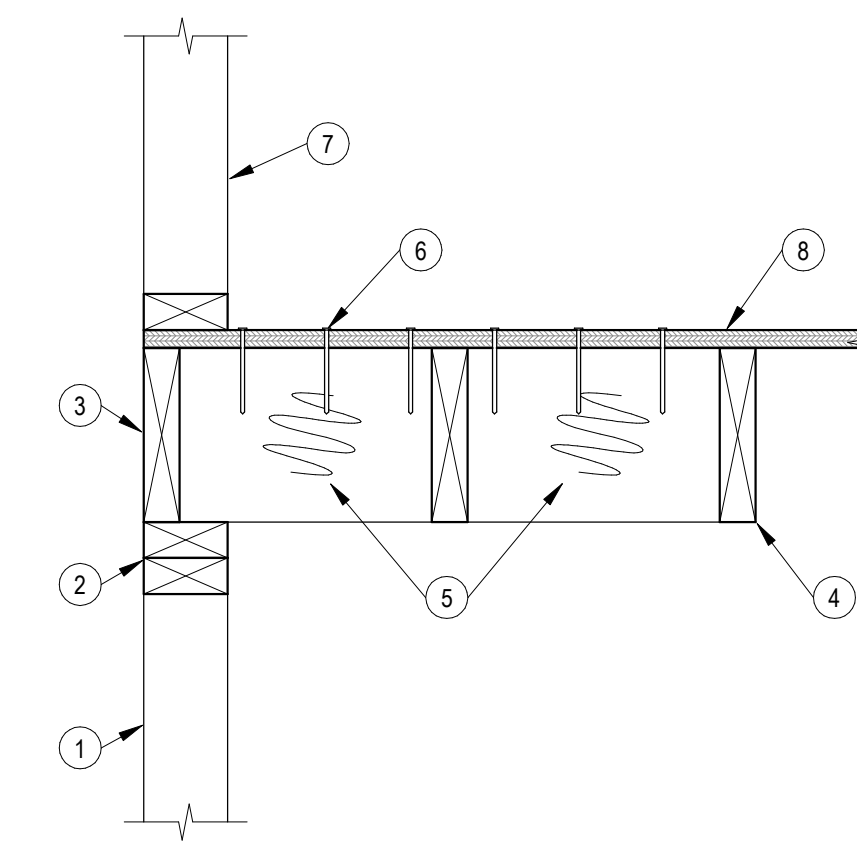
1 1/2" = 1'-0"

**2 BORED HOLE & NOTCHES - HORIZ FRAMING**

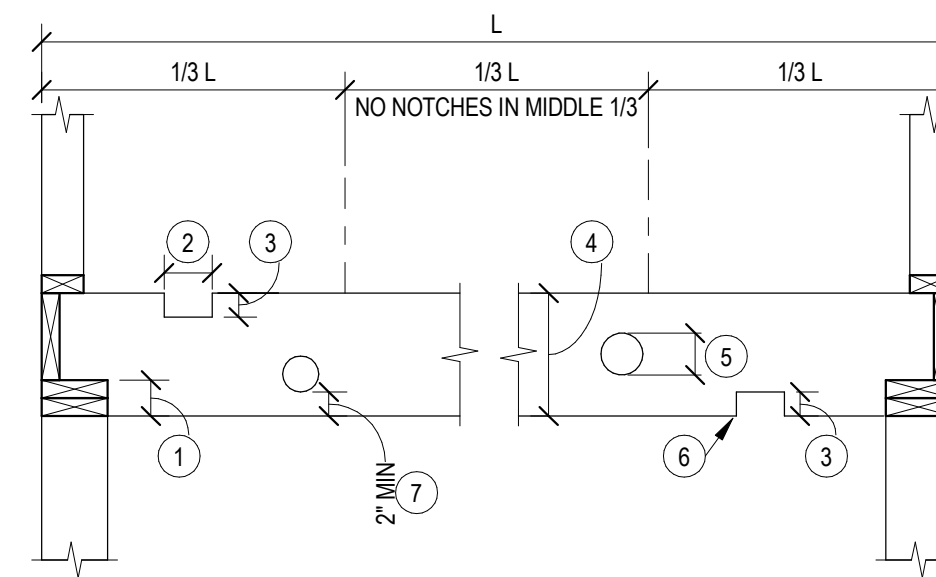
3/4" = 1'-0"

**4 REINF @ SLAB PENETRATIONS**

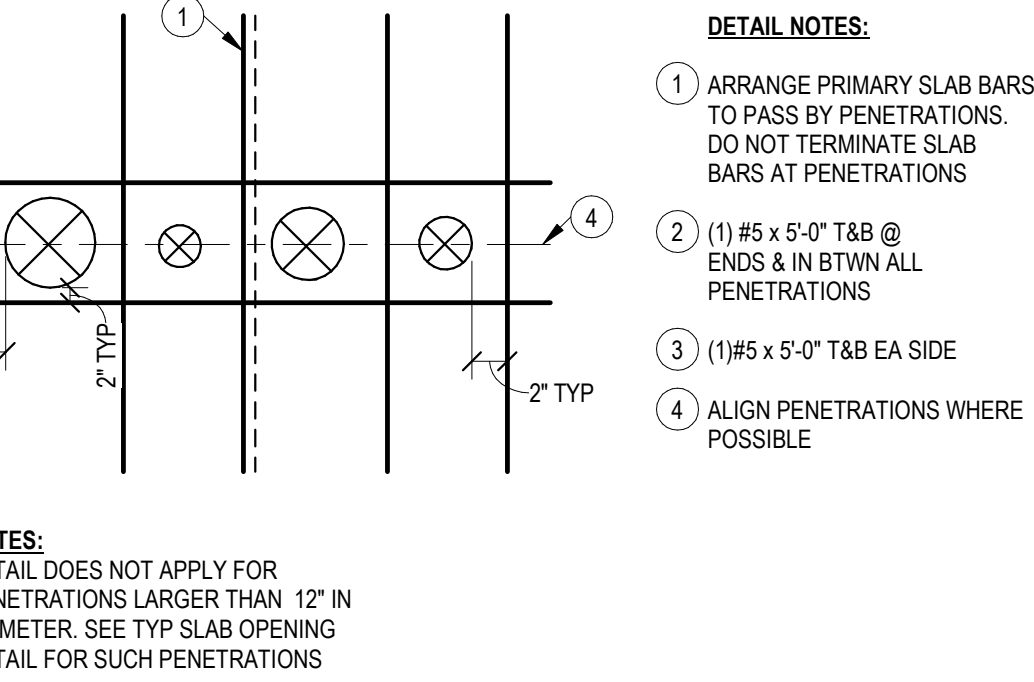
3/4" = 1'-0"

**3 EDGE FRAMING DETAIL**

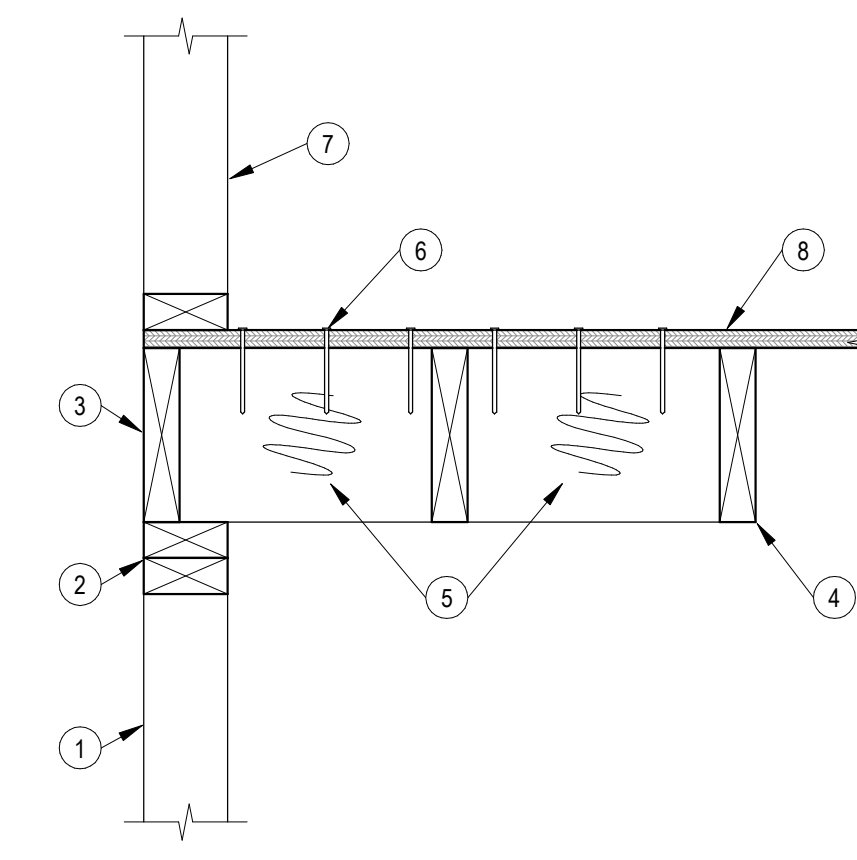
1 1/2" = 1'-0"

**2 BORED HOLE & NOTCHES - HORIZ FRAMING**

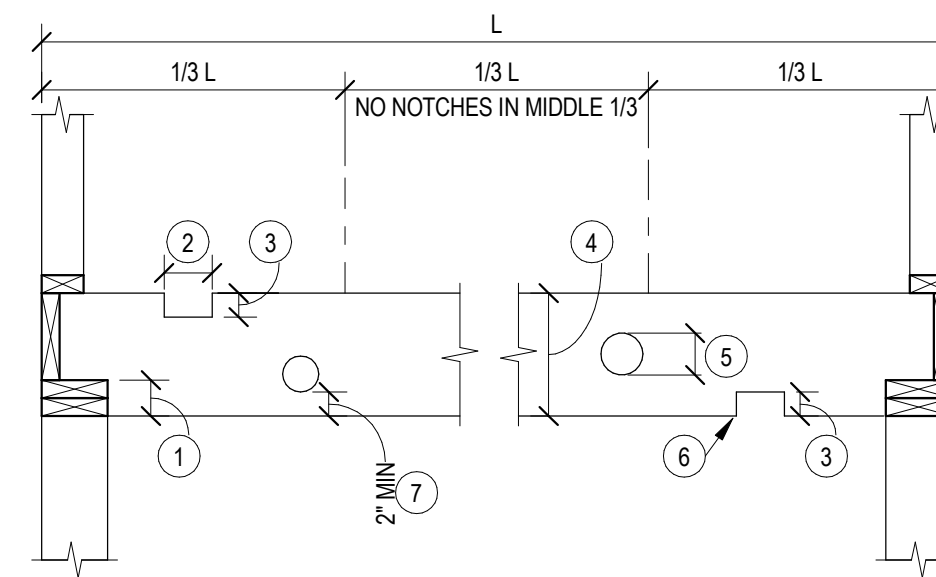
3/4" = 1'-0"

**4 REINF @ SLAB PENETRATIONS**

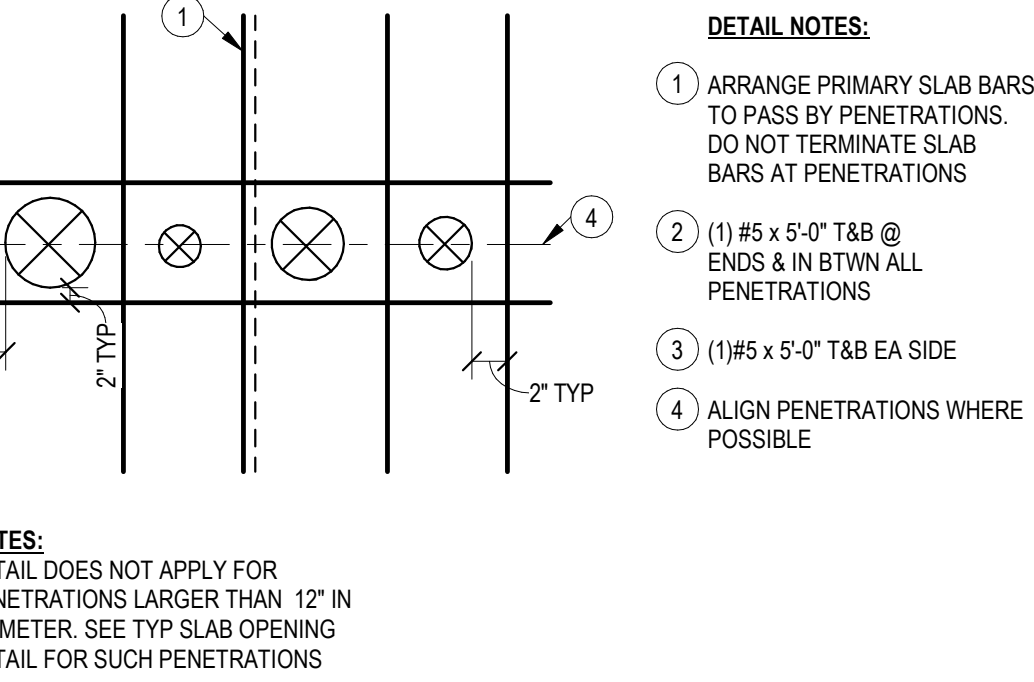
3/4" = 1'-0"

**3 EDGE FRAMING DETAIL**

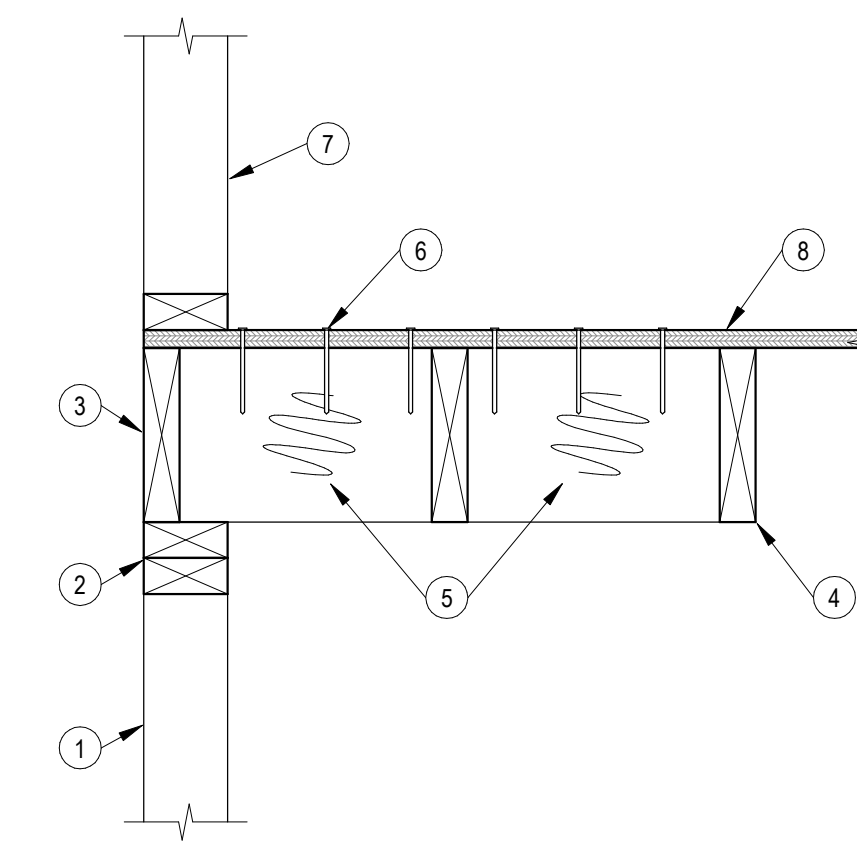
1 1/2" = 1'-0"

**2 BORED HOLE & NOTCHES - HORIZ FRAMING**

3/4" = 1'-0"

**4 REINF @ SLAB PENETRATIONS**

3/4" = 1'-0"

**3**



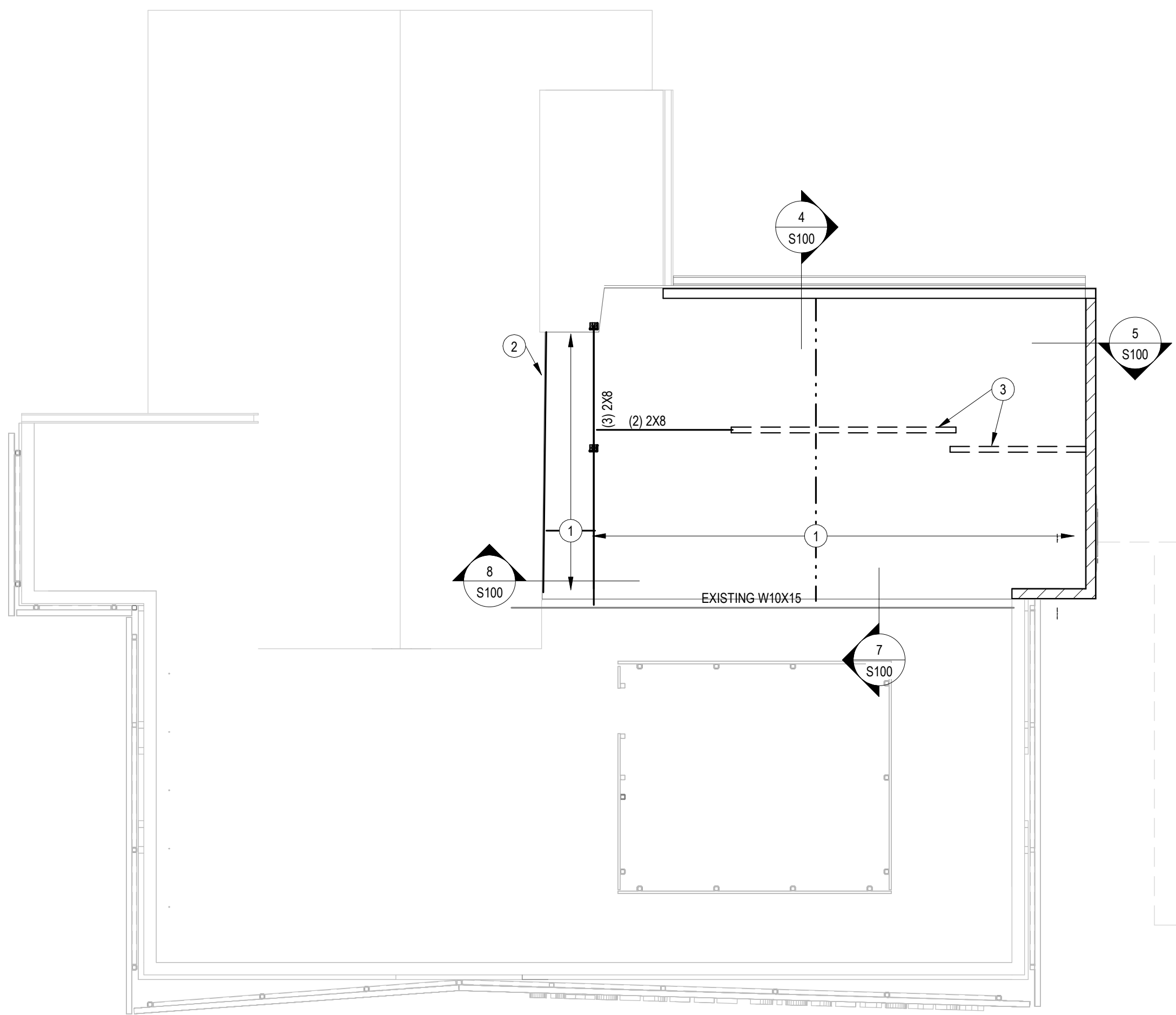
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2

## ROOF FRAMING PLAN

3/16" = 1'-0"



### PLAN NOTES:

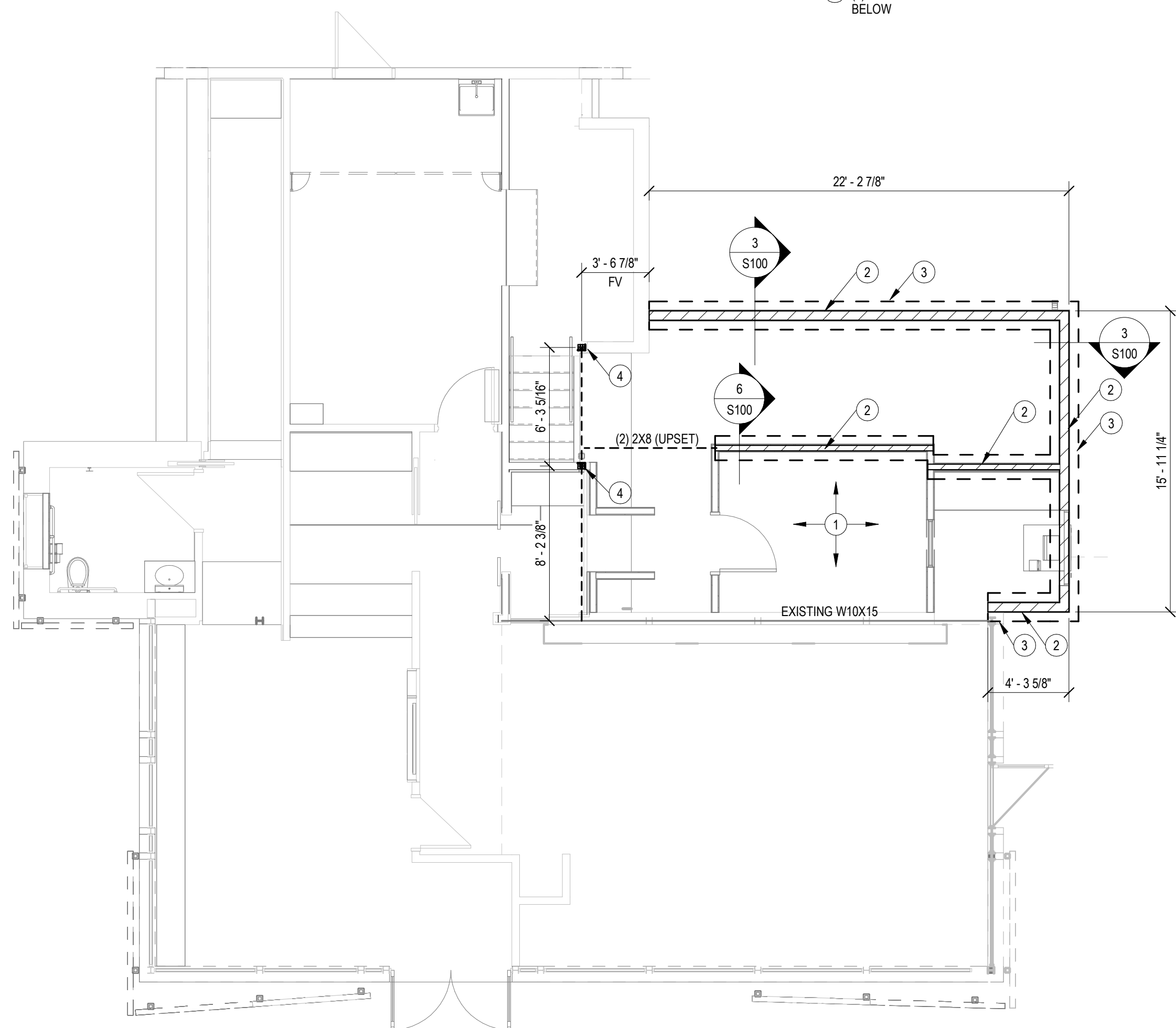
- 2x8 @ 16" ROOF JOISTS
- 2x8 LEDGER FOR SUPPORT OF ROOF JOISTS. FASTEN TO STUDS W/ (2) 1/4"x3" SDS SCREWS AT EA STUD. IN ADDITION, PROVIDE (1) FASTENMASTER HEADLOK SCREW x 2 7/8" LONG @ EVERY OTHER STUD
- LOAD BEARING WALL BELOW



1

## FOUNDATION PLAN

3/16" = 1'-0"

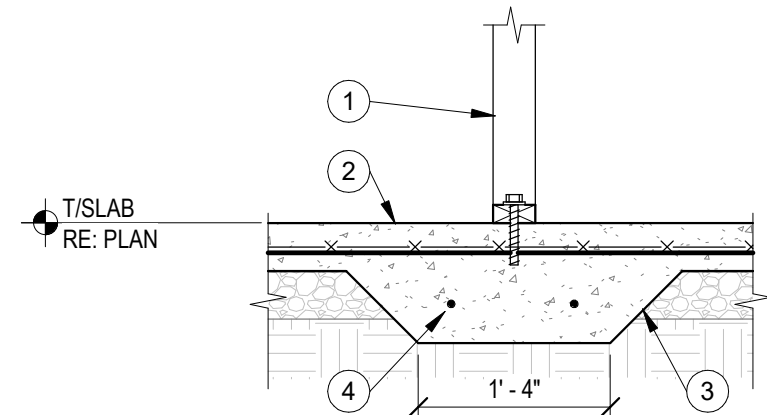


### PLAN NOTES:

- 4" CONCRETE SLAB ON GRADE. RE: GENERAL NOTES FOR REINFORCING, GRANULAR FILL, VAPOR BARRIER AND JOINTING REQUIREMENTS
- 2x6 @ 16" OC
- 16" WIDE x 3'-0" DEEP TRENCH FOOTING. REINF W/ (2)#4 TOP & BOT AND #3 TIES @ 24" OC
- 3/4"x4" STUD PACK. FV THAT STUD PACK LANDS ON EXISTING CONCRETE WALL BELOW

### DETAIL NOTES:

- TRENCH FOOTING. RE: PLAN FOR SIZE & REINF. RE: ARCH FOR INSULATION REQUIREMENTS
- SOG. RE: PLAN FOR SIZE & REINF
- WALL. RE: PLAN FOR SIZE & SPACING
- SHEATHING. RE: GENERAL NOTES
- #4 DWL (2'-0"x2'-0") @ 24" OC & #4 CONT
- SILL PL TO MATCH STUD WALL SIZE

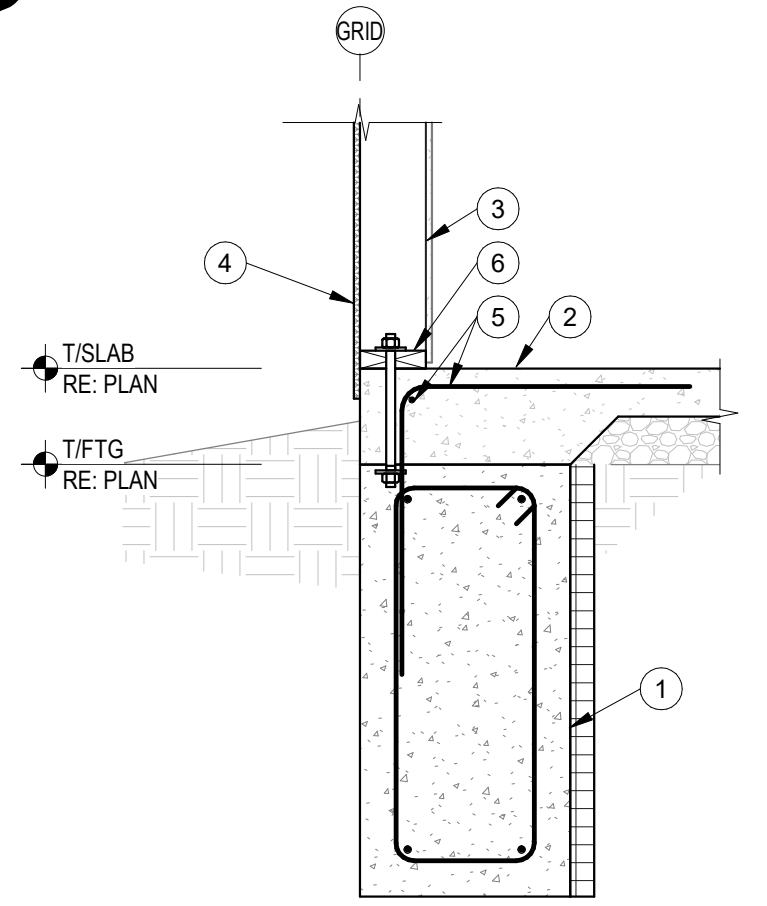


### DETAIL NOTES:

- INTERIOR LOAD BEARING WALL. ATTACH TO FLOOR W/ 1/2"x4" SCREW ANCHORS AT 4' OC MAX
- SLAB ON GRADE. RE: PLAN. RUN SLAB REINF CONT THROUGH THICKENED SLAB
- 16"x10" THICKENED SLAB. UNO. POUR MONOLITHICALLY WITH SLAB ON GRADE
- (2) #4 CONT @ BOTTOM OF THICKENED SLAB. UNO

## THICKENED SLAB

3/4" = 1'-0"

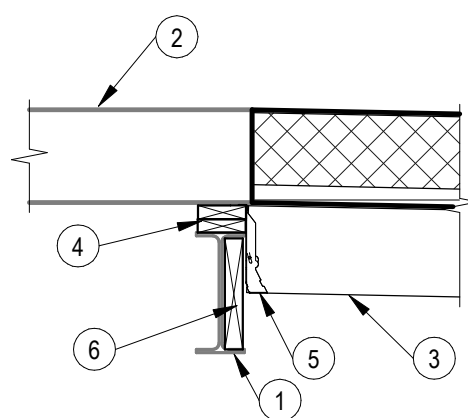


## TRENCH FTG SHEATHING

3/4" = 1'-0"

### SECTION NOTES:

- EXISTING STL BEAM
- EXISTING ROOF
- 2X8 ROOF JOISTS
- 2X TOP PL W/ PLYWOOD SHIMS ON TOP TO MATCH JOIST SEAT DEPTH
- JB28 SIMPSON STRONG-TIE CONNECTION
- PACKOUT EXISTING STL BEAM WITH 2X

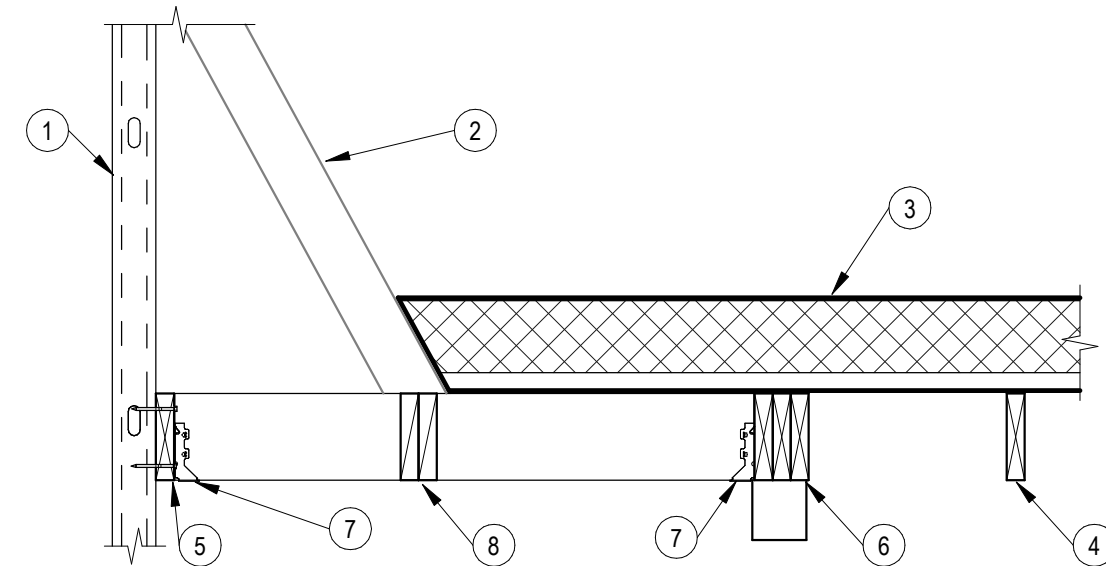


## SECTION

3/4" = 1'-0"

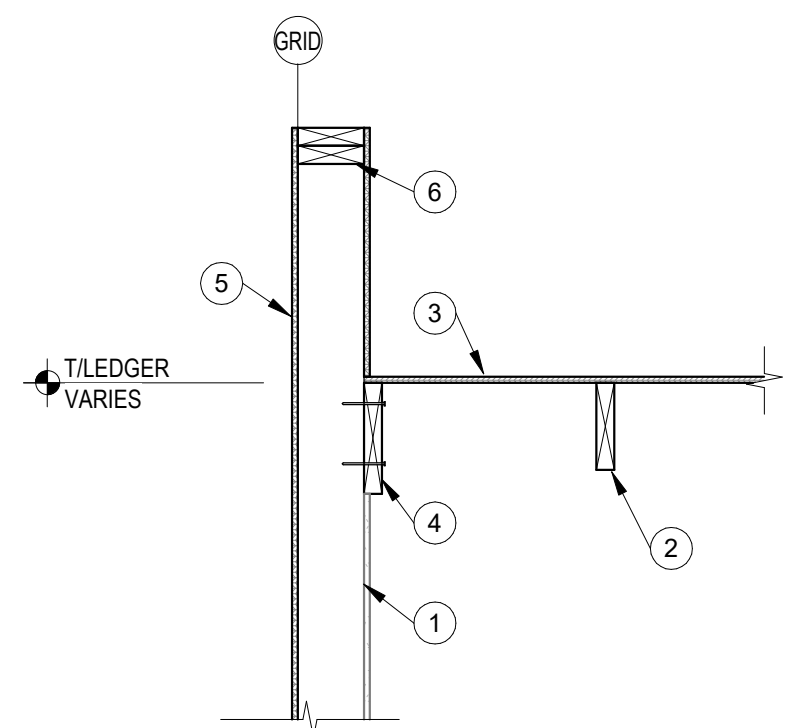
### SECTION NOTES:

- EXISTING WALL
- EXISTING A-FRAME ROOF
- NEW ROOF RE: ARCH
- ROOF JOISTS RE: PLAN
- LEDGER RE: PLAN
- BUILT-UP WOOD BEAM RE: PLAN
- SIMPSON STRONG-TIE LUS26
- PROVIDE (2)2X BLOCKING BETWEEN JOISTS



### DETAIL NOTES:

- 2x WALL. RE: PLAN
- JOIST RE: PLAN
- SHEATHING RE: PLAN
- 2x LEDGER
- FINISH. RE: ARCH
- DOUBLE 2x TOP PL

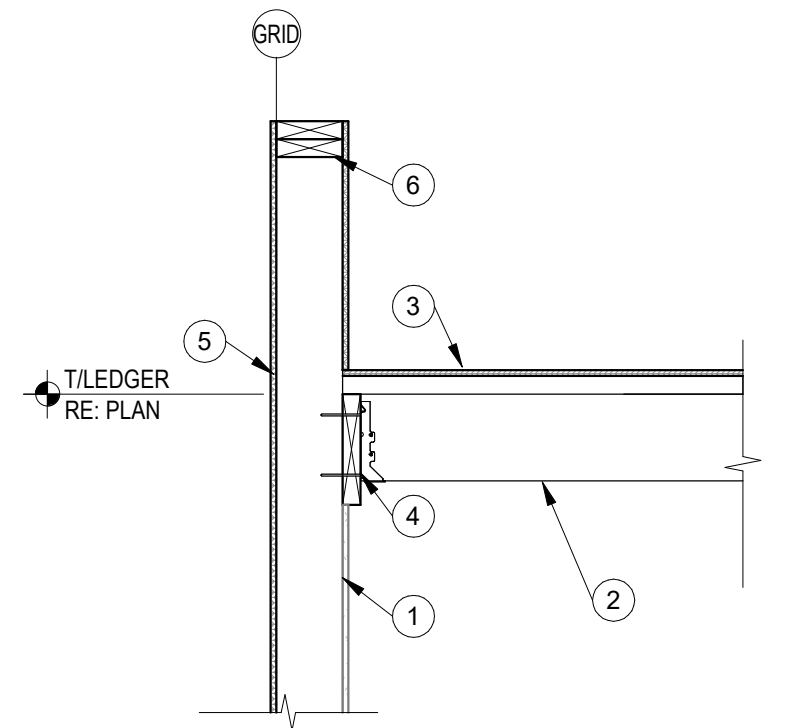


## STUD PARALLEL

3/4" = 1'-0"

### DETAIL NOTES:

- 2x WALL. RE: PLAN
- JOIST RE: PLAN
- SHEATHING RE: PLAN
- 2x LEDGER
- FINISH. RE: ARCH
- DOUBLE 2x TOP PL



## STUD PERPENDICULAR

3/4" = 1'-0"

### SHEET NOTES:

- REFERENCE SHEET S00x FOR STRUCTURAL GENERAL NOTES. REVIEW NOTES & DETAILS FOR APPLICABILITY.
- SEE ARCHITECTURAL DRAWING FOR DETAILS & DIMENSIONS NOT SHOWN.
- REFER TO S00x FOR TYPICAL DETAILS.
- TOP OF SLAB ELEVATION = 100'-0" UNO +/- TO MATCH EXISTING.
- TOP OF TRENCH FOOTING ELEVATION = 99'-4" UNO. THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE 3'-0" MIN BELOW GRADE. DEEPEN FOOTINGS AS REQUIRED. GRADE IS GENERALLY 6" BELOW FINISH FLOOR ELEVATION.
- SPREAD FOOTINGS DENOTED ON PLAN BY "F.x.x". REFER TO SCHEDULE ON THIS SHEET FOR SIZE AND REINFORCING.



PROFESSIONAL SEAL

S100

ISSUE DATE: 06/10/2022  
COLLINS WEBB #: 22197

FOUNDATION AND ROOF  
FRAMING PLAN

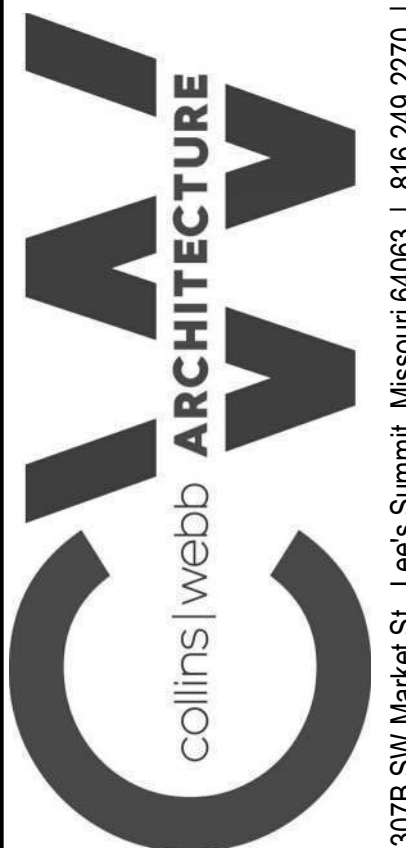
# 3RD STREET DISPENSARY - ADDITION

510SW 3rd ST., Lee's Summit, MO 64063

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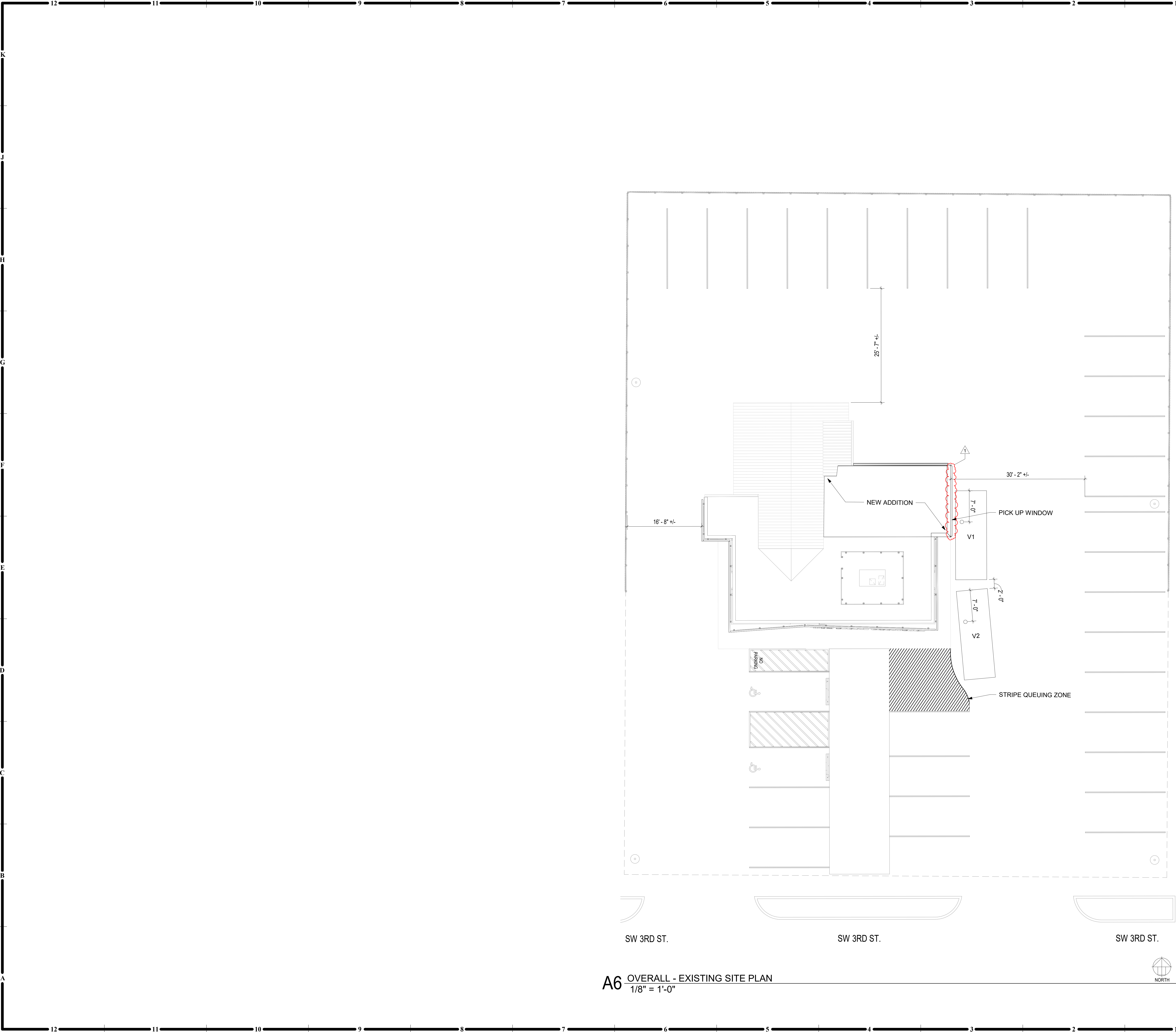
REVISION DATES:

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A6 OVERALL - EXISTING SITE PLAN  
1/8" = 1'-0"

GENERAL NOTES  
ARCHITECTURAL SITE:

1. SHEET FOR REFERENCE ONLY.



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**ARCHITECTURE**

307B SW Market St., Lee's Summit, Missouri 64063 | 816.249.2270 |  
www.collinsandwebb.com

# 3RD STREET DISPENSARY - ADDITION

510 SW 3rd St., Lee's Summit, MO 64063

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REVISION DATES:

1	City Comments	07/05/22
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PROFESSIONAL SEAL

**A100**

ISSUE DATE: 06/10/2022  
COLLINS WEBB #: 22038

PERMIT SET

ARCHITECTURAL SITE PLAN



510 SW 3rd St., Lee's Summit, MO 64063

REVISION DATES:		
1	City Comments	07/05/22



ISSUE DATE: 06/10/2022  
COLLINS WEBB #: 2203

## FIRST FLOOR PLAN AND ROOF PLAN

RE: GENERAL ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL  
NOTES AND DETAILS THAT ARE APPLICABLE.

ARCHITECTURAL ELEVATION 1000  
1. THE FOLLOWING INFORMATION IS TO BE PLANNED AS TO THE  
FACE OF GYP. BOARD WALL (FOG) FACE OF MASONRY (FOM)  
(FOM) FACE OF CONCRETE WALLS (FOC) AND COLUMN  
SURFACES (FCC) TO BE FINISHED WITH THE FOLLOWING:  
NOTE: WALL THICKNESSES ARE ACTUAL DIMENSIONS AND  
DO NOT VARY. SEE GENERAL SHEETS.

2. DOORS TO BE LOCATED BY DIMENSION SHALL BE  
CENTERED IN WALL TYPE OR LOCATED 4 INCHES FROM  
FINISH WALL TO HINGE SIDE OF THE DOOR. ALLOW  
ALLOWING A MINIMUM OF 10" FROM THE FULL SLIDE (6" FROM  
THE TOP OF THE DOOR) TO THE INTERSECTING WALL, OR  
OTHER PROTRUDING OBJECTS.

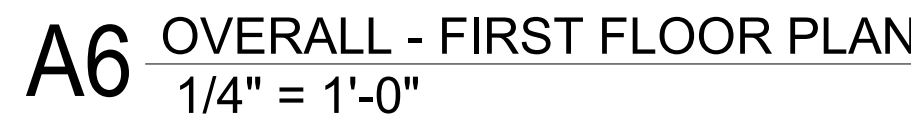
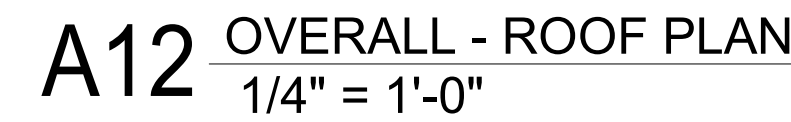
3. DOORS TO BE SELECTED AND APPROVED BY OWNER.  
4. ALL DOORS TO BE FINISHED WITH THE FOLLOWING:  
ALL APPLICABLE BUILDING CODES, LOCAL RULES, AND  
REGULATIONS, AND ALL OTHER CODES, REGULATIONS AND  
ORDINANCES, AND ALL APPLICABLE STANDARDS, WITH ALL  
APPLICABLE AMENDMENTS UNLESS ALTERED OR  
CHANGED THROUGH VARIANCES OF OTHER LEGAL  
PROCEDURES.

5. ALL DOORS TO BE COORDINATE ALL VOLTAGE/SOUND  
WITH OWNER FOR LOCATIONS OF CONDUIT AND/OR  
DEVICE LOCATIONS.

6. ALL DOORS TO BE STUD WALL TO RECEIVE SPRAY FOAM  
INSULATION.

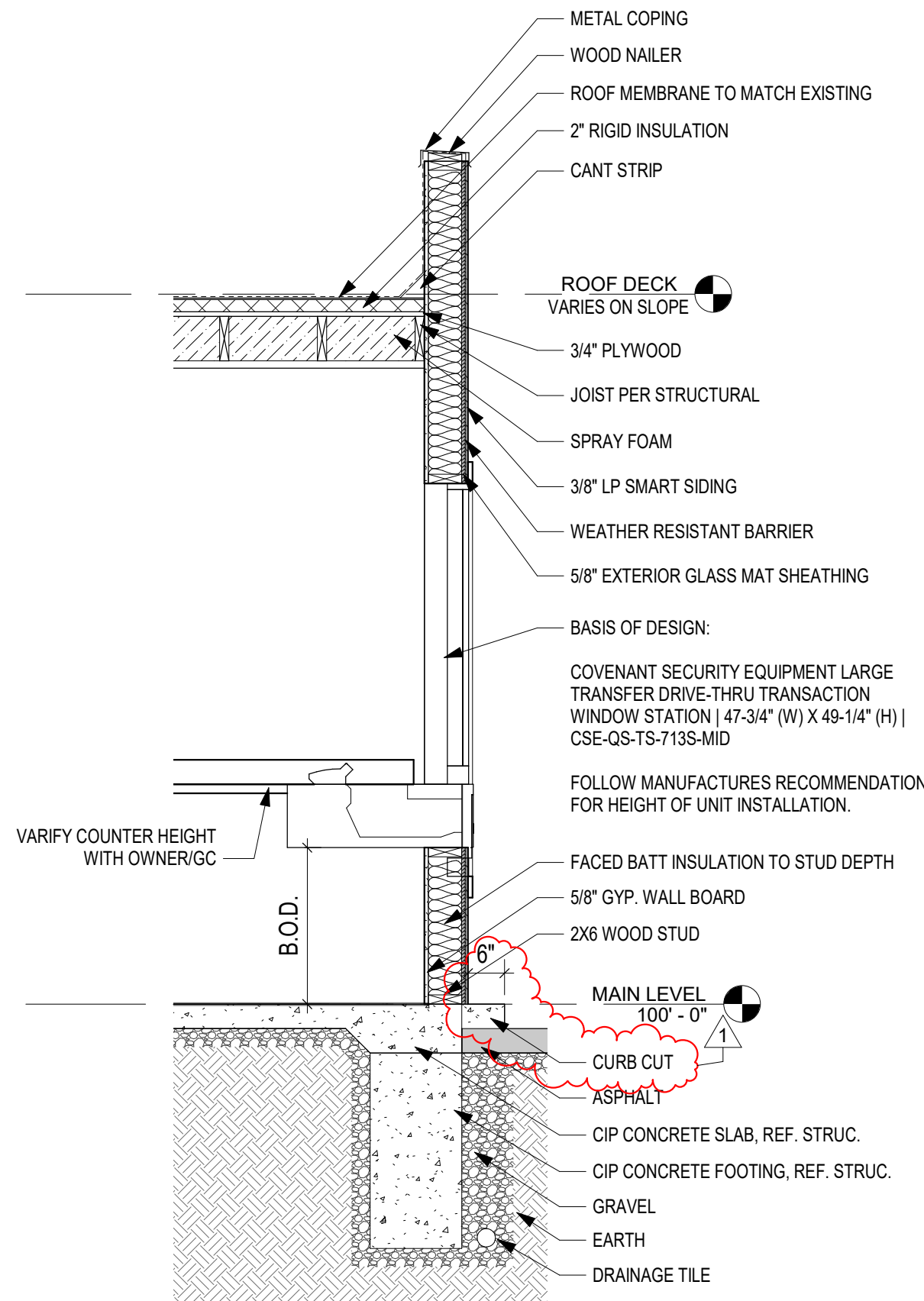
1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.
2. DIMENSIONS SHOWN ON THE ROOF PLAN ARE TO THE FACE OF EXTERIOR WALL, FACE OF MASONRY (FOM), FACE OF CONCRETE WALLS (FOC), AND COLUMN GRID LINES, UNLESS NOTED OR SHOWN OTHERWISE.
3. PROVIDE 1/2" FT. TAPERED INSULATION AT ALL ROOF CURBS AND AT EQUIPMENT WHICH EXCEEDS 18 INCHES IN WIDTH.

← SLOPE DIRECTION

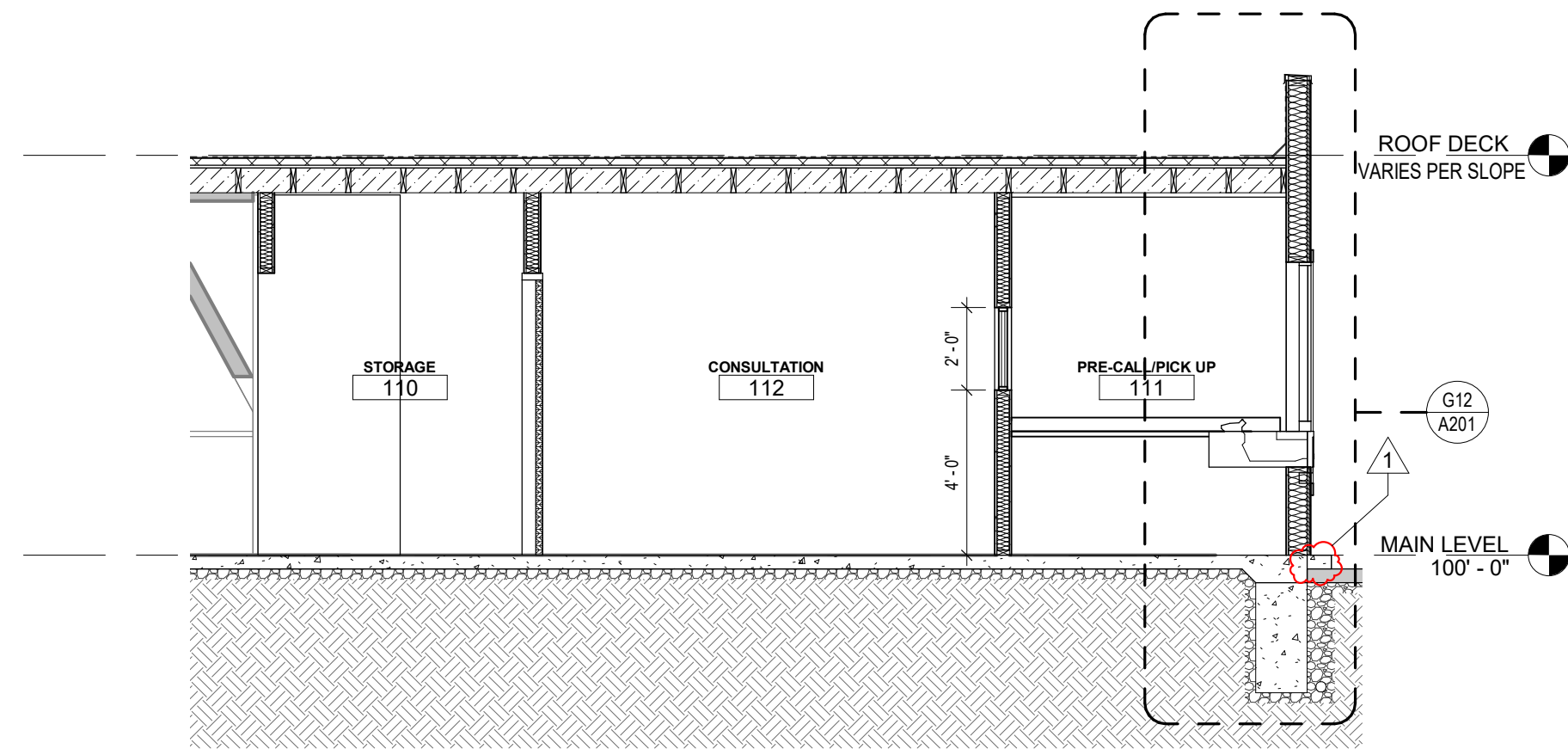




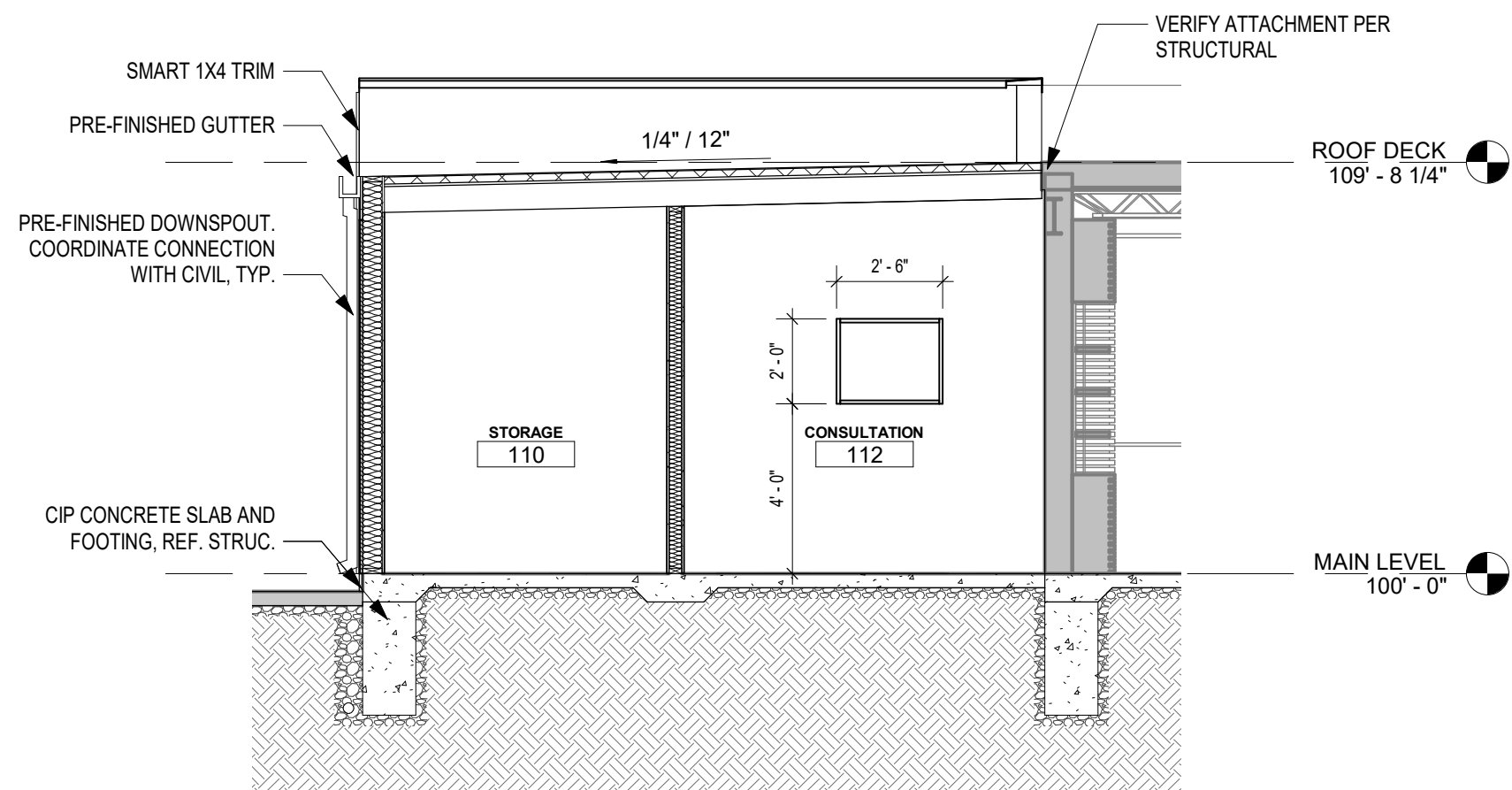
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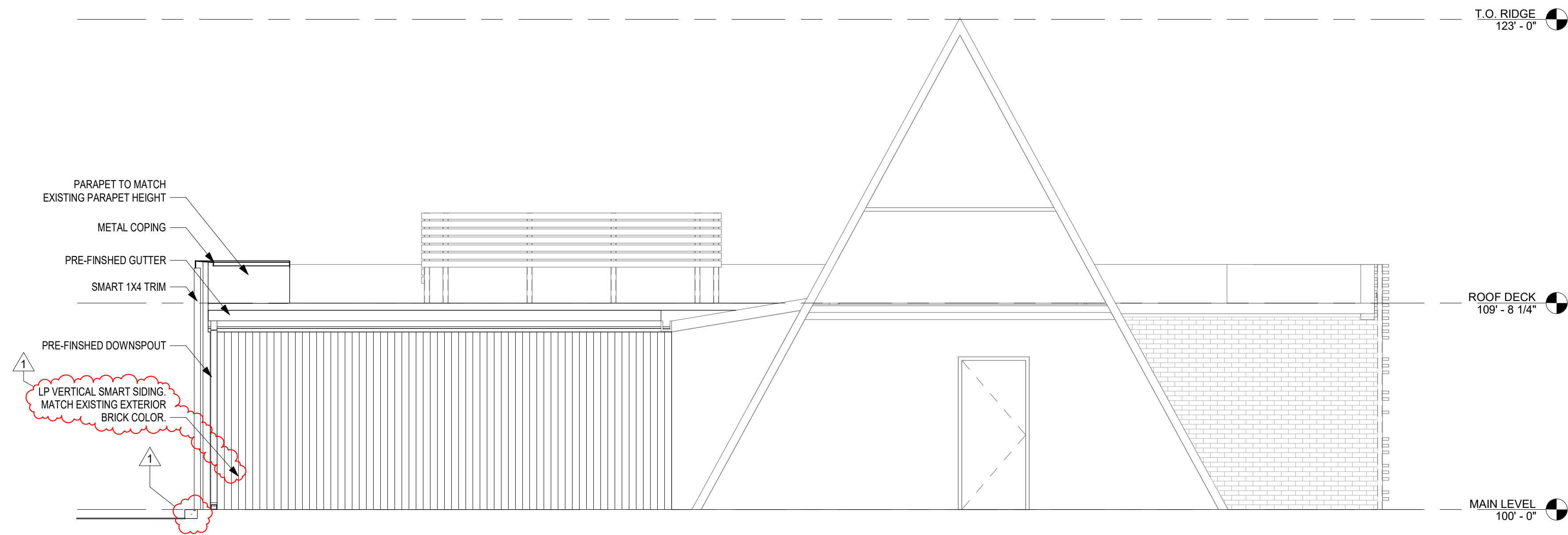
**G12** DETAIL - DRIVE-THRU WINDOW  
1/2" = 1'-0"



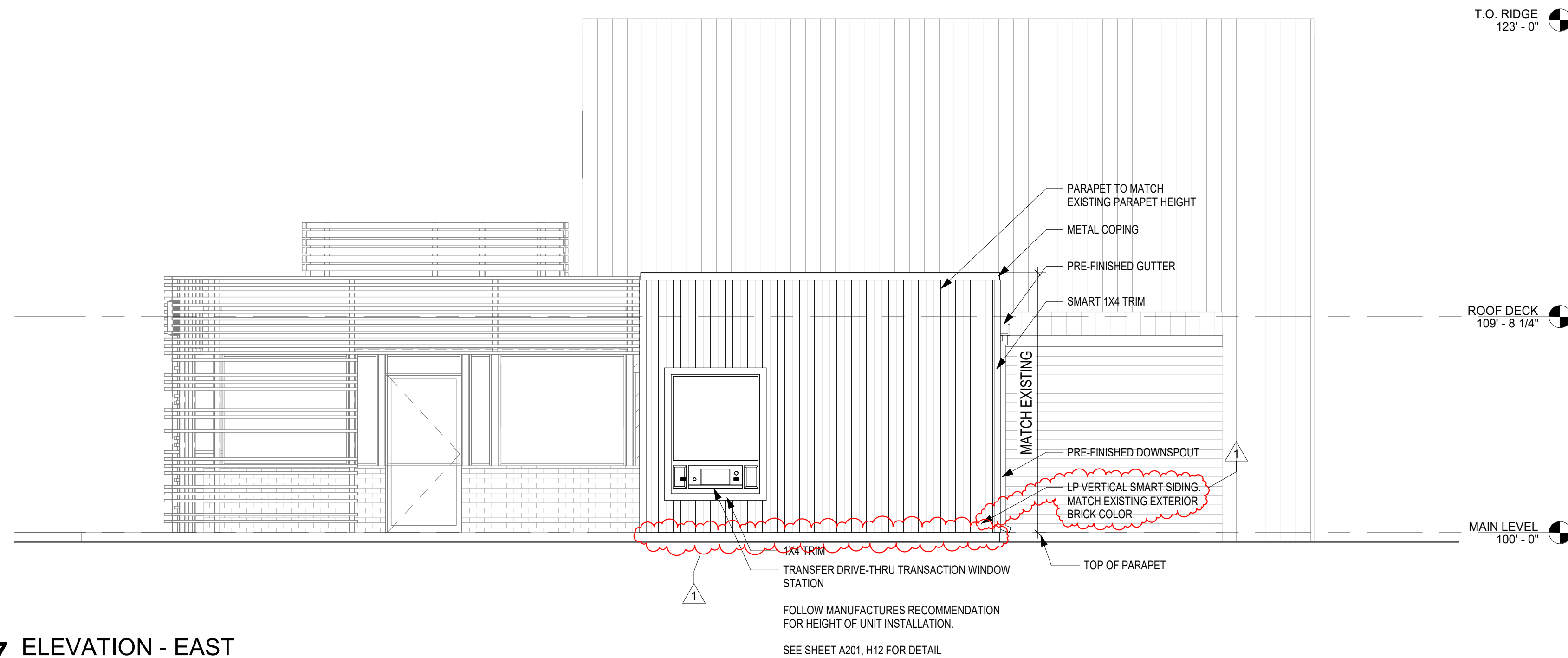
**E12** SECTION - EAST TO WEST  
1/4" = 1'-0"



**A12** SECTION - NORTH TO SOUTH  
1/4" = 1'-0"



**E7** ELEVATION - NORTH  
1/4" = 1'-0"



**A7** ELEVATION - EAST  
1/4" = 1'-0"

**GENERAL NOTES  
EXTERIOR ELEVATIONS:**

1. RE: SHEET G001 FOR ADDITIONAL GENERAL NOTES THAT ARE APPLICABLE.
2. DIMENSIONS SHOWN ON THE EXTERIOR ELEVATIONS ARE TO THE FACE OF STUD WALL, FACE OF MASONRY (FOM), FACE OF CONCRETE WALLS (FOC), AND COLUMN GRID LINES, UNLESS OTHERWISE NOTED OR INDICATED.
3. RE: THE WINDOW TYPES SHEET FOR ALL EXTERIOR WINDOW TYPES AND GLASS TYPES.



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**3RD STREET DISPENSARY - ADDITION**

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REVISION DATES:  
1 City Comments 07/05/22



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**A201**

ISSUE DATE: 06/10/2022  
COLLINS WEBB #: 22038

EXTERIOR ELEVATIONS,  
SECTIONS, AND DETAILS

PERMIT SET







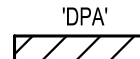
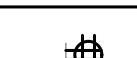


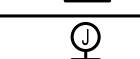

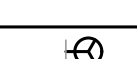
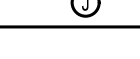
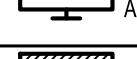


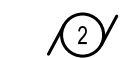
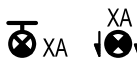

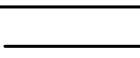
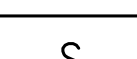


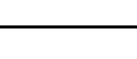

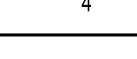
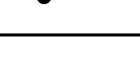

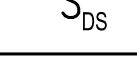
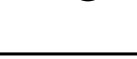



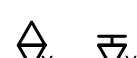
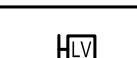
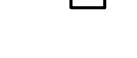
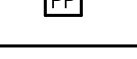

ELECTRICAL ABBREVIATIONS

AC	ALTERNATING CURRENT	KCM	THOUSAND CIRCULAR MILLS
AHU	AIR HANDLING UNIT	KVA	KILOVOLT-AMPERES (1000 VOLT-AMPERES)
A, OR AMPS	AMPERES	KV	KILOVOLT (1000 VOLTS)
AFC	ABOVE FINISH COUNTER	KW	KILOWATTS (1000 WATTS)
AFCI	ARC FAULT CIRCUIT INTERRUPTER	KWH	KILOWATT HOURS
AFF	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
		MCB	MAIN CIRCUIT BREAKER
AIC	AMPERES INTERRUPTING CAPACITY (SYMMETRICAL)	MM	MICROWAVE (COORD MTS HT W/ ARCHITECT)
ATS	AUTOMATIC TRANSFER SWITCH	NC	NOT IN CONTRACT
BCP	BUILDING CONTROL POWER (FOR HVAC/BUILDING CONTROLS)	NEC	NATIONAL ELECTRICAL CODE
		NC	NORMALLY CLOSED
BTG	BRANCH TO CONNECTION POINT AND CONNECT EQUIPMENT	NO	NORMALLY OPEN
BTFF	BRANCH TO FIXTURE, FURNISH AND INSTALL RECEPTACLE	NF	NOT FUSED
C	CONDUIT ("E.C." IS EMPTY CONDUIT)	OCFI	OWNER FURNISHED CONTRACTOR INSTALLED
CF	CEILING FAN	OFOI	OWNER FURNISHED OWNER INSTALLED
CM	COFFEE MAKER	PNL	PANEL
CT	COOKTOP	PH OR Ø	PHASE
D	DEDICATED CIRCUIT	P	POLE
DD	DUPLEX CONVENIENCE OUTLET	PVC	POLYVINYL CHLORIDE
DP	DISPOSER	RF	REFRIGERATOR
DW	DISHWASHER	RG	RANGE
DY	DRYER	SPD	SURGE PROTECTIVE DEVICE
EMT	ELECTRICAL METALLIC TUBING	T	TAMPERPROOF RECEPTACLE
EF	EXHAUST FAN	TC	TIMECLOCK
ER	EXISTING TO BE REMOVED	TTB	TELEPHONE TERMINAL BOARD
ETP	ELECTRONIC TRAP PRIMER	TV	TELEVISION RECEPTACLE
EW	ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)	UC	UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)
EX	EXISTING	UF	UNDERFLOOR
FLEX	FLEXIBLE CONDUIT	UG	UNDERGROUND
FCU	FAN COIL UNIT	UL	UNDERWRITERS LABORATORIES
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	U.N.O.	UNLESS NOTED OTHERWISE
GFI	GROUND FAULT INTERRUPTER	V	VOLTS
GFP	GROUND FAULT INTERRUPTER PROTECTED	VA	VOLT-AMPERES
GRD	GROUND	VD	VENDING MACHINE (24" AFF)
H	HORIZONTAL MOUNT (RECEPTACLE)	VFD	VARIABLE FREQUENCY DRIVE
HD	VENTILATION HOOD	W	WATTS
HP	HORSEPOWER	WA	WASHER
HT	HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)	WD	WASHING DRAWER
HVAC	HEATING, VENTILATING, & AIR CONDITIONING	WO	WALL OVEN
HZ	HERTZ	WP	WEATHERPROOF
IG	ISOLATED GROUND (DUPLEX RECEPTS. - NEMA 5-20(RIG))	WPI/R	WEATHERPROOF/WEATHER RESISTANT
KA	KILOAMPERE (1000 AMPERES)	WUNT	DISCONNECT PROVIDED WITH UNIT

GENERAL ELECTRICAL NOTES

1. DO NOT SCALE FROM THESE DRAWINGS.
2. REFER TO ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES.
3. COORDINATE EACH LIGHT FIXTURE INSTALLATION(S) W/ ACTUAL CEILING TO BE FURNISHED.
4. ALL BRANCH CIRCUITS W/IO CONDUCTOR & CONDUIT INDICATIONS SHALL BE ROUTED TO 20A-1P BREAKER W/ 2H/2, 1H/2E/3, 3/4" C.
5. INDIVIDUAL COMPONENTS OF THIS LIGHT FIXTURE SCHEDULE SHALL NOT BE INTERPRETED SEPARATELY FROM THE ENTIRE SCHEDULE. THAT IS, THE ENTIRE FIXTURE SPECIFICATION INCLUDING ALL COLUMNS IN THE LIGHT FIXTURE SCHEDULE AND ALL SUPPORTING INFORMATION IN THESE DOCUMENTS. ANY CONFLICT BETWEEN MODEL NUMBERS AND OTHER COLUMNS OF THE SCHEDULE SHALL BE IDENTIFIED IN WRITING TO THE ARCHITECT. IN THE CASE OF A CONFLICT, CONTRACTOR SHALL BASE BID ON THE MORE EXPENSIVE INTERPRETATION.
6. ALL CIRCUITS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED OTHERWISE. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC 210.4.
7. ELECTRICAL EQUIPMENT (PANELBOARDS, TRANSFORMERS, DISTRIBUTION EQUIPMENT, ETC.) IS SHOWN TO SCALE ON THE FLOOR PLANS.
8. SWITCHBOARDS SHOWN ON PLANS WITH BACKS AGAINST A WALL SHALL BE FRONT ACCESSIBLE ONLY. EQUIPMENT REQUIRING REAR ACCESS WILL NOT BE ACCEPTABLE.
9. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO PROVIDE EQUIPMENT THAT WILL FIT IN THE SPACES ALLOWED FOR ON THE PLANS AND COMPLY WITH ALL THE CODE REQUIRED CLEARANCES.
10. IF THE ELECTRICAL CONTRACTOR PROVIDES EQUIPMENT THAT DOES NOT FIT IN THE SPACES INDICATED, OR THAT WILL NOT LEAVE THE REQUIRED CODE CLEARANCES, OR EQUIPMENT REQUIRING CHANGES IN THE DESIGN INDICATED ON THESE DRAWINGS, HE SHALL PAY ALL COSTS INVOLVED TO CORRECT THE INSTALLATION.
11. ELECTRICAL CONTRACTOR TO LABEL ALL DEVICES (RECEPTACLES, SWITCHES, PANELBOARDS, DISCONNECTS, ETC.) WITH CIRCUIT NUMBER AND PANELBOARD DESIGNATION. RECEPTACLES, SWITCHES, AND SIMILAR DEVICES TO HAVE PRE-PRINTED, SELF-ADHESIVE LABEL.
12. PANELBOARDS, DISCONNECT SWITCHES, AND SIMILAR DEVICES TO HAVE ENGRAVED, SELF-ADHESIVE, LAMINATED ACRYLIC LABEL (BLACK W/ WHITE LETTERING).

ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
	LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	CEILING		20A - 125V/2P/3W GROUNDING SIMPLEX RECEPTACLE (NEMA 5-20R)	WALL - 15" AFF		PANELBOARD 208Y/120V, 3Ø 4W (REFERENCE PANEL SCHEDULES)	
	DIRECTIONAL/WALL/WASHER LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	CEILING		20A - 125V/2P/3W GROUNDING DUPLEX RECEPTACLE (NEMA 5-20R)	WALL - 15" AFF U.N.O.		PANELBOARD 480Y/277V, 3Ø 4W (REFERENCE PANEL SCHEDULES)	
	LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	WALL		20A - 125V/2P/3W GROUNDING DUPLEX RECEPTACLE (NEMA 5-20R)	WALL - 6" ABOVE FINISHED COUNTER U.N.O.		DISTRIBUTION PANEL (REFERENCE PANEL SCHEDULES)	
	LIGHT FIXTURE ON EMERGENCY (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	CEILING/WALL		20A - 125V/2P/3W GROUNDING QUAD-PLEX RECEPT. (NEMA 5-20R)	WALL - 15" AFF		DRY TYPE TRANSFORMER	
	FLUORESCENT STRIP LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	CEILING/ SUSPENDED		SPLIT RECEPTACLE. TOP OUTLET WIRED NOT. BOTTOM OUTLET SWITCHED. (NEMA 5-20R)	WALL - 15" AFF		JUNCTION BOX	WALL - AS NOTED CEILING
	FLUORESCENT LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	CEILING		SPECIAL PURPOSE OUTLET (NEMA CONFIG. AS NOTED)	WALL - 15" AFF U.N.O./CEILING		NON-FUSED DISCONNECT SWITCH U.N.O. (E.G. 8040 INDIC. 80A SWITCH+40A FUSES)	
	FLUORESCENT LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	WALL		20A - 125V/2P/3W GROUNDING SIMPLEX RECEPTACLE (NEMA 5-20R)	FLOOR - FLUSH		MOTOR STARTER	
	FLUORESCENT LIGHT FIXTURE ON EMERGENCY (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	CEILING		20A - 125V/2P/3W GROUNDING DUPLEX RECEPTACLE (NEMA 5-20R)	FLOOR - FLUSH		COMBINATION MOTOR STARTER/ DISCONNECT SWITCH	
	FLUORESCENT LIGHT FIXTURE ON EMERGENCY (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	WALL		20A - 125V/2P/3W GROUNDING QUADPLEX RECEPT. (NEMA 5-20R)	FLOOR - FLUSH		ENCLOSED CIRCUIT BREAKER	
	FLUORESCENT STRIP LIGHT FIXTURE ON EMERGENCY (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	CEILING/ SUSPENDED		20A - 125V/2P/3W GROUNDING DUPLEX RECEPTACLE (NEMA 5-20R)	CEILING - FLUSH		MANUAL MOTOR SWITCH ("P" INDICATES PILOT LIGHT)	
	BATTERY PACK EMERGENCY TWO HEAD LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	WALL - 9'-0" AFF		MULTI-OUTLET ASSEMBLY			MOTOR (# INDICATES HORSEPOWER)	
	EXIT LIGHT (ARROW(S) AS INDICATED, SHADE INDICATES FACE, LETTER INDICATES FIXTURE TYPE - SEE SCHEDULE)	CEILING/WALL		POKE-THRU, 4" CORE. WIREMOLD RC4 SERIES W/ COM75 ADAPTER, OR EQUAL, W/ 2-DUPLEX RECEPTS & 4-4RJ45 DATA/COMM PORTS - COORD. W/ LV CONSULTANT.	FLOOR - FLUSH		CONDUIT IN OR UNDER FLOOR/GRADE	
	SINGLE POLE SWITCH 20A (120/277V) ②	WALL - 48" AFF		POKE-THRU, 4" CORE. WIREMOLD 4FF SERIES OR EQUAL FOR POWER AND DATA FURNITURE FEED, DATA FEED TO ACCOMMODATE MINIMUM OF 10 CAT6 CABLES.	FLOOR - FLUSH		CONDUIT EXPOSED	
	THREE WAY SWITCH 20A (120/277V) ②	WALL - 48" AFF		POKE-THRU, 3" CORE. WIREMOLD RC7AFF SERIES W/ COM55 ADAPTOR OR EQUAL, FOR POWER AND DATA FURN. FEED (TYP. SINGLE SERVICE).	FLOOR - FLUSH		CONDUCTOR HOME RUN - (H) HOT, (I) NEUTRAL, (J) EQUIPMENT GROUND, & (J) ISOLATED GROUND	
	FOUR WAY SWITCH 20A (120/277V) ②	WALL - 48" AFF		POKE-THRU, 3" CORE. WIREMOLD RC7AFF SERIES W/ COM55 ADAPTOR OR EQUAL, FOR POWER AND DATA FURN. FEED (TYP. SINGLE SERVICE).	FLOOR - FLUSH		EQUIPMENT CONNECTION	
	KEY OPERATED SWITCH ②	WALL - 48" AFF		POKE-THRU, 3" CORE. WIREMOLD RC3AM2 SERIES OR EQUAL, FOR LARGE CAPACITY DATA FURNITURE FEED, TO ACCOMMODATE MINIMUM OF 20 CAT6 CABLES.	FLOOR - FLUSH		CONDUIT IN CEILING OR WALL	
	DOOR SWITCH	WALL		POKE-THRU, 3" CORE. WIREMOLD RC3AM2 SERIES OR EQUAL, FOR LARGE CAPACITY DATA FURNITURE FEED, TO ACCOMMODATE MINIMUM OF 20 CAT6 CABLES.	FLOOR - FLUSH		SECURITY CAMERA OUTLET (PAN/TILT/ZOOM)	CEILING/WALL
	PILOT LIGHT SWITCH ②	WALL - 48" AFF		POKE-THRU, 6" CORE. WIREMOLD 4FF SERIES OR EQUAL FOR POWER AND DATA FURNITURE FEED, DATA FEED TO ACCOMMODATE MINIMUM OF 10 CAT6 CABLES.	FLOOR - FLUSH		SECURITY CAMERA OUTLET (FIXED)	CEILING/WALL
	TIME SWITCH	WALL		POKE-THRU, 6" CORE. WIREMOLD 6ATCPV SERIES OR EQUAL, ANY STYLE POKE-THRU. COORDINATE POKE- THRU REQUIREMENTS W/ LV CONSULTANT.	FLOOR - FLUSH		SECURITY DOOR STATUS CONTACTS	
	DIMMER SWITCH (SIZE AS REQUIRED) ②	WALL - 48" AFF		POKE-THRU, 6" CORE. WIREMOLD 6ATCPV SERIES OR EQUAL, ANY STYLE POKE-THRU. COORDINATE POKE- THRU REQUIREMENTS W/ LV CONSULTANT.	FLOOR - FLUSH		ELECTRICAL LOCK	
	OCCUPANCY SENSOR/SENSOR EQUIPMENT (LETTER INDICATES SENSOR TYPE - SEE SCHEDULE) ②	CEILING/WALL		WIREMOLD RFB4 SERIES FLOOR BOX, OR EQUAL, W/ 2-DUPLEX RECEPTS, COORDINATE DATA/COMM REQUIREMENTS W/ LV CONSULTANT.	FLOOR - FLUSH		PUSH BUTTON	
	LOW-VOLTAGE CONTROL STATION ②	WALL - 48" AFF		WIREMOLD 880S SERIES FLOOR BOX, OR EQUAL, 2 OR 3 GANG BOXES AS REQUIRED. COORDINATE DATA/COMM REQUIREMENTS W/ LV CONSULTANT.	FLOOR - FLUSH			
	PHOTOELECTRIC CELL			WIREMOLD 880S SERIES FLOOR BOX, OR EQUAL, FOR FURNITURE FEED. COORDINATE DATA/COMM REQUIREMENTS W/ LV CONSULTANT.	FLOOR - FLUSH			
	CARD READER (VERIFY JUNCTION BOX REQUIREMENTS)							
	POWER PACK ②	ACCESSIBLE CEILING		WIREMOLD 880S SERIES FLOOR BOX, OR EQUAL, FOR FURNITURE FEED. COORDINATE DATA/COMM REQUIREMENTS W/ LV CONSULTANT.	FLOOR - FLUSH			
	DATA, TELEPHONE, OR COMBO TELEDATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	WALL - 15" AFF						
	DATA, TELEPHONE, OR COMBO TELEDATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	FLOOR						
	TELEPHONE TERMINAL BACKBOARD	WALL						
	CLOCK OUTLET	WALL - AS NOTED OR REF. ARCH. DWGS.						
	TELEVISION OUTLET	WALL						
	TELEVISION OUTLET	FLOOR						
	SPEAKER OUTLET (#-#) INDICATES TYPE-ZONE	CEILING						

- ① ALL ELECTRICAL SYMBOLS NOT NECESSARILY USED.
- ② (a,b,c...) INDICATES SWITCHING SCHEME TO RELATED FIXTURES.



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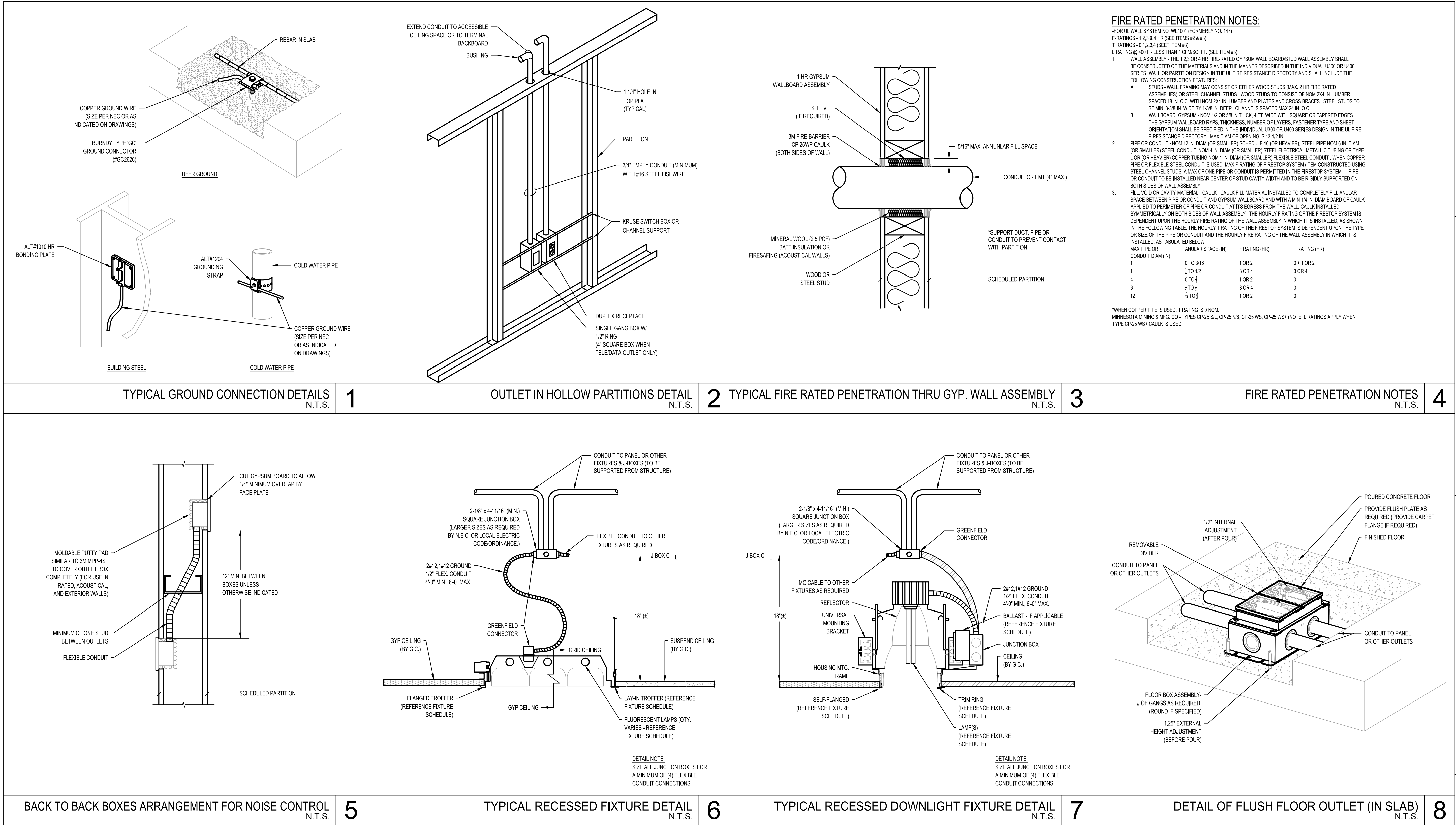
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ISSUE DATE: 10 JUNE, 2022  
COLLINS WEBB #: 22038

ELECTRICAL NOTES,  
SYMBOLS &  
ABBREVIATIONS



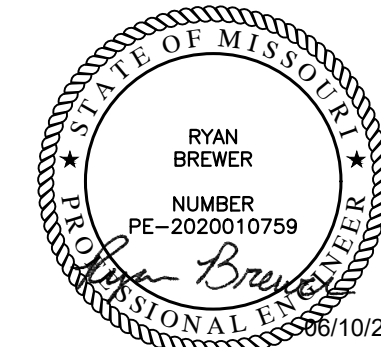


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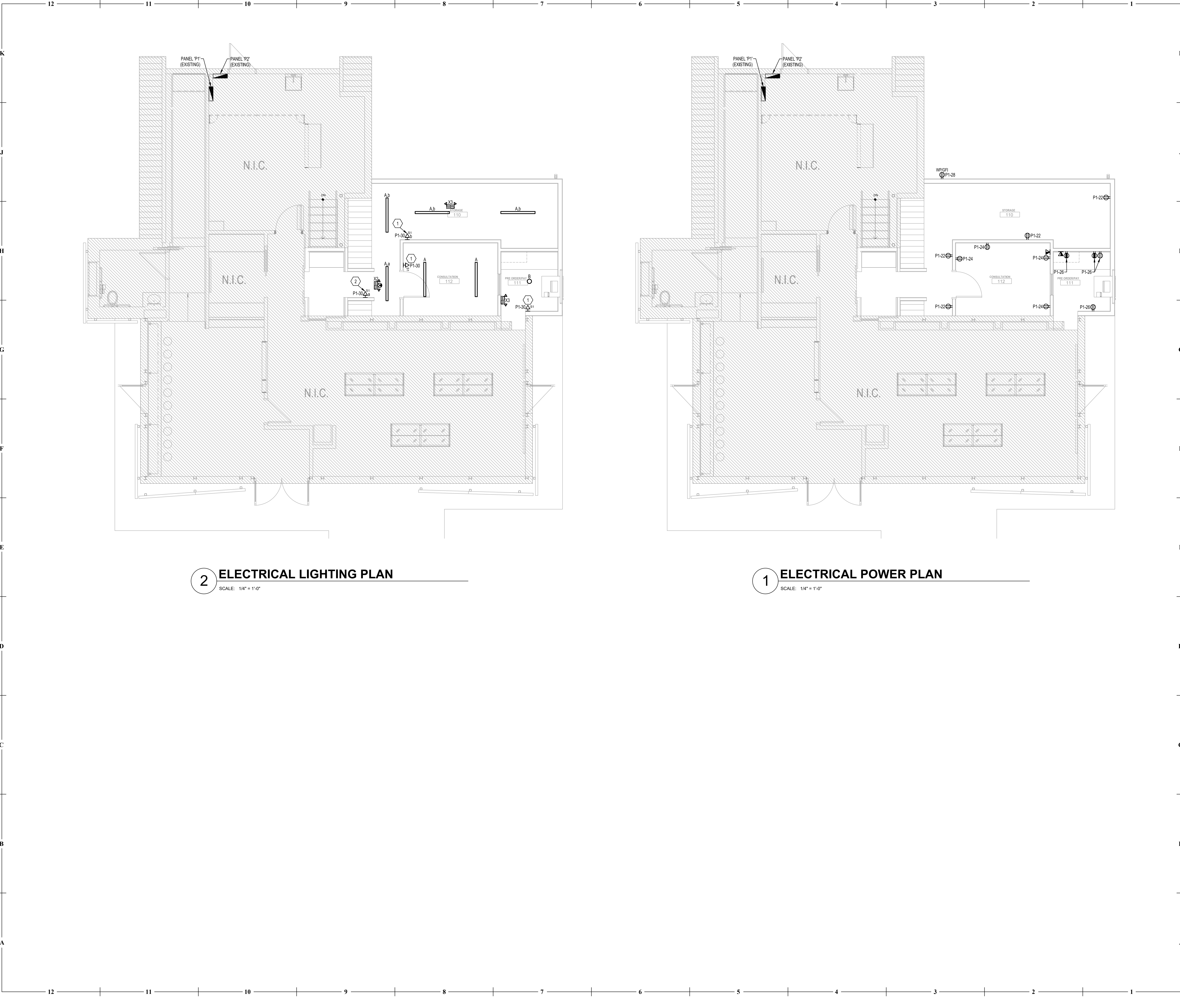
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REVISION DATES:



PROFESSIONAL SEAL  
**E102**  
ISSUE DATE: 10 JUNE, 2022  
COLLINS WEBB #: 22038  
ELECTRICAL  
DETAILS






**2 ELECTRICAL LIGHTING PLAN**  
SCALE: 1/4" = 1'-0"

**1 ELECTRICAL POWER PLAN**  
SCALE: 1/4" = 1'-0"

- GENERAL NOTES**  
(NOT ALL NOTES APPLY)
1. REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
  2. COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
  3. PROVIDE AND INSTALL 3/4" CONDUIT AND PULL STRINGS FROM TELEPHONE DATA OUTLETS TO ABOVE ACCESSIBLE CEILING. VERIFY EXACT REQUIREMENTS WITH TELEPHONE EQUIPMENT SUPPLIER AND/OR TENANT.
  4. ALL RECEPTACLES AND COVER PLATES TO BE STAINLESS STEEL.
- KEYED NOTES:**
1. LIGHTING CONTROL INTENT FOR THIS ZONE IS FOR FIXTURES TO BE MANUAL 'ON' / AUTO 'OFF' WITH MANUAL OVERRIDE AVAILABLE VIA THE WALL SWITCH.
  2. LIGHTING CONTROL INTENT FOR THIS ZONE IS FOR FIXTURES TO BE AUTO 'ON' / AUTO 'OFF' WITH MANUAL OVERRIDE AVAILABLE VIA THE WALL SWITCH.



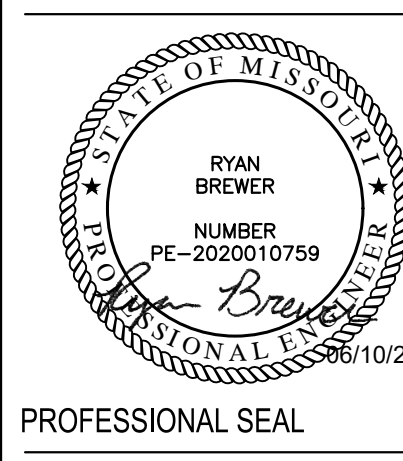
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# 3RD STREET DISPENSARY - ADDITION

510 SW 3rd St., Lee's Summit, MO 64063

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COLLINS WEBB  
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REVISION DATES:



PROFESSIONAL SEAL

## E201

ISSUE DATE: 10 JUNE, 2022  
COLLINS WEBB #: 22038

**PERMIT SET**

**ELECTRICAL  
POWER &  
LIGHTING PLAN**



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LIGHTING FIXTURE SCHEDULE							
FIXT. TYPE	DESCRIPTION & MANUFACTURER OPTIONS	LAMPS NO.	LAMPS TYPE	FIXT. VOLT	TOTAL WATTS	FINISH	REMARKS/MOUNTING
A	Lensed LED Strip Fixture	1	LED	UNV	42W	Standard	Surface (Ceiling)
	M# LITHONIA 42L1N SERIES						
B	Owner Provided Light Fixture	1	LED	UNV	TBD	Coord. w/ Architect	Verify
	M# TO BE DETERMINED						
X2	Combination LED Exit Sign and Emergency Light Fixture, Universal Mount, Emergency Battery Pack. Provide Arrows as indicated.	1	LED	UNV	2W	Standard	Wall/Ceiling/Pendant
	M# [EVENLITE#TCKCOM-R-U-W DUAL LITE REV-C-U-W						
X3	LED Emergency Light w/ (2) 2-Watt Adjustable LED Heads and Emergency Battery Backup	2	LED	UNV	6W	White	Surface (Wall/Ceiling)
	M# [EVENLITE#TCL-4-W DUAL LITE REV-4D-42L						
NOTES: 1. Circuit Emergency Battery Packs and Exit Signs to Local Lighting Circuit Ahead of Any Means of Control for Proper Operation. 2. Provide Lensed LED Strip Fixture Similar to Existing Lensed LED Strips in Facility.							

LIGHTING CONTROLS SCHEDULE					
FIXTURE TAG	MANUFACTURER	MODEL #	SETTINGS	DESCRIPTION	NOTES
S1	SENSOR SWITCH	WSX SERIES	ON: REFER TO PLAN OFF: REFER TO PLAN	WALL MOUNT OCCUPANCY SENSOR LINE VOLTAGE - SINGLE RELAY	1
NOTES: 1. COORDINATE ALL MODEL NUMBERS WITH MANUFACTURER PRIOR TO ORDERING. PROVIDE DEVICES TO MEET CONTROL INTENT INDICATED ON THE DRAWINGS.					

PANEL P1 (EXISTING)											
VOLTAGE PHASE: 240/120V, 3PH/1W BUS AVAILABLE: 240V MAIN TYPE: 100A				WIC VALUE: EXISTING AC CIRCUIT: EXISTING MOUNTING: SURFACE (MIN 4")				GROUNDS: 80-POUNDS (100-150) INSULATED GROUND BUS: NO SERVICE ENTRANCE RATED: NO			
NO.	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
1	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
2	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
3	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
4	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
5	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
6	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
7	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
8	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
9	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
10	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
11	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
12	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
13	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
14	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
15	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
16	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
17	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
18	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
19	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
20	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
21	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
22	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
23	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
24	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
25	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
26	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
27	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
28	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
29	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
30	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
31	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
32	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
33	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
34	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
35	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
36	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
37	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
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41	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
42	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
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47	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
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49	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
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59	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
60	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
61	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
62	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
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64	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
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66	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
67	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
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69	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
70	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
71	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
72	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
73	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
74	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
75	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
76	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
77	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
78	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
79	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
80	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
81	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
82	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
83	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
84	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
85	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
86	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
87	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
88	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
89	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
90	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
91	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
92	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
93	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
94	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
95	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
96	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
97	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
98	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
99	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
100	120V	240V	120V	240V	120V	240V	120V	240V	120V	240V	120V
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18000 - ELECTRICAL

GENERAL

DESCRIPTION

DIVISION 16 OF THE SPECIFICATIONS COVERS ALL ELECTRICAL WORK FOR THE PROJECT. WORK SHALL INCLUDE LABOR, MATERIAL AND ACCESSORIES NECESSARY TO ACCOMPLISH THE WORK AS SPECIFIED AND SHOWN ON THE DRAWINGS, INCLUDING CONNECTION AND CHECKOUTS OF EQUIPMENT FURNISHED BY OTHERS (OTHER TRADES, THE OWNER AND OTHER CONTRACTORS), AND TO ALL EQUIPMENT ITEMS AND AS INDICATED ON DRAWINGS OR AS REQUIRED.

THE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS INCLUDING THE GENERAL CONDITIONS, INCLUDING ALL SUPPLEMENTS ISSUED THERETO, INSTRUCTIONS TO BIDDERS, AND OTHERS PERTINENT DOCUMENTS ISSUED BY THE ARCHITECT ARE A PART OF THESE SPECIFICATIONS AND ELECTRICAL DRAWINGS. THIS TRADE SHALL CONSULT THEM FOR INSTRUCTIONS WHICH APPLY. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF THE ELECTRICAL LAYOUT AND WORK INCLUDED. ELECTRICIAN SHALL FOLLOW DRAWINGS IN LAYOUT OF THE ELECTRICAL WORK AND CONSULT THE DRAWINGS AND LAYOUTS OF OTHER TRADES TO VERIFY LOCATION AND SPACES IN WHICH WORK WILL BE INSTALLED.

CODES, PERMITS, INSPECTION AND COMMISSIONING

INSTALLATION SHALL COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL WORK IN EFFECT, INCLUDING THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), THE NATIONAL ELECTRICAL SAFETY CODE, ALL LOCAL GOVERNING CODES AND ORDINANCES, WITH THE REGULATIONS OF THE SERVING ELECTRICAL UTILITY COMPANY. PROVIDE ALL REQUIRED PERMITS AND INCLUDE THE COST OF SAME IN THE COST OF THE PROJECT. OBTAIN AND PAY FOR (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ALL REQUIRED INSPECTIONS AND REVIEWS. PROVIDE FOR AND PAY ALL EXPENSES (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ASSOCIATED WITH LIGHTING AND LIGHTING CONTROLS COMMISSIONING. ALL COMMISSIONING DOCUMENTATION SHALL BE CERTIFIED AND GIVEN TO OWNER AND DESIGN PROFESSIONAL.

QUALITY ASSURANCE

THE FOLLOWING INDUSTRY STANDARDS AS APPLICABLE TO ELECTRICAL WORK SHALL APPLY TO THE WORK OF THIS DIVISION EXCEPT THAT, WHERE THE REQUIREMENTS OF THESE SPECIFICATIONS ARE MORE THAN THE LISTED STANDARD, THESE SPECIFICATIONS SHALL TAKE PRECEDENCE:

UL - UNDERWRITERS' LABORATORIES

NEMA - NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION  
NECA - NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION  
ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE  
ASTM - AMERICAN SOCIETY OF TESTING MATERIALS.

ALL MATERIALS SHALL BE NEW, UL LISTED AND LABELED WHERE LABELED MATERIALS ARE AVAILABLE, UNDAMAGED AND FREE OF DEFECTS AT TIME OF INSTALLATION. MATERIALS OR EQUIPMENT DAMAGED IN SHIPMENT OR OTHERWISE DAMAGED PRIOR TO OR DURING INSTALLATION SHALL NOT BE REPAIRED AT THE JOB SITE, BUT SHALL BE REPLACED WITH NEW MATERIALS. WHEN THE MANUFACTURER'S NAME APPEARS IN THESE SPECIFICATIONS AND DRAWINGS, IT SHALL BE CONSTRUED THAT THE MANUFACTURER HAS TO MEET THE FULL REQUIREMENTS OF THE SPECIFICATIONS AND DRAWINGS.

SUBMITTALS

SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR EQUIPMENT TO THE ARCHITECT FOR ENGINEER'S REVIEW ELECTRONICALLY OR HARD COPIES, INCLUDE SUFFICIENT INFORMATION TO INDICATE COMPLETE COMPLIANCE WITH SPECIFICATIONS. PROVIDE SUBMITTALS AS EARLY AS REQUIRED TO SUPPORT THE PROJECT SCHEDULE. ALLOW ONE WEEK FOR ENGINEER REVIEW TIME. THE ENGINEER'S SUBMITTAL REVIEWS WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, OR QUANTITIES, OR FOR OMITTING COMPONENTS OR FITTINGS, OR FOR NOT COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS AND/OR OTHER TRADES.

OWNER RECORDS

ACCUMULATE DURING THE PROGRESS OF THE JOB, THE FOLLOWING DATA IN DUPLICATE, AND PREPARE IN A NEAT BROCHURE OR PACKET FOLDER TO BE TURNED OVER TO THE OWNER AT SUBSTANTIAL COMPLETION. RECORD DRAWINGS PER ABOVE.

ALL WARRANTIES, GUARANTEES, AND MANUFACTURER'S DIRECTION ON EQUIPMENT & MATERIAL FURNISHED.

COMPLETE PLAIN ENGLISH STEP-BY-STEP OPERATING INSTRUCTIONS FOR THE ELECTRICAL SYSTEM. ONE COPY OF THE INSTRUCTIONS SHALL BE FRAMED AND POSTED AS DIRECTED ON THE PREMISES.

CERTIFIED LIGHTING AND LIGHTING CONTROLS COMMISSIONING AS REQUIRED BY CURRENTLY ADOPTED ENERGY CODE REQUIREMENTS.

MANUFACTURERS' NAMES AND CATALOG NUMBERS

IN SOME INSTANCES, SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURERS NAME AND MODEL OR CATALOG NUMBERS. USE OF NAMES AND CATALOG NUMBERS DOES NOT INDICATE THAT THE EQUIPMENT SPECIFIED IS NECESSARILY AN "OFF THE SHELF" ITEM. VARIANCES MAY BE DUE TO REQUIREMENT OF DESIRED FINISH, MATERIAL OR OTHER MODIFICATION.

IN THE CASE OF PANELBOARDS, SAFETY SWITCHES AND OTHER EQUIPMENT REQUIRING WIRE AND CABLE TERMINATIONS, ASCERTAIN THAT LUG SIZES AND WIRING GUTTERS OR WIRING SPACE ALLOWED IS PROPER FOR THE WIRES AND CABLES CONTAINED THEREIN.

WHEN APPROVAL IS GIVEN FOR THE USE OF EQUIPMENT DEFERRING FROM THAT SHOWN ON DRAWINGS IN REGARD TO FOUNDATIONS, SPACE FOR PIPING, OUTWORK, WIRING, INSULATION, ETC. CHANGES REQUIRED TO ACCOMPLISH SUCH DIFFERENCES SHALL BE ACCOMPLISHED AT NO COST TO THE OWNER.

PROTECTION OF EQUIPMENT

ELECTRICAL EQUIPMENT SHALL BE PROTECTED FROM THE WEATHER. IN PARTICULAR, DRIPPING OR SPLASHING WATER, AT ALL TIMES DURING SHIPMENT, STORAGE AND CONSTRUCTION, MANUFACTURERS' RECOMMENDATIONS WITH REGARD TO STORAGE, PROTECTION, AND HANDLING SHALL BE FOLLOWED.

SHOULD ANY APPARATUS BE SUBJECTED TO POSSIBLE INJURY DUE TO WATER, IT SHALL BE THOROUGHLY DRIED AND PUT THROUGH A DIELECTRIC TEST, AT THE EXPENSE OF THE CONTRACTOR, TO ASCERTAIN THE SUITABILITY OF THE APPARATUS OR IT SHALL BE REPLACED WITHOUT ADDITIONAL COST TO THE OWNER.

DAMAGED OR DEFECTIVE EQUIPMENT: INSPECT ALL ELECTRICAL EQUIPMENT AND MATERIALS PRIOR TO INSTALLATION. INSTALLATION OR PLACEMENT INTO SERVICE OF DAMAGED MATERIALS WITHOUT THE PRIOR WRITTEN CONSENT OF THE OWNER IS PROHIBITED. REPLACE OR REPAIR TO NEW CONDITION AS CERTIFIED BY THE MANUFACTURER, AND TEST DAMAGED EQUIPMENT IN COMPLIANCE WITH INDUSTRY STANDARDS AT NO ADDITIONAL COST TO THE OWNER. EQUIPMENT REQUIRED FOR THE TESTING SHALL BE PROVIDED BY THE CONTRACTOR.

WORKING CLEARANCE

THE SIZE OF ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS IS BASED ON DIMENSIONS OF A PARTICULAR MANUFACTURER. (GENERALLY THE FIRST NAMED). WHILE OTHER MANUFACTURERS MAY BE ACCEPTABLE, IT IS THE RESPONSIBILITY OF THE TRADE TO DETERMINE IF THE EQUIPMENT PROPOSED WILL FIT IN THE ALLOCATED SPACE.

INSTALL ALL EQUIPMENT IN A MANNER TO PERMIT ACCESS TO ALL SURFACES. MAINTAIN PROPER CLEARANCE TO MEET ALL SAFETY AND OPERATING CODES, PARTICULARLY N.E.C. INCLUDE ALL REQUIREMENTS DICTATED BY OPERATION, CONTROL, ADJUSTMENT, MAINTENANCE AND POSSIBLE REPLACEMENT OF EQUIPMENT IN DETERMINING CLEARANCE.

SHOULD THERE BE APPARENT VIOLATIONS OF N.E.C. CLEARANCE, NOTIFY THE ARCHITECT-ENGINEER BEFORE PROCEEDING WITH CONNECTION OR PLACEMENT OF EQUIPMENT.

COORDINATION

INSTALLATION STUDIES ARE REQUIRED TO COORDINATE THE ELECTRICAL WORK WITH THE WORK OF OTHER TRADES. PREPARE COORDINATION DRAWINGS AT ACCURATE SCALE WHERE SEVERAL ELEMENTS OF ELECTRICAL OR COMBINED MECHANICAL/STRUCTURAL/ELECTRICAL WORK MUST BE SEQUENCED AND POSITIONED WITH PRECISION IN ORDER TO FIT INTO THE AVAILABLE SPACE.

SHOW THE ACTUAL PHYSICAL DIMENSIONS REQUIRED FOR PROPER INTEGRATION OF EQUIPMENT WITH BUILDING SYSTEMS.

PROVIDE APPROVED SHOP DRAWINGS TO ALL REQUIRED DISCIPLINES AND VERIFY FINAL ELECTRICAL CHARACTERISTICS BEFORE ROUGHING POWER FEEDS TO ANY EQUIPMENT. WHEN ELECTRICAL DATA ON APPROVED SHOP DRAWINGS DIFFERS FROM CONTEMPLEATED DESIGN, MAKE NECESSARY ADJUSTMENTS TO THE WIRING, DISCONNECTS, AND BRANCH-CIRCUIT PROTECTION FOR THE EQUIPMENT ACTUALLY INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

DAMAGE FROM INTERFERENCE CAUSED BY INADEQUATE COORDINATION SHALL BE RECTIFIED AT NO ADDITIONAL COST TO THE OWNER.

WORKMANSHIP

ALL WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.

ANY MATERIAL ITEMS OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED IN THESE SPECIFICATIONS OR VISA-VERSA, OR ANY ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE IN ALL RESPECTS, ARE READY FOR OPERATION SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

THIS TRADE SHALL DO OR HAVE DONE BY COMPETENT TRADESMEN ALL CUTTING AND PATCHING NECESSARY FOR THE INSTALLATION OF THIS WORK. NO CUTTING IN CONSTRUCTIVE PARTS OF THE BUILDING LIKELY TO IMPAIR ITS STRENGTH SHALL BE DONE WITHOUT THE ARCHITECT-ENGINEER'S WRITTEN APPROVAL.

EXCAVATION AND BACKFILL

EXCAVATION, TRENCHING AND BACKFILLING ARE SPECIFIED IN SECTION EXCAVATION - TRENCHING AND BACKFILLING FOR UTILITIES. CONDUIT IS TO BE INSTALLED AS SPECIFIED FOR PIPELINES. CONDUIT INSTALLED BENEATH FLOOR SLAB SHALL BE A MINIMUM OF 6" BELOW SLAB. BACKFILL OVER CONDUIT SHALL BE COMPACTED AS FOR SLAB BEDDING MATERIAL. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF CONDUIT (PIPE) PENETRATION OR EXTERIOR FOOTINGS. COMPLETE INSTALLATION SHALL CONFORM TO N.E.C.

PENETRATIONS

COORDINATE SLEEVE SELECTION AND APPLICATION WITH SELECTION AND APPLICATION OF FIRE-STOPPING SPECIFIED IN ARCHITECTURAL SPECIFICATIONS.

ROOFS: COORDINATE ALL ROOF PENETRATIONS WITH ENGINEER, OWNER, AND AS APPLICABLE, THE ROOFING CONTRACTOR PROVIDING A ROOF WARRANTY. KEEP ALL RACEWAY PENETRATIONS WITHIN MECHANICAL EQUIPMENT CURBS WHEREVER POSSIBLE. COORDINATE WITH DIVISION 15. FLASH AND COUNTERFLASH ALL OPENINGS THROUGH ROOF, AND/OR PROVIDE PRE-FABRICATED MOLDED SEALS COMPATIBLE WITH THE ROOF CONSTRUCTION INSTALLED, OR AS REQUIRED BY THE ENGINEER, OWNER, OR ROOFING CONTRACTOR. ALL ROOF PENETRATIONS SHALL BE LEAKTIGHT AT THE TERMINATION OF THE WORK AND SHALL NOT VOID ANY NEW OR EXISTING ROOF WARRANTIES.

WALLS AND FLOORS - SLEEVES FOR RACEWAYS AND CABLES: STEEL PIPE SLEEVES: ASTM A 53/A 53M, SIZE E, GRADE B, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS AND DRP RINGS.

CAST IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE," EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL SATERSTOP, UNLESS OTHERWISE INDICATED.

FIRESTOPPING: FIRE RESISTANT THROUGH PENETRATION SEALANTS - TWO PART, FOAMED-IN-PLACE, SILICONE SEALANT FORMULATED FOR USE IN THROUGH-PENETRATION FIRE-STOPPING AROUND CABLES, RACEWAYS, AND CABLE TRAY PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS. SEALANTS AND ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS INDICATED, AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES IN ACCORDANCE WITH ASTM E 814, BY UNDERWRITERS' LABORATORIES, INC. OR OTHER NRTL ACCEPTABLE TO AIA.

ACCEPTABLE MANUFACTURERS: -HLTI, INC., 3M CORP. RECTORSEAL, SPECIFY TECHNOLOGY INC., UNITED STATES GYPSUM COMPANY.

ELECTRICAL SERVICE

SERVICE SHALL BE AS SHOWN ON DRAWINGS.

PROVIDE SECONDARY SERVICE INTO THE BUILDING WITH CONDUIT AND WIRING AS SHOWN ON THE PLANS, INCLUDING, BUT NOT LIMITED TO, UNDERGROUND RACEWAYS AND CABLES AND SECONDARY CONNECTIONS TO UTILITY TRANSFORMERS AS REQUIRED BY SERVING ELECTRICAL UTILITY COMPANY. COORDINATE ALL REQUIREMENTS WITH UTILITY COMPANY PRIOR TO BID.

PROVIDE ALL REQUIRED GROUNDING FOR A COMPLETE SERVICE ENTRANCE GROUNDING SYSTEM. PERMANENTLY AND EFFECTIVELY GROUND AND BOND THE ELECTRICAL INSTALLATION IN A THOROUGH AND EFFICIENT MANNER, AND IN CONFORMANCE (AT A MINIMUM) WITH N.E.C. OR THESE DOCUMENTS, WHERE THEY EXCEED CODE REQUIREMENTS. USE BARE OR INSULATED CONDUCTORS, AS SPECIFIED HEREIN, AND OTHER MATERIALS INDICATED ON THE DRAWINGS.

PROVIDE ALL NECESSARY ENCLOSURES REQUIRED BY THE OWNER FOR THE UTILITY COMPANY METERING. REFER TO DRAWINGS FOR MINIMUM REQUIREMENTS. COORDINATE WITH UTILITY COMPANY PRIOR TO BID FOR ALL REQUIREMENTS.

PRODUCTS

GENERAL

ALL EQUIPMENT OF A PARTICULAR KIND, SUCH AS WIRING DEVICES AND PANELBOARDS AND ALL LIGHTING FIXTURES OF THE SAME TYPE, SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.

PROVIDE ACCESS PANELS FOR ALL EQUIPMENT AND DEVICES REQUIRING SUCH PANELS. SIZE AS REQUIRED FOR PROPER ACCESS AND MAINTENANCE, MINIMUM ACCEPTABLE IS 12 IN BY 12 IN CLEAR OPENING WHERE HAND ACCESS ONLY IS REQUIRED.

PROVIDE LABELS FOR EACH MOTOR CONTROLLER, SAFETY SWITCH, RELAY, PANELBOARD, CONTACTOR, TIMER, CONTROL DEVICE, METER AND CIRCUIT BREAKER. LABELS SHALL BE LAMINATED, PHENOLIC STRIPS 1/16" THICK, AND ENGRAVED TO SHOW BLACK LETTERS ON A WHITE BACKGROUND NOT LESS THAN 1/4" HIGH. SIZE STRIPS TO PROPERLY FIT MANUFACTURER'S BRACKETS AND BE LEGIBLE. WHERE MANUFACTURER'S BRACKETS ARE NOT PROVIDED, MOUNT LABELS WITH PROPER SCREWS, OR AN APPROVED ADHESIVE.

RACEWAYS

CONDUIT, RIGID STEEL: GALVANIZED OR SHERADIZED AND MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.1. FITTINGS SHALL BE PIPE THREADED, MALLEABLE IRON. CONNECTORS SHALL BE INSULATED THROAT TYPE.

CONDUIT, PVC: POLYVINYLCHLORIDE SCHEDULE 40 PIPE SPECIFICALLY MANUFACTURED AND LABELED (UL STANDARD 651) FOR USE AS ELECTRICAL CONDUIT. FITTINGS SHALL BE EITHER SOCKET WELDED TYPE OR PIPE THREADED WITH INSULATED THROAT.

CONDUIT, FLEXIBLE METALLIC: GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH GALVANIZED OR SHERADIZED FITTINGS, LISTED TYPE UL-L. FITTINGS SHALL BE OF THE SQUEEZE TYPE WITH INSULATED THROATS.

CONDUIT, LIQUIDTIGHT FLEXIBLE METALLIC: GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH OVERALL JACKET OF LIQUID TIGHT PVC. UL LISTED. FITTINGS SHALL BE STEEL, OR MALLEABLE IRON INSULATED THROAT, WATER-TIGHT.

ELECTRIC METALLIC TUBING: GALVANIZED OR SHERADIZED AND MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.3. FITTINGS 1/2 INCH THROUGH 2 INCH CONDUCTOR FOR NO. 10 AWG AND SMALLER; CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL FEEDER CONDUCTORS NO 8 AWG AND LARGER, STRANDED, TYPE THHN-2 OR XHHW-2 INSULATION.

CONDUCTORS AND CABLES

GENERAL: SERVICE (LATERALS AND) PANELBOARD FEEDERS SHALL BE OF ANNEALED (SOFT) COPPER COMPLYING WITH ICA S-95-658/NEMA WC70; SOLID CONDUCTOR FOR NO. 10 AWG AND SMALLER; CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL BRANCH CIRCUIT CONDUCTORS NO 8 AWG AND LARGER; STRANDED, TYPE THHN-2 OR XHHW-2 INSULATION. ALL CONDUCTORS, NO 10 AWG AND SMALLER, USED FOR POWER AND LIGHTING CIRCUITS; SOLID COPPER, TYPE THHN-2 INSULATION (WET OR DAMP LOCATIONS, OR IN CONDUIT BELOW GRADE OR SLAB); TYPE THHN INSULATION (DRY LOCATIONS ONLY ABOVE GRADE), OR DUAL RATED TYPE THHN/THWN-2. ALL BRANCH CIRCUIT WIRING SHALL NOT BE SMALLER THAN NO 12 AWG. IF NO CONDUCTOR SIZE IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE CONDUCTORS AND CONDUIT SIZED PER NFPA 70 AND BASED ON THE INDICATED BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE RATING AND NUMBER OF POLES. WHERE NO CIRCUIT SIZE (CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICE) IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE THREE NO 12 AWG CONDUCTORS IN 3/4" RACEWAY, AND A 20A SINGLE POLE CIRCUIT BREAKER.

CONDUCTOR INSULATION TYPES: 90-DEGREE C-RATED, TYPE THHN/THWN-2 OR XHHW-2 COMPLYING WITH ICA S-95-658/NEMA WC70.

AS APPLICABLE, THE ROOFING CONTRACTOR PROVIDING A ROOF WARRANTY. KEEP ALL RACEWAY PENETRATIONS WITHIN MECHANICAL EQUIPMENT CURBS WHEREVER POSSIBLE. COORDINATE WITH DIVISION 15. FLASH AND COUNTERFLASH ALL OPENINGS THROUGH ROOF, AND/OR PROVIDE PRE-FABRICATED MOLDED SEALS COMPATIBLE WITH THE ROOF CONSTRUCTION INSTALLED, OR AS REQUIRED BY THE ENGINEER, OWNER, OR ROOFING CONTRACTOR. ALL ROOF PENETRATIONS SHALL BE LEAKTIGHT AT THE TERMINATION OF THE WORK AND SHALL NOT VOID ANY NEW OR EXISTING ROOF WARRANTIES.

WALLS AND FLOORS - SLEEVES FOR RACEWAYS AND CABLES: STEEL PIPE SLEEVES: ASTM A 53/A 53M, SIZE E, GRADE B, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS AND DRP RINGS.

CAST IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE," EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL SATERSTOP, UNLESS OTHERWISE INDICATED.

FIRESTOPPING: FIRE RESISTANT THROUGH PENETRATION SEALANTS - TWO PART, FOAMED-IN-PLACE, SILICONE SEALANT FORMULATED FOR USE IN THROUGH-PENETRATION FIRE-STOPPING AROUND CABLES, RACEWAYS, AND CABLE TRAY PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS. SEALANTS AND ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS INDICATED, AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES IN ACCORDANCE WITH ASTM E 814, BY UNDERWRITERS' LABORATORIES, INC. OR OTHER NRTL ACCEPTABLE TO AIA.

ACCEPTABLE MANUFACTURERS: -HLTI, INC., 3M CORP. RECTORSEAL, SPECIFY TECHNOLOGY INC., UNITED STATES GYPSUM COMPANY.

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PROVIDE ALL REQUIRED GROUNDING FOR A COMPLETE SERVICE ENTRANCE GROUNDING SYSTEM. PERMANENTLY AND EFFECTIVELY GROUND AND BOND THE ELECTRICAL INSTALLATION IN A THOROUGH AND EFFICIENT MANNER, AND IN CONFORMANCE (AT A MINIMUM) WITH N.E.C. OR THESE DOCUMENTS, WHERE THEY EXCEED CODE REQUIREMENTS. USE BARE OR INSULATED CONDUCTORS, AS SPECIFIED HEREIN, AND OTHER MATERIALS INDICATED ON THE DRAWINGS.

PROVIDE ALL NECESSARY ENCLOSURES REQUIRED BY THE OWNER FOR THE UTILITY COMPANY METERING. REFER TO DRAWINGS FOR MINIMUM REQUIREMENTS. COORDINATE WITH UTILITY COMPANY PRIOR TO BID FOR ALL REQUIREMENTS.

PRODUCTS

GENERAL

ALL EQUIPMENT OF A PARTICULAR KIND, SUCH AS WIRING DEVICES AND PANELBOARDS AND ALL LIGHTING FIXTURES OF THE SAME TYPE, SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.

N.E.C. REQUIREMENTS. FINISH IN STANDARD GRAY ENAMEL, WITH SIDES AND BACK SPOT-WELDED IN POSITION AND THE REMOVABLE SCREW COVER MOUNTED WITH BRASS MACHINE SCREWS.

WIRING DEVICES

SWITCHES: HEAVY DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE-POLE, DOUBLE-POLE, THREE-POLE, OR FOUR-WAY AS NOTED ON DRAWINGS OR AS REQUIRED FOR THE SWITCHING ARRANGEMENTS IN EACH SPACE. HUBBELL #HBL122" OR EQUAL. COORDINATE SWITCH COLORS WITH COVERPLATES AS DESCRIBED BELOW UNDER PLATES". SINGLE RECEPTACLE, 20 AMPERE, 120 VOLT, SPECIFICATION GRADE, HUBBELL #5382" OR EQUAL.

SWITCHES: SPECIAL PURPOSE: KEY OPERATED, HEAVY-DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE OR MULTI-POLE AS NOTED OR AS REQUIRED. HUBBELL #HBL122" OR EQUAL.

RECEPTACLES: THREE WIRE GROUNDING TYPE, 120 VOLT, RATED, SPECIFICATION GRADE 20 AMPERES DUPLEX (UNLESS NOTED OTHERWISE ON DRAWINGS. HUBBELL #5382" OR EQUAL. COORDINATE RECEPTACLE COLOR WITH COVERPLATE AS DESCRIBED BELOW UNDER PLATES". SINGLE RECEPTACLE, 20 AMPERE, 120 VOLT, SPECIFICATION GRADE, HUBBELL #5382" OR EQUAL.

DUST AND MOISTURE RESISTANT, MELAMINE BODY, GRAY NYLON FACE BACKED BY FABRIC REINFORCED NEOPRENE GASKET SLIT TO PROVIDE WIPING ACTION ON CAP BLADES. PASS & SEYMOUR #5307 OR APPROVED EQUAL. GROUND FAULT CIRCUIT INTERRUPTER, NYLON FACE CLASS A, NEMA 5-20R, SPECIFICATION GRADE, HUBBELL #GF-5382" OR EQUAL.

CORROSION RESISTANT, SIMILAR AND APPROVED EQUAL TO STANDARD RECEPTACLE, EXCEPT FABRICATED FROM YELLOW MELAMINE PLASTIC WITH YELLOW NYLON FACE AND EXPOSED METAL PARTS FINISHED TO RESIST CORROSION, (NEMA 5-15R - HUBBELL #520M).

ISOLATED GROUND, DUPLEX OR SIMPLEX THREE WIRE GROUNDING TYPE, SPECIFICATION GRADE, ORANGE FACE, GROUND CONTACT FULLY ISOLATED FROM STRAP AND EQUIPPED WITH SCREW TERMINAL. HUBBELL #IG-5382" OR EQUAL.

RECEPTABLES: SPECIAL PURPOSE: SPECIAL PURPOSE OUTLETS SHALL BE AS SCHEDULED ON DRAWINGS.

PLATES: PROVIDE PLATES FOR ALL OUTLET BOXES. PLATES SHALL BE OF SUITABLE CONFIGURATION FOR THE NUMBER AND TYPE OF DEVICES SERVED, SHALL BE ONE PIECE, SHALL OVERLAP OUTLET BOX EDGE AND ROOM SURFACES, AND SHALL BE SMOOTH FINISH NYLON TYPE OF SAME MANUFACTURER AS THE WIRING DEVICES. VERIFY DESIRED MATERIALS AND COLORS WITH ARCHITECT PRIOR TO INSTALLATION.

STANDARD INTERIOR: IVORY FINISHED ON LIGHT COLORED WALLS - COORDINATE ALL COLORS WITH ARCHITECT

INTERIOR DAMP LOCATIONS: STAINLESS STEEL.

EXTERIOR LOCATIONS: FOR UNATTENDED WET LOCATIONS, PROVIDE IN-USE NEMA 3R UL LABELED PLATES MOLDED FROM A CLEAR HIGH IMPACT ULTRAVIOLET STABILIZED POLYCARBONATE MATERIAL FOR EASY VERIFICATION THAT COROS ARE PLUGGED IN AND THAT THE GFCI IS FUNCTIONING. COVER PLATES SHALL BE BY THE SAME MANUFACTURER AS THE WIRING DEVICES; COMPLYING WITH NFPA 70 408.4 (A) OR (B) REQUIREMENTS FOR ATTENDED OR UNATTENDED USE AS APPLICABLE.

ACCEPTABLE MANUFACTURERS: HUBBELL, PASS & SEYMOUR, LEVITON AND COOPER.

CABINETS AND ENCLOSURES

FURNISH AND INSTALL FLUSH CABINETS AND ENCLOSURES AS SHOWN ON THE PLANS AND AS HEREIN SPECIFIED. UNIT SHALL BE PROVIDED WITH DEAD FRONT SUB PANEL, RECESSED AS REQUIRED, TO HOUSE CONTROLS. DOOR SHALL BE PROVIDED WITH CONCEALED HINGES AND FLUSH KEY OPERATED LOCK. DOOR AND TRIM SHALL BE PRIME PAINTED FOR FIELD PAINTING TO MATCH WALL FINISHES. PROVIDE KNOCK-OUTS, LOUVERS AND IDENTIFICATION ENGRAVING AS REQUIRED TO MEET FIELD CONDITIONS. EXACT BACKBOX SIZE TO BE COORDINATED WITH EQUIPMENT SUPPLIER.

CIRCUIT DISCONNECTS

SAFETY SWITCHES: SAFETY SWITCHES SHALL CONSIST OF A BOX, FRONT COVER, AND CIRCUIT PROTECTOR DEVICE ALL MANUFACTURED AND ASSEMBLED IN ACCORDANCE WITH NEMA STANDARDS

THE BOX SHALL BE FABRICATED FROM CODE GAUGE GALVANIZED SHEET STEEL IN ACCORDANCE WITH UL LISTING AND LABEL. THE CIRCUIT PROTECTOR DEVICE SHALL BE HEAVY DUTY, QUICK-MAKE, QUICK-BREAK FUSED OR UNFUSED SWITCH RATED FOR MOTOR CIRCUITS AND/OR SERVICE ENTRANCE DUTY. IF REQUIRED, UNITS SHALL BE FURNISHED FOR SURFACE OR FLUSH MOUNTING WITH EITHER GENERAL PURPOSE OR RAIN/IGNIT ENCLOSURES, AS REQUIRED. FUSED UNITS SHALL BE FURNISHED COMPLETE WITH PROPER FUSES.

PANELBOARDS

SHALL CONSIST OF BOX, INTERIOR, FRONT, AND CIRCUIT PROTECTIVE DEVICES. THE ASSEMBLY SHALL BE UL LABELED AND BE LISTED FOR SERVICE. THE ASSEMBLY SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH NEMA STANDARD PB-1. THE LATEST UL STANDARD (UL-50) AND SHALL HAVE A TURNED EDGE AROUND THE FRONT FOR RIGIDITY AND FOR CLAMPING ON FRONT. PROVIDE STANDARD KNOCKOUTS ON REMOVABLE BOX ENDS. FABRICATE FROM SHEET STEEL, AND FINISH WITH BASED ON GRAY ENAMEL OVER RUST INHIBITOR. EACH FRONT SHALL HAVE A DOOR MOUNTED ON SEMI-CONCEALED HINGES WITH A CYLINDER LOCK, INDEX CARD CIRCUIT DIRECTORY MOUNTED BEHIND CLEAR PLASTIC AND HELD IN A METAL FRAME, AND CONCEALED TRIM CLAMPS FOR MOUNTING TO THE BOX. ALL LOCKS SHALL BE MASTER KEYED AND ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

ALL INTERIORS SHALL BE COMPLETELY FACTORY ASSEMBLED. THE DESIGN OF THE INTERIOR SHALL PERMIT REPLACEMENT OF INDIVIDUAL BRANCH BREAKERS WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT MACHINE DRILLING OR TAPPING. BUS BARS FOR PANELS RATED 600 AMPERES OR MORE SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OR TIN FINISH ALUMINUM (57% CONDUCTIVITY) OF RECTANGULAR CROSS-SECTION. BUS BARS FOR PANELS RATED LESS THAN 600 AMPERES SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OR RECTANGULAR CROSS-SECTION. BUS BAR CONNECTIONS TO BRANCH CIRCUIT BREAKERS SHALL BE THE PHASE SEQUENCE TYPE AND ACCEPT BOLT-ON TYPE BREAKERS ONLY. PANELBOARD BUS STRUCTURE AND MAIN BREAKER OR MAIN LUGS SHALL BE RATED AS SCHEDULED ON DRAWING. SUCH RATINGS SHALL BE ESTABLISHED BASED ON HEAT RISE TESTS IN ACCORDANCE WITH UL STANDARDS. GROUP INCOMING CABLE LUGS AT ONE END FOR SEPARATION FROM LOAD SIDE CABLES. EQUIPMENT NEUTRAL BUSSING WITH A LUG FOR EACH BRANCH BREAKER POSITION. INTERIOR SHALL MOUNT TO BOX WITHOUT TOOLS.

BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, BOLT-ON THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKERS ONE, TWO OR THREE POLE WITH INTEGRAL CROSSBAR FOR MULTI-POLE UNITS. EQUIPPED WITH AN OVERCENTER, TRIP-FREE, TOGGLE-TYPE OPERATING ACTION AND POSITIVE HANDLE INDICATION OF BREAKER STATUS. CIRCUIT BREAKERS SHALL BE UL LISTED IN ACCORDANCE WITH UL STANDARDS.

EACH PANELBOARD, AS A COMPLETE UNIT, SHALL HAVE A SHORT CIRCUIT RATING EQUAL TO OR GREATER THAN THE INTEGRATED EQUIPMENT RATING SHOWN ON DRAWINGS. THE RATING SHALL BE ESTABLISHED BY TESTING WITH THE OVERCURRENT DEVICES MOUNTED IN THE PANELBOARD. THE SHORT CIRCUIT TESTS ON THE OVERCURRENT DEVICES ON THE STRUCTURE SHALL BE MADE SIMULTANEOUSLY BY CONNECTING THE FAULT TO EACH OVERCURRENT DEVICE WITH THE PANELBOARD CONNECTED TO ITS RATED SUPPLY VOLTAGE.

REFER TO PANELBOARD SCHEDULES FOR FULLY RATED OR SERIES-RATED REQUIREMENTS. SERIES-RATED SYSTEMS ARE NOT ALLOWED UNLESS SPECIFICALLY INDICATED ON PANELBOARD SCHEDULES. WHERE ALLOWED, SERIES-RATED SYSTEMS SHALL BE PROPERLY LABELED BY NEC REQUIREMENTS.

METHOD OF TESTING SHALL BE PER UL STANDARDS. PANELBOARDS SHALL BE MARKED WITH THEIR MAXIMUM SHORT CIRCUIT CURRENT RATING AT THE SUPPLY VOLTAGE.

APPROVED MANUFACTURERS: SQUARE-D CO. OR EQUAL BY GE, SIEMENS AND/OR Eaton.

OVERCURRENT PROTECTIVE DEVICES

FUSES OF THE PROPER SIZE, RATING AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED IN EACH FUSIBLE DEVICE. FUSES OF 600 VOLTS AND BELOW SHALL BE UL CLASS RK-1, CURRENT-LIMITING, TIME-DELAY, DUAL-ELEMENT, 200,000 AMPERE RMS SYMMETRICAL INTERRUPTING CAPACITY ON NON-MOTOR CIRCUITS AND UL CLASS RK-1, TIME-DELAY, DUAL-ELEMENT, 200,000 AMPERES RMS SYMMETRICAL INTERRUPTING CAPACITY ON MOTOR CIRCUITS.

APPROVED MANUFACTURERS: BUSSMANN, LITTELFUSE OR FERRAZ-SHAWMUT (ALL FUSES SHALL BE OF SAME MANUFACTURER TO ENSURE SELECTIVE COORDINATION).

CIRCUIT BREAKERS: CIRCUIT BREAKERS OF THE PROPER SIZE, RATING, AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED WHERE CALLED FOR ON DRAWINGS. BREAKERS SHALL BE THERMAL-MAGNETIC MOLDED CASE WITH QUICK-MAKE, QUICK-BREAK, OVER CENTER TOGGLE TYPE MECHANISM AND TRIP-FREE HANDLE MECHANISM. THE BREAKER SHALL BE ENCLOSED IN A SUITABLE NEMA RATED ENCLOSURE. BREAKERS SHALL BE OF SAME MANUFACTURER AS THOSE IN THE PANELBOARDS.

TIMESWITCHES

ELECTRONIC TIME SWITCHES: ELECTRONIC, SOLID STATE PROGRAMMABLE UNITS WITH ALPHANUMERIC DISPLAY; COMPLYING WITH UL917, SPST, 30 AMPERE INDUCTIVE OR RESISTIVE, 240VAC, CONTACT RATING, 2 PROGRAMMABLE ON-OFF SET POINTS ON A 24-HOUR SCHEDULE, ALLOWING DIFFERENT SET POINTS FOR EACH DAY OF THE WEEK. ALLOW CONNECTION OF A PHOTOELECTRIC RELAY AS SUBSTITUTE FOR ON-OFF FUNCTION OF A PROGRAM. ASTRONOMIC TIME ON ALL CHANNELS. BATTERY BACKUP FOR SCHEDULES AND TIME CLOCK.

OUTDOOR PHOTOELECTRIC SWITCHES

SOLID STATE, WITH SPST DRY CONTACT RATED FOR 1800-VA TUNGSTEN OR 1000-VA INDUCTIVE, TO OPERATE CONNECTED RELAY, CONTACT COILS OR MICROPROCESSOR INPUT, COMPLYING WITH UL 773A.

TELEPHONE AND DATA SYSTEMS

FURNISH AND INSTALL A SYSTEM OF PROPERLY SIZED AND PROPERLY LOCATED OUTLETS WITH ASSOCIATED CONNECTING CONDUIT RUNS, EXTENDING TO PULL BOXES AND TELEPHONE BACKBOARD. FURNISH AND INSTALL RACEWAYS, FOR INCOMING SERVICE WHERE INDICATED.

OUTLET BOXES: UNLESS OTHERWISE INDICATED, ALL TELEPHONE OUTLETS AND JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO ACCOMMODATE INTERNAL TERMINAL STRIPS BY TELEPHONE CO.

OUTLET COVER PLATES: TELEPHONE OUTLET COVER PLATES SHALL MATCH THOSE SPECIFIED FOR ADJACENT WIRING DEVICES, INCLUDING THOSE WITH SPECIAL FINISHES.

RACEWAYS: MATERIALS FOR TELEPHONE RACEWAY SYSTEM WORK SHALL BE IN ACCORDANCE WITH CORRESPONDING RACEWAYS SPECIFIED HEREIN AND IN OTHER SECTIONS.

VERIFY LOCATION OF WALL OUTLETS BEFORE ROUGHING IN TO ENSURE COORDINATION WITH OWNERS FINAL INTENDED FURNITURE LAYOUT. PLAN INDICATIONS SHALL NOT BE SCALED UNLESS DIRECTED. OUTLETS SHALL BE RELOCATED WITHIN ROOMS BEFORE ROUGHAN WHERE DIRECTED BY ARCHITECT-ENGINEER WITHOUT ADDITIONAL COST TO OWNER.

TELEPHONE SERVICE CONDUIT LAYOUT SHALL HAVE THE JOB SITE APPROVAL OF AN AUTHORIZED REPRESENTATIVE OF THE TELEPHONE CO. COORDINATE WORK SO THAT BOTH TELEPHONE CO. AND OWNERS REPRESENTATIVES ARE PRESENT AT THE SAME TIME FOR APPROVAL OR CHANGES IN AMPLT TIME FOR ANY REQUIRED CORRECTIONS BEFORE COMPLETION OF PROJECT.

FROM EACH TELEPHONE OUTLET, PROVIDE 3/4" EMT CONDUIT CONCEALED IN WALL TO 6" ABOVE ACCESSIBLE CEILING OR UP TO STRUCTURE WHERE NO CEILING EXISTS, UNLESS SHOWN OTHERWISE ON DRAWINGS.

TELEPHONE TERMINAL BOARD: PRIOR TO INSTALLATION OF TELEPHONE TERMINAL BOARD, THE EXACT LOCATION SHALL BE VERIFIED WITH THE TELEPHONE CO. THE TELEPHONE TERMINAL BOARD SHALL BE PROVIDED WITH A DOUBLE DUPLEX RECEPTACLE LOCATED WHERE INDICATED ON THE DRAWINGS. THE TERMINAL BOARD SHALL BE CONSTRUCTED OF 4" X 8" X 3/4" PLYWOOD WITH TWO (2) COATS OF FLAME RETARDANT PAINT UNLESS NOTED OTHERWISE ON DRAWINGS.

LIGHTING

FIXTURES ARE SPECIFIED IN THE SCHEDULE BY MANUFACTURER'S NAME AND CATALOG NUMBER.

ALL RECESSED LIGHT FIXTURES SHALL BE PROVIDED WITH FACTORY INSTALLED THERMAL PROTECTION.

ALL LAMPS USED ON THIS PROJECT SHALL BE NEW, DELIVERED TO THE JOB SITE IN THE ORIGINAL PACKING CASES AND SLEEVES AND SHALL BE OF THE SAME MANUFACTURER.

PROVIDE FLUORESCENT FIXTURES WITH ELECTRONIC BALLASTS SUITABLE FOR OPERATION OF LAMPS SPECIFIED; TOTAL HARMONIC DISTORTION LESS THAN 20%; FREQUENCY OF OPERATION OF 20 KHZ OR GREATER WITH NO VISIBLE FLICKER; LINE TRANSIENT WITHSTAND RATINGS AS DEFINED IN ANSI/IEEE CATEGORY A, APPROVED MANUFACTURERS: ADVANCE OR EQUAL BY MAGNETEK, MOTOROLA OR OSRAM.

HD BALLASTS SHALL BE AUTO TRANSFORMER REACTOR, HIGH POWER FACTOR POTTED AND ENCASED TO MINIMIZE SOUND. APPROVED MANUFACTURERS: GE, SYLVANIA, OR OSRAM.



12	11	10	9	8	7	6	5	4	3	2	1
K											K
J											J
H											H
G											G
F											F
E											E
D											D
C											C
B											B
A											A
12	11	10	9	8	7	6	5	4	3	2	1

WIRING OF MECHANICAL EQUIPMENT  
PROVIDE ALL RACEWAYS AND POWER WIRING FOR ALL DIVISION 15 EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS, INCLUDING, BUT NOT LIMITED TO, PUMPS, WATER HEATERS, AND HVAC EQUIPMENT, AND ALL LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15. CONNECT PER MANUFACTURER'S WIRING DIAGRAMS. COORDINATE WITH DIVISION 15 FOR DISCONNECTS FURNISHED WITH EQUIPMENT, AND PROVIDE ALL DISCONNECT SWITCHES AS REQUIRED. AFTER INSTALLING WIRING, VERIFY THAT EACH MOTOR LOAD HAS THE CORRECT PHASE ROTATION.

VERIFY THE ACTUAL "MAXIMUM OVERCURRENT PROTECTION" DEVICE RATINGS AND "MINIMUM CIRCUIT AMPACITY" CONDUCTOR SIZING FOR MECHANICAL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE. BASE ELECTRICAL INSTALLATIONS ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VARY SOMEWHAT FROM THE CONDUCTOR AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS; HOWEVER, IN NO CASE, REDUCE THE SIZE OF CONDUCTORS INDICATED ON THE DRAWINGS WITHOUT AUTHORIZATION FROM THE ENGINEER. PROVIDE PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT WITHOUT EXTRA COST TO THE OWNER. NOTIFY THE ENGINEER OF ALL CHANGES REQUIRED IN THE ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES SO THAT THE EFFECTS ON FEEDERS, BRANCH CIRCUITS, PANELBOARDS, FUSES AND CIRCUIT BREAKERS CAN BE CHECKED PRIOR TO PURCHASING AND INSTALLATION. BE RESPONSIBLE FOR COORDINATING WITH DIVISION 15 TO VERIFY THE ACTUAL AMPACITIES AND CORRECT SIZES OF ALL CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICES FOR ALL EQUIPMENT, AND CORRECT OVERLOAD HEATERS FOR ALL MOTORS, WHEN STARTERS ARE PROVIDED UNDER DIVISION 16.

PROVIDE ALL RACEWAYS, POWER WIRING, AND LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15, FOR ALL THERMOSTATS, TEMPERATURE CONTROL DEVICES, AND CONTROLS, INCLUDING, BUT NOT LIMITED TO, NIGHT-STATS, WATER HEATER INTERLOCKS, TIME SWITCHES AND OVERHIDE TIMERS. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND TEMPERATURE CONTROL DIAGRAM. LOW-VOLTAGE CONDUCTORS FOR THERMOSTATS AND TEMPERATURE CONTROL SYSTEMS MAY BE RUN EXPOSED ABOVE FINISHED ACCESSIBLE CEILINGS, IF APPROVED AND LISTED FOR THIS PURPOSE, BUT SHALL BE INSTALLED IN CONDUIT WITHIN WALLS AND WHERE EXPOSED IN THE WORK AREAS.

EXECUTION

METHOD OF PROCEDURE  
ERECT EQUIPMENT PARTS AT SUCH TIME AND IN SUCH MANNER AS TO MINIMIZE INTERFERENCES AND DELAYS IN THE EXECUTION OF THE WORK CARE SHALL BE USED IN THE ERECTION AND INSTALLATION OF ALL EQUIPMENT AND MATERIALS TO AVOID MARRING SURFACES OF THE WORK. DAMAGES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

EQUIPMENT REQUIRING ELECTRICAL SERVICE SHALL NOT BE ENERGIZED OR PLACED IN SERVICE UNTIL ALL INTERESTED PARTIES HAVE BEEN DULY NOTIFIED AND ARE PRESENT OR HAVE WAIVED THEIR RIGHT TO BE PRESENT. WHERE EQUIPMENT TO BE PLACED IN SERVICE INVOLVES SERVICE OR CONNECTION FROM ANOTHER CONTRACTOR OR THE OWNER, NOTIFY THE OWNER IN WRITING WHEN THE EQUIPMENT WILL BE READY. THE OWNER SHALL BE NOTIFIED AS FAR IN ADVANCE AS POSSIBLE, OF THE DATE THE VARIOUS ITEMS OF EQUIPMENT WILL BE COMPLETE.

THE WORK OF THIS TRADE INCLUDES ROUGH-IN FOR AND FINAL CONNECTION AND REQUIRED TO ALL MISCELLANEOUS EQUIPMENT FURNISHED BY OTHERS, OR UNDER OTHER DIVISIONS OF THE WORK. THIS SHALL INCLUDE POWER AND CONTROL WIRING. WIRING DEVICES AND COVER-PLATES FOR BUILT-IN EQUIPMENT ARE INCLUDED IN THE WORK OF THIS DIVISION. SAFETY DISCONNECTS AND OTHER MISCELLANEOUS PROTECTIVE DEVICES REQUIRED BY N.E.C. ARE INCLUDED IN THE WORK OF THIS DIVISION. DO ALL ROUGHING-IN AND FINAL CONNECTIONS FROM APPROVED SHOP DRAWINGS ONLY.

COMPLIANCE WITH THE DRAWING AND ANY NOTES THEREON IS REQUIRED. PROVIDE OPENINGS THROUGH WALLS, PARTITIONS, FLOORS, AND ROOFS AS REQUIRED FOR ELECTRICAL WORK.

PROVIDE SLEEVES FOR ELECTRICAL WORK PASSING THROUGH WALLS, PARTITIONS, ROOFS, AND FLOORS. SLEEVES SHALL EXTEND THROUGH FLOORS, WALLS AND PARTITIONS AND SHALL BE CUT FLUSH WITH EACH SURFACE UNLESS OTHERWISE SPECIFIED. FIRE WALL AND/OR FLOOR INTEGRITY SHALL BE RESTORED AFTER PENETRATION. SLEEVES IN CONCRETE AND MASONRY WALLS, CONCRETE FLOORS AND ROOFS, SHALL BE FABRICATED FROM STANDARD GALVANIZED STEEL PIPE WITH ENDS FINISHED SMOOTH, BURR FREE, WITHOUT SHARP EDGES. SLEEVES IN WALLS, ROOFS, AND FLOORS OF OTHER CONSTRUCTION AND THROUGH SUSPENDED CEILINGS SHALL BE FABRICATED FROM 22 U.S. GAUGE GALVANIZED STEEL. FLOOR SLEEVES SHALL EXTEND THREE INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. SPACE BETWEEN FLOOR SLEEVES AND PASSING CONDUIT SHALL BE FILLED WITH DUCT SEAL PACKING AND CAULKED WITH WATERPROOF COMPOUND AS APPROVED. WHERE CONDUITS PASS THROUGH WATERPROOFED FLOORS OR WALLS, SLEEVES SHALL BE FABRICATED SUCH THAT WATERPROOFING CAN BE FLASHED ONTO AND AROUND THE SLEEVE.

RACEWAYS  
ALL POWER AND LIGHTING CIRCUITS SHALL BE RUN IN METALLIC RACEWAYS EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE. THESE RACEWAYS SHALL BE RUN CONCEALED IN ALL FINISHED AREAS, AND WHERE RUN EXPOSED SHALL BE SQUARE TO THE BUILDING AND HELD TIGHT TO THE BUILDING CONSTRUCTION. LOW VOLTAGE, TELEPHONE, INTERCOM, MUSIC, ALARM AND SECURITY WIRING RUN ABOVE ACCESSIBLE CEILINGS SHALL BE RUN USING INSULATED, PLENUM RATED CABLE. PROVIDE LOW VOLTAGE CABLE IN CONDUIT IF REQUIRED BY LOCAL A.U. VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION. METALLIC CONDUIT FOR THESE SYSTEMS SHALL BE PROVIDED ONLY WHERE RUN INSIDE WALLS. THE DRAWINGS INDICATE THE REQUIRED SIZE OF ALL RACEWAYS EXCEPT AS HEREINAFTER SPECIFIED, THE POINTS OF TERMINATION AND THE SUGGESTED ROUTING. HOWEVER, THE INSTALLER IS RESPONSIBLE FOR PROPER COORDINATION WITH BUILDING STRUCTURE AND THE WORK OF OTHER TRADES. FURNISH ALL REQUIRED BENDS, ELBOWS, FITTINGS, JUNCTION AND PULL BOXES, WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS, THAT MAY BE REQUIRED TO SATISFY CODES AND THE STANDARDS OF GOOD PRACTICE. WHERE CONDUITS FOR BOTH BRANCH AND FEEDER CIRCUITS ARE RUN CONCEALED, THEY MAY BE RUN OUT OF SQUARE TO THE BUILDING PROVIDING THE SHORTEST POSSIBLE RUN IS UTILIZED. RACEWAY SIZES ARE BASED ON THE USE OF COPPER CONDUCTORS AND N.E.C. FILL.

CONDUIT SHALL BE CONSTRUED AS ELECTRICAL RACEWAYS AND SHALL CONFORM TO THE FOLLOWING: CONCEALED IN SUSPENDED CEILINGS AND INTERIOR PARTITIONS - EMT WITH SET SCREW TYPE FITTINGS. UNDERGROUND OR BELOW INTERIOR SLABS - GRS. (NOTE: PVC CONDUIT IS PERMITTED OUTSIDE FOR PARKING AREA LIGHTING, SIGNS, ETC. ELBOWS SHALL BE GRS). EXPOSED ON BUILDING EXTERIOR - GRS.

CONDUIT BENDS SHALL BE MADE TO THE LARGEST POSSIBLE RADIUS FOR EASE IN PULLING CONDUCTORS AND TO PROVIDE A NEATLY INSTALLED APPEARANCE. EQUIPMENT AND CONDITIONS PERMITTING. POWER CONDUIT BENDS SHALL CONFORM TO THE FOLLOWING: 1-1/2 IN. - 18 IN. RADIUS, 2 IN. - 24 IN. RADIUS, 2-1/2 IN. - 24 IN. RADIUS, 3 IN. - 36 IN. RADIUS.

GRS CONDUIT SHALL BE CUT WITH POWER OR HACKSAW AND CLEANLY REAMED

TO REMOVE ALL "BURRS" AND ALL FIELD CUT THREADS SHALL BE PAINTED WITH WHITE LEAD BEFORE COUPLINGS ARE APPLIED.

EMPTY CONDUIT SYSTEMS INSTALLED FOR COMMUNICATION SYSTEMS, PUBLIC TELEPHONES, OWNER ITEMS AND OTHER SYSTEMS AS INDICATED ON DRAWINGS SHALL BE INSTALLED COMPLETE WITH NYLON PULL WIRES PROPERLY TAGGED AT BOTH ENDS FOR IDENTIFICATION.

WHERE BUILDING VENTILATION CONDITIONS ARE SUCH THAT AIR MAY FLOW CONTINUOUSLY IN CONDUITS, CAUSING CONDENSATION AND THE COLLECTION OF MOISTURE, THE CONDUITS SHALL BE SEALED AT EACH END WITH A PLIABLE X DUCT SEALING COMPOUND. ALSO SEAL ALL CONDUITS ENTERING AND LEAVING REFRIGERATED EQUIPMENT AND PROVIDE EXPANSION JOINTS PER N.E.C.

ALL CONNECTIONS TO MOTORS, SOLENOID VALVES, PRESSURE SWITCHES, LIMIT SWITCHES, AND SIMILAR APPARATUS SHALL BE FLEXIBLE CONDUIT WHERE PERMITTED. WHERE EQUIPMENT IS INSTALLED OUTDOORS OR EXPOSED TO MOISTURE, USE LIQUIDTIGHT FLEXIBLE CONDUIT WITH WATERTIGHT FITTINGS.

EQUIPMENT LEVELING, HANGERS AND SUPPORTS  
SET EACH PIECE INSTALLED UNDER THIS DIVISION TRUE AND LEVEL. ADEQUATELY SUPPORT ALL RACEWAYS FROM THE STRUCTURE USING SCREW CLAMPS TO SECURE TO SAME. ARRANGE SUPPORTS TO PREVENT MOISTURE COLLECTION AND ALLOW ENTRANCE TO BOXES WITHOUT BENDS. INSTALL MULTIPLE CONDUITS USING CHANNEL TRAPEZE SUPPORTS TIGHT TO STRUCTURE ABOVE. USE APPROVED SPACERS TO INSULATE FROM CONTACT WITH BUILDING. SIZE CLAMPS, INSERTS, CHANNELS AND ALL OTHER MEMBERS TO SUPPORT A LOAD EQUAL TO 200% OF THE COMBINED WEIGHT OF ALL SUPPORTED MATERIAL PLUS THE WEIGHT OF A MAN.

WHERE SEVERAL RACEWAYS ARE SUPPORTED ON A SINGLE TRAPEZE HANGER, SUPPORTS SHALL BE SPACED TO ACCOMMODATE THE SMALLEST SIZE RACEWAY INVOLVED. SPACE HANGERS AS FOLLOWS:  
RIGID CONDUIT: 1/2 AND 3/4 IN. SIZE: 6'-0" ON CENTERS; 1 AND 1-1/4 IN. SIZE: 9'-0" ON CENTERS  
ELECTRIC METALLIC TUBING: 1/2 AND 3/4 IN. SIZE: 5'-0" ON CENTERS; 1 AND 1-1/4 IN. SIZE: 6'-0" ON CENTERS.

SECURELY ATTACH HANGERS AND SUPPORTS TO CONSTRUCTION BY METHODS RECOMMENDED IN THE N.E.C. STANDARDS OF INSTALLATION MANUAL. COORDINATION WITH MECHANICAL TRADES: THE INTENT OF THE ABOVE CEILING SUPPORTS IS TO COMBINE AS MANY PIPES, CONDUITS, ETC., AS IS POSSIBLE WITHIN SAFE STRUCTURAL LIMITS. ON EACH HORIZONTAL SECTION OF A TRAPEZE HANGER, PRIOR TO SELECTING THE HORIZONTAL MEMBER, ALL TRADES, MECHANICAL AND ELECTRICAL, SHALL COORDINATE ACTUAL NUMBER OF PIPES, CONDUITS, ETC., SUCH THAT FINAL SELECTION RESULTS IN A NEATLY GROUPED, DISCIPLINED AND ACCESSIBLE INSTALLATION.

WIRING INSTALLATION  
EXCEPT FOR SUCH ITEMS AS ARE NORMALLY WIRED AT THEIR POINT OF MANUFACTURE AND SO DELIVERED - AND UNLESS SPECIFICALLY NOTED TO THE CONTRARY HEREIN - THE ELECTRICAL TRADE SHALL DO ALL ELECTRICAL WIRING OF EVERY CHARACTER, AND IT IS THE INTENT OF THESE SPECIFICATIONS AND DRAWINGS THAT ALL SYSTEMS AND EQUIPMENT SHALL BE PROVIDED WITH ALL NECESSARY UTILITY CONNECTIONS, COMPLETED TO ALLOW SAFE AND PROPER OPERATION OF SAID SYSTEMS, WHEN IT IS NECESSARY FOR TRADES PERFORMING WORK COVERED BY THIS DIVISION TO MAKE FINAL CONNECTIONS TO ITEMS OF EQUIPMENT BEING FURNISHED BY OTHERS, OR BY OTHER TRADES UNDER OTHER DIVISIONS. ALL SUCH WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DIVISION AND ALL MATERIALS USED SHALL BE AS SPECIFIED HEREIN.

MINIMUM WIRE SIZE FOR BRANCH CIRCUITS SHALL BE #12 AWG, EXCEPT THAT HOMERUNS LONGER THAN 100 FT. LENGTH FROM THE PANEL TO THE CIRCUITS ELECTRICAL LOAD CENTER SHALL BE #10 AWG MINIMUM. WHERE RUNS EXCEED 150', CONTRACTOR MUST ENSURE WIRE SIZE BEING UTILIZED DOES NOT CREATE A VOLTAGE DROP GREATER THAN 3%. REQUEST PROPER WIRE SIZE PRIOR TO INSTALLATION IF A 3% VOLTAGE DROP MAY OCCUR FOR ANY BRANCH CIRCUIT. WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE ENCLOSED IN THE SAME RACEWAY, CONDUCTORS ARE TO BE DERATED PER N.E.C. AND WIRE SIZE INCREASED AS REQUIRED. WHERE THE INCREASED CONDUCTOR SIZE REQUIRES INCREASE THE RACEWAY SIZE AS WELL. FOR CONTROL WIRING, USE #14 AWG MINIMUM. FOR FIXTURE WIRING, AS PERMITTED BY N.E.C., USE #18 AWG MINIMUM. FOR SIGNAL AND COMMUNICATIONS SYSTEMS USE WIRE SIZE AS SPECIFICALLY REQUIRED BY THE SYSTEM SUPPLIER.

MAKE CONNECTIONS TO TERMINALS USING PRESSURE TYPE CONNECTORS. SOLDERED JOINTS ARE PROHIBITED. ALL JOINTS IN CONDUCTORS SHALL BE MADE AT AN ACCESSIBLE LOCATION WITHIN A BOX BY TWISTING THE BARE CONDUCTOR ENDS TOGETHER AND APPLYING A WIRE CONNECTOR IN ALL SIZES UP TO THE MAXIMUM CAPACITY OF THE CONNECTOR. JOINTS SHALL BE TAPED WITH AN APPROVED ELECTRICAL TAPE. SPLICES FOR CONDUCTORS LARGER THAN #10 AWG SHALL BE MADE WITH AN APPROVED COMPRESSION (SQUEEZE) CONNECTOR INSULATED WITH NOT LESS THAN TWO LAYERS OF ELECTRICAL FILL TAPE TO 1.5 TIMES THE THICKNESS OF INSULATION, FOLLOWED BY TWO (MINIMUM) LAYERS OF HALF-LAPPED ELECTRICAL TAPE FOR MECHANICAL PROTECTION. LOCATE ALL SPLICES IN BOXES OR FITTINGS OF PROPER SIZE PER N.E.C.

IDENTIFY ALL WIRES AND CABLES WITH BRADY ADHESIVE WIRE MARKERS AT EACH BOX, PANEL AND OUTLET. IDENTIFICATION SHALL, AS A MINIMUM, INDICATE THE PANEL AND CIRCUIT SUPPLYING THE OUTLET. AT THE PANEL END, THE LOAD SERVED AND ITS LOCATION SHALL BE INDICATED. PROVIDE A MINIMUM OF 6 IN. SLACK WIRE AT EACH OUTLET FOR MAKING CONNECTION TO THE DEVICE OR TO PROVIDE FOR A FUTURE DEVICE IN THE BOX.

BOXES  
EACH BOX SHALL BE OF PROPER SIZE TO ACCOMMODATE THE DEVICE AND FUNCTION FOR WHICH IT IS SHOWN. BOXES FOR WALL DEVICES SHALL BE FURNISHED COMPLETE WITH PLASTER RING OR TILE RING ACCORDING TO WALL CONSTRUCTION WHERE REQUIRED. BOXES FOR INSTALLATION IN MASONRY WALLS SHALL BE SPECIAL SQUARE CORNER MASONRY TYPE. BOXES FOR MOUNTING OF LIGHTING FIXTURES SHALL BE FOUR INCH OCTAGON, EQUIPPED WITH 3/8 IN. "NO-BOLT" FIXTURE STUD. BOXES FOR FLOOR OUTLETS SHALL BE CONCRETE PROOF STEEL BOXES WITH ADJUSTABLE TOPS AND DEVICES AS HEREINAFTER NOTED OR SHOWN. ALL BOXES SHALL BE FURNISHED COMPLETE WITH PROPER COVER AND/OR DEVICE PLATE AND DEVICE. UNLESS OTHERWISE NOTED, PLACE OUTLET BOXES AT THE FOLLOWING HEIGHTS (BOX CENTER TO FINISH FLOOR): WALL SWITCHES 48" AND CONVENIENCE OUTLETS 18" UNLESS NOTED OTHERWISE ON DRAWINGS.

TELEPHONE, ALARM, AND SIGNAL SYSTEM OUTLET BOXES SHALL BE STANDARD OUTLET BOX TYPE WHERE ONLY ONE CONDUIT ENTERS SAME. UNLESS OTHERWISE SPECIFIED OR INDICATED ON DRAWINGS, WHERE TWO OR MORE CONDUITS ENTER, BOX SHALL BE 4-11/16 IN. SQUARE MINIMUM WITH SUITABLE ADAPTER RING.

LOCATE ALL OUTLETS AS INDICATED ON DRAWINGS, HOWEVER, AT INSTALLATION INSPECT ARCHITECTURAL DRAWINGS AND LOCATE LOCAL SWITCHES ON THE STRIKE SIDE OF THE DOOR.

SYSTEM GROUNDING

EQUIPMENT, RACEWAY SYSTEMS, WIRING SYSTEM NEUTRALS, RECEPTACLES AND POWER OUTLETS, MOTORS AND MOTORIZED EQUIPMENT, SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. ARTICLE 250.

GROUND RECEPTACLES AND POWER OUTLETS TO THE CONDUIT SYSTEM WITH A GREEN GROUNDING CONDUCTOR SIZE IN ACCORDANCE WITH N.E.C. AND CONNECTED BETWEEN THE DEVICE GROUNDING SCREW AND THE OUTLET BOX. CONNECTION TO THE BOX MAY BE A "G" CLIP OR BY A 10/24 SCREW THREADED INTO A HOLE IN THE BACK OF THE BOX AND USED FOR NO OTHER PURPOSE. EQUIPMENT CONNECTED TO THE ELECTRICAL SYSTEM SHALL BE GROUNDED WITHIN INSULATED GREEN GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH N.E.C. AND INSTALLED WITHIN THE RACEWAY. CONDUCTOR SHALL BE CONTINUOUS BETWEEN A GROUNDING SCREW IN THE EQUIPMENT JUNCTION BOX AND A GROUND ATTACHMENT IN THE NEAREST OUTLET BOX IN THE RIGID METALLIC CONDUIT SYSTEM. THIS REQUIREMENT INCLUDES ALL FLEXIBLE CONDUIT.

GENERALLY FOR TELEPHONE AND SUPPLEMENTAL COMMUNICATION SYSTEMS NO 6 AWG CONDUCTOR TO EACH PROTECTOR CABINET, OTHER CABINET, OR DEVICE INSTALLATION SHALL BE CONSIDERED SUFFICIENT. FROM THE SERVICE GROUND (UNLESS INDICATED OTHERWISE).

GROUNDING MATERIAL:  
GROUND-RODS - 1/2" DIA., 10' LONG, COPPERWELD GROUND CONDUCTOR - SIZE AS PER N.E.C. REQUIREMENTS, SOFT DRAWN OR SOFT ANNEALED, COPPER WIRE.  
JOINTS AND CONNECTIONS - MOLDED FUSION WELDING PROCESS USING PROPER MOLD AND THE NUMBER, SIZE AND TYPE CARTRIDGE FOR THE JOINT OR CONNECTION. WATERPIPE CONNECTION, SILICON BRONZE APPROVED MECHANICAL CONNECTOR DESIGNED FOR THE PIPE AND CABLE TO BE BONDED.

PANELBOARD INSTALLATION:  
MOUNT PANELBOARDS WITH CENTERLINE AT 5 FT.-6IN. ABOVE FINISH FLOOR, EXCEPT THAT THE HIGHEST BREAKER HANDLE SHALL BE BELOW 6 FT.-5 IN. ABOVE FINISH FLOOR. ARRANGE BREAKERS SO THAT THE BREAKER RATING IS VISIBLE WITH THE PANEL FRONT IN PLACE.

PANEL DIRECTORIES, AS A MINIMUM, SHALL BE TYPEWRITTEN AND INDICATE BREAKER POSITION NUMBER AND EQUIPMENT SERVED. THE PANEL IDENTIFICATION SHALL BE LOCATED ON THE PANEL TRIM AND SHALL CONSIST OF A BLACK LAMINATED PHENOLIC LABEL, SCREW MOUNTED, WITH THE PANEL IDENTIFICATION MATCHING PANEL IDENTIFICATION ON DRAWINGS. LABEL ALL CONDUCTORS WITH ADHESIVE WRAP LABELS WITHIN 2 IN. OF THE CONDUCTOR TERMINATION PRIOR TO INSTALLATION OF TRIM.

LIGHTING FIXTURE INSTALLATION  
PROVIDE A LIGHTING FIXTURE FOR EACH AND EVERY OUTLET IN ACCORDANCE WITH TYPE DESIGNATION AND FIXTURE SCHEDULE ON THE DRAWINGS. VERIFY THE ARCHITECTURAL FINISHES AND CEILING CONSTRUCTION AND, REGARDLESS OF THE CATALOG NUMBER PREFIXES AND SUFFIXES SHOWN - PROVIDE FIXTURES WITH THE PROPER TRIM, FRAMES, SUPPORTS, AND HANGER AND OTHER MISCELLANEOUS APPURTENANCES TO PROPERLY COORDINATE WITH SAID FINISHES. REINFORCE CEILING CONSTRUCTION AS REQUIRED TO PROPERLY SUPPORT THE WEIGHT OF FIXTURES INSTALLED THEREON.

IMMEDIATELY PRIOR TO FINAL INSPECTION, THOROUGHLY CLEAN ALL FIXTURES INSIDE AND OUT, INCLUDING PLASTICS AND GLASSWARE, ADJUST TRIM TO FIT ADJACENT SURFACES, REPLACE BROKEN OR DAMAGED PARTS. INSTALL NEW LAMPS. ELECTRICALLY AND MECHANICALLY TEST THE SYSTEM FOR PROPER OPERATION.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVAL FROM LOCAL CODE AUTHORITIES AND MAKING ANY REVISIONS DIRECTED BY THEM ON EMERGENCY AND EXIT LIGHTING.

CLEANING  
THOROUGHLY CLEAN ALL FIXTURES, SWITCHES, OTHER DEVICES, PANELBOARDS AND EQUIPMENT PROVIDED OR CONNECTED IN THIS CONTRACT. ALL SURFACES SHALL BE PROPERLY POLISHED AND SHALL BE FREE OF PAINT AND ALL OTHER DIRT OR DEBRIS. TOUCHUP OR COMPLETELY REFINISH ALL EQUIPMENT FURNISHED WITH FACTORY FINISHES THAT IS DAMAGED DURING DELIVERY OR CONSTRUCTION. PROPERLY PROTECT THE FRONTS OF ALL PANELBOARDS, SWITCHBOARDS AND SIMILAR EQUIPMENT TO PREVENT MARRING AND OTHER DEFACING.

AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS OR RUBBISH CAUSED BY THE WORK OF THE TRADESMEN DOING ELECTRICAL WORK. AT COMPLETION OF THE WORK, REMOVE ALL RUBBISH, TOOLS, EQUIPMENT, AND SURPLUS MATERIALS. BROOM CLEAN ALL ASSIGNED SPACES PRIOR TO LEAVING THE PREMISES.

TESTING AND LOAD BALANCING

TEST ALL CIRCUITS TO ASSURE THEM TO BE FREE OF GROUNDS AND SHORTS. LIGHT AND TEST EACH LAMP. PROVE AND TEST THE AVAILABLE VOLTAGE ON THE LOAD SIDE OF EACH DISCONNECT. VERIFY PROPER OPERATION OF THE DISCONNECT. VERIFY THE PHASE SEQUENCE, VOLTAGE, AND ROTATION AT EACH MOTOR IN THE PRESENCE OF THE INSTALLER. RUN EACH MOTOR WITH ITS CONTROL AS NEARLY AS POSSIBLE UNDER OPERATING CONDITIONS FOR A SUFFICIENT LENGTH OVER TIME TO DEMONSTRATE CORRECT ALIGNMENT, WIRING CAPACITY, SPEED, AND OVERALL SATISFACTORY OPERATION. CHECK THAT THE PROPER OVERLOAD HEATERS HAVE BEEN INSTALLED BY READING THE MOTOR NAMEPLATE. ADJUST THE SIZE OF THE OVERLOAD HEATER AS REQUIRED TO MATCH THE MOTOR NAMEPLATE. OPERATE ALL MAIN AND FEEDER SWITCHES AND BREAKERS.

THE VARIOUS BRANCH CIRCUITS SERVED FROM THE LIGHTING PANELBOARDS VARY IN LOADING. CAREFULLY BALANCE THE ACTUAL OPERATING LOAD ON EACH PANELBOARD WHEN ALL LOAD IS TURNED ON AND THE SYSTEM IS OPERATING AT 100% DEMAND. THE UNBALANCE SHALL NOT EXCEED 10%. DURING FINAL INSPECTION, FURNISH THE TEST INSTRUMENTS AND QUALIFIED PERSONNEL TO PERFORM COMPLETE TESTING. COSTS OF ALL TESTING, INCLUDING THE INCIDENT COSTS FOR RETESTING OCCASIONED BY DEFECTS AND FAILURES OF THE EQUIPMENT TO MEET THE SPECIFICATIONS, SHALL BE BORNE BY THE CONTRACTOR.

FURNISH AT THE COMPLETION OF THE PROJECT A FINAL INSPECTION CERTIFICATE FROM THE LOCAL INSPECTING AUTHORITY.

END OF SECTION 16000



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PERMIT SET

3RD STREET DISPENSARY - ADDITION

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E402  
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ELECTRICAL SPECIFICATIONS



MECHANICAL ABBREVIATIONS	
(ALPHABETICAL BY ABBREVIATION)	
ABBREVIATION	LONG FORM
ABV	ABOVE
AC OR ACU	AIR-CONDITIONING UNIT
AHAP	AS HIGH AS POSSIBLE
AHU	AIR-HANDLING UNIT
AUTO	AUTOMATIC
BLW	BELOW
C	CHILLER
CD	CONDENSATE
CF	CABINET FAN
CFM	CUBIC FEET PER MINUTE
CH	CABINET HEATER
CHP	CHILLED WATER PUMP
CLNG OR CLG	CEILING
CONC	CONCRETE
CP OR CWP	CONDENSER WATER PUMP
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
CRAC OR CACU	COMPUTER ROOM AIR-CONDITIONING UNIT
CREF	CHILLER ROOM EXHAUST FAN
CRU	CONDENSATE (STEAM) RETURN UNIT
CT	COOLING TOWER CELL
CTU	CONDENSATE (STEAM) TRANSFER UNIT
CU	CONDENSING UNIT
DV	CONSTANT VOLUME TERMINAL BOX
DEF	DISHWASER EXHAUST FAN
DMR	DAMPER
DN	DOWN
EA	EACH
EBH	ELECTRIC BASEBOARD HEATER
EDH	ELECTRIC DUCT-MOUNTED HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
ELH	ELECTRIC UNIT HEATER
EXH	EXHAUST
FD	FIRE DAMPER
FCU	FAN-COIL UNIT
FF	FINAL FILTER
FFCH	FORCED-FLOW CABINET HEATER
FFU	FAN FILTER UNIT
FP	FAN POWERED TERMINAL BOX
GPM	GALLONS PER MINUTE
HC	HEATING COIL
HUM	HUMIDIFIER
HWP OR HP	HEATING WATER PUMP
HX	HEAT EXCHANGER
KEF	KITCHEN (GREASE HOOD) EXHAUST FAN
KW	KILOWATTS
LD	LINEAR SUPPLY DIFFUSER
MOT	MOTORIZED
MTD	MOUNTED
MJAF	MAKE-UP AIR FAN
MJAHU	MAKE-UP AIR-HANDLING UNIT
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
OPG OR OPNG	OPENING

NOT ALL ABBREVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

MECHANICAL ABBREVIATIONS CONT.	
(ALPHABETICAL BY ABBREVIATION)	
ABBREVIATION	LONG FORM
PF	PRE-FILTER
PLNM	PLENUM
RA	RETURN AIR
RAF	RETURN AIR FAN
RAG OR RG	RETURN AIR GRILLE
RAR OR RR	RETURN AIR REGISTER
RAS	RETURN AIR SILENCER
RE	IN REFERENCE TO
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAF OR SF	SUPPLY AIR FAN
SAG OR SG	SUPPLY AIR GRILLE
SAR OR SR	SUPPLY AIR REGISTER
SAS	SUPPLY AIR SILENCER
SCHP	SECONDARY CHILLED WATER PUMP
SD	SMOKE DAMPER OR DETECTOR
SPCHP	SPECIAL PROCESS CHILLED WATER PUMP
TA	THROW AWAY (FILTER TYPE)
TOEF	TRUCK DOCK EXHAUST FAN
TEF	TOILET EXHAUST FAN
TRANS	TRANSITION OR TRANSFER
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
V V	VARIABLE VOLUME TERMINAL BOX
WI	WITH
XFMR OR TFM	TRANSFORMER
XT OR EX	EXPANSION TANK

NOT ALL ABBREVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

DUCTWORK LEGEND		
(REFER TO SPECIFICATIONS SECTIONS 15B15 AND 15B20 FOR ADDITIONAL INFORMATION)		
SINGLE LINE	DESCRIPTION	DOUBLE LINE
	ROUND ELBOW DOWN	
	ROUND ELBOW UP	
	OFFSET TO CHANGE ELEVATION (AT 30° WHEN POSSIBLE. ARROW SLOPES DN, U.N.O.)	
	ROUND RADIUS ELBOW	
	90° STRAIGHT TEE	
	90° CONICAL TEE	
	45° LATERAL TAP	
	45° LATERAL CONICAL TEE	
	SIZE OR SHAPE TRANSITION	
	SPECIAL PROCESS CHILLED WATER DUCT	
	RECTANGULAR ELBOW DOWN	
	RECTANGULAR ELBOW UP	
	OFFSET TO CHANGE ELEVATION (AT 30° WHERE POSSIBLE. ARROW SLOPES DN, U.N.O.)	
	RECTANGULAR RADIUS ELBOW	
	RECTANGULAR ELBOW WITH TURNING VANES	
	SPLIT BRANCH TAKE-OFF WITH SQUARE ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF WITH RADIUS ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF TEE WITH STATIONARY SPLITTER DAMPER	
	BRANCH TAKE-OFF WITH 45° LEAD IN TAP	
	INSULATED LINED DUCTWORK (U.N.O.)	
	SQUARE FACED CEILING DIFFUSER 4-WAY DIRECTIONAL THROW (U.N.O.)	
	ROUND FACED CEILING DIFFUSER	
	CEILING RETURN OR EXHAUST AIR GRILLE OR REGISTER	
	SIDEALL SUPPLY GRILLE OR REGISTER	
	SUPPLY DUCT RISER	
	RETURN, EXHAUST OR OUTSIDE AIR DUCT RISER	
	MANUAL BALANCING DAMPER	
	AUTOMATIC (MOTOR-OPERATED) DAMPER	
	FIRE DAMPER	
	GRAVITY BACKDRAFT DAMPER	
	COMBINATION FIRE AND SMOKE DAMPER WITH SMOKE DETECTOR	
	SMOKE DAMPER (AUTOMATIC) WITH SMOKE DETECTOR	
	DUCT MOUNTED SMOKE DETECTOR	

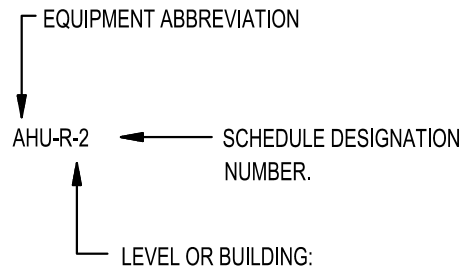
NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

STANDARD MECHANICAL SYMBOLS	
SYMBOL	DESCRIPTION
	GATE VALVE
	BALL VALVE
	GLOBE VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	ANGLE VALVE
	CHECK VALVE
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)
	AUTOMATIC CONTROL VALVE (3-WAY)
	AUTOMATIC CONTROL VALVE (ANGLE)
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	GAUGE COCK
	PRESSURE GAUGE WITH GAUGE COCK
	THERMOMETER
	THERMOMETER WELL
	TEST PLUG
	FLOW METER
	TEMPERATURE SENSOR
	PRESSURE SENSOR
	DIFFERENTIAL PRESSURE SWITCH
	IMMERSION THERMOSTAT
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	FLOW SWITCH
	ORIFICE
	PIPE SLEEVE THRU WALL OR FLOOR
	EXPANSION JOINT
	FLEXIBLE PIPE JOINT
	PIPE GUIDE
	ANCHOR
	STRAINER (Y-TYPE)
	STRAINER (BASKET TYPE)
	UNION
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	THERMOSTAT
	HUMIDISTAT
	FAN SPEED CONTROLLER
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	CONDENSATE DRAIN

NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT

OTHER SYMBOLS	
SYMBOL	DESCRIPTION
	INDICATES CONNECTION TO EXISTING DUCT OR PIPE

### GENERAL EQUIPMENT DESIGNATION KEY:



- ### MECHANICAL GENERAL NOTES
- PRIOR TO SUBMITTING BID, VISIT THE SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW GENERAL NOTES, SPECIFICATIONS AND ALL OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
  - COORDINATE THE INSTALLATION OF MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. DUCTWORK AND PIPING SHALL BE ROUTED TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC.
  - TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN FOR NEW INSTALLATION DURING WORK. REPAIR ANY DAMAGE CAUSED DURING CONSTRUCTION AT NO COST TO THE OWNER.
  - ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.
  - NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING IS SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND SHALL MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. FIELD VERIFY FINAL LOCATIONS TO INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.
  - REFER TO ARCHITECTURAL DRAWINGS FOR ALL RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. CHASE AND PENETRATIONS INTENDED FOR DUCTWORK AND PIPING SHALL BE VERIFIED WITH ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION.
  - COORDINATE LOCATION OF ROOF PENETRATIONS WITH THE EXISTING CONDITIONS AND ARCHITECTURAL DRAWINGS.
  - SEAL ALL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS. FIREPROOF ALL PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
  - COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL, AND DUCT INSTALLATION REQUIREMENTS.
  - LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE FINAL CEILING AND LIGHTING LOCATIONS.
  - DUCTWORK CROSSING FIRE RATED WALL OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL.
  - PROVIDE FIRE AND/OR FIRE/SMOKE DAMPERS IN DUCTWORK AT CEILINGS AND WALLS AS REQUIRED BY BUILDING CODE AUTHORITY HAVING JURISDICTION. FIRE AND FIRE/SMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE.
  - PROVIDE WALL AND/OR DUCT ACCESS PANELS OR DOORS FOR ACCESS TO ALL FIRE AND/OR FIRE/SMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 6"x6" AND SHALL BE INSTALLED WITH 12" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE IS TOO SMALL FOR A 6"x6" ACCESS DOOR.
  - THERMOSTATS AND HUMIDISTATS SHALL BE LOCATED AND SET BY MECHANICAL CONTRACTOR AND WIRED IN CONDUIT BY ELECTRICAL CONTRACTOR. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. MOUNTING HEIGHTS SHALL BE 48" AFF TO MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON PLANS.
  - COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH ANY WALL MOUNTED ITEMS INDICATED ON THE ARCHITECTURAL DRAWINGS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF ANY WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.
  - ALL BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS, AND GRILLES SHALL HAVE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR/ROUND BRANCH DUCT TAKE-OFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT.
  - BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
  - RIGID DUCTWORK INSULATION: PROVIDE R-4 MINIMUM INSULATION WRAP ON ALL CONCEALED DUCTWORK. PROVIDE R-4 MINIMUM INTERNAL DUCT LINER ON ALL EXPOSED DUCTWORK. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE DIMENSIONS. SHEET METAL SIZES SHALL INCREASE ACCORDINGLY. PROVIDE R-12 MINIMUM INSULATION ON ALL DUCTWORK INSTALLED IN UNCONDITIONED SPACES. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
  - FLEXIBLE DUCT WORK SHALL BE THERMAFLEX TYPE MKE, FLEXMASTER TYPE BM, OR APPROVED EQUAL, SHALL BE LISTED UNDER 181 AS CLASS 1 AIR DUCT AND SHALL BE PROVIDED WITH INTEGRAL R-4 MINIMUM FIBERGLASS INSULATION. FLEXIBLE DUCTWORK SHALL NOT EXCEED 150' IN LENGTH AND SHALL BE INSTALLED AND SUPPORT TO AVOID SHARP BENDS AND SAGGING.
  - WALL MOUNTED DIFFUSERS AND GRILLES SHALL BE PROVIDED WITH SUITABLE MOUNTING FRAME TO MATCH WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL DRAWINGS.



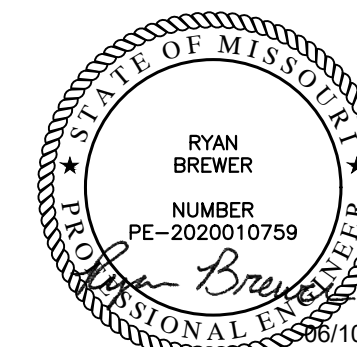
307B SW Market St., Lee's Summit, Missouri 64031 | 816.269.2270 | [www.collinswebbarchitect.com](http://www.collinswebbarchitect.com)

## 3RD STREET DISPENSARY - ADDITION

510 SW 3rd St., Lee's Summit, MO 64063

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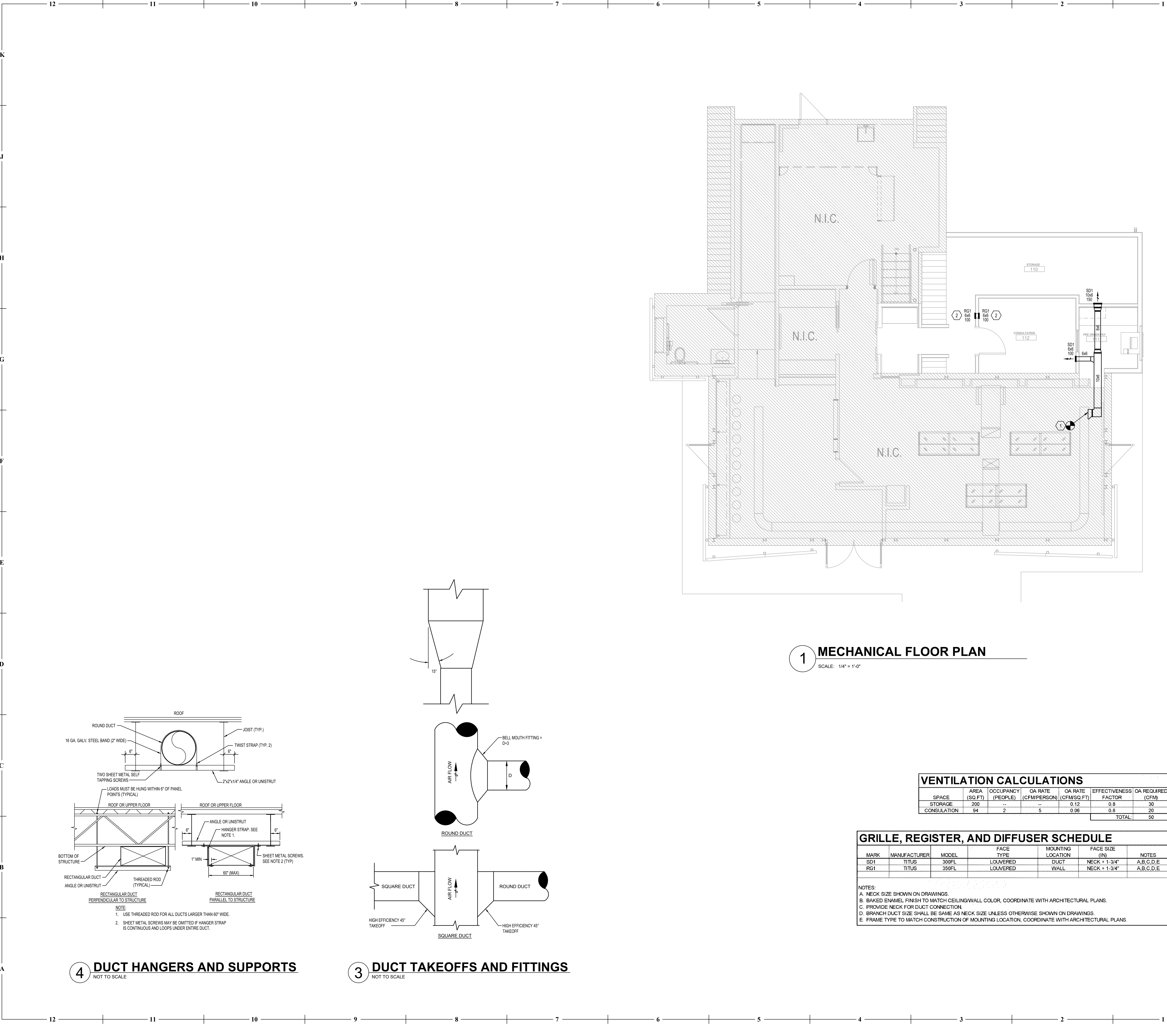
PROFESSIONAL SEAL

# M101

ISSUE DATE: 10 JUNE, 2022  
COLLINS WEBB #: 22038

MECHANICAL  
NOTES, SYMBOLS  
& ABBREVIATIONS





**GENERAL NOTES**  
(NOT ALL NOTES APPLY)

1. REFERENCE SHEET M101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

**KEYED NOTES:** ◻ ◻

1. CONNECT NEW SUPPLY DUCTWORK TO SERVE EXPANDED SPACE TO EXISTING SUPPLY DUCT. REBALANCE EXISTING SYSTEM AS REQUIRED. FIELD VERIFY EXACT LOCATION.  
2. MOUNT GRILLE AS HIGH AS POSSIBLE.



**3RD STREET DISPENSARY - ADDITION**  
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**MECHANICAL FLOOR PLAN**



K

15000 - BASIC MECHANICAL REQUIREMENTS

DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS, APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 15.

READ THE SPECIFICATIONS AND REVIEW DRAWINGS FOR ALL DIVISIONS OF WORK AND COORDINATE AND THE WORK OF SUBCONTRACTORS WITH ALL DIVISIONS OF WORK. PROVIDE SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.

SCHEDULE THE COMPLETION AND INSPECTION OF WORK AND THE WORK OF SUBCONTRACTORS WORK TO COMPLY WITH THE SCHEDULE AND THE PROJECT COMPLETION DATE.

VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK. ANY ITEMS WHICH ARE NOT COVERED IN THE BID DOCUMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE RESPONSIBILITY IN PERFORMANCE OF WORK.

READ ALL RELEVANT DOCUMENTS, BECOME FAMILIAR WITH THE JOB, SCOPE OF WORK, TYPE OF GENERAL CONSTRUCTION, AND THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. ALSO UNDERSTAND THE PURPOSE FOR WHICH THESE DOCUMENTS HAVE BEEN PREPARED AND BECOME COGNIZANT OF ALL THE DETAILS INVOLVED. COORDINATE WORK WITH THAT OF OTHERS.

DEFINITIONS

FURNISH - PURCHASE AND DELIVER TO PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT.

INSTALL - UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT.

GENERAL REQUIREMENTS

PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE OTHERS SHALL BE PROVIDED. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH THE ARCHITECT-ENGINEER, AS REQUIRED.

THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR BY ONE SHALL BE FURNISHED AND INSTALLED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE FURNISHED AND INSTALLED AS PART OF CONTRACT.

WHERE THE DRAWINGS OR SPECIFICATIONS CALL FOR ITEMS WHICH EXCEED CODES OR THE OWNERS CRITERIA, PROVIDE THE SYSTEM WITH THE MORE STRINGENT REQUIREMENTS AS DESIGNED AND DESCRIBED ON THESE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.

ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING, AND REPAIRING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SUFFICIENT SERVICE ACCESS TO ALL EQUIPMENT.

ALL WORK SHALL BE PERFORMED IN A NEAT PROFESSIONAL MANNER USING GOOD ENGINEERING PRACTICES.

UNLESS SPECIFICALLY NOTED OTHERWISE, MATERIALS, PRODUCTS, AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW, UNDERWRITERS LABORATORIES LISTED AND LABELED AND SIZED IN CONFORMITY WITH REQUIREMENTS OF STATE AND LOCAL CODES, WHICHEVER IS MORE STRINGENT.

CODES

ALL WORK SHALL CONFORM TO THE OWNERS CRITERIA, THE STATES, COUNTY'S, CITY'S AND LOCAL CODES AND ORDINANCES, SAFETY AND HEALTH CODES, NFPA CODES, ENERGY CODES AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS. INQUIRE INTO AND COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS. INCLUDE ANY CHANGES REQUIRED BY CODES IN THE BID AND IF THESE CHANGES ARE NOT INCLUDED IN THE BID, THEY MUST BE QUALIFIED AS A SEPARATE LINE ITEM IN THE BID. AFTER CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REBURSED BY THE OWNER.

LICENSES, PERMITS, COMMISSIONING, INSPECTIONS & FEES

OBTAIN AND PAY FOR ALL LICENSES, PERMITS, COMMISSIONING, INSPECTIONS, AND FEES REQUIRED OR RELATED TO THIS WORK.

PROVIDE TO THE OWNER/ARCHITECT A COMMISSIONING PLAN, PRELIMINARY COMMISSIONING REPORT, FINAL COMMISSIONING REPORT, AND CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

TRADE NAMES, MANUFACTURERS AND SHOP DRAWINGS

WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUAL, OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO APPROVAL IN WRITING BY ARCHITECT-ENGINEER PRIOR TO BID THROUGH SHOP DRAWING SUBMITTAL PROCESS. FOR ACCEPTANCE PRIOR TO INSTALLATION, ANY CHANGES TO ELECTRICAL SERVICE, STRUCTURAL FRAMING, ETC. OR ANY OTHER MODIFICATION THAT IS REQUIRED BY THE USE OF AN ALTERNATE EQUIPMENT SHALL BE COORDINATED WITH OTHER TRADES AND SHALL INCLUDE ALL COSTS IN BID FOR THE REQUIRED CHANGES. THE USE OF THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT NO EXPENSE TO THE OWNER.

GUARANTEE

GUARANTEE ALL MATERIALS AND WORK PROVIDED UNDER THIS CONTRACT AND MAKE GOOD, REPAIR OR REPLACE AT NO EXPENSE TO THE OWNER, ANY DEFECTIVE WORK, MATERIAL, OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF TWELVE (12) MONTHS FROM THE DATE OF ACCEPTANCE IN WRITING OF THE INSTALLATION. EXTENDED WARRANTIES ARE AS SPECIFIED WITH INDIVIDUAL EQUIPMENT.

QUALITY ASSURANCE

INDUSTRY STANDARDS AND CODES: UNLESS MODIFIED BY THESE SPECIFICATIONS, THE DESIGN, MANUFACTURER, TESTING AND METHOD OF INSTALLING ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL CONFORM TO THE FOLLOWING:

1. ARI CODE FOR REFRIGERATION APPARATUS
2. ANSI B31.1 SAFETY CODE FOR MECHANICAL REFRIGERATION
3. STANDARDS OF NATIONAL FIRE PROTECTION ASSOCIATION
4. SMACNA
5. ASHRAE

RECORD DRAWINGS

MAINTAIN ONE COPY OF DRAWINGS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS: LOCATION OF CONCEALED PIPING VALVES AND DUCTS, REVISIONS, ADDENDUMS, AND CHANGE ORDERS, AND SIGNIFICANT DEVIATIONS MADE

NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTORS COORDINATION WITH OTHER TRADES.

AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE. PROVIDE A SET OF REPRODUCIBLE DRAWINGS ALONG WITH ONE SET OF BLUEPRINTS OF THE MOST RECENT SET OF DRAWINGS WITH TEMPERATURE CONTROL DRAWINGS INCLUDED SHALL BE DELIVERED TO THE ARCHITECT UPON COMPLETION OF THE WORK AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

DISCREPANCIES AND DOCUMENTS

DRAWINGS, PLANS, SPECIFICATIONS, AND DETAILS ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWINGS, EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE UNCLEAR, ADVISE THE ARCHITECT-ENGINEER IN WRITING, OF VARIATIONS TO CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, ARCHITECT-ENGINEERS INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.

PHASING REQUIREMENTS

INCLUDE IN BID ALL NECESSARY SERVICE REQUIRED TO KEEP THE OPERATING PHASE OF THE PROJECTS HVAC, PLUMBING AND SPRINKLER SERVICE IN OPERATION. IF APPLICABLE, SCHEDULE IN WRITING WITH ARCHITECT ONE WEEK PRIOR TO ANY SHUT DOWN OF THE HVAC, PLUMBING OR FIRE PROTECTION SYSTEMS.

DEMOLITION

COORDINATE THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY OTHER. COORDINATE ANY EXISTING EQUIPMENT REQUIRED TO BELIEF INTACT.

VERIFY SCOPE OF AND THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, ETC. AND ASSURE ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. VERIFY ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK, AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED. ALL EXTRANEIOUS ITEMS IN THE SPACE OR ON THE ROOF NOT APPLICABLE TO THE NEW WORK MUST BE REMOVED AND ROOF/FLOOR PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE. EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR ON THE FLOOR/CEILING SHALL BE LEVEL. WHEN THEY ARE NOT TO BE REUSED IN THIS PROJECT, ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN BID PROPOSAL.

CUTTING AND PATCHING

PERFORM ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF THE WORK UNDER THIS SPECIFICATION. NO CUTTING OF THE STRUCTURE SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OR ARCHITECT.

PATCHING SHALL BE OF THE SAME WORKMANSHIP, MATERIAL AND FINISH AND SHALL MATCH ACCURATELY ALL SURROUNDING CONSTRUCTION IN A MANNER SATISFACTORY TO THE ARCHITECT.

EXISTING UTILITIES, ETC. THAT ARE DAMAGED DURING THE CONSTRUCTION PERIOD, WHETHER OR NOT DUE TO NEGLIGENCE, SHALL BE REPAIRED OR REPLACED AND LEFT IN A CONDITION SATISFACTORY TO THE ARCHITECT.

SLEEVES

PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2" ABOVE THE FLOOR. COORDINATE THROUGH THE ARCHITECT ANY CORE DRILLING OR CUTTING OF OPENINGS IN MASONRY FLOORS OR WALLS.

ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH CALCIUM SULFATE, SILICONE RTV, FOAM, 3M FIRE RATED SEALANTS OR EQUAL, SO AS TO RETAIN THEIR FIRE RATING.

SLEEVES IN BEARING AND MASONRY WALLS, FLOORS, AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS, OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE NO. 22 U.S.G. GALVANIZED STEEL MINIMUM.

HANGERS

HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL, SUCH AS ANGLE, IRON, BANDS, CALUMNS WITH RETAINING CLIPS, CHANNELS, HANGER RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK.

HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING. HANGING FROM METAL DECK IS NOT PERMITTED. HANGERS MUST BE ATTACHED TO UPPER CHORD OR BAR JOIST, WHERE INTERFERENCES OCCUR, AND IN ORDER TO SUPPORT DUCTWORK OR PIPING, INSTALL TRAPEZOID TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, AND OTHER EQUIPMENT. HANGER TYPES AND INSTALLATION METHODS ARE ALSO SUBJECT TO LANDLORD CRITERIA.

HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL FLONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DIELECTRICALLY SEPARATED.

PROVIDE SWAY AND SEISMIC BRACING WHERE REQUIRED BY CODE.

JOB CONDITIONS

PROTECT MATERIALS, APPARATUS AND EQUIPMENT FROM DAMAGE, MOISTURE, DIRT, DEBRIS AND WORK OF OTHER TRADES.

OPERATION MANUALS AND INSTRUCTIONS

PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS AT THE COMPLETION OF THE PROJECT. SUBMIT THREE HARD SOUND COPIES TO ARCHITECT.

SCHEDULE A MEETING WITH THE OWNERS REPRESENTATIVE AT THE SITE TO PROVIDE DETAILED INFORMATION ON THE OPERATING AND MAINTENANCE OF EQUIPMENT.

SUBMITTALS

SUBMIT WITHIN THIRTY (30) DAYS AFTER THE DATE OF NOTICE TO PROCEED AND BEFORE PURCHASING ANY MATERIALS OR EQUIPMENT. SUBMIT TO THE ARCHITECT FOR REVIEW, A COMPLETE LIST, IN SIX (6) COPIES, OF ALL MATERIALS INCORPORATED IN THE WORK. THIS LISTING SHALL BE ARRANGED BY THE ORDER OF OCCURRENCE IN THE SPECIFICATIONS, FOLLOWED BY THE ITEMS ON THE DRAWING NOT SPECIFICALLY INCLUDED IN THE SPECIFICATIONS.

AFTER THE LIST HAS BEEN PROCESSED BY THE ARCHITECT, SUBMIT COMPLETE SHOP DRAWINGS AND PRODUCT DATA OF ALL EQUIPMENT. THESE SUBMITTALS SHALL BE SUBMITTED WITHIN THIRTY (30) DAYS AFTER THE PROCESSING DATE OF THE ORIGINAL SUBMITTAL LIST. SUBMISSIONS SHALL BE MADE EARLY ENOUGH IN PROJECT TO ALLOW FOR (10) WORKING DAYS FOR REVIEW BY ARCHITECT-ENGINEER WITHOUT CAUSING DELAYS OR CONFLICTS IN THE PROJECT'S PROGRESS.

ALL SUBMITTALS SHALL BE COMPLETE AND SHALL BE IN THREE-RING, LOOSE-LEAF BINDERS, NO CONSIDERATION WILL BE GIVEN TO PARTIAL SUBMITTALS, UNLESS NOTED

OTHERWISE BY ARCHITECT. EACH ITEM SHALL HAVE A COVER PAGE STATING PROJECT, SPECIFICATION AND PARAGRAPH REFERENCE NUMBER, OR DRAWING REFERENCE NUMBER, AND SCHEDULED EQUIPMENT IDENTIFICATION NUMBER, IF APPLICABLE.

THE REVIEW OF SUBMITTALS DOES NOT RELIEVE RESPONSIBILITY OF SHOP DRAWINGS AND PRODUCTS IN DETAILS, SIZES, QUANTITIES, WIRING DIAGRAM ARRANGEMENTS AND DIMENSIONS WHICH DEViate FROM THE SPECIFICATIONS, CONTRACT DRAWINGS AND/OR JOB CONDITIONS AS THEY EXIST.

IF APPARATUS OR MATERIALS ARE SUBSTITUTED FOR THOSE SPECIFIED UNDER THIS SECTION, AND SUCH SUBSTITUTIONS NECESSITATE CHANGES IN OR ADDITIONAL CONNECTIONS, PIPING SUPPORTS OR CONSTRUCTIONS, SAME SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER. ASSUME COST AND ENTIRE RESPONSIBILITY THEREOF ARCHITECT'S PERMISSION TO MAKE SUCH SUBSTITUTION SHALL NOT RELIEVE FULL RESPONSIBILITY FOR WORK.

TEST AND BALANCE REPORT: SUBMIT AT FINAL INSPECTION OPERATION AND MAINTENANCE MANUALS. SUBMIT COPIES IN CONFORMANCE WITH SECTION, OPERATION AND MAINTENANCE MANUALS.

15400 - HEATING, VENTILATION AND A.I.R. CONDITIONING

PRODUCTS

ALL MATERIALS AND EQUIPMENT SHALL BE NEW, SYSTEMS SHALL FUNCTION CORRECTLY AS A WHOLE, AND IN ALL ITS PARTS, UP TO THE SPECIFIED CAPACITY. SYSTEMS OR DEVICES FAILING TO MEET PERFORMANCE REQUIREMENTS SHALL BE REPLACED, ALTERED OR REPAIRED AS REQUIRED TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS. WORK DAMAGED OR HARMED BY SUCH REPLACEMENTS, ALTERATIONS, OR REPAIRS SHALL BE RESTORED TO PRIOR CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. WHERE MULTIPLE ITEMS OF EQUIPMENT OR MATERIALS ARE REQUIRED, THEY SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER, BEFORE ORDERING EQUIPMENT. THE PHYSICAL DIMENSIONS SHALL BE CHECKED TO VERIFY FIT IN SPACES ALLOTTED ON THE DRAWINGS. INSERTS, PIPE SLEEVES, AND SUPPORTS OF AIR CONDITIONING EQUIPMENT SHALL BE PROVIDED AS SPECIFIED, WHERE SUCH ITEMS ARE TO BE SET OR EMBEDDED IN CONCRETE, MASONRY OR SIMILAR WORK, THE ITEMS SHALL BE FURNISHED AT THE PROPER TIME FOR SETTING OR EMBEDMENT SO AS TO CAUSE NO DELAY. DUCTWORK AND EQUIPMENT ASSEMBLIES SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. ADDITIONAL DUCTWORK AND APPURTENANCES REQUIRED FOR PROPER OPERATION OF EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

MANUFACTURERS NAMES AND CATALOG NUMBERS

SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURERS NAMES AND MODEL OR CATALOG NUMBERS. THIS DOES NOT INDICATE THAT THE MATERIAL AND EQUIPMENT SPECIFIED IS THE ONLY ONE AVAILABLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SPECIFIC FINISHES, MATERIALS OR OTHER MODIFICATIONS MAY INTRODUCE VARIANCES FROM MANUFACTURERS STANDARDS. ASCERTAIN THAT SUCH MODIFICATIONS ARE FULLY CONSIDERED.

DIAGRAMS, NAMEPLATES AND LABELS

EACH MAJOR COMPONENT OF EQUIPMENT SHALL HAVE THE MANUFACTURERS NAME ADDRESS AND CATALOG NUMBER ON A PLATE SETTING OUTWARD IN A CONSPICUOUS PLACE. THE NAMEPLATE OF A DISTRIBUTING AGENT WILL NOT BE ACCEPTED. ALL PIECES OF EQUIPMENT, VALVES, STARTERS, DISCONNECTS, AND ALL PNEUMATIC AND ELECTRIC CONTROL DEVICES AND EQUIPMENT WHICH IS SHALL BE IDENTIFIED WITH THE FOLLOWING: LAMINATED PLATE NAMEPLATES, WITH 3/16" HIGH WHITE LAMINATED LETTERS. SIMILAR AND LIKE EQUIPMENT SHALL BE DESIGNATED WITH NUMERICAL SUFFIX (EXAMPLE: THERMOSTAT 1). THE NAMEPLATE IDENTIFICATIONS SHALL CONFORM WITH ITEMS APPEARING ON DIAGRAMS. PROVIDE A LABEL FOR THE MECHANICAL SYSTEM STATING: (NAME, ADDRESS AND PHONE NUMBER OF CONTRACTOR), LETTERS SHALL BE 1/4" HIGH AND LOCATED IN A CONSPICUOUS PLACE NEAR THE HVAC EQUIPMENT.

EXECUTION

INSTALLATION AND WORKMANSHIP THE WORK SHALL BE PERFORMED BY QUALIFIED MECHANICS. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BE INSTALLED IN NEAT, WORKMANLIKE MANNER. MATERIALS, SERVICES OR EQUIPMENT WHICH, IN THE OPINION OF THE ARCHITECT-ENGINEER, IS IMPROPERLY INSTALLED SHALL BE REMOVED AND REINSTALLED IN AN APPROVED MANNER AT NO ADDITIONAL COST TO THE OWNER. THE WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES, WHERE THE WORK IS DEPENDENT UPON WORK OF OTHER TRADES OR WORK ALREADY IN PLACE, SUCH OTHER WORK AND WORK IN PLACE SHALL BE EXAMINED AND SHALL BE IN PROPER CONDITION AND STATE OF COMPLETION BEFORE CONTINUING THE INSTALLATION. THE INSTALLATION OF WORK SHALL, IN GENERAL, BE AS HIGH AS POSSIBLE AND LOCATED IN ACCORDANCE WITH THE DRAWINGS. DUCTWORK INDICATED SHALL BE FOLLOWED AS ACCURATELY AS POSSIBLE. ANY NECESSARY DEVIATIONS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT-ENGINEER.

THE DRAWINGS SHOWING PROPOSED CHANGES, APPROVAL, IS REQUIRED BEFORE CHANGES SHALL TAKE EFFECT.

CUTTING AND PATCHING

CALUMNS WITH RETAINING CLIPS, CHANNELS, HANGER RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK.

HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING. HANGING FROM METAL DECK IS NOT PERMITTED. HANGERS MUST BE ATTACHED TO UPPER CHORD OR BAR JOIST, WHERE INTERFERENCES OCCUR, AND IN ORDER TO SUPPORT DUCTWORK OR PIPING, INSTALL TRAPEZOID TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, AND OTHER EQUIPMENT. HANGER TYPES AND INSTALLATION METHODS ARE ALSO SUBJECT TO LANDLORD CRITERIA.

HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL FLONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DIELECTRICALLY SEPARATED.

PROVIDE SWAY AND SEISMIC BRACING WHERE REQUIRED BY CODE.

JOB CONDITIONS PROTECT MATERIALS, APPARATUS AND EQUIPMENT FROM DAMAGE, MOISTURE, DIRT, DEBRIS AND WORK OF OTHER TRADES.

OPERATION MANUALS AND INSTRUCTIONS PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS AT THE COMPLETION OF THE PROJECT. SUBMIT THREE HARD SOUND COPIES TO ARCHITECT.

SCHEDULE A MEETING WITH THE OWNERS REPRESENTATIVE AT THE SITE TO PROVIDE DETAILED INFORMATION ON THE OPERATING AND MAINTENANCE OF EQUIPMENT.

SUBMITTALS SUBMIT WITHIN THIRTY (30) DAYS AFTER THE DATE OF NOTICE TO PROCEED AND BEFORE PURCHASING ANY MATERIALS OR EQUIPMENT. SUBMIT TO THE ARCHITECT FOR REVIEW, A COMPLETE LIST, IN SIX (6) COPIES, OF ALL MATERIALS INCORPORATED IN THE WORK. THIS LISTING SHALL BE ARRANGED BY THE ORDER OF OCCURRENCE IN THE SPECIFICATIONS, FOLLOWED BY THE ITEMS ON THE DRAWING NOT SPECIFICALLY INCLUDED IN THE SPECIFICATIONS.

AFTER THE LIST HAS BEEN PROCESSED BY THE ARCHITECT, SUBMIT COMPLETE SHOP DRAWINGS AND PRODUCT DATA OF ALL EQUIPMENT. THESE SUBMITTALS SHALL BE SUBMITTED WITHIN THIRTY (30) DAYS AFTER THE PROCESSING DATE OF THE ORIGINAL SUBMITTAL LIST. SUBMISSIONS SHALL BE MADE EARLY ENOUGH IN PROJECT TO ALLOW FOR (10) WORKING DAYS FOR REVIEW BY ARCHITECT-ENGINEER WITHOUT CAUSING DELAYS OR CONFLICTS IN THE PROJECT'S PROGRESS.

ALL SUBMITTALS SHALL BE COMPLETE AND SHALL BE IN THREE-RING, LOOSE-LEAF BINDERS, NO CONSIDERATION WILL BE GIVEN TO PARTIAL SUBMITTALS, UNLESS NOTED

INSTRUCTION OF OWNERS OPERATING PERSONNEL INCLUDE THE COST OF THE SERVICES OF QUALIFIED INSTRUCTORS TO INSTRUCT THE OWNERS OPERATING PERSONNEL IN THE OPERATION, ADJUSTMENT, CARE AND MAINTENANCE OF ALL HVAC EQUIPMENT AND SYSTEMS. INSTRUCTION SHALL BE PROVIDED AT A TIME APPROVED BY THE OWNER AND AFTER ALL HVAC EQUIPMENT AND SYSTEMS ARE INSTALLED, COMPLETE, ADJUSTED AND OPERATING TO SPECIFIED REQUIREMENTS. NOTIFY THE ARCHITECT-ENGINEER WHEN INSTRUCTIONS WILL BE GIVEN. QUALIFICATIONS OF INSTRUCTORS SHALL BE SUBJECT TO APPROVAL OF THE OWNER AND EQUIPMENT MANUFACTURER. ADDITIONAL REQUIREMENTS CONCERNING OPERATION AND MAINTENANCE OF MECHANICAL EQUIPMENT AND SYSTEMS MAY BE SPECIFIED IN OTHER SECTIONS. TWO COPIES OF ACKNOWLEDGMENT OF ALL REQUIRED INSTRUCTIONS TO OWNERS OPERATING PERSONNEL, SIGNED BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE, SHALL BE SUBMITTED TO THE ARCHITECT-ENGINEER PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT. AN ADDITIONAL COPY OF THIS ACKNOWLEDGMENT IS REQUIRED IN EACH COPY OF OPERATION AND MAINTENANCE MANUALS REQUIRED IN THE SECTION, OPERATION AND MAINTENANCE MANUALS.

OPERATION AND MAINTENANCE MANUALS

FURNISH THREE COPIES OF COMPLETE OPERATION AND MAINTENANCE MANUALS TO THE ARCHITECT-ENGINEER, FOR APPROVAL AND FOR THE OWNER, ON ALL EQUIPMENT AND SYSTEMS. THE MANUALS SHALL BE BOUND IN HARD-BACK, THREE RING LOOSE-LEAF BINDERS. MANUALS SHALL CONTAIN A TITLE SHEET WITH JOB NAME AND THE NAMES, ADDRESSES AND PHONE NUMBERS OF THE CONTRACTOR, SUBCONTRACTOR, CONTROL, SUBCONTRACTOR, RELATED CONTRACTORS AND MATERIAL AND EQUIPMENT SUPPLIERS.

A COPY OF ACKNOWLEDGMENT OF INSTRUCTION TO THE OWNERS OPERATING PERSONNEL IN THE OPERATION OF ALL MECHANICAL EQUIPMENT AND SYSTEMS, SIGNED BY THE OWNER OR HIS AUTHORIZED REPRESENTATIVE, TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNERS PERSONNEL, DESCRIBING HOW TO STOP AND START EACH PIECE OF EQUIPMENT, HOW TO TEST THE TEMPERATURE CONTROL SYSTEM FOR NORMAL OPERATION AND NORMAL RESTARTING PROCEDURES, CAUTION AND WARNING NOTICES, APPROVED SHOP DRAWINGS, PRODUCT DATA AND PARTS AND MAINTENANCE BOOKLET FOR EACH ITEM OF MATERIAL AND EQUIPMENT FURNISHED UNDER DIVISION 15000. RECORD DRAWINGS OF ALL SYSTEMS INCLUDING ELECTRICAL AND CONTROL DIAGRAMS, TEST AND BALANCE REPORT, COPIES OF CERTIFICATES OF INSPECTION, GUARANTEES, INCLUDING EXTENDED GUARANTEES.

DELIVER THE MANUALS TO THE OWNER PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT.

HVAC/CHRONIC PIPING

CONDENSATE DRAIN PROVIDE CONDENSATE DRAINS FOR ALL AIR CONDITIONING UNITS AND PIPE AS DENOTED ON DRAWINGS. CONDENSATE DRAIN PIPING SHALL BE INSTALLED WITH TRAP AT THE COIL CONNECTION AND SHALL HAVE A MINIMUM SLOPE OF 1/8" PER FOOT TO THE RESPECTIVE AIR HANDLING UNIT FAN STATIC PRESSURE. DEPTH SHALL BE A MINIMUM OF 2".

HVAC INSULATION

LOW PRESSURE DUCTWORK INSULATION EXTERNAL INSULATION SHALL BE R-4 MINIMUM SCHULLER TYPE SMALLTUE, FSK SPIN-GLAS OR APPROVED EQUAL WITH AN EMBOSSED ALUMINUM FOIL FACING. INTERNAL INSULATION SHALL BE R-4 MINIMUM LINER WITH A COATED AIR SIDE SURFACE TO PREVENT RESORPTION.

APPLY ADHESIVES AND FASTENERS PER SMACNA AND THE MANUFACTURER. ALL TRANSVERSE EDGES TO BE COATED WITH ADHESIVE. ALL CONCEALED DUCTWORK SHALL HAVE EXTERNAL INSULATION, UNCONCEALED DUCTWORK SHALL BE INTERNALLY LINED. DUCTWORK INSTALLED IN UNCONDITIONED SPACES SHALL BE R-12 MINIMUM SCHULLER TYPE SMALLTUE, FSK SPIN-GLAS OR APPROVED EQUAL, WITH AN EMBOSSED ALUMINUM FOIL FACING.

ALL AIR SUPPLY DIFFUSERS BACKS AND NECKS, SHALL BE INSULATED WITH R-4 MINIMUM MANVILLE E-SERIES SMALLTUE, OR APPROVED EQUAL, FIBERGLASS BAKED INSULATION.

ADHESIVES, MASTIC, SEALANTS ADHESIVES SHALL BE FOSTERS 85-20. STUDIED PINS SHALL BE SEALED WITH FOSTERS 30-28 ADHESIVE. ALL JOINTS, SEAMS AND BREAKS IN THE VAPOR BARRIER SHALL BE SEALED WITH FOSTERS 35-40, REINFORCED WITH A 1/4" WIDE GLASS FABRIC.

TERMINAL, HEAT TRANSFER UNITS

DESCRIPTION INSTALL AIR CONDITIONING UNITS OF THE CAPACITIES INDICATED, COMPLETE WITH GAS-FIRED HEATING SYSTEM, WHERE INDICATED ON THE DRAWINGS. UNIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE ASH AND ANSI CODES AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES. UNIT SHALL BE RATED IN ACCORDANCE WITH THE LATEST AIR STANDARD 21, WHERE SPECIFIED OPERATING CONDITIONS ARE OTHER THAN AIR STANDARD CONDITIONS, CAPACITIES SHALL BE INTERPOLATED FROM ARI CONDITIONS.

MANUFACTURER UNITS SHALL BE FRAME LENOX, AAO OR APPROVED EQUAL.

EXHAUST FANS

INLINE EXHAUST FAN INSTALL DIRECT DRIVE CENTRIFUGAL INLINE EXHAUST FAN BY GREENHOCK OR APPROVED EQUAL WITH GALVANIZED STEEL, HOUSING BACKWARD INCLINED ALUMINUM WHEEL, ACCESS PANELS, INTEGRAL DUCT CONNECTION FLANGES, BALL BEARING MOTORS, AND CORROSION RESISTANT FASTENERS. FAN SHALL COME INSTALLED WITH NEMA-1 TOGGLE SWITCH, MOUNTED AND WIRED. SOLID STATE SPEED CONTROLLER SHIPPED LOOSE AND PSC MOTOR.

WATER SOURCE HEAT PUMPS

DESCRIPTION INSTALL WATER SOURCE HEAT PUMP OF CAPACITIES INDICATED MANUFACTURED BY FLORIDA HEAT PUMP, MOQUAY OR AN APPROVED EQUAL, FACTORY ASSEMBLED AND RATED ACCORDING TO ANSI/ASHRAE-1, GALVANIZED-STEEL, CASING WITH ACCESS PANELS FOR MAINTENANCE AND FILTER REPLACEMENT, KNOCKOUTS FOR ELECTRICAL AND PIPING CONNECTIONS, FLANGED DUCT CONNECTIONS AND CABINET INSULATION OF 1/2" THICK, MULTI DENSITY, COATED GLASS FIBER. THE UNIT SHALL BE DESIGNED TO OPERATE WITH ENTERING FLUID TEMPERATURES BETWEEN 50°F AND 100°F IN COOLING AND BETWEEN 50°F AND 80°F IN HEATING.

THE UNITS SHALL BE WARRANTED BY THE MANUFACTURER AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR ON ALL PARTS AND FIVE (5) YEARS ON COMPRESSOR.

REFRIGERATION CIRCUITS SHALL UTILIZE R-410A. THE UNIT SHALL CONTAIN SEALED REFRIGERANT CIRCUITS INCLUDING HERMETIC COMPRESSORS, THERMAL EXPANSION VALVE, METERING DEVICES, REFRIGERANT DRIER, FINED TUBE AIR-TO-REFRIGERANT HEAT EXCHANGERS, REFRIGERANT RETURNING VALVES AND SERVICE PORTS. COMPRESSORS SHALL BE HIGH EFFICIENCY, DESIGNED FOR HEAT PUMP DUTY, INTERNALLY SPRING ISOLATED (EXCEPT FOR SCROLL TYPE COMPRESSORS) FOR MAXIMUM SOUND ATTENUATION AND MOUNTED ON RUBBER VIBRATION ISOLATORS. COMPRESSOR MOTORS SHALL BE EQUIPPED WITH OVERLOAD PROTECTION. THE FINED TUBE COIL SHALL BE CONSTRUCTED OF LANCED ALUMINUM FINING NOT EXCEEDING 1/16" FIN PER INCH. COILS SHALL HAVE A BAKED POLYESTER ENAMEL COATING FOR PROTECTION AGAINST MOST ABORNE CHEMICALS. THE COAXIAL WATER-TO-REFRIGERANT HEAT EXCHANGERS SHALL BE CONSTRUCTED OF A CONVULATED COPPER INNER TUBE AND STEEL OUTER TUBE WITH A DESIGNED REFRIGERANT WORKING PRESSURE OF 40 PSIG AND A DESIGNED WATER SIDE WORKING PRESSURE OF NO LESS THAN 400 PSIG.

UNITS 5 TONS AND LARGER, THE FANS SHALL BE BELT DRIVEN FORWARD CURVE TYPE WITH DYNAMICALLY BALANCED WHEELS). THE FAN HOUSINGS SHALL BE REMOVABLE

FROM THE UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF FAN MOTORS. MOTORS SHALL BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

DUCTWORK, LOW PRESSURE, GALVANIZED STEEL

QUALITY ASSURANCE DUCTS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA)

JOB CONDITIONS

INSPECT THE DRAWINGS AND VERIFY EXISTING CONDITIONS IN THE FIELD. REPORT CONFLICTS BEFORE STARTING FABRICATION.

DUCT MATERIAL WEIGHTS AND GAGES SHALL BE IN ACCORDANCE WITH TABLE 1 OF "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY SMACNA. DUCT MATERIAL SHALL BE GALVANIZED STEEL.

SPLITTER DAMPERS

SPLITTERS SHALL BE 16 GAUGE GALVANIZED STEEL WITH HORIZONTAL AND VERTICAL DIMENSIONS SUFFICIENT TO CLOSE OFF AIR TO BRANCH. PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 600 DAMPER ASSEMBLY.

VOLUME DAMPERS

VOLUME DAMPERS SHALL BE 16 GAUGE STEEL, SINGLE BLADE UP TO 8" X 8", OPPOSED BLADE ON ALL DUCTS OVER 8" X 8". PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 641 SELF-CLOSING REGULATOR. DAMPER RODS SHALL BE 1/2" SQUARE BAR WITH BLADES SPECIFICALLY TWEETED TO ADJUST.

TURNING VANES

SQUARE AND RECTANGULAR ELBOWS SHALL CONTAIN TITLUS NO. AG-225 TURNING VANES.

HANGERS

IN ACCORDANCE WITH CHAPTER IV OF SMACNA.

FLEXIBLE CONNECTIONS

FLEXIBLE CONNECTIONS SHALL BE PROVIDED FOR EACH AIR HANDLING DEVICE TO PREVENT TRANSMISSION OF VIBRATIONS. MAKE FLEXIBLE CONNECTION A MINIMUM OF 4 INCHES WIDE OF VENTILAS AS MADE BY VENTIFABRICS, INC.

INSTALLATION GENERAL: SPLIT, DIVIDE OR TURN DUCTS AS NECESSARY TO AVOID OBSTRUCTIONS AND, IN SUCH CASES, PROVIDE AIR STREAM DEFLECTORS AND INCREASE SIZE OF DUCT TO AN EQUIVALENT AREA.

SPLITTERS: ASSEMBLY ATTACH SPLITTERS TO PIVOT ROD AND OPERATING LINKAGE, SET DAMPERS REGULARLY ON INSULATED BASE OR INSULATED DUCTWORK. VOLUME DAMPERS: ASSEMBLY ATTACH DAMPERS TO PIVOT ROD AND OPERATING LINKAGE, SET DAMPERS REGULARLY ON INSULATED DUCTWORK. MARK END OF DAMPER ROD TO SHOW DAMPER POSITION.

FLEXIBLE CONNECTIONS: SECURE FLEXIBLE CONNECTIONS TO DUCT AND UNIT WITH GALVANIZED STEEL STRAPS HOLDING THE MATERIAL IN FORMED GALVANIZED STEEL CHANNELS. TEST TO ENSURE PROPER INSTALLATION.

PLUGS: PROVIDE SQUARE HEAD TYPE TEST PLUGS AS REQUIRED FOR INSERTION OF TEST APPARATUS. PROVIDE A RING AND A REMOVABLE INSULATION PLUG WHERE DUCTS ARE INSULATED.

PAINTING: PAINT INTERIOR OF DUCTWORK FLAT BLACK WHERE VISIBLE THROUGH GRILLES AND REGISTERS.

SEALING: DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH SMACNA "SEAL CLASS B".

CORRECTIONS

REMOVE ALL DUCTWORK FOUND TO VIBRATE, CHATTER OR PULSATE AND REPLACE WITH NEW DUCTWORK.

DUCTWORK, LOW PRESSURE, FLEXIBLE

DESCRIPTION PROVIDE WHERE INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN