

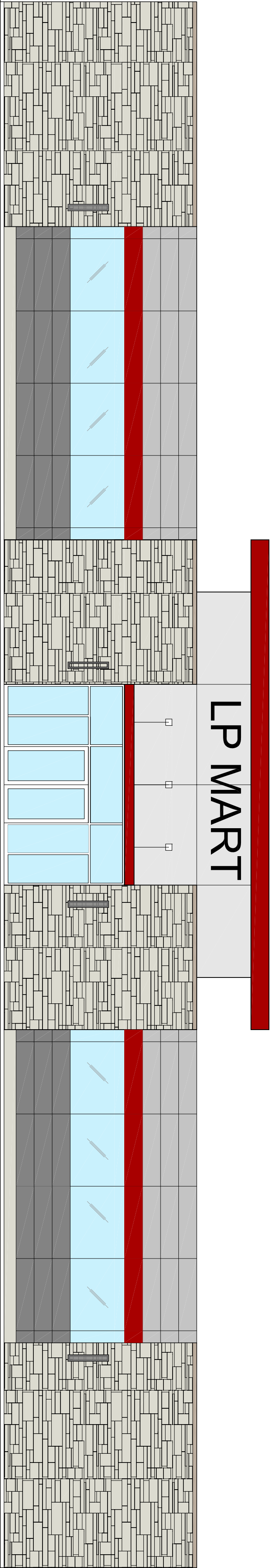
LION PETROLEUM CONVENIENCE STORE

HAMBLEEN PLAZA

LEE'S SUMMIT, MISSOURI

GENERAL NOTES

- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS & INSPECTIONS REQUIRED FOR CERTIFICATE OF OCCUPANCY.
- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF FEDERAL, STATE AND LOCAL CODES, LAWS, RULES, & REGULATIONS OF ALL LEGALLY CONSTITUTED PUBLIC AUTHORITIES HAVING JURISDICTION IN CASE OF CONFLICT BETWEEN REQUIREMENTS, THE MOST RESTRICTIVE SHALL APPLY.
- THE CONTRACTOR IS RESPONSIBLE TO PROVIDE TEMPORARY SHORING AND BRACING AND BRACING IS REQUIRED UNTIL NEW STRUCTURAL MEMBERS ARE PERMANENTLY INSTALLED. WHETHER INDICATED ON THE DRAWINGS OR NOT, IF THE CONTRACTOR IS UNSURE WHETHER OR NOT TO PROVIDE TEMPORARY SHORING AND BRACING HE SHALL ASK THE ARCHITECT OR STRUCTURAL ENGINEER IN WRITING PRIOR TO COMMENCEMENT OF WORK.
- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND CRITICAL DIMENSIONS PRIOR TO COMMENCEMENT OF WORK AND SHALL NOTIFY OWNER & ARCHITECT OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH WORK. HIS VERIFICATION SHALL INCLUDE BUT NOT LIMITED TO LOCATION OF NEIGHBORING BUILDINGS, LINES OF SUPPORT, LOCATIONS OF ANCHOR BOLTS, HOLD DOOMS, EXISTING SITE CONDITIONS AND UTILITIES PRIOR TO ORDERING MATERIALS.
- CONTRACTOR TO VERIFY FIT & FINISH REQUIREMENTS FOR ALL PROJECT COMPONENTS WITH OWNER PRIOR TO ORDERING MATERIALS. REPORT CONFLICTING INFORMATION TO OWNER PRIOR TO PROCEEDING WITH WORK.
- CONTRACTOR SHALL DISPOSE OF ALL DEVIATION & CONSTRUCTION DEBRIS AS REQUIRED BY FEDERAL, STATE AND LOCAL ORDINANCES.
- THE GENERAL CONTRACTOR SHALL ENSURE THAT ALL MATERIALS & REQUIREMENTS BY CODE ARE TESTED BY INDEPENDENT LABORATORIES AND THAT RESULTS ARE FURNISHED TO LOCAL BUILDING AUTHORITIES, OWNER AND THE PROJECT CONSULTANTS IF REQUESTED.
- CONTRACTOR SHALL STENCIL LABEL ON ALL RATED WALLS IN CONCEALED AREAS THE FOLLOWING: FIRE AND SMOKE BARRIER - PROTECT ALL OPENINGS.
- BY THE USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER REPRESENTS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS AND THAT THE CONSTRUCTION DOCUMENT PHASE OF THE PROJECT IS COMPLETE.
- CONTRACTOR SHALL COORDINATE THE WORK WITH ALL OTHER CONTRACTORS PARTISIPING THE WORK. MATERIALS AND ALL WORK SO THAT THE WORK AS A WHOLE SHALL BE EXECUTED AND COMPLETED WITHOUT CONFLICTS. THE OWNER AND HIS CONSULTANTS SHALL NOT BE RESPONSIBLE FOR HOW THE WORK IS PERFORMED. SAFETY AND NEGLIGENT ACTS OR OMISSIONS BY THE GENERAL CONTRACTOR OR THE SUBCONTRACTORS ON THE JOB.
- CONTRACTOR SHALL COORDINATE THE REQUIREMENTS OF ANY AND ALL DRAWINGS INCLUDING ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING AND ELECTRICAL. ANY CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER & ARCHITECT PRIOR TO ANY WORK.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ACQUAINT HIMSELF WITH THE DIMENSIONS OF ALL EQUIPMENT INCLUDED IN THIS PROJECT SO THAT PREPARATIONS CAN BE MADE TO PROVIDE ENTRY INTO THE FACILITY WITH SUFFICIENT CLEARANCE AND TO ENSURE THAT ADEQUATE FLOOR SPACE IS AVAILABLE.
- CONTRACTOR SHALL VERIFY GRADE DRAINAGES, LOCATIONS FOR ALL PARTITIONS, WALLS, CEILING, ETC. WILL BE DETERMINED BY DIMENSIONS ON THE DRAWINGS. ANY SUCH DIMENSIONS MISSING FROM THE PLANS MUST BE BROUGHT TO THE ATTENTION OF THE OWNER & ARCHITECT IMMEDIATELY. ALL DIMENSIONS TO FACE OF STUD UNLESS OTHERWISE NOTED. CLEAR DIMENSIONS FINISH TO FINISH DIMENSIONS.
- THE CONTRACTOR SHALL ADHERE TO THE DRAWINGS AND SPECIFICATIONS. SHOULD ANY ERROR OR INCONSISTENCY APPEAR REGARDING THE TRUE MEANING AND/OR INTENT OF THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL IMMEDIATELY REPORT SAME TO THE ARCHITECT WHO WILL MAKE ANY NECESSARY CLARIFICATION, INTERPRETATION OR REVISION AS REQUIRED.
- IF THE CONTRACTOR DISCOVERS AN ERROR OR INCONSISTENCY AND PROCEEDS WITH WORK WITHOUT NOTIFYING THE OWNER & ARCHITECT OF ANY SUCH DISCREPANCIES, HE SHALL ASSUME ALL CHARGES AND MAKE ANY CHANGES TO HIS WORK UNDER NECESSARY BY HIS FAILURE TO OBSERVE AND/OR REPORT THE CONDITION.
- IF THE INTENT OF THE DRAWINGS & SPECIFICATIONS ARE UNCLEAR, THE CONTRACTOR SHALL ASK THE ARCHITECT FOR CLARIFICATION PRIOR TO PROCEEDING WITH WORK. IN THE EVENT OF A WRITTEN REQUEST FOR INFORMATION, THE ARCHITECT SHALL THEN RESPOND IN WRITING TO ALL APPROPRIATE PARTIES.
- CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION OF WORK, MATERIALS & FINISHES, ETC. IN LEASED SPACE FROM LOSS, DAMAGE, FIRE, THEFT, ETC.
- WHEREVER THE TERM "EQUAL" IS USED, IT SHALL MEAN EQUAL PRODUCT AS APPROVED IN WRITING BY ARCHITECT.
- IF THE CONTRACTOR PROVIDES A MATERIAL OR EQUIPMENT SUBSTITUTION HE SHALL PROVIDE ALL APPROPRIATE DOCUMENTATION AND INFORMATION REQUIRED FOR THE ARCHITECT TO DETERMINE WHETHER OR NOT THE SUBSTITUTION IS EQUAL TO THE SPECIFICATION. ANY CHANGES TO THE DESIGN AFTER ISSUANCE OF A BUILDING PERMIT SHALL BE SUBMITTED TO THE RESIDING BUILDING AGENCY FOR APPROVAL BY THE GENERAL CONTRACTOR.
- CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY MOUNT, HANGING, AND VANCE LOADS, RAILINGS, ETC. AS PER PLANS AND CODES.
- PROVIDE SILL COVE SEALANT AT ALL JOINTS AND INTERFACES OF ALL CONTRACTOR'S EQUIPMENT, WALLS, WINDOWS AND DOOR OPENINGS.
- PROJECT SHALL BE LEFT CLEANED AND POLISHED AFTER COMPLETION OF WORK.
- THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL FOOD SERVICE EQUIPMENT AND COORDINATE LOCATION OF FLOOR SINKS, FLOOR DRAINS, SLOTTED, LAB DISPOSITIONS AND RAISED CURBS, ELECTRICAL AND PLUMBING SUBS, QJIS, AND ALL OTHER WORK UNDER HIS SCOPE OF RESPONSIBILITY RELATED TO THE EQUIPMENT. REFER TO OWNER'S FOOD SERVICE EQUIPMENT SCHEDULE FOR SPECIFIC REQUIREMENTS & REFERENCES. EQUIPMENT DRAWINGS ARE INCLUDED FOR REFERENCE ONLY. ACTUAL SHOP DRAWINGS FOR THE SPECIFIC PROJECT MAY VARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL WORK WITH THE REQUIREMENTS OF THE SUPPLIERS FOR THE MATERIALS REPRESENTED BY SHOP DRAWINGS.
- CONTRACTOR IS RESPONSIBLE FOR RECEIVING, UNLOADING, UNCRATING, INSTALLATION AND MAKE-UP OF ALL FOOD SERVICE EQUIPMENT AND OTHER OWNER FURNISHED ITEMS AND DISPOSING OF ALL CARTONS.
- CONTRACTOR SHALL REFER TO THESE DOCUMENTS, AS WELL AS SPECIFICATIONS, FOR IDENTIFICATION OF ALL OWNER SUPPLIED ITEMS. CONTRACTOR SHALL VERIFY WITH OWNER PRIOR TO ORDERING WHICH ITEMS THE OWNER SHALL SUPPLY. ALL ITEMS NOT FURNISHED AS OWNER SUPPLIED ARE TO BE SUPPLIED BY THE CONTRACTOR. UNLESS NOTED OTHERWISE, ALL ITEMS ARE TO BE INSTALLED BY GENERAL CONTRACTOR.
- FINISH FLOOR FRIEDED CLASSIFICATION OF INTERIOR FINISHES SHALL CONFORM TO THE BUILDING CODE AND LOCAL GOVERNING BUILDING CODES/ORDINANCES.
- CONTRACTOR SHALL CONTACT THE LOCAL FIRE MARSHALL AND PROVIDE AND INSTALL FIRE EXTINGUISHERS PER THE FIRE MARSHAL'S DIRECTION, INCLUDING TYPE, QUANTITY, AND LOCATION. AS A MINIMUM CONTRACTOR SHALL PROVIDE FIVE EXTINGUISHERS HAVING A RATING OF 7-A0-B0 FOR EVERY 3000 SQ. FT. OF FLOOR AREA AND TRAVEL DISTANCE TO AN EXTINGUISHER SHALL NOT EXCEED 75 FEET.
- FOR CONSTRUCTION DETAILS NOT SHOWN, USE THE MANUFACTURER'S STANDARD DETAILS OR APPROVED SHOP DRAWINGS/DATA SHEETS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- DOCUMENTS MARKED "BID DOCUMENTS" SHALL NOT BE USED FOR CONSTRUCTION.
- POST OCCUPANT LOAD SCHEDULED IN SPECIFICATIONS PER LOCAL GOVERNING AGENCY REQUIREMENTS.
- SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT WHO SHALL REVIEW THEM AND PROVIDE A NOTATION INDICATING THAT DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THESE SUBMITTAL ITEMS MUST THEN BE SUBMITTED TO THE BUILDING OFFICIAL. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL. DEFERRED SUBMITTALS ARE AS FOLLOWS:



CODE BLOCK

| BUILDING CODE | |
|---|-------------------------|
| 208 INTERNATIONAL BUILDING CODE | |
| 208 INTERNATIONAL MECHANICAL CODE | |
| 208 NATIONAL ELECTRICAL CODE | |
| 208 NATIONAL PLUMBING CODE | |
| 208 INTERNATIONAL MECHANICAL CODE | |
| 208 INTERNATIONAL ENERGY CONSERVATION CODE | |
| 208 INTERNATIONAL REL. GAS CODE | |
| ICC/ANSI A117-2009 | |
| DESIGN CRITERIA | |
| CONVENIENCE STORE DESIGN IS SUBJECT TO THE CURRENT BUILDING CODE OR UNIFIED DEVELOPMENT ORDINANCE SECTION 63.00 | |
| GAS STATION CANOPY USE GROUP: | |
| CONSTRUCTION TYPE: | - UTILITY "U" |
| | - TYPE 2B |
| BUILDING USE GROUP: | |
| CONSTRUCTION TYPE: | - MERCANTILE "M" |
| FIRE PROTECTION: | - TYPE 2B |
| | - NON-SPRINKLERED |
| PROPOSED BUILDING AREA (G-STORY) | |
| AREA ALLOWED | - 6000 SF |
| | - 0500 SF |
| OCCUPANCY LOAD PER 000L2: | |
| MAIN AREA | M 3300/30 SF PER OCC |
| COOLER AND STORAGE | M 1600/200 SF PER OCC |
| TOTAL | 12 OCCUPANTS |
| TOTAL EXIT DOOR WIDTH PER 000S1 | 12 X 02 22'-4" / 08'-0" |



PROJECT DIRECTORY

OWNER
LION PETROLEUM INC
4931 LINCOLN BLVD
ST. LOUIS, MO 63108
PHONE: (314) 692-1110
EMAIL: main@lionpetro.com

ARCHITECTS

RAMSDELL ARCHITECTS
201 S. CENTRAL AVE. SUITE 203
ST. LOUIS, MO 63105
PHONE: (314) 593-6661
FAX: (314) 593-1310
EMAIL: info@ramsdeillac.com
CONTACT: SALLY RAMSDELL

CIVIL ENGINEERS

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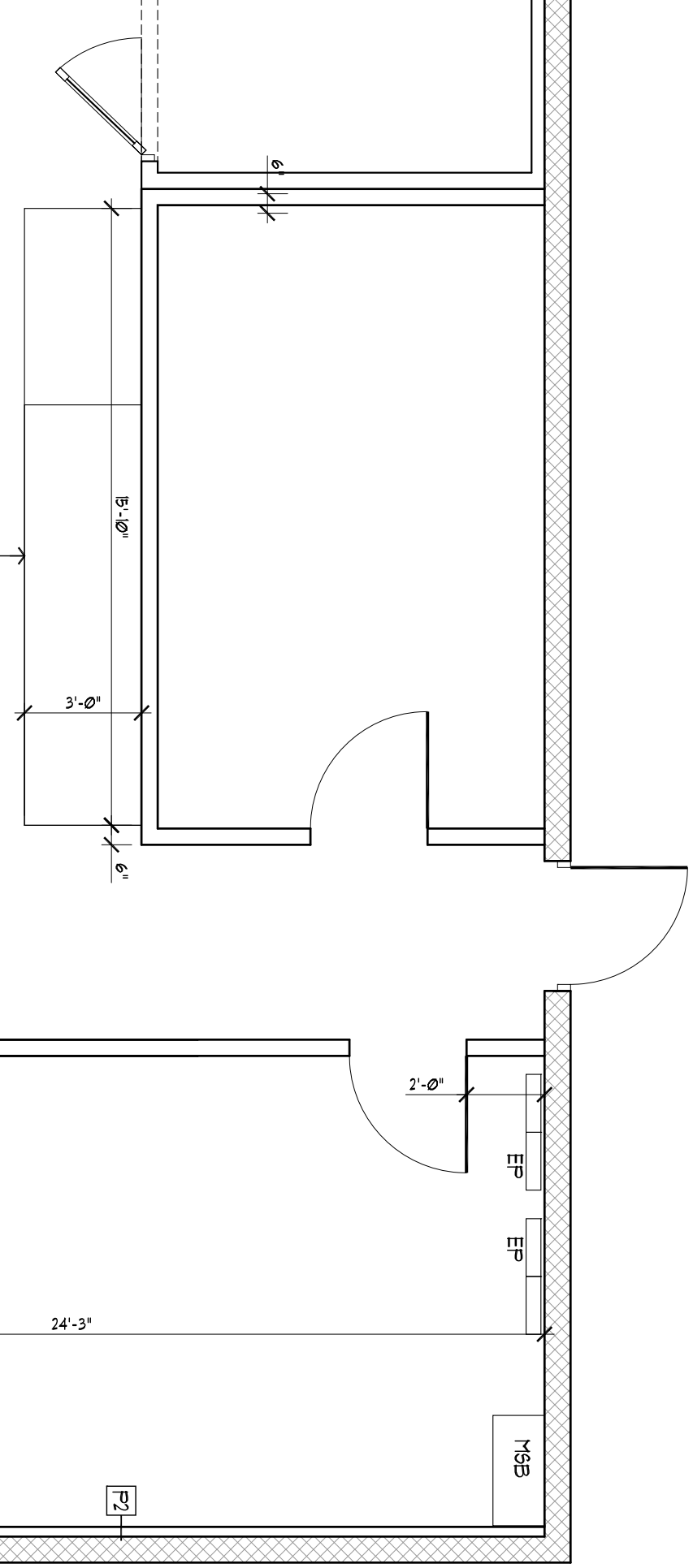
STRUCTURAL ENGINEERS

SALPIT ENGINEERING GROUP LLC
1018 FAIRMARX LINE
ST. LOUIS, MO 63146
PHONE: (314) 586-6699
FAX: (314) 584-5822
EMAIL: info@salpiteng.com
CONTACT: DAVID SHAN
MEP ENGINEERS
JOAN ZEKND PE
CONSULTING ENGINEERS
1716 WHITE ROAD
CHESTERFIELD, MO 63017
PHONE: (314) 878-2200
FAX: (314) 878-2200
CONTACT: JOAN ZEKND

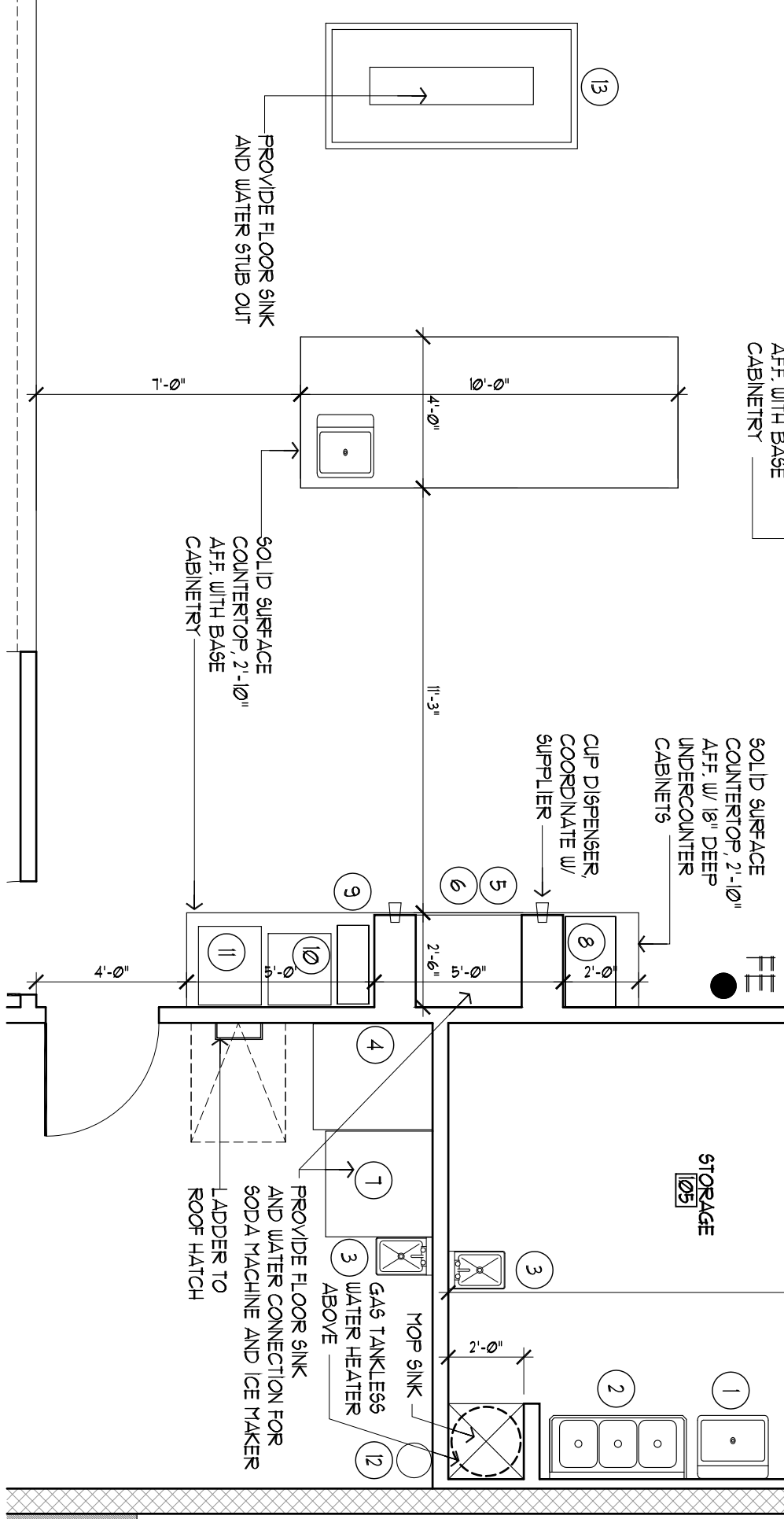
LIST OF DRAWINGS

SHEET DESCRIPTION

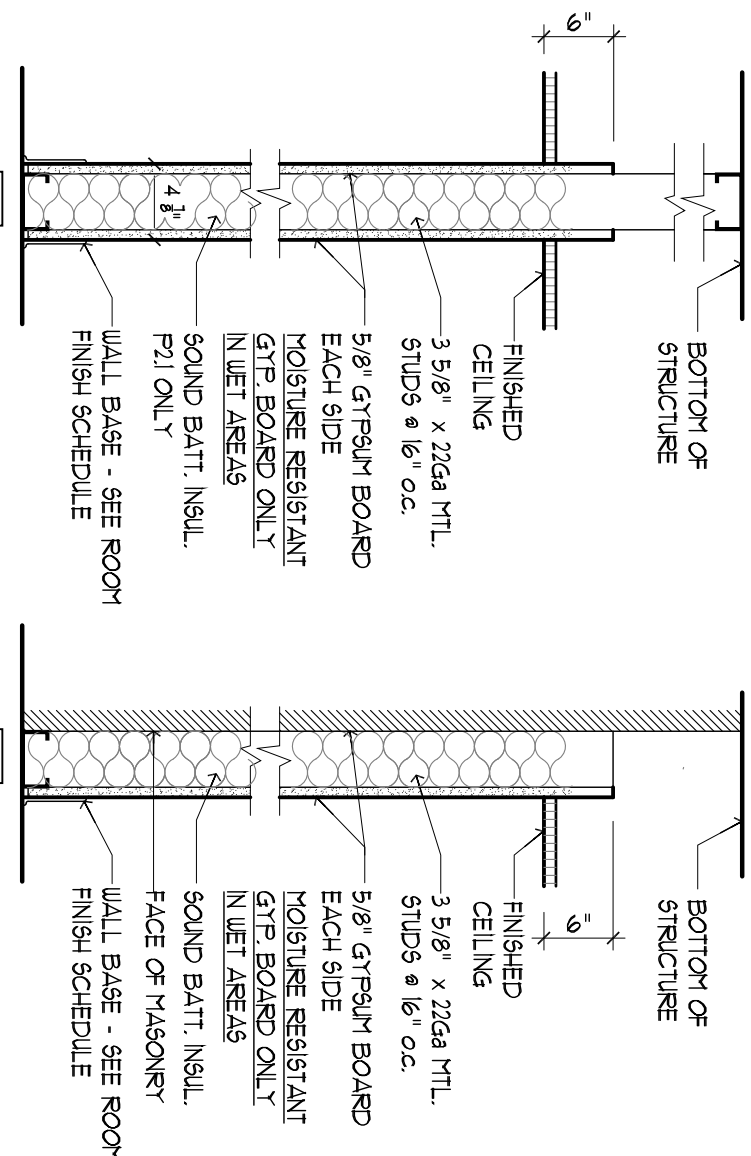
- A-1 FLOOR PLAN, UNFURNISHED PLAN, RESTROOM ELEVATIONS
- A-2 RC PLAN, ROOF PLAN, DETAILS
- A-3 EXTERIOR ELEVATIONS, SCHEDULES
- A-4 BUILDING SECTIONS, WALL SECTIONS
- A-5 WALL SECTIONS
- A-6
- 91 GENERAL NOTES
- 92 TYPICAL DETAILS
- 93 FOUNDATION PLAN
- 94 ROOF RAISING PLAN
- 95 ROOF DETAILS
- E-1 ELECTRICAL POWER PLAN
- E-2 ELECTRICAL LIGHTING SCHEDULE
- E-3 ELECTRICAL TYPICAL DETAILS
- E-4 ELECTRICAL TYPICAL DETAILS
- E-5 ELECTRICAL POWER BOARD SCHEDULE
- E-6 ELECTRICAL SPECIFICATIONS
- M-1 HVAC PLAN
- M-2 MECHANICAL SCHEDULES
- M-3 MECHANICAL DETAILS
- M-4 MECHANICAL DETAILS
- M-5 MECHANICAL SPECIFICATION
- P-1 PLUMBING PLAN
- P-2 PLUMBING DETAILS
- P-3 PLUMBING SCHEDULES
- P-4 PLUMBING SPECIFICATIONS
- 91-1 SITE LIGHTING



- KITCHEN EQUIPMENT
1. PREP SINK
 2. 64" 3-COMPARTMENT SINK WITH GREASE TRAP BELOW
 3. HAND SINK
 4. BAG-IN BOX
 5. SODA MACHINE BY SERVICE 12 VALVE SANITARY LETTER COUNTER
 6. ICE MAKER
 7. ICE MAKER
 8. BLENDER
 9. BLENDER
 10. BLENDER
 11. CUP DISPENSER
 12. COT CARBON DIOXIDE 300 LB OF CARBON DIOXIDE
 13. OPENING FOR CARBON DIOXIDE



3 ENLARGED KITCHEN PLAN
SCALE: 1/4" = 1'-0"

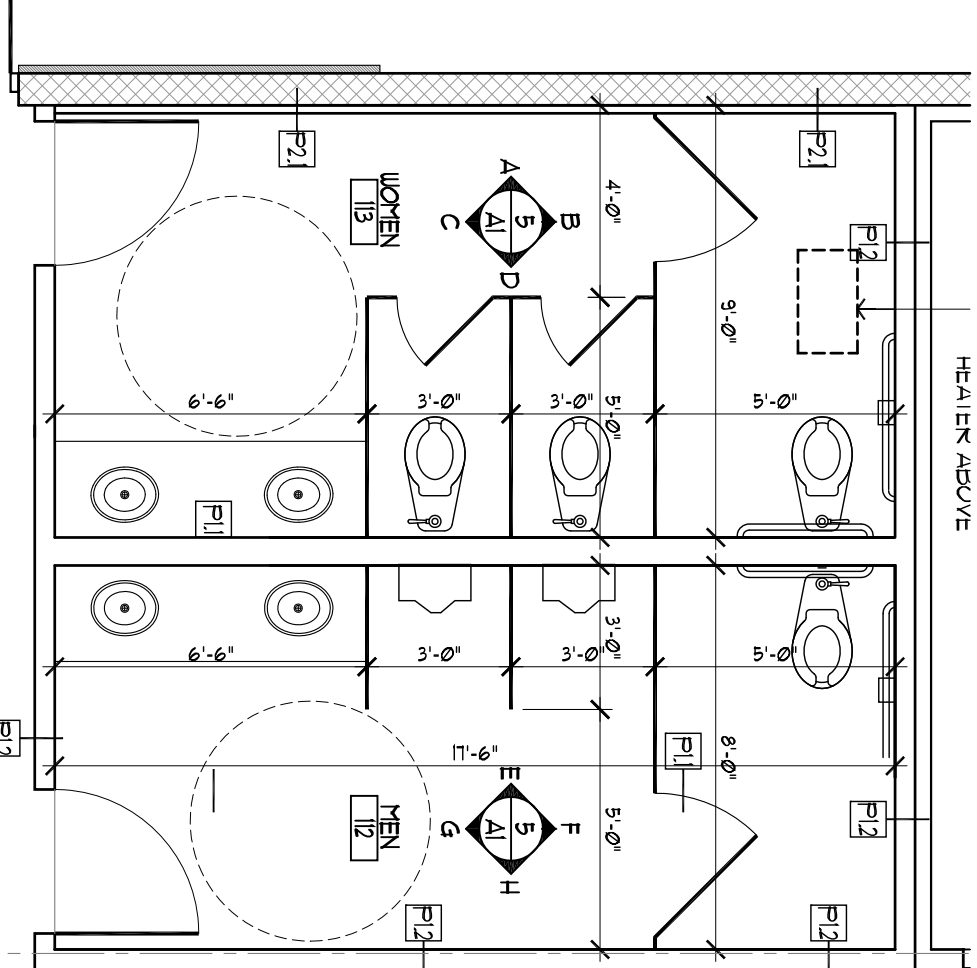


6 PARTITION TYPES
SCALE: 1" = 1'-0"

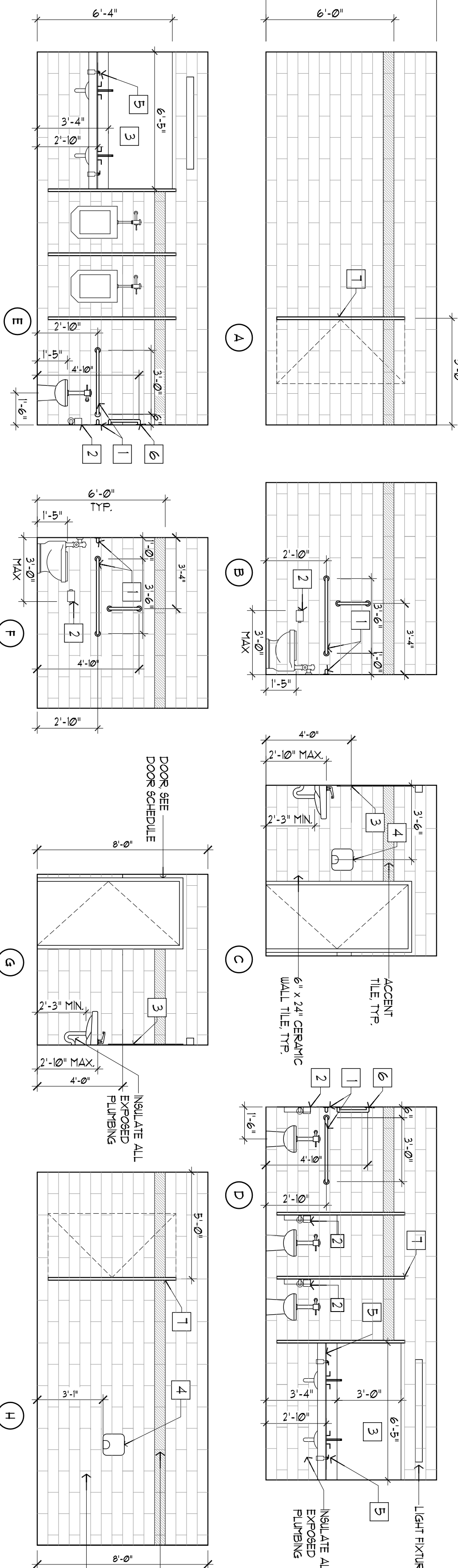
COOLER AND FREEZER TO COMPLY WITH SECTION 26.04.13 (B.C. 2017) REFRIGERATION UNIT DOES NOT EXCEED 4" AND HAVING THE SPRING UNDER OF 15 TON PLASTIC SHALL BE COVERED BY METAL FACING NOT LESS THAN 0.0231 INCH THICK ALUMINUM OR CORROSION RESISTANT STEEL HAVING MINIMUM BASE METAL THICKNESS OF 0.016 INCH

UNIFIED DEVELOPMENT ORDINANCE SECTION 6.3.02

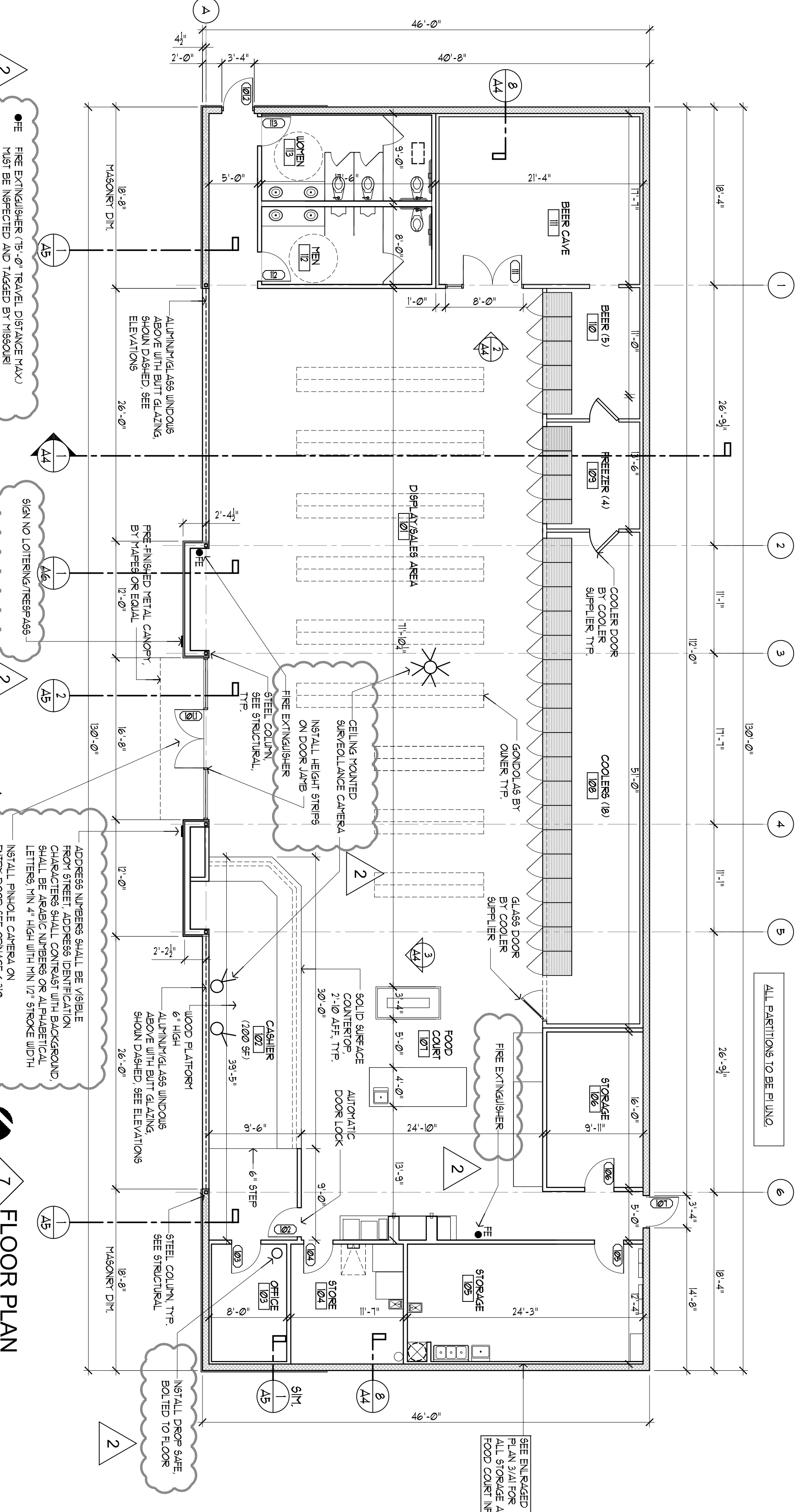
1. INDOOR LIGHT LEVELS ARE SUFFICIENT INTENSITY TO PROVIDE FOR HIGH RESOLUTION FOR VIDEO DATA RECORDING
2. OUTDOOR LIGHTING LEVEL OF FIVE FOOTCANDLES SHALL BE MAINTAINED ON STORE ENTRANCE
3. TWO COLOR DIGITAL HIGH DEFINITION SURVEILLANCE CAMERAS IS INSTALLED ONE TO EACH SIDE OF THE ENTRANCE
4. TO MAINTAIN VIEW OF CUSTOMER LANE/ALCOVE TO THE ENTRANCE
5. SURVEILLANCE DATA WILL BE RECORDED FOR 30 DAYS MIN
6. ALARM SYSTEM IS TO BE MONITORED OFF-SITE
7. BLIND PANEL ALARM IS TO BE INSTALLED AT EACH CASH REGISTER
8. ALL CASH REGISTER ARE TO BE INSTALLED IN A SECURE LOCATION
9. INSTALLED PHYSIC DOOR LOCK AT CASHIER TRANSACTION COUNTER
10. UNOBSTRUCTED LINE OF SIGHT SHALL BE MAINTAINED ALL TYPES FROM CASH REGISTERS TO DOORS
11. WINDOW AREAS SHALL BE FREE FROM POSTERS OR OTHER
12. SIGNAGE SHALL BE INSTALLED OUTSIDE OF WINDOWS INSIDE OR OUTSIDE SHALL NOT INHIBIT VIEW FROM CASHIER TRANSACTION AREA
13. THE FLOOR AREA SHALL BE ELEVATED MIN OF 6 INCHES ABOVE FLOOR (SEE PLAN)
14. DROP SAFE BOLTED TO FLOOR TO BE INSTALLED IN OFFICE (SEE PLAN)
15. HEIGHT STRIPS SHALL BE INSTALLED AT PUBLIC ENTRANCE IN DIRECT VIEW OF EMPLOYEES, SEE PLAN
16. NO LOITERING/RESPEAS SHALL BE POSTED IN THE FRONT OF ENTRY TO THE BUILDING (SEE PLAN)



4 ENLARGED RESTROOMS PLAN
SCALE: 1/4" = 1'-0"



5 RESTROOMS ELEVATIONS
SCALE: 1/4" = 1'-0"



7 FLOOR PLAN
SCALE: 1/8" = 1'-0"

| NO. | DESCRIPTION | PROVIDER |
|-----|--|---------------|
| 1 | 10" DIA. STAINLESS STEEL GRAB BAR (HANDCUP HEIGHT 34" AFF) | BRONCK P-4500 |
| 2 | DOUBLE NOZZLE TOILET TISSUE DISPENSER | BRONCK P-4500 |
| 3 | 10" DIA. STAINLESS STEEL GRAB BAR (HANDCUP HEIGHT 34" AFF) | BRONCK P-4500 |
| 4 | EXHAUST FAN DRYER | EXCEL DRYER |
| 5 | WALL MOUNTED TISSUE DISPENSER | BRONCK P-4500 |
| 6 | 10" DIA. STAINLESS STEEL GRAB BAR (HANDCUP HEIGHT 34" AFF) | BRONCK P-4500 |
| 7 | REFLECTED LIGHTING (SEE SPEC) | BRONCK P-4500 |

RANGWALA ARCHITECTS
ARCHITECTURE SITE PLANNING

201 S. CENTRAL AVE, SUITE #203, ST. LOUIS, MO-63105
(314) 863-6661 FAX (314) 863-3718



LEE'S SUMMIT, MISSOURI

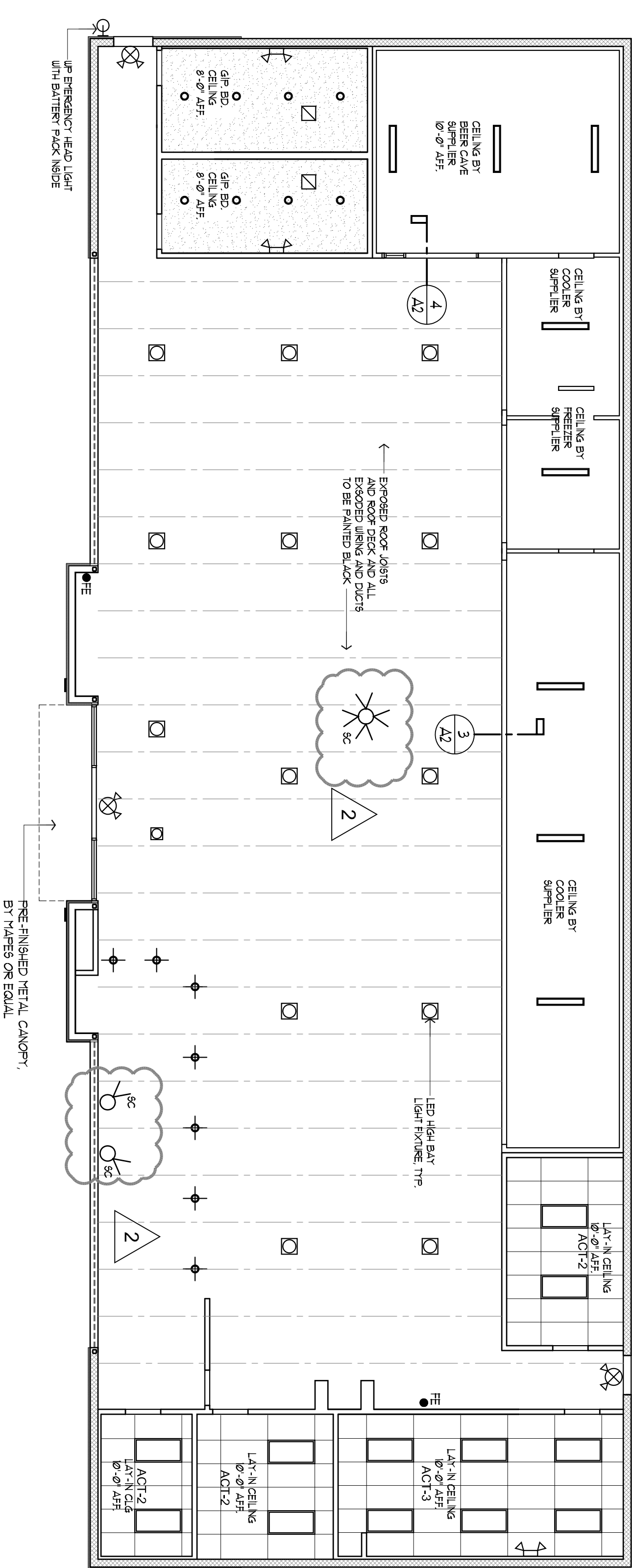
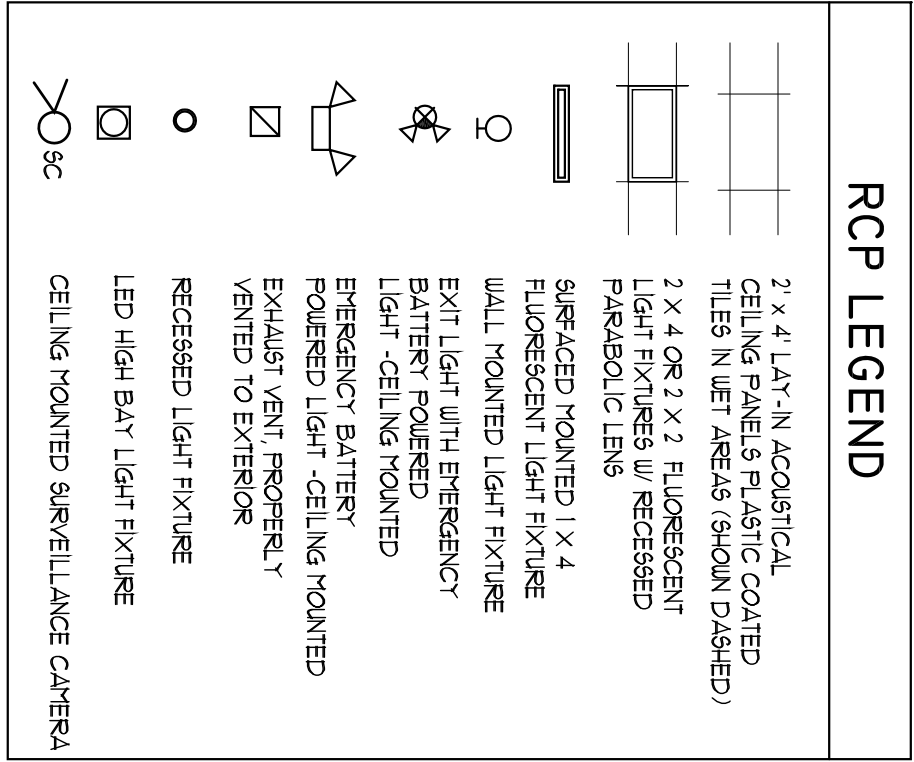
PROPOSED:
CONVENIENCE STORE
HAMBLIN PLAZA

Revisions
1. 11-28-22
2. 05-15-23

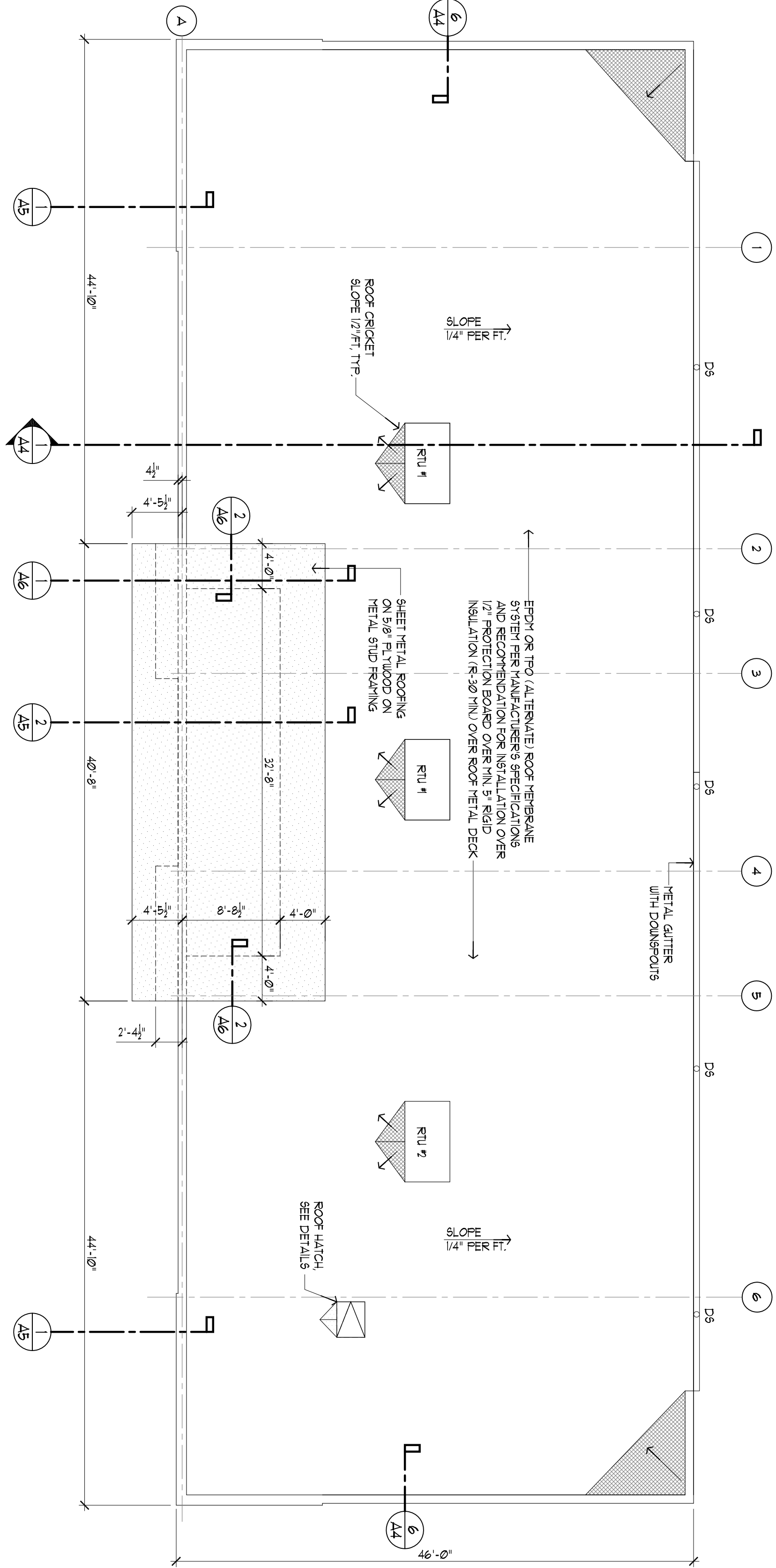
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Enlarged Plans
Schedules
Drawn By:
EC

A-1

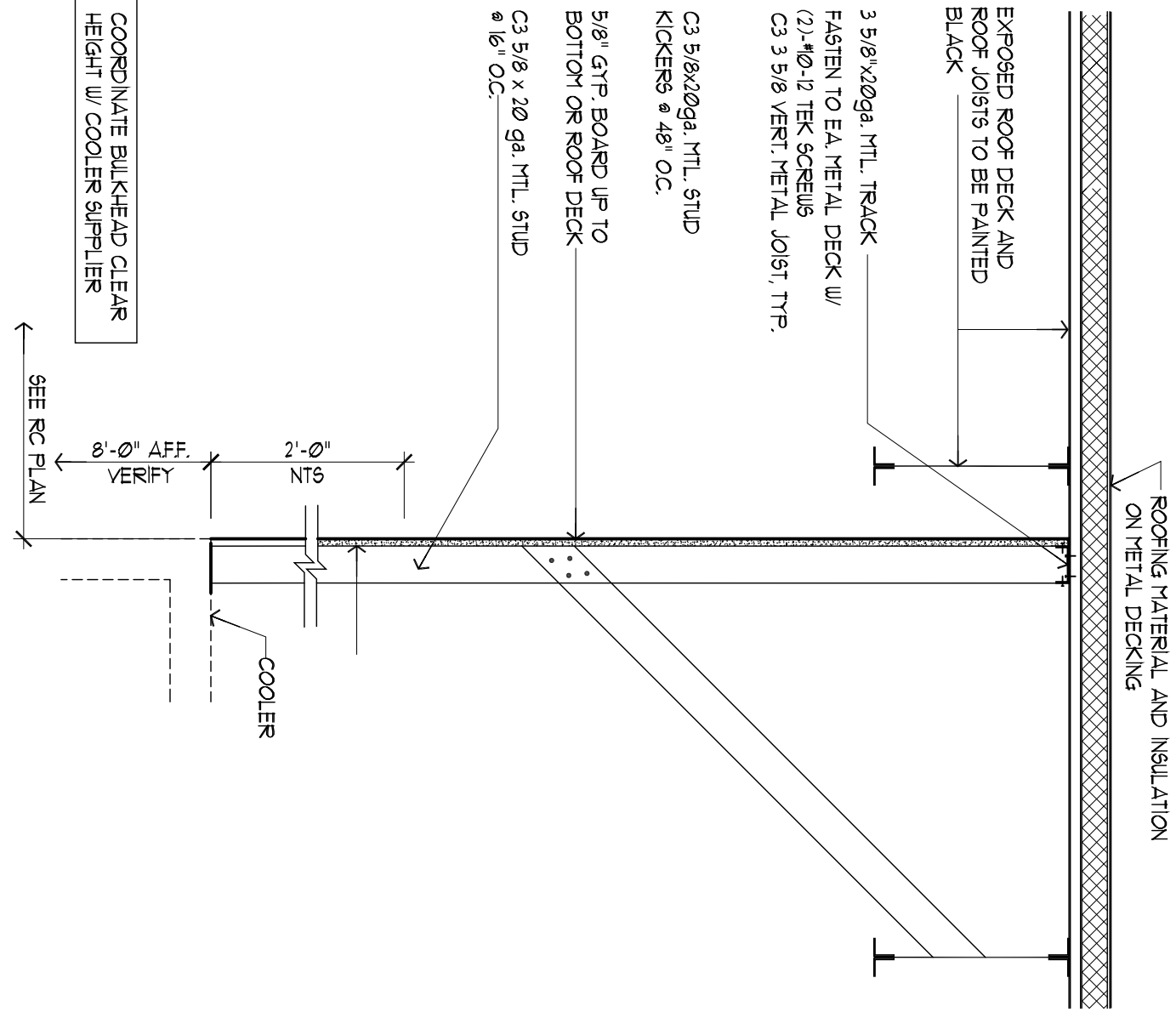
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Project Number:



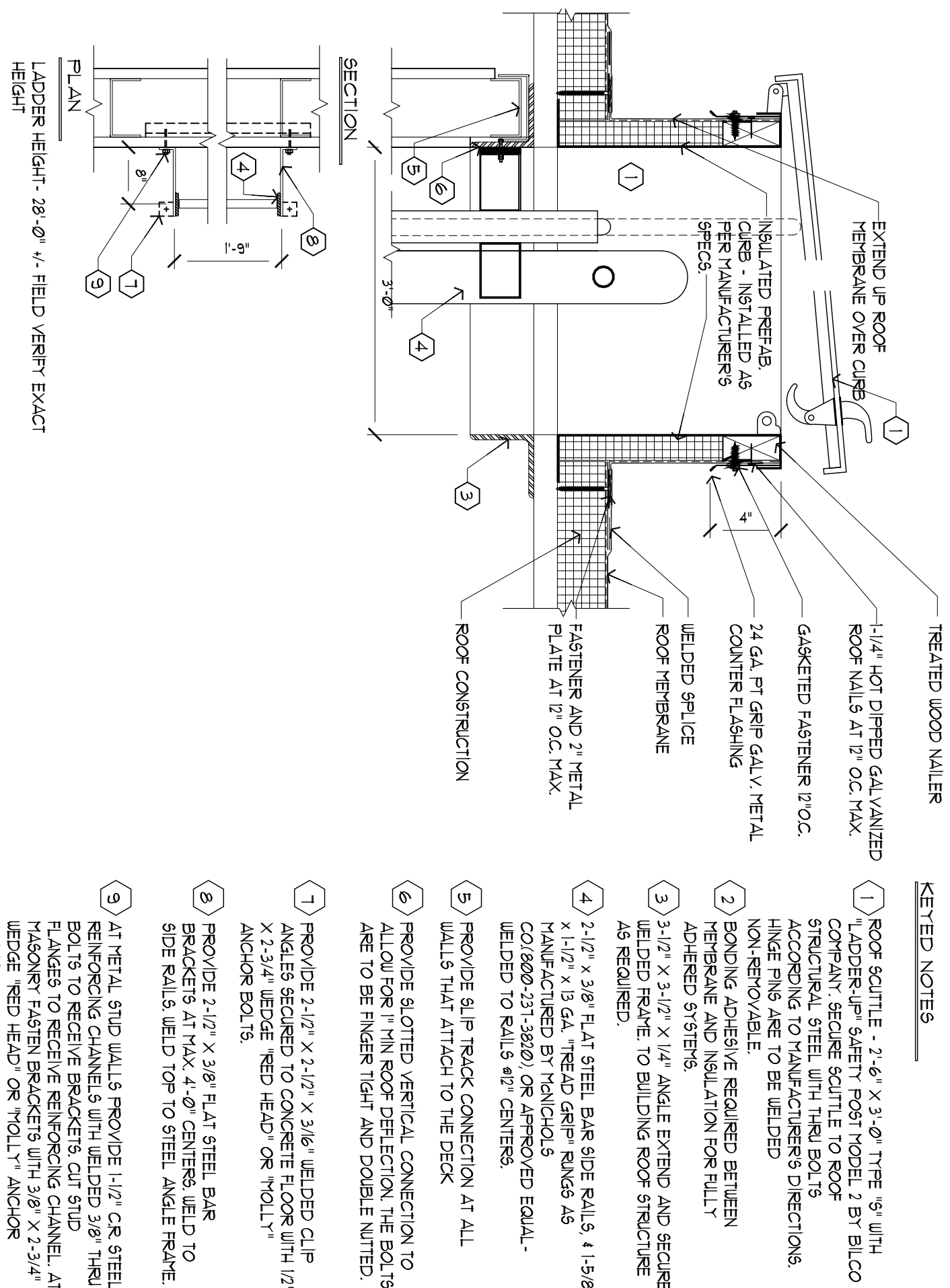
1 REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"



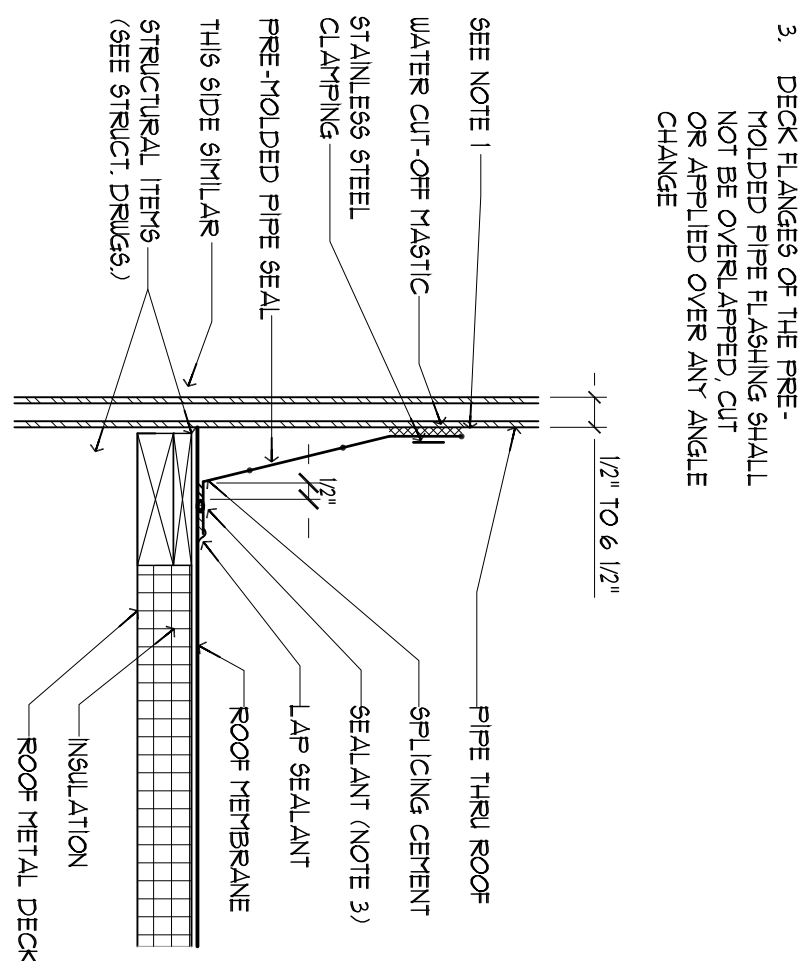
2 ROOF PLAN
SCALE: 1/8" = 1'-0"



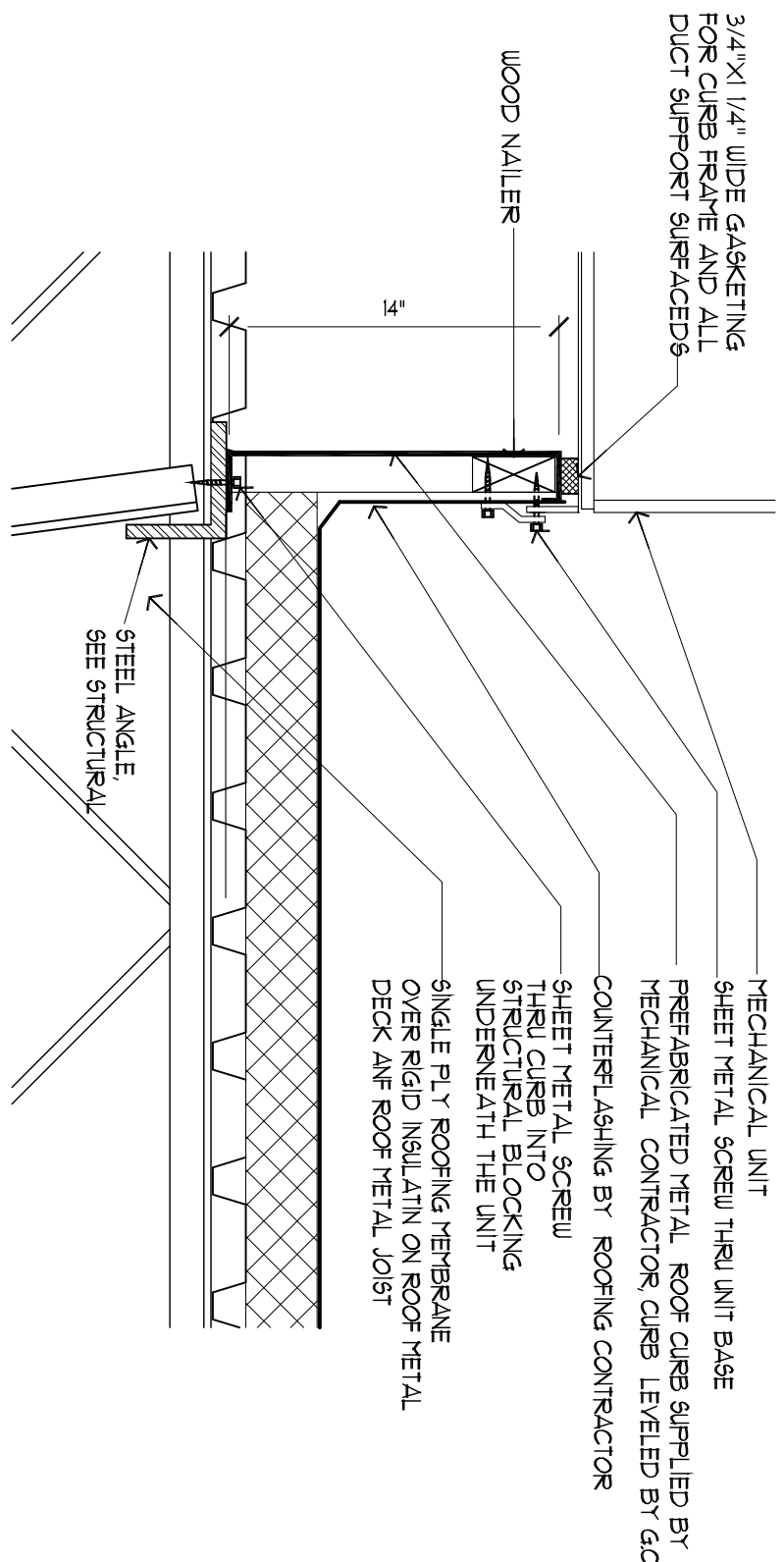
3 CEILING DETAIL
SCALE: 3/4" = 1'-0"



4 ROOF HATCH DETAIL
SCALE: 1 1/2" = 1'-0"



5 PIPE PENETRATION DETAIL
SCALE: 1 1/2" = 1'-0"



6 RTU CURB DETAIL
SCALE: 1 1/2" = 1'-0"

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LEE'S SUMMIT, MISSOURI

PROPOSED:
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HAMBLÉN PLAZA

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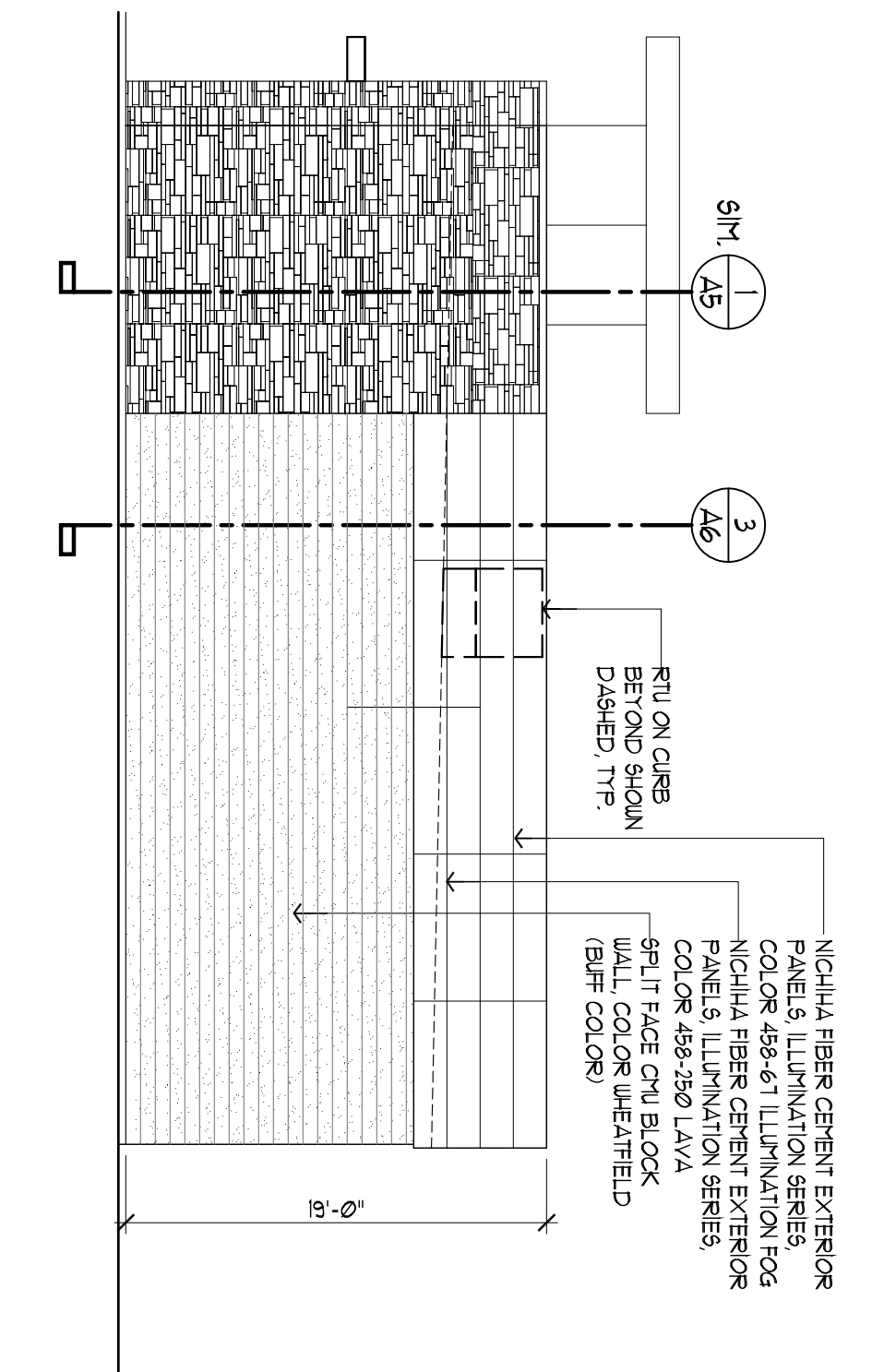
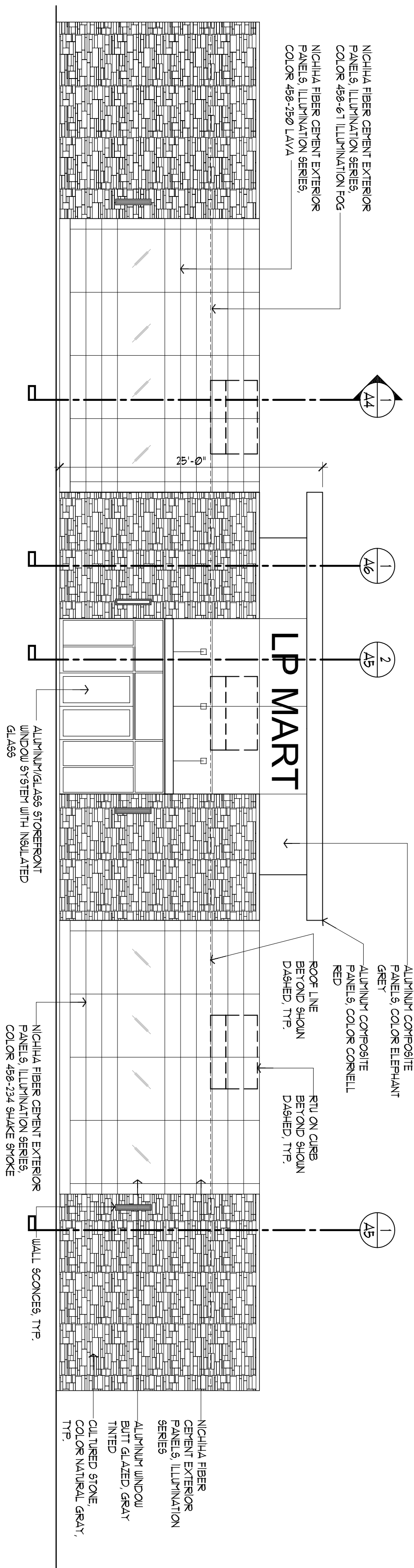
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Roof Plan & Details
RC Plan and details

Drawn By:
EC

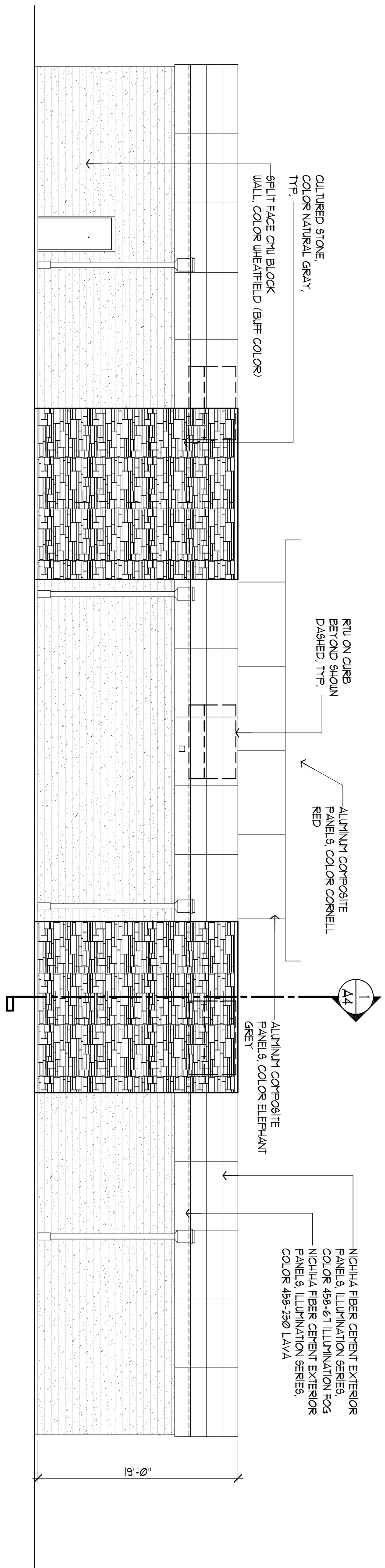
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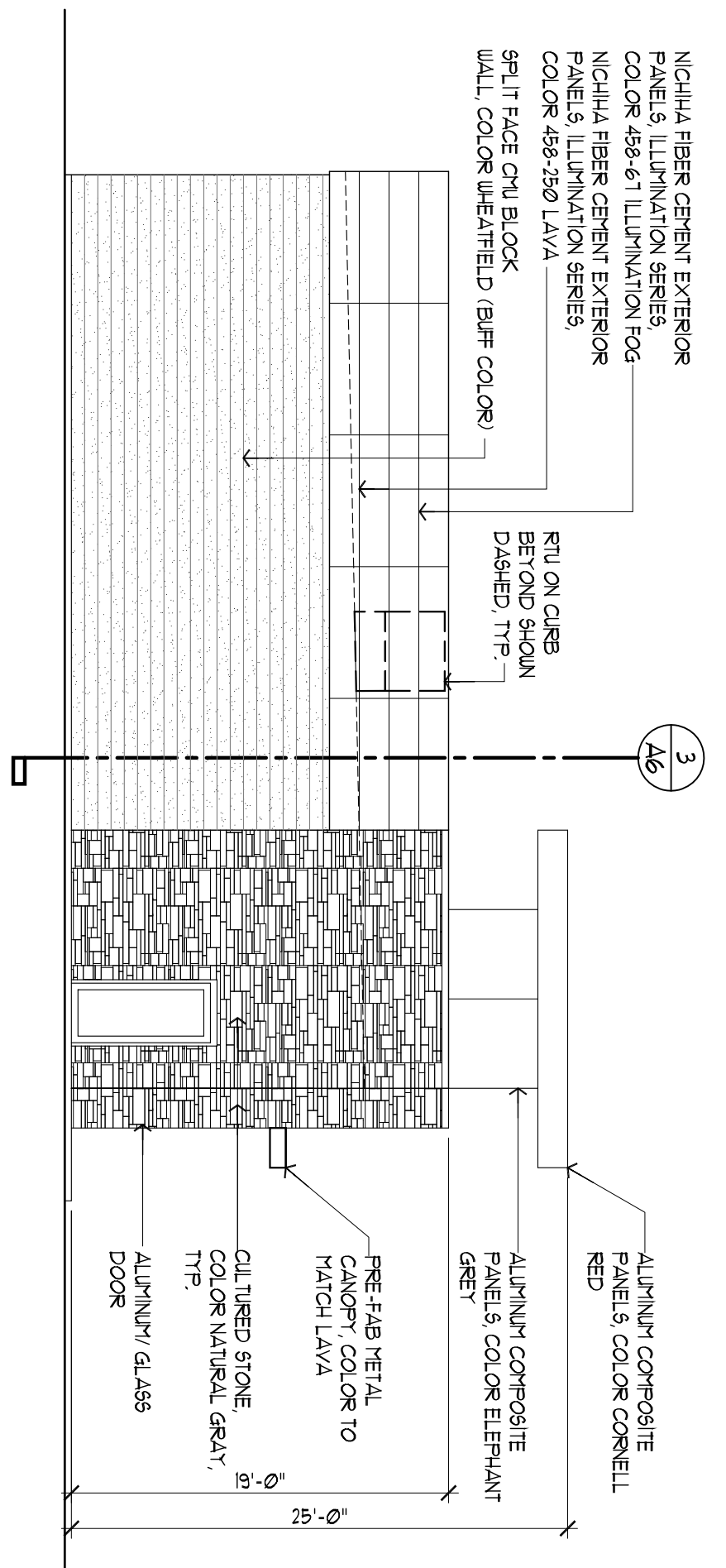
Date: 08-31-22
Project Number:



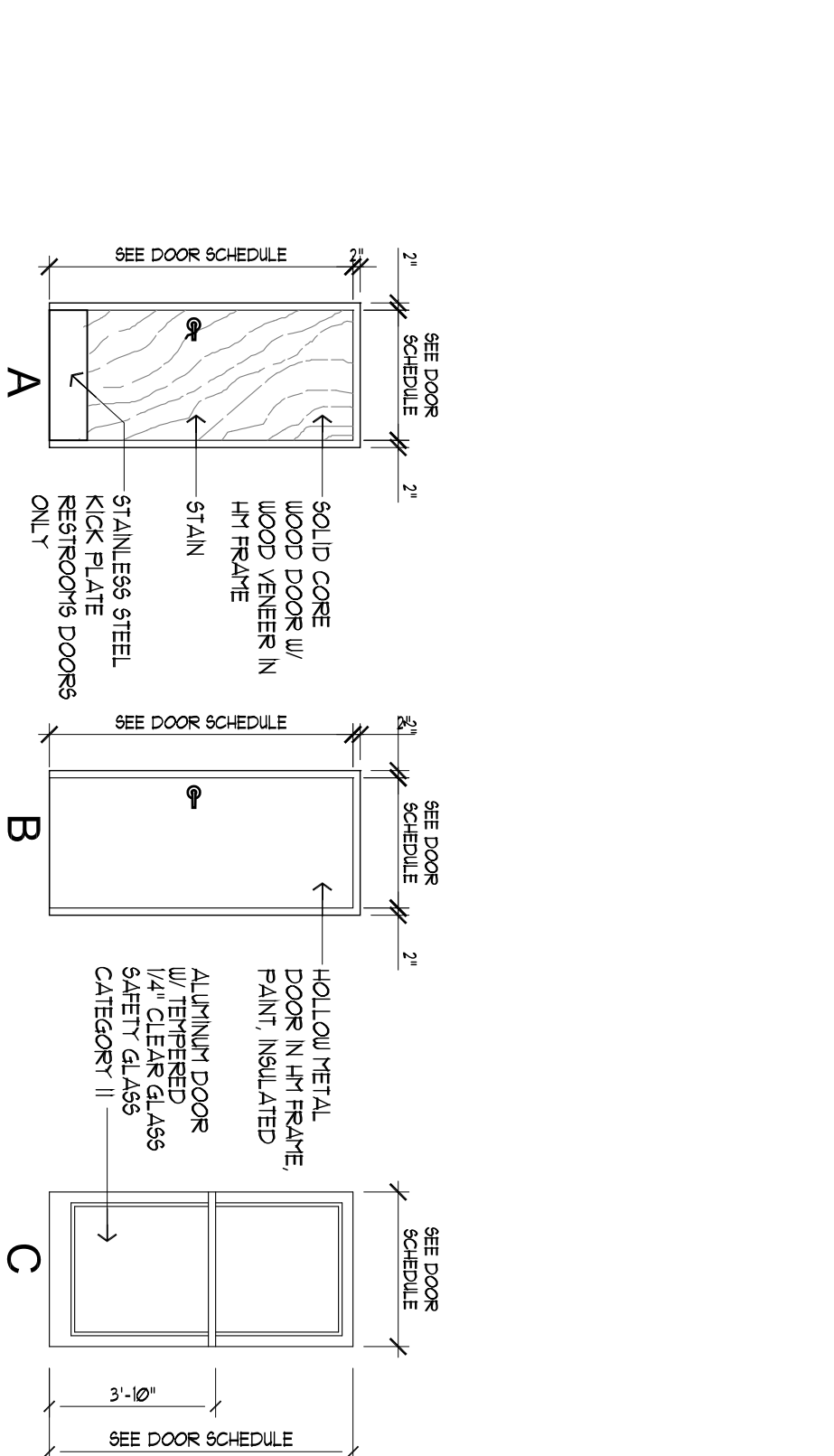
WEST ELEVATION



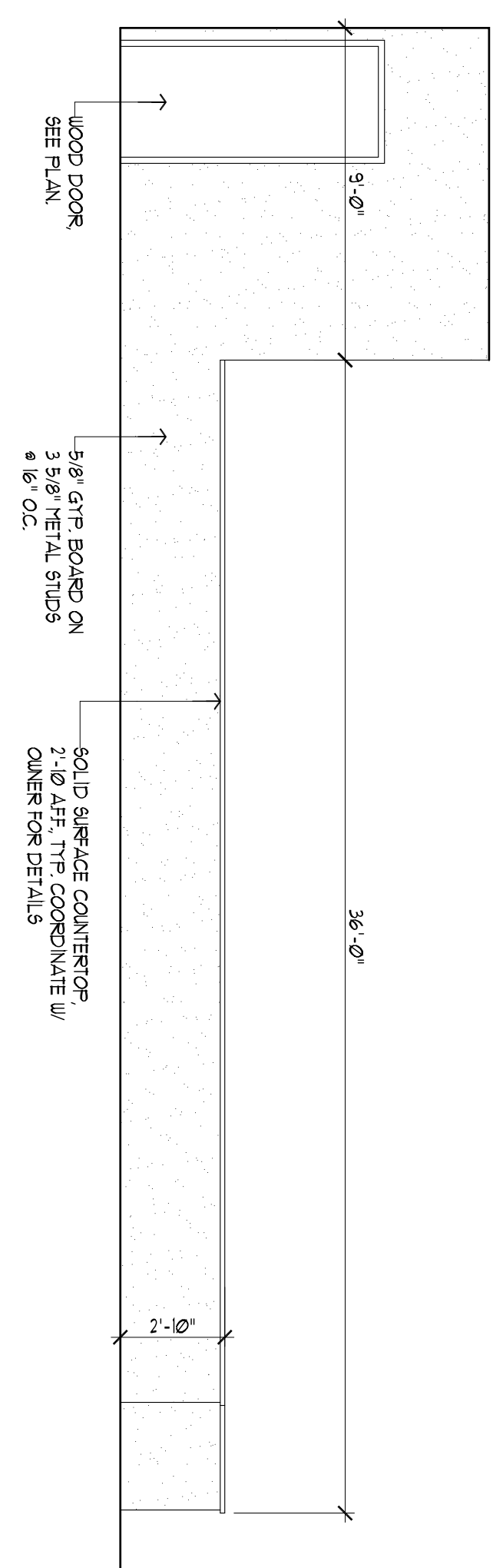
SOUTH ELEVATION



EAST ELEVATION



5
A3
SCALE: 1/4" = 1'-0"



| DOOR NO. | DOOR | | | TYPE | FRAME TYPE | HARDWARE GROUP | REMARKS |
|----------|--------------------|--------------|--------|------|------------|----------------|--|
| | SIZE | MATERIAL | RATING | | | | |
| 001 | PAIR 3'-0" X 7'-0" | ALUMINUM | | C | AL | 1 | <div>W/ AUTOMATIC DOOR LOCK</div> <div>2</div> |
| 002 | 3'-0" X 7'-0" | ALUMINUM | | C | HM | 1 | |
| 003 | 3'-0" X 7'-0" | WOOD | | A | HM | 2 | |
| 004 | 3'-0" X 7'-0" | WOOD | | A | HM | 2 | |
| 005 | 3'-0" X 7'-0" | WOOD | | A | HM | 3 | |
| 006 | 3'-0" X 7'-0" | WOOD | | A | HM | 3 | |
| 007 | 3'-0" X 7'-0" | HOLLOW METAL | | B | HM | 5 | |
| 008 | NOT USED | | | | | | |
| 009 | NOT USED | | | | | | |
| 010 | NOT USED | | | | | | |
| 011 | PAIR 3'-0" X 7'-0" | ALUMINUM | | C | AL | 1 | |
| 012 | 3'-0" X 7'-0" | WOOD | | A | HM | 4 | |
| 013 | 3'-0" X 7'-0" | WOOD | | A | HM | 4 | |
| 014 | 4'-0" X 7'-0" | HOLLOW METAL | | B | HM | 2 | |
| 015 | 4'-0" X 7'-0" | HOLLOW METAL | | B | HM | 2 | |

DOOR HARDWARE

| | | |
|---------|--|--|
| | CLINCHER AS REQUIRED BALANCE OF HARDWARE TO BE BY DOOR SUPPLIER DOOR CLOSERS AND EXIT DEVICE THRESHOLD AND DOOR HINGERS AS REQUIRED FINISH SHALL MATCH ALUMINUM DOOR | |
| GROUP 1 | 3 EA HANDBLES 1719, 1724, 1741, 1556D 3 EA EVER LOCKSET 1556P R100TS 1556D 1 EA WULF 870P 407B 1556D | WAGER SCHLAGE VES |
| GROUP 2 | 3 EA HANDBLES 1719, 1724, 1741, 1556D 3 EA EVER LOCKSET 1556P R100TS 1556D 1 EA T-LOR 510P 407B 1556D | WAGER SCHLAGE VES |
| GROUP 3 | 3 EA HANDBLES 1719, 1724, 1741, 1556D 3 EA EVER LOCKSET 1556P R100TS 1556D 1 EA T-LOR 510P 407B 1556D 1 EA DOOR CLOSER N1520-99 103 104 DOORS ONLY | WAGER SCHLAGE VES SARGENT |
| GROUP 4 | 3 EA HANDBLES 1719, 1724, 1741, 1556D 3 EA EVER LOCKSET 1556P R100TS 1556D 1 EA T-LOR 510P 407B 1556D 1 EA DOOR CLOSER N1520-99 | WAGER SCHLAGE VES SARGENT |
| GROUP 5 | 3 EA HANDBLES 1719, 1724, 1741, 1556D 3 EA EVER LOCKSET 1556P R100TS 1556D 1 EA P-MIC DEVICE C2331L UNIT LEVER 101 1556D 1 EA DOOR CLOSER N1520-99 1 EA THRESHOLD AND DOOR SLEEP | WAGER SCHLAGE VON DIERP SARGENT |

| NO. | NAME | FLOOR | BASE | WALLS | | | | | CEILING | |
|-----|--------------------|--------------------|------|-------|-------------|-------------|-----|--------------------|---------|--|
| | | | | N | E | S | W | MATERIAL | HEIGHT | |
| I01 | DIGITAL-SALES AREA | STAINED CONCRETE | VB | DUP | DUP | DUP | DUP | EXP. ROOF STRUCT. | 10'-0" | |
| I02 | CASHIER | LVT ON HD FLATROOF | VB | DUP | DUP | DUP | DUP | ACT-1 | 10'-0" | |
| I03 | OFFICE | STAINED CONCRETE | VB | DUP | DUP | DUP | DUP | ACT-1 | 10'-0" | |
| I04 | STORE | STAINED CONCRETE | VB | CHU | DUP | DUP | DUP | ACT-2 | 10'-0" | |
| I05 | KITCHEN | STAINED CONCRETE | VB | FRP | FRP | FRP | FRP | ACT-3 | 10'-0" | |
| I06 | STORE | STAINED CONCRETE | VB | CHU | DUP | DUP | DUP | ACT-2 | 10'-0" | |
| I07 | FOOD COURT | STAINED CONCRETE | VB | DUP | <div></div> | <div></div> | CHU | DUP | 10'-0" | |
| I08 | COOLERS | STAINED CONCRETE | VB | DUP | DUP | DUP | CHU | BY COOLER SUPPLIER | | |
| I09 | FREEZER | STAINED CONCRETE | VB | DUP | DUP | DUP | CHU | BY COOLER SUPPLIER | | |
| I10 | BEER COOLERS | STAINED CONCRETE | VB | DUP | DUP | DUP | CHU | BY COOLER SUPPLIER | | |
| III | BEER CAVE | STAINED CONCRETE | VB | DUP | DUP | DUP | CHU | BY COOLER SUPPLIER | | |
| I11 | MEN | STAINED CONCRETE | CT | DUP | CT | CT | DUP | DUP | 9'-0" | |
| I13 | WOMEN | STAINED CONCRETE | CT | CT | DUP | CT | DUP | DUP | 9'-0" | |

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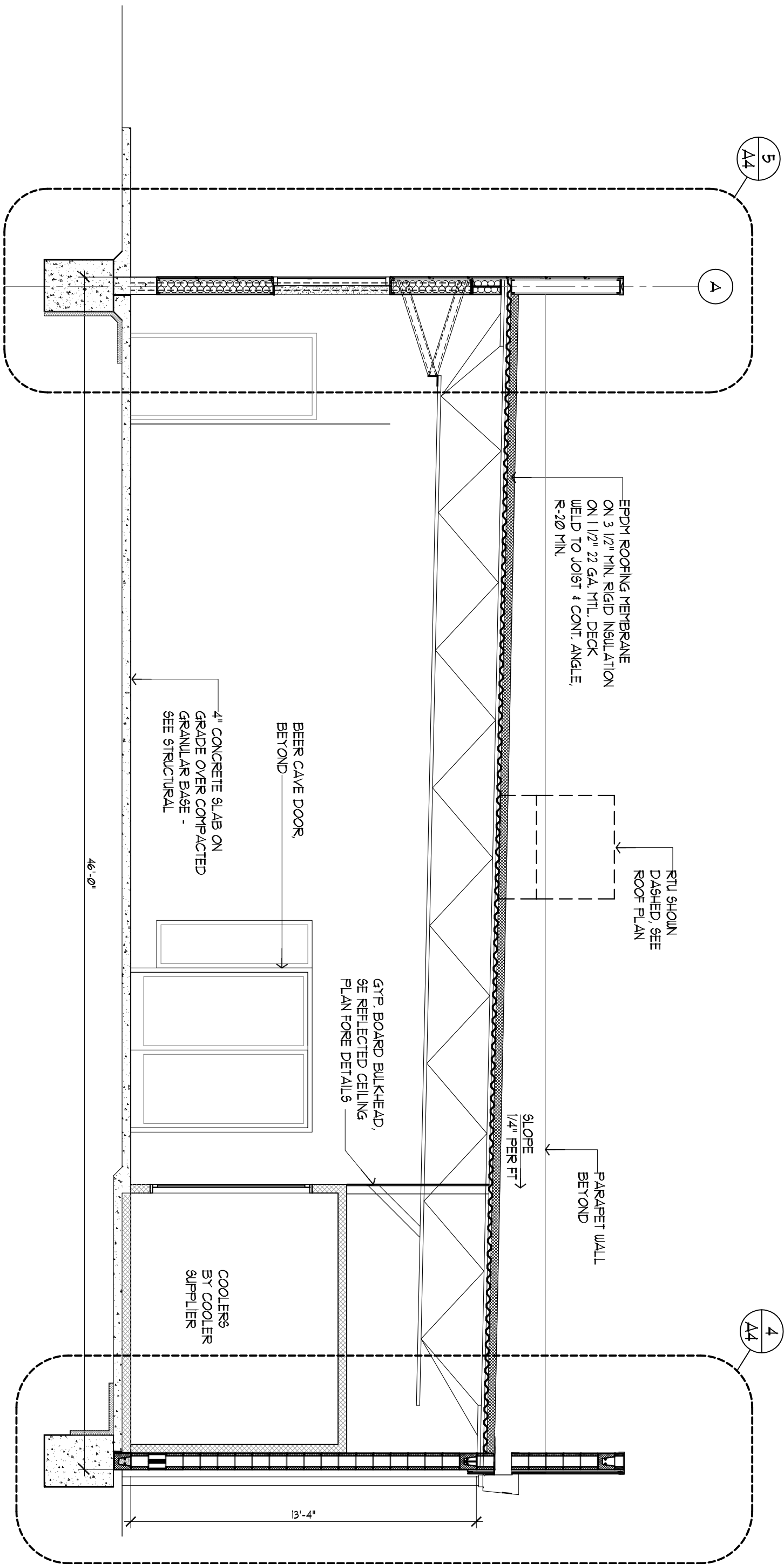
DOOR TYPES AND SCHEDULE

EA DOOR CLOSER EN130-P3
EA TRESHOLD AND DOOR SWEEP

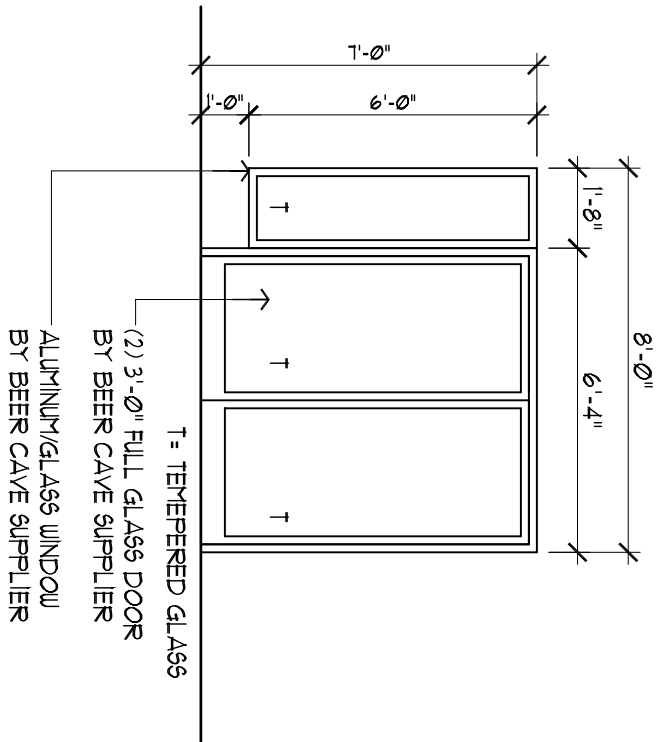
ROOM FINISH SCHEDULE

| | | | | | | | | |
|-----|-------|---------------------|----|------|-----|-----|-----|-------|
| I12 | MEN | STAINED CONCRETE | CT | BILE | DUP | DUP | DUP | 9'-0" |
| I13 | WOMEN | STAINED CONCRETE | CT | DUP | DUP | CT | DUP | 9'-0" |

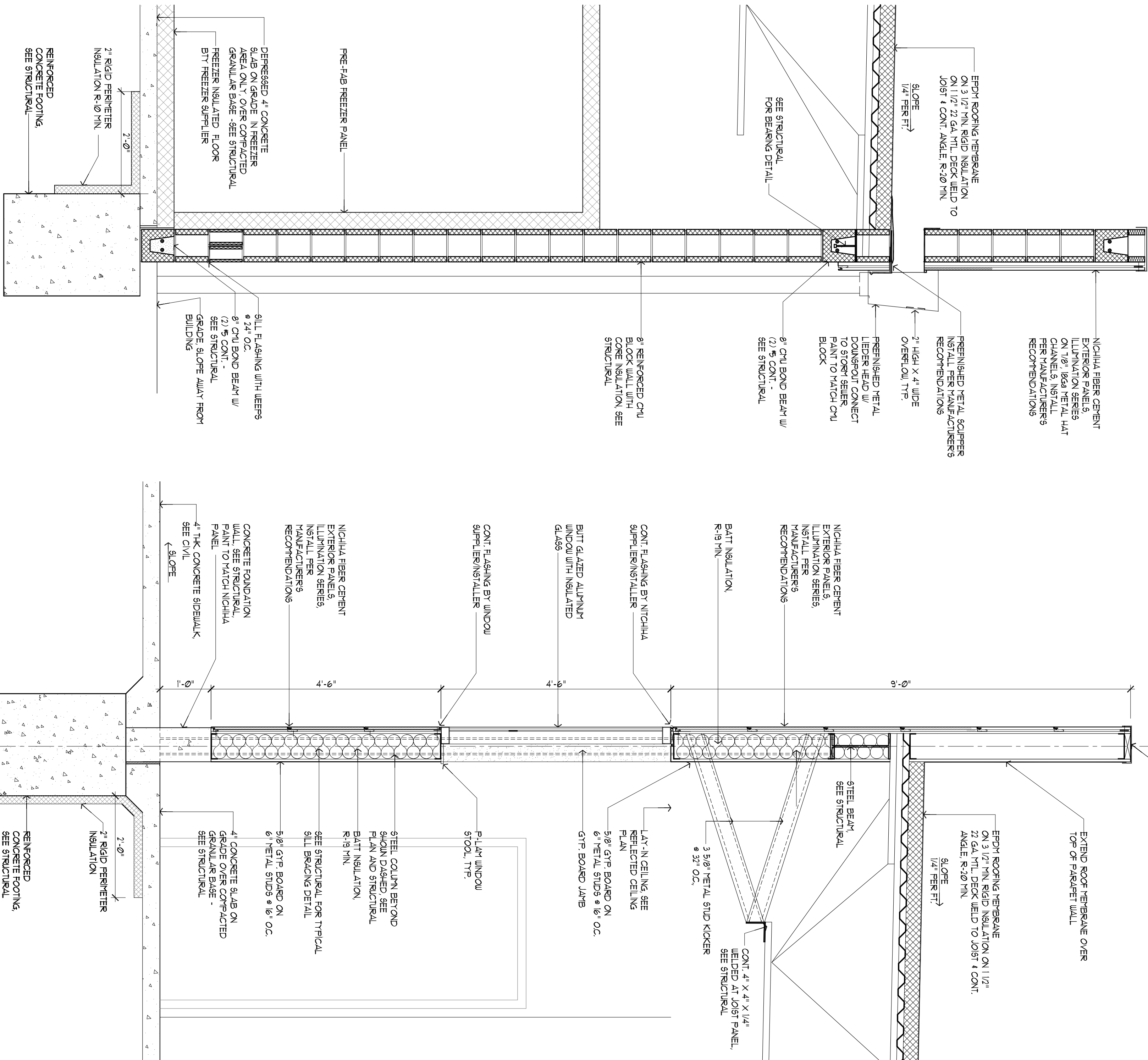




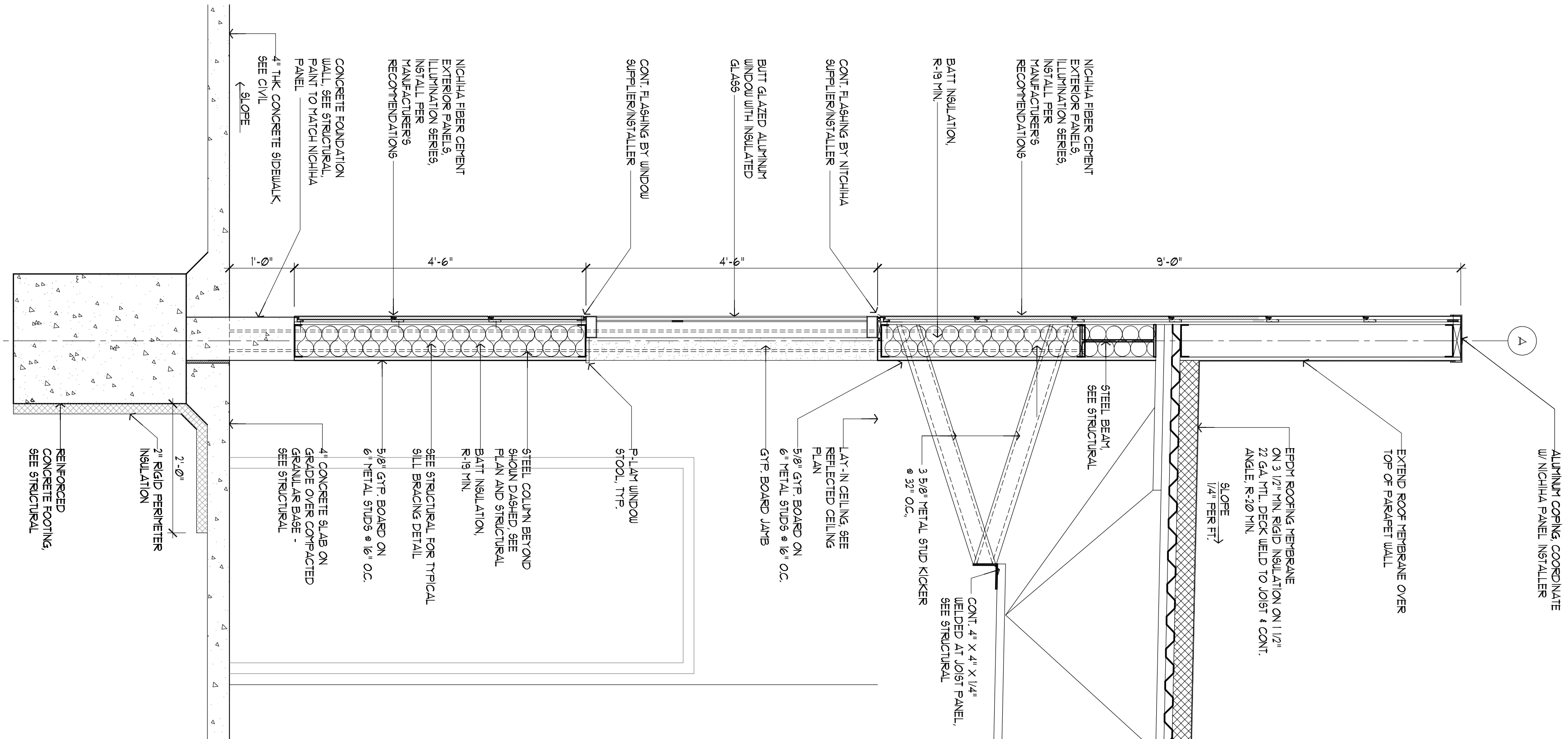
1 BUILDING SECTION
SCALE: 1/4" = 1'-0"



2 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



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



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

RANGWALA ARCHITECTS
ARCHITECTURE SITE PLANNING

201 S. CENTRAL AVE, SUITE #203, ST. LOUIS, MO-63105
(314) 863-6661 FAX (314) 863-3718



LEE'S SUMMIT, MISSOURI

PROPOSED:
CONVENIENCE STORE
HAMBLÉN PLAZA

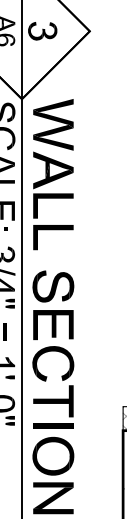
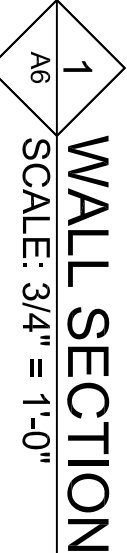
Revisions
1. 11-28-22
2. 05-15-23

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Building Section
Interior Elevations
Drawn By:
EC

Sheet Number

A-4

Date:08-31-22
Project Number:

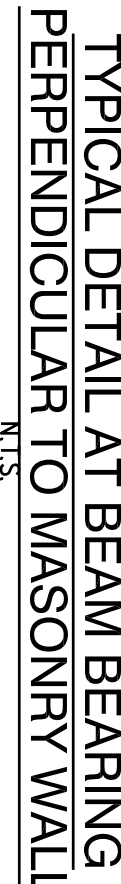


SEE STRUCTURAL
GRADE, SLOPE AWAY FROM
BUILDING

1. EXPANSION ANCHORS TO BE HILTI KWIK BOLT III, SIMPSON WEDGE-ALL, OR APPROVED EQUAL.
2. INSTALLER OF EXPANSION ANCHOR SHALL BE CERTIFIED BY ANCHOR MANUFACTURER FOR PROPER INSTALLATION REQUIREMENTS AND PROCEDURES.

N.I.S.

N.I.S.



FOUNDATIONS FOR REINFORCING SIZE AND SPACING SEE FOUNDATION SECTIONS.

LOCATE POUR JOINTS AT A MAXIMUM SPACING OF 100'-0" RETAINING WALLS

LOCATE POUR JOINTS AT A MAXIMUM SPACING OF 25'-0" LOCATE POUR JOINTS AT A MAXIMUM SPACING OF 50'-0" O.C. AND CONTROL JOINTS AT A MAXIMUM SPACING OF 50'-0" ALTERNATE AT 25'-0" O.C. TYP. U.N.O.

Y.S.

NOTICE: THE STRUCTURAL ENGINEER OF RECORD IS NOT RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION INCLUDING TECHNIQUES OF FABRICATION AND SAFETY AT THE CONSTRUCTION SITE. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF ALL TEMPORARY SHORING, BRACING, BOLTING, WELDING, LUGS, SEATS, ANCHORS, ETC. TO SAFELY CONSTRUCT THE PROJECT. THE CONTRACTOR IS TO COORDINATE BETWEEN ARCHITECTURAL, STRUCTURAL AND OTHER DISCIPLINES' DRAWINGS AND TO BRING ANY DISCREPANCY TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO GOING AHEAD WITH CONSTRUCTION OF THAT SECTION.

HAMBLLEN PLAZA

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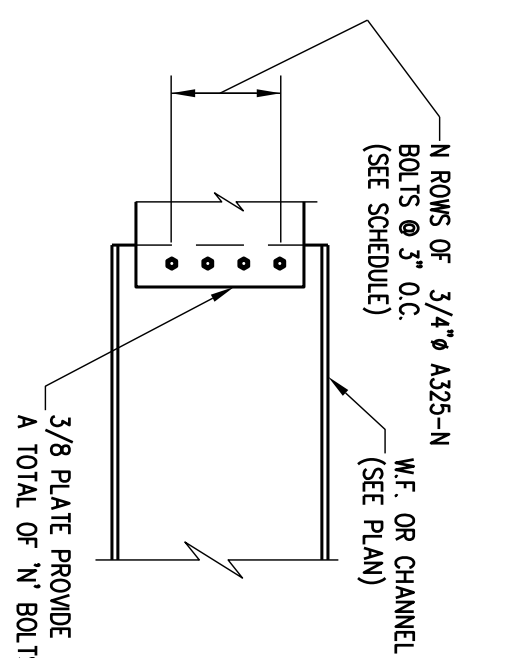
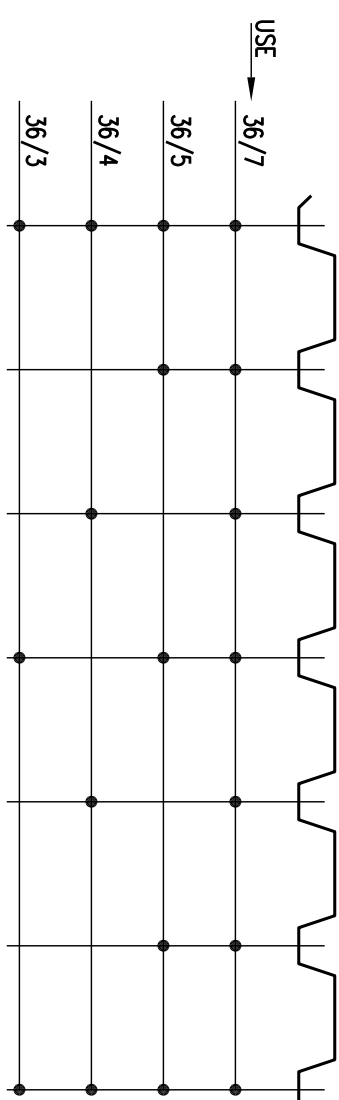
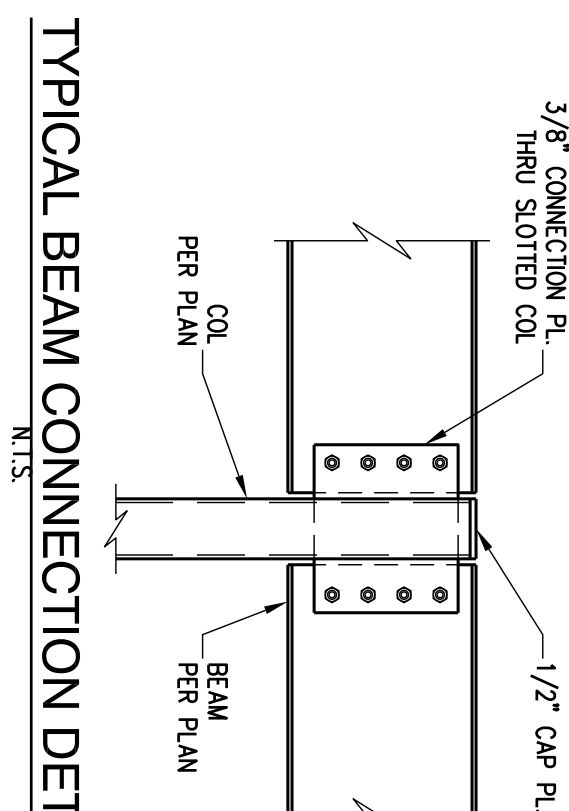
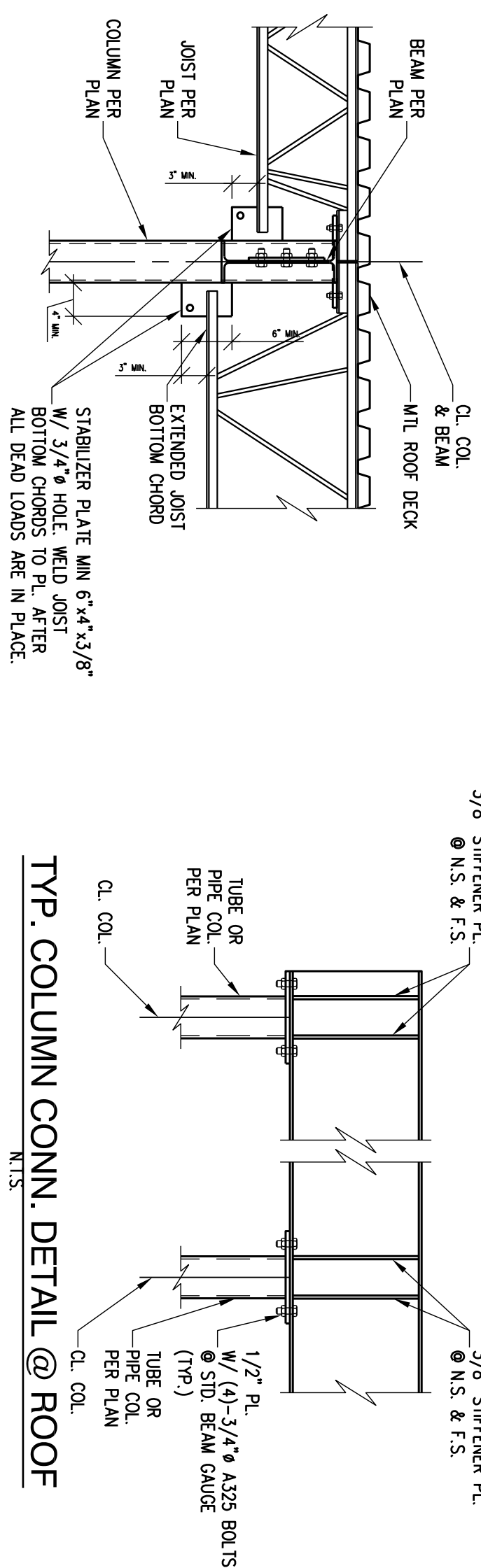
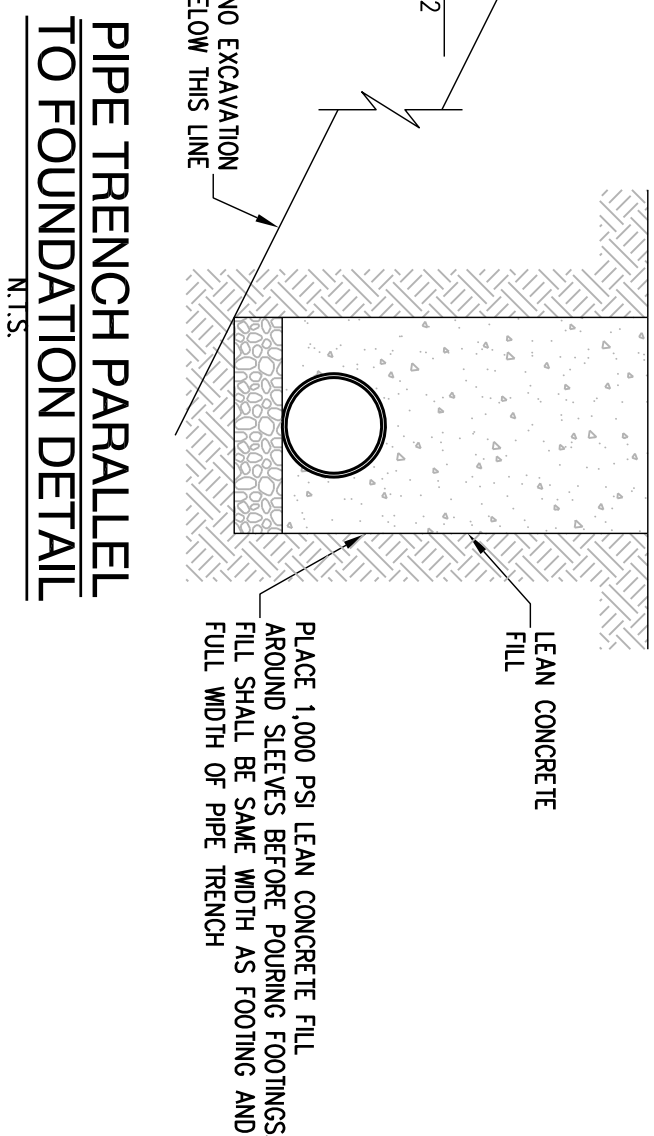
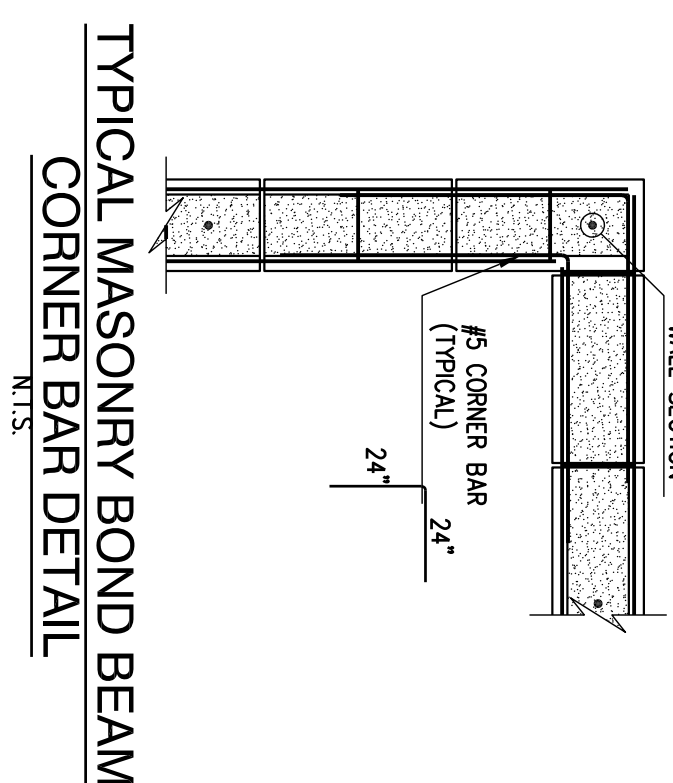
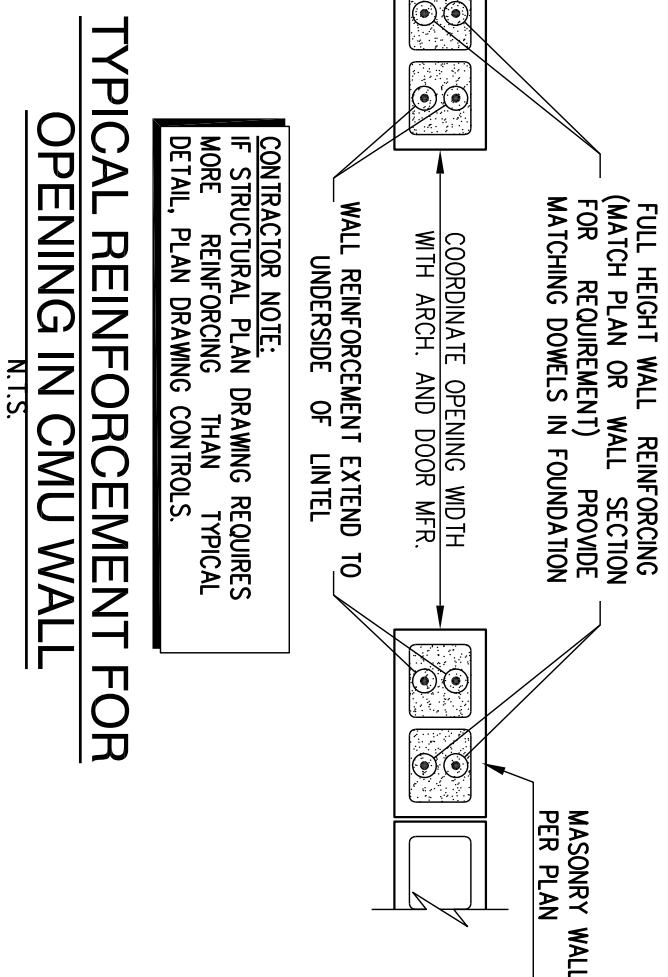
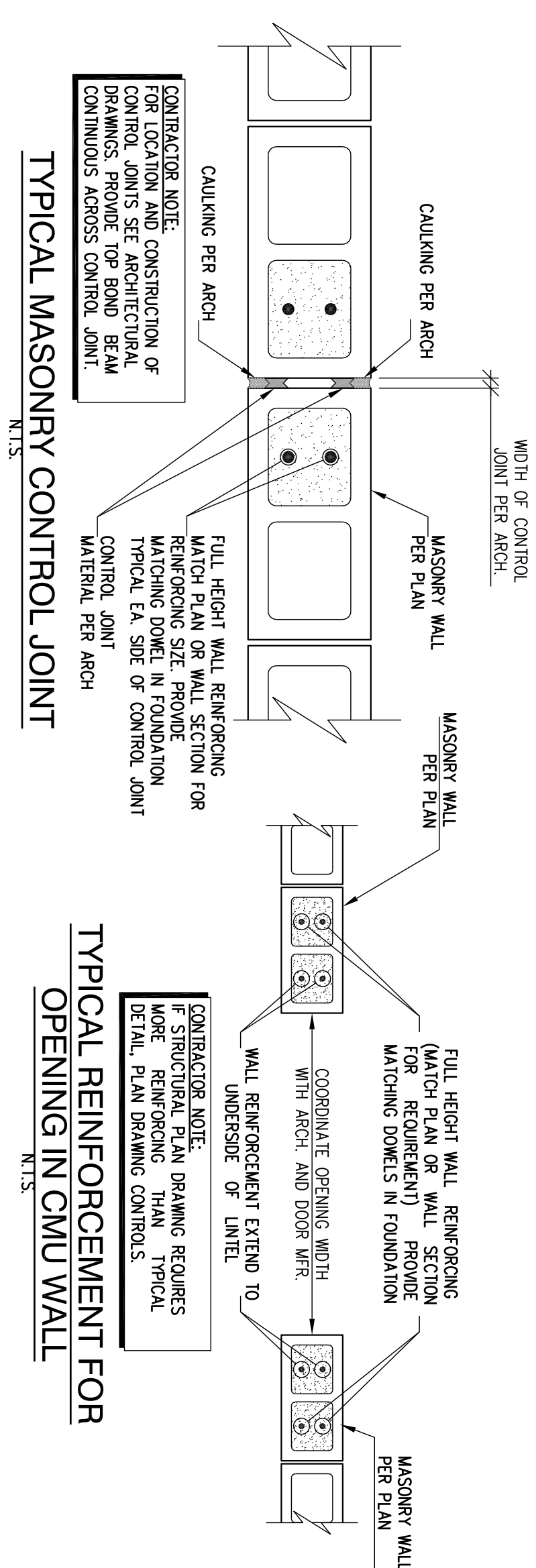
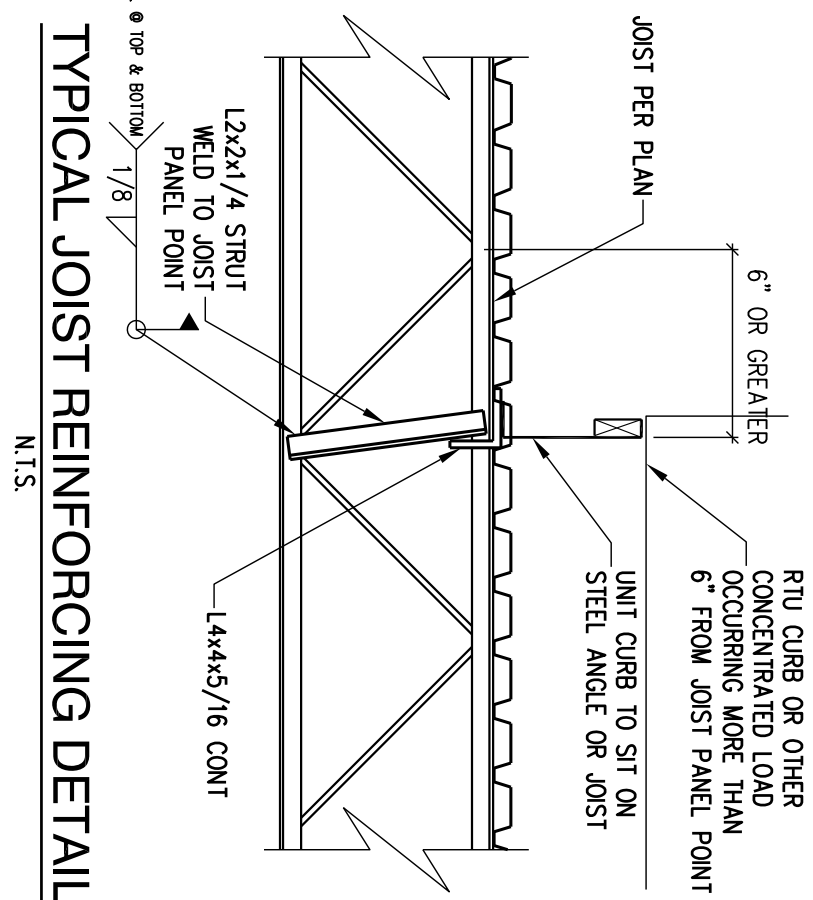
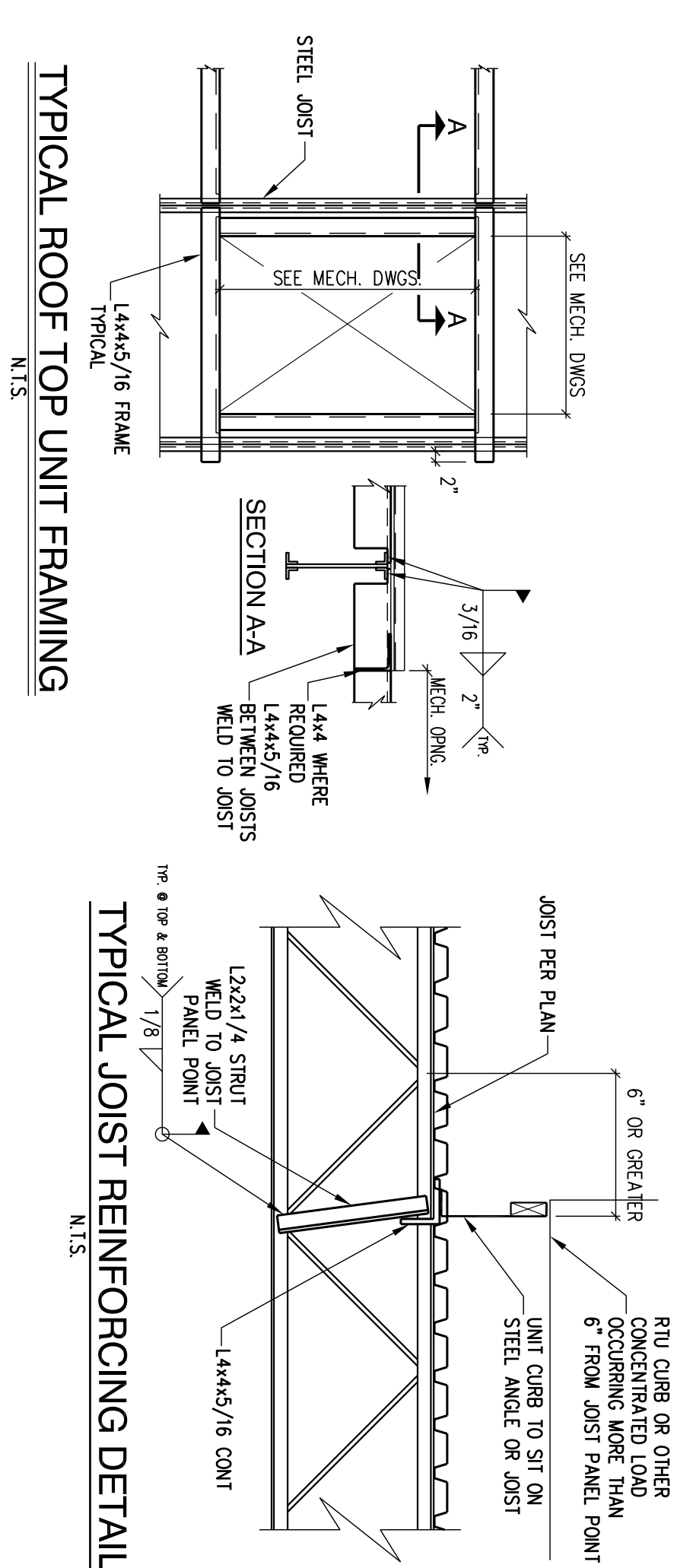
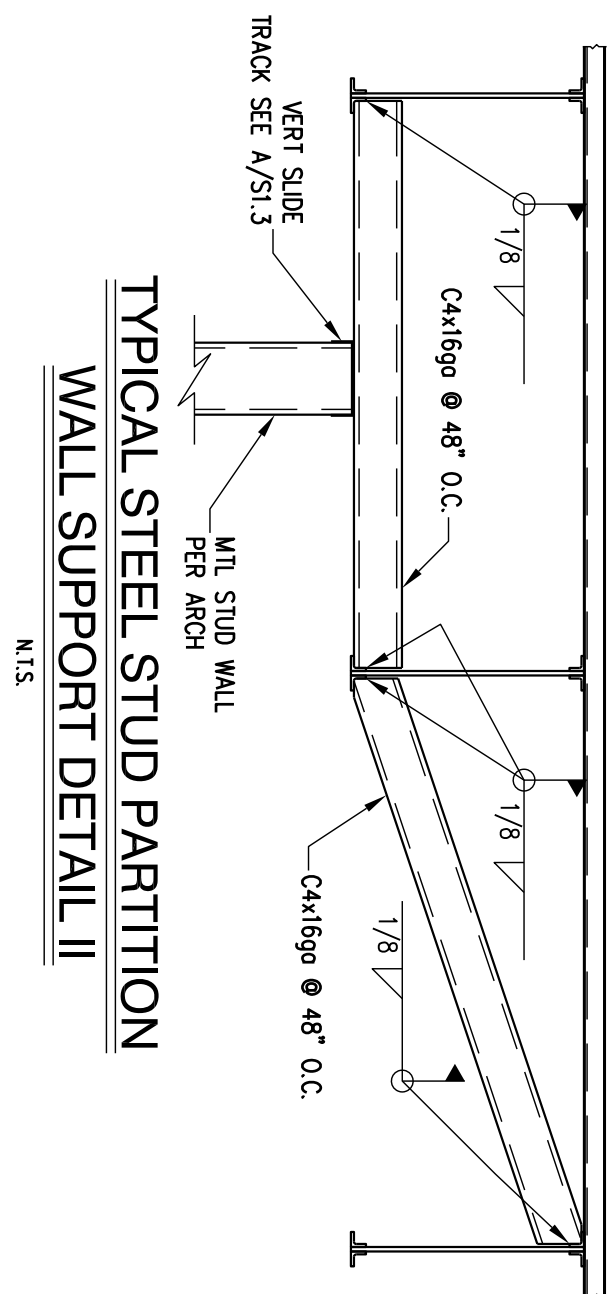
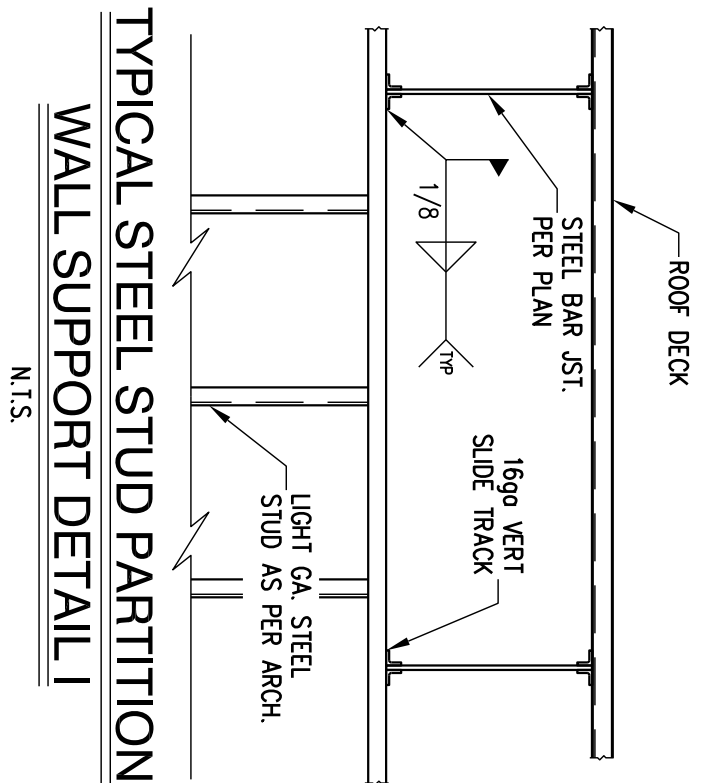
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AND TYP. DETAILS

Sheet Number

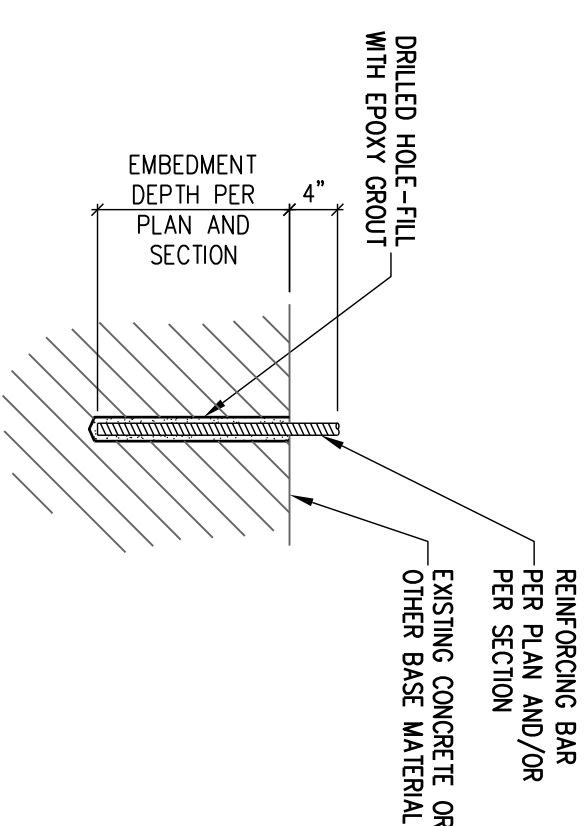
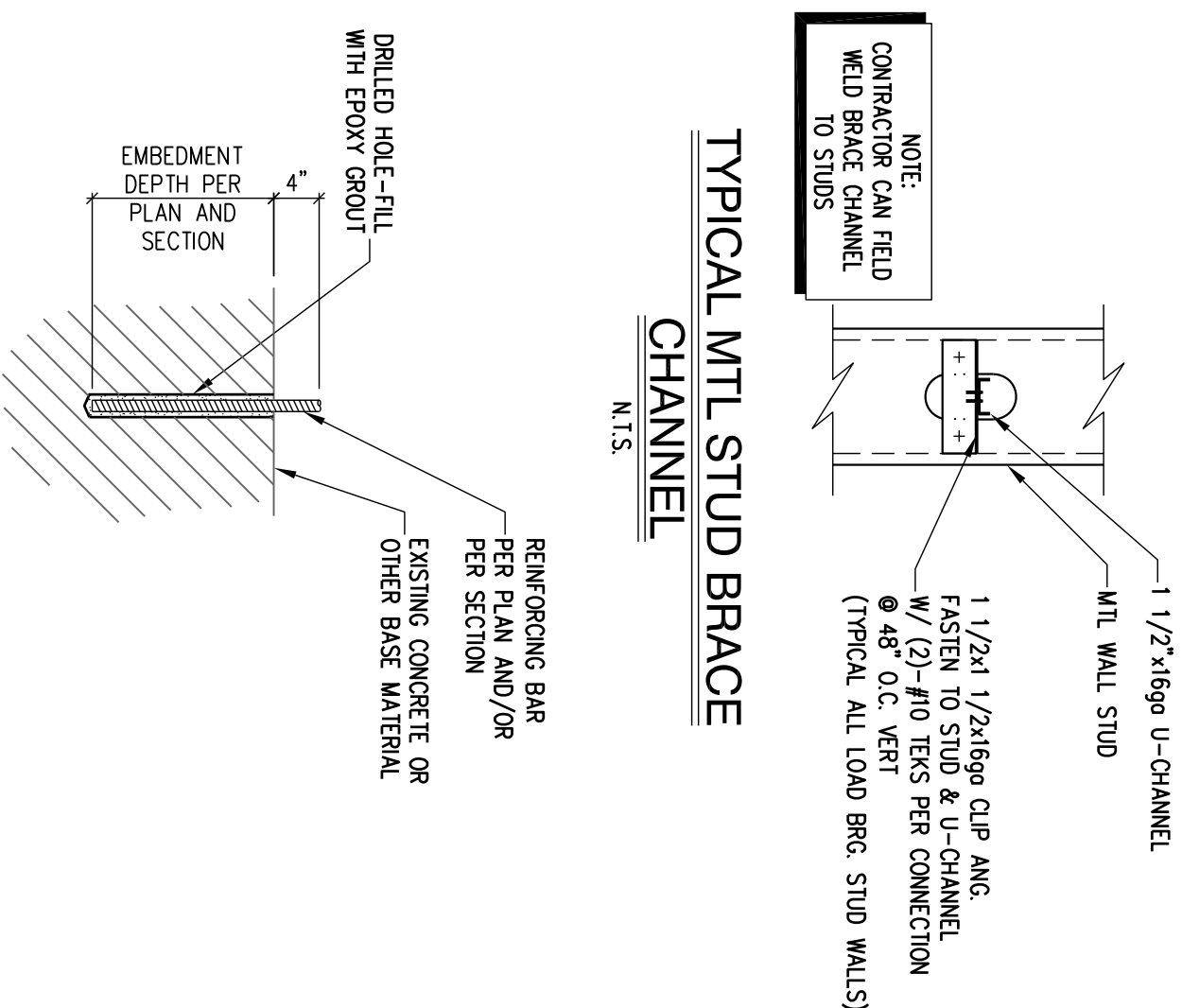
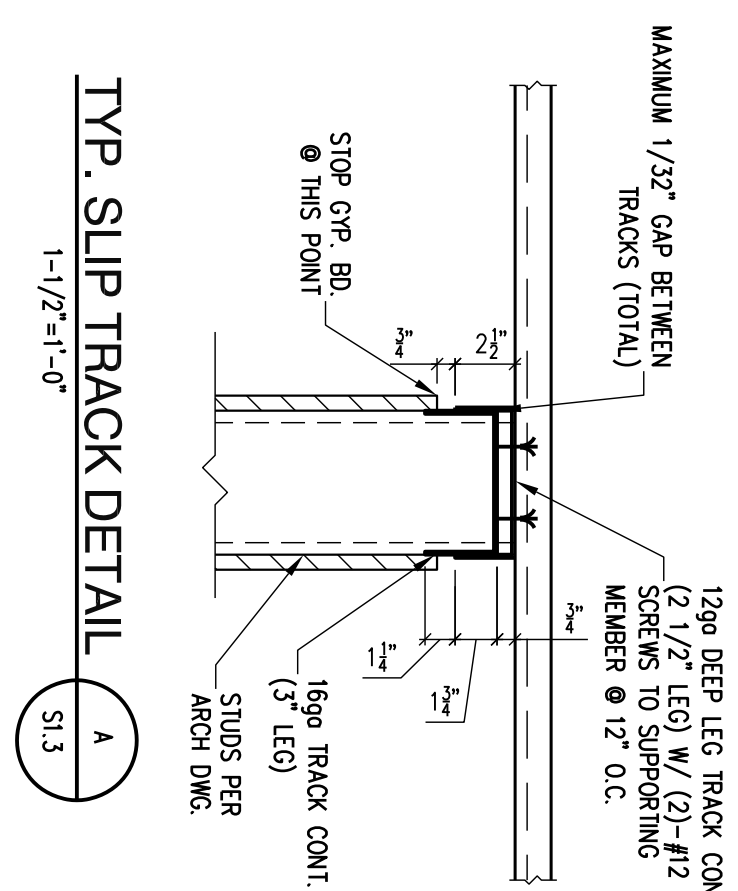
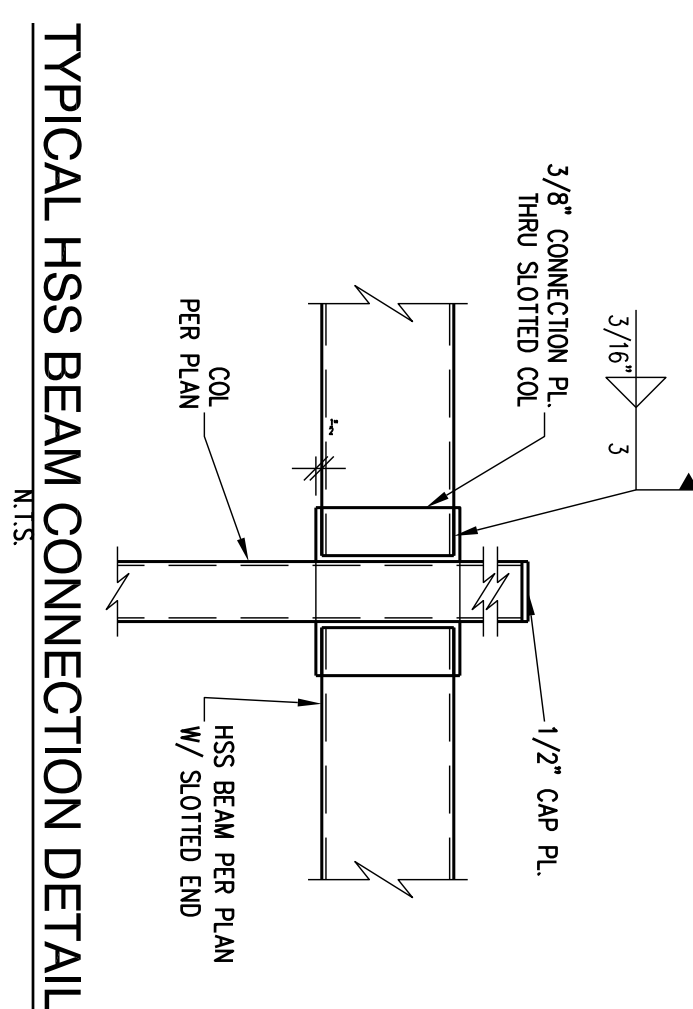
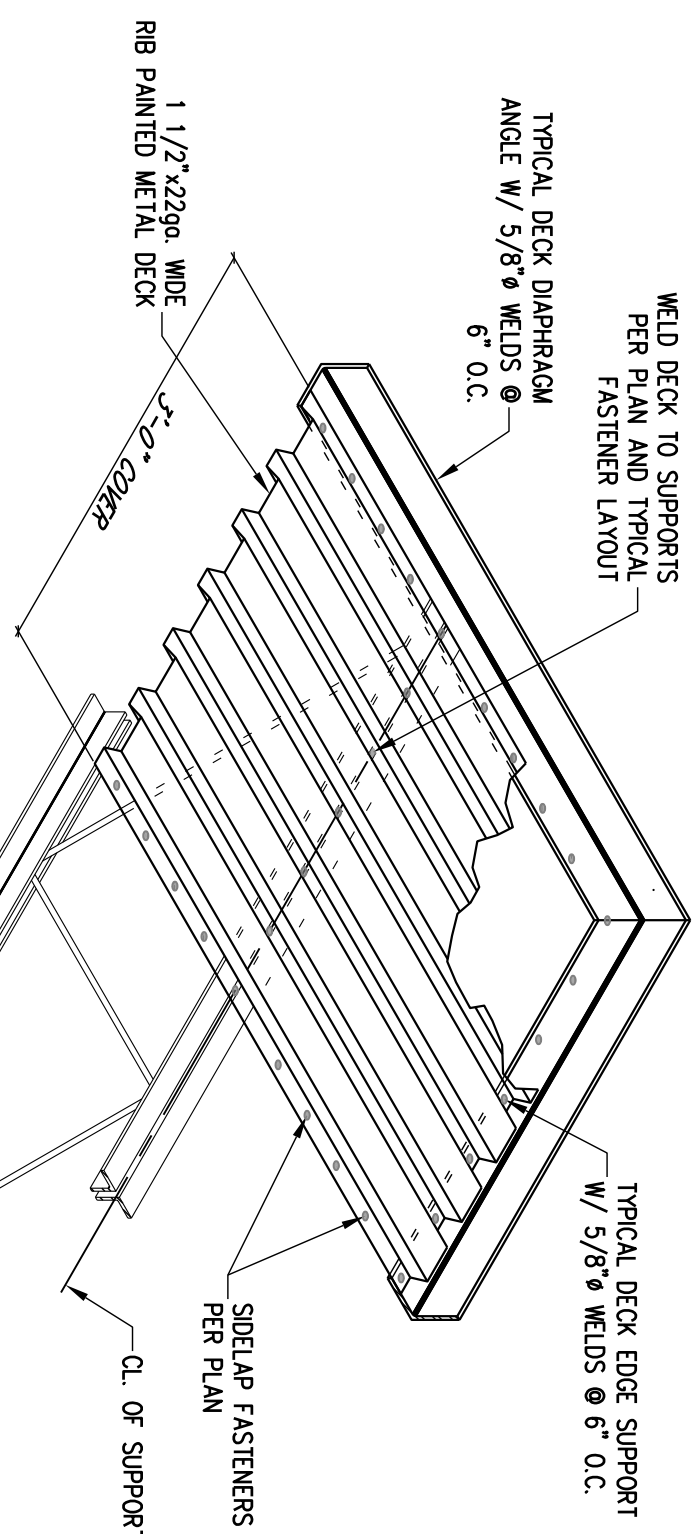
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Date: 3-9-2023
Project Number:

Date: 3-9-2023
Project Number: 22032



| NOMINAL BEAM DEPTH (INCHES) | N |
|--------------------------------|---|
| 8" & 10" | 2 |
| 12" & 14" | 3 |
| 16" | 4 |
| 18" | 5 |
| 21" | 6 |
| 24" & 27" | 7 |



1. DRILL HOLE TO THE REQUIRED DEPTH. APPROX. 1/8" NUT DIAMETER THAN THE REBAR.
2. CLEAN OUT DUST AND FRAGMENTS, PREFERABLY USING A JET OF WATER OR COMPRESSED AIR AND A NYLON BRUSH. DO NOT USE A WIRE BRUSH.
3. INJECT APPROPRIATE EPOXY GROUT INTO PRE-DRILLED HOLE IN BASE MATERIAL.
4. PLACE ANCHOR ON TOP OF EPOXY GROUT AND DRIVE ANCHOR TO BOTTOM OF HOLE.
5. CARE SHOULD BE TAKEN NOT TO DISTURB THE INSTALLED REBAR UNTIL EPOXY GROUT HAS CURED.

NOTE:
CONTRACTORS TO COMPLY WITH ALL GOVERNING REGULATIONS AND REQUIREMENTS
INCLUDING OSHA REGULATIONS 29 CFR PART 1926 FOR CONSTRUCTION INDUSTRY.

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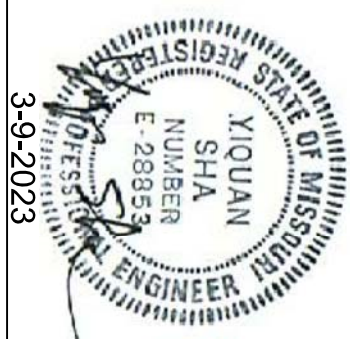
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PROPOSED:

CONVENIENCE STORE

HAMBLÉN PLAZA

LEE'S SUMMIT, MISSOURI



RANGWALA ARCHITECTS
ARCHITECTURE SITE PLANNING

201 S. CENTRAL AVE, SUITE #203, ST. LOUIS, MO-63105
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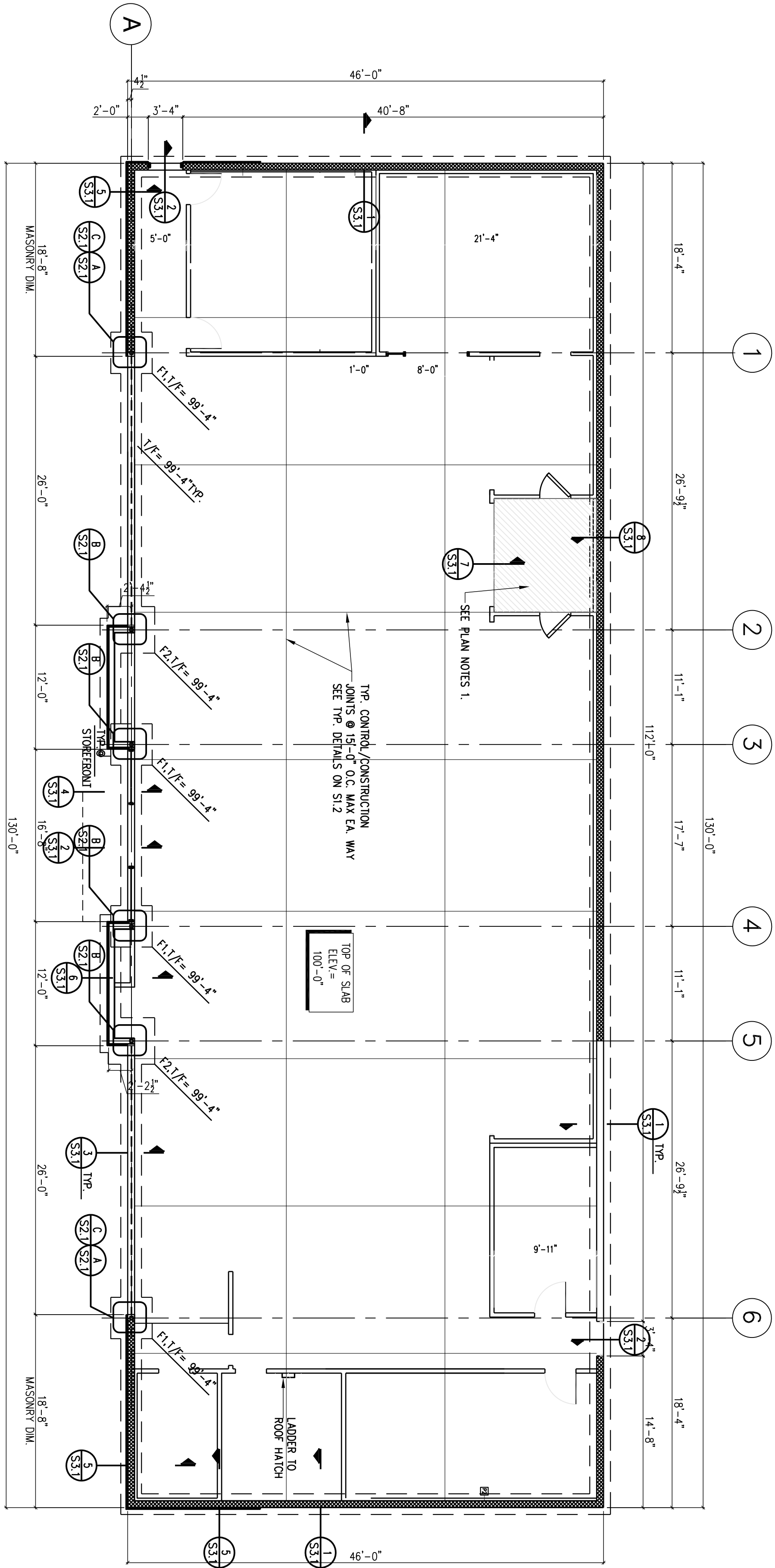
SUMMIT ENGINEERING GROUP LLC
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Email: eng@summit-engg.com

Sheet Title:
TYP. DETAILS
Drawn By:

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| DS |
| Sheet Number |

S1.3
Date: 3-9-2023
Project Number: 22

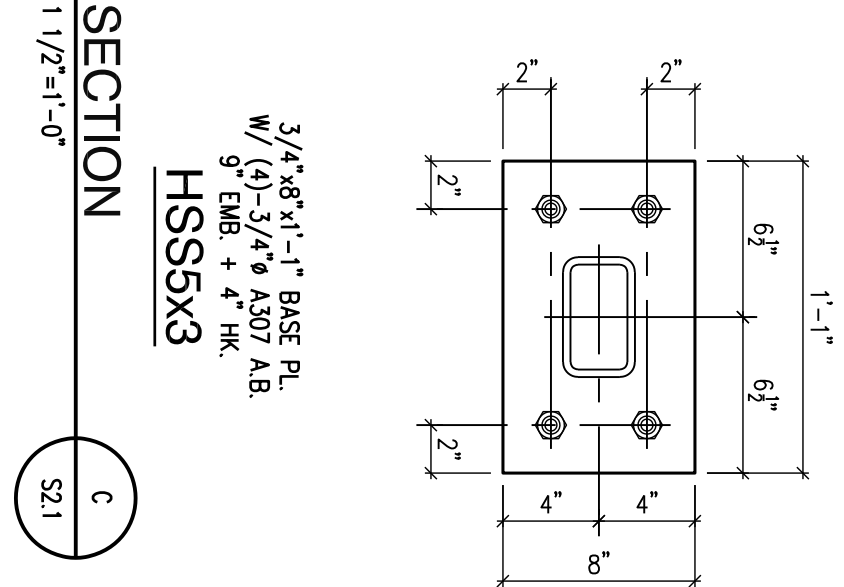
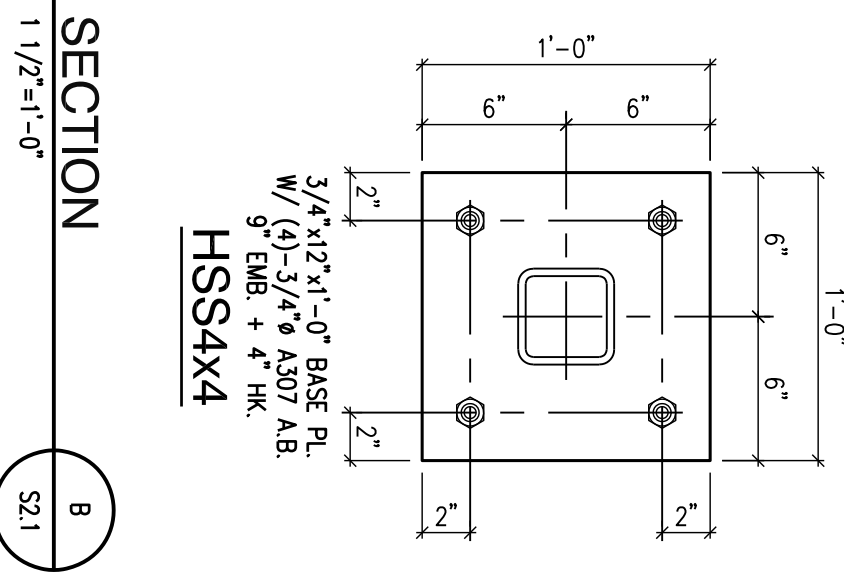
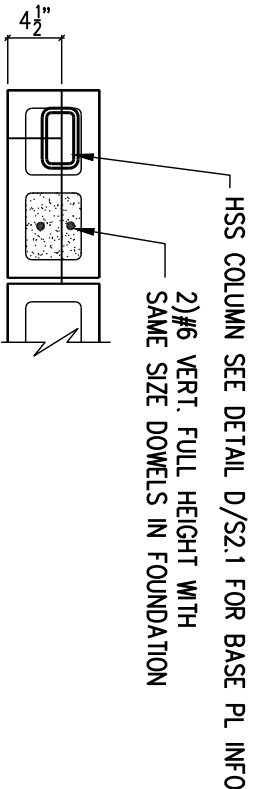
Revisions



| FOOTING & PIER SCHEDULE | | |
|-------------------------|-------------------|---|
| MARK | SIZE | REINFORCING |
| F1 | 4'-0"x4'-0"x2'-8" | (5)-#5 EACH WAY @ TOP AND BOTTOM, EA. WAY |
| F2 | 4'-6"x4'-6"x2'-8" | (6)-#5 EACH WAY @ TOP AND BOTTOM, EA. WAY |
| | | |
| | | |

FOUNDATION PLAN

- FLOOR CONSTRUCTION: 4" CONCRETE SLAB ON GRADE, REINFORCED WITH 6x6xW1.4xW1.4 WELDED WIRE FABRIC OVER 6 MIL VAPOR BARRIER OVER 6" COMPACTED GRANULAR FILL.
- FLOOR CONSTRUCTION: 4" RECESSED CONCRETE SLAB ON GRADE, REINFORCED WITH 6x6xW1.4xW1.4 WELDED WIRE FABRIC OVER 6 MIL VAPOR BARRIER OVER 6" COMPACTED GRANULAR FILL AT FREEZER ROOM ONLY. 1/8" SLAB = 99'-8".
- ALL FOOTINGS TO BE CENTERED UNDER WALLS AND/OR COLUMNS.
- FINISHED FLOOR ELEV.=100'-0" CORRESPONDS TO ARCHITECTURAL ELEVATION OF XXX.X; SEE ARCH. OR CIVIL DRAWINGS.
- FOR GENERAL NOTES AND TYPICAL DETAILS SEE SHEET S1.1 TO S1.3.
- PROVIDE VERTICAL CONTROL JOINTS IN MASONRY WALLS AT 20'-0" O.C. MAXIMUM UNLESS NOTED OTHERWISE. PROVIDE REINFORCED GROUTED CELL ON BOTH SIDES OF THE CONTROL JOINT. CONTRACTOR SHALL COORDINATE CONTROL JOINT LOCATIONS WITH ARCHITECTURAL DRAWINGS.



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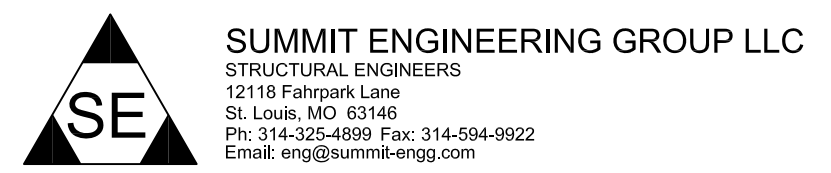
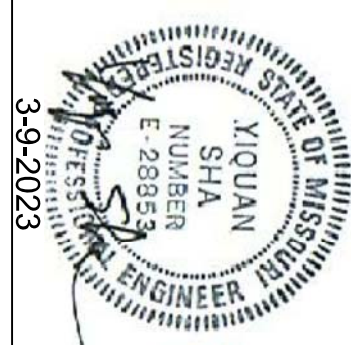
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PROPOSED:

CONVENIENCE STORE

HAMBLÉN PLAZA

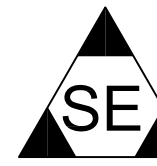
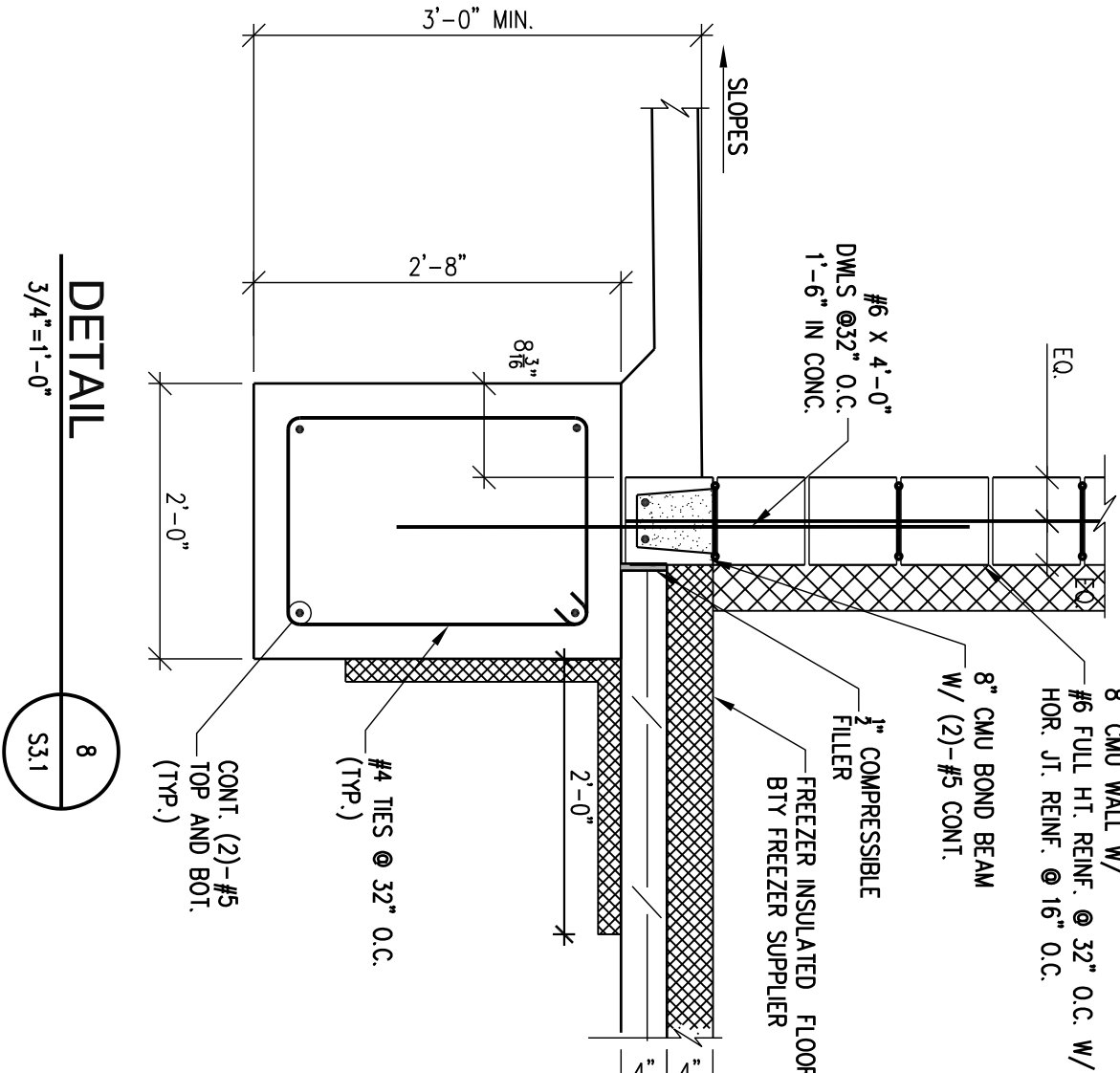
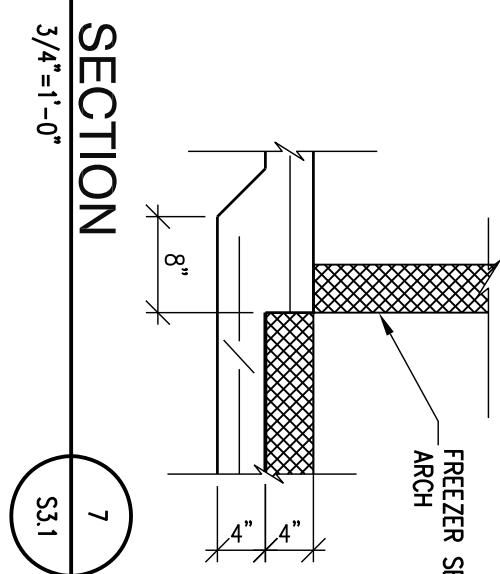
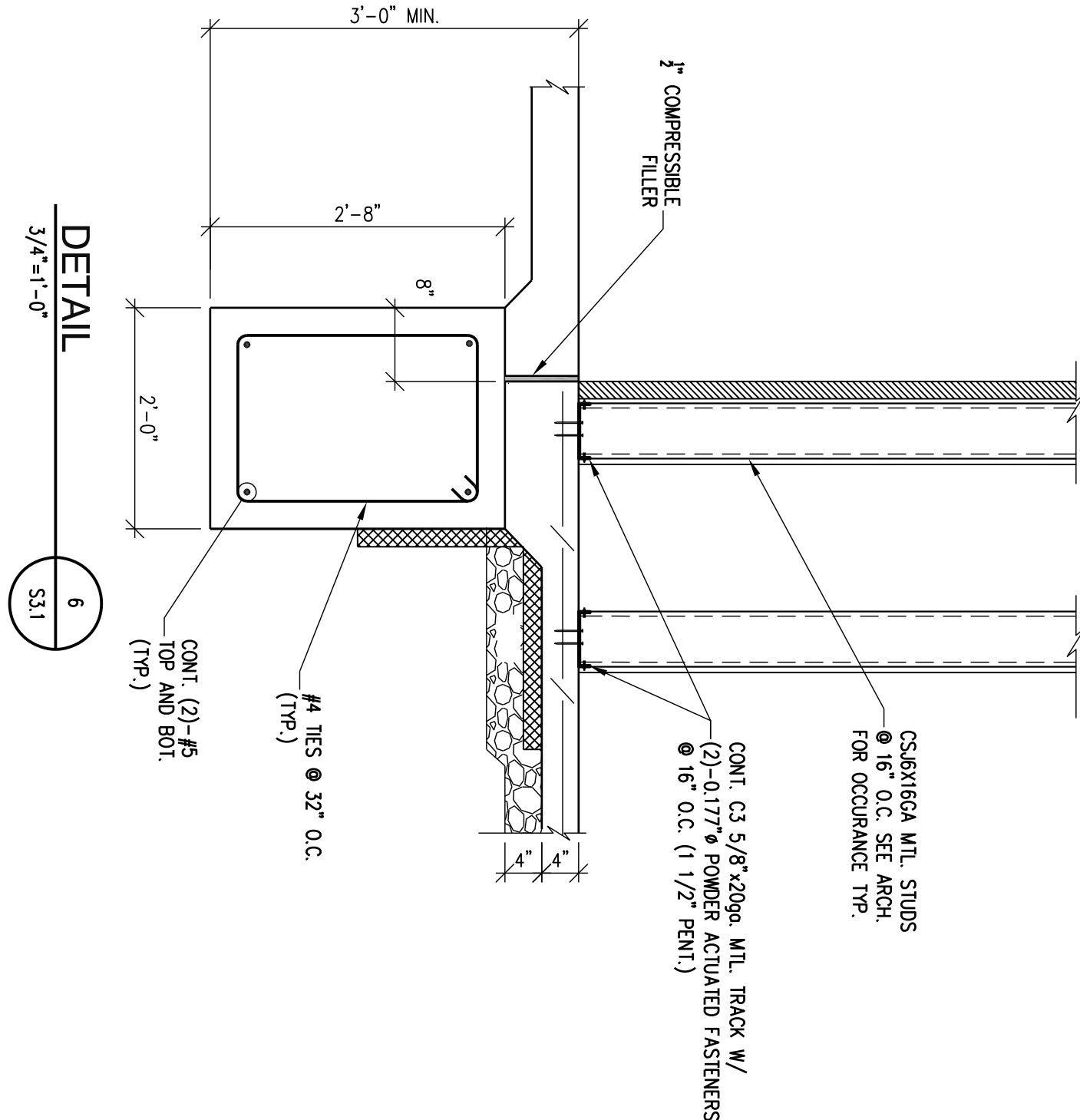
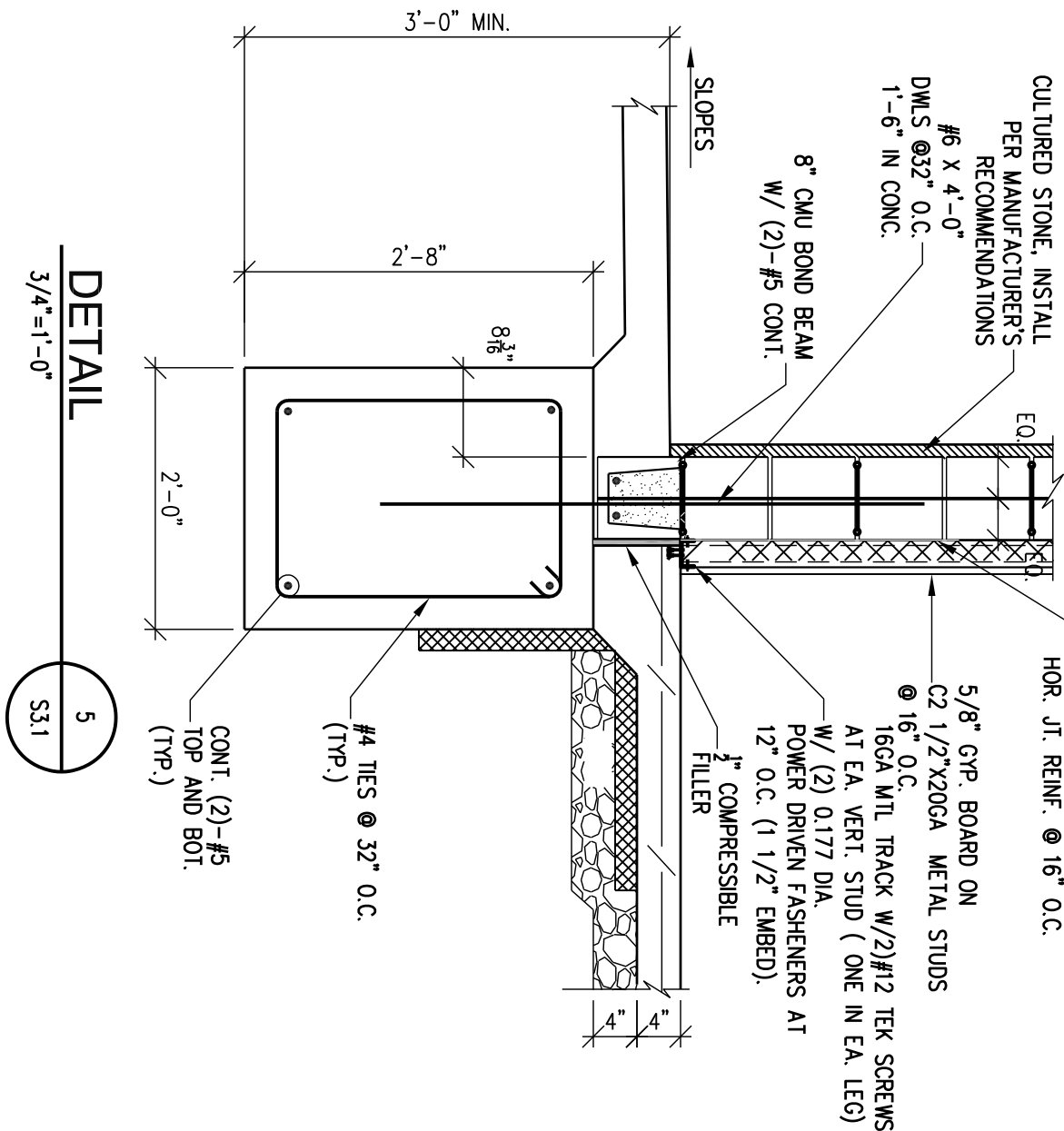
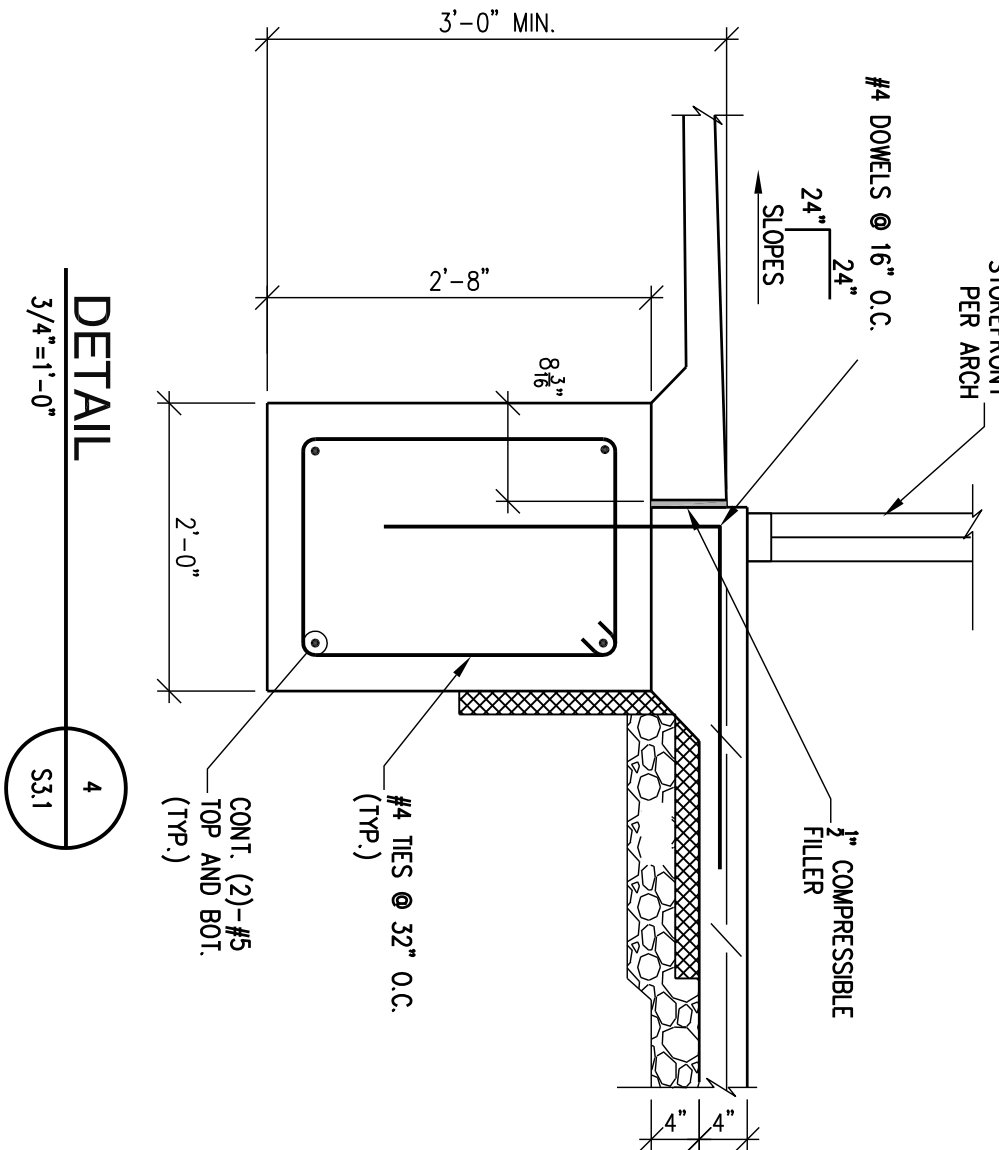
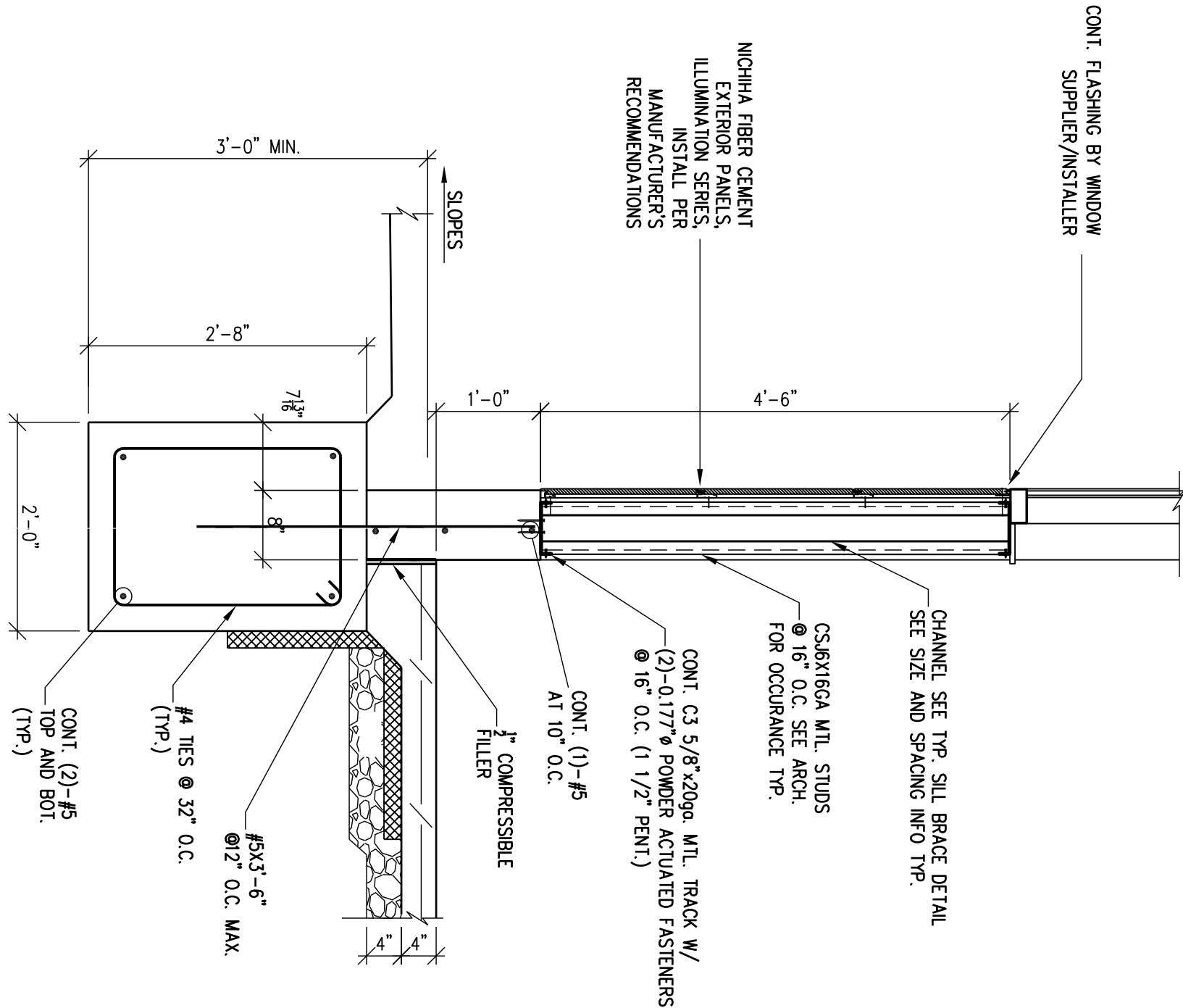
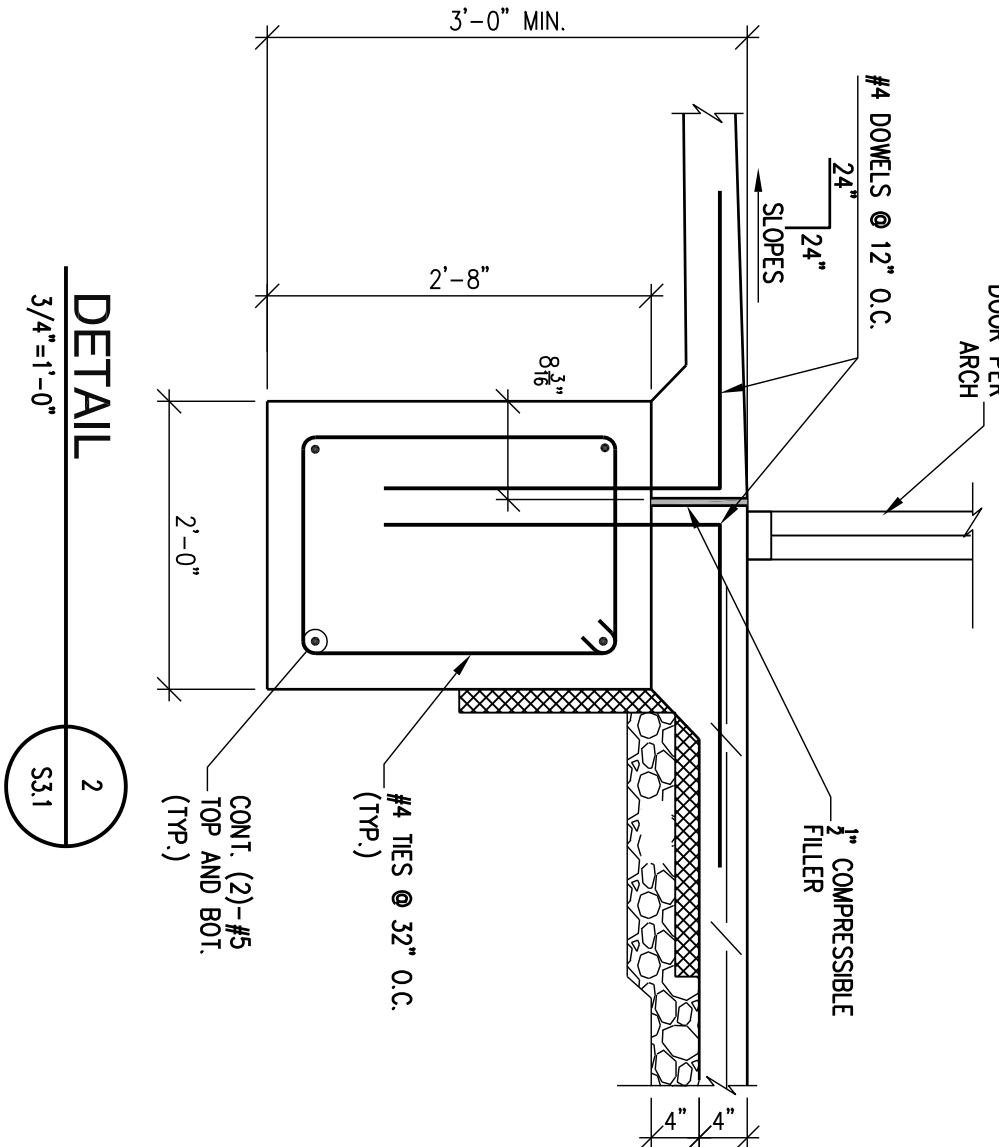
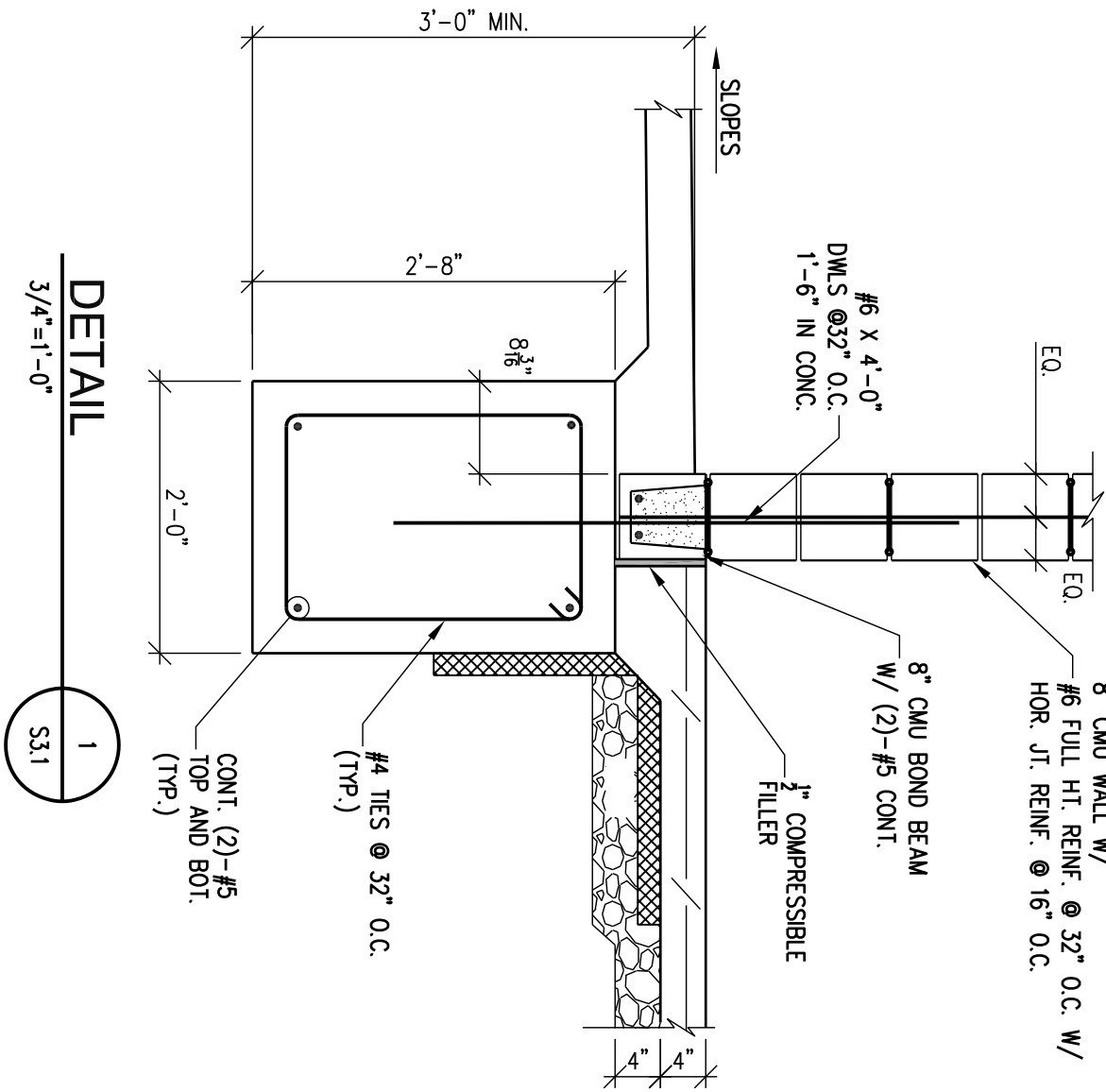
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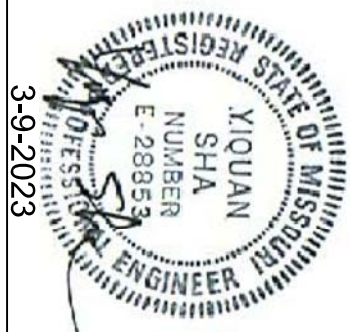
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FOUNDATION PLAN
Drawn By:
DS
Sheet Number
S2.1
Date: 3-9-2023
Project Number: 22032



SUMMIT ENGINEERING GROUP LLC
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CONVENIENCE STORE
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Revisions
A. 3/1/19 APPENDIX#1
B. 8/21/19 APPENDIX#5

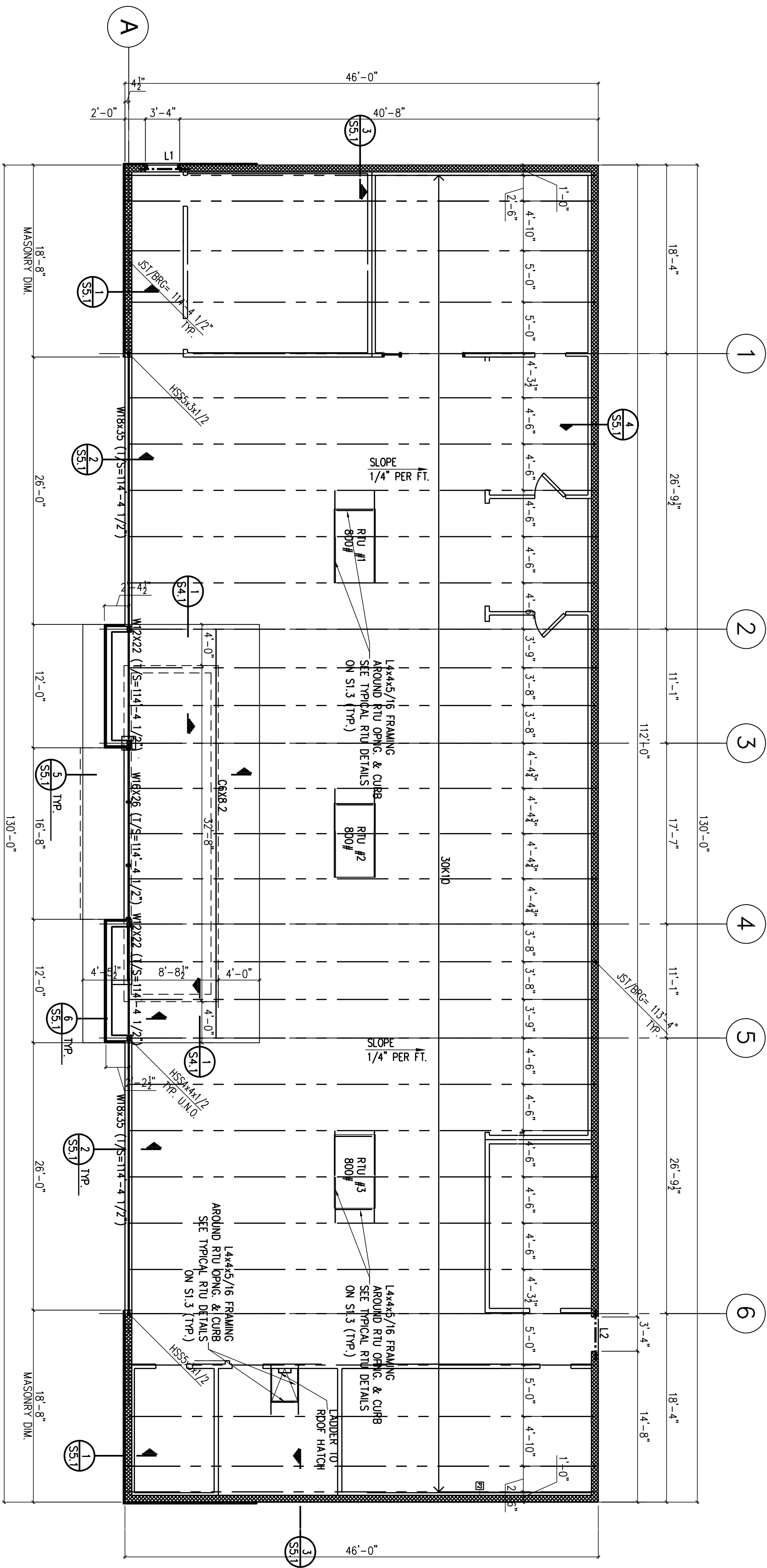
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DETAILS**
Drawn By:
DS

Sheet Number

S3.1

NOTE: THE STRUCTURAL DRAWINGS ARE NOT A SET OF STAND-ALONE CONSTRUCTION DOCUMENTS. THESE STRUCTURAL DRAWINGS MUST ONLY BE USED IN CONJUNCTION WITH ARCHITECTURAL AND OTHER RELATED DISCIPLINES DRAWINGS. CONTRACTOR TO VERIFY EXISTING CONDITIONS AND CO-ORDINATE BETWEEN THE STRUCTURAL, ARCHITECTURAL, AND OTHER DISCIPLINES DRAWINGS. ANY DISCREPANCY BETWEEN THE DRAWINGS MUST BE BROUGHT TO THE ARCHITECT AND ENGINEERS ATTENTION FOR RESOLUTION PRIOR TO FABRICATION OR CONSTRUCTING THAT PORTION OF THE STRUCTURE.

Date: 3-9-2023
Project Number: 22032

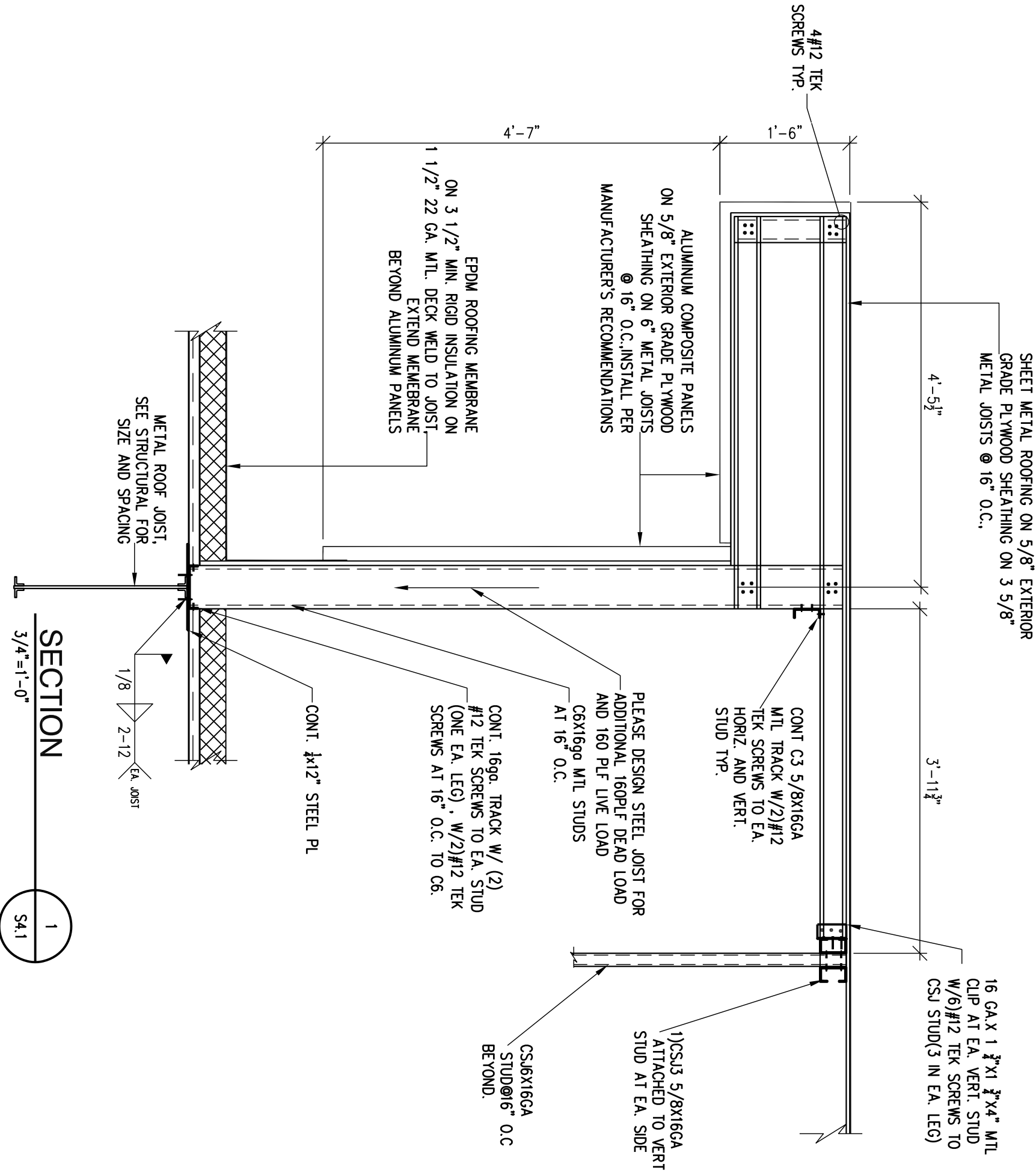


ROOF FRAMING PLAN

1/8"=1'-0"

1. ROOF CONSTRUCTION: 1 1/2"X22 ga. WIDE RIB PAINTED METAL ROOF DECK, FASTEN TO SUPPORTING STEEL WITH 5/8" PIDDLE WELDS IN A 36/7 PATTERN WITH (4)-PII TEK SCREEN SIDE LAP CONNECTIONS BETWEEN EACH SUPPORT UNLESS OTHERWISE NOTED. PROVIDE 1/2" MIN. GAP BETWEEN JOISTS. PROVIDE 1/2" MIN. GAP BETWEEN JOISTS. JOISTS, ETC. • DIAPHRAGM BOUNDARY CONDITIONS AND ALONG ALL PERIMETER WALLS.
2. TOP OF STRUCTURAL STEEL ELEVATION IS REFERENCED FROM FINISHED FLOOR ELEVATION = 100'-0" AND NOTED THUS (1/5 = xxx'-x") ON PLAN.
3. FOR GENERAL NOTES AND TYPICAL DETAILS SEE DRAWINGS S1.1 TO S1.3.
4. PROVIDE VERTICAL CONTROL JOINTS IN MASONRY WALLS AT 20'-0" O.C. MAXIMUM UNLESS NOTED OTHERWISE. PROVIDE REINFORCED GROUTED CELL ON BOTH SIDES OF THE CONTROL JOINT. CONTRACTOR SHALL COORDINATE CONTROL JOINT LOCATIONS WITH ARCHITECTURAL DRAWINGS.
5. THE CONCENTRATED LOADS FROM MECHANICAL UNITS AND ROOF SPRENS ARE NOT INCLUDED IN THE SIZE CALCUL FOR THE JOISTS. THE JOIST MANUFACTURER SHALL DESIGN THE JOISTS APPLYING THESE LOADS IN ADDITION TO THE SIZE.
6. CALL OUT GENERAL CONTRACTOR TO COORDINATE THE WEIGHTS AND LOCATIONS OF THE MECHANICAL UNITS WITH THE MECHANICAL CONTRACTOR.
7. CORRELATE ROOF OPENINGS AND ANGLE FRAMING LOCATIONS WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR. PROVIDE STEEL ANGLE FRAME UNDER ALL ROOF TOP UNITS AND AROUND ALL ROOF OPENINGS. STRUCTURAL DRAWINGS DO NOT REFLECT ALL ROOF TOP UNITS AND OPENING REQUIREMENTS. SEE MECHANICAL DRAWINGS FOR ALL MECHANICAL INFORMATION.
8. PROVIDE STRUT END JOIST AT EACH COLUMN WHERE JOIST OCCUR SEE TYPICAL DETAIL.
9. JOIST MANUFACTURER TO DESIGN JOIST FOR THE UPLIFT LOAD INDICATED IN GENERAL NOTES.
10. JOIST BRIDGING TOP AND BOTTOM CHORD AS PER S11 RECOMMENDATIONS.

| LINTEL SCHEDULE | | |
|-----------------|--|-------------|
| MARK | SIZE | DESCRIPTION |
| L1 | 2) 8" DEEP BOND BEAMS W/2#5'S IN EA. BOND BEAM | |
| L2 | 3) 8" DEEP BOND BEAMS W/2#5'S IN EA. BOND BEAM | |
| | | |



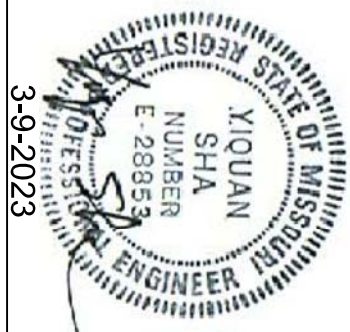


SUMMIT ENGINEERING GROUP LLC
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12118 Fahrpark Lane
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RANGWALA ARCHITECTS

ARCHITECTURE SITE PLANNING

201 S. CENTRAL AVE, SUITE #203, ST. LOUIS, MO-63105
(314) 863-6661 FAX (314) 863-3718



PROPOSED:
CONVENIENCE STORE

HAMBLEN PLAZA

LEE'S SUMMIT, MISSOURI

Revisions

Sheet Title:

ROOF PLAN

Drawn By:

DS

Sheet Number

S4.1

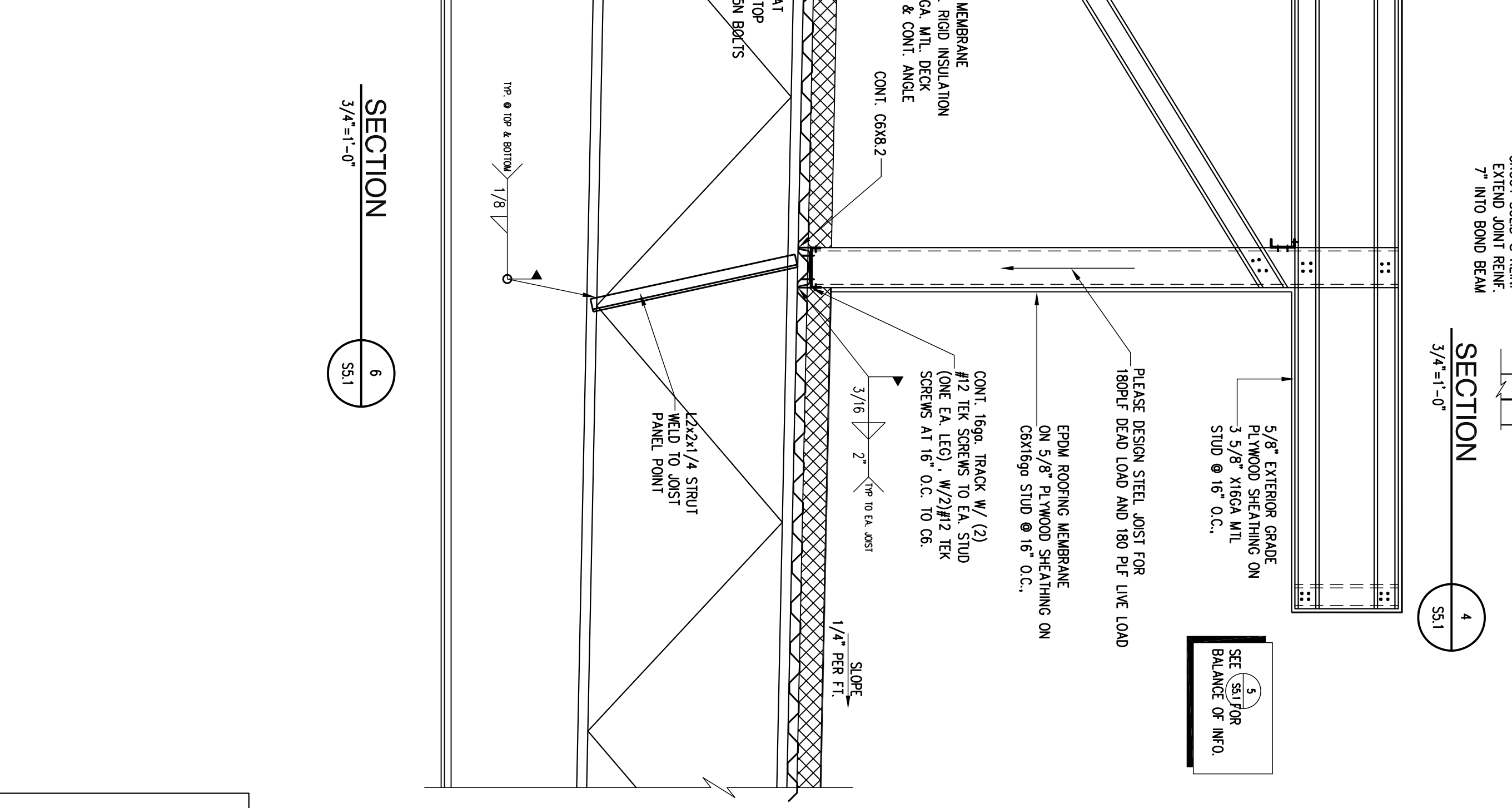
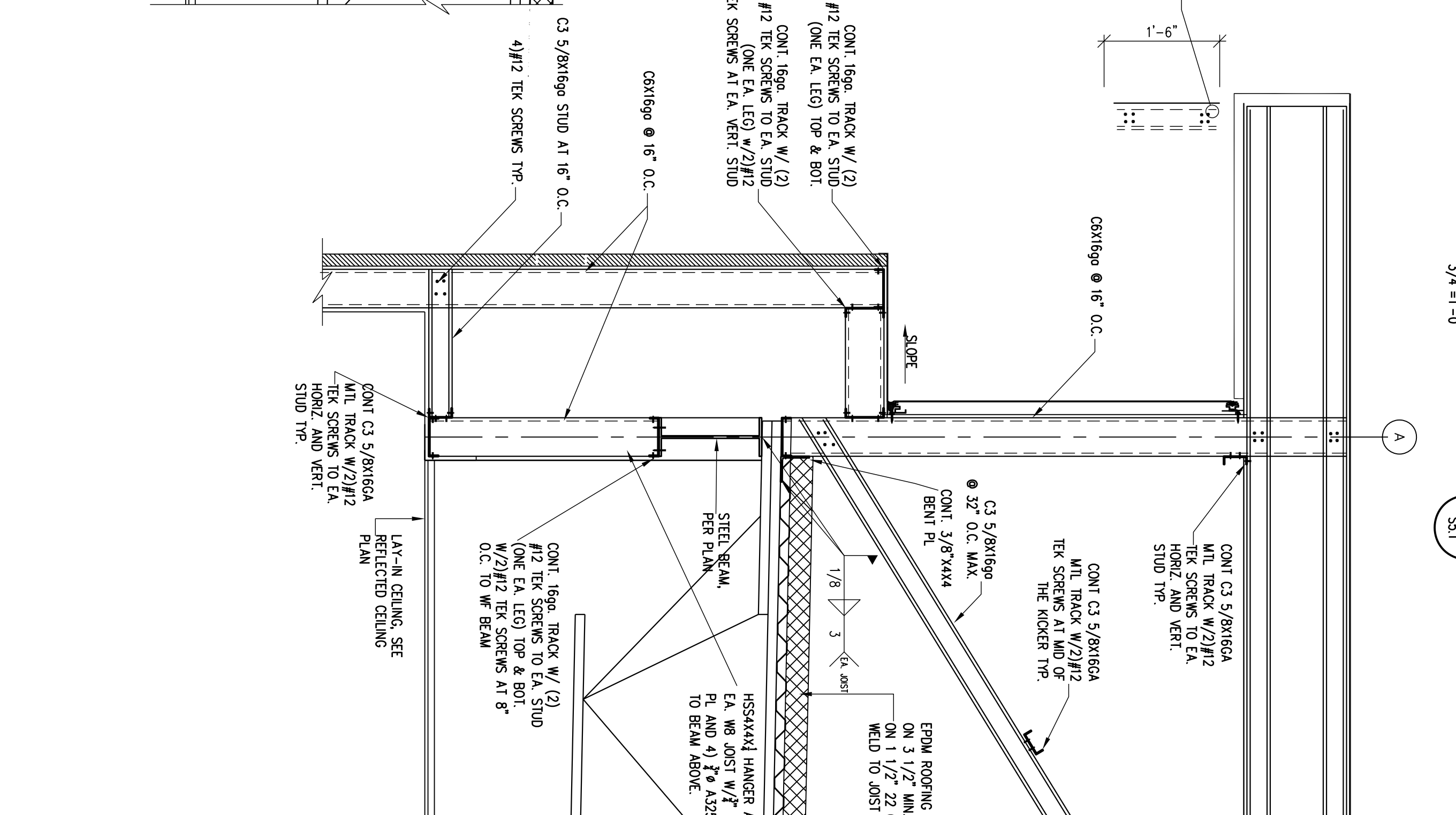
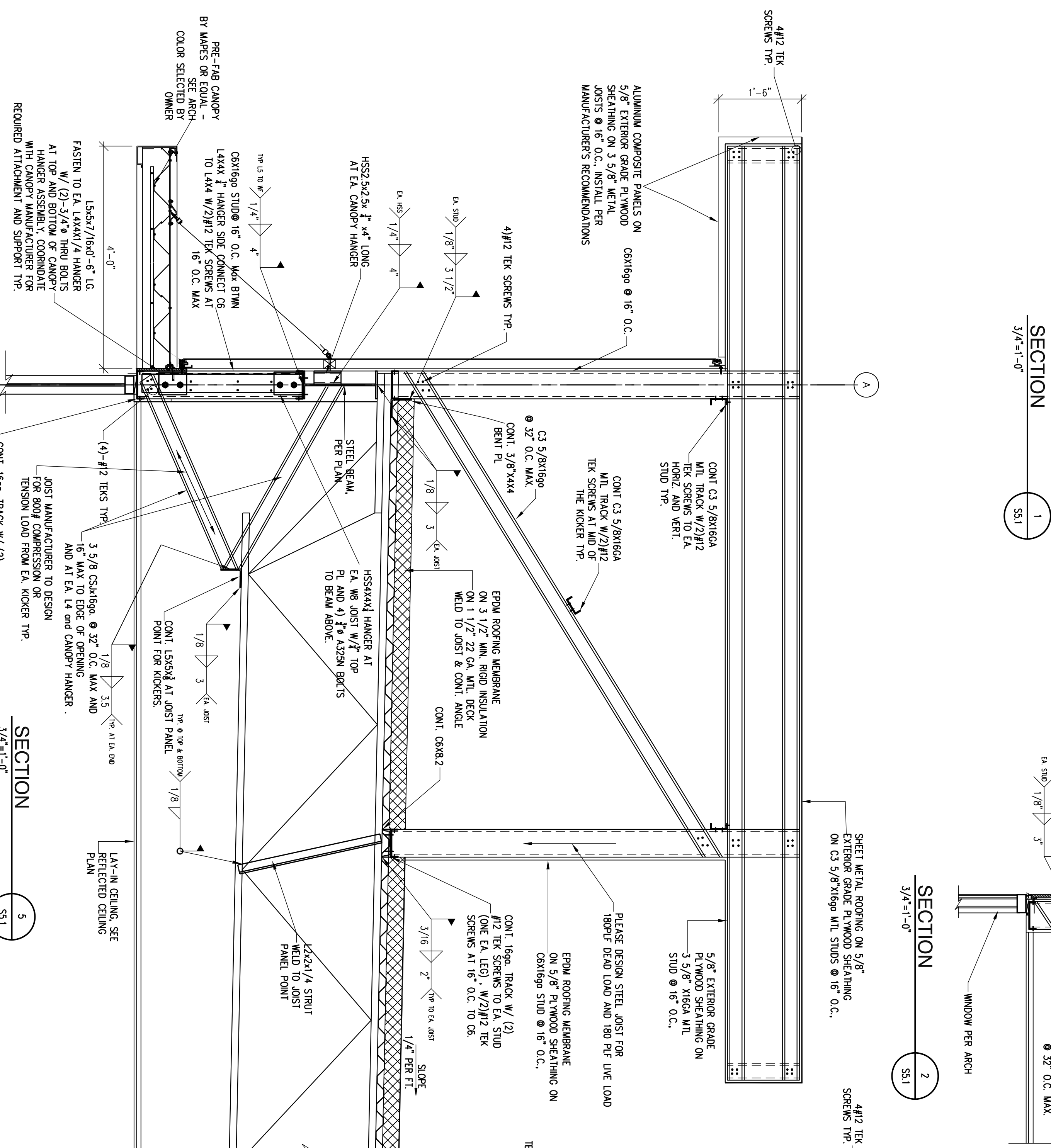
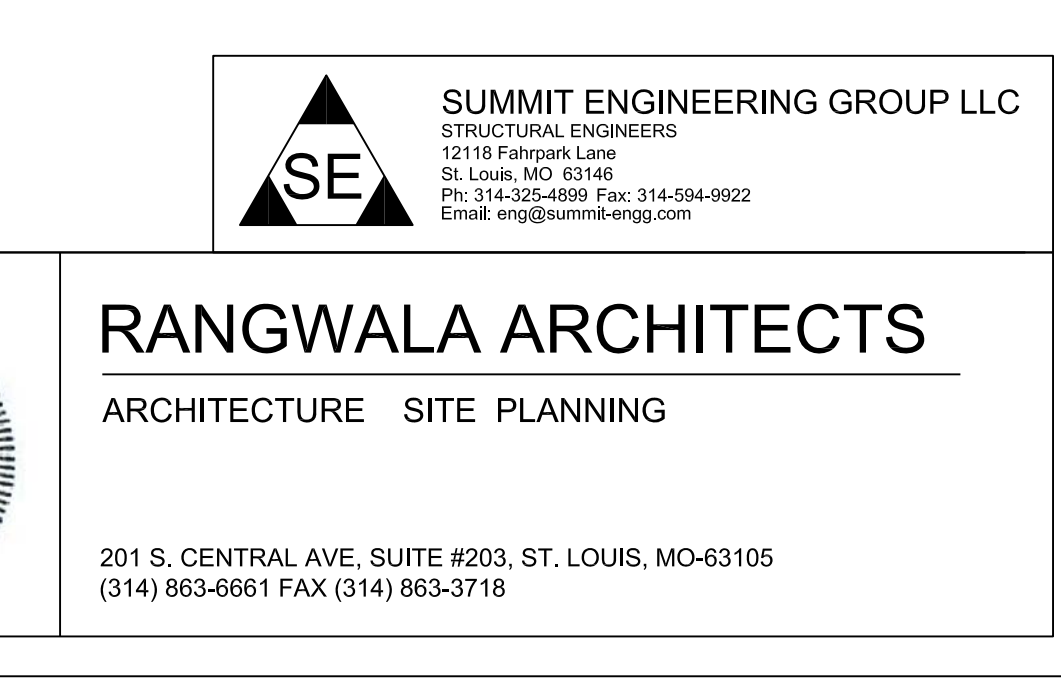
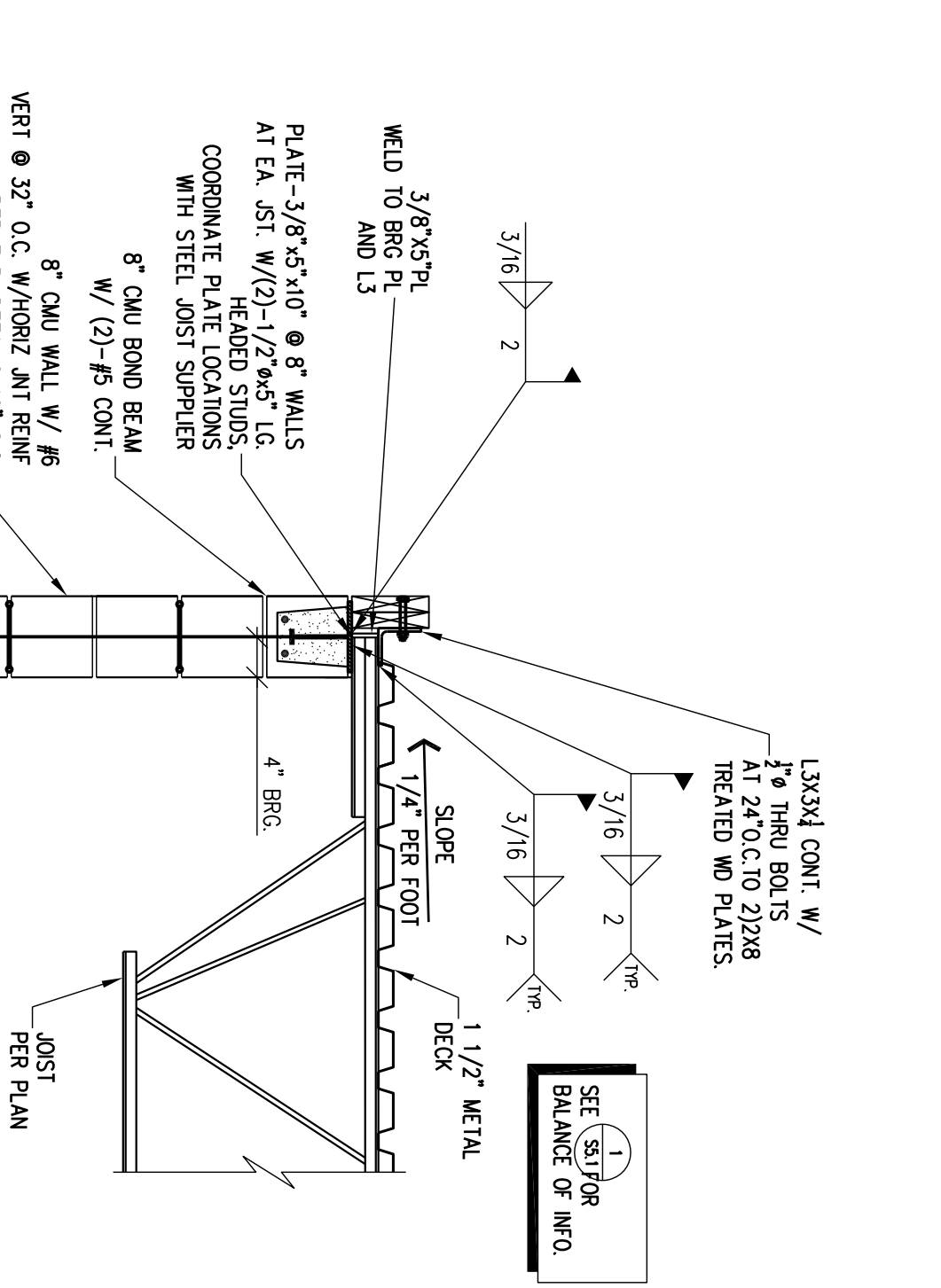
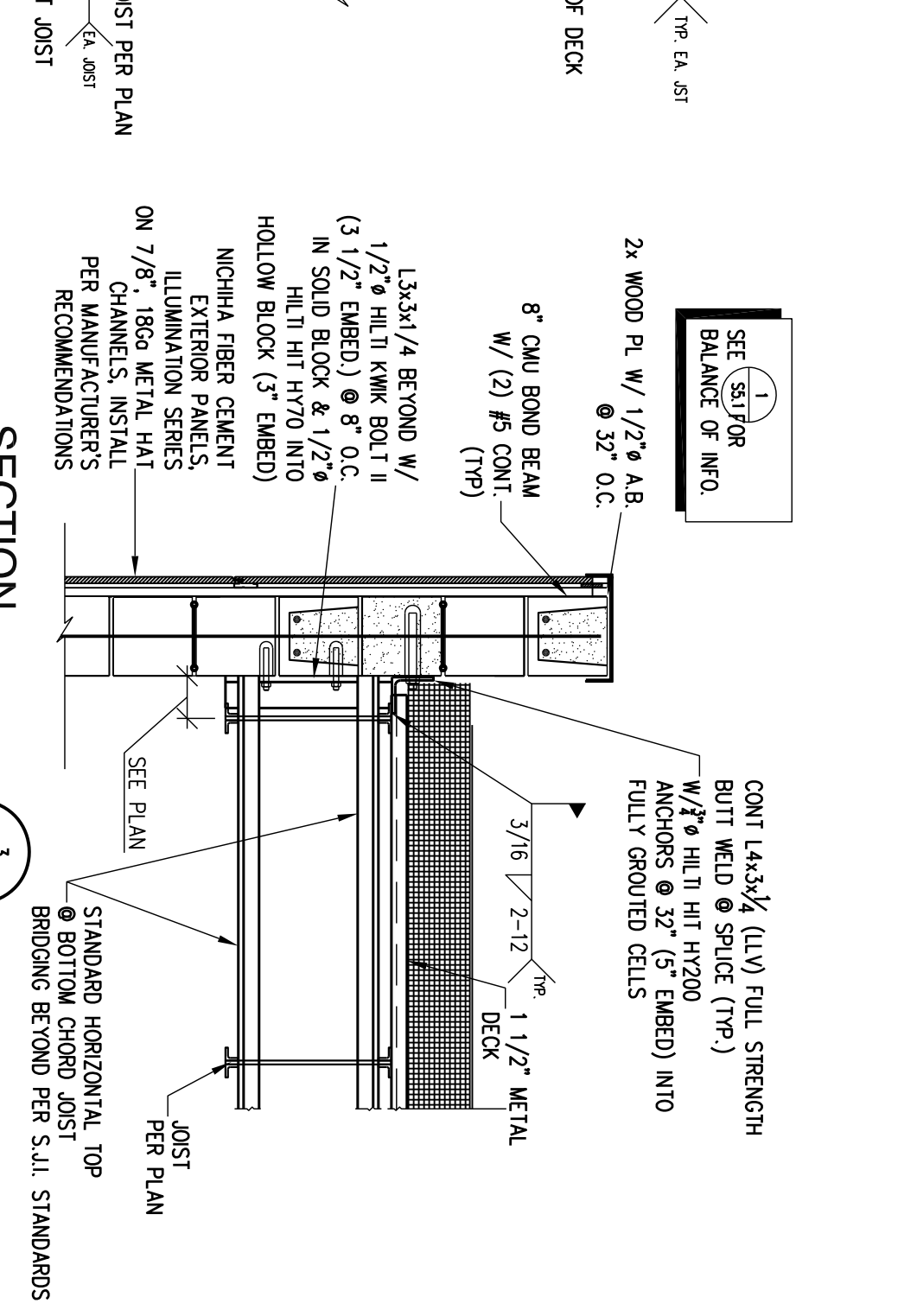
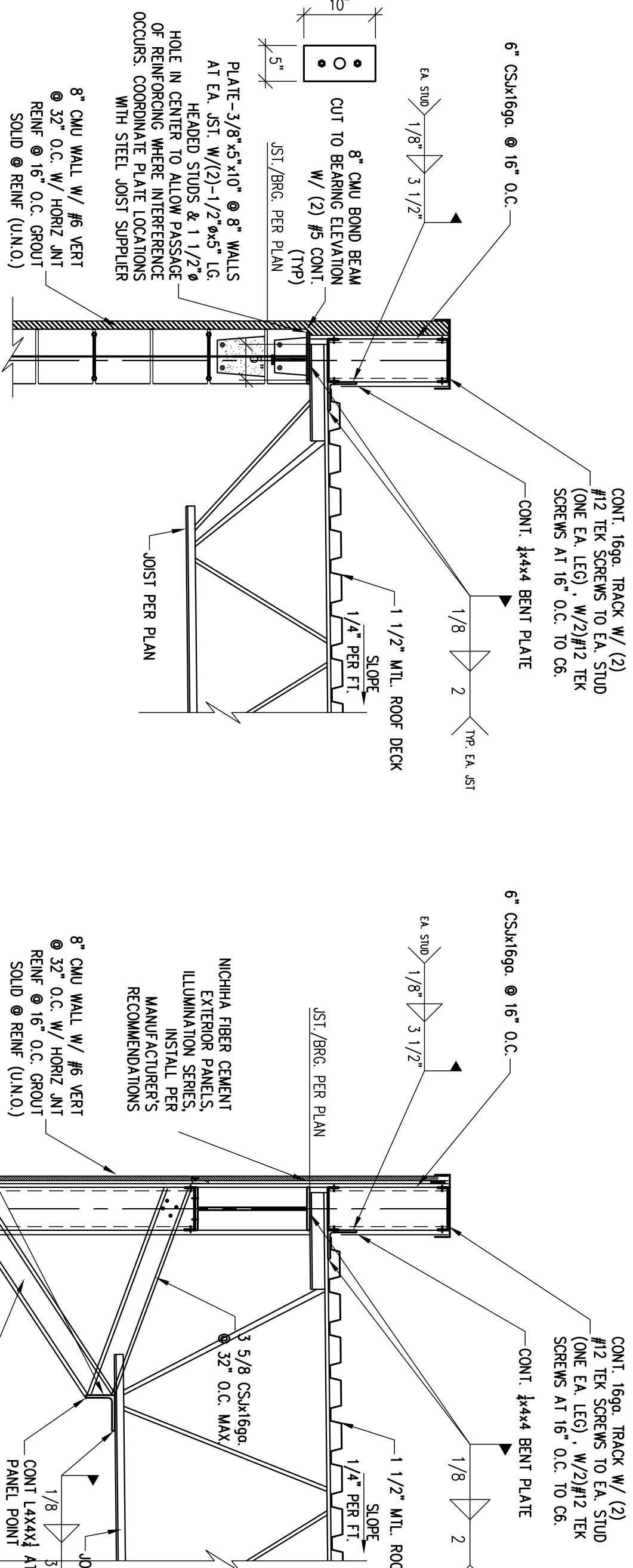
Date: 3-9-2023

Project Number: 22032

NOTE: CONTRACTORS TO COMPLY WITH ALL GOVERNING REGULATIONS AND REQUIREMENTS INCLUDING OSHA REGULATIONS 29 CFR PART 1926 FOR CONSTRUCTION INDUSTRY.

NOTE: THE STRUCTURAL ENGINEER OF RECORD IS NOT RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION INCLUDING TECHNIQUES OF FABRICATION AND SAFETY AT THE CONSTRUCTION SITE. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF ALL TEMPORARY SHORING, BRACING, BOLTING, WELDING, LUGS, SEAT ANGLES, ETC. TO SAFELY CONSTRUCT THE PROJECT. THE CONTRACTOR IS TO COORDINATE BETWEEN ARCHITECTURAL, STRUCTURAL AND OTHER DISCIPLINES' DRAWINGS AND TO BRING ANY DISCREPANCY TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO GOING AHEAD WITH CONSTRUCTION OF THAT SECTION.

NOTE: THE STRUCTURAL DRAWINGS ARE NOT A SET OF STAND-ALONE CONSTRUCTION DOCUMENTS. THESE STRUCTURAL DRAWINGS MUST ONLY BE USED IN CONJUNCTION WITH ARCHITECTURAL AND OTHER RELATED DISCIPLINES DRAWINGS. CONTRACTOR TO VERIFY EXISTING CONDITIONS AND CO-ORDINATE BETWEEN THE STRUCTURAL, ARCHITECTURAL, AND OTHER DISCIPLINES DRAWINGS. ANY DISCREPANCY BETWEEN THE DRAWINGS MUST BE BROUGHT TO THE ARCHITECT AND ENGINEERS ATTENTION FOR RESOLUTION PRIOR TO FABRICATION OR CONSTRUCTING THAT PORTION OF THE STRUCTURE.



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PROPOSED:
CONVENIENCE STORE
HAMBLÉN PLAZA

Sheet Title:
ROOF DETAILS
Drawn By:
DS

Sheet Number
S5.1

Date: 3-9-2023
Project Number: 22023

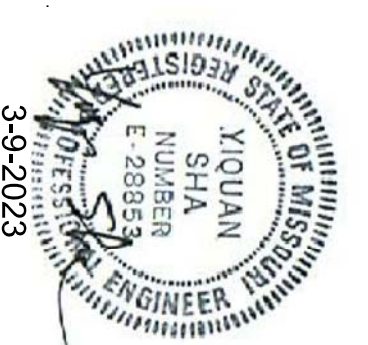
Revisions

LEE'S SUMMIT, MISSOURI

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CODE RESPONSES AND COORDINATION NOTES

- ITEM 6 FROM JOE FROSSE: TANK TYPE WATER CLOSETS SHALL HAVE FV LEVER ON ACCESSIBLE SIDE OF WATER CLOSET PR ICC ADDED NOTE TOSHEET P1.
- ITEM 9 FROM JOE FROSSE: ADDITIONAL GFCI ADDED - ADDED NOTE EII
- ITEM 10 FROM JOE FROSSE: EXIT AND EM LIGHTS ON LOCK ON CB AND ADDITIONAL HAVE BEEN ADDED TO ROOM WITH ELEC. PANEL SHEET E2
- ITEM 11 FROM JOE FROSSE: SERVICE ENTRY SHALL BE AND IS IN COMPLIANCE PER NEG PER ONELINE SHEET E5
- ITEM 12 FROM JOE FROSSE: TWO WP/GFCI ADDED TO RTU1 AND RTU2 ON SHEET E1
- ITEM 14 FROM JOE FROSSE: WATER HAMMER ARRESTORS SHOWN ON WATER ISOMETRICS SHEET P3
- ITEM 15 FROM JOE FROSSE: EXPANSION TANK SHOWN ON PLUMBING SCHEMATICS SHEET P2
- ITEM 16 FROM JOE FROSSE: ADDED NOTE ABOUT INDIRECT CONNECTION ON ISOMETRIC ON SINK SK-3 SHEET P3
- ITEM 17 FROM JOE FROSSE: ADDED DETAIL ON SHEET P2
- ITEM 3 FROM JIM EDEN: EXIT AND EM LIGHTS ON LOCK ON CB AND ADDITIONAL HAVE BEEN ADDED TO ROOM WITH ELEC. PANEL SHEET E2
- ITEM 5 FROM JIM EDEN: ADDED EF ON TIMECLOCK ON SHEET M1
- ITEM 8 FROM JIM EDEN: SMOKE DETECTORS ARE INCLUDED PER SHEET M-2 AND NO FIRE ALARM SYSTEM ARE INCLUDED

5-15-23 CODE RESPONSES
9-1-22 REVIEW SET

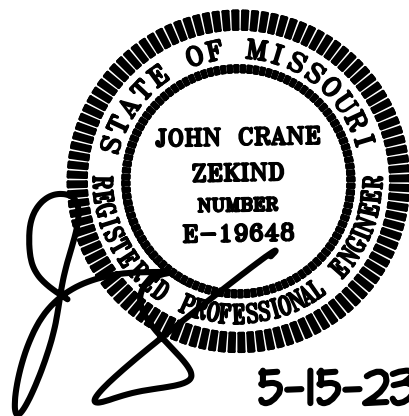
SERVICE STATION AND
CONVENIENCE STORE

LEE SUMMIT, MO

John C. Zekind, PE
CONSULTING ENGINEERS
1278 WHITE ROAD
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Project Number: 9-1-22
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Sheet Number:



5-15-23

MPE-1

H AND P EQUIPMENT

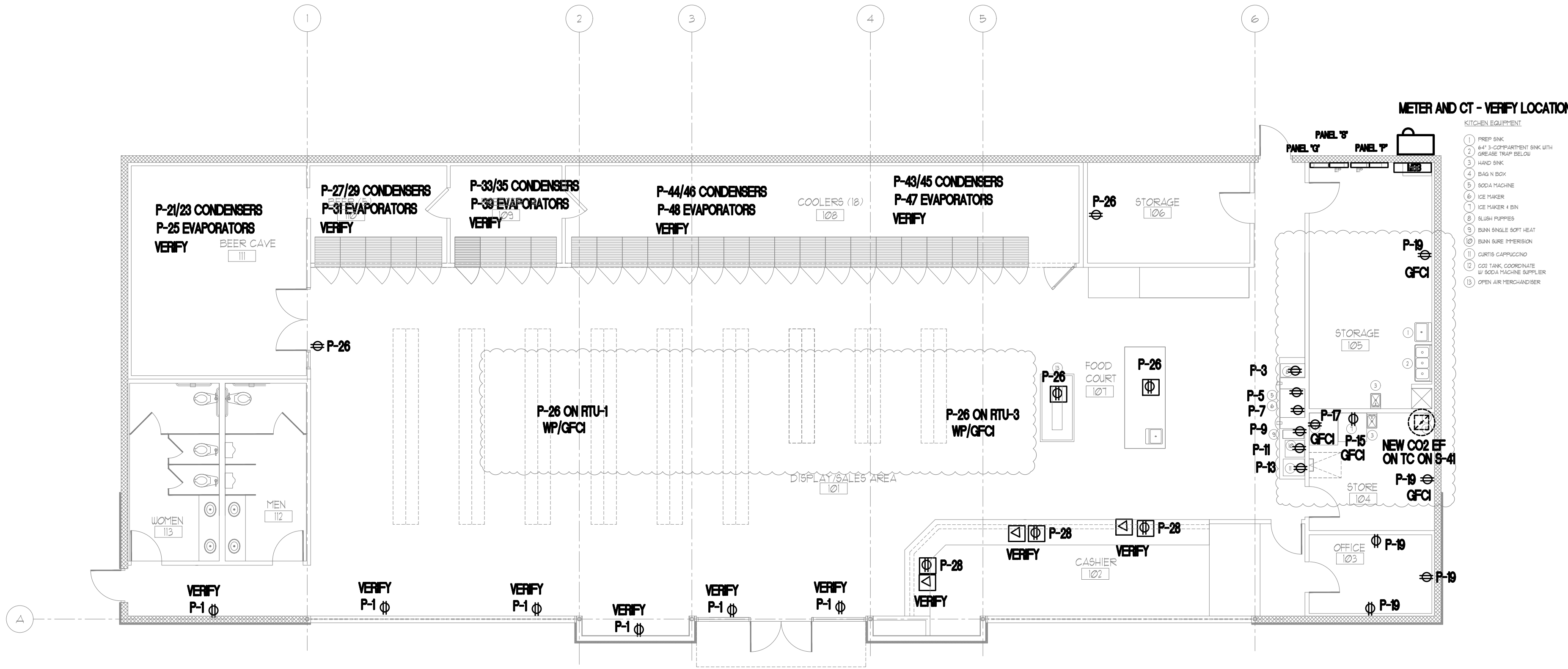
RTU-1
P-2/4/6
60A/NF/WP/3P DISC

RTU-2
P-8/10/12
60A/NF/WP/3P DISC

RTU-3
P-14/16/18
60A/NF/WP/3P DISC

DWH-1
P-20
60A/NF/WP/1P DISC

DWH-2
P-22/24
100A/NF/WP/3P DISC



GENERAL NOTES: ELECTRICAL PLANS

- A. ALL WORK SHALL BE IN COMPLETE CONFORMANCE WITH THE LATEST APPLICABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND NFPA 70 LIFE SAFETY CODES AT MINIMUM, WHETHER EXPLICITLY SHOWN OTHERWISE OR NOT.
- B. THESE PLANS ARE ACCOMPANIED BY SPECIFICATIONS.
- C. ALL CONDUCTORS ARE COPPER AND ARE ROUTED IN CONDUIT.
- D. PRODUCE A PLAN FOR SUBMISSION IN COORDINATION WITH THE SPRINKLER, HVAC AND PLUMBING CONTRACTORS TO COORDINATE ROUTING AND PLACEMENT OF DEVICES, ANGULARITIES, FIXTURES, CONDUIT, ETC., SO THAT NO COORDINATION PROBLEMS OCCUR. THIS SHALL BE DONE PRIOR TO INITIATION OF ANY WORK.
- E. REFER TO ARCHITECTURAL PLANS FOR CEILING HEIGHTS, WALL CONSTRUCTION AND LOCATIONS OF VISIBLE OBJECTS ON THE EXTERIOR OF THE BUILDING.

- F. FOR ADDITIONAL INFORMATION AND FOR EXACT POINT OF CONNECTIONS OF ROUGH-IN POINTS TO EQUIPMENT, SEE BOTH THE EQUIPMENT CUT SHEETS AS WELL AS THE ARCHITECTURAL PLANS AND SPECIFICATIONS. VERIFY ALL ELEVATIONS AS WELL AS EXACT REQUIRED LOCATIONS OF ELECTRICAL CONNECTIONS AND CONDUIT PRIOR TO INITIATING ANY WORK, BECAUSE ALL ELEVATIONS ARE APPROX.
- G. BE RESPONSIBLE NOT ONLY FOR THE ROUGH-IN POINTS REQUIRED AS SHOWN GENERALLY HEREIN, BUT ALSO FOR FINAL CONNECTION TO ALL EQUIPMENT AND THE FINISHING AND INSTALLING OF MATERIALS AND LABOR FOR SUCH AS REQUIRED TO MAKE FULLY FUNCTIONAL.
- H. PROVIDE CONNECTIONS TO ALL EQUIPMENT AS RECOMMENDED BY THE MANUFACTURER. IF EQUIPMENT COMES WITH A CORD AND PLUG, PROVIDE MATCHING RECEPTACLE IN REQUIRED JUNCTION BOX. EXACT LOCATIONS OF OUTLETS FOR ALL EQUIPMENT SHALL BE AS DIRECTED BY SUPPLIERS SHOP DRAWINGS.
- I. PROVIDE PLUG AND CORD FOR ALL EQUIPMENT NOT SHIPPED WITH A PLUG AND CORD BUT REQUIRES CONNECTION TO A RECEPTACLE. PLUG AND CORD SHALL BE APPROPRIATE NEMA TYPE, UL LISTED AND SIZED TO HANDLE THE LOAD PER THE NEC.
- J. ALL FLEXIBLE CONDUIT SHALL BE LIQUID TIGHT CONDUIT

POWER PLAN

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

Graphic Scale:

ELECTRICAL SYMBOLS:

- ⊕ DUPLEX RECEPTACLE - MOUNT AT 9" AFF TO BOTTOM OF BOX UNLESS OTHERWISE NOTED.
- ⊕ DOUBLE DUPLEX RECEPTACLE ("QUADRAPLEX")
- ⊕ SPECIAL PURPOSE RECEPTACLE
- △ TELEPHONE JACK - PROVIDE & INSTALL CONDUIT & J-BOX AS REQ'D. TO CEILING WITH PULL WIRE.
- ⊕ SINGLE POLE, SINGLE LEVER SWITCH AT 40" AFF UNO.
- ⊕ 2 X 3 JUNCTION BOX - MTD. AS SHOWN
- INDICATES DROP IN WALL FROM CEILING
- CONDUIT ABOVE CEILING OR IN WALLS
- - - FLEXIBLE CONDUIT BELOW FLOOR OR COUNTER
- ||| CONDUCTORS (| IS NEUTRAL, | IS HOT, | IS GROUND)

FEEDER SCHEDULE

1 PHASE BRANCH CIRCUIT WIRE SIZE (2P CIRCUITS) (UNLESS NOTED OTHERWISE)

30 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 2/0, 110 GND IN 1/2" C.

40 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 2/0, 110 GND IN 3/4" C.

60 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 3/0, 118 GND IN 1" C.

100 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 3/0, 118 GND IN 1 1/2" C.

150 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 3-1/0 WITH #2 GND IN 1 1/2" C.

3 PHASE BRANCH CIRCUIT WIRE SIZE (UNLESS NOTED OTHERWISE)

200 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4-1/0 WITH #2 GND IN 2" C.

100 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4/0, 118 GND IN 1 1/2" C.

75 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4/0, 118 GND IN 1 1/4" C.

70 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4/0, 118 GND IN 1 1/4" C.

60 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4/0, 118 GND IN 1" C.

45 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4/0, 110 GND IN 1" C.

40 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4/0, 110 GND IN 1" C.

30 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4/0, 110 GND IN 3/4" C.

5-15-23 CODE RESPONSES

9-1-22 REVIEW SET

SERVICE STATION AND CONVENIENCE STORE

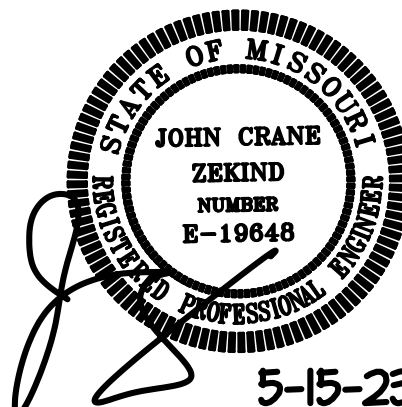
LEE SUMMIT, MO

John C. Zekind, PE
CONSULTING ENGINEERS
1278 WHITE ROAD
CHESTERFIELD, MO, 63017
314-878-2290

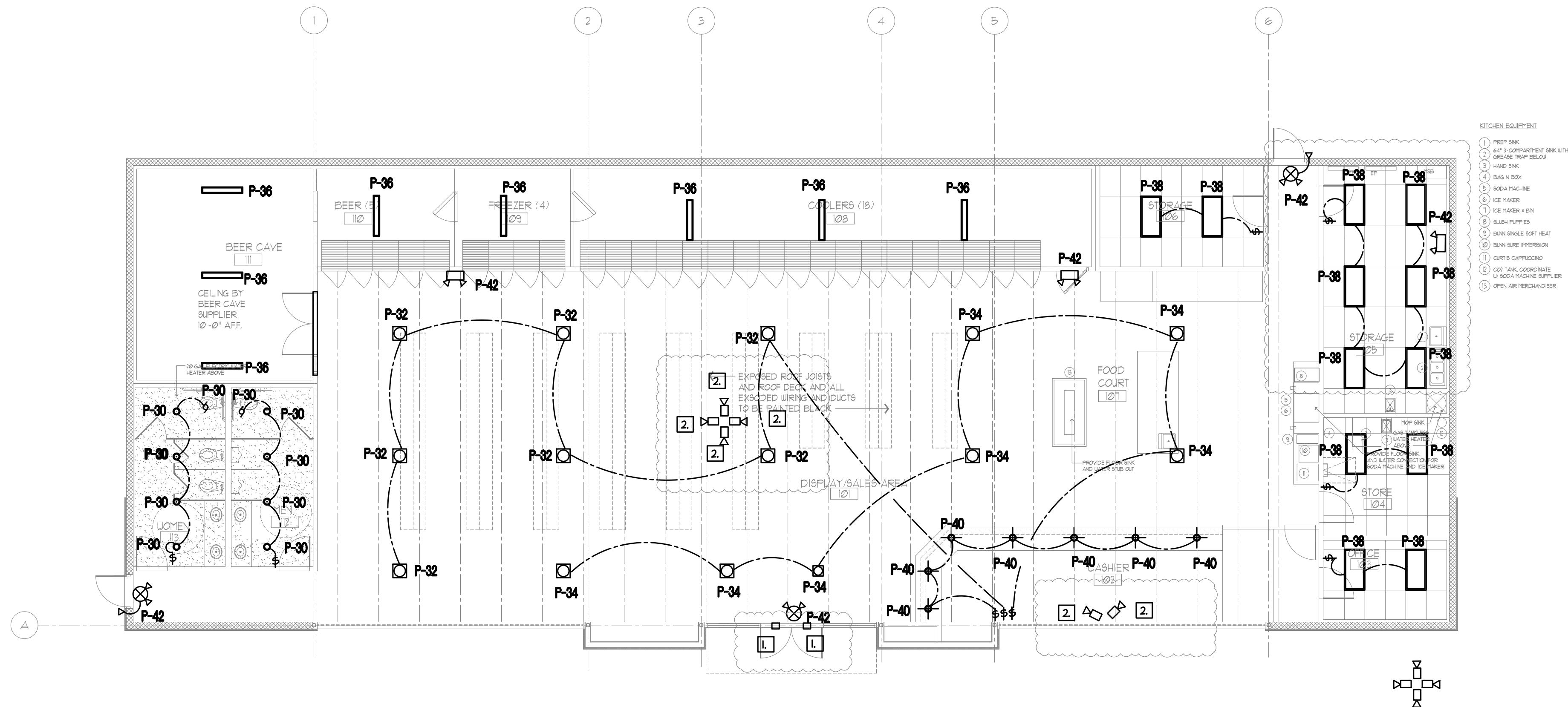
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Issued For: ☐ Review ☐ Permit ☐ Bidding ☐ Construction

Sheet Number:

E-1



5-15-23



GENERAL NOTES: ELECTRICAL PLANS

- A. ALL WORK SHALL BE IN COMPLETE CONFORMANCE WITH THE LATEST APPLICABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND NFPA 70E LIFE SAFETY CODES AT MINIMUM, WHETHER EXPLICITLY SHOWN OTHERWISE OR NOT.
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- J. ALL FLEXIBLE CONDUIT SHALL BE LIQUID TIGHT CONDUIT.

LIGHTING PLAN

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

Graphic Scale:

0 1 2 3

KEYED NOTES

1. PROVIDE DOOR PINHOLE CAMERA AND WIRE TO NEAREST BRANCH CCT PROVIDE RECORDING EQUIPMENT AND MONITORING AND CONNECT TO CENTRAL STATION MONITORING AS REQUIRED
2. PROVIDE CEILING MOUNTED CAMERA AND WIRE TO NEAREST BRANCH CCT PROVIDE RECORDING EQUIPMENT AND MONITORING AND CONNECT TO CENTRAL STATION MONITORING AS REQUIRED

ELECTRICAL SYMBOLS:

- ⊕ DUPLEX RECEPTACLE - MOUNT AT 9" AFF TO BOTTOM OF BOX UNLESS OTHERWISE NOTED.
- ⊕ DOUBLE DUPLEX RECEPTACLE ("QUADRAPLEX")
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- ⊕ SINGLE POLE, SINGLE LEVER SWITCH AT 40" AFF UNO.
- ⊕ 2 X 3 JUNCTION BOX - MTD. AS SHOWN
- INDICATES DROP IN WALL FROM CEILING
- CONDUIT ABOVE CEILING OR IN WALLS
- - - FLEXIBLE CONDUIT BELOW FLOOR OR COUNTER
- || CONDUCTORS (| IS NEUTRAL, | IS HOT, | IS GROUND)

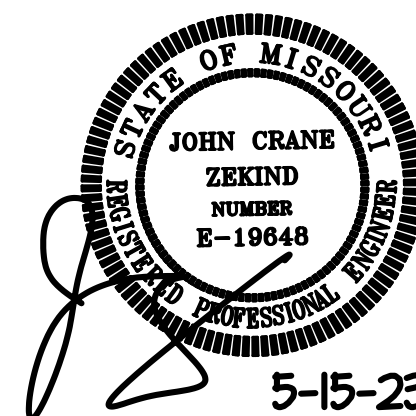
FEEDER SCHEDULE

1 PHASE BRANCH CIRCUIT WIRE SIZE (2P CIRCUITS): (UNLESS NOTED OTHERWISE)

- 30 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 2#10, 1#10 GND IN 1/2" C.
- 40 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 2#8, 1#10 GND IN 3/4" C.
- 60 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 3#6, 1#6 GND IN 1" C.
- 100 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 3#3, 1#6 GND IN 1 1/2" CONDUIT.
- 150 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 3-#1/0 WITH #2 GND IN 1 1/2" C.

3 PHASE BRANCH CIRCUIT WIRE SIZE: (UNLESS NOTED OTHERWISE)

- 200 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4-#3/0 WITH #2 GND IN 2" C.
- 100 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#3, 1#6 GND IN 1 1/2" CONDUIT.
- 75 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#4, 1#6 GND IN 1-1/4" C.
- 70 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#4, 1#6 GND IN 1-1/4" C.
- 60 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#6, 1#6 GND IN 1" C.
- 45 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#8, 1#10 GND IN 1" C.
- 40 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#8, 1#10 GND IN 1" C.
- 30 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#10, 1#10 GND IN 3/4" C.



5-15-23 CODE RESPONSES
9-1-22 REVIEW SET

SERVICE STATION AND
CONVENIENCE STORE

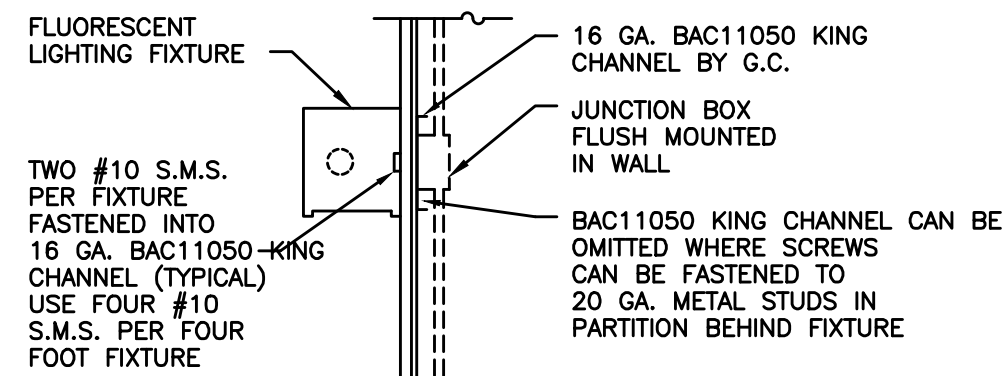
LEE SUMMIT, MO

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1278 WHITE ROAD
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314-878-2290

Project Number: 9-1-22
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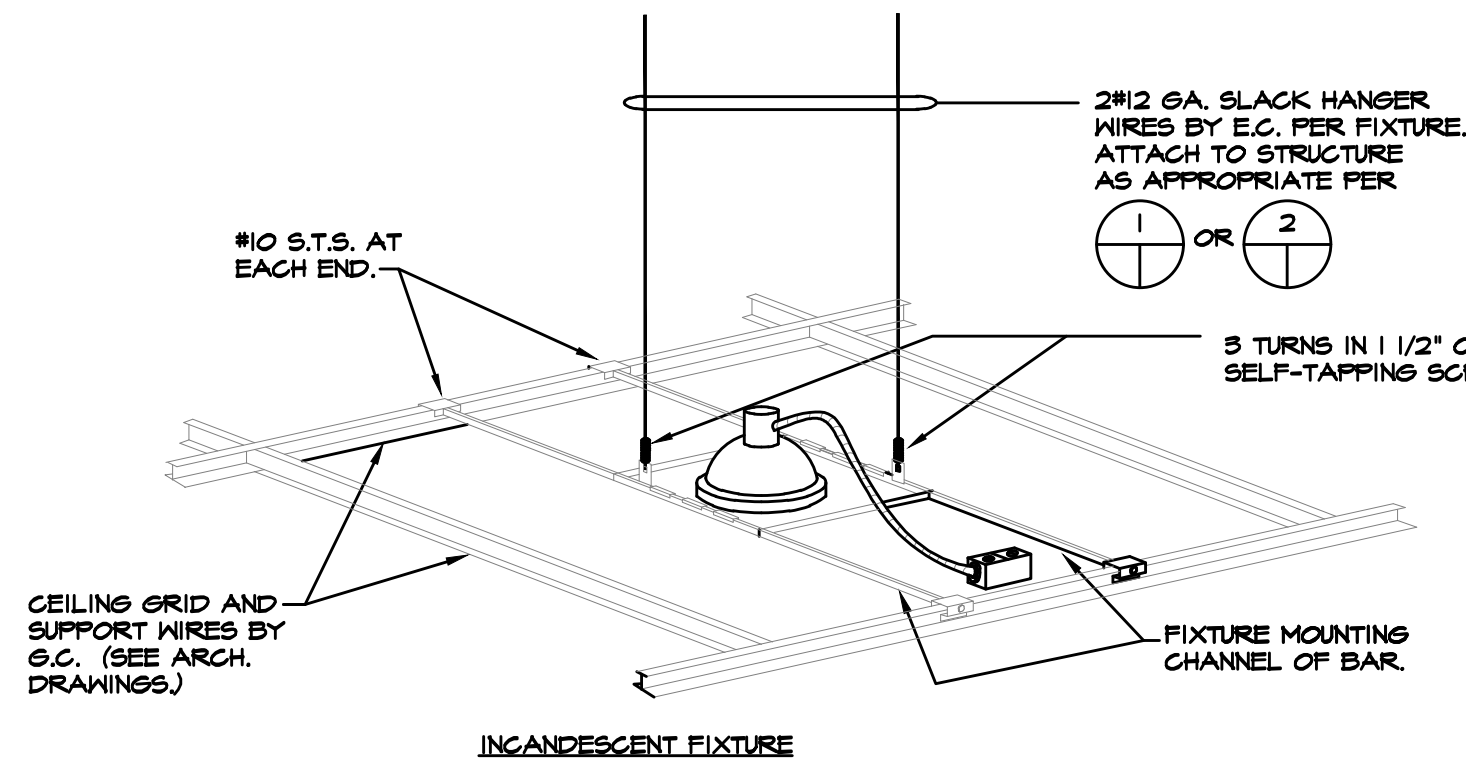
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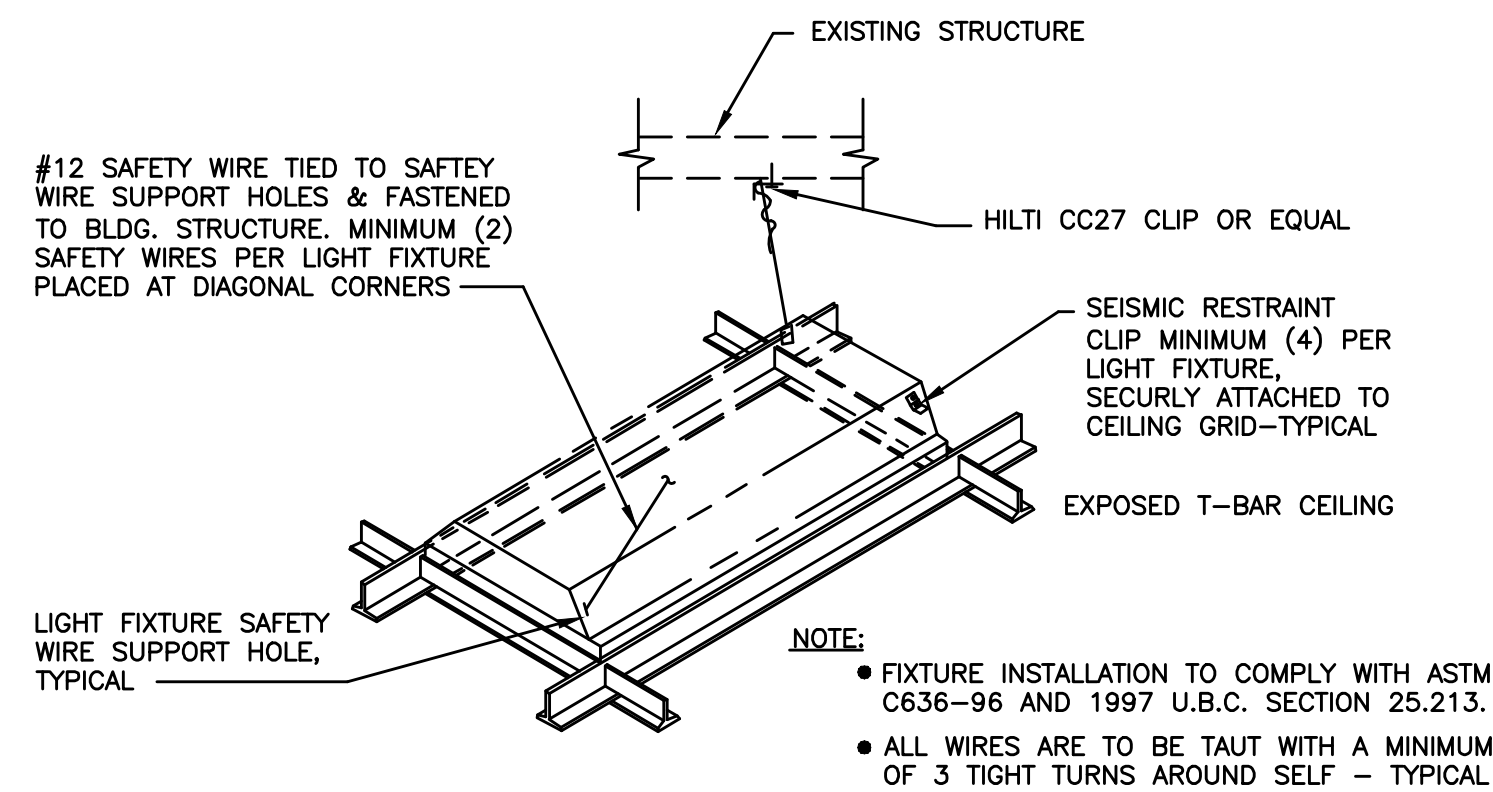
**WALL MOUNTED FLUORESCENT
FIXTURE DETAIL**

NO SCALE



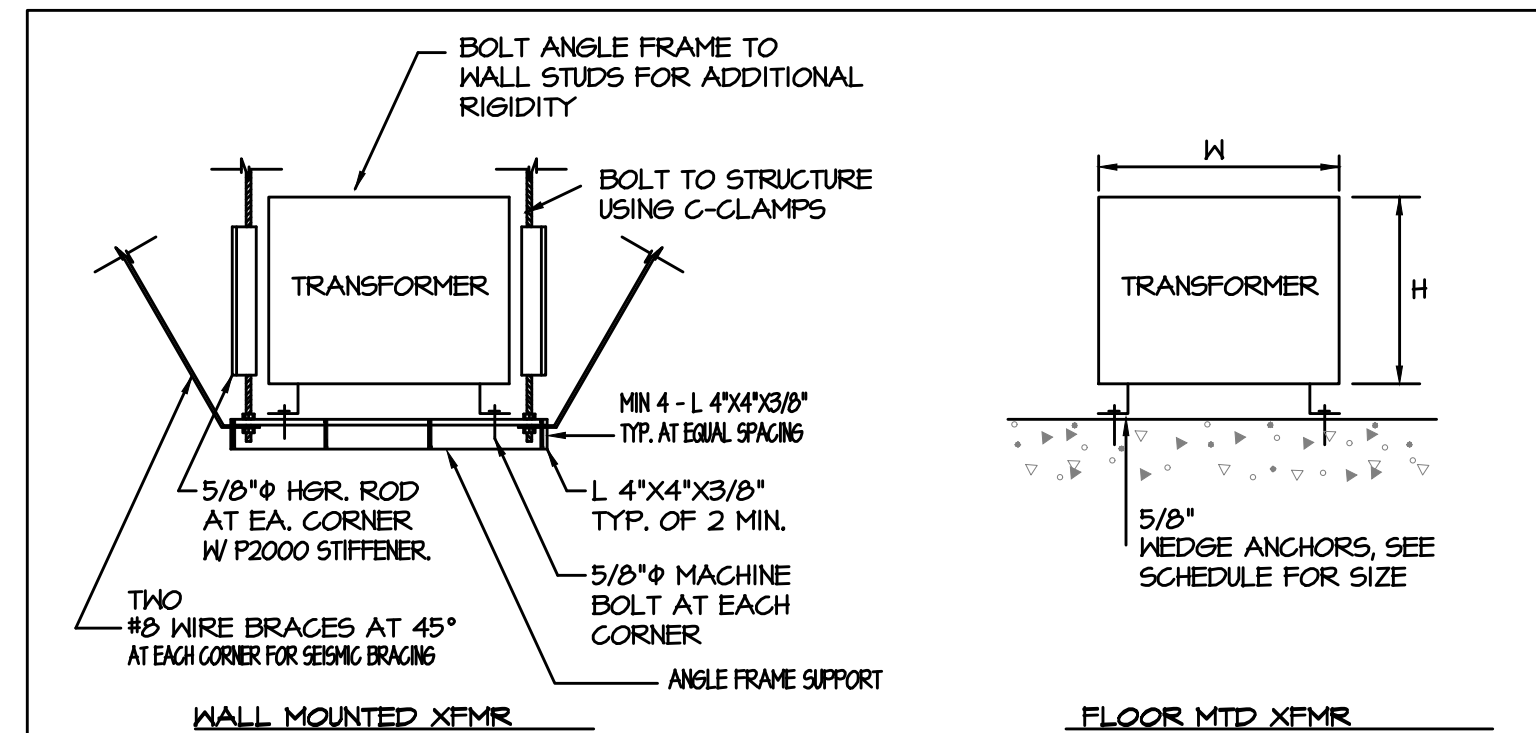
RECESSED FIXTURE MOUNTING DETAIL

NO SCALE



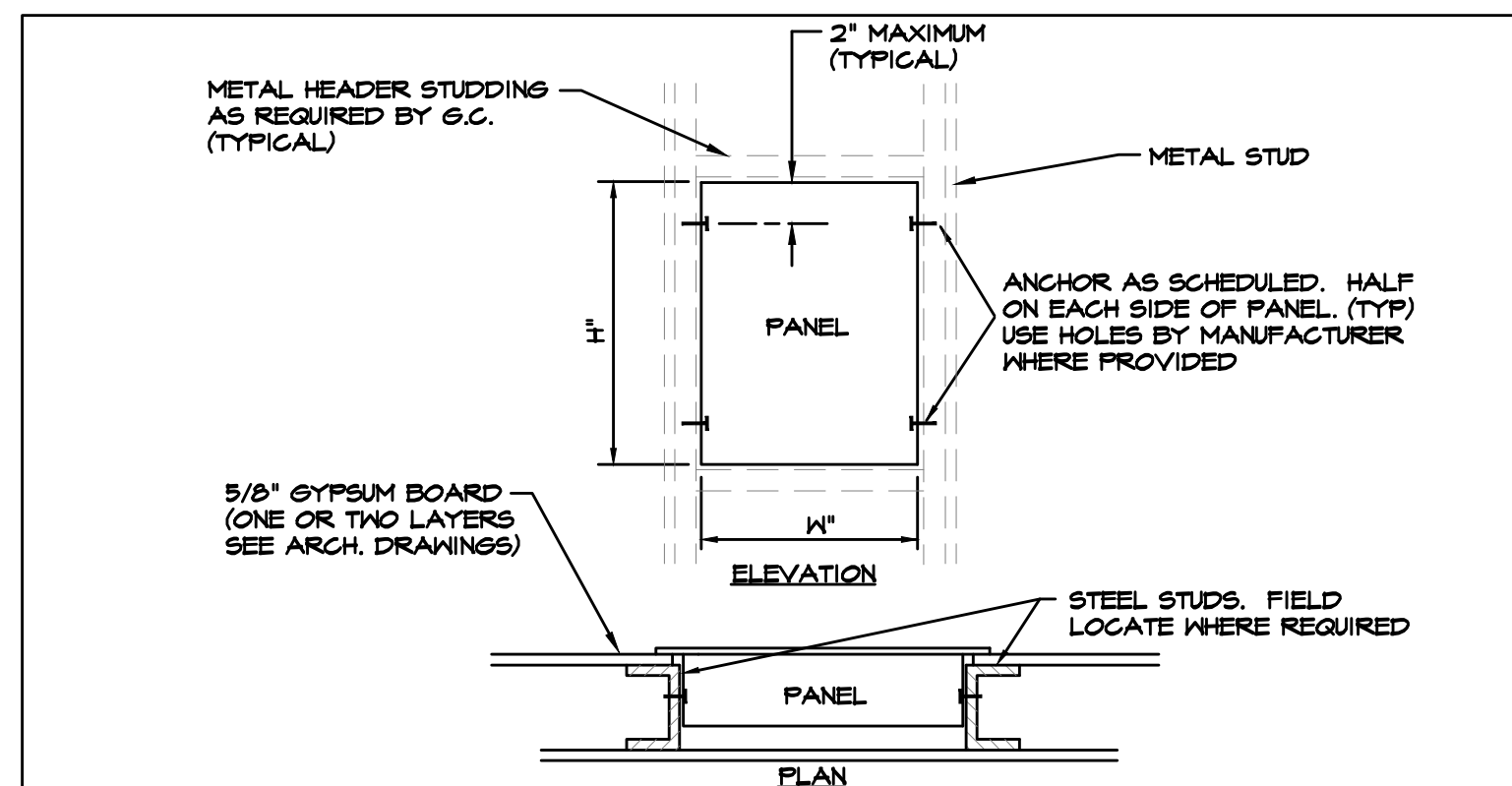
RECESSED LIGHTING FIXTURE SUPPORT DETAIL

NOT TO SCALE



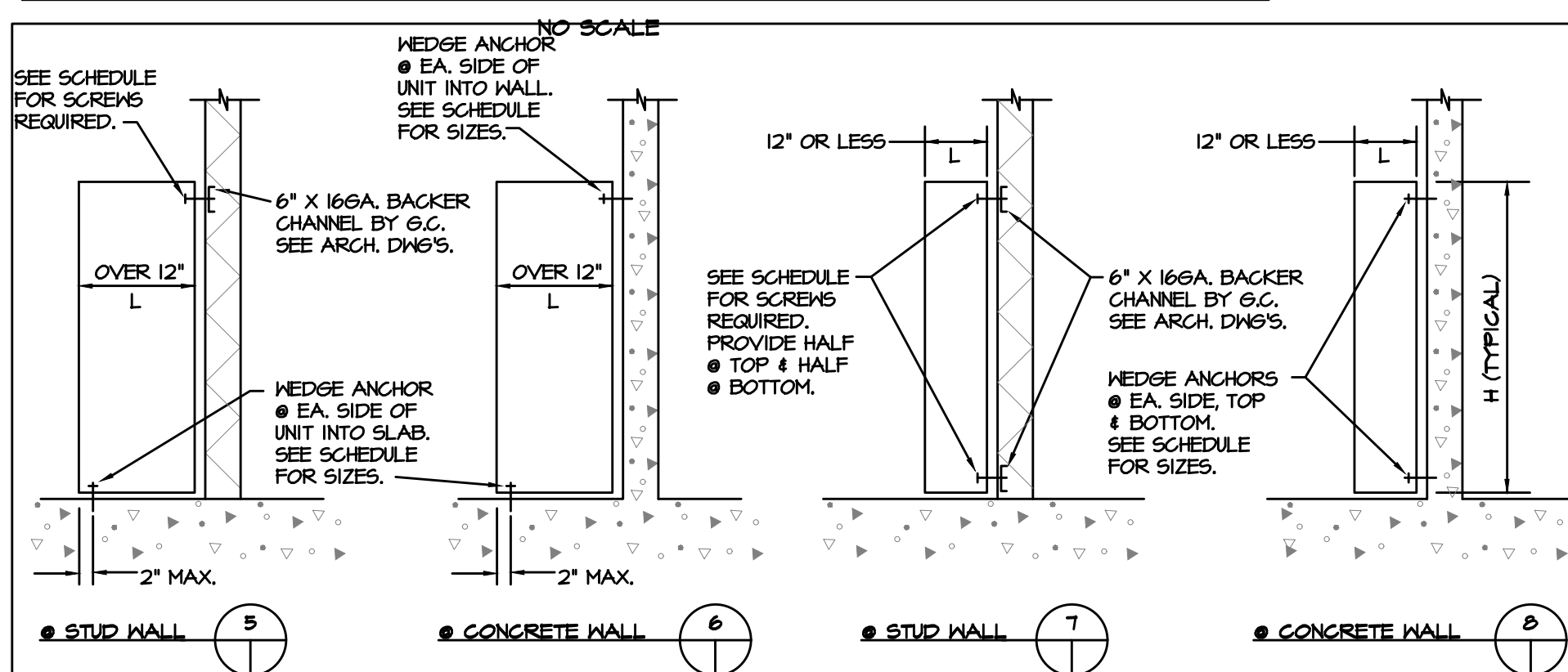
TYPICAL ANCHORAGE AT TRANSFORMERS

FLOOR MTD XFMR



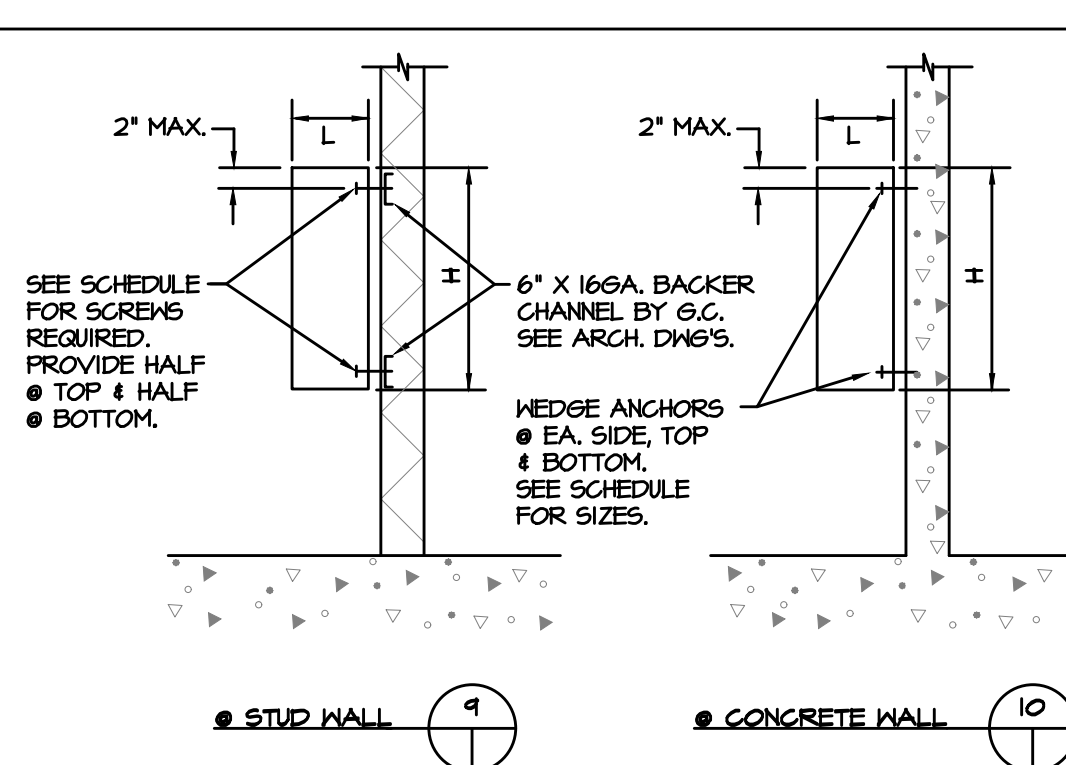
ANCHORING OF RECESSED PANELS

NO SCALE



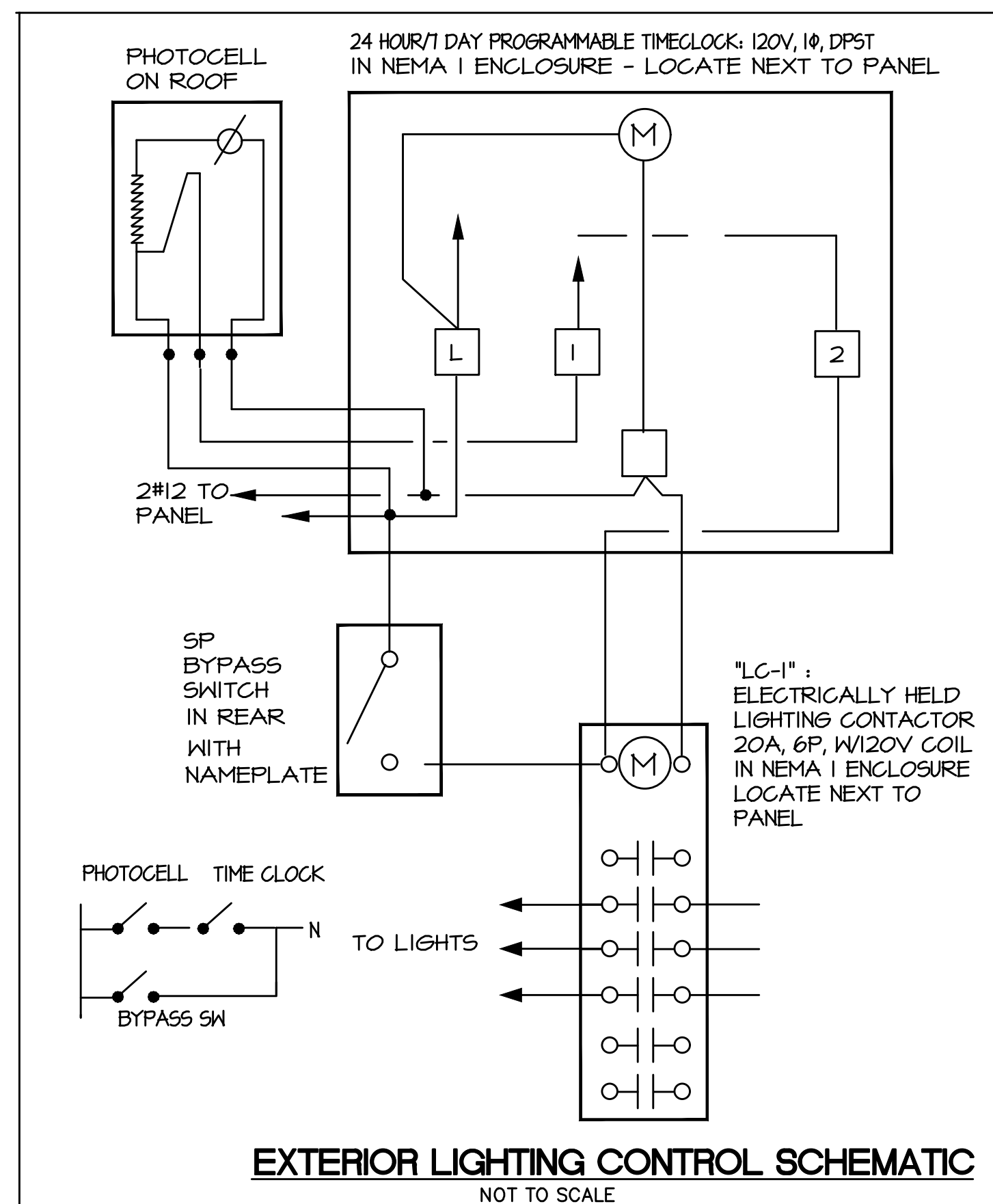
TYPICAL WALL/FLOOR SUPPORTED EQUIPMENT

NO SCALE



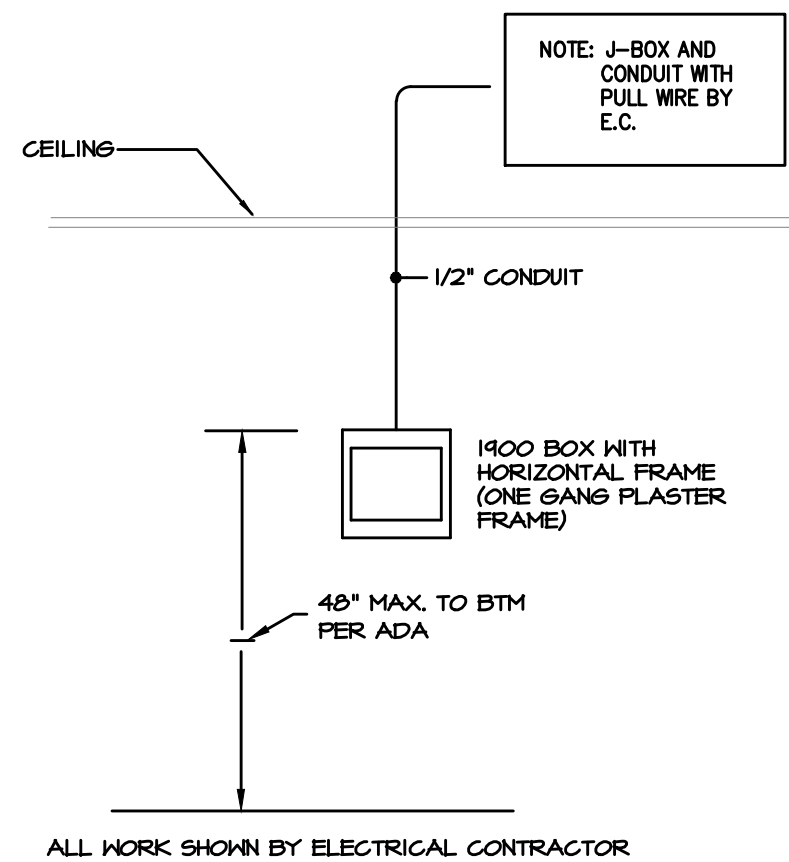
**TYPICAL SURFACE MOUNTED
WALL SUPPORTED EQUIPMENT**

NO SCALE



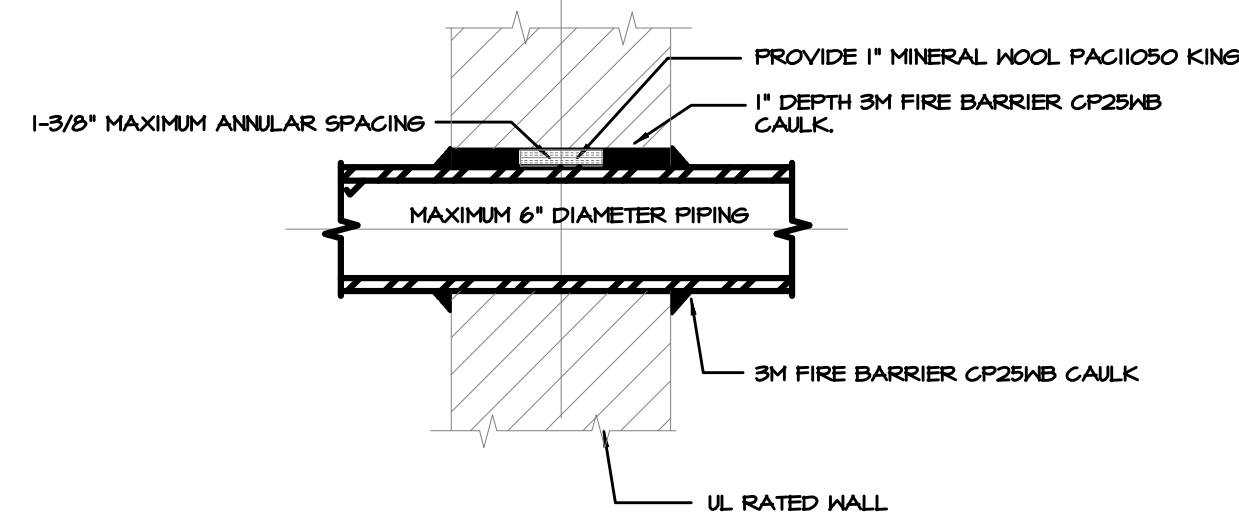
EXTERIOR LIGHTING CONTROL SCHEMATIC

NOT TO SCALE



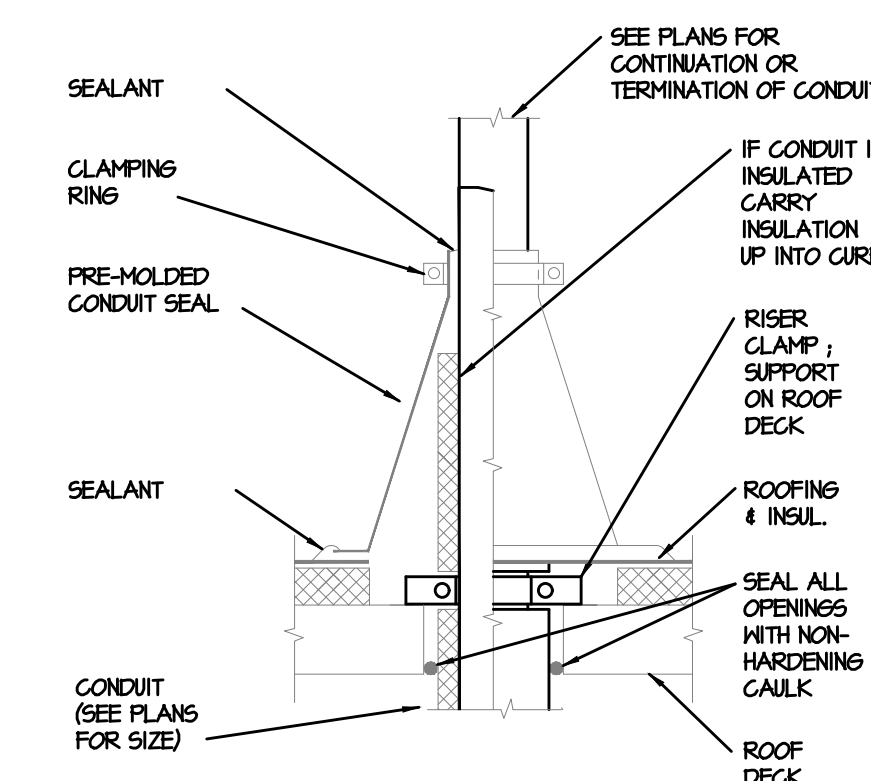
TYPICAL ADA THERMOSTAT

ALL WORK SHOWN BY ELECTRICAL CONTRACTOR



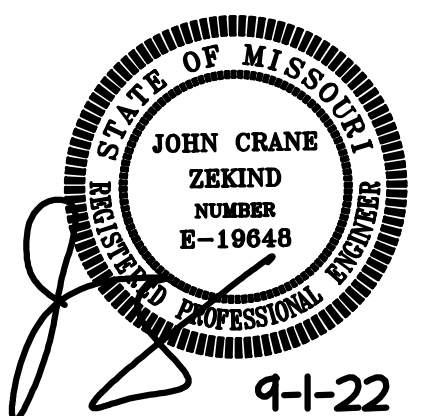
FIRE/SMOKE WALL CONDUIT PENETRATION

NOT TO SCALE



CONDUIT THRU ROOF

NO SCALE



9-1-22

SERVICE STATION AND
CONVENIENCE STORE

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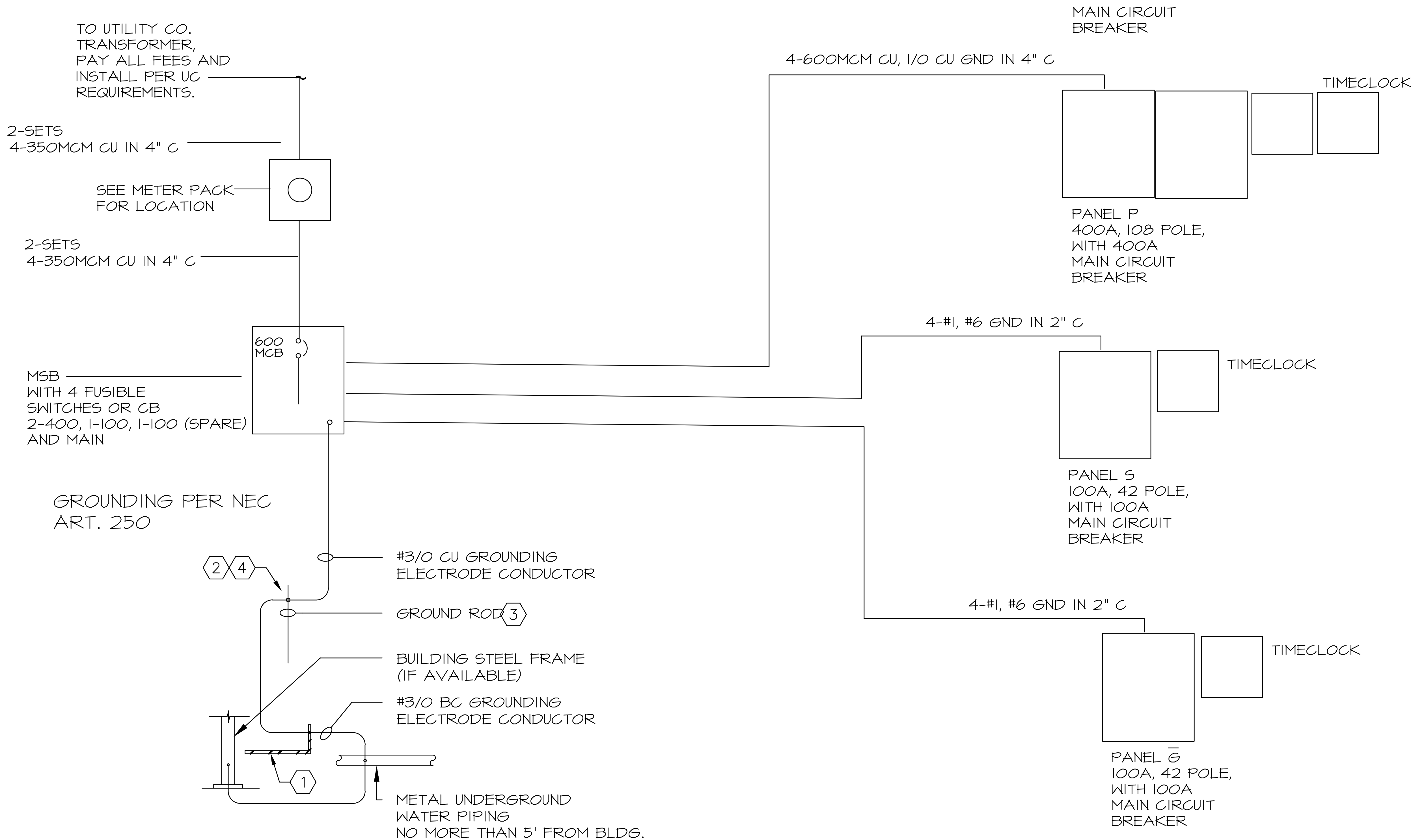
E-4

POWER KEY NOTES

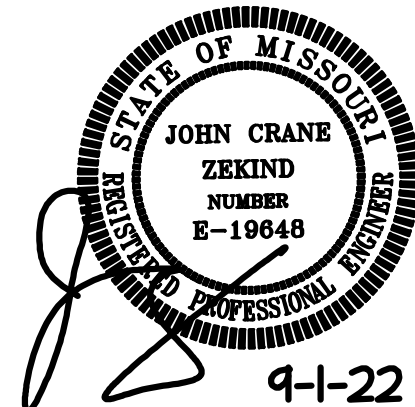
1. CONCRETE ENCASED (UFER) GROUNDING ELECTRODES SHALL CONSIST OF AT LEAST 20 FEET OF ONE OR MORE STEEL REINFORCING BARS OR RODS OF NOT LESS THAN 1/2 INCH DIAMETER, OR CONSISTING OF AT LEAST 20 FEET OF BARE COPPER CONDUCTORS NOT SMALLER THAN #2/0 AWG, ENGAGED BY AT LEAST 2 INCHES OF CONCRETE, LOCATED WITHIN AND NEAR THE BOTTOM OF A CONCRETE FOUNDATION OR FOOTING THAT IS IN DIRECT CONTACT WITH THE EARTH.
2. CONNECT GROUNDING WIRE DIRECTLY TO GROUND ROD. MINIMIZE CONDUCTOR RIGHT ANGLE BENDS. MAXIMUM LENGTH OF CONDUCTOR SHALL BE 10 FEET.
3. GROUND RODS (IF NEEDED) SHALL BE 3/4" DIA. X 10' LONG COPPERWELD. RESISTANCE TO GROUND MUST BE 25 OHMS OR LESS.
4. GROUNDING ELECTRODE CONNECTIONS SHALL BE MADE WITH A UL LISTED AND APPROVED BOLTED PRESSURE OR COMPRESSION TYPE CONNECTOR.

GENERAL NOTES:

- A. ALL SERVICE EQUIPMENT, INCLUDING METER & CURRENT TRANSFORMER CABINET, TERMINATION BOXES, DISCONNECT SWITCHES, AND MAIN CIRCUIT BREAKERS SHALL BE RATED FOR THE MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT AS DETERMINED BY THE SERVING UTILITY CO.
- B. #2/0 GROUNDING ELECTRODE CONDUCTOR TO BUILDING STEEL FRAME, COLD WATER AND GAS PIPE, INTERIOR METAL PIPING, AND CONCRETE ENCASED ELECTRODE (UFER GROUND).
- C. ALL CONDUCTORS SHALL BE COPPER TYPE THHN/THWN OR XHHW.
- D. ALL POWER WIRING INDICATED IS TO BE PROVIDED BY THE CONTRACTOR.



RISER SCHEMATIC



SERVICE STATION AND CONVENIENCE STORE

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Project Number:
Issued For: ☐ Review ☐ Permit ☐ Bidding ☐ Construction
9-1-22

Sheet Number:

E-5

| PANELBOARD SCHEDULE | | | | | | | | | | | | | | | | | | | | |
|---------------------------|------------|---------|--------|----------|---|-----------------------|----|-----|-------------|----|-------------------|--------------------------|-------|----------------------------|--|-----|-------------------|------|--|--|
| PANEL "P" | | | | | | | | | | | | | | | | | | | | |
| 120/208V, 3 PHASE, 4 WIRE | | | | | | | | | | | | | | | | | | | | |
| 400 AMPERE BUSS | | | | | | | | | | | | | | | | | | | | |
| 400 AMPERE MAIN | | | | | | | | | | | | | | | | | | | | |
| 25KAIC | | | | | | | | | | | | | | | | | | | | |
| LOAD | LOAD (kVA) | | | CB | | CKT | CB | | LOAD (kVA) | | | LOAD | | | | | | | | |
| DESCRIPTION | LIGHTS | POWER | MECH. | A | P | NO. | PH | NO. | P | A | LIGHTS | POWER | MECH. | DESCRIPTION | | | | | | |
| RECEPTACLES | | 1 | | 20 | 1 | 1 | A | 2 | | | | | | 4.0 | | | | | | |
| SLUSH | | 1 | | 20 | 1 | 3 | B | 4 | 3 | 60 | | | | 4.0 RTU | | | | | | |
| SODA | | 1 | | 20 | 1 | 5 | C | 6 | | | | | | 4.0 (VERIFY CB/OC WITH MC) | | | | | | |
| ICE | | 1 | | 20 | 1 | 7 | A | 8 | | | | | | 4.0 | | | | | | |
| SOFT HEAT | | 1 | | 20 | 1 | 9 | B | 10 | 3 | 60 | | | | 4.0 RTU | | | | | | |
| IMMERSION | | 1 | | 20 | 1 | 11 | C | 12 | | | | | | 4.0 (VERIFY CB/OC WITH MC) | | | | | | |
| CAPPUCCINO | | 1 | | 20 | 1 | 13 | A | 14 | | | | | | 5.0 | | | | | | |
| BAG N BOX | | 1 | | 20 | 1 | 15 | B | 16 | 3 | 60 | | | | 5.0 RTU | | | | | | |
| ICE | | 1 | | 20 | 1 | 17 | C | 18 | | | | | | 5.0 (VERIFY CB/OC WITH MC) | | | | | | |
| REC | | 1 | | 20 | 1 | 19 | A | 20 | 1 | 40 | | 4 | | DWH-1 (VERIFY) | | | | | | |
| WALK IN CONDENSERS | | 1 | | 20 | 2 | 21 | B | 22 | 1 | 90 | | 9 | | DWH-2(VERIFY) | | | | | | |
| | | 1 | | | | 23 | C | 24 | | | | 9 | | | | | | | | |
| WALK IN EVAP, ETC | | 1 | | 20 | 1 | 25 | A | 26 | 1 | 20 | | 1 | | RECEPTACLES | | | | | | |
| WALK IN CONDENSERS | | 1 | | 20 | 1 | 27 | B | 28 | 1 | 20 | | 1 | | RECEPTACLES | | | | | | |
| | | 1 | | 20 | 1 | 29 | C | 30 | 1 | 20 | 0.6 | | | LIGHTS | | | | | | |
| WALK IN EVAP, ETC | | 1 | | 20 | 1 | 31 | A | 32 | 1 | 20 | 1.4 | | | LIGHTS | | | | | | |
| WALK IN CONDENSERS | | 1 | | 20 | 1 | 33 | B | 34 | 1 | 20 | 1.4 | | | LIGHTS | | | | | | |
| | | 1 | | 20 | 1 | 35 | C | 36 | 1 | 20 | 1.1 | | | COOLER LIGHTS - VERIFY | | | | | | |
| WALK IN EVAP, ETC | | 1 | | 20 | 1 | 37 | A | 38 | 1 | 20 | 1.2 | | | LIGHTS | | | | | | |
| | | | | 20 | 1 | 39 | B | 40 | 1 | 20 | 0.6 | | | LIGHTS | | | | | | |
| | | | | 20 | 1 | 41 | C | 42 | 1 | 20 | 0.4 | | | EMEXT ON LOCK ON CB | | | | | | |
| | | | | | | | | | | | 0.0 | 19.0 | 0.0 | TOTAL CONNECTED | | 6.7 | 24.0 | 39.0 | | |
| LOAD CALCULATIONS: | | | | | | | | | | | | | | | | | | | | |
| LOAD | CONN. | DEMAND | DEMAND | DEMAND | | | | | | | | | | | | | | | | |
| DESCRIPTION: | DEMAND | FACTOR: | LOAD: | AMPERE: | | | | | | | | KVA | AMPS | | | | | | | |
| LIGHTING: | 6.7 | 1.00 | 6.7 | 18.598 A | | CALCULATED DEMAND: | | | | | | 88.7 | 246.2 | | | | | | | |
| POWER <10kVA: | 10.0 | 1.00 | 10.0 | 27.758 A | | SPARE CAPACITY: | | | | | | 55.4 | 153.8 | | | | | | | |
| POWER <10kVA: | 33.0 | 1.00 | 33.0 | 91.602 A | | PERCENTAGE SPARE: | | | | | | 38% | | | | | | | | |
| MECHANICAL EQUIPMENT | 39.0 | 1.00 | 39.0 | 108.26 A | | TOTAL PANEL CAPACITY: | | | | | | 144.1 | 400.0 | | | | | | | |
| CALCULATED DEMAND: | 88.7 | | 88.7 | 246.21 A | | 144 kVAx 1000 | | | | | | FEEDER/CIRCUIT CAPACITY: | | | | | | | | |
| | | | | | | | | | | | 208 VAC x 1.732 = | | | | | | 400 AMPERE RATING | | | |

ADD ANOTHER 12 POLE SECTION TO PANEL "P"
P-44/46, P48, 43/45, 47 FOR FREEZER COOLERS - VERIFY

| PANELBOARD SCHEDULE | | | | | | | | | | | | | | | | | | |
|---------------------------|------------|---------|--------|---------|---|-----------------------|----|-----|---|-------------|-------------------|--------------------------|-------|--------------------|-----|------|-------------------|-----|
| PANEL "G" | | | | | | | | | | | | | | | | | | |
| 120/208V, 3 PHASE, 4 WIRE | | | | | | | | | | | | | | | | | | |
| 100 AMPERE BUSS | | | | | | | | | | | | | | | | | | |
| 100 AMPERE MAIN | | | | | | | | | | | | | | | | | | |
| 25KAIC | | | | | | | | | | | | | | | | | | |
| LOAD | LOAD (kVA) | | | CB | | CKT | | CB | | LOAD (kVA) | | | LOAD | | | | | |
| DESCRIPTION | LIGHTS | POWER | MECH. | A | P | NO. | PH | NO. | P | A | LIGHTS | POWER | MECH. | DESCRIPTION | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 1 | A | 2 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 3 | B | 4 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 5 | C | 6 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 7 | A | 8 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 9 | B | 10 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 11 | C | 12 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 13 | A | 14 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 15 | B | 16 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 17 | C | 18 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| GAS PUMP | | 1 | | 20 | 1 | 19 | A | 20 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| DIESEL PUMP | | 1 | | 20 | 1 | 21 | B | 22 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| DIESEL PUMP | | 1 | | 20 | 1 | 23 | C | 24 | 1 | 20 | | 0.6 | | CONTROL/COMM. CCTS | | | | |
| SPARE | | | | 20 | 1 | 25 | A | 26 | 1 | 20 | | | | SPARE | | | | |
| SPARE | | | | 20 | 1 | 27 | B | 28 | 1 | 20 | | | | SPARE | | | | |
| SPARE | | | | 20 | 1 | 29 | C | 30 | 1 | 20 | | | | SPARE | | | | |
| SPARE | | | | 20 | 1 | 31 | A | 32 | 1 | 20 | | | | SPARE | | | | |
| SPARE | | | | 20 | 1 | 33 | B | 34 | 1 | 20 | | | | SPARE | | | | |
| SPARE | | | | 20 | 1 | 35 | C | 36 | 1 | 20 | | | | SPARE | | | | |
| SPARE | | | | 20 | 1 | 37 | A | 38 | 1 | 20 | | | | SPARE | | | | |
| SPARE | | | | 20 | 1 | 39 | B | 40 | 1 | 20 | | | | SPARE | | | | |
| SPARE | | | | 20 | 1 | 41 | C | 42 | 1 | 20 | | | | SPARE | | | | |
| | | | | | | | | | | | 0.0 | 12.0 | 0.0 | TOTAL CONNECTED | | 0.0 | 7.2 | 0.0 |
| LOAD CALCULATIONS: | | | | | | | | | | | | | | | | | | |
| LOAD | CONN. | DEMAND | DEMAND | DEMAND | | | | | | | | | | | | | | |
| DESCRIPTION: | DEMAND | FACTOR: | LOAD: | AMPERE: | | | | | | | | | | | KVA | AMPS | | |
| LIGHTING: | 0.0 | 1.00 | 0.0 | 0 | A | CALCULATED DEMAND: | | | | | | 19.2 | 53.3 | | | | | |
| POWER <10KVA | 10.0 | 1.00 | 10.0 | 27.758 | A | SPARE CAPACITY: | | | | | | 16.8 | 46.7 | | | | | |
| POWER <10KVA | 9.2 | 1.00 | 9.2 | 25.537 | A | PERCENTAGE SPARE: | | | | | | 47% | | | | | | |
| MECHANICAL EQUIPMENT | 0.0 | 1.00 | 0.0 | 0 | A | TOTAL PANEL CAPACITY: | | | | | | 36.0 | 100.0 | | | | | |
| CALCULATED DEMAND: | 19.2 | | 19.2 | 53.295 | A | 36 kVA x 1000 | | | | | | FEEDER/CIRCUIT CAPACITY: | | | | | | |
| | | | | | | | | | | | 208 VAC x 1.732 = | | | | | | 100 AMPERE RATING | |

ELECTRICAL SPECIFICATION

I. PART I - GENERAL

- 1.01 ROUTING OF CONDUCTORS AND CONDUIT, LOCATION OF EQUIPMENT, APPARATUS, FIXTURES AND OTHER DEVICES ARE SHOWN ON PLANS FOR GENERAL GUIDANCE. THIS CONTRACTOR SHALL COORDINATE WORK WITH THE OTHER CONTRACTORS AND SHALL PROVIDE NECESSARY DEVIATIONS IN ROUTING AND ITEM LOCATIONS, AS FAR AS IS FROM THOSE SHOWN, AS NECESSARY TO PROVIDE OPERATING SYSTEMS AS SPECIFIED OR IMPLIED WITHOUT INTERFERENCE AND PURSUANT TO THESE REQUIREMENTS AT NO ADDITIONAL COST.
- 1.02 PRIOR TO SUBMITTING HIS QUOTATION FOR WORK UNDER THIS PROJECT, THIS CONTRACTOR SHALL VISIT THE SITE TO EXAMINE ALL CONDITIONS RELATED TO WORK AND TO AGREE IN WRITING WITH THESE CONDITIONS. THE SUBMISSION OF THE PROPOSAL SHALL BE CONSIDERED EVIDENCE THAT THE CONTRACTOR HAS VISITED THE SITE. NO EXTRA PAYMENTS WILL BE ALLOWED THIS CONTRACTOR ON ACCOUNT OF CLAIMS FOR EXTRA WORK MADE NECESSARY BY HIS FAILURE TO VISIT THE SITE.
- 1.03 ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, ALL LOCAL ORDINANCES AND LOCAL TRADE PRACTICES.

2. PART II - MATERIALS

2.01 CONDUIT

- A. ALL CONDUITS SHALL BE NOT DIPPED OR ELECTRO-GALVANIZED STEEL, UNLESS OTHERWISE NOTED. MINIMUM SIZE CONDUIT SHALL BE 1/2" MINIMUM SIZE CONDUIT UNDERGROUND OR IN CONCRETE OR MASONRY SHALL BE 3/4". ALL RIGID CONDUIT SHALL BE THREADED TYPE, FITTINGS SHALL BE THREADED TYPE, SET SCREW TYPE WILL NOT BE ACCEPTED.
- B. STEEL CONDUIT - HEAVY WALL - "HEAVY WALL" GALVANIZED RIGID METALLIC CONDUIT (BRAC) SHALL BE USED IN THE FLOOR SLAB FOR ALL FEEDERS AND FOR INSTALLATION IN CONCRETE OR IN HOT LOCATIONS OR WHERE THE RACEWAY MAY BE EXPOSED TO HEATHER OR SUBJECT TO MECHANICAL INJURY. COUPLINGS SHALL BE SEALED WITH WATERPROOF SEALING COMPOUND.
- C. RIGID STEEL CONDUIT (BRAC) - FULL HEIGHT STEEL PIPE OF STANDARD PIPE DIMENSIONS, THREADED. CONDUIT SHALL HAVE GALVANIZED COATING APPLIED TO BOTH INSIDE AND OUTSIDE SURFACES, INCLUDING THE THREADS. CONDUIT SHALL BE THREADED 3/4" BACK FROM END OF PIPE SO THAT NO THREAD WILL BE EXPOSED. NOT DIPPED GALVANIZED CONDUIT WRAPPED WITH PLYMOUTH PLYWRAP 20 1462 PIPE WRAPPING TAPE SHALL BE USED FOR UNDERGROUND DIRECT BURIAL. NOT DIPPED GALVANIZED CONDUIT SHALL BE USED FOR UNDERGROUND CONCRETE ENCASED, OR WHERE EXPOSED TO HEATHER.
- D. "THIN WALL" GALVANIZED ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED IN WALLS AND CEILINGS ONLY. APPROVED COMPRESSION TYPE COUPLINGS WILL BE PERMITTED. FLEXIBLE METALLIC CONDUIT MAY BE USED ON SHORT FINAL CONNECTIONS TO MOTORS AND LIGHTING FIXTURES.
- E. ELECTRIC METALLIC TUBING (EMT) - THREADLESS THIN WALL CONDUIT GALVANIZED OR ZINC METALLIZED (INSIDE AND OUTSIDE) MAY BE USED FOR BRANCH CIRCUIT CONDUCTORS UP TO SIZE 1/0 MAXIMUM IN EXPOSED DRY LOCATIONS, HANG CEILINGS, HOLLOW BLOCK WALLS AND IN FINISHED SPACES.
- F. FLEXIBLE STEEL CONDUIT. USE 1/2" MINIMUM EXCEPT WHERE NOTED OTHERWISE. FLEXIBLE CONDUIT SHALL BE USED FOR THE FOLLOWING APPLICATION ONLY:
- A. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, MAXIMUM LENGTH 10'.
- B. FOR FINAL CONNECTION TO MORTAR OUTLETS ON VIBRATING EQUIPMENT.
- C. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE, MINIMUM 4', MAXIMUM 6' LENGTH.
- D. FOR SHORT CONNECTIONS AS APPROVED BY THE ENGINEER.
- E. FOR EXPANSION JOINT COUPLINGS.
- F. FOR WEATHERPROOF INSTALLATIONS WITH PLYMOUTH SHEATHINGS, SIMILAR TO AMERICAN METAL HOSE "SEALTITE" TYPE "N" OR EQUAL.
- G. FLEXIBLE STEEL CONDUIT. SINGLE STRIP TYPE, MINIMUM SIZE 1/2", EXCEPT AS NOTED, GALVANIZED, MAXIMUM RESISTANCE OF ARMOR IS 0.045 PER 1000 FEET. CONDUIT SHALL BE AS MANUFACTURED BY AMALCONDA OR APPROVED EQUAL.
- H. POLYVINYL CHLORIDE CONDUIT (PVC)

WHERE APPROVED BY LOCAL AND STATE CODE AUTHORITIES FOR THE UNDERGROUND INSTALLATION, POLYVINYL CHLORIDE (PVC) CONDUIT SHALL BE SCHEDULE 40, 90 DEGREES C, LISTED, ALL JOINTS SHALL BE SOLVENT WELDED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

I. GROUNDING

1. GROUND WIRES SHALL BE RUN IN EACH CONDUIT AND SIZED PER ARTICLE 250-45 OF THE NEC. GROUND WIRES SHALL BE TERMINATED TO THE METALLIC ENCLOSURES OF THE PANELS, DISCONNECTS, TRANSFORMERS, MAIN SWITCHBOARD AND OUTLET BOXES.
2. ALL PROVISIONS OF ARTICLES 341, 250 AND 300-22 OF THE NEC SHALL BE STRICTLY ADHERED TO, ALL LOCAL AND STATE CODES SHALL APPLY.

2.02 CONDUCTORS

TYPE - ALL WIRING SHALL BE "COPPER" AND COMPLY WITH THE LATEST SPECIFICATIONS OF THE NEC. WIRE AND CABLE SHALL BE NEW, SHALL HAVE SIZE, TYPE OF INSULATION, VOLTAGE RATING, AND MANUFACTURERS NAME PERMANENTLY MARKED ON OUTER COVERING AT REGULAR INTERVALS. ALL WIRING SHALL BE IN CONDUIT, UNLESS OTHERWISE INDICATED.

UNLESS OTHERWISE CALLED FOR, THE INSULATION OF CABLES AND WIRES SHALL BE AS FOLLOWS: CONDUCTORS #0 OR SMALLER BE SOLID, CONDUCTORS #0 AND LARGER SHALL BE STRANDED.

| APPLICATIONS | TYPES OF WIRES AND CABLES |
|--|--|
| FEEDERS TO PANELBOARDS. | TYPE THN-75 DEGREES C |
| BRANCH CIRCUITS FOR SIZES #6 AND LARGER. | TYPE THN-75 DEGREES C |
| BRANCH CIRCUITS FOR SIZES SMALLER THAN #6. | TYPE THHN/THAN 75 DEGREES C/90 DEGREES C |
| FEEDERS AND BRANCH CIRCUITS BELOW GRADE OR OUTSIDE BUILDING SMALLER THAN #6. | TYPE THN-75 DEGREES C |
| FIXTURE WIRING | TYPE THN-90 DEGREES C |

COLOR CODING OF CONDUCTORS

- A. ALL BRANCH CIRCUITS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC AND SHALL BE:
- | 120/240 VOLT | 277/480 VOLT |
|--------------|--------------|
| BLACK | PHASE A |
| RED | PHASE B |
| BLUE | PHASE C |
| WHITE | NEUTRAL |
- * MAY BE WHITE WITH TRACER.
- B. GROUNDING CONDUCTOR (ALL SYSTEMS) - GREEN
- C. SWITCHED LEG - PURPLE
- D. DUMMY LEGS OF 3-WAY SWITCHES - PINK

2.02 TRANSFORMERS

DRY TYPE TRANSFORMERS SHALL BE TWO WINDING, TOTALLY ENCLOSED, SELF COOLED, LOW AMPLIFIABLE SOUND LEVEL, OF THE SIZE AND ELECTRICAL CHARACTERISTICS AS SCHEDULED. TRANSFORMERS 25 KVA AND UNDER SHALL HAVE A UL RATING LIMITING SYSTEM TEMPERATURE TO 80 DEGREES C, 30 KVA AND ABOVE SHALL HAVE UL RATING LIMITING TEMPERATURE TO 90 DEGREES C, BOTH WITH RESPECT TO A 40 DEGREES C AMBIENT, MAXIMUM ACCESSIBLE SOUND LEVEL FOR ALL KVA, RATING SHALL NOT EXCEED 46 DECIBELS. TRANSFORMERS SHALL HAVE A MINIMUM 10 PERCENT OVERLOAD CAPACITY AT RATED VOLTAGE. ENCLOSURE SHALL BE FINISHED WITH LIFTING BRACKETS DESIGNED TO FACILITATE HANDLING AND INSTALLATION. VENTILATING OPENINGS SHALL BE DESIGNED IN A MANNER TO PREVENT ACCESS TO LIVE PARTS. USE FLEXIBLE CONDUIT, 2 (2) IN MINIMUM LENGTH, FOR CONNECTIONS TO TRANSFORMER CASE. MAKE CONDUIT CONNECTIONS TO SIDE PANEL OF ENCLOSURE. - HARRY TRANSFORMERS ON VIBRATION ISOLATING PADS SUITABLE FOR ISOLATING THE TRANSFORMER NOISE FROM THE BUILDING STRUCTURE. PROVIDE SEISMIC RESTRAINTS.

2.04 PANELS

LIGHTING PANELBOARDS SHALL BE CIRCUIT BREAKER, DEAD-FRONT TYPE IN ACCORDANCE WITH UL STANDARDS FOR PANELBOARDS AND STANDARD FOR CABINETS AND BOXES AND SHALL BE SO LABELED/PROVIDE A MINIMUM OF ONE (1) 3/4" CONDUIT STUBBED OUT OF EACH RECESSED PANELBOARD TO ABOVE THE CEILING (DEPENDENT ON AREA) SERVING BY PANEL FOR EVERY THREE (3) SPACES OR SPACES. PANEL DIRECTORIES SHALL BE TYPED AND FILLED OUT BY ELECTRICAL CONTRACTOR AFTER TESTING PHASE BALANCING AND CHECKOUT. TWO AND THREE POLE BREAKERS SHALL BE FURNISHED WHERE CALLED FOR. HANDLE TIES WILL NOT BE ACCEPTED. PANELBOARD BISSING SHALL BE ELECTRICAL GRADE CORNER. ALL BREAKERS SHALL BE BOLT-ON TYPE TWO AND THREE POLE BREAKERS SHALL HAVE COMMON TRIP. BOXES SHALL BE COMMERCIAL, HOT GALVANIZED SHEET STEEL, 1/4 GAUGE MINIMUM. IDENTIFY PANELS WITH ENGRAVED LAMINATED WAREPLATES INDICATING THE PANEL IDENTIFICATION AND PANEL VOLTAGE.

2.04 BOXES

OUTLET AND SWITCH BOXES. FURNISH OUTLETS AND BOXES WHERE REQUIRED BY PLANS, EQUIPMENT REQUIREMENTS, OR CODE. RECORD ALL LOCATIONS AND MOUNTING HEIGHTS OF ALL OUTLET, FULL AND JUNCTION BOXES. ALL OUTLET AND SWITCH BOXES SHALL BE NEW, APPROVED TYPE, SIZED TO PROVIDE AMPLE SPACE FOR WIRES, DEVICES, CONDUCTORS, AND GROUNDING WIRES, WHERE SPACE IS AVAILABLE. ALL FEED THROUGH BOXES SHALL BE MINIMUM 4" SQUARE BY 1 1/2" DEEP. BOXES SHALL BE SET BACK TO ALLOW THE INSTALLATION OF A SQUARE OUT AND BASED ADAPTER RING, DEPTH OF BASED PORTION SHALL MATCH THE WALL CONSTRUCTION. WHEN MORE THAN ONE WIRING DEVICE (SWITCHES AND RECEPTACLES) IS SHOWN ON THE SAME LOCATION, GANG BOXES SHALL BE USED. WHERE ANY DEVICE IS INSTALLED WITH EXPOSED CONDUIT, THE OUTLET BOX SHALL BE TYPE "N". PROVIDE A BLANK COVER FOR EACH OUTLET BOX TO BE PROVIDED WITH LIGHT FIXTURE OR OTHER DEVICE.

FLOOR BOXES. PLUGS AND TRIM SHALL BE BRASS. OUTLET BOX SHALL BE CAST IRON OR STAMPED STEEL. OUTLETS SHALL BE INSTALLED SO THAT THE TOP OPENING WILL BE FLUSH WITH FINISHED FLOOR. THE ELECTRICAL CONTRACTOR SHALL GROUT AROUND OUTLETS AS REQUIRED. SHALL BE INSTALLED IN ALL CARPETED AREAS AFTER CARPET IS IN PLACE.

FULL AND JUNCTION BOXES. FULL AND JUNCTION BOXES ARE NOT COMPLETELY SHOWN ON PLANS. THEY SHALL BE INSTALLED WHERE REQUIRED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE. ALL BOXES SHALL BE CONSTRUCTED OF MINIMUM NO. 14 GAUGE NOT-DIPPED GALVANIZED STEEL, CAST OR SHEET ALUMINUM WITH SCHEDULED OR IMBEDDED COVER. FASTENERS SHALL BE BRASS OR ZINC COATED SCREWS. WHERE EXPOSED TO WEATHER, MOISTURE-TIGHT GASKET SHALL BE PROVIDED. ELECTRICAL BOXES WITH UNHED KNOCKOUTS SHALL BE PLUGGED. ALL BOXES SHALL BE OF ADEQUATE SIZE WITHOUT THE USE OF EXTENSION BOXES.

2.5 DISCONNECT SWITCHES

DISCONNECT SWITCHES FOR SINGLE AND THREE PHASE LOADS OVER 1000 WATTS OR 1/2 HORSEPOWER SHALL BE HORSEPOWER RATED, HEAVY DUTY TYPE, QUICK-MAKE, QUICK-BREAK, AS MANUFACTURED BY ITC, CHALLENGER, SQUARE D, GENERAL ELECTRIC, WESTINGHOUSE OR OTHER ENGINEER APPROVED EQUAL. SWITCHES EXPOSED TO HEATHER SHALL BE NEMA 3R.

2.6 WAREPLATES AND LABELS

WAREPLATES

- A. WAREPLATES SHALL BE 4" X 1" X 1/8" THICK WHITE CORE, BLACK PAZE PLASTIC WITH ENGRAVED LETTERS. ATTACHMENT TO EQUIPMENT SHALL BE DONE BY MEANS OF SCREWS.
- B. WAREPLATES SHALL BE USED FOR ALL MAJOR EQUIPMENT SUCH AS SWITCHBOARDS, MOTOR PANELBOARDS, MOTOR CONTROL CENTERS, UNIT SUBSTATIONS, TRANSFORMERS, PANELBOARDS (LIGHTING POWER AND AUXILIARY) ON EACH SWITCH AND STARTER IN EACH PANELBOARD AND MOTOR CONTROL CENTER, DISCONNECT SWITCHES, RELAYS, LOOSE MOUNTED MOTOR STARTERS, AND ON CONTROL PANELS SERVING FIRE ALARM, SECURITY AND PUBLIC ADDRESS SYSTEM AND MOTOR CIRCUITS.
- LABELS
- A. LABELS (STENCILS) SHALL BE BRADY OR NEUTRINE AND SHALL BE COLOR CODED IN ACCORDANCE WITH ASA E24-S-9 "SAFETY COLOR CODE" TO INCLUDE SYSTEM VOLTAGES, ABBREVIATIONS OF SERVICE, ETC. FOR EXAMPLE: ABOVE TELEPHONE, SECURITY, INTERCOM, EMERGENCY, 120/240V, ETC.

2.7 TIMECLOCK

TIMECLOCK SHALL BE 24 HOUR, 1 DAY WITH BATTERY BACKUP. EACH DAY SHALL HAVE MINIMUM OF 2 ON AND 2 OFF PERIODS. TIMECLOCK SHALL HAVE MANUAL OVERSIDE SWITCH. TIMECLOCK SHALL BE LOCATED IN NEPA ENCLOSURE. TIMECLOCK SHALL BE BY YORK, PARAGON OR EQUAL.

2.8 LOW VOLTAGE WIRING

ALL SPECIAL SYSTEM LOW VOLTAGE WIRING SHALL BE IN CONDUIT.

PART III EXECUTION

31. ALL WORK SHALL BE IN COMPLETE ACCORDANCE WITH THE NEC, AND ALL APPLICABLE CODES. WHETHER EXPLICITLY SHOWN OR NOT, ALL PANELS SHALL HAVE IDENTIFICATION DIRECTORIES, AND ALL CIRCUITS SHALL BE TAGGED. ALL SYSTEMS SHALL BE GUARANTEED FOR 1 YEAR AFTER OWNERS WRITTEN ACCEPTANCE. PROPERLY GROUND ALL SYSTEMS AND BALANCE PHASES. IF REQUIRED INCREASE BRANCH CIRCUIT SIZES TO REDUCE VOLTAGE DROP. ALL WORK SHALL BE COORDINATED WITH THE LANDLORDS CONTRACTOR TO ASSURE A FULLY FUNCTIONAL AND COMPLETE SYSTEM.

32 CONDUIT TYPES

INDOOR EXPOSED OR CONCEALED AREAS - USE EMT FOR SIZES UP TO 4", USE BRAC (GALVANIZED RIGID METAL CONDUIT) FOR 6" AND ABOVE, UNLESS OTHERWISE NOTED AND BRAC, WHERE EXPOSED TO PHYSICAL DAMAGE AND WHERE SUBJECT TO MOISTURE AND DETEIORATION. - BURIED IN CONCRETE FLOOR SLAB SYSTEM - BRAC, WITH RUST RESISTANT WRAP AND SHALL BE COVERED WITH A MINIMUM OF 2" CONCRETE ABOVE CONDUIT, INSTALLED BELOW CONCRETE SLAB (SERVICE ENTRANCE) - BRAC, WRAP ENCASED IN CONCRETE ENVELOPE. CONCRETE ENVELOPE SHALL BE MINIMUM 3" AROUND CONDUIT. INSTALLED BELOW CONCRETE SLAB FEEDERS OR BRANCH CIRCUITS - BRAC, STEEL WITH RUST RESISTANT WRAP NOT ENCASED. ALL UNDERGROUND BRAC, STEEL CONDUIT NOT ENCASED IN CONCRETE SHALL BE WRAPPED WITH PIPE WRAPPING TAPE, SCOTCH-RAV #10 OR PLYMOUTH-BISHOP PLYWRAP-207 TAPE TO COVER CONDUIT AND FITTINGS, INSTALLED OUTSIDE OF BUILDING (ABOVE GRADE) - BRAC, WHEN EXPOSED TO WEATHER. ALL EXPOSED THREADS SHALL BE FIELD PAINTED WITH RUSTPROOF PRIMER BY EACH CONTRACTOR. FLEXIBLE METAL RACEWAYS SHALL BE USED FOR CONNECTION TO ALL MOTORIZED EQUIPMENT, TRANSFORMERS AND EQUIPMENT SUBJECT TO VIBRATION, ADJUSTMENTS AND/OR MOVEMENT AND TO CONTROL EQUIPMENT REQUIRING PIPING CONNECTIONS. RACEWAYS SHALL BE AS MANUFACTURED BY AMALCONDA OR APPROVED EQUAL.

3.3 CONDUIT INSTALLATION

A COMPLETE CONTINUOUS RACEWAY SHALL BE PROVIDED FOR FILLING AND INSTALLING OF WIRES. ALL WIRING SHALL BE RUN IN RACEWAYS UNLESS OTHERWISE INDICATED. ALL CONDUIT MUST BE REARED AFTER CUTTING. CONDUITS SHALL BE CUT SQUARE, REAMED TO FULL SIZE, SHOULDERED WITHOUT BITTING AND COUPLINGS OR FITTINGS. THE THREAD SHALL BE OF STANDARD LENGTH AND DIAMETER REQUIRED FOR THE SIZE OF CONDUIT. USE ONA DON APPROVED TYPE OF GRAPHITE BEARING THREAD LUBRICANT SHALL BE USED IN MAKING UP THREADS. WHERE CONDUITS ARE CUT IN THE FIELD, USE A STANDARD CUTTING DIE WITH 3/4" TAPER PER FOOT. RUNNING THREADS WILL NOT BE ACCEPTABLE. CONDUITS SHALL HAVE A SMOOTH INTERIOR SURFACE FREE OF OBSTRUCTIONS, SHALL BE CAPPED WITH APPROVED CONDUIT SEALS DURING

CONSTRUCTION PERIOD, SHALL BE UNIFORMLY SLOPED TO ELIMINATE TRAPPED CONDENSATION AND SHALL BE THOROUGHLY CLEANED AND DRY BEFORE FILLING ANY WIRE. CONDUIT INSTALLATION SHALL CLEAR ALL HOT PIPES SUCH AS HOT WATER, ETC., NOT LESS THAN 6" ALL CONDUITS IN FINISHED AREAS SHALL BE CONCEALED, UNLESS OTHERWISE INDICATED ON THE PLANS. CONDUITS IN EQUIPMENT ROOM AND UNFINISHED STORAGE AREAS MAY BE EXPOSED. ALL EXPOSED CONDUIT SHALL BE INSTALLED PERPENDICULAR OR PARALLEL TO BUILDING LINES. BURNINGS SHALL BE USED WHERE CONDUITS ENTER PANELBOARDS. ALL BURNINGS SHALL BE OF INSULATED TYPE WITH PROVISIO FOR GROUNDINGS AS TYPE "B" MADE BY OZ. GENEXY OR APPROVED EQUAL. CONCEALED CONDUITS INSTALLED ABOVE SUSPENDED CEILING SHALL BE RUN CLOSE TO THE UNDERSIDE OF CONSTRUCTION ABOVE, AND SHALL BE COORDINATED WITH THE OTHER SUBCONTRACTORS SO AS TO ALLOW ROOM FOR RUNNING DUCTS AND PIPING. PROVIDE FLEXIBLE CONDUIT CONNECTION AS REQUIRED BY NEC. FOR ALL RECESSED LIGHTING FIXTURES, FLEXIBLE CONDUIT CONNECTION SHALL

OPEN END OF CONDUITS SHALL BE CAPPED WITH CAP DURING ROUGHING-IN TO PREVENT THE ACCUMULATION OF DIRT AND MOISTURE CONDENSATION IN THE CONDUIT. SUPPORT FOR CONDUIT 1" AND SMALLER SHALL BE 12" X 1/2" HOLE PIPE STRAPS SPACED AT NOT TO EXCEED 8'-0" INTERVALS AND WITHIN 18" OF AN OUTLET BOX, JUNCTION BOX, PULL BOX, OR TERMINAL CABINET. SUPPORT FOR CONDUIT LARGER THAN 1" SHALL BE 2 HOLE PIPE STRAPS. WHERE THE CONDUIT RING ARE GROUNDED, CONDUIT TRAVELERS SUPPORTED ON 3/4" DIAMETER RODS, MINIMUM SHALL BE USED. FASTENING DEVICES TO UNDERSIDE OF ROOF DECK SHALL NOT BE PERMITTED. ALL SUSPENDED AND/OR FASTENING DEVICES SHALL BE SUSPENDED FROM STRUCTURE ABOVE WITH APPROPRIATE STRUTTING, SUPPORT OR ANGLE IRON. FULL WIRES - A CONTINUOUS 12 AWG GALVANIZED IRON FULL WIRE OR 1/8" POLYPROPYLENE LINE EXTENDING FROM JUNCTION BOX TO JUNCTION BOX SHALL BE INSTALLED IN ALL DRYFT JOINTS, AND SHALL BE TAPPED TO SHOW TERMINAL POINTS AND LENGTH OF RUN. JOINTS IN CONDUIT, CONDUIT INSTALLED IN CONCRETE OR MASONRY SHALL BE MADE TIGHT AND SHALL ENGAGE NOT LESS THAN FIVE THREADS. CONDUIT IN CONCRETE SHALL BE PLACED SO THAT NO PORTION OF THE CONDUIT OR COUPLINGS ARE EXPOSED AND AT A SUFFICIENT DEPTH TO PREVENT CRACKING OR SPALLING CONNECTIONS TO WIRING ENCLOSURES. CONDUITS SHALL BE SECURED TO OUTLET BOXES OR WIRING ENCLOSURES WITH DOUBLE LOCK NUTS AND BURNINGS. WHERE CONDUIT BOXES WITH THREADED NUTS ARE USED, CONDUIT SHALL ENGAGE AT LEAST FIVE THREADS IN HEREIN MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (90 DEGREE TOTAL) SHALL BE MADE IN CONDUIT RUN BETWEEN OUTLETS, PULL BOXES, JUNCTION BOXES OR PANELS. RUNS OVER 100' SHALL HAVE PULL

3.4 CONDUCTORS

ALL BRANCH CIRCUITS SHALL BE A MINIMUM #2 WIRE. 120 VOLT BRANCH CIRCUITS LONGER THAN 100 FEET SHALL BE A MINIMUM #2. 240 VOLT OR 277 VOLT BRANCH CIRCUITS LONGER THAN 200 FEET SHALL BE A MINIMUM #4. CONTROL WIRING SHALL BE A MINIMUM #14 WIRE UNLESS NOTED OTHERWISE. CODE APPROVED PRESSURE TYPE CONNECTORS SUCH AS "IDEAL NING-NUT" MAY BE USED FOR SIZES #0 AND SMALLER. TERMINALS AND SPLICES IN WIRE #0 AND LARGER SHALL BE MADE WITH SOLDERLESS COMPRESSION TYPE CONNECTORS. ALL JOINTS OR SPLICES SHALL BE WRAPPED WITH INSULATION TAPE SO THAT THE INSULATION OF THE JOINT, ETC., SHALL NOT BE LESS THAN INSULATION OF THE WIRE. ALL BRANCH CIRCUITS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC. NO CONDUCTORS OR CABLES SHALL BE INSTALLED IN RACEWAYS UNTIL THE RACEWAY SYSTEM HAS BEEN COMPLETED. WHEN INSTALLING CONDUCTORS, THE ELC SHALL EXERCISE THE CARE TO PREVENT DAMAGE TO CONDUCTOR OR INSULATION. ALL FEEDER CABLES SHALL BE CONTINUOUS FROM ORIGINAL TO PANEL OR EQUIPMENT TERMINATION WITHOUT RUNNING SPLICES IN INTERMEDIATE FULL OR SPLICE BOXES. WHERE TAPS AND/OR SPLICES ARE NECESSARY AND APPROVED, THEY SHALL BE MADE IN APPROVED SPLICE BOXES WITH SUITABLE COMPRESSION TYPE CONNECTORS AS NOTED HEREIN. ALL BRANCH CIRCUIT CABLE TERMINATIONS, TAPS AND SPLICES #0 AND SMALLER SHALL BE MADE WITH SOLDERLESS SPRING TYPE CONNECTORS SUCH AS "SCOTCHLOK" OR MINIMITY COMPRESSION TYPE CONNECTORS. ARE REQUIRED ON BRANCH CIRCUIT AND FEEDER CABLES #6 AND LARGER SHALL BE OF THE TYPE AS MANUFACTURED BY THE BRAND COMPANY AND SHALL BE INSTALLED WITH APPROVED HYDRAULIC TOOLS TO ASSURE A PERMANENT MECHANICALLY SECURE HIGH CONDUCTIVITY JOINT. ALL UNBELLATED SPLICES, JOINTS AND FREE ENDS OF CONDUCTORS SHALL BE COVERED WITH RUBBER AND FRICTION TAPE OR HIGH-DIELECTRIC POLYVINYL CHLORIDE SCOTCH 33 ELECTRICAL TAPE. INSULATION VALUE TO BE SAME AS WIRE INSULATION. WHERE CONDUCTORS ARE CONNECTED TO METALLIC SURFACES, THE COATED SURFACES OF THE METAL SHALL BE CLEANED TO THE BARE METAL BEFORE INSTALLING THE CONNECTOR. LAGGER COATING OF ALL CONDUCTORS SHALL BE INSTALLED WHEN PANEL COVERS ARE REMOVED OR SWITCH DOORS ARE OPEN, THE CONDUCTOR SIZE SHALL BE EASILY READ.

3.5 INSTALLATION OF PANELS

SET PANELS COMPLETELY LEVEL AND PLUMB. MEASURE STEADY STATE LOAD CURRENTS AT EACH PANELBOARD FEEDER. SHOULD THE DIFFERENCE AT ANY PANELBOARD BETWEEN PHASES EXCEED 20 PERCENT, REARRANGE CIRCUITS IN THE PANELBOARD TO BALANCE THE PHASE LOADS WITHIN 20 PERCENT.

MECHANICAL INSPECTION. INSPECT FOR PHYSICAL DAMAGE, PROPER ALIGNMENT, AND/ORANGE, AND GROUNDING. CHECK PROPER INSTALLATION AND TIGHTNESS OF CONNECTIONS FOR CIRCUIT BREAKERS, FUSELE SWITCHES, AND FUSES.

3.5 INSTALLATION OF BOXES

INSTALL ELECTRICAL BOXES AS SHOWN ON DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS AND COMPLIANCE WITH REGULATORY REQUIREMENTS. INSTALL ELECTRICAL BOXES TO MAINTAIN HEADROOM AND TO PRESENT NEAT APPEARANCE. INSTALL PULL BOXES AND JUNCTION BOXES ABOVE ACCESSIBLE CEILINGS AND UNFINISHED AREAS ONLY. INACCESSIBLE CEILING AREAS. INSTALL OUTLET AND JUNCTION BOXES NO MORE THAN 6 INCHES (60 MM) FROM CEILING ACCESS PANEL OR FROM REMOVABLE RECESSED LUMINAIRE. INSTALL BOXES TO PRESERVE FIRE RESISTANCE RATING OF PARTITIONS AND OTHER ELEMENTS, USING MATERIALS AND METHODS UNDER THE OTHER PROVISIONS OF THIS SPECIFICATION. ALIGN ADJACENT WALL-MOUNTED OUTLET BOXES FOR SWITCHES, THERMOSTATS AND SIMILAR DEVICES WITH EACH OTHER. USE FLUSH MOUNTING OUTLET BOXES IN FINISHED AREAS. SECURE FLUSH MOUNTING BOX TO INTERIOR WALL AND PARTITION STUDS. ACCURATELY POSITION TO ALLOW FOR SURFACE FINISH THICKNESS. USE STAMPED STEEL BRIDGES TO FASTEN FLUSH MOUNTING OUTLET BOX BETWEEN STUDS. INSTALL FLUSH MOUNTING BOX WITHOUT DAMAGING WALL INSULATION OR REDUCING ITS EFFECTIVENESS. USE ADJUSTABLE STEEL CHANNEL FASTENERS FOR HANG CEILING OUTLET BOX. DO NOT FASTEN BOXES TO CEILING SUPPORT WIRES. SUPPORT BOXES INDEPENDENTLY OF CONDUIT. WHERE DRAWINGS SHOW BACK-TO-BACK WIRING DEVICES, THE DEVICES ON OPPOSITE SIDE OF THE WALL SHALL BE OFFSET A MINIMUM OF 24" SO THAT EACH DEVICE WILL BE INSTALLED IN SEPARATE BOXES TO AVOID SOUND TRANSMISSION BETWEEN ADJACENT ROOMS. THROUGH-THE-WALL BOXES SHALL NOT BE USED.

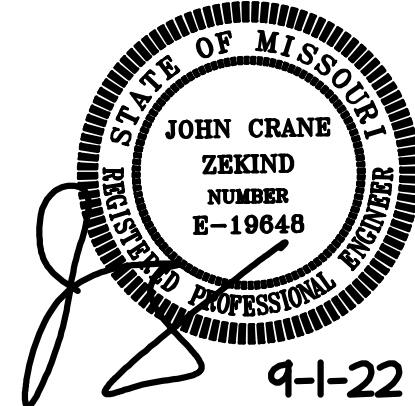
COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS MOUNTED ABOVE COUNTERS, BENCHES, AND BACKSPLASHES AND FOR KITCHEN EQUIPMENT.

VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH DRAWINGS OF INTERIOR DETAILS AND FINISH AND EQUIPMENT CUT SHEETS. IN CENTERING OUTLETS AND LOCATING BOXES, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HANG PANELS AND THE LIKE AND CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.

3.6 INSTALLATION OF TRANSFORMERS

TRANSFORMERS SHALL BE FLOOR MOUNTED WITH CLEARANCES PER SECTION 450 OF NEC.

END OF SECTION



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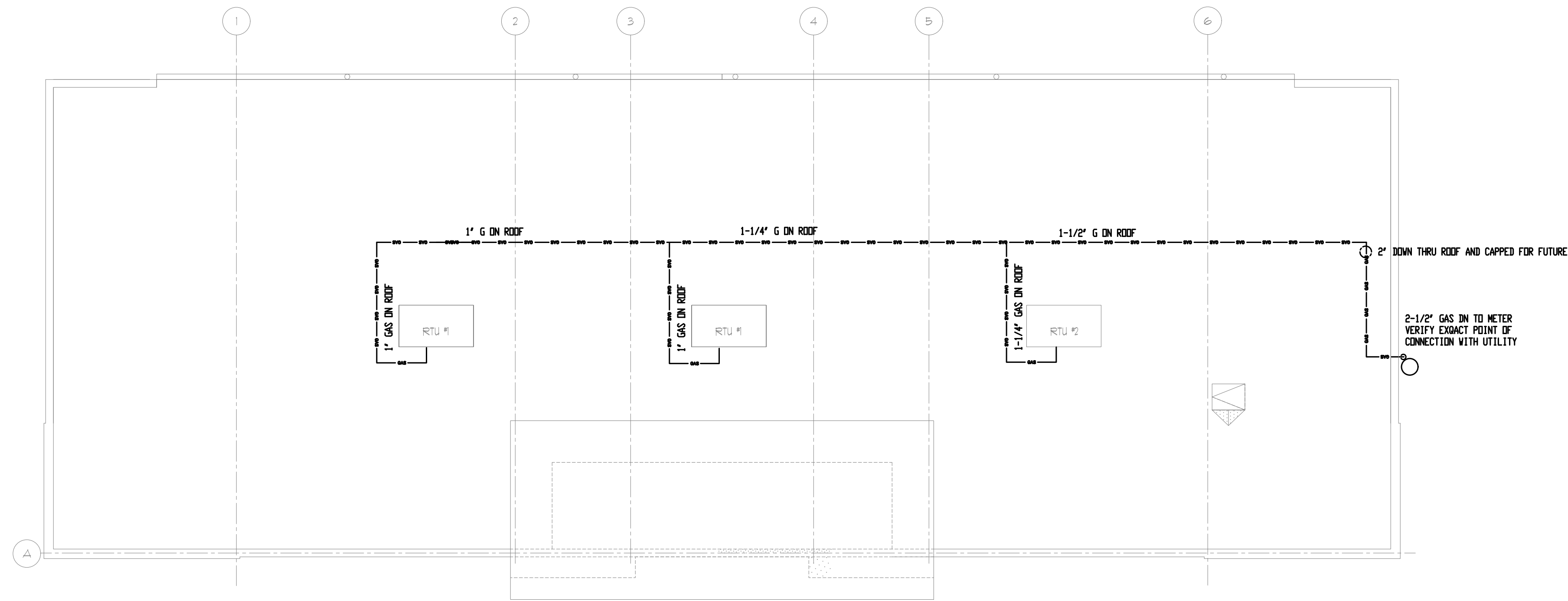
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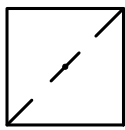
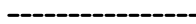






H.V.A.C. ROOF PLAN

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

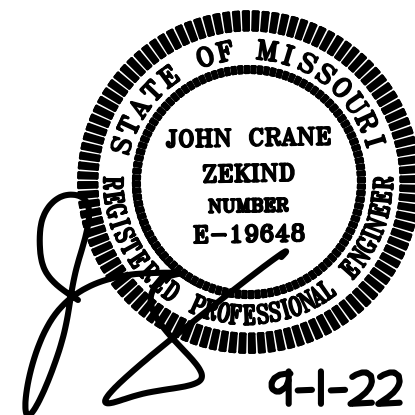
Graphic Scale:
0 4' 8'

SYMBOL LEGEND

-  T_A THERMOSTAT 'A' REPRESENTS UNIT NO.
-  EQUIPMENT DESIGNATION
"KEY" SEE THIS SHEET FOR
APPROPRIATE SCHEDULES
-  SUPPLY AIR DEVICE - FOR
ACTUAL SIZE SEE AIR DEVICE
SCHEDULE SHEET THIS SHEET. SEE
SCHEDULE FOR NECK AND
DUCT RUNOUT SIZE.
-  EXHAUST OR RETURN AIR DEVICE
FOR ACTUAL SIZE SEE AIR DEVICE
SCHEDULE SHEET THIS SHEET. SEE
SCHEDULE FOR NECK AND
DUCT RUNOUT SIZE.
-  EXISTING DUCT
-  ROUND DUCTWORK
-  RECTANGULAR DUCT
-  VOLUME DAMPER
-  TYPICAL CONTROL WIRING BETWEEN
THERMOSTAT AND RTU OR TERMINAL.

HVAC GENERAL NOTES:

- A. ALL WORK SHALL BE IN COMPLETE COMPLIANCE WITH LOCAL MECHANICAL CODE, N.E.C., NFPA, AND ALL LOCAL AND APPLICABLE JURISDICTIONAL AUTHORITIES.
- B. REFER TO ARCHITECTURAL PLANS FOR EXACT WALL AND FLOOR AND CEILING ELEVATIONS, TYPES AND APPLICABLE BUILDING CONSTRAINTS.
- C. COORDINATE WITH PLUMBING, & ELECTRICAL CONTRACTORS FOR ROUTING OF SYSTEMS CONCEALED IN CEILINGS, WALLS AND FLOORS, CHASES AND ATTIC. AVAILABLE ROOM ABOVE THE CEILING IS EXTREMELY TIGHT.
- D. VERIFY CONCEALED SYSTEMS BEFORE INITIATING ANY WORK.
- E. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO VERIFY EXISTING CONDITIONS. ANY CONDITIONS NOT IN COMPLIANCE WITH THE INTENT OF THE CONSTRUCTION DOCUMENTS, APPLICABLE CODES ETC., SHALL BE NOTED AND INCLUDED IN THIS CONTRACTOR'S BID.
- F. ALL DIMENSIONS ARE INSIDE AIR STREAM. TRANSITION TO MEET CEILING SPACE AS REQUIRED.
- G. NOT ALL VD ARE SHOWN. REFER TO SCHEMATICS FOR SPIN IN DETAILS ON ALL VD.
- H. VERIFY ALL EQ. CONNECTIONS AND TRANSITION AS REQUIRED.
- I. ALL DUCTWORK FABRICATED TO SMACNA STANDARDS.



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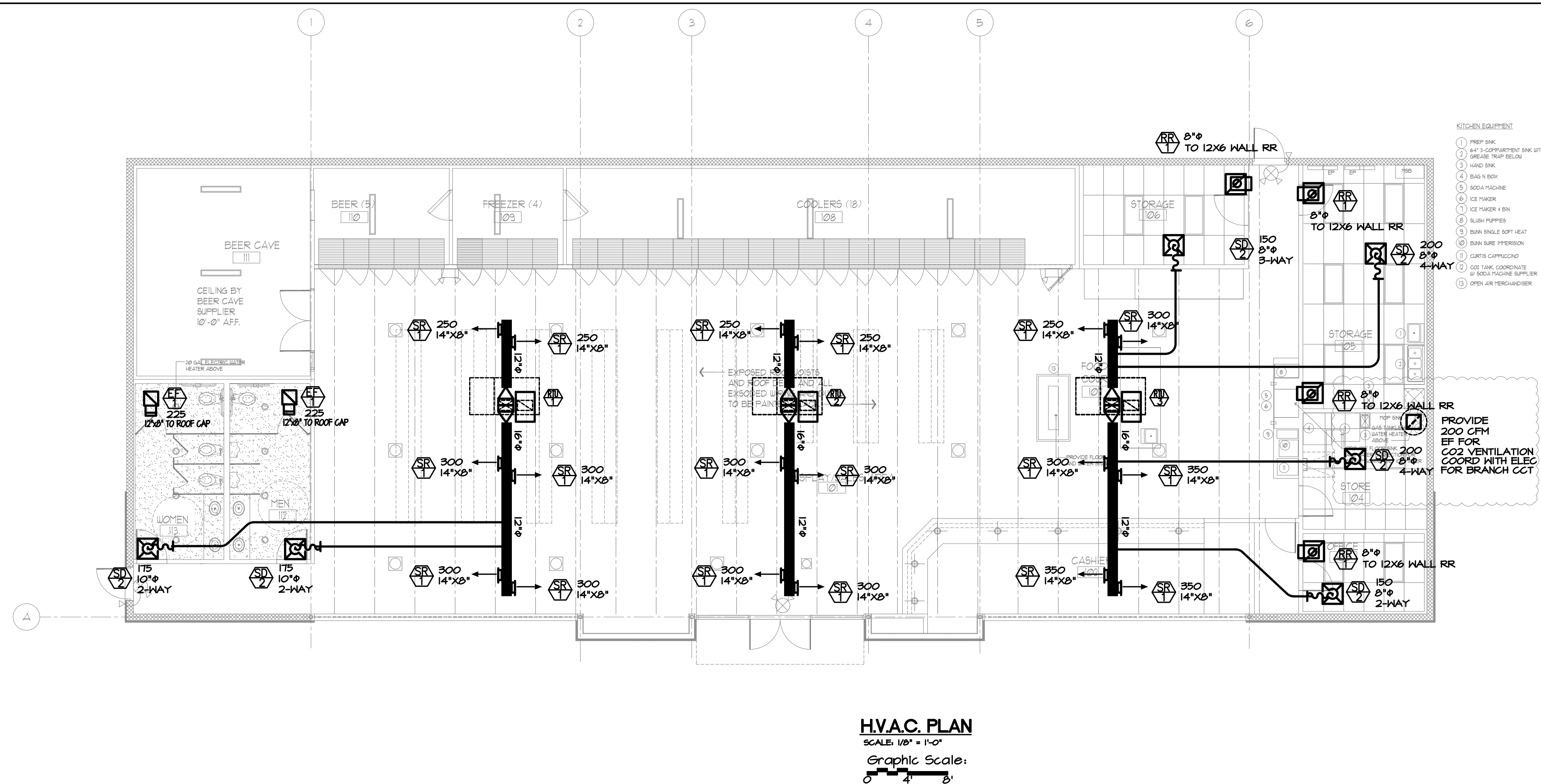
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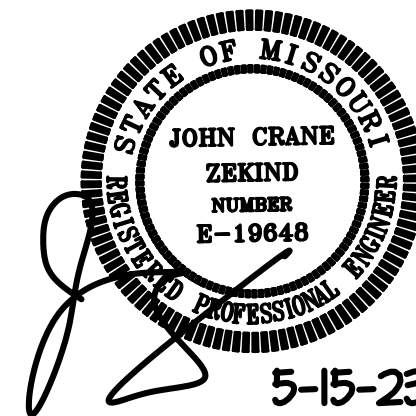


SYMBOL LEGEND

- THERMOSTAT 'A' REPRESENTS UNIT NO.
 EQUIPMENT DESIGNATION "KEY" SEE THIS SHEET FOR APPROPRIATE SCHEDULES
 SUPPLY AIR DEVICE - FOR ACTUAL SIZE SEE AIR DEVICE SCHEDULE SHEET THIS SHEET. SEE SCHEDULE FOR NECK AND DUCT RUNOUT SIZE.
 EXHAUST OR RETURN AIR DEVICE FOR ACTUAL SIZE SEE AIR DEVICE SCHEDULE SHEET THIS SHEET. SEE SCHEDULE FOR NECK AND DUCT RUNOUT SIZE.
 EXISTING DUCT
 ROUND DUCTWORK
 RECTANGULAR DUCT
 VOLUME DAMPER
 TYPICAL CONTROL WIRING BETWEEN THERMOSTAT AND RTU OR TERMINAL.

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 C. COORDINATE WITH PLUMBING, & ELECTRICAL CONTRACTORS FOR ROUTING OF SYSTEMS CONCEALED IN CEILINGS, WALLS AND FLOORS, CHASES AND ATTIC. AVAILABLE ROOM ABOVE THE CEILING IS EXTREMELY TIGHT.
 D. VERIFY CONCEALED SYSTEMS BEFORE INITIATING ANY WORK.
 E. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO VERIFY EXISTING CONDITIONS. ANY CONDITIONS NOT IN COMPLIANCE WITH THE INTENT OF THE CONSTRUCTION DOCUMENTS, APPLICABLE CODES ETC., SHALL BE NOTED AND INCLUDED IN THIS CONTRACTOR'S BID.
 F. ALL DIMENSIONS ARE INSIDE AIR STREAM. TRANSITION TO MEET CEILING SPACE AS REQUIRED.
 G. NOT ALL VD ARE SHOWN. REFER TO SCHEMATICS FOR SPIN IN DETAILS ON ALL VD.
 H. VERIFY ALL EQ. CONNECTIONS AND TRANSITION AS REQUIRED.
 I. ALL DUCTWORK FABRICATED TO SMACNA STANDARDS.



5-15-23 CODE RESPONSES
9-1-22 REVIEW SET

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| EXHAUST FAN SCHEDULE | | | | | | | | | | |
|----------------------|-----------|-----------|-----|------|------|-----|--------------|----------|------------|---------|
| MARK | MFGR. | MODEL No. | CFM | S.P. | HP | RPM | SONES | LOCATION | ELECTRICAL | REMARKS |
| EF-1 | GREENHECK | | 225 | .125 | 130W | | LESS THAN 12 | CEILING | 120V,1Φ | |
| | | | | | | | | | | |
| | | | | | | | | | | |

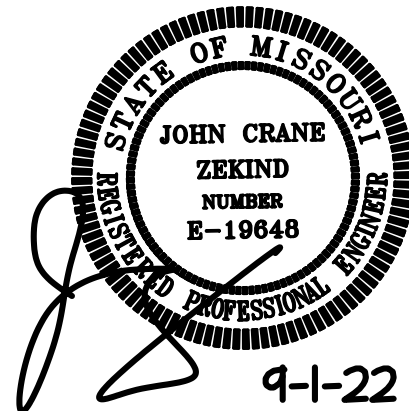
ALL POWER AND CONTROL WIRING BY THE ELECTRICAL CONTRACTOR.

| AIR DEVICE (DIFFUSERS, REGISTERS, GRILLES) SCHEDULE | | | | | | | | | | | | | |
|---|-------|----------|--------|-----------|------------|-------------|-----------|--------------------|-------------|------|-----|----|-------------------------------|
| MARK | MFGR. | MODEL No | CFM | NECK SIZE | PANEL SIZE | FRAME STYLE | FINISH | THROW • 100 FPM | AIR PATTERN | MTG. | △ P | NC | ROUND DUCT CONNECT SIZE |
| SR-1 | TITUS | DL | VARIES | VARIES | VARIES | VARIES | OFF-WHITE | -- | VARIES | DUCT | -- | -- | N.A. |
| RR-1 | TITUS | TXR | VARIES | VARIES | VARIES | VARIES | OFF-WHITE | -- | VARIES | CLG | -- | -- | N.A. |
| SD-1 | TITUS | TMS | VARIES | VARIES | VARIES | VARIES | OFF-WHITE | -- | VARIES | CLG | -- | -- | N.A. |

SD-2 IS ACUTHERM HEATING AND COOLING CONTROL DIFFUSER

| PACKAGED ROOFTOP UNIT SCHEDULE | | | | | | | | | | | | | |
|--------------------------------|-----------------|-----------|------|------------------|-----|-------|------|-----|-----|-----|------------------|----------|-----------------|
| MARK | MFGR. | MODEL NO. | WT. | COOLING CAPACITY | | | FAN | | | | HEATING CAPACITY | ELEC | REMARKS |
| | | | | SEN | LAT | TOTAL | CFM | ESP | HP | RPM | | | |
| RTU-1 | NEW 5 TON RTU | | 800 | 50 | 10 | 60 | 2000 | .6" | 1/2 | LOW | 100 MBH | 208V, 3ϕ | ①②③④ OA=330 CFM |
| RTU-2 | NEW 5 TON RTU | | 800 | 50 | 10 | 60 | 2000 | .6" | 1/2 | LOW | 100 MBH | 208V, 3ϕ | ①②③④ OA=330 CFM |
| RTU-3 | NEW 7.5 TON RTU | | 1200 | 60 | 12 | 72 | 3000 | .6" | 1/2 | LOW | 150 MBH | 208V, 3ϕ | ①②③④ OA=330 CFM |

- ① WITH HUMIDITY AND CAPACITY CONTROL OPT
- ② BTU/HR @ ARI COND. VERIFY S.A. CFM PER PLANS. VERIFY OA FROM PLANS
- ③ WITH ECONOMIZER AND SMOKE DETECTOR PER IMC/NFPA
ALL POWER AND CONTROL WIRING BY THE ELECTRICAL CONTRACTOR.
VERIFY CFM ON PLANS
- ④ SENSORS IN RA FOR CONTROL IN OFFICE.



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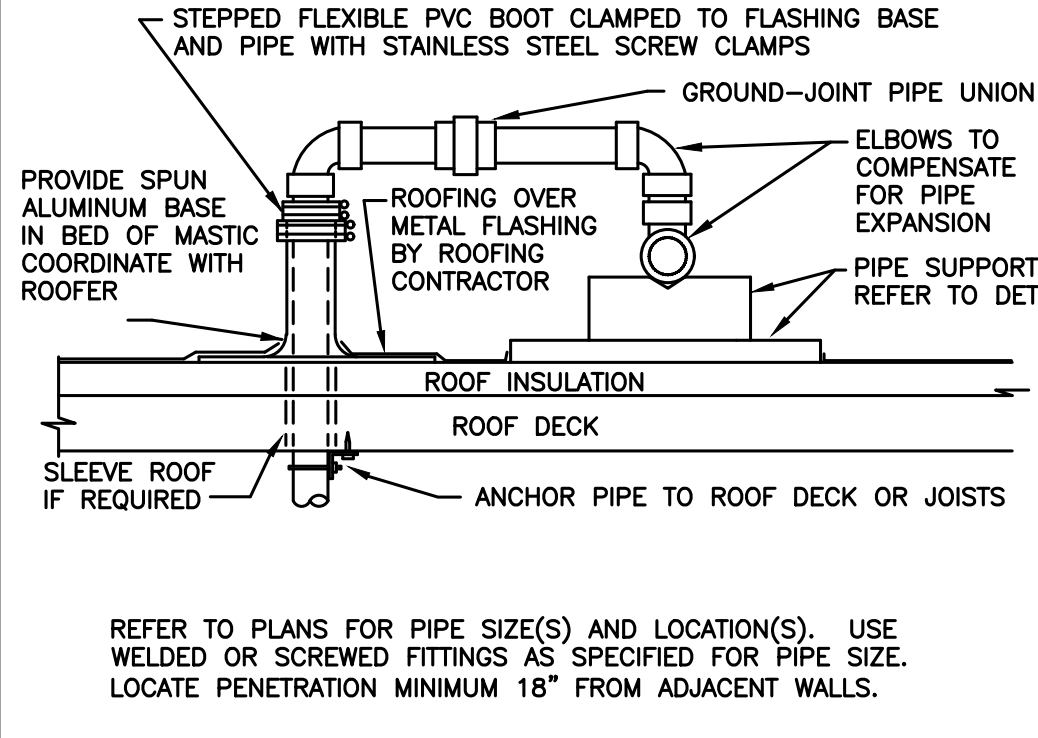
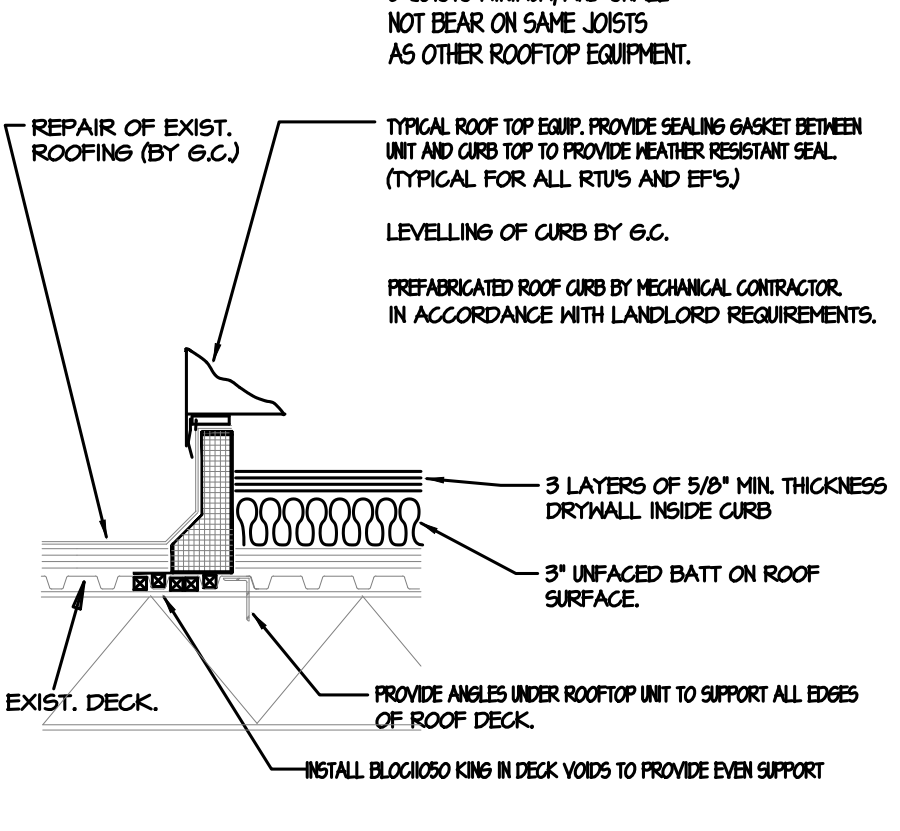
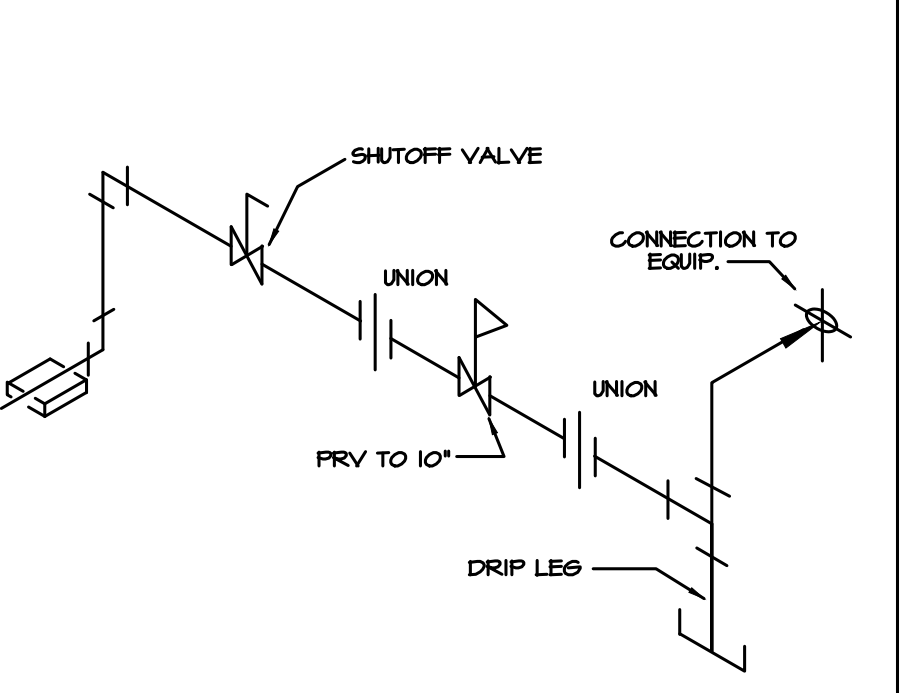
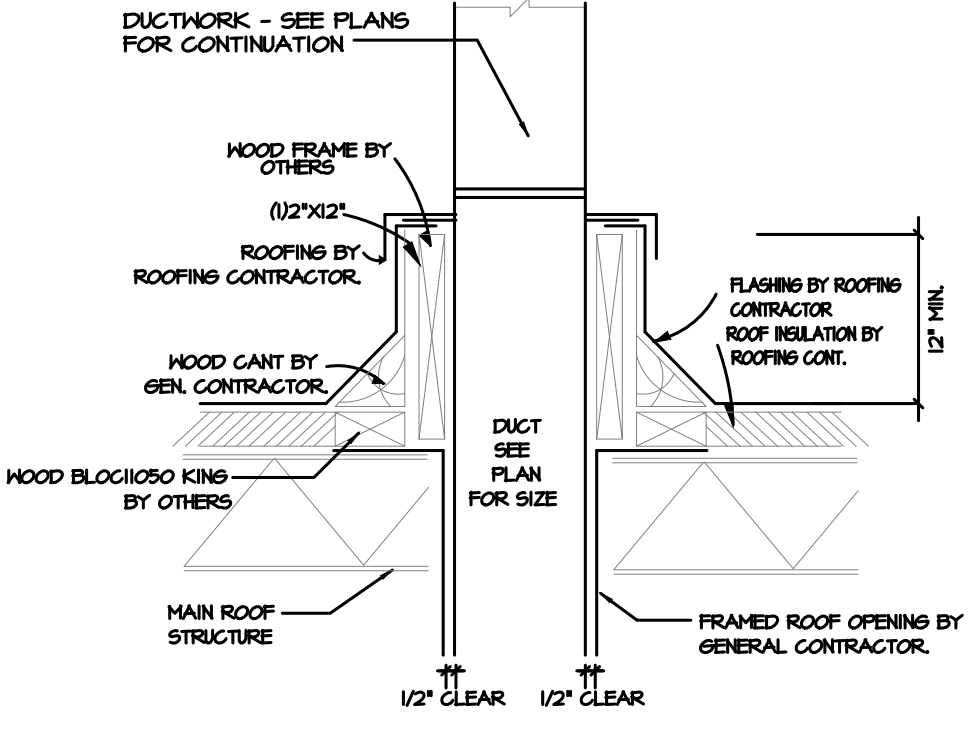
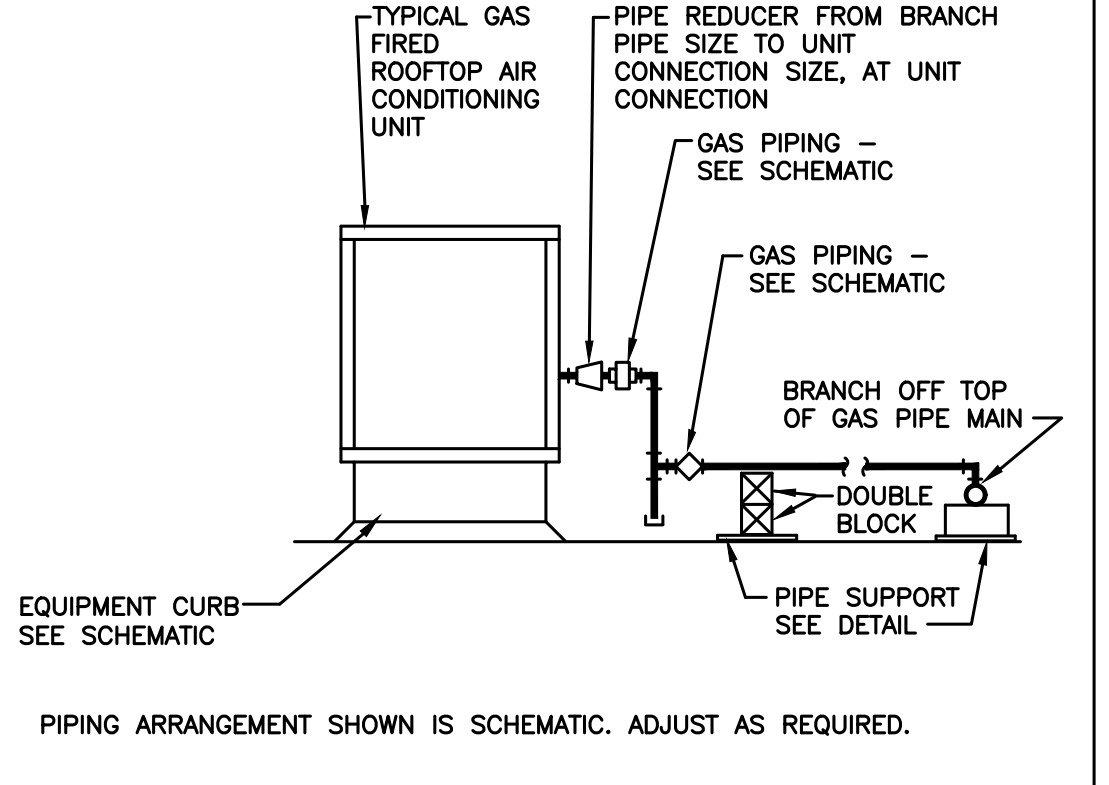
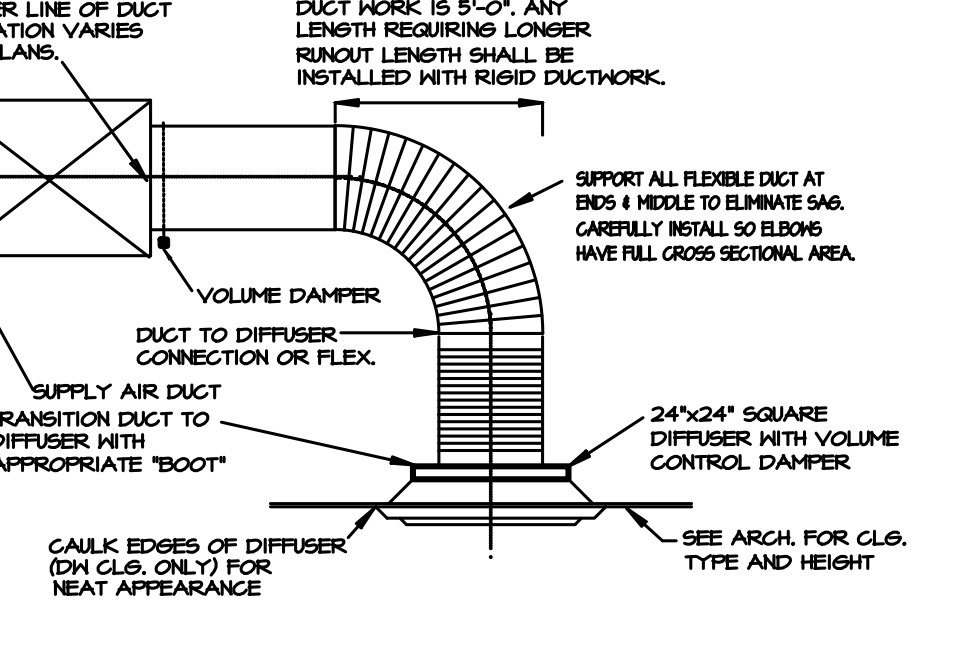
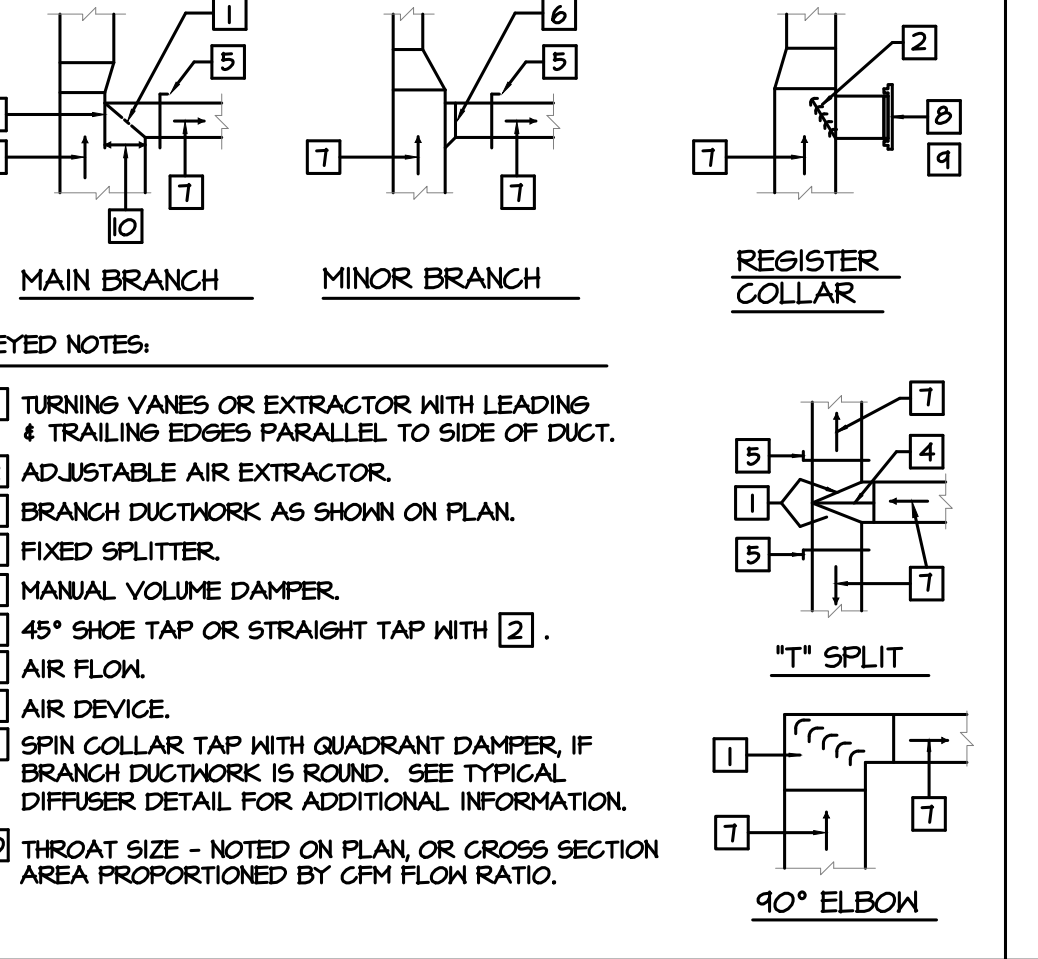
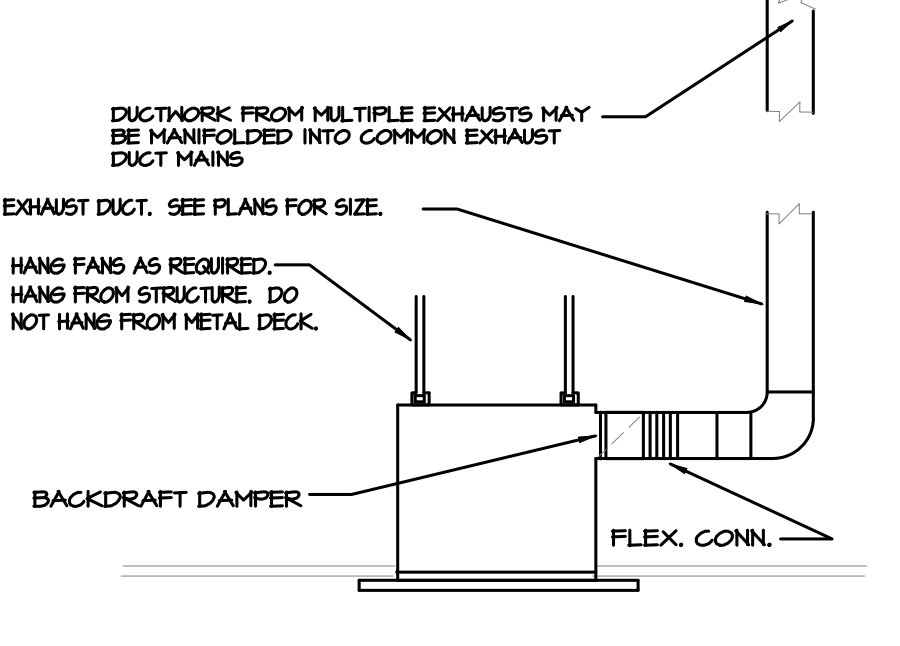
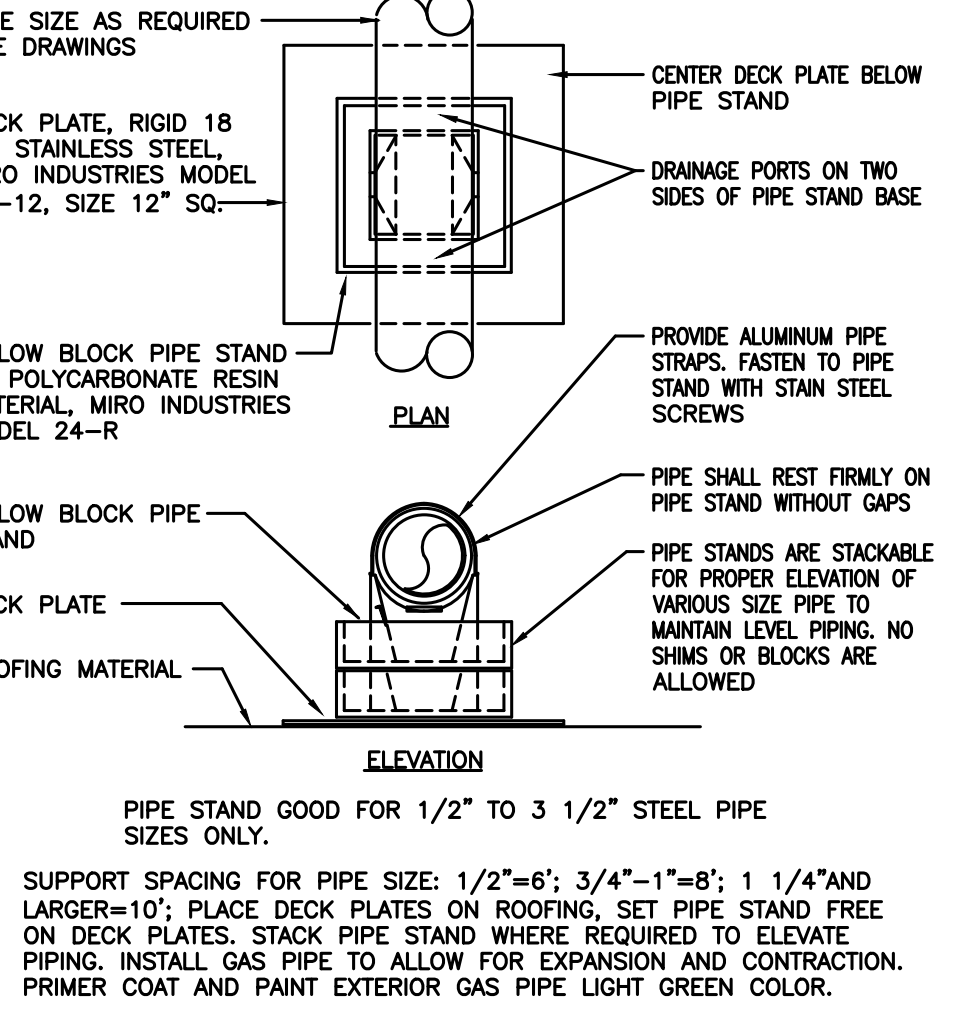
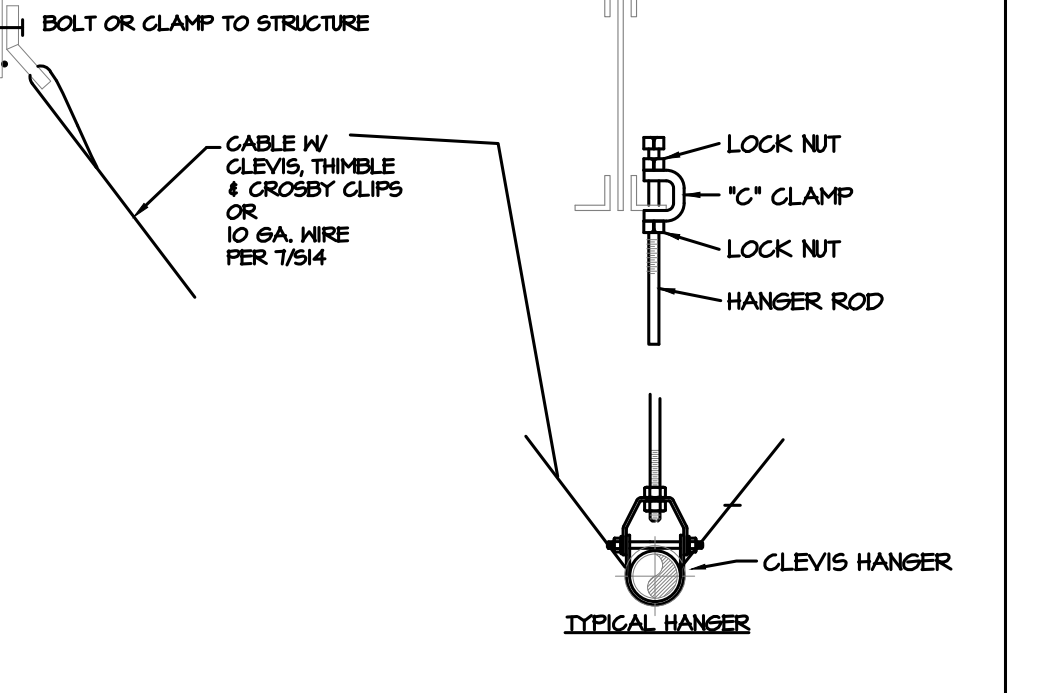
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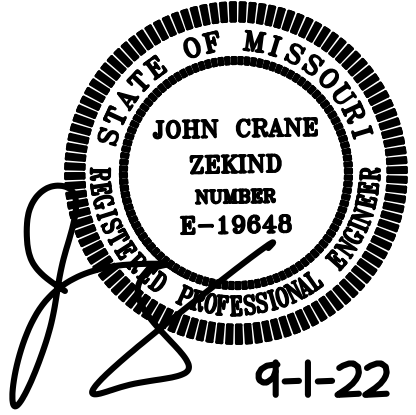
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| | | | | |
|--|--|---|--|---|
| |  <p>STEPPED FLEXIBLE PVC BOOT CLAMPED TO FLASHING BASE AND PIPE WITH STAINLESS STEEL SCREW CLAMPS</p> <p>GROUND-JOINT PIPE UNION</p> <p>ELBOWS TO COMPENSATE FOR PIPE EXPANSION</p> <p>PIPE SUPPORT REFER TO DETAIL</p> <p>ROOFING OVER METAL FLASHING BY ROOFING CONTRACTOR</p> <p>ROOF INSULATION</p> <p>ROOF DECK</p> <p>ANCHOR PIPE TO ROOF DECK OR JOISTS</p> <p>SLEEVE ROOF IF REQUIRED</p> <p>PROVIDE SPUN ALUMINUM BASE IN BED OF MASTIC COORDINATE WITH ROOFER</p> <p>REFER TO PLANS FOR PIPE SIZE(S) AND LOCATION(S). USE WELDED OR SCREWED FITTINGS AS SPECIFIED FOR PIPE SIZE. LOCATE PENETRATION MINIMUM 18" FROM ADJACENT WALLS.</p> |  <p>NOTE: RTU'S SHALL ALWAYS SPAN 3 JOISTS MINIMUM AND SHALL NOT BEAR ON SAME JOISTS AS OTHER ROOFTOP EQUIPMENT.</p> <p>REPAIR OF EXIST. ROOFING (BY G.C.)</p> <p>TYPICAL ROOF TOP EQUIP. PROVIDE SEALING GASKET BETWEEN UNIT AND CURB TOP TO PROVIDE WEATHER RESISTANT SEAL. (TYPICAL FOR ALL RTU'S AND ETS'S)</p> <p>LEVELLING OF CURB BY G.C.</p> <p>PREFABRICATED ROOF CURB BY MECHANICAL CONTRACTOR, IN ACCORDANCE WITH LANDLORD REQUIREMENTS.</p> <p>3 LAYERS OF 5/8" MIN. THICKNESS DRYWALL INSIDE CURB</p> <p>3" UNFACED BATT ON ROOF SURFACE.</p> <p>PROVIDE ANGLES UNDER ROOFTOP UNIT TO SUPPORT ALL EDGES OF ROOF DECK.</p> <p>EXIST. DECK</p> <p>INSTALL BLOCK/250 KING IN DECK VOIDS TO PROVIDE EVEN SUPPORT</p> |  <p>SHUTOFF VALVE</p> <p>UNION</p> <p>CONNECTION TO EQUIP.</p> <p>PRV TO 10"</p> <p>UNION</p> <p>DRIP LEG</p> | |
| | TYPICAL GAS PIPING THRU ROOF SCHEMATIC | TYPICAL CURB SCHEMATIC | TYPICAL GAS CONNECTION SCHEMATIC | |
|  <p>DUCTWORK - SEE PLANS FOR CONTINUATION</p> <p>HOOD FRAME BY OTHERS (12"x12")</p> <p>ROOFING BY ROOFING CONTRACTOR</p> <p>HOOD CANT BY GEN. CONTRACTOR</p> <p>HOOD BLOCK/250 KING BY OTHERS</p> <p>MAIN ROOF STRUCTURE</p> <p>1/2" CLEAR</p> <p>1/2" CLEAR</p> <p>DUCT SEE PLAN FOR SIZE</p> <p>FLASHING BY ROOFING CONTRACTOR ROOF INSULATION BY ROOFING CONT.</p> <p>12" MIN.</p> <p>FRAMED ROOF OPENING BY GENERAL CONTRACTOR</p> |  <p>TYPICAL GAS FIRED ROOFTOP AIR CONDITIONING UNIT</p> <p>PIPE REDUCER FROM BRANCH PIPE SIZE TO UNIT CONNECTION SIZE, AT UNIT CONNECTION</p> <p>GAS PIPING - SEE SCHEMATIC</p> <p>GAS PIPING - SEE SCHEMATIC</p> <p>BRANCH OFF TOP OF GAS PIPE MAIN</p> <p>DOUBLE BLOCK</p> <p>PIPE SUPPORT SEE DETAIL</p> <p>EQUIPMENT CURB SEE SCHEMATIC</p> <p>PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST AS REQUIRED.</p> |  <p>CENTER LINE OF DUCT ELEVATION VARIES SEE PLANS</p> <p>MAXIMUM LENGTH OF FLEX DUCT WORK IS 8'-0". ANY LENGTH REQUIRING LONGER RUNOUT LENGTH SHALL BE INSTALLED WITH RIGID DUCTWORK.</p> <p>SUPPORT ALL FLEXIBLE DUCT AT ENDS & MIDDLE TO ELIMINATE SAG. CAREFULLY INSTALL SO ELBOWS HAVE FULL CROSS SECTIONAL AREA.</p> <p>VOLUME DAMPER</p> <p>DUCT TO DIFFUSER CONNECTION OR FLEX</p> <p>SUPPLY AIR DUCT TRANSITION DUCT TO DIFFUSER WITH APPROPRIATE "BOOT"</p> <p>24"x24" SQUARE DIFFUSER WITH VOLUME CONTROL DAMPER</p> <p>SEE ARCH. FOR CLG. TYPE AND HEIGHT</p> <p>CAULK EDGES OF DIFFUSER (DN CLG. ONLY) FOR NEAT APPEARANCE</p> |  <p>MAIN BRANCH</p> <p>MINOR BRANCH</p> <p>REGISTER COLLAR</p> <p>KEYED NOTES:</p> <ol style="list-style-type: none">TURNING VANES OR EXTRACTOR WITH LEADING & TRAILING EDGES PARALLEL TO SIDE OF DUCT.ADJUSTABLE AIR EXTRACTOR.BRANCH DUCTWORK AS SHOWN ON PLAN.FIXED SPLITTER.MANUAL VOLUME DAMPER.45° SHOE TAP OR STRAIGHT TAP WITH 2.AIR FLOW.AIR DEVICE.SPIN COLLAR TAP WITH QUADRANT DAMPER, IF BRANCH DUCTWORK IS ROUND. SEE TYPICAL DIFFUSER DETAIL FOR ADDITIONAL INFORMATION.THROAT SIZE - NOTED ON PLAN, OR CROSS SECTION AREA PROPORTIONED BY CFM FLOW RATIO. <p>"T" SPLIT</p> <p>90° ELBOW</p> |  <p>DUCTWORK FROM MULTIPLE EXHAUSTS MAY BE MANIFOLDED INTO COMMON EXHAUST DUCT MAINS</p> <p>EXHAUST DUCT. SEE PLANS FOR SIZE.</p> <p>HANG FANS AS REQUIRED. HANG FROM STRUCTURE. DO NOT HANG FROM METAL DECK.</p> <p>BACKDRAFT DAMPER</p> <p>FLEX. CONN.</p> |
| TYPICAL DUCT THRU ROOF | TYPICAL MAU/RTU PIPING CONNECTION SCHEMATIC | TYPICAL DUCT DIFFUSER CONNECTIONS | TYPICAL DUCTWORK SCHEMATICS | CEILING FAN |
| | |  <p>PIPE SIZE AS REQUIRED SEE DRAWINGS</p> <p>DECK PLATE, RIGID 18 GA. STAINLESS STEEL, MIRO INDUSTRIES MODEL DP-12, SIZE 12" SQ.</p> <p>PILLOW BLOCK PIPE STAND OF POLYCARBONATE RESIN MATERIAL, MIRO INDUSTRIES MODEL 24-R</p> <p>PILLOW BLOCK PIPE STAND</p> <p>DECK PLATE</p> <p>ROOFING MATERIAL</p> <p>CENTER DECK PLATE BELOW PIPE STAND</p> <p>DRAINAGE PORTS ON TWO SIDES OF PIPE STAND BASE</p> <p>PROVIDE ALUMINUM PIPE STRAPS, FASTEN TO PIPE STAND WITH STAIN STEEL SCREWS</p> <p>PIPE SHALL REST FIRMLY ON PIPE STAND WITHOUT GAPS</p> <p>PIPE STANDS ARE STACKABLE FOR PROPER ELEVATION OF VARIOUS SIZE PIPE TO MAINTAIN LEVEL PIPING. NO SHIMS OR BLOCKS ARE ALLOWED</p> <p>PIPE STAND GOOD FOR 1/2" TO 3 1/2" STEEL PIPE SIZES ONLY.</p> <p>SUPPORT SPACING FOR PIPE SIZE: 1/2"-6"; 3/4"-1"-8"; 1 1/4" AND LARGER-10"; PLACE DECK PLATES ON ROOFING. SET PIPE STAND FREE ON DECK PLATES. STACK PIPE STAND WHERE REQUIRED TO ELEVATE PIPING. INSTALL GAS PIPE TO ALLOW FOR EXPANSION AND CONTRACTION. PRIMER COAT AND PAINT EXTERIOR GAS PIPE LIGHT GREEN COLOR.</p> |  <p>BOLT OR CLAMP TO STRUCTURE</p> <p>CABLE W/ CLEVIS THIMBLE & CROSBY CLIPS OR 10 GA. WIRE PER 7/54</p> <p>LOCK NUT</p> <p>"C" CLAMP</p> <p>LOCK NUT</p> <p>HANGER ROD</p> <p>CLEVIS HANGER</p> <p>TYPICAL HANGER</p> | |
| | | TYPICAL GAS PIPING ON ROOF | TYPICAL SEISMIC DETAIL FOR PIPING | |



4-1-22

SERVICE STATION AND
CONVENIENCE STORE

LEE SUMMIT, MO

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Project Number:
Issued For: ☐ Review
☐ Pricing
☐ Permit
☐ Bidding
☐ Construction

9-1-22

Sheet Number:
M-3

HVAC SPECIFICATION

1. PART 1 - GENERAL

1.01 GENERAL

REFER TO "DIVISION NO. 1 GENERAL REQUIREMENTS", AS WELL AS GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND SPECIAL CONDITIONS OF THE CONSTRUCTION CONTRACT FOR PROVISIONS WHICH MAY APPLY TO THE WORK UNDER THIS SECTION.

1.02 PLANS AND SPECIFICATIONS

PLANS AND SPECIFICATIONS ARE TO BE CONSIDERED AS MUTUALLY COMPLEMENTARY, AND REQUIREMENTS OF ONE SHALL BE CONSIDERED AS REQUIREMENTS OF BOTH. IF CONFLICTING REQUIREMENTS ARE SHOWN, THE MOST RESTRICTIVE REQUIREMENT SHALL APPLY AS ASCERTAINED BY THE ARCHITECT/ENGINEER. INFORMATION GIVEN HEREIN AND ON PLANS IS AS COMPLETE AND AS ACCURATE AS COULD BE SECURED AT THE TIME OF PREPARATION OF THIS DESIGN, BUT COMPLETE AND TIMELY ACCURACY CANNOT BE GUARANTEED. ROUTING OF DUCTWORK, PIPING CIRCUITS AND LOCATION OF EQUIPMENT, APPARATUS, FIXTURES AND OTHER DEVICES ARE SHOWN ON PLANS FOR GENERAL GUIDANCE. COORDINATE WORK WITH OTHER CONTRACTORS AND PROVIDE ANY NECESSARY DEVIATIONS IN ROUTING (AS FAR AS 10' FROM THOSE SHOWN) TO PROVIDE SYSTEMS AS SPECIFIED OR IMPLIED, WITHOUT INTERFERENCE, PURSUANT TO THESE REQUIREMENTS AND AT NO COST TO THE OWNER, ARCHITECT OR ENGINEER.

1.03 COORDINATION

CAREFULLY EXAMINE ALL CONTRACT DOCUMENTS AND INCLUDE IN THE COST OF THIS BID ALL WORK NORMALLY CLAIMED BY THE TRADES UNDER YOUR CONTRACT. COORDINATE WORK WITH THE WORK OF OTHER CONTRACTORS AND SHALL DETERMINE THAT THE WORK INSTALLED WILL NOT INTERFERE WITH THE WORK OF OTHER CONTRACTORS. IF WORK IS INSTALLED WHICH DOES INTERFERE, IT SHALL BE CORRECTED AT NO COST TO THE OWNER. OCCUPATION OF SPACE BY ANY CONTRACTOR DOES NOT GIVE HIM RIGHT OF PRIORITY TO THE SPACE. ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH GOVERNING CODES, UTILITY STANDARDS, LOCAL PRACTICES AND MANUFACTURER'S PUBLISHED STANDARDS. IF ANY PORTION OF THE WORK SPECIFIED OR SHOWN ON THE DRAWINGS IS CONTRARY TO THE ABOVE, THE CONTRACTOR SHALL BE REQUIRED TO BRING THE MATTER TO THE ATTENTION OF THE ARCHITECT/ENGINEER (OWNER'S REPRESENTATIVE) PRIOR TO ROUGH-IN FOR CLARIFICATION OR REVISION. IT IS ASSUMED THAT THE CONTRACTOR HAS A SPECIAL KNOWLEDGE OF LOCAL CODES, PRACTICES AND STANDARDS. BECAUSE OF HIS SPECIAL KNOWLEDGE, HE SHALL BE HELD RESPONSIBLE FOR REPLACEMENT OF IMPROPER INSTALLATIONS WHICH HAVE NOT BEEN CALLED TO THE ATTENTION OF ARCHITECT/ENGINEER.

1.04 PERMITS, LICENSES, INSPECTIONS AND TAXES

PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS HE OBTAINS IN CONNECTION WITH HIS WORK AND SHALL COMPLY WITH ALL LAWS, ORDINANCES, ETC. IF THE PLANS AND/OR SPECIFICATIONS ARE AT A VARIANCE THEREWITH, NOTIFY THE ENGINEER IN WRITING BEFORE THE WORK IS PERFORMED. IF THE CONTRACTOR, WITHOUT NOTICE, SHALL DO ANY WORK CONTRARY TO ANY LAW, ORDINANCE, RULE OR REGULATION HE SHALL BE HELD RESPONSIBLE FOR ANY SUCH VIOLATION AND ALL COSTS ARISING THEREFROM SHALL BE BORNE BY HIM, INCLUDE ANY LOCAL, FEDERAL AND STATE TAXES IN YOUR BID.

1.05 BID AND SUBSTITUTES

A. ALL BIDS SHALL BE BASED STRICTLY ON THE BASIS OF THE DRAWINGS AND SPECIFICATIONS. ANY REQUESTS FOR SUBSTITUTIONS SHALL BE INCLUDED AS A VOLUNTARY ALTERNATE. A COMPLETE DESCRIPTION OUTLINING THE VOLUNTARY ALTERNATE SHALL BE INCLUDED WITH A LISTING OF A COST ADD OR COST DEDUCT TO THE BASE BID. OWNER SHALL GIVE FINAL APPROVAL ON ALL VOLUNTARY ALTERNATES.

B. MEET THE RESPONSIBILITY OF COORDINATION WITH OTHER TRADES, ANY CHANGES INCURRED IN ELECTRICAL, HVAC, FIRE PROTECTION, GENERAL CONTRACTS, ETC., WHICH RESULT FROM EQUIPMENT SUBSTITUTION. ANY ADDITIONAL COSTS INVOLVED, DUE TO SUBSTITUTIONS, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR PROPOSING THE SUBSTITUTION.

1.06 SHOP DRAWINGS

SUBMIT FOR REVIEW SIX (6) COPIES OF SHOP DRAWINGS AND DESCRIPTIVE LITERATURE OF EQUIPMENT TO BE FURNISHED UNDER THIS CONTRACT. DRAWINGS SHALL STATE CAPACITIES, SIZES AND ALL INFORMATION SHOWN IN SCHEDULES ON PLANS AS A MINIMUM OF ALL EQUIPMENT.

1.05 OPERATION AND MAINTENANCE MANUALS AND INSTRUCTIONS

PRIOR TO FINAL PAYMENT, THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE ARCHITECT/ENGINEER FOR SUBMITTAL TO THE OWNER.

1.07 RECORD DRAWINGS

AS BUILT REPRODUCIBLE DRAWINGS ARE TO BE SUBMITTED TO ARCHITECT/ENGINEER FOR REVIEW, PRIOR TO THE TIME OF REQUEST FOR FINAL PAYMENT.

1.08 WORKMANSHIP AND MATERIALS

ALL WORK SHALL BE PERFORMED IN A MANNER ACCEPTABLE TO THE ENGINEER, ARCHITECT AND THE OWNER, BY PROPERLY TRAINED, SUPERVISED AND EXPERIENCED PERSONNEL USING NEW AND CLEAN MATERIALS, SUPPLIES, EQUIPMENT, HARDWARE AND FIXTURES.

1.09 PROTECTION OF EQUIPMENT AND WORK

EQUIPMENT, FIXTURES AND TRIM SHALL BE PROTECTED AGAINST DAMAGE DUE TO BUILDING MATERIALS, ACID, TOOLS AND EQUIPMENT OR ANY CAUSES INCIDENTAL TO CONSTRUCTION. THE FINISHED SURFACE OF EACH PIECE OF EQUIPMENT AND FIXTURE SHALL BE COVERED WITH BUILDING PAPER OR SIMILAR PROTECTION. ALL EQUIPMENT DAMAGED BY ANY CAUSE AND ANY TRIM WITH MARRED OR SCRATCHED FINISH SHALL BE REPLACED AT NO COST TO THE OWNER. THE EQUIPMENT AND EQUIPMENT TRIM PROTECTION SHALL BE REMOVED AT THE COMPLETION OF CONSTRUCTION.

1.10 TEMPORARY FACILITIES

FURNISH, INSTALL AND KEEP IN PROPER REPAIR ALL TEMPORARY POWER, LIGHTING AND OTHER FACILITIES REQUIRED FOR HIS CONSTRUCTION PURPOSES. AFTER PERMANENT FACILITIES ARE INSTALLED, THIS CONTRACTOR SHALL REMOVE ALL TEMPORARY FACILITIES ASSOCIATED WITH HIS CONSTRUCTION WORK OR PURPOSE.

1.11 MATERIAL AND EQUIPMENT HANDLING AND STORAGE

IT IS RECOGNIZED THAT SPACE AT THE PROJECT FOR STORAGE OF MATERIALS AND PRODUCTS IS LIMITED. COORDINATE THE DELIVERIES OF THE MATERIALS AND PRODUCTS WITH THE SCHEDULING AND SEQUENCING OF THE WORK SO THAT STORAGE REQUIREMENTS AT THE PROJECT ARE MINIMIZED. IN GENERAL, DO NOT DELIVER INDIVIDUAL ITEMS OF EQUIPMENT TO THE PROJECT SUBSTANTIALLY AHEAD OF THE TIME OF INSTALLATION.

1.12 MAINTENANCE OF WORK AREAS

DURING THE PROJECT, MAINTAIN WORK AREA IN AN ORGANIZED MANNER, DO NOT ALLOW DEBRIS TO ACCUMULATE AND STORE EQUIPMENT, TOOLS AND SUPPLIES IN A MANNER WHICH SHALL NOT CAUSE INTERFERENCE WITH THE ACTIVITIES OF OTHERS ENGAGED ON THIS PROJECT.

1.13 GUARANTEE

THE CONTRACTOR SHALL, BY ACCEPTING THESE PLANS AND SPECIFICATIONS AND SIGNING THE CONTRACT, SHALL GUARANTEE THE FOLLOWING:

ALL EQUIPMENT, ACCESSORIES AND MATERIALS FURNISHED BY HIM FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP. IF ANY EQUIPMENT FAILS, DOES NOT OPERATE SATISFACTORILY OR SHOWS UNDESIRABLE WEAR, THE CONTRACTOR WILL BE NOTIFIED AND WILL BE REQUIRED TO REMEDY THE DEFECT IMMEDIATELY AT HIS OWN EXPENSE.

2. MATERIALS

2.01 FURNISH AND INSTALL GALVANIZED STEEL DUCTWORK AND SHEET METAL WORK AS SHOWN ON PLANS AND INDICATED HEREIN. UNLESS OTHERWISE SHOWN OR INDICATED, ALL DUCTWORK SHALL BE INSTALLED IN COMPLETE CONFORMANCE WITH SMACNA AS A MINIMUM (P-2 PRESSURE RANGE). ALL SUPPLY AND RETURN AIR DUCTWORK SHALL HAVE 1/2" LINER. ALL MATERIALS USED SHALL MEET 2550 FLAME/SMOKE RATINGS.

2.02 VOLUME DAMPERS

- ON RIGID BRANCH TAKEOFFS TO ROUND FLEXIBLE DUCTWORK, PROVIDE BUTTERFLY TYPE VOLUME DAMPERS WITH INTEGRAL EXTRACTORS. SHAFTS SHALL BE MOUNTED PARALLEL TO THE GROUND, AND REGULATOR TO OPERATE DAMPER SHALL BE MOUNTED OUTSIDE DUCTWORK INSULATION TO BE COMPLETELY ACCESSIBLE.
- IN RIGID ROUND DUCTWORK PROVIDE BUTTERFLY TYPE DAMPER WITH REGULATOR MOUNTED OUTSIDE DUCTWORK, AND SHAFT PARALLEL TO GROUND.
- IN RECTANGULAR DUCTWORK PROVIDE OPPOSED BLADE VOLUME DAMPERS WITH REGULATOR MOUNTED OUTSIDE DUCTWORK INSULATION AND SHAFT PARALLEL TO GROUND.

2.03 FLEXIBLE CONNECTIONS SHALL BE VENTIGLASS (OR EQUAL BY EXELON OR DUKODYNE) HEAVY GLASS FABRIC, DOUBLE COATED OF NEOPRENE OF APPROXIMATELY 50 OZ. PER SQUARE YARD, PROVIDED WITH 3/8" WIDE 24 GAUGE METAL MOUNTING STRIPS ATTACHED TO EACH EDGE AND SHALL BE SUITABLE FOR EACH PRESSURE CLASS OF DUCTWORK INVOLVED.

2.04 TURNING VANES: ALL CHANGES IN DIRECTION IN DUCTWORK GREATER THAN 45 DEGREES SHALL BE MADE WITH TURNING VANES. TURNING VANES SHALL BE FACTORY MANUFACTURED PRODUCTS - CONTRACTOR FABRICATED TURNING VANES SHALL NOT BE ALLOWED.

2.05 ROOFTOP UNITS

THE UNITS ARE TO BE COMPLETE IN ALL RESPECTS WITH ALL STANDARD EQUIPMENT INCLUDING FILTERS, ELECTRIC HEATING COIL, INDOOR DX COIL, INDOOR FAN, REQUIRED SAFETIES, AND OTHER NECESSARY REFRIGERATION AND TEMPERATURE CONTROLS. UNITS SHALL BE SUPPLIED WITH FILTER TRUCK AND FILTERS. ALL UNITS SHALL INCLUDE PRESSURE SWITCHES, LOSS OF CHARGE PROTECTION, COIL FREEZE PROTECTION, UNITS SHALL BE BY YORK, CARRIER OR TRANE.

2.06 GAS PIPING

GAS PIPING SHALL BE SCH 40 BLACK STEEL WITH WROUGHT THREADED JOINTS. GAS PIPING SHALL BE PAINTED ON EXTERIOR WITH RUST RESISTANT PAINT.

2.07 CONTROLS

PROVIDE HEATING COOLING THERMOSTAT WITH 24 HOUR-7 DAY PROGRAMMING AND BATTERY BACKUP INTEGRAL.

PART 3 - EXECUTION

3.01 DUCTWORK INSTALLATION

LOCATE DUCTWORK RUNS EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY AND AVOID DIAGONAL RUNS WHEREVER POSSIBLE. LOCATE RUNS AS INDICATED BY DIAGRAMS, DETAILS AND NOTATIONS OR, IF NOT OTHERWISE INDICATED, RUN DUCTWORK IN THE SHORTEST ROUTE SERVING THE BUILDING AND ITS EQUIPMENT. ROUTING OF DUCTWORK SHALL BE IN SUCH A MANNER TO CAUSE MINIMUM INTERFERENCE WITH CONSTRUCTION. ALL DUCTWORK SHALL BE SUBSTANTIALLY AND NEATLY SUPPORTED ON HEAVY IRON STRAP OR TRAPEZE HANGERS WITH BEAM CLAMPS RIVETED OR BOLTED TO DUCTS PROPERLY ANCHORED TO BUILDING CONSTRUCTION SO HORIZONTAL DUCTS ARE WITHOUT SAG OR SHAY, VERTICAL ARE WITHOUT BUCKLE AND ALL ARE FREE FROM THE POSSIBILITY OF DEFORMATION COLLAPSE OR VIBRATION. ALL DUCT AND FITTINGS SHALL BE SEALED WITH DUCT SEALER.

3.02 INSTALLATION ROOFTOP UNITS

INSTALL ROOFTOP UNITS WHERE SHOWN IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S WRITTEN INSTRUCTIONS, AND RECOGNIZED INDUSTRY PRACTICES, TO INSURE THAT UNITS COMPLY WITH REQUIREMENTS AND SERVE INTENDED PURPOSES. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, ROOF DECKING KING, PIPING AND ELECTRICAL WORK, AS NECESSARY.

3.03 TESTING AND BALANCING

ALL TESTING AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH ASHRAE STANDARDS. BALANCE ALL AIR DEVICES TO WITHIN 10% OF DESIGN RATED FLOW AND COMPILE ALL T & B DATA IN REPORT. PROVIDE 6 COPIES IN BINDER TO OWNER UPON COMPLETION.

END OF SECTION

HVAC LOAD CALCULATIONS

OUTSIDE AIR CALCULATIONS

JOB: C STORE - LEE SUMMITT

| AREA | SF | IMC CATEGORY | IMC PEOPLE DENSITY | R(P) R(S) | PEOPLE PER IMC | CALC. OA CFM PER CODE | CALC. OA WITH E(Z) FACTOR | OA USED FOR LOADS |
|----------------|------|----------------------------|--------------------|-----------|----------------|-----------------------|---------------------------|-------------------|
| SALES | 4350 | RETAIL | 15 | 7.5 | 0.06 | 65.25 | 750.375 | 937.96875 |
| FREEZER COOLER | 1350 | NON OCCUPIED STORAGE SPACE | | | | | | 0 |
| | 5700 | | | | | | | 940 |

NOTE: OA CALCULATED BASED UPON E(Z) OF .8 FROM TABLE 403.3.1.2

E&I7.5c66f

ZONE DESIGN COOLING LOAD SUMMARY

Location : LEE SUMMITT, MD 08-31-22
Prepared By : E20-II HVAC Design 6100190202
Carrier Hourly Analysis Program Page 1 of 2

***** CALCULATION DATA

Zone Name : LEE SUMMITT Calc Time: Aug 1400h
Job Name : BLOCK Amb db/wb: 95.4/ 79.9 F
Space Name: LEE SUMMITT C STORE

***** LOAD INFORMATION

| LOAD COMPONENT | SENSIBLE (BTU/hr) | LATENT (BTU/hr) |
|---------------------------------|-------------------|-----------------|
| SOLAR LOAD | 22,001 | 0 |
| GLASS TRANSMISSION | 3,557 | 0 |
| WALL TRANSMISSION | 12,536 | 0 |
| ROOF TRANSMISSION | 14,242 | 0 |
| PARTITION TRANSMISSION | 0 | 0 |
| LIGHTING (11,400 W TOTAL) | 30,606 | 0 |
| OTHER ELEC. (0 W TOTAL) | 0 | 0 |
| PEOPLE (47.00 PEOPLE TOTAL) | 7,946 | 5,640 |
| MISCELLANEOUS LOADS | 0 | 0 |
| COOLING INFILTRATION | 1,462 | 2,195 |
| PULLDOWN/WARM-UP | 0 | 0 |
| COOLING SAFETY LOAD | 9,235 | 783 |
| SUB-TOTALS | 101,584 | 8,618 |
| NET VENTILATION LOAD (940 CFM) | 24,107 | 36,190 |
| SUPPLY FAN LOAD (BHP= 2.8) | 7,164 | 0 |
| WALL LOAD TO PLENUM | 0 | 0 |
| ROOF LOAD TO PLENUM | 0 | 0 |
| LIGHTING LOAD TO PLENUM | 0 | 0 |

TOTAL COOLING LOADS 132,855 44,808

***** COIL SELECTION PARAMETERS:

| | | |
|---------------------------------|---|------------------|
| COIL ENTERING AIR TEMP. (DB/WB) | = | 79.3/ 66.3 deg F |
| COIL LEAVING AIR TEMP. (DB/WB) | = | 55.7/ 55.2 deg F |
| COIL SENSIBLE LOAD | = | 132,855 BTU/hr |
| COIL TOTAL LOAD | = | 177,663 BTU/hr |
| COOLING SUPPLY AIR TEMPERATURE | = | 57.0 deg F |
| TOTAL COOLING CFM (actual) | = | 5,369 CFM |
| TOTAL COOLING CFM (std. air) | = | 5,226 CFM |
| RESULTING ROOM REL. HUMIDITY | = | 50.6 % |
| COIL BYPASS FACTOR | = | 0.050 |
| COIL APPARATUS DEWPOINT | = | 54.5 deg F |
| REHEAT REQUIRED | = | 0 BTU/hr |

***** GENERAL INFORMATION:

| | | |
|--------------------|---|---------------------|
| TOTAL COOLING LOAD | = | 14.81 Tons |
| TOTAL FLOOR AREA | = | 5,700.00 sqft |
| OVERALL U-FACTOR | = | 0.091 BTU/hr/sqft/F |
| COOLING CFM/sqft | = | 0.94 CFM/sqft |

***** ZONE DESIGN COOLING LOAD SUMMARY

Location : LEE SUMMITT, MD 08-31-22
Prepared By : E20-II HVAC Design 6100190202
Carrier Hourly Analysis Program Page 2 of 2

***** CALCULATION DATA

Zone Name : LEE SUMMITT Calc Time: Aug 1400h
Job Name : BLOCK Amb db/wb: 95.4/ 79.9 F
Space Name: LEE SUMMITT C STORE

***** WALL AND GLASS LOAD BREAKDOWN

| LOAD COMPONENT | AREA (sqft) | TRANSMISSION (BTU/hr) | SOLAR LOAD (BTU/hr) |
|-----------------|-------------|-----------------------|---------------------|
| GLASS LOADS: NE | 0 | 0 | 0 |
| E | 0 | 0 | 0 |
| SE | 0 | 0 | 0 |
| S | 300 | 3,120 | 20,094 |
| SW | 0 | 218 | 0 |
| W | 21 | 0 | 1,538 |
| NW | 0 | 0 | 0 |
| N | 21 | 218 | 369 |
| H | 0 | 0 | 0 |
| WALL LOADS: NE | 0 | 0 | - |
| E | 900 | 2,451 | - |
| SE | 0 | 0 | - |
| S | 2,600 | 5,645 | - |
| SW | 0 | 0 | - |
| W | 900 | 1,291 | - |
| NW | 0 | 0 | - |
| N | 2,600 | 3,150 | - |

***** ZONE DESIGN HEATING LOAD SUMMARY

Location : LEE SUMMITT, MD 08-31-22
Prepared By : E20-II HVAC Design 6100190202
Carrier Hourly Analysis Program Page 1 of 1

***** CALCULATION DATA

Zone Name : LEE SUMMITT Calc Time: Winter design
Job Name : BLOCK Amb db : 2.0 F
Space Name: LEE SUMMITT C STORE

| LOAD COMPONENT | LOAD (BTU/hr) |
|---------------------------------------|---------------|
| WALL TRANSMISSION | 38,080 |
| ROOF TRANSMISSION | 31,008 |
| GLASS TRANSMISSION | 11,628 |
| TRANSMISSION LOSSES TO UNCOND. SPACES | 0 |
| INFILTRATION LOSS | 4,074 |
| SLAB FLOOR | 23,625 |
| HEATING SAFETY BTU/hr | 10,841 |
| SUB-TOTAL | 119,256 |
| NET VENTILATION LOSS | 67,183 |
| TOTAL HEATING LOAD | 186,439 |
| HEATING SUPPLY CFM | 2,837 CFM |
| HEATING SUPPLY AIR TEMPERATURE | 110.0 deg F |
| HEATING VENTILATION AIR CFM | 940 CFM |
| HEATING THERMOSTAT SETPOINT TEMP | 70.0 deg F |



9-1-22

SERVICE STATION AND CONVENIENCE STORE

LEE SUMMITT, MO

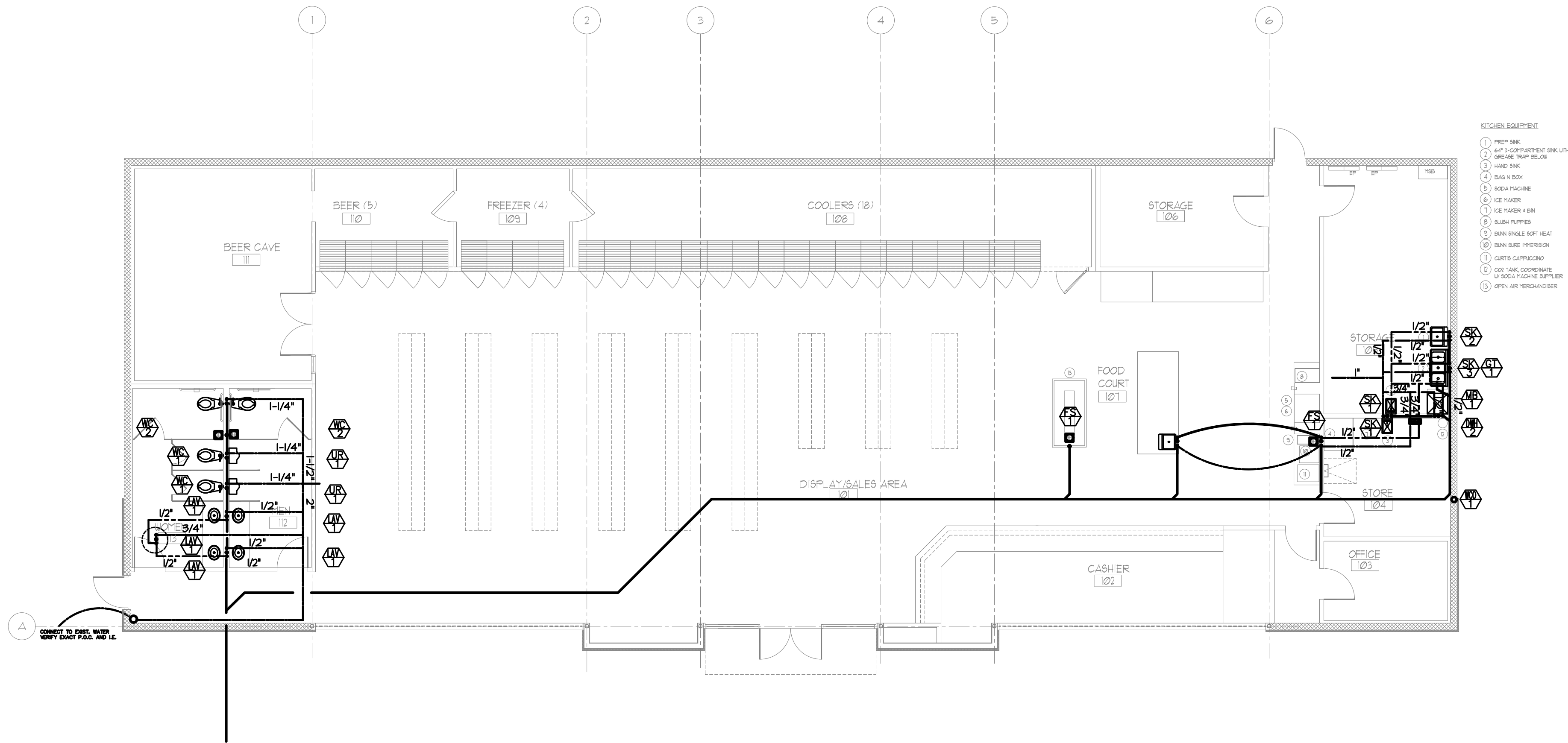
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9-1-22

Sheet Number:

M-5

IF REQUIRED BY LOCAL AUTHORITY, PROVIDE SEPERATE SANITARY TO SAMPLING MANHOLE ON EXTERIOR



| PLUMBING FIXTURE CONNECTION SCHEDULE | | | | | | | |
|--------------------------------------|--------|--------|------|------|--------|---------|---------|
| MARK | M | V | HW | CM | T | CARRIER | REMARKS |
| FD-1 | 3" | 2" | - | - | - | - | |
| FS-1 | 3" | 2" | | | 3" | - | |
| HD-1 | 3" | 2" | | | 3" | - | |
| LAV-1 | 1-1/4" | 1-1/4" | 1/2" | 1/2" | 1-1/4" | BY MFG. | |
| MB-1 | 3" | 2" | 1/2" | 1/2" | 3" | - | |
| SK-1,3 | 3" | 2" | 1/2" | 1/2" | 2" | - | |
| SK-2 | 3" ID | | 1/2" | 1/2" | | - | |
| UR-1 | 3" | 2" | - | 3/4" | - | - | |
| WC-1,2 | 4" | 2" | - | 1" | - | - | |

PLUMBING PLAN
SCALE: 1/8" = 1'-0"
Graphic Scale:
0 4 8

TANK TYPE WATER CLOSETS SHALL HAVE FV LEVER ON ACCESSIBLE SIDE OF WATER CLOSET PR ICC.

GENERAL NOTES:

- ALL WORK SHALL BE IN COMPLETE COMPLIANCE WITH STATE PLUMBING CODES/AMENDMENTS, NFPA, ALL LOCAL & APPLICABLE JURISDICTIONAL AUTHORITIES.
- REFER TO ARCHITECTURAL PLANS FOR EXACT HALL AND FLOOR ELEVATIONS, TYPES AND APPLICABLE BUILDING CONSTRAINTS.
- COORDINATE WITH THE ELECTRICAL, THE FIXTURE AND THE HVAC CONTRACTORS FOR ROUTING OF SYSTEMS CONCEALED IN CEILINGS, WALLS, CHASES, ATTIC, AND FLOORS. AVAILABLE ROOM ABOVE THE CEILING IS TIGHT IN MANY CASES DEVELOP A RERUN PLAN WITH ALL OTHER SUB CONTRACTORS AND PROVIDE A SUBMISSION OF SUCH FOR REVIEW PRIOR TO INITIATING ANY WORK.
- VERIFY INVERT ELEVATIONS BEFORE INITIATING ANY WORK.
- VISIT THE SITE PRIOR TO SUBMISSION OF BID TO VERIFY EXISTING CONDITIONS. ANY CONDITIONS NOT IN COMPLIANCE WITH THE INTENT OF THE CONSTRUCTION DOCUMENTS OR APPLICABLE CODES, ETC., SHALL BE NOTED AND INCLUDED IN THIS CONTRACTOR'S BID.
- COORDINATE EXACT PIPE SIZES WITH AVAILABLE HALL FURRING DIMENSIONS PRIOR TO ROUGH-IN.
- SANITARY SHALL HAVE A 1/4" PER FOOT SLOPE - VERIFY WITH CIVIL PLANS.

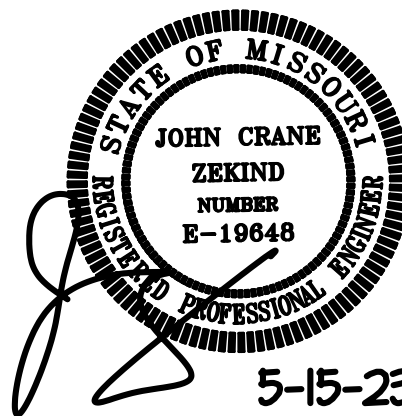
- THESE PLANS ARE ACCOMPANIED BY SPECIFICATIONS.
- BE RESPONSIBLE NOT ONLY FOR THE ROUGH-IN POINTS REQUIRED AS SHOWN GENERALLY HEREIN, BUT ALSO FOR FINAL CONNECTION TO ALL EQUIPMENT AND THE FURNISHING AND INSTALLING OF MATERIALS AND LABOR FOR SUCH AS REQUIRED TO MAKE FULLY FUNCTIONAL.
- SEE ARCHITECTURAL PLANS FOR EXACT FIXTURE LAYOUT.
- REVIEW CAREFULLY AND FULLY ALL LITERATURE ON EQUIPMENT TO BE FURNISHED BY OTHERS. INSTALL ALL REQUIRED TRIM AND ACCESSORIES TO PROVIDE A FULLY FUNCTIONING SYSTEM (FOR EXAMPLE, TRAPS, SHUTOFFS, ESCUTCHIONS, FLEX CONNECTORS, JACOBS, TRIPS, VACUUM BREAKERS, TRAP PRIMERS, ETC.).
- PROVIDE SHUTOFF VALVES WITH UNIONS (DIELECTRIC WHERE REQUIRED) ON ALL CONNECTIONS TO EQUIPMENT IN FULLY ACCESSIBLE LOCATIONS. ALSO PROVIDE SHUTOFF VALVES ON EACH DISTINCT BRANCH WATER LINE.
- ALL PIPING SHALL BE CONCEALED IN WALLS/FLOORS OR ABOVE CEILINGS UNLESS EXPLICITLY NOTED OTHERWISE.

PLUMBING SYMBOLS

SANITARY SEWER BELOW FLOOR
VENT
COLD WATER
HOT WATER
FILTERED COLD WATER

FLOOR DRAIN PLUMBING FIXTURE MARK KEYED NOTE 1

RISER DESIGNATION SANITARY INVERT ELEVATION



5-15-23 CODE RESPONSES
9-1-22 REVIEW SET

SERVICE STATION AND
CONVENIENCE STORE

LEE SUMMIT, MO

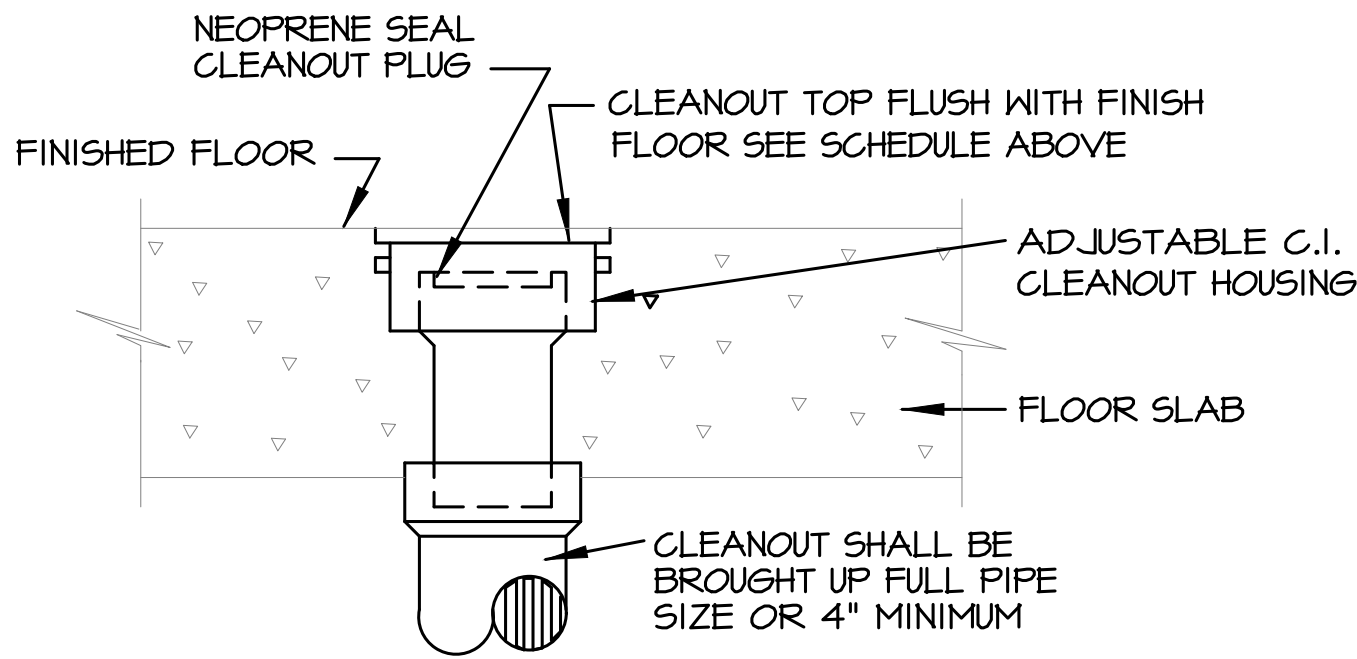
John C. Zekind, PE
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CHESTERFIELD, MO, 63017
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Project Number: 9-1-22
Issued For: ☐ Review ☐ Permit ☐ Bidding ☐ Construction

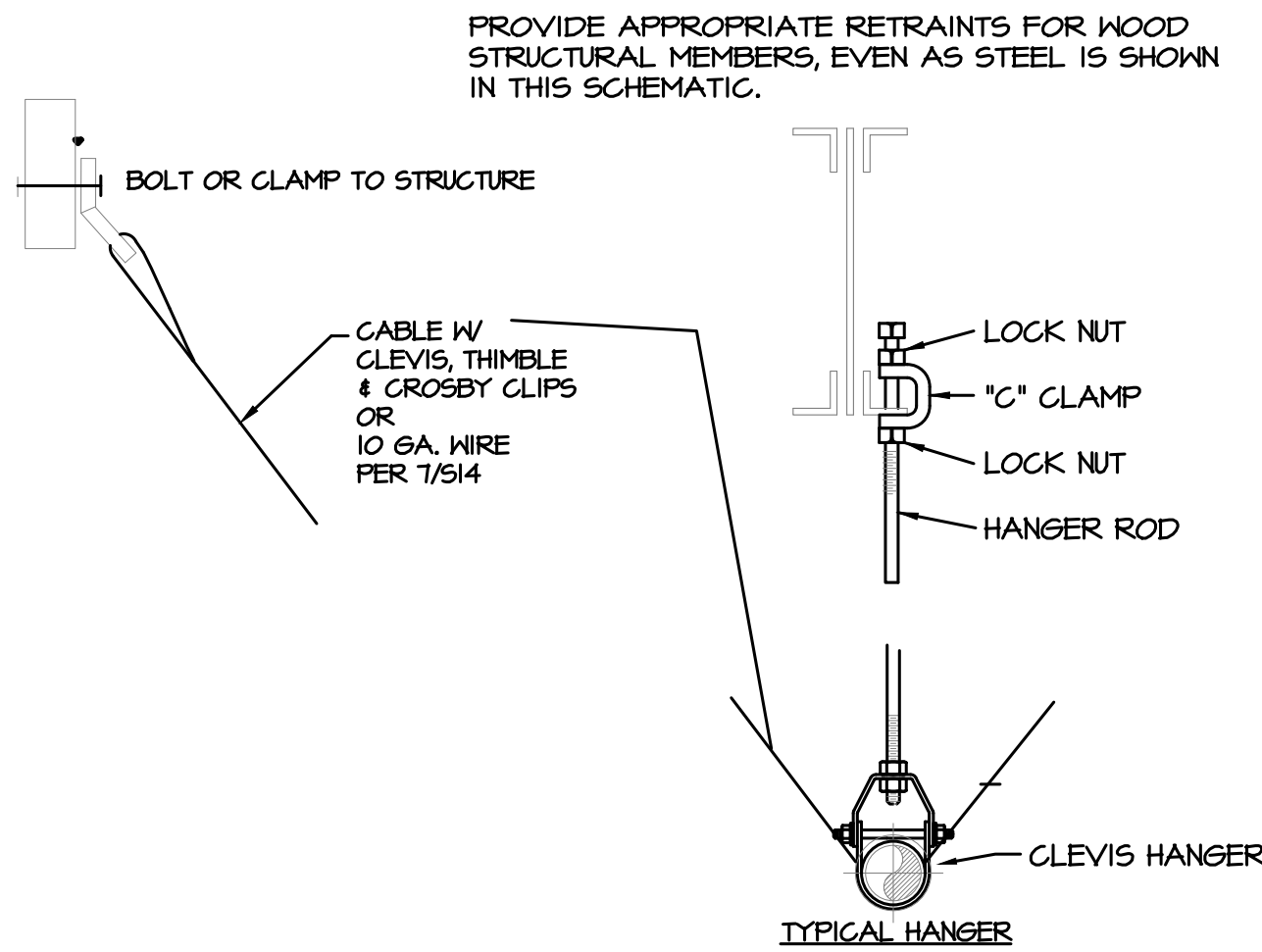
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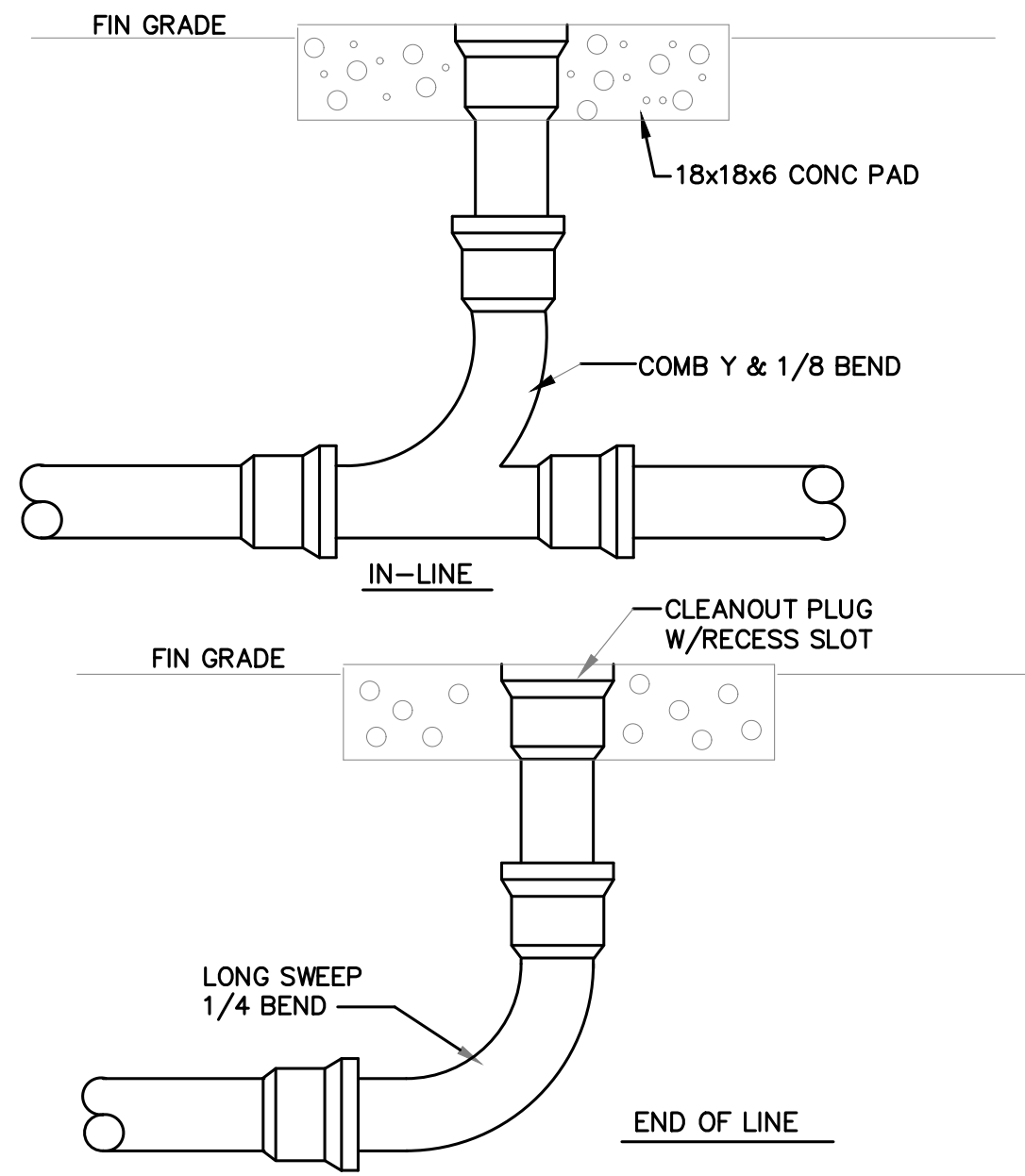
| FLOOR CLEANOUT SCHEDULE | | |
|-------------------------|----------------|---------------|
| FLOOR TYPE | CLEANOUT TYPE | TOP MATERIAL |
| UNFINISHED | ROUND | CAST-IRON |
| V.A.T. | SQUARE-TILETOP | NICKEL BRONZE |
| QUARRY TILE | SQUARE-TILETOP | NICKEL BRONZE |
| CERAMIC TILE | SQUARE TERRAZO | TILE |



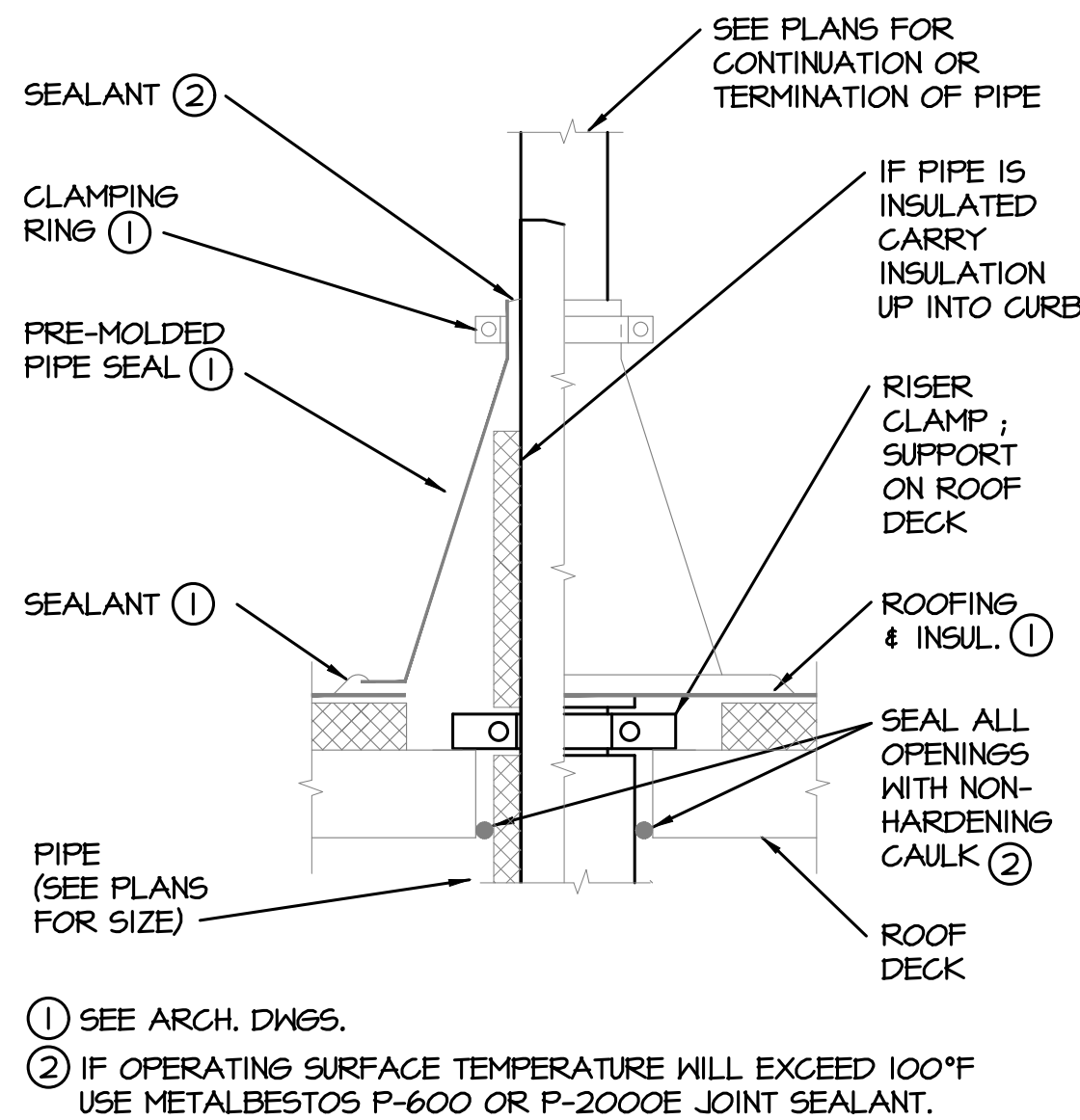
FLOOR CLEANOUT SCHEMATIC
NOT TO SCALE



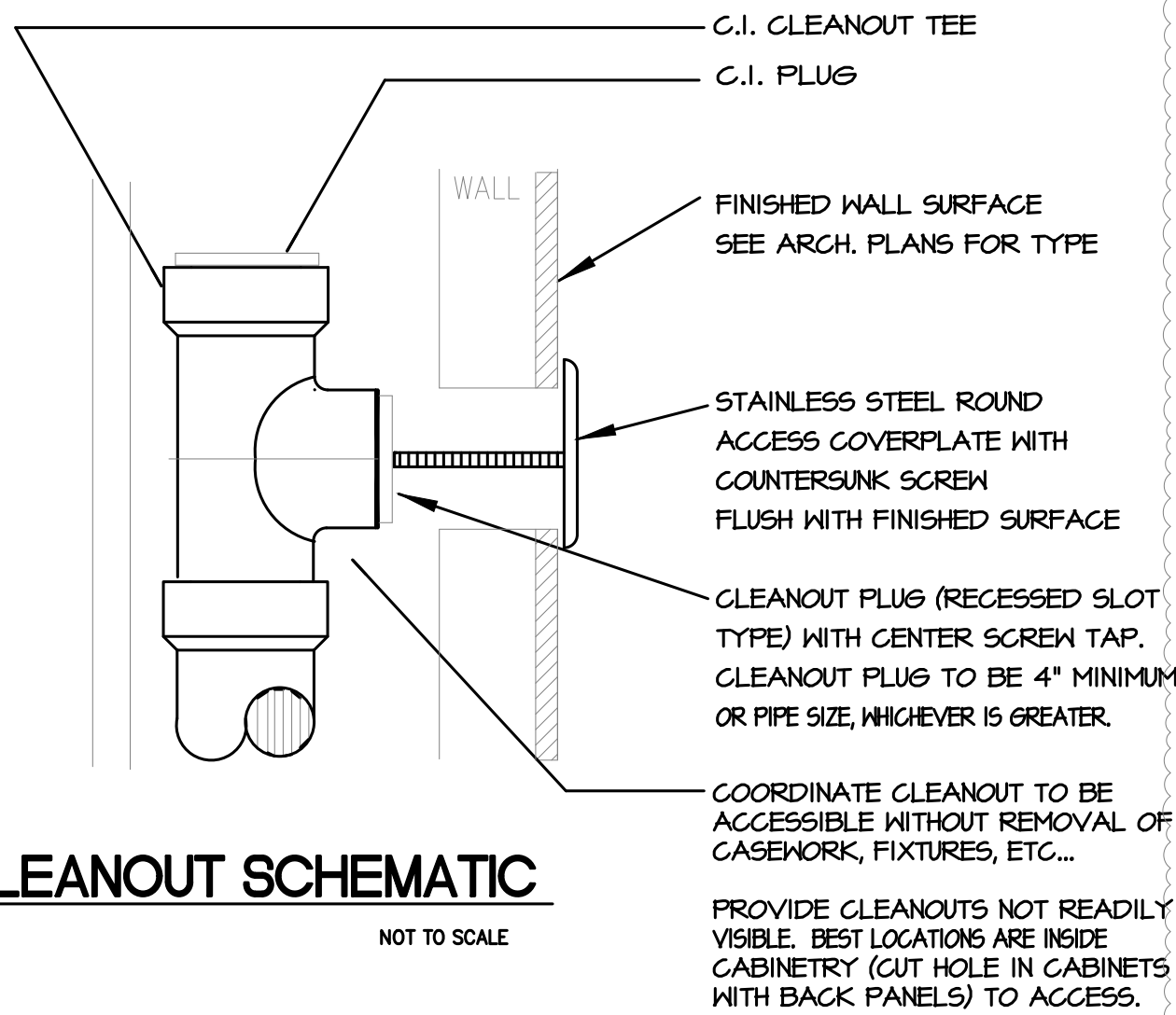
TYPICAL SEISMIC DETAIL FOR PIPING
NOT TO SCALE



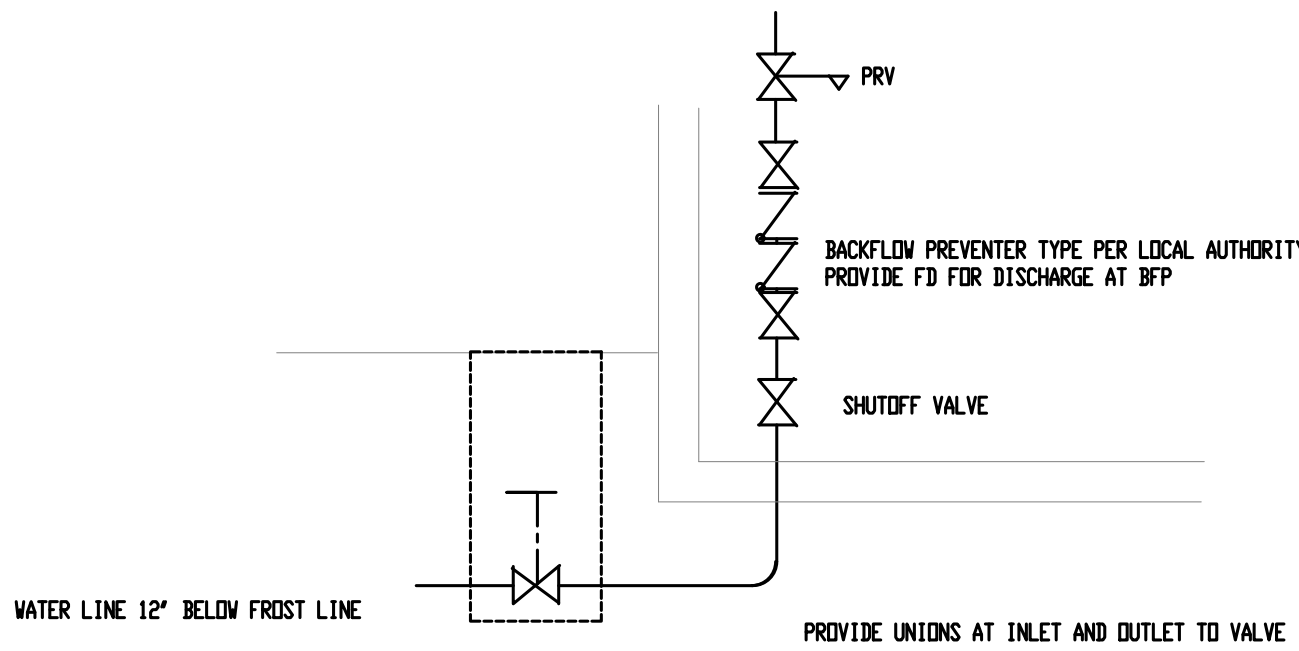
SITE CLEANOUT SCHEMATIC
NOT TO SCALE



TYPICAL PIPE THRU ROOF SCHEMATIC
NOT TO SCALE

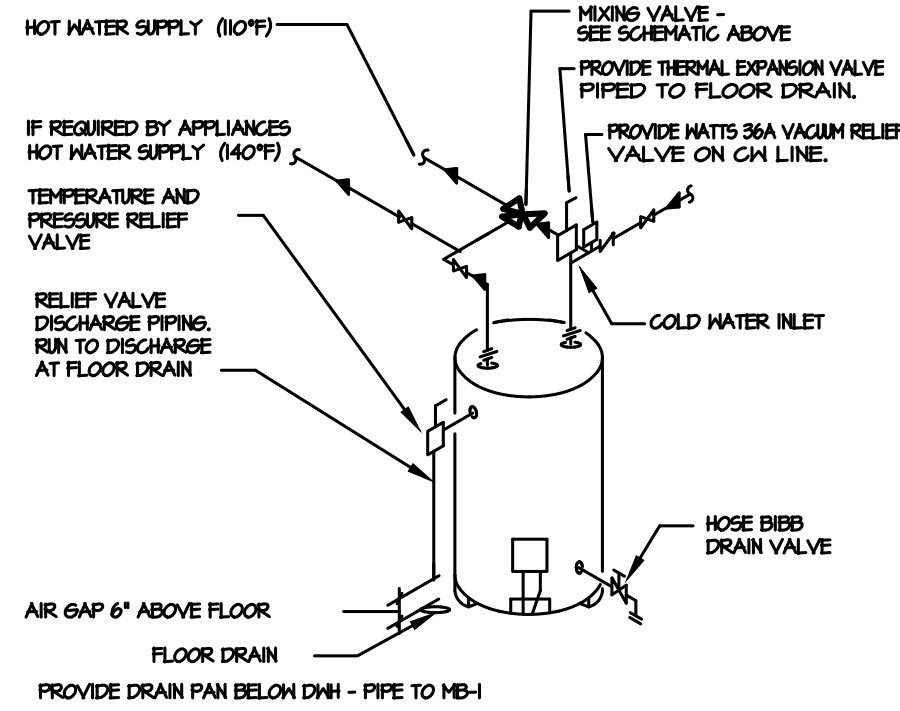


WALL CLEANOUT SCHEMATIC
NOT TO SCALE

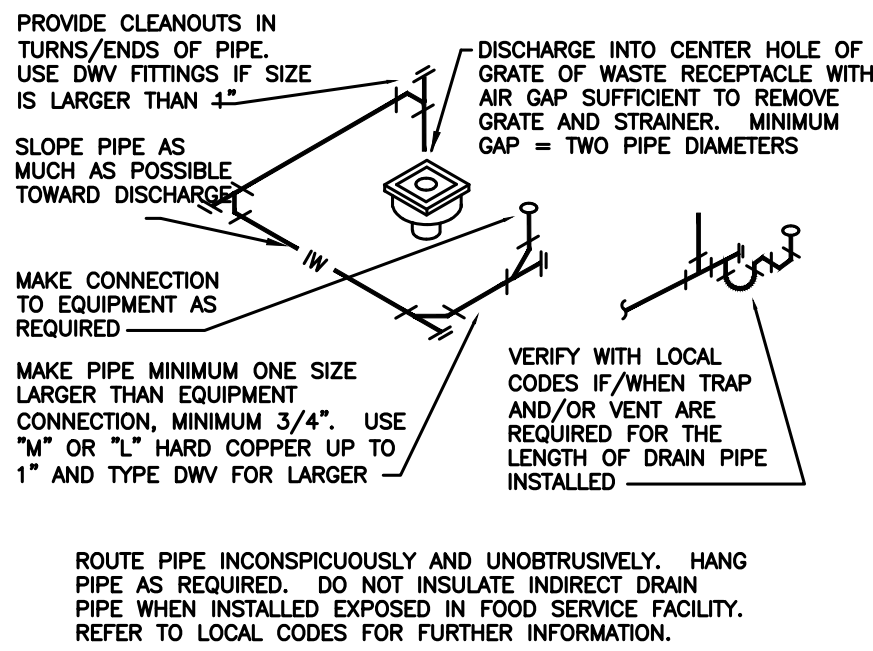


TYPICAL WATER SERVICE ENTRY
NOT TO SCALE

SIMILAR FOR INSTANANEOUS WATER HEATER

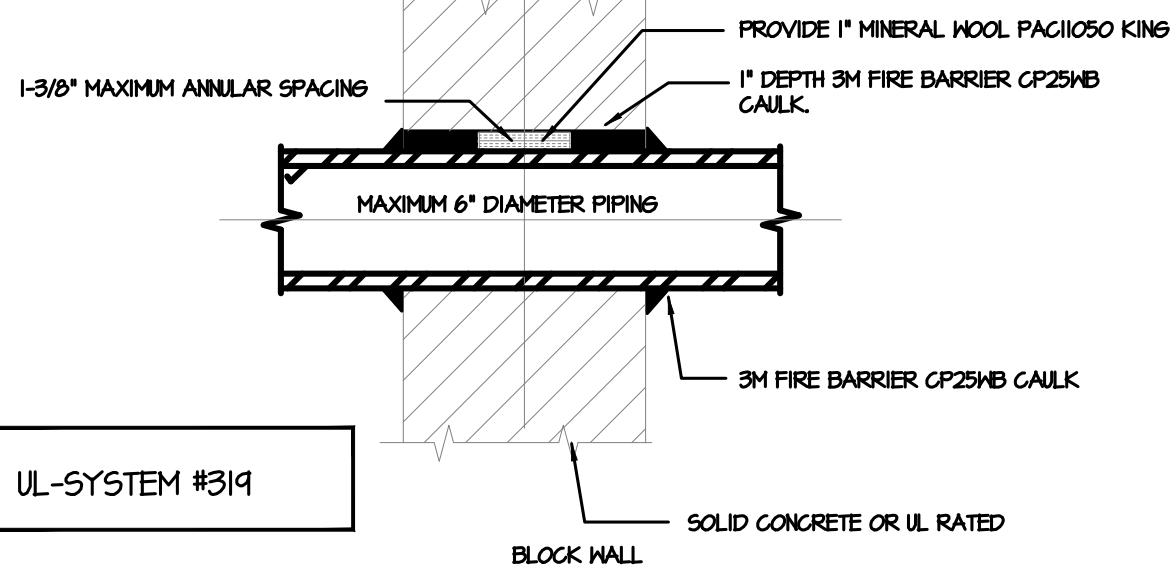


SINGLE WATER HEATER PIPING SCHEMATIC
NOT TO SCALE

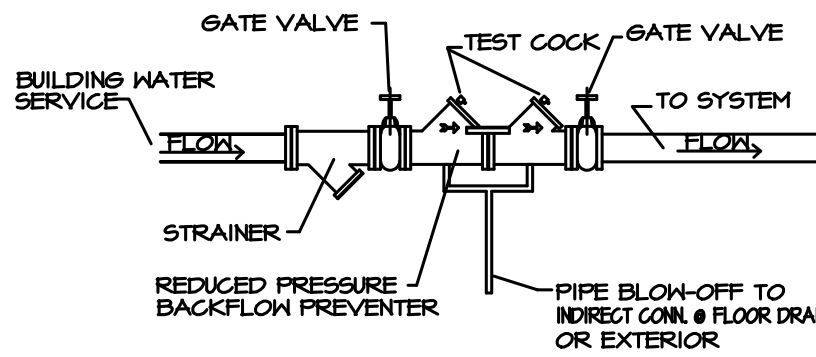


INDIRECT DRAIN SCHEMATIC
NOT TO SCALE

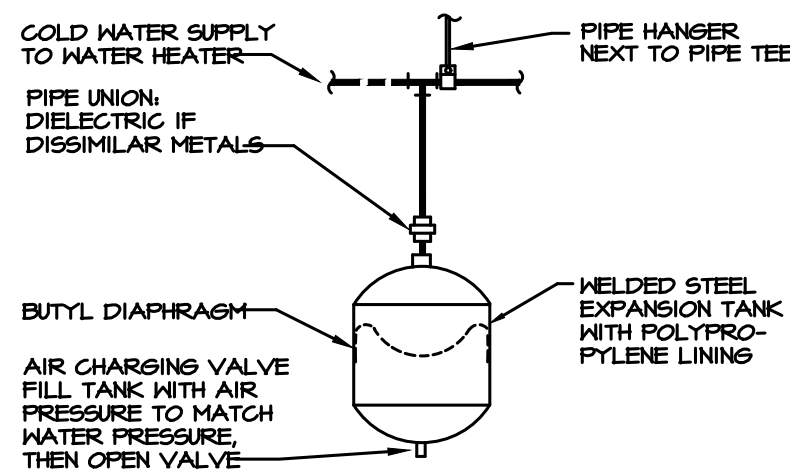
FOR 4 HOUR WALLS
USE SYSTEM 233 OR 234



FIRE RATED WALL PENETRATION SCHEMATIC
NOT TO SCALE



BACKFLOW PREVENTER SCHEMATIC
NOT TO SCALE



PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. MAKE PIPE SAME SIZE AS TANK FITTING. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION PROCEDURE. VERIFY PROPER OPERATION WHEN INSTALLED.

EXPANSION TANK INSTALLATION SHALL OCCUR ONLY WHEN THERE IS A BACK FLOW PREVENTION DEVICE INSTALLED WITHIN THE TENANT SPACE WATER SYSTEM OR BUILDING WATER SYSTEM. FIELD VERIFY BACKFLOW PREVENTION DEVICE.

DOMESTIC EXPANSION TANK SCHEMATIC
NOT TO SCALE

6-18-20 REVISIONS

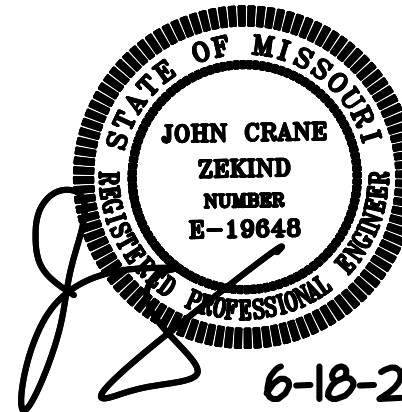
GAS MART SERVICE STATION AND
CONVENIENCE STORE

11050 RIVERVIEW DRIVE
ST. LOUIS, MO

John C. Zekind, PE
CONSULTING ENGINEERS
1278 WHITE ROAD
CHESTERFIELD, MO, 63017
314-878-2290

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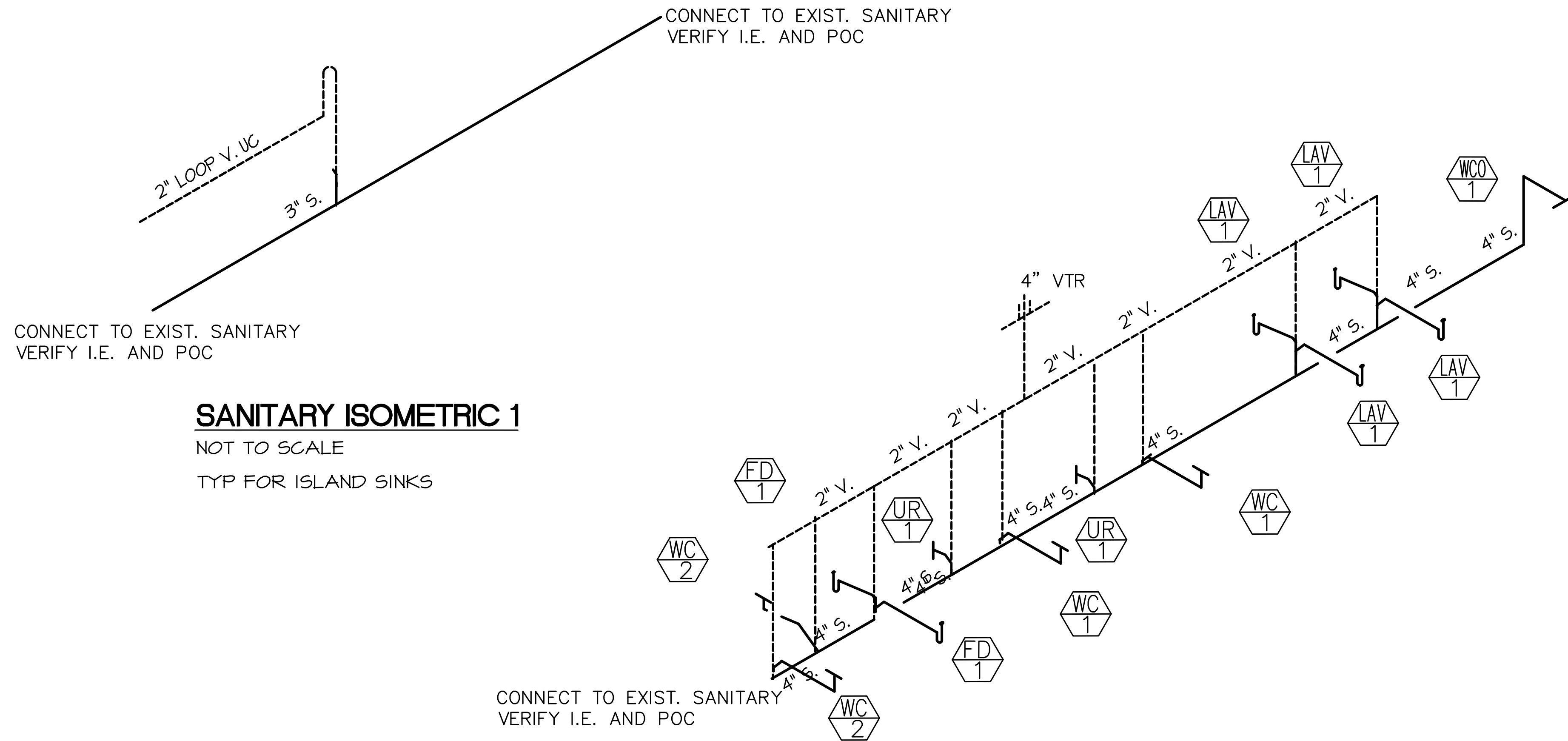
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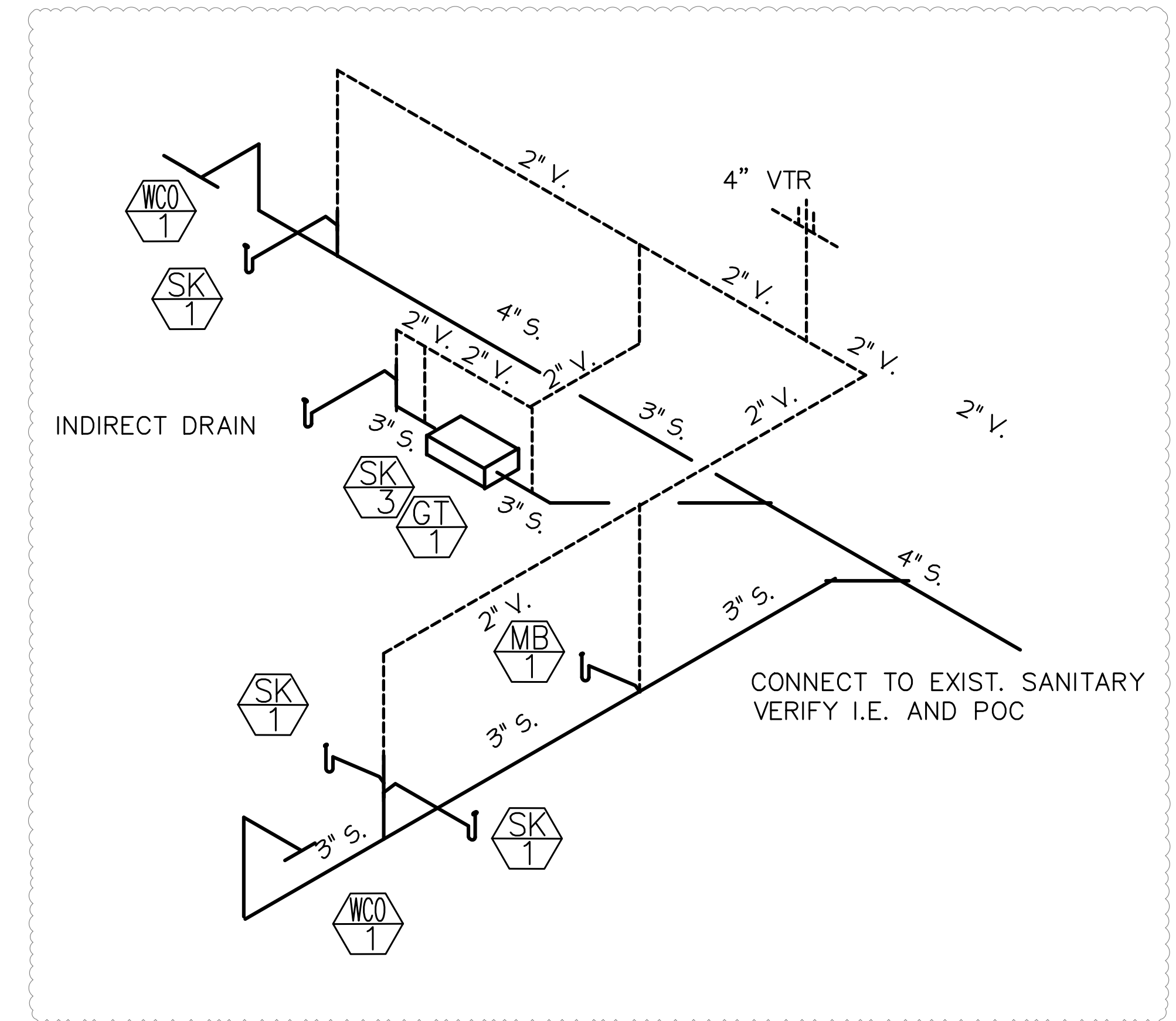
P-2

IF REQUIRED BY LOCAL AUTHORITY, PROVIDE SEPERATE SANITARY TO SAMPLING MANHOLE ON EXTERIOR

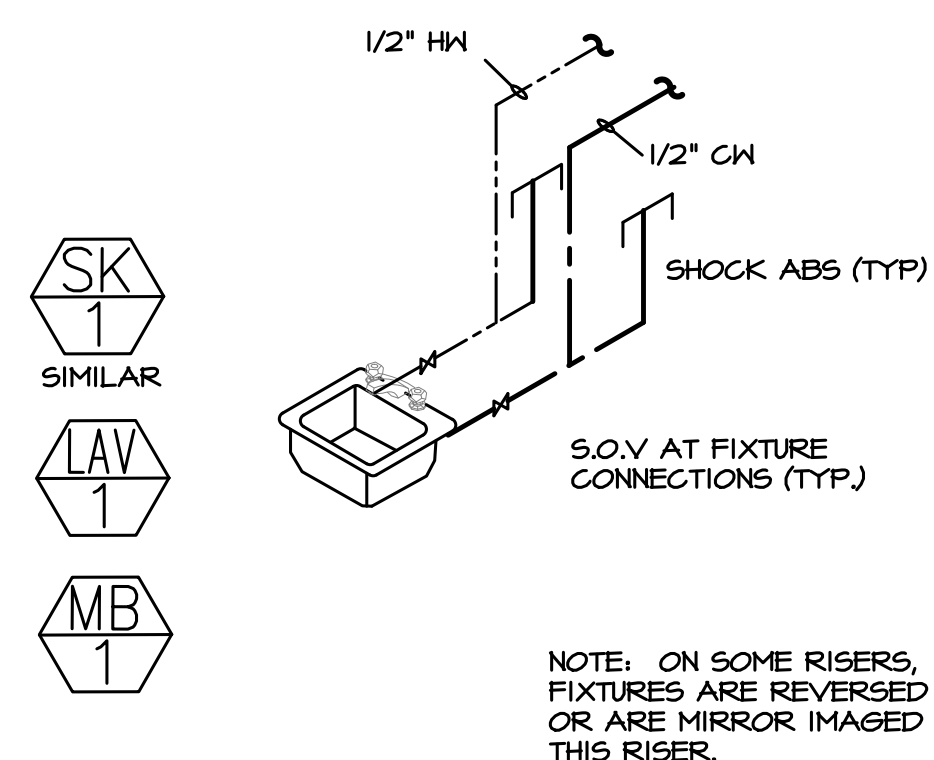


SANITARY ISOMETRIC 2

NOT TO SCALE

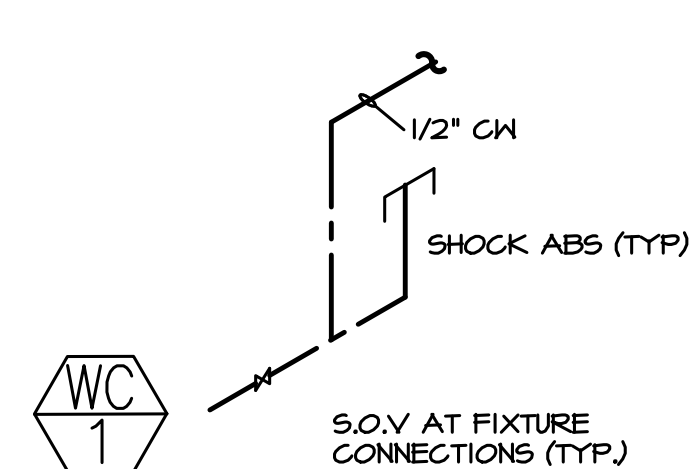


TYPICAL FOR ALL SINKS



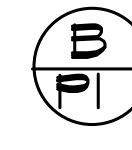
VERIFY I.E. AND POC

WATER RISER NO. A



VERIFY I.E. AND POC

WATER RISER NO. B



CONNECT TO EXIST. SANITARY
VERIFY EXACT P.O.C. AND
I.E. — IF I.E. IS NOT DEEP ENOUGH
ROUTE SANITARY TO EXTERIOR
AND ROUTE TO DEEPER EXT.
MAIN AS REQUIRED.

5-15-23 CODE RESPONSES
9-1-22 REVIEW SET

SERVICE STATION AND
CONVENIENCE STORE

LEE SUMMIT, MO

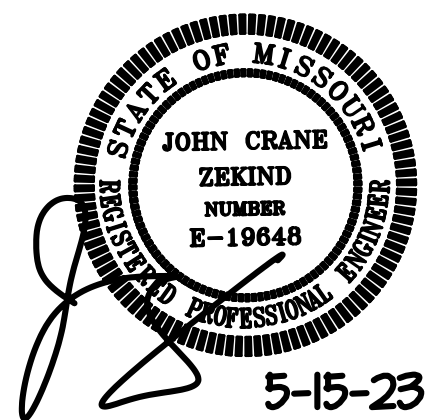
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 ☐ Pricing _____
 ☐ Permit _____
 ☐ Bidding _____
 ☐ Construction _____

Sheet Number:

5-15-23

P-3



PLUMBING SPECIFICATION

I. PART 1 - GENERAL

1.01 GENERAL

REFER TO "DIVISION NO. 1 GENERAL REQUIREMENTS", AS WELL AS GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND SPECIAL CONDITIONS OF THE CONSTRUCTION CONTRACT FOR PROVISIONS WHICH MAY APPLY TO THE WORK UNDER THIS SECTION.

1.02 PLANS AND SPECIFICATIONS

PLANS AND SPECIFICATIONS ARE TO BE CONSIDERED AS MUTUALLY COMPLEMENTARY, AND REQUIREMENTS OF ONE SHALL BE CONSIDERED AS REQUIREMENTS OF BOTH. IF CONFLICTING REQUIREMENTS ARE SHOWN, THE MOST RESTRICTIVE REQUIREMENT SHALL APPLY AS ASCERTAINED BY THE ARCHITECT/ENGINEER. BUT INFORMATION GIVEN HEREIN AND ON PLANS IS AS COMPLETE AND AS ACCURATE AS COULD BE SECURED AT THE TIME OF PREPARATION OF THIS DESIGN, BUT COMPLETE AND TIMELY ACCURACY CANNOT BE GUARANTEED. ROUTING OF CIRCUITS AND LOCATION OF EQUIPMENT, APPARATUS, FIXTURES AND OTHER DEVICES ARE SHOWN ON PLANS FOR GENERAL GUIDANCE. COORDINATE WORK WITH OTHER CONTRACTORS AND PROVIDE ANY NECESSARY DEVIATIONS IN ROUTING (AS FAR AS 10' FROM THOSE SHOWN) TO PROVIDE SYSTEMS AS SPECIFIED OR IMPLIED, WITHOUT INTERFERENCE, PURSUANT TO THESE REQUIREMENTS AND AT NO COST TO THE OWNER, ARCHITECT OR ENGINEER.

1.03 COORDINATION

CAREFULLY EXAMINE ALL CONTRACT DOCUMENTS AND INCLUDE IN THE COST OF THIS BID ALL WORK NORMALLY CLAIMED BY THE TRADES UNDER YOUR CONTRACT. COORDINATE WORK WITH THE WORK OF OTHER CONTRACTORS AND SHALL DETERMINE THAT THE WORK INSTALLED WILL NOT INTERFERE WITH THE WORK OF OTHER CONTRACTORS. IF WORK IS INSTALLED WHICH DOES INTERFERE, IT SHALL BE CORRECTED AT NO COST TO THE OWNER. OCCUPATION OF SPACE BY ANY CONTRACTOR DOES NOT GIVE HIM RIGHT OF PRIORITY TO THE SPACE. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH GOVERNING CODES, UTILITY STANDARDS, LOCAL PRACTICES AND MANUFACTURER'S PUBLISHED STANDARDS. IF ANY PORTION OF THE WORK SPECIFIED OR SHOWN ON THE DRAWINGS IS CONTRARY TO THE ABOVE, THE CONTRACTOR SHALL BE REQUIRED TO BRING THE MATTER TO THE ATTENTION OF THE ARCHITECT/ENGINEER (OWNER'S REPRESENTATIVE) PRIOR TO BEGINNING WORK FOR CLARIFICATION OR REVISION. IT IS ASSUMED THAT THE CONTRACTOR HAS A SUFFICIENT KNOWLEDGE OF LOCAL CODES, PRACTICES AND STANDARDS. BECAUSE OF HIS SPECIAL KNOWLEDGE, HE SHALL BE HELD RESPONSIBLE FOR REPLACEMENT OF IMPROPER INSTALLATIONS WHICH HAVE NOT BEEN CALLED TO THE ATTENTION OF ARCHITECT/ENGINEER.

1.04 PERMITS, LICENSES, INSPECTIONS AND TAXES

PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS HE OBTAINS IN CONJUNCTION WITH HIS WORK AND SHALL COMPLY WITH ALL LAWS, ORDINANCES, ETC. IF THE PLANS AND/OR SPECIFICATIONS ARE AT A VARIANCE THEREWITH, NOTIFY THE ENGINEER IN WRITING BEFORE THE WORK IS PERFORMED. IF THE CONTRACTOR, WITHOUT NOTICE, SHALL DO ANY WORK CONTRARY TO ANY LAW, ORDINANCE, RULE OR REGULATION, HE SHALL BE HELD RESPONSIBLE FOR ANY SUCH VIOLATION AND ALL COSTS ARISING THEREFROM SHALL BE BORNE BY HIM, INCLUDE ANY LOCAL, FEDERAL AND STATE TAXES IN YOUR BID.

1.05 BID AND SUBSTITUTES

A. ALL BIDS SHALL BE BASED STRICTLY ON THE BASIS OF THE DRAWINGS AND SPECIFICATIONS. ANY REQUESTS FOR SUBSTITUTIONS SHALL BE INCLUDED AS A VOLUNTARY ALTERNATE. A COMPLETE DESCRIPTION OUTLINING THE VOLUNTARY ALTERNATE SHALL BE INCLUDED WITH A LISTING OF A COST ADD OR COST DEDUCT TO THE BASE BID. OWNER SHALL GIVE FINAL APPROVAL ON ALL VOLUNTARY ALTERNATES.

B. MEET THE RESPONSIBILITY OF COORDINATION WITH OTHER TRADES; ANY CHARGES INCURRED IN PLUMBING, HVAC, FIRE PROTECTION, GENERAL CONTRACTS, ETC., WHICH RESULT FROM EQUIPMENT SUBSTITUTION. ANY ADDITIONAL COSTS INVOLVED, DUE TO SUBSTITUTIONS, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR PROPOSING THE SUBSTITUTION.

1.06 SHOP DRAWINGS

SEMIT FOR REVIEW SIX (6) COPIES OF SHOP DRAWINGS AND DESCRIPTIVE LITERATURE OF EQUIPMENT TO BE FURNISHED UNDER THIS CONTRACT. DRAWINGS SHALL STATE CAPACITIES, SIZES AND ALL INFORMATION SHOWN IN SCHEDULES ON PLANS AS A MINIMUM OF ALL EQUIPMENT.

1.07 OPERATION AND MAINTENANCE MANUALS AND INSTRUCTIONS

PRIOR TO FINAL PAYMENT, THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE ARCHITECT/ENGINEER FOR SUBMITTAL TO THE OWNER.

1.08 RECORD DRAWINGS

AS BUILT REPRODUCIBLE DRAWINGS ARE TO BE SUBMITTED TO ARCHITECT/ENGINEER FOR REVIEW PRIOR TO THE TIME OF REQUEST FOR FINAL PAYMENT.

1.09 WORKMANSHIP AND MATERIALS

ALL WORK SHALL BE PERFORMED IN A MANNER ACCEPTABLE TO THE ENGINEER, ARCHITECT AND THE OWNER, BY PROPERLY TRAINED, SUPERVISED AND EXPERIENCED PERSONNEL USING NEW AND CLEAN MATERIALS, SUPPLIES, EQUIPMENT, HARDWARE AND FIXTURES.

1.10 PROTECTION OF EQUIPMENT AND WORK

EQUIPMENT, FIXTURES AND TRIM SHALL BE PROTECTED AGAINST DAMAGE DUE TO BUILDING MATERIALS, ACID, TOOLS AND EQUIPMENT OR ANY CAUSES INCIDENTAL TO CONSTRUCTION. THE FINISHED SURFACE OF EACH PIECE OF EQUIPMENT AND FIXTURE SHALL BE COVERED WITH BUILDING PAPER OR SIMILAR PROTECTION. ALL EQUIPMENT DAMAGED BY ANY CAUSE AND ANY TRIM WITH MARRED OR SCRATCHED FINISH SHALL BE REPLACED AT NO COST TO THE OWNER. THE EQUIPMENT AND EQUIPMENT TRIM PROTECTION SHALL BE REMOVED AT THE COMPLETION OF CONSTRUCTION.

1.11 TEMPORARY FACILITIES

FURNISH, INSTALL AND KEEP IN PROPER REPAIR ALL TEMPORARY POWER, LIGHTING AND OTHER FACILITIES REQUIRED FOR HIS CONSTRUCTION PURPOSES. AFTER PERMANENT FACILITIES ARE INSTALLED, THIS CONTRACTOR SHALL REMOVE ALL TEMPORARY FACILITIES ASSOCIATED WITH HIS CONSTRUCTION WORK OR PURPOSE.

MATERIAL AND EQUIPMENT HANDLING AND STORAGE IT IS RECOGNIZED THAT SPACE AT THE PROJECT FOR STORAGE OF MATERIALS AND PRODUCTS IS LIMITED. COORDINATE THE DELIVERIES OF THE MATERIALS AND PRODUCTS WITH THE SCHEDULING AND SEQUENCING OF THE WORK SO THAT STORAGE REQUIREMENTS AT THE PROJECT ARE MINIMIZED. IN GENERAL, DO NOT DELIVER INDIVIDUAL ITEMS OF EQUIPMENT TO THE PROJECT SUBSTANTIALLY AHEAD OF THE TIME OF INSTALLATION.

1.12 MAINTENANCE OF WORK AREAS

DURING THE PROJECT, MAINTAIN WORK AREA IN AN ORGANIZED MANNER, DO NOT ALLOW DEBRIS TO ACCUMULATE AND STORE EQUIPMENT, TOOLS AND SUPPLIES IN A MANNER WHICH SHALL NOT CAUSE INTERFERENCE WITH THE ACTIVITIES OF OTHERS ENGAGED ON THIS PROJECT.

1.13 GUARANTEE

THE CONTRACTOR SHALL, BY ACCEPTING THESE PLANS AND SPECIFICATIONS AND SIGNING THE CONTRACT, SHALL GUARANTEE THE FOLLOWING:

ALL EQUIPMENT, ACCESSORIES AND MATERIALS FURNISHED BY HIM FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP. IF ANY EQUIPMENT FAILS, DOES NOT OPERATE SATISFACTORILY OR SHOWS UNDUE WEAR, THE CONTRACTOR WILL BE NOTIFIED AND WILL BE REQUIRED TO REMEDY THE DEFECT IMMEDIATELY AT HIS OWN EXPENSE.

2. MATERIALS

2.01 DOMESTIC WATER PIPING SHALL BE TYPE "L" COPPER WITH THROUGH FITTINGS AND LEAD FREE SOLDER. HANGERS FOR DOMESTIC WATER PIPING SHALL BE EQUAL TO FEE # WAGON FIGURE 800 (FOR INSULATED PIPING) AND FIGURE 500 (FOR NON-INSULATED PIPING).

2.02 SOIL AND WASTE PIPING SHALL BE SERVICE WEIGHT CAST IRON WITH BELL AND SPIGOT JOINTS, EXCEPT USE DWN PVC WHERE CODE ALLOWS.

2.03 VALVES

A. SHUTOFF VALVES SHALL BE EITHER GATE VALVES (50 LB.) (STOCKHAM B-105, CRANE 428VB, POMELL 2700) OR BALL VALVES (STOCKHAM 521ERRT, CRANE 430TRF, OR JAMESBURY A-II-TT211).

2.04 PLUMBING SPECIALTIES

A. AIR CHAMBERS TO BE CONSTRUCTED OF TYPE "L" COPPER. AIR CHAMBERS TO BE ONE SIZE LARGER THAN SUPPLY, 18" LONG, PROPERLY CAPPED, AND RIGIDLY SUPPORTED. AT CONTRACTOR'S OPTION, FACTORY FABRICATED CHAMBERS WITH EQUAL VOLUME, MAY BE USED IN PLACE OF PIPE CHAMBERS. APPROVED MANUFACTURERS: NIBCO, HOLYERNE, MADE, AMTROL.

B. PLUMBING FIXTURES SHALL BE BY ELKAY OR EQUAL.

3. PART 3 - EXECUTION

3.01 GENERAL

A. ALL PLUMBING FIXTURES, EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH LATEST APPLICABLE EDITION OF THE GOVERNING JURISDICTIONAL PLUMBING CODE.

3.02 INSTALLATION OF DOMESTIC WATER PIPING

A. RUN LEVEL AS HIGH AS POSSIBLE IN BUILDING STRUCTURE, INSTALL HANGERS FOR ALLOWING FOR EXPANSION AND CONTRACTION, AND ANCHOR WHERE REQUIRED. SEPARATE HOT AND COLD PIPES, 6" MINIMUM. INSTALL 3/4" HOSE END DRAIN VALVE AT LOW POINTS. INSTALL GATE VALVE AT EACH PLUMBING FIXTURE OR GROUP OF FIXTURES, AND AT EACH POINT OF CONNECTION TO EQUIPMENT. ALLOW ACCESS TO EQUIPMENT, FOR SERVICING OF PUMPS OR EQUIPMENT WITH DRAINING SYSTEM. INSTALL 1/2" AIR-MAFLEX OR RUBATEX (R-28) ON ALL DOMESTIC WATER PIPING EXCEPT THAT WHICH IS ENCLOSED IN A CHASE.

3.03 INSTALLATION OF SOIL, WASTE AND VENT PIPING

A. PIPING SHALL BE INSTALLED WITH A SLOPE OF AT LEAST 1/4" PER FOOT IN THE DIRECTION OF THE FLOW FOR DRAINS, AND AGAINST GAS FLOW FOR VENTS.

B. EACH FIXTURE AND PIECE OF EQUIPMENT REQUIRING CONNECTION TO THE DRAINAGE SYSTEM, EXCEPT FIXTURES WITH CONTINUOUS WASTE, SHALL BE EQUIPPED WITH A TRAP. EACH TRAP SHALL BE PLACED AS NEAR TO THE FIXTURE AS POSSIBLE AND NO FIXTURE SHALL BE DOUBLE TRAPPED. TRAPS SHALL BE CAST IRON.

3.04 INSTALLATION OF VALVES

A. LOCATE VALVES SO AS TO BE ACCESSIBLE AND SO THAT SEPARATE SUPPORT CAN BE PROVIDED WHEN NECESSARY. INSTALL VALVES WITH STEMS POINTED UP. DO NOT INSTALL BRONZE VALVES AND VALVE COMPONENTS IN DIRECT CONTACT WITH STEEL, UNLESS BRONZE AND STEEL ARE SEPARATED BY A DIELECTRIC INSULATOR.

3.05 INSTALLATION OF FIXTURES AND PLUMBING SPECIALTIES

A. INSTALL AIR CHAMBERS FULL THREE SIZE AND A MINIMUM OF 18" LONG AT EACH FIXTURE.

B. IN ADDITION TO VALVE LOCATIONS SHOWN ON PLANS, VALVES SHALL BE INSTALLED ON EACH MAIN AND EACH BRANCH OF THE MAINS, EACH PIECE OF EQUIPMENT, FIXTURE OR FIXTURE GROUP. ALL ITEMS REQUIRING WATER SUPPLY SHALL BE SEPARATELY VALVED. ALL VALVES SHALL BE LOCATED AS TO BE EASILY ACCESSIBLE.

3.07 PLUMBING TESTING AND STERILIZATION

A. TEST DRAINAGE VENT INSIDE CONDUCTOR PIPING BEFORE FIXTURE OR DRAINS ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER AND ALLOWING IT TO STAND THIS FILLED FOR ONE HOUR. IF TESTED IN SECTIONS, THE SYSTEM SHALL BE SUBJECTED TO NOT LESS THAN 10 FOOT HEAD.

B. TEST DOMESTIC WATER SUPPLY PIPING, BEFORE FIXTURES OR FAUCETS ARE CONNECTED, BY CAPPING OR PLUGGING THE OPENINGS, CONNECTING A TESTING PUMP, FILLING THE SYSTEM WITH WATER AND APPLYING A HYDROSTATIC PRESSURE TEST.

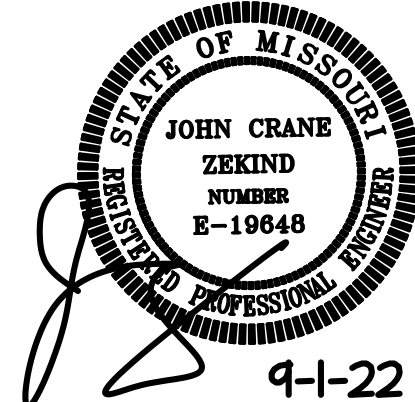
C. TEST ALL WATER PIPING, UNDER A HYDROSTATIC PRESSURE OF 50 PERCENT IN EXCESS OF THE MAXIMUM WORKING PRESSURE THAT THE SECTION OF PIPING WILL REQUIRE TO CARRY, BUT NOT LESS THAN 100 PSI. TEST PRESSURE SHALL BE HELD FOR A MINIMUM OF 4 HOURS AND SHOWN TO BE TIGHT BEFORE THE COVERING IS APPLIED.

D. AFTER PRESSURE TESTS HAVE BEEN MADE, THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE THOROUGHLY FLUSHED WITH WATER UNTIL ALL ENTRAINED DIRT AND MUD HAVE BEEN REMOVED, AND SHALL BE STERILIZED BY CHLORINATING. THE CHLORINATE SHALL BE A DOSAGE OF NOT LESS THAN 50 PARTS PER MILLION AND SHALL BE INTRODUCED INTO THE SYSTEM IN AN APPROVED MANNER. THE TREATED WATER SHALL BE RETAINED IN THE PIPE LONG ENOUGH TO DESTROY ALL NON-SPORE FORMING BACTERIA, EXCEPT WHERE A SHORTER PERIOD IS APPROVED. THE RETENTION TIME SHALL BE AT LEAST 24 HOURS AND SHALL PRODUCE NOT LESS THAN 10 P.P.M. OF CHLORINE AT THE EXTREME END OF THE SYSTEM AT THE END OF THE RETENTION PERIOD.

END OF SECTION

PLUMBING FIXTURE SCHEDULE

| | |
|---|---|
| DHW-1: DOMESTIC WATER HEATER 30 GALLON 4 KM, 120V DHW-2: INSTANTANEOUS DOMESTIC WATER HEATER 18 KM, 208 V, 1 PHASE DHW HAVE 150 PSI WORKING PRESSURE, AND BE EQUIPPED WITH A MAGNESIUM ANODE. CONTROLS SHALL INCLUDE A THERMOSTAT AND A HIGH TEMPERATURE CUTOFF. THE JACKET SHALL PROVIDE FULL SIZE CONTROL COMPARTMENTS FOR PERFORMANCE OF SERVICE AND MAINTENANCE THROUGH THE FRONT PANEL OPENINGS AND ENCLOSE THE TANK WITH POLYURETHANE FOAM INSULATION. INSTALL TEMPERATURE/PRESSURE RELIEF VALVE, PROVIDED WITH UNIT. THE DISCHARGE SHALL BE PIPED TO THE SAFE PAN WITH MIN. 2" AIR GAP. HEATER SHALL HAVE A THREE YEAR WARRANTY AS OUTLINED IN WRITTEN WARRANTY. | LAV-1: WALL HUNG LAVATORY - ADA TYPE CRANE ADA WALL MOUNTED LAVATORY #1-165 VITREOUS CHINA, SELF RIMMING WITH AM STD 150010 CENTERSET 6000E6X FAUCET WITH 118ST BLADES, WITH FIGURE 455 GRID DRAIN, BRASSCRAFT RM12A SUPPLIES WITH STOPS, DEARBORN CHROME PLATED P-TRAP # 100-1, TRUEBRO LAV-GUARD TRAP WRAP. |
| DW-1: DISHWASHER DISHWASHER BY KITCHEN EQ. CONTRACTOR | MB-1 MOP BASIN FIAT MEB-24X24, 24X24" MOLDED STONNE MOP BASIN FAUCET WITH VB AND MOP HOOK, 56 RM GUARDS GRID DRAIN, BRASSCRAFT RM12A SUPPLIES WITH STOPS, |
| FD-1: FLOOR DRAIN. MATTS FD-100A, 3" WITH NICKEL BRONZE STRAINER. | SK-123: SINKS SINKS BY KITCHEN EQUIPMENT CONTRACTOR |
| FS-1: FLOOR SINK FLOOR SINK - JOSAM MODEL 44312-3-31 - WITH HALF GRATE AND ALUMINUM SEDIMENT BUCKET. BODY SHALL BE CAST IRON WITH ACID RESISTANT INTERIOR AND NON-TRAFFIC TOP, 2" DISCHARGE. | UR-1: URINAL - ADA TYPE AMERICAN STANDARD CADET WITH PHOTOELECTRIC FLUSH VALVE. VITREOUS CHINA, WALL SPD BRASS CRAFT RM12A SUPPLY WITH STOP. |
| FCO-1: FLOOR CLEANOUT FLOOR CLEANOUT, MATTS CO-200-R FLOOR CLEANOUT WITH ROUND NICKEL BRASS TOP. | WC-1: WATER CLOSET - NON ADA TYPE WC-1: WATER CLOSET - ADA TYPE AMERICAN STANDARD CADET TANK TYPE VITREOUS CHINA ELONGATED BOWL WITH BOWL TANK, BATHMASTER BT521 OPEN FRONT SEAT, BRASS CRAFT RM12A SUPPLY WITH STOP. |
| GD-1: GARBAGE DISPOSER GARBAGE DISPOSER BY KITCHEN EQUIPMENT CONTRACTOR | |
| GT-1: GREASE TRAP GREASE TRAP - 1000 GAL PRECAST EXTERIOR FLUSH WITH SITE | |
| HD-1: HUB DRAIN FLOOR DRAIN WITH FUNNEL | |



9-1-22

SERVICE STATION AND
CONVENIENCE STORE

LEE SUMMIT, MO

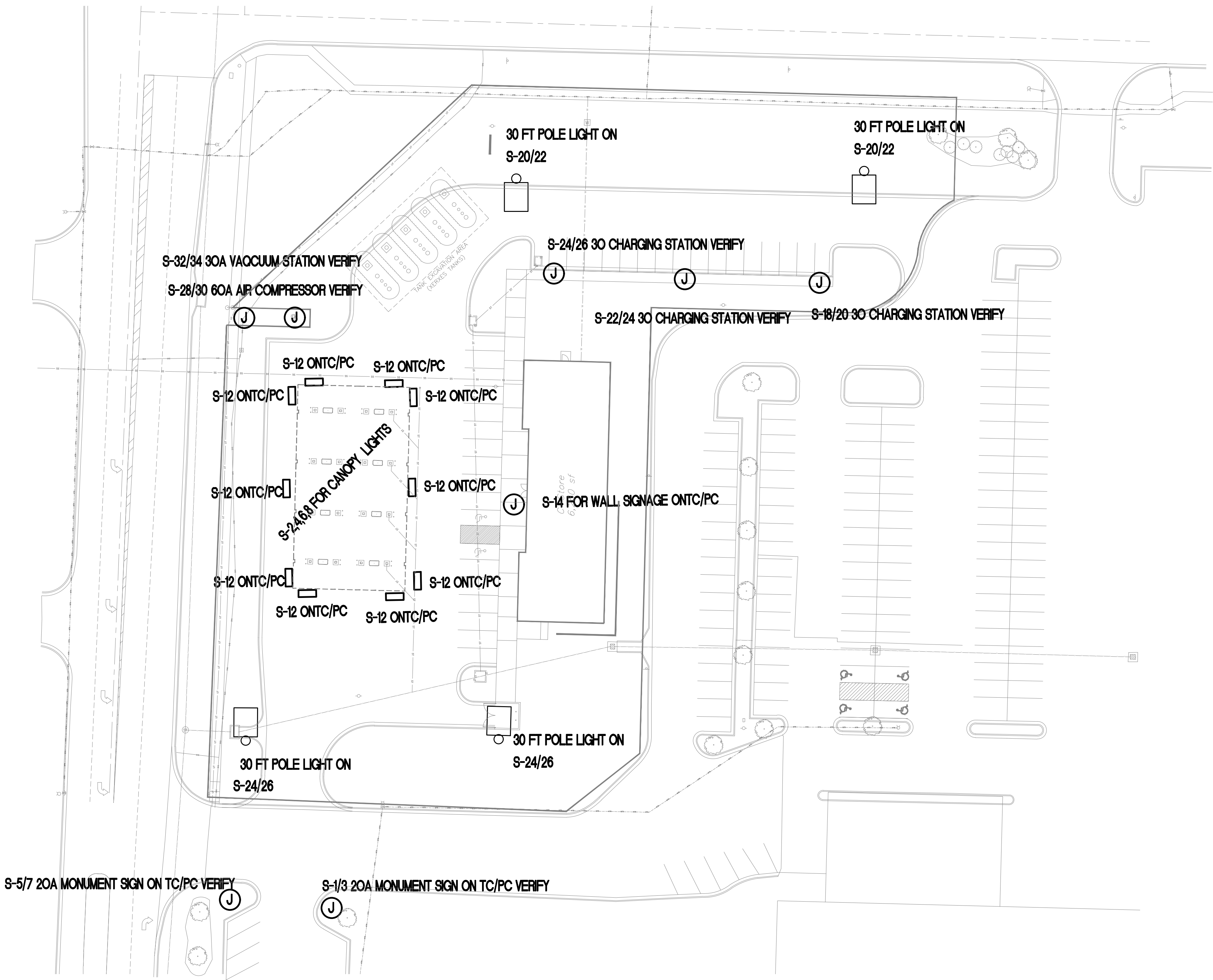
John C. Zekind, PE
CONSULTING ENGINEERS
1278 WHITE ROAD
CHESTERFIELD, MO, 63017
314-878-2290

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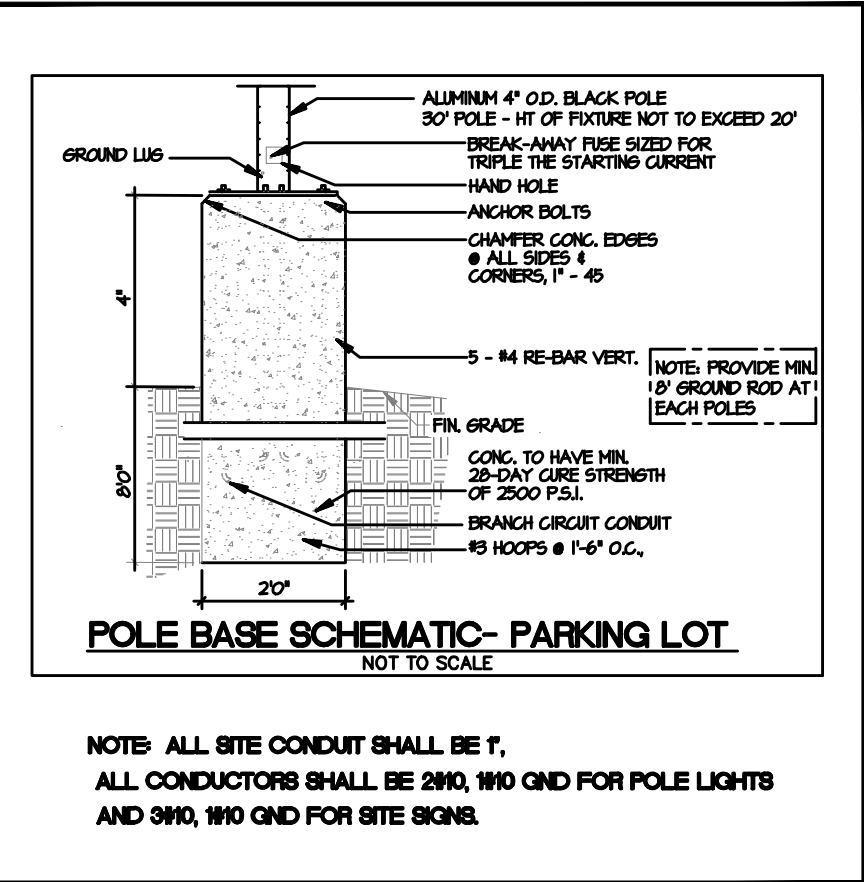
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P-4

REMOVE EXISTING POLES AND LIGHTS AND TERMINATE AT EXISTING SITE PANEL



| LUMINAIRE SCHEDULE | | | | | | | | | |
|--------------------|-------|-----|---------------------------------|---|------|-----------------------------------|---------------|-----|-------|
| Symbol | Label | Qty | Catalog Number | Description | Lamp | File | Lumens | LLF | Watts |
| | | | CSX2 LED 4 3000K 400K MVOLT SR3 | CSX2 WITH 4 LIGHT ENGINES, 530mA DRIVERS, 400K LED'S, TYPE III OPTICS, SCALED FROM L1L209T1 | LED | CSX2_LED_4_3000K_400K_MVOLT_SR3.1 | Absolute 1.00 | 222 | |



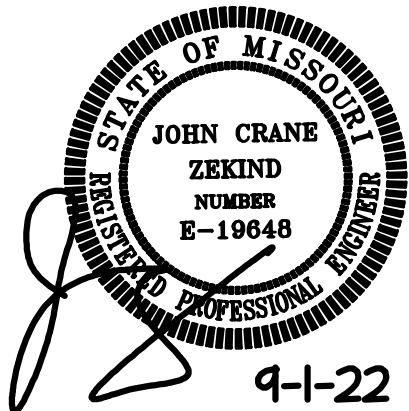
PROVIDE 2 CCTS S-19/21
FOR EXTERIOR PYLON SIGNS

PROVIDE 1-1" C WITH PULL WIRE FOR COMM. FOR EACH PUMP
AND 1-1" C WITH PULL WIRE FOR TANK

PROVIDE 3 CIRCUITS FOR CANOPY LIGHTS ON TC AND PANEL S
PROVIDE 1 CIRCUITS FOR DIESEL CANOPY LIGHTS ON TC AND PANEL S

PROVIDE 1 CIRCUIT FOR EACH PUMP TO PANEL G FOR POWER
PROVIDE 1 CIRCUIT FOR EACH PUMP TO PANEL G FOR COMM.

SITE LIGHTING PLAN, - SCALE 1" = 32'



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Sheet Number:

SL-1