



ORCHARD VIEW SCHOOL DISTRICT
MIDDLE SCHOOL KITCHEN
RENOVATIONS
35 S SHERIDAN DR
MUSKEGON, MI 49442

1/31/2023

PROJECT CONTACT LIST

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DRAWING INDEX

00 - GENERAL	
G000	COVER SHEET
G001	CODE COMPLIANCE & LIFE SAFETY PLANS
03 - STRUCTURAL	
S001	STRUCTURAL GENERAL NOTES
S101	STRUCTURAL PLANS
S201	STRUCTURAL DETAILS
04 - ARCHITECTURAL	
A001	GENERAL NOTES AND LEGENDS
A002	GENERAL REQUIREMENTS
AD101	FIRST FLOOR AND CEILING DEMOLITION PLANS
A101	FIRST FLOOR AND CEILING PLANS
A103	ROOF PLAN
A141	FIRST FLOOR FINISH PLAN
A321	WALL SECTIONS AND DOOR DETAILS
05 - MECHANICAL	
M001	GENERAL MECHANICAL INFORMATION
M101	MECHANICAL PLANS
06 - PLUMBING	
P001	GENERAL PLUMBING INFORMATION
P101	PLUMBING PLANS
08 - ELECTRICAL	
E001	LEGEND
E002	SPECIFICATIONS
ED101	FIRST FLOOR PLAN - AREA A - ELECTRICAL DEMOLITION
E101	FIRST FLOOR PLAN - AREA A - POWER
E201	FIRST FLOOR PLAN - AREA A - LIGHTING
E501	ENLARGED KITCHEN PLANS - POWER
E601	ONE-LINE DIAGRAM
E801	SCHEDULES
11 - FOOD SERVICE (REFERENCE ONLY)	
FSE-1	FOOD SERVICE EXISTING CONDITIONS FLOOR PLAN
FSE-2	FOOD SERVICE EQUIPMENT FLOOR PLAN
FSE-3	FOOD SERVICE EQUIPMENT FLOOR PLAN
FSE-4	FOOD SERVICE ELECTRICAL FLOOR PLAN
FSE-5	FOOD SERVICE PLUMBING FLOOR PLAN
FSE-6	FOOD SERVICE REFRIGERATION FLOOR PLAN
FSE-7	FOOD SERVICE EQUIPMENT DETAILS

DATE	DESCRIPTION
1/24/2023	OWNER REVIEW
1/31/2023	BIDS

PROJECT LOCATION MAP



1/31/2023 9:41:04 AM

DRAWING NUMBER

G000

BUILDING CODE SUMMARY

PROJECT INFORMATION:			
PROJECT NAME:	MIDDLE SCHOOL KITCHEN RENOVATIONS		
PROJECT NUMBER:	016633.00		
PREPARED BY:	E POST	CHECKED BY:	D HOLTROP
DATE:	12/14/2022	DATE:	1/24/2023

OCCUPANCY CLASSIFICATION AND MIXED OCCUPANCIES: (CHAPTERS 3 & 5)			
<input type="checkbox"/> SINGLE	<input type="checkbox"/> ACCESSORY - GROUP	% OF FLOOR AREA	
<input checked="" type="checkbox"/> MIXED OCCUPANCY	<input type="checkbox"/> SEPARATED	<input checked="" type="checkbox"/> NON-SEPARATED	<input type="checkbox"/> COMBINATION
IF SEPARATED, FIRE RESISTANCE RATING OF FIRE BARRIER: (TABLE 508.4) _____ HR.			
OCCUPANCY CLASSIFICATION(S): E, A-2			
USES: E - EDUCATIONAL, A-2 - ASSEMBLY			

AUTOMATIC SPRINKLER SYSTEM PROVIDED THROUGHOUT BUILDING:			
<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO		
PARTIAL/LIMITED-AREA SPRINKLER SYSTEM:			
<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO		
NFPA STANDARD: <input type="checkbox"/> 13 <input type="checkbox"/> 13R ALT. FIRE PROTECTION SYSTEM:			

MEANS OF EGRESS: (CHAPTER 10)			
MEANS OF EGRESS ELEMENT	REQUIRED	PROVIDED	SECTION
EXIT ACCESS TRAVEL DISTANCE	200'	PER PLANS	(TABLE 1017.2)
DEAD-END LIMIT	20'	N/A	(1020.4)
COMMON PATH OF TRAVEL LIMIT	75'		(1006.2.1)

CONSTRUCTION SAFETY COMPLIANCE WITH:	
<input checked="" type="checkbox"/>	CHAPTER 33 SAFE GUARDS DURING CONSTRUCTION OF THE IBC
<input checked="" type="checkbox"/>	CHAPTER 33 FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION OF THE IFC

INTERIOR FINISH: (CHAPTER 8)			
WALL AND CEILING			
OCCUPANCY: A-2			
FINISH CLASS	LOCATION		
<input checked="" type="checkbox"/> A	<input checked="" type="checkbox"/> EXITS	<input checked="" type="checkbox"/> CORRIDORS/ EXIT ACCESS	<input type="checkbox"/> ROOMS/ SPACES
<input type="checkbox"/> B	<input type="checkbox"/> EXITS	<input type="checkbox"/> CORRIDORS/ EXIT ACCESS	<input checked="" type="checkbox"/> ROOMS/ SPACES
<input type="checkbox"/> C	<input type="checkbox"/> EXITS	<input type="checkbox"/> CORRIDORS/ EXIT ACCESS	<input type="checkbox"/> ROOMS/ SPACES

FLOORING	
FINISH CLASS	OCCUPANCIES
<input type="checkbox"/> I	<input type="checkbox"/> ALL <input type="checkbox"/> GROUPS:
<input checked="" type="checkbox"/> II	<input checked="" type="checkbox"/> ALL <input type="checkbox"/> GROUPS:
<input type="checkbox"/> DOC FF-1	<input type="checkbox"/> ALL <input type="checkbox"/> GROUPS:

REHABILITATION OF EXISTING STRUCTURES:	
PER THE 2015 MICHIGAN RAHABILITATION CODE FOR EXISTING BUILDINGS (2015 EIBC)	
<input type="checkbox"/>	REPAIRS (CHAPTER 6)
<input type="checkbox"/>	ALTERATIONS - LEVEL 1 (CHAPTER 7)
<input checked="" type="checkbox"/>	ALTERATIONS - LEVEL 2 (CHAPTER 8)
<input type="checkbox"/>	ALTERATIONS - LEVEL 3 (CHAPTER 9)
<input type="checkbox"/>	CHANGE OF OCCUPANCY (CHAPTER 10)
FORMER OCCUPANCY CLASSIFICATION(S):	
NEW OCCUPANCY CLASSIFICATION(S):	
PARTIAL CHANGE OF OCCUPANCY: <input type="checkbox"/> YES <input type="checkbox"/> NO	
IF YES: <input type="checkbox"/> SEPARATED <input type="checkbox"/> NOT SEPARATED	
<input type="checkbox"/>	ADDITIONS (CHAPTER 11)
SEPARATED ADDITION: <input type="checkbox"/> YES <input type="checkbox"/> NO	
IF YES, FIRE RESISTANCE RATING:	
<input type="checkbox"/>	FIRE WALL _____ HR.
<input type="checkbox"/>	FIRE BARRIER _____ HR.
<input type="checkbox"/>	HISTORIC BUILDING (CHAPTER 12)
<input type="checkbox"/>	RELOCATED BUILDING (CHAPTER 13)
<input type="checkbox"/> ACCESSIBILITY UPGRADES: COMPLY WITH SECTION 410 AND ADDENDA	

PROJECT SCOPE

INTERIOR RENOVATIONS IN MIDDLE SCHOOL KITCHEN AND CAFETERIA, FOCUSING ON THE EXPANSION OF THE EXISTING KITCHEN SERVING AREA INTO THE CAFETERIA. THERE WILL BE NEW EQUIPMENT, CEILING, AND FLOORING IN THE NEW SERVING AREA, INCLUDING DEMOLITION AND ADDITION OF WALLS AND DOORS. NEW ROOF TOP UNITS WILL BE ADDED TO PROVIDE AIR CONDITIONING IN THE KITCHEN AND SERVING AREAS.

APPLICABLE BUILDING CODES

BUILDING CODE: 2015 MICHIGAN BUILDING CODE
2015 MICHIGAN REHABILITATION CODE
BUILDING CODE (MI FIRE SAFETY STATE RULES): NFPA 11-2012
MECHANICAL CODE: 2015 MICHIGAN MECHANICAL CODE
ELECTRICAL CODE: 2015 NATIONAL ELECTRICAL CODE & MICHIGAN PART 8 ELECTRICAL RULES
PLUMBING CODE: 2018 MICHIGAN PLUMBING CODE
ENERGY CODE: 2015 MICHIGAN ENERGY CODE
ACCESSIBILITY: BARRIER FREE - ICC / ANSI-117

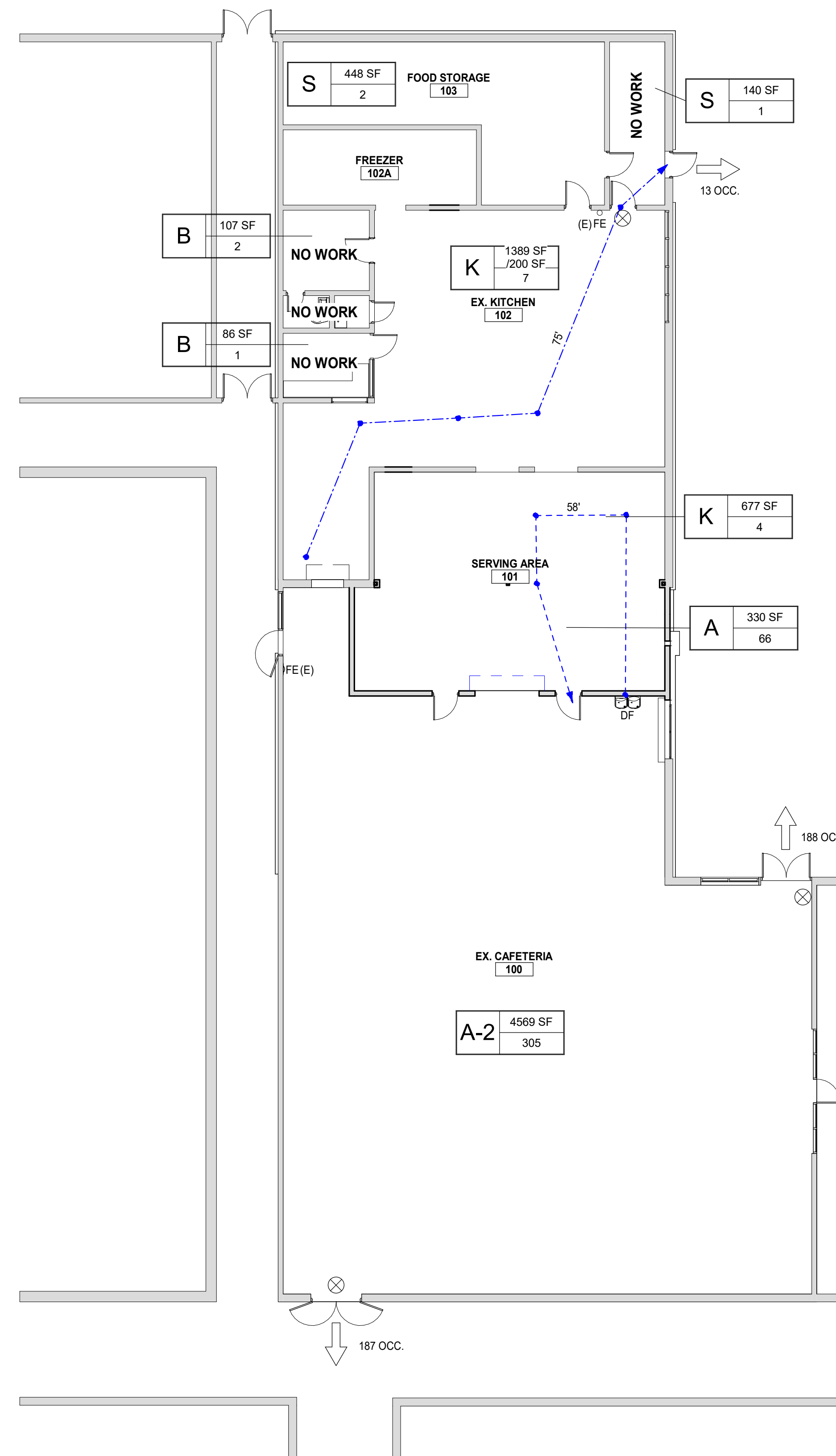
BUILDING DATA

TOTAL BUILDING AREA: 119,367 SQ/FT
TOTAL RENOVATION AREA: 7,240 SQ/FT

CONSTRUCTION TYPE = II B (NON-COMBUSTIBLE) N.S.

USE AND OCCUPANCY

BUILDING IS CLASSIFIED AS EDUCATIONAL "E"

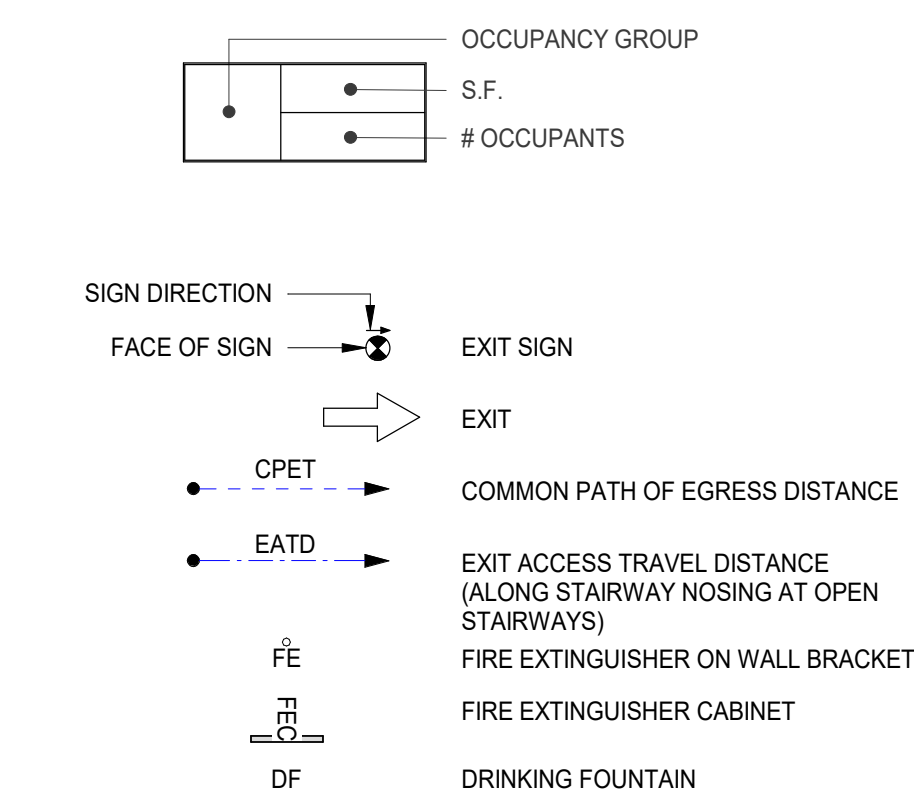


1 CODE COMPLIANCE DIAGRAM - FIRST FLOOR
SCALE: 3/32" = 1'-0"

GENERAL NOTES

- APPLICABLE CODES:
 - WORK SHALL CONFORM TO CURRENT EDITION:
 - 2015 MICHIGAN BUILDING CODE (MBC)
 - 2015 MICHIGAN MECHANICAL CODE (MMC)
 - 2018 MICHIGAN PLUMBING CODE (MPC)
 - 2017 NATIONAL ELECTRICAL CODE (NEC) & MICHIGAN PART 8 ELECTRICAL RULES
 - 2015 MICHIGAN ENERGY CODE
 - 2015 MICHIGAN REHABILITATION CODE
 - 2015 INTERNATIONAL FIRE CODE
 - 2012 NFPA 101 LIFE SAFETY CODE
 - ICC/ANSI A117.1-2009 ACCESSIBILITY AND USABLE BUILDINGS AND FACILITIES
 AS WELL AS WITH OTHER LOCAL, STATE, AND FEDERAL CODES AND REGULATIONS APPLICABLE TO THIS PROJECT.
- COMPLIANCE:
 - PROVIDE FIRE EXTINGUISHERS IN CONFORMANCE WITH THE INTERNATIONAL FIRE CODE SECTION 908 AND COORDINATE WITH FIRE MARSHAL PRIOR TO INSTALLATION. DO NOT INSTALL FIRE EXTINGUISHERS UNTIL LOCATIONS HAVE BEEN REVIEWED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION.
 - OBTAIN ALL REQUIRED PERMITS AND PAYMENT OF PERMIT AND APPLICATION FEES FOR THE WORK.
- CERTIFICATIONS:
 - THE ARCHITECT'S CERTIFICATION IS ONLY FOR THE WORK SHOWN TO BE DONE. IT DOES NOT CONSTITUTE APPROVAL OF PRE-EXISTING CONDITIONS OR REVIEW OF THOSE CONDITIONS FOR CODE COMPLIANCE.
 - THE ARCHITECT'S CERTIFICATION IS FOR COMPLIANCE WITH THE BUILDING CODE OF MICHIGAN AND ITS VARIOUS REFERENCE STANDARDS. FOR PURPOSES OF OBTAINING A BUILDING PERMIT THROUGH THE AUTHORITY HAVING JURISDICTION AND TO CONVEY CONSTRUCTION REQUIREMENTS FOR THE PROJECT. CERTIFICATION DOES NOT GUARANTEE COMPLIANCE WITH LOCAL CODES THAT MAY APPLY.

LEGEND

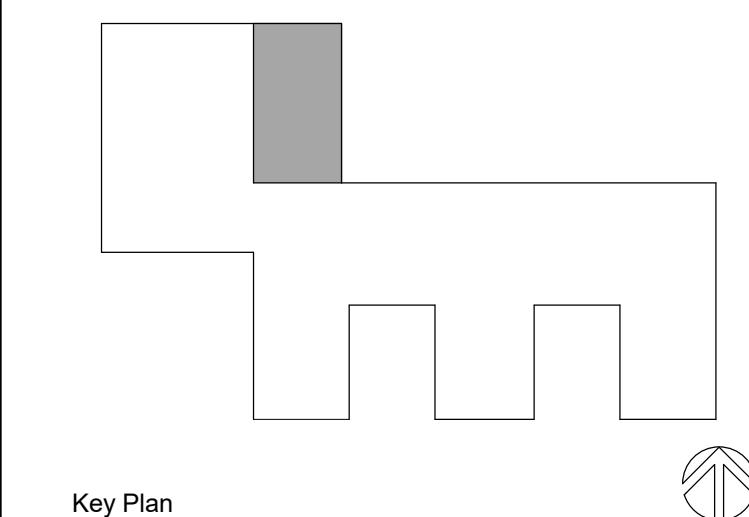


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MIDDLE SCHOOL KITCHEN RENOVATIONS

35 S SHERIDAN DR
MUSKEGON, MI 49442

Date Revised	Description
1-24-2023	OWNER REVIEW
1-31-2023	BIDS



Key Plan

Project Manager	Discipline Lead
D HOLTROP	B HUYLER
Designer	Reviewer
E POST	
Date Issued	Project Number
1/31/2023	016633.00

Sheet Name

CODE COMPLIANCE & LIFE
SAFETY PLANS

Drawing Number

G001

STRUCTURAL GENERAL NOTES

GENERAL:

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE GOVERNING LOCAL MUNICIPAL CODES AND SPECIFICATIONS (INCLUDING SUPPLEMENTS) FOR THIS TYPE OF CONSTRUCTION. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING CODES AND REFERENCED STANDARDS LISTED BELOW.
- THE STRUCTURAL DRAWINGS ARE INTENDED TO BE USED IN CONJUNCTION WITH THE ARCHITECTURAL DRAWINGS AND ALL OTHER APPLICABLE DISCIPLINE DRAWINGS. ANY CONFLICT BETWEEN NOTES, DETAILS, AND SPECIFICATIONS, THE MOST RIGID REQUIREMENTS SHALL GOVERN.
- THE CONTRACTOR SHALL NOT MAKE DEVIATIONS FROM THE DESIGN DOCUMENTS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER OF RECORD (EOR), CHANGES BY THE CONTRACTOR, DUE TO CONTRACTOR PROPOSED ALTERNATIVES OR TO CORRECT CONTRACTOR ERRORS/OMISSIONS, MUST BE SUBMITTED TO THE EOR FOR APPROVAL. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCLUDING ENGINEERING FEES FOR REVIEW, OBSERVATIONS, STRUCTURAL CALCULATIONS, AND REVISIONS. THE CONTRACTOR SHALL ALSO PROCESS THE REVISED PLANS REFLECTING ALL SUBSTITUTIONS THROUGH THE APPROPRIATE OFFICE OF ALL GOVERNING AGENCIES.
- THE STRUCTURE IS DESIGNED AS SELF SUPPORTING AFTER THE BUILDING IS FULLY COMPLETED. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION METHODS, PROCEDURES AND SEQUENCES, UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS. TEMPORARY BRACING, SHEETING, SHORING/ETC., TO ENSURE THE STRUCTURAL STABILITY OF THE NEW STRUCTURE, EXISTING STRUCTURES, SIDEWALKS, AND UTILITIES, IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE LOCAL JURISDICTION. LOADS GREATER THAN THE INDICATED DESIGN LIVE LOADS SHALL NOT BE PLACED ON THE STRUCTURE. ALL CONSTRUCTION PROCESSES SHALL MEET ALL APPLICABLE OSHA REQUIREMENTS.
- CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE ENGINEER FREE AND HARMLESS OF ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THE PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER.
- ALL SECTIONS AND DETAILS, WHETHER EXPLICITLY CUT ON PLAN OR NOT, SHALL BE CONSIDERED TYPICAL AND SHALL APPLY AT SIMILAR CONDITIONS. SIGNIFICANT ADJUSTMENTS ACCOUNTING FOR VARYING CONDITIONS IN THE FIELD SHOULD BE SUBMITTED TO EOR FOR APPROVAL AND BE RESOLVED PRIOR TO BEGINNING WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK AND COORDINATION INVOLVED TO PROVIDE OPENINGS, CHASES, EQUIPMENT PADS, HANGERS, INSERTS, SLEEVES, ETC. INDICATED ON ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. OPENINGS SHOWN ON THE STRUCTURAL DRAWINGS SHALL NOT BE REVISED WITHOUT APPROVAL FROM THE EOR.
- REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS AND INFORMATION NOT SHOWN. WORKING DIMENSIONS SHALL NOT BE SCALED FROM STRUCTURAL PLANS, SECTIONS, OR DETAILS. ANY REFERENCE TO WATERPROOFING AND FIREPROOFING ON THE STRUCTURAL DRAWINGS ARE FOR REFERENCE ONLY. SEE ARCHITECTURAL DRAWINGS FOR SPECIFIC REQUIREMENTS.
- CONTRACTOR SHALL VISIT THE SITE AND VERIFY EXISTING CONDITIONS AND UTILITIES PRIOR TO STARTING ANY CONSTRUCTION. STRUCTURAL MEMBER INFORMATION INDICATED AS EXISTING (EXST.) ON DRAWINGS WAS OBTAINED DURING LIMITED FIELD OBSERVATIONS AND/OR FROM LIMITED DRAWINGS IF AVAILABLE. ACTUAL CONDITIONS MAY DIFFER FROM THAT WHICH IS INDICATED ON PLAN. IF FIELD CONDITIONS VARY FROM THOSE SHOWN ON CONTRACT DOCUMENTS, THE CONTRACTOR IS TO CONTACT THE ARCHITECT IMMEDIATELY. ALL FIELD DIMENSIONS ARE TO BE VERIFIED AND NOTED AS SUCH ON SHOP DRAWING PRIOR TO FABRICATION OF ANY NEW STRUCTURAL MEMBERS.
- THESE DRAWINGS DO NOT DEFINE THE ENTIRE SCOPE OF THE CONTRACTOR OR SUBCONTRACTOR CONTRACTS. REFER TO ALL APPLICABLE ARCHITECTURAL, STRUCTURAL, AND OTHER DISCIPLINE DRAWINGS AS REQUIRED.

STRUCTURAL DESIGN CRITERIA

- GOVERNING CODES**
 - BUILDING CODE 2015 INTERNATIONAL BUILDING CODE ASCE 7-10
 - GENERAL DESIGN LOADS ACI 318-14
 - CONCRETE AISC 360-10 & AISC 341-10
 - STEEL FRAMING AISI S100-12
 - COLD-FORMED STEEL FRAMING TMS 402-2013
- RISK CATEGORY** II
- DEAD LOADS**
 - ROOF
 - FIBER BOARD DECK 1 PSF
 - 2" BULB TEE WITH GYP 25 PSF
 - ACOUSTICAL GYP CEILING 10 PSF
 - MEP 5 PSF
 - MISCELLANEOUS 4 PSF
 - TOTAL ROOF DEAD LOAD 45 PSF + STEEL FRAMING
 - LIVE LOADS
 - ROOF 20 PSF
 - SLAB-ON-GROUND 100 PSF
- SNOW LOADS**
 - GROUND SNOW LOAD, P_g 60 PSF
 - FLAT ROOF SNOW LOAD, P_f 42 PSF
 - EXPOSURE FACTOR, C_e 1.0
 - THERMAL FACTOR, C_t 1.0
 - IMPORTANCE FACTOR, I_s 1.0
 - SLOPE FACTOR, C_s 1.0
- WIND LOADS**
 - WIND VELOCITY, V_{ult} 115 MPH
 - EXPOSURE CATEGORY C
 - ENCLOSURE CLASSIFICATION ENCLOSED
- SEISMIC DESIGN DATA**
 - SEISMIC DESIGN CATEGORY B
 - SEISMIC IMPORTANCE FACTOR 1
 - SEISMIC SITE CLASS (SOILS) D
- SEISMIC RESISTING SYSTEM**
 - BEARING WALL SYSTEMS
 - ORDINARY REINFORCED MASONRY SHEAR WALLS
 - RESPONSE MODIFICATION FACTOR 2.0
 - DEFLECTION AMPLIFICATION FACTOR 1.8
 - EARTHQUAKE SPECTRAL RESPONSE
 - ACCELERATION AT SHORT PERIODS $S_s = 0.066$
 - EARTHQUAKE SPECTRAL RESPONSE
 - ACCELERATION, PERIOD = 1 SECOND $S_1 = 0.042$
 - DESIGN 5% DAMPED, SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS $S_{DS} = 0.07$
 - DESIGN 5% DAMPED, SPECTRAL RESPONSE ACCELERATION, PERIOD = 1 SECOND $S_{D1} = 0.067$
 $V = 0.035W$
 - SEISMIC BASE SHEAR
 - ANALYSIS PROCEDURE EQUIVALENT LATERAL FORCE PROCEDURE

FOUNDATION:

- AGOTECHNICAL REPORT HAS NOT BEEN PROVIDED FOR THIS SITE.** THE CONTRACTOR, THROUGH THE CLIENT, IS RESPONSIBLE FOR OBTAINING A GEOTECHNICAL REPORT TO CONFIRM THE PRESUMPTIVE SOIL CONDITIONS IN ACCORDANCE WITH THE LOCAL MUNICIPAL OFFICIAL BERGMANN ASSOCIATES ASSUMES NO LIABILITY FOR THESE DESIGN ASSUMPTIONS OR FOR ANY FOUNDATION REDESIGN NECESSITATED BY DIFFERING SOIL CONDITIONS.
- FOUNDATION SYSTEM - CONCRETE WALLS, SLABS-ON-GRADE AND SPREAD FOOTINGS.
- FOUNDATION UNITS SHALL BE CENTERED UNDER SUPPORTED STRUCTURAL MEMBERS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- PLACE BACKFILL AND FILL MATERIALS IN HORIZONTAL LAYERS NOT MORE THAN 8" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 6" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS.
- ALL FOUNDATION ELEMENTS ARE TO BE PLACED ON UNDISTURBED APPROVED NATIVE SOIL OR ON 1'-0" MINIMUM APPROVED COMPACTED STRUCTURAL FILL. STRUCTURAL FILL SHALL EXTEND 1'-0" MINIMUM BEYOND THE FOUNDATION ELEMENT AND THEN DOWNWARD TO NATURAL SOILS AT A SLOPE OF 2 HORIZ. TO 1 VERT.
- BACKFILL AND FILL MATERIALS SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY ACCORDING TO THE MODIFIED PROCTOR TEST (ASTM D-1557).
- EACH PRIME CONTRACTOR SHALL PROVIDE ALL TRENCHING WORK REQUIRED FOR ITS CONTRACT, INCLUDING TRENCH EXCAVATION AND BACKFILL WITH ACCEPTABLE FILL TO WITHIN 1'-0" OF FINISH GRADE/FLOOR. ALL TRENCHING WORK WITHIN THE BUILDING FOOTPRINT SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. GENERAL CONTRACTOR MUST ACCEPT, IN WRITING, THE QUALITY OF THE TRENCH BACKFILL OF OTHER PRIME CONTRACTORS BEFORE BEGINNING WORK OVER THE TOP OF THE TRENCH.
- EXCAVATION AND BACKFILL OPERATIONS SHALL BE MAINTAINED IN A DRY CONDITION. SURFACE AND INFILTRATING WATER SHALL BE REMOVED BY SITE GRADING AND PUMPING FROM SUMPAS AS REQUIRED.
- NO FOUNDATION CONCRETE SHALL BE PLACED IN WATER OR ON FROZEN SUBGRADE MATERIAL.
- PROTECT IN-PLACE FOUNDATIONS AND SLABS FROM FROST PENETRATION UNTIL THE PROJECT IS COMPLETE AND READY FOR OCCUPANCY.
- THE CONTRACTOR IS RESPONSIBLE FOR EXCAVATION SAFETY. EXCAVATIONS MUST BE PERFORMED IN ACCORDANCE WITH THE CURRENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS.
- PROVIDE TEMPORARY OR PERMANENT SUPPORTS WHETHER SHORING, SHEETING OR BRACING SO THAT NO HORIZONTAL SETTLEMENT OR VERTICAL SETTLEMENT OCCURS TO EXISTING STRUCTURES, STREETS OR UTILITIES ADJACENT TO THE PROJECT SITE.

CAST-IN-PLACE CONCRETE:

- CAST-IN-PLACE CONCRETE WORK SHALL CONFORM TO THE ACI-318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
- ALL CONCRETE SHALL BE CONTROLLED CONCRETE, PROPORTIONED, MIXED AND PLACED IN THE PRESENCE OF A REPRESENTATIVE OF AN APPROVED TESTING AGENCY.
- PRIOR TO PLACEMENT OF CONCRETE, A FIELD REPRESENTATIVE SHALL BE INFORMED A MINIMUM OF 24 HOURS IN ADVANCE OF PLACEMENT TO ALLOW FOR THE PLACEMENT OF REINFORCING STEEL, AND PREPARATION FOR PLACING CONCRETE. INDEPENDENT TESTING IS REQUIRED FOR ALL CONCRETE PLACEMENTS. CONCRETE TO BE SAMPLED IN ACCORDANCE WITH ACI 318 AND APPLICABLE ASTM TESTING PROCEDURES. QUANTITY OF SPECIMENS, FREQUENCY OF SAMPLING AND CYLINDER COMPRESSION TESTING SCHEDULE TO BE DETERMINED BY ACI 318, OWNERS REQUIREMENTS, AND / OR LOCAL JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT.
- UNLESS NOTED OTHERWISE, STRUCTURAL CONCRETE SHALL HAVE THE FOLLOWING STRENGTH, AND DURABILITY REQUIREMENTS:

TYPE FOOTINGS/PIERS	EXPOSURE CLASS				AIR CONTENT 1.0% - 3.0%	MIN 28 DAY COMP STRENGTH 4000 PSI
	F	S	W	C		
	F0	S1	W0	C1		

- UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL BE NORMAL WEIGHT CONCRETE (144 PCF +/-) WITH ALL CEMENT CONFORMING TO ASTM C150, TYPE I/II. MAXIMUM AGGREGATE SIZE SHALL BE 1-1/2" FOR FOOTINGS.
- CONTRACTOR SHALL SUBMIT A CONCRETE MIX DESIGN IN ACCORDANCE WITH ACI 318 FOR EACH TYPE OF CONCRETE APPLICABLE TO THE PROJECT PRIOR TO THE PLACEMENT OF CONCRETE FOR APPROVAL. THE ADDITION OF WATER AT THE PLANT OR IN THE FIELD GREATER THAN THE SPECIFIED WATER CONTENT IS PROHIBITED. ADMIXTURE PRODUCT DATA SHALL BE SUBMITTED FOR APPROVAL.
- THE USE OF HIGH EARLY STRENGTH CONCRETE MAY BE REQUESTED BY THE CONTRACTOR. MIX DESIGN DATA USING FIELD CURED SPECIMENS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL. ALL FORMWORK TO BE CONSTRUCTED IN ACCORDANCE WITH ACI 307 "GUIDE TO FORMWORK FOR CONCRETE" WITHIN TOLERANCE LIMITS DEFINED IN ACI-117 "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS."
- CONCRETE FOR FOOTINGS IS TO BE POURED ON THE SAME DAY AS THE SUBGRADE PREPARATION IS APPROVED BY THE INDEPENDENT INSPECTION AGENCY / GEOTECHNICAL ENGINEER.
- CONCRETE SHALL NOT BE POURED OVER STANDING WATER, SATURATED OR FROZEN SOILS.
- ANY CUTTING/CORING OF CONCRETE IS PROHIBITED UNLESS APPROVED BY THE EOR.
- THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM THE FOLLOWING IMMEDIATELY AFTER PLACEMENT:
 - PREMATURE DRYING
 - HOT WEATHER, REFER TO ACI-308R "HOT WEATHER CONCRETING"
 - COLD WEATHER / FREEZING, REFER TO ACI-308R "COLD WEATHER CONCRETING"

CONCRETE REINFORCEMENT:

- DETAILING, FABRICATION, AND INSTALLATION OF REINFORCEMENT SHALL CONFORM TO ACI-318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND THE MOST RECENT ADDITIONS OF SP-48 "ACI DETAILING MANUAL" AND THE CRSI "MANUAL OF STANDARD PRACTICE".
- STEEL REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL CONFORM TO THE FOLLOWING: BARS, TIES, AND STIRRUPS ASTM A615 GRADE 60 (MIN. YIELD STRESS $F_y = 60$ KSI).
- CONTRACTOR SHALL SUBMIT REBAR SHOP DRAWINGS FOR APPROVAL. PROVIDE AND SCHEDULE ON SHOP DRAWINGS THE NECESSARY ACCESSORIES TO HOLD REINFORCEMENT SECURELY IN POSITION. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS, STIRRUPS, OR CHAIRS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS.
- MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL BE AS FOLLOWS:
 - UNFORMED SURFACES CAST AGAINST AND PERMANENTLY IN CONTACT WITH EARTH 3.0"
 - FORMED SURFACES IN CONTACT WITH EARTH OR EXPOSED TO WEATHER #6 THROUGH #18 BARS 2.0"
 - FORMED SURFACES IN CONTACT WITH EARTH OR EXPOSED TO WEATHER #5 BARS OR SMALLER WHERE REINFORCEMENT IS NOT SHOWN ON DRAWINGS PROVIDE REINFORCEMENT IN ACCORDANCE WITH APPLICABLE CODES. BOLTED CONNECTIONS ARE SHEAR-BEARING CONNECTIONS AND SHALL BE LESS THAN THE MINIMUM REINFORCEMENT PERMITTED BY THE APPLICABLE CODES.
- REINFORCEMENT SHALL NOT BE TACK WELDED.
- INSTALLATION OF REINFORCEMENT SHALL BE COMPLETED AND A FIELD REPRESENTATIVE SHALL BE INFORMED A MINIMUM OF 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT, TO ALLOW FOR INSPECTION OF THE REINFORCING STEEL.

POST INSTALLED ANCHORS

- ALL POST INSTALLED AND SPECIALTY ANCHORS, INSTALLATION, AND INSPECTIONS SHALL BE IN ACCORDANCE WITH ALL GOVERNING LOCAL MUNICIPAL REGULATIONS, ACI 318, IBC CH 17, RELEVANT ICC-ESR REPORTS AND ALL ANCHORS SHALL BE PREQUALIFIED PER ACI 308 TESTING.
- ALL POST INSTALLED ANCHORS (IN CONCRETE) ARE TO BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTION (MPI) AS INCLUDED IN THE ANCHOR PACKAGING AND THE APPLICABLE ICC-ESR REPORT INCLUDING, BUT NOT LIMITED TO, DRILL BIT TYPE AND SIZE, PROPER CLEANING AND HOLE PREPARATION, INSTALLATION TORQUE, EMBEDMENT DEPTHS, CONCRETE TEMPERATURE RANGES, CONCRETE AGE, MOISTURE CONDITION, ETC.
- ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY HILTI OR SUCH OTHER METHOD AS APPROVED BY THE EOR. SUBSTITUTION REQUEST FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE EOR PRIOR TO USE. THE CONTRACTOR SHALL PROVIDE SIGNED AND SEALED CALCULATIONS, FROM A PROFESSIONAL ENGINEER REGISTERED IN THE LOCAL JURISDICTION, DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS.
- ALL ANCHORS SHALL MEET THE MINIMUM EMBEDMENT, SPACING, EDGE DISTANCES AND SIDE THICKNESS CRITERIA ESTABLISHED BY THE RELEVANT ICC-ESR REPORT. THE ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO THE EDGE OF CONCRETE OR MASONRY SURFACE.
- EXCEPT WHERE INDICATED ON THE DRAWINGS, THE FOLLOWING POST-INSTALLED ANCHORS ARE APPROVED AS PROVIDED BY HILTI, INC. SUBSTITUTION OF THESE ANCHORS AND/OR USE OF ANY OTHER SPECIALTY ANCHORS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL.
 - ADHESIVE ANCHORING - CRACKED AND UNCRACKED CONCRETE
 - HILTI HIT-HY 200 SAFE SET SYSTEM WITH HAS-E ROD, HIT-Z ROD, OR REBAR PER ICC ESR-3187
 - HILTI HIT-HY 500 V3 SAFE SET SYSTEM WITH HAS-E ROD, HIT-Z ROD, OR REBAR PER ICC ESR-3814
- ALL ANCHORS TO BE INSTALLED USING EPOXY SHALL BE DRILLED AND CLEANED WITH THE PROPER EQUIPMENT AND PROCEDURES AS INDICATED IN THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPI).
- EPOXY CARTRIDGES SHALL UTILIZE THE CORRECT MIXING NOZZLE AS SUPPLIED BY THE MANUFACTURER. THE CONTRACTOR SHALL NOT RE-USE, MODIFY (CUT) OR REMOVE THE MIXING INSERT FROM THE MIXING NOZZLE.
- REINFORCING BARS IN THE CONCRETE OR MASONRY MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS INDICATED ON THE STRUCTURAL DRAWINGS. UNLESS NOTED OTHERWISE, THE REINFORCING BARS MAY NOT BE CUT. THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS.

CONCRETE MASONRY:

- DESIGN OF CONCRETE UNIT MASONRY SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF TMS 402 "BUILDING CODE FOR MASONRY STRUCTURES".
- CONSTRUCTION OF CONCRETE UNIT MASONRY SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF TMS 602 "SPECIFICATION FOR MASONRY STRUCTURES".
- ALL REINFORCED CONCRETE MASONRY UNIT SYSTEMS SHALL BE INSPECTED IN ACCORDANCE WITH THE SPECIAL INSPECTION SCHEDULE PROVIDED.
- CONCRETE MASONRY UNITS SHALL CONFORM TO C90 AND SHALL BE **NORMAL WEIGHT UNITS**.
- COMPRESSIVE STRENGTH OF MASONRY SHALL BE DETERMINED BY THE UNIT STRENGTH METHOD AS SET FORTH IN TMS 602. THE NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY SHALL (f_m) SHALL BE 2000 PSI AT 28 DAYS.
- MORTAR SHALL COMPLY WITH ASTM C270. MORTAR FOR CMU IN EXTERIOR BUILDING WALLS, BEARING WALLS, SHEAR WALLS AND MASONRY IN CONTACT WITH THE EARTH SHALL BE PORTLAND CEMENT/LIME MIX, TYPE M OR S. TYPE N MORTAR MAY BE USED FOR ALL OTHER APPLICATIONS.
- MORTAR SHALL COMPLY WITH ASTM C476. THIS MIX SHALL CONTAIN NO ADMIXTURES. GROUT SHALL BE MIXED TO A SLUMP OF 8 TO 11 INCHES AS DETERMINED BY TEST METHOD C143. ALL GROUT SHALL BE FINE GROUT. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF GROUT SHALL EQUAL OR EXCEED f_m . THE COMPRESSIVE STRENGTH OF GROUT SHALL BE DETERMINED IN ACCORDANCE WITH ASTM C1019.
- STEEL REINFORCING BARS SHALL COMPLY WITH ASTM A615 GRADE 60. SHOP FABRICATE REINFORCING BARS WHICH ARE SHOWN TO BE BENT OR HOOKED.
- ALL BOND BEAMS, REINFORCED CELLS, AND CELLS WITH EXPANSION BOLTS, EMBED PLATES, OR OTHER ANCHORS, AND ALL CELLS BELOW GRADE SHALL BE GROUTED SOLID. GROUT PROCEDURE SHALL COMPLY WITH TMS 602.
- WIRE JOINT REINFORCEMENT, TIES AND ANCHORS SHALL COMPLY WITH ASTM A82. SHEET STEEL TIES AND ANCHORS SHALL COMPLY WITH ASTM A366. ALL MASONRY ACCESSORIES SHALL BE CORROSION RESISTANT.
- SUBMIT SHOP DRAWINGS INDICATING SIZE, LOCATION, AND DIMENSIONS OF REINFORCING STEEL FOR ALL REINFORCED MASONRY WALLS.
- PROVIDE REINFORCING STEEL DOVELS OF THE SAME SIZE AND SPACING AS THE VERTICAL REINFORCING FROM THE SUPPORTING STRUCTURE. DOVELS SHALL HAVE STANDARD HOOKS IN ACCORDANCE WITH ACI 318.
- REINFORCED CONCRETE MASONRY WALLS SHALL HAVE HORIZONTAL JOINT REINFORCING SPACED AT 16" OC AND IN TWO JOINTS IMMEDIATELY ABOVE AND BELOW ALL OPENINGS, EXTENDING A MINIMUM OF 2 FEET BEYOND THE JAMB ON EACH SIDE OF THE OPENINGS. IN ADDITION TO THE REINFORCING SHOWN ON THE DETAIL DRAWINGS, ALL REINFORCING INCLUDING BOND BEAMS SHALL BREAK AT CONTROL JOINTS, EXCEPT THE TOP MOST BOND BEAM WHICH SHALL BE CONTINUOUS IN EVERY WALL. USE LOW LIFT GROUTING TECHNIQUE. PLACE GROUT IN LIFTS UP TO FOUR FEET. CONSOLIDATE GROUT AT THE TIME OF PLACEMENT. POURS UP TO 12" MAY BE CONSOLIDATED BY PUDDLING. POURS OVER 12" SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION.
- REMOVE GROUT OR MORTAR ON FACE OF MASONRY IMMEDIATELY. KEEP CAVITIES FREE FROM MORTAR DROPPINGS.
- PROTECT MASONRY FROM FREEZING WHEN AIR TEMPERATURE IS 40 DEGREES F AND FALLING. REFER TO TMS 602 FOR COLD WEATHER CONSTRUCTION REQUIREMENTS.
- PROTECT MASONRY FROM EXCESSIVE HEAT WHEN AIR TEMPERATURE IS 100°F AND RISING. REFER TO TMS 602 FOR HOT WEATHER CONSTRUCTION REQUIREMENTS.
- PROVIDE PLASTIC BAR POSITIONING DEVICES FOR ALL VERTICAL MASONRY REINFORCING BARS, TO ASSURE THAT BARS ARE FIRMLY HELD IN POSITION IN THE MIDDLE OF BLOCK CELLS. SPACE AT A MAXIMUM OF 4'-0" OC VERTICAL.
- PROVIDE VERTICAL REINFORCING BARS AS INDICATED ON DRAWINGS, AND 1-#6 VERT IN FULLY GROUTED CELLS WITHIN 16" OF AN OPENING OR CORNER, AT ALL CORNERS, DOOR JAMBS AND OTHER OPENINGS. EXTEND REINFORCING AT JAMBS AND OPENINGS A MINIMUM OF 3'-0" PAST TOP OF OPENING.
- PROVIDE CONTROL JOINTS IN CMU WALLS AS SHOWN ON PLAN.
- LAP ALL REINFORCING BARS AS FOLLOWS:

BAR SIZE	LAP LENGTH FOR 8" CMU WITH REINFORCEMENT CENTERED		
	2000 PSI	2500 PSI	3000 PSI
4	13"	12"	12"
5	20"	18"	16"
6	38"	34"	31"
7	52"	47"	42"
8	79"	71"	65"
9	103"	92"	84"

STRUCTURAL STEEL:

- STRUCTURAL STEEL SHALL CONFORM TO AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", AND SHALL COMPLY WITH ALL LOCAL LAWS AND ORDINANCES. WHERE CONFLICTING REQUIREMENTS OCCUR, THE MORE STRINGENT SHALL APPLY.
- PROVIDE NEW MATERIAL CONFORMING TO THE FOLLOWING REQUIREMENTS FOR ALL STRUCTURAL STEEL:
 - SHAPES: ASTM A992 - **GRADE 50**
 - PLATES, ANGLES, CHANNELS: **ASTM A36**
 - ANCHOR RODS: ASTM F1554, **GRADE 36**
 - WELDING ELECTRODE: E70XX
- A QUALITY CONTROL PROGRAM OF SHOP AND FIELD TESTING AND INSPECTION SHALL BE PERFORMED ON STRUCTURAL STEEL FABRICATION, ERECTION, AND CONNECTIONS IN ACCORDANCE WITH THE SPECIFICATIONS, SCHEDULE WORK AND PROVIDE ACCESS TO ALLOW THE TESTING REQUIREMENTS TO BE COMPLETED.
- PERFORM ALL WELDING USING CERTIFIED WELDERS AND IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE - STEEL" COMPLY WITH AISC SPECIFICATION SECTION J2 FOR MINIMUM FILLET WELD SIZE, BUT DO NOT USE LESS THAN A 3/16 INCH FILLET UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
- SUBMIT ENGINEERED AND CHECKED SHOP DRAWINGS TO THE ARCHITECT/ENGINEER FOR REVIEW, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF MICHIGAN.** SHOW SHOP FABRICATION DETAILS, FIELD ASSEMBLY DETAILS, AND ERECTION DIAGRAMS FOR ALL STRUCTURAL STEEL. SCHEDULE SUBMISSIONS TO ALLOW 10 WORKING DAYS FOR ENGINEER'S REVIEW PRIOR TO FABRICATION.
- DESIGN AND DETAILING OF THE CONNECTIONS IS THE RESPONSIBILITY OF THE FABRICATOR.** USE RATIONAL ENGINEERING DESIGN AND STANDARD PRACTICE FOR THE CRITERIA SET FORTH IN THE CONTRACT DOCUMENTS. THE DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL AND DO NOT INDICATE THE REQUIRED WELD SIZES OR NUMBER OF BOLTS UNLESS SPECIFICALLY NOTED.
- SHOP CONNECTIONS TO BE 3/4" BOLTED OR WELDED. FIELD CONNECTIONS TO BE HIGH STRENGTH BOLTED OR WELDED. BOLTED CONNECTIONS ARE SHEAR-BEARING CONNECTIONS AND SHALL BE INSTALLED TO THE SNGHTIGHT CONDITION (REFERENCE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS).
- FABRICATE ALL BEAMS WITH THE NATURAL CAMBER UP. PROVIDE ANY ADDITIONAL CAMBER SHOWN ON THE STRUCTURAL DRAWINGS.
- DO NOT FIELD CUT ANY STRUCTURAL STEEL WITHOUT THE PRIOR REVIEW AND ACCEPTANCE OF THE ARCHITECT/ENGINEER. CLEARLY INDICATE ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW ANY MEMBER OPENINGS REQUIRED BY OTHER TRADES.
- ERECTION PROCEDURES, SEQUENCES AND COORDINATION OF WORK WITH OTHER TRADES IS THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE ANY ADDITIONAL STEEL REQUIRED FOR ERECTION PURPOSES AT NO COST TO THE OWNER. REMOVE THIS ADDITIONAL STEEL UNLESS DIRECTED OTHERWISE BY THE ARCHITECT IN WRITING.
- PROVIDE TEMPORARY BRACING AND SHORING AS REQUIRED FOR THE SAFETY, STABILITY AND ALIGNMENT OF THE STRUCTURE.** LEAVE TEMPORARY BRACING IN PLACE FOR AS LONG AS NECESSARY. PERFORM FINAL BOLTING AND WELDING ONLY ON THOSE PORTIONS OF THE STRUCTURE THAT HAVE BEEN ALIGNED AND PLUMBED WITHIN THE SPECIFIED TOLERANCES.
- AFTER FABRICATION, CLEAN STEEL OF ALL RUST, LOOSE MILL SCALE, DIRT, OIL, GREASE OR OTHER FOREIGN MATERIALS.
- STRUCTURAL STEEL CONTRACTOR SHALL VERIFY ALL ROOF OPENINGS AS TO SIZE AND LOCATION WITH HVAC AND PLUMBING CONTRACTOR BEFORE FABRICATION OF SUPPORT FRAMES.**
- ALL STEEL SHALL RECEIVE ONE COAT OF PRIMER, UNLESS NOTED OTHERWISE. ALL STEEL EXPOSED TO VIEW IN THE FINISHED WORK SHALL RECEIVE ONE COAT OF PRIMER AND TWO COATS OF FINISH PAINT.
- STEEL ITEMS INDICATED TO BE GALVANIZED SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 OR ASTM A153, AS APPLICABLE. REPAIR DAMAGE AND WELD AREAS WITH ZINC RICH PAINT.
- STRUCTURAL STEEL IN CONTACT WITH SOIL, INCLUDING COLUMN BASES, ANCHOR RODS AND BASE PLATES, SHALL BE COATED WITH BITUMINOUS MASTIC.
- GRIND AND BLEND ALL WELD SEAMS FOR SEAMLESS FINISH.

SPECIAL INSPECTION SCHEDULE

	CONTINUOUS		PERIODIC
STEEL (MBC 1705.2)			
STRUCTURAL STEEL PER AISC 360 QUALITY ASSURANCE INSPECTION REQUIREMENTS			
STEEL DECK PER SDI QUALITY ASSURANCE INSPECTION REQUIREMENTS			
CONCRETE CONSTRUCTION (MBC TABLE 1705.3)			
INSPECTION OF REINFORCING STEEL			X
REINFORCING STEEL WELDING - SEE MBC TABLE 1705.3			X
CAST IN ANCHORS			X
POST INSTALLED ANCHORS, ADHESIVE UPWARD INCLINED	X		
POST INSTALLED ANCHORS, MECHANICAL AND OTHER ADHESIVE			X
VERIFY MIX DESIGN			X
SAMPLING, CYLINDERS, SLUMP, AIR, TEMPERATURE	X		
CURING TEMPERATURE, APPLICATION TECHNIQUES			X
FORMWORK SHAPE, LOCATION, DIMENSIONS			X
MASONRY (MBC 1705.4)			
PER TMS 402 AND TMS 602 QUALITY ASSURANCE PROGRAM			
REQUIREMENTS, LEVEL B QUALITY ASSURANCE (SEE BELOW)			

NOTES:

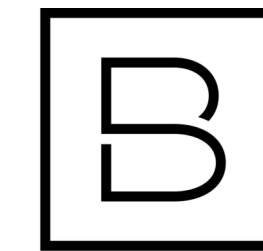
- INSPECTION AND TESTING SHALL BE PERFORMED BY AN INDEPENDENT INSPECTION AND TESTING AGENCY AT THE OWNER'S EXPENSE.
- ALL TESTING AND INSPECTIONS SHALL CONFORM TO CHAPTER 17 OF THE 2015 MICHIGAN BUILDING CODE (MBC)

MASONRY INSPECTIONS

VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE IN ACCORDANCE WITH ARTICLE 1.5B.1.b.3 FOR SELF-CONSOLIDATING GROUT
VERIFICATION OF f_m AND f_{m2} IN ACCORDANCE WITH ARTICLE 1.4B PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFICALLY EXEMPTED BY THE CODE

MINIMUM SPECIAL INSPECTION

INSPECTION TASK	FREQUENCY		REFERENCE	
	CONTINUOUS	PERIODIC	TMS 402	TMS 602
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS		X		ART. 1.5
2. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE: <ol style="list-style-type: none"> PROPORTIONS OF SITE-PREPARED MORTAR CONSTRUCTION OF MORTAR JOINTS GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES LOCATION OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES PRESTRESSING TECHNIQUE PROPERTIES OF THIN-BED MORTAR FOR AAC 		X		ART. 2.1, 2.6A ART. 3.3B ART. 2.4B, 2.4H ART. 3.4, 3.6A
3. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE: <ol style="list-style-type: none"> GROUT SPACE GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES PLACEMENT OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS CONSTRUCTION OF MORTAR JOINTS 		X	X	ART. 3.2D, 3.2F SEC. 6.1 ART. 2.4, 3.4
4. VERIFY DURING CONSTRUCTION: <ol style="list-style-type: none"> SIZE AND LOCATION OF STRUCTURAL ELEMENTS TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION WELDING OF REINFORCEMENT PPREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40 DEGREES) OR HOT WEATHER (TEMPERATURE ABOVE 90 DEGREES) APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IN COMPLIANCE PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS 		X		ART. 3.3F SEC. 1.2.1(e), 6.1.4.3, 6.2.1 SEC. 8.1.6.7.2, 9.3.3.4(c), 11.3.3.4(b) ART. 1.8C, 1.8D
5. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS		X		ART. 1.4B.2.a.3, 1.4B.2.b.3, 1.4B.2.c.3, 1.4B.3, 1.4B.4



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ORCHARD VIEW SCHOOL DISTRICT

MIDDLE SCHOOL KITCHEN RENOVATIONS

35 S SHERIDAN DR
MUSKEGON, MI 49442

Date Revised	Description
1-24-2023	OWNER REVIEW
1-31-2023	BIDS

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Date Issued	Project Number
1/31/2023	016633.00

Sheet Name	

Project Manager Discipline Lead
D HOLTROP K TENNES

Designer Reviewer
A ALSWATI R KEUNEKE

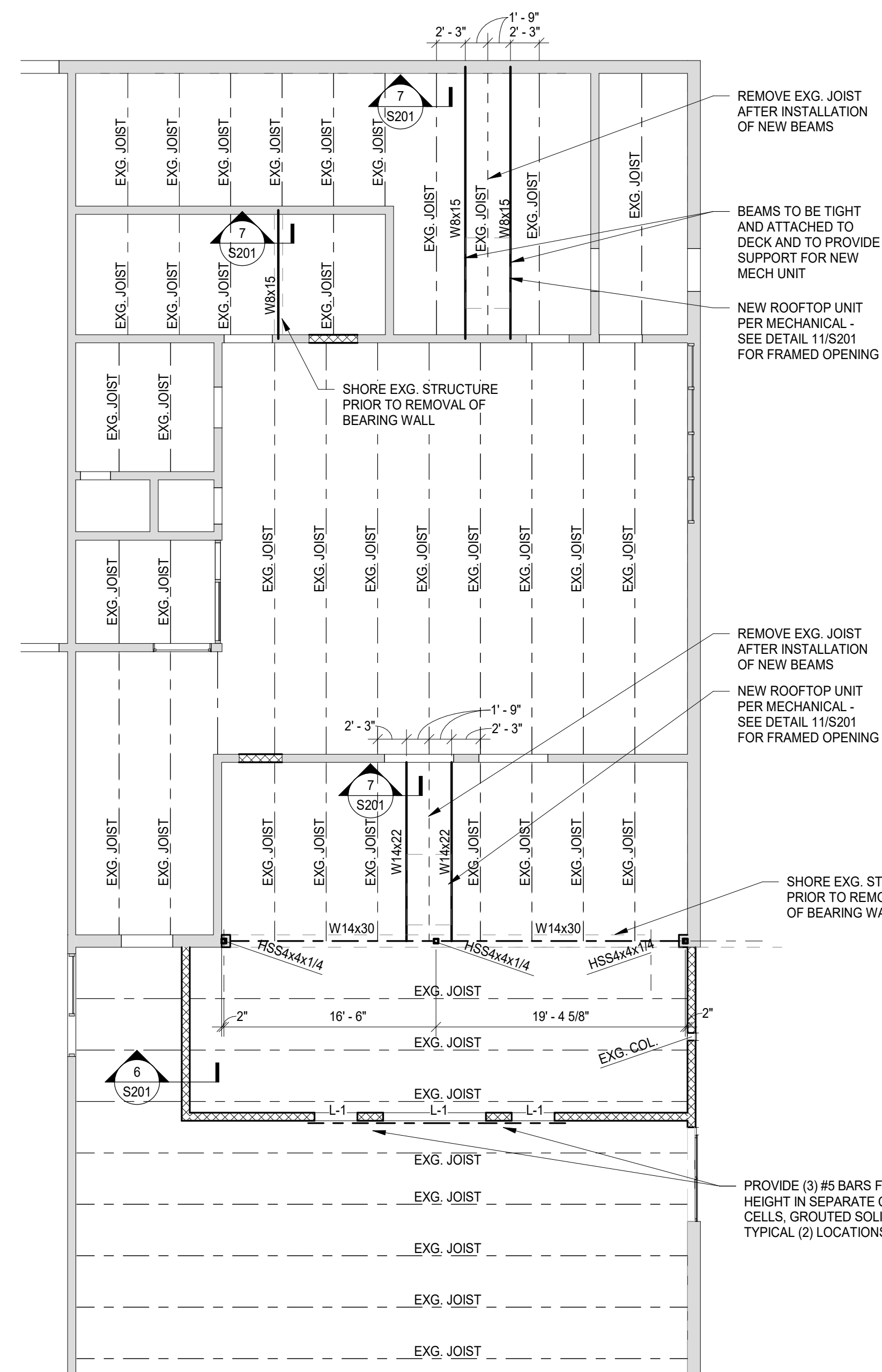
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STRUCTURAL GENERAL
NOTES

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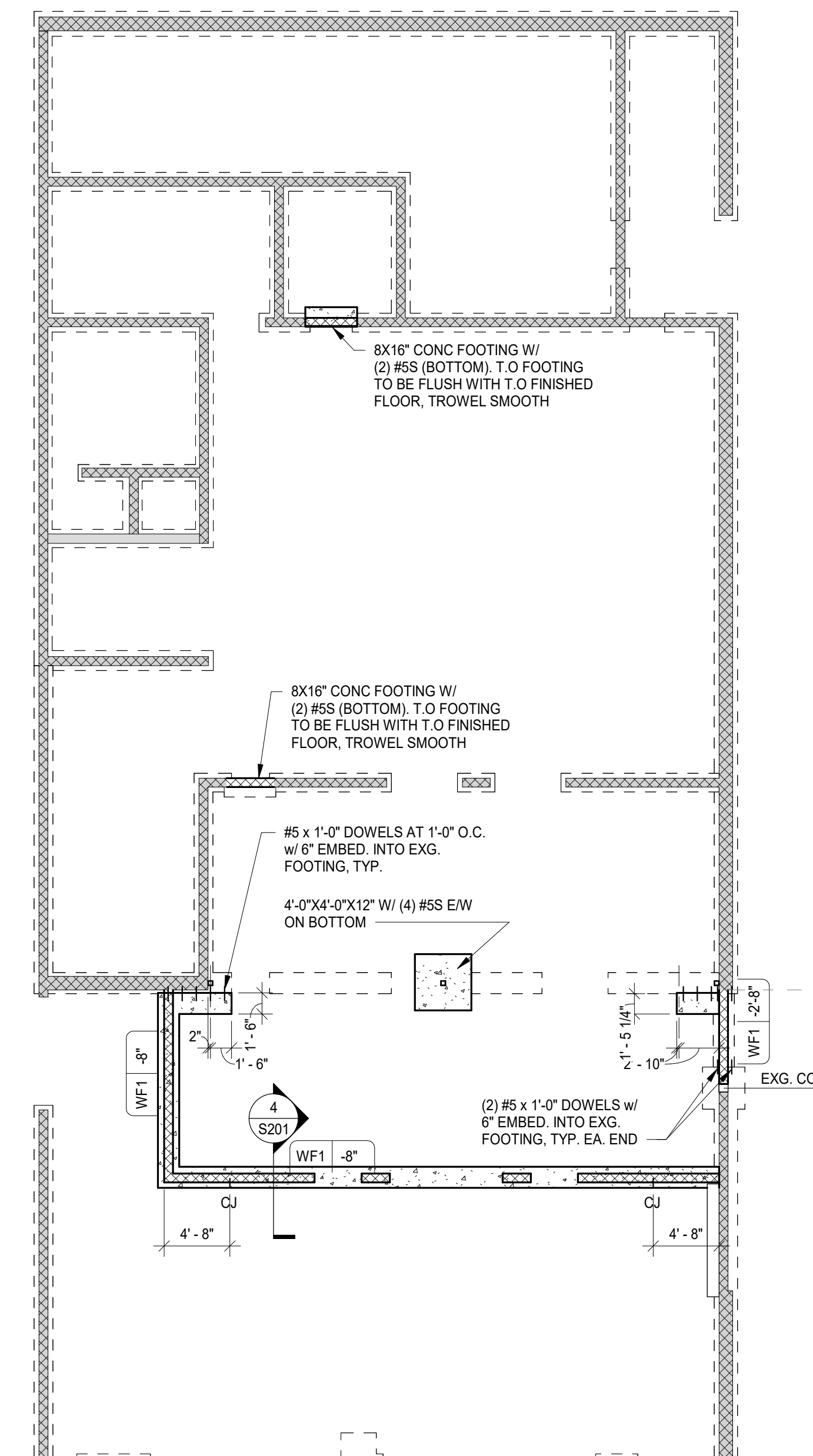
S001



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

STRUCTURAL FRAMING GENERAL NOTES:

- SEE DRAWING SHEET S201 FOR TYPICAL CONCRETE MASONRY (CMU) REINFORCING DETAILS.
- SEE DRAWING SHEET S201 FOR LINTEL SCHEDULE & DETAILS.
- UPON REMOVAL OF EXISTING JOISTS, FULLY GROUT ANY CMU WALL VOIDS LEFT BY REMOVED JOIST SEATS TO MAINTAIN DECK BEARING SURFACE, TYP.
- ALL FIELD CONNECTIONS TO BE BOLTED. NO WELDING CLOSE TO EXISTING WOOD FIBER DECKING.
- SEE FOUNDATION PLAN GENERAL NOTES FOR CONCRETE MASONRY (CMU) REINFORCING REQUIREMENTS.



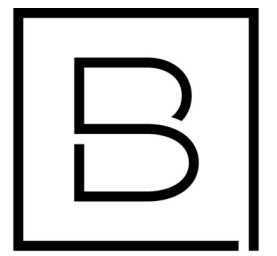
1 PARTIAL FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

FOUNDATION SCHEDULE

MARK	LENGTH	WIDTH	THICKNESS	REINFORCING
WF1	CONTINUOUS	1'-6"	1'-0"	(3) #5 REBARS (BOTTOM)

FOUNDATION PLAN GENERAL NOTES:

- TOP OF FOUNDATIONS ARE REFERENCED FROM FINISH FLOOR ELEVATION (+0'-0"). ALL TOP OF NEW FOOTINGS TO MATCH EXISTING ADJACENT FOOTINGS. FIELD VERIFY CONDITIONS.
- PATCH EXISTING SLAB w/ 4" CONCRETE w/ 6x6 - 1.4Wx1.4W WWF ON 10 MIL VAPOR RETARDER ON 4" (MINIMUM) COMPACTED STRUCTURAL FILL. SEE DETAIL 12, DRAWING SHEET S201 FOR ADDITIONAL INFORMATION.
- SAW CUT & REMOVE EXISTING SLAB AS REQUIRED FOR NEW FOOTING INSTALLATION. PATCH SLAB PER DETAIL 6/A112 WHERE FOOTINGS ARE INDICATED TO BE INSTALLED BELOW FINISHED FLOOR.
- FOR WALL FOOTING BOTTOM REINFORCEMENT, MAINTAIN MINIMUM 3" CLEAR CONCRETE PROTECTION (BOTTOM COVER & SIDE COVER).
- PROVIDE BASE PLATE AT NEW COLUMNS. SEE DETAILS 8 & 9, DRAWING SHEET S201.
- CONCRETE MASONRY (CMU) PARTITION WALLS REINFORCEMENT SHALL COMPLY WITH THE FOLLOWING:
 - #5 REBARS VERTICAL AT 4'-0" O.C.
 - AT JAMBS, WALL ENDS & CORNERS, PROVIDE ADDITIONAL MINIMUM (2) #5 BARS FULL HEIGHT. SOLID GROUT (2) CMU CELLS.
 - HORIZONTAL JOINT REINFORCEMENT AT 1'-4" O.C. VERTICALLY.
 - PROVIDE BOND BEAM IN TOP FULL COURSE WITH (2) #5 BARS CONT.



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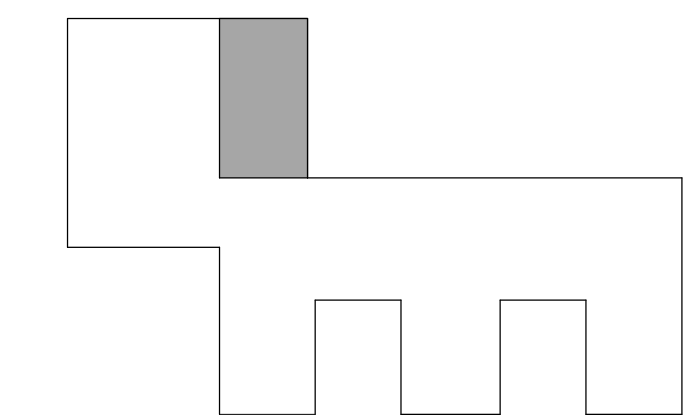
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Key Plan

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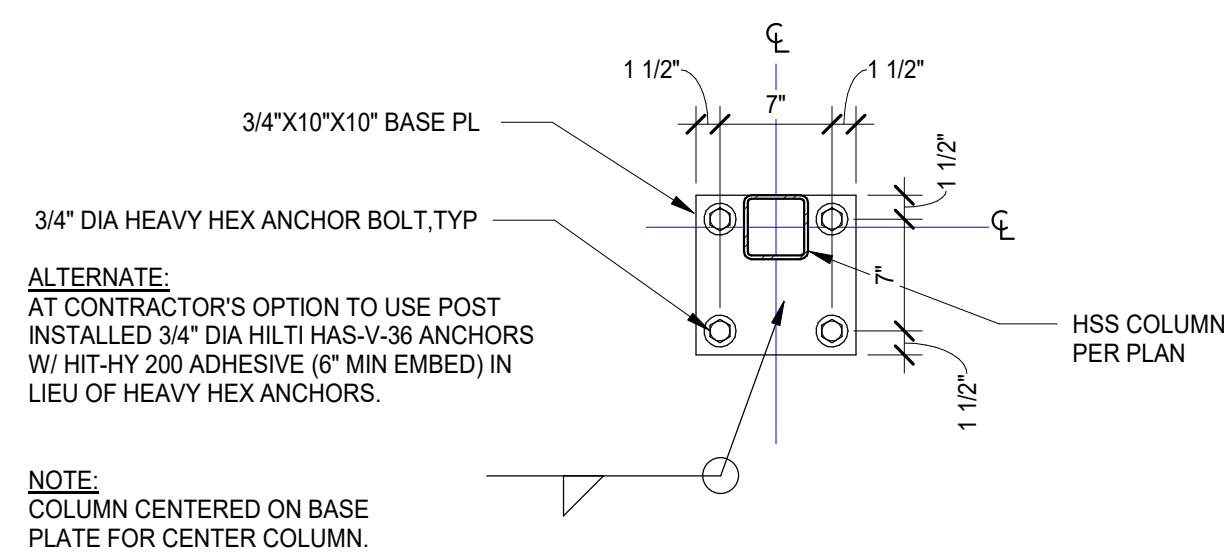
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Designer	Reviewer
R. KEUNEKE	R. KEUNEKE
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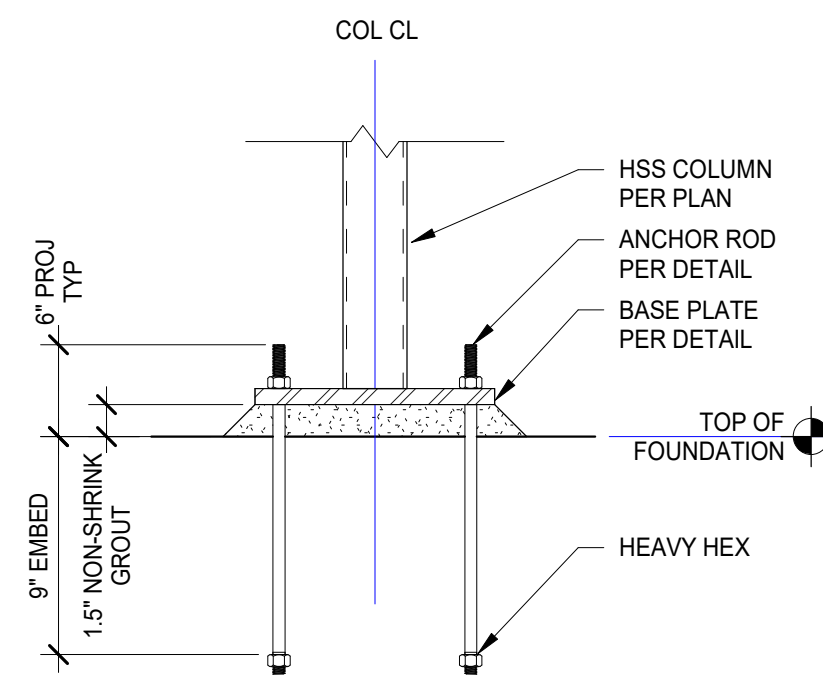
STRUCTURAL PLANS

Drawing Number

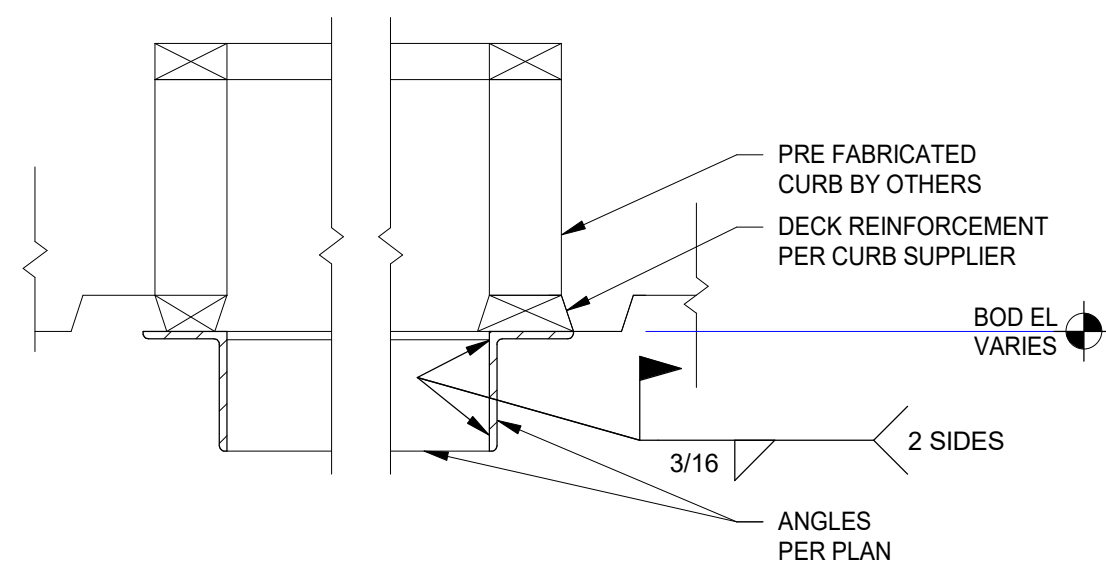
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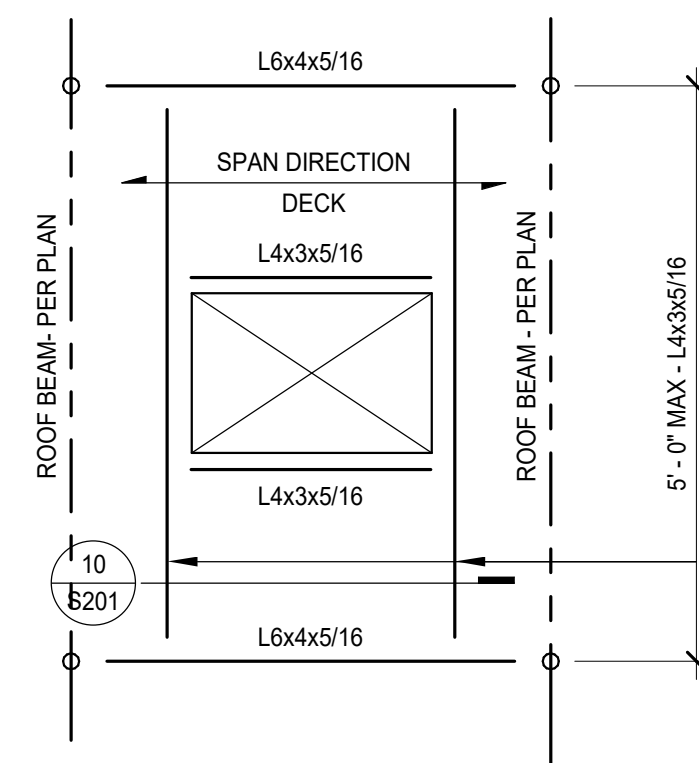
8 BASE PLATE - PLAN DETAIL
SCALE: 1" = 1'-0"



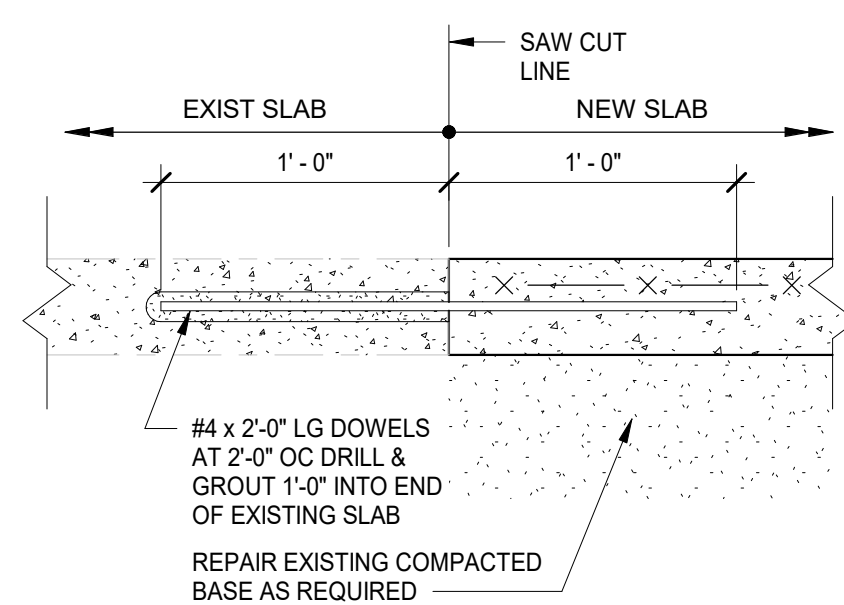
9 ANCHOR RODS
SCALE: 1" = 1'-0"



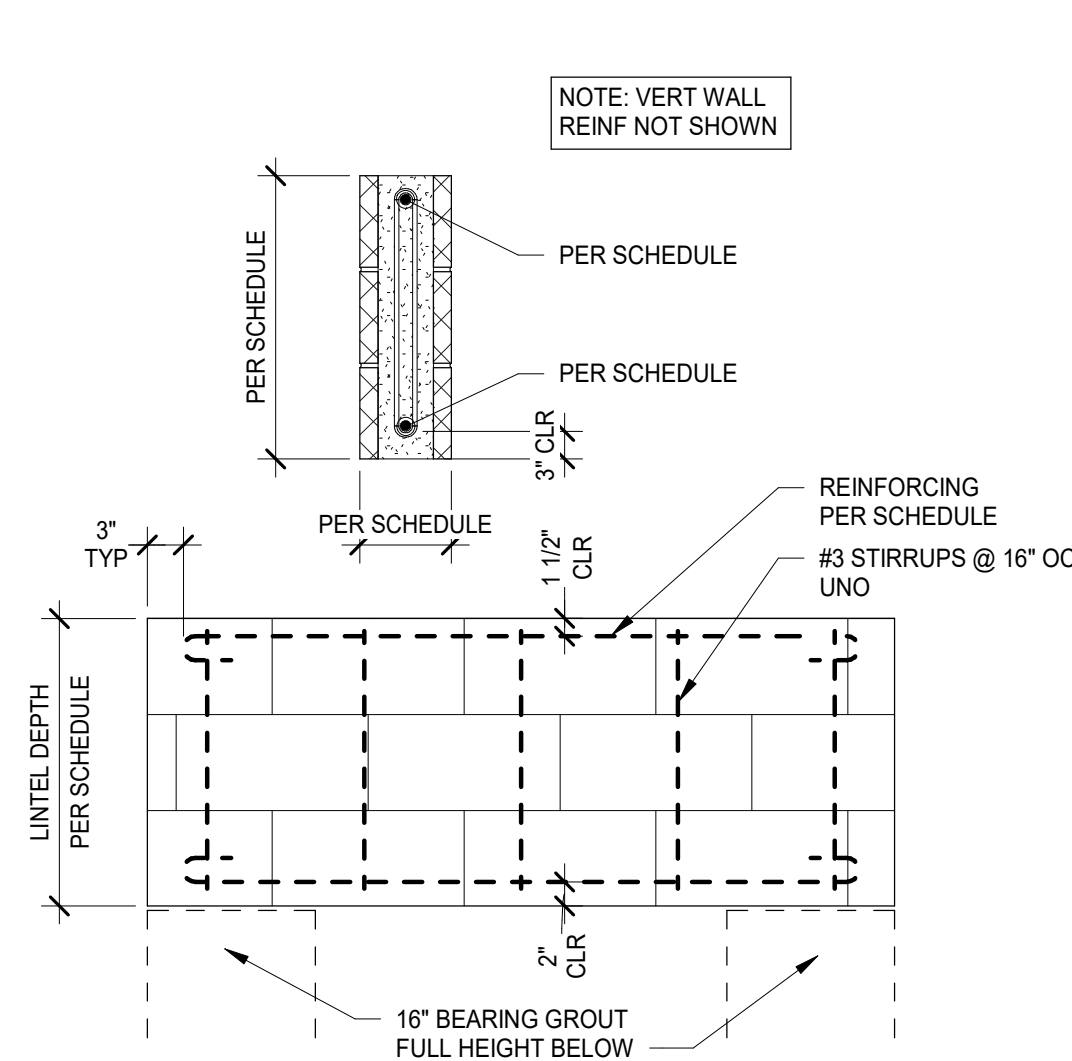
10 ROOF OPENING
SCALE: 3/4" = 1'-0"



11 TYP REINFORCING AT OPENING IN ROOF DECK
SCALE: 1/2" = 1'-0"



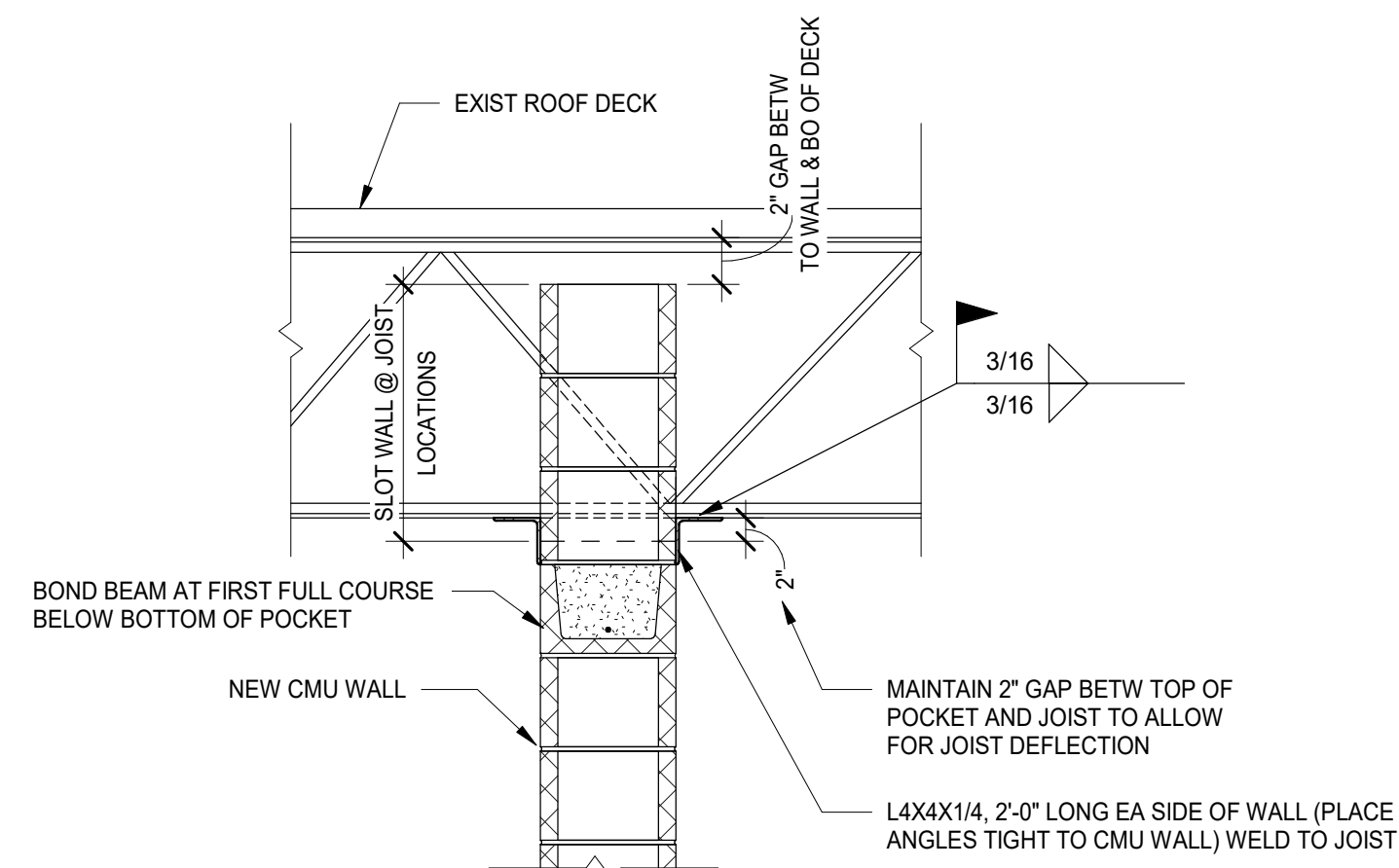
12 TYPICAL SLAB PATCH DETAIL
SCALE: 1 1/2" = 1'-0"



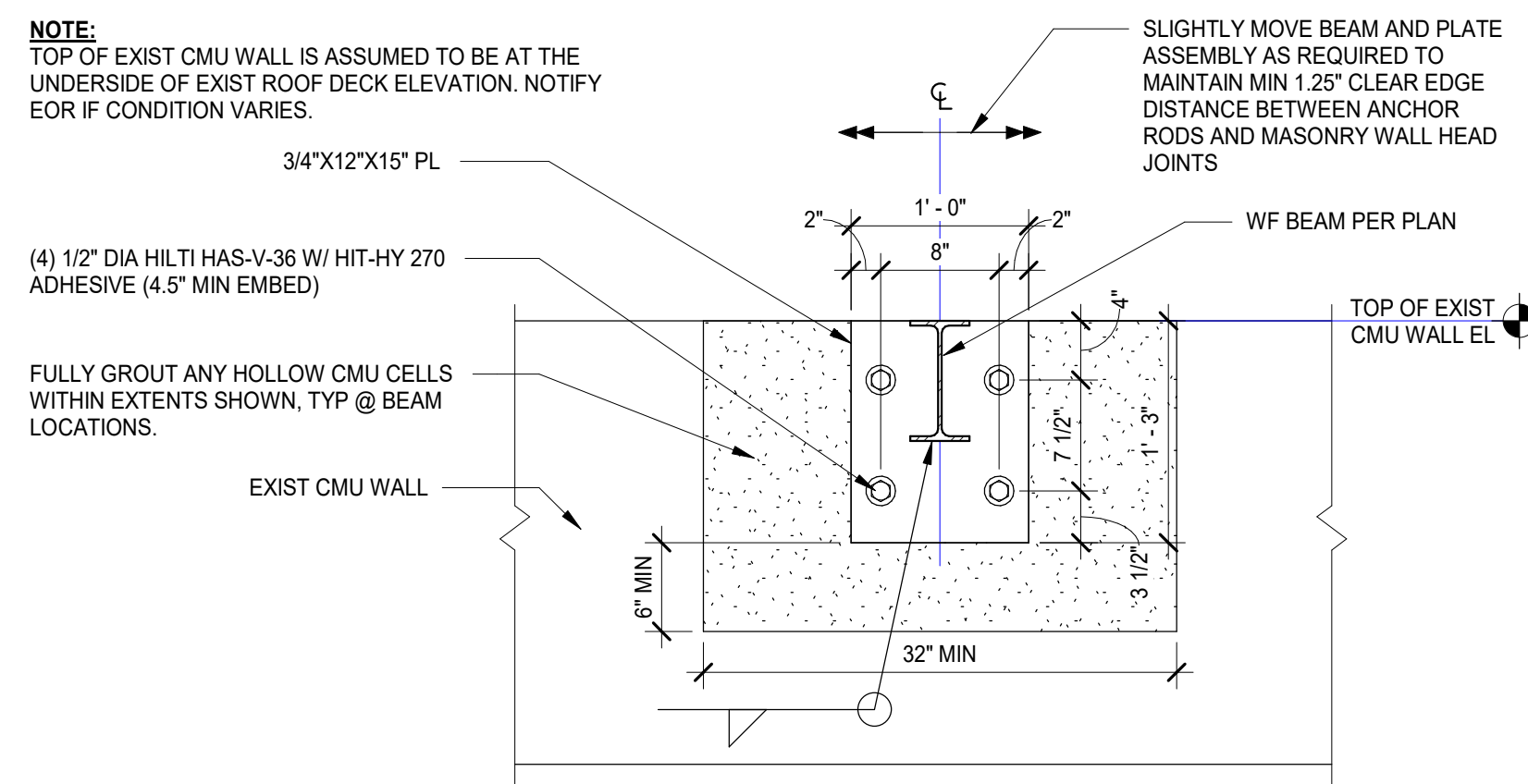
- NOTES:
 1. GROUT SOLID ALL MASONRY UNITS
 2. ALL REINFORCING BARS ARE HOOKED AT ENDS
 3. FOR TYPE OF CMU AND TYPE OF BOND SEE GENERAL NOTES
 4. LINTELS SHALL BEAR ON SOLID CMU OR BEAR ON 2 FILLED COURSES UNO
 5. BOND PATTERN OF LINTEL TO MATCH ADJACENT WALL
 6. BOTTOM OF LINTEL SHALL BE SOLID MASONRY (LINTEL BLOCK REQUIRED)

NON-LOAD BEARING MASONRY WALL LINTEL SCHEDULE					
LINTEL MARK	OPENING LENGTH RANGE	WALL THICKNESS	LINTEL DEPTH	REINFORCEMENT	MINIMUM BEARING LENGTH
L1	0 FT - 10 FT	8"	16"	(1) #5 TOP (1) #5 BOT	16"

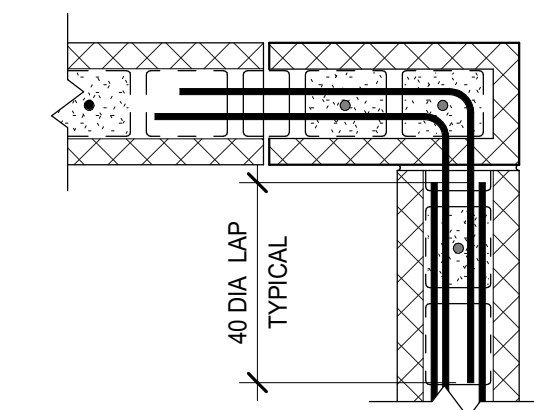
5 CMU LINTEL
SCALE: 3/4" = 1'-0"



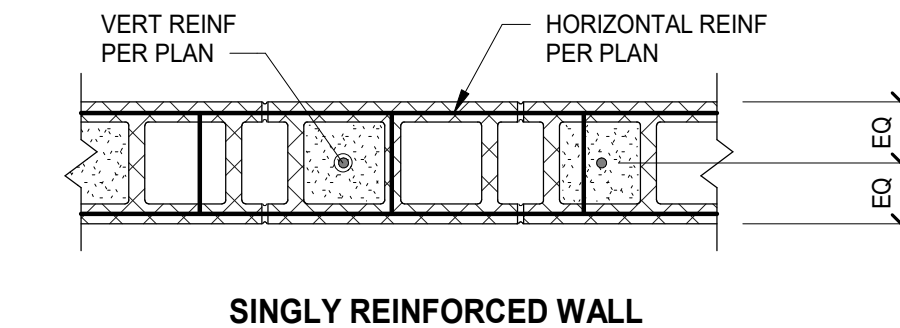
6 TYPICAL TOP OF CMU PARTITION WALL DETAIL
SCALE: 3/4" = 1'-0"



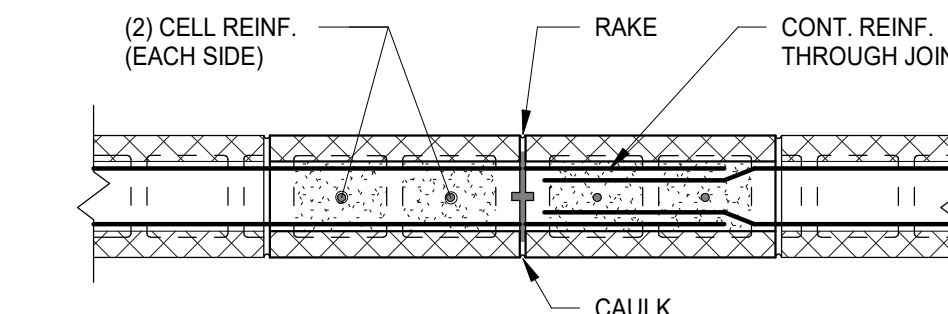
7 CMU WALL MOUNT DETAIL
SCALE: 1" = 1'-0"



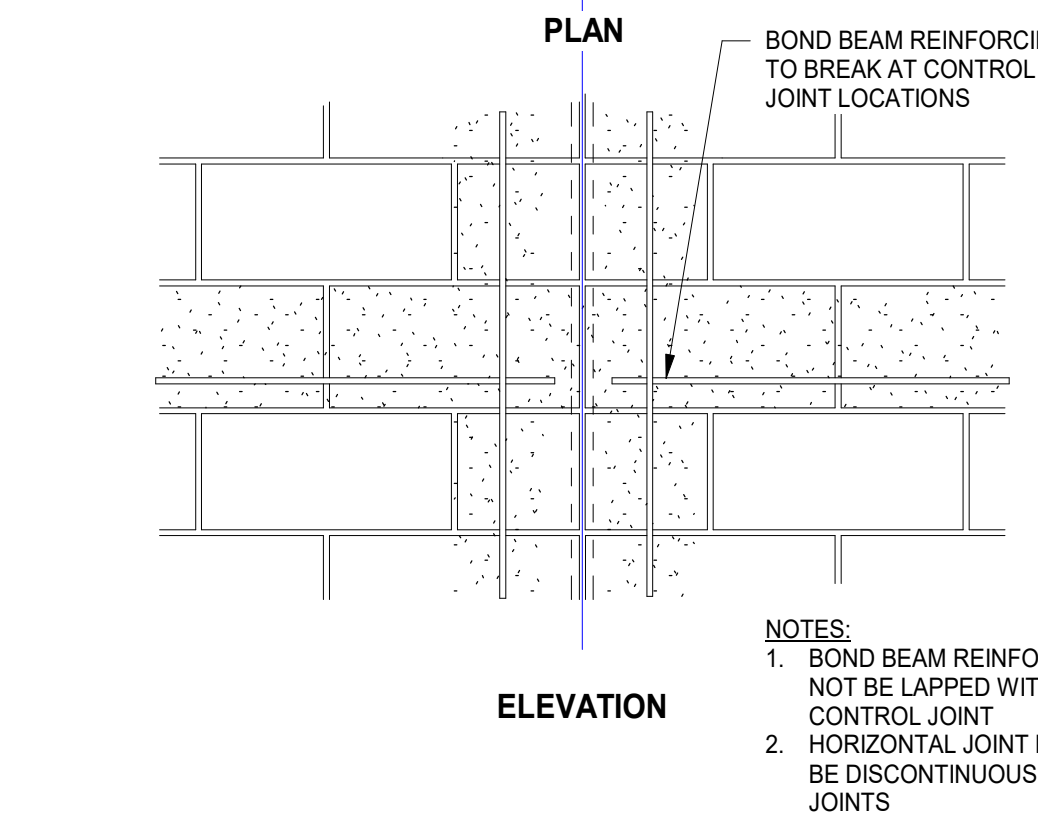
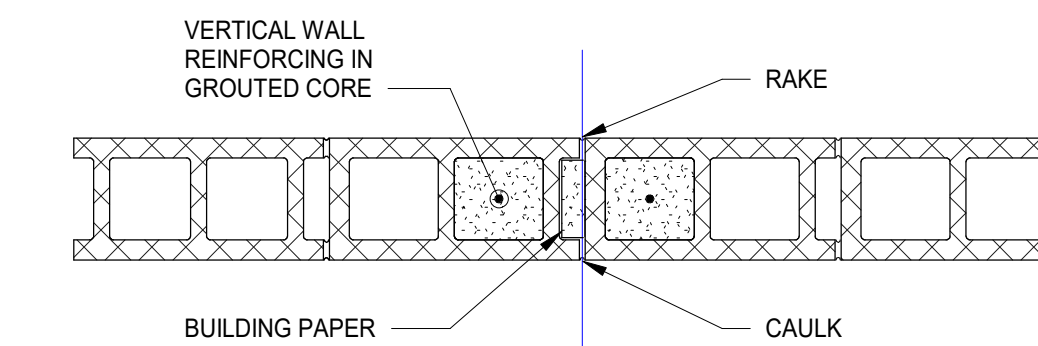
1 TYPICAL BOND BEAM IN CMU WALLS
SCALE: 1" = 1'-0"



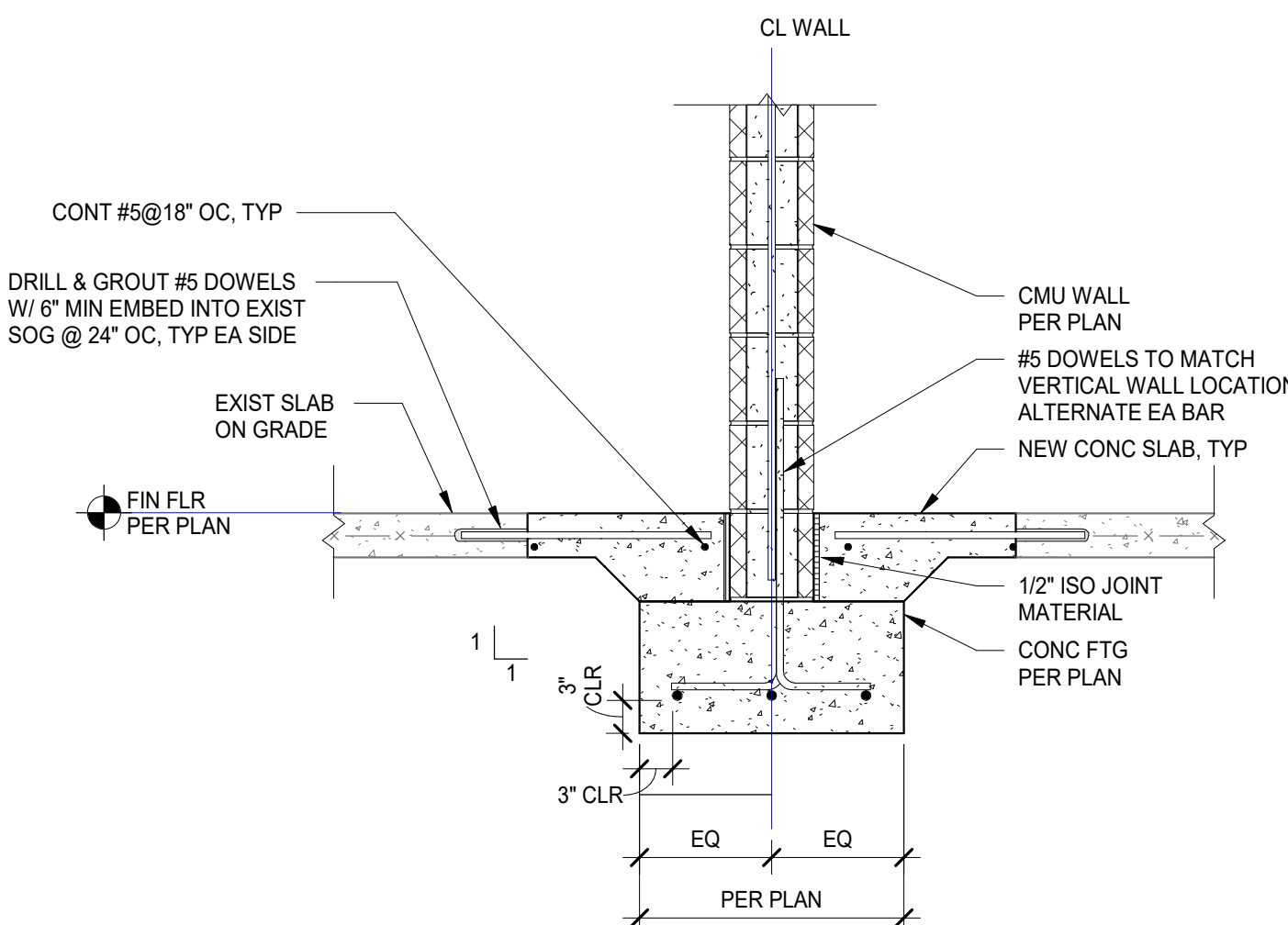
2 TYPICAL CMU WALL REINFORCING
SCALE: 1" = 1'-0"



3 TYPICAL MASONRY CONTROL JOINT DETAIL
SCALE: 1" = 1'-0"



4 TYPICAL CMU WALL FOOTING DETAIL
SCALE: 3/4" = 1'-0"



3 TYPICAL MASONRY CONTROL JOINT DETAIL
SCALE: 1" = 1'-0"

**ORCHARD VIEW
 SCHOOL
 DISTRICT**

**MIDDLE SCHOOL
 KITCHEN
 RENOVATIONS**

35 S SHERIDAN DR
 MUSKEGON, MI 49442

Date Revised	Description
1-24-2023	OWNER REVIEW
1-31-2023	BIDS

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Project Manager	Discipline Lead
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Designer	Reviewer
R. KEUNEKE	R. KEUNEKE
Date Issued	Project Number
1/31/2023	016633.00

Sheet Name

STRUCTURAL DETAILS

Drawing Number

S201

DRAWING SYMBOLS

Table with drawing symbols for View Title, Section Marker, Detail Section, Detail Callout, Elevation Marker, Break Marker, Accessory Marker, Door Marker, Window Type Marker, Room Tag, Scheduled Door, Existing Door, Keynote, Keynote (Removals), Equipment Tag, Elevation Notation, and Ceiling Height.

MATERIAL INDICATORS

Table showing material indicators for Undisturbed Earth, Gravel or Crushed Stone, Cast Stone, Concrete, Concrete Masonry Unit, Steel, Rigid Insulation, Brick, Plywood, Sand or Gypsum Board, Finish Wood, Batt Insulation, Wood Framing (Continuous), Wood Blocking (Discontin.), and Existing.

WALL STYLES

Table showing wall styles for Existing Brick Wall, Existing CMU Wall, Existing Stud Wall, Brick Wall, CMU Wall, and Stud Wall.

ABBREVIATIONS

Large table of abbreviations for various construction materials and systems, including Air Conditioning, Acoustical Ceiling Panels, Adjustable, Above Finish Floor, Aluminum, Board, Blocking, Bottom of, Corner Guard, Control Joint, Center Line, Ceiling, Clear, Construction Manager, Ceramic Mosaic Tile, Concrete Masonry Unit, Column, Concrete, Continuous, Ceramic Tile, Ceramic Tile Base, Deep, Drinking Fountain, Diameter, Dimension, Drawing, Each, Exterior Insulation Finish System, Electrical, Elevations, Epoxy Flooring, Expansion, Expansion Bolt, Exterior, Fabric, Floor Cleanout, Floor Drain, Fire Extinguisher, Fire Extinguisher Cabinet, Finish Floor Elevation, Flooring, Fire Rated, Fiber Reinforced Plastic, Floor Tile, Footing, Gauge, Glvanized, General Contractor, High, Hose Bibb, Hollow Core, Header, Hardware, Hollow Metal, Horizontal, High Performance Coating, Heating/Ventilation/Air Conditioning, Hot Water, Hot Water Tank, Interior Diameter, Insulation, Interior, Invert, Janitor's Closet, Joint, Long, Laminated, Lavatory, Long Leg Vertical, Linear Metal Ceiling, Linel, Louver, Luxury Vinyl Tile, Maximum, Mechanical, Mezzanine, Manufacturer, Minimum, Masonry Opening, Metal, Not in Contract, Not to Scale, On Center, Opposite, Painted, Porcelain Base, Pre Cast Concrete, Pounds per Cubic Foot, Plate, Pounds per Linear Foot, Plastic Laminated, Plastic Paneling, Pounds per Square Foot, Pounds per Square Inch, Porcelain Tile, Preservative-Treated Wood, Quarry Tile, Riser, Rubber Base, Reflected Ceiling Plan, Roof Drain, Reinforced Steel Bars, Reinforcing, Resilient, Resilient Flooring, Room, Rough Opening, Roof Top Unit, Sealed Concrete, Similar, Sheet Metal Screw, Specification, Solid Surface, Stainless Steel, Sound Transmission Class, Standard, Steel, Structural System, Tread, Tongue and Groove, Temporary, Threshold, Top of, Transition, Typical, Unless Noted Otherwise, Upholstery, Urinal, Varies, Vinyl Base, Vinyl Composition Tile, Vertical, Vestibule, Verify in Field, Vinyl Wall Covering, Wide, With, Without, Wood Base, Water Closet, Wall Covering, Wood, Window Treatment, Wood Flooring, Walkoff Mat, Waterproof, Wall Tile.

GENERAL NOTES:

- ALL GENERAL NOTES PERTAIN TO ALL ARCHITECTURAL (A-SERIES) DRAWINGS IN THIS SET GENERAL
1. DEFINITIONS: "PROVIDE" MEANS FURNISH AND INSTALL. SUPPLY LABOR AND MATERIALS TO RESULT IN A FINISHED AND/OR OPERABLE SYSTEM.
2. CONTRACTOR RESPONSIBILITIES:
A. MATERIALS, CONSTRUCTION METHODS INCLUDING BUT NOT LIMITED TO LAYOUT, COORDINATION, SCHEDULE AND CONSTRUCTION SITE ACCESS AND WORK.
B. DAILY CLEANING: KEEP SITE FREE FROM WASTE, RUBBISH, AND DEBRIS. REMOVE DAILY. WHEN WORK IS COMPLETE, LEAVE THE PREMISES BROOM CLEAN AND CLEAN FINISHED SURFACES, FIXTURES, AND STOREFRONT, ETC.
C. FINAL CLEANING: PRIOR TO PUNCHLIST INSPECTION BROOM CLEAN ALL HARD SURFACE FLOORS, VACUUM ALL CARPETING AND WIPE DOWN ALL HORIZONTAL AND GLASS SURFACES PROVIDING A DUST FREE SURFACE.
D. TEMPORARY PROTECTION IS REQUIRED TO MAINTAIN ONGOING BUILDING OPERATIONS, EXITING PATHS, DUST CONTROL AND OCCUPANT SAFETY. IDENTIFY THE REQUIREMENTS FOR TEMPORARY PROTECTION AND PROJECT PHASING. COORDINATE WITH OWNER FOR OTHER REQUIREMENTS.
E. COORDINATE STARTUP AND ADJUSTING OF EQUIPMENT AND OPERATING COMPONENTS. START EQUIPMENT AND OPERATING COMPONENTS AND TEST TO CONFIRM PROPER OPERATION AND CONTROL. REMOVE MALFUNCTIONING UNITS, REPLACE WITH NEW UNITS, AND RETEST.
F. CLOSEOUT DOCUMENTS, CERTIFICATE OF RELEASE FROM THE AUTHORITY OF JURISDICTION AND INSURANCE FOR CONTINUING COVERAGE, WARRANTIES, TEST & INSPECTION RESULTS AND OPERATION, EMERGENCY & MAINTENANCE MANUALS.
3. EXISTING CONDITIONS: REVIEW EXISTING CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING WORK AND REPORT DISCREPANCIES TO THE ARCHITECT IMMEDIATELY.
4. CONTRACT DOCUMENTS:
A. PLANS, ELEVATIONS, SECTIONS, DETAILS AND SCHEDULES ARE COMPLEMENTARY. PLAN DRAWINGS WILL TAKE PRECEDENCE OVER ELEVATION, SECTION AND DETAILS DRAWINGS IN ANY CONFLICTS OF HORIZONTAL DIMENSIONS. DETAIL PLAN DRAWINGS WILL TAKE PRECEDENCE OVER LARGER SCALE PLANS IN ANY CONFLICTS WITH HORIZONTAL DIMENSIONS. WALL AND BUILDING SECTIONS WILL TAKE PRECEDENCE OVER PLAN DRAWING AND DETAILS IN ANY CONFLICTS WITH VERTICAL DIMENSIONS. DETAILS AND WALL SECTIONS WILL TAKE PRECEDENCE OVER ELEVATION AND PLAN DRAWINGS IN ANY CONFLICTS WITH MATERIAL DESCRIPTION. SCHEDULES WILL TAKE PRECEDENCE OVER OTHER ARCHITECTURAL DRAWINGS IN AND CONFLICTS WITH WALL, FLOOR AND CEILING FINISHES AND DOOR, DOOR HARDWARE AND FENESTRATION INFORMATION.
B. DRAWINGS PREPARED BY THE ARCHITECT ARE INSTRUMENTS OF THE ARCHITECT'S SERVICE FOR USE SOLELY WITH RESPECT TO THIS PROJECT AND, UNLESS OTHERWISE PROVIDED, BERGMANN SHALL BE DEEMED THE AUTHOR OF THESE DOCUMENTS AND RETAIN ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS, INCLUDING THE COPYRIGHT.
C. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.

FIELD CONDITIONS

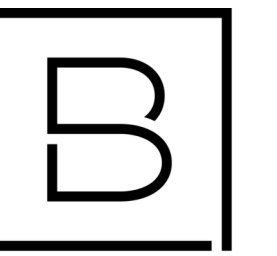
- 1. REPAIR: EXISTING SURFACES TO REMAIN IMPACTED BY DEMOLITION TO MATCH EXISTING ADJACENT SURFACES.
2. DISCREPANCIES: NOTIFY ARCHITECT OF EXISTING DAMAGED OR DETERIORATED BUILDING ELEMENTS REVEALED DURING DEMOLITION OR CONSTRUCTION PRIOR TO PROCEEDING WITH ADDITIONAL WORK IN THE AREA.
3. HAZARDOUS MATERIALS: A PRE-DEMOLITION ASBESTOS SURVEY IS REQUIRED PRIOR TO DEMOLITION OF SUSPECT BUILDING MATERIALS IN ACCORDANCE WITH OSHA 29 DFR 1926.1101, AND USEPA 40 CFR 61.145. ALL SUSPECT ASBESTOS CONTAINING MATERIALS INCLUDING THERMAL SYSTEMS INSULATIONS AND SURFACING MATERIALS (PACM) UNLESS PROVEN OTHERWISE BY APPROPRIATE BULK SAMPLING AND LABORATORY ANALYSIS CONDUCTED BY APPROVED LICENSED COMPANIES AND PERSONNEL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL REGULATIONS. THE OWNER IS REQUIRED TO PROVIDE COPIES OF ANY ASBESTOS SURVEYS OR ASBESTOS OPERATIONS AND MAINTENANCE PLANS THEY HAVE ON FILE AT THE REQUEST OF THE CONTRACTOR. A COMPLETE ASBESTOS SURVEY FOR THE PROPOSED WORK TO BE PERFORMED IS THE RESPONSIBILITY OF THE BUILDING OWNER. BERGMANN DOES NOT WARRANT THE COMPLETENESS OF DOCUMENTS AND REPORTS PROVIDED BY OTHERS. NO EXEMPTION TO THE REQUIREMENT TO CONDUCT AN ASBESTOS SURVEY SHALL EXEMPT ANY PERSON, ASBESTOS CONTRACTOR, PROPERTY OWNER OR BUSINESS ENTITY FROM THE INSPECTION OR ASBESTOS SURVEY REQUIREMENTS OF EPA AND OSHA.
4. SAFETY: FOLLOW THE OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR 1926.62. LEAD EXPOSURE IN CONSTRUCTION REGULATION. MATERIALS HAVING A CONCENTRATION EQUAL OR GREATER THAN 0.5% BY WEIGHT IN LEAD ARE CONSIDERED TO BE LEAD BASED. HOWEVER, OSHA CONSIDERS ANY AMOUNT OF LEAD ENCOUNTERED DURING CONSTRUCTION TO BE OF CONCERN. THE REGULATION STATES THAT THE EMPLOYER SHALL ASSURE THAT NO EMPLOYEE IS EXPOSED TO LEAD AT CONCENTRATIONS GREATER THAN FIFTY MICROGRAMS PER CUBIC METER OF AIR (50 MG/M3) AVERAGED OVER AN 8-HOUR PERIOD. CONTRACTORS SHALL DETERMINE AND TAKE APPROPRIATE MEASURES IF THEY SUSPECT THE PRESENCE OF LEAD.

FINISHES

- A. GENERAL: FINISHED FLOORS EXTEND INTO TOE SPACES, UNDER CASEWORK ON LAB PROJECTS, CLOSETS, DOOR REVEALS AND SIMILAR OPENINGS.
B. PRODUCTS:
A. INSTALL MATERIALS USING MANUFACTURER'S APPROVED ADHESIVES AND METHODS, U.N.O.
B. PAINT DESIGNATIONS INDICATE COLOR ONLY, REFER TO SPECIFICATION FOR FINISH TYPE.
C. PROVIDE SELF LEVELING TROWELABLE UNDERLAYMENT WHERE REQUIRED TO OBTAIN FINISH MANUFACTURER'S REQUIRED SUBFLOOR CONDITION.
D. PROVIDE THE REQUIRED TRANSITIONS BASED ON TYPES IDENTIFIED ON DRAWINGS AT EACH FINISH TRANSITION LOCATION.
C. EXECUTION:
A. ADHERE TO MATERIAL OR SYSTEM MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND TOLERANCES. ANY VARIATIONS FROM WRITTEN INSTALLATION AND INSTRUCTIONS MUST RECEIVE WRITTEN APPROVAL FROM THE MANUFACTURER AND MAINTAIN MANUFACTURER'S WARRANTIES.
B. PRIOR TO STARTING THE INSTALLATION OF A MATERIAL OR SYSTEM, VERIFY THE SUBSTRATE IS WITHIN THE MANUFACTURER'S REQUIRED TOLERANCES AND REQUIRED CLEARANCES ARE PROVIDED. NOTIFY THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND DESIGN PROFESSIONAL IN WRITING WHEN THE SUBSTRATE IS NOT WITHIN MANUFACTURER'S TOLERANCE OR REQUIRED CLEARANCES ARE NOT PROVIDED. PROCEEDING WITH INSTALLATION SIGNIFIES ACCEPTANCE OF THE SUBSTRATE AND CLEARANCES.
C. PROVIDE MANUFACTURER'S REQUIRED ENVIRONMENTAL TESTS FOR MOISTURE, VAPOR DRIVE, RELATIVE HUMIDITY AND TEMPERATURE TO VERIFY THESE ARE WITHIN THE MATERIAL MANUFACTURER'S TOLERANCE PRIOR TO INSTALLING MATERIALS.
D. MATERIAL AND INSTALLATION SHALL CONFORM WITH LOCAL, STATE AND NATIONAL BUILDING CODES AND CONSTRUCTION STANDARDS ENFORCED BY THE AUTHORITY HAVING JURISDICTION.
E. REQUIRED DOCUMENTATION:
1. SAFETY DATA SHEETS.
2. PROVIDE SAMPLES WHEN SPECIFICALLY REQUESTED IN THESE DOCUMENTS.
3. PROVIDE SHOP DRAWINGS OF MATERIALS AND SYSTEMS, WHICH WILL BE BUILT INTO AND MUST BE COORDINATED WITH OTHER CONSTRUCTION. SHOP DRAWINGS SHALL CONSIST OF PLAN, ELEVATION, SECTION VIEWS AND DETAILS AS REQUIRED TO COMMUNICATE FINAL APPEARANCE AND CONNECTION TO ADJOINING CONSTRUCTION.
F. PROTECT ADJACENT SURFACES DURING WORK.
G. REMOVE ADHESIVE OR PAINT SPOTS FROM FINISHED FLOORS, WALLS, GLASS OR OTHER SURFACES. FINISHES TO MEET OR EXCEED CODE REQUIREMENTS.
H. FILL MINOR DRYWALL IRREGULARITIES WITH SPACKLING COMPOUND AND SAND TO A SMOOTH LEVEL SURFACE. EXERCISE CARE TO AVOID RAISING THE NAP OF PAPER.
I. DO NOT PERFORM PAINTING AND OTHER FINISHING WORK UNDER CONDITIONS UNSUITABLE FOR EXECUTION OF PAINTING WORK. AIR SHALL BE FREE FROM DUST AND DIRT TO PREVENT LODGING OF FOREIGN MATTER IN FRESH PAINT. FLOORS TO BE BROOM CLEAN BEFORE PAINTING IS STARTED.
J. EDGES OF PAINT ADJOINING OTHER COLORS OR MATERIALS TO BE SHARP AND CLEAN WITHOUT OVERLAP.
K. WHENEVER NECESSARY TO OBTAIN REQUIRED RESULTS, REFINISH AN ENTIRE WALL RATHER THAN SPOT FINISHING WHERE A PORTION OF THE FINISH HAS BEEN DAMAGED OR IS UNSATISFACTORY.
L. WHEN INSTALLING CARPET FOLLOW THE CARPET AND RUG INSTITUTE METHODS OF INSTALLATION AND MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
M. WHEN INSTALLING TILE FOLLOW THE TILE COUNCIL OF NORTH AMERICA'S INSTALLATION SPECIFICATIONS AND MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
N. CENTER FLOOR MATERIAL TRANSITIONS ON DOOR ABOVE.
O. FLOOR MATERIAL TRANSITIONS SHALL OCCUR BELOW THE DOOR.

SPECIFICATIONS:

- 1. FLUSH WOOD DOORS
A. ACCEPTABLE MANUFACTURERS: EGGERS INDUSTRIES, OSHKOSH DOOR COMPANY, AND VT INDUSTRIES.
B. INTERIOR DOORS: SOLID-CORE FIVE-PLY FLUSH WOOD VENEER-FACED DOORS FOR TRANSPARENT FINISH.
a. PERFORMANCE GRADE: ANSIS/WDMA I.S. 1A EXTRA HEAVY DUTY.
b. FACES: PLAN Sliced RED OAK, CENTER-BALANCE MATCH.
c. EXPOSED VERTICAL AND TOP EDGES: SAME SPECIES AS FACES, ARCHITECTURAL WOODWORK STANDARDS EDGE TYPE A.
d. CORE: ANSIS A208.1, GRADE LD-1 PARTICLEBOARD W/BLOCKING TO ELIMINATE THROUGH-BOLTING HARDWARE. PROVIDE DOORS WITH WDMA I.S. 10 STRUCTURAL COMPOSITE LUMBER CORES INSTEAD OF PARTICLEBOARD CORES FOR DOORS TO RECEIVE EXIT DEVICES.
e. FINISH: FACTORY FINISH, TRANSPARENT, SATIN, STAIN COLOR TO MATCH EXISTING DOORS.
2. HOLLOW METAL FRAMES
A. ACCEPTABLE MANUFACTURERS: CECO DOOR, CURRIES COMPANY, REPUBLIC DOORS AND FRAMES, AND STEELCRAFT.
B. INTERIOR HOLLOW METAL FRAMES:
a. HEAVY-DUTY ANSIS/SDI A250.8, LEVEL 2, ANSIS/SDI A250.4, LEVEL B.
b. FULL PROFILE WELEDED.
c. PRIME PAINTED FOR SITE FINAL FINISH.
3. GLAZING
A. MONOLITHIC GLASS:
a. HEAT STRENGTHENED FULLY TEMPERED FLOAT GLASS.
b. MINIMUM 6 MM THICK.
c. LOCATION: INTERIOR, NON-FIRE RATED LOCATIONS UNLESS OTHERWISE NOTED.
4. HARDWARE SETS
A. MANUFACTURERS/PRODUCTS
a. HINGES: IVES 568 SERIES; ALSO ACCEPTABLE: HAGER BB119/1279 SERIES OR MCKINNEY TB SERIES.
b. CYLINDRICAL LOCKS: GRADE 1, SCHLAGE HD SERIES, NO SUBSTITUTION.
c. CYLINDERS: CORBIN-RUSSWIN, NO SUBSTITUTION. ALL CYLINDERS/CORES AND KEYING SHALL BE PURCHASED THROUGH ARCHITECTURAL HARDWARE COMPANY, MUSKEGON, MI AND INCLUDED IN BASE BID.
d. DOOR CLOSERS: LCN 4040XP, NO SUBSTITUTION.
e. DOOR TRIM: IVES; ALSO ACCEPTABLE BURNS AND ROCKWOOD.
f. PROTECTION PLATES: IVES; ALSO ACCEPTABLE BURNS AND ROCKWOOD.
g. DOOR STOPS: IVES; ALSO ACCEPTABLE BURNS AND ROCKWOOD.
h. SILENCERS: IVES; ALSO ACCEPTABLE BURNS AND ROCKWOOD.
B. KEYING
a. CONSTRUCTION KEYING:
1. PROVIDE CONSTRUCTION CORES THAT PERMIT VOIDING CONSTRUCTION KEYS WITHOUT CYLINDER REMOVAL, FURNISHED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.
2. SPLIT KEY OR LOST BALL CONSTRUCTION KEYING SYSTEM.
3. 3 CONSTRUCTION CONTROL KEYS, AND EXTRACTOR TOOLS OR KEYS AS REQUIRED TO VOID CONSTRUCTION KEYING.
4. 12 CONSTRUCTION CHANGE (DAY) KEYS.
5. OWNER OR OWNER'S REPRESENTATIVE WILL VOID OPERATION OF TEMPORARY CONSTRUCTION KEYS.
b. PERMANENT KEYING:
1. PROVIDE PERMANENT CYLINDERS/CORES KEYS BY THE MANUFACTURER ACCORDING TO THE FOLLOWING KEY SYSTEM.
A. MASTER KEYING SYSTEM AS DIRECTED BY THE OWNER.
2. FORWARD BITTING LIST AND KEYS SEPARATELY FROM CYLINDERS, BY MEANS AS DIRECTED BY OWNER. FAILURE TO COMPLY WITH FORWARDING REQUIREMENTS WILL BE CAUSE FOR REPLACEMENT OF CYLINDERS/CORES INVOLVED AT NO ADDITIONAL COST TO OWNER.
3. PROVIDE KEYS WITH THE FOLLOWING FEATURES:
A. MATERIAL: NICKEL SILVER; MINIMUM THICKNESS OF .107-INCH (2.3MM)
B. PATENT PROTECTION: KEYS AND BLANKS PROTECTED BY ONE OR MORE UTILITY PATENT(S).
4. IDENTIFICATION:
A. MARK PERMANENT CYLINDERS/CORES AND KEYS WITH APPLICABLE BLIND CODE FOR IDENTIFICATION. DO NOT PROVIDE BLIND CODE MARKS WITH ACTUAL KEY CUTS.
B. IDENTIFICATION STAMPING PROVISIONS MUST BE APPROVED BY THE ARCHITECT AND OWNER.
C. STAMP CYLINDERS/CORES AND KEYS WITH OWNER'S UNIQUE KEY SYSTEM FACILITY CODE AS ESTABLISHED BY THE MANUFACTURER; KEY SYMBOL AND EMBOSSED OR STAMPED WITH "DO NOT DUPLICATE" ALONG WITH THE "PATENTED" OR PATENT NUMBER TO ENFORCE THE PATENT PROTECTION.
D. FAILURE TO COMPLY WITH STAMPING REQUIREMENTS WILL BE CAUSE FOR REPLACEMENT OF KEYS INVOLVED AT NO ADDITIONAL COST TO OWNER.
E. FORWARD PERMANENT CYLINDERS/CORES TO OWNER, SEPARATELY FROM KEYS, BY MEANS AS DIRECTED BY OWNER.
5. QUANTITY: FURNISH IN THE FOLLOWING QUANTITIES.
A. CHANGE (DAY) KEYS: 3 PER CYLINDER/CORE.
B. MASTER KEYS: 6.
A. HARDWARE SET #01 (DOORS 101B AND 101C)
a. (3) HINGES - 568/1 4 5 X 4 5 NRP - FINISH 622 - MFR IVE
b. (1) CLASSROOM LOCK - ND70LD RHO - FINISH 626 - MFR SCH
c. (1) K-L CYLINDER - KEVED TO EXISTING SYSTEM. COORDINATE W/OWNER - FINISH 626 - MFR C-R
d. (1) SURFACE CLOSER - 4040XP RW/PA - FINISH 689 - MFR LCN
e. (1) KICK PLATE - 8400 10" X 2" LDW B-CS - FINISH 630 - MFR IVE
f. (1) WALL STOP/HOLDER - WS40 - FINISH 626 - MFR IVE
g. (3) SILENCER - SR64 - FINISH GRV - MFR IVE
B. HARDWARE SET #02 (DOOR 101A)
a. HARDWARE BY DOOR MANUFACTURER.
5. ROLLING COUNTER SHUTTERS
A. MANUFACTURER: BASIS OF DESIGN - CORNELL. ALTERNATES - COOKSON AND CLOPAY BUILDING PRODUCTS.
B. PRODUCT: MODEL ESC10, ELECTRIC OPERATED OVERHEAD ROLLING COUNTER DOOR (EXTENDS TO FLOOR).
C. MATERIALS:
a. CURTAIN SLATS: ALUMINUM NO. 1 F, INTERLOCKED FLAT-FACED SLATS, 1-1/2" H. X 1/2" D., 16 GA. ALUMINUM W/EXTRUDED TUBULAR ALUMINUM BOTTOM BAR W. CONT. LIFT HANDLE AND VINYL ASTRAGAL.
b. FINISH: ALUMINUM CLEAR ANODIZED.
c. GUIDES: ALUMINUM HEAVY DUTY EXTRUDED ALUMINUM SECTIONS W/SNAP-ON COVER TO CONCEAL FASTENERS. PROVIDE POLYPROPYLENE PILE RUNNERS ON BOTH SIDES OF CURTAIN TO ELIMINATE METAL TO METAL CONTACT BETWEEN GUIDES AND CURTAIN.
d. SHAFT ASSEMBLY: TUBE MOTOR: BARREL - STEEL PIPE CAPABLE OF SUPPORTING CURTAIN LOAD WITH MAX. DEFLECTION OF 0.03 INCHES PER FOOT OF WIDTH.
e. BRACKETS: FABRICATE FROM REINFORCED STEEL PLATE WITH BEARINGS AT ROTATING SUPPORT POINTS TO SUPPORT COUNTERBALANCE SHAFT ASSEMBLY AND FORM END CLOSURES. STANDARD FINISH IN GRAY.
f. HOOD: ALUMINUM CLEAR ANODIZED.
g. OPERATION: MOTOR - ELECTRIC TUBE MOTOR OPERATOR, RATED FOR A MAXIMUM 10 CYCLES PER DAY, RATED AS RECOMMENDED BY DOOR MANUFACTURER FOR SIZE AND TYPE OF DOOR, 110 VOLTS, 1 PHASE. PROVIDE COMPLETE W/ELECTRIC TUBE MOTOR, MAINTENANCE FREE ELECTRIC BRAKE, EMERGENCY MANUAL CRANK HOIST AND CONTROL STATIONS. INCLUDE AUTO-RESET THERMAL SENSING DEVICE. OPERATOR SHALL BE EQUIPPED WITH AN EMERGENCY MANUAL CRANK HOIST ASSEMBLY THAT SAFELY CUTS OPERATOR POWER WHEN ENGAGED. A DISCONNECT CHAIN SHALL NOT BE REQUIRED TO ENGAGE OR RELEASE THE MANUAL CRANK HOIST. OPERATOR SHALL BE CAPABLE OF 10-14 RPM. FULLY ADJUSTABLE, MECHANICAL INTERNAL WORM LIMIT SWITCH MECHANISM SHALL SYNCHRONIZE THE OPERATOR WITH THE DOOR. THE ELECTRICAL CONTRACTOR SHALL MOUNT THE CONTROL STATIONS AND SUPPLY THE APPROPRIATE DISCONNECT SWITCH, ALL CONDUIT AND WIRING PER THE OVERHEAD DOOR WIRING INSTRUCTIONS.
h. CONTROL STATIONS: FLUSH MOUNTED "OPEN/CLOSE" KEY SWITCH W/ "STOP" BUTTON; NEMA 1B.
i. CONTROL OPERATION: MOMENTARY CONTACT TO CLOSE. SMARTSYNCS WIRELESS EDGE KIT.
j. LOCKING: MASTER KEYABLE CYLINDER OPERABLE FROM COIL SIDE OF OPENING.
6. COMPOSITE METAL PANEL SYSTEM
A. MANUFACTURER: BASIS OF DESIGN - CITADEL ARCHITECTURAL PRODUCTS. ALTERNATE - MAPES ARCHITECTURAL PANELS.
B. PRODUCT: ENVELOPE 2000 REVEAL (RV).
C. MATERIALS:
a. PANEL: .024" PREFINISHED ALUMINUM FACE, .105" THERMOSET PHENOLIC RESIN CORE, .010" PRIMED ALUMINUM BACK.
b. THICKNESS: 4MM.
c. TRIMS: TRIM MOLDINGS, FASTENERS, SEALANTS AND ACCESSORIES TO PROVIDE A COMPLETE BARRIER SYSTEM.
d. FASTENERS: CONCEALED EXCEPT WHERE UNAVOIDABLE. EXPOSED FASTENERS SHALL BE FINISHED TO MATCH ADJOINING METAL.
e. FINISH: SERIES F, STANDARD KYMAR 500 COATING USING 70% RESIN. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS.



BERGMANN ARCHITECTS ENGINEERS PLANNERS

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ORCHARD VIEW SCHOOL DISTRICT

MIDDLE SCHOOL KITCHEN RENOVATIONS

35 S SHERIDAN DR MUSKEGON, MI 49442

Table with Date Revised and Description columns. Entries include 1-24-2023 OWNER REVIEW and 1-31-2023 BIDS.

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Table with Project Manager, Discipline Lead, Designer, Reviewer, Date Issued, Project Number, and Sheet Name columns.

GENERAL NOTES AND LEGENDS

Drawing Number

A001

GENERAL REQUIREMENTS:

SUBSTITUTION PROCEDURES:

- A. SUBSTITUTIONS FOR CAUSE: CHANGES PROPOSED BY CONTRACTOR THAT ARE REQUIRED DUE TO CHANGED PROJECT CONDITIONS, SUCH AS UNAVAILABILITY OF PRODUCT, REGULATORY CHANGES, OR UNAVAILABILITY OF REQUIRED WARRANTY TERMS.
- B. SUBSTITUTIONS FOR CONVENIENCE: CHANGES PROPOSED BY CONTRACTOR OR OWNER THAT ARE NOT REQUIRED IN ORDER TO MEET OTHER PROJECT REQUIREMENTS BUT MAY OFFER ADVANTAGE TO CONTRACTOR OR OWNER. SUBSTITUTIONS FOR CONVENIENCE ARE ALLOWED ONLY BY APPROVAL OF THE OWNER OR OWNER'S AGENT.
- C. SUBMIT REQUEST FOR CONSIDERATION. IDENTIFY PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED. INCLUDE PRODUCT, MATERIAL OR SYSTEM NAME AND AFFECTED DRAWING NUMBERS AND TITLES.
- D. EXECUTE ACCEPTED SUBSTITUTIONS UNDER THE SAME CONDITIONS AS OTHER WORK OF THE CONTRACT.
- E. DOCUMENTATION: SHOW COMPLIANCE WITH REQUIREMENTS FOR SUBSTITUTIONS AND THE FOLLOWING, AS APPLICABLE:
 1. COST INFORMATION, INCLUDING A PROPOSAL OF CHANGE, IF ANY, IN THE CONTRACT SUM.
 2. CONTRACTOR'S CERTIFICATION THAT PROPOSED SUBSTITUTION COMPLIES WITH REQUIREMENTS IN THE CONTRACT DOCUMENTS, EXCEPT AS INDICATED IN SUBSTITUTION REQUEST, IS COMPATIBLE WITH RELATED MATERIALS AND IS APPROPRIATE FOR APPLICATIONS INDICATED.
 3. STATEMENT INDICATING WHY SPECIFIED PRODUCT OR FABRICATION, OR INSTALLATION METHOD CANNOT BE PROVIDED, IF APPLICABLE.
 4. COORDINATION OF INFORMATION, INCLUDING A LIST OF CHANGES OR REVISIONS NEEDED TO OTHER PARTS OF THE WORK AND TO CONSTRUCTION PERFORMED BY OWNER AND SEPARATE CONTRACTORS THAT WILL BE NECESSARY TO ACCOMMODATE PROPOSED SUBSTITUTION.
 5. PRODUCT DATA, INCLUDING DRAWINGS AND DESCRIPTIONS OF PRODUCTS AND FABRICATION AND INSTALLATION PROCEDURES. INCLUDE DETAILED COMPARISON OF SIGNIFICANT QUALITIES OF PROPOSED SUBSTITUTIONS WITH THOSE OF THE WORK SPECIFIED. SIGNIFICANT QUALITIES MAY INCLUDE ATTRIBUTES, SUCH AS PERFORMANCE, WEIGHT, SIZE, DURABILITY, VISUAL EFFECT, SUSTAINABLE DESIGN CHARACTERISTICS, WARRANTIES, AND SPECIFIC FEATURES AND REQUIREMENTS INDICATED. INDICATE DEVIATIONS, IF ANY, FROM THE WORK SPECIFIED
 6. CONTRACTOR'S WAIVER OF RIGHTS TO ADDITIONAL PAYMENT OR TIME THAT MAY SUBSEQUENTLY BECOME NECESSARY BECAUSE OF FAILURE OF PROPOSED SUBSTITUTION TO PRODUCE INDICATED RESULTS.
- F. ARCHITECT'S ACTION: IF NECESSARY, ARCHITECT WILL REQUEST ADDITIONAL INFORMATION OR DOCUMENTATION FOR EVALUATION WITHIN 7 DAYS OF RECEIPT OF A REQUEST FOR SUBSTITUTION. ARCHITECT WILL NOTIFY CONTRACTOR OF ACCEPTANCE OR REJECTION OF PROPOSED SUBSTITUTION WITHIN 14 DAYS OF RECEIPT OF REQUEST, OR 7 DAYS OF RECEIPT OF ADDITIONAL INFORMATION OR DOCUMENTATION.
- G. ARCHITECT WILL CONSIDER CONTRACTOR'S REQUEST FOR SUBSTITUTION WHEN THE LISTED REQUIREMENTS ARE SATISFIED. IF THE LISTED REQUIREMENTS ARE NOT SATISFIED, ARCHITECT WILL RETURN REQUESTS WITHOUT ACTION, EXCEPT TO RECORD NONCOMPLIANCE WITH LISTED REQUIREMENTS.
- H. FORMS OF ACCEPTANCE: CHANGE ORDER, CONSTRUCTION CHANGE DIRECTIVE, OR ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS FOR MINOR CHANGES IN THE WORK.

SUBMITTAL REQUIREMENTS:

- A. PREPARE SUBMITTAL SCHEDULE: SUBMIT, AS AN ACTION SUBMITTAL, A LIST OF SUBMITTALS, ARRANGED IN CHRONOLOGICAL ORDER BY DATES REQUIRED BY CONSTRUCTION SCHEDULE. INCLUDE TIME REQUIRED FOR REVIEW, ORDERING, MANUFACTURING, FABRICATION, AND DELIVERY WHEN ESTABLISHING DATES. INCLUDE ADDITIONAL TIME REQUIRED FOR MAKING CORRECTIONS OR REVISIONS TO SUBMITTALS NOTED BY ARCHITECT AND CONTRACTOR AND ADDITIONAL TIME FOR HANDLING AND REVIEWING SUBMITTALS REQUIRED BY THOSE CORRECTIONS.
- B. PREPARE AND SUBMIT SUBMITTALS AS INCLUDED IN THE SUBMITTAL SCHEDULED.
- C. EMAIL: PREPARE SUBMITTALS AS PDF PACKAGE AND TRANSMIT TO ARCHITECT BY SENDING VIA EMAIL. INCLUDE PDF TRANSMITTAL FORM. INCLUDE INFORMATION IN EMAIL SUBJECT LINE AS REQUESTED BY ARCHITECT.
- D. WEB-BASED PROJECT MANAGEMENT SOFTWARE: PREPARE SUBMITTALS IN PDF FORM, AND UPLOAD TO WEB-BASED PROJECT MANAGEMENT SOFTWARE WEBSITE. ENTER REQUIRED DATA IN WEB-BASED SOFTWARE SITE TO FULLY IDENTIFY SUBMITTAL.
- E. ACTION SUBMITTALS AND INFORMATIONAL SUBMITTALS: REVIEW EACH SUBMITTAL AND CHECK FOR COORDINATION WITH OTHER WORK OF THE CONTRACT AND FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. NOTE CORRECTIONS AND FIELD DIMENSIONS. MARK WITH APPROVAL STAMP BEFORE SUBMITTING TO ARCHITECT.
- F. USE FOR CONSTRUCTION: RETAIN COMPLETE COPIES OF SUBMITTALS ON PROJECT SITE. USE ONLY FINAL ACTION SUBMITTALS THAT ARE MARKED WITH APPROVAL NOTATION FROM ARCHITECT'S AND CONTRACTOR'S ACTION STAMP.
- G. SUBMITTAL INFORMATION: INCLUDE THE FOLLOWING INFORMATION IN EACH SUBMITTAL:
 1. PROJECT NAME, DATE AND INDICATION OF FULL OR PARTIAL SUBMITTAL.
 2. ARCHITECT'S AND CONTRACTOR'S AND/OR CONSTRUCTION MANAGER'S, FIRM OR ENTITY THAT PREPARED SUBMITTAL AND SUBCONTRACTOR, MANUFACTURER, AND SUPPLIER NAMES.
 3. NUMBER AND TITLE OF SPECIFICATION SECTION, WITH PARAGRAPH NUMBER AND GENERIC NAME FOR EACH OF MULTIPLE ITEMS
 4. MATERIAL OR SYSTEM NAME AND DRAWING NUMBER AND DETAIL REFERENCES, AS APPROPRIATE.
 5. IDENTIFY OPTIONS REQUIRING SELECTION BY ARCHITECT.
 6. LOCATION(S) WHERE PRODUCT IS TO BE INSTALLED, AS APPROPRIATE AND OTHER NECESSARY INFORMATION.
 7. ON EACH SUBMITTAL, CLEARLY INDICATE DEVIATIONS FROM REQUIREMENTS IN THE CONTRACT DOCUMENTS, INCLUDING MINOR VARIATIONS AND LIMITATIONS; INCLUDE RELEVANT ADDITIONAL INFORMATION AND REVISIONS, OTHER THAN THOSE REQUESTED BY ARCHITECT AND CONTRACTOR ON PREVIOUS SUBMITTALS. INDICATE BY HIGHLIGHTING ON EACH SUBMITTAL OR NOTING ON ATTACHED SEPARATE SHEET.
- H. INCOMPLETE SUBMITTALS ARE UNACCEPTABLE, WILL BE CONSIDERED NONRESPONSIVE, AND WILL BE RETURNED FOR RESUBMITTAL WITHOUT REVIEW.
- I. ARCHITECT'S ACTION: ARCHITECT WILL REVIEW INFORMATION OR DOCUMENTATION NOTIFY CONTRACTOR OF ACCEPTANCE REQUEST FOR MORE INFORMATION OR REJECTION WITHIN 14 DAYS OF RECEIPT. ARCHITECT WILL REVIEW RESUBMITTAL WITHIN 7 DAYS OF RECEIPT.
- J. SUBMITTALS NOT REQUIRED BY THE CONTRACT DOCUMENTS WILL BE RETURNED BY ARCHITECT WITHOUT ACTION.

QUALITY REQUIREMENTS:

- A. CONFLICTING STANDARDS AND OTHER REQUIREMENTS: IF COMPLIANCE WITH TWO OR MORE STANDARDS OR REQUIREMENTS IS SPECIFIED AND THE STANDARDS OR REQUIREMENTS ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, INFORM THE ARCHITECT REGARDING THE CONFLICT AND OBTAIN CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK. REFER QUALIFYING REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, TO ARCHITECT FOR CLARIFICATION BEFORE PROCEEDING.
- B. PREPARE AND SUBMIT CERTIFIED WRITTEN REPORTS REQUIRED. INCLUDE THE FOLLOWING:
 1. PROJECT TITLE AND NUMBER AND DATE OF ISSUE. RECORD OF TEMPERATURE AND WEATHER CONDITIONS AT TIME OF SAMPLE TAKING AND TESTING AND INSPECTION. NAME AND SIGNATURE OF LABORATORY INSPECTOR.
 2. NAME, ADDRESS, TELEPHONE NUMBER, AND EMAIL ADDRESS OF TESTING AGENCY
 3. DATES AND LOCATIONS OF SAMPLES AND TESTS OR INSPECTIONS.
 4. TEST AND INSPECTION RESULTS AND AN INTERPRETATION OF TEST RESULTS. COMMENTS OR PROFESSIONAL OPINION ON WHETHER TESTED OR INSPECTED WORK COMPLIES WITH THE CONTRACT DOCUMENT REQUIREMENTS. RECOMMENDATIONS ON RETESTING AND REINSPECTING.
- C. MANUFACTURER QUALIFICATIONS: A FIRM EXPERIENCED IN MANUFACTURING PRODUCTS OR SYSTEMS SIMILAR TO THOSE INDICATED FOR THIS PROJECT AND WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE, AS WELL AS SUFFICIENT PRODUCTION CAPACITY TO PRODUCE REQUIRED UNITS. AS APPLICABLE, PROCURE PRODUCTS FROM MANUFACTURERS ABLE TO MEET QUALIFICATION REQUIREMENTS, WARRANTY REQUIREMENTS, AND TECHNICAL OR FACTORY-AUTHORIZED SERVICE REPRESENTATIVE REQUIREMENTS.
- D. FABRICATOR QUALIFICATIONS: A FIRM EXPERIENCED IN PRODUCING PRODUCTS SIMILAR TO THOSE INDICATED FOR THIS PROJECT AND WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE, AS WELL AS SUFFICIENT PRODUCTION CAPACITY TO PRODUCE REQUIRED UNITS.
- E. INSTALLER QUALIFICATIONS: A FIRM OR INDIVIDUAL EXPERIENCED IN INSTALLING, ERECTING, APPLYING, OR ASSEMBLING WORK SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT, WHOSE WORK HAS RESULTED IN CONSTRUCTION WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE.
- F. TESTING AND INSPECTING AGENCY QUALIFICATIONS: AN NRTL, AN NVLAP, OR AN INDEPENDENT AGENCY WITH THE EXPERIENCE AND CAPABILITY TO CONDUCT TESTING AND INSPECTION INDICATED, AS DOCUMENTED ACCORDING TO ASTM E329; AND WITH ADDITIONAL QUALIFICATIONS REQUIRED BY THE CONSTRUCTION DOCUMENTS; AND, WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION, THAT IS ACCEPTABLE TO AUTHORITIES.
- G. PRECONSTRUCTION TESTING: WHERE TESTING AGENCY IS INDICATED TO PERFORM PRECONSTRUCTION TESTING FOR COMPLIANCE WITH SPECIFIED REQUIREMENTS FOR PERFORMANCE AND TEST METHODS, COMPLY WITH THE FOLLOWING:
 1. CONTRACTOR RESPONSIBILITIES INCLUDE THE FOLLOWING: PROVIDE TEST SPECIMENS REPRESENTATIVE OF PROPOSED PRODUCTS AND CONSTRUCTION. SUBMIT SPECIMENS IN A TIMELY MANNER WITH SUFFICIENT TIME FOR TESTING AND ANALYZING RESULTS TO PREVENT DELAYING THE WORK. WHEN TESTING IS COMPLETE, REMOVE TEST SPECIMENS AND TEST ASSEMBLIES, AND MOCKUPS UNLESS NOTED OTHERWISE; DO NOT REUSE PRODUCTS ON PROJECT.
 2. TESTING AGENCY RESPONSIBILITIES: SUBMIT A CERTIFIED WRITTEN REPORT OF EACH TEST, INSPECTION, AND SIMILAR QUALITY-ASSURANCE SERVICE TO ARCHITECT AND CONTRACTOR. INTERPRET TESTS AND INSPECTIONS AND STATE IN EACH REPORT WHETHER TESTED AND INSPECTED WORK COMPLIES WITH OR DEVIATES FROM THE CONTRACT DOCUMENTS.
- H. MOCKUPS: BEFORE INSTALLING PORTIONS OF THE WORK REQUIRING MOCKUPS, BUILD MOCKUPS FOR EACH FORM OF CONSTRUCTION AND FINISH REQUIRED TO COMPLY WITH THE FOLLOWING REQUIREMENTS, USING MATERIALS INDICATED FOR THE COMPLETED WORK, TO SIZE AND LOCATION INDICATED. DEMONSTRATE THE PROPOSED RANGE OF AESTHETIC EFFECTS AND WORKMANSHIP. NOTIFY ARCHITECT AND CONTRACTOR 7 DAYS IN ADVANCE OF DATES AND TIMES WHEN MOCKUPS WILL BE CONSTRUCTED AND ALLOW 7 DAYS FOR REVIEW AND APPROVAL. OBTAIN THE APPROVAL FROM ARCHITECT AND CONTRACTOR BEFORE STARTING CORRESPONDING WORK. FABRICATION OR CONSTRUCTION. MAINTAIN MOCKUPS DURING CONSTRUCTION IN AN UNDISTURBED CONDITION AS A STANDARD FOR JUDGING THE COMPLETED WORK. DEMOLISH AND REMOVE MOCKUPS WHEN DIRECTED UNLESS OTHERWISE INDICATED.
- I. QUALITY CONTROL:
 1. CONTRACTOR RESPONSIBILITIES: TESTS AND INSPECTIONS ARE CONTRACTOR'S RESPONSIBILITY. PERFORM ADDITIONAL QUALITY-CONTROL ACTIVITIES, WHETHER SPECIFIED OR NOT, TO VERIFY AND DOCUMENT THAT THE WORK COMPLIES WITH REQUIREMENTS. ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM QUALITY-CONTROL SERVICES. NOTIFY TESTING AGENCIES AT LEAST 72 HOURS IN ADVANCE OF TIME WHEN WORK THAT REQUIRES TESTING OR INSPECTION WILL BE PERFORMED. COOPERATE WITH AGENCIES AND REPRESENTATIVES PERFORMING REQUIRED TESTS, INSPECTIONS, AND SIMILAR QUALITY-CONTROL SERVICES, AND PROVIDE REASONABLE AUXILIARY SERVICES AS REQUESTED.
 2. TESTING AGENCY RESPONSIBILITIES: COOPERATE WITH ARCHITECT AND CONTRACTOR IN PERFORMANCE OF DUTIES. PROVIDE QUALIFIED PERSONNEL TO PERFORM REQUIRED TESTS AND INSPECTIONS. INTERPRET TESTS AND INSPECTIONS AND STATE IN EACH REPORT WHETHER TESTED AND INSPECTED WORK COMPLIES WITH OR DEVIATES FROM REQUIREMENTS. NOTIFY ARCHITECT AND CONTRACTOR PROMPTLY OF IRREGULARITIES OR DEFICIENCIES OBSERVED IN THE WORK DURING PERFORMANCE OF ITS SERVICES.
 3. CONTRACTOR AND TESTING AGENCY SHALL COORDINATE SEQUENCE OF ACTIVITIES TO ACCOMMODATE REQUIRED QUALITY-ASSURANCE AND QUALITY-CONTROL SERVICES WITH A MINIMUM OF DELAY AND TO AVOID NECESSITY OF REMOVING AND REPLACING CONSTRUCTION TO ACCOMMODATE TESTING AND INSPECTION.
- J. SPECIAL TESTS AND INSPECTIONS: OWNER WILL ENGAGE A QUALIFIED TESTING AGENCY OR SPECIAL INSPECTOR TO CONDUCT SPECIAL TESTS AND INSPECTIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION AS THE RESPONSIBILITY OF OWNER AS INDICATED IN THE STATEMENT OF SPECIAL INSPECTIONS, AND AS FOLLOWS:
 1. VERIFYING THAT MANUFACTURER MAINTAINS DETAILED FABRICATION AND QUALITY-CONTROL PROCEDURES AND REVIEWING THE COMPLETENESS AND ADEQUACY OF THOSE PROCEDURES TO PERFORM THE WORK.
 2. NOTIFY ARCHITECT AND CONTRACTOR PROMPTLY OF IRREGULARITIES OR DEFICIENCIES OBSERVED IN THE WORK DURING PERFORMANCE OF ITS SERVICES.
 3. SUBMITTING A CERTIFIED WRITTEN REPORT OF EACH TEST, INSPECTION, AND SIMILAR QUALITY-CONTROL SERVICE TO ARCHITECT AND CONTRACTOR WITH COPY TO CONTRACTOR AND TO AUTHORITIES HAVING JURISDICTION. SUBMIT A FINAL REPORT OF SPECIAL TESTS AND INSPECTIONS AT SUBSTANTIAL COMPLETION, WHICH INCLUDES A LIST OF UNRESOLVED DEFICIENCIES.
 4. RETESTING AND REINSPECTING CORRECTED WORK.
- K. ALL RETESTING/REINSPECTING: REGARDLESS OF WHETHER ORIGINAL TESTS OR INSPECTIONS WERE CONTRACTOR'S RESPONSIBILITY OR THE OWNER'S SPECIAL INSPECTIONS, PROVIDE QUALITY-CONTROL SERVICES, INCLUDING RETESTING AND REINSPECTING, FOR CONSTRUCTION THAT REPLACED WORK THAT FAILED TO COMPLY WITH THE CONTRACT DOCUMENTS.

CONSTRUCTION WASTE MANAGEMENT:

- A. DEVELOP A WASTE MANAGEMENT PLAN AND SUBMIT PLAN FOR APPROVAL WITHIN 14 DAYS OF DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK.
- B. DISTRIBUTE AND IMPLEMENT APPROVED WASTE MANAGEMENT PLAN. PROVIDE HANDLING, CONTAINERS, STORAGE, SIGNAGE, TRANSPORTATION, AND OTHER ITEMS AS REQUIRED TO IMPLEMENT WASTE MANAGEMENT PLAN DURING THE ENTIRE DURATION OF THE CONTRACT.
- C. TRAIN WORKERS, SUBCONTRACTORS, AND SUPPLIERS ON PROPER WASTE MANAGEMENT PROCEDURES, AS APPROPRIATE FOR THE WORK.
- D. SITE ACCESS AND TEMPORARY CONTROLS: CONDUCT WASTE MANAGEMENT OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, WALKWAYS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES. DESIGNATE AND LABEL SPECIFIC AREAS ON PROJECT SITE NECESSARY FOR SEPARATING MATERIALS THAT ARE TO BE SALVAGED AND RECYCLED.

CLOSEOUT PROCEDURES:

- A. CONTRACTOR'S LIST OF INCOMPLETE ITEMS: PREPARE AND SUBMIT A LIST OF ITEMS TO BE COMPLETED AND CORRECTED (CONTRACTOR'S "PUNCH LIST"), INDICATING THE VALUE OF EACH ITEM ON THE LIST AND REASONS WHY THE WORK IS INCOMPLETE.
- B. SUBMITTALS PRIOR TO SUBSTANTIAL COMPLETION: COMPLETE THE FOLLOWING A MINIMUM OF 10 DAYS PRIOR TO REQUESTING INSPECTION FOR DETERMINING DATE OF SUBSTANTIAL COMPLETION.
 1. SUBMIT A FINAL APPLICATION FOR PAYMENT.
 2. CERTIFICATE OF INSURANCE: SUBMIT EVIDENCE OF FINAL, CONTINUING INSURANCE COVERAGE.
 3. CERTIFIED LIST OF INCOMPLETE ITEMS: SUBMIT CERTIFIED COPY OF ARCHITECT'S SUBSTANTIAL COMPLETION INSPECTION LIST OF ITEMS TO BE COMPLETED OR CORRECTED (PUNCH LIST), ENDORSED AND DATED BY ARCHITECT. CERTIFIED COPY OF THE LIST SHALL STATE THAT EACH ITEM HAS BEEN COMPLETED OR OTHERWISE RESOLVED FOR ACCEPTANCE.
 4. CERTIFICATES OF RELEASE: OBTAIN AND SUBMIT RELEASES FROM AUTHORITIES HAVING JURISDICTION, PERMITTING OWNER UNRESTRICTED USE OF THE WORK AND ACCESS TO SERVICES AND UTILITIES. INCLUDE OCCUPANCY PERMITS, OPERATING CERTIFICATES, AND SIMILAR RELEASES.
 5. SUBMIT CLOSEOUT SUBMITTALS AS REQUIRED, INCLUDING SPECIFIC WARRANTIES, WORKMANSHIP BONDS, MAINTENANCE SERVICE AGREEMENTS, FINAL CERTIFICATIONS, AND SIMILAR DOCUMENTS.
 6. SUBMIT MAINTENANCE MATERIAL SUBMITTALS SPECIFIED IN INDIVIDUAL SECTIONS, INCLUDING TOOLS, SPARE PARTS, EXTRA MATERIALS, AND SIMILAR ITEMS, AND DELIVER TO LOCATION DESIGNATED BY OWNER OR OWNER'S AGENT. LABEL WITH MANUFACTURER'S NAME AND MODEL NUMBER.
 7. SUBMIT TESTING, ADJUSTING, AND BALANCING RECORDS.
 8. SUBMIT CHANGEOVER INFORMATION RELATED TO OWNER'S OCCUPANCY, USE, OPERATION, AND MAINTENANCE.

C. FINAL CLEANING

1. EMPLOY EXPERIENCED WORKERS OR PROFESSIONAL CLEANERS FOR FINAL CLEANING. CLEAN EACH SURFACE OR UNIT TO CONDITION EXPECTED IN AN AVERAGE COMMERCIAL BUILDING CLEANING AND MAINTENANCE PROGRAM. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. USE CLEANING PRODUCTS THAT COMPLY WITH GREEN SEAL'S GS-37, OR IF GS-37 IS NOT APPLICABLE, USE PRODUCTS THAT COMPLY WITH THE CALIFORNIA CODE OF REGULATIONS MAXIMUM ALLOWABLE VOC LEVELS.
3. CLEAN EXPOSED EXTERIOR AND INTERIOR HARD-SURFACED FINISHES TO A DIRT-FREE CONDITION, FREE OF STAINS, FILMS, AND SIMILAR FOREIGN SUBSTANCES. AVOID DISTURBING NATURAL WEATHERING OF EXTERIOR SURFACES. RESTORE REFLECTIVE SURFACES TO THEIR ORIGINAL CONDITION.
4. VACUUM CARPET AND SIMILAR SOFT SURFACES, REMOVING DEBRIS AND EXCESS NAP; CLEAN ACCORDING TO MANUFACTURER'S RECOMMENDATIONS IF VISIBLE SOIL OR STAINS REMAIN.
5. CLEAN TRANSPARENT MATERIALS, INCLUDING MIRRORS AND GLASS IN DOORS AND WINDOWS. REMOVE GLAZING COMPOUNDS AND OTHER NOTICEABLE, VISION-OBSCURING MATERIALS. POLISH MIRRORS AND GLASS, TAKING CARE NOT TO SCRATCH SURFACES.
6. CLEAN PLUMBING FIXTURES TO A SANITARY CONDITION, FREE OF STAINS, INCLUDING STAINS RESULTING FROM WATER EXPOSURE.

OPERATIONS AND MAINTENANCE DATA:

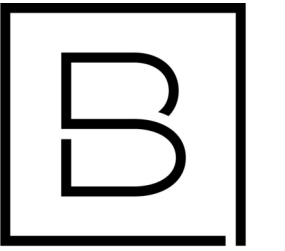
- A. SUBMIT EACH MANUAL IN FINAL FORM PRIOR TO REQUESTING INSPECTION FOR SUBSTANTIAL COMPLETION AND AT LEAST 10 DAYS BEFORE COMMENCING DEMONSTRATION AND TRAINING.
- B. CORRECT OR REVISE EACH MANUAL TO COMPLY WITH ARCHITECT'S COMMENTS. SUBMIT COPIES OF EACH CORRECTED MANUAL WITHIN 10 DAYS OF RECEIPT OF ARCHITECT'S COMMENTS AND PRIOR TO COMMENCING DEMONSTRATION AND TRAINING.
- C. SUBMIT ON DIGITAL MEDIA ACCEPTABLE TO ARCHITECT BY UPLOADING TO WEB-BASED PROJECT SOFTWARE SITE OR BY EMAIL TO ARCHITECT, IF WEB-BASED SOFTWARE IS NOT UTILIZED. ENABLE REVIEWER COMMENTS ON DRAFT SUBMITTALS.
 1. ELECTRONIC FILES: USE ELECTRONIC FILES PREPARED BY MANUFACTURER WHERE AVAILABLE. WHERE SCANNING OF PAPER DOCUMENTS IS REQUIRED, CONFIGURE SCANNED FILE FOR MINIMUM READABLE FILE SIZE.
 2. BOOKMARK INDIVIDUAL DOCUMENTS BASED ON FILE NAMES. NAME DOCUMENT FILES TO CORRESPOND TO SYSTEM, SUBSYSTEM, AND EQUIPMENT NAMES USED IN MANUAL DIRECTORY AND TABLE OF CONTENTS. GROUP DOCUMENTS FOR EACH SYSTEM AND SUBSYSTEM INTO INDIVIDUAL COMPOSITE BOOKMARKED FILES; THEN CREATE COMPOSITE MANUAL, SO THAT RESULTING BOOKMARKS REFLECT THE SYSTEM, SUBSYSTEM, AND EQUIPMENT NAMES IN A READILY NAVEGATED FILE TREE. CONFIGURE ELECTRONIC MANUAL TO DISPLAY BOOKMARK PANEL ON OPENING FILE.
- D. ORGANIZATION OF MANUALS: UNLESS OTHERWISE INDICATED, ORGANIZE EACH MANUAL INTO A SEPARATE SECTION FOR EACH SYSTEM AND SUBSYSTEM, AND A SEPARATE SECTION FOR EACH PIECE OF EQUIPMENT NOT PART OF A SYSTEM. PROVIDE A TITLE PAGE AND TABLE OF CONTENTS.
 1. TITLE PAGE SHALL INCLUDE:
 - a. SUBJECT MATTER INCLUDED IN MANUAL.
 - b. DATE OF SUBMITTAL.
 - c. NAME AND CONTACT INFORMATION FOR CONTRACTOR AND CONSTRUCTION MANAGER WHEN APPLICABLE.
 - d. NAME AND CONTACT INFORMATION FOR COMMISSIONING AUTHORITY.
 2. EMERGENCY MANUAL: ASSEMBLE A COMPLETE SET OF EMERGENCY INFORMATION INDICATING PROCEDURES FOR USE BY EMERGENCY PERSONNEL AND BY OWNER'S OPERATING PERSONNEL FOR TYPES OF EMERGENCIES INDICATED.
 3. SYSTEMS AND EQUIPMENT OPERATION MANUAL: ASSEMBLE A COMPLETE SET OF DATA INDICATING OPERATION OF EACH SYSTEM, SUBSYSTEM, AND PIECE OF EQUIPMENT NOT PART OF A SYSTEM. INCLUDE INFORMATION REQUIRED FOR DAILY OPERATION AND MANAGEMENT, OPERATING STANDARDS, AND ROUTINE AND SPECIAL OPERATING PROCEDURES.
 4. SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS: ASSEMBLE A COMPLETE SET OF DATA INDICATING MAINTENANCE OF EACH SYSTEM, SUBSYSTEM, AND PIECE OF EQUIPMENT NOT PART OF A SYSTEM. INCLUDE MANUFACTURERS' MAINTENANCE DOCUMENTATION, PREVENTIVE MAINTENANCE PROCEDURES AND FREQUENCY, REPAIR PROCEDURES, WIRING AND SYSTEMS DIAGRAMS, LISTS OF SPARE PARTS, AND WARRANTY INFORMATION.
 5. PRODUCT MAINTENANCE MANUAL: ASSEMBLE A COMPLETE SET OF MAINTENANCE DATA INDICATING CARE AND MAINTENANCE OF EACH PRODUCT, MATERIAL, AND FINISH INCORPORATED INTO THE WORK.

PROJECT RECORD DOCUMENTS:

- A. RECORD PRINTS: MAINTAIN ONE SET OF MARKED-UP PAPER COPIES OF THE CONTRACT DRAWINGS AND SHOP DRAWINGS, INCORPORATING NEW AND REVISED DRAWINGS AS MODIFICATIONS ARE ISSUED.
- B. MAINTAIN ONE COPY OF EACH SUBMITTAL DURING THE CONSTRUCTION PERIOD FOR PROJECT RECORD DOCUMENT PURPOSES. POST CHANGES AND REVISIONS TO PROJECT RECORD DOCUMENTS AS THEY OCCUR; DO NOT WAIT UNTIL END OF PROJECT.
- C. RECORD DIGITAL DATA FILES: IMMEDIATELY BEFORE INSPECTION FOR CERTIFICATE OF SUBSTANTIAL COMPLETION, REVIEW MARKED-UP RECORD DOCUMENTS WITH ARCHITECT AND CONTRACTOR. WHEN AUTHORIZED, PREPARE A FULL SET OF CORRECTED DIGITAL DATA FILES OF THE CONTRACT DOCUMENTS. SEE OPERATIONS AND MAINTENANCE DATA SECTION ABOVE FOR SUBMISSION FORMAT REQUIREMENTS.

DEMONSTRATION AND TRAINING:

- A. FACILITATOR: CONTRACTOR OR CONSTRUCTION MANAGER SHALL PREPARE INSTRUCTION PROGRAM AND TRAINING MODULES, TO COORDINATE INSTRUCTORS, AND TO COORDINATE BETWEEN CONTRACTOR AND OWNER FOR NUMBER OF PARTICIPANTS, INSTRUCTION TIMES, AND LOCATION.
- B. ENGAGE QUALIFIED INSTRUCTORS TO INSTRUCT OWNER'S PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN SYSTEMS, SUBSYSTEMS, AND EQUIPMENT NOT PART OF A SYSTEM.
- C. PROVIDE INSTRUCTION AT MUTUALLY AGREED-ON TIMES. FOR EQUIPMENT THAT REQUIRES SEASONAL OPERATION, PROVIDE SIMILAR INSTRUCTION AT START OF EACH SEASON.
- D. TRAINING LOCATION AND REFERENCE MATERIAL: CONDUCT TRAINING ON-SITE IN THE COMPLETED AND FULLY OPERATIONAL FACILITY USING THE ACTUAL EQUIPMENT IN-PLACE. CONDUCT TRAINING USING FINAL OPERATION AND MAINTENANCE DATA SUBMITTALS.
- E. EVALUATION: AT CONCLUSION OF EACH TRAINING MODULE, ASSESS AND DOCUMENT EACH PARTICIPANT'S MASTERY OF MODULE BY USE A DEMONSTRATION PERFORMANCE-BASED TEST.
- F. COLLECT USED AND LEFT-OVER EDUCATIONAL MATERIALS AND GIVE TO OWNER. REMOVE INSTRUCTIONAL EQUIPMENT. RESTORE SYSTEMS AND EQUIPMENT TO CONDITION EXISTING BEFORE INITIAL TRAINING USE.



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ORCHARD VIEW SCHOOL DISTRICT

MIDDLE SCHOOL KITCHEN RENOVATIONS

35 S SHERIDAN DR
MUSKEGON, MI 49442

Date Revised	Description
1-24-2023	OWNER REVIEW
1-31-2023	BIDS

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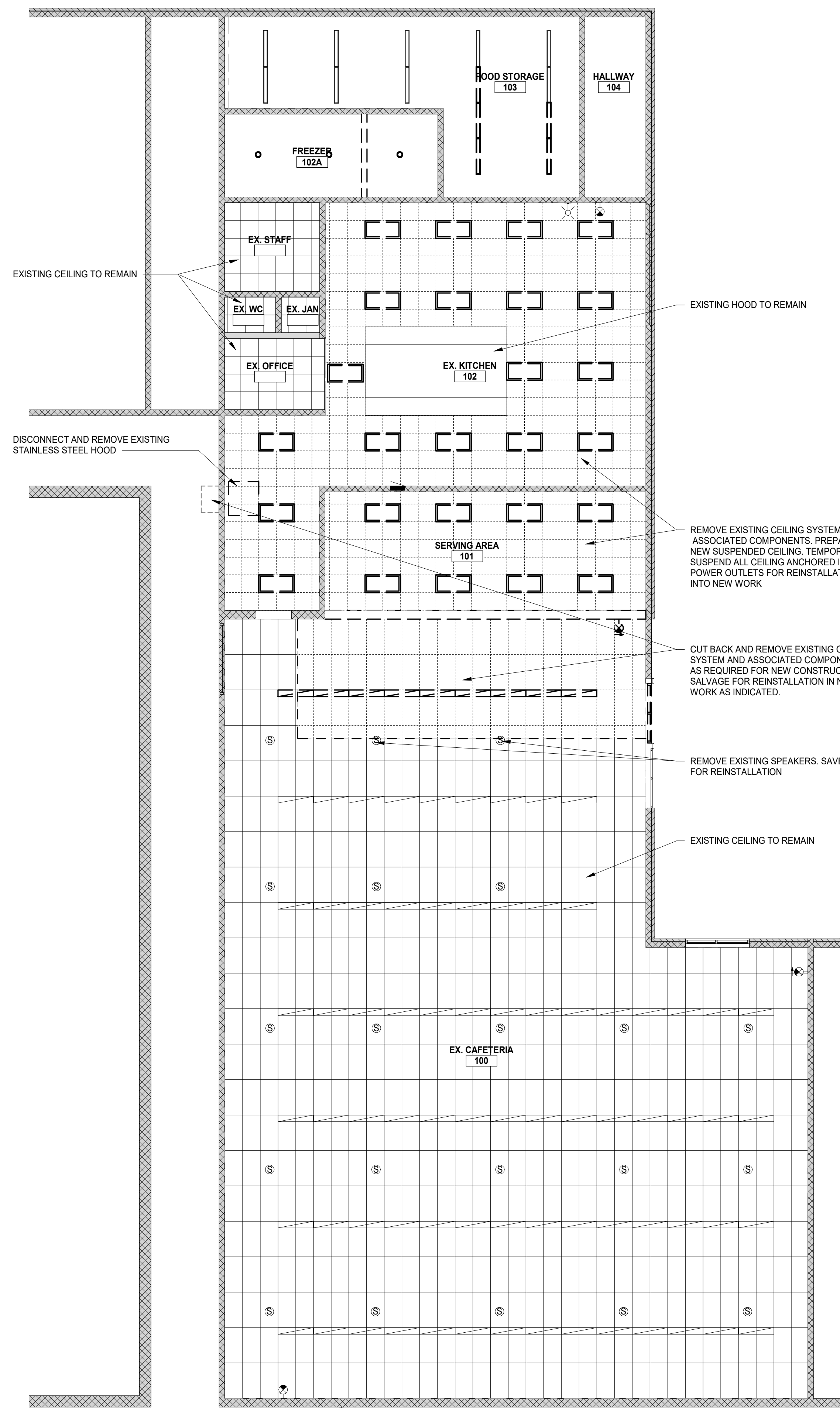
Project Manager	Discipline Lead
D HOLTROP	B HUYLER
Designer	Reviewer
E POST	R KEUNEKE
Date Issued	Project Number
1/31/2023	016633.00

Sheet Name

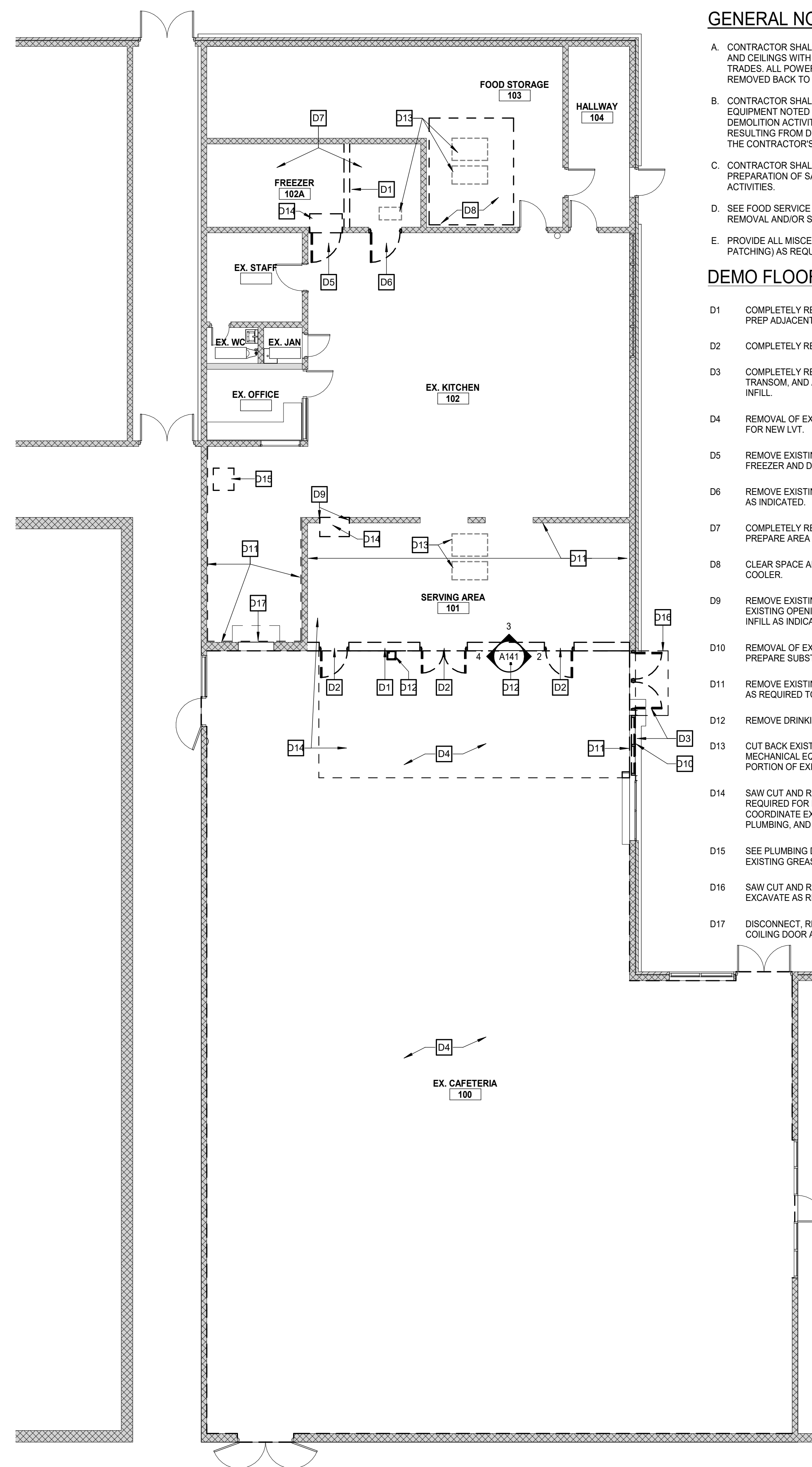
GENERAL REQUIREMENTS

Drawing Number

A002



2 FIRST FLOOR DEMOLITION CEILING PLAN
SCALE: 1/8" = 1'-0"



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

GENERAL NOTES

- A. CONTRACTOR SHALL COORDINATE REMOVAL OF FLOORS, WALLS AND CEILINGS WITH MECHANICAL, ELECTRICAL AND PLUMBING TRADES. ALL POWER, MECHANICAL AND PLUMBING LINES SHALL BE REMOVED BACK TO NEAREST MAIN BRANCH LINE OR PANEL.
- B. CONTRACTOR SHALL PROTECT EXISTING CONSTRUCTION AND EQUIPMENT NOTED TO REMAIN FROM DAMAGE RESULTING FROM DEMOLITION ACTIVITIES. ANY DAMAGE TO EXISTING PROPERTY RESULTING FROM DEMOLITION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- C. CONTRACTOR SHALL PROTECT ADJACENT SURFACES IN PREPARATION OF SAW CUTTING REQUIRED FOR DEMOLITION ACTIVITIES.
- D. SEE FOOD SERVICE DRAWINGS (FSE) FOR REQUIRED EQUIPMENT REMOVAL AND/OR SALVAGE.
- E. PROVIDE ALL MISCELLANEOUS DEMOLITION (CUTTING AND PATCHING) AS REQUIRED FOR INSTALLATION OF NEW WORK.

DEMO FLOOR PLAN KEYNOTES #

- D1 COMPLETELY REMOVE EXISTING WALL AS NOTED. REPAIR AND PREP ADJACENT WALLS AND FLOOR TO RECEIVE NEW FINISHES.
- D2 COMPLETELY REMOVE EXISTING DOOR, FRAME, AND HARDWARE.
- D3 COMPLETELY REMOVE EXISTING DOOR, FRAME, HARDWARE, TRANSOM, AND ADJACENT WINDOW. PREPARE OPENING FOR INFILL.
- D4 REMOVAL OF EXISTING FLOORING BY OWNER. PREPARE SURFACE FOR NEW LVT.
- D5 REMOVE EXISTING COOLER DOOR AND PREP OPENING FOR NEW FREEZER AND DOOR.
- D6 REMOVE EXISTING COOLER DOOR AND PREP OPENING FOR INFILL AS INDICATED.
- D7 COMPLETELY REMOVE EXISTING WALK-IN COOLER AND FREEZER. PREPARE AREA TO RECEIVE NEW FREEZER.
- D8 CLEAR SPACE AND PREPARE AREA AS REQUIRED TO RECEIVE NEW COOLER.
- D9 REMOVE EXISTING CERAMIC TILE FROM JAMB AND HEAD OF EXISTING OPENING. PREPARE AS REQUIRED FOR NEW FINISHES OR INFILL AS INDICATED ON ARCHITECTURAL PLANS.
- D10 REMOVAL OF EXISTING EXTERIOR PANEL SYSTEM BY OWNER. PREPARE SUBSTRATE AS REQUIRED FOR NEW CONSTRUCTION.
- D11 REMOVE EXISTING WALL TILE. PREP AND REPAIR WALL BENEATH AS REQUIRED TO RECEIVE NEW FINISH.
- D12 REMOVE DRINKING FOUNTAIN. SEE PLUMBING PLANS
- D13 CUT BACK EXISTING ROOF SYSTEM AS REQUIRED FOR NEW MECHANICAL EQUIPMENT AND UTILITY PENETRATIONS. REMOVE PORTION OF EXISTING DECK FOR DUCTWORK PENETRATIONS.
- D14 SAW CUT AND REMOVE PORTION OF EXISTING FLOOR AS REQUIRED FOR NEW UNDERGROUND UTILITIES AND FOOTINGS. COORDINATE EXACT EXTENT AND LOCATION WITH STRUCTURAL, PLUMBING, AND ELECTRICAL DRAWINGS.
- D15 SEE PLUMBING DRAWINGS FOR DEMO WORK ASSOCIATED WITH EXISTING GREASE INTERCEPTOR.
- D16 SAW CUT AND REMOVE EXISTING CONCRETE STOOP AND EXCAVATE AS REQUIRED FOR NEW FOUNDATION.
- D17 DISCONNECT, REMOVE, AND SALVAGE EXISTING STAINLESS STEEL COILING DOOR AND TRACK FOR REINSTALLATION.



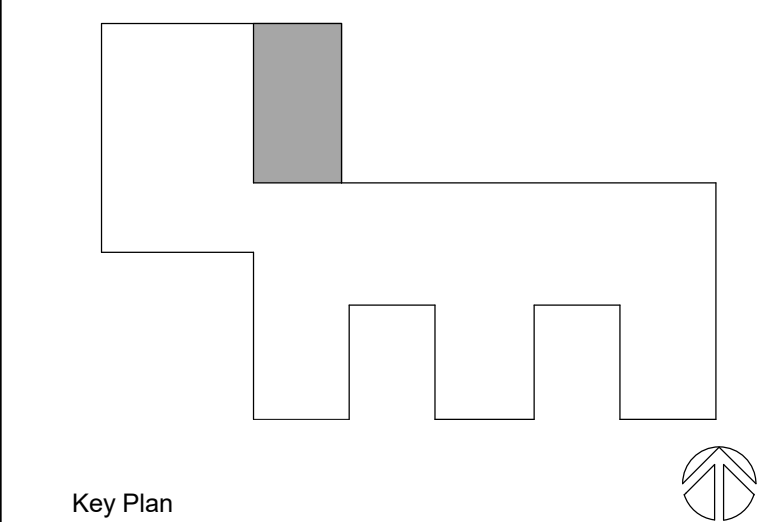
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ORCHARD VIEW
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MIDDLE SCHOOL
KITCHEN
RENOVATIONS

35 S SHERIDAN DR
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Date Revised	Description
1-24-2023	OWNER REVIEW
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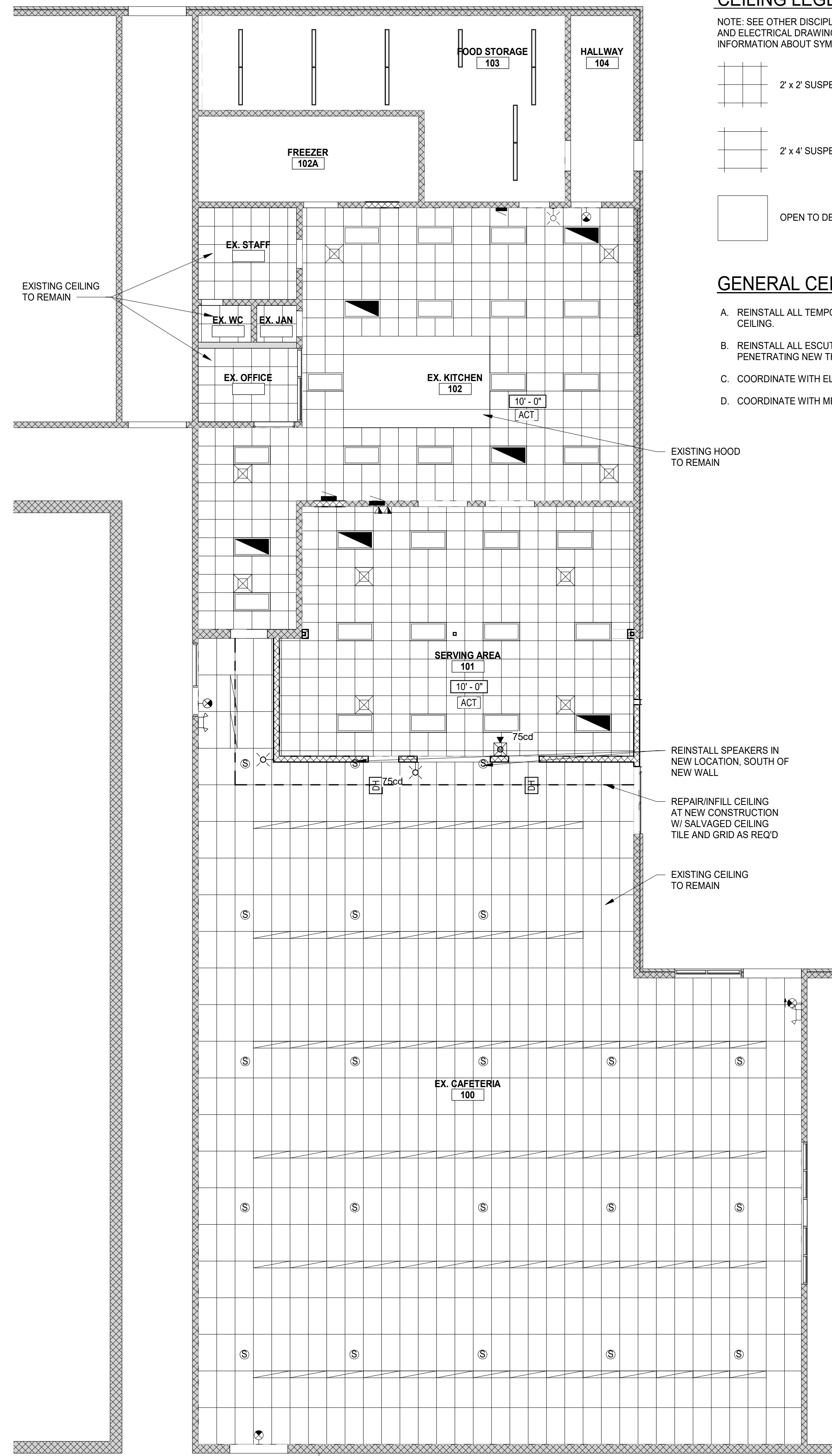
Project Manager	Discipline Lead
D HOLTROP	B HUYLER
Designer	Reviewer
E POST	R KEUNEKE
Date Issued	Project Number
1/31/2023	016633.00

Sheet Name

FIRST FLOOR AND CEILING
DEMOLITION PLANS

Drawing Number

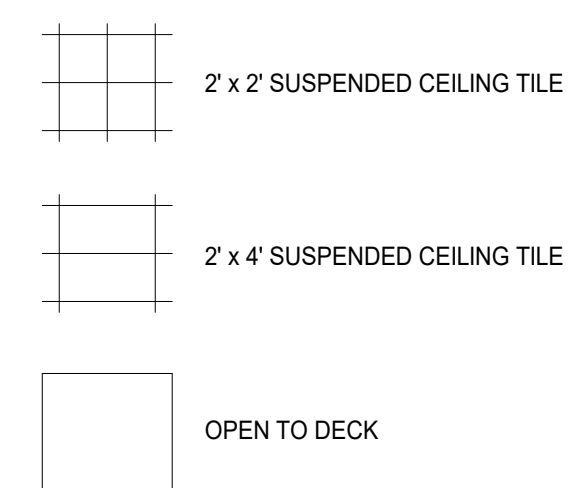
AD101



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

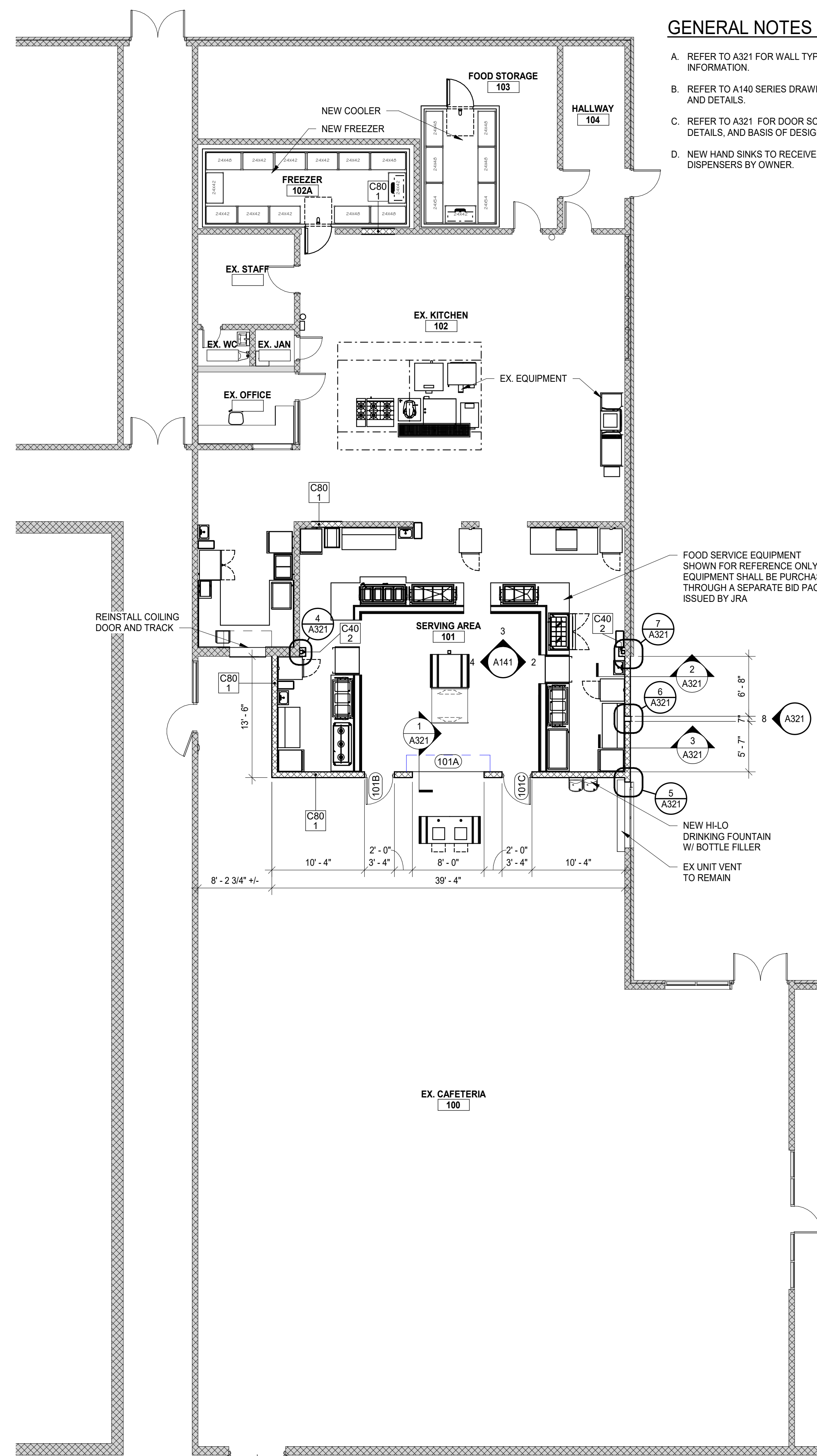
CEILING LEGEND

NOTE: SEE OTHER DISCIPLINE DRAWINGS (E.G. MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS) FOR ASSOCIATED SYSTEMS AND INFORMATION ABOUT SYMBOLS NOT INDICATED IN THIS LEGEND.



GENERAL CEILING NOTES

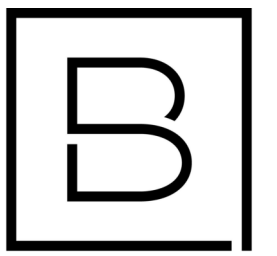
- A. REINSTALL ALL TEMPORARILY SUSPENDED EQUIPMENT IN NEW CEILING.
- B. REINSTALL ALL ESCUTCHEONS AND TRIMS FOR EXISTING ITEMS PENETRATING NEW THROUGH CEILING.
- C. COORDINATE WITH ELECTRICAL FOR FINAL LIGHTING LOCATIONS.
- D. COORDINATE WITH MECHANICAL FOR FINAL DIFFUSER LOCATIONS.



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

GENERAL NOTES

- A. REFER TO A321 FOR WALL TYPES, DETAILS, AND ADDITIONAL INFORMATION.
- B. REFER TO A140 SERIES DRAWINGS FOR FINISH PLANS, SCHEDULES, AND DETAILS.
- C. REFER TO A321 FOR DOOR SCHEDULE, WINDOW SCHEDULE, DETAILS, AND BASIS OF DESIGN.
- D. NEW HAND SINKS TO RECEIVE PAPER TOWEL AND SOAP DISPENSERS BY OWNER.



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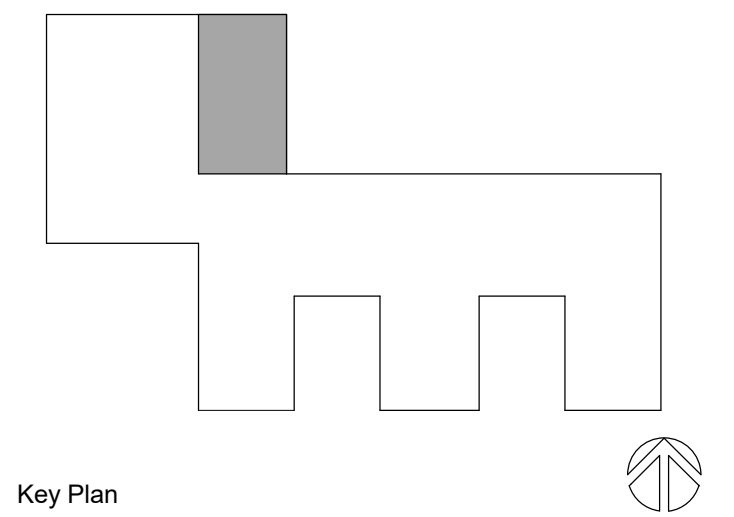
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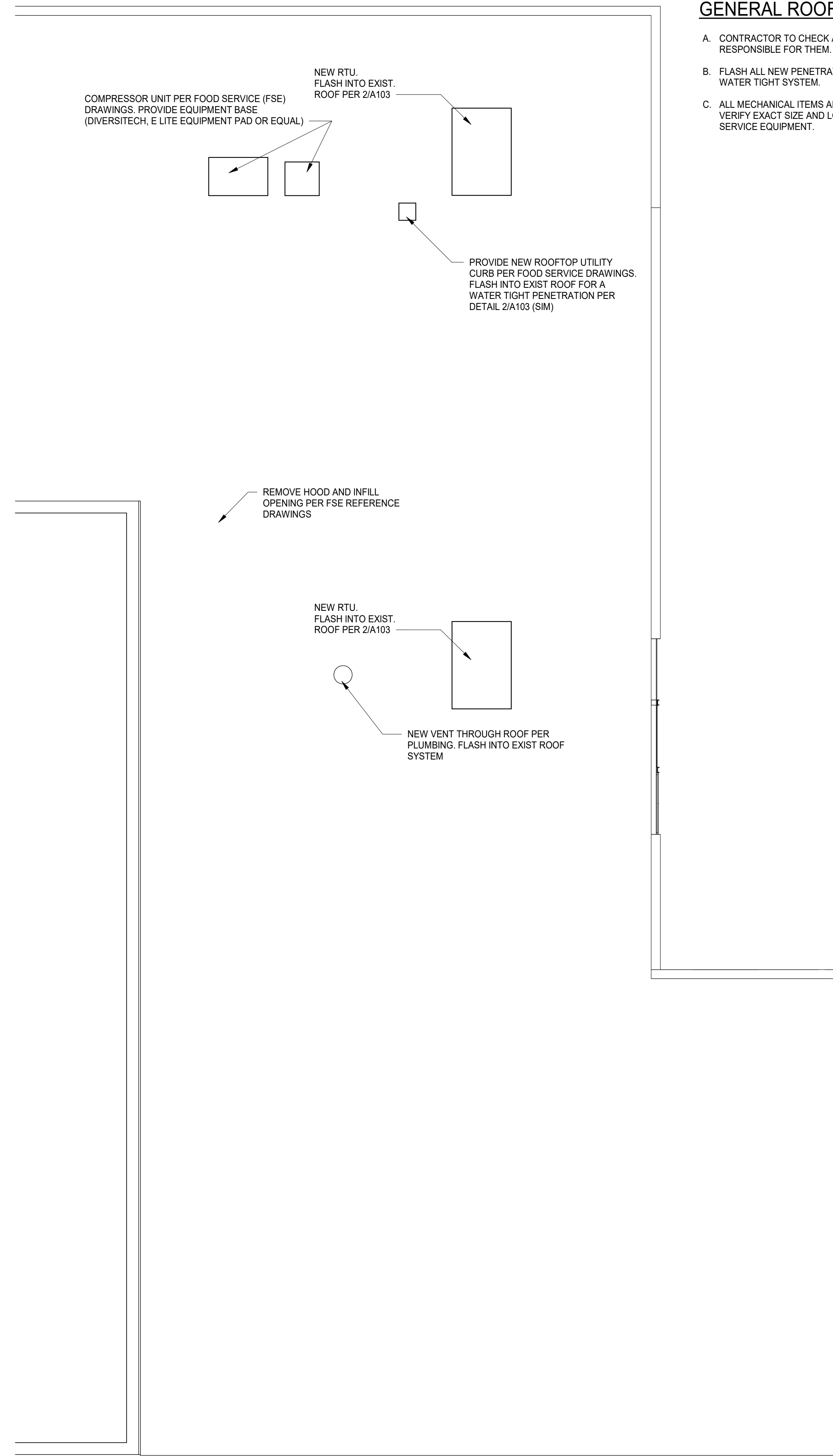
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Designer	Reviewer
E. POST	R. KEUNEKE
Date Issued	Project Number
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**FIRST FLOOR AND CEILING
PLANS**

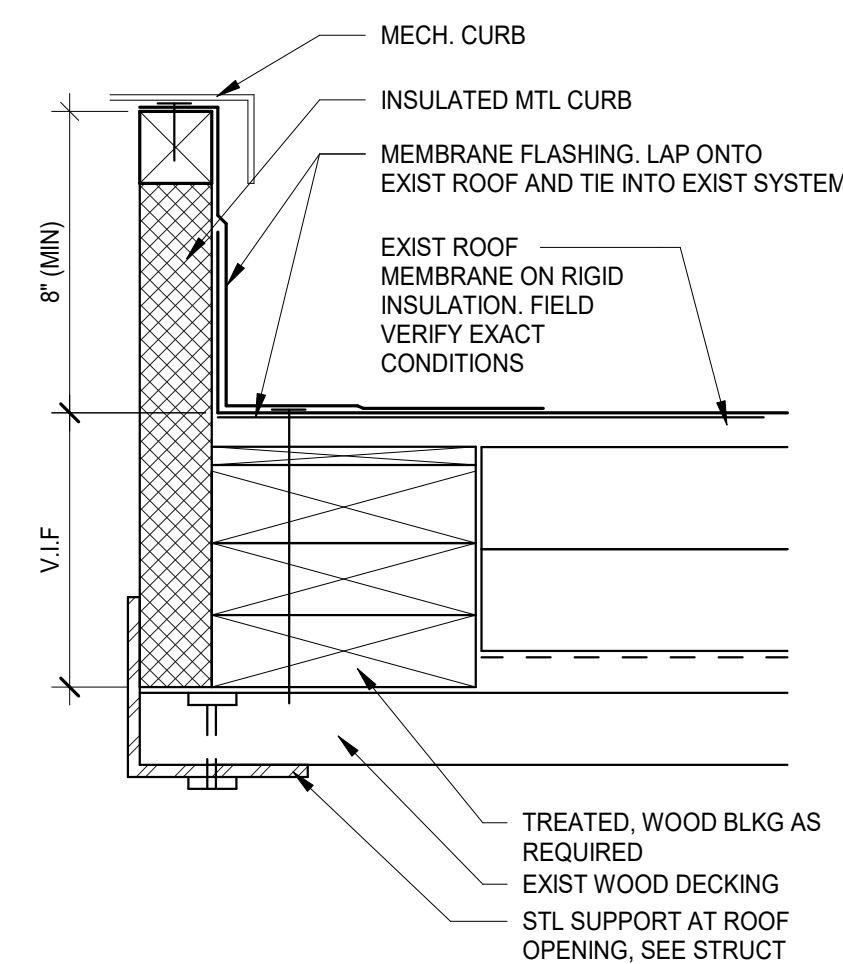
Drawing Number

A101



GENERAL ROOF PLAN NOTES

- A. CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR THEM.
- B. FLASH ALL NEW PENETRATIONS INTO EXISTING ROOF TO MAINTAIN A WATER TIGHT SYSTEM.
- C. ALL MECHANICAL ITEMS ARE SHOWN FOR GENERAL LAYOUT ONLY. VERIFY EXACT SIZE AND LOCATION WITH MECHANICAL AND FOOD SERVICE EQUIPMENT.



2 ROOF EQUIPMENT CURB FLASHING DETAIL, TYP
SCALE: 3" = 1'-0"

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



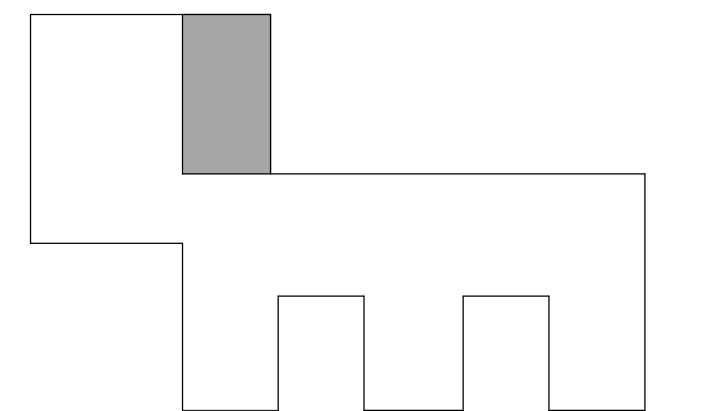
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Key Plan

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Sheet Name

ROOF PLAN

Drawing Number

A103

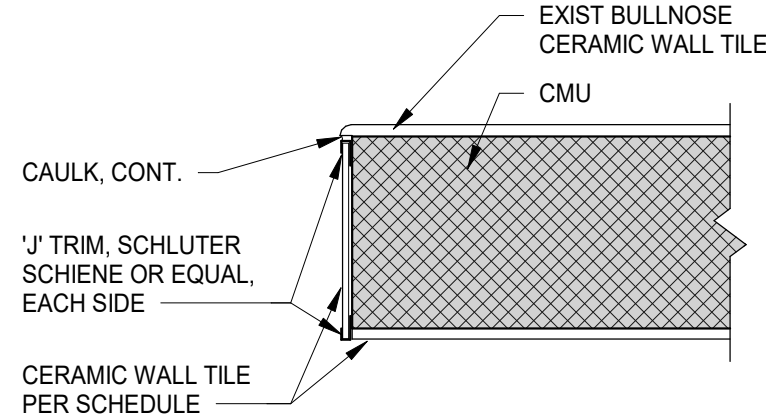
BASIS OF DESIGN	
095113 ACOUSTICAL PANEL CEILINGS	
ACT-1: ACOUSTICAL CEILING TILE 24"x24"	MANUFACTURER: ARMSTRONG
STYLE: KITCHENZONE	COLOR: WHITE
EDGE: SQUARE LAY-IN 15/16"	GRID: 15/16" WHITE
NOTE:	
096513 RESILIENT BASE	
RB-1: RESILIENT WALL BASE: 4" H	MANUFACTURER: JOHNSONITE
STYLE: TRADITIONAL 4" DC	COLOR: BURNT UMBER B
TOE STYLE: COVE	NOTE:
096519 RESILIENT TILE FLOORING	
LVT-1: LVT PLANK: 6" x 48", 20 MIL	MANUFACTURER: SHAW CONTRACT
COLLECTION: SOLITUDE	STYLE: 0648V
COLOR: COCOA 48103	NOTE:
098433 INTERIOR PAINT	
P-1: FIELD - INTERIOR PAINT	MANUFACTURER: SHERWIN-WILLIAMS
COLOR: SW 7008 - ALABASTER	FINISH: SATIN
NOTE: USE EPOXY PAINT AS INDICATED	
093000 TILE	
WT-1: GLAZED CERAMIC TILE; 3"x6", 5/16" THICK	MANUFACTURER: DALTILE
COLOR: COLOR WHEEL	STYLE: CLASSIC
COLOR: MATTE WHITE	GROUT: MAPEI 10 BLACK
LOCATION: SERVING AREA EXISTING CMU WALLS	NOTE:
068200 GLASS FIBER REINFORCED PLASTIC	
FRP-1: GLASS FIBER REINFORCED PLASTIC	MANUFACTURER: PANGLAM SERVICE SYSTEMS
COLOR: AS SELECTED FROM MANUFACTURER'S STANDARD RANGE	TEXTURE: MANUFACTURER'S STANDARD BUBBLE FINISH
NOTE: PROVIDE TRIMS AS REQUIRED FOR A COMPLETE INSTALLATION	

ROOM FINISH SCHEDULE									
ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALLS				CEILING	REMARKS
				NORTH	SOUTH	EAST	WEST		
1ST FLOOR									
100	EX. CAFETERIA	LVT-1	RB-1	P-1	EXIST	EXIST	EXIST	EXIST	1
101	SERVING AREA	LVT-1	RB-1	EP-1/WT-1	EP-1	EP-1/WT-1	EP-1/WT-1	ACT-1	3
102	EX. KITCHEN	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	ACT-1	2
102A	FREEZER	-	-	-	-	-	-	-	4
103	FOOD STORAGE	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	5
104	HALLWAY	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	EXIST	5
105	SNACKS	EXIST	-	EXIST	FRP-1	FRP-1	FRP-1	ACT-1	5

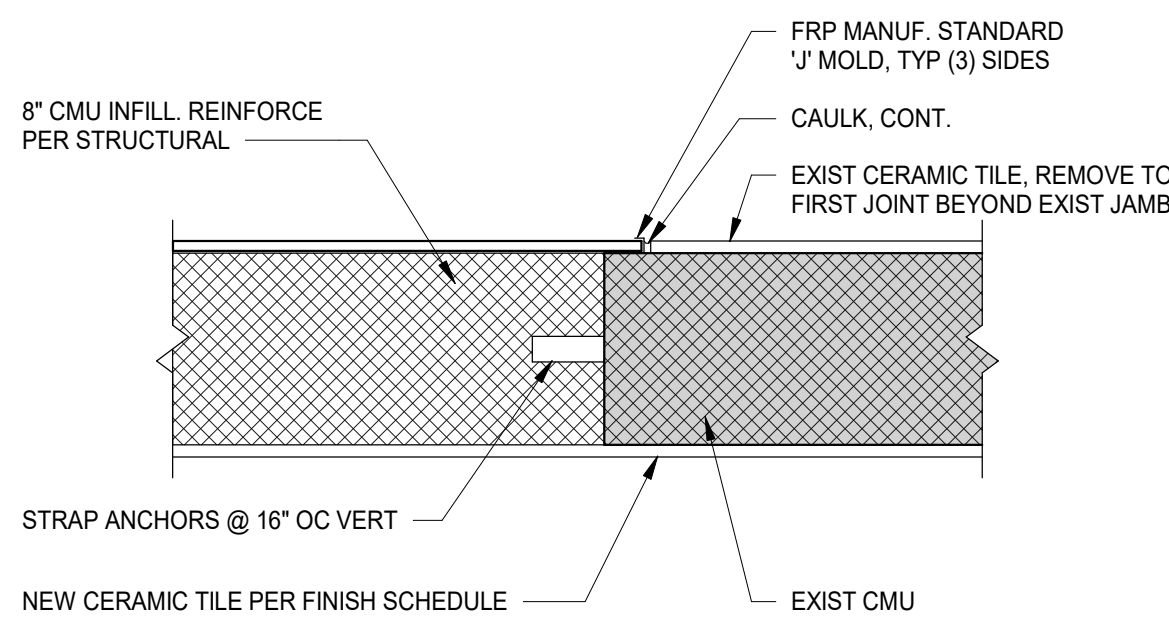
FINISH REMARKS:
 1. PAINT AND BASE AT NEW CMU WALLS ONLY. BALANCE OF FINISHES TO REMAIN. PROTECT AS REQUIRED.
 2. SEE FINISH PLAN FOR FRP-1 LOCATIONS AT INFILL.
 3. CERAMIC TILE TO BE INSTALLED AT EXISTING CMU WALLS AND INFILL ONLY. RUBBER BASE AT NEW WALLS.
 4. ALL FINISHES PER FOOD SERVICE (FSE) DRAWINGS.
 5. EXISTING FINISHES TO REMAIN. PAINT NEW EXPOSED DUCTWORK TO MATCH EXISTING CEILINGS.

FINISH SYMBOL LEGEND

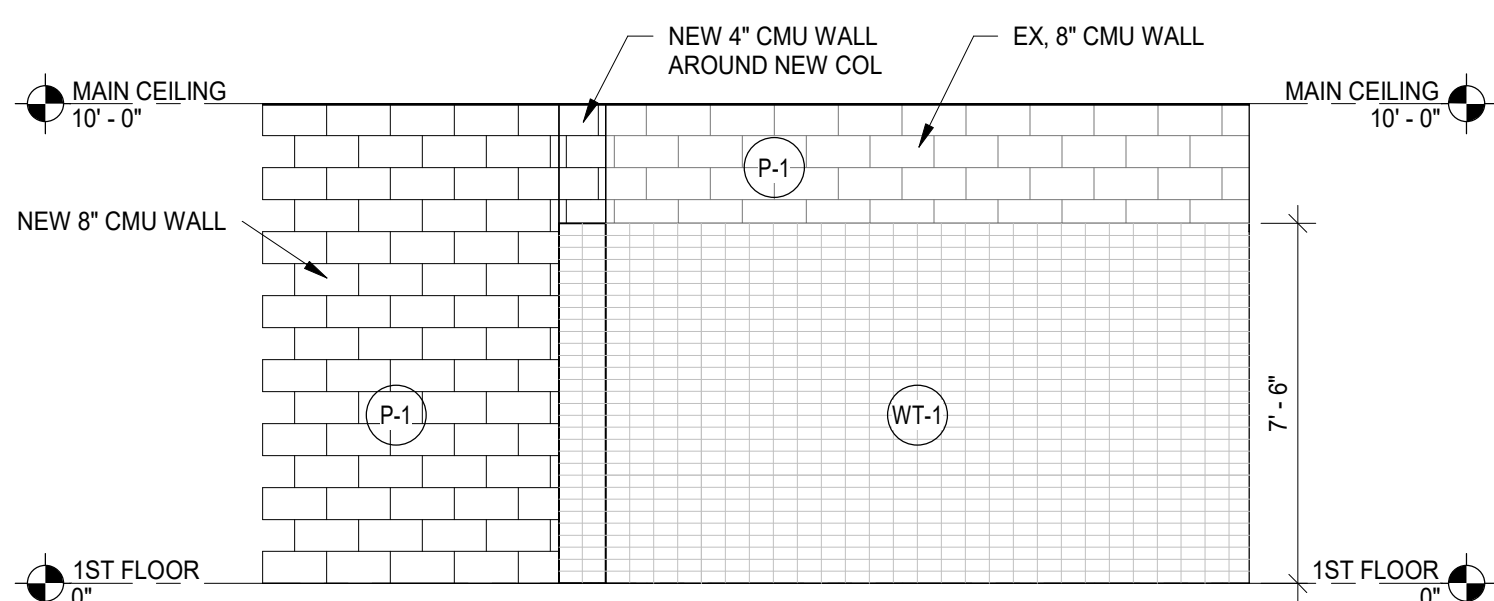
- FLOOR FINISH
- WALL BASE FINISH
- FLOOR FINISH ONLY
- GENERAL WALL FINISH
- GENERAL WALL SPLIT FINISH
- TRANSITION STRIP



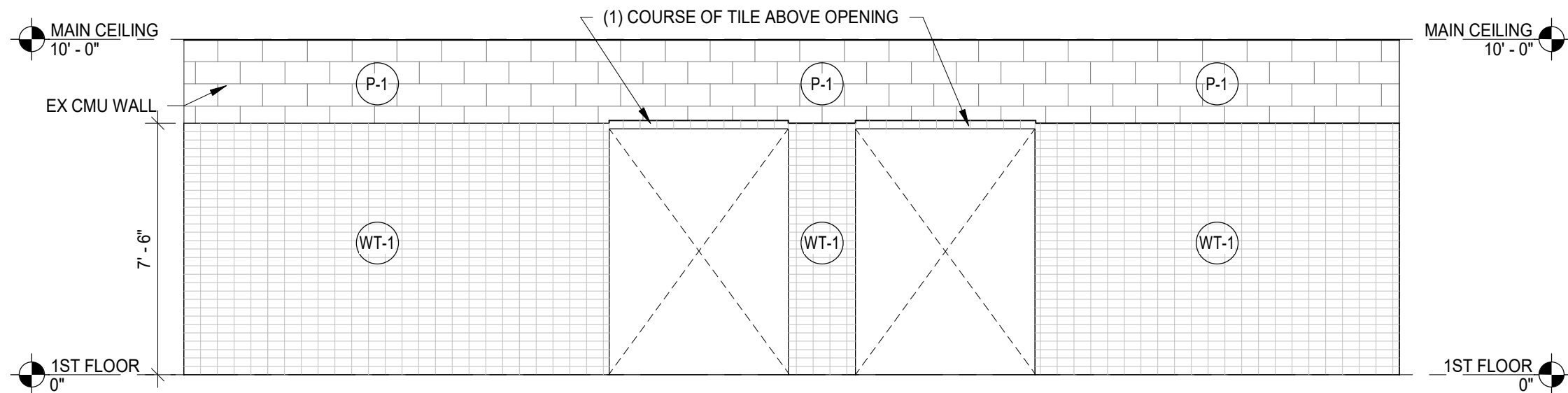
6 JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



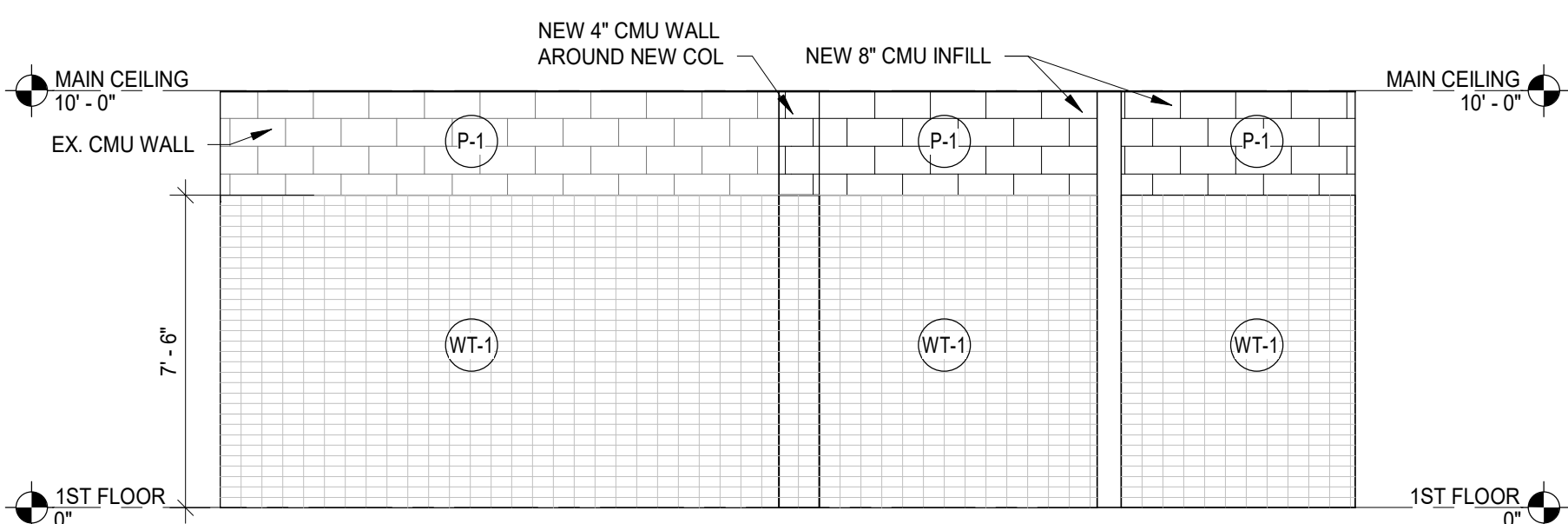
5 INFILL DETAIL
SCALE: 1 1/2" = 1'-0"



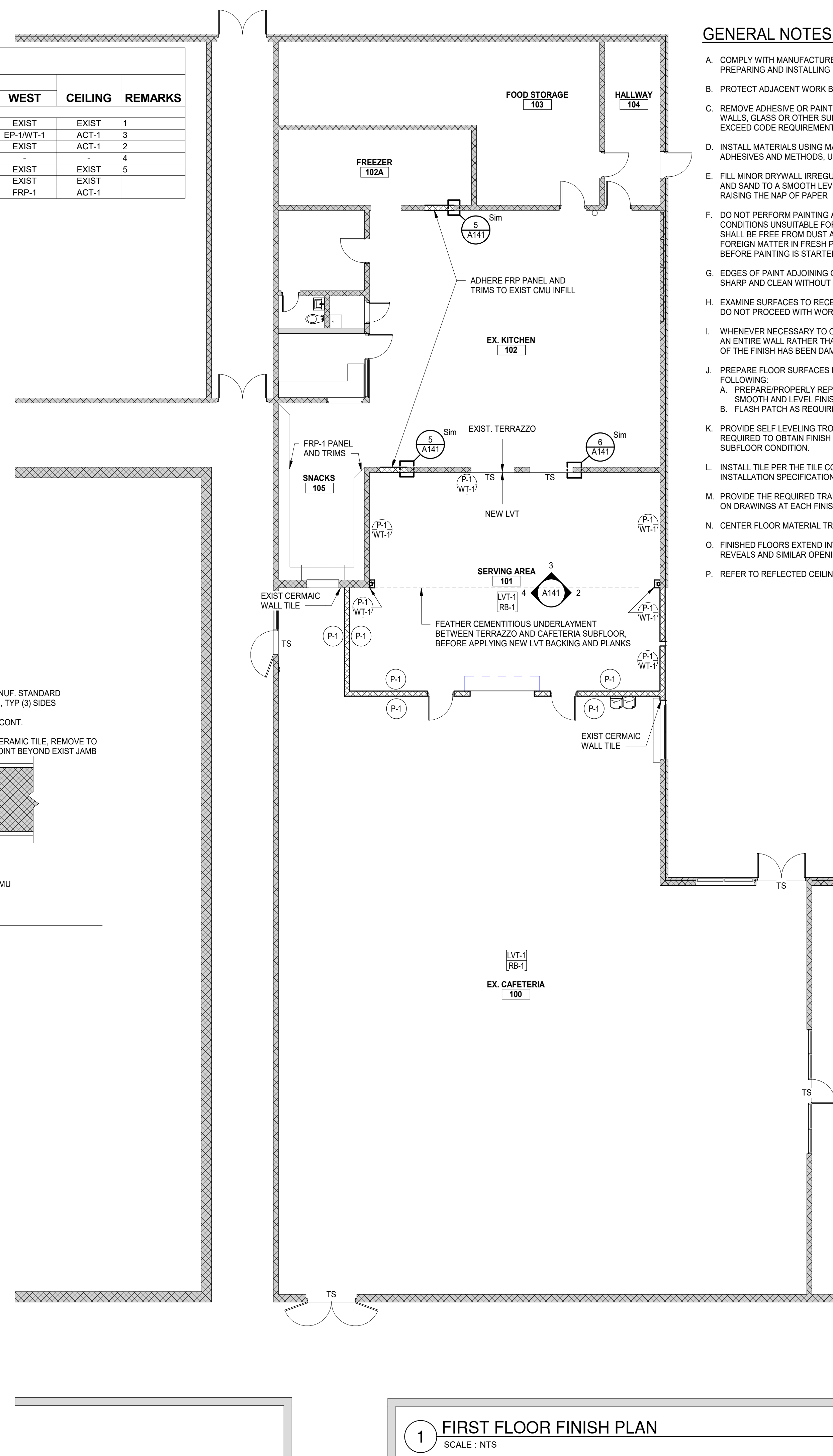
4 INTERIOR ELEVATION C
SCALE: 1/4" = 1'-0"



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



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



1 FIRST FLOOR FINISH PLAN
SCALE: NTS

GENERAL NOTES

- A. COMPLY WITH MANUFACTURER'S RECOMMENDATIONS FOR PREPARING AND INSTALLING FINISHES.
- B. PROTECT ADJACENT WORK BY SUITABLY COVERING DURING WORK.
- C. REMOVE ADHESIVE OR PAINT SPOTS FROM FINISHED FLOORS, WALLS, GLASS OR OTHER SURFACES. FINISHES TO MEET OR EXCEED CODE REQUIREMENTS.
- D. INSTALL MATERIALS USING MANUFACTURER'S APPROVED ADHESIVES AND METHODS, U.O.N.
- E. FILL MINOR DRYWALL IRREGULARITIES WITH SPACKLING COMPOUND AND SAND TO A SMOOTH LEVEL SURFACE. EXERCISE CARE TO AVOID RAISING THE NAP OF PAPER.
- F. DO NOT PERFORM PAINTING AND OTHER FINISHING WORK UNDER CONDITIONS UNSUITABLE FOR EXECUTION OF PAINTING WORK. AIR SHALL BE FREE FROM DUST AND DIRT TO PREVENT LODGING OF FOREIGN MATTER IN FRESH PAINT. FLOORS MUST BE BROOM CLEAN BEFORE PAINTING IS STARTED.
- G. EDGES OF PAINT ADJOINING OTHER COLORS OR MATERIALS TO BE SHARP AND CLEAN WITHOUT OVERLAP.
- H. EXAMINE SURFACES TO RECEIVE PAINT CAREFULLY FOR DEFECTS. DO NOT PROCEED WITH WORK UNTIL DEFECTS ARE CORRECTED.
- I. WHENEVER NECESSARY TO OBTAIN REQUIRED RESULTS, REFINISH AN ENTIRE WALL RATHER THAN SPOT FINISHING WHERE A PORTION OF THE FINISH HAS BEEN DAMAGED OR IS UNSATISFACTORY.
- J. PREPARE FLOOR SURFACES INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
 - A. PREPARE/PROPERLY REPAIR AND PATCH SUBFLOORS TO A SMOOTH AND LEVEL FINISH.
 - B. FLASH PATCH AS REQUIRED, READY TO RECEIVE NEW FINISH.
- K. PROVIDE SELF LEVELING TROWELABLE UNDERLAYMENT WHERE REQUIRED TO OBTAIN FINISH MANUFACTURER'S REQUIRED SUBFLOOR CONDITION.
- L. INSTALL TILE PER THE TILE COUNCIL OF NORTH AMERICA'S INSTALLATION SPECIFICATIONS.
- M. PROVIDE THE REQUIRED TRANSITIONS BASED ON TYPES IDENTIFIED ON DRAWINGS AT EACH FINISH TRANSITION LOCATION.
- N. CENTER FLOOR MATERIAL TRANSITIONS ON DOOR ABOVE.
- O. FINISHED FLOORS EXTEND INTO TOE SPACES, CLOSETS, DOOR REVEALS AND SIMILAR OPENINGS.
- P. REFER TO REFLECTED CEILING PLANS FOR CEILING FINISHES.



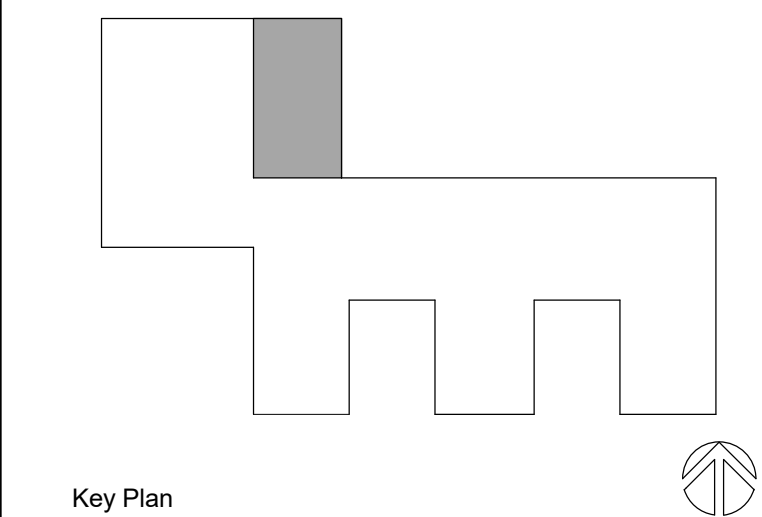
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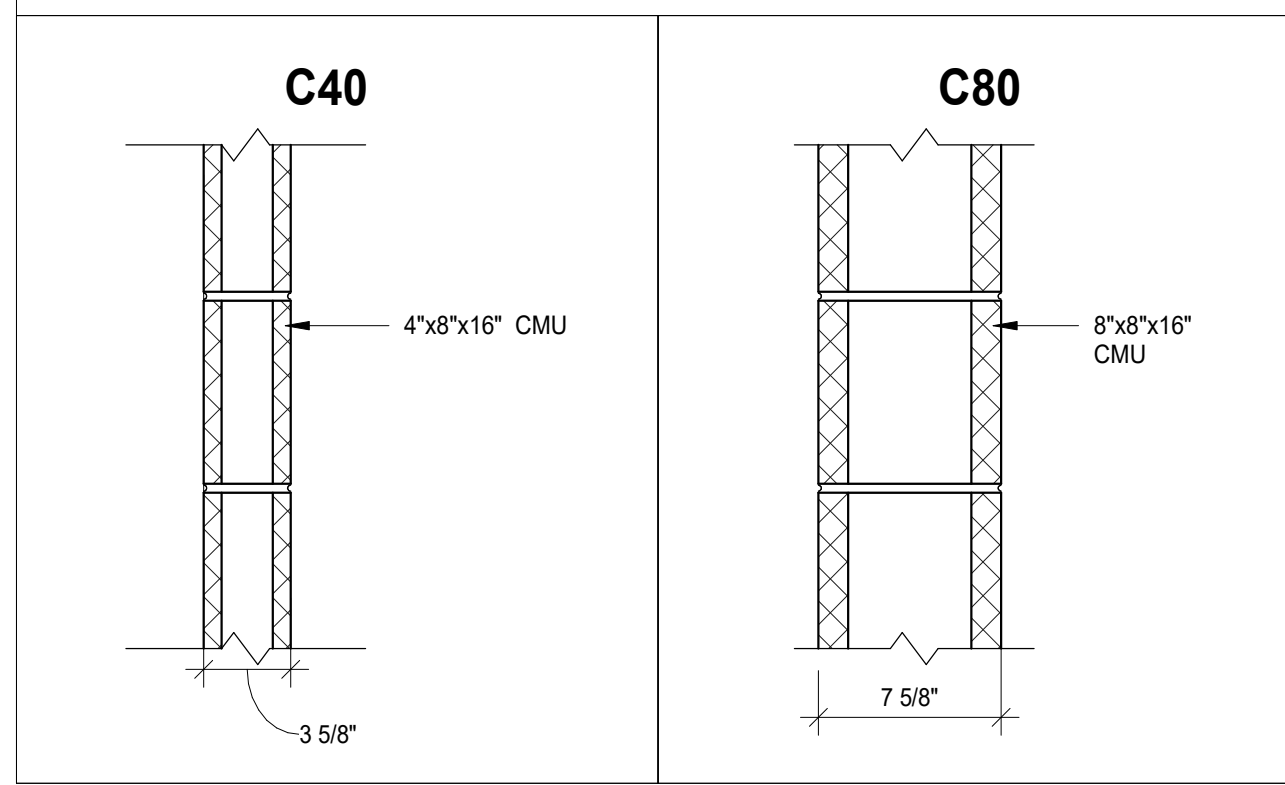
FIRST FLOOR FINISH PLAN

Drawing Number

A141

WALL TYPES

NOTE: SEE TYPICAL WALL SECTIONS FOR ADDITIONAL INFORMATION AT FLOOR AND DECK ABOVE CONDITIONS.

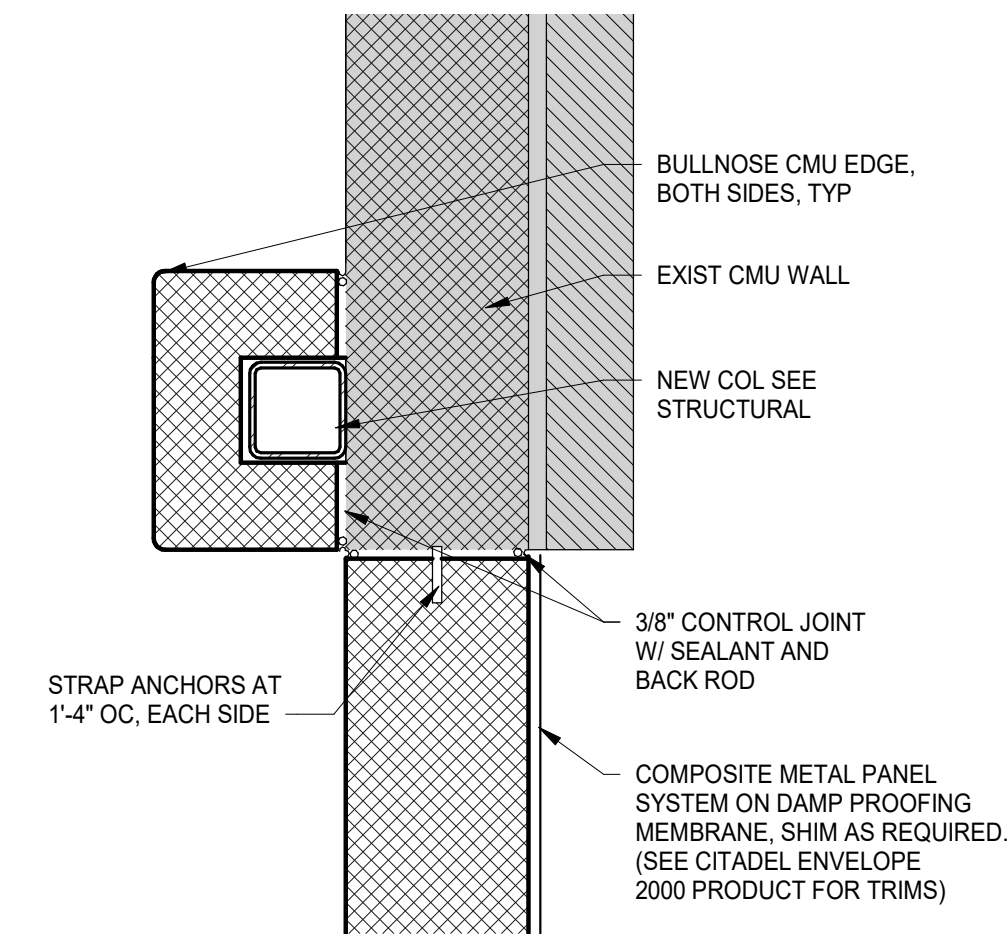


WALL LEGEND

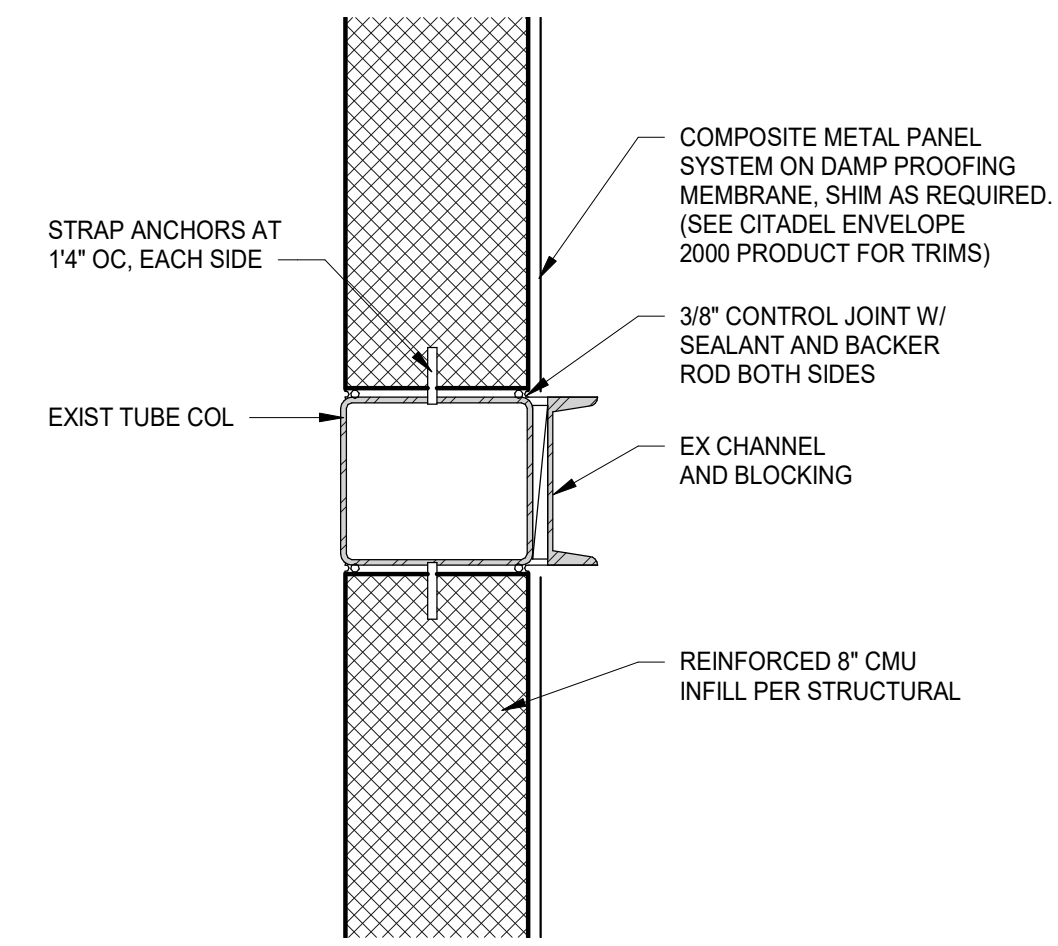
WALL MATERIAL	WALL SIZES
C = CONCRETE MASONRY UNITS	4 = 4" NOMINAL, 3 5/8" ACTUAL 6 = 6" NOMINAL, 5 5/8" ACTUAL 8 = 8" NOMINAL, 7 5/8" ACTUAL
F = FURRING CHANNEL	1 = 7/8" METAL HAT CHANNEL @ 24" O.C. 2 = 1-1/2" METAL HAT CHANNEL @ 24" O.C.
WALL INFORMATION	
1 = WALL TO DECK ABOVE 2 = WALL TO 8' ABOVE CEILING	

COLUMN ENCLOSURES, CHASES AND ENCLOSED UNINHABITABLE SPACES ARE TO BE WALL TYPE M31, UNLESS NOTED OTHERWISE.

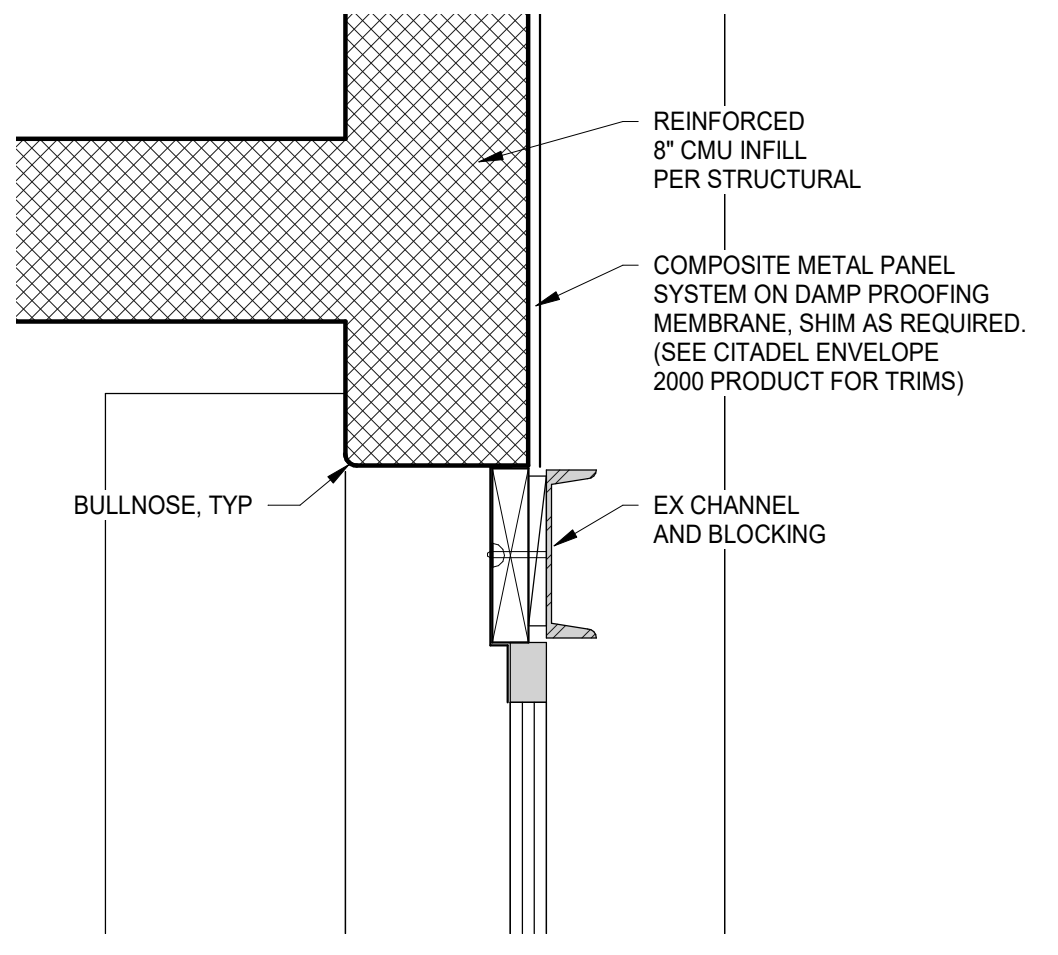
DOOR #	DOOR					FRAME				GENERAL			DOOR #
	WIDTH	HEIGHT	THK.	TYPE	MAT-FIN	TYPE	MAT-FIN	DETAIL	HDWR	RATING	REMARKS		
New Construction													
1ST FLOOR													
101A	8' - 0"	7' - 0"	1/2"	OH	PREFIN.	-	PREFIN.		02				101A
101B	3' - 0"	7' - 0"	1 3/4"	NG	WD - ST	2	HM - PT	A	01				101B
101C	3' - 0"	7' - 0"	1 3/4"	NG	WD - ST	2	HM - PT	A	01				101C



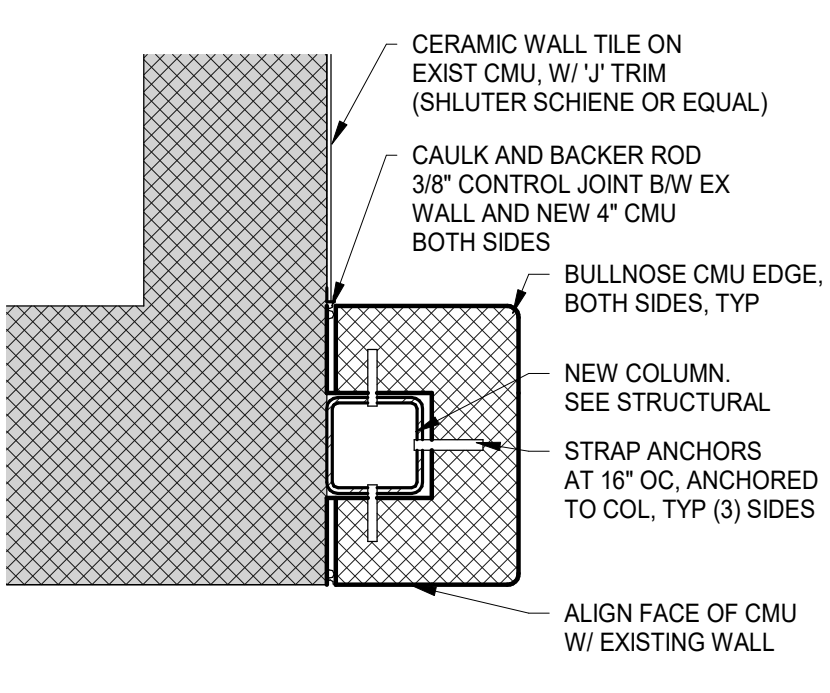
7 PLAN DETAIL D
SCALE: 1 1/2" = 1'-0"



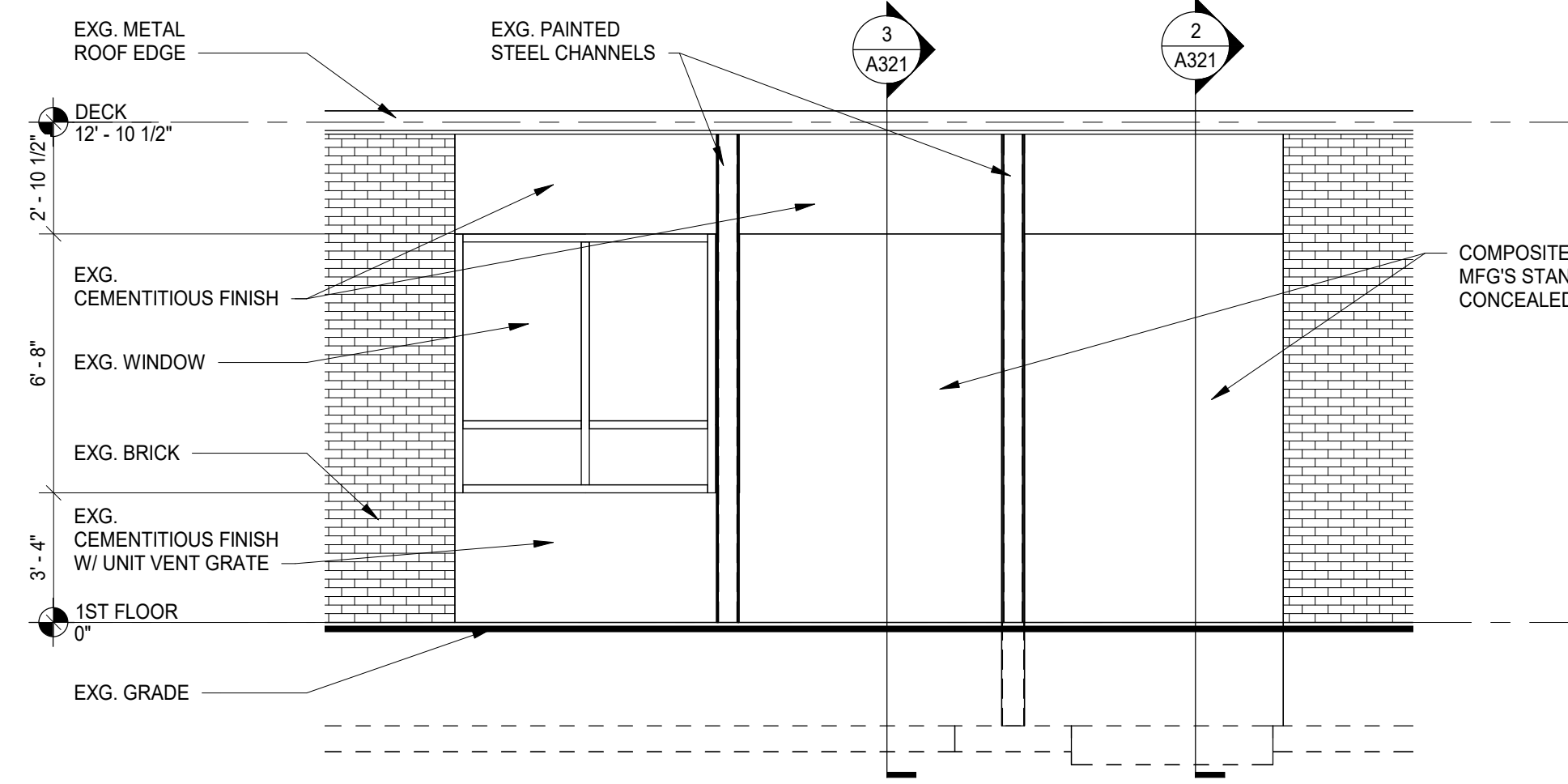
6 PLAN DETAIL C
SCALE: 1 1/2" = 1'-0"



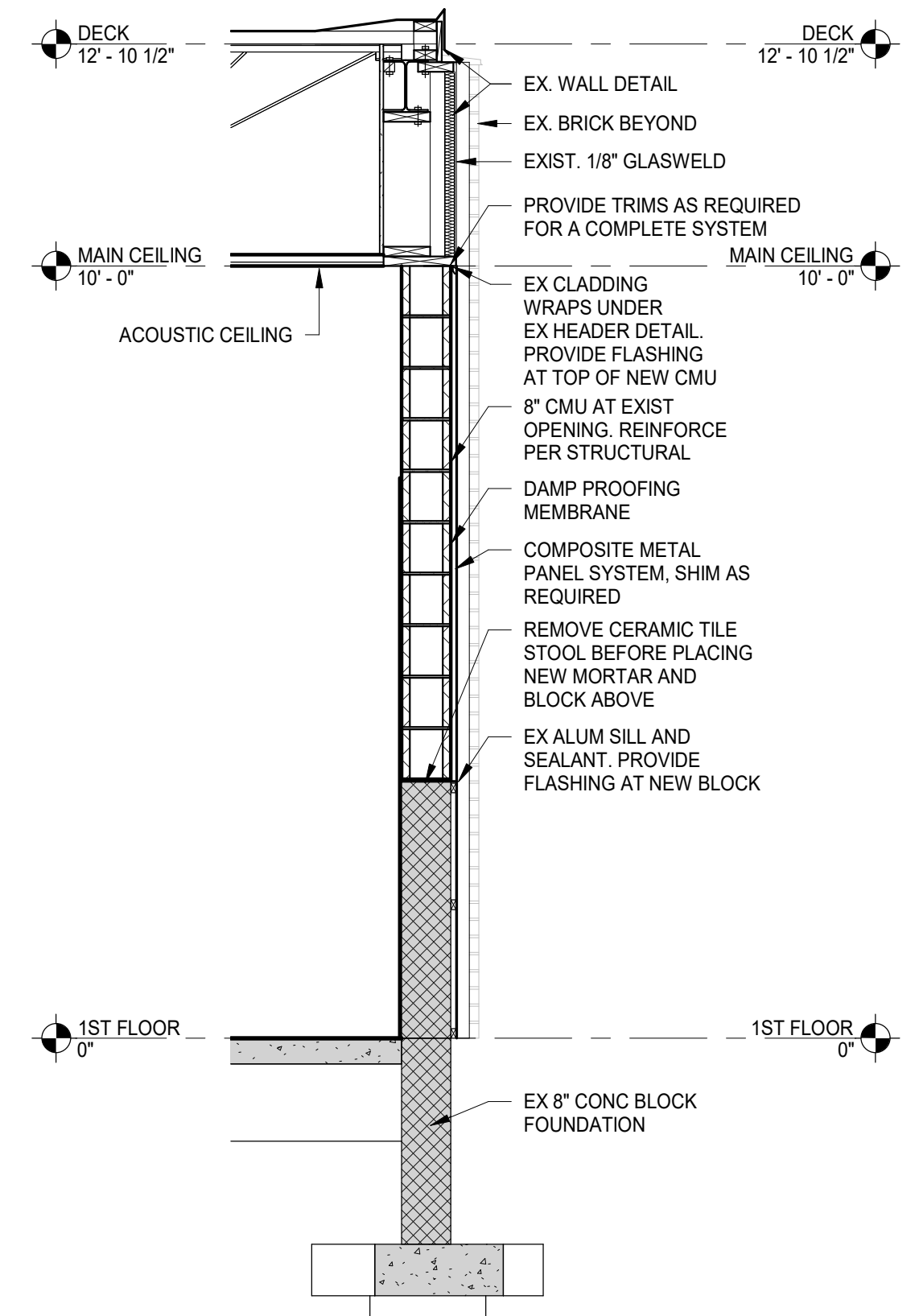
5 PLAN DETAIL B
SCALE: 1 1/2" = 1'-0"



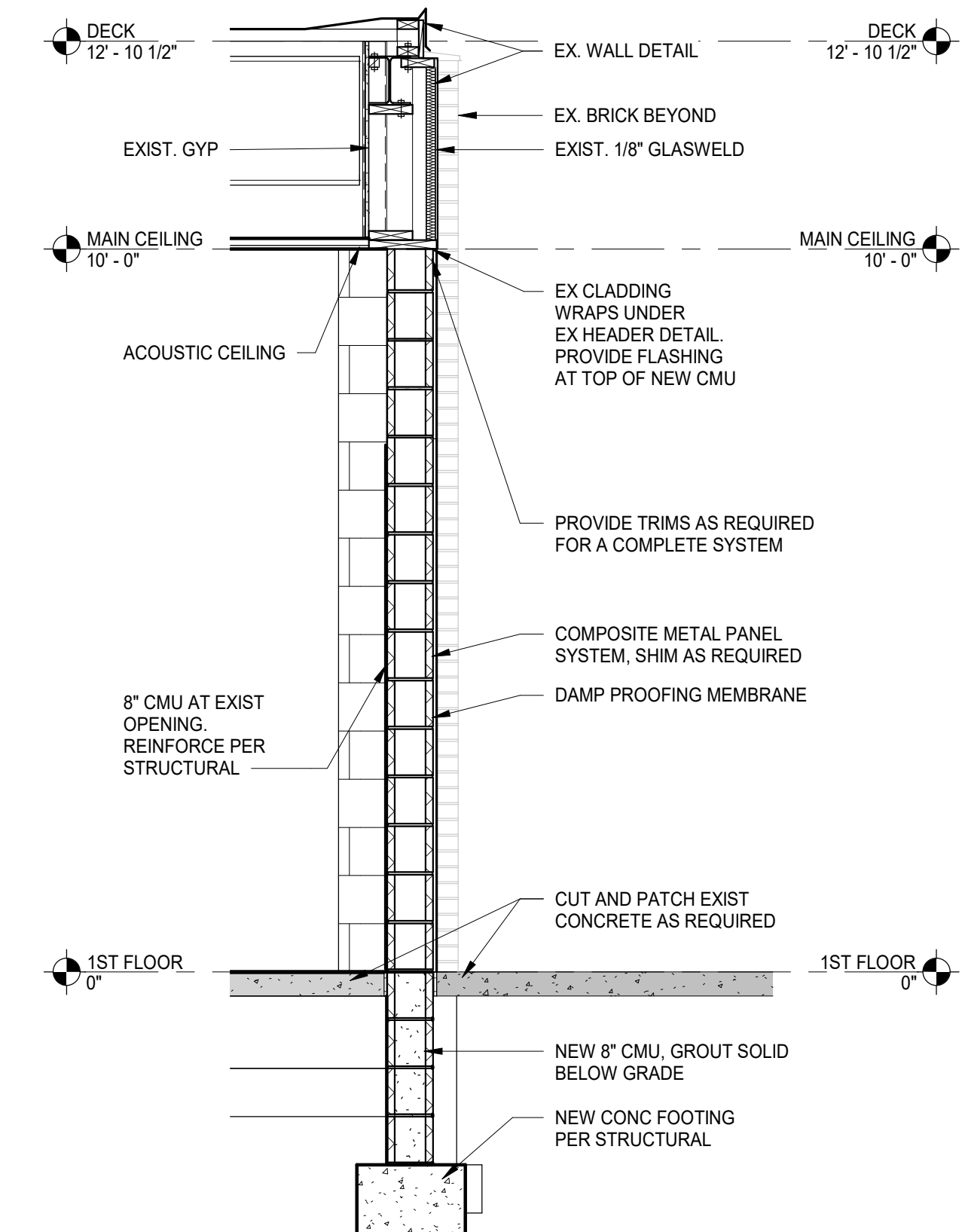
4 PLAN DETAIL A
SCALE: 1 1/2" = 1'-0"



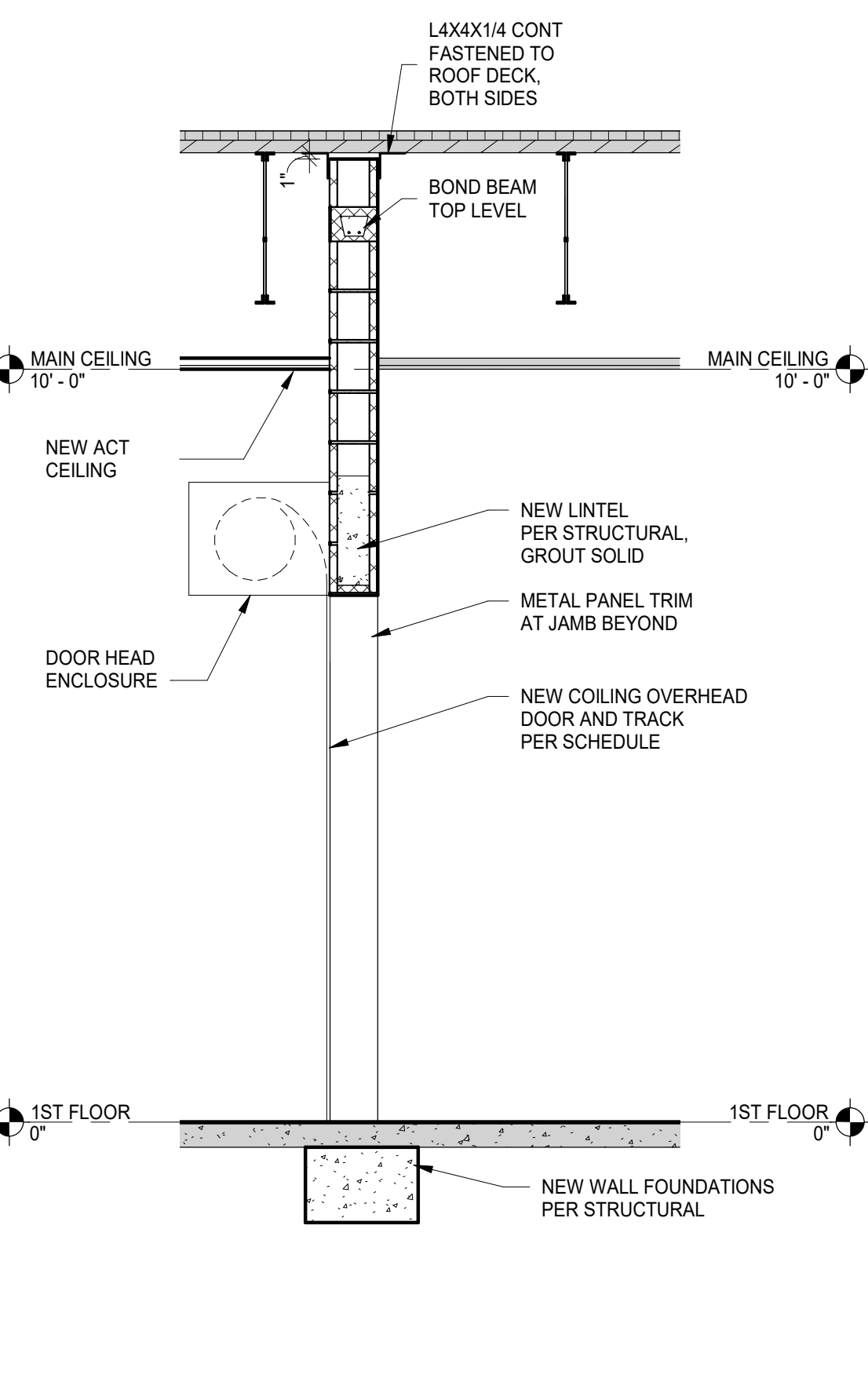
8 PARTIAL EAST ELEVATION
SCALE: 1/4" = 1'-0"



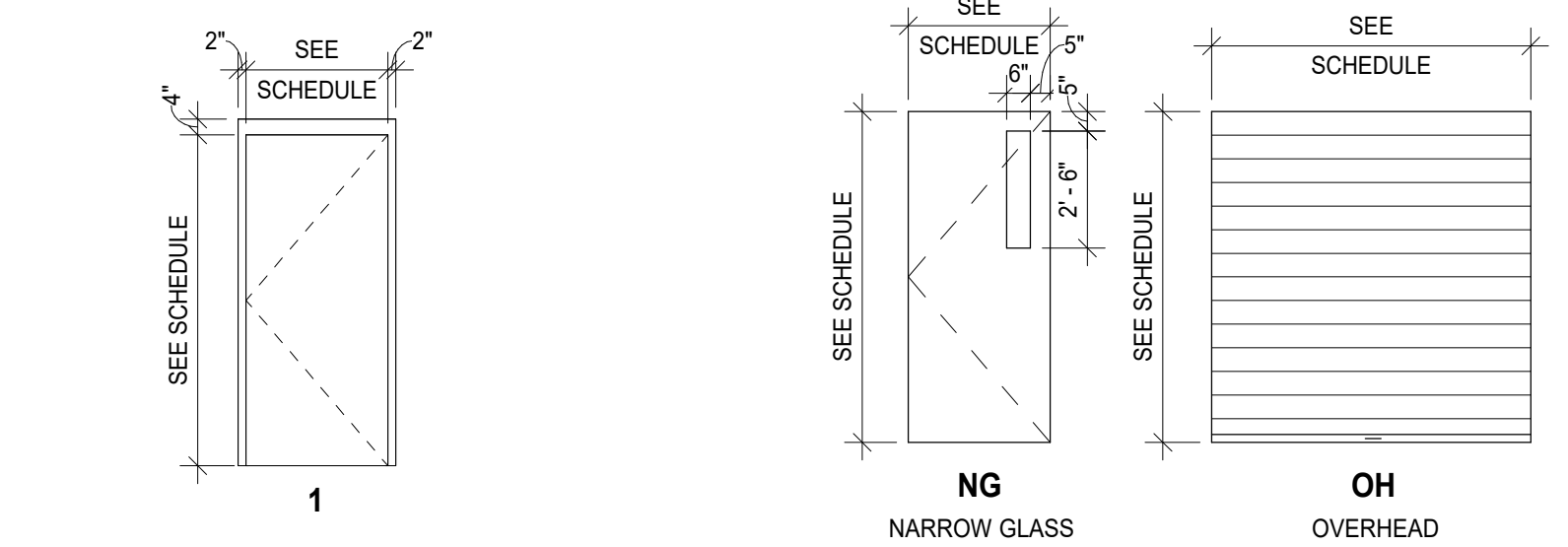
3 EXTERIOR INFILL WALL OVER SILL
SCALE: 1/2" = 1'-0"



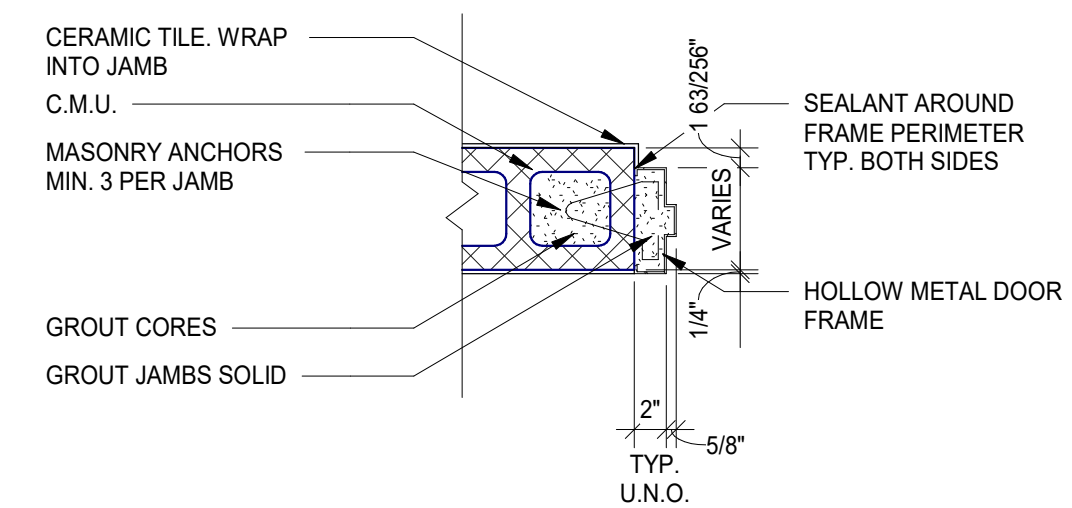
2 EXTERIOR INFILL WALL
SCALE: 1/2" = 1'-0"



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



DOOR - FRAME TYPES DOOR - TYPES



JAMB DETAILS (HEAD DETAIL SIM.)
NOTE: PROVIDE 4" FRAME @ HEAD OF CMU OPENINGS AS NOTED ON DOOR FRAME ELEVATIONS



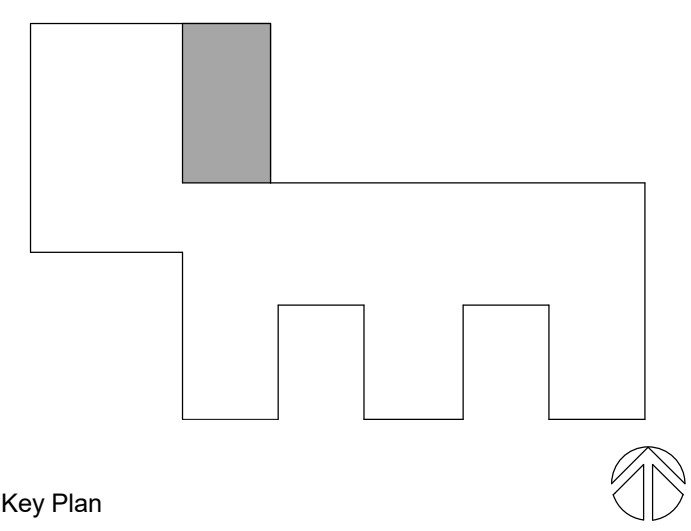
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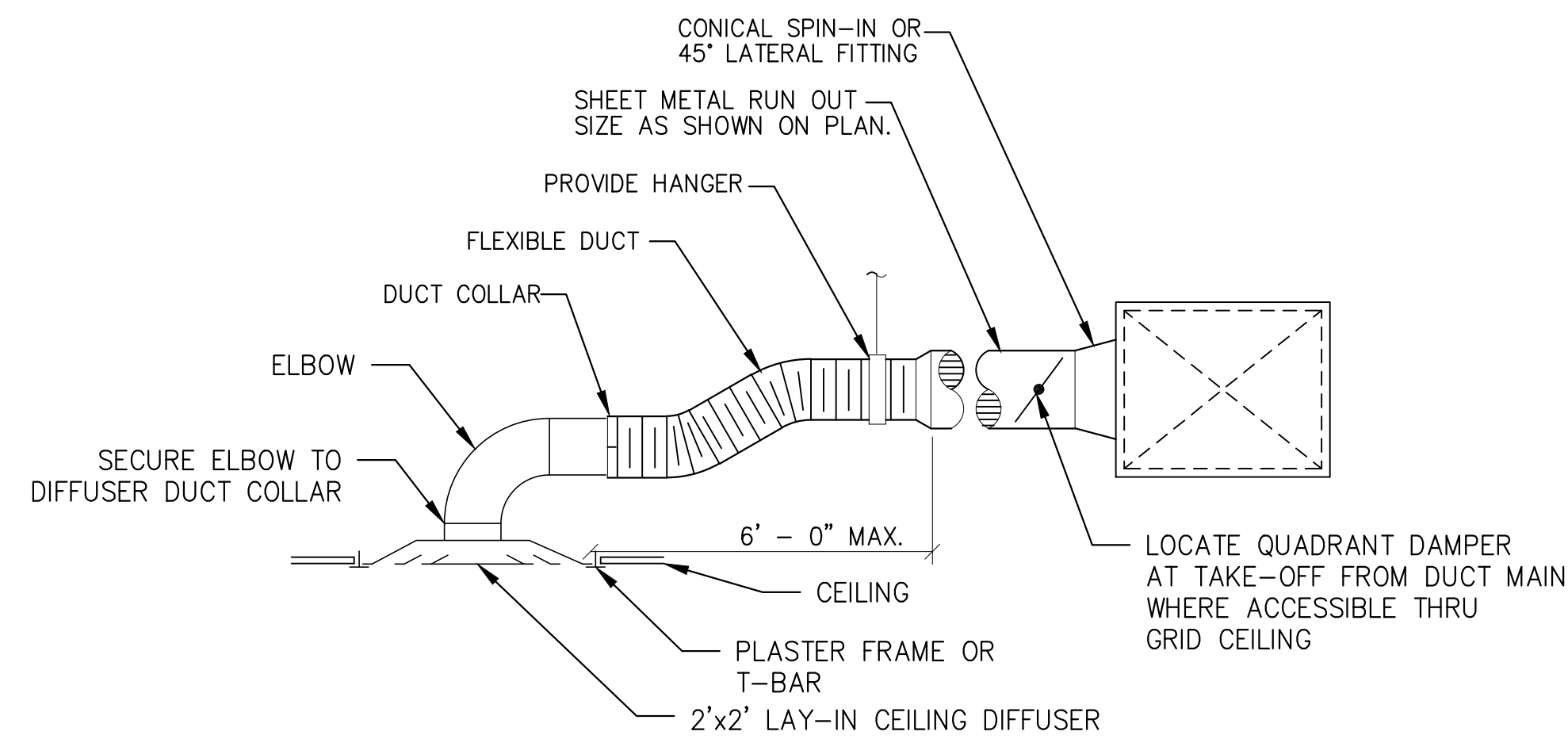


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Designer	Reviewer
E POST	R KEUNEKE
Date Issued	Project Number
1/31/2023	016633.00

WALL SECTIONS AND DOOR DETAILS

Sheet Name
Drawing Number
A321



TYPICAL CEILING DIFFUSER RUN-OUT DETAIL
NOT TO SCALE

CONTROL SEQUENCES

RTU-1 & 2: PACKAGED ROOFTOP UNITS

- UNIT PROVIDED WITH UNIT CONTROLLER AND SPACE 7-DAY PROGRAMMABLE THERMOSTAT. THERMOSTAT CAPABLE OF NIGHT/WEEKEND SETBACK AND MINIMUM 3° DEADBAND BETWEEN HEATING AND COOLING SETPOINTS.
- UNIT FAN SHALL OPERATE CONTINUOUSLY DURING OCCUPIED PERIODS; FAN SPEED SHALL REDUCE TO 67% DESIGN CFM DURING STAGE 1 COOLING TO MAINTAIN SPACE TEMPERATURE SETPOINT AND WHEN UNIT IS NOT IN ACTIVE HEATING OR COOLING (ASHRAE 90.1 FAN SPEED REDUCTION). UNIT FAN SHALL REMAIN "OFF" DURING UNOCCUPIED PERIODS, AND CYCLE "ON" WITH A CALL FOR HEATING OR COOLING BASED ON SETBACK TEMPERATURE.
- UNIT CONTROLS SHALL OPEN UNIT OUTSIDE AIR INTAKE DAMPER TO MINIMUM DESIGN POSITION DURING OCCUPIED PERIODS.

HVAC ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT	HVAC	HEATING VENTILATING AND AIR
AL	ACOUSTICALLY LINED		CONDITIONING
APPROX	APPROXIMATE	HTGS	HOT WATER HEATING SUPPLY
ARCH	ARCHITECTURAL	HTGR	HOT WATER HEATING RETURN
CLG	CEILING	INSUL	INSULATION
CONC	CONCRETE	LAT	LEAVING AIR TEMPERATURE
CONN	CONNECTION	MC	MECHANICAL CONTRACTOR
COORD	COORDINATION	MECH	MECHANICAL
CP	CONDENSATE PUMP	MFG	MANUFACTURER
DB	DRY BULB	MMS	MANUAL MOTOR STARTER
DN	DOWN	NFDS	NONUSED DISCONNECT SWITCH
DWG	DRAWING	OA	OUTSIDE AIR
EA	EACH	RA	RETURN AIR
EAT	ENTERING AIR TEMPERATURE	RM	ROOM
EC	ELECTRICAL CONTRACTOR	RTU	ROOF TOP UNIT
EQUIP	EQUIPMENT	SA	SUPPLY AIR
ESP	EXTERNAL STATIC PRESSURE	SHT	SHEET
EXIST	EXISTING	STOR	STORAGE
FDS	FUSED DISCONNECT SWITCH	TYP	TYPICAL
FF	FINISHED FLOOR	W/	WITH
FLEX	FLEXIBLE	W/O	WITHOUT
FLR	FLOOR	WB	WET BULB
FPM	FEET PER MINUTE		
GALV	GALVANIZED		

HVAC LEGEND

	OR		DUCTWORK		CEILING DIFFUSER (ROUND NECK)
	OR		RECTANGULAR DUCTWORK SUPPLY AIR ELBOW DOWN		RETURN/EXHAUST GRILLE
	OR		RECTANGULAR DUCTWORK SUPPLY AIR ELBOW UP		EXHAUST/RETURN AIRFLOW ARROW
	OR		RECTANGULAR DUCTWORK RETURN AIR, EXHAUST AIR, OR OUTSIDE AIR ELBOW DOWN		SUPPLY AIRFLOW ARROW
	OR		RECTANGULAR DUCTWORK RETURN AIR, EXHAUST AIR, OR OUTSIDE AIR ELBOW UP		THERMOSTAT/SENSOR
	OR		ROUND DUCTWORK ELBOW DOWN		AIR DEVICE DESIGNATION
	OR		ROUND DUCTWORK ELBOW UP		AIR DEVICE DESIGNATION
	24x12		RECTANGULAR DUCT SIZE, FIRST NUMBER INDICATES SIZE FOR SIDE SHOWN.		CONNECTION OF NEW ONTO EXISTING
	24"ø		ROUND DUCT SIZE		

DIFFUSER, REGISTER & GRILLE SCHEDULE

MARK	SERVICE	MODEL	VOLUME CONTROL DAMPER	FINISH	REMARKS
CD-1	CEILING SUPPLY DIFFUSER	TMS	NO	STANDARD WHITE	1. ROUND NECK, 24x24 LAY-IN UNLESS NOTED OTHERWISE
RG-1	EGGCRATE GRILLE RETURN	50F	NO	STANDARD WHITE BAKED ENAMEL	1. 1/2" x 1/2" x 1/2", 24"x24" LAY-IN UNLESS NOTED OTHERWISE
RG-2	RETURN GRILLE	350RL	YES	STANDARD WHITE BAKED ENAMEL	1. 3/4" SPACING, 45° FIXED, SURF

1. BASED ON TITUS.

ROOFTOP AIR CONDITIONER UNIT SCHEDULE

UNIT NO.	SERVES	TONS	MODEL	CFM	SP	HP	COOLING OUTPUT MBH	HEATING INPUT/OUTPUT	EER	POWER	KW	MCA	REC. FUSE	MIN. OA	OUTSIDE AIR DAMPER SETTING	REMARKS
RTU-1	EXIST KITCHEN 102	4	YSC048E3R0MA**B000B6	1600	0.7"	1	48.0	80/64 MBH	12	208-230V/3PH	4	26	35	0	0%	1., 2., 600 LBS
RTU-2	SERVING AREA 101	3	YSC036E3R0MA**B000B6	1200	0.7"	0.75	37.0	81/65 MBH	12	208-230V/3PH	3	20	30	240	20%	1., 2., 600 LBS

1. BASED ON TRANE PRECEDENT DOWNFLOW UNIT WITH SINGLE COMPRESSOR AND HOT GAS REHEAT, 2-STAGE MEDIUM GAS HEAT, STANDARD EFFICIENCY, 0-50% MOTORIZED FRESH AIR DAMPER W/ BAROMETRIC RELIEF, STANDARD SERVICE PANELS, 2" MERV 8 FILTERS, STANDARD CONDENSER COIL, UNIT MOUNTED CIRCUIT BREAKER, 7-DAY PROGRAMMABLE T-STAT, & POWERED CONVENIENCE OUTLET.

2. TO BE PROVIDED WITH 14" ROOF CURB

MECHANICAL (DIVISION 23) SPECIFICATION:

GENERAL REQUIREMENTS

PROVIDE EQUIPMENT AND COMPONENTS INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM. CONTRACTOR WILL BE RESPONSIBLE FOR RECEIVING, RIGGING AND INSTALLING ALL EQUIPMENT PROVIDED PART OF THEIR WORK CATEGORY.

DEFINITIONS: FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. INSTALL MEANS TO PLACE IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. PROVIDE MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE. RECEIVE MEANS TO COORDINATE AND ACCEPT DELIVERY OF EQUIPMENT AT JOBSITE.

MECHANICAL EQUIPMENT IDENTIFICATION: PROVIDE ENGRAVED PLASTIC LAMINATE LABEL FOR EACH MAJOR ITEM OF MECHANICAL EQUIPMENT & EACH OPERATIONAL DEVICE. LETTERS TO BE A MINIMUM OF 1/2" HIGH.

OPERATIONS AND MAINTENANCE MANUALS (O&M): AT COMPLETION OF PROJECT PROVIDE A MINIMUM OF TWO O&M MANUALS IN THREE RING BINDERS TO THE OWNER/TENANT. MANUALS SHALL HAVE TABS LABELED WITH ALL SECTIONS SEPARATED WITH A CLEAR INDEX AT THE FRONT. PROVIDE A WARRANTY LETTER AT THE FRONT OF THE MANUAL, STATING DATES OF WARRANTY (START DATE AND END DATE) AND CONTACTS WITH PHONE NUMBERS FOR WARRANTY WORK. PROVIDE A NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE INCLUDING RECOMMENDED SETPOINTS. MANUALS SHALL INCLUDE SUBMITTALS OF ALL EQUIPMENT, SIZE AND OPTIONS SELECTED. PROVIDE ALL BALANCING REPORTS. PROVIDE MANUFACTURER LITERATURE FOR OPERATIONS AND MAINTENANCE FOR ALL THE EQUIPMENT ON THE PROJECT. ALL PERIODIC AND ROUTINE MAINTENANCE SHALL BE CLEARLY IDENTIFIED. PROVIDE A CONTROLS SECTION LISTING SYSTEM OPERATING AND CONTROL INSTRUCTIONS, MAINTENANCE, CALIBRATION, WIRING DIAGRAMS, SCHEMATICS AND CONTROL SEQUENCE DESCRIPTIONS.

TESTING AND BALANCING: TEST AND ADJUST ALL MECHANICAL SYSTEMS AND EQUIPMENT TO ASSURE PROPER BALANCE AND OPERATION. PERFORM TESTS IN ACCORDANCE WITH THE MOST CURRENT NEBB OR AABC, AND ASHRAE STANDARDS. ELIMINATE OBJECTIONABLE NOISE AND VIBRATION, AND ASSURE PROPER FUNCTION OF CONTROLS. BALANCING CONTRACTOR SHALL BE AN INDEPENDENT CERTIFIED TEST AND BALANCE CONTRACTOR, WITH NEBB OR AABC CERTIFICATION. SUBMIT COMPLETED AND CERTIFIED TEST AND BALANCE REPORT TO OWNER'S REPRESENTATIVE. BALANCE ALL SYSTEMS TO WITHIN 5% OF AIR FLOWS AND WATER FLOWS INDICATED ON THE DRAWINGS.

GENERAL DUCT REQUIREMENTS

DUCT TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" AND MATCHING MATERIAL OF DUCT SYSTEM. PROVIDE TURNING VANES CONSTRUCTED OF CURVED BLADES, SUPPORTED WITH BARS PERPENDICULAR TO BLADES, AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK. FOLLOW SMACNA GUIDELINES FOR SPACING, SUPPORT, AND CONSTRUCTION. ALL BLADES SHALL BE DOUBLE THICKNESS AIRFOIL TYPE.

DUCT INSULATION: INDOOR: PROVIDE INSULATION FOR ALL CONCEALED SUPPLY & OA DUCTWORK. PROVIDE MINIMUM 1.5" THICK BLANKET TYPE FIBERGLASS INSULATION COMPLYING WITH ASTM C-553, TYPE II, WITH FACTORY APPLIED KRAFT BONDED TO ALUMINUM FOIL, REINFORCED WITH FIBERGLASS VAPOR BARRIER/JACKET. JACKET SHALL CONFORM TO ASTM C-1136, TYPE II. INSTALLED R-VALUE SHALL BE 4.2 OR HIGHER WITH A 3/4 PCF DENSITY -OR- PROVIDE MINIMUM 1" THICKNESS INTERNAL ACOUSTIC DUCT LINER (R3.5). INTERNAL DUCT LINER TO BE EQUAL TO JOHNS MANSVILLE LINACOUSTIC RC. NOTE: ALL RECTANGULAR RA & SA DUCTWORK TO BE LINED WITHIN 15' OF EQUIPMENT.

DUCT SEALANT: PROVIDE WATER BASED SYNTHETIC LATEX EMULSION PERMANENTLY FLEXIBLE HIGH VELOCITY DUCT SEALANT, DUCTIMATE INDUSTRIES, INC. PRO SEAL OR EQUIVALENT. SEALANT TO BE LOW VOC LEED COMPLIANT CAPABLE OF 15" W.G., NFPA 90A AND 90B APPROVED, UL 181B-A LISTED AND UL 723 CLASSIFIED. INSTALL PER MANUFACTURER INSTRUCTIONS. SEALANT SHALL BE APPROVED FOR PLENUM INSTALLATIONS AND MEET FLAME SPREAD AND SMOKE DEVELOPMENT RATINGS FOR PLENUM DUCTWORK FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS, FOR 2" W.G. PRESSURE CLASS. SEAL CLASS "A" (UNLESS OTHERWISE INDICATED ON DUCT SYSTEM SCHEDULE). SHEETMETAL SHALL BE GALVANIZED SHEET STEEL OF LOCK FORMING QUALITY, WITH G60 ZINC COATING. SHEET STEEL SHALL COMPLY WITH

GENERAL DUCT REQUIREMENTS CONTINUED

ASTM A653 STANDARD SPECIFICATION FOR STEEL SHEETMETAL, ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES AT ALL 90° ELBOWS.

RECTANGULAR VOLUME DAMPERS: PROVIDE MINIMUM 16 GAUGE GALV STEEL CHANNEL FRAME, 16 GAUGE GALVANIZED STEEL BLADES, MINIMUM 1/2" HEXAGONAL AXLE, MOLDED SYNTHETIC BEARINGS, WITH 3/8" SQUARE PLATED STEEL CONTROL SHAFT. LINKAGES SHALL BE CONCEALED IN THE FRAME. OPERATING SHAFT SHALL EXTEND BEYOND FRAME AND DUCT TO A LOCKING QUADRANT WITH ADJUSTABLE LEVER. MAXIMUM BLADE WIDTH SHALL NOT EXCEED 6".

ROUND VOLUME DAMPERS: PROVIDE ROUND MANUAL BALANCING DAMPER AT ALL RUN OUTS TO CEILING SUPPLY AIR DIFFUSERS. PROVIDE MINIMUM 20 GAUGE GALVANIZED STEEL FRAME AND BLADES, MINIMUM 3/8" SQUARE STEEL AXLE, MOLDED SYNTHETIC BEARINGS, WITH LOCKING POSITION REGULATOR. REGULATOR SHALL BE POSITIONED WITH SHEETMETAL BRACKET BEYOND DUCT COVERING. WHERE POSITIONING REGULATOR IS NOT ACCESSIBLE, PROVIDE COUPLING AND EXTENSION ROD WITH REGULATOR FOR CEILING OR WALL INSTALLATION, AS REQUIRED.

FLEXIBLE DUCT CONNECTORS: PROVIDE U.L. LABELED 30 OUNCE NEOPRENE COATED FIBERGLASS FABRIC DUCT CONNECTORS AT DUCT CONNECTIONS TO ALL VIBRATING EQUIPMENT.

PIPING REQUIREMENTS

NATURAL GAS PIPING:

NATURAL GAS PIPING: ALL NATURAL GAS PIPING SHALL BE SCH 40 STEEL PIPE, ASTM A53, WITH SCREWED JOINTS AND 150 LB MALLEABLE IRON FITTINGS FOR NPS 2" AND SMALLER, AND SCH 40 WELDED JOINTS AND FITTINGS FOR NPS 2-1/2" AND LARGER. PRESSURE TEST NEW GAS PIPE SYSTEMS TO 5 PSI FOR 30 MINUTES WITH NO LOSS OF PRESSURE BEFORE PLACING INTO SERVICE. LEAK TEST ALL GAS PIPE SCREWED JOINTS AND UNIONS BEFORE PLACING INTO SERVICE.

SHUTOFF/STOP VALVES: CWP RATED 125 PSIG BRONZE OR CAST IRON PLUG VALVE

APPLIANCE GAS VALES: CWP RATED 125 PSIG BRONZE OR CAST IRON PLUG VALVE.

APPLIANCE PRESSURE REGULATORS: CAST IRON OR DIE CAST ALUMINUM BODY, SPRING DIAPHRAGM TYPE, ANSI Z21.18, REFER TO PLANS FOR CAPACITY AND PRESSURE TURNDOWN REQUIREMENTS, STAINLESS STEEL VENT SCREEN, INSTALL IN ORIENTATION THAT PREVENTS WATER INTRUSION INTO VENT OPENING PER MFGR INSTRUCTIONS.

REFRIGERANT PIPING:

ALL REFRIGERATION PIPING SHALL BE TYPE ACR COPPER TUBE, ASTM B-88, WITH BRAZED OR FLARED JOINTS AND FITTINGS, INSTALLED PER MFG'S INSTRUCTION.

SERVICE AND ISOLATION VALVES, FORGED BRASS BODY AND CAP, PTFE SEATS & GASKETS, MALE SAE FLARE X FEMALE SAE FLARE, FULL PORT UNI-BODY DESIGN, 700 PSIG RATED, EQUIPPED WITH ACCESS FITTING FOR REFRIGERATION SERVICE, CAPABLE OFF VALVE OPERATION WITHOUT REMOVAL OF SEAL CAP.

PROVIDE AP ARMAFLEX BLACK LAPSEAL PRE-FORMED PIPE FLEXIBLE CLOSED CELL INSULATION FOR ALL INTERIOR AND EXTERIOR REFRIGERATION PIPING.

EXTERIOR PIPE INSULATION SHALL BE PROTECTED WITH EITHER:

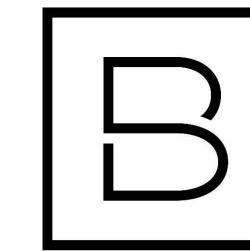
- VENTURE-CALD JACKETING
- BRUSH APPLIED ARMAFLEX WB WHITE UV RESISTANT COATING.

PROVIDE ADJUSTABLE CLEVIS STYLE HANGER FOR INDIVIDUAL HORIZONTAL PIPING LESS THAN 20 FT LONG. SUPPORT PIPE HANGERS WITH TREADED HANGER RODS: 1/4" TREADED HANGER RODS FOR PIPE SIZES UP TO 1-1/2". EXTERIOR PIPE SUPPORTS ON ROOF SHALL BE RUBBER BLOCK BASE STYLE WITH GALVANIZED STRUT WITH SLIP SHEET OF ROOFING MEMBRANE MATERIAL BETWEEN BASE AND ROOF; ATTACH PIPE TO UNISTRUT RAIL USING CUSHIONED PIPE/TUBE CLAMPS.

ALL BUILDING CONNECTIONS SHALL BE WITH BEAM CLAMPS TO TOP OF STRUCTURAL JOIST/TRUSS, OR TO BOTTOM FLANGE OF SOLID BEAM SHAPES. WHERE NO STRUCTURAL STEEL IS AVAILABLE FOR HANGING, CONCRETE EXPANSION WEDGE ANCHORS SHALL BE ANCHORED TO CONCRETE ROOF STRUCTURE.

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ORCHARD VIEW SCHOOL DISTRICT

MIDDLE SCHOOL KITCHEN RENOVATIONS

35 S SHERIDAN DR
MUSKEGON, MI 49442

Date Revised	Description
1-24-2023	OWNER REVIEW
1-31-2023	BIDS

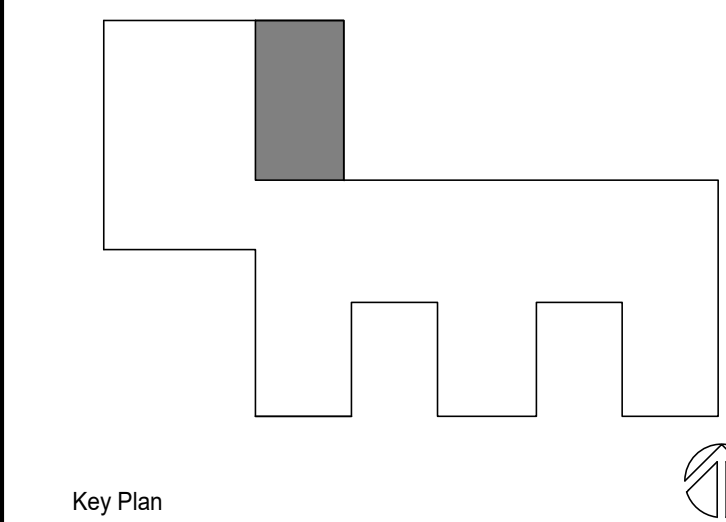
MECH CODE COMPLIANCE NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF SYSTEM IN COMPLIANCE WITH 2015 MICHIGAN MECHANICAL CODE (MMC), ASHRAE 90.1-2013, AND ALL OTHER APPLICABLE STATE AND LOCAL CODES.
- FOR CLASSROOMS AND OFFICES WITH NEW HEATPUMPS, VENTILATION TO BE ACHIEVED BY EXISTING HVAC EQUIPMENT AND SYSTEMS. MC TO VERIFY OPERATION OF EXISTING SYSTEMS IN AREAS OF NEW WORK.
- VENTILATION FOR ADMIN AND VESTIBULE SPACE PROVIDED BY ROOFTOP UNIT WITH MOTORIZED FRESH AIR DAMPER, RATES PER 2015 MICHIGAN MECHANICAL CODE (MMC), REFER VENTILATION SCHEDULE ON THIS SHEET.
- SYSTEMS AS DESIGNED AND EQUIPMENT AS SPECIFIED MEET OR EXCEED THE MINIMUM PRESCRIPTIVE REQUIREMENTS OF THE MICHIGAN ENERGY CODE ASHRAE 90.1-2013.
- NO NEW HVAC SYSTEM ABOVE 2000 CFM; NO DUCT SMOKE DETECTORS WILL BE PROVIDED FOR HVAC SYSTEMS WITH CAPACITIES LESS THAN 2000 CFM PER 2015 MMC 606.2.1.
- ALL NEW NATURAL GAS PIPING HAS BEEN SIZED BASED ON THE BRANCH LENGTH METHOD OF 2018 INTERNATIONAL FUEL GAS CODE (IFGC); CONTRACTOR SHALL INSTALL GAS PIPING SYSTEM SHOWN IN ACCORDANCE WITH 2015 IFGC. (SEE PLANS)

GENERAL NOTES:

- CONTRACTOR SHALL INCLUDE ALL APPLICABLE SALES AND USE TAXES FOR MATERIAL AND EQUIPMENT PROVIDED AS REQUIRED.
- CONTRACTOR RESPONSIBLE FOR CREATING OPENINGS THRU ANY ROOFS, CEILINGS AND WALLS FOR THEIR DUCT AND PIPING SYSTEMS; OVERSIZE OPENINGS AS REQUIRED TO ACCOUNT FOR THERMAL EXPANSION. UTILIZE PIPE ROOF JACK FOR ROOF PIPE PENETRATIONS THROUGH ROOF AND SEAL WEATHERTIGHT.
- ALL DUCTWORK IS TO BE INSTALLED PER LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE".
- DUCTWORK DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
- ROUTE ALL DUCTWORK AND PIPE AT RIGHT ANGLES TO WALLS, INSTALL HORIZONTAL PIPE DEAD LEVEL UNLESS INDICATED OTHERWISE.
- CONTRACTOR SHALL FURNISH & INSTALL HANGERS AND BUILDING ATTACHMENTS AS REQUIRED FOR ALL DUCTWORK AND PIPING SYSTEMS.
- ALL DUCT, PIPE AND CONDUIT PENETRATIONS OF THE OFFICE AREA WALLS AND CEILINGS SHALL BE SEALED AIRTIGHT WITH ZERO LIGHT TRESPASS AROUND OPENING.
- PROVIDE 1 YEAR WARRANTY ON WORKMANSHIP.

CHRISTOPHER J. NOLAN, P.E.
MI - REGISTRATION# 6201043863
EXP. DATE# 01/02/23



Key Plan

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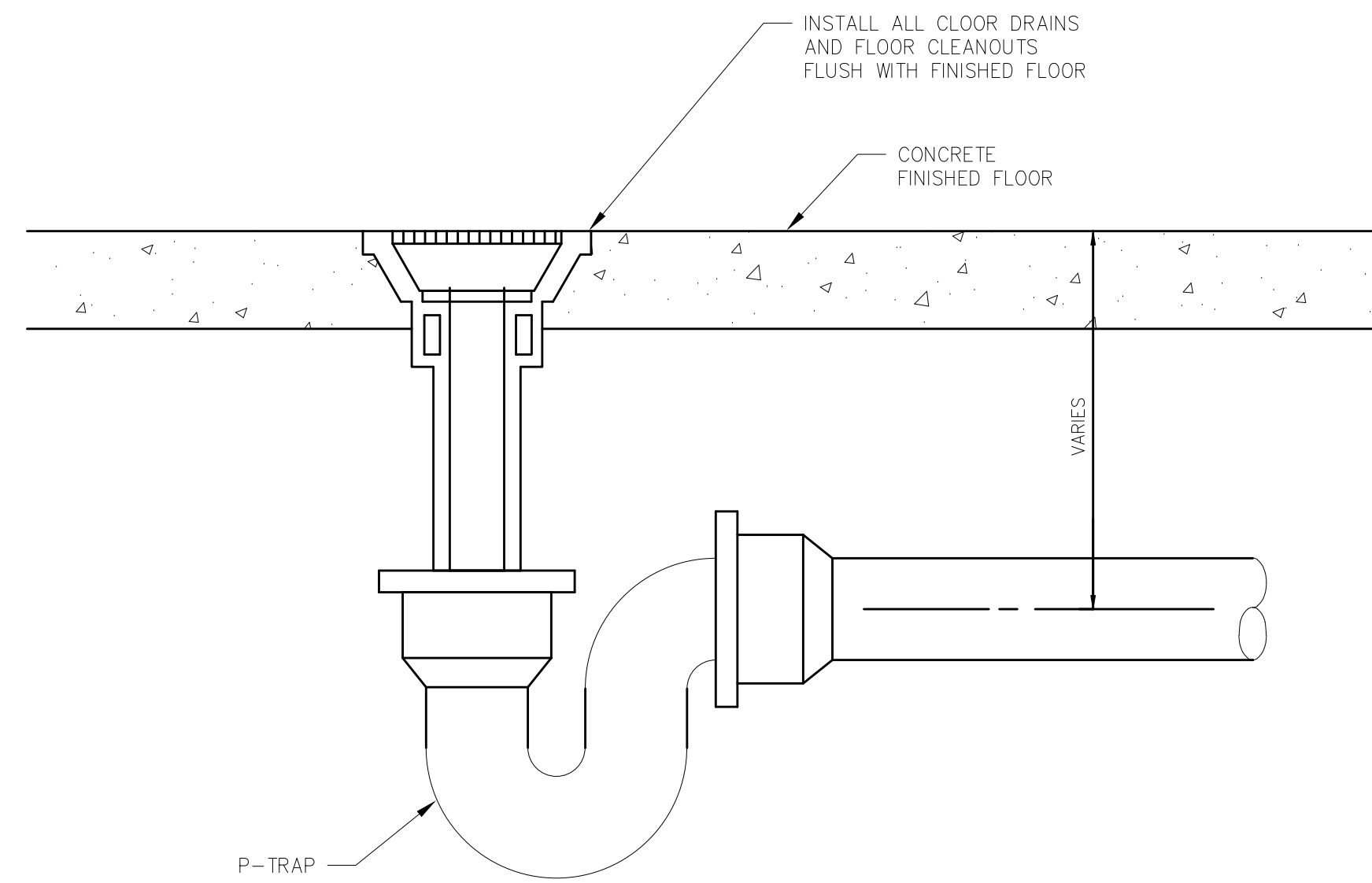
Project Manager	Discipline Lead
D. HOLTROP	B. HUYLER
Designer	Reviewer
C. SCHOLTEN	C. NOLAN
Date Issued	Project Number
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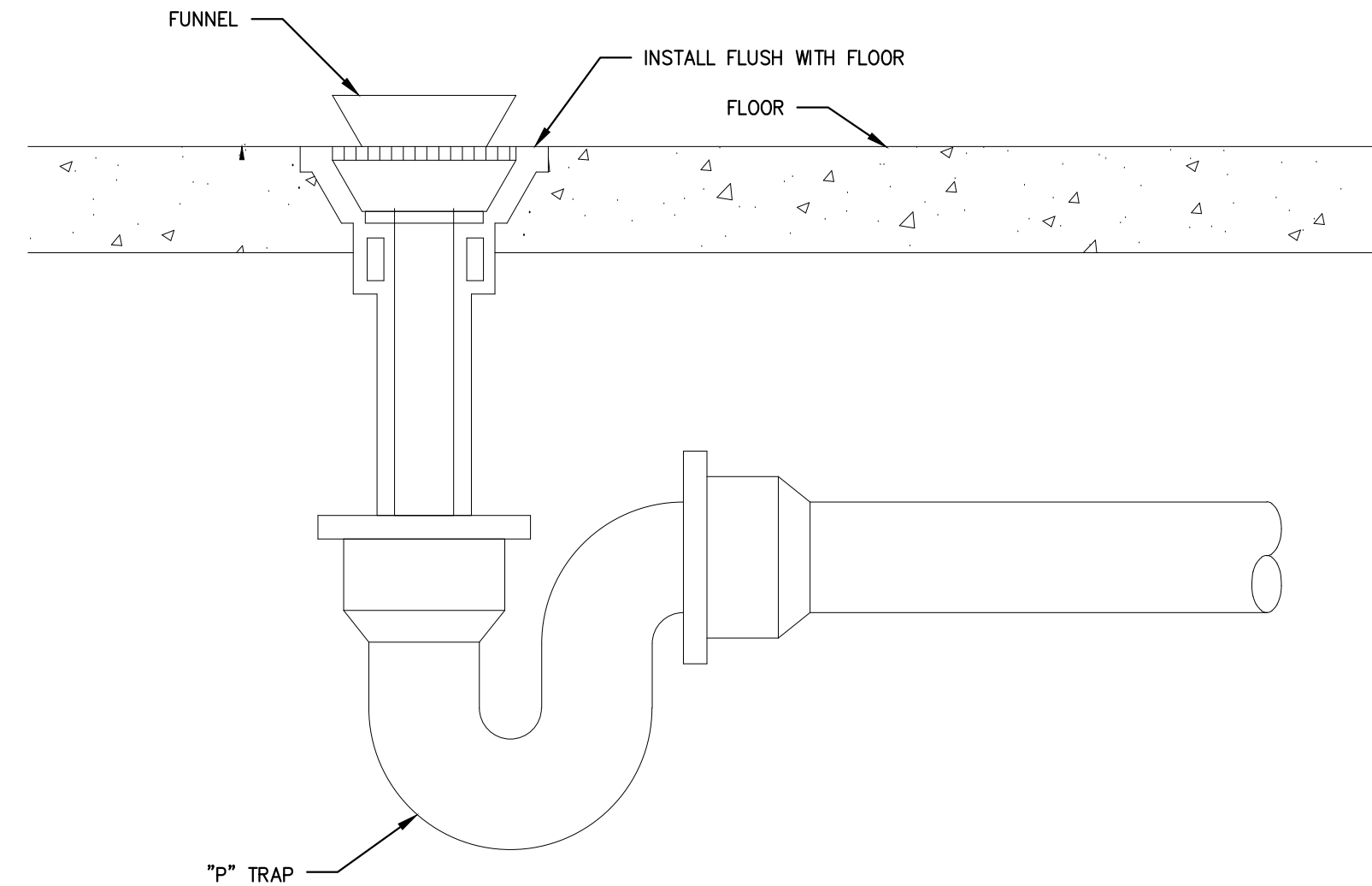
GENERAL
MECHANICAL
INFORMATION

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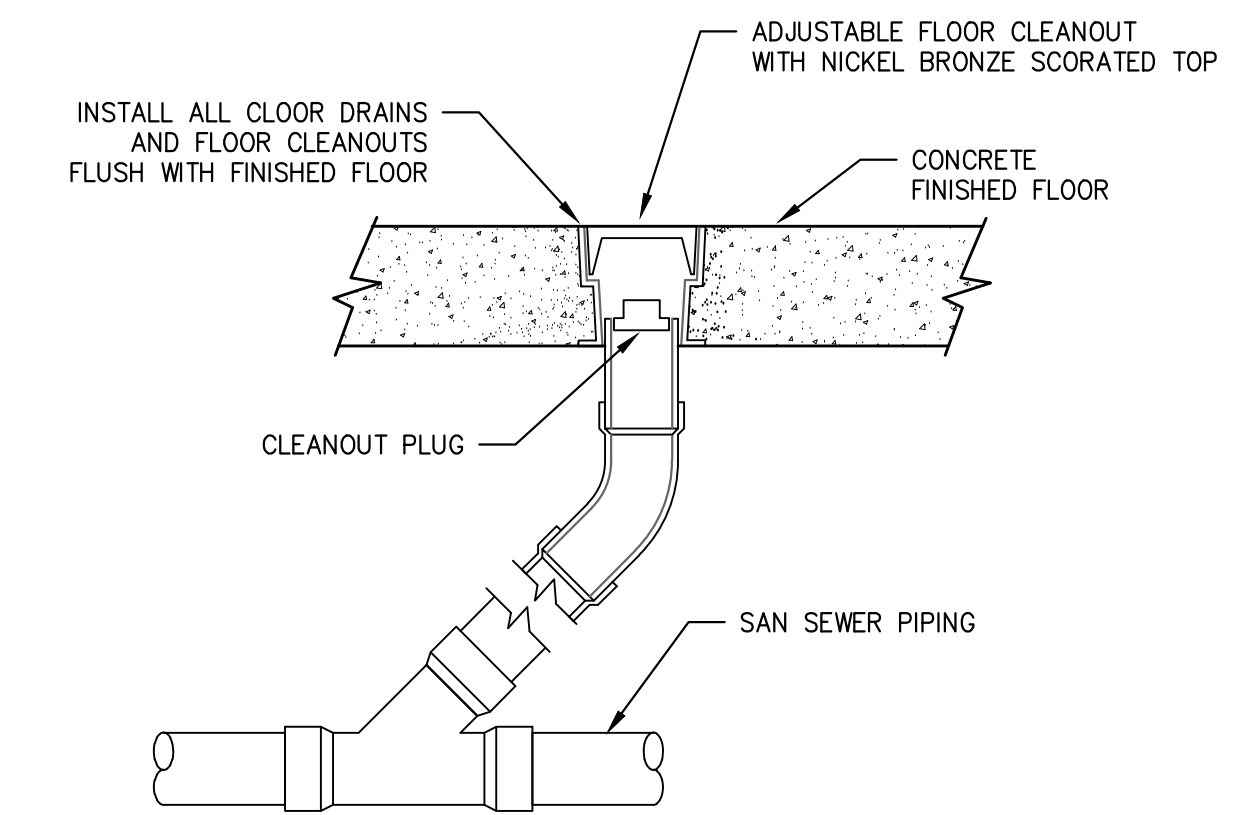
M001



FLOOR DRAIN (FD) DETAIL
NOT TO SCALE



FUNNEL FLOOR DRAIN (FFD) DETAIL
NOT TO SCALE



FLOOR CLEANOUT DETAIL
NOT TO SCALE

PLUMBING FIXTURE LIST

- FD-1 FLOOR DRAIN - 5" ROUND, LIGHT DUTY, NICKEL BRONZE FINISH (BASED ON JAY R. SMITH MODEL #2005-A5NB). PROVIDE WITH SURESEAL TRAP SEALER.
- FFD-1 FUNNEL FLOOR DRAIN - 5" ROUND, LIGHT DUTY, NICKEL BRONZE FINISH (BASED ON JAY R. SMITH MODEL #2005-A5NB WITH #3580 FUNNEL). PROVIDE WITH SURESEAL TRAP SEALER.
- EW-1 ELECTRIC WATER COOLER- ELKAY MODEL VRCGRNTL8WSK, BI-LEVEL BARRIER FREE SELF-CONTAINED COOLER WITH SATIN FINISH AND BOTTLE FILLING STATION.

PLUMBING ABBREVIATIONS			
AAV	AIR ADMITTANCE VALVE	HWR	DOMESTIC HOT WATER RETURN
AFF	ABOVE FINISH FLOOR	HWRP	HOT WATER RECIRCULATION PUMP
CBV	CALIBRATED BALANCING VALVE	IE	INVERT ELEVATION
CLG	CEILING	LOC	LOCATION
CO	CLEANOUT	MFR	MANUFACTURER
CONN	CONNECTION	SAN	SANITARY DRAIN
CONT	CONTINUATION	TYP	TYPICAL
COORD	COORDINATE	V	VENT
CW	DOMESTIC COLD WATER	VTR	VENT THROUGH ROOF
CWFU	COLD WATER FIXTURE UNITS	W	WASTE
DFU	DRAINAGE FIXTURE UNITS	WCO	WALL CLEAN OUT
DN	DOWN	WSFU	WATER SUPPLY FIXTURE UNITS
DWG	DRAWING		
DWH	DOMESTIC WATER HEATER		
EXIST	EXISTING		
FOO	FLOOR CLEAN OUT		
FD	FLOOR DRAIN		
FF	FINISH FLOOR		
FFD	FUNNEL FLOOR DRAIN		
FLR	FLOOR		
FS	FLOOR SINK		
FSET	FOOD SERVICE EQUIPMENT TRADES		
HW	DOMESTIC HOT WATER		
HWFU	HOT WATER FIXTURE UNITS		

PLUMBING LEGEND			
	CALIBRATED BALANCING VALVE		SANITARY DRAIN (UNDERGROUND)
	CHECK VALVE		DOMESTIC COLD WATER
	SHUT OFF VALVE		DOMESTIC HOT WATER
	PIPE ELBOW		DOMESTIC HOT WATER RETURN
	RISER UP		PLUMBING VENT
	RISER DOWN		DIRECTION OF FLOW
	BRANCH UP		CONNECTION OF NEW ONTO EXISTING
	BRANCH DOWN		

PLUMBING CODE COMPLIANCE NOTES:

- COMPLETED INSTALLATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND ORDINANCES INCLUDING, BUT NOT LIMITED TO THE LATEST EDITIONS OF THE FOLLOWING: 2018 MICHIGAN PLUMBING CODE.
- VENT ALL DRAIN FIXTURES IN ONE OF THE METHODS ALLOWED BY 2018 MPC CHAPTER 9. EXTEND EVERY VENT, VENT STACK OR WASTE STACK VENT THROUGH ROOF WITH 3" MINIMUM SIZE.
- CONTRACTOR SHALL PERFORM ALL REQUIRED TESTS OF SANITARY WASTE AND VENT SYSTEM AND DOMESTIC WATER SYSTEM AS IDENTIFIED IN SECTION 312 OF 2018 MPC.

GENERAL PLUMBING NOTES:

- CONTRACTOR RESPONSIBLE FOR ALL REQUIRED PERMITS AND FEES RELATIVE TO THEIR WORK SCOPE.
- THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH ALL OTHER TRADES AND WITH INSTALLATION OF ALL PLUMBING SYSTEMS IN COMPLIANCE WITH THE 2018 MICHIGAN PLUMBING CODE AND ALL OTHER APPLICABLE STATE AND LOCAL CODES.
- ROUTE ALL SANITARY & WASTE PIPING 2-1/2" AND LARGER AT 1/8" FALL PER FOOT UNLESS OTHERWISE NOTED; ROUTE ALL SANITARY & WASTE PIPING 2" AND SMALLER AT 1/4" FALL PER FOOT UNLESS OTHERWISE NOTED.
- DRAIN AND VENT SIZES IDENTIFIED ON PLANS SUPERCEDE SIZES IDENTIFIED ON MINIMUM SIZE CONNECTION TABLE.
- INSTALL WATER HAMMER ARRESTOR AT ALL QUICK CLOSING FIXTURES.
- MAINTAIN AS-BUILT DRAWINGS IN THE FIELD; AS-BUILTS SHALL BE PROVIDED TO THE OWNER AS RECORD DRAWINGS WITH PROJECT CLOSE-OUT DOCUMENTS.
- CONTRACTOR SHALL GUARANTEE WORK INSTALLED UNDER THEIR CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP OR MATERIALS FOR A PERIOD OF ONE (1) YEAR AFTER SUBSTANTIAL COMPLETION, AND SHALL REPAIR AND/OR REPLACE DEFECTIVE ITEMS AND DAMAGE RESULTING FROM FAILURE OF THESE ITEMS AT NO EXPENSE TO THE OWNER.

PLUMBING (DIVISION 22) SPECIFICATION:

PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM.

DEFINITIONS: FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. INSTALL MEANS TO PLACE IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. PROVIDE MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.

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

ALL PUBLIC LAVATORIES SHALL BE PROVIDED WITH APPROVED WATER TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070.

ALL FLOOR DRAIN SHALL BE EQUIPPED WITH ASSE 1072 BARRIER STYLE TRAP SEAL; RECTORSEAL SURESEAL OR EQUAL.

DOMESTIC HOT AND COLD WATER PIPE TO BE TYPE L HARD COPPER TUBE WITH LEAD FREE SOLDERED OR PRESS-FIT JOINTS AND FITTINGS.

DOMESTIC HOT WATER PIPE AND HOT WATER RETURN PIPE SHALL BE INSULATED WITH 1" THICKNESS OF PRE-FORMMED FIBERGLASS PIPE INSULATION WITH FACTORY ASJ AND PVC ELBOW JACKETS. PIPE SUPPORTS WILL BE ALLOWED TO CONNECT DIRECTLY TO THE PIPE AND PIPE INSULATION IS NOT REQUIRED TO BE CONTINUOUS AT SUPPORTS. FLEXIBLE ELASTOMERIC INSULATION (AP ARMAFLEX BLACK LAPSEAL OR EQUAL) SHALL BE APPROVED ALTERNATE TO FIBERGLASS PIPE INSULATION

PROVIDE STOP VALVES AT ALL WATER FIXTURE CONNECTIONS.

HOT WATER RECIRCULATION BALANCING VALVE BASED ON CIRCUITSOLVER SELF-ACTING THERMOSTATIC RECIRCULATION VALVE.

PURGE AND DISINFECT ALL NEW POTABLE WATER PIPING PER REQUIREMENTS OF AWWA C651 OR C652, OR AS REQUIRED BY LOCAL HEALTH DEPARTMENT.

WASTE AND VENT PIPING TO BE SCH 40 SOLID CORE PVC WITH SOLVENT WELDED JOINTS & FITTINGS.

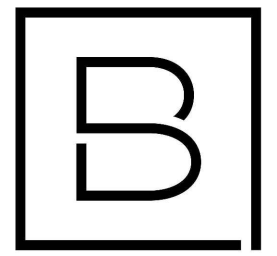
ABOVE GROUND WASTE AND VENT PIPING TO BE SCH 40 DWV SOLID CORE OR CELLULAR CORE PVC WITH SOLVENT WELDED JOINTS & FITTINGS. BELOW GROUND WASTE & VENT PIPING SHALL BE SCH 40 SOLID CORE PVC DWV WITH SOLVENT WELDED JOINTS & FITTINGS.

PROVIDE CLEANOUTS FOR WASTE LINES AS SHOWN ON DRAWINGS, AND OF TYPE APPROVED BY LOCAL CODES

VENT PIPE(S) THRU THE ROOF SHALL BE 3" MINIMUM AND EXTEND AT LEAST 1 FT ABOVE THE ROOF; PROVIDE ROOF JACK VENT PIPE FLASHING EACH PENETRATION WITH ALUMINUM BASE AND RUBBERIZED BOOT. CAULK JOINT BETWEEN VENT PIPE AND BOOT TO MAKE WEATHER TIGHT.

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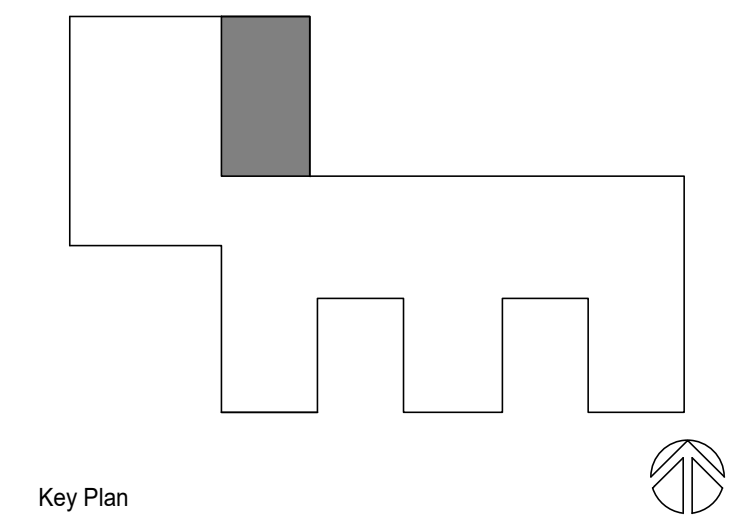
**ORCHARD VIEW
SCHOOL
DISTRICT**

**MIDDLE SCHOOL
KITCHEN
RENOVATIONS**

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CHRISTOPHER J. NOLAN, P.E.
MI - REGISTRATION# 6201043863
EXP. DATE# 4/1/2023



Key Plan

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Designer	Reviewer
C. SCHOLTEN	C. NOLAN
Date Issued	Project Number
01/31/2023	22013309A

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**GENERAL PLUMBING
INFORMATION**

Drawing Number

P001

GENERAL PLUMBING DEMOLITION NOTES:

1. ALL EXISTING PIPING AND EQUIPMENT SHOWN AS DASHED OR CROSS HATCHED SHALL BE REMOVED. PROTECT EXISTING WORK WHICH IS TO REMAIN IN PLACE FOR REUSE WITH TEMPORARY COVERS, SHORING, BRACING, AND SUPPORTS.
2. ALL EQUIPMENT TO BE REMOVED SHALL BE INSPECTED AND REVIEWED BY THE OWNER FOR POSSIBLE REUSE, EXCEPT WHERE INDICATED OTHERWISE. ALL MATERIALS AND EQUIPMENT REMOVED AND NOT REUSED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE OWNERS PROPERTY.
3. DO NOT INTERRUPT OR CONNECT INTO ANY SERVICE PIPING, ELECTRICAL, OR INSTRUMENTATION WORK WITHOUT PRIOR APPROVAL FROM THE OWNERS REPRESENTATIVE.
4. CONTRACTOR SHALL FIELD VERIFY LOCATION(S) OF EXISTING PIPING OR EQUIPMENT TO BE REMOVED.
5. COORDINATE WITH GENERAL CONTRACTOR FOR WALL, ROOF, CEILING, AND FLOOR REPAIR WORK LEFT BY REMOVED ITEMS.

KEYED PLUMBING DEMOLITION NOTES:

1. CAP EXISTING WASTE TO DEMO'D FIXTURE BELOW FLOOR.
2. REMOVE EXISTING SINK AND TRIM. CAP WASTE IN WALL. REMOVE HOT AND COLD WATER PIPING BACK FOR NEW HAND SINK CONNECTION.
3. REMOVE EXISTING DRINKING FOUNTAIN AND TRIM. CAP WASTE BELOW FLOOR. REMOVE VENT AND COLD WATER PIPING BACK TO NEAREST MAIN OR TEE AND CAP.
4. REMOVE EXISTING HOSE BIBB. REMOVE COLD WATER PIPING BACK TO NEAREST MAIN OR TEE AND CAP.
5. REMOVE EXISTING GREASE INTERCEPTOR.

GENERAL PLUMBING NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND INDICATE THE GENERAL EXTENT OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH ALL OTHER TRADES AND FOR PROPER INSTALLATION OF ALL PLUMBING SYSTEMS AND COMPONENTS IN ACCORDANCE WITH 2018 MICHIGAN PLUMBING CODE REQUIREMENTS.
2. ROUTE ALL SANITARY & WASTE PIPING 2 1/2" AND LARGER AT 1/8" FALL PER FOOT UNLESS OTHERWISE NOTED; ROUTE ALL SANITARY & WASTE PIPING 2" AND SMALLER AT 1/4" FALL PER FOOT UNLESS OTHERWISE NOTED.

KEYED PLUMBING NOTES:

- P1 NEW HAND SINK PROVIDED & INSTALLED BY FOOD SERVICE CONTRACTOR, PC TO PROVIDE 1/2" CW & 1/2" HW STUB W/ STOP VALVE AND 1 1/2" DIRECT DRAIN AS REQ FOR CONN BY FOOD SERVICE CONTRACTOR. PROVIDE ASSE 1070 TEMPERATURE AND PRESSURE REGULATING DEVICE AT FIXTURE, REFER TO FOOD SERVICE DRAWINGS FOR ADDITIONAL INFORMATION.
- P2 CONN FIXTURE TRAP LET TO COMBINATION WASTE&VENT UNDERGROUND AS SHOWN. INSTALL FIXTURE TRAP WITHIN MAXIMUM DISTANCE ALLOWED FROM VENT PER 2018 MPC TABLE 909.1 (6'-0" FOR 1 1/2" TRAP)
- P3 ROUTE PIPING DOWN EXPOSED ON WALL.
- P4 CONN NEW FIXTURE VENT TO EXISTING VENT THRU ROOF PIPING. FIELD VERIFY SIZE & ACTUAL LOC.
- P5 1/2" HW UNDERGROUND TO HOT WELL TABLE. PIPE TO BE TYPE 'A' PEX.
- P6 RECONNECT 3" INLET AND OUTLET OF DEMO'D GREASE INTERCEPTOR WITH NEW PIPE. INFILL WITH CONCRETE AND PROVIDE 16 GA 316 STAINLESS COVER OVER CONCRETE. CAULK COVER TO FLOOR.

FIXTURE UNIT VALUES

FIXTURE	DRAINAGE ^a		SUPPLY ^b	
	DFU	HW	CW	TOTAL
SINK (PRIVATE)	2	1	1	1.4
EWC/DRINKING FOUNTAIN	0.5	—	0.25	0.25
FLOOR DRAIN (3" TRAP)	5	—	—	—

^a DRAINAGE FIXTURE UNIT VALUES (DFU) TAKEN FROM Michigan Plumbing Code/2018, CHAPTER 7, TABLE 709.1.

^b SUPPLY FIXTURE UNIT VALUES TAKEN FROM Michigan Plumbing Code/2018, APPENDIX E, TABLE E103.3(2).

MINIMUM SIZE CONNECTION

FIXTURE	SAN	HW	CW	VENT
SINK	1 1/2"	1/2"	1/2"	1 1/2"
ELECTRIC WATER COOLER	1 1/4"	—	1/2"	1 1/4"
FLOOR DRAIN	3"	—	—	1 1/2"

WATER HAMMER ARRESTOR LEGEND

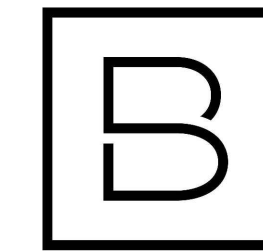
SYMBOL	PDI RATING	FIXTURE UNIT CAP
(A)	A	1-11

NOTES:

1. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PLACEMENT OF WATER HAMMER ARRESTORS. REFER TO MANUFACTURER'S RECOMMENDATIONS.

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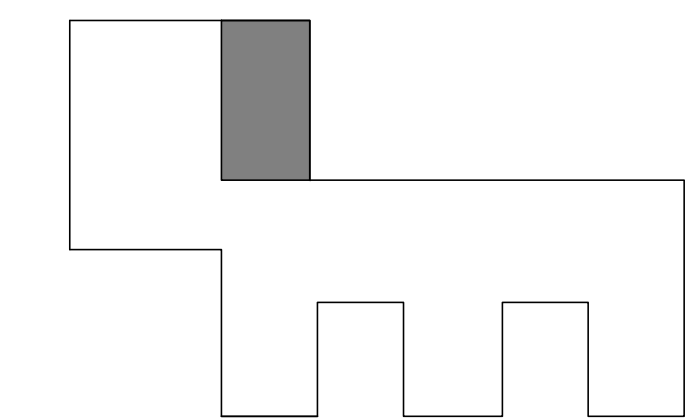
ORCHARD VIEW SCHOOL DISTRICT

MIDDLE SCHOOL KITCHEN RENOVATIONS

35 S SHERIDAN DR
MUSKEGON, MI 49442

Date Revised	Description
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CHRISTOPHER J. NOLAN, P.E.
MI - REGISTRATION# 6201043863
EXP. DATE# 4/1/2023



Key Plan

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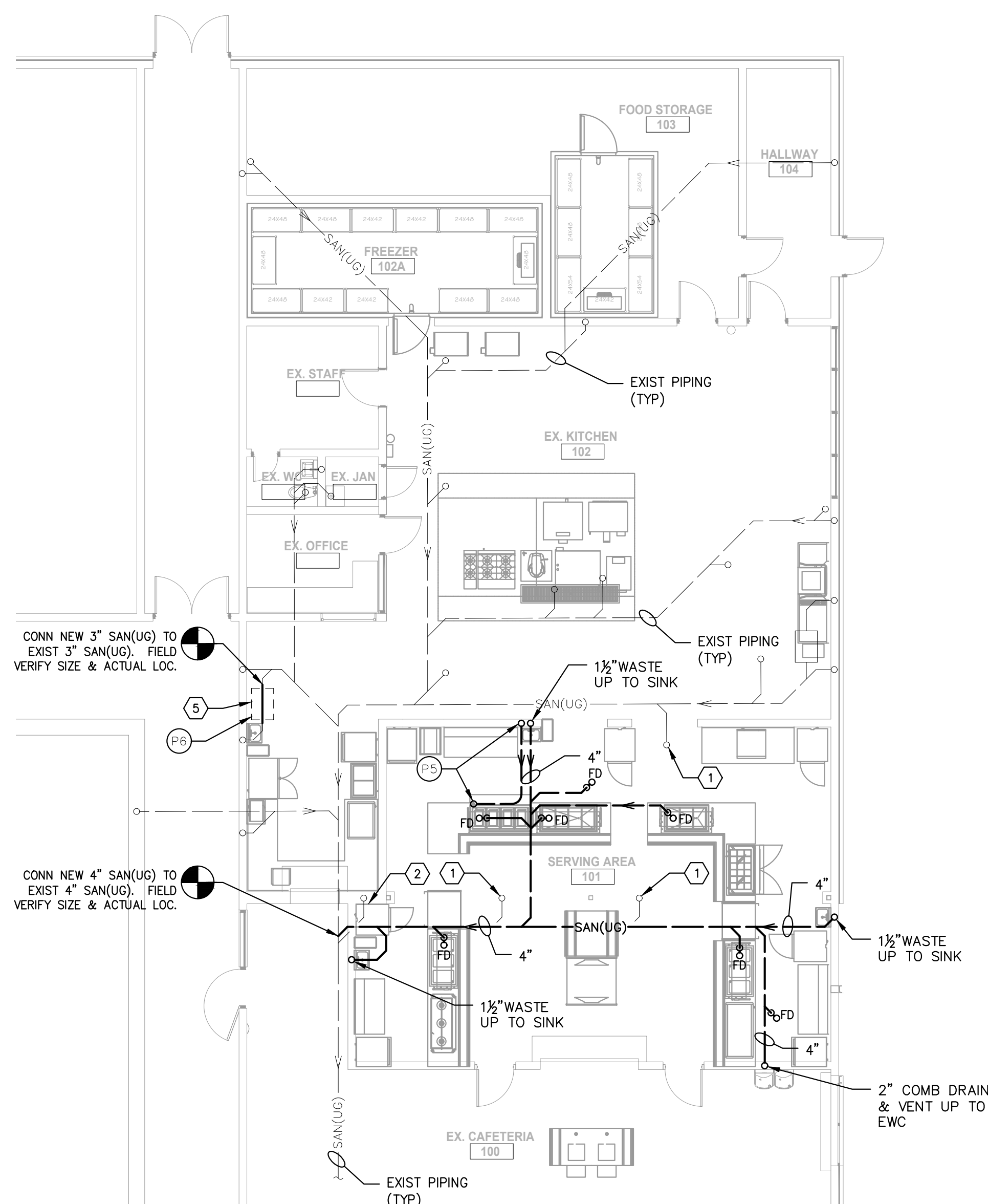
Project Manager	Discipline Lead
D. HOLTROP	B. HUYLER
Designer	Reviewer
C. SCHOLTEN	C. NOLAN
Date Issued	Project Number
01/31/2023	22013309A

Sheet Name

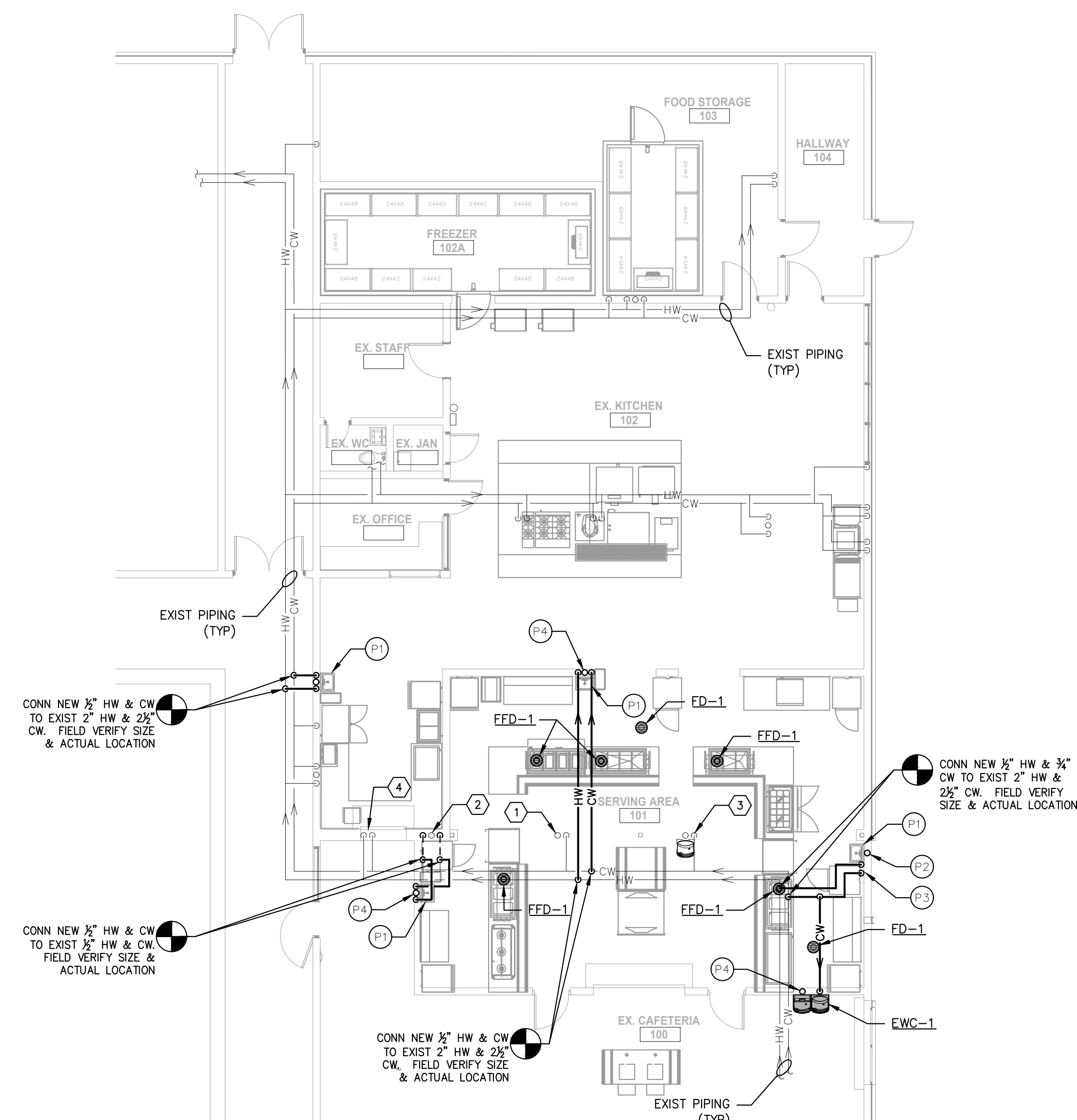
PLUMBING PLANS

Drawing Number

P101



UNDERGROUND PLUMBING PLAN
SCALE: 1/8" = 1'-0"



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

ABBREVIATIONS

Table of abbreviations for electrical symbols, including terms like INCHES, AMPERE, ABOVE COUNTER, etc., with their corresponding symbols and full names.

REFERENCE SYMBOLS

Table of reference symbols for equipment identity, plan and detail numbers, section drawings, match lines, keynote indicators, and revision clouds.

MOUNTING HEIGHTS

Table of mounting heights for various electrical components, such as CARD READER, CLOAK HANGER OULETS, EXIT LIGHTS, etc., with dimensions and notes.

NOTE

NOT ALL SYMBOLS AND ABBREVIATIONS INDICATED APPEAR ON THESE CONTRACT DRAWINGS. INDIVIDUAL DRAWINGS MAY HAVE SHEET LEGENDS FOR UNIQUE SYMBOLS AND FOR CONVENIENCE.

ELECTRICAL SYMBOL LIST

Large table of electrical symbols categorized by GENERAL, POWER, SIGNAL, and SITE, with descriptions for each symbol.



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Table with columns: Date Revised, Description. Includes entries for 1/24/2023 and 1/31/2023.

- GENERAL NOTES:
1. MINIMUM CIRCUIT BREAKER SIZE FOR CONDUITS SHOWN ON PLANS IS 20A, 1 POLE FOR 120VAC UNLESS OTHERWISE NOTED/SHOWN ON PLANS.
2. MINIMUM BRANCH CIRCUIT WIRING SHALL BE #12 AWG. DERATE CONDUCTORS PER NEC FOR VOLTAGE DROP AND CONDUIT FILL.
3. PROVIDE GROUNDING PER NEC (ARTICLE 250).
4. PROVIDE A SEPARATE NEUTRAL CONDUCTOR FROM PANELBOARD FOR EACH BRANCH CIRCUIT.
5. CONTRACTOR SHALL COORDINATE WORK WITH ASSOCIATED TRADES.
6. CONTRACTOR SHALL SEAL WITH AN APPROVED METHOD ALL ELECTRICAL PENETRATIONS THRU FLOOR/PROFFRATED WALLS, FLOORS, CEILINGS OR OTHER AREAS.
7. CONTRACTOR SHALL PROVIDE FUSES SIZED PER MANUFACTURERS RECOMMENDATIONS FOR ALL EQUIPMENT INSTALLED WITH FUSED STARTERS OR DISCONNECTS.
8. ALL EXTERIOR PVC CONDUIT SHALL TRANSITION TO RGS CONDUIT WITHIN 18" OF FOUNDATION WALL PRIOR TO PASSING THRU THAT WALL.
9. CONTRACTOR SHALL PROVIDE RACEWAY, WIRE, CABLE AND ASSOCIATED FITTINGS ALONG WITH COMPLETE CONNECTIONS REQUIRED FOR BRANCH CIRCUITS FROM DEVICES TO FINAL OVERCURRENT DEVICE AND LOCAL CONTROL DEVICES(S) PER PROJECT SPECIFICATIONS.
10. VERIFY EXACT LOCATION OF ELECTRICAL CONNECTION POINTS IN THE FIELD.
11. CONDUIT SHALL BE CONCEALED WITHIN WALLS AND CEILINGS WHERE POSSIBLE. SOME CONDUIT SYSTEMS SHALL BE EXPOSED DUE TO THE CONSTRUCTION OF THE BUILDING. CONTRACTOR SHALL STRIVE TO CONSOLIDATE CONDUITS AND ARRANGE IN A GEOMETRICALLY ALIGNED FASHION TO HAVE A LOW IMPACT ON THE AESTHETICS OF THE SPACE. CONDUIT SHALL BE ROUTED FROM THE CORRIDOR DIRECTLY INTO EACH ROOM. NOT ROUTED FROM ROOM TO ROOM. CONTRACTOR SHALL PROVIDE AND NOTIFY CONSULTANT FOR REVIEW OF THE INSTALLED CONDUIT LAYOUT EARLY IN THE PROJECT. CONDUIT INSTALLATION SHALL CONTINUE UPON CONSULTANT APPROVAL AND IS SUBJECT TO MODIFICATIONS AS THE CONSULTANT SEES FIT. EXPOSED CONDUITS SHALL BE PAINTED TO MATCH SURROUNDING CONDITIONS. REFER TO CONSTRUCTION COORDINATION REQUIREMENTS IN THE PROJECT SPECIFICATIONS.

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Table with columns: Project Manager, Discipline Lead, Designer, Reviewer. Includes names like D HOLTROP, A ROBINSON, C NIKONCHUK, B HUYLER.

Date Issued: 12/13/2022, Project Number: 016633.00

Sheet Name, Drawing Number

LEGEND E001

DIVISION 26

ELECTRICAL SPECIFICATIONS

DESCRIPTION OF WORK

WORK SHALL INCLUDE BUT NOT NECESSARILY BE LIMITED TO THE FOLLOWING:

1. WIRING METHODS.
2. NON-FUSED AND FUSED SWITCHES.
3. DEVICES.
4. PANELBOARDS
5. MOTORS AND CONTROLS.
6. LIGHTING.
7. COMMUNICATIONS HORIZONTAL CABLING
8. TEMPORARY POWER AND LIGHTING

STANDARDS

MATERIALS AND EQUIPMENT SHALL CONFORM TO THE REQUIREMENTS OF MFC, NEC, MIOSHA, NFPA, UL, NEMA, A. D. A. AND RESPECTIVE PUBLICATIONS AND OTHER REQUIREMENTS SPECIFIED BELOW. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER.

CODES AND ORDINANCES

COMPLY WITH ALL CODES AND ORDINANCES. BIDDERS SHALL INFORM THEMSELVES OF CODE REQUIREMENTS.

PERMITS, INSPECTION FEES, AND CODES

THE CONTRACTOR SHALL OBTAIN AND PAY ALL PERMIT AND INSPECTION FEES. FINAL INSPECTION CERTIFICATES BY THE LOCAL ELECTRICAL INSPECTOR AND FIRE MARSHAL SHALL BE OBTAINED BY THE CONTRACTOR AND TURNED OVER IN DUPLICATE TO THE OWNER.

SUBMISSIONS

SUBMIT PRODUCT DATA, SHOP DRAWINGS, WIRING DIAGRAMS, AND DESCRIPTIVE LITERATURE ON ALL MATERIALS AND EQUIPMENT. MAKE SUBMITTALS WITHIN THIRTY (30) DAYS AFTER THE SIGNING OF THE CONTRACT. SHIPMENT SHALL NOT BE RELEASED UNTIL DRAWINGS AND LITERATURE HAVE BEEN FINALLY APPROVED.

AS-BUILTS – OPERATION & MAINTENANCE MANUALS

PROVIDE FOR EACH SYSTEM AND EQUIPMENT AS SPECIFIED FOR USE BY OPERATION AND MAINTENANCE PERSONNEL. THE OPERATING INSTRUCTIONS SHALL INCLUDE:

- WIRING DIAGRAMS, CONTROL DIAGRAMS, AND CONTROL SEQUENCE FOR EACH SYSTEM AND ITEM OF EQUIPMENT.
- START-UP, PROPER ADJUSTMENT, OPERATING, LUBRICATION, AND SHUTDOWN PROCEDURES.
- SAFETY PRECAUTIONS
- THE PROCEDURE IN THE EVENT OF EQUIPMENT FAILURE
- OTHER ITEMS OF INSTRUCTION AS RECOMMENDED BY THE MANUFACTURER OF EACH SYSTEM OR ITEM OF EQUIPMENT.

IDENTIFICATION OF SYSTEMS

OPERATING INSTRUCTIONS, PRINT OR ENGRAVE INSTRUCTIONS AND FRAME UNDER GLASS OR APPROVED LAMINATED PLASTIC. POST INSTRUCTIONS IN VIEW OF EQUIPMENT. PROVIDE WEATHER RESISTANT MATERIALS FOR EXTERIOR APPLICATIONS.

EQUIPMENT: PROVIDE NAMEPLATE FOR ALL EQUIPMENT IT SHALL BE A SELF-ADHESIVE, ENGRAVED, LAMINATED ACRYLIC OR MELAMINE LABEL. PROVIDE ADHESIVE BACK, WITH WHITE LETTERS ON A DARK GRAY BACKGROUND. MINIMUM LETTER HEIGHT SHALL BE 3/8-INCH.

WARNING SIGNS: PROVIDE A SELF-ADHESIVE WARNING LABEL THAT IS FACTORY PRINTED, MULTI-COLOR, PRESSURE SENSITIVE, ADHESIVE LABEL. COMPLY WITH N.E.C. 70 AND 29 CFR 1910.145. LABELS FOR MULTIPLE POWER SOURCES SHALL READ: "DANGER – ELECTRICAL SHOCK HAZARD – EQUIPMENT HAS MULTIPLE POWER SOURCES". LABELS FOR ALL OTHER EQUIPMENT REQUIRING WORKSPACE CLEARANCES SHALL READ: "WARNING – OSHA REGULATION – AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36-INCHES".

CONTRACTOR SHALL PROVIDE IDENTIFICATION ON ALL DEVICES. PROVIDE WHITE LABEL WITH BLACK LETTERING AND LOCATE ON DEVICE UNDER PLATE. CONTRACTOR SHALL IDENTIFY DEVICE WITH PANEL AND CIRCUIT NUMBER FEEDING DEVICE.

GUARANTEE

PROVIDE GUARANTEE FOR ALL LABOR AND MATERIALS FOR ONE (1) YEAR AFTER OWNER'S WRITTEN ACCEPTANCE OF THE PROJECT.

LAYOUT OF THE WORK

EXAMINE THE SITE AND ALL THE DRAWINGS BEFORE PROCEEDING WITH THE LAYOUT AND INSTALLATION OF THIS WORK. LOCATE ESSENTIALLY AS SHOWN ON THE DRAWINGS, BUT IN EXACT LAYOUT DETERMINED ON THE JOB, TO SUIT ACTUAL CONDITIONS. CONFER AND COOPERATE WITH OTHER TRADES ON THE JOB SO ALL PARTS WILL BE INSTALLED IN PROPER RELATIONSHIP. PRECISE LOCATION OF PARTS TO COORDINATE WITH OTHER WORK IS THE RESPONSIBILITY OF THE CONTRACTOR.

DEMOLITION

CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIAL AS INDICATED ON THE DEMOLITION PLAN. ALL REMOVED AND UNUSED LIGHTS AND EQUIPMENT SHALL BE TURNED OVER TO THE OWNER. ALL OTHER ITEMS SHALL BE REMOVED FROM THE SITE. EXISTING CONDUIT HOMERUNS MAY BE REUSED WHENEVER POSSIBLE. CONTRACTOR SHALL PATCH EXISTING WALL AND CEILING OPENINGS IN FINISHED AREAS UPON REMOVAL OF ELECTRICAL EQUIPMENT. CONTRACTOR SHALL ALSO PROTECT ALL EXISTING ELECTRICAL EQUIPMENT TO REMAIN DURING CONSTRUCTION PERIOD.

CUTTING AND PATCHING

ALL NECESSARY CUTTING OF THE BUILDING CONSTRUCTION FOR THE NEW INSTALLATION OF THE WORK SHALL BE FURNISHED BY THE CONTRACTOR. NO STRUCTURAL MEMBERS OF THE BUILDING SHALL BE CUT WITHOUT PRIOR APPROVAL OF THE ARCHITECT. ALL NECESSARY PATCHING OF THESE SURFACES TO BE FURNISHED BY THIS CONTRACTOR.

ELECTRICAL PANELS

PANELBOARD SHALL BE SIMILAR AND EQUAL TO SQUARE D TYPE NOOD CIRCUIT BREAKER TYPE, COPPER BUS, 10,000 AIC RATED, SURFACE MOUNTED WITHOUT DOOR AND BRANCH FUSIBLE SWITCHES AS REQUIRED. BRANCH PANELS SHALL BE SIMILAR AND EQUAL TO SQUARE D TYPE NOOD, CIRCUIT BREAKER TYPE, RECESSED OR FLUSH MOUNTED AS SHOWN, COPPER BUS, 10,000 AIC RATED MINIMUM, HINGED LOCKABLE DOOR, BOLT-IN BREAKERS WITH MAIN BREAKER OR MLO AS INDICATED ON RISER DIAGRAM.

WIRE AND CABLE

ALL WIRING SHALL STRANDED COPPER AND INSTALLED IN CONDUIT, TUBING, OR SURFACE METALLIC RACEWAY. CONDUCTORS SHALL BE CONTINUOUS BETWEEN OUTLETS OF JUNCTION BOXES WITH SPLICES MADE ONLY WITHIN SUCH BOXES. SOLDERLESS PRESSURE-TYPE CONNECTORS PROPERLY INSULATED SHALL BE USED FOR ALL JOINTS. NO WIRE SMALLER THAN #12 MAY BE USED UNLESS SPECIFICALLY SPECIFIED UNDER DESCRIPTIONS OF SPECIAL SYSTEMS. ALL INDIVIDUAL BRANCH CIRCUITS AND SINGLE POLE BRANCH CIRCUITS SHALL HAVE INDIVIDUAL NEUTRALS. EACH NEUTRAL SHALL BE IDENTIFIED AT ALL JUNCTION BOXES AND TERMINALS SAME AS ITS CORRESPONDING BRANCH CIRCUIT NUMBER.

CONDUIT

ALL CONDUIT SHALL BE 1/2-INCH MINIMUM UNLESS NOTED OTHERWISE. WIRING METHODS: EXTERIOR EXPOSED AND CONCEALED: RGC, INTERIOR EXPOSED/CONCEALED UNDER 2-INCHES: EMT, INTERIOR EXPOSED/CONCEALED 2-INCHES AND LARGER: RGC. CONNECTIONS TO VIBRATING EQUIPMENT: LFMC. ALL CONDUIT AND WIRE IN FINISHED AREAS SHALL BE CONCEALED IN THE CONSTRUCTION WHERE PRACTICABLE. ALL RACEWAYS SHALL BE ROUTED WITHIN STRUCTURAL STEEL AND FURRED SPACES UTILIZING FACTORY MADE ELBOWS AS GOOD PRACTICE AND WORKMANSHIP ALLOWS. INSTALL SLEEVES THROUGH STRUCTURAL CONCRETE OR WHERE PENETRATING STRUCTURAL FLOOR DECKS. KEEP RACEWAYS AT LEAST 6-INCHES FROM PARALLEL RUNS OF FLUES, STEAM AND HOT WATER PIPING. INSTALL HORIZONTAL CONDUIT RUNS ABOVE WATER AND STEAM PIPING. INSTALL RACEWAYS LEVEL AND SQUARE AND AT PROPER ELEVATIONS. PROTECT STUB UPS FROM DAMAGE WHERE CONDUITS RISE THROUGH FLOOR SLABS AND ARRANGE SO CURVED PORTION OF BENDS ARE NOT VISIBLE ABOVE THE FINISHED SLAB. INSTALL RACEWAYS IN MIDDLE THIRD OF SLAB WITH MINIMUM OF 1-INCH CONCRETE COVER. SECURE RACEWAYS TO REINFORCING RODS TO PREVENT SAGGING OR SHIFTING DURING CONCRETE PLACEMENT. SPACE RACEWAYS LATERALLY TO PREVENT VOIDS IN CONCRETE. RUN CONDUIT LARGER THAN 1-INCH TRADE SIZE PARALLEL TO OR AT RIGHT ANGLES TO MAIN REINFORCEMENT. WHERE AT RIGHT ANGLES TO REINFORCEMENT, PLACE CONDUIT CLOSE TO SLAB SUPPORT.

OUTLET BOXES

A STANDARD GALVANIZED OUTLET BOX, COMPLETE WITH PLASTER RING, IF NECESSARY, SHALL BE INSTALLED FOR EACH AND EVERY FIXTURE AND OUTLET SHOWN. EACH OUTLET SHALL BE RIGIDLY SUPPORTED FROM THE BUILDING CONSTRUCTION (INDEPENDENT OF THE RACEWAY SYSTEM). CEILING OUTLET BOXES SHALL BE 4-INCH OCTAGON, 1-1/2-INCH DEEP, WITH FIXTURE HICKEY, AND SUPPORTED TO WITHSTAND 80 LBS.

EQUIPMENT GROUNDING CONDUCTOR

INSTALL EQUIPMENT GROUNDING CONDUCTOR IN RACEWAYS WITH CONDUCTORS FOR ALL FEEDER AND BRANCH CIRCUITS.

LIGHTING FIXTURES

ALL LIGHTING FIXTURES AND COMPONENTS THEREOF SHALL BE U.L. AND E.T.L. APPROVED.

COMMUNICATIONS HORIZONTAL CABLING

FURNISH ALL LABOR, MATERIALS, TOOLS, AND EQUIPMENT NECESSARY AND REASONABLY INCIDENTAL TO THE INSTALLATION OF ANY EMPTY CONDUIT SYSTEM CONSISTING OF CABINETS, CONDUIT, OUTLET BOXES, COVERS, AND PLATES FOR THE INSTALLATION OF TELEPHONE SYSTEM BY OTHERS.

WALL SWITCHES

SWITCHES SHALL BE SPECIFICATION GRADE TOGGLE TYPE, SINGLE-POLE, THREE-WAY TWO POSITION DEVICES RATED AT 20A.

CONVENIENCE OUTLETS

OUTLETS SHALL BE SPECIFICATIONS GRADE, 20A, 125VAC, 2-POLE, 3-WIRE DUPLEX CONFORMING TO NEMA WD 6, NEMA 5-20R UNLESS NOTED OTHERWISE.

WALL PLATES

ALL DEVICE PLATES SHALL BE NON-CONDUCTIVE, THERMOPLASTIC, COLOR TO MATCH DEVICES, AND MEET FEDERAL SPECIFICATION WP455-A.

FUSED/NON-FUSED SWITCHES

FUSED SWITCHES SHALL BE 250V, CLASS A, HEAVY DUTY, DUAL HORSEPOWER RATED IN NEMA 1 ENCLOSURE OR WEATHERPROOF AS SHOWN, COMPLETE WITH ARC QUENCHING CHUTES AND SELF-ALIGNING FUSE AND BREAK JAWS AND RATED FOR "SERVICE ENTRANCE". SWITCHES FOR 30 AMPERES TO 200 AMPERE OPERATION SHALL BE SQUARE D TYPE HD, OR EQUAL WITH ENCLOSURE, VOLTAGE, CURRENT RATING NUMBER OF POLES, AND FUSING AS INDICATED. SWITCH CONSTRUCTION SHALL BE SUCH THAT, WHEN THE SWITCH HANDLE IN THE "ON" POSITION, THE COVER OR DOOR CANNOT BE OPENED.

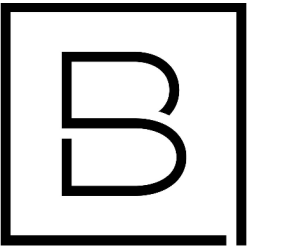
MOTOR STARTERS

MOTOR STARTERS SHALL BE COMBINATION FUSIBLE TYPE 250V, CLASS A, HEAVY DUTY, DUAL HORSEPOWER RATED WITH OVERLOADS AND TIME DELAY SWITCH. UNITS SHALL BE SQUARE D OR EQUAL.

SUPPORTS AND HANGERS

PROVIDE AND INSTALL NECESSARY STEEL BRACKETS, RODS, CLAMPS, ETC., FOR SUPPORT OF ALL WORK UNDER THIS CONTRACT.

END OF DIVISION 26



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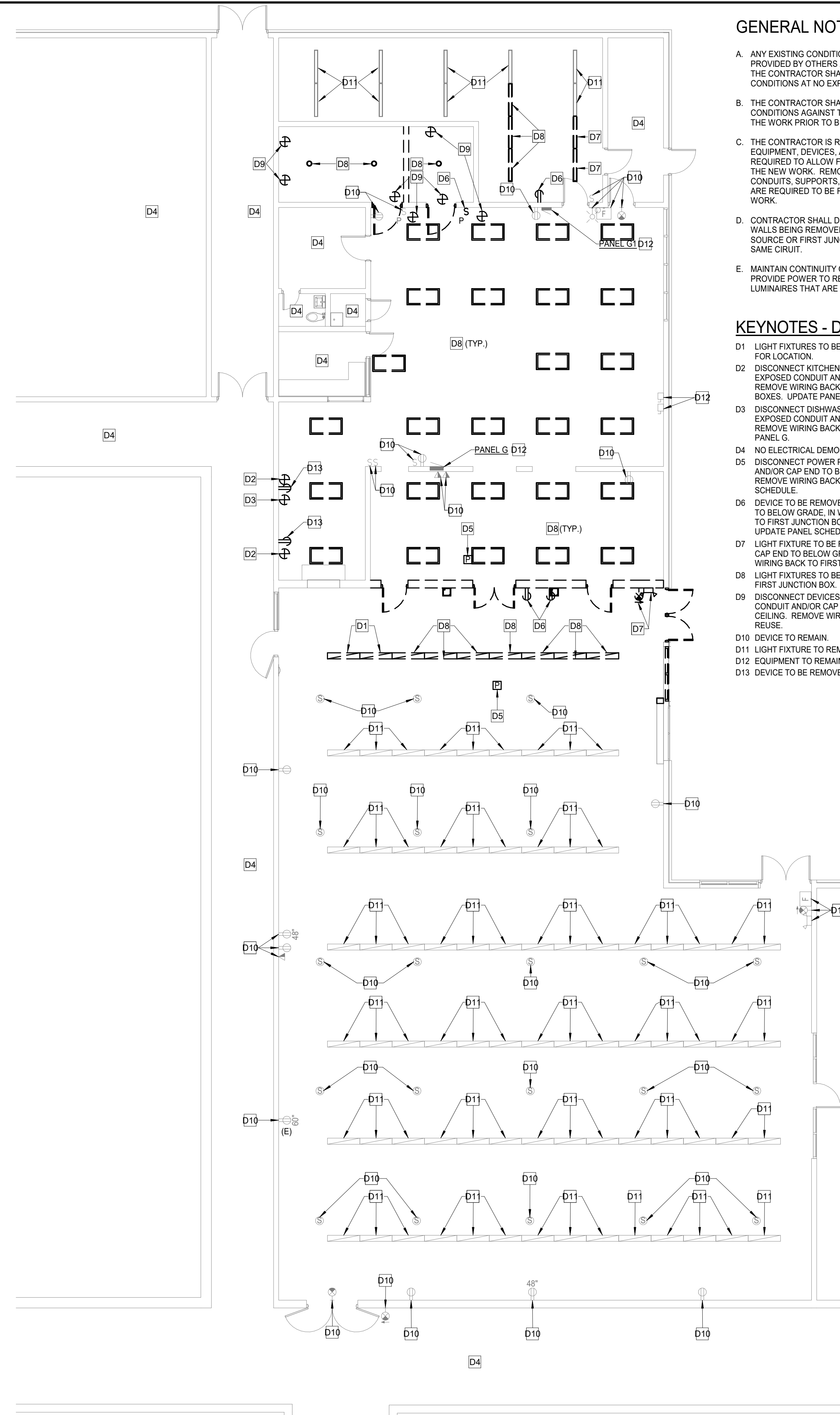
Project Manager	Discipline Lead
D HOLTROP	A ROBINSON
Designer	Reviewer
C NIKONCHUK	B HUYLER
Date Issued	Project Number
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Sheet Name

SPECIFICATIONS

Drawing Number

E002



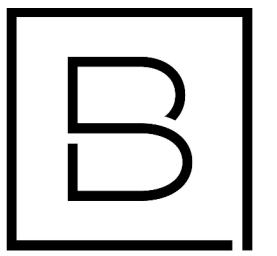
GENERAL NOTES:

- A. ANY EXISTING CONDITIONS INDICATED ARE BASED ON INFORMATION PROVIDED BY OTHERS AND POSSIBLE LIMITED FIELD VERIFICATION. THE CONTRACTOR SHALL ADJUST FOR THE ACTUAL FIELD CONDITIONS AT NO EXPENSE TO THE OWNER.
- B. THE CONTRACTOR SHALL VISIT THE PROJECT SITE, REVIEW EXISTING CONDITIONS AGAINST THE PLANS, AND FAMILIARIZE THEMSELVES WITH THE WORK PRIOR TO BIDDING AND START OF THE WORK.
- C. THE CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING EQUIPMENT, DEVICES, AND LUMINAIRES AS INDICATED AND/OR AS REQUIRED TO ALLOW FOR INSTALLATION AND CONSTRUCTION OF THE NEW WORK. REMOVE ALL EQUIPMENT, DEVICES, LUMINAIRES, CONDUITS, SUPPORTS, HANGERS, ECT. THAT ARE NOT SHOWN AND ARE REQUIRED TO BE REMOVED IN ORDER TO COMPLETE THE NEW WORK.
- D. CONTRACTOR SHALL DISCONNECT AND REMOVE ALL DEVICES IN WALLS BEING REMOVED. REMOVE BOXES, CONDUITS, AND WIRE TO SOURCE OR FIRST JUNCTION BOX TO MAINTAIN EXISTING DEVICES ON SAME CIRCUIT.
- E. MAINTAIN CONTINUITY OF EXISTING CIRCUITS AS REQUIRED TO PROVIDE POWER TO REMAINING EQUIPMENT, DEVICES, AND LUMINAIRES THAT ARE NOT BEING REMOVED.

KEYNOTES - DEMOLITION [7]

- D1 LIGHT FIXTURES TO BE RELOCATED. REFER TO NEW LIGHTING PLAN FOR LOCATION.
- D2 DISCONNECT KITCHEN EQUIPMENT FOR REMOVAL BY OTHERS. REMOVE EXPOSED CONDUIT AND/OR CAP END TO BELOW GRADE OR IN WALL. REMOVE WIRING BACK TO SOURCE. PROVIDE COVERPLATE FOR OPEN BOXES. UPDATE PANEL SCHEDULE FOR (E) PANEL G.
- D3 DISCONNECT DISHWASHER FOR REMOVAL BY OTHERS. REMOVE EXPOSED CONDUIT AND/OR CAP END TO BELOW GRADE OR IN WALL. REMOVE WIRING BACK TO SOURCE. UPDATE PANEL SCHEDULE FOR (E) PANEL G.
- D4 NO ELECTRICAL DEMOLITION WORK IN SPACE.
- D5 DISCONNECT POWER POLE FOR REMOVAL. REMOVE EXPOSED CONDUIT AND/OR CAP END TO BELOW GRADE, IN WALL OR ABOVE CEILING. REMOVE WIRING BACK TO FIRST JUNCTION BOX. UPDATE PANEL SCHEDULE.
- D6 DEVICE TO BE REMOVED. REMOVE EXPOSED CONDUIT AND/OR CAP END TO BELOW GRADE, IN WALL OR ABOVE CEILING. REMOVE WIRING BACK TO FIRST JUNCTION BOX. PROVIDE COVERPLATE FOR OPEN BOXES. UPDATE PANEL SCHEDULE.
- D7 LIGHT FIXTURE TO BE RELOCATED. REMOVE EXPOSED CONDUIT AND/OR CAP END TO BELOW GRADE, IN WALL OR ABOVE CEILING. REMOVE WIRING BACK TO FIRST JUNCTION BOX. DEMO.
- D8 LIGHT FIXTURES TO BE REMOVED. REMOVE CONDUIT AND WIRING TO FIRST JUNCTION BOX.
- D9 DISCONNECT DEVICES FOR REMOVAL BY OTHERS. REMOVE EXPOSED CONDUIT AND/OR CAP END TO BELOW GRADE, IN WALL OR ABOVE CEILING. REMOVE WIRE TO FIRST JUNCTION BOX ABOVE CEILING TO REUSE.
- D10 DEVICE TO REMAIN.
- D11 LIGHT FIXTURE TO REMAIN.
- D12 EQUIPMENT TO REMAIN.
- D13 DEVICE TO BE REMOVED.

1 FIRST FLOOR PLAN - AREA A - ELECTRICAL DEMOLITION
SCALE : 1/8" = 1'-0"



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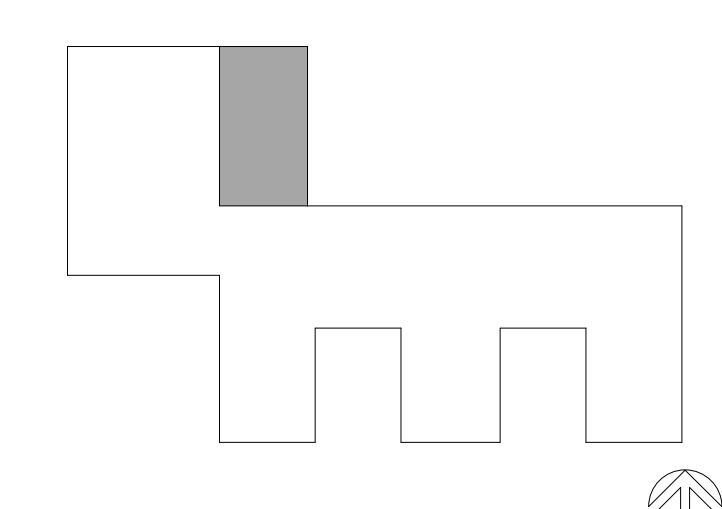
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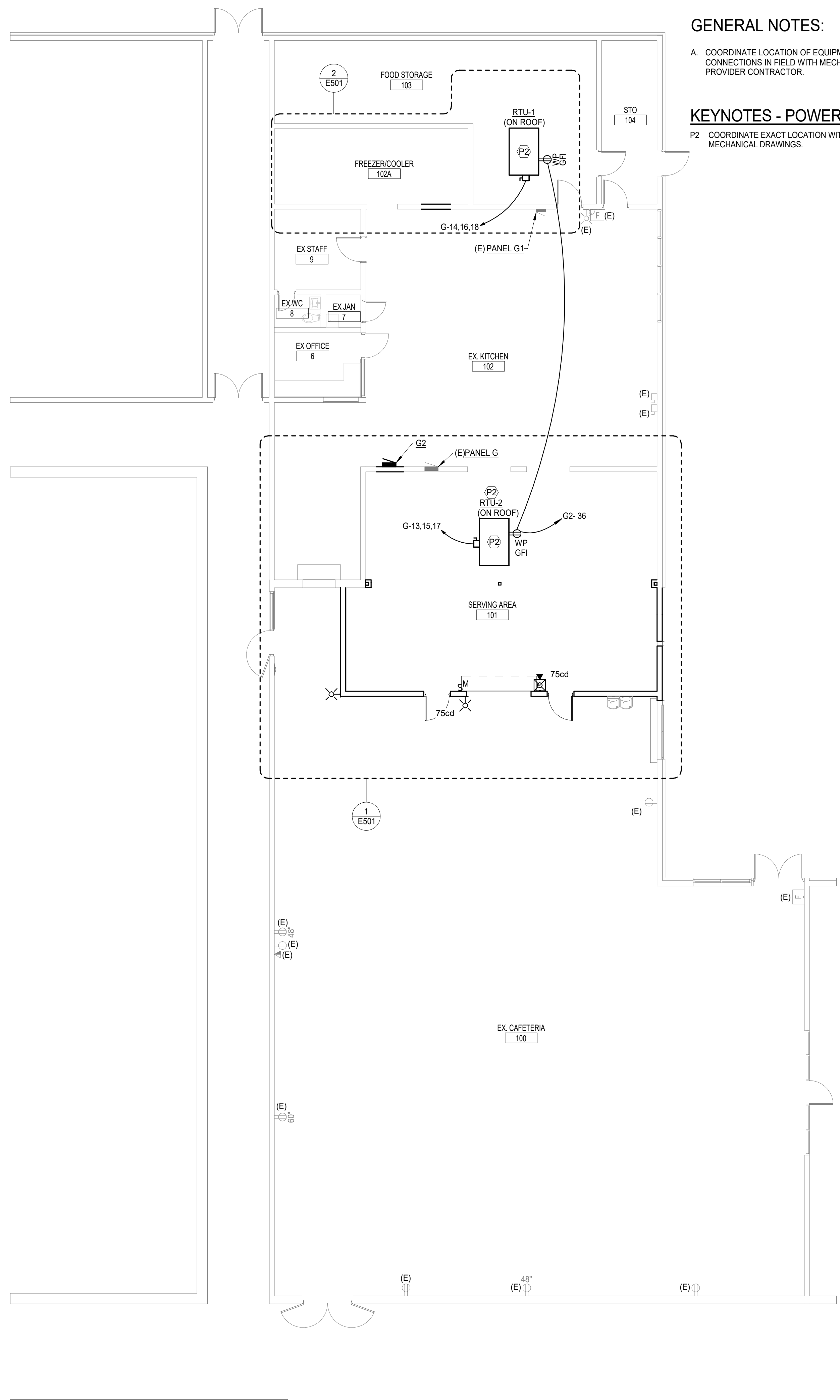
Project Manager	Discipline Lead
D HOLTROP	A ROBINSON
Designer	Reviewer
C NIKONCHUK	B HUYLER
Date Issued	Project Number
12/13/2022	016633.00

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FIRST FLOOR PLAN - AREA A
- ELECTRICAL DEMOLITION

Drawing Number

ED101



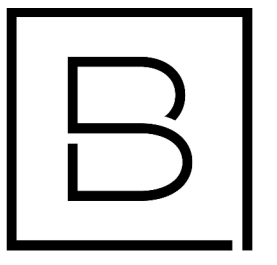
GENERAL NOTES:

A. COORDINATE LOCATION OF EQUIPMENT LOCATION AND CONNECTIONS IN FIELD WITH MECHANICAL AND FOOD SERVICE PROVIDER CONTRACTOR.

KEYNOTES - POWER

P2 COORDINATE EXACT LOCATION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

1 FIRST FLOOR PLAN - AREA A - POWER
SCALE : 1/8" = 1'-0"



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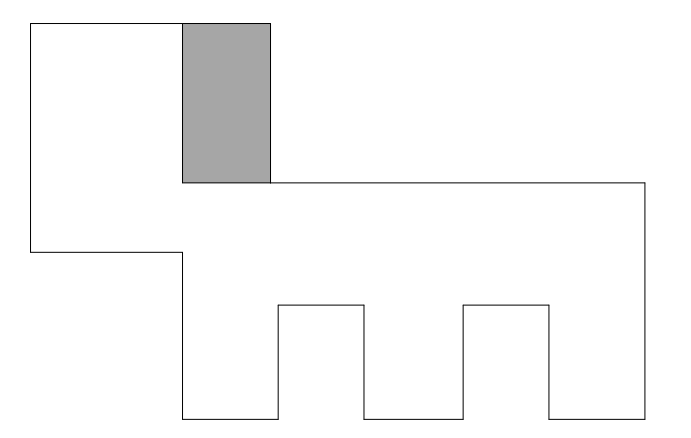
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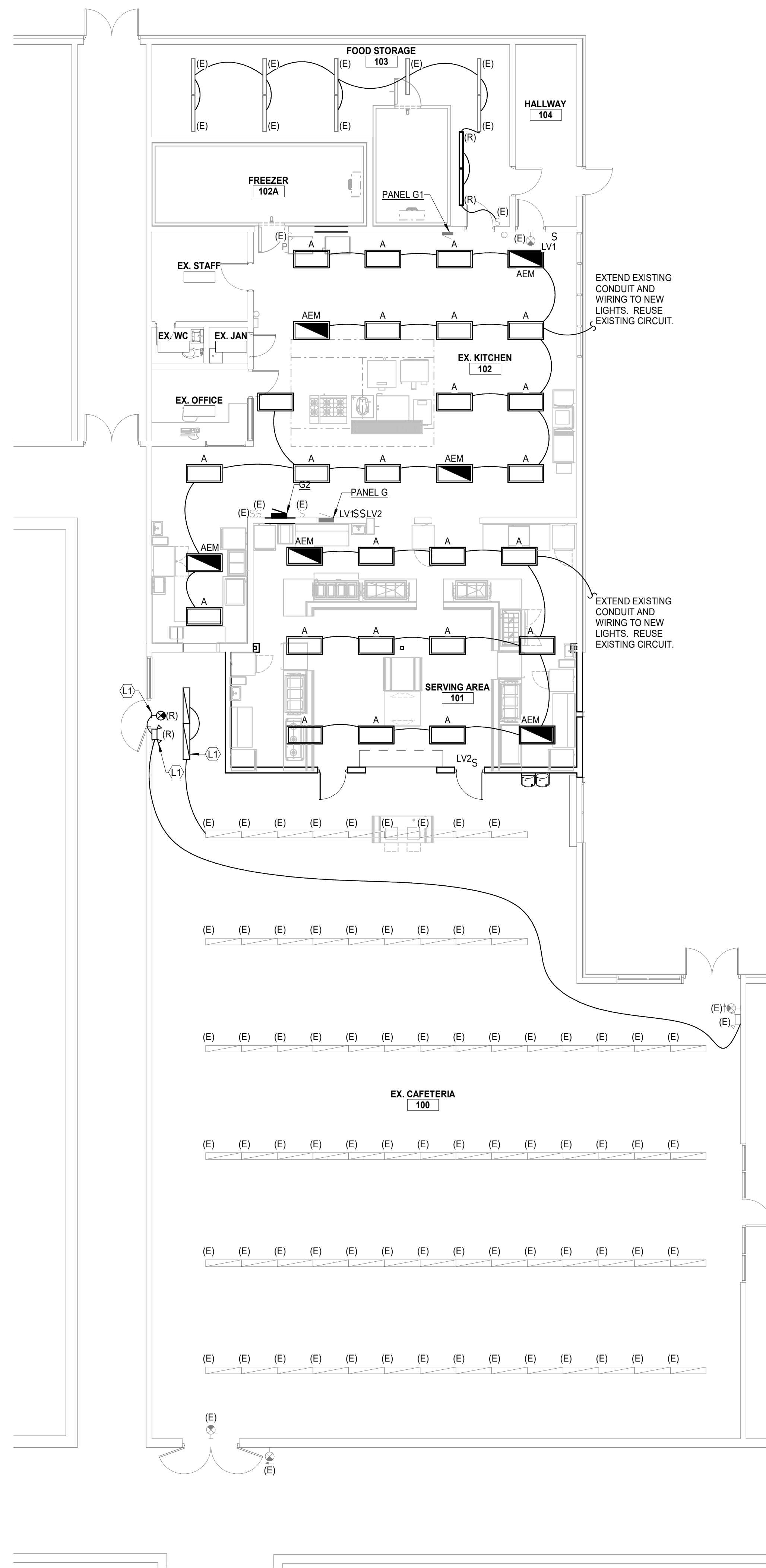
Project Manager	Discipline Lead
D. HOLTROP	A. ROBINSON
Designer	Reviewer
C. NIKONCHUK	B. HUYLER
Date Issued	Project Number
12/13/2022	016633.00

Sheet Name

FIRST FLOOR PLAN - AREA A
- POWER

Drawing Number

E101

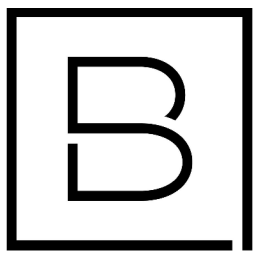


GENERAL NOTES:

A. LUMINAIRES MARKED "E" ARE EXISTING LUMINAIRES THAT ARE TO REMAIN IN PLACE. ALL EXISTING LUMINAIRES WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REPAIRED TO A LIKE-NEW CONDITION, THOROUGHLY CLEANED, AND RELAMPED. ANY EXISTING LUMINAIRE THAT ARE DAMAGED BEYOND REPAIR SHALL BE REPLACED WITH AN IDENTICAL LUMINAIRE.

KEYNOTES - LIGHTING

L1 RELOCATED LIGHT FIXTURES. CONNECT TO EXISTING CIRCUIT AS SHOWN. CLEAN AND RELAMP PRIOR TO INSTALLATION.



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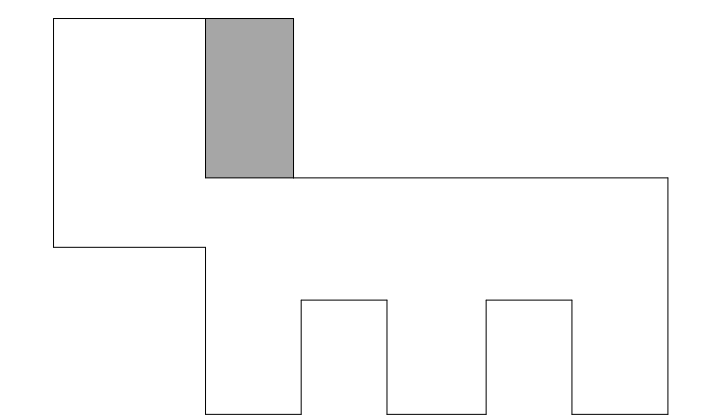
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Suite 305
Grand Rapids, MI 49504
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ORCHARD VIEW

**ORCHARD VIEW
MIDDLE SCHOOL
RENOVATIONS**

35 S SHERIDAN DR
MUSKEGON MI 49442

Date Revised	Description
1/24/2023	OWNER REVIEW
1/31/2023	BIDS



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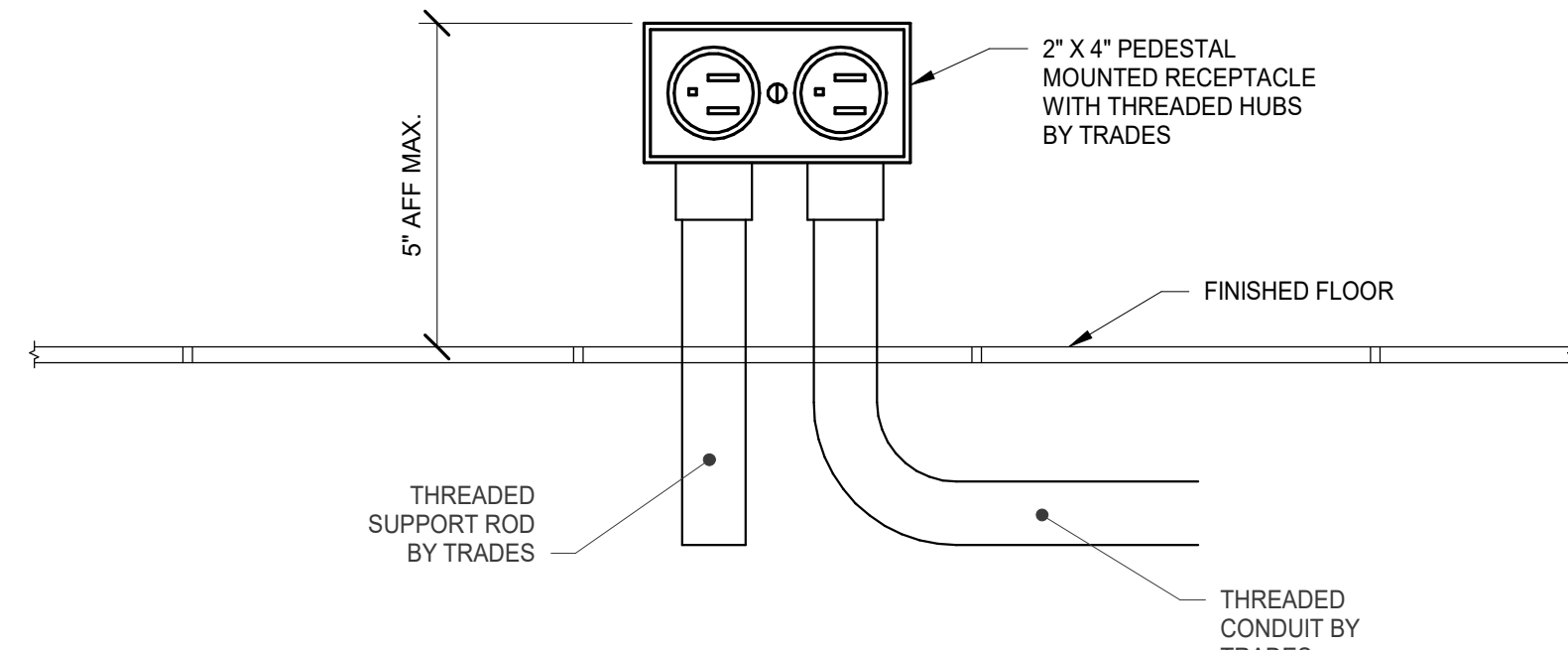
Sheet Name

FIRST FLOOR PLAN - AREA A
- LIGHTING

Drawing Number

E201

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



3 TYPICAL PEDESTAL MOUNTED RECEPTACLE
SCALE : 1/2" = 1'-0"

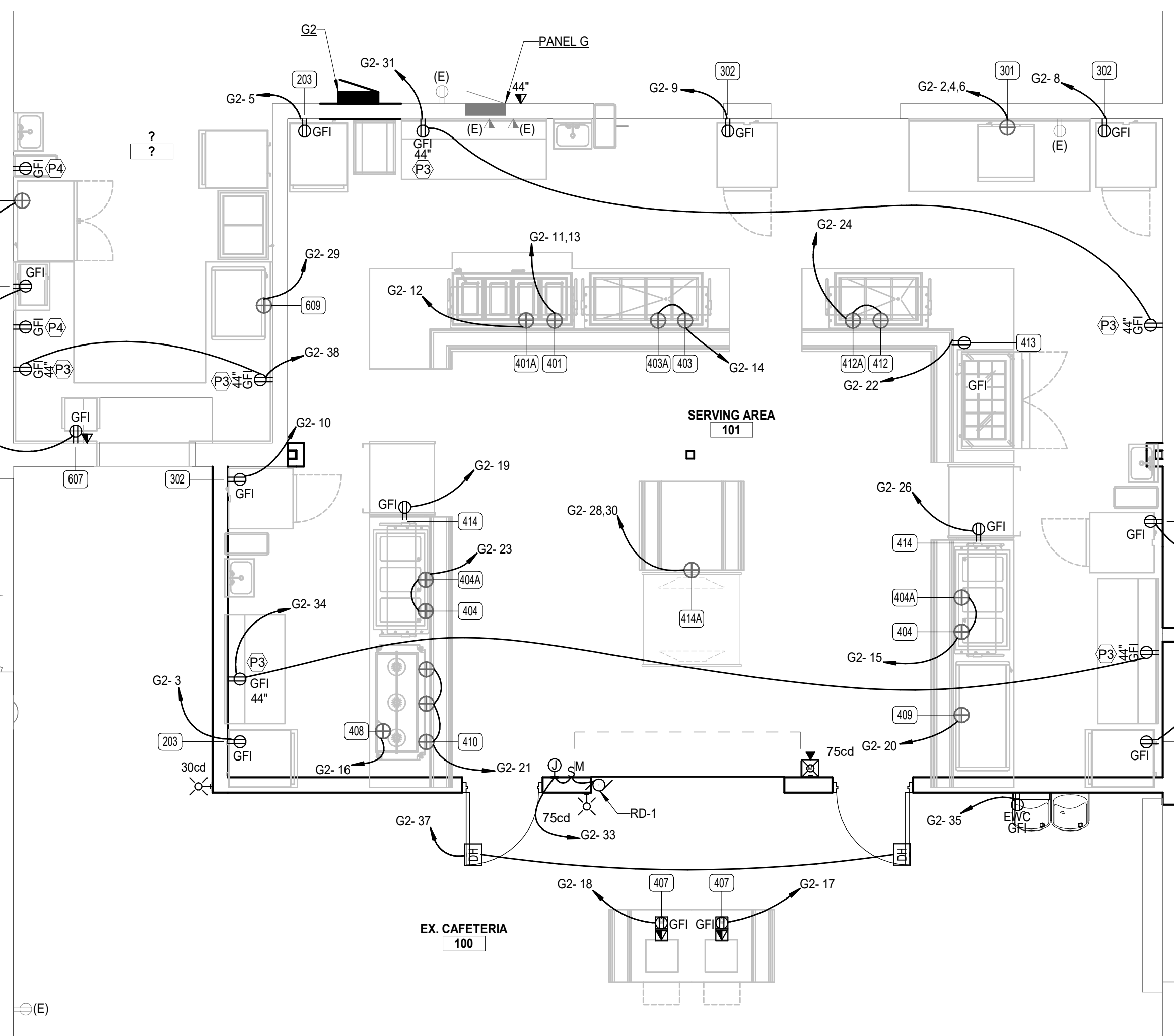
KITCHEN EQUIPMENT SCHEDULE												
ITEM	DESCRIPTION	LOAD			VOLT	PHASE	CONDUIT & WIRE SIZE	CONTROL DEVICE COMPONENT	DISCONNECT COMPONENT	CONNECTION	MTG HT	NOTE
		HP	A	W								
101	WALK-IN FREEZER		8 A		120 V	1	EXTEND EXISTING FEEDER AND CONDUIT	NEMA 3R, NF, 30A	HARDWIRED	DROP FROM ABOVE		
101A	FREEZER COIL		15 A		208 V	1	EXTEND EXISTING FEEDER AND CONDUIT	NEMA 3R, NF, 30A	HARDWIRED	DROP FROM ABOVE		
101B	FREEZER COMPRESSOR		15 A		208 V	3	EXTEND EXISTING FEEDER AND CONDUIT	NEMA 3R, NF, 30A	HARDWIRED	ROOF		
101C	FREEZER COIL HEAT TAPE		5 A		120 V	1	EXTEND EXISTING FEEDER AND CONDUIT	NEMA 3R, NF, 30A	HARDWIRED	DROP FROM ABOVE		
102	WALK-IN COOLER		8 A		120 V	1	EXTEND EXISTING FEEDER AND CONDUIT	NEMA 3R, NF, 30A	HARDWIRED	DROP FROM ABOVE		
102A	COOLER COIL		5 A		120 V	1	EXTEND EXISTING FEEDER AND CONDUIT	NEMA 3R, NF, 30A	HARDWIRED	DROP FROM ABOVE		
102B	COOLER COMPRESSOR		10 A		208 V	3	EXTEND EXISTING FEEDER AND CONDUIT	NEMA 3R, NF, 30A	HARDWIRED	ROOF		
203	HOT FOOD CABINET		12 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	44"	2	
203	HOT FOOD CABINET		12 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	44"	2	
203	HOT FOOD CABINET		12 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	44"	2	
301	RAPID COOK OVEN		30 A		208 V	3	(3)#8, (1)#10 GND IN 3/4" CND	NEMA 1, NF, 60A	HARDWIRED	44"		
302	REFRIGERATOR		4.9 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	44"	2	
302	REFRIGERATOR		4.9 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	44"	2	
302	REFRIGERATOR		4.9 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	44"	2	
302A	REFRIGERATOR		4.9 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	44"	2	
401	DROP-IN HOT WELLS		20 A		120 V	1	(2)#10, (1)#10 GND IN 3/4" CND		HARDWIRED	5"	1	
401A	SNEEZE GUARD		13.9 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
403	DROP-IN COLD WELL		3.1 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
403A	SNEEZE GUARD		1 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
404	DROP-IN HOT/COLD WELLS		18.2 A		120 V	1	(2)#10, (1)#10 GND IN 3/4" CND		HARDWIRED	5"	1	
404	DROP-IN HOT/COLD WELLS		18.2 A		120 V	1	(2)#10, (1)#10 GND IN 3/4" CND		HARDWIRED	5"	1	
404A	SNEEZE GUARD		1 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
404A	SNEEZE GUARD		1 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
407	CASH REGISTER POS BY OWNER		0 A	1200 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	5"	1, 2	
407	CASH REGISTER POS BY OWNER		0 A	1200 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	5"	1, 2	
408	DROP-IN HEATED SURFACE		8.3 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
409	HEATED SLANTED SANDWICH SLIDE		14.1 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
410	DECORATIVE HEAT LAMP ASSEMBLY		2 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
410	DECORATIVE HEAT LAMP ASSEMBLY		2 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
410	DECORATIVE HEAT LAMP ASSEMBLY		2 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
412	DROP-IN COLD WELL		3.1 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
412A	SNEEZE GUARD		1 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
413	SANDWICH TOP REFRIGERATOR		4.8 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	5"	2	
414	AIR CURTAIN REFRIGERATOR		16 A	0 W	120 V	1	(2)#10, (1)#10 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	5"	2	
414	AIR CURTAIN REFRIGERATOR		16 A	0 W	120 V	1	(2)#10, (1)#10 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	5"	2	
414A	DOUBLE SIDED AIR CURTAIN		14.2 A		208 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	5"	1	
604	MICROWAVE OVEN		13.4 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	44"	2	
605	REFRIGERATED DISPLAY CASE		6.2 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	44"		
607	CASH REGISTER POS BY OWNER		10 A	0 W	120 V	1	(2)#12, (1)#12 GND IN 3/4" CND	NEMA 5-20	CORD & PLUG	44"	2	
609	HEATED SLANTED SANDWICH SLIDE		8.5 A		120 V	1	(2)#12, (1)#12 GND IN 3/4" CND		HARDWIRED	44"		

- NOTES:
 1. EC TO PROVIDE 2" x 4" PEDESTAL MOUNT RECEPTACLE. REFER TO FOOD SERVICE PROVIDER DRAWINGS.
 2. PROVIDE GFCI RECEPTACLE.

ELECTRICAL MECHANICAL EQUIPMENT CONNECTION SCHEDULE															
EQUIP. TAG	DESCRIPTION	LOAD			VOLTAGE	PHASE	CIRCUIT BREAKER	CONDUIT & WIRE	FUSED DISCONNECT SWITCH	NON-FUSED DISCONNECT SWITCH	MANUAL MOTOR STARTER	COMBINATION STARTER WITH H-O-A	VFD WITH INTEGRAL DISCONNECT	FULL VOLTAGE CONTACTOR	NOTES
		HP	AMPS	WATTS											
RD-1	ROLLING DOOR	1/3			120	1	20A / 1P	(2)#12, (1)#12 EGC IN 3/4" CND.		NEMA 1, NF, 30A					1
RTU-1	ROOF TOP UNIT #1		26		208	3	35A / 3P	(3)#10, (1)#10 EGC IN 3/4" CND.		INTERGRAL W/UNIT					
RTU-2	ROOF TOP UNIT #2		20		208	3	30A / 3P	(3)#10, (1)#10 EGC IN 3/4" CND.		INTEGRAL W/UNIT					

- NOTES:
 1. WALL CONTROLS BY DOOR MANUFACTURER. MOUNT THE CONTROL STATION(S). ALL CONDUIT AND WIRING PER OVERHEAD DOOR WIRING INSTRUCTIONS.

2 ENLARGED KITCHEN FREEZER & COOLER PLAN - POWER
SCALE : 1/4" = 1'-0"



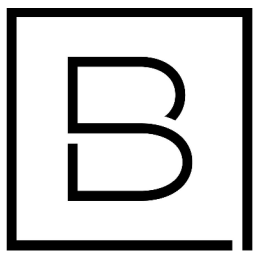
1 ENLARGED KITCHEN PLAN - POWER
SCALE : 1/4" = 1'-0"

GENERAL NOTES:

- A. COORDINATE ALL DEVICE LOCATIONS AND CIRCUIT ROUTING WITHIN MILLWORK WITH MILLWORK VENDOR PRIOR TO ROUGH-IN.
 B. COORDINATE ALL KITCHEN EQUIPMENT REQUIREMENTS AND DEVICE LOCATIONS WITH THE FOODSERVICE CONTRACTOR PRIOR TO ROUGH-IN. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE DISCONNECTING MEANS FOR, AND TO MAKE THE FINAL CONNECTION TO, ANY HARDWIRED EQUIPMENT. THE ELECTRICAL CONTRACTOR IS ALSO RESPONSIBLE TO PROVIDE AN APPROPRIATE CORD AND PLUG FOR ANY CORD-AND-PLUG CONNECTED EQUIPMENT THAT IS NOT EQUIPPED WITH AN INTEGRAL CORD AND PLUG.
 C. ALL NEW PANELS, RECEPTACLES AND ASSOCIATED CONDUIT SHOWN ON EXISTING CONCRETE BLOCK WALLS TO BE SURFACE MOUNTED.

KEYNOTES - POWER

- P1 EXTEND FEEDER AND CONDUIT FOR KITCHEN EQUIPMENT.
 P2 PROVIDE TAMPER RESISTANT RECEPTACLE.
 P3 PROVIDE GFI RECEPTACLE. REUSE EXISTING FEEDER, CONDUIT AND JUNCTION BOX.



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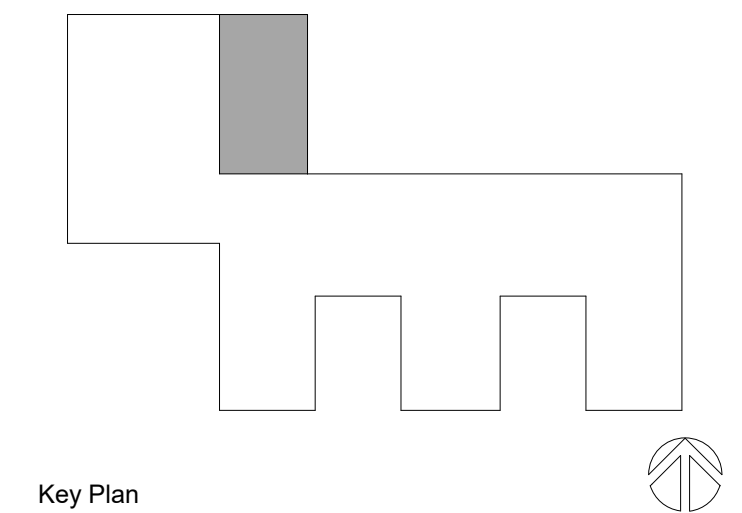
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ORCHARD VIEW

ORCHARD VIEW MIDDLE SCHOOL RENOVATIONS

35 S SHERIDAN DR
 MUSKEGON MI 49442

Date Revised	Description
1/24/2023	OWNER REVIEW
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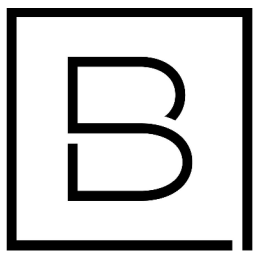
Project Manager	Discipline Lead
D HOLTROP	A ROBINSON
Designer	Reviewer
C NIKONCHUK	B HUYLER
Date Issued	Project Number
12/13/2022	016633.00

Sheet Name

ENLARGED KITCHEN PLANS - POWER

Drawing Number

E501



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ORCHARD VIEW MIDDLE SCHOOL RENOVATIONS

35 S SHERIDAN DR MUSKEGON MI 49442

Table with 2 columns: Date Revised, Description. Includes dates 1/24/2023 and 1/31/2023.

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Table with 2 columns: Role, Name. Includes Project Manager D HOLTROP, Discipline Lead A ROBINSON, Designer C NIKONCHUK, Reviewer B HUYLER, Date Issued 12/13/2022, Project Number 016633.00.

Sheet Name

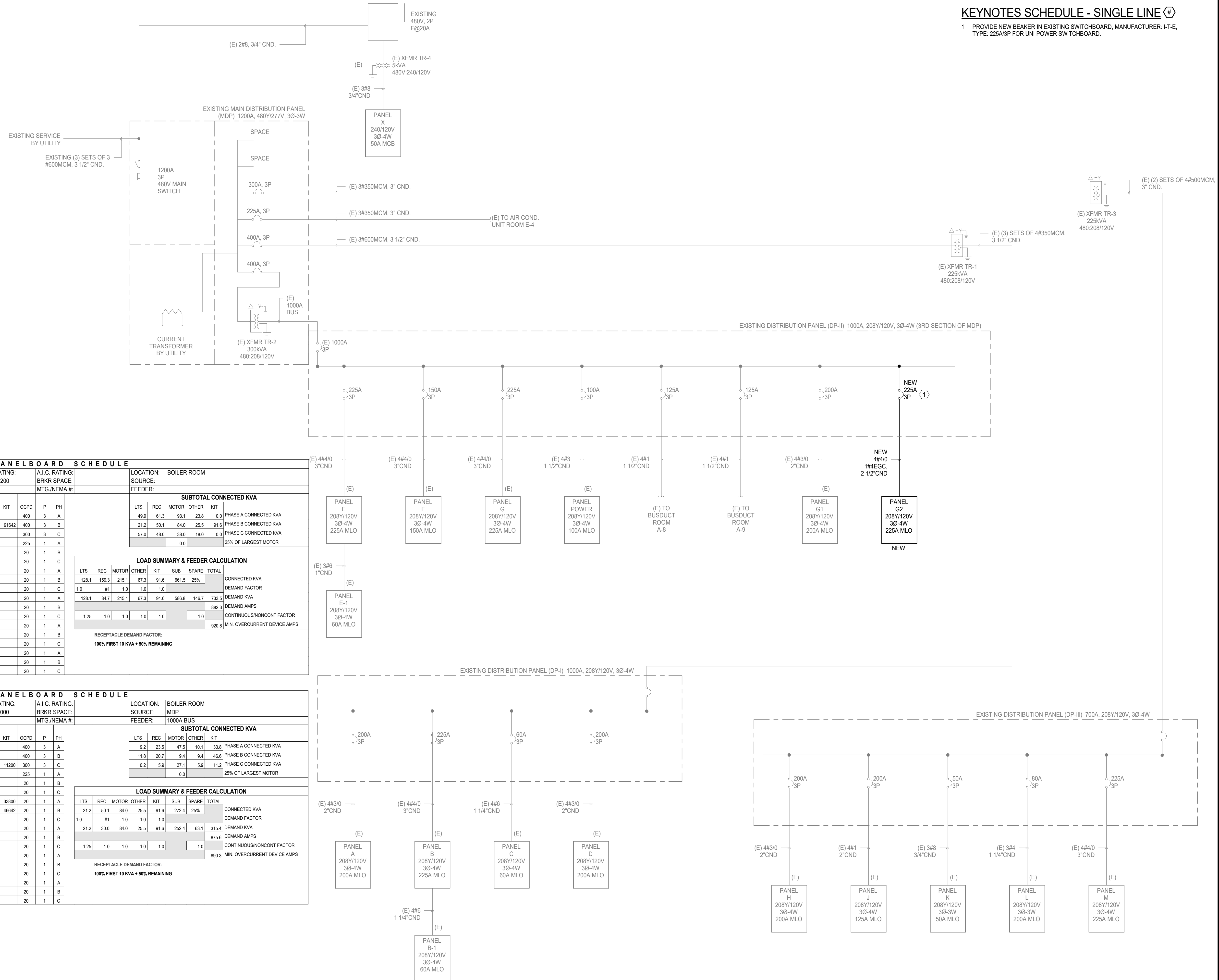
ONE-LINE DIAGRAM

Drawing Number

E601

KEYNOTES SCHEDULE - SINGLE LINE

- 1 PROVIDE NEW BEAKER IN EXISTING SWITCHBOARD, MANUFACTURER: I-T-E, TYPE: 225A/3P FOR UNI POWER SWITCHBOARD.



PANEL BOARD SCHEDULE (E) MDP. Includes electrical specifications (Volts, Mains Rating, etc.), a load summary table, and a load calculation table.

PANEL BOARD SCHEDULE (E) DP-II. Includes electrical specifications, a load summary table, and a load calculation table.

LUMINAIRE SCHEDULE									
TYPE	LAMP	MANUFACTURER	MODEL NUMBER	BALLAST/DRIVER	MOUNTING	INPUT WATTAGE	DESCRIPTION	NOTE	
A	5000 LUMEN, 3500K, LED	FAIL-SAFE	CLMF-24-4-OLS-A12125-LD4-2-L0-35-120-EDD-1-AMD	0-10V	RECESSED GRID CEILING	44W	2x4 TROFFER, PROVIDE INTEGRAL OCCUPANCY SENSOR AND DAYLIGHT HARVEST SENSOR.	2	
		COLUMBIA	SCLT-24-B-35-LW-L1-G-SD-FA-ED-U-WL-NXSW-ORLO						
		LITHONIA	ZWRTL-G-L48-5000LM-IAW-AFL-120-GZ1-35K-80CRI-MSE62L3VWL-DWAM						
		DAY-BRITE	K1-24-64L-835-C2G-6-AP3-120						
AEM	5000 LUMEN, 3500K, LED	FAIL-SAFE	CLMF-24-4-OLS-A12125-LD4-2-L0-35-120-EDD-1-EL10W-AMD	0-10V	RECESSED GRID CEILING	44W	2x4 TROFFER, PROVIDE INTEGRAL OCCUPANCY SENSOR AND DAYLIGHT HARVEST SENSOR. PROVIDE 10W CONSTANT POWER SELF-DIAGNOSTIC BATTERY PACK.	1.2	
		COLUMBIA	SCLT-24-B-35-LW-L1-G-SD-FA-ED-U-WL-NXSW-ORLO-EL10W						
		LITHONIA	ZWRTL-G-L48-5000LM-IAW-AFL-120-GZ1-35K-80CRI-MSE62L3VWL-DWAM -E10WLCF						
		DAY-BRITE	K1-24-64L-835-C2G-6-AP3-120-EL10W						

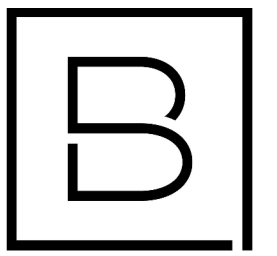
NOTES:

- WIRE FIXTURE TO EMERGENCY BATTERY PACK. PROGRAM FIXTURE TO FUNCTION WITH ROOM FIXTURES PER SEQUENCE OF OPERATION.
- PROVIDE PROGRAMMING REMOTE AS REQUIRED TO PROGRAM INTEGRATED CONTROLS.

Branch Panel: G2										
Location: EX. KITCHEN 102			Volts: 208Y/120			A.I.C. Rating: 10,000 AMPS SYMMETRICAL				
Supply From:			Phases: 3			Mains Type: MLO				
Mounting: RECESSED			Wires: 4			Mains Rating: 225 A				
Enclosure: NEMA 4X			MCB Rating:							
Notes:										
4#4/0 + 1#4EGC, 2" CND. FROM NEW 250A/3P CIRCUIT BREAKER IN EXISTING DP-II										
CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	203 HOT FOOD CABINET 101 EAST	20 A	1	1440	3600					2
3	203 HOT FOOD CABINET 101 WEST	20 A	1		1440	3600		3	40 A	301 RAPID COOK OVEN 101
5	203 HOT FOOD CABINET 101 WEST	20 A	1			1440	3600			4
7	302 REFRIGERATOR 101 EAST	20 A	1	588	588			1	20 A	302 REFRIGERATOR 101 EAST
9	302 REFRIGERATOR 101 WEST	20 A	1		588	588		1	20 A	302 REFRIGERATOR 101 WEST
11	401 DROP-IN HOT WELLS 101	20 A	2	2080	492			1	20 A	401A SNZ GUARD 101 WEST
13	401 DROP-IN HOT WELLS 101	20 A	2			2080	1668	1	20 A	403 COLD WELL / 403A SNZ GUARD 101
15	404 HOT/COLD WELLS / 404A SNZ GUARD...	30 A	1		2304	996		1	20 A	408 DROP-IN HEATED SURFACE 101
17	407 CASH REGISTER POS 100	20 A	1					1	20 A	407 CASH REGISTER POS 100
19	"GFI" 414 AIR CURTAIN REFRIGERATOR 1...	20 A	1	1920	1692			1	20 A	408 HEATED SLANTED SANDWICH SLIDE...
21	410 DEC. HEAT LAMP ASSEMBLY 101	20 A	1		720	576		1	20 A	413 SANDWICH TOP REFRIGERATOR 101
23	404 HOT/COLD WELLS / 404A SNZ GUARD...	30 A	1			2304	492	1	20 A	412 COLD WELL / 412A SNZ GUARD 101
25	604 MICROWAVE OVEN 102	20 A	1	1608	1920			1	20 A	"GFI" 414 AIR CURTAIN REFRIGERATOR 1...
27	605 REFRIGERATED DISPLAY CASE 102	20 A	1		744	1477		2	20 A	"GFI" 414A DOUBLE SIDED AIR CURTAIN REFRIGERATOR 101
29	609 HEATED SLANTED SANDWICH SLIDE...	20 A	1			1020	1477	1	20 A	CASH REGISTER POS 102
31	GENERAL RECEPTACLES 101 NORTH	20 A	1	360	1200			1	20 A	GENERAL RECEPTACLES 101 EAST-WEST
33	RD-1	20 A	1		864	360		1	20 A	RCPT SERVING AREA 101
35	EWV 100	20 A	1			720	180	1	20 A	GENERAL RECEPTACLES 102
37	MAGNETIC DOOR HOLDS 100	20 A	1	480	360			1	20 A	SPARE
39	SPARE	20 A	1		0	0		1	20 A	SPARE
41	SPARE	20 A	1			0	0	1	20 A	SPARE
43	SPARE	20 A	1	0	0			1	20 A	SPARE
45	SPARE	20 A	1		0	0		1	20 A	SPARE
47	SPARE	20 A	1			0	0	1	20 A	SPARE
49	SPACE	--	1	--	--			1	--	SPACE
51	SPACE	--	1	--	--			1	--	SPACE
53	SPACE	--	1	--	--			1	--	SPACE
Total Load:				18328 VA	14256.8 VA	17380.8 VA				
Total...:				156.7 A	118.8 A	148.8 A				
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals						
Other	0 VA	0%	0 VA							
MTR	864 VA	125%	1080 VA	Total Conn. Load: 49965.6 VA						
RCPT	1980 VA	100%	1980 VA	Total Est. Demand: 40268.2 VA						
FIRE ALARM	480 VA	100%	480 VA	Total Conn.: 138.7 A						
KTCH	46641.6 VA	79%	36728.2 VA	Total Est. Demand: 111.8 A						
Notes:										
"GFI" = DENOTES GFI CIRCUIT BREAKER										

SEQUENCE OF OPERATION:

- LIGHTING CONTROL INTENTION IS TO USE LIGHT FIXTURES WITH INTEGRATED WIRED CONTROLS AND ASSOCIATED LOW VOLTAGE SWITCHES. UNLESS NOTED OTHERWISE, DEVIATION FROM THIS SOLUTION SHALL MEET CONTROL INTENTIONS AND COORDINATED WITH ELECTRICAL CONTRACTOR FOR ADDITIONAL WIRING AND INSTALLATION.
- ALL SWITCHES WITH "LVH" ARE LOW VOLTAGE CONTROL STATIONS. PROVIDE ON/OFF BUTTONS, PRE-PROGRAMMED SCENES, INTEGRAL OCCUPANCY SENSING, AND/OR DIMMING CONTROL AS DESCRIBED BELOW PER SPACE.
- ALL EMERGENCY FIXTURES SHALL BE PROGRAMMED TO FUNCTION WITH AREA NORMAL LIGHTS, UNLESS NOTED AS NIGHT LIGHTS. UPON LOSS OF POWER, EMERGENCY FIXTURES SHALL ILLUMINATE TO 100% OF RATED POWER.
- COORDINATE COMMISSIONING OF SYSTEM PER LIGHTING, LIGHTING CONTROL, AND COMMISSIONING SPECIFICATIONS WITH OWNER'S AGENT AS REQUIRED PER STATE OF MICHIGAN ENERGY CODE.
- KITCHEN:**
 - LIGHTING COME ON AUTOMATICALLY AT 50% UPON ENTRANCE TO SPACE VIA CEILING LOW VOLTAGE OCCUPANCY SENSOR AND/OR INTEGRATED CONTROLS.
 - LIGHTING SHALL REMAIN ON UNTIL 20-MINUTES AFTER NO ACTIVITY AND THEN TURN OFF.
 - LV1 STATIONS SHALL INCLUDE:
 - ALL ON
 - 50% ILLUMINATION
 - 100% ILLUMINATION
 - ALL OFF
- SERVING AREA:**
 - LIGHTING COME ON AUTOMATICALLY AT 100% UPON ENTRANCE TO SPACE VIA CEILING LOW VOLTAGE OCCUPANCY SENSOR AND/OR INTEGRATED CONTROLS.
 - LOCATE POWER PACK ABOVE SWITCH AT DOOR ENTRANCE.
 - LIGHTING SHALL REMAIN ON UNTIL 20-MINUTES AFTER NO ACTIVITY AND THEN GO OFF.
 - LIGHT FIXTURES WITH INTEGRATED CONTROLS ARE ACCEPTABLE AS ALTERNATE CONTROL.
 - LV2 STATIONS SHALL INCLUDE: CONTROLS CONTRACTOR SHALL PROVIDE DEVICES TO CONTROL NON-INTEGRATED FIXTURES WITH INTEGRATED FIXTURES.
 - ALL ON
 - 50% ILLUMINATION
 - DIM UP
 - DIM DOWN
 - ALL OFF



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ORCHARD VIEW

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Date Revised	Description
1/24/2023	OWNER REVIEW
1/31/2023	BIDS

PANELBOARD SCHEDULE																								
(E) PANEL G		VOLTS:	208	MAINS RATING:						A.I.C. RATING:	14,000	LOCATION:	KITCHEN											
		PHASE:	3	MCB:						BRKR SPACE:	42	SOURCE:	DP-I											
		WIRE:	4	MLO:	200A						MTG./NEMA #:	1	FEEDER:	4#4/0 + 1#6 EGC, 3" CND.										
CKT	LOAD DESCRIPTION	LTS	REC	MOTOR	OTHER	KIT	OC	P	CKT	PH	CKT	P	OC	P	CKT	PH	CKT	P	OC	P				
1	RECEPT. CASH REGISTER		180						20	1	1	A	2	1	20						HOOD LIGHTS	2		
3	RECEPT. CASH REGISTER		180						20	1	3	B	4	1	20							HOOD CONTROL	4	
5	COOL. FAN & FRZR. DR HEATER					1200			20	1	5	C	6	1	20						540	RECEPT. UNDER WINDOWS	6	
7	RECEPT. RECEIVING AREA		540						20	1	7	A	8	1	20						180	RECEPT. UNDER PANEL	8	
9	RECEPT. UNDER WINDOWS		540						20	1	9	B	10	1	20						540	RECEPT. RECEIVING AREA	10	
11	RECEPT. UNDER WINDOWS		540						20	1	11	C	12	1	20						540	RECEPT. SERVING WEST	12	
13	RTU-2 (ON ROOF)		2400						30	3	13	A	14	3	35						3120	RTU-1 (ON ROOF)	14	
15	RTU-2 (ON ROOF)		2400						30	3	15	B	16	3	35						3120	RTU-1 (ON ROOF)	16	
17	REFRIGERATOR								20	1	17	C	18	3	30							1200	DISHWASHER	18
19	DISPOSAL BY PEELER		1320						20	3	19	A	20								1200		20	
21	DISPOSAL BY PEELER		1320						20	3	21	B	22	3	20						1200	MIXER	22	
23	DISPOSAL BY PEELER		1320						20	3	23	C	24	3	20						1200		24	
25	FREEZER					1500			25	A	25	A	26								1000		26	
27	FREEZER					1500			30	3	27	B	28	3	20						1000	COLD WELD	28	
29	FREEZER					1500			29	C	30	C	30								1000		30	
31	MAKE-UP AIR UNIT (MUA)					1000					31	A	32										32	
33	MAKE-UP AIR UNIT (MUA)					1000			20	3	33	B	34	3	50							SPARE	34	
35	RECEPT. SERVING TABLE		540						20	1	35	C	36								4000	STEAMER	36	
37	RECEPT. SERVING TABLE		540						20	1	37	A	38	1	20						4000		38	
39	RECEPT. SERVING TABLE		540						20	1	39	B	40	2	20						1100	OVEN	40	
41	RECEPT. SERVING TABLE		540						20	1	41	C	42	2	20						1100		42	
SUBTOTAL CONNECTED KVA		LTS	REC	MOTOR	OTHER	KIT	TOTAL	LOAD SUMMARY & FEEDER CALCULATION																
PHASE A CONNECTED KVA		0.2	2.0	9.0	0.0	2.5	13.7	LTS	REC	MOTOR	OTHER	KIT	SUBTOT	SPARE	TOTAL	CONNECTED KVA								
PHASE B CONNECTED KVA		0.0	1.8	9.0	0.0	3.9	14.7	0.2	5.9	27.1	0.0	11.2	44.4	25%		DEMAND FACTOR								
PHASE C CONNECTED KVA		0.0	2.2	9.0	0.0	4.8	16.0	1.25	#1	1.0	1.0	1.0				DEMAND KVA								
25% OF LARGEST MOTOR				0.0				0.3	5.9	27.1	0.0	11.2	44.5	11.1	55.6	DEMAND AMPS								
RECEPTACLE DEMAND FACTOR:																								
#1: 100% FIRST 10 KVA + 50% REMAINING																								
** = DENOTES NEW CIRCUIT BREAKER AND LOAD. PROVIDE CIRCUIT BREAKER FOR MANUFACTURER: I-T-E, TYPE: NP48 4L PANELBOARD																								
*** = DENOTES SPARE CIRCUIT BREAKER																								

PANELBOARD SCHEDULE																							
(E) PANEL G1		VOLTS:	208	MAINS RATING:						A.I.C. RATING:	14,000	LOCATION:	KITCHEN										
		PHASE:	3	MCB:						BRKR SPACE:	42	SOURCE:	DP-I										
		WIRE:	4	MLO:	200A						MTG./NEMA #:	1	FEEDER:	4#4/0 + 1#6 EGC, 3" CND.									
CKT	LOAD DESCRIPTION	LTS	REC	MOTOR	OTHER	KIT	OC	P	CKT	PH	CKT	P	OC	P	CKT	PH	CKT	P	OC	P			
1	CEILING DROP OUTLETS		360						20	1	1	A	2	1	20						360	STORAGE OUTLETS	2
3	DIRECTOR'S OFFICE		360						20	1	3	B	4	1	20						360	STORAGE OUTLETS	4
5	SOUTH KITCHEN OUTLET		360						20	1	5	C	6	1	20						360	STORAGE OUTLETS	6
7	OUTLET BY SERVING		360						20	1	7	A	8	1	20						360	WEST WALL OUTLET BY FREEZER	8
9	SOUTH END CAFE OUTLET		360						20	1	9	B	10	1	20						540	COMPUTERS ROOM 51	10
11	SPARE @ SOUTH END		360						20	1	11	C	12	1	20								



**Food Service
Consultants**
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GRAND RAPIDS, MI 49503
PH: (616) 454-4433

ARCHITECT:
BERGMANN ASSOCIATES
560 5th NW
SUITE 305
GRAND RAPIDS, MI 49504

PROJECT:
ORCHARD VIEW MIDDLE SCHOOL
35 SOUTH SHERIDAN DRIVE
MUSKEGON, MICHIGAN, 49442

SHEET TITLE:
FOOD SERVICE
EXISTING CONDITIONS
FLOOR PLAN
SCALE 1/4" = 1'-0"

DATE CODE	PROJECT PHASE	BY
01/31/23 OVMSSDEMO	BIDS	CM

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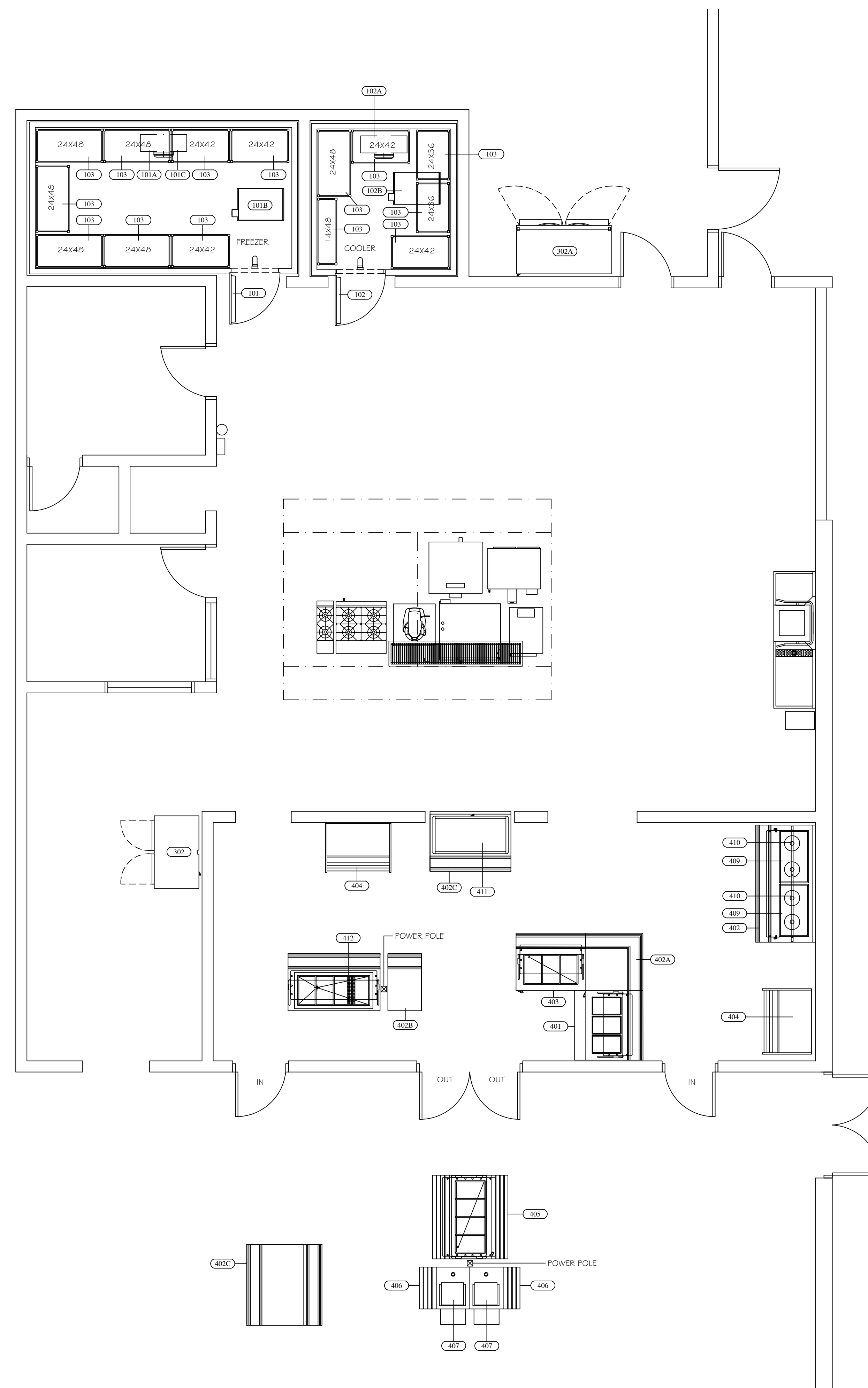
SHEET NUMBER:

FSE-1

EXISTING EQUIPMENT DEMOLITION SCHEDULE									
EQUIPMENT SCHEDULE			FSEC			TRADES			
Item	Qty	Equipment Category	REMAIN	REMOVE	RELOCATE	GAS	PLMG	ELEC	
101	1	WALK-IN FREEZER		*				*	
101A	1	FREEZER COIL		*			*	*	
101B	1	FREEZER COMPRESSOR		*				*	
101C	1	FREEZER COIL HEAT TAPE		*				*	
102	1	WALK-IN COOLER		*				*	
102A	1	COOLER COIL		*			*	*	
102B	1	COOLER COMPRESSOR		*				*	
103	14	SHELVING							
201	1	SPARE NUMBER							
301	1	SPARE NUMBER							
302	1	REFRIGERATOR		*				*	
302A	1	ROLL-IN REFRIGERATOR		*				*	
401	1	HOT FOOD TABLE		*			*	*	
402	1	UTILITY COUNTER		*					
402A	1	UTILITY COUNTER		*					
402B	1	UTILITY COUNTER		*					
402C	2	UTILITY COUNTER		*					
403	1	COLD FOOD TABLE		*			*	*	
404	2	AIR CURTAIN REFRIGERATOR		*				*	
405	1	COLD FOOD TABLE		*			*	*	
406	2	CASHIER COUNTER		*					
407	2	CASH REGISTER/POS - BY OWNER		*				*	
408	1	SPARE NUMBER							
409	2	DROP-IN HEATED SHELF		*				*	
410	2	DECORATIVE HEAT LAMP ASSEMBLY		*				*	
411	1	HEATED SANDWICH SLIDE		*				*	
412	1	DROP-IN HOT/COLD WELLS		*			*	*	
501	1	SPARE NUMBER							

NOTE:

- TRADES SHALL DISCONNECT ALL ASSOCIATED PLUMBING, ELECTRICAL, & ACCESSORIES, ETC. TO ALL EQUIPMENT DESIGNATED FOR REMOVAL AND/OR RELOCATION
- FOOD SERVICE EQUIPMENT CONTRACTOR SHALL REMOVE ALL EXISTING EQUIPMENT DESIGNATED FOR REMOVAL AND TURN OVER TO OWNER OR DISCARD AS DIRECTED BY THE OWNER
- FOOD SERVICE EQUIPMENT CONTRACTOR SHALL REMOVE ALL EXISTING EQUIPMENT DESIGNATED FOR RELOCATION AND STORE ON-SITE IN LOCATION DETERMINED BY THE OWNER
- FOOD SERVICE EQUIPMENT CONTRACTOR SHALL REMOVE ALL HOODS, ROOF TOP EQUIPMENT AND ASSOCIATED DUCTWORK - ROOF PATCHING SHALL BE BY THE OWNER - OR AS DIRECTED IN ARCH. DOCUMENTS
- AFTER RELOCATION OF EQUIPMENT BY THE FOOD SERVICE EQUIPMENT CONTRACTOR - THE TRADES SHALL RE-CONNECT ALL EQUIPMENT AND ACCESSORIES, ETC.
- FOOD SERVICE EQUIPMENT CONTRACTOR SHALL REMOVE ALL WALK-IN COOLERS AND FREEZERS, REFRIGERATION SYSTEMS AND ALL ASSOCIATED EQUIPMENT - ROOF PATCHING SHALL BE BY THE OWNER - OR AS DIRECTED IN ARCH. DOCUMENTS



ARCHITECT:
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SUITE 305
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MUSKEGON, MICHIGAN, 49442

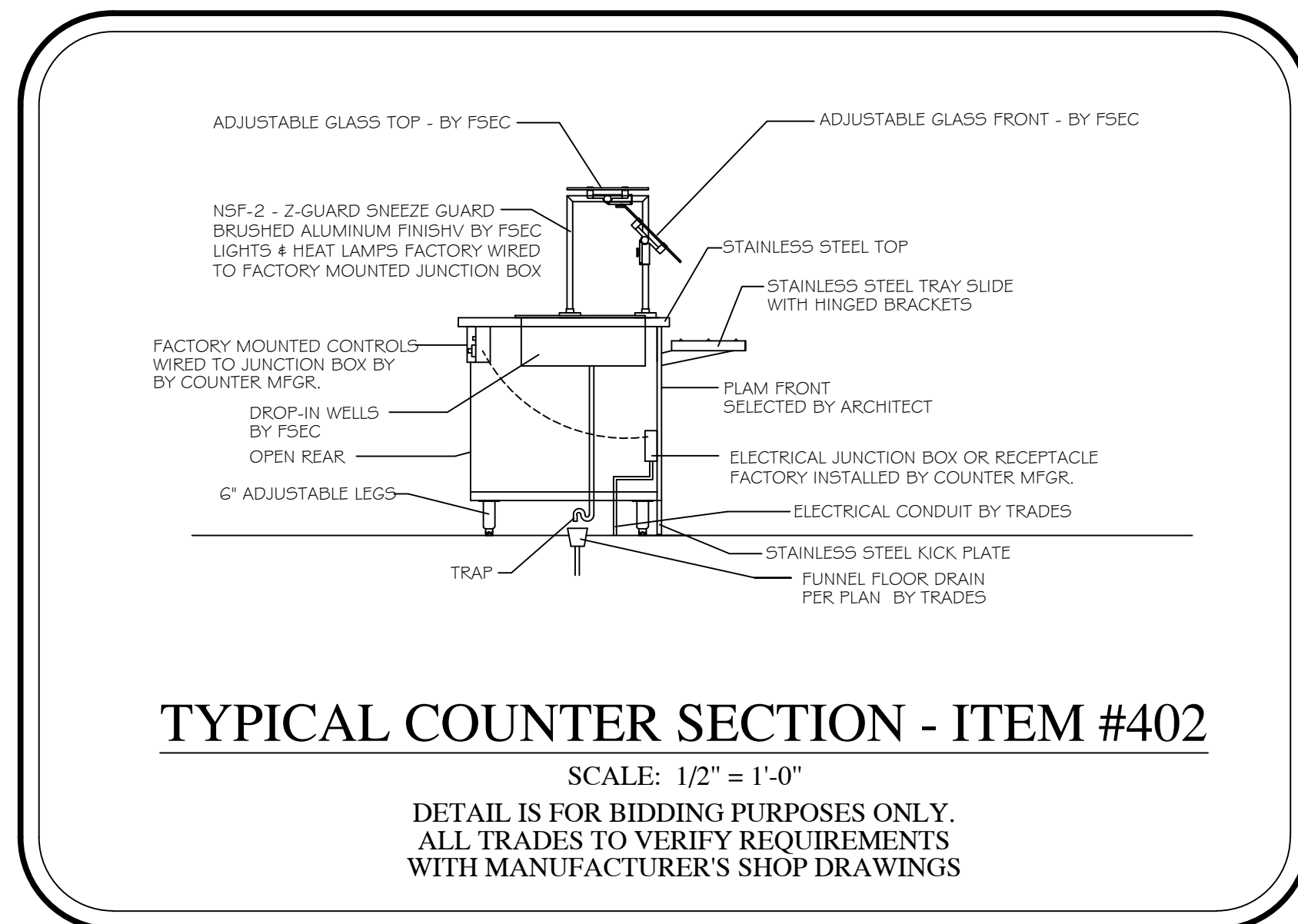
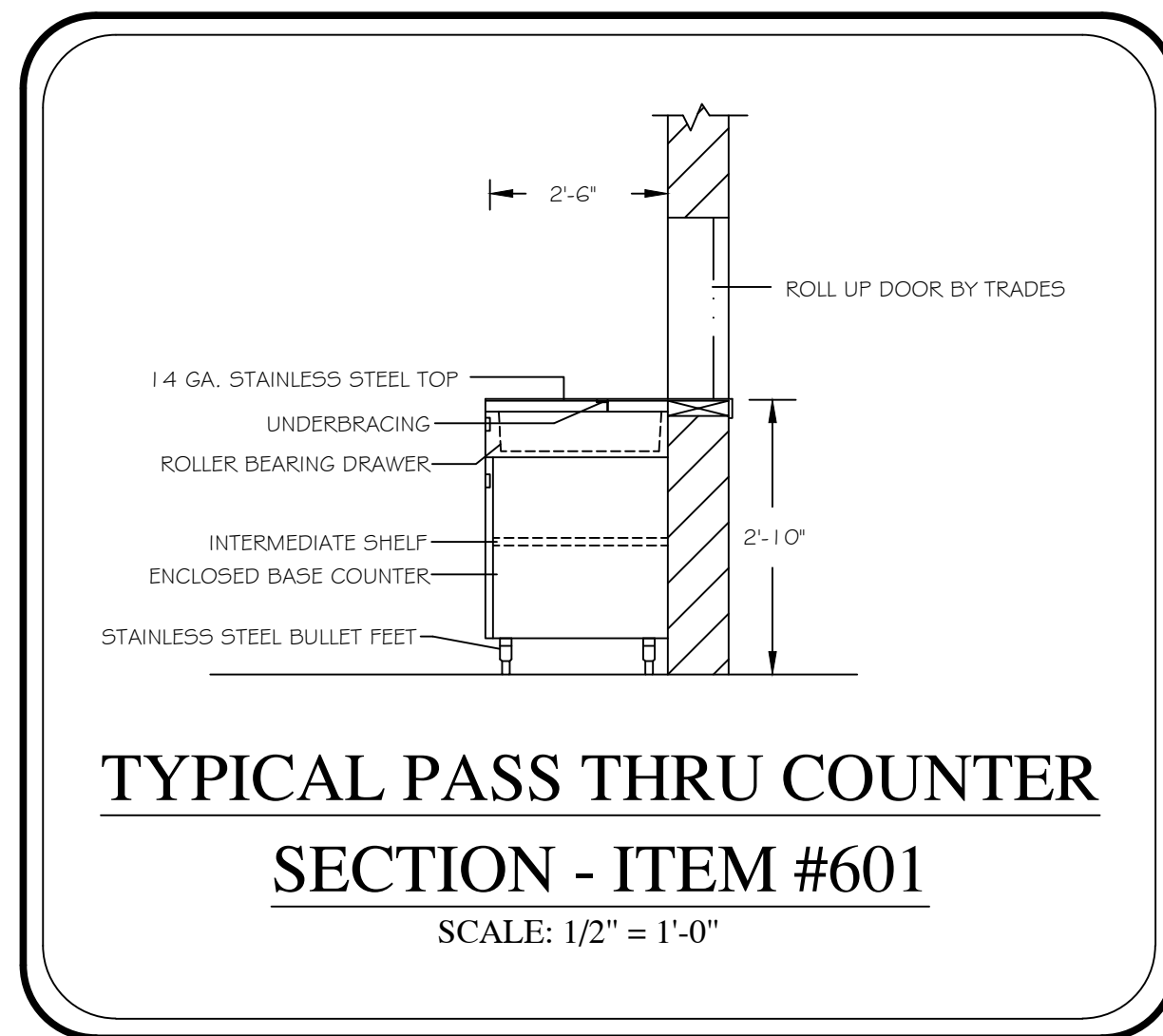
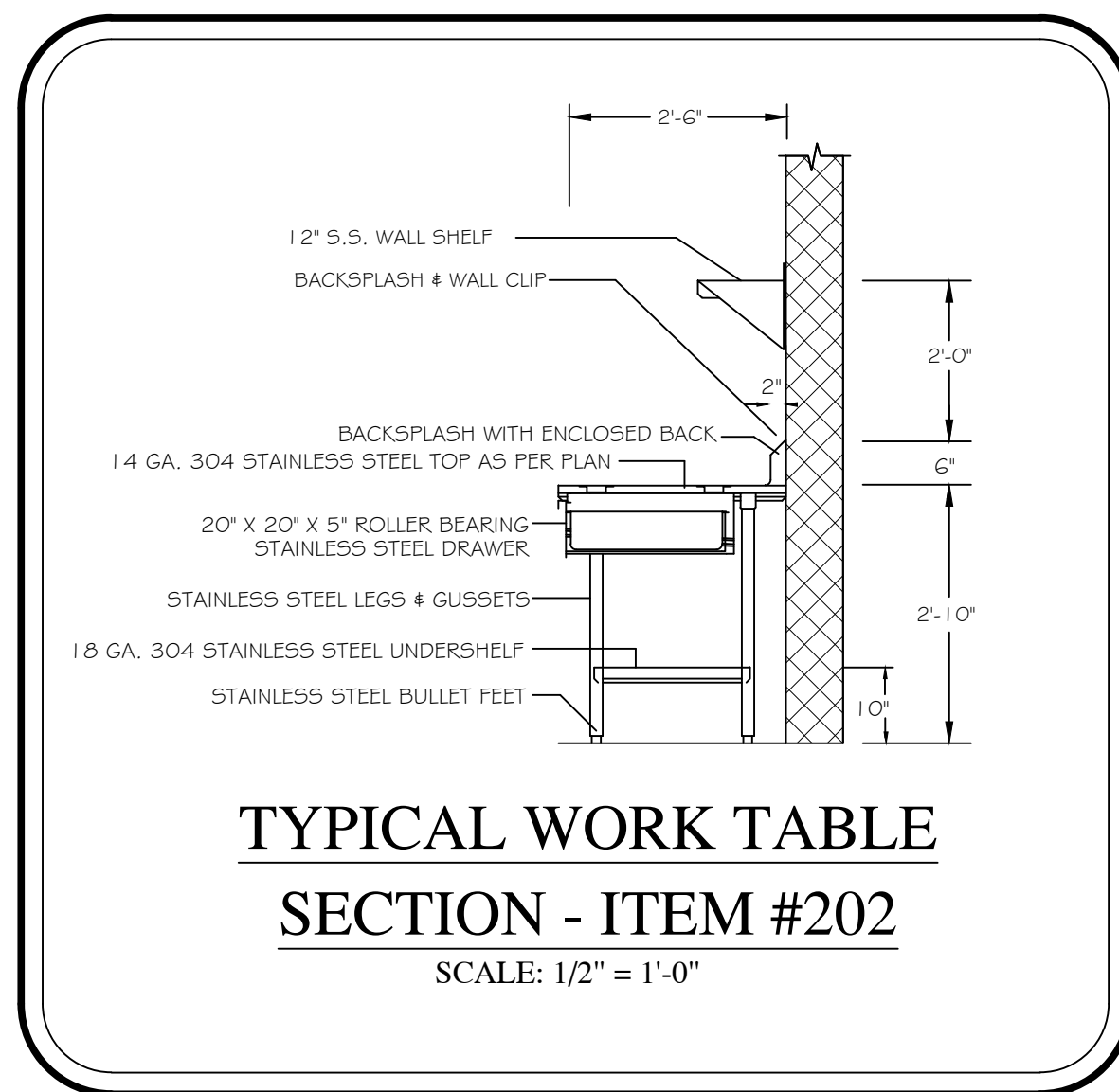
SHEET TITLE:
FOOD SERVICE
EQUIPMENT
FLOOR PLAN
SCALE 1/4" = 1'-0"

DATE CODE	PROJECT PHASE	BY
01/31/23 OVMS5FP	BIDS	CM

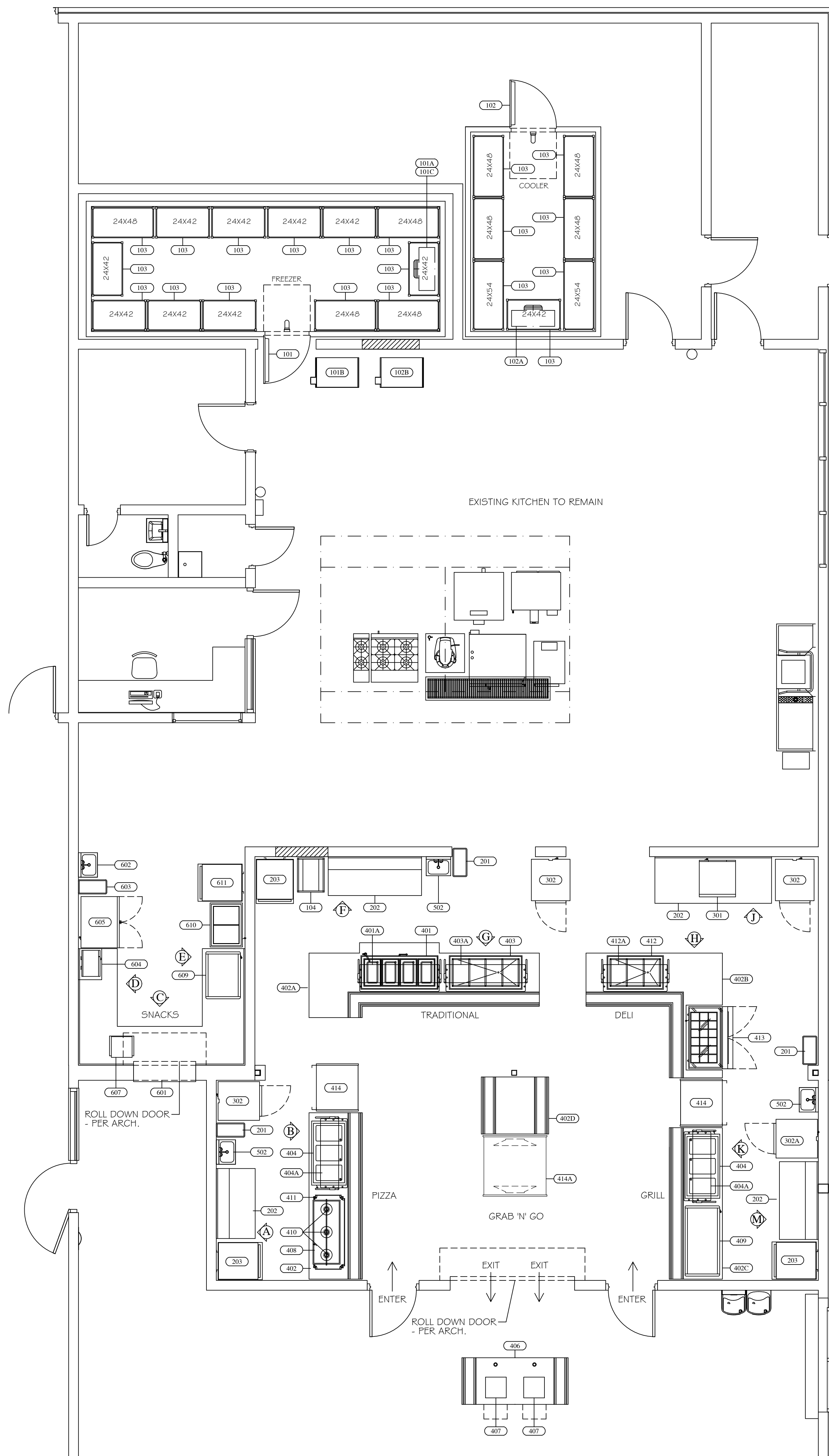
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SHEET NUMBER:

FSE-2



- NOTE:**
- FSEC SHALL VERIFY ROUGHIN REQUIREMENTS FOR FUTURE, PURVEYOR SUPPLIED, OWNERS RELOCATED EQUIPMENT, OWNER SUPPLIED EQUIPMENT, ETC.
 - TRADES TO REUSE EXISTING ROUGHINS WHERE APPLICABLE.
 - TRADES SHALL DISCONNECT, REMOVE, STORE & RECONNECT ANY EXISTING EQUIPMENT AS REQUIRED FOR CONSTRUCTION PURPOSES.
 - EQUIPMENT NOT BEING REUSED TO BE DISCONNECTED BY TRADES AND STORED OR DISCARDED BY THE FSEC AS DIRECTED BY OWNER.
 - EQUIPMENT DESIGNATED AS RELOCATED SHALL BE DISCONNECTED BY THE TRADES AND RELOCATED BY THE FSEC AS PER PLANS AND SPECIFICATIONS.





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SUITE 305
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PROJECT:
ORCHARD VIEW MIDDLE SCHOOL
35 SOUTH SHERIDAN DRIVE
MUSKEGON, MICHIGAN, 49442

SHEET TITLE:
FOOD SERVICE
EQUIPMENT
FLOOR PLAN
SCALE 1/4" = 1'-0"

DATE CODE	PROJECT PHASE	BY
01/31/23 OVMSSS	BIDS	CM

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SHEET NUMBER:

FSE-3

EQUIPMENT SCHEDULE																
Item	Qty	DESCRIPTION	CW (in)	HW (in)	INDIRECT DRAIN	DIRECT DRAIN (IN)	GAS (in)	MBTUH	EXH DUCT	EXH CFM	MUA DUCT	MUA CFM	Volts	Ph	Amps load	Equipment Remarks
101	1	WALK-IN FREEZER											120	1	8.0	INSULATED FLOOR: SEE REFRIGERATION PLAN
101A	1	FREEZER COIL			FFD								208	1	15.0	
101B	1	FREEZER COMPRESSOR											208	3	15.0	ROOF CURBS BY FSEC
101C	1	FREEZER COIL HEAT TAPE											120	1	5.0	
102	1	WALK-IN COOLER											120	1	8.0	INSULATED FLOOR: SEE REFRIGERATION PLAN
102A	1	COOLER COIL			FFD								120	1	5.0	
102B	1	COOLER COMPRESSOR											208	3	10.0	ROOF CURBS BY FSEC
103	21	SHELVING - POLYMER														
104	1	PAN RACK														
201	3	TRASH BIN - BY OWNER														
202	4	WORK TABLE														
203	3	HOT FOOD CABINET											120	1	12.0	UNIVERSAL ANGLES
301	1	RAPID COOK OVEN											208	3	30.0	APPROVED FOR USE WITHOUT VENTILATION HOOD
302	3	REFRIGERATOR											120	1	4.9	
302A	1	REFRIGERATOR											120	1	4.9	
401	1	DROP-IN HOT WELLS		0.5	FFD								208	1	20.0	
401A	1	SNEEZE GUARD											120/208	1	12.2	
402	1	UTILITY COUNTER														
402A	1	UTILITY COUNTER														
402B	1	UTILITY COUNTER														
402C	1	UTILITY COUNTER														
402D	1	UTILITY COUNTER														
403	1	DROP-IN COLD WELL			FFD								120	1	3.1	
403A	1	SNEEZE GUARD											120	1	1.0	
404	2	DROP-IN HOT/COLD WELLS			FFD								120	1	18.2	
404A	2	SNEEZE GUARD											120	1	1.0	
405	1	SPARE NUMBER														
406	1	CASHIER COUNTER														
407	2	CASH REGISTER/POS - BY OWNER											120	1	10.0	DEDICATED CIRCUIT & DATA
408	1	DROP-IN HEATED SURFACE											120	1	8.3	
409	1	HEATED SLANTED SANDWICH SLIDE											120/208	1	14.1	
410	1	DECORATIVE HEAT LAMP ASSEMBLY											120	1	6.0	
411	1	SNEEZE GUARD														
412	1	DROP-IN COLD WELL			FFD								120	1	3.1	
412A	1	SNEEZE GUARD											120	1	1.0	
413	1	SANDWICH TOP REFRIGERATOR											120	1	4.8	
414	2	AIR CURTAIN REFRIGERATOR											120	1	16.0	IF UNIT CANNOT BE CONNECTED TO GFCI BREAKER, THEN IT MUST BE HARD WIRED
414A	1	DOUBLE SIDED AIR CURTAIN											208	1	14.2	IF UNIT CANNOT BE CONNECTED TO GFCI BREAKER, THEN IT MUST BE HARD WIRED
501	1	SPARE NUMBER														
502	3	HAND SINK W/SIDE SPLASHES	0.5	0.5		1.5										SOAP & TOWEL DISPENSER - BY OWNER
601	1	SERVICE COUNTER														
602	1	HAND SINK W/SIDE SPLASHES	0.5	0.5		1.5										SOAP & TOWEL DISPENSER - BY OWNER
603	1	TRASH BIN - BY OWNER														
604	1	MICROWAVE OVEN											120	1	13.4	
605	1	REFRIGERATED DISPLAY CASE											120	1	6.2	
606	1	SPARE NUMBER														
607	1	CASH REGISTER/POS - BY OWNER											120	1	10.0	DEDICATED CIRCUIT & DATA
608	1	SPARE NUMBER														
609	1	HEATED SLANTED SANDWICH SLIDE											120/208	1	8.5	
610	1	ICE CREAM DISPLAY FREEZER											120	1	4.8	
611	1	HOT FOOD CABINET											120	1	12.0	UNIVERSAL ANGLES

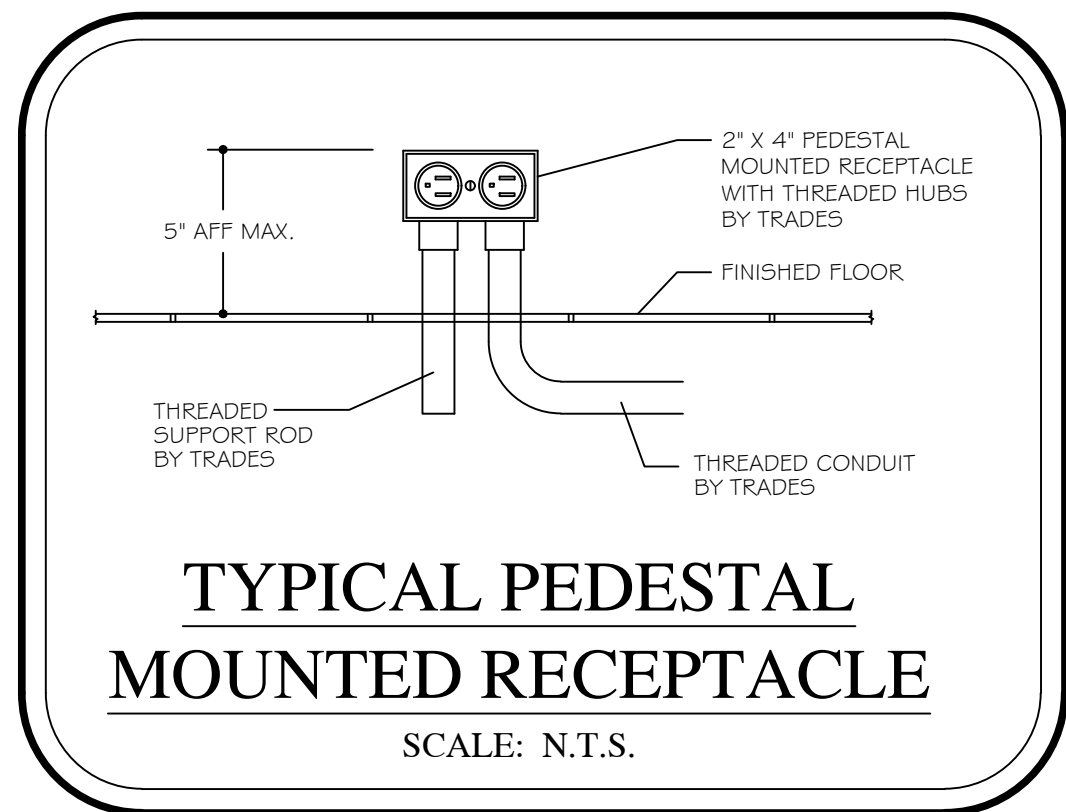
NOTE:

- FSEC SHALL VERIFY ROUGHIN REQUIREMENTS FOR FUTURE, PURVEYOR SUPPLIED, OWNERS RELOCATED EQUIPMENT, OWNER SUPPLIED EQUIPMENT, ETC.
- TRADES TO REUSE EXISTING ROUGHINS WHERE APPLICABLE.
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EQUIPMENT SCHEDULE								
Item	EQUIPMENT DESCRIPTION	VOLTS	PH	AMPS LOAD	DIRECT BY EC	CORDSET BY FSEC	AFF (in)	REMARKS
101	WALK-IN FREEZER	120	1	8.0	X		DFA	TRADES WIRE TO JB FOR LIGHTS, DOOR HEATER
102	WALK-IN COOLER	120	1	8.0	X		DFA	TRADES WIRE TO JB FOR LIGHTS, DOOR HEATER
203	HOT FOOD CABINET	120	1	12.0		X	72	
301	RAPID COOK OVEN	208	3	30.0		X	48	
302	REFRIGERATOR	120	1	4.9		X	90	
302A	REFRIGERATOR	120	1	4.9		X	90	
401	DROP-IN HOT WELLS	208	1	20.0	X		5	PEDESTAL MOUNTED JUNCTION BOX BY TRADES
401A	SNEEZE GUARD	120/208	1	12.2	X		5	PEDESTAL MOUNTED JUNCTION BOX BY TRADES
403	DROP-IN COLD WELL	120	1	3.1		X	5	PEDESTAL MOUNTED RECEPTACLE BY TRADES
403A	SNEEZE GUARD	120	1	1.0	X		5	PEDESTAL MOUNTED JUNCTION BOX BY TRADES
404	DROP-IN HOT/COLD WELLS	120	1	18.2		X	5	PEDESTAL MOUNTED RECEPTACLE BY TRADES
404A	SNEEZE GUARD	120	1	1.0	X		5	PEDESTAL MOUNTED JUNCTION BOX BY TRADES
407	CASH REGISTER/POS - BY OWNER	120	1	10.0		X	FLUSH	INTERWIRE TO OFFICE/CPU - VIF
408	DROP-IN HEATED SURFACE	120	1	8.3		X	5	PEDESTAL MOUNTED RECEPTACLE BY TRADES
409	HEATED SLANTED SANDWICH SLIDE	120/208	1	14.1		X	5	PEDESTAL MOUNTED RECEPTACLE BY TRADES
410	DECORATIVE HEAT LAMP ASSEMBLY	120	1	6.0	X		DFA	
412	DROP-IN COLD WELL	120	1	3.1		X	5	PEDESTAL MOUNTED RECEPTACLE BY TRADES
412A	SNEEZE GUARD	120	1	1.0	X		5	PEDESTAL MOUNTED JUNCTION BOX BY TRADES
413	SANDWICH TOP REFRIGERATOR	120	1	4.8		X	5	PEDESTAL MOUNTED RECEPTACLE BY TRADES
414	AIR CURTAIN REFRIGERATOR	120	1	16.0		X	5	IF UNIT CANNOT BE CONNECTED TO GFCI BREAKER, THEN IT MUST BE HARD WIRED
414A	DOUBLE SIDED AIR CURTAIN	208	1	14.2		X	5	IF UNIT CANNOT BE CONNECTED TO GFCI BREAKER, THEN IT MUST BE HARD WIRED
604	MICROWAVE OVEN	120	1	13.4		X	72	
605	REFRIGERATED DISPLAY CASE	120	1	6.2		X	16	
607	CASH REGISTER/POS - BY OWNER	120	1	10.0		X	16	INTERWIRE TO OFFICE/CPU - VIF
609	HEATED SLANTED SANDWICH SLIDE	120/208	1	8.5		X	48	
610	ICE CREAM DISPLAY FREEZER	120	1	4.8		X	16	
611	HOT FOOD CABINET	120	1	12.0		X	72	
EGP3	GENERAL PURPOSE DUPLEX	120	1	10.0		X	48	
EGP4	GENERAL PURPOSE DUPLEX	120	1	10.0		X	16	

NOTE:

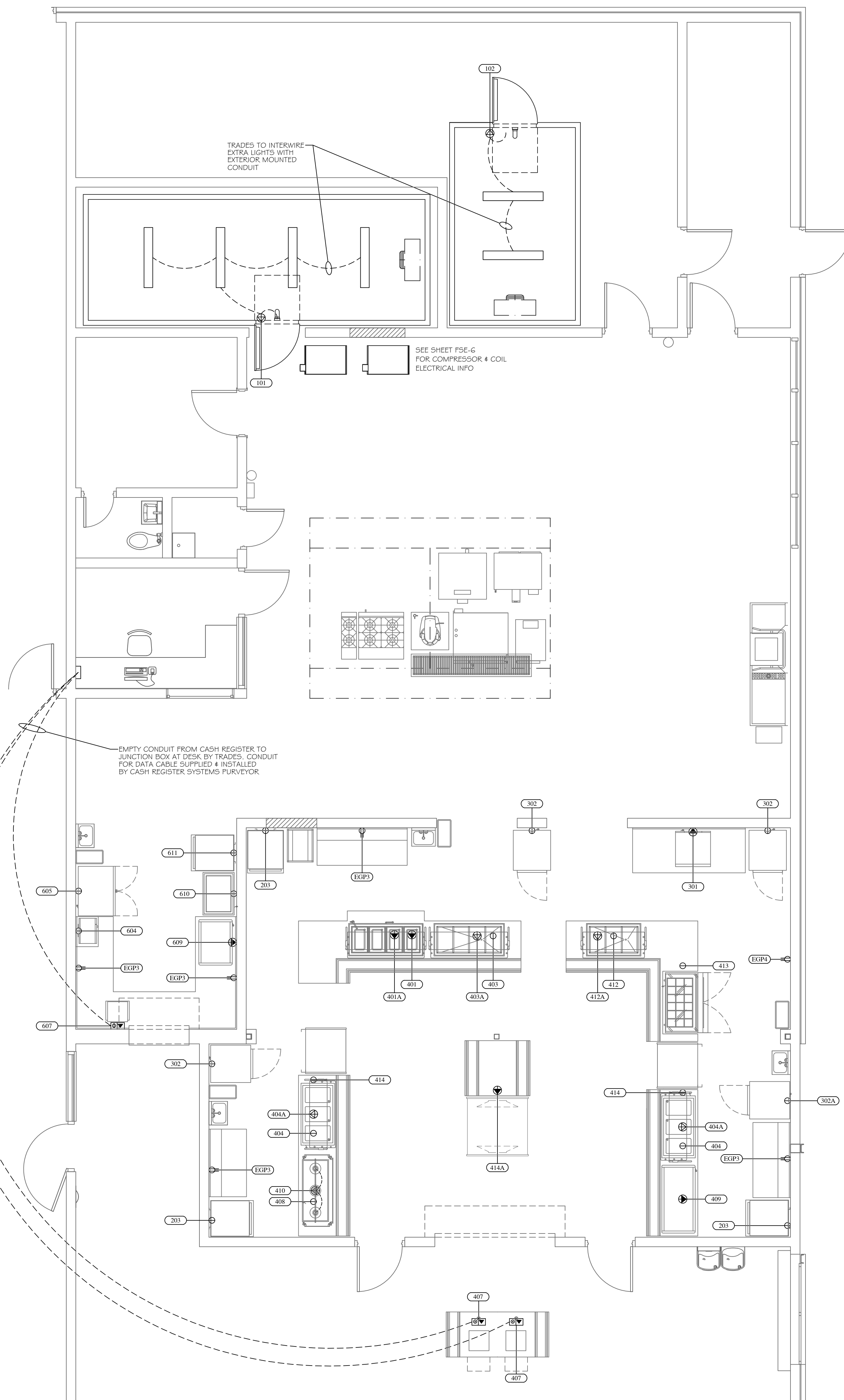
- FSEC SHALL VERIFY ROUGH-IN REQUIREMENTS FOR FUTURE, PURVEYOR SUPPLIED, OWNERS RELOCATED EQUIPMENT, OWNER SUPPLIED EQUIPMENT, ETC.
- TRADES TO REUSE EXISTING ROUGHINS WHERE APPLICABLE.
- TRADES SHALL DISCONNECT, REMOVE, STORE & RECONNECT ANY EXISTING EQUIPMENT AS REQUIRED FOR CONSTRUCTION PURPOSES.
- EQUIPMENT NOT BEING REUSED TO BE DISCONNECTED BY TRADES AND STORED OR DISCARDED BY THE FSEC AS DIRECTED BY OWNER.
- EQUIPMENT DESIGNATED AS RELOCATED SHALL BE DISCONNECTED BY THE TRADES AND RELOCATED BY THE FSEC AS PER PLANS AND SPECIFICATIONS.



TRADE & FSEC NOTES:

- KITCHEN EQUIPMENT SHALL BE DELIVERED AND ERECTED BY F.S.E.C.
- DO NOT ROUGH-IN FROM THIS DRAWING. REFER TO F.S.E.C. DIMENSIONED ROUGH-IN DRAWINGS AND SHOP DRAWINGS FOR ACTUAL REQUIREMENTS.
- TRADES SHALL MAKE ALL FINAL CONNECTIONS BETWEEN EQUIPMENT AND ROUGH-IN POINT, AND FURNISH ALL WIRING, SWITCHES, CONTROLS, SERVICE VALVES, PIPING, ETC AS REQUIRED. FSEC SHALL FURNISH DRAIN WATER TEMPERING KIT(S), TRADES SHALL INSTALL.
- FSEC SHALL FURNISH AND TRADES SHALL INSTALL ALL ACCESSORIES (FAUCETS, SWITCHES, CORDS, VALVES, GAS HOSES, ETC.).
- SLOPES TO FDS SHOULD BE HELD TO A MINIMUM DIMENSION.
- ALL "ROUGH-INS" SHOULD BE "UP-WITHIN" AND THEN "OUT-OF" WALLS WHERE POSSIBLE TO KEEP FLOORS AS CLEAN AS POSSIBLE. ROUGH-INS ARE SHOWN AT TERMINATION POINT TO ALLOW WIRING/PIPING TO FUTURE BY TRADES.
- TRADES TO PROVIDE CHASES/REWORK OF WALLS, FLOORS, CEILINGS FOR UTILITIES, FLOOR GRATES, WALKING, DUCTS, ETC.
- F.S.E.C. SHALL PROVIDE ACCESS HOLES IN EQUIPMENT FOR UTILITIES, PIPING, POS, BEVERAGE LINES, ETC.
- TRADES SHALL PROVIDE VENTILATION STRUCTURAL SUPPORT, CEILING WORK, ROOF PENETRATIONS AND FIRE PROOFING AS REQUIRED.
- EXHAUST HOOD SHALL BE USED FOR VENTILATION OF COOKING EQUIPMENT ONLY. TRADES SHALL PROVIDE ROOM VENTILATION (AVC RECOMMENDED) AS REQUIRED.
- TRADES SHALL PROVIDE ADEQUATE VENTILATION FOR REFRIGERATION COMPRESSORS, WHETHER AIR OR WATER COOLED.
- TRADES SHALL REVIEW ALL ROUGHINS AND SHOP DRAWINGS FROM F.S.E.C. AND ADVISE PRIOR TO ROUGHING IN IF ANY CHANGES ARE REQUIRED.
- FSEC SHALL COORDINATE ROUGHIN REQUIREMENTS FOR OWNER SUPPLIED, RELOCATED, OR EXISTING EQUIPMENT WITH ALL TRADES.
- TRADES TO REUSE EXISTING ROUGHINS IF APPLICABLE.
- EQUIPMENT NOT BEING REUSED TO BE DISCONNECTED FROM UTILITIES BY THE TRADES.
- EQUIPMENT NOT BEING RE-USED SHALL BE DISCARDED BY THE FSEC.
- IF OWNER REQUESTS EXISTING EQUIPMENT BE SALVAGED THE FSEC SHALL TURN OVER TO OWNER.
- EQUIPMENT DESIGNATED AS RELOCATED SHALL BE DISCONNECTED FROM UTILITIES BY THE TRADES.
- EQUIPMENT DESIGNATED AS RELOCATED SHALL BE REMOVED FROM SITE, CLEANED, MADE READY FOR HEALTH DEPARTMENT AND RETURNED TO THE SITE BY THE FSEC.
- EQUIPMENT DESIGNATED AS RELOCATED SHALL BE RE-CONNECTED BY THE TRADES.
- TRADES & FSEC TO VERIFY VENTILATION DATA WITH HOOD MFG. SHOP DRAWINGS.

MECHANICAL / ELECTRICAL NOTES	
⊕	120 V - 20 AMP DUPLEX RECEPTACLE - GFCI VERTICALLY MOUNTED
⊕	120 V - 20 AMP SIMPLEX OUTLET - GFCI VERTICALLY MOUNTED
SR	SPECIAL RECEPTACLE - 120 VOLT
SR	SPECIAL RECEPTACLE - 208/240 VOLT
⊕	W.T. FLUSH FLOOR POWER/COMMUNICATIONS RECEPTACLE
⊕	DATA CONNECTION
⊕	WATERTIGHT FLUSH FLOOR DUPLEX - 20 AMP - GFCI
JB	JUNCTION BOX
LT	LIGHT FIXTURE
A	AMPS
AFF	ABOVE FINISHED FLOOR
BTC	BRANCH TO CONNECTION BY TRADES
DFA	DROP FROM ABOVE
GP	GENERAL PURPOSE
HP	HORSEPOWER
IW	INDIRECT/AIR GAPPED WASTE TO FL DR OR FL SK
KW	KILOWATT
PH	PHASE
UN	UNLESS OTHERWISE NOTED
VIF	VERIFY IN FIELD
V	VOLTS
HW	HOT WATER - 25 PSI - 115 DEGREES
CW	COLD WATER - 25 PSI
G	NATURAL GAS - 7" W.C. OR LP GAS - 1 1/2" W.C. - VIF
W	WASTE DRAIN - DIRECT CONNECTION
FD	FLOOR DRAIN - 3" MINIMUM DRAIN - MINIMUM PITCH
FFD	FUNNEL FLOOR DRAIN FOR IW - 3" MINIMUM DRAIN
FL SK	FLOOR SINK FOR IW - 12" SQ. - HALF GRATE - 3" MIN.
EVC	EXHAUST VENT CONNECTION
MUA	MAKE UP AIR DUCT CONNECTION
CFM	CUBIC FEET MINUTE
SP	STATIC PRESSURE
BC	BEVERAGE CONDUIT WITH 18" SWEEP ENDS BY TRADES - VIF
TFT	TEMPERED FLOOR TROUGH
NKEC	NOT IN KITCHEN EQUIPMENT CONTRACT



FOODSERVICE
DESIGN BY:



Food Service Consultants
JRA FOOD SERVICE CONSULTANTS, LLC
401 HALL STREET SW - SUITE 183H
GRAND RAPIDS, MI 49503
PH: (616) 454-4433

ARCHITECT:
BERGMANN ASSOCIATES
560 5th NW
SUITE 305
GRAND RAPIDS, MI 49504

PROJECT:
ORCHARD VIEW MIDDLE SCHOOL
35 SOUTH SHERIDAN DRIVE
MUSKEGON, MICHIGAN, 49442

SHEET TITLE:
FOOD SERVICE
ELECTRICAL
FLOOR PLAN
SCALE 1/4" = 1'-0"

DATE CODE	PROJECT PHASE	BY
01/31/23 OVMSSE	BIDS	CM

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SHEET NUMBER:

FSE-4



**Food Service
Consultants**
JRA FOOD SERVICE CONSULTANTS, LLC
401 HALL STREET SW - SUITE 183H
GRAND RAPIDS, MI 49503
PH: (616) 454-4433

ARCHITECT:
BERGMANN ASSOCIATES
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SUITE 305
GRAND RAPIDS, MI 49504

PROJECT:
ORCHARD VIEW MIDDLE SCHOOL
35 SOUTH SHERIDAN DRIVE
MUSKEGON, MICHIGAN, 49442

SHEET TITLE:
FOOD SERVICE
PLUMBING
FLOOR PLAN
SCALE 1/4" = 1'-0"

DATE CODE	PROJECT PHASE	BY
01/31/23 OVMSSP	BIDS	CM

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SHEET NUMBER:

FSE-5

EQUIPMENT SCHEDULE											
Item	EQUIPMENT DESCRIPTION	CW (in)	HW (in)	AFF (in)	DIRECT DRAIN (in)	AFF (in)	INDIRECT AIR GAP	GAS (in)	AFF (in)	MBTUH	REMARKS
101A	FREEZER COIL						FFD				FSEC PIPE COIL TO FFD
102A	COOLER COIL						FFD				FSEC PIPE COIL TO FFD
401	DROP-IN HOT WELLS		0.5	5			FFD				
403	DROP-IN COLD WELL						FFD				
404	DROP-IN HOT/COLD WELLS						FFD				
412	DROP-IN COLD WELL						FFD				
502	HAND SINK W/ SIDE SPLASHES	0.5	0.5	18	1.5	16					SOAP & TOWEL DISPENSER - BY OWNER
602	HAND SINK W/ SIDE SPLASHES	0.5	0.5	18	1.5	16					SOAP & TOWEL DISPENSER - BY OWNER

NOTE:

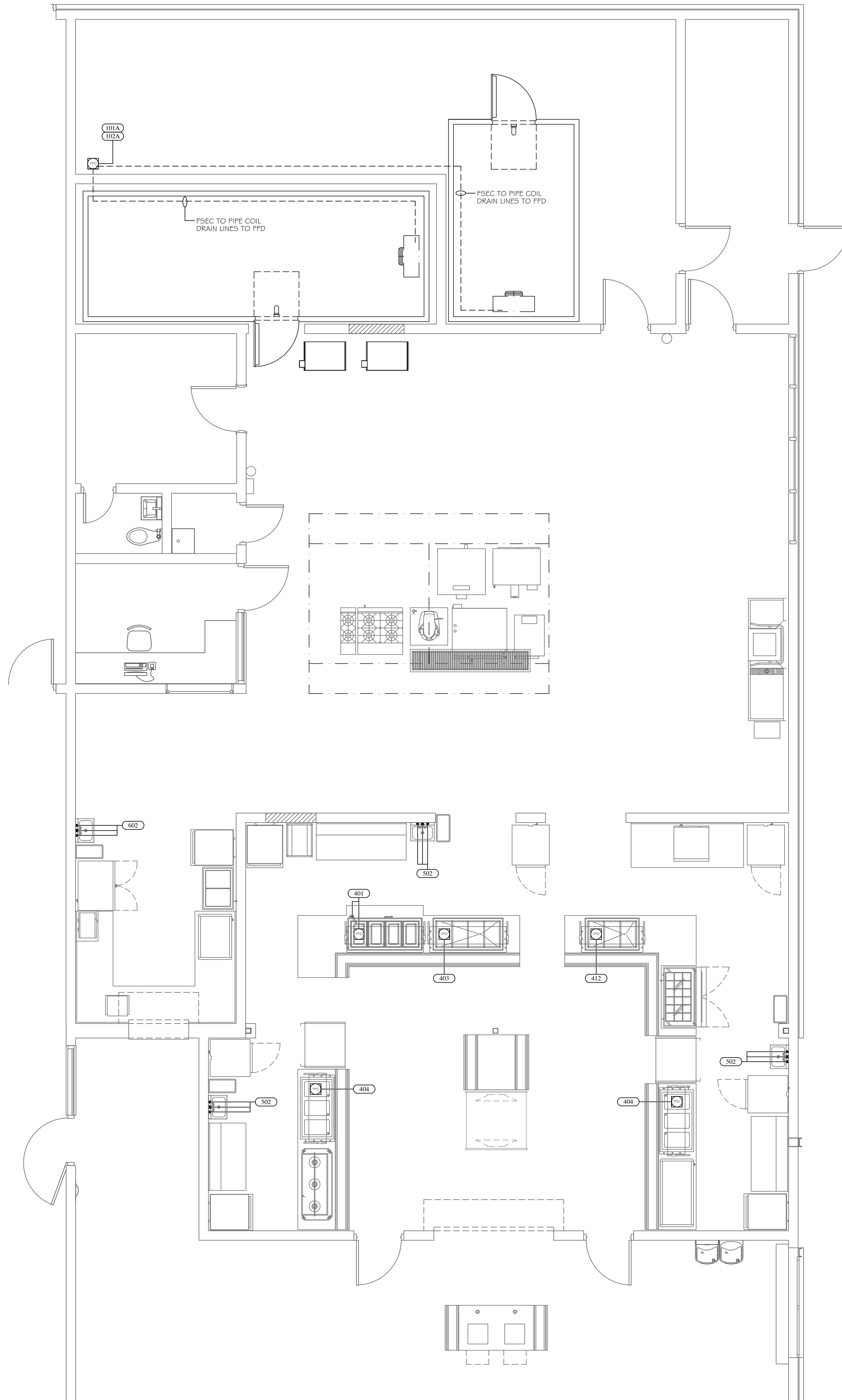
- FSEC SHALL VERIFY ROUGH-IN REQUIREMENTS FOR FUTURE, PURVEYOR SUPPLIED, OWNERS RELOCATED EQUIPMENT, OWNER SUPPLIED EQUIPMENT, ETC.
- TRADES TO REUSE EXISTING ROUGHINS WHERE APPLICABLE.
- TRADES SHALL DISCONNECT, REMOVE, STORE & RECONNECT ANY EXISTING EQUIPMENT AS REQUIRED FOR CONSTRUCTION PURPOSES.
- EQUIPMENT NOT BEING REUSED TO BE DISCONNECTED BY TRADES AND STORED OR DISCARDED BY THE FSEC AS DIRECTED BY OWNER.
- EQUIPMENT DESIGNATED AS RELOCATED SHALL BE DISCONNECTED BY THE TRADES AND RELOCATED BY THE FSEC AS PER PLANS AND SPECIFICATIONS.

TRADE & FSEC NOTES:

- KITCHEN EQUIPMENT SHALL BE DELIVERED AND ERECTED BY F.S.E.C.
- DO NOT ROUGH-IN FROM THIS DRAWING. REFER TO F.S.E.C. DIMENSIONED ROUGH-IN DRAWINGS AND SHOP DRAWINGS FOR ACTUAL REQUIREMENTS.
- TRADES SHALL MAKE ALL FINAL CONNECTIONS BETWEEN EQUIPMENT AND ROUGH-IN POINT, AND FURNISH ALL WIRING, SWITCHES, CONTROLS, SERVICE VALVES, PIPING, ETC AS REQUIRED. FSEC SHALL FURNISH DRAIN WATER TEMPERING KIT(S). TRADES SHALL INSTALL.
- FSEC SHALL FURNISH AND TRADES SHALL INSTALL ALL ACCESSORIES (FAUCETS, SWITCHES, CORDS, VALVES, GAS HOSES, ETC.).
- SLOPES TO FDS SHOULD BE HELD TO A MINIMUM DIMENSION.
- ALL "ROUGH-INS" SHOULD BE "UP-WITHIN" AND THEN "OUT-OF" WALLS WHERE POSSIBLE TO KEEP FLOORS AS CLEAN AS POSSIBLE. ROUGH-INS ARE SHOWN AT TERMINATION POINT TO ALLOW WIRING/PIPING TO FIXTURE BY TRADES.
- TRADES TO PROVIDE CHASES/REWORK OF WALLS, FLOORS, CEILINGS FOR UTILITIES, FLOOR GRATES, WALKING, DUCTS, ETC.
- F.S.E.C. SHALL PROVIDE ACCESS HOLES IN EQUIPMENT FOR UTILITIES, PIPING, POS, BEVERAGE LINES, ETC.
- TRADES SHALL PROVIDE VENTILATION STRUCTURAL SUPPORT, CEILING WORK, ROOF PENETRATIONS AND FIRE PROOFING AS REQUIRED.
- EXHAUST HOOD SHALL BE USED FOR VENTILATION OF COOKING EQUIPMENT ONLY. TRADES SHALL PROVIDE ROOM VENTILATION (AVC RECOMMENDED) AS REQUIRED.
- TRADES SHALL PROVIDE ADEQUATE VENTILATION FOR REFRIGERATION COMPRESSORS, WHETHER AIR OR WATER COOLED.
- TRADES SHALL REVIEW ALL ROUGHINS AND SHOP DRAWINGS FROM F.S.E.C. AND ADVISE PRIOR TO ROUGHING IN IF ANY CHANGES ARE REQUIRED.
- FSEC SHALL COORDINATE ROUGHIN REQUIREMENTS FOR OWNER SUPPLIED, RELOCATED, OR EXISTING EQUIPMENT WITH ALL TRADES.
- TRADES TO REUSE EXISTING ROUGHINS IF APPLICABLE.
- EQUIPMENT NOT BEING REUSED TO BE DISCONNECTED FROM UTILITIES BY THE TRADES.
- EQUIPMENT NOT BEING RE-USED SHALL BE DISCARDED BY THE FSEC.
- IF OWNER REQUESTS EXISTING EQUIPMENT BE SALVAGED THE FSEC SHALL TURN OVER TO OWNER.
- EQUIPMENT DESIGNATED AS RELOCATED SHALL BE DISCONNECTED FROM UTILITIES BY THE TRADES.
- EQUIPMENT DESIGNATED AS RELOCATED SHALL BE REMOVED FROM SITE, CLEANED, MADE READY FOR HEALTH DEPARTMENT AND RETURNED TO THE SITE BY THE FSEC.
- EQUIPMENT DESIGNATED AS RELOCATED SHALL BE RE-CONNECTED BY THE TRADES.
- TRADES & FSEC TO VERIFY VENTILATION DATA WITH HOOD MFG. SHOP DRAWINGS.

MECHANICAL / ELECTRICAL NOTES

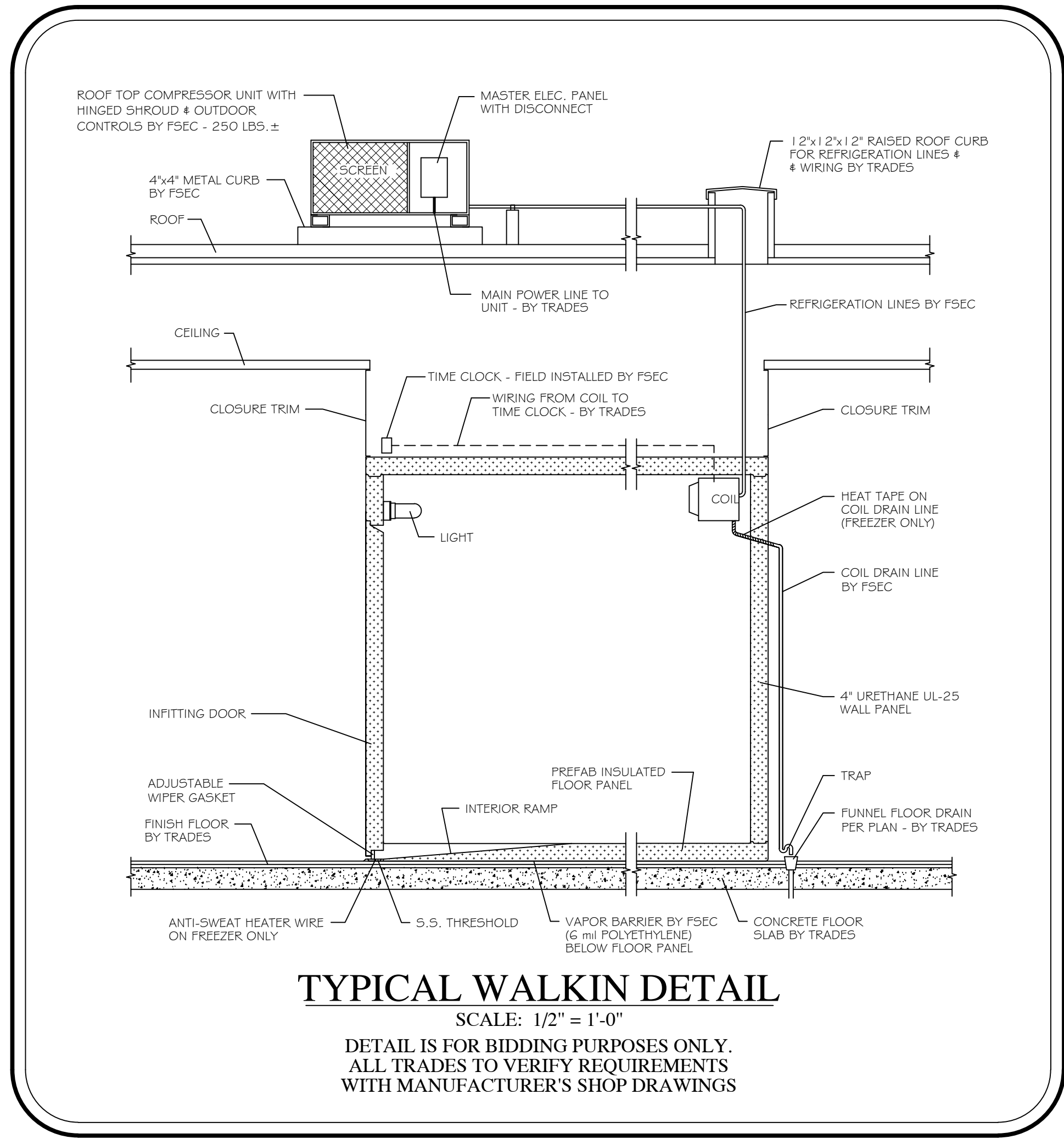
⊕	120 V - 20 AMP DUPLEX RECEPTACLE - GFCI VERTICALLY MOUNTED
⊕	120 V - 20 AMP SIMPLEX OUTLET - GFCI VERTICALLY MOUNTED
⊕	120 VOLT - 30 AMP QUAD OUTLET
SR	SPECIAL RECEPTACLE - 120 VOLT
SR	SPECIAL RECEPTACLE - 208/240 VOLT
W.T.	W.T. FLUSH FLOOR POWER/COMMUNICATIONS RECEPTACLE
DC	DATA CONNECTION
⊕	WATERTIGHT FLUSH FLOOR DUPLEX - 20 AMP - GFCI
JB	JUNCTION BOX
LT	LIGHT FIXTURE
A	AMPS
AFF	ABOVE FINISHED FLOOR
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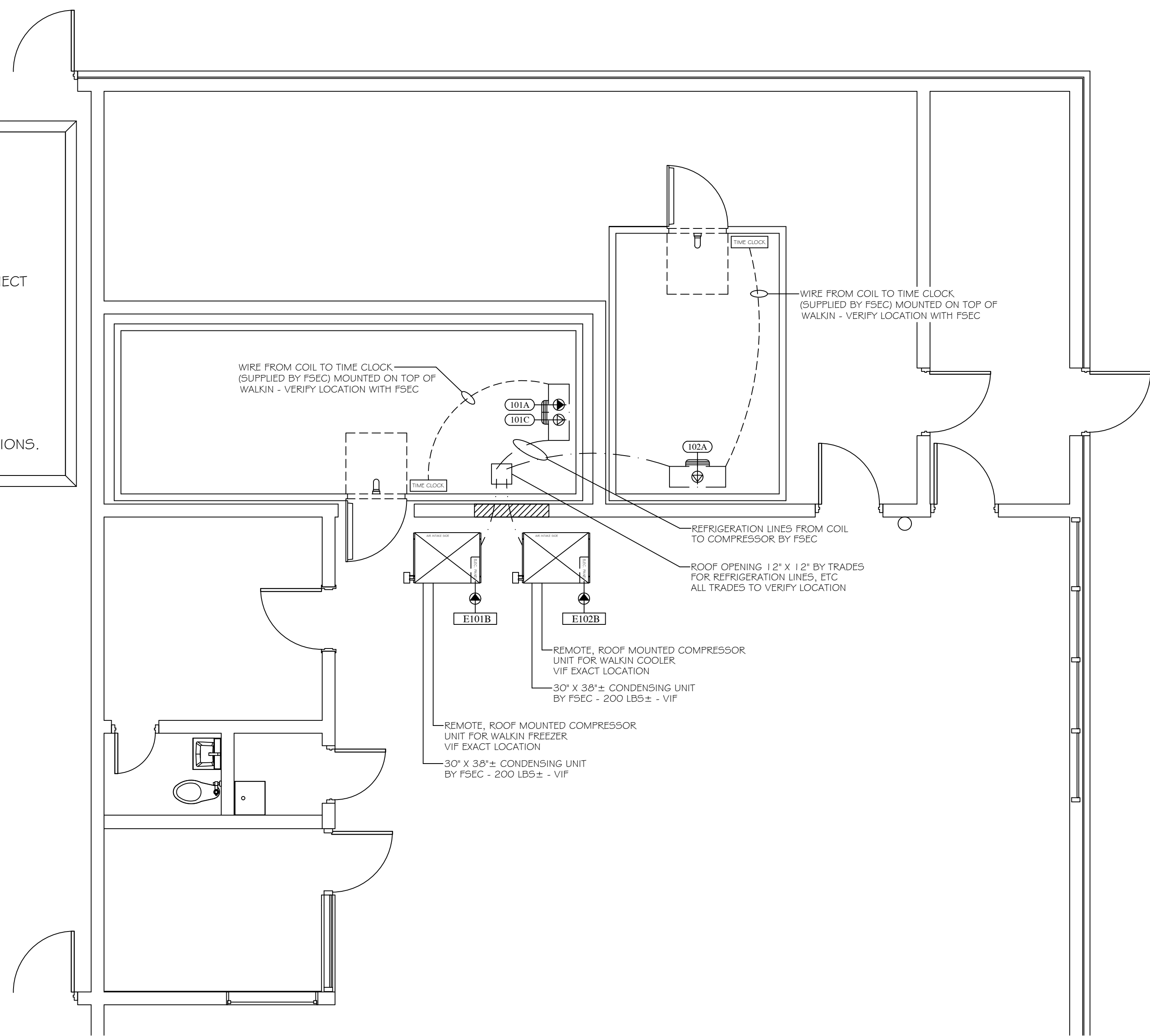
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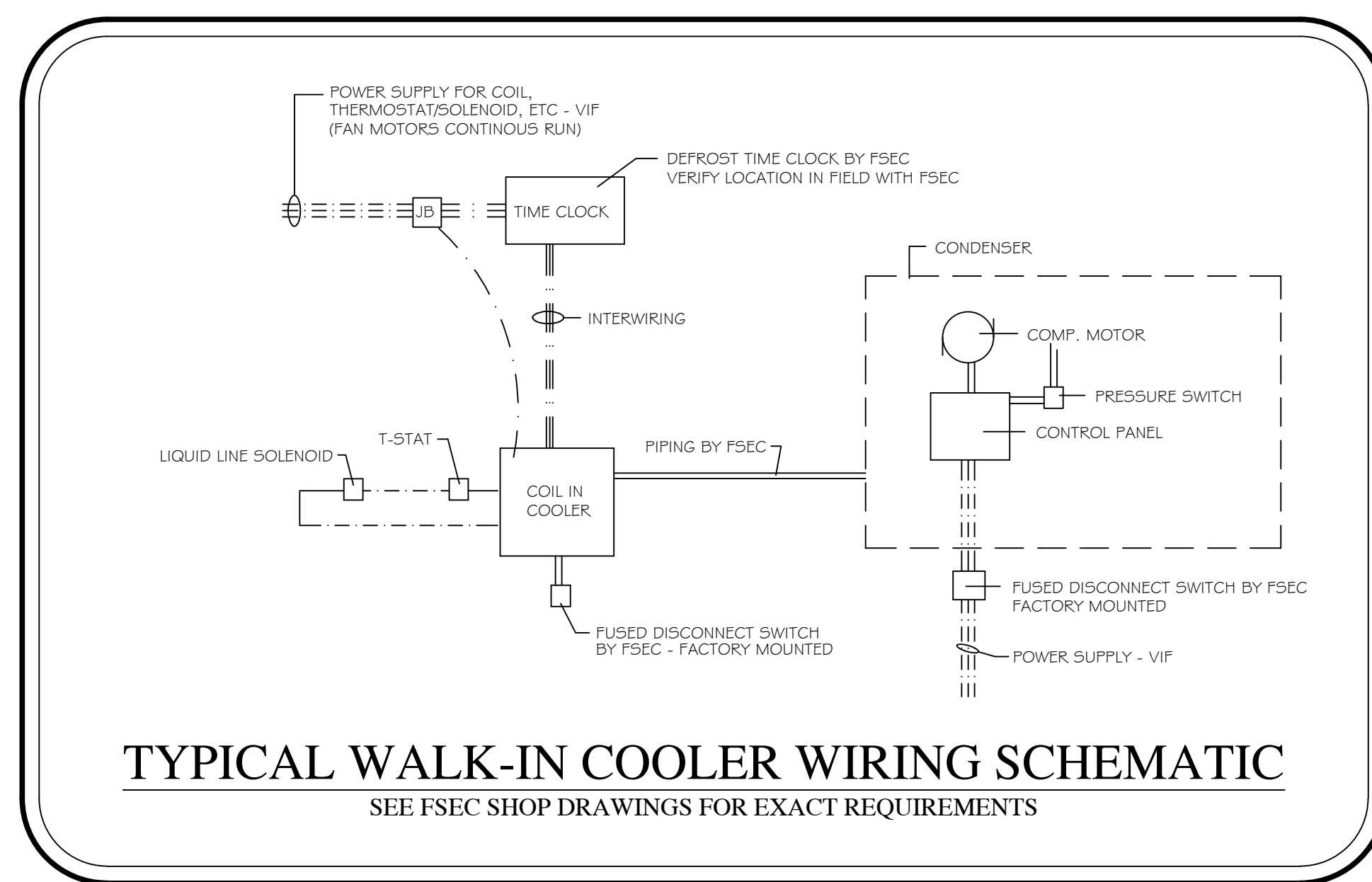
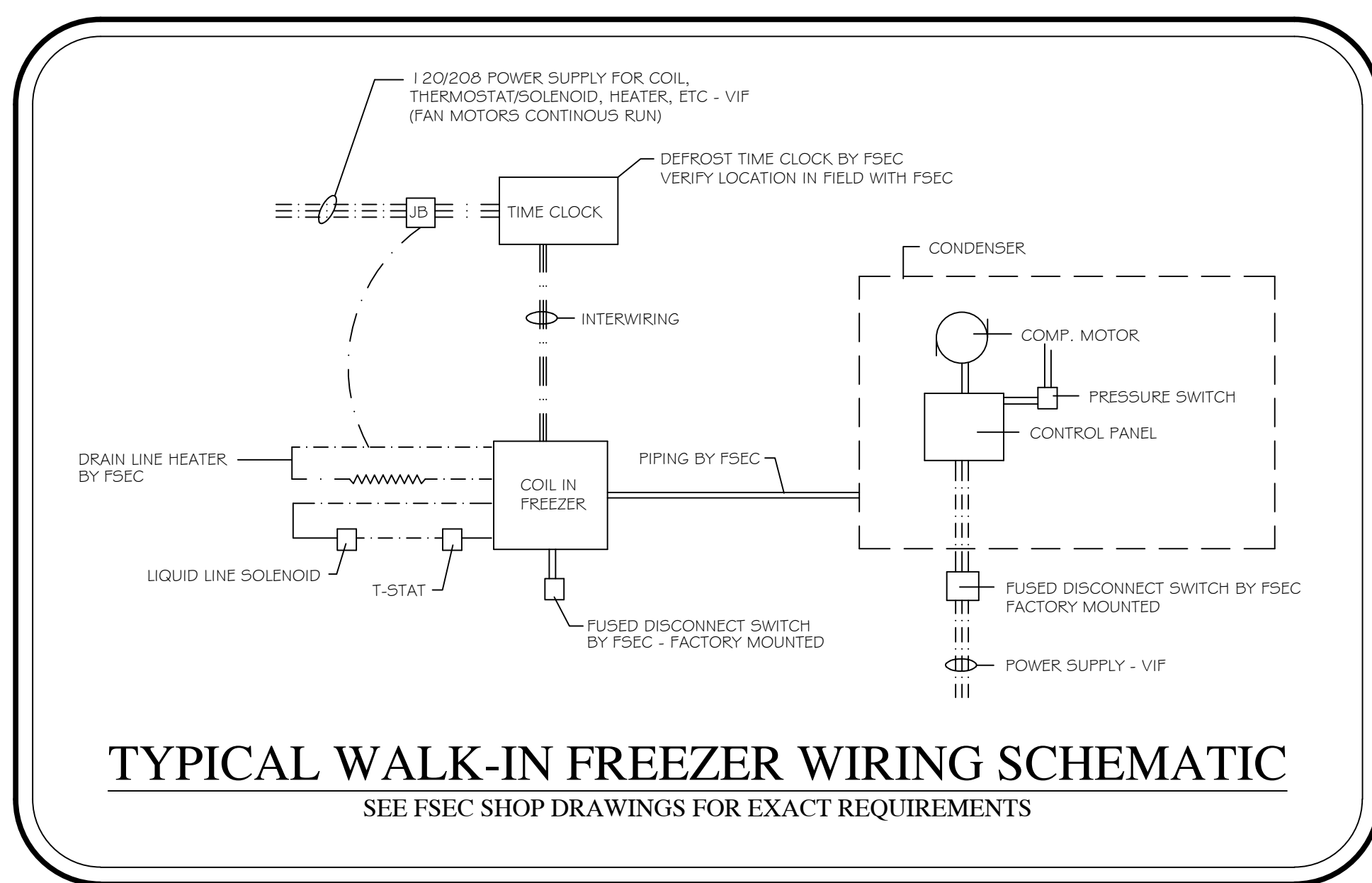
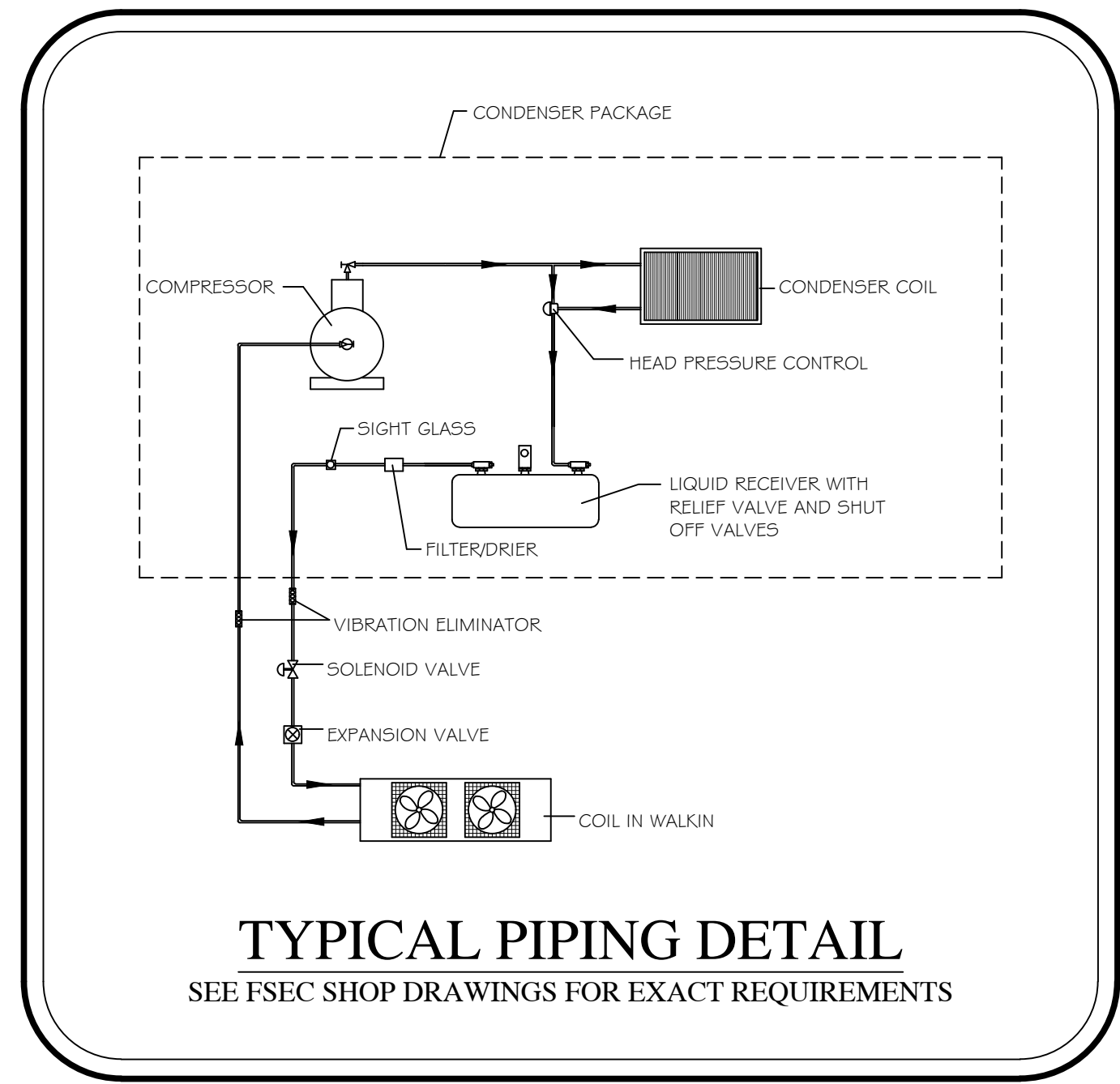
- NOTE:
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ELECTRICAL CONNECTIONS SCHEDULE

CONN.	VOLTS	PH	KW	HP	AMPS	CONNECTION	HEIGHT	REMARKS
E101A	208	1			15.0	DIRECT	DFA	WIRING FROM COIL TO TIME CLOCK BY TRADES
E101B	208	3			15.0	DIRECT	ROOF	
E101C	120	1			5.0	DIRECT	DFA	FREEZER COIL HEAT TAPE
E102A	120	1			5.0	DIRECT	DFA	WIRING FROM COIL TO TIME CLOCK BY TRADES
E102B	208	3			10.0	DIRECT	ROOF	

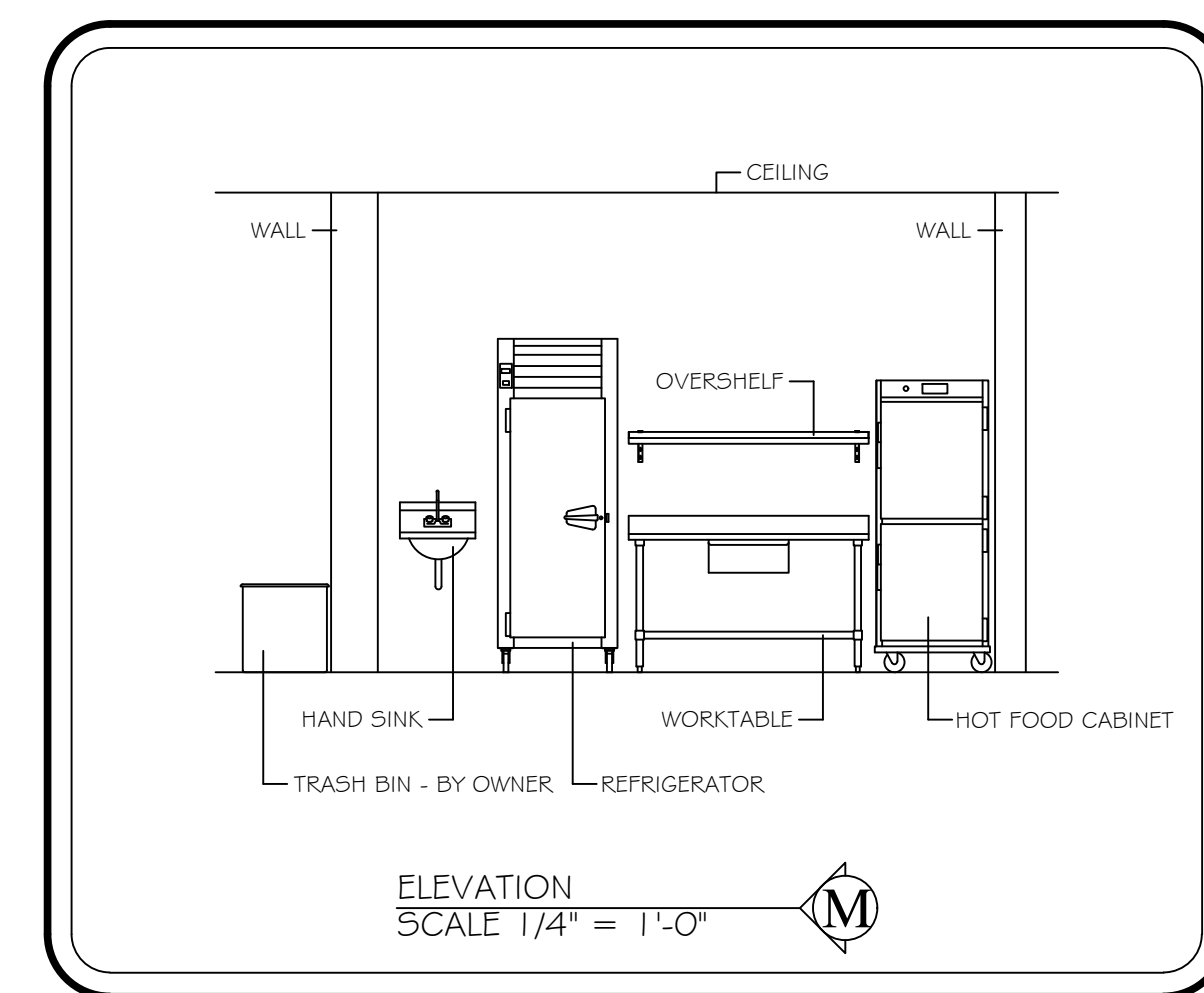
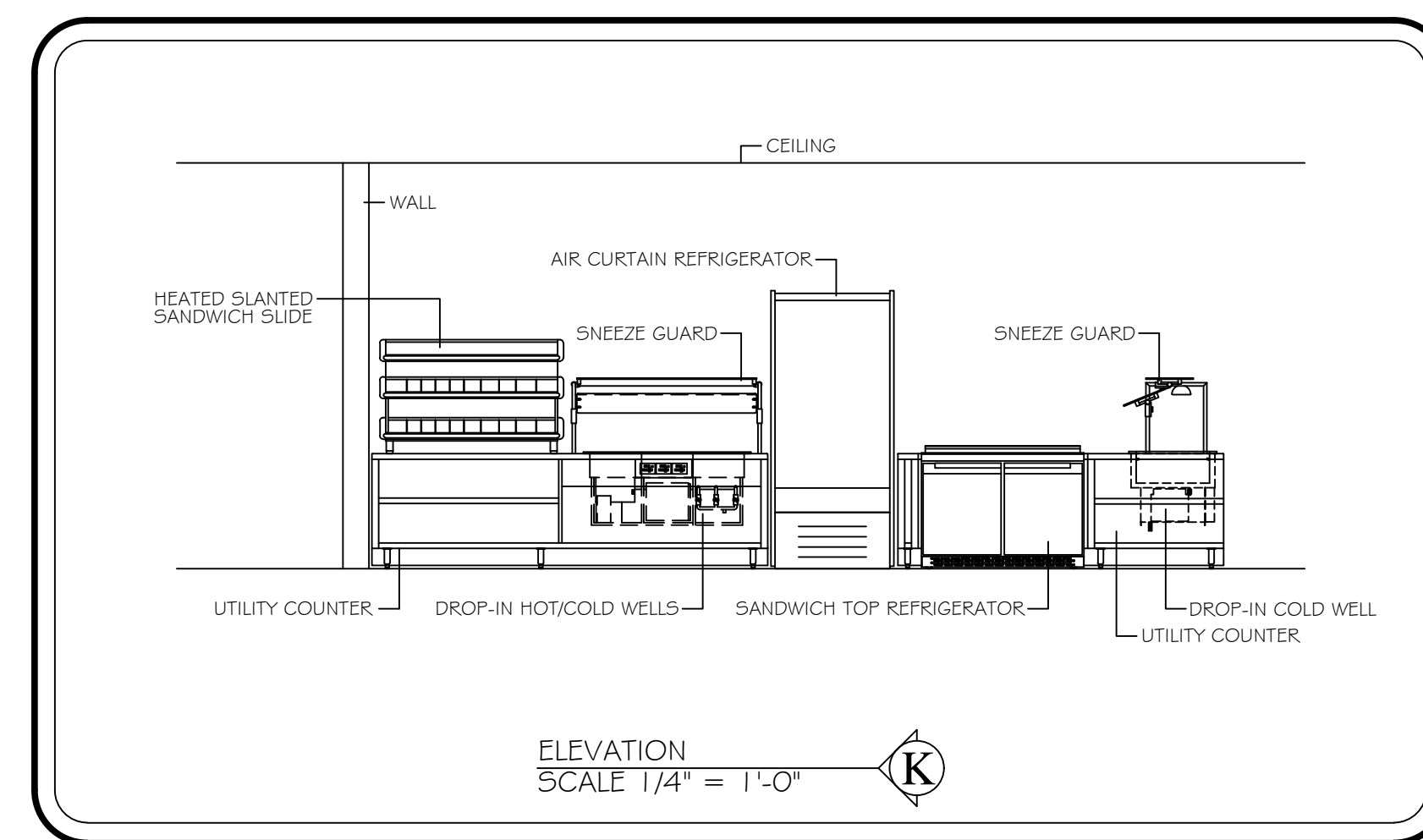
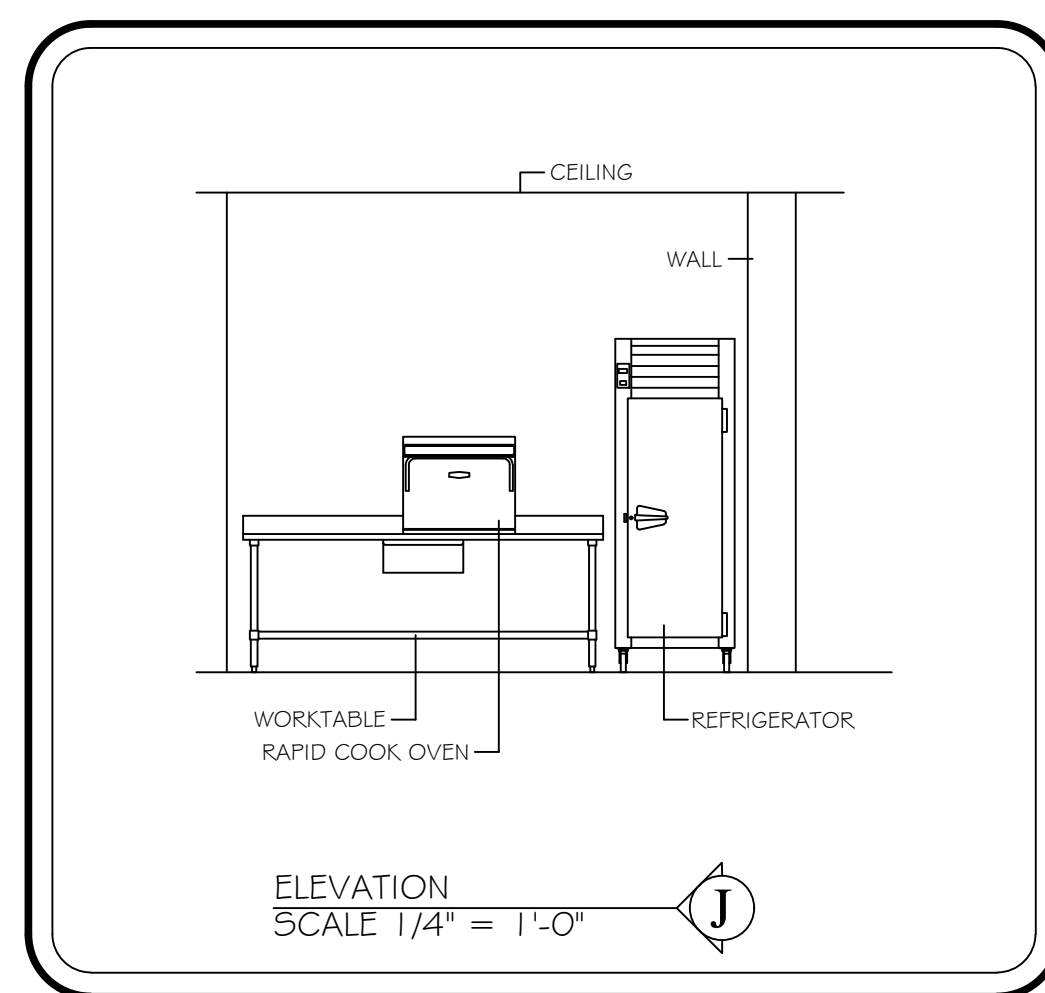
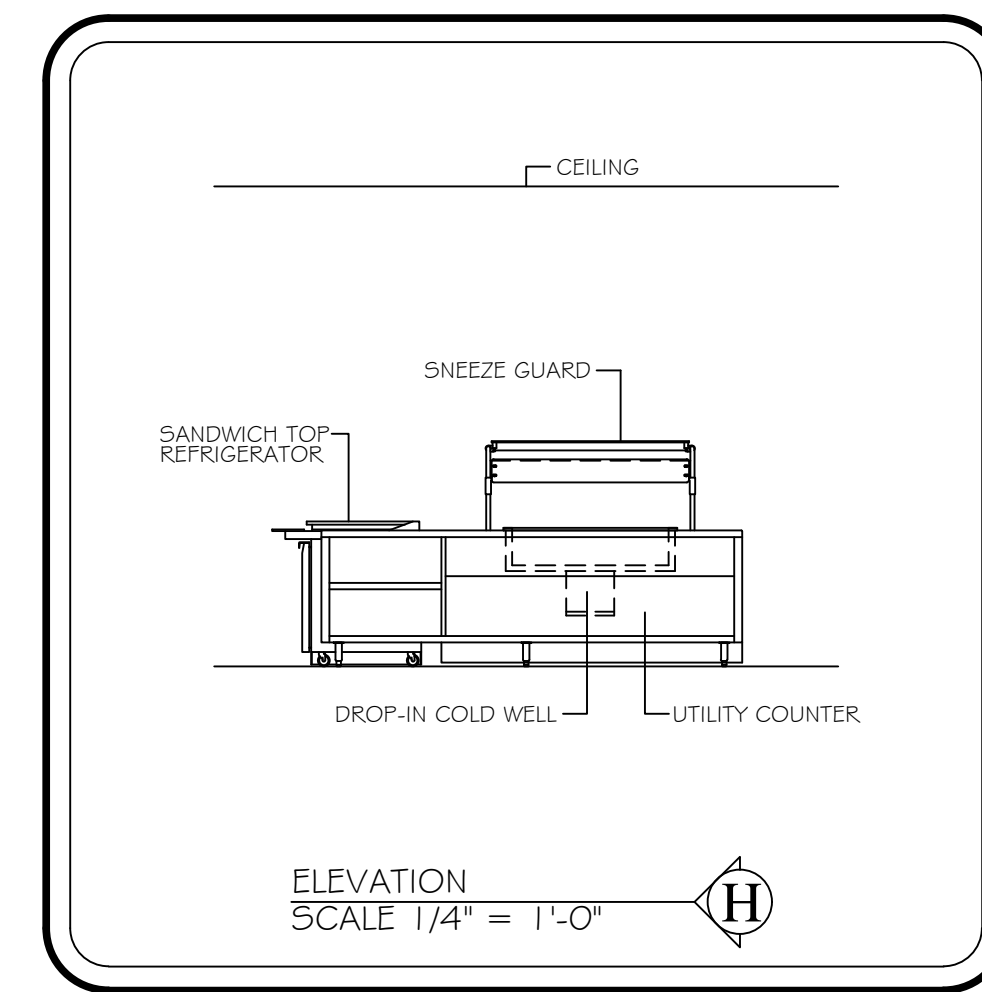
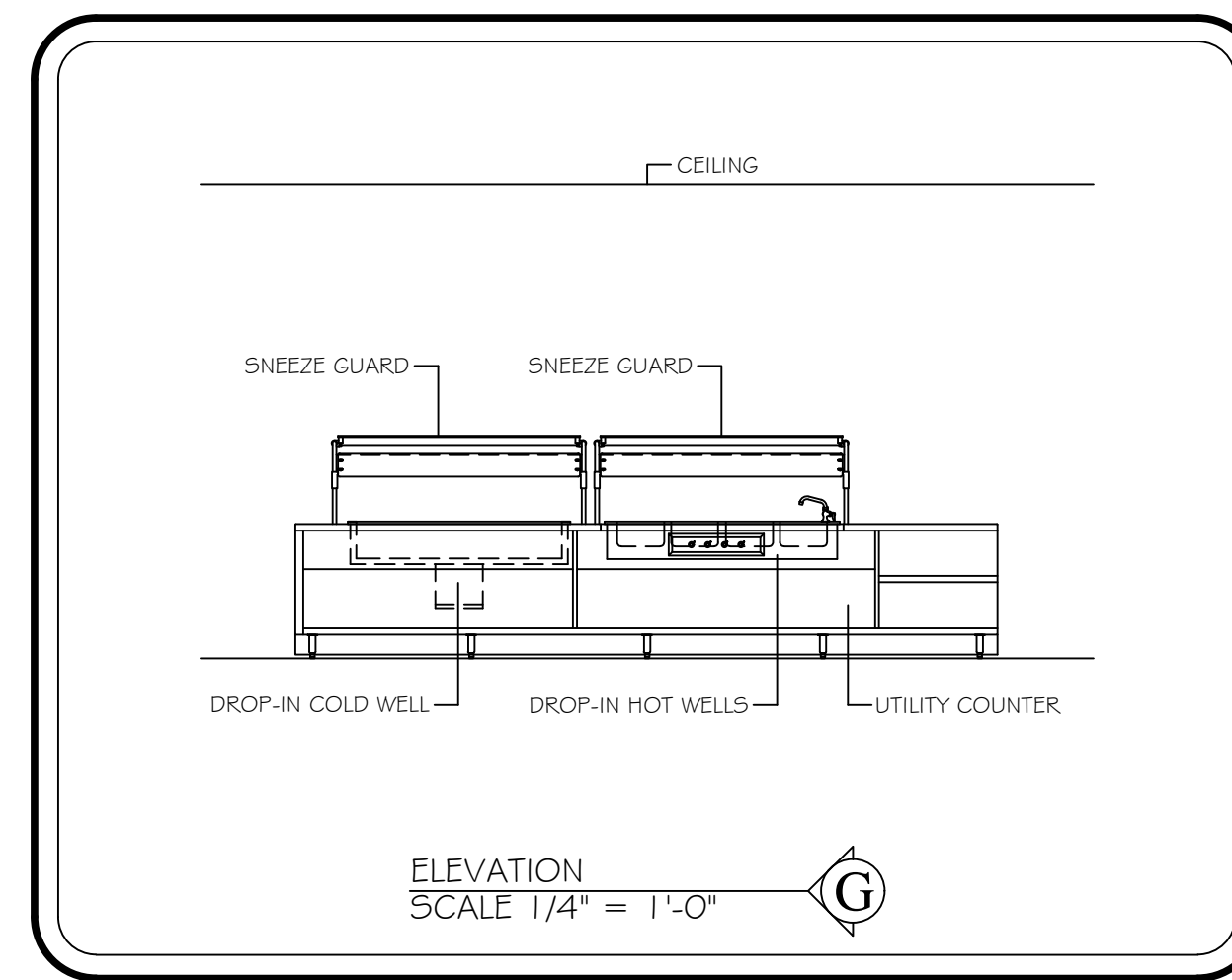
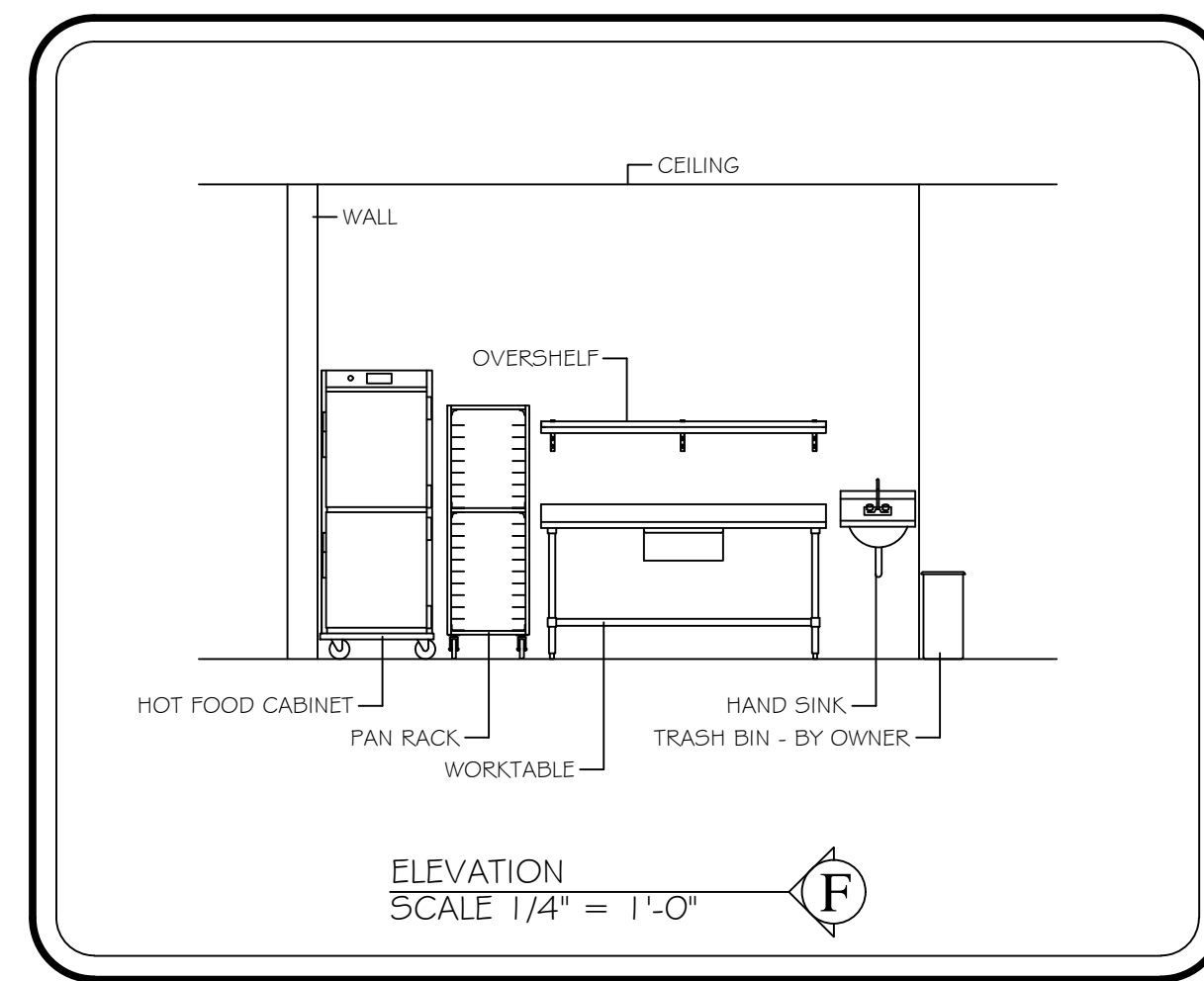
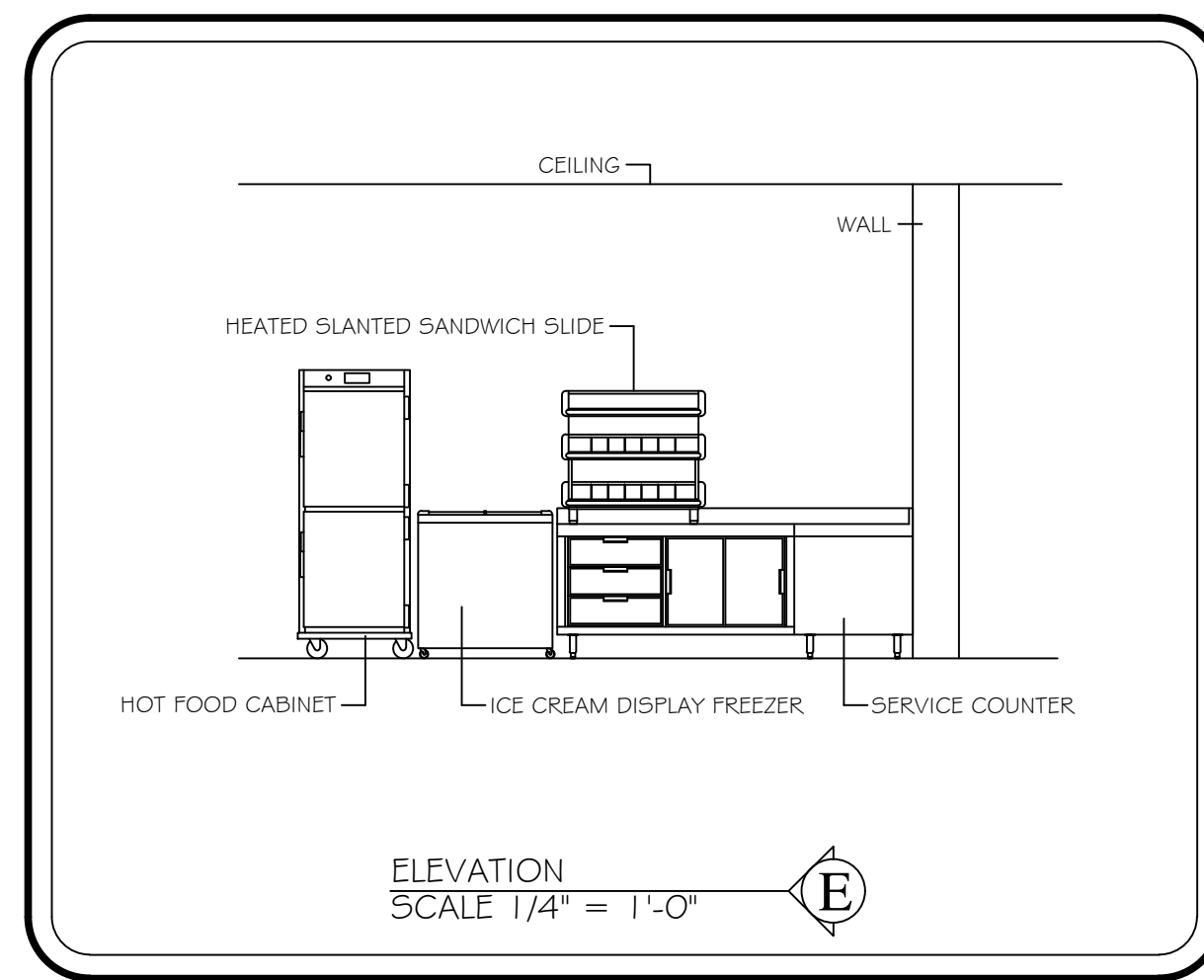
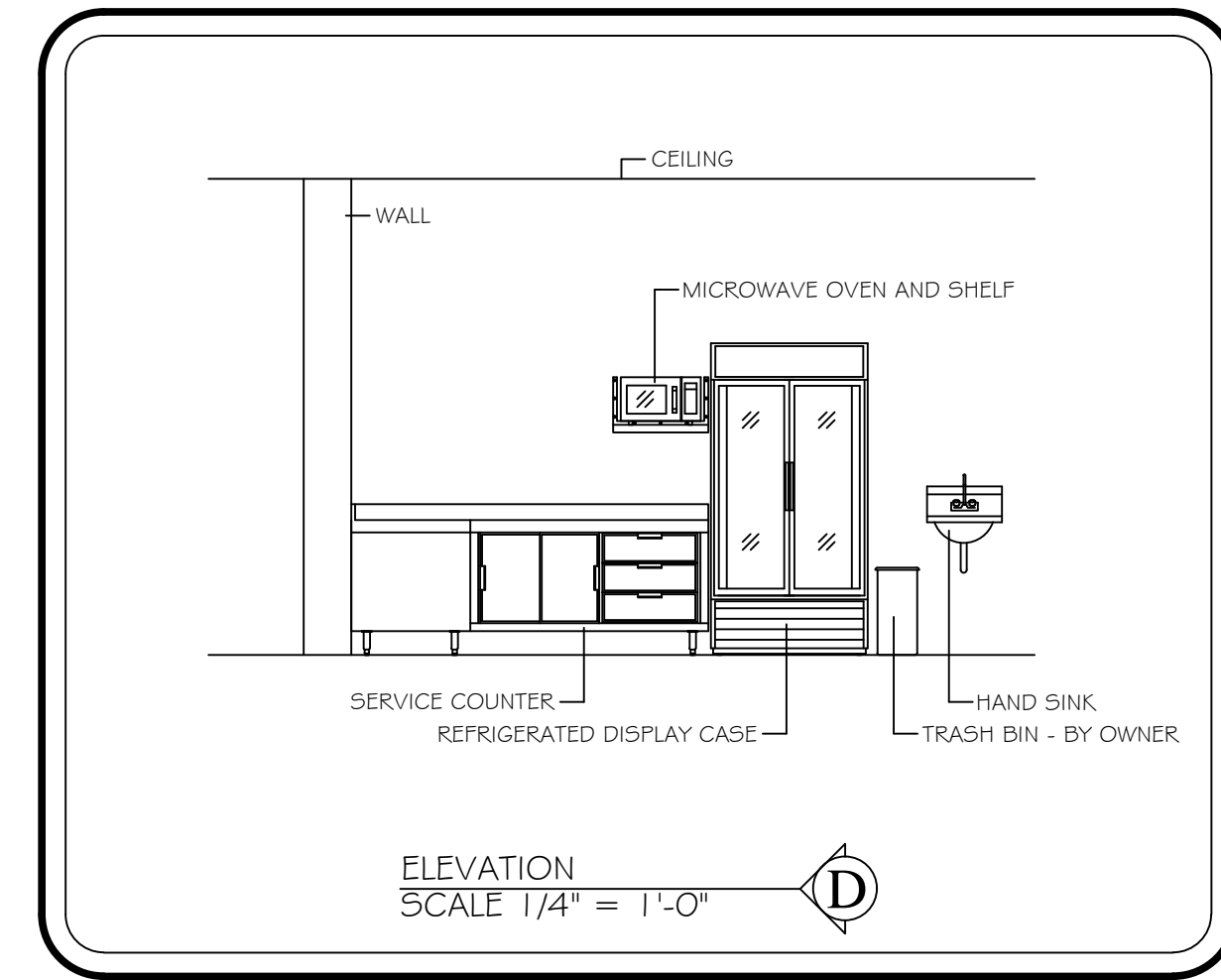
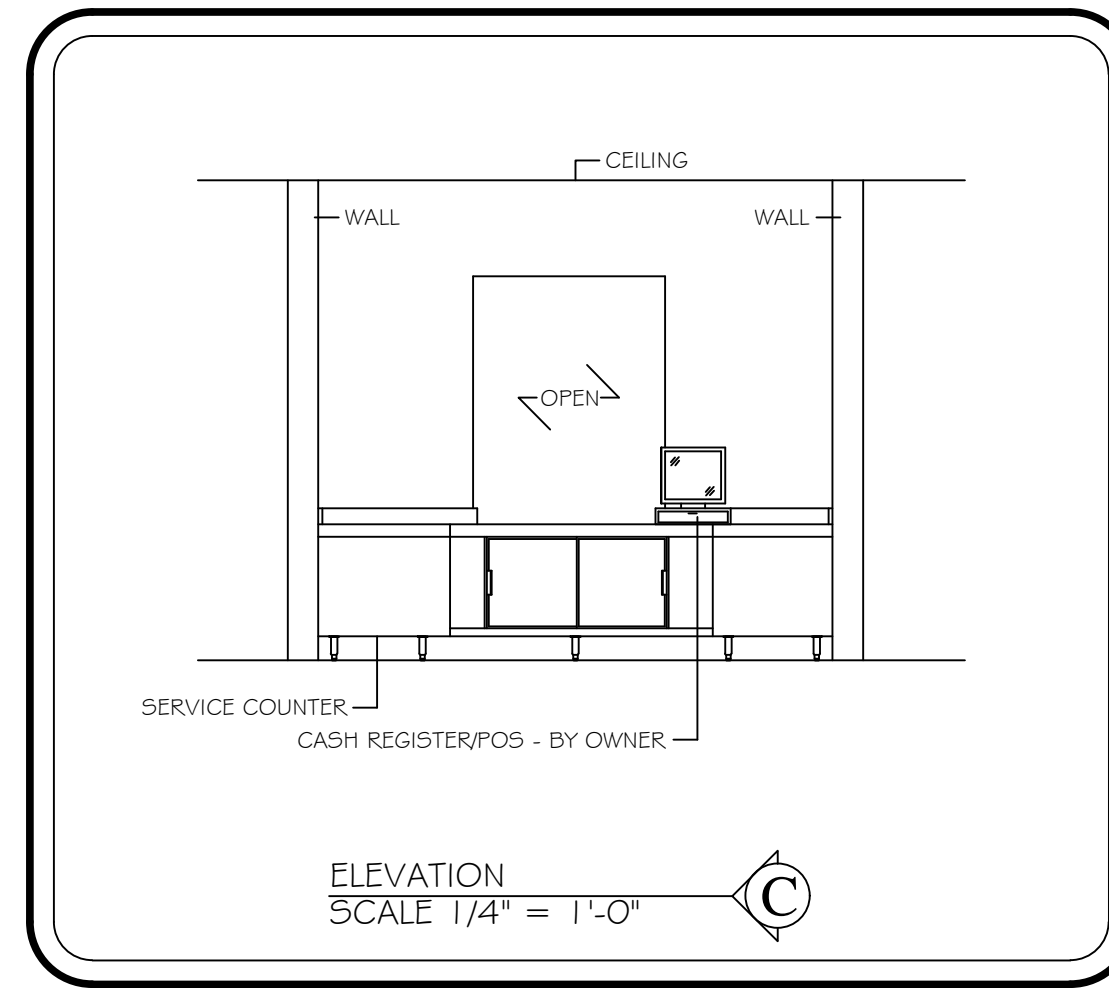
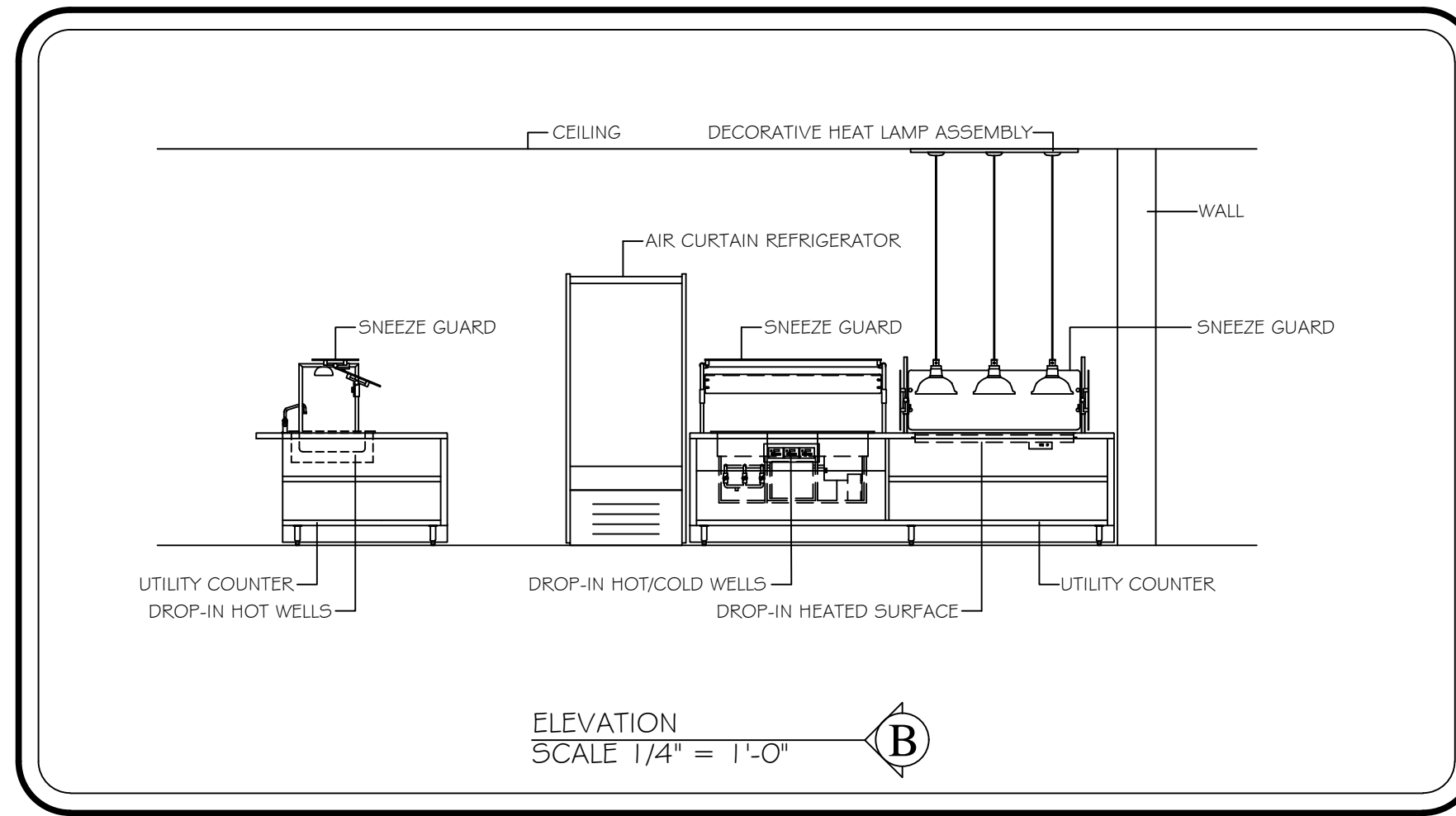
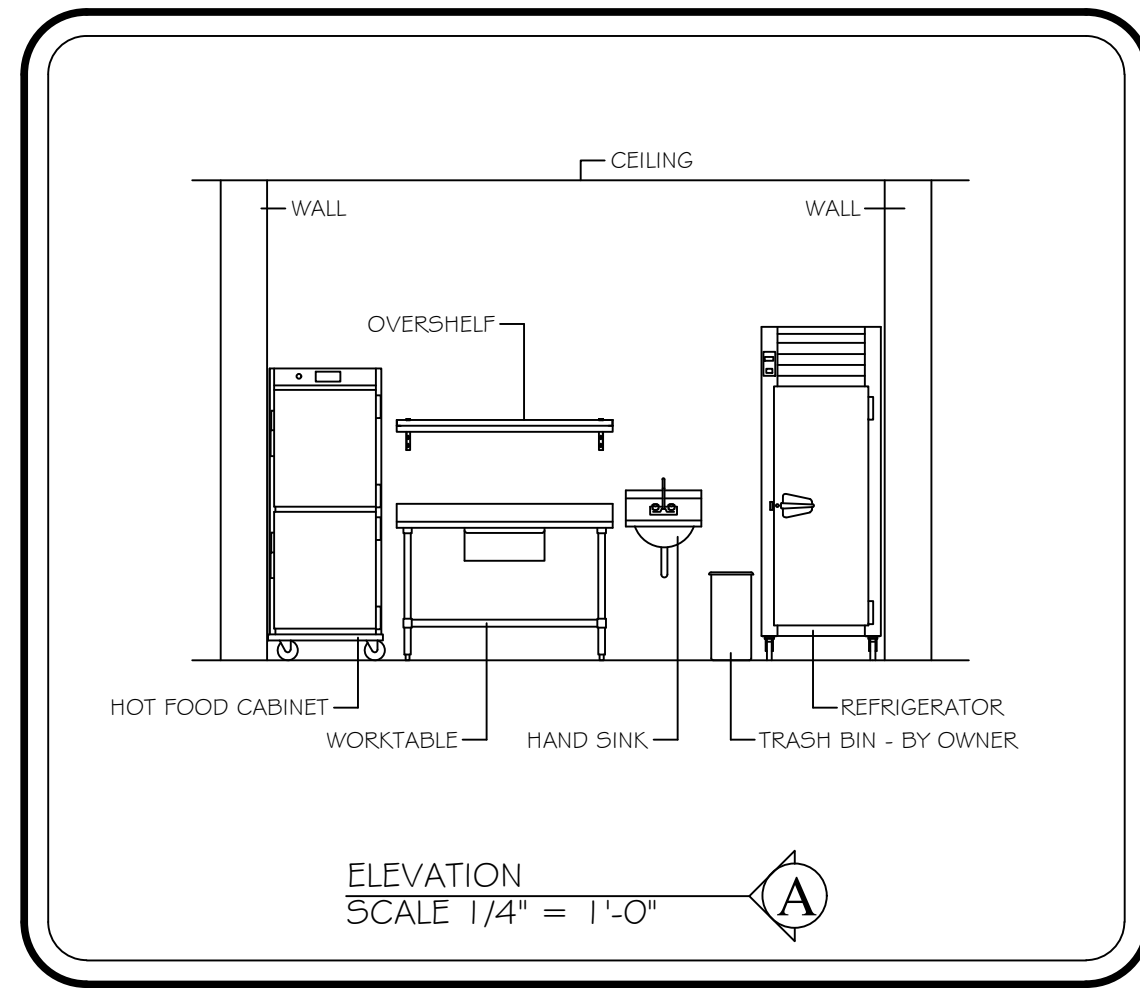
- REFRIGERATION NOTES**
- FOODSERVICE EQUIPMENT TRADES
 - FSEC SHALL PROVIDE AND INSTALL WALKIN AND REFRIGERATION SYSTEM WITH COIL, CONDENSER, INSULATED LINES, OUTDOOR CONTROL PACKAGE, HINGED SHROUD, CONTROLS, CURBS, ETC. EVACUATE, CHARGE, TEST, ADJUST, ETC. PER G-5.
 - PROVIDE DIRECT EXPANSION TYPE COILS WITH ELECTRIC DEFROST SIMILAR TO BOHN CO. "LT" SERIES WITH LIQUID LINE SOLENOID VALVE, SUCTION LINE "P" TRAP, AND THERMOSTAT PIPED AND WIRED TO THE JUNCTION BOX FOR POSITIVE PUMP DOWN. PROVIDE TRAPPED COIL DRAIN LINES.
 - PROVIDE AIR-COOLED CONDENSER PACKAGE SIMILAR TO COPELAND CO. "C" SERIES WITH OUTDOOR CONTROLS, HINGED SHROUD, AND FLOODED HEAD PRESSURE CONTROL SYSTEM. ALL INTERNAL PIPING SHALL BE PRE-PIPED TO OUTSIDE OF ENCLOSURE WITH ORIER, SIGHT GLASS AND VIBRATION ELIMINATORS FOR SUCTION AND LIQUID LINES.
 - PROVIDE INSULATED, REFRIGERANT GRADE OR TYPE "L" COPPER LINE SETS WITH SILVER SOLDER.
 - ALL LINES SHALL BE SECURELY SUPPORTED AND ANCHORED WITH CLAMPS. FSEC TO VERIFY ALL DIMENSIONS AND DATA IN FIELD.
 - GENERAL TRADES
 - PROVIDE 12" X 12" ROOF OPENING AND RAISED CURB - VIF.
 - PROVIDE STRUCTURAL SUPPORT FOR CONDENSOR UNIT - VIF.
 - PROVIDE FLOOR CONSTRUCTION AND INSULATION AS PER PLAN.
 - PROVIDE PRESSURE TREATED WOOD THERMAL BREAKS UNDER ALL WALKIN WALLS UP THRU AND 1/8" ABOVE QUARRY TILE FLOOR TO TOUCH SCREEDS.
 - PROVIDE A MINIMUM OF 4" FROM CENTERLINE OF THERMAL BREAK TO ADJACENT BUILDING WALLS (TO CREATE AIR SPACE TO WALKIN WALL).
 - PROVIDE THREE LAYERS OF 2" OWENS/CORNING FOAMULAR 150 SERIES EXTRUDED POLYSTYRENE WITH R-VALUE OF 10 EACH AND DENSITY TO SUPPORT CONCRETE.
 - INSULATION MUST BE TIGHT AGAINST ALL THERMAL BREAKS AFTER CONCRETE IS POURED.
 - PROVIDE A 6 MIL POLYETHYLENE SHEET WATERTIGHT SEAL UNDER THE ENTIRE INSULATED SUBFLOOR AND UP ALL VERTICAL EXTERIOR SIDES IN CONTACT WITH THERMAL BREAKS.
 - PROVIDE POWER AND WIRING PER CODE FOR REFRIGERATION SYSTEM AND CONNECT TO CONTROL PANEL AND DISCONNECT (BY FSEC) ON ROOF TOP CONDENSING UNIT.
 - INSTALL ALL WIRING PER CODE TO SUPPLY POWER FOR COILS, TIME CLOCKS, SOLENOID/THERMOSTAT, DRAIN LINE HEATER, ETC. - VIF.
 - PROVIDE POWER AND INTERWIRE INTERIOR LIGHTS WITH EXTERIOR CONDUIT.
 - CONNECT DRAIN LINE HEATER (PROVIDED BY FSEC) IN FREEZER THROUGH J.B.
 - PROVIDE FUNNEL FLOOR DRAINS PER PLAN WITH MINIMUM PITCH 4" FROM WALKIN WALLS. PIPING SHALL NOT INTERFERE WITH INSULATED SUBFLOOR.



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SHEET NUMBER:



NOTE:

1. FSEC SHALL VERIFY ROUGHIN REQUIREMENTS FOR FUTURE, PURVEYOR SUPPLIED, OWNERS RELOCATED EQUIPMENT, OWNER SUPPLIED EQUIPMENT, ETC.
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