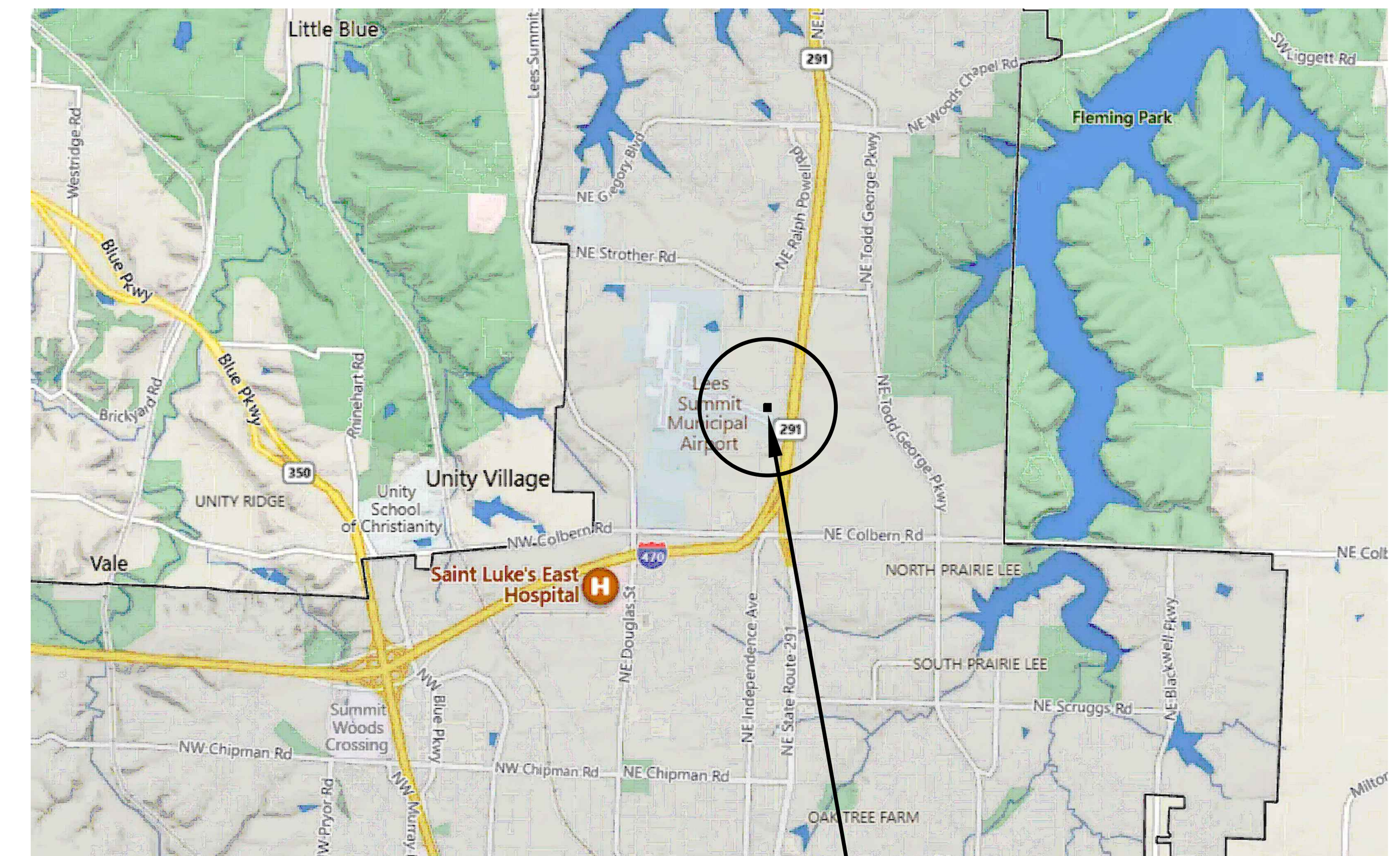
I-470 BUSINESS & TECHNOLOGY CENTER, LOT 7

ISSUED FOR PERMIT

AUGUST 31, 2022



H5 VICINITY MAP
SCALE: =

GENERAL NOTES:

1. THE CONTRACTOR SHALL SECURE AND PAY FOR GOVERNMENT LICENSES, INSPECTIONS, TESTING, TEMPORARY UTILITIES AND PERMITS AS REQUIRED BY THE CONSTRUCTION DOCUMENTS AND/OR REGULATORY BODY HAVING AUTHORITY.
2. CONTRACTORS SHALL VISIT THE SITE WHILE BIDDING AND SHALL FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND THE REQUIREMENTS OF THE PROJECT AND CONSTRUCTION DOCUMENTS PRIOR TO DEVELOPING THEIR BID, FABRICATION / CONSTRUCTION, AND PURCHASING. MATERIAL QUANTITIES SHALL BE BASED ON ACTUAL FIELD CONDITIONS AND MEASUREMENTS. DO NOT RELY ON SCALING DRAWINGS FOR ACCURATE DIMENSIONS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES, CONFLICTS OR OMISSIONS DISCOVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTIONS AND/OR REPAIRS REQUIRED FOR FAILING TO DO SO.
3. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL CONSTRUCTION DOCUMENTS TO THEIR SUBCONTRACTORS AS REQUIRED FOR THEM TO DEVELOP A COMPLETE BID FOR THEIR WORK AND TO HAVE A COMPLETE UNDERSTANDING OF COORDINATION NEEDED WITH OTHER SUBCONTRACTORS FOR RELATED HIDDEN OR EXPOSED WORK TO ENSURE EFFICIENT AND ORDERLY INSTALLATION.
4. THE ARCHITECT ASSUMES NO LIABILITY FOR THE SERVICES AND/OR CONSTRUCTION DOCUMENTS OF DESIGN SUB-CONSULTANTS COMPILED INTO THE SET OF DOCUMENTS ISSUED BY THE ARCHITECT. THESE DESIGN SERVICES MAY INCLUDE, BUT ARE NOT LIMITED TO, CIVIL, LANDSCAPE, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, PRE-ENGINEERED METAL BUILDING DESIGN, TILT-UP DESIGN, TRUSS SYSTEM DESIGN, AUTOMATIC FIRE SPRINKLER AND/OR ALARM SYSTEMS, LOW-VOLTAGE ELECTRICAL TELECOMMUNICATION AND SECURITY SYSTEMS AND GUTTER / DOWNSPOUT DESIGN.
5. UNLESS SPECIFICALLY NOTED OTHERWISE, THE CONTRACTOR SHALL PROVIDE AND PAY FOR LABOR, MATERIALS, EQUIPMENT, MACHINERY, SCAFFOLDING, SHORING, TOOLS, LAYOUT, ON-SITE DIMENSIONING, TRANSPORTATION, UTILITIES, AND OTHER FACILITIES AND SERVICES NECESSARY FOR PROPER EXECUTION AND COMPLETION OF THE WORK AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS. THIS SHALL ALSO INCLUDE NECESSARY CUTTING, PATCHING AND REPAIRING OF EXISTING CONSTRUCTION MATERIALS IN PLACE. ALL WORK AND MATERIAL SHALL COMPLY WITH THE APPLICABLE GOVERNING CODES LISTED.
6. WHERE DETAILS AND DESIGN INTENT ARE NOT CLEAR, THE CONTRACTOR SHALL CONSULT THE ARCHITECT FOR CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK.
7. THE CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE SHORING AND BRACING FOR STRUCTURAL MODIFICATIONS, INSTALLATIONS AND ERECTION.
8. CONTRACTORS SHALL TAKE CARE TO PROTECT ADJACENT AREAS FROM DUST AND DAMAGE DURING THE CONSTRUCTION PROCESS AND SHALL CLEAN UP AFTER THEMSELVES AT THE END OF EACH WORKING DAY. ANY DAMAGE DONE TO ADJACENT AREAS MUST BE REPAIRED TO MATCH ORIGINAL CONDITIONS OR TO THE OWNER'S SATISFACTION. REPAIRS ARE TO BE PAID FOR BY THE CONTRACTOR RESPONSIBLE.
9. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY ADDITIONAL WORK OR REVISIONS REQUIRED DUE TO SITE CONDITIONS OR ADDITIONAL REQUIREMENTS OF ANY REGULATORY BODIES HAVING AUTHORITY.
10. FOR THE DURATION OF THE PROJECT AND AT ALL TIMES OF EACH DAY, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE CONDITIONS, SECURITY AND SAFETY FOR WORKERS AND THE GENERAL PUBLIC, AS REQUIRED BY THE REGULATORY BODY HAVING AUTHORITY.
11. THE GENERAL CONTRACTOR SHALL PURCHASE AND MAINTAIN INSURANCE COVERAGE IN ACCORDANCE WITH THE REQUIREMENTS OF THE OWNER. VERIFY AND COORDINATE WITH THE OWNER'S REPRESENTATIVE FOR ANY ADDITIONAL REQUIREMENTS.
12. THE OWNER OR THE OWNER'S SUBCONTRACTORS MAY OCCUPY PORTIONS OF THE PROJECT DURING THE FINAL STAGE OF CONSTRUCTION. COORDINATE AND COOPERATE WITH THE OWNER TO MINIMIZE CONFLICT AND FACILITATE THE OWNER'S OPERATION.
13. THE CONTRACTOR SHALL PROVIDE SECURITY OF THE WORK, INCLUDING TOOLS AND UNINSTALLED MATERIALS. PROTECT THE WORK, STORED PRODUCTS, CONSTRUCTION EQUIPMENT, AND OWNER'S PROPERTY FROM THEFT AND VANDALISM, AND PROTECT THE PREMISES FROM ENTRY BY UNAUTHORIZED PERSONNEL UNTIL FINAL ACCEPTANCE BY THE OWNER.
14. CONTRACTOR SHALL COORDINATE STAGING AREAS AS REQUIRED BY THE LANDLORD / OWNER.
15. THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL EXISTING UTILITIES.
16. THE STRUCTURAL ENGINEER AND ARCHITECT MUST BE NOTIFIED AND MUST GIVE APPROVAL PRIOR TO ANY STRUCTURAL MEMBER(S) BEING CUT OR MODIFIED TO ACCOMMODATE THE INSTALLATION OF ANY PIPES, DUCTS OR OTHER CONSTRUCTION.
17. THE STRUCTURAL ENGINEER AND ARCHITECT MUST BE NOTIFIED AND MUST GIVE APPROVAL PRIOR TO ANY MODIFICATION TO THE ROOF SYSTEM OR ADDING ANY ADDITIONAL ROOF-MOUNTED EQUIPMENT.

CONSTRUCTION NOTES:

1. PERFORM ALL WORK IN ACCORDANCE WITH ACCEPTABLE TRADE PRACTICE TO ENSURE THE HIGHEST QUALITY FINISHED PRODUCT - EXPRESSED OR IMPLIED. PERFORM ALL WORK BY SKILLED MECHANICS IN ACCORDANCE WITH ESTABLISHED STANDARDS OF WORKMANSHIP IN EACH OF THE VARIOUS TRADES.
2. WHEN THE PROJECT REQUIREMENTS REQUIRE THAT THE INSTALLATION OF WORK SHALL COMPLY WITH MANUFACTURER'S INSTRUCTIONS, PERFORM THE WORK IN STRICT ACCORDANCE WITH THE MOST CURRENT WRITTEN MANUFACTURER'S INSTRUCTIONS.
3. ALL PRODUCTS AND EQUIPMENT SHALL BE DELIVERED IN UNDAMAGED CONDITION AND STORED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO AVOID DISRUPTION OF THE WORK OR DAMAGE TO THE ITEMS. REPLACE DAMAGED OR UNFIT MATERIALS, AT NO COST TO THE OWNER.
4. COORDINATE BLOCKING REQUIREMENTS WITH ADJACENT OR RELATED TRADES, ACCESSORIES, EQUIPMENT AND FIXTURES. INSTALL REQUIRED BLOCKING AT NO ADDITIONAL COST TO THE CONTRACT.
5. ALL WEATHER-EXPOSED SURFACES SHALL HAVE A WEATHER-RESISTIVE BARRIER. EXTERIOR OPENINGS SHALL BE FLASHED IN SUCH A MANNER AS TO MAKE THEM WATERPROOF.
6. REPAIR PROPERTY DAMAGE BY THE INSTALLERS TO A LIKE NEW CONDITION, OR REPLACE DAMAGED SURFACES AND MATERIALS OF THE PREVIOUSLY INSTALLED WORK BY OTHER TRADES, INSTALLERS, AND SUBCONTRACTORS.
7. ALLOWABLE TOLERANCES - UNLESS OTHERWISE NOTED OR INDICATED, THE FOLLOWING TOLERANCES SHALL APPLY TO ALL WORK:
   g. ALL VERTICAL SURFACES SHALL BE PLUMB OR CONSTRUCTED TO THE EXACT SLOPES OR ANGLES INDICATED.
   h. ALL HORIZONTAL SURFACES SHALL BE LEVEL OR CONSTRUCTED TO THE EXACT ANGLE INDICATED OR INTENDED.
   i. WALL AND SOFFIT INTERSECTIONS SHALL BE 90° OR THE EXACT ANGLE INDICATED OR INTENDED.
   j. ALL CORNERS AND EDGES SHALL BE STRAIGHT AND TRUE WITHOUT DENTS, WAVES, BULGES OR OTHER BLEMISHES.
   k. ALL JOINTS SHALL BE TIGHT, STRAIGHT, EVEN, AND SMOOTH.
   l. ALL OPERABLE ITEMS SHALL OPERATE SMOOTHLY WITHOUT STICKING OR BINDING AND WITHOUT EXCESSIVE
8. THE CONTRACTOR SHALL NOTIFY THE OWNER WHEN THE WORK IS SUBSTANTIALLY COMPLETE AND READY FOR INSPECTION. UPON INSPECTION, PROVIDE WRITTEN OPERATION AND MAINTENANCE INSTRUCTIONS AND GUARANTEES FOR ALL EQUIPMENT AND MATERIALS INSTALLED. PROVIDE WRITTEN GUARANTEES FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK.

DISCLAIMER:

THESE DRAWINGS ARE CONSIDERED A "BUILDER'S SET", AND BY BEGINNING CONSTRUCTION, THE CONTRACTOR GUARANTEES TO THE ARCHITECT, THAT THE CONTRACTOR HAS THE COMPETENCE AND SKILL IN CONSTRUCTION NECESSARY TO BUILD THE PROJECT WITH THESE DRAWINGS. THE CONTRACTOR WILL BE REQUIRED TO ADAPT THE DRAWINGS TO ACTUAL FIELD CONDITIONS AND MAKE LOGICAL ADJUSTMENTS IN FIT, FORM, DIMENSION AND QUANTITY. IN THE EVENT ADDITIONAL DETAIL OR GUIDANCE IS NEEDED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT. FAILURE TO GIVE NOTICE SHALL RELIEVE THE ARCHITECT OF RESPONSIBILITY FOR ANY RESULTANT EXPENSES, REPAIRS OR ADDITIONAL WORK. IT IS UNDERSTOOD AND AGREED THAT IF THE ARCHITECT IS NOT HIRED TO DO CONSTRUCTION OBSERVATION OR ANY OTHER CONSTRUCTION PHASE SERVICES, THAT THE ARCHITECT IS NOT LIABLE FOR ANY CLAIMS THAT MAY BE IN ANY WAY CONNECTED THERETO.

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NUMBER A-2009032812
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01.02.23
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Project Number: 2201
Project Type: NEW CONSTRUCTION
Project Name and Address:
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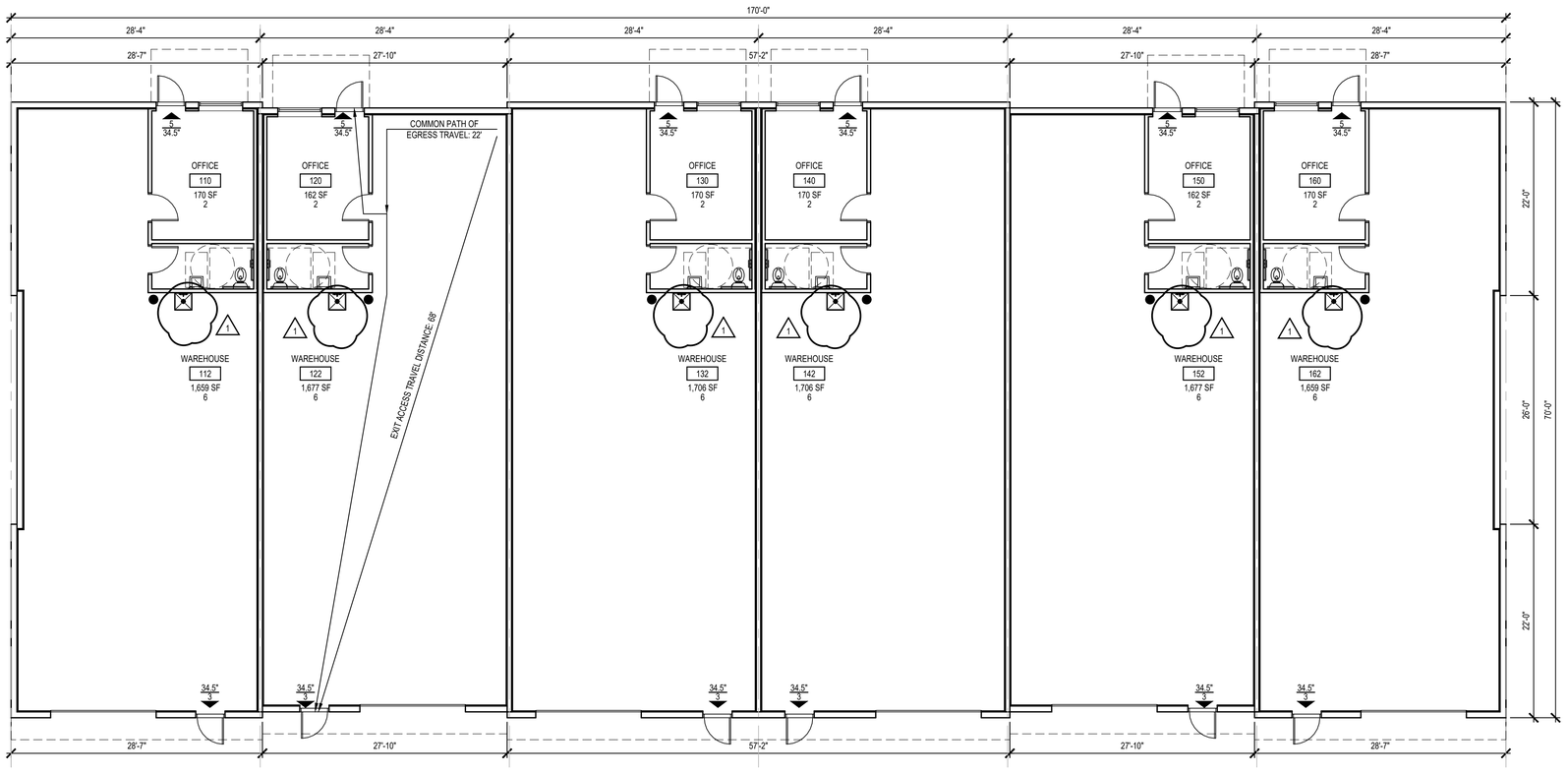
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Issued for Permit	08.31.22
Plan Review Revisions (1)	11.17.22
Plan Review Revisions (2)	12.28.22
Plan Review Revisions (3)	01.02.23

Sheet Title:
COVER SHEET

G-100



D4 LIFE SAFETY / CODE PLAN

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

NORTH

PROJECT SUMMARY

THIS IS A NEW SPEC. BUILDING CONTAINING 6 WAREHOUSE / OFFICE SUITES.

LIFE SAFETY LEGEND

- OFFICE — ROOM / SPACE NAME
- 110 — ROOM / SPACE NUMBER
- 174 SF — ROOM / SPACE AREA
- 2 — ROOM / SPACE OCCUPANT LOAD
- 5 / 34.5" — OCCUPANT LOAD AND WIDTH AT EXIT POINT
- 2A10BC FIRE EXTINGUISHER, DISTRIBUTE EXTINGUISHERS PER NFPA 101 SUCH THAT ONE CAN BE REACHED BY A TRAVEL DISTANCE OF NO MORE THAN 75' (IFC TABLE 906.3(1)). MOUNT TOP OF EXTINGUISHERS 48" A.F.F. (MAX.) AND WITH STATE FIRE MARSHALL INSPECTION TAG ATTACHED. VERIFY FINAL SIZES AND LOCATIONS WITH THE REGULATORY BODY HAVING AUTHORITY.
- KB — KNOX BOX, MOUNT TOP OF BOX AT 60" - 78" ABOVE GRADE, AND VERIFY FINAL LOCATION WITH THE REGULATORY BODY HAVING AUTHORITY

DEFERRED SUBMITTALS:

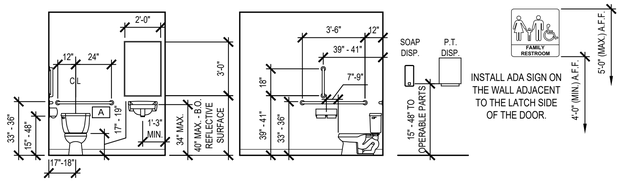
1. PRE-ENGINEERED METAL BUILDING CONSTRUCTION DRAWINGS
2. AUTOMATIC FIRE ALARM SYSTEM CONSTRUCTION DRAWINGS, IF SYSTEM IS REQUIRED
3. AUTOMATIC FIRE SPRINKLER SYSTEM CONSTRUCTION DRAWINGS, IF SYSTEM IS REQUIRED

LIFE SAFETY / FIRE DEPARTMENT GENERAL NOTES

1. PROVIDE FIRE EXTINGUISHERS AS REQUIRED BY THE FIRE DEPARTMENT FIELD INSPECTOR DURING CONSTRUCTION AND FOR COMPLETED PROJECT. EXTINGUISHERS SHALL ALSO BE COMPATIBLE WITH ANY CHEMICALS PRESENT IN THE SPACE.
2. AN OCCUPANT LOAD SIGN SHALL BE POSTED IN EACH ASSEMBLY ROOM OR SPACE. THE SIGN IS TO BE POSTED CONSPICUOUSLY NEAR THE ENTRANCE. COORDINATE FINAL LOCATION OF SIGN WITH THE FIRE DEPARTMENT FIELD INSPECTOR. THE SIGN IS TO BE PROVIDED AND INSTALLED BY THE OWNER'S REPRESENTATIVE.
3. PROVIDE INTERNALLY ILLUMINATED EXIT SIGNS ABOVE EXITS WITH 3/4" x 6" (MIN.) LETTERS LIGHTED ON CONTRASTING BACKGROUND. PROVIDE TWO (2) SEPARATE POWER SUPPLIES CONFORMING TO ADOPTED CODE. VERIFY FINAL LOCATIONS WITH THE BUILDING INSPECTOR.
4. PROVIDE EMERGENCY EXIT LIGHTING LEVEL PER CODE (ONE FOOT-CANDLE AT FLOOR LEVEL - MINIMUM).
5. FINISHES SHALL NOT EXCEED CLASS A, B, OR C AS INDICATED IN THE BUILDING CODE.
6. UNLESS ALREADY EXISTING, AN APPROVED SET OF NUMERALS, MINIMUM 6" HIGH (4" FOR REAR ENTRANCE) WITH A STROKE WIDTH OF NOT LESS THAN 1 INCH, SHALL BE PLACED ON OR NEAR THE ENTRANCE. THE NUMBERING SHALL BE PLACED IN SUCH A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. SAID NUMERALS SHALL CONTRAST WITH THEIR BACKGROUND. VERIFY REQUIREMENTS WITH THE REGULATORY BODY HAVING AUTHORITY.
7. GENERAL CONTRACTOR SHALL SECURE PERMITS AND INSPECTION APPROVALS REQUIRED BY THE FIRE DEPARTMENT PRIOR TO OCCUPYING THIS BUILDING.
8. STORAGE, DISPENSING, OR USE OF ANY FLAMMABLE AND/OR COMBUSTIBLE LIQUIDS, FLAMMABLE AND COMPRESSED GASES AND OTHER HAZARDOUS MATERIALS SHALL COMPLY WITH ADOPTED BUILDING CODE REGULATIONS.
9. IF AN AUTOMATIC FIRE SPRINKLER SYSTEM OR FIRE ALARM SYSTEM IS REQUIRED, THE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE ADOPTED BUILDING CODE. SYSTEM DESIGN DRAWINGS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT FOR REVIEW PRIOR TO INSTALLATION. THIS INCLUDES DETECTION AND SUPPRESSION SYSTEMS FOR KITCHEN HOODS.
10. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY AND COORDINATE DEFERRED SUBMITTALS.
11. CODE-REQUIRED SMOKE DETECTORS IN RETURN AIR DUCTS SHALL HAVE REMOTE INDICATORS IF IN CONCEALED SPACES OR MORE THAN 10' ABOVE THE FINISHED FLOOR. SMOKE DETECTORS MUST BE READILY VISIBLE TO THE FIRE DEPARTMENT PERSONNEL.
12. INSTALL A NO SMOKING' SIGN PER LOCAL ORDINANCES CONSPICUOUSLY POSTED AT EVERY ENTRANCE, AS REQUIRED.

ACCESSIBILITY NOTES

1. ACCESS TO THESE FACILITIES SHALL BE PROVIDED AT PRIMARY ENTRANCES, AS REQUIRED BY ADA.
2. WALKS & SIDEWALKS SHALL HAVE A CONTINUOUS COMMON SURFACE NOT INTERRUPTED BY STEPS OR BY ABRUPT CHANGES IN LEVEL EXCEEDING 1/2" AND SHALL BE A MIN. OF 36" IN WIDTH.
3. SURFACES WITH A SLOPE OF LESS THAN 6% GRADIENT SHALL BE AT LEAST AS SLIP RESISTANT AS THAT DESCRIBED AS A MEDIUM SALTED FINISH.
4. SURFACES WITH A SLOPE OF 6% GRADIENT OR GREATER SHALL BE SLIP RESISTANT.
5. SURFACE CROSS SLOPES SHALL NOT EXCEED 1/4" PER FOOT.
6. WALKS, SIDEWALKS & PEDESTRIAN WAYS SHALL BE FREE OF GRATING WHENEVER POSSIBLE. FOR GRATINGS LOCATED IN THE SURFACE OF ANY OF THESE AREAS, GRID OPENINGS IN THE GRATINGS SHALL BE LIMITED TO 1/2" IN THE DIRECTION OF TRAFFIC FLOW.
7. WHEN THE SLOPE IN THE DIRECTION OF TRAVEL OF ANY WALK EXCEEDS 1 VERTICAL TO 20 HORIZONTAL, IT SHALL COMPLY WITH THE PROVISIONS OF A PEDESTRIAN RAMP.
8. ABRUPT CHANGES IN LEVEL ALONG ANY ACCESSIBLE ROUTE SHALL NOT EXCEED 1/2". WHEN CHANGES IN LEVEL DO OCCUR, THEY SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2, EXCEPT THAT LEVEL CHANGES NOT EXCEEDING 1/4" MAY BE VERTICAL. WHEN CHANGES IN LEVELS GREATER THAN 1/2" ARE NECESSARY, THEY SHALL COMPLY WITH THE REQUIREMENTS FOR CURB OR PEDESTRIAN RAMPS.
9. EVERY REQUIRED EXIT DOORWAY SHALL BE SIZED FOR A DOOR NOT LESS THAN 3 FT. WIDE BY NOT LESS THAN 6'-8" HIGH CAPABLE OF OPENING 90° AND MOUNTED SO THAT THE CLEAR WIDTH OF THE EXIT WAY IS 32" MIN.
10. THRESHOLDS MAY BE A MAX. 1/2" ABOVE ADJACENT FINISH FLOOR.
11. MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 8 1/2 LBS. FOR EXTERIOR DOORS AND 5 LBS. FOR INTERIOR DOORS, SUCH PULL OR PUSH EFFORT BEING APPLIED AT RIGHT ANGLES TO HINGED DOORS AND AT THE CENTER PLANE OF SLIDING OR FOLDING DOORS. COMPENSATING DEVICES OR AUTOMATIC DOOR OPERATORS MAY BE UTILIZED TO MEET THE ABOVE STANDARDS. WHEN FIRE DOORS ARE REQUIRED, THE MAXIMUM EFFORT TO OPERATE THE DOOR MAY BE INCREASED TO THE MAXIMUM ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 LBS.
12. THE BOTTOM 10" OF ALL DOORS, EXCEPT AUTOMATIC AND SLIDING, SHALL HAVE A SMOOTH UNINTERRUPTED SURFACE.
13. PROVIDE LEVER-TYPE HARDWARE, PANIC BARS, PUSH - PULL ACTIVATING BARS OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE THE HARDWARE. (34" TO 48" A.F.F.)
14. PROVIDE 17" (MIN.) OR 18" (MAX.) FROM ADJACENT WALL TO CENTERLINE OF WATER CLOSET.
15. PROVIDE A 30"x48" CLEAR SPACE WITHIN THE TOILET ROOM THAT DOES NOT ENCROACH INTO THE DOOR SWING.
16. GRAB BARS LOCATED ON EACH SIDE, OR ONE SIDE AND THE BACK OF PHYSICALLY DISABLED TOILET COMPARTMENTS SHALL BE SECURELY ATTACHED 33" MIN. AND 36" MAX. FROM THE FINISHED FLOOR TO THE TOP OF THE GRAB BAR AND PARALLEL TO THE FLOOR. THE SPACE BETWEEN WALL-MOUNTED GRAB BARS AND THE WALL SHALL BE 1 1/2". GRAB BARS AT THE SIDE SHALL BE 42" LONG, AND THE BACK END SHALL BE LOCATED 12" FROM THE BACK WALL. GRAB BARS AT THE BACK SHALL BE NOT LESS THAN 36" LONG WITH THE END CLOSEST TO THE SIDE WALL MOUNTED 12" FROM THE CENTER OF THE WATER CLOSET. THE DIAMETER OR WIDTH OF THE GRIPPING SURFACES OF A GRAB BAR SHALL BE 1 1/4" TO 1 1/2" OR THE SHAPE SHALL PROVIDE AN EQUIVALENT GRIPPING SURFACE.
17. WATER CLOSET HEIGHT SHALL BE 17" (MIN.) OR 19" (MAX.) MEASURED TO THE TOP OF THE TOILET SEAT TO THE FINISHED FLOOR. CONTROLS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. CONTROLS FOR FLUSH VALVES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS, NO MORE THAN 44" A.F.F. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBS. OF FORCE.
18. URINALS SHALL BE 17" (MAX.) ABOVE THE FLOOR AND PROJECT 13 1/2" FROM THE WALL. URINALS SHALL HAVE A CLEAR SPACE OF 30"X48" IN FRONT. FLUSH VALVES SHALL BE AUTOMATIC OR MOUNTED NO MORE THAN 44" A.F.F. IF HAND-OPERATED.
19. IN FRONT OF LAVATORIES, PROVIDE A 30"x48" CLEAR SPACE LOCATED 25" (MAX.) FROM THE LEADING EDGE OF THE LAVATORY TOWARD THE MOUNTING WALL. KNEE CLEARANCE SHALL BE 11" DEEP (MIN.) AT 9" A.F.F. AND 8" DEEP (MIN.) AT 27" A.F.F. BETWEEN 9" AND 27" A.F.F., THE KNEE CLEARANCE SHALL BE PERMITTED TO REDUCE AT A RATE OF 1" IN DEPTH FOR EACH 6" IN HEIGHT.
20. ALL ACCESSIBLE LAVATORIES SHALL BE MOUNTED WITH THE RIM OR COUNTER SURFACE NO HIGHER THAN 34" A.F.F.
21. HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE COVERED. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.
22. FAUCET CONTROLS AND OPERATING MECHANISMS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 LBS. LEVER-OPERATED, PUSH-TYPE, AND ELECTRONIC CONTROLLED MECHANISMS ARE EXAMPLES OF ACCEPTABLE DESIGNS. SELF-CLOSING VALVES ARE ALLOWED IF THE FAUCET IS OPEN FOR AT LEAST 10 SECONDS.
23. LOCATE PAPER TOWEL DISPENSERS, SOAP DISPENSERS, SANITARY NAPKIN DISPENSERS, AND WASTE RECEPTACLES WITH ALL OPERABLE PARTS BETWEEN 15" AND 48" A.F.F.
24. LOCATE TISSUE DISPENSERS ON THE WALL 7" (MIN.) AND 9" (MAX.) FROM THE FRONT EDGE OF THE TOILET SEAT TO THE CENTERLINE OF DISPENSER WITH THE OUTLET BETWEEN 15" AND 48" A.F.F.
25. ACCESSIBLE RESTROOMS SHALL BE PROVIDED WITH SIGNAGE DESIGNED AND LOCATED PER SECTION 703 OF THE ADA DESIGN GUIDELINES.
26. DOORS IN ACCESSIBLE ROUTES SHALL BE DESIGNED TO MEET CLEARANCE REQUIREMENTS PER SECTION 404 OF THE ADA DESIGN GUIDELINES.
27. WALKS, HALLS, CORRIDORS, PASSAGEWAYS, AISLES OR OTHER CIRCULATION SPACES SHALL HAVE 80" MINIMUM CLEAR HEADROOM.
28. OBJECTS PROJECTING FROM WALLS WITH THEIR LEADING EDGES BETWEEN 27" AND 80" ABOVE THE FINISH FLOOR SHALL PROTRUDE NO MORE THAN 4" INTO WALKS, HALLS, CORRIDORS, PASSAGEWAYS OR AISLES. OBJECTS MOUNTED AT OR BELOW 27" ABOVE FINISH FLOOR MAY PROTRUDE ANY AMOUNT.
29. OBJECTS THAT ARE BETWEEN 27" AND 80" A.F.F. AND MOUNTED ON POSTS MAY EXTEND BEYOND THE POSTS A MAXIMUM OF 12". OBJECTS MOUNTED BETWEEN POSTS, WHERE THE SPACE BETWEEN THE POSTS IS GREATER THAN 12", THE LOWEST EDGE OF THE OBJECT SHALL BE LOCATED 27" MAX. AND 80" MIN. A.F.F.
30. IF CARPET OR CARPET TILE IS USED ON A GROUND OR FLOOR SURFACE IN A COMMON USE AREA, IT SHALL HAVE FIRM BACKING OR NO BACKING. THE MAXIMUM PILE HEIGHT SHALL BE 1/2". EXPOSED EDGES OF CARPET SHALL BE FASTENED TO FLOOR SURFACES AND HAVE TRIM ALONG THE EXPOSED EDGE, AND TRIM SHALL COMPLY WITH THE REQUIREMENTS FOR CHANGES IN LEVEL.



D1 TYP. ADA TOILET DIMENSIONS

SCALE: =

CODE ANALYSIS

APPLICABLE GOVERNING 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
CURRENT	ICC / ANSI A117.1 - 2009, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

OCCUPANCY CLASSIFICATION

MAIN OCCUPANCY:
GROUP S-1 MODERATE HAZARD STORAGE (311.2)

ACCESSORY OCCUPANCY (508.2.1):
GROUP B BUSINESS (304)

TYPE OF CONSTRUCTION

V-B (602.5)

BUILDING HEIGHT LIMITATIONS

GROUP S-1 (NS)	
ALLOWABLE HEIGHT IN FEET (TABLE 504.3)	40'
ACTUAL HEIGHT IN FEET	30'
ALLOWABLE # OF STORIES (TABLE 504.4)	1
ACTUAL # OF STORIES	1
ACCESSORY GROUP B (NS)	
MAIN OCCUPANCY SHALL GOVERN (508.2.2)	

BUILDING AREA LIMITATIONS

GROUP S-1 (NS)	
ALLOWABLE AREA (TABLE 506.2)	9,000 SF
ALLOWABLE AREA INCREASE (EQUATION 5-5)	
DUE TO FRONTAGE	6,750 SF*
ADJUSTED ALLOWABLE AREA	15,750 SF
*EQUATION 5-5: (480 / 480 - 0.25) 30/30 = .75 .75 x 9,000 = 6,750	
ACTUAL AREA	11,900 SF
ACCESSORY GROUP B (NS)	
ALLOWABLE AREA	1,190 SF*
ACTUAL AREA	1,004 SF
*SHALL NOT OCCUPY MORE THAN 10 PERCENT OF THE MAIN OCCUPANCY (508.2.3)	

FIRE RESISTANCE

RATING REQUIREMENTS FOR BUILDING ELEMENTS (TABLE 601)

ELEMENT	RATING (HRS)
PRIMARY STRUCTURAL FRAME	0
BEARING WALLS	
EXTERIOR	0
INTERIOR	0
NONBEARING WALLS & PARTITIONS - EXTERIOR (TABLE 602)	
FIRE SEPARATION DISTANCE = X (FEET)	
X < 5	2
5 <= X < 10	1
10 <= X < 30	0
X >= 30	0
NONBEARING WALLS & PARTITIONS - INTERIOR	0
FLOOR CONSTRUCTION	0
ROOF CONSTRUCTION	0
AUTOMATIC SPRINKLER SYSTEM (903.2.9)	
REQUIRED:	NO
PROVIDED:	NO

MEANS OF EGRESS

OCCUPANT LOAD (TABLE 1004.5)
MAXIMUM FLOOR ALLOWANCE PER OCCUPANT

SPACE	AREA / LOAD FACTOR	OCCUPANTS
STORAGE		
WAREHOUSE 112	1,659 SF / 300* GROSS	6
WAREHOUSE 122	1,677 SF / 300* GROSS	6
WAREHOUSE 132	1,706 SF / 300* GROSS	6
WAREHOUSE 142	1,706 SF / 300* GROSS	6
WAREHOUSE 152	1,677 SF / 300* GROSS	6
WAREHOUSE 162	1,659 SF / 300* GROSS	6
BUSINESS		
OFFICE 110	170 SF / 150 GROSS	2
OFFICE 120	162 SF / 150 GROSS	2
OFFICE 130	170 SF / 150 GROSS	2
OFFICE 140	170 SF / 150 GROSS	2
OFFICE 150	162 SF / 150 GROSS	2
OFFICE 160	170 SF / 150 GROSS	2
TOTAL OCCUPANTS		48

1 *AN INCREASE IN THE OCCUPANT LOAD FACTOR HAS BEEN USED AS PERMITTED BY PARAGRAPH 1004.5.1

EXITS (PER SUITE) (CHAPTER 10)
EGRESS WIDTH (1005.3.2)

MINIMUM REQUIRED (8 OCCUPANTS x 0.2"):	1.6"
PROVIDED (2 DOORS x 34.5" CLR. WIDTH/DOOR):	69.0"
COMMON PATH OF EGRESS TRAVEL (TABLE 1006.2.1)	
MAXIMUM ALLOWED	100'
PROVIDED	22'
NUMBER OF EXITS (1006.2.1)	
MINIMUM REQUIRED	1
PROVIDED	2
EXIT ACCESS TRAVEL DISTANCE (1017.2)	
MAXIMUM ALLOWED	200'
PROVIDED	68'

MIN. # OF REQ'D PLUMBING FIXTURES (2902.1)

WATER CLOSETS (PER SUITE)

REQUIRED		PROVIDED (EXCEPTION #2)
MEN (1 / 100)	WOMEN (1 / 100)	MEN / WOMEN
1	1	1

LAVATORIES (PER SUITE)

REQUIRED		PROVIDED (EXCEPTION #2)
MEN (1 / 100)	WOMEN (1 / 100)	MEN / WOMEN
1	1	1

DRINKING FOUNTAIN (2902.6)

REQUIRED	PROVIDED
0	0

1 SERVICE SINK

REQUIRED	PROVIDED
1 / SUITE	1 / SUITE

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Seal:

STATE OF MISSOURI
MICHAEL MOORES
NUMBER A-2009032812
ARCHITECT

11.17.22

Michael Moores, MO Architect #2009032812

Project Number: 2201

Project Type: NEW CONSTRUCTION

Project Name and Address:

I-470 B&T CENTER, LOT 7
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Issued for Permit	08.31.22
Plan Review Revisions 1	11.17.22

Sheet Title:

LIFE SAFETY PLAN AND CODE INFORMATION

A-001

HARDWARE SETS

1. 1 1/2 PAIR BUTT HINGES, 1" PUSH / PULL SET, KEYED CYLINDER LOCK, SURFACE-MOUNTED CLOSER, ALUMINUM THRESHOLD, SWEEP AND PILE WEATHERSEAL SET
2. 1 1/2 PAIR BUTT HINGES, LEVER-HANDLE CLASSROOM FUNCTION LOCKSET, WALL STOP
3. 1 1/2 PAIR BUTT HINGES, LEVER-HANDLE PRIVACY FUNCTION LOCKSET, WALL STOP
4. 1 1/2 PAIR BUTT HINGES, LEVER-HANDLE ENTRY FUNCTION LOCKSET, SURFACE-MOUNTED CLOSER, ALUMINUM THRESHOLD, SWEEP AND WEATHERSEAL SET
5. BY MANUFACTURER

DOOR NOTES

DOORS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:

1. ALL DOOR HANDLES TO BE LEVER TYPE.
2. EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
3. PROVIDE DOOR STOPS OF APPROPRIATE TYPE FOR ALL INTERIOR DOORS, MATCH ADJACENT HARDWARE FINISH.
4. DOOR CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO AN OPEN POSITION OF 12 DEGREES WILL BE 5 SECONDS MINIMUM.
5. MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 8 1/2 POUNDS FOR EXTERIOR DOORS AND 5 POUNDS FOR INTERIOR DOORS, SUCH PULL OR PUSH EFFORT BEING APPLIED AT RIGHT ANGLES TO HINGED DOORS AND AT THE CENTER PLANE OF SLIDING OR FOLDING DOORS. COMPENSATING DEVICES OR AUTOMATIC DOOR OPERATORS MAY BE UTILIZED TO MEET THE ABOVE STANDARDS. WHEN FIRE DOORS ARE REQUIRED, THE MAXIMUM EFFORT TO OPERATE THE DOOR MAY BE INCREASED TO THE MAXIMUM ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 POUNDS.
6. THE BOTTOM 10" OF ALL DOORS EXCEPT AUTOMATIC DOORS, POWER ASSISTED DOORS, AND SLIDING DOORS SHALL HAVE A SMOOTH, UNINTERRUPTED SURFACE TO ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION.
7. EXIT DOORS IN ASSEMBLY AND EDUCATION OCCUPANCIES SERVING AN OCCUPANT LOAD OF 50 OR MORE SHALL BE EQUIPPED WITH PANIC HARDWARE, WITH THE EXCEPTION BELOW (NOTE 7).
8. MAIN EXIT DOORS HAVING KEY-OPERATED LOCKING DEVICES ON THE EGRESS SIDE IN GROUP A OCCUPANCIES (SERVING 300 OCCUPANTS OR LESS), GROUPS B, F, M, S, AND PLACES OF RELIGIOUS WORSHIP SHALL HAVE DURABLE SIGNAGE ABOVE THE DOOR IN 1" HIGH LETTERS ON CONTRASTING BACKGROUND STATING: "THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED". LOCKING DEVICES SHALL BE READILY DISTINGUISHABLE AS LOCKED.
9. LATCHING AND LOCKING DOORS THAT ARE HAND ACTIVATED AND WHICH ARE IN THE PATH OF TRAVEL SHALL BE OPERABLE WITH A SINGLE EFFORT BY LEVER TYPE HARDWARE, PANIC BARS, PUSH-PULL ACTIVATING BARS OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING THE ABILITY TO GRASP THE OPENING HARDWARE. LOCKABLE EXIT DOORS SHALL OPERATE AS ABOVE IN EGRESS DIRECTION.
10. HAND-ACTIVATED DOOR OPENING HARDWARE TO BE CENTERED BETWEEN 34" AND 44" ABOVE THE FLOOR.
11. EVERY DOORWAY WHICH IS LOCATED WITHIN AN ACCESSIBLE PATH OF TRAVEL SHALL BE OF A SIZE AS TO PERMIT THE INSTALLATION OF A DOOR NOT LESS THAN 3'-0" IN WIDTH AND NOT LESS THAN 6'-8" IN HEIGHT. WHEN INSTALLED, EXIT DOORS SHALL BE CAPABLE OF OPENING SO THAT THE CLEAR WIDTH OF THE EXIT IS NOT LESS THAT 32", MEASURED BETWEEN THE FACE OF THE OPENED DOOR AND THE OPPOSITE STOP.
12. MINIMUM MANEUVERING CLEARANCES AT DOORS SHALL BE AS REQUIRED BY THE ICC/ANSI A117.1 ACCESSIBILITY CODE. THE FLOOR OR GROUND AREA WITHIN THE REQUIRED CLEARANCES SHALL BE LEVEL AND CLEAR. THE FLOOR OR LANDING SHALL BE NOT MORE THAN 1/2" LOWER THAN THE THRESHOLD OF THE DOORWAY.
13. DOORS SHALL NOT PROJECT MORE THAN 7" INTO THE REQUIRED CORRIDOR WIDTH WHEN FULLY OPENED OR MORE THAN ONE HALF INTO THE REQUIRED WIDTH WHEN IN ANY POSITION.
14. WHERE A PAIR OF DOORS IS UTILIZED, AT LEAST ONE OF THE DOORS SHALL PROVIDE A CLEAR, UNOBSTRUCTED OPENING WIDTH OF 32" WITH THE LEAF POSITIONED AT AN ANGLE OF 90° FROM ITS CLOSED POSITION.
15. EXIT DOORS SHALL SWING IN THE DIRECTION OF EXIT TRAVEL WHEN SERVING 50 OR MORE OCCUPANTS.

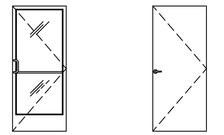
DOOR SCHEDULE

DOOR NO.	DOOR TYPE	DOOR SIZE	DOOR MATERIAL	DOOR PUSH FINISH	DOOR PULL FINISH	FRAME MATERIAL	FRAME PUSH FINISH	FRAME PULL FINISH	DETAILS - (SEE THIS SHEET) HEAD	JAMB	THRESHOLD	HARD-WARE	COMMENTS
110A	A	1 3/4" X 3'-0" X 7'-0"	AL	ANOD	ANOD	AL	ANOD	ANOD	-	-	-	1	
110B	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	2	
111	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	3	
112A	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	4	
112B	C	12' X 14'	AL	ANOD	ANOD	-	-	-	-	-	-	5	REF. DETAILS OF OVERHEAD DOOR MANUFACTURER - TO BE SELECTED BY OWNER
120A	A	1 3/4" X 3'-0" X 7'-0"	AL	ANOD	ANOD	AL	ANOD	ANOD	-	-	-	1	
120B	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	2	
121	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	3	
122A	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	4	
122B	C	12' X 14'	AL	ANOD	ANOD	-	-	-	-	-	-	5	REF. DETAILS OF OVERHEAD DOOR MANUFACTURER - TO BE SELECTED BY OWNER
130A	A	1 3/4" X 3'-0" X 7'-0"	AL	ANOD	ANOD	AL	ANOD	ANOD	-	-	-	1	
130B	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	2	
131	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	3	
132A	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	4	
132B	C	12' X 14'	AL	ANOD	ANOD	-	-	-	-	-	-	5	REF. DETAILS OF OVERHEAD DOOR MANUFACTURER - TO BE SELECTED BY OWNER
140A	A	1 3/4" X 3'-0" X 7'-0"	AL	ANOD	ANOD	AL	ANOD	ANOD	-	-	-	1	
140B	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	2	
141	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	3	
142A	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	4	
142B	C	12' X 14'	AL	ANOD	ANOD	-	-	-	-	-	-	5	REF. DETAILS OF OVERHEAD DOOR MANUFACTURER - TO BE SELECTED BY OWNER
150A	A	1 3/4" X 3'-0" X 7'-0"	AL	ANOD	ANOD	AL	ANOD	ANOD	-	-	-	1	
150B	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	2	
151	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	3	
152A	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	4	
152B	C	12' X 14'	AL	ANOD	ANOD	-	-	-	-	-	-	5	REF. DETAILS OF OVERHEAD DOOR MANUFACTURER - TO BE SELECTED BY OWNER
160A	A	1 3/4" X 3'-0" X 7'-0"	AL	ANOD	ANOD	AL	ANOD	ANOD	-	-	-	1	
160B	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	2	
161	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	3	
162A	B	1 3/4" X 3'-0" X 7'-0"	HM	PNT	PNT	HM	PNT	PNT	-	-	-	4	
162B	C	12' X 14'	AL	ANOD	ANOD	-	-	-	-	-	-	5	REF. DETAILS OF OVERHEAD DOOR MANUFACTURER - TO BE SELECTED BY OWNER

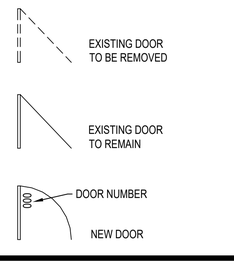
ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR MATERIAL	BASE MATERIAL	WALL FINISH (NORTH)	WALL FINISH (EAST)	WALL FINISH (SOUTH)	WALL FINISH (WEST)	CEILING MATERIAL	CEILING FINISH	COMMENTS
110	OFFICE	CONC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
111	TOILET	SC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
112	WAREHOUSE	CONC	-	-	-	-	-	EXP	-	
120	OFFICE	CONC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
121	TOILET	SC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
122	WAREHOUSE	CONC	-	-	-	-	-	EXP	-	
130	OFFICE	CONC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
131	TOILET	SC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
132	WAREHOUSE	CONC	-	-	-	-	-	EXP	-	
140	OFFICE	CONC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
141	TOILET	SC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
142	WAREHOUSE	CONC	-	-	-	-	-	EXP	-	
150	OFFICE	CONC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
151	TOILET	SC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
152	WAREHOUSE	CONC	-	-	-	-	-	EXP	-	
160	OFFICE	CONC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
161	TOILET	SC	RCB	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	-	
162	WAREHOUSE	CONC	-	-	-	-	-	EXP	-	

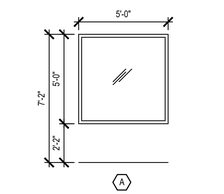
DOOR TYPES



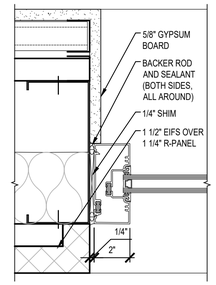
DOOR SYMBOLS



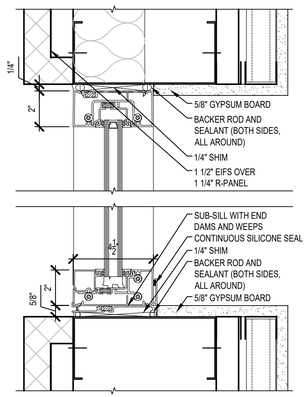
WINDOW LEGEND



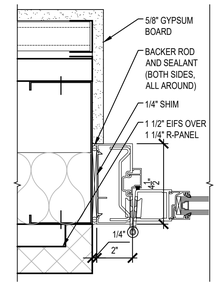
2" x 4 1/2" THERMALLY BROKEN DARK BRONZE ANODIZED ALUMINUM STOREFRONT WITH 1" LOW-E INSULATED CLEAR TEMPERED GLASS, TUBELITE (OR EQUAL)



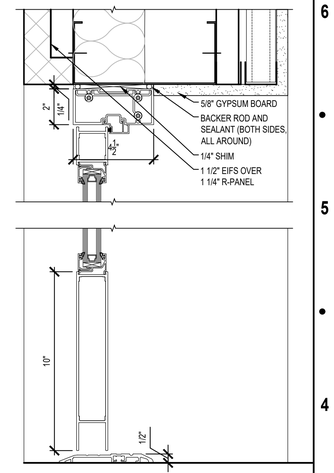
ALUMINUM STOREFRONT JAMB DETAIL



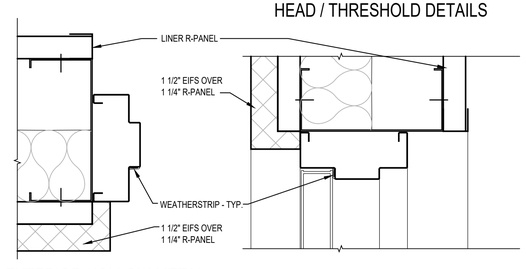
ALUMINUM STOREFRONT HEAD / SILL DETAILS



ALUMINUM DOOR FRAME JAMB DETAIL

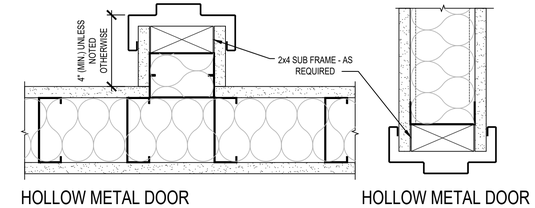


ALUMINUM DOOR FRAME HEAD / THRESHOLD DETAILS



EXTERIOR HOLLOW METAL DOOR FRAME JAMB DETAIL

EXTERIOR HOLLOW METAL DOOR FRAME HEAD DETAIL



HOLLOW METAL DOOR FRAME JAMB DETAIL

HOLLOW METAL DOOR FRAME HEAD DETAIL

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t: (816) 272-5289

Seal:

08.31.22

Michael Moores, MO Architect #2009032812

Project Number: 2201
Project Type: NEW CONSTRUCTION
Project Name and Address:

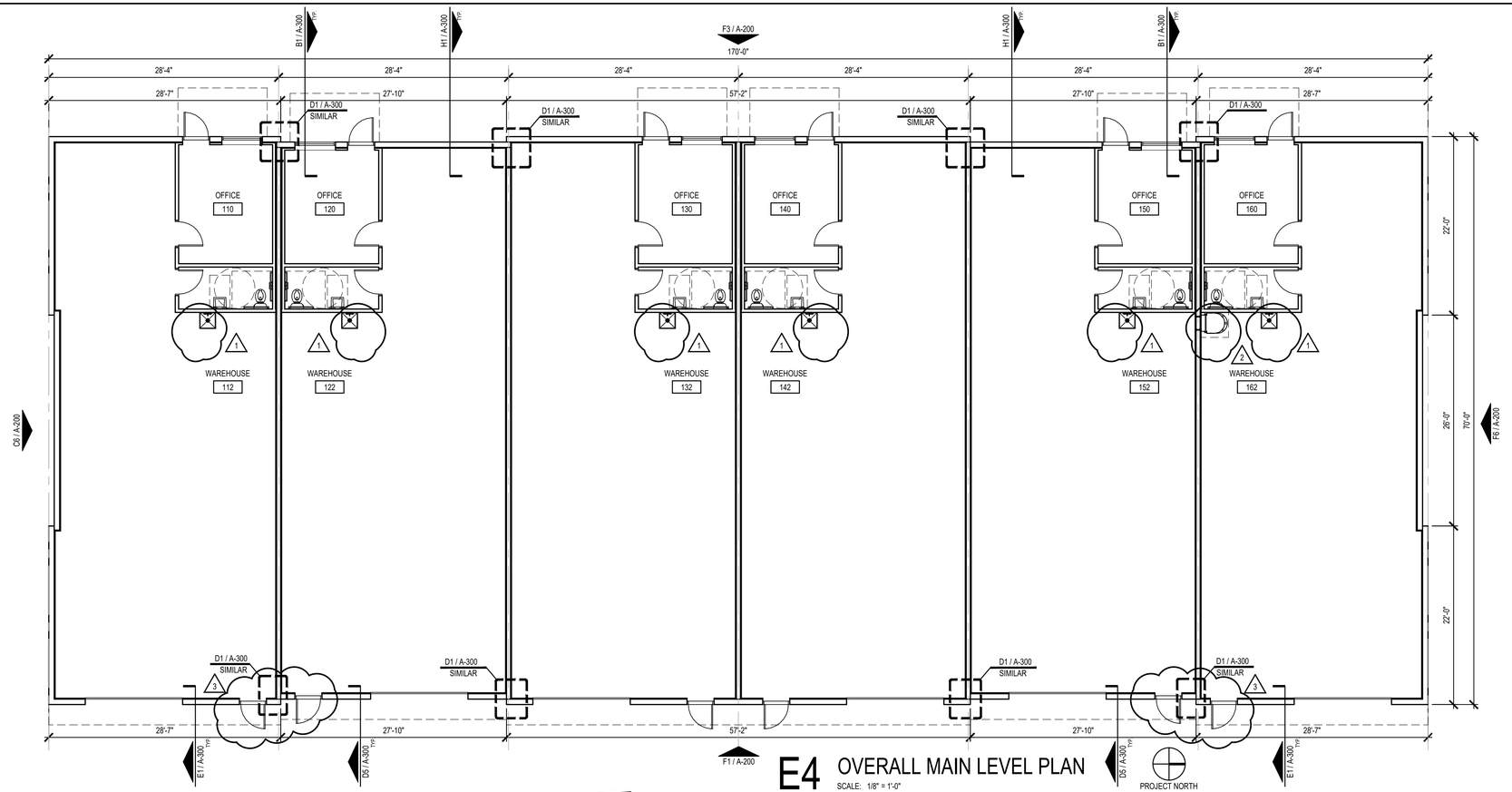
I-470 B&T CENTER, LOT 7
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Issued for Permit	08.31.22

Sheet Title:

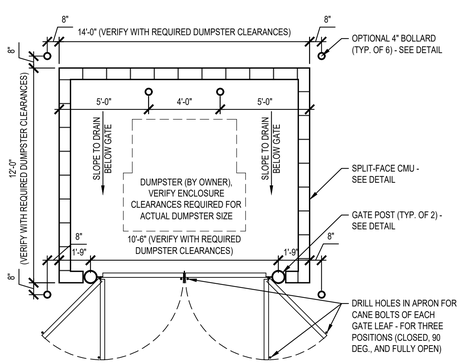
DOOR, WINDOW, & FINISH SCHEDULES AND TYP. DETAILS

A-002



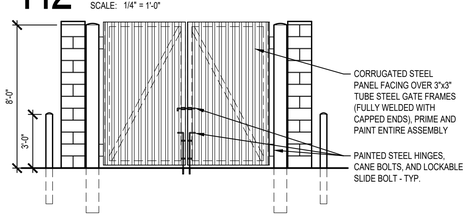
E4 OVERALL MAIN LEVEL PLAN

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



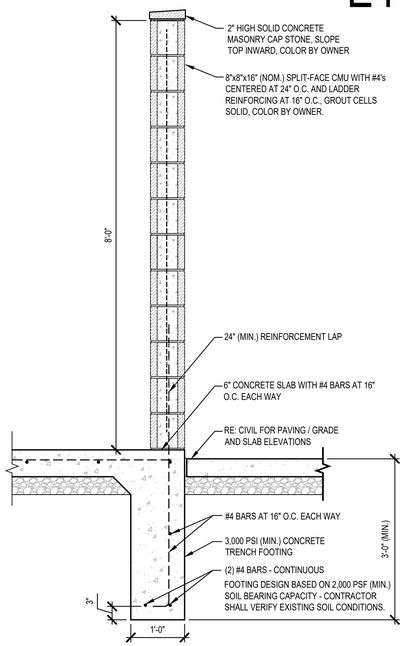
H2 DUMPSTER ENCLOSURE PLAN

SCALE: 1/4" = 1'-0"



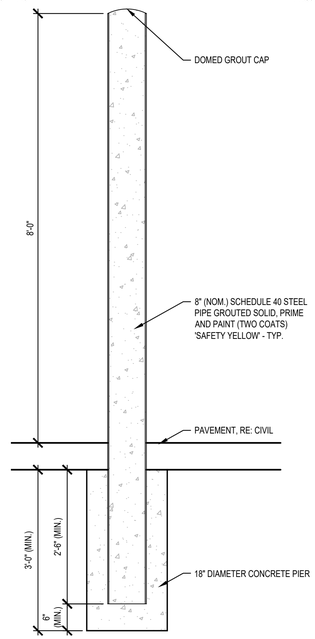
H1 DUMPSTER ENCLOSURE ELEVATION

SCALE: 1/4" = 1'-0"



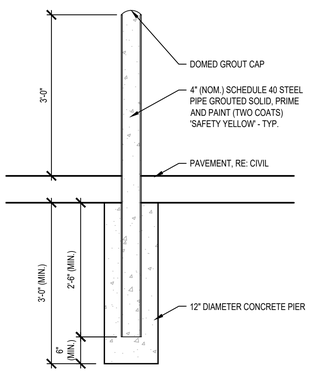
F1 DUMPSTER ENCLOSURE SECTION

SCALE: 3/4" = 1'-0"



E1 GATE POST DETAIL

SCALE: 3/4" = 1'-0"



C1 BOLLARD DETAIL

SCALE: 3/4" = 1'-0"

ARCHITECTURAL SYMBOL LEGEND:

SYMBOL:	DESCRIPTION:
ROOM NAME / RM. #	ROOM TAG
XX / A-XXX	ELEVATION TAG
XX / A-XXX	SECTION TAG
ELEV. 000'-0"	SPOT ELEVATION TAG
A-1	PARTITION TYPE
A	WINDOW TYPE
XX / A-XXX	DETAIL BUBBLE

ARCHITECTURAL ABBREVIATIONS:*

*NOTE: THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY ABBREVIATIONS NOT NOTED AND REQUEST CLARIFICATIONS.

@	AT	JT	JOINT
ACT	ACOUSTIC CEILING TILE		
ADJ	ADJUSTABLE	KS	KNEE SPACE
AFF	ABOVE FINISHED FLOOR		
ALUM	ALUMINUM	L	LONG
ANOD	ANODIZED	LB (#)	POUND
ATT	ATTENUATION	LVL	LAMINATED VENEER LUMBER
BD	BOARD	MAX	MAXIMUM
BET	BETWEEN	MDO	MEDIUM DENSITY OVERLAY
BF	BARRIER FREE	MECH	MECHANICAL
BIT	BITUMINOUS	MFR	MANUFACTURER
BLDG	BUILDING	MICRO	MICROWAVE
BO	BOTTOM OF	MIN	MINIMUM
BTM	BOTTOM	MO	MASONRY OPENING
		MR	MOISTURE RESISTANT
CPT	CARPET	MTD	MOUNTED
CT	CERAMIC TILE	MTL	METAL
CJ	CONTROL JOINT		
CL	CENTER LINE	NIC	NOT IN CONTRACT
CLG	CEILING	NO	NUMBER
CLR	CLEAR	NOM	NOMINAL
CMU	CONCRETE MASONRY UNIT		
COMP	COMPRESSIBLE	O.C.	ON CENTER
CONC	CONCRETE	O.D.	OUTSIDE DIAMETER
CONT	CONTINUOUS	O.H.	OVERHEAD or OPPOSITE HAND
		OSB	ORIENTED STRAND BOARD
D	DRYER	OZ	OUNCE
DEG	DEGREE		
DEMO	DEMOLITION	PREFAB	PREFABRICATED
DF	DRINKING FOUNTAIN	PLAM	PLASTIC LAMINATE
DH	DOUBLE-HUNG	PLYWD	PLYWOOD
DIA	DIAMETER	PR	PAIR
DN	DOWN	PT	PRESSURE TREATED
DP	DEEP	PNT	PAINT
DS	DOWN SPOUT	PEMB	PRE-ENGINEERED MTL BLDG
DW	DISHWASHER		
		QTY	QUANTITY
EA	EACH		
EJ	EXPANSION JOINT	R	RISER
EQ	EQUAL	RCP	REFLECTED CEILING PLAN
ETR	EXISTING TO REMAIN	REF	REFRIGERATOR, REFERENCE
EXG	EXISTING	REINF	REINFORCED
EXP	EXPOSED TO STRUCTURE	REQD	REQUIRED
		RM	ROOM
FD	FLOOR DRAIN	RO	ROUGH OPENING
FE	FIRE EXTINGUISHER, FINISHED END	RCB	RUBBER COVE BASE
FF	FINISHED FLOOR	SC	SEALED CONCRETE
F&I	FURNISH AND INSTALL	SF	SQUARE FEET
FLR	FLOOR	SIM	SIMILAR
FR	FIRE RETARDANT	SQ	SQUARE
FRP	FIBER-REINFORCED PLASTIC	SS	STAINLESS STEEL
FV	FIELD VERIFY	ST	STAIN
GA	GAUGE	T	TREAD
GALV	GALVANIZED	TBD	TO BE DETERMINED
GC	GENERAL CONTRACTOR	TO	TOP OF
GFI	GROUND FAULT CIRCUIT INTERRUPTER	TYP	TYPICAL
GL	GLASS	UNO	UNLESS NOTED OTHERWISE
GYP	GYPSUM BOARD		
		VCT	VINYL COMPOSITION TILE
H	HIGH	VERT	VERTICAL
HB	HOSE BIB		
HT	HEIGHT	W	WASHER, WIDE
HDW	HARDWARE	W/	WITH
HRDWD	HARDWOOD	WD	WOOD
HM	HOLLOW METAL	WH	WATER HEATER
HR	HOUR	WIC	WALK-IN CLOSET
		WWF	WELDED WIRE FABRIC
IN	INCH		
INSUL	INSULATION		

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Seal:

Michael Moores, MO Architect #2009032812

Project Number: 2201

Project Type: NEW CONSTRUCTION

Project Name and Address:

I-470 B&T CENTER, LOT 7

2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Issued for Permit	08.31.22
Plan Review Revisions 1	11.17.22
Plan Review Revisions 2	12.28.22
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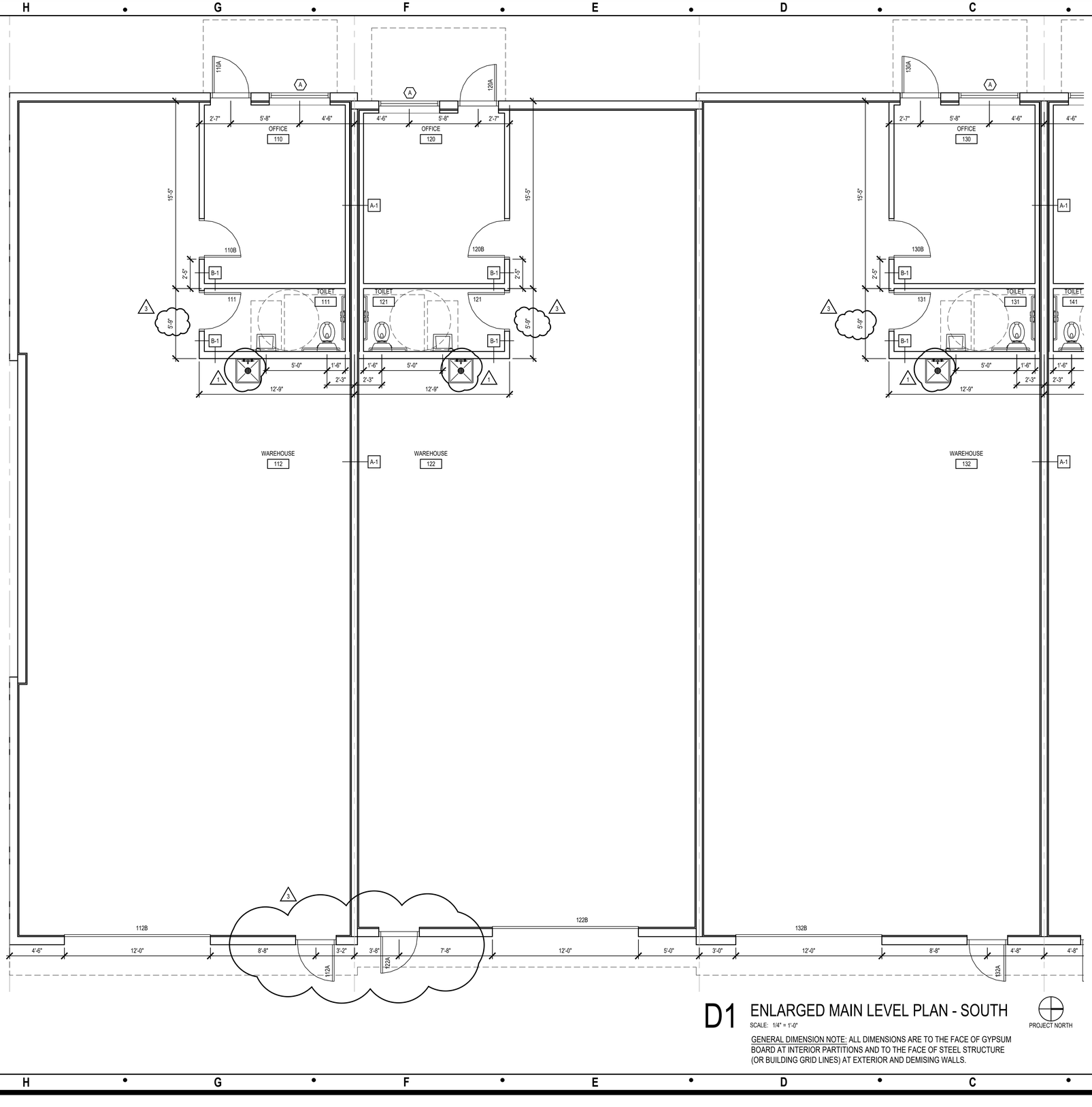
Sheet Title:

OVERALL MAIN LEVEL PLAN
ENCLOSURE DETAILS

A-100

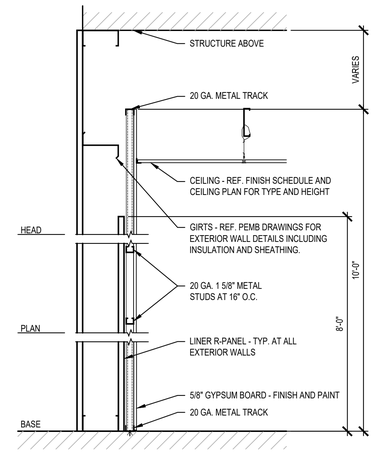


D1 ENLARGED MAIN LEVEL PLAN - SOUTH

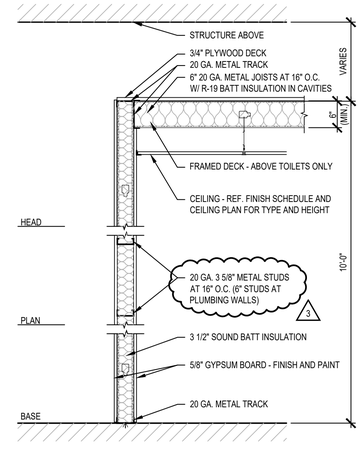
SCALE: 1/4" = 1'-0"

PROJECT NORTH

GENERAL DIMENSION NOTE: ALL DIMENSIONS ARE TO THE FACE OF GYPSUM BOARD AT INTERIOR PARTITIONS AND TO THE FACE OF STEEL STRUCTURE (OR BUILDING GRID LINES) AT EXTERIOR AND DEMISING WALLS.



PARTITION TYPE C-1



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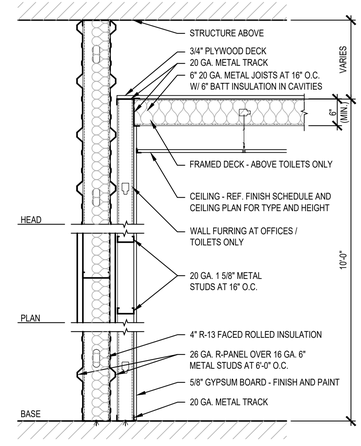

PARTITION TYPE A-1

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Seal:

STATE OF MISSOURI
MICHAEL MOORES
NUMBER A-2009032812
ARCHITECT
01.02.23

Michael Moores, MO Architect #2009032812

Project Number: 2201

Project Type: NEW CONSTRUCTION

Project Name and Address:

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2701 NE McBaine Drive
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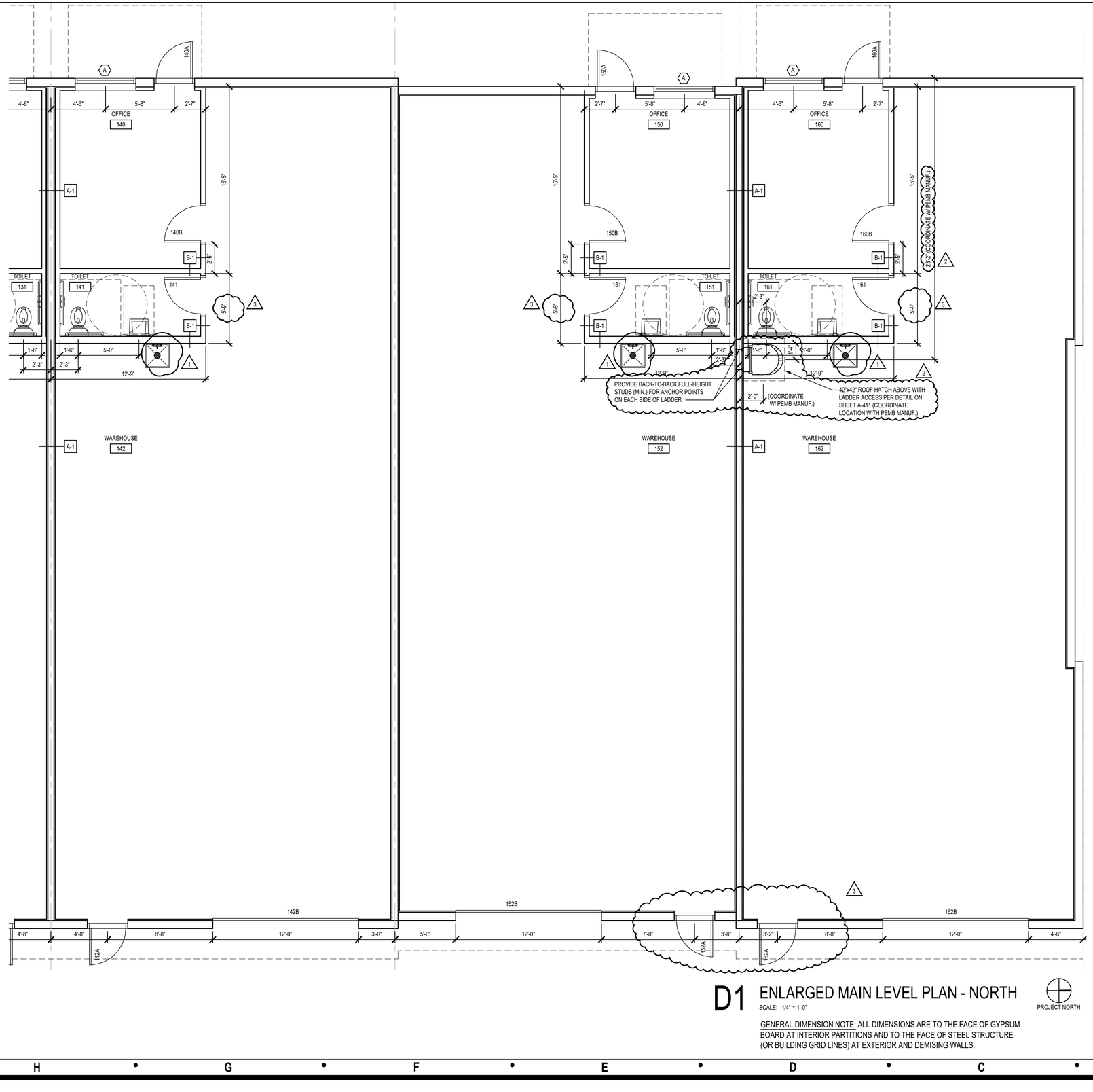
Sheet Title:

ENLARGED MAIN LEVEL PLAN - SOUTH, PARTITION TYPES

A-110

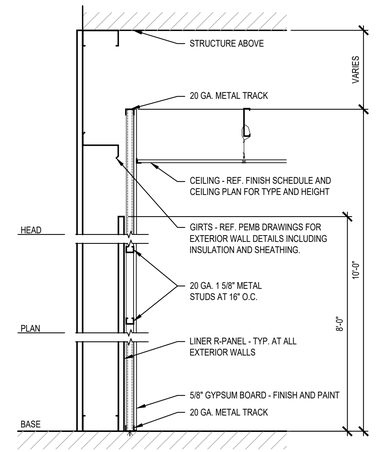


D1 ENLARGED MAIN LEVEL PLAN - NORTH

SCALE: 1/4" = 1'-0"

PROJECT NORTH

GENERAL DIMENSION NOTE: ALL DIMENSIONS ARE TO THE FACE OF GYPSUM BOARD AT INTERIOR PARTITIONS AND TO THE FACE OF STEEL STRUCTURE (OR BUILDING GRID LINES) AT EXTERIOR AND DEMISING WALLS.



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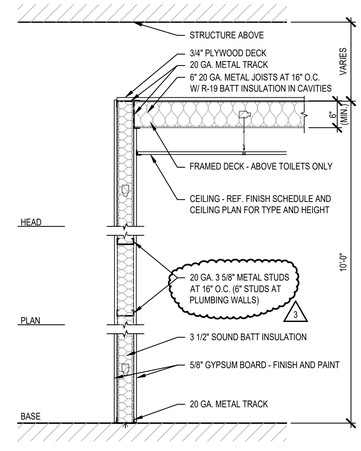

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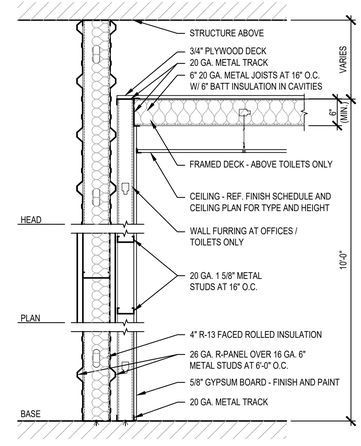

PARTITION TYPE A-1

Architect:

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ARCHITECT

01.02.23

Michael Moores, MO Architect #2009032812

Project Number: 2201

Project Type: NEW CONSTRUCTION

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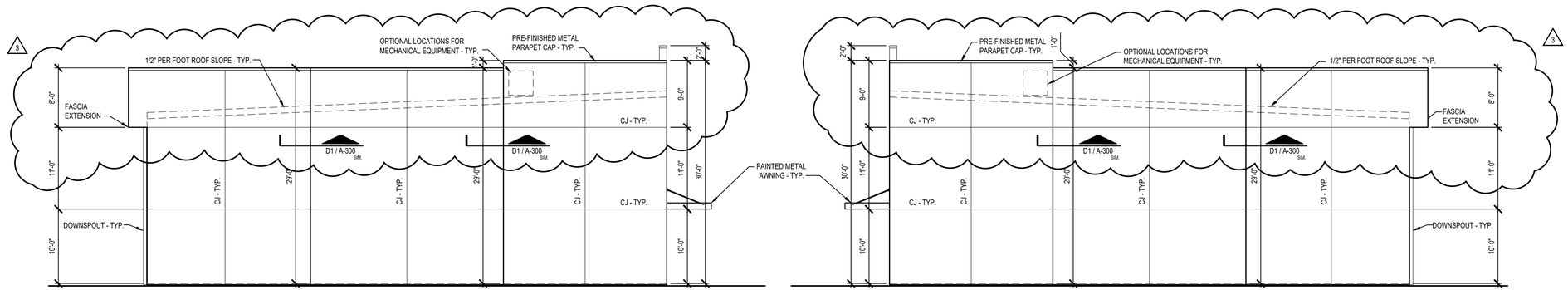
Sheet Title:

ENLARGED MAIN LEVEL PLAN - NORTH, PARTITION TYPES

A-111

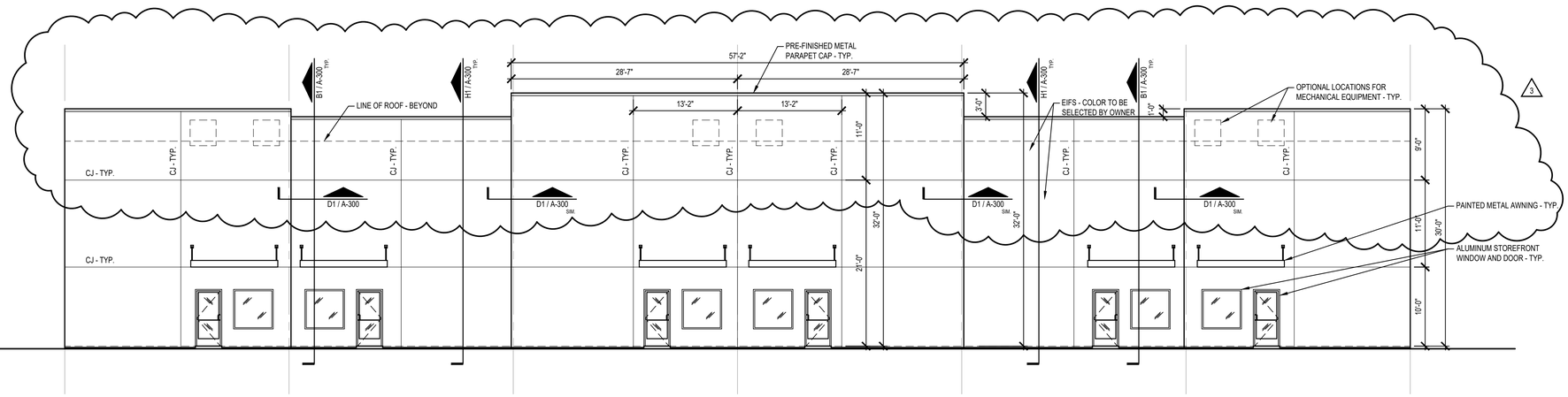


F6 NORTH ELEVATION

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

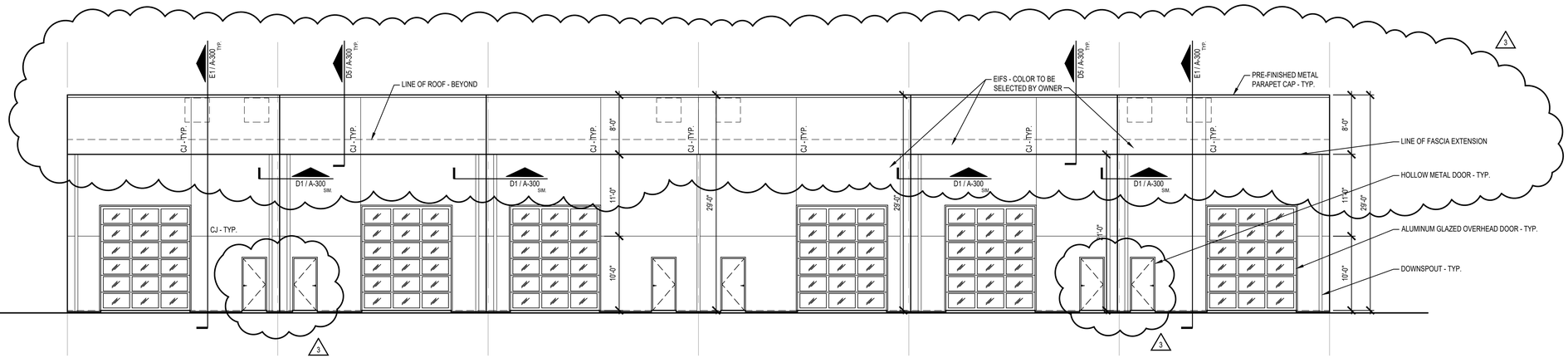
C6 SOUTH ELEVATION

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



F3 WEST ELEVATION

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



F1 EAST ELEVATION

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

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Michael Moores, MO Architect #2009032812

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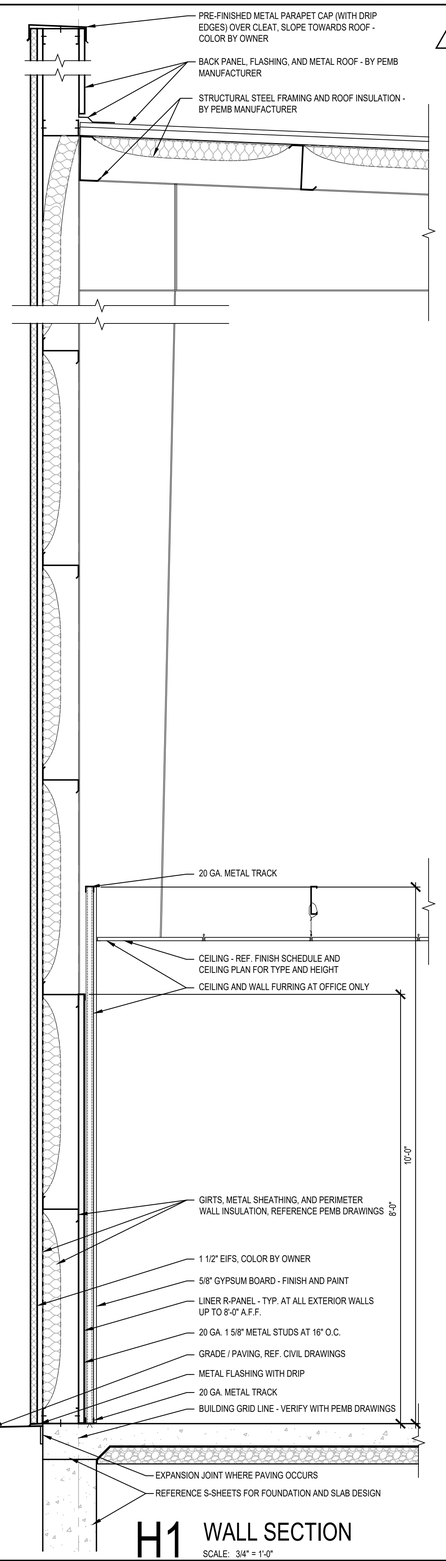
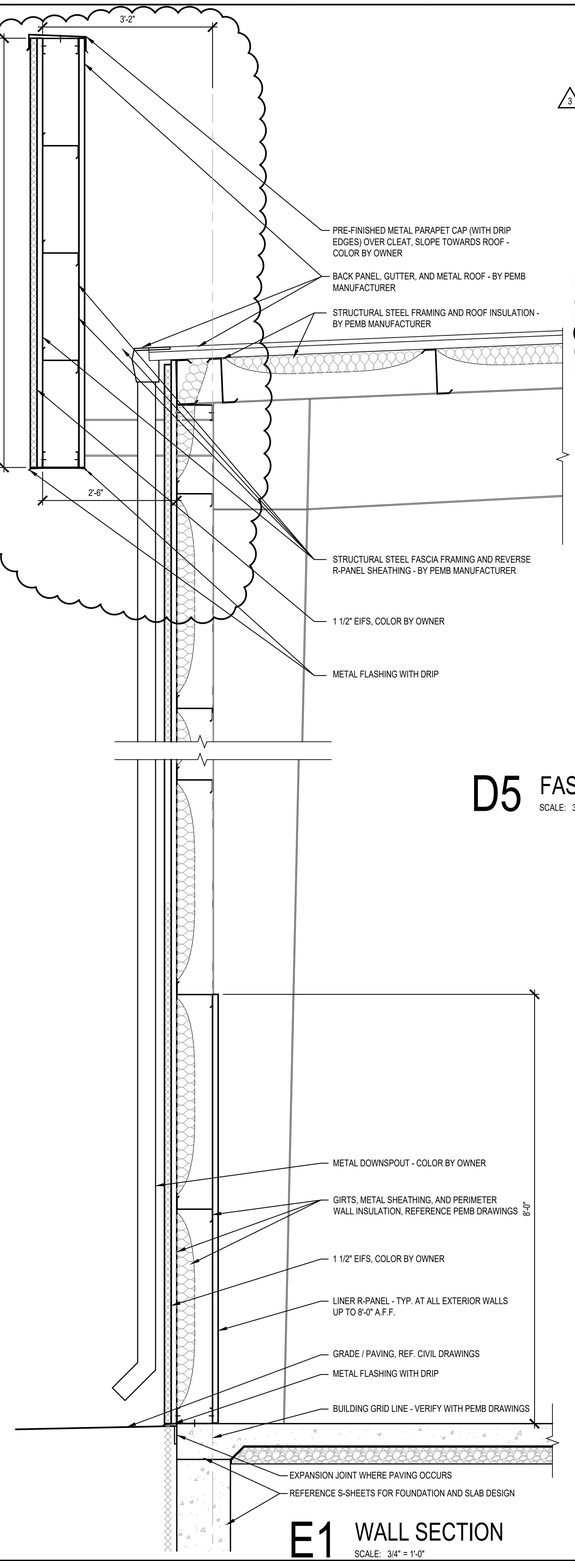
Sheet Title:

EXTERIOR ELEVATIONS

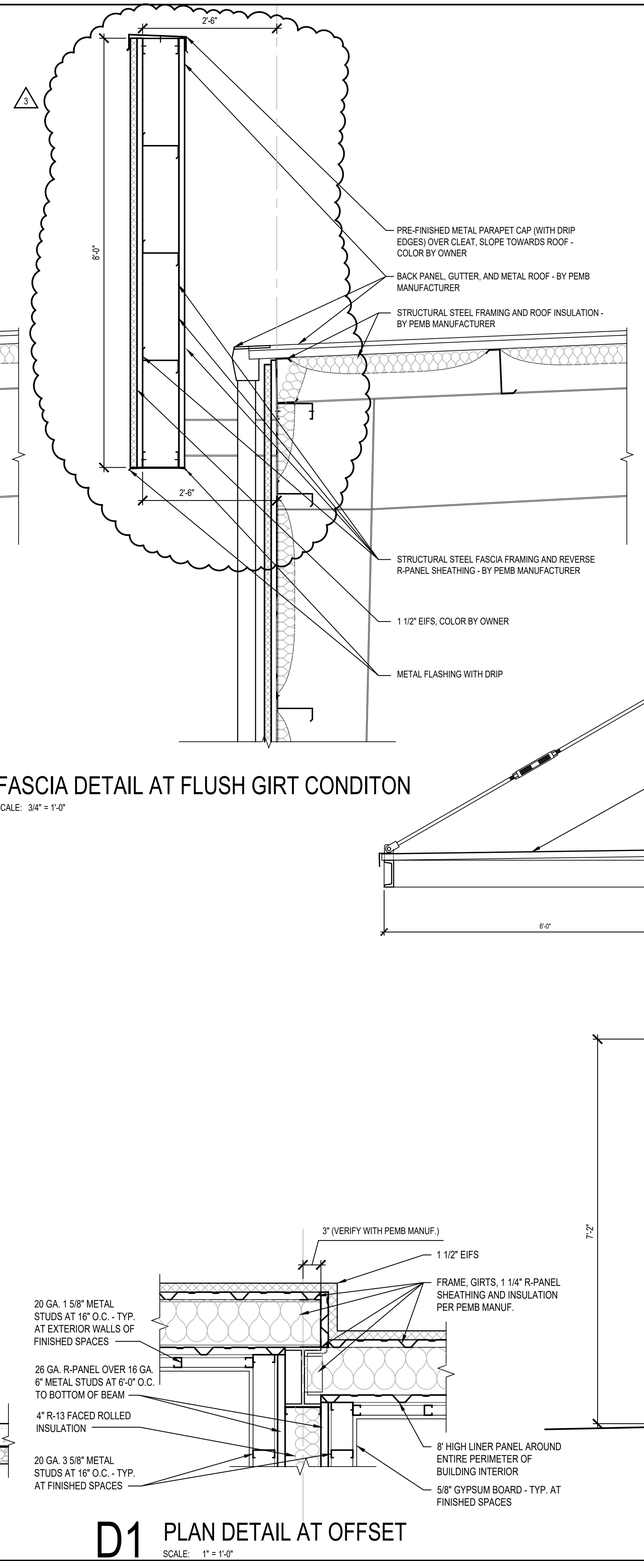
A-200



H1 WALL SECTION
SCALE: 3/4" = 1'-0"

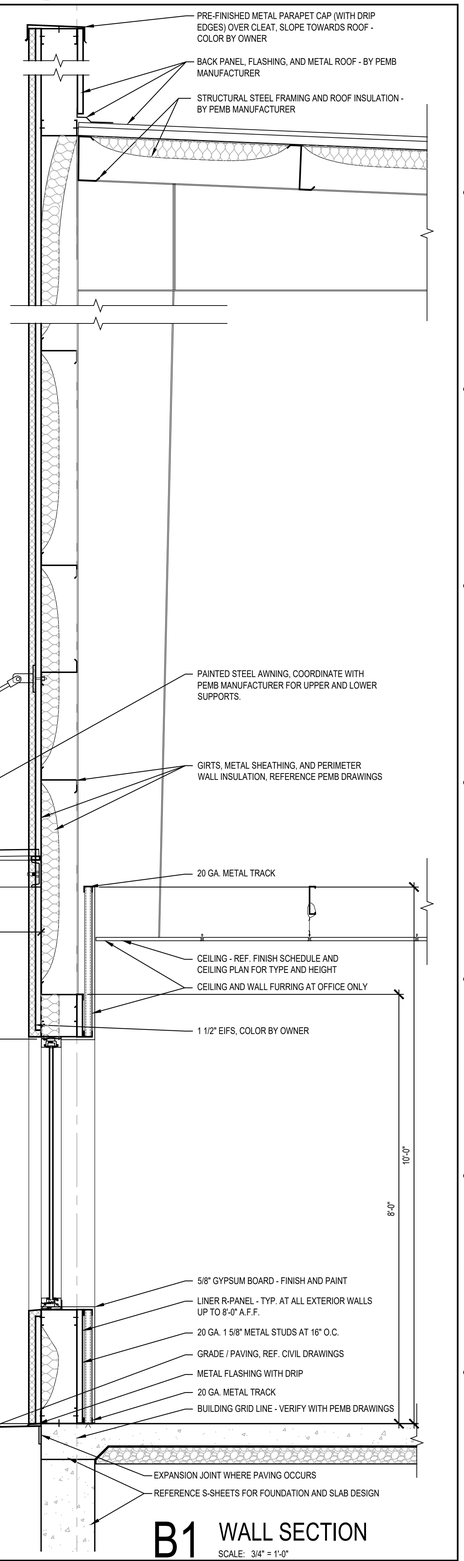


E1 WALL SECTION
SCALE: 3/4" = 1'-0"



D5 FASCIA DETAIL AT FLUSH GIRT CONDITON
SCALE: 3/4" = 1'-0"

D1 PLAN DETAIL AT OFFSET
SCALE: 1" = 1'-0"



B1 WALL SECTION
SCALE: 3/4" = 1'-0"

Architect:
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MICHAEL MOORES
NUMBER A-2009032812
ARCHITECT
01.02.23
Michael Moores, MO Architect #2009032812

Project Number:	2201
Project Type:	NEW CONSTRUCTION

Project Name and Address:

I-470 B&T CENTER, LOT 7
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

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Sheet Title:
WALL SECTIONS AND PLAN DETAIL

A-300

2'x4' LAY-IN ACOUSTIC CEILING TILE AND GRID SYSTEM

GYPSUM BOARD CEILING

9'-0" A.F.F. CEILING HEIGHT TAG

GENERAL NOTE: REFERENCE MEP DRAWINGS FOR ALL CEILING MOUNTED FIXTURES.

A7 CEILING PLAN LEGEND

SCALE: =

D1 CEILING PLAN - SOUTH

SCALE: 1/4" = 1'-0"

PROJECT NORTH

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08.31.22

Michael Moores, MO Architect #2009032812

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I-470 B&T CENTER, LOT 7

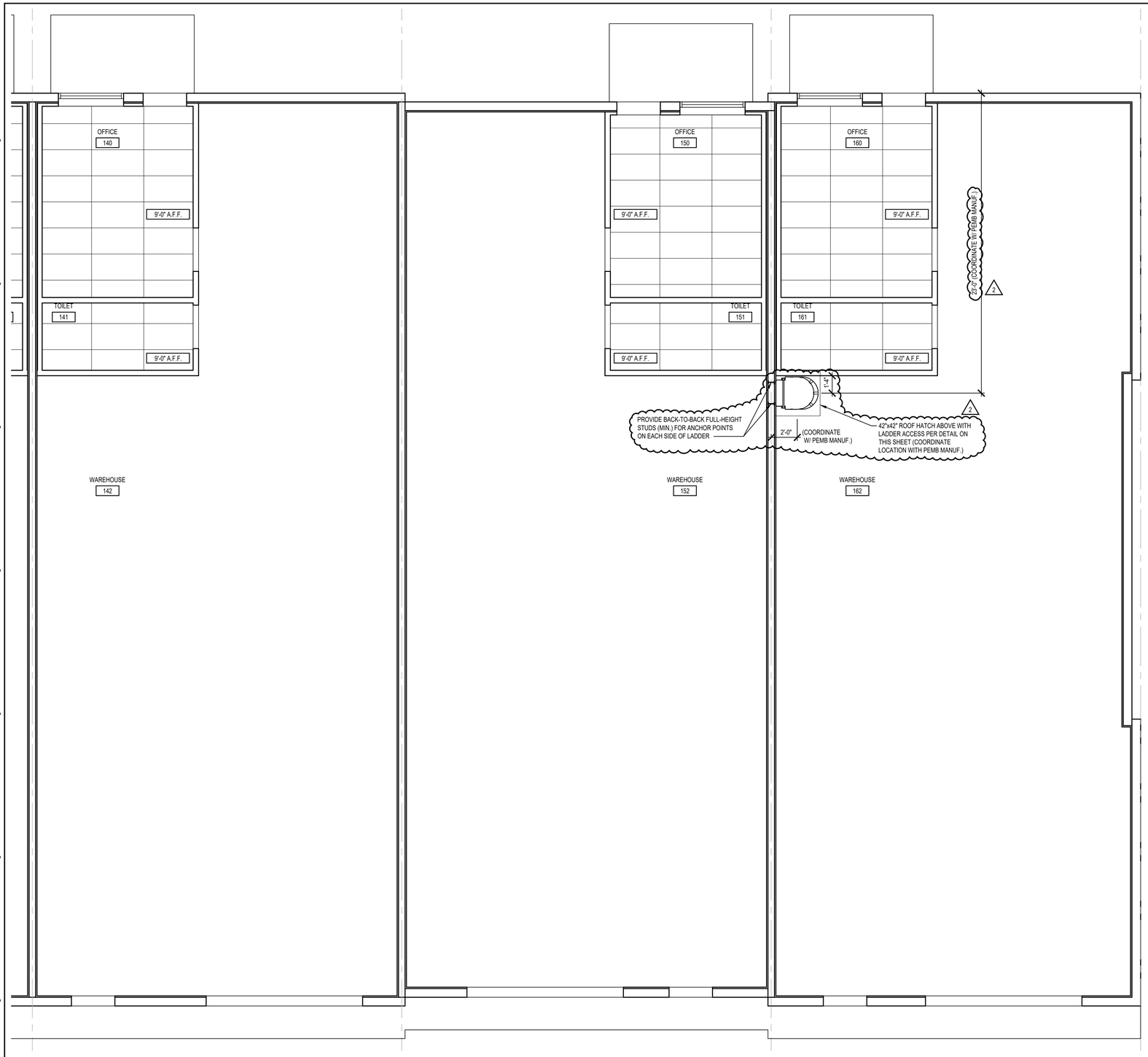
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Issued for Permit	08.31.22

Sheet Title:

CEILING PLAN - SOUTH

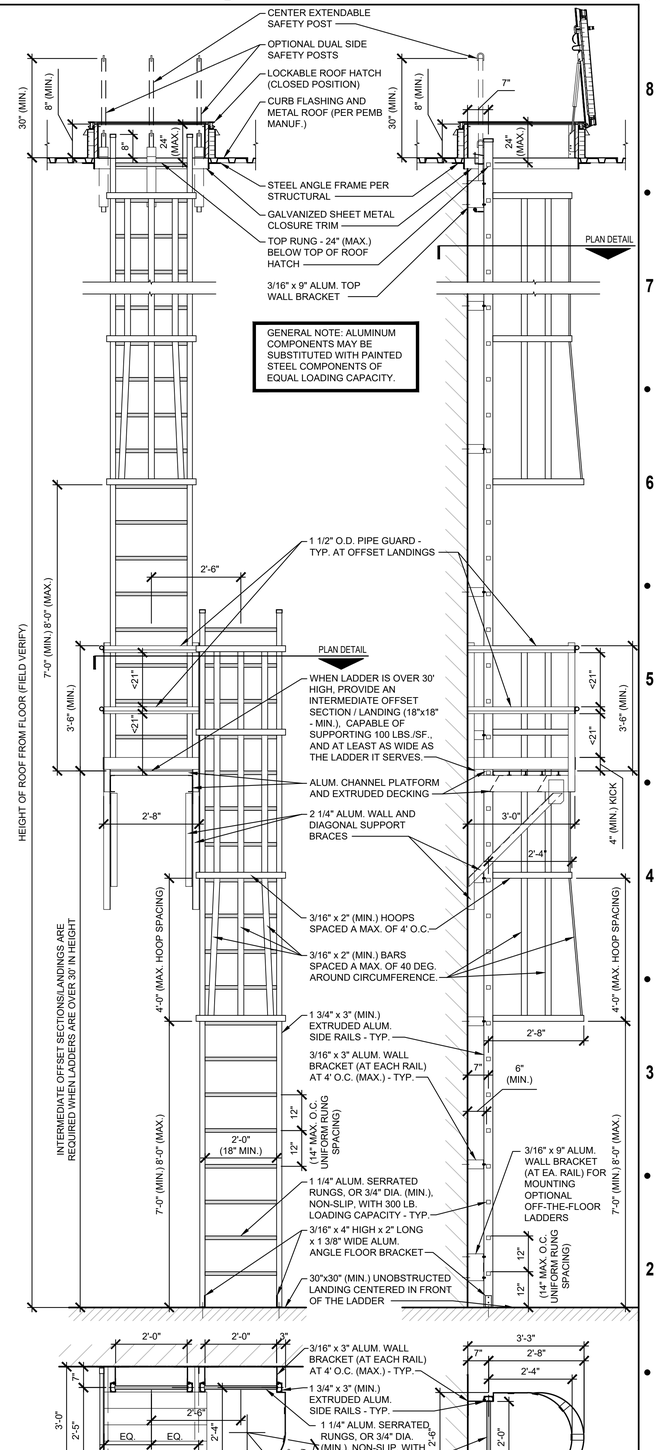
A-410



D1 CEILING PLAN - NORTH

SCALE: 1/4" = 1'-0"

PROJECT NORTH



ROOF ACCESS

SCALE: 1/2" = 1'-0"

Architect:
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12.28.22

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Project Type: NEW CONSTRUCTION

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CEILING PLAN - NORTH ROOF ACCESS

A-411

1. GENERAL

A. The contractor shall verify dimensions and conditions and notify the architect/engineer of any discrepancies, inconsistencies, or difficulties affecting cost of work before proceeding.
B. The contractor shall coordinate all disciplines, verifying size and location of all openings. All conflicts, inconsistencies, or other difficulties affecting structural work shall be called to the attention of the architect or engineer for direction before proceeding.
C. All design and construction for this project shall conform to the requirements of the 2018 International Building Code (IBC), as adopted and amended.
D. These drawings are for this specific project, and no other use is authorized.

2. CONCRETE:

A. All trench footing concrete shall develop a minimum compressive design strength of 3,500 psi in 28 days.
All formed and slab concrete to be a minimum compressive design strength of 4,000 psi in 28 days.
B. Concrete exposed to weather shall have a 6% +/- 1% air entrainment.
C. Contractor shall verify that all concrete inserts, reinforcing and embedded items are correctly located and rigidly secured prior to concrete placement.
D. No aluminum items shall be embedded in any concrete.
E. Provide concrete design submittal for approval.
F. Anchor bolts or threaded rods per ASTM F1554 Grade 36.
G. Epoxy anchors are not acceptable as a substitute for tension loading conditions and major column bases. Anchors and fasteners smaller than $\frac{3}{4}$" diameter may be epoxy or Kwik bolt style fasteners. See Detail.

3. REINFORCING STEEL:

A. All reinforcing steel shall conform to the requirements of ASTM A615 Grade 60.
B. Stirrups & ties shall conform to the requirements of ASTM A615 Grade 40.
C. Clear minimum coverage of concrete over reinforcing steel shall be as follows:
Concrete placed against earth 3"
Formed concrete against earth 2"
D. All dowels shall be the same size and spacing as adjoining main bars.
E. Splice laps, hooks and bends per ACI and detailed herein.
F. Wire tie steel prior to pour to insure steel remains in place when concrete is poured.
G. Provide reinforcing steel submittal for approval.

4. SOIL PREPARATIONS AND CONDITIONS:

A. Contractor to maintain OSHA safety precautions for workers.
B. Excavate and remove all organic soil material below pad base per soil report.
C. Excavate and remove soft soil per soil report. This design is based upon the soil conditions providing a minimum capacity of 2,000 psf.

5. STEEL BUILDING

A. Steel building plans take precedence over these plans. Contractor to verify baseplate and anchor bolt locations and projections.

6. SPECIAL INSPECTIONS

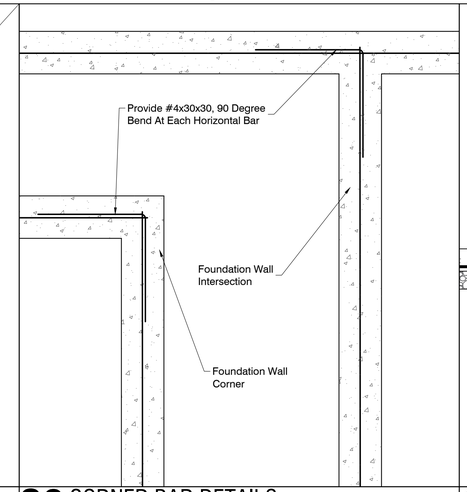
A. High strength bolts - ASTM A325
B. Field welding if used - Not currently planned
C. Testing of concrete: Lab testing footing, and pier concrete required.
D. Steel Framing: At the request of the City and Architect of Record, Inspect Building Steel Framing

ABBREVIATIONS:

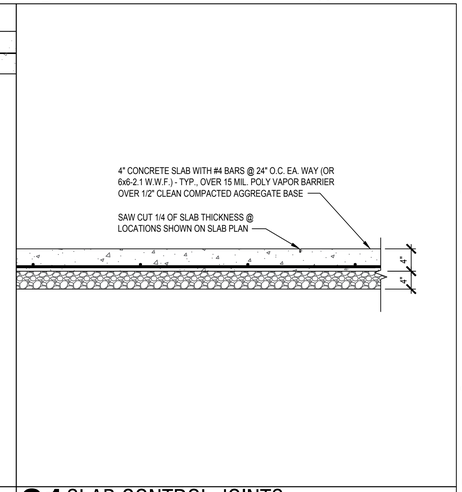
A.B.	Anchor Bolts
@	At
E.W.	Each Way
ELEV.	Elevation (Relative Grade Height)
#	Number
Sq.Ft.	Square Feet
T.O.B.	Top Of Beam
T.O.F.	Top Of Footing
T.O.W.	Top Of Wall
O.C.	On Center Spacing
U.N.O.	Unless Noted Otherwise

A5 GENERAL STRUCTURAL NOTES & ABBREVIATIONS
NO SCALE

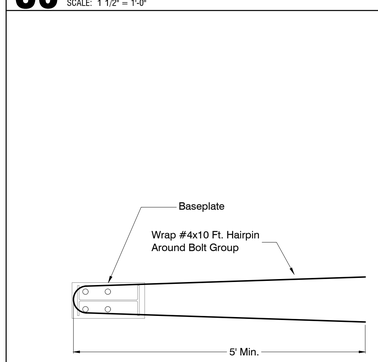
C3 NOT USED
SCALE: 1 1/2" = 1'-0"



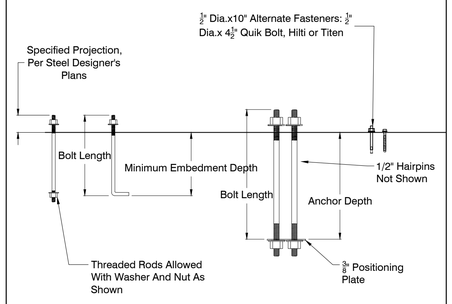
C2 CORNER BAR DETAILS
SCALE: 3/4" = 1'-0"



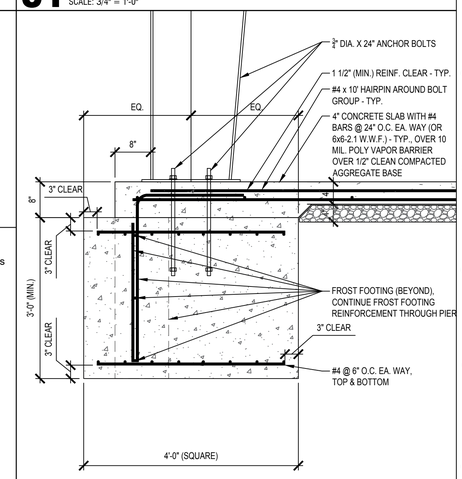
C1 SLAB CONTROL JOINTS
SCALE: 3/4" = 1'-0"



B3 HAIR PIN DETAIL (PLAN VIEW)
SCALE: 3/4" = 1'-0"



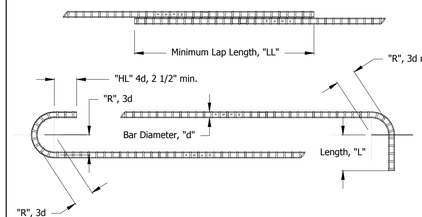
B2 ANCHOR BOLT SPECIFICATIONS
SCALE: 3/4" = 1'-0"



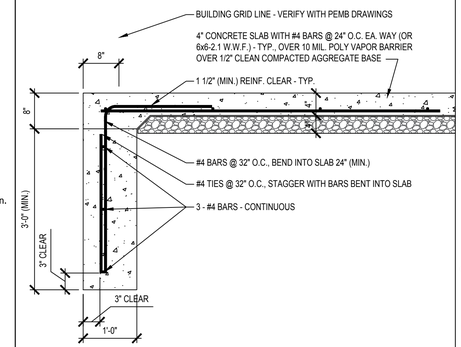
B1 LARGE FRAME FTG DETAIL
SCALE: 3/4" = 1'-0"

A3 NOT USED
SCALE: 1 1/2" = 1'-0"

STANDARD REINFORCING LAPS, BENDS AND HOOKS				
BAR Diameter, d	LAP LENGTH, "LL"	LENGTH "L", 12d	RADIUS "R", 3d	HOOK LENGTH "HL", 4d
3	24	4 1/2	1	2 1/2
4	24	6	1 1/2	2 1/2
5	25	7 1/2	2	2 1/2



A2 LAPS & HOOKS DETAILS
SCALE: 1 1/2" = 1'-0"



A1 TYPICAL TRENCH FROST FOOTING DETAIL
SCALE: 3/4" = 1'-0"

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Seal:
STATE OF MISSOURI
ANTHONY C MEISTER
NUMBER PE-024609
PROFESSIONAL ENGINEER

Project Number: 2201
Project Type: NEW CONSTRUCTION
Project Name and Address:
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Issue:	Date:
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NOTES & DETAILS

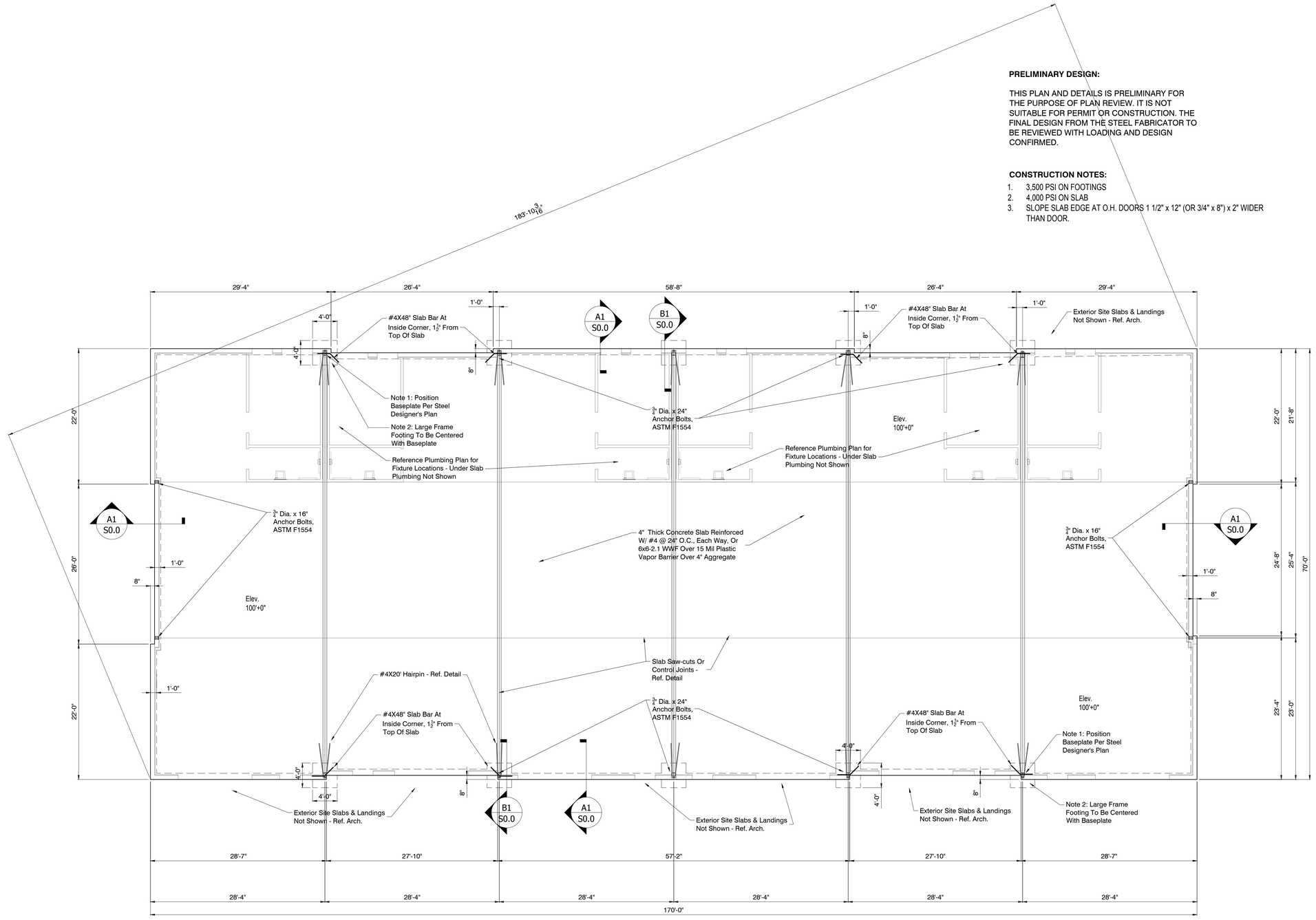
S0.0
September 28, 2022

PRELIMINARY DESIGN:

THIS PLAN AND DETAILS IS PRELIMINARY FOR THE PURPOSE OF PLAN REVIEW. IT IS NOT SUITABLE FOR PERMIT OR CONSTRUCTION. THE FINAL DESIGN FROM THE STEEL FABRICATOR TO BE REVIEWED WITH LOADING AND DESIGN CONFIRMED.

CONSTRUCTION NOTES:

1. 3,500 PSI ON FOOTINGS
2. 4,000 PSI ON SLAB
3. SLOPE SLAB EDGE AT O.H. DOORS 1 1/2" x 12" (OR 3/4" x 8") x 2" WIDER THAN DOOR.



A1 FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

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NUMBER PE-024609
PROFESSIONAL ENGINEER

Project Number: 2201
Project Type: NEW CONSTRUCTION
Project Name and Address:

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FOUNDATION PLAN

S1.0

September 28, 2022

MECHANICAL AND PLUMBING SPECIFICATIONS

1. GENERAL PROVISIONS:
   - A. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL SYSTEMS OUTLINED.
   - B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATIONS OF COMPLIANCE OR APPROVAL AS REQUIRED BY AUTHORITIES.
   - C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
   - D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
   - E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
   - F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
   - G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECT FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
   - H. INSPECTION OF THE SITE: THIS CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE MEP DRAWINGS, SPECIFICATIONS, DETAIL, AND THE SITE. THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SPECIAL OR UNUSUAL PROBLEMS, CONFLICTS, OR OBSTRUCTIONS THAT AFFECT HIS BID.
   - I. FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE MECHANICAL AND PLUMBING DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS AND FITTINGS REQUIRED FOR INSTALLATION. DO NOT SCALE DRAWINGS. THE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DATA AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION SECTIONS WHERE MECHANICAL WORK INTERFACES WITH OTHER TRADES.
   - J. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS OR WITH CODE REQUIREMENTS, THE NOTE OR CODE WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR HIGHER STANDARD SHALL PREVAIL.
   - K. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK. COORDINATE WITH WORK OF OTHER SECTIONS. COMPLY WITH APPLICABLE REGULATIONS AND CODE REQUIREMENTS. PROVIDE PROPER CLEARANCES FOR SERVICING.
   - L. INCLUDE ALL BASIC MATERIALS AND CONSTRUCTION METHODS INCLUDING PIPES, PIPE FITTINGS, AND SPECIALTIES AND SUPPORTING DEVICES, VALVES, PIPE AND VALVE IDENTIFICATION, PUMPS, VIBRATION ISOLATION, ETC.
   - M. FURNISH ADEQUATE ACCESS PANELS AND DOORS TO ALLOW FOR FUTURE PIPING ALTERATIONS, REPLACEMENT, AND MAINTENANCE OF PIPING. PROPERLY IDENTIFY ALL ACCESS PANELS AND DOORS.

2. OPERATION AND MAINTENANCE MANUALS:
   - A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
   - B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS.

3. MANUFACTURERS:
   - A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN.
   - B. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL REQUIREMENTS OF THE EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT OTHER THAN THE SPECIFIED EQUIPMENT BEING FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

4. MOTORS:
   - A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.

5. PLUMBING:
   - A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.
   - B. ALL EXPOSED PIPE IN FINISHED AREAS SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.
   - C. PROVIDE CLEANOUTS AT EACH CHANGE IN DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS.
   - D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.
   - E. CLEANOUTS:
     1. UNFINISHED FLOOR (FCO): JR SMITH #4240, OR EQUAL.
     2. WALL (WCO): JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.
     3. GRADE (GCO): JR SMITH #4256, OR EQUAL, WITH HEAVY DUTY CAST IRON BODY AND COVER.
   - F. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES.
     1. INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.
     2. INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL.
     3. CONDENSATE DRAIN SHALL BE INSTALLED AT 1/8" PER FOOT FALL.
   - G. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTION TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION JOINTS.
   - H. ALL SEWER PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES.
     1. INSTALL 4" AND SMALLER PIPE AT A MINIMUM OF 2% SLOPE.
     2. INSTALL 6" AND LARGER PIPE AT A MINIMUM OF 1% SLOPE.

6. PIPING
   - A. DOMESTIC COLD, HOT, AND HOT WATER RECIRCULATING (ABOVEGROUND).
     1. TYPE L HARD DRAWN COPPER TUBING, ASTM B-88 WITH WROUGHT BRONZE SOLDERED FITTINGS.
     2. GATE VALVE: CRANE #428 OR EQUAL.
     3. BALL VALVE: CRANE #932 OR EQUAL.
   - B. DOMESTIC COLD, HOT, AND HOT WATER RECIRCULATING, 1"-3" (UNDERGROUND).
     1. TYPE K HARD OR SOFT DRAWN COPPER TUBING, ASTM B-88 WITH WROUGHT BRONZE SOLDERING FITTINGS.
   - C. SANITARY SEWER AND VENTS (UNDERGROUND, INTERIOR TO BUILDING).
     1. POLYVINYL CHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT.
     2. SEWER LINES SHALL BE LOCATED IN GENERAL AS SHOWN ON THE DRAWINGS. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN SUCH A MANNER AS TO MAINTAIN PROPER CLEARANCES AND SUFFICIENT SLOPE TO ENSURE DRAINAGE.
     3. VENT STACKS SHALL BE EXTENDED FULL SIZE THROUGH THE ROOF AND FLASHED WITH 4 POUND LEAD SHEETS TURNED DOWN INTO THE STACK AT LEAST 2" AND EXTENDED 12" IN ALL DIRECTIONS FROM THE PIPE AT THE ROOF LINE. VENTS THROUGH ROOF SHALL NOT BE LESS THAN 3". PVC PIPING SHALL NOT BE USED FOR VENT PIPING THROUGH THE ROOF. WHERE APPLICABLE FOR ROOFING SYSTEM USED, PROVIDE FLASHING VIA PLEATED EPDM CONE IN LIEU OF LEAD. ALL VENT STACKS IN OR AT OUTSIDE WALLS SHALL BE OFFSET 1'-6" MINIMUM FROM OUTSIDE WALLS BEFORE GOING THROUGH THE ROOF, TO FACILITATE FLASHING.
   - D. CONDENSATE DRAIN AND INDIRECT WASTE (ABOVEGROUND)
     1. PVC DWV PIPE, SCHEDULE 40, SOLVENT JOINT.
   - E. NATURAL GAS PIPING:
     1. SCHEDULE 40 BLACK STEEL PIPING: 2" AND SMALLER WITH SCREWED JOINTS AND 150 LB. MALLEABLE IRON SCREWED FITTINGS. PIPE 2-1/2" AND LARGER SHALL USE STANDARD WEIGHT BLACK STEEL WELDING FITTINGS WITH WELDED JOINTS.
     2. GAS VALVES SHALL BE ROCKWELL 142/143, PLUG VALVE.
     3. SUPPORT PIPING AT INTERVALS NOT TO EXCEED THOSE LISTED IN TABLE 415.1 OF THE I.F.G.C.
     4. PROVIDE A.G.A. APPROVED SHUT OFF VALVES AND DIRT LEGS AT CONNECTIONS TO ALL EQUIPMENT.
     5. EPOXY PAINT ALL EXTERIOR GAS PIPING TO PREVENT CORROSION.
   - F. REFRIGERANT
     1. ASTM B 280, TYPE ACR, HARD DRAWN STRAIGHT LENGTHS, AND SOFT-ANNEALED COILS, SEAMLESS COPPER TUBING.
     2. WROUGHT COPPER, ANSI B16.22, STREAMLINED PATTERN, FITTINGS. BRAZED JOINTS, AWS A 5.8 CLASSIFICATION BAG-1 (SILVER).
     3. TUBING TO BE FACTORY CLEANED, READY FOR INSTALLATION, AND HAVE ENDS CAPPED TO PROTECT CLEANLINESS OF PIPE INTERIORS PRIOR TO SHIPPING.
     4. SIZE AND INSTALLATION OF PIPING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
   - G. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR ANVIL. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.
   - H. SLEEVES
     1. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.
     2. INTERIOR PARTITIONS: 16 GAUGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
     3. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
     4. PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN THE EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.
   - I. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.

7. INSULATION:
   - A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPMENT RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.
   - B. PIPE INSULATION (ABOVE GRADE):
     1. THE PIPE INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 BTU PER IN/HR*SQ-FT*°F OR LESS.
     2. FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOLDED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
     3. FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP ARMAFLEX OR ARMAFLEX 2000.
     4. FOR NON CIRCULATING SYSTEMS THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.
     5. INSULATION SCHEDULE:
        - a. DOMESTIC COLD WATER: 1/2"
        - b. DOMESTIC HOT WATER: 1"
        - c. REFRIGERANT SUCTION: 1-1/2" FOR PIPING UP TO 1-1/2"ø, 2" FOR PIPING 1-1/2"ø AND LARGER.
   - C. DUCTWORK INSULATION:
     1. DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING. THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. DUCT COVERING SHALL BE MINIMUM R-6.
        - a. SUPPLY AIR DUCT: 2"
        - b. RETURN AIR DUCT: 2"

8. TESTING, BALANCING AND CLEANING:
   - A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
   - B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.
   - C. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 60 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
   - D. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH THE HEALTH DEPARTMENT REGULATIONS. THE SYSTEMS SHALL BE THOROUGHLY FLUSHED OF ALL DIRT AND FOREIGN MATTER, THEN FILLED WITH WATER TREATED WITH 50 PPM OF CHLORINE. DURING THE FILLING PROCESS, VALVES AND FAUCETS SHALL BE OPENED SEVERAL TIMES TO ASSURE TREATMENT OF THE ENTIRE SYSTEM. THE TREATED WATER SHALL BE LEFT IN THE SYSTEM FOR 24 HOURS AFTER WHICH TIME THE SYSTEM SHALL BE FLUSHED; IF THE RESIDUAL CHLORINE IS NOT LESS THAN 10 PPM, THE FLUSHING SHALL BE REPEATED. AFTER STERILIZATION SAMPLES OF WATER FROM THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH.
   - E. NATURAL GAS SYSTEMS SHALL BE TESTED WITH COMPRESSED AIR AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE , BUT NOT LESS THAN 50 PSIG FOR A PERIOD OF 2 HOURS WITH NO LEAKS.
   - F. THE INSPECTION AUTHORITY HAVING JURISDICTION SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO PERFORMANCE OF ALL TESTS SO THAT THEY TESTS MAY BE WITNESSED IF DEEMED NECESSARY.
   - G. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE FAMILIAR WITH TESTING AND BALANCING PROCEDURES OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
     1. BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
     2. WITH IN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS; ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELLED OR MAY BE AN ELECTRONIC PDF SUBMITTAL.

9. DUCTWORK:
   - A. ALL DUCTWORK UNLESS OTHERWISE INDICATED SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G60 ZINC COATING IN ACCORDANCE WITH ASTM A 525, AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.
   - B. DUCTWORK METAL GAUGES, REINFORCING, ETC SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2" WATER GAUGE STATIC PRESSURE.
   - C. ALL FITTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION.
   - D. RECTANGULAR DUCT:
     1. ELBOWS, UNLESS INDICATED OTHERWISE, SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOWS WITH DOUBLE WALL STREAMLINE ELBOWS.
     2. TAKE-OFF FITTINGS: BRANCH DUCT TAKE-OFF FITTINGS FOR SUPPLY AND EXHAUST DIFFUSER/REGISTERS SHALL INCLUDE AN INTEGRAL MANUAL VOLUME DAMPER WITH LOCKING QUADRANT, DAMPER NOT REQUIRED ON RETURN AIR. FOR RECTANGULAR TO ROUND TAKE-OFFS, UTILIZE A "BUCKLEY" MODEL 3300 & 3300D OR EQUAL.
     3. RETURN AIR ACOUSTIC ELBOWS AND SOUND BOOTS SHALL BE A SQUARE ELBOW WITH NO TURNING VANES.
     4. SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE A MINIMUM 1 TO 3.
   - E. ROUND AND OVAL SPIRAL SEAM DUCT:
     1. PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEGREE CHANGE OF DIRECTION PER SECTION. UNLESS SPECIFICALLY DETAILED OTHERWISE, USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEGREE BRANCHES ARE INDICATED PROVIDE CONICAL TYPE TEES.
     2. SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
     3. ROUND LONGITUDINAL SEAM DUCT: USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS.
   - F. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASED CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BELOW:

	SUPPLY 2"WC OR LESS	EXHAUST	RETURN
(1) UNCONDITIONED SPACES:	CLASS B	CLASS C	CLASS B
(2) CONDITIONED SPACES (PLENUM):	CLASS C	CLASS B	CLASS C

   - G. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEET METAL SIZES. INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
   - H. WHETHER SHOWN ON PLANS OR NOT, PROVIDE MANUAL VOLUME DAMPERS IN EACH RUNOUT TO EACH SUPPLY DIFFUSER OR REGISTER. PROVIDE ACCESS PANELS TO DAMPERS LOCATED ABOVE HARD CEILINGS.
   - I. PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK.
   - J. WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE FIRESTOPPING BETWEEN DUCT AND WALL.
   - K. WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS OR EXTERIOR WALLS, AND ARE EXPOSED TO VIEW, CONCEAL SPACE BETWEEN OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME GAUGE AS DUCT. OVERLAP OPENING ON 4 SIDES BY AT LEAST 1-1/2". FASTEN TO DUCT AND WALL.

10. FLEXIBLE DUCT:
   - A. ATCO #086 (R-6), OR EQUAL.
   - B. FACTORY APPLIED INSULATION AND VAPOR BARRIER, 1-1/2" THICK.
   - C. MAXIMUM LENGTH OF 6'-0".

11. FLUES AND ACCESSORIES:
   - A. FLUE FOR GAS FIRED FURNACE SHALL BE AS RECOMMENDED BY THE GAS APPLIANCE MANUFACTURER. FLUES SHALL BE SCHEDULE 40 PVC OR CPVC PER THE MANUFACTURE'S INSTALLATION REQUIREMENTS.
   - B. PROVIDE MANUFACTURERS STANDARD ACCESSORY ITEMS INCLUDING BIRD PROOF TOP, STORM COLLAR, ROOF THIMBLE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. ROOF THIMBLES THROUGH THE BUILDING ROOF SHALL BE SUITABLE FOR USE WITH THE ROOF PROVIDED.
   - C. FLUES FOR HEATERS SHALL BE DOUBLE WALL TYPE B EQUAL TO METALBESTOS. PROVIDE MANUFACTURER'S STANDARD FITTING AND ACCESSORIES (ROOF THIMBLE, STORM COLLAR, COUNTER FLASHING, ETC.) AS REQUIRED FOR A COMPLETE INSTALLATION.

12. EXHAUST FANS:
   - A. CENTRIFUGAL CEILING EXHAUSTERS SHALL BE ELECTRICALLY POWERED CENTRIFUGAL TYPE FAN SUITABLE FOR MOUNTING IN THE CEILING WITH A PERFORATED OFF-WHITE METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EASY ACCESS TO FAN HOUSING. UNIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACOUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED WITH THERMAL OVERLOAD PROTECTION. PROVIDE DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.

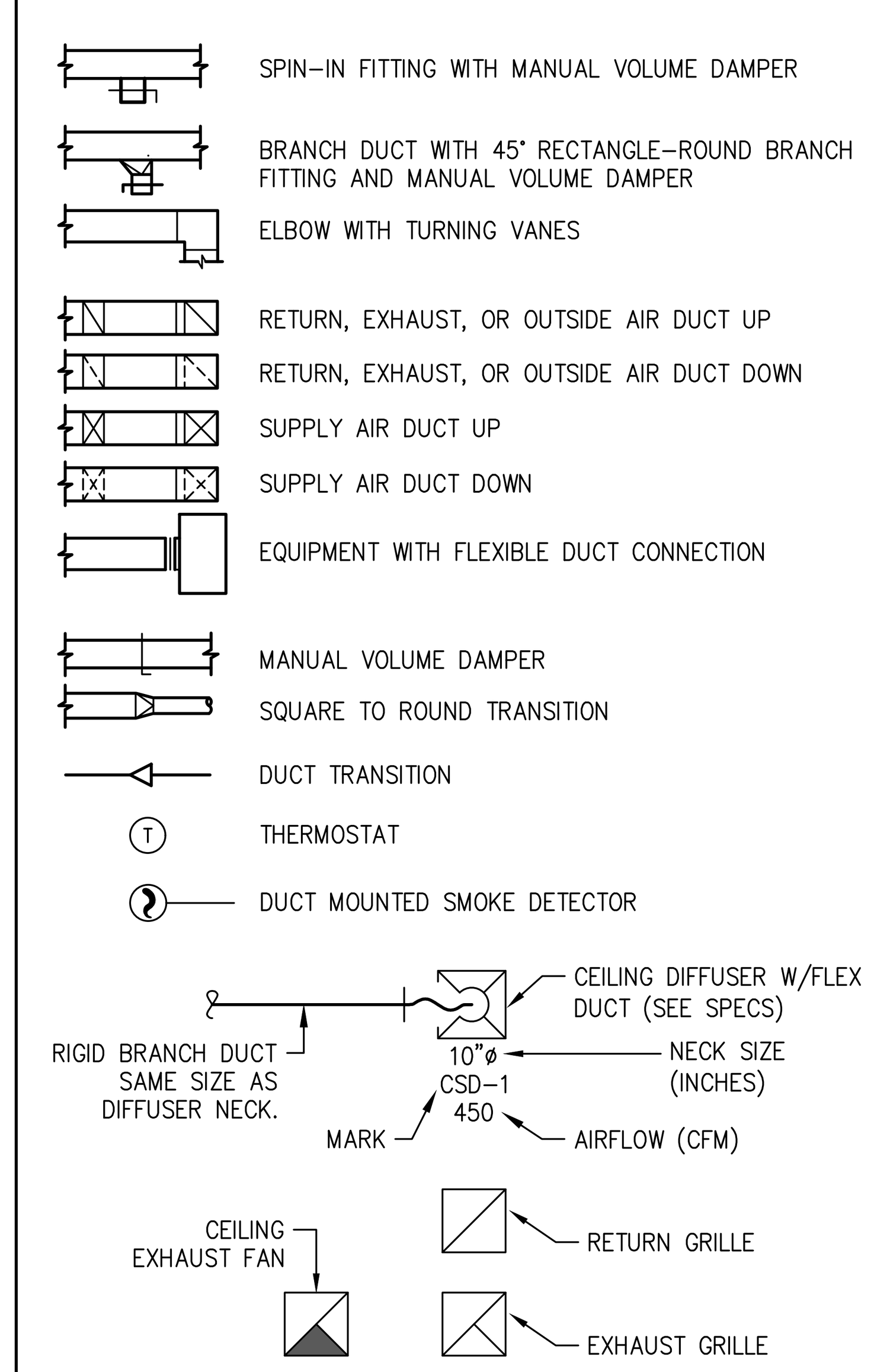
13. FURNACE AND CONDENSING UNIT:
   - A. CONDENSING FURNACES:
     1. GAS FIRED FURNACE SHALL BE FACTORY ASSEMBLED, PRE-WIRED UNIT CONSISTING OF SHEETMETAL CASING, SUPPLY FAN, GAS FIRED HEAT EXCHANGER, AND CONTROLS. CAPACITY SHALL BE AS SCHEDULED.
     2. THE PRIMARY HEAT EXCHANGER SHALL BE ALUMINIZED STEEL CONSTRUCTION WITH A STAINLESS STEEL SECONDARY HEAT EXCHANGER.
     3. THE FURNACE SHALL BE OF THE CONDENSING TYPE, UTILIZING A SEALED COMBUSTION CHAMBER. UNIT SHALL INCLUDE FINNED CAST IRON HEAT EXCHANGER, ALUMINIZED STEEL EXHAUST DECOUPLER SECTION AND FINNED STAINLESS STEEL TUBE CONDENSER SECTION.
     4. THE UNIT SHALL BE EQUIPPED WITH THE MANUFACTURER'S STANDARD CONTROLS INCLUDING 24V CONTROL TRANSFORMER, AUTOMATIC SPARK IGNITION, AUTOMATIC GAS VALVE TRAIN, HIGH TEMPERATURE LIMIT SWITCH, AND FAN TIMED DELAY RELAY.
     5. RETURN AIR INLET ON UNIT SHALL BE PROVIDED WITH 1" THROWAWAY TYPE FILTER AND SLIDE IN FRAME, MOUNTED ON THE UNIT.
     6. FAN SHALL BE A DIRECT DRIVE MULTI-SPEED BLOWER, RESILIENTLY MOUNTED IN THE CASING. MOTOR SHALL BE PROVIDED WITH AUTOMATIC THERMAL OVERLOAD PROTECTION.
     7. FURNACE SHALL BE AGA APPROVED.
   - B. CONDENSING UNIT SHALL BE FACTORY ASSEMBLED AND TESTED AIR-COOLED CONDENSING UNIT CONSISTING OF COMPRESSOR, CONDENSER COIL, FAN, MOTOR, REFRIGERANT RESERVOIR, OPERATING CONTROLS, ETC. CAPACITY AND ELECTRICAL CHARACTERISTICS SHALL BE AS SCHEDULED.
     1. COMPRESSOR: HERMETICALLY SEALED WITH BUILT-IN OVERLOADS AND VIBRATION ISOLATION. COMPRESSOR MOTOR SHALL HAVE THERMAL AND CURRENT SENSITIVE OVERLOAD DEVICES, INTERNAL HIGH PRESSURE PROTECTION, HIGH AND LOW PRESSURE CUTOUT SWITCHES, START CAPACITOR AND RELAY, 2-POLE CONTACTOR, CRANKCASE HEATER, AND TEMPERATURE ACTUATED SWITCH AND TIMER TO PREVENT COMPRESSOR RAPID CYCLE.
     2. COIL SHALL BE COPPER TUBING WITH ALUMINUM FINS: COMPLETE WITH LIQUID ACCUMULATOR AND LIQUID SUBCOOLER. UNIT SHALL INCLUDE FILTER DRYER, SIGHT GLASS, COMPRESSOR SERVICE VALVE, LIQUID LINE SERVICE VALVE, AND REFRIGERANT PIPING EXTENDED TO EXTERIOR OF CASING.

14. ELECTRIC WALL HEATERS
   - A. UNIT SHALL INCLUDE ELECTRIC HEATING ELEMENTS WITH SAFETY AND DISCONNECT DEVICES AS REQUIRED BY NEC, INCLUDING RELAYS, CONTROLLERS AND REQUIRED EQUIPMENT TO FORM A COMPLETE AND FUNCTIONAL HEATER.
   - B. ELEMENTS SHALL BE HEAVY DUTY ALUMINUM-FINNED, COPPER CLAD STEEL SHEATH. PROVIDE AUTOMATIC RESET THERMAL OVER-HEAT PROTECTION. THERMAL PROTECTOR SHALL BE LINEAR TYPE TO SENSE TEMPERATURES THE ENTIRE LENGTH OF HEATING ELEMENT.
   - C. FANS SHALL BE DIRECT DRIVE USING PERMANENT SPLIT CAPACITOR TYPE MOTORS WITH BUILT-IN AUTOMATIC RESET MOTOR OVERLOAD PROTECTION.

M&P SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ETC, ARE NECESSARILY USED ON THE DRAWINGS.

HVAC EQUIPMENT & DUCTWORK



HVAC EQUIPMENT & DUCTWORK

SYMBOL	DESCRIPTION
—SS—	SANITARY SEWER (ABOVE GRADE)
— —SS— —	SANITARY SEWER (BELOW GRADE)
—CD—	CONDENSATE DRAIN
- - -V- - -	VENT PIPING
—G—	G = GAS PIPING LESS THAN 2 PSI
—MPG—	MPG = GAS PIPING 2 PSI
—CW— - —	COLD WATER PIPING
—HW— - - —	HOT WATER PIPING
	PIPE ELBOW DOWN
	PIPE ELBOW UP
	GATE VALVE
	BACKFLOW PREVENTER
	BALL VALVE
	PLUG VALVE
	FLOOR CLEANOUT (FCO)
	WALL CLEANOUT (WCO)
	FLOOR DRAIN
	HOSE BIB

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MC	MECHANICAL CONTRACTOR
BAS	BUIDLING AUTOMATION SYSTEM	MIN	MINIMUM
BD	BACKDRAFT	NC	NOISE CRITERIA
CFM	CUBIC FEET PER MINUTE	OA	OUTSIDE AIR
DDC	DIRECT DIGITAL CONTROL	RA	RETURN AIR
DX	DIRECT EXPANSION	SA	SUPPLY AIR
EA	EXHAUST AIR	SD	SMOKE DUCT DETECTOR
(E)	EXISTING	TFA	TO FLOOR ABOVE
FFB	FROM FLOOR BELOW	TFB	TO FLOOR BELOW
GPM	GALLONS PER MINUTE	TYP	TYPICAL
IN WC	INCHES OF WATER COLUMN	U.G.	UNDER GROUND
MAX	MAXIMUM	WCO	WALL CLEANOUT
MBH	1000 BTU PER HOUR	W/O	WITHOUT

ANNOTATION

SYMBOL	DESCRIPTION
#	PLAN WORK NOTE
RTU 1	MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
–	PLUMBING FIXTURE DESIGNATION
	CONNECTION POINT OF NEW WORK TO EXISTING
A / M1	DETAIL REFERENCE UPPER NUMBER INDICATED DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER

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Revisions to technical submissions which are not made or approved by the licensee are prohibited.

Seal:
STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003568
PROFESSIONAL ENGINEER
09-30-22

Project Number: 22-215
Project Type: NEW CONSTRUCTION
Project Name and Address:
I-470 B&T CENTER, LOT 7
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Plan Review	09.30.22

Sheet Title:
MECHANICAL AND PLUMBING SPECIFICATIONS AND SYMBOLS
MP-001

PLUMBING FIXTURE SCHEDULE

FD	FLOOR DRAIN: SOUIX CHIEF 842-4PNR, ROUND FLOOR DRAIN, PVC BODY AND CLAMPING COLLAR, ADJUSTABLE 6-1/2" ROUND NICKEL BRONZE STRAINER. PROVIDE WITH PROSET SYSTEMS "TRAP GUARD" INSERT FOR ACTUAL FLOOR DRAIN MODEL AND SIZE PROVIDED.
LAV	WALL-MOUNT LAVATORY: KOHLER K-1997-1-0, SINGLE-HOLE, 14.375"X12.3125" ELLIPTICAL BOWL, MOUNT AT ADA HEIGHT, VITREOUS CHINA, WITH SINGLE LEVER LAVATORY FAUCET (KOHLER K-10215-4). PROVIDE FLEXIBLE SS RISERS WITH CHROME PLATED STOP VALVES, P-TRAP WITH CLEANOUT AND ESCUTCHEONS. INSULATE WITH "HANDI-LAV-GUARD" MODEL 102, OR EQUAL.
MS	MOP SINK: PRO FLOW PFMB2424. 24"x24"x10" MOP BASIN WITH DRAIN. PROVIDE WALL MOUNT SINK, PRO FLOW MODEL PF118, WITH TWO HANDLES, VACUUM BREAKER AND 3/4" HOSE THREAD.
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER: WATTS LF009, 1", MEETING ASSE 1013, LEAD FREE CAST BRONZE BODY, QUARTER TURN TESTING COCKS, QUARTER TURN BALL VALVES, AND AIR GAP FITTING.
WC	FLOOR-MOUNTED ADA WATER CLOSET: KOHLER K-3519-TR, HANDICAP ACCESSIBLE, VIREOUS CHINA, 1.28 GPF, ELONGATED BOWL, FLOOR MOUNTED W/ 17.125" SEAT HEIGHT, WHITE, VITREOUS CHINA TANK AND COVER CONTAINING FLUSHOMETER/TANK WITH BUILT-IN PRESSURE REGULATOR AND BACKFLOW PREVENTER, WHITE OPEN-FRONT SEAT, CHROME STOPS, C.P. FLEXIBLE RISER TUBE, BOLT CAPS, AND ESCUTCHEON.
WH	6 GAL WATER HEATER: AO SMITH E6-6C15SV, 7 GPH RECOVERY AT 90 DEG F RISE, SINGLE ELEMENT, 120V, 1500W

GAS FURNACE SCHEDULE

GENERAL DATA						HEATING				FAN DATA				ELECTRICAL					
TAG	BASIS OF DESIGN MFR/MODEL	FLOW DIRECTION	WEIGHT (LBS)	DIMENSIONS (WxDxH)	OUTSIDE AIR (CFM)	INPUT (BTUH)	OUTPUT (BTUH)	AFUE	VENT	TYPE	HP	CFM	ESP (IN WG)	VOLT	PHASE	HZ	MOCP	MCA	NOTES
F-1	LENNOX / EL296UH070XV36B	HORIZONTAL	136	29.25x33x17.5	0	66,000	62,000	96	CONCENTRIC	VARIABLE	1/2	840	0.5	120	1	60	15	7.7	A,B,C,D,E

NOTES:
A. EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING FILTER AND COIL.
B. PROVIDE UNIT WITH 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER MULTISTAGE THERMOSTAT W/HUMIDITY SENSOR.
C. PROVIDE MANUFACTURER'S CONCENTRIC VENT KIT. SIZE AND INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS WHILE ADHERING TO LENGTH AND FITTING LIMITATIONS.
D. PROVIDE END RETURN FILTER KIT.
E. ADJUST FACTORY DEFAULT SETTINGS TO LIMIT BLOWER SPEED TO 840 CFM.

EXHAUST FAN SCHEDULE

									ELECTRICAL				
MARK	AREA SERVED	MANUFACTURER	MODEL	MOUNTING / TYPE	CFM	ESP (IN)	DRIVE	POWER	VOLTS	PHASE	FLA	WEIGHT	NOTES
EF-1	RESTROOM	PANASONIC	FV-0511VK2	CEILING / CABINET	110	0.375	DIRECT	9.9 W	120	1	0.1	12	A, B

NOTES:
A. PROVIDE INTERNAL CABINET BACKDRAFT DAMPER, CEILING GRILLE, ALL THREAD RODS AND VIBRATION ISOLATORS.
B. INTERLOCK WITH RESTROOM LIGHTSWITCH.

CONDENSING UNIT SCHEDULE

GENERAL DATA						ELECTRICAL					COOLING COIL & MISC.		
TAG	BASIS OF DESIGN MFR/MODEL	LOCATION	WEIGHT (LBS)	DIMENSIONS (WxDxH) (IN.)	NOMINAL CAP. (MBH)	VOLT	PHASE	HZ	MOCP	MCA	REFR.	EVAP COIL MODEL #	NOTES
CU-1	LENNOX / XC20-024-230	GROUND	243	35.5x39.5x39	24	208	1	60	30	19.1	R410A	CH35-30B-2F	A,B,C

NOTES:
A. PROVIDE TIME DELAY ON COMPRESSOR RE-START KIT, CRANKCASE HEATER, AND COMPRESSOR LOCK-OUT WITH AMBIENT BELOW 35F.
B. MECHANICAL CONTRACTOR SHALL COORDINATE ALL UNIT MOCP'S OF ACTUAL INSTALLED EQUIPMENT WITH ELECTRICAL CONTRACTOR.
C. PROVIDE MIN. 4" TALL PRE-MANUFACTURED POLYOLEFIN PAD.

GAS UNIT HEATER SCHEDULE

									ELECTRICAL			
MARK	LOCATION	MFR.	MODEL	INPUT (MBH)	OUTPUT (MBH)	EFF (%)	CFM	WEIGHT (LBS)	VOLTS	PH	FLA	NOTES
UH-1	WAREHOUSE	LENNOX	LF25-125A	125	103.75	83.5	1950	167.00	115	1	5	A-E

NOTES:
A. PROVIDE WALL MOUNTED THERMOSTAT.
B. PROVIDE 4" TYPE 'B' VENT.
C. DISCONNECT BY ELECTRICAL.
E. PROVIDE NECESSARY MOUTING BRACKET AND ACCESSORIES FOR VERTICAL MOUNTING.

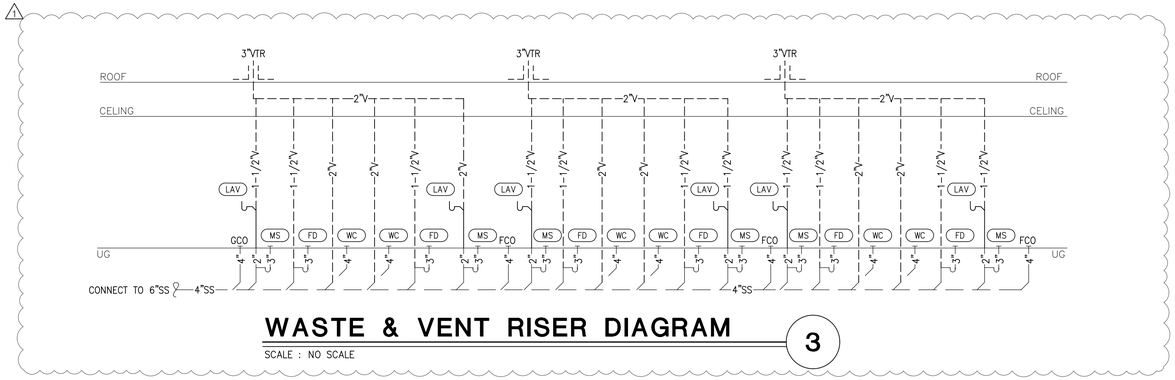
DIFFUSER, REGISTER AND GRILLE SCHEDULE

MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING TYPE	FACE SIZE (IN.)	MAX NC	NOTES
SUPPLY							
CSD-1	TITUS	OMNI	PLAQUE FACE	LAY-IN	24x24	25	A,B,C
CSD-2	TITUS	TDC	LOUVERED	SURFACE	12.5x12.5	25	A,B,C
RETURN							
CRG-1	TITUS	50F	EGGCRATE	LAY-IN	24x24	25	A,B,C,D

NOTES:
A. NECK SIZE SHOWN ON DRAWINGS.
B. BAKED ENAMEL FINISH, WHITE
C. FRAME TYPE TO MATCH CEILING CONSTRUCTION, COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.
D. PAINT THE INSIDE OF CANS FLAT BLACK.

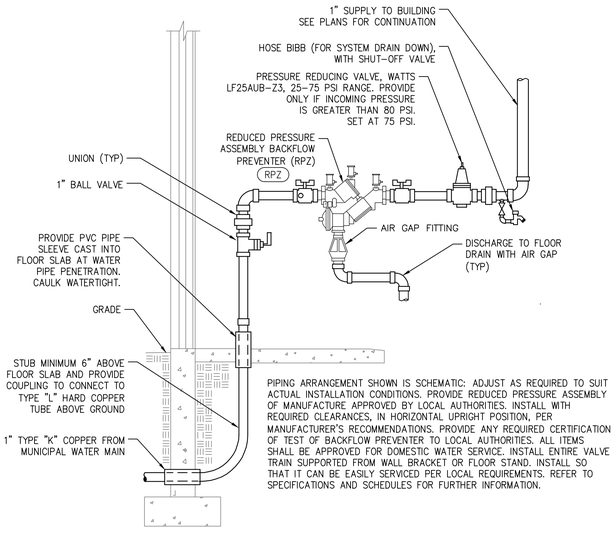
FIXTURE BRANCH CONNECTION SCHEDULE

FIXTURE	COLD WATER	HOT WATER	WASTE	VENT
FLOOR DRAIN	-	-	3"	1 1/2"
LAVATORY / SINK	1/2"	1/2"	1 1/2"	1 1/2"
MOP SINK	3/4"	3/4"	3"	2"
WATER CLOSET (FLUSH TANK)	1/2"	-	4"	2"
NOTE:	PIPE SIZES SHOWN ARE MINIMUM. 2" MIN. UNDERGROUND.			



WASTE & VENT RISER DIAGRAM 3

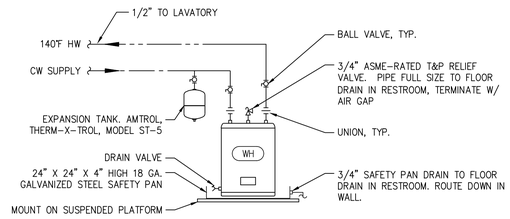
SCALE : NO SCALE



PIPING ARRANGEMENT SHOWN IS SCHEMATIC: ADJUST AS REQUIRED TO SUIT ACTUAL INSTALLATION CONDITIONS. PROVIDE REDUCED PRESSURE ASSEMBLY OF MANUFACTURE APPROVED BY LOCAL AUTHORITIES. INSTALL WITH REQUIRED CLEARANCES, IN HORIZONTAL UPRIGHT POSITION, PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE ANY REQUIRED CERTIFICATION OF TEST OF BACKFLOW PREVENTER TO LOCAL AUTHORITIES. ALL ITEMS SHALL BE APPROVED FOR DOMESTIC WATER SERVICE. INSTALL ENTIRE VALVE TRAIN SUPPORTED FROM WALL BRACKET OR FLOOR STAND. INSTALL SO THAT IT CAN BE EASILY SERVICED PER LOCAL REQUIREMENTS. REFER TO SPECIFICATIONS AND SCHEDULES FOR FURTHER INFORMATION.

DOMESTIC WATER SERVICE ENTRY 2

SCALE : NO SCALE



ELECTRIC WATER HEATER 1

SCALE : NO SCALE

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STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003568
PROFESSIONAL ENGINEER
11-17-22

Project Number: 22-215
Project Type: NEW CONSTRUCTION
Project Name and Address:
I-470 B&T CENTER, LOT 7
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

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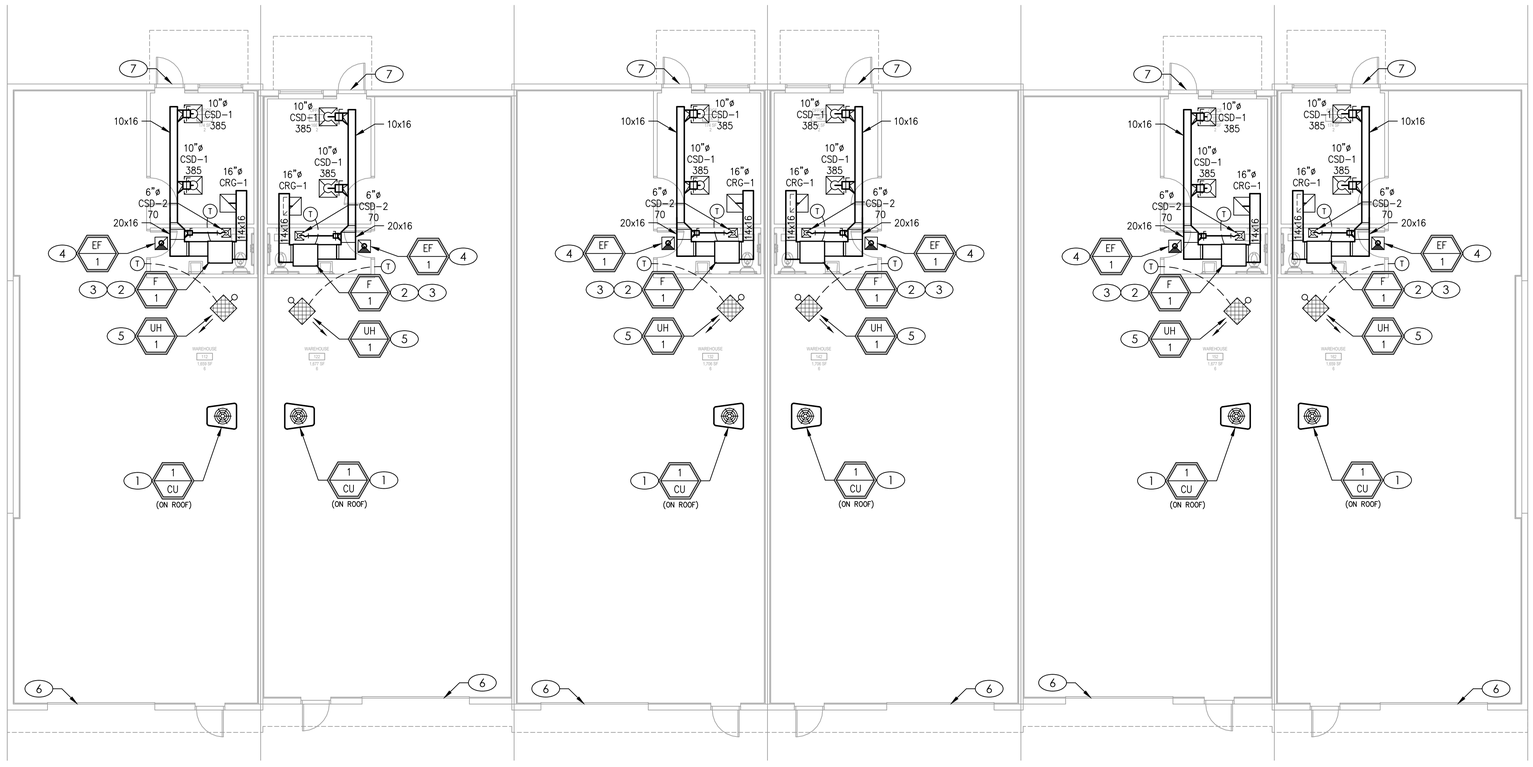
Plan Review	09.30.22
Plan Review Revisions 1	11.17.22

Sheet Title:
MECHANICAL AND PLUMBING SCHEDULES AND DETAILS
MP-002



MECHANICAL PLAN

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

1

NORTH

GENERAL NOTES

A. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.

B. COORDINATE INSTALLATION OF MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION AND AVOID CONFLICTS. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. VERIFY DUCT SPACE AVAILABLE ABOVE ALL CEILINGS PRIOR TO ANY FABRICATION OF INSTALLATION.

C. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AROUND EQUIPMENT.

D. INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.

E. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE ROOF.

F. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.

(#) KEYED PLAN NOTES

1. CONDENSING UNIT ON ROOF ON PREMANUFACTURED PAD. INSTALL PER MANUFACTURER'S INSTRUCTIONS MAINTAINING RECOMMENDED SERVICE CLEARANCES. WEATHER SEAL REFRIGERANT LINE PENETRATIONS OF BUILDING. PROVIDE ALL RECOMMENDED VALVES, FILTERS, FITTINGS, ETC. AND MAKE ALL NECESSARY CONNECTIONS TO COOLING COIL.

2. MOUNT HORIZONTAL FURNACE AND COIL ABOVE RESTROOM CEILING. TRANSITION DUCTWORK TO UNIT AS REQUIRED. AT RETURN PROVIDE MANUFACTURER'S END RETURN FILTER KIT AND FILTER. ROUTE CONDENSATE DRAINS FROM FURNACE AND COIL TO FLOOR DRAIN BELOW.

3. PROVIDE CONCENTRIC VENT FOR FURNACE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS. ADHERE TO SIZE AND LENGTH LIMITATIONS. LOCATE VENT A MINIMUM OF 5'-0" FROM OUTSIDE AIR INTAKE. ROUTE TO ROOF OR WALL. COORDINATE LOCATION WITH GC PRIOR TO INSTALLATION.

4. CEILING MOUNT EXHAUST FAN. ROUTE 6"ø EXHAUST DUCT UP THROUGH ROOF TO ROOF CAP. LOCATE A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE. SEAL ROOF PENETRATION WEATHER TIGHT.

5. HANG UNIT HEATER 14' AFF FROM OVERHEAD STRUCTURAL STEEL. PROVIDE TYPE 'B' VENT THROUGH ROOF. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

6. VENTILATION AIR FOR WAREHOUSE IS BY OPERABLE WAREHOUSE DOOR. 12'X14' DOOR PROVIDES 168 SQFT OF OPEN AREA. BY THE 4% RULE PER IMC SECTION 402, MIN REQUIRED VENTILATION AREA IS 0.04*1610 SQFT =64.4 SQFT.

7. VENTILATION AIR FOR OFFICE IS BY OPERABLE DOOR. 3'X7' DOOR PROVIDES 21 SQFT OF OPEN AREA. BY THE 4% RULE PER IMC SECTION 402, MIN REQUIRED VENTILATION AREA IS 0.04*171 SQFT=6.8 SQFT.

RELEASED FOR CONSTRUCTION
As Noted on Plans Review
Development Services Department
Lee's Summit, Missouri
01/24/2023

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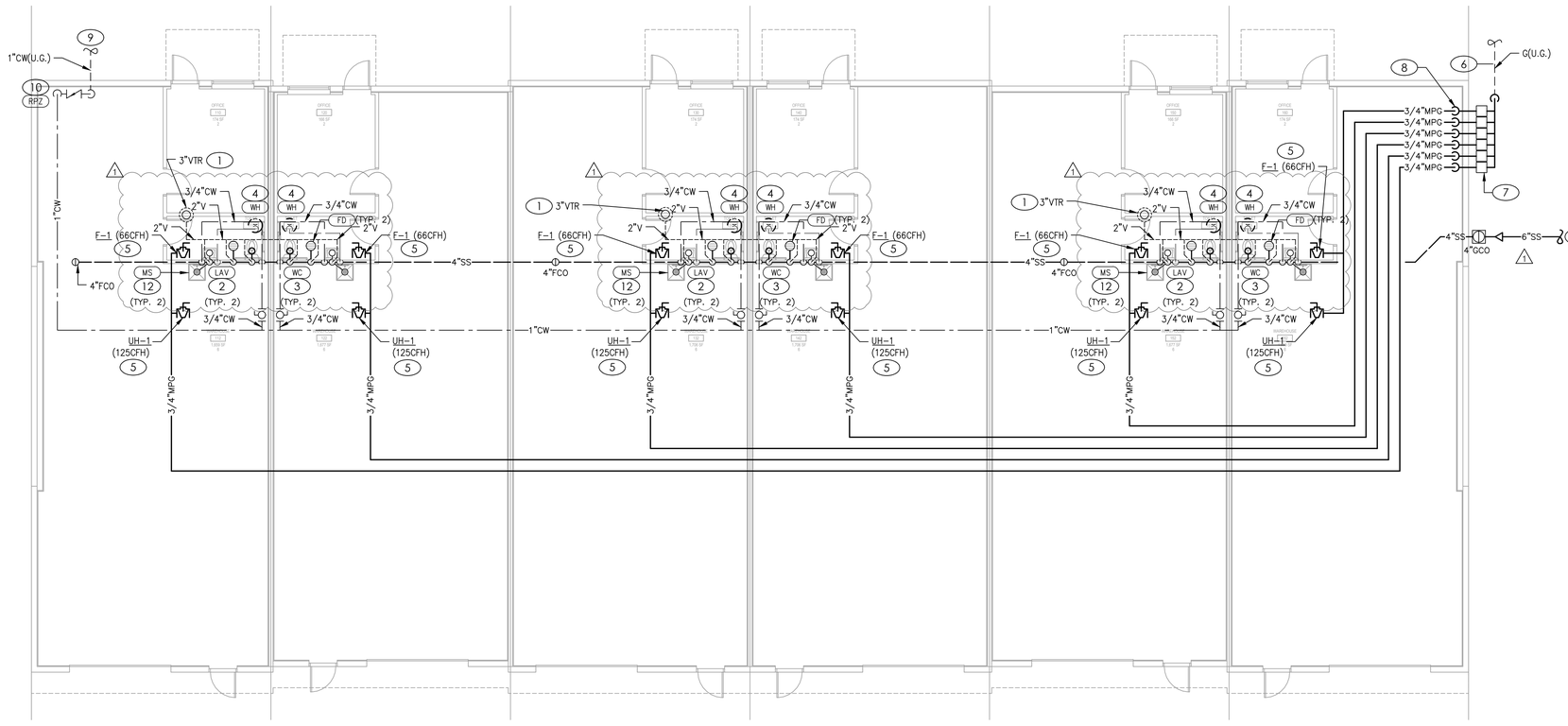
Plan Review	09.30.22

Sheet Title:
MECHANICAL PLAN

M-101



PLUMBING PLAN

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

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B. PROVIDE THE ARCHITECT AND OWNER WITH A COPY OF THE INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS.

C. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.

D. EXACT LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES SHALL BE VERIFIED PRIOR TO ANY INSTALLATION OR CONNECTIONS THEREOF.

E. COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT INSTALL PIPING OVER ELECTRICAL PANELS.

F. COORDINATE THE ROOF PENETRATIONS WITH OTHER TRADES. MAINTAIN 10' MINIMUM CLEARANCE FROM ALL AIR INTAKES. MAINTAIN 3' FROM ALL OTHER EQUIPMENT.

G. PROVIDE SHIELDED ADAPTOR COUPLINGS FOR CONNECTIONS OF PVC DWV TO CAST IRON SANITARY, WASTE AND VENT PIPE.

H. REFER TO PLUMBING FIXTURE SCHEDULE FOR MINIMUM BRANCH WASTE AND VENT PIPE SIZING.

(#) KEYED PLAN NOTES

1. NEW VENT THROUGH ROOF (VTR). LOCATE VTR A MINIMUM OF 3'-0" FROM EDGE OF ROOF AND MINIMUM 10'-0" FROM ANY OUTSIDE AIR INTAKE. SEAL PENETRATION WEATHER TIGHT. COORDINATE WITH MECHANICAL CONTRACTOR.
2. PROVIDE 1-1/2"V, 2"SS, 1/2"CW AND 1/2"HW IN WALL TO LAV. PROVIDE THERMOSTATIC MIXING VALVE FOR FIXTURE EQUAL TO LEONARD MODEL 170. SET HW SUPPLY WATER TEMPERATURE TO 110°F.
3. PROVIDE 2"V, 4"SS, AND 1/2"CW IN WALL TO WATER CLOSET.
4. INSTALL WATER HEATER ABOVE CEILING. ROUTE 3/4"CW TO WATER HEATER THEN 1/2"HW FROM WH TO LAVATORY. ROUTE 3/4" T&P RELIEF FROM WATER HEATER TO FLOOR DRAIN WITH AIR GAP. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.
5. PROVIDE SHUT-OFF VALVE AND DIRT LEG PRIOR TO EQUIPMENT CONNECTION. COORDINATE EXACT EQUIPMENT LOCATION WITH MECHANICAL CONTRACTOR.
6. GAS PIPING TO UTILITY MAIN. TOTAL ESTIMATED GAS LOAD FOR BUILDING IS 1,146 CFH. REFER TO CIVIL PLANS FOR CONTINUATION. CONTRACTOR TO COORDINATE WITH GAS UTILITY FOR INSTALLATION.
7. COORDINATE WITH GAS COMPANY FOR INSTALLATION OF METER BANK WITH 6 TENANT METERS. DEMAND FOR EACH METER IS 191 CFH @ 2 PSIG.
8. ROUTE GAS PIPING THROUGH EXTERIOR WALL THEN UP ON INTERIOR OF WALL. ROUTE TIGHT TO WALL. CONTINUE ROUTING AS SHOWN AT BOTTOM OF JOIST ELEVATION. SEAL WALL PENETRATION WEATHERTIGHT.
9. 1" DOMESTIC COLD WATER TO UTILITY SERVICE. CONTRACTOR SHALL WORK WITH THE WATER COMPANY FOR THE INSTALLATION OF A NEW WATER MAIN ENTRANCE, INCLUDING TAP, METER, METER PIT, PIPING, ETC. FOR A COMPLETE INSTALLATION. SEE CIVIL PLANS FOR CONTINUATION. MAINTAIN MINIMUM 48" BURY FOR FREEZE PROTECTION.
10. 1" SHUT-OFF VALVE AND 1" RPZ BACKFLOW PREVENTER APPROVED FOR DOMESTIC WATER SERVICE. PROVIDE PRESSURE REDUCING VALVE IF SERVICE PRESSURE AT DOMESTIC WATER ENTRY EXCEEDS 75 P.S.I. DOWNSTREAM OF REDUCED PRESSURE BACKFLOW PREVENTER. SEE INSTALLATION DETAIL.

△1

11. 6" SANITARY TO UTILITY SERVICE. REFER TO CIVIL PLANS FOR CONTINUATION. PROVIDE 4"GCO AT EXTERIOR OF BUILDING.
12. PROVIDE 3/4"CW, 3/4"HW, 2"V AND 3"SS IN WALL TO MOP SINK.

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PROFESSIONAL ENGINEER
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Project Name and Address:

I-470 B&T CENTER, LOT 7
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PLUMBING PLAN

P-101

ELECTRICAL SPECIFICATIONS

PART I – GENERAL

A. CONDITIONS
1. FURNISH AND INSTALL A COMPLETELY WIRED AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO, THESE MAJOR ITEMS.
   A. LIGHTING FIXTURES AS INDICATED AND SPECIFIED ON THE PLANS.
   B. ELECTRICAL PANELS, SERVICE, CONDUIT, WIRING, ETC., FOR ALL OUTLETS AND EQUIPMENT.
   C. TELEPHONE, TELEVISION, AND FIRE ALARM. OUTLETS AND CONDUIT AS INDICATED.
2. OBTAIN AND REVIEW ALL OTHER DRAWINGS INCLUDING REFLECTED CEILING PLAN, INTERIOR AND EXTERIOR ELEVATIONS, FURNITURE PLANS AND ALL MILL WORK DRAWINGS. COORDINATE INSTALLATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT PRIOR TO ROUGH-IN.
3. OBTAIN SUBMITTAL AND SHOP DRAWINGS FROM OTHER TRADES AND EQUIPMENT TO COORDINATE INSTALLATION ACCORDINGLY.
4. INSTALLATION SHALL COMPLY WITH ALL CURRENT APPLICABLE CODES AND GOVERNING AGENCIES HAVING JURISDICTION.
5. FIRE ALARM SYSTEM, IF REQUIRED PER IBC, SHALL BE DESIGN-BUILD BY OWNER'S/GC'S FIRE ALARM CONTRACTOR. DESIGN SHALL BE IN ACCORDANCE WITH NFPA 72. FIRE ALARM CONTRACTOR SHALL SUBMIT STAMPED DRAWINGS TO AHJ FOR REVIEW AND APPROVAL. FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR TESTING AND VERIFYING THAT THE AUDIBILITY OF THE FIRE ALARM SYSTEM MEETS A MINIMUM OF 15 DBA ABOVE AMBIENT NOISE LEVELS. ADD HORNS WHERE REQUIRED TO MAINTAIN MINIMUM LEVELS.
6. PROVIDE FIRE STOP ON ALL PIPING THAT PENETRATES RATED WALLS. METHOD OF FIRE STOP SHALL MEET WALL RATING. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF FIRE RATED WALLS. THIS CONTRACTOR SHALL PROVIDE FIRE RATED ENCLOSURES AROUND ALL ROUGH-IN BOXES, PANELS, ETC. THAT ARE LOCATED IN FIRE RATED WALLS AND SHALL FIRE CAULK ALL OPENINGS IN RATED ASSEMBLIES.

B. RELATED WORK BY OTHERS
1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT, TRENCH, AND BACKFILL FOR ELECTRICAL SERVICE ENTRANCE FROM THE MAIN SERVICE TO UTILITY POINT OF ELECTRICAL SERVICE. ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE WITH SERVING UTILITY COMPANY.
2. THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT, TRENCH, AND BACKFILL FOR PRIMARY PHONE AND CATV SERVICE FROM THE TELEPHONE TERMINAL BOARD OR CABINET TO THE PHONE COMPANY AND CATV COMPANY POINT OF SERVICE COORDINATE WITH LOCAL UTILITY COMPANIES.

C. CODES, REGULATIONS, AND STANDARDS
1. THE INSTALLATION SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES AND ORDINANCES, WITH THE REGULATIONS OF THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE AND WITH THE REQUIREMENTS OF THE POWER, TELEPHONE, AND CATV COMPANIES FURNISHING SERVICES TO THIS INSTALLATION.
2. THE LATEST EDITIONS OF THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS, AND CODES ARE MINIMUM REQUIREMENTS:
   A. THE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION STANDARDS.
   B. THE NATIONAL ELECTRICAL CODE, INCLUDING LOCAL AMENDMENTS.
   C. UNDERWRITER LABORATORIES INCORPORATED STANDARDS.
   D. AMERICAN NATIONAL STANDARDS INSTITUTE.
   E. INTERNATIONAL BUILDING CODE.

D. INSPECTION OF SITE
1. PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACQUAINT HIMSELF WITH EXISTING UTILITIES, AND WORKING CONDITIONS TO BE ENCOUNTERED, ETC. ALLOWANCE WILL NOT BE MADE FOR NONCOMPLIANCE WITH THIS CONDITION AFTER BIDDING.
2. ELECTRICAL INSTALLATION SHALL MEET THE EXISTING CONDITIONS.

E. STORAGE AND HANDLING OF MATERIAL
1. DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS. PROTECT AGAINST MOISTURE, TAMPERING, OR DAMAGE FROM IMPROPER HANDLING OR STORAGE. CONTRACTOR SHALL PROTECT AND BE RESPONSIBLE FOR ANY DAMAGE TO WORK OR MATERIALS UNTIL FINAL ACCEPTANCE BY THE OWNER, AND SHALL MAKE GOOD WITHOUT COST TO THE OWNER, ANY DAMAGE OR LOSS THAT MAY OCCUR DURING THIS PERIOD.
2. ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOB SITE IN ORDER TO MINIMIZE THE LENGTH OF TIME BETWEEN DELIVERY AND INSTALLATION.
3. COVER AND PROTECT ANY MATERIAL WHICH MAY BE AFFECTED BY THE WEATHER WHILE IN TRANSIT OR STORED AT THE PROJECT SITE. ANY MATERIAL FOUND DEFECTIVE OR NOT INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS MAY BE REJECTED BY THE ENGINEER.

F. CLEANUP
1. KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS, OR RUBBISH CAUSED BY EMPLOYEES OR WORK UNDER THIS DIVISION OF THE SPECIFICATIONS. AT THE COMPLETION OF THE WORK REMOVE ALL SURPLUS MATERIALS, TOOLS, ETC., AND LEAVE THE PREMISES BROOM-CLEAN.

G. EXCAVATION, CUTTING, AND FITTING
1. PERFORM ALL EXCAVATION AND BACK FILLING REQUIRED FOR WORK PERFORMED UNDER THIS DIVISION OF THE SPECIFICATIONS. USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OFF SITE MATERIALS ARE DEEMED NECESSARY.
2. PERFORM THE EXCAVATION, CUTTING, FITTING, REPAIRING, AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF THE EQUIPMENT OF THIS SECTION. HOWEVER, NO CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL MEMBERS SHALL BE DONE WITHOUT THE CONSENT OF THE ARCHITECT.

H. DRAWINGS
1. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE ELECTRICAL WORK DATA PRESENTED ON THESE DRAWINGS ARE AS ACCURATE AS PLANNING CAN DETERMINE, BUT FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC., TO SUIT FIELD CONDITIONS IS REQUIRED. REVIEW ALL ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF CONDITIONS SHOWN. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, OR REGULATIONS AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. IF DISCREPANCIES ARE NOT REPORTED, THE CONTRACTOR SHALL BID THE GREATER QUANTITY OR BETTER QUALITY, AND APPROPRIATE ADJUSTMENTS WILL BE MADE AFTER CONTRACT AWARD. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, RADIATION, ETC. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS, USE ACTUAL BUILDING DIMENSIONS.

I. COOPERATION WITH OTHER CONTRACTORS
1. COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF THE ELECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED. CONDUIT, LIGHTING FIXTURES, AND OTHER EQUIPMENT LOCATIONS SHALL BE VERIFIED WITH OTHER TRADES TO AVOID CONFLICT WITH THE PIPING, DUCTWORK, STEEL, BEAMS, OR OTHER OBSTRUCTIONS.
2. CAREFULLY VERIFY THE LOCATIONS OF THE OUTLET BOXES AND DETERMINE THAT THEY HAVE NOT BEEN DISTURBED DURING THE INSTALLATION OF MATERIALS OF OTHER TRADES.
3. COORDINATE THE LOCATION OF THE TRENCHES AND CONDUITS FOR ELECTRICAL AND TELEPHONE UTILITY SERVICES WITH THE GENERAL CONTRACTOR.
4. COORDINATE HVAC AND PLUMBING EQUIPMENT CONNECTION REQUIREMENTS WITH HVAC AND PLUMBING CONTRACTORS.

J. RECORD DRAWINGS
1. THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE JOB SITE FOR THE EXCLUSIVE PURPOSE OF MAINTAINING A RECORD OF ALL WORK INSTALLED AND TO SHOW ANY DEVIATIONS FROM THE WORK INDICATED ON THE DRAWINGS.
2. AT THE COMPLETION OF THE PROJECT, ONE SET OF REPRODUCIBLE DRAWINGS, SHOWING ALL RECORD CONDITIONS, SHALL BE DELIVERED TO THE OWNER FOR ACCEPTANCE PRIOR TO FINAL PAYMENT.

PART II – PRODUCTS AND EXECUTION

A. MATERIALS
1. ALL MATERIALS SHALL BE NEW AND OF QUALITY AS SPECIFIED ON THE PLANS OR SPECIFICATIONS AND MUST CARRY THE UNDERWRITER'S LABORATORIES APPROVAL COVERING THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL REQUIREMENTS OF THE CURRENT APPLICABLE CODES AND REGULATIONS.

B. SHOP DRAWINGS AND APPROVALS
1. THE ITEMS SPECIFIED HEREIN AND ON DRAWINGS ARE USED AS A STANDARD OF QUALITY. ANY MATERIALS OF EQUAL QUALITY AND AESTHETIC VALUE WILL BE GIVEN CONSIDERATION AS A SUBSTITUTE FOR THE MATERIALS SPECIFIED. NO APPROVAL WILL BE GIVEN TO A SPECIFIC CATALOG NUMBER, MODEL, OR TYPE OF EQUIPMENT, PRIOR TO BIDDING. AFTER BIDDING, THE DECISION OF THE ARCHITECT AND/OR ENGINEER DETERMINING EQUAL MATERIALS WILL BE FINAL.
2. THE CONTRACTOR SHALL SUBMIT SEVEN (7) IDENTICAL BOUND SETS OF SHOP DRAWINGS ON THE FOLLOWING ITEMS:
   A. LIGHTING FIXTURE CUTS AND PERFORMANCE DATA.
   B. OUTLINE DRAWINGS AND DATA SHEETS OF EACH PANELBOARD, LOAD CENTERS, AND DISTRIBUTION PANELS.
   C. OUTLINE DRAWINGS OF ALL SWITCH GEAR COMPONENTS.
   D. WIRING DEVICES AND COVERPLATES.
   E. ALL CIRCUIT BREAKERS INSTALLED IN PANELBOARDS, LOAD CENTERS, AND DISTRIBUTION PANELS.
3. SUBMIT ITEMS AT ONE TIME IN A NEAT AND ORDERLY MANNER WITHIN 15 DAYS OF AWARD OF CONTRACT. PARTIAL SUBMITTALS WILL NOT BE ACCEPTABLE.

C. SYSTEM GROUNDING
1. GROUNDING SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 250. ALL EXPOSED NONCURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, METALLIC CABLE ARMOR, GROUNDING CONDUCTOR OF NONMETALLIC SHEATHED CABLES, GROUNDING CONDUCTOR IN NONMETALLIC RACEWAYS, AND GROUNDED CONDUCTORS OF THE WIRING SYSTEM SHALL BE GROUNDED.
2. GROUNDING CONDUCTOR (NEUTRAL) OF THE WIRING SYSTEM SHALL BE CONNECTED TO THE SYSTEM GROUNDING CONDUCTOR AT A SINGLE PLACE IN EACH SYSTEM BY REMOVABLE BONDING JUMPERS, SIZED ACCORDING TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE. THE GROUNDED CONDUCTOR (NEUTRAL) TO THE GROUNDING CONDUCTOR CONNECTION SHALL BE LOCATED IN THE ENCLOSURE FOR THE SYSTEM'S OVERCURRENT PROTECTION OR WHERE OTHERWISE INDICATED ON THE PLANS OR SPECIFICATIONS.
3. A GROUND BUS SEPARATE FROM THE NEUTRAL BUS SHALL BE PROVIDED IN ALL DISTRIBUTION PANELS AND PANELBOARDS. PROPER TORQUE ON GROUND BUS SHALL BE VERIFIED, PER MANUFACTURER'S RECOMMENDATIONS, PRIOR TO ENERGIZING EQUIPMENT.
4. GROUND BUSES AND NEUTRAL BUSES IN ALL DISTRIBUTION PANELS, LOAD CENTERS, PANELBOARDS, AND THOSE PROVIDED IN ANY EQUIPMENT SHALL BE ISOLATED EXCEPT WHERE REQUIRED TO BE CONNECTED AS SPECIFIED ABOVE FOR THE SERVICE ENTRANCE
5. WHEN INDICATED ON THE DRAWINGS, EQUIPMENT GROUNDING CONDUCTORS SHALL BE EXTENDED FROM THE GROUND BUS IN THE DISTRIBUTION EQUIPMENT TO THE RECEPTACLE, FIXTURE OR DEVICE LUGS WHERE THEY ARE PROVIDED. WHERE LUGS ARE NOT PROVIDED, EQUIPMENT GROUNDING CONDUCTORS SHALL BE CONNECTED TO EQUIPMENT ENCLOSURES. THE CONNECTIONS SHALL BE ARRANGED SUCH THAT REMOVAL OF THE RECEPTACLE, EQUIPMENT GROUND CONDUCTORS, OR GROUND JUMPERS FROM GROUND BUSING SHALL NOT AFFECT THE GROUND SYSTEM.
6. RACEWAYS MAY NOT BE USED AS A GROUNDING CONDUCTOR FOR POWER AND LIGHTING CIRCUITS. ALL CONDUIT SHALL HAVE SEPARATE CODE SIZED GREEN GROUND WIRE INSTALLED IN THE CONDUIT TO INSURE A CONTINUOUS GROUNDING PATH.
7. IN INACCESSIBLE LOCATIONS, MAKE CONNECTIONS BY EXOTHERMIC WELD PROCESS.
8. IN ACCESSIBLE LOCATIONS, CONNECTIONS SHALL BE MADE WITH BOLTED THROUGH, APPROVED SOLDERLESS BRONZE GROUNDING DEVICES.

D. WIRE
1. CONDUCTOR SIZES SHOWN ON THE DRAWINGS ARE BASED ON COPPER WIRE. UNLESS OTHERWISE SPECIFIED, ALL WIRE SHALL BE TYPE XHHW OR SE FOR FEEDERS OR BRANCH CIRCUITS LARGER THAN 4 AWG, TYPE THHN/THWN INSULATION FOR FEEDERS AND BRANCH CIRCUITS 4 AWG AND SMALLER. ALL BRANCH CIRCUIT WIRING SHALL BE COPPER.
2. ALUMINUM CONDUCTORS MAY BE UTILIZED FOR SERVICE ENTRANCE AND PANEL FEEDERS. CONDUCTORS SHALL BE ALUMINUM ALLOW AA-8000 SERIES.
3. THE WIRES SHALL BE MARKED WITH COLOR TO SIMPLIFY CIRCUIT IDENTIFICATION. UNLESS OTHERWISE REQUIRED BY LOCAL ORDINANCES GROUND WIRES SHALL BE GREEN, NEUTRAL WIRES SHALL BE 120V-WHITE, AND LIVE WIRES 208Y/120V AND 120/240 SHALL BE BLACK (PHASE A), RED (PHASE B), AND BLUE (PHASE C). CIRCUIT SHALL BE LABELED IN EACH J-BOX.
4. ALL CONDUCTORS SHALL BE RATED 600 VOLT.
5. SPLICES IN EXTERIOR PULL BOXES AND MANHOLES SHALL BE WEATHERPROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUAL.
6. PROVIDE SOLID CONDUCTOR FOR 12 AWG AND SMALLER.
7. NO WIRE SHALL BE INSTALLED IN THE CONDUIT SYSTEM UNTIL THE CONDUIT SYSTEM IS COMPLETE. USE MINERALAC NO. 100 OR EQUIVALENT AS A LUBRICANT TO FACILITATE THE INSTALLATION OF THE CONDUCTORS IN THE CONDUIT SYSTEM.
8. MC CABLE WITH COPPER CONDUCTORS AND GROUND WIRE MAY BE USED WHERE PERMITTED.

E. CONDUIT
1. ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC CONDUIT EXCEPT AS PERMITTED IN OTHER SECTIONS. RGS, WITH A 20 MIL PVC COATING WILL BE USED WHEN IN CONTACT WITH EARTH. IMC MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH THE EARTH. EMT MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH EARTH, NOT IN CONCRETE SLABS OR WALLS AND NOT SUBJECT TO DAMAGE. PVC MAY BE USED IN OR BELOW CONCRETE AND DIRECT BURIED IN EARTH. FLEXIBLE STEEL CONDUIT SHALL BE USED FOR INDOOR FINAL CONNECTIONS TO EQUIPMENT IN LENGTHS NOT TO EXCEED 72". LIQUID-TIGHT FLEXIBLE STEEL CONDUIT SHALL BE FOR OUTDOOR FINAL CONNECTIONS TO EQUIPMENT NOT TO EXCEED 48".
2. WHERE CONDUIT ENTERS OUTLET BOXES, FIXTURES OR CABINETS, FIRMLY FASTEN WITH STEEL SET SCREW, COMPRESSION CONNECTORS, OR DOUBLE LOCKNUTS FOR GRC. ALL CONNECTIONS SHALL HAVE BUSHINGS OR INSULATED THROAT CONNECTORS. FIRMLY FASTEN CONDUIT TO THE BUILDING CONSTRUCTION. RUN EXPOSED CONDUIT PARALLEL TO THE BUILDING LINES, SUPPORTED BY APPROPRIATE HANGERS (UNISTRUT, T & B OR APPLETON, OR EQUAL).
3. COVER METALLIC CONDUIT IN CONTACT WITH EARTH WITH POLYETHYLENE TAPED SPIRAL WRAPPED, 1/2 LAPPED TO PROVIDE 20 MIL. THICKNESS. TAPE SHALL BE SCOTCH NO. 50 TAPE. CONDUIT AND DUCTS NOT UNDER BUILDINGS AND FEEDER DUCTS SHALL BE INSTALLED PER N.E.C. 300-5. MAKE JOINTS WITH COMPOUND TO BE WATERTIGHT.
4. SCHEDULE 40 PVC CONDUIT SHALL BE PERMITTED UNDERGROUND WITH PROPER FITTINGS, ALL UL APPROVED AND CEMENTED JOINTS. PENETRATIONS THROUGH FLOOR SLABS AND BENDS GREATER THAN 22° SHALL BE WRAPPED RIGID GALVANIZED STEEL ELBOWS.
5. FITTINGS AND CONDUIT BODIES SHALL BE STEEL. DIECAST FITTINGS ARE NOT ACCEPTABLE.
6. CONDUIT SIZES SHALL BE AS REQUIRED BY CODE AND AS INDICATED OR SPECIFIED.
7. ALL EMPTY CONDUIT SYSTEMS SHALL HAVE A 200 LB. TEST NYLON PULL STRING TO FACILITATE INSTALLATION OF FUTURE WIRE.
8. WIRING, CONDUITS, AND OUTLETS SHALL BE CONCEALED WITH THE BUILDING STRUCTURE, EXCEPT THAT CERTAIN MOTOR AND LIGHTING FEEDER CONDUITS MAY BE RUN EXPOSED IN CERTAIN AREAS AS INDICATED ON THE DRAWINGS.
9. CONDUIT PENETRATION THROUGH ROOF SHALL HAVE ROOF FLASHING WITH CAULK TYPE COUNTER FLASHING SLEEVE. INSTALLATION SHALL BE WATERTIGHT.
10. CONDUITS SHALL BE ROUTED PARALLEL AND PERPENDICULAR TO THE STRUCTURE.

F. OUTLET, PULL, AND JUNCTION BOXES
1. ALL JUNCTION AND OUTLET BOXES CONCEALED IN WALLS SHALL BE STEEL.
2. BOXES INSTALLED IN POURED CEMENT FLOORS SHALL BE FLUSH TYPE CAST IRON OR STEEL WITH WATERTIGHT GASKETED COVERS. WHERE BOXES ARE INSTALLED IN FLOORS WITH TILE OR CARPET FLOOR COVERING, COVERS SHALL BE OF THE RECESSED TYPE TO ACCOMMODATE THE FLOOR COVERING.
3. BOXES INSTALLED FOR THE ALARM, COMPUTER, AND SECURITY SYSTEM SHALL BE PROVIDED WITH APPROPRIATE COVER PLATES.
4. BOXES FOR TELEPHONE, COMPUTER, T.V., FIRE ALARM, SECURITY, AND SIMILAR SYSTEMS SHALL BE MINIMUM 2-1/8" DEEP.

G WIRING DEVICES (COMMERCIAL)
1. WALL SWITCHES SHALL BE SPECIFICATION GRADE AC SILENT TYPE SWITCHES, 20A 120/277 VOLT.
2. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX TYPE. NEMA5-20R, 20 AMPERE, 120VOLT GROUNDED TYPE. SPECIAL APPLICATION RECEPTACLES SHALL BE INDICATED ON PLANS. MOUNT WITH THE GROUND DOWN.
3. DEVICE PLATES SHALL BE EQUAL TO SIERRA SMOOTH-LINE PLASTIC WALL PLATES. COLOR SHALL BE WHITE, UNLESS OTHERWISE NOTED.
4. RECEPTACLES IN OUTDOOR AND WET LOCATIONS SHALL BE INSTALLED WITH A HINGED OUTLET COVER/ENCLOSURE CLEARLY MARKED AND U.L. LISTED SUITABLE FOR WET LOCATIONS WHILE IN USE, EQUAL TO TAYMAC SPECIFICATION GRADE.

H. SERVICE ENTRANCE SECTION
1. THE SERVICE ENTRANCE EQUIPMENT SHALL BE AS INDICATED ON THE DRAWINGS. EQUIPMENT SHALL CARRY THE U.L. LABEL AND SHALL CONFORM TO THE POWER COMPANY REGULATIONS.
2. SERVICE ENTRANCE EQUIPMENT SHALL BE PROVIDED WITH A FULLY RATED COPPER OR ALUMINUM BUS. HORIZONTALLY TAPERED BUSSING SHALL NOT BE ALLOWED.

J. PANEL BOARDS
1. CIRCUIT BREAKER TYPE AS INDICATED ON DRAWINGS. UNLESS INDICATED OTHERWISE, ALL PANELS SHALL HAVE PANEL HAVE PANEL BOARD TYPE CONSTRUCTION WITH BOLT-ON CIRCUIT BREAKERS FOR 3ø PANELS
2. MANUFACTURERS SHALL BE GENERAL ELECTRIC, SQUARE D, SEIMENS, CUTLER-HAMMER WITH VOLTAGE, SIZES, AND RATINGS AS INDICATED ON DRAWINGS.
3. THE CIRCUIT BREAKERS SHALL BE OPERABLE IN ANY POSITION AND BE REMOVABLE FROM THE FRONT OF THE PANEL BOARD WITHOUT DISTURBING THE ADJACENT UNITS. BRANCH BREAKERS SHALL BE OF SUCH DESIGN THAT COMBINATION OF SINGLE-POLE, DOUBLE-POLE, AND THREE-POLE BREAKERS CAN BE ASSEMBLED ON THE SAME PANEL. EACH BRANCH CIRCUIT SHALL BE CLEARLY NUMBERED. BRANCH AND MAN TERMINALS SHALL BE SOLDERLESS TYPE. HANDLE TIES TO FORM MULTI-POLE BREAKERS NOT ACCEPTABLE.

L. LIGHTING FIXTURES
1. PROVIDE ALL LIGHTING FIXTURES, WIRED AND CONNECTED. THE DRAWINGS INDICATE THE FIXTURES FOR EACH LOCATION. PROVIDE LAMPS FOR ALL FIXTURES. THE LAMPS SHALL BE BY THE SAME MANUFACTURER. VERIFY CEILING CONSTRUCTION BEFORE ORDERING RECESSED UNITS. PROVIDE PLASTER FRAMES AND HANGERS AS REQUIRED. CEILING CONSTRUCTION, ARCHITECTURAL ACCESSORIES, VOLTAGE, AND BALLASTS TO MEET THE EXISTING CEILING CONDITION.

M. LIGHTING CONTROL
1. FURNISH AND INSTALL TIME SWITCHES, PHOTOCELLS, CONTRACTORS AND FULL LIGHTING CONTROL SYSTEMS AS REQUIRED FOR LIGHTING CONTROLS INDICATED ON THE DRAWINGS.
2. TIME SWITCHES SHALL BE EQUAL TO PARAGON, GENERAL ELECTRIC, TORK, OR INTERMATIC AND SHALL HAVE SIZE AND NUMBER OF POLES AS REQUIRED.
3. PHOTOCELLS SHALL BE EQUAL TO TORK OR INTERMATIC WITH VOLTAGE AS INDICATED.

N. TELEPHONE AND CABLE TELEVISION SYSTEMS
1. TELEPHONE WALL OUTLETS SHALL CONSIST OF STANDARD BOXES MOUNTED 18" ABOVE THE FLOOR UNLESS OTHERWISE INDICATED. PROVIDE A TERMINAL MOUNTING BOARD FOR THE INCOMING SERVICE CABLE.
2. CABLE TELEVISION OUTLETS SHALL CONSIST OF STANDARD BOXES MOUNTED 18" ABOVE THE FLOOR UNLESS OTHERWISE INDICATED. PROVIDE A TERMINAL MOUNTING BOARD FOR THE INCOMING SERVICE CABLE.

O. GUARANTEE
1. GUARANTEE ALL MATERIAL FURNISHED AND ALL WORKMANSHIP PERFORMED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF WORK. ANY DEFECTS DEVELOPING WITHIN THIS PERIOD, TRACEABLE TO MATERIAL FURNISHED AS A PART OF THIS SECTION OR WORKMANSHIP PERFORMED HEREUNDER, SHALL BE MADE GOOD AT NO EXPENSE TO THE OWNER.

SYMBOLS LEGEND

NOTE: THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ETC, ARE NECESSARILY USED ON THE DRAWINGS.

LIGHTING FIXTURES – SYMBOL/LETTER INDICATES LIGHT FIXTURE AS INDICATED ON FIXTURE SCHEDULE

- LED FIXTURE (SEE LIGHTING FIXTURE SCHEDULE)
- FIXTURE WITH EMERGENCY BATTERY DRIVER UNIT
- TRACK LIGHT
- DOWNLIGHT FIXTURE WITH EMERGENCY BATTERY DRIVER UNIT
- WALL MOUNTED FIXTURE WITH EMERGENCY BATTERY DRIVER UNIT
- PENDANT MOUNTED FIXTURE WITH EMERGENCY BATTERY DRIVER UNIT
- DOWNLIGHT FIXTURE
- WALL MOUNTED FIXTURE
- PENDANT MOUNTED FIXTURE
- WALL WASHER
- SINGLE FACE EXIT SIGN – UNIVERSAL MOUNTED
- SINGLE FACE EXIT SIGN W/ DIRECTIONAL ARROWS – UNIVERSAL MTD
- DOUBLE FACE EXIT SIGN W/ DIRECTIONAL ARROWS – UNIVERSAL MTD
- DUAL HEADED EMERGENCY UNIT
- COMBO DUAL HEADED EMERGENCY AND EXIT SIGN UNIT

LIGHTING CONTROLS

- S – SINGLE POLE SWITCH @ +48" UNLESS NOTED
- Sabc – SWITCH BANK @ +48" UNLESS NOTED. LOWER CASE LETTER INDICATES FIXTURE CONTROLLED.
- S3 – 3-WAY SWITCH @ +48" UNLESS NOTED
- S4 – 4-WAY SWITCH @ +48" UNLESS NOTED
- SD – DIMMER SWITCH – SIZE AS REQUIRED @ +48" UNLESS NOTED
- SM – MANUAL MOTOR STARTER
- SOS – WALL SWITCH WITH OCCUPANCY SENSOR. DIGITAL LOW VOLTAGE WALL SWITCH. SWITCH @ +48" UNLESS NOTED.
- SLV – TWO BUTTON DIGITAL LOW VOLTAGE WALL SWITCH. PROVIDES ON/OFF/0-10V DIMMING. SWITCH @ +48" UNLESS NOTED. PROVIDE EXTRA CONTROL CABLES NEEDED TO FIXTURE CONTROLLED.
- (OS) LIGHTING CONTROLS CEILING MOUNT OCCUPANCY SENSOR
- (PP) LIGHTING CONTROLS POWER PACK
- PC PHOTOCELL
- TC TIMECLOCK

POWER DISTRIBUTION

- SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION BOARD
- 277/480V, 3 PHASE, 4 WIRE PANELBOARD, UNO
- 120/208V, 3 PHASE, 4 WIRE PANELBOARD, UNO
- 120/240V, 1 PHASE, 3 WIRE PANELBOARD, UNO
- T TRANSFORMER

POWER DEVICES

- SPECIAL HEAVY DUTY RECEPTACLE – SIZE AS NOTED. @ +18" UNLESS NOTED
- 1/2 SWITCHED RECEPTACLE @ +18" UNLESS NOTED
- FIRE RATED POKE THRU WITH TYPE INDICATED
- FLUSH FLOOR BOX WITH TYPE INDICATED
- SINGLE RECEPTACLE @ +18" UNLESS NOTED
- DUPLEX RECEPTACLE @ +18" UNLESS NOTED
- DOUBLE DUPLEX RECEPTACLE @ +18" UNLESS NOTED
- DUPLEX RECEPTACLE INSTALLED ABOVE COUNTERTOP
- GFCI – GFCI-RATED DUPLEX RECEPTACLE
- AF – ARC FAULT RATED DUPLEX RECEPTACLE
- TR – TAMPER RESISTANT RATED DUPLEX RECEPTACLE
- WP – DUPLEX RECEPTACLE WITH WEATHERPROOF COVERPLATE @ 18" UNLESS NOTED
- JUNCTION BOX
- DISCONNECT SWITCH – SIZE AND TYPE NOTED
- COMBINATION FUSED STARTER DISCONNECT SWITCH FUSE SIZE AS INDICATED, STARTER SIZE '1'

AUXILIARY SYSTEMS

- EF / 1 – MECHANICAL EQUIP. CONNECTION, SEE SCHED. ON MECH. PLAN
- TELEPHONE OUTLET@ +18" UNLESS NOTED
- DATA OUTLET @ +18" UNLESS NOTED
- COMBINATION TELEPHONE/DATA OUTLET @ +18" UNLESS NOTED
- TV – TELEVISION OUTLET @ +60" UNLESS NOTED
- SMOKE DETECTOR
- HEAT DETECTOR
- DUCT SMOKE DETECTOR
- RT – REMOTE TEST STATION WITH INDICATING LIGHT. MOUNT AT 48" AFF UNO.
- AUXILIARY SYSTEM TERMINAL CABINET

GENERAL

- CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING
- CONDUIT RUN BELOW FLOOR OR GRADE
- P1-3,5,7 – HOMERUN TO PANELBOARD, INFORMATION AT ARROWS ARE CIRCUIT NUMBERS AND PANELBOARD FOR TERMINATION. REFER TO ASSOCIATED NOTE FOR BRANCH CIRCUIT CONDUCTOR SIZES.
- (E) OR ETR: DENOTES EXISTING ITEM/EQUIPMENT TO REMAIN

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phone: (816) 272-5289
email: jsmothers@jscengineers.com

Seal:

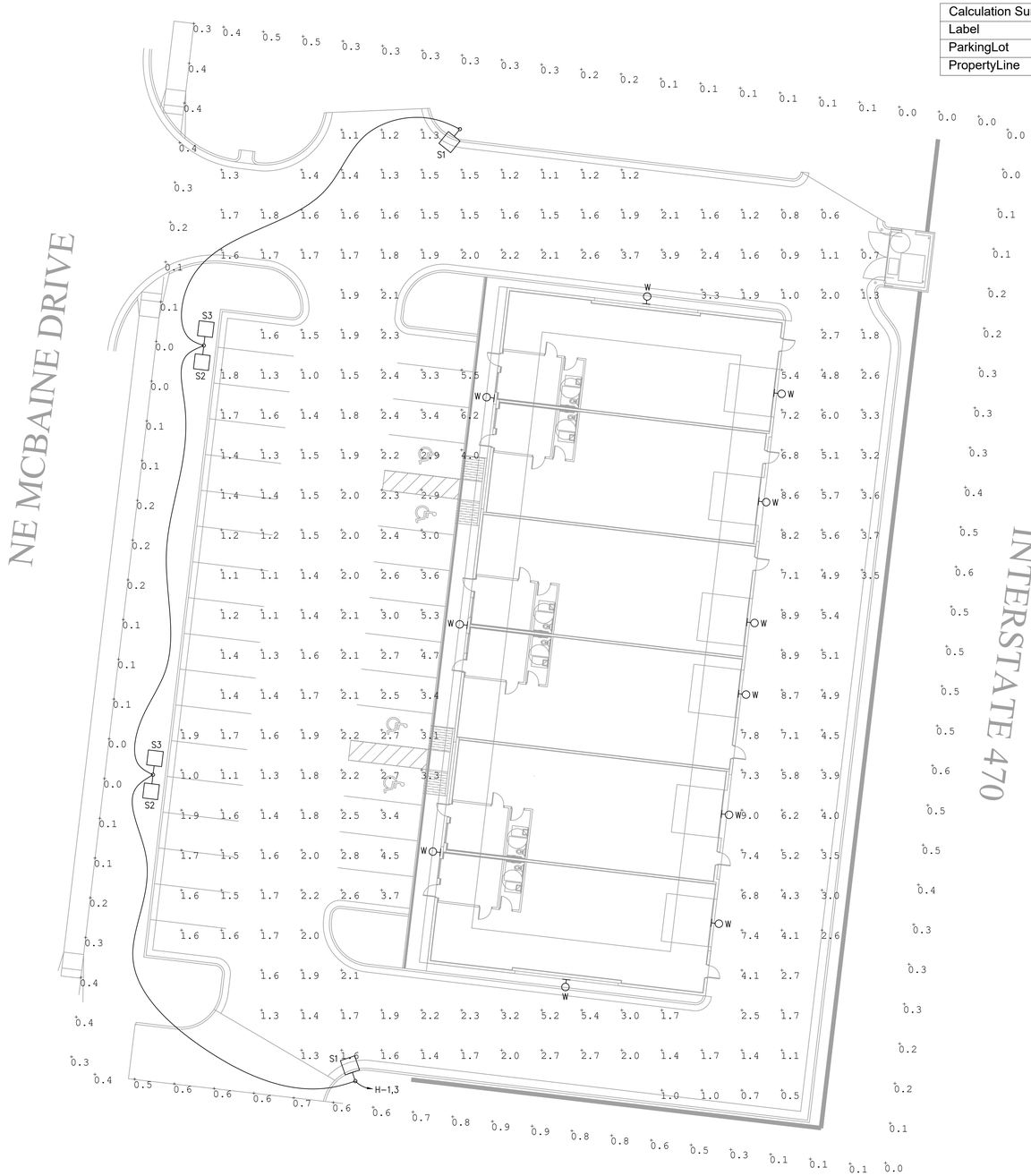
Project Number: 22-215
Project Type: NEW CONSTRUCTION
Project Name and Address:

I-470 B&T CENTER, LOT 7
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Plan Review	09.30.22

Sheet Title:
ELECTRICAL SPECIFICATIONS AND SYMBOLS

E-001



PHOTOMETRIC PLAN

SCALE : 1/16" = 1'–0"

1

NORTH

Luminaire Schedule				
Tag	Description	LLF	Luminaire Lumens	Luminaire Watts
S3	DSX1 LED P2 40K LCCO MVOLT	0.800	5429	70
S2	DSX1 LED P2 40K RCCO MVOLT	0.800	5429	70
S1	DSX1 LED P2 40K T3M MVOLT HS	0.800	7002	70
W	WDGE3 LED P2 70CRI R4 40K	0.800	8779	59.2761

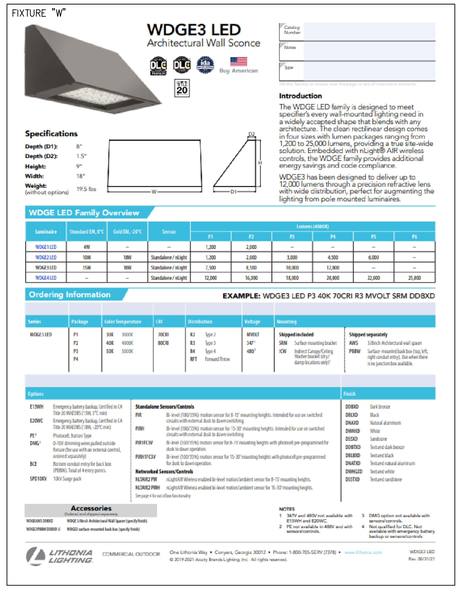
Calculation Summary					
Label	Units	Avg	Max	Min	Max/Min
ParkingLot	Fc	2.66	9.0	0.5	18.00
PropertyLine	Fc	0.31	0.9	0.0	N.A.

GENERAL NOTES

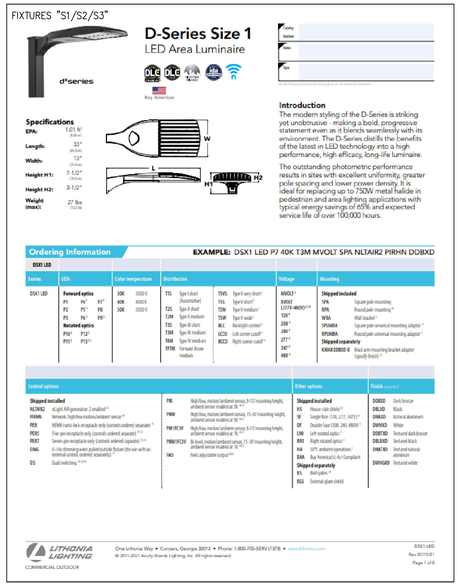
1. ALL WORK SHALL COMPLY WITH THE SECTION 2800 OF THE STREET LIGHTING OF KANSAS CITY METROPOLITAN CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION, CONSTRUCTION & MATERIAL SPECIFICATION, THE SECTION 5800 – STREET LIGHTING OF THE CITY OF LEE'S SUMMIT, MO DESIGN CRITERIA, AND ALL APPLICABLE LEE'S SUMMIT, MO SUPPLEMENTS.
2. ALL ELECTRICAL/CONDUIT STREET CROSSINGS NEED TO BE BACKFILLED WITH AB–3 OR FLOWABLE FILL IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.

SITE LIGHTING FIXTURE SPECIFICATIONS

FIXTURE "W"



FIXTURES "S1/S2/S3"



Architect:
MIDWEST ARCHITECTS
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Plan Review	09.30.22

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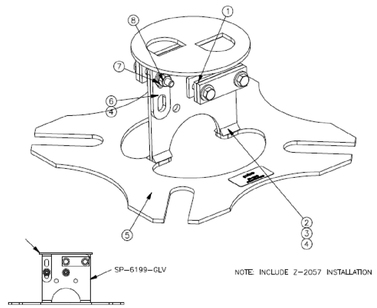
PHOTOMETRIC PLAN

E-002

CABLE RETAINER ASSEMBLY DETAIL

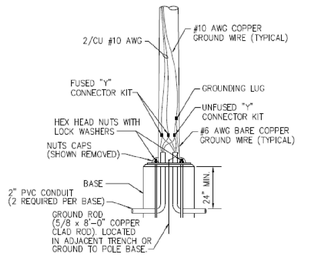


NOTE: INCLUDE Z-2057 INSTALLATION INSTRUCTIONS

CABLE RETAINER ASSEMBLY
FOR 6" FOUNDATION ANCHOR
N.T.S.

ITEM	PART NUMBER	DESCRIPTION	QTY
1	SP-6199	WELDMENT, CABLE RETAINER ASSY, FOR 6" FOUNDATION ANCHOR, STEEL	1
2	FS-1001-SS	NUT, HEX 5/16"-18, STAINLESS, 304, WAXED	4
3	FS-4201-SS	WASHER, LOCK SPLIT, 5/16", STAINLESS	4
4	FS-4101-SS	WASHER, FLAT, 5/16" X .750" OD STAINLESS	8
5	D-3140	LABEL, 1" X 2", CABLE RETAINER	1
6	FS-2016-SS	BOLT, HEX HD TAP, 5/16"-18 X 2-1/4", STAINLESS	4
7	SP-6199-3	BAR, CABLE RETAINER ASSEMBLY, STEEL	2
8	SP-6199-4	PAD, CABLE RETAINER, 3/16" THICK, 90 DURO, RED URETHANE	4

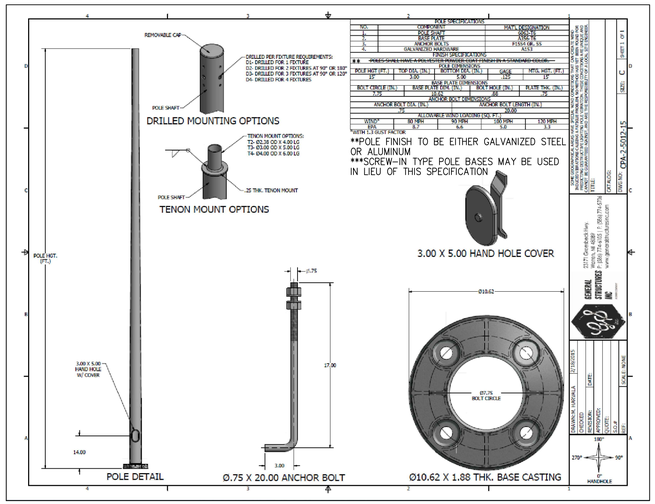
POLE-TO-BASE CONNECTION DETAIL



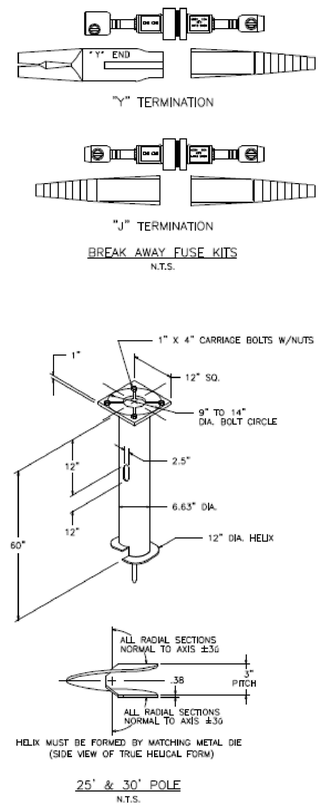
CAUTION!
CONTRACTOR SHALL REFER TO UTILITY NOTE (ON PLAN) WHEN INSTALLING LIGHT PEDESTAL IN VICINITY OF UTILITIES.

POLE TO BASE CONNECTIONS
NOT TO SCALE

FIXTURE POLE SPECIFICATION



BREAK AWAY FUSE DETAILS



BREAK AWAY FUSE KITS
N.T.S.

25' & 30' POLE
N.T.S.

NOTES:
1. FINISH: HOT DIP GALVANIZE PER ASTM-A153 (LATEST REVISION).
2. BASEPLATE TO BE PERPENDICULAR TO SHAFT AXIS (±11%250) AND HOLE CENTERLINE CONCENTRIC (±.188) TO SHAFT AXIS.
3. STENCIL MIN. 1/2 IN. LETTERS MANUFACTURER'S NUMBER AFTER GALVANIZING.
4. PILOT POINT AND SHAFT AXES TO BE CONCENTRIC (±.125 FIM) AND IN LINE (±25%250).
5. FLAME CUT SLOT PERPENDICULAR TO THE BASEPLATE.
6. PREHEAT, TUMBLEBLAST, HANDGRIND, AND CLEAN BASEPLATE, HELIX, AND PILOT POINT ON ALL WELDED AREAS.
7. FLAMECUT IRREGULARITIES PERMISSIBLE: (1) VALLEYS NOT TO EXCEED 3/32 IN. BELOW NOMINAL SURFACE LEVEL (2) PEAKS OR POSITIVE IRREGULARITIES NOT TO EXCEED 1/32 IN. ABOVE NOMINAL SURFACE LEVEL OR INTERSECTIONS OF NOMINAL SURFACES.
8. MANUFACTURER TO HAVE IN EFFECT INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL FOR ALL MATERIALS AND MANUFACTURING PROCESSES.
9. ALL MATERIAL IS TO BE NEW, UNUSED AND MILL TRACEABLE MEETING THE FOLLOWING SPECIFICATIONS:

   BASEPLATE: ASTM A36-(LATEST REVISION) HOT ROLLED STEEL PLATE, (CONFORM TO AASHTO TECH. BUL. #270)

   SHAFT: STEEL PIPE PILES, SEAMLESS OR STRAIGHT WELDED, GRADE-2 PER ASTM A252.

   ALT. MATERIAL: STEEL PIPE TYPE E OR S, GRADE-B PER ASTM A53.

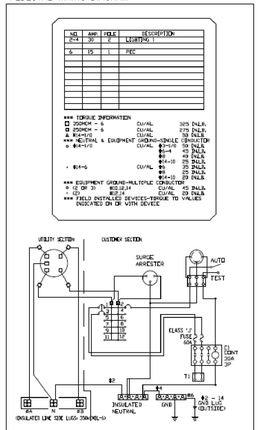
   HELIX: ASTM A635 (LATEST REVISION) HOT ROLLED STEEL.

   PILOT POINT: ASTM A575 (LATEST REVISION) STEEL BAR.

   BOLTS: CARR BOLT PER ANSI B-18.2.1,SAE J429 GRADE-5.3

10. BASEPLATE IS PERMANENTLY STAMPED WITH MANUFACTURER'S IDENTIFICATION "ABC" IN 1/2" LETTERS AND DATE CODE IN 1/4" LETTERS.

PEDESTAL WIRING DIAGRAM



WIRING DIAGRAM
N.T.S.

PACIFIC UTILITY PRODUCTS
2430 WARDRO ST. CORONA, CA. 92880

INDUSTRIAL CONTROL SUITABLE ONLY FOR USE AS SERVICE EQUIPMENT BONDED NEUTRAL REMOTE BONDING MEANS FOR TEST PURPOSES ONLY

CAT. NO. MHPDR-KCMO-33 120/240VAC 1PH 3W 100 AMPS

INSTALL NO MORE THAN 6 (ONE OR TWO POLE) DISCONNECTING MEANS

RAINPROOF TYPE 3R ENCLOSURE

*SHORT CIRCUIT RATING: 10,000 RMS SYM. AMPS @ 240 VAC MAXIMUM.

*CIRCUIT BREAKERS 100-15 AMPS: OUTLER BRAND® BR, BG, QF(3)

REPLACEMENT BREAKER MUST BE SAME TYPE AND RATING

*ALTERED TRIP IS INDICATED BY HANDLE POSITION MIDWAY BETWEEN (ON) AND (OFF) TO RESTORE POWER MOVE HANDLE TO (OFF), THEN ON.

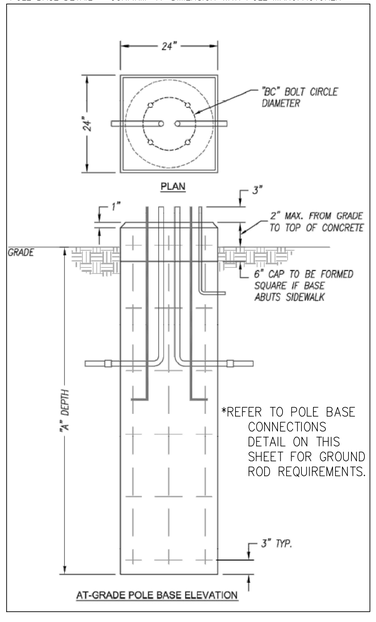
*METER SOCKET - MSCH, 200 AMPS WATT-HOUR METER NOT INCLUDED IN BASIC CIRCUIT RATING.

*THE MAXIMUM SIZE CIRCUIT BREAKER TO BE INSTALLED ON THE LOAD CENTER IS 50 AMPS WHEN COPPER WIRE IS USED AND 40 AMPS WHEN ALUMINUM WIRE IS USED

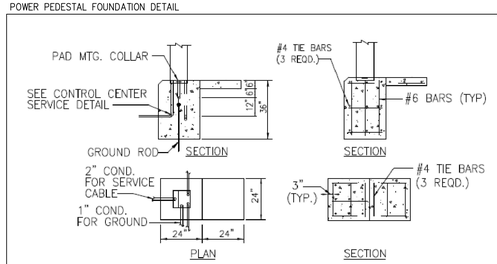
*MOISTURE KIT AVAILABLE-CONTACT FACTORY, CATNO. MSK-1

*SHIPPING TENDS TO LOOSEN ELECTRICAL CONNECTIONS-TIGHTEN ALL CONNECTIONS BEFORE ENERGIZING LINE.

POLE BASE DETAIL – CONFIRM "A" DIMENSION WITH POLE MANUFACTURER



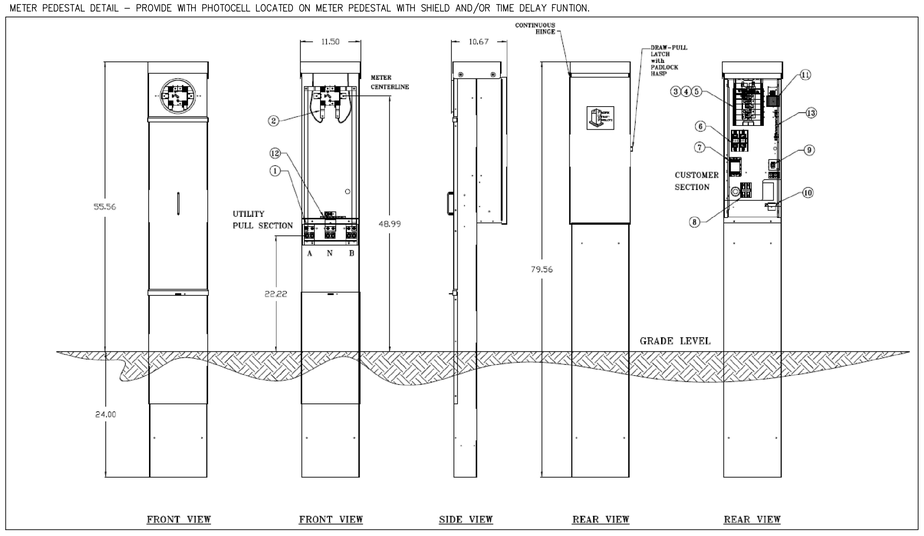
POWER PEDESTAL FOUNDATION DETAIL



POWER PEDESTAL FOUNDATION
NOT TO SCALE

1) PROVIDE GROUND ROD(S) AS REQUIRED FOR MAXIMUM OF 25 OHMS RESISTANCE TO GROUND. EXOTHERMIC WELD ONE END OF NO. 6 AWG GROUND CONDUCTOR TO THE GROUND ROD(S) AND BRUSH ON 2 COATS OF AN INSULATING VARNISH TO THE WELDED AREAS.
2) CONCRETE SLAB TO PROVIDE SEMI-DRY WORKING AREA IN FRONT OF CONTROLLER CABINET.
3) SECONDARY POWER SERVICE (DIRECT BURY) THRU CONTRACTOR INSTALLED 2" CONDUIT AND ELBOW.

METER PEDESTAL DETAIL – PROVIDE WITH PHOTOCELL LOCATED ON METER PEDESTAL WITH SHIELD AND/OR TIME DELAY FUNTION.



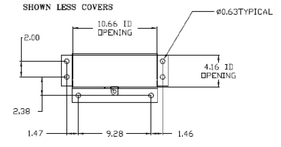
SHOWN LESS COVERS

COMPONENT DIRECTORY	
CAT. NO. MHPD-KCMO-3	
No.	120/240 VAC 1 PH 3W 100AMPS
1	LANDING LUGS DUAL 350kCMIL - 6
2	MTR SKT 4JAW 100AMPS with 5TH CLIP
3	LOADCENTER 125A 1PH 12-CKT
4	(2) CB 30A 2P 120/240VAC 10kIC
5	(1) CB 15A 1P 120/240VAC 10kIC
6	(4) FUSE 60A CLASS 'J' 600V BUSSMAN
7	(2) CONTACTOR EH 30A SIEMENS 'LE'
8	(2) TERM BLK 115A 2P MARATHON
9	SWITCH TOGGLE SPST 20A
10	PE RECEPTACLE
11	(1) SURGE ARRESTER GE
12	BONDED NEUTRAL
13	INSULATED NEUTRAL

USP RESIDENTIAL SERVICE PEDESTAL
0 – 200 AMPERES
0 – 600 VOLTS
N.T.S.

SPECIFICATIONS
- NEMA 3R CONSTRUCTION
- FABRICATED FROM CORROSION- RESISTANT ZINC COATED STEEL
- FACTORY WIRING 600 VOLT RATED COPPER
- COLOR FORREST/DARK GREEN UNLESS OTHERWISE SPECIFIED
- POLYESTER POWDER-COATED FINISH EXCEEDS ASTM B-117 SPECIFICATIONS
- ALL EXTERIOR HINGES CONTINUOUS PIANO TYPE STAINLESS STEEL
- ALL COMPONENTS ARE U.L. LISTED.
- DELAY TIMER OR SHIELD FOR PHOTO CELL.

SHOWN LESS COVERS



BASE DETAIL
(FOR CONCRETE PAD INSTALLATIONS)

Architect:

MIDWEST ARCHITECTS
1120 NW EAGLE RIDGE BLVD
GRAIN VALLEY, MO 64029
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Client:
Ward Development
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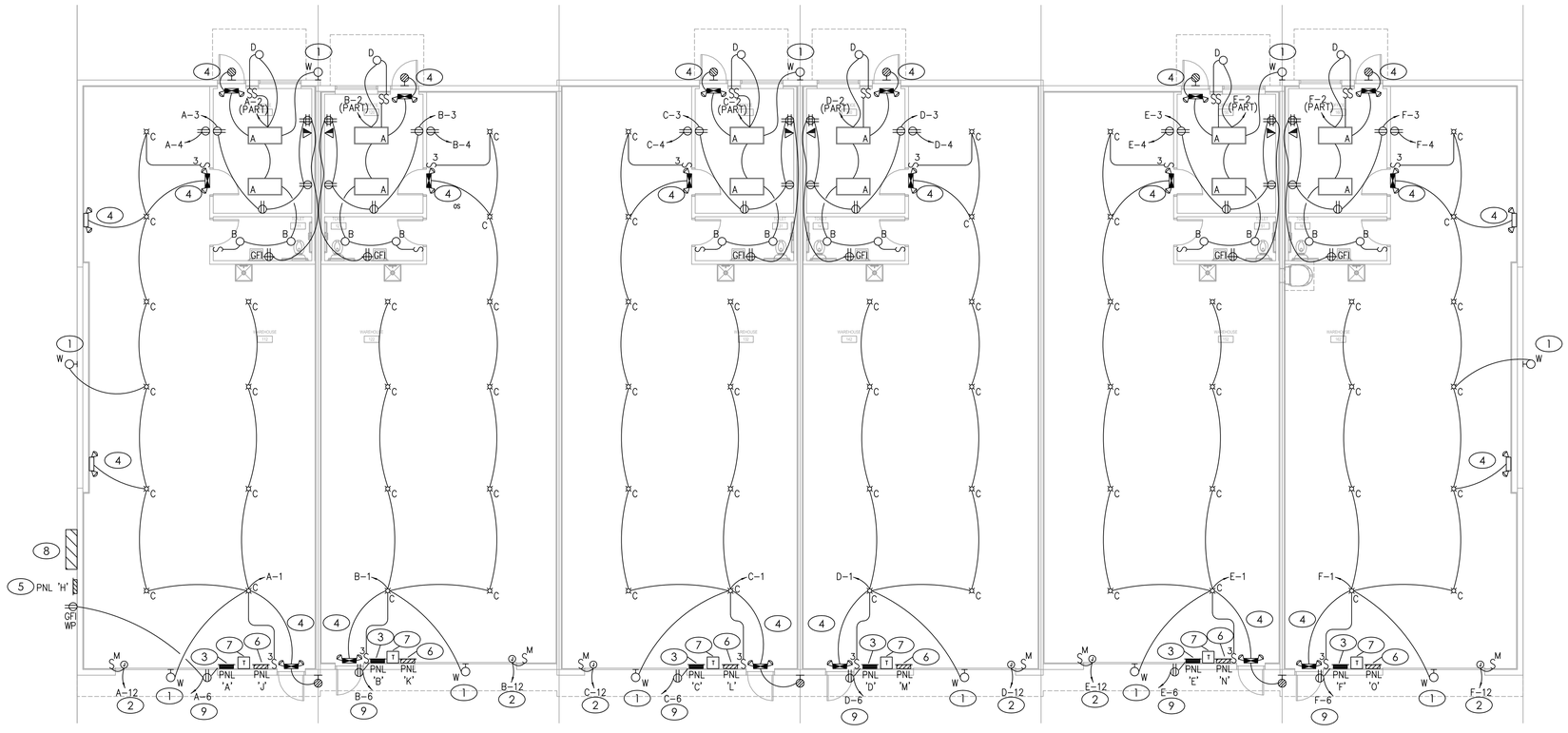
Issue:	Date:
Plan Review	09.30.22

Sheet Title:

PHOTOMETRIC PLAN

E-003



LIGHTING AND POWER PLAN

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

NORTH

GENERAL NOTES

A. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL PLANS OR FIELD MEASUREMENTS FOR DIMENSIONS.

B. ALL WORK SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL LOCAL BUILDING CODES AND AMENDMENTS.

C. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.

D. COORDINATE ALL WORK WITH OTHER TRADES AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACE AVAILABLE, AND WITHOUT INTERFERENCES.

E. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE ELECTRICAL SYSTEMS.

F. ALL WIRING SHALL BE IN APPROVED RACEWAY.

G. WIRE SIZE SHALL BE MINIMUM #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET.

H. MAXIMUM NUMBER OF UNGROUNDED WIRES IN ANY CONDUIT SHALL BE THREE. ADDITIONAL WIRES ARE ACCEPTABLE IF WIRE SIZE IS INCREASED TO ALLOW FOR DERATING PER CODE. PROVIDE ADDITIONAL WIRES FOR SWITCHING AS REQUIRED.

I. REFER TO LIGHTING FIXTURE SCHEDULE ON E201 FOR LIGHT FIXTURE TYPES AND REQUIREMENTS.

J. CONNECT ALL EXIT SIGNS AND EMERGENCY LIGHTING UNITS TO THE INDICATED CIRCUIT WITH A SEPARATE AND UN-SWITCHED CONDUCTOR BYPASSING ALL CONTROLS AND CONTACTORS. REFER TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR PROPER INSTALLATION AND TESTING.

K. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED HVAC EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL HVAC EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT SUBSTITUTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

L. FIRE ALARM, AUDIO/VIDEO AND SURVEILLANCE SYSTEMS BY OTHERS.

M. PROVIDE ALL ADDITIONAL EXTRA CONDUCTORS NEEDED FOR UNSWITCHED AND SWITCH LEGS AND TRAVELERS BETWEEN SWITCHES.

N. REFER TO NATIONAL ACCOUNT LIGHTING FIXTURE SCHEDULE ON SHEET E203 FOR LIGHTING FIXTURE INFORMATION.

(#) KEYED PLAN NOTES

1. PHOTOCELL PROVIDED WITH FIXTURE TO CONTROL ONLY THE ASSOCIATED FIXTURE.
2. MAKE CONNECTION TO POWER AND CONTROLS FOR OVERHEAD COILING DOOR PER MANUFACTURER'S RECOMMENDATIONS AND NEC REQUIREMENTS.
3. NEW 100A FRAME/100A MLO, 208Y/120V, 3Φ, 4W, 30-POLE, NEMA 1 PANELBOARD. REFER TO SINGLE LINE DIAGRAM AND PANELBOARD SCHEDULES ON SHEETS E-301 AND E-302 FOR MORE INFORMATION.
4. CONNECT EMERGENCY/EXIT LIGHT VIA UNSWITCHED HOT CONDUCTOR.
5. NEW 100A FRAME/100A MLO, 480Y/277V, 3Φ, 4W, 18-POLE, NEMA 3R PANELBOARD. REFER TO SINGLE LINE DIAGRAM AND PANELBOARD SCHEDULES ON SHEETS E-301 AND E-302 FOR MORE INFORMATION.
6. NEW 225A FRAME/200A MLO, 480Y/277V, 3Φ, 4W, 30-POLE, NEMA 1 PANELBOARD. REFER TO SINGLE LINE DIAGRAM AND PANELBOARD SCHEDULES ON SHEETS E-301 AND E-302 FOR MORE INFORMATION.
7. NEW 30KVA, 480Y/277V PRIMARY, 208Y/120V SECONDARY, NEMA 1 TRANSFORMER. MOUNT TRANSFORMER ABOVE PANELBOARDS BY SUSPENDING FROM CEILING STRUCTURE OR CANTILEVERING FROM WALL STRUCTURE. COORDINATE MOUNTING WITH STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
8. ELECTRICAL SERVICE ENTRANCE EQUIPMENT AND METERS. REFER TO SINGLE LINE DIAGRAM ON SHEET E301 FOR MORE INFORMATION.
9. INSTALL RECEPTACLE BELOW PANELBOARD ON INTERIOR WALL.

4 ENTIRE SHEET REVISED.

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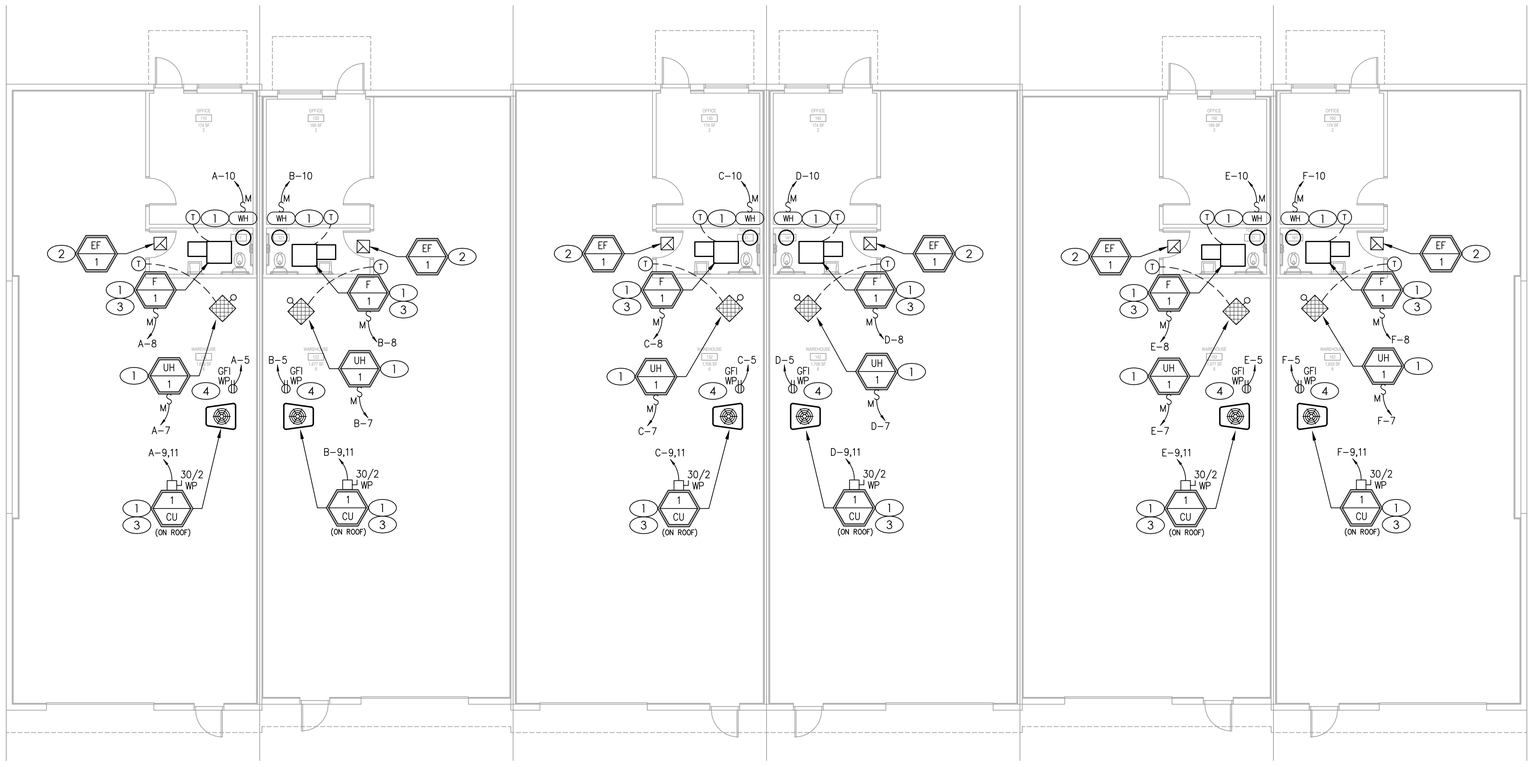
Plan Review	09.30.22
Plan Review Revisions 1	11.17.22
Plan Review Revisions 3	01.02.23
Owner Comments 4	01.17.23

Sheet Title:
ELECTRICAL PLAN

E-101



EQUIPMENT POWER PLAN

1

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

NORTH

GENERAL NOTES

A. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL PLANS OR FIELD MEASUREMENTS FOR DIMENSIONS.

B. ALL WORK SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL LOCAL BUILDING CODES AND AMENDMENTS.

C. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.

D. COORDINATE ALL WORK WITH OTHER TRADES AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACE AVAILABLE, AND WITHOUT INTERFERENCES.

E. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE ELECTRICAL SYSTEMS.

F. ALL WIRING SHALL BE IN APPROVED RACEWAY.

G. WIRE SIZE SHALL BE MINIMUM #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET.

H. MAXIMUM NUMBER OF UNGROUNDED WIRES IN ANY CONDUIT SHALL BE THREE. ADDITIONAL WIRES ARE ACCEPTABLE IF WIRE SIZE IS INCREASED TO ALLOW FOR DERATING PER CODE. PROVIDE ADDITIONAL WIRES FOR SWITCHING AS REQUIRED.

I. REFER TO LIGHTING FIXTURE SCHEDULE ON E201 FOR LIGHT FIXTURE TYPES AND REQUIREMENTS.

J. CONNECT ALL EXIT SIGNS AND EMERGENCY LIGHTING UNITS TO THE INDICATED CIRCUIT WITH A SEPARATE AND UN-SWITCHED CONDUCTOR BYPASSING ALL CONTROLS AND CONTACTORS. REFER TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR PROPER INSTALLATION AND TESTING.

K. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED HVAC EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL HVAC EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT SUBSTITUTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

L. FIRE ALARM, AUDIO/VIDEO AND SURVEILLANCE SYSTEMS BY OTHERS.

M. PROVIDE ALL ADDITIONAL EXTRA CONDUCTORS NEEDED FOR UNSWITCHED AND SWITCH LEGS AND TRAVELERS BETWEEN SWITCHES.

N. REFER TO NATIONAL ACCOUNT LIGHTING FIXTURE SCHEDULE ON SHEET E203 FOR LIGHTING FIXTURE INFORMATION.

(#) KEYED PLAN NOTES

1. MAKE CONNECTION TO DIV 22/23 EQUIPMENT PER MANUFACTURER'S RECOMMENDATION AND NEC REQUIREMENTS. COORDINATE WORK WITH DIVISION 22/23 CONTRACTOR PRIOR TO CONSTRUCTION.
2. WIRE SO THAT ON/OFF OPERATION OF EXHAUST FAN COORDINATES WITH LIGHTING IN ROOM.
3. MAKE CONNECTION FROM INDOOR TO OUTDOOR UNIT PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE WORK WITH DIVISION 23 CONTRACTOR.
4. INSTALL ROOF SERVICE RECEPTACLE ON UNISTRUT STAND NEXT TO CONDENSING UNIT DISCONNECT SWITCH.

Architect:
MIDWEST ARCHITECTS
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Seal:

STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003568
PROFESSIONAL ENGINEER

09-30-22

Project Number: 22-215
Project Type: NEW CONSTRUCTION
Project Name and Address:

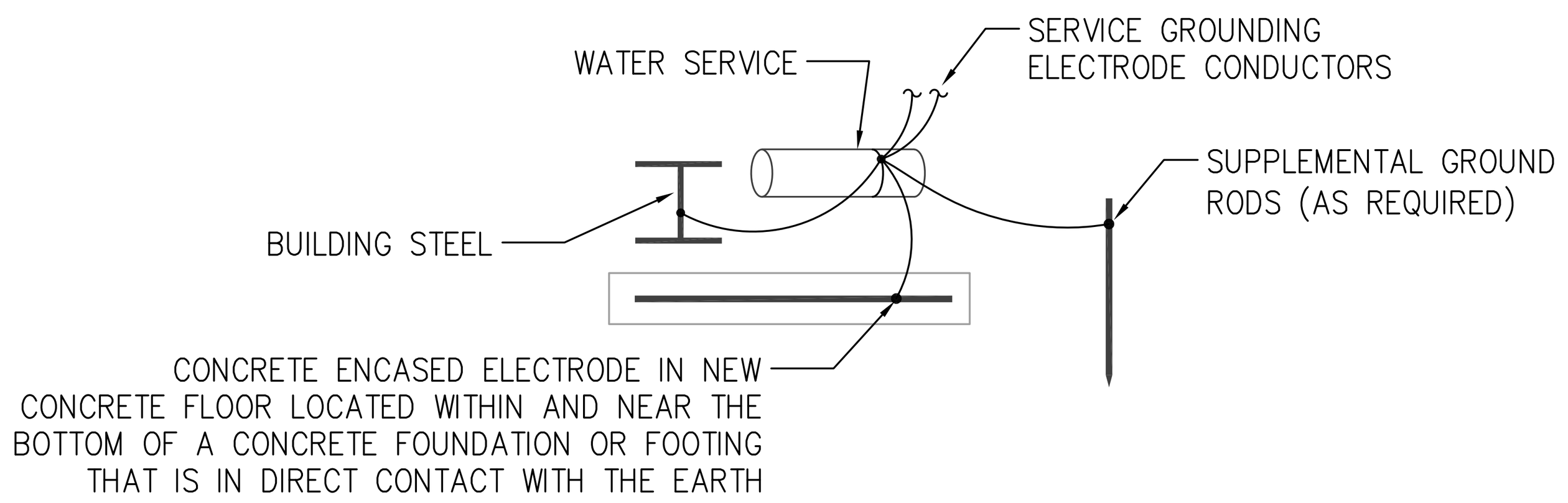
I-470 B&T CENTER, LOT 7
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Plan Review	09.30.22

Sheet Title:

ELECTRICAL EQUIPMENT POWER PLAN

E-201



GROUNDING ELECTRODE SYSTEM DIAGRAM (2)

SCALE : NO SCALE

ELECTRICAL LIGHTING SCHEDULE

(OR EQUAL. VERIFY ALL SELECTIONS AND FINISHES WITH OWNER AND ARCHITECT PRIOR TO ORDERING).

FIXTURE TYPE	MANUFACTURER NAME	MANUFACTURER SERIES	VOLT AMPS	MOUNTING	LAMP TYPE	REMARKS	VOLT
A	LITHONIA	EPANL	31	RECESSED/GRID	INCLUDED 4000K LED	LED 2'X4' FLAT PANEL - 4000LM OUTPUT HIGH EFFICIENCY	MVOLT
B	LITHONIA	WF6	14	RECESSED	INCLUDED 2700K LED	WAFER-STYLE 6" LED DOWNLIGHT	MVOLT
C	LSI	RHB-LED-18L-UNV-DIM-40-BLK	147	SUSPENDED	INCLUDED 4000K LED	COMPACT HIGH-BAY LED WAREHOUSE FIXTURE - 18000 LUMEN OUTPUT	MVOLT
D (△4)	JUNO	JSF-7IN-10LM-40K-90CRI-MVOLT ZT-WH	13	SUFACE	INCLUDED 4000K LED	SLIMFORM SURFACE MOUNT 7" LED DOWNLIGHT	MVOLT
W	LITHONIA	WDGE3	59	WALL	INCLUDED 4000K LED	EXTERIOR WALL PACK - P2 PACKAGE - PROVIDE WITH 'PE' PHOTOCELL OPTION	MVOLT
	LITHONIA	ELM2L-SDRT	5	SURFACE	INCLUDED LED	EMERGENCY EGRESS LIGHTING UNIT WITH 90 MIN. BATTERY PACK	120
	LITHONIA	LHQM-LED-R-SD	5	SURFACE	INCLUDED LED	EMERGENCY EXIT EGRESS COMBO LIGHTING UNIT WITH RED FACE EXIT SIGN AND 90 MIN. BATTERY PACK	120
	LITHONIA	ELA-B-T-QWP-L0309-SD	5	SURFACE	INCLUDED LED	OUTDOOR EMERGENCY REMOTE EGRESS LIGHTING UNIT	120

Short-Circuit and Voltage Drop Calculations

Distances are for calculation purposes only and shall not be used for contractor takeoffs nor bidding - Contractor shall notify Engineer of any field condition that results in a change of 10% or greater circuit distance

The following calculations are based on the "Point-by-Point" method where:

$ISC_{(2)} = ISC_{(1)} \times M_{(1)}$ $M = 1/(1+f)$

$ISC_{(1)}$ = short circuit current at fault point 1

$ISC_{(2)}$ = short circuit current at fault point 2

Feeder: $f_{(3Ø)} = \frac{1.732 \times L \times Isc}{C \times E}$ XFMR: $f_{(3Ø)} = \frac{IP(sca) \times Vp \times 1.73 \times \%Z}{100{,}000 \times KVA}$ $IS_{(sca)} = \frac{Vp \times M \times IP_{(sca)}}{Vs}$

Feeder: $f_{(1Ø)} = \frac{2 \times L \times Isc}{C \times E}$ XFMR: $f_{(1Ø)} = \frac{IP(sca) \times Vp \times \%Z}{100{,}000 \times KVA}$

VOLTAGE DROP (3Ø):
%VD= ((R x cos(arccos(pf)) + X x sin (arccos(pf))) x L/# x I x 1.73) / E

VOLTAGE DROP (1Ø):
%VD= ((R x cos(arccos(pf)) + X x sin(arccos(pf))) x 2 x L/# x I) / E

IP = Primary short circuit current
Vp = Primary voltage
IS= Secondary short circuit current
Vs= Secondary voltage
L = Length of circuit   E = Line to line volts
C = "C" Factor from Bussman table where "C" = 1 / impedance per linear foot
Feeder Types =
NM - Non Magnetic Conduit, M - Magnetic Conduit, FB - Feeder Busway, PB - Plug-in Busway, TX - Transformer

%VD CUM= Cumulative Voltage Drop from Fault Point 1 to Fault Point #
R= resistance in ohms per LF
X= reactances in ohms per LF

Date of Calculations: 08.31.22
System Voltage: 480Y/277V - 3 phase

Fault Point (F#)	Bus/Feeder Description	Source (Fault Point)	Phase	Source Isc (amps)	Feeder: Conduit Type/TX	Feeder: Material	Feeder: Quantity of Parallel Sets and Bus/Phase & Neutral Size				Conductor 'C' Value	Busway 'C' Value	L-L Voltage (E)	Circuit Length (L)	Load Power Factor (pf)	Circuit Load (Amperage)	Conductor: Resistance (R)	Conductor: Reactance (X)	Conductor: Arccos (pf) (Radians)	Transformer: Type	Transformer: Degree Rise	Transformer: kVA	Transformer: New Xfmr Z	Transformer: Existing Xfmr Z	Transformer: Secondary Voltage	Transformer: Tap Setting	f	M	Fault Current (amps)	Voltage Drop (%VD)	Cumulative Voltage Drop (%VD)	Fault Point (F#)
1	Utility Service Point			63,000	at the secondary of the utility transformer																							Source Isc + 6X Motor Contribution =	65160			1
	Motor Contribution			360	The connected full load motor amps (includes compressors) on the system																											
2	TO SERVICE DISCONNECT	1	3	65160	NM	AL	4	Set(s) of	350	kcmil	16813	--	480	100	0.9	960	0.000061	0.000040	0.451027								0.350	0.74	48280	-0.63%	-0.63%	2
3	TO TENANT METER/DISCONNECTS	2	3	48280	M	AL	4	Set(s) of	350	kcmil	15484	--	480	10	0.9	960	0.000063	0.000050	0.451027								0.028	0.97	46959	-0.07%	-0.69%	3
4	TO PNLBD 'J'	3	3	46959	M	AL	1	Set(s) of	250	kcmil	12122	--	480	70	0.9	160	0.000086	0.000052	0.451027								0.979	0.51	23735	-0.40%	-1.10%	4
5	TO PNLBD 'K'	3	3	46959	M	AL	1	Set(s) of	250	kcmil	12122	--	480	90	0.9	160	0.000086	0.000052	0.451027								1.258	0.44	20796	-0.52%	-1.21%	5
6	TO PNLBD 'L'	3	3	46959	M	AL	1	Set(s) of	250	kcmil	12122	--	480	130	0.9	160	0.000086	0.000052	0.451027								1.817	0.35	16669	-0.75%	-1.45%	6
7	TO PNLBD 'M'	3	3	46959	M	AL	1	Set(s) of	250	kcmil	12122	--	480	150	0.9	160	0.000086	0.000052	0.451027								2.097	0.32	15164	-0.87%	-1.56%	7
8	TO PNLBD 'N'	3	3	46959	M	AL	1	Set(s) of	250	kcmil	12122	--	480	185	0.9	160	0.000086	0.000052	0.451027								2.586	0.28	13095	-1.07%	-1.76%	8
9	TO PNLBD 'O'	3	3	46959	M	AL	1	Set(s) of	250	kcmil	12122	--	480	200	0.9	160	0.000086	0.000052	0.451027								2.796	0.26	12372	-1.16%	-1.85%	9
10	TO PNLBD 'H'	3	3	46959	M	AL	1	Set(s) of	1	AWG	4645	--	480	20	0.9	80	0.000250	0.000057	0.451027								0.730	0.58	27150	-0.14%	-0.84%	10
11	TO XFMR 'T-1'	4	3	23735	M	CU	1	Set(s) of	6	AWG	2425	--	480	20	0.9	40	0.000490	0.000064	0.451027								0.706	0.59	13910	-0.14%	-1.23%	11
12	TO XFMR 'T-2'	5	3	20796	M	CU	1	Set(s) of	6	AWG	2425	--	480	20	0.9	40	0.000490	0.000064	0.451027								0.619	0.62	12846	-0.14%	-1.35%	12
13	TO XFMR 'T-3'	6	3	16669	M	CU	1	Set(s) of	6	AWG	2425	--	480	20	0.9	40	0.000490	0.000064	0.451027								0.496	0.67	11142	-0.14%	-1.58%	13
14	TO XFMR 'T-4'	7	3	15164	M	CU	1	Set(s) of	6	AWG	2425	--	480	20	0.9	40	0.000490	0.000064	0.451027								0.451	0.69	10449	-0.14%	-1.70%	14
15	TO XFMR 'T-5'	8	3	13095	M	CU	1	Set(s) of	6	AWG	2425	--	480	20	0.9	40	0.000490	0.000064	0.451027								0.390	0.72	9423	-0.14%	-1.90%	15
16	TO XFMR 'T-6'	9	3	12372	M	CU	1	Set(s) of	6	AWG	2425	--	480	20	0.9	40	0.000490	0.000064	0.451027								0.368	0.73	9042	-0.14%	-1.99%	16
17	TO PNLBD 'A'	23	3	3085	M	CU	1	Set(s) of	3	AWG	4774	--	208	20	0.9	80	0.000250	0.000059	0.451027								0.108	0.90	2785	-0.33%	-1.57%	17
18	TO PNLBD 'B'	24	3	3061	M	CU	1	Set(s) of	3	AWG	4774	--	208	20	0.9	80	0.000250	0.000059	0.451027								0.107	0.90	2765	-0.33%	-1.68%	18
19	TO PNLBD 'C'	25	3	3013	M	CU	1	Set(s) of	3	AWG	4774	--	208	20	0.9	80	0.000250	0.000059	0.451027								0.105	0.90	2726	-0.33%	-1.91%	19
20	TO PNLBD 'D'	26	3	2990	M	CU	1	Set(s) of	3	AWG	4774	--	208	20	0.9	80	0.000250	0.000059	0.451027								0.104	0.91	2707	-0.33%	-2.03%	20
21	TO PNLBD 'E'	27	3	2950	M	CU	1	Set(s) of	3	AWG	4774	--	208	20	0.9	80	0.000250	0.000059	0.451027								0.103	0.91	2675	-0.33%	-2.23%	21
22	TO PNLBD 'F'	28	3	2933	M	CU	1	Set(s) of	3	AWG	4774	--	208	20	0.9	80	0.000250	0.000059	0.451027								0.102	0.91	2661	-0.33%	-2.32%	22
23	XFMR 'T-1'	11	3	13910	TX								480							DOE	150	30	2.44		208		9.405	0.10	3085		-1.23%	23
24	XFMR 'T-2'	12	3	12846	TX								480							DOE	150	30	2.44		208		8.686	0.10	3061		-1.35%	24
25	XFMR 'T-3'	13	3	11142	TX								480							DOE	150	30	2.44		208		7.534	0.12	3013		-1.58%	25
26	XFMR 'T-4'	14	3	10449	TX								480							DOE	150	30	2.44		208		7.065	0.12	2990		-1.70%	26
27	XFMR 'T-5'	15	3	9423	TX								480							DOE	150	30	2.44		208		6.371	0.14	2950		-1.90%	27
28	XFMR 'T-6'	16	3	9042	TX								480							DOE	150	30	2.44		208		6.114	0.14	2933		-1.99%	28

SC / VD CALCULATIONS (3)

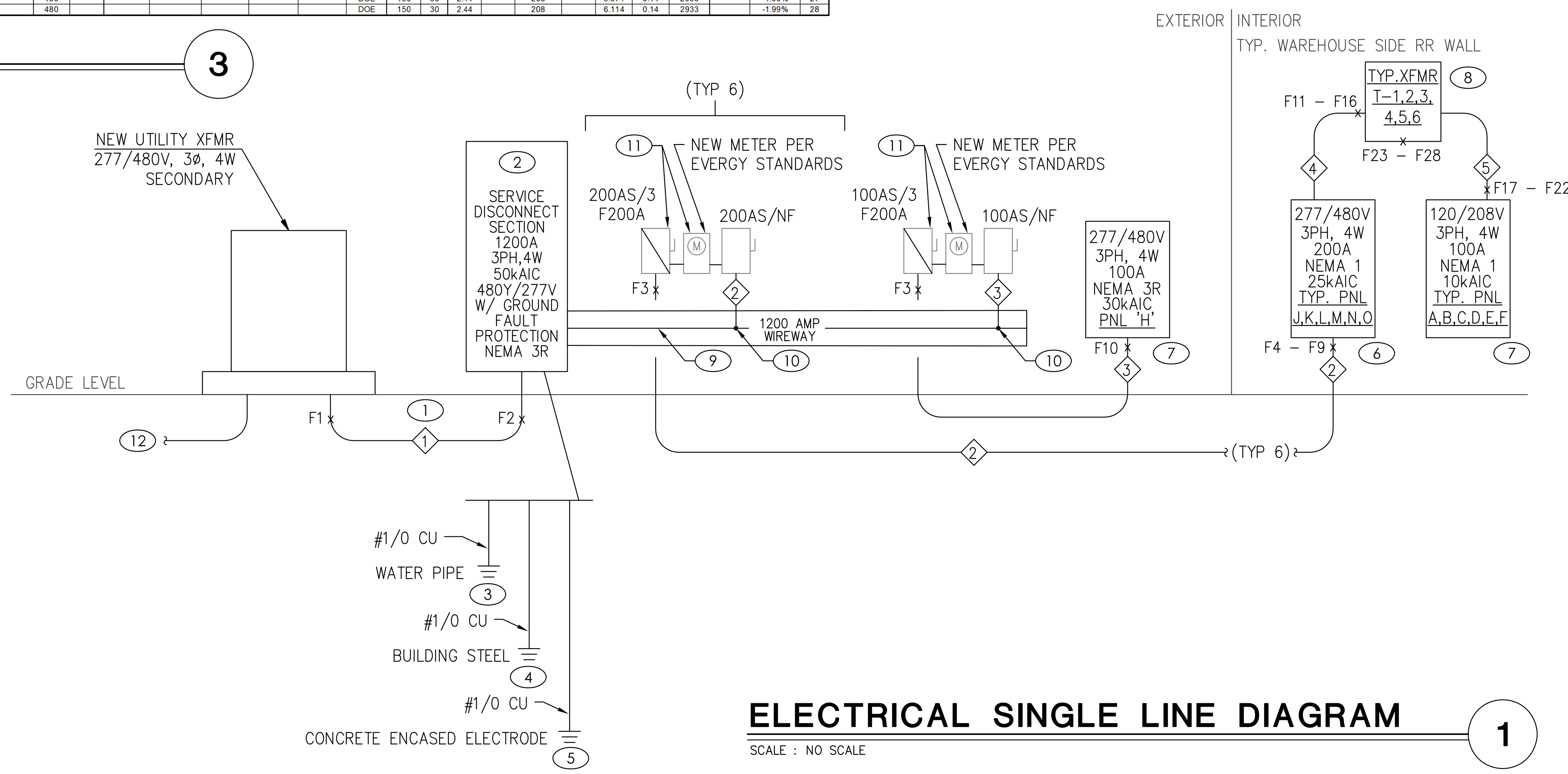
SCALE : NO SCALE

FEEDER SCHEDULE

FEEDER NUMBER	CONDUIT AND CONDUCTOR SIZES
◇1	(4) 3"C EA W/ 4 #500KCM AL
◇2	(1) 2-1/2"C W/ 4 #250KCM AL & #4 AL GND
◇3	(1) 1-1/2"C W/ 4 #1 AL & #6 AL GND
◇4	(1) 1"C W/ 4 #6 CU & #10 CU GND
◇5	(1) 1-1/4"C W/ 4 #3 CU & #8 CU GND

THE DESIGN PROFESSIONAL HAS PERFORMED ALL THE REQUIRED VOLTAGE DROP CALCULATIONS FOR ALL BRANCH CIRCUITS AND FEEDERS PER THE NATIONAL ELECTRICAL CODE, ARTICLE 210.19(A)(1) FPN NO. 4.

THE DESIGN PROFESSIONAL HAS PERFORMED ALL THE REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATING INDICATED FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.



ELECTRICAL SINGLE LINE DIAGRAM (1)

SCALE : NO SCALE

(#) KEYED SLD NOTES

1. PROVIDE NEW CONDUIT AND CONDUCTORS TO UTILITY SOURCE. VERIFY EXACT LOCATION AND REQUIREMENTS WITH UTILITY PRIOR TO ROUGH-IN.
2. NEW DISCONNECT WITH GROUND FAULT PROTECTION PER UTILITY REQUIREMENTS.
3. PROVIDE NEW GROUND PER NEC 250.52(A)(1).
4. PROVIDE NEW GROUND PER NEC 250.52(A)(2).
5. PROVIDE NEW GROUND PER NEC 250.52(A)(3).
6. NEW 120/208V PANELBOARD. SEE PANELBOARD SCHEDULES ON SHEET E-302 FOR MORE INFORMATION.
7. NEW 277/480V PANELBOARD. SEE PANELBOARD SCHEDULES ON SHEET E-302 FOR MORE INFORMATION.
8. NEW 277/480V PRIMARY, 208/120V SECONDARY, 30KVA, NEMA 1 RATED TRANSFORMER.
9. (4) SETS 4#500MCM AL, #4/0G AL EACH.
10. WHEN TAPPING WIREWAY FEEDER, PROVIDE TAP ALL PARALLEL SETS.
11. MOUNT ON FREE-STANDING UNI-STRUT RACK. COORDINATE EXACT LOCATION WITH UTILITY PRIOR TO ROUGH-IN.
12. ROUTE (1) 4" CONDUIT UNDERGROUND FOR PRIMARY CONDUCTOR ROUTING BY UTILITY. COORDINATE EXACT ROUTING WITH UTILITY PRIOR TO CONSTRUCTION.

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JUSTIN R. SMOTHERS
NUMBER PE-2012003566
PROFESSIONAL ENGINEER
01-17-2023

Project Number: 22-215
Project Type: NEW CONSTRUCTION
Project Name and Address:

I-470 B&T CENTER, LOT 7

2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Plan Review	09.30.22
Plan Review Revisions △2	11.17.22
Plan Review Revisions △3	01.02.23
Owner Comments △4	01.17.23

Sheet Title:
ELECTRICAL SCHEDULES AND DIAGRAMS

E-301

PANELBOARD: H (NEW)

BUS AMPS: 100A
MAIN SIZE/TYPE: MLO
VOLTS/PHASE: 480Y/277V, 3PH, 4W
SECTION: 1

FED FROM: METER CENTER
AIC RATING: 30000 FULLY RATED
SERVES: EXTERIOR
MOUNTING: SURFACE
LOCATION: EXT. WALL SERVICE ENTRANCE

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS
SERVICE ENTRANCE RATED

CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.
1	LTG - PARKING LOT	210			12	20	2	1	20					SPARE	2
3			210					1	20					SPARE	4
5	PROVISIONAL SPACE						1	1	20					SPARE	6
7	PROVISIONAL SPACE						1	1	20					SPARE	8
9	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	10
11	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	12
13	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	14
15	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	16
17	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	18
	SUBTOTAL	210	210											SUBTOTAL	

TOTAL PHASE A - VA	210	LOAD	CONN. VA	DF	LOAD	CONN. VA	DF			
AMPS	1	COOLING		1.00	REFRIG		1.00			
TOTAL PHASE B - VA	210	HEATING		0	SIGN/DISP		1.25			
AMPS	1	LIGHTING	420	1.25	KITCHEN		1.00			
TOTAL PHASE C - VA		RECEPTACLES		1.0/.5	EXISTING		1.00			
AMPS		MOTORS		1.00	LRG MOTOR		1.25	TOTAL DEMAND		
TOTAL PNLBD - VA	420	SUPP HEAT		1.00	SHOWWNDW		1.25	525 VA		
AMPS	1	MISC EQUIP		1.00	LTG TRACK		1.00	1 A		

PANELBOARD NOTES

PANELBOARD: J,K,L,M,N,O (TYP) (NEW)

BUS AMPS: 225A
MAIN SIZE/TYPE: MLO
VOLTS/PHASE: 480Y/277V, 3PH, 4W
SECTION: 1

FED FROM: METER CENTER
AIC RATING: 25000 FULLY RATED
SERVES: WAREHOUSE & OFFICE
MOUNTING: SURFACE
LOCATION: WAREHOUSE SIDE RR WALL

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS
SERVICE ENTRANCE RATED

CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.
1	SUBFEED TO	3,062						1						PROVISIONAL SPACE	2
3	PNL A,B,C,D,E,F (TYP.)		4,927		6	50	3	1						PROVISIONAL SPACE	4
5	VIA XFMR T-1,2,3,4,5,6 (TYP.)			3,327				1						PROVISIONAL SPACE	6
7	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	8
9	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	10
11	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	12
13	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	14
15	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	16
17	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	18
19	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	20
21	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	22
23	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	24
25	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	26
27	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	28
29	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	30
	SUBTOTAL	3,062	4,927	3,327										SUBTOTAL	

TOTAL PHASE A - VA	3,062	LOAD	CONN. VA	DF	LOAD	CONN. VA	DF			
AMPS	11	COOLING	4,898	1.00	REFRIG		1.00			
TOTAL PHASE B - VA	4,927	HEATING	1,300	0	SIGN/DISP		1.25			
AMPS	18	LIGHTING	1,762	1.25	KITCHEN		1.00			
TOTAL PHASE C - VA	3,327	RECEPTACLES	1,980	1.0/.5	EXISTING		1.00			
AMPS	12	MOTORS	800	1.00	LRG MOTOR		1.25	TOTAL DEMAND		
TOTAL PNLBD - VA	11,316	SUPP HEAT	1,500	1.00	SHOWWNDW		1.25	11,381 VA		
AMPS	14	MISC EQUIP		1.00	LTG TRACK		1.00	14 A		

PANELBOARD NOTES

PANELBOARD: A,B,C,D,E,F (TYP) (NEW)

BUS AMPS: 100A
MAIN SIZE/TYPE: MLO
VOLTS/PHASE: 208Y/120V, 3PH, 4W
SECTION: 1

FED FROM: PNLBD J,K,L,M,N,O (TYP) VIA XF
AIC RATING: 10000 FULLY RATED
SERVES: WAREHOUSE & OFFICE
MOUNTING: SURFACE
LOCATION: WAREHOUSE SIDE RR WALL

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS
SERVICE ENTRANCE RATED

CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	B	C	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	B	C	DESCRIPTION	CKT NO.
1	LTG - WAREHOUSE	1,608			12	20	1	1	20	12	154			LTG - OFFICE / RESTROOM	2
3	RCPT - OFFICE		1,260		12	20	1	1	20	12		180		RCPT - WAREHOUSE	4
5	RCPT - ROOF SERVICE			180	12	20	1	1	20	12			360	RCPT - PANELBOARD	6
7	*PWR - UNIT HTR	1,300			12	20	1	1	20	12	924			*PWR - FURNACE	8
9	*PWR - CU-1		1,987		10	30	2	1	20	12		1,500		*PWR - WATER HEATER	10
11				1,987				1	20	12			800	PWR - OVERHEAD DOOR	12
13	SPARE					20	1	1	20					SPARE	14
15	SPARE					20	1	1	20					SPARE	16
17	SPARE					20	1	1	20					SPARE	18
19	SPARE					20	1	1	20					SPARE	20
21	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	22
23	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	24
25	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	26
27	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	28
29	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	30
	SUBTOTAL	2,908	3,247	2,167							1,078	1,680	1,160	SUBTOTAL	

TOTAL PHASE A - VA	3,986	LOAD	CONN. VA	DF	LOAD	CONN. VA	DF			
AMPS	33	COOLING	4,898	1.00	REFRIG		1.00			
TOTAL PHASE B - VA	4,927	HEATING	1,300	0	SIGN/DISP		1.25			
AMPS	41	LIGHTING	1,762	1.25	KITCHEN		1.00			
TOTAL PHASE C - VA	3,327	RECEPTACLES	1,980	1.0/.5	EXISTING		1.00			
AMPS	28	MOTORS	800	1.00	LRG MOTOR		1.25	TOTAL DEMAND		
TOTAL PNLBD - VA	12,240	SUPP HEAT	1,500	1.00	SHOWWNDW		1.25	11,381 VA		
AMPS	34	MISC EQUIP		1.00	LTG TRACK		1.00	32 A		

PANELBOARD NOTES

* = HACR-TYPE CIRCUIT BREAKER

ELECTRICAL PANEL SCHEDULES

1

SCALE : NO SCALE

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Seal:

STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003568
PROFESSIONAL ENGINEER
01-17-2023

Project Number: 22-215
Project Type: NEW CONSTRUCTION
Project Name and Address:

I-470 B&T CENTER, LOT 7
2701 NE McBaine Drive
Lee's Summit, Missouri 64064

Issue:	Date:
Plan Review	09.30.22
Plan Review Revisions 1	11.17.22
Plan Review Revisions 3	01.02.23
Owner Comments 4	01.17.23

Sheet Title:
ELECTRICAL SCHEDULES
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