

**Town Hall Addition
NAUGATUCK, CONNECTICUT
Contract No. FY24-B053**

**ADDENDUM NO. 1
4/11/23**

Bidders and interested parties shall take note of the following information regarding the subject Invitation to Bid:

1. Revised Project Drawings:

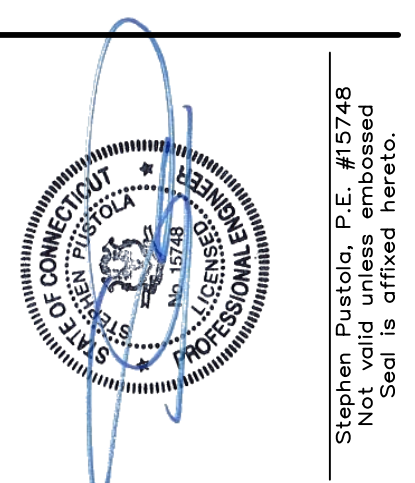
The attached contract drawing shall replace the drawings in Appendix 1 of the Contract Documents.

James R. Stewart
Director of Public Works
246 Rubber Ave.
Naugatuck Ct 06770
Jstewart@naugauck-ct.gov
230-720-7072

REVISIONS

REV	DESCRIPTION	DATE
C	DPW COMMENTS	3/6/2023
B	VE OPTIONS	2/21/2023
A	ISSUED FOR BID	12/2/2022

CONSULTANTS



Pustola & Associates
CONSULTING ENGINEERS, LLC

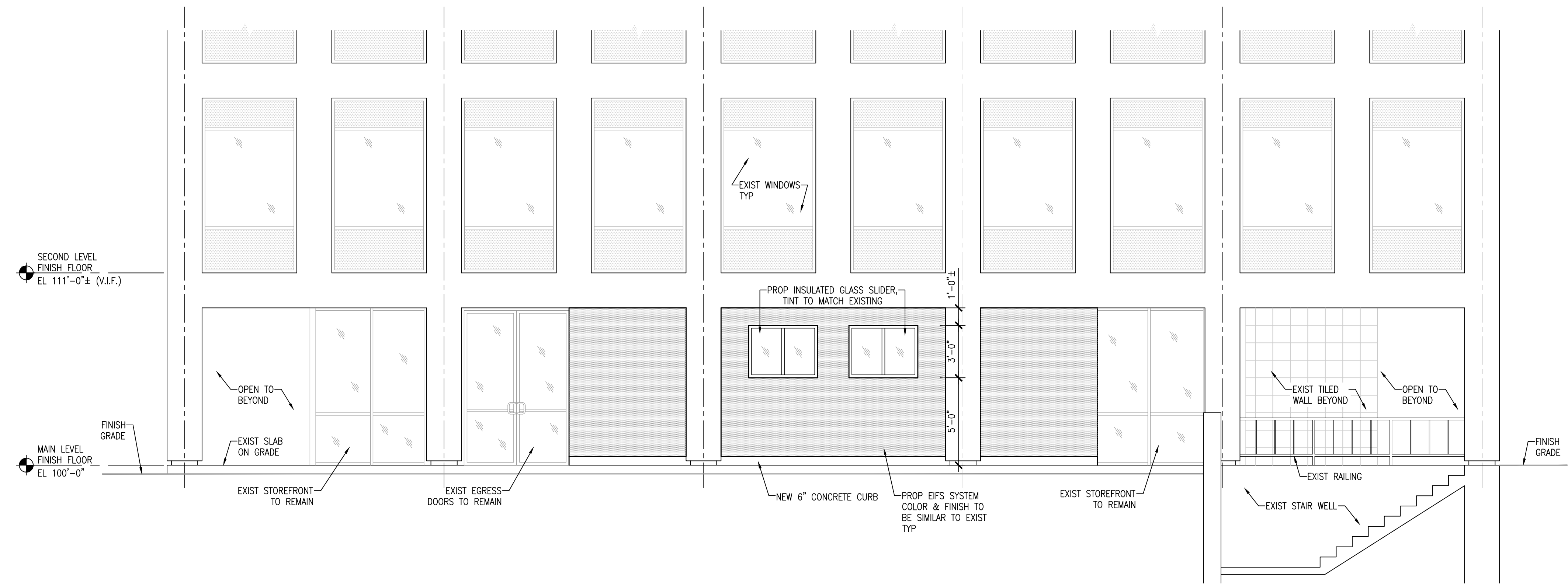
Design and Construction Services
Naugatuck, Connecticut 06770
185 Meadow Street
(203) 729-6675
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www.pustola.com

PROPOSED TOWN HALL ADDITION
229 CHURCH STREET
NAUGATUCK, CONNECTICUT
PREPARED FOR
BOROUGH OF NAUGATUCK
229 CHURCH STREET
NAUGATUCK, CONNECTICUT 06770

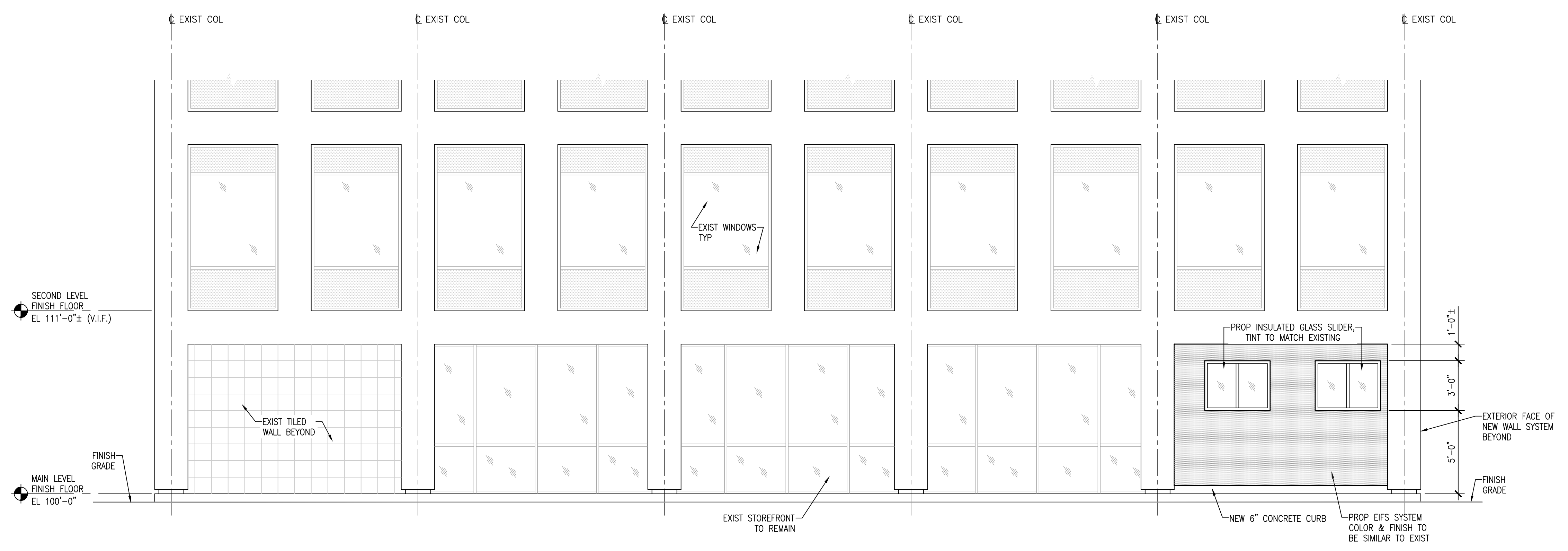
PROPOSED SOUTH & WEST EXTERIOR ELEVATIONS

DATE: 03/06/2023
SCALE: AS NOTED
PROJECT NO.: 22208.00
CHECKED BY: KP

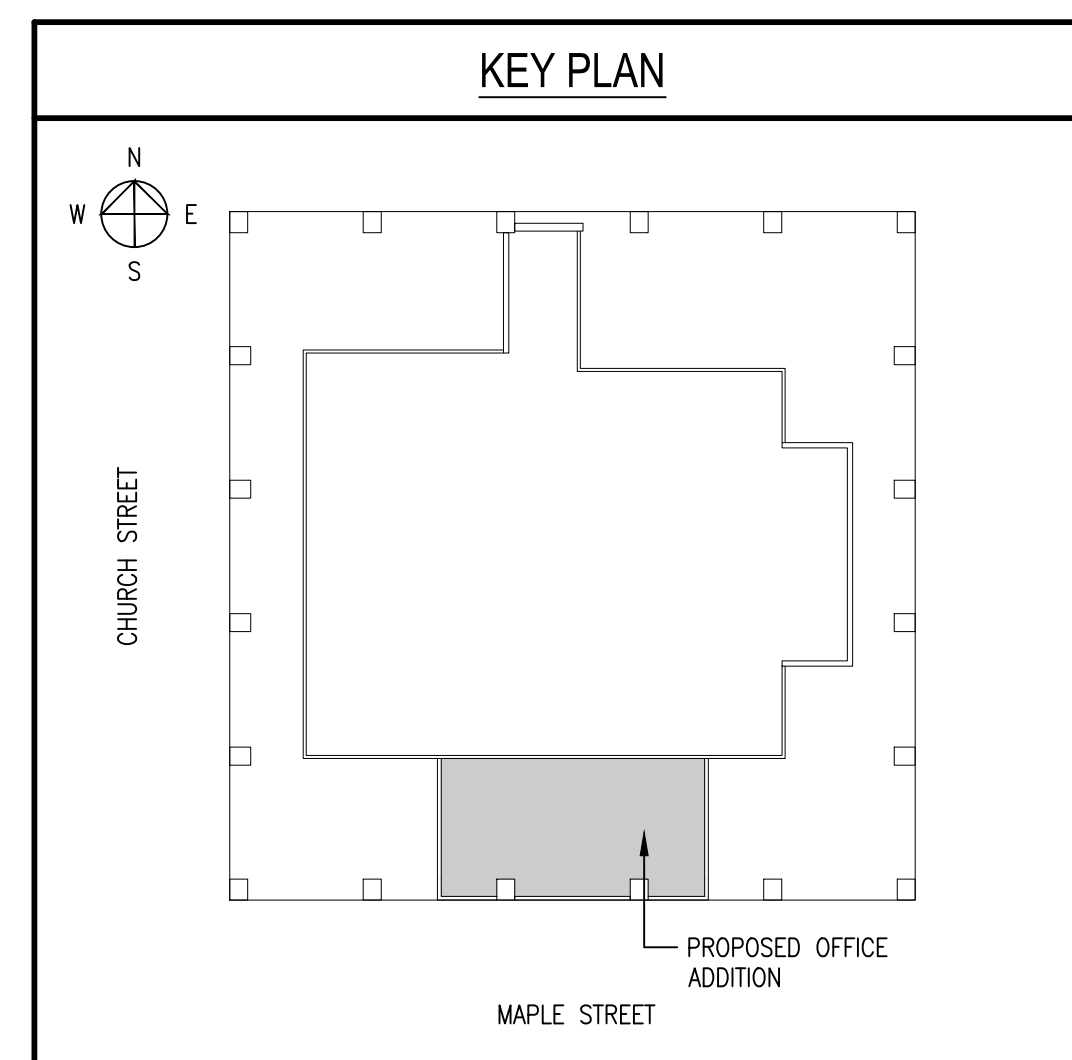
A2.00



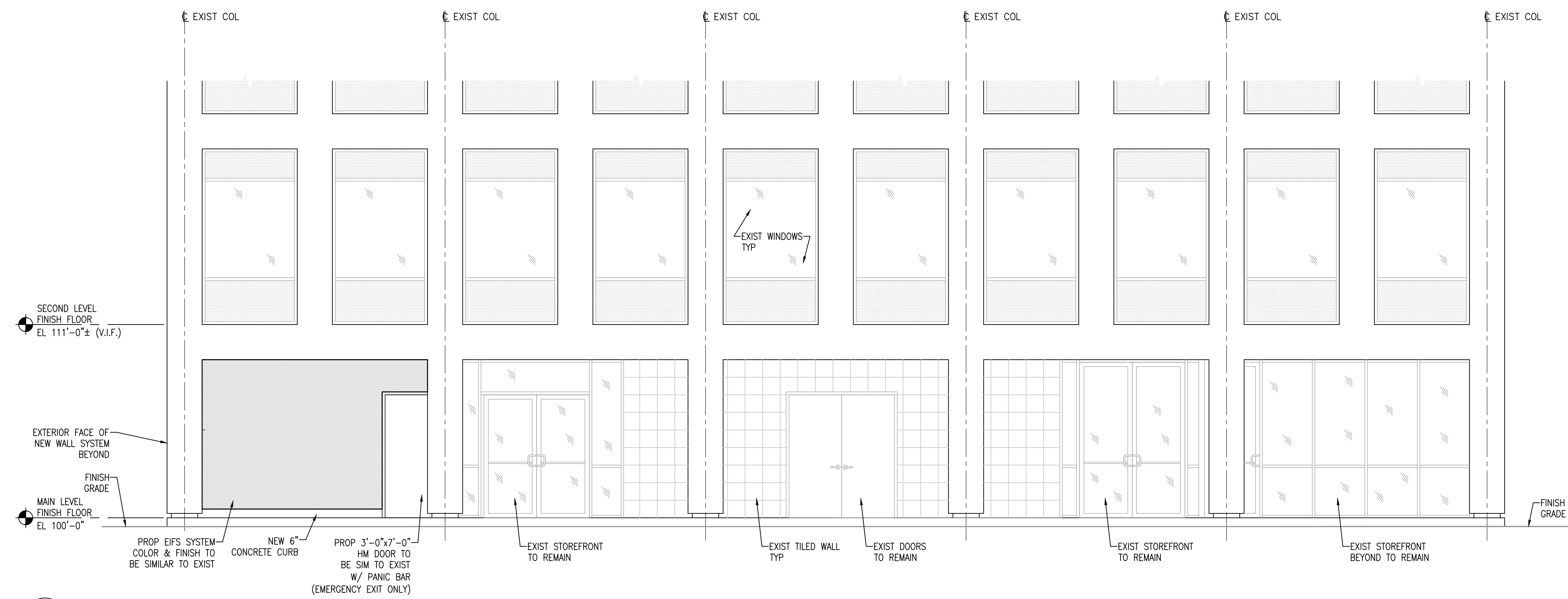
1 SOUTH ELEVATION LOOKING NORTH
A2.00 1/4" = 1'-0"



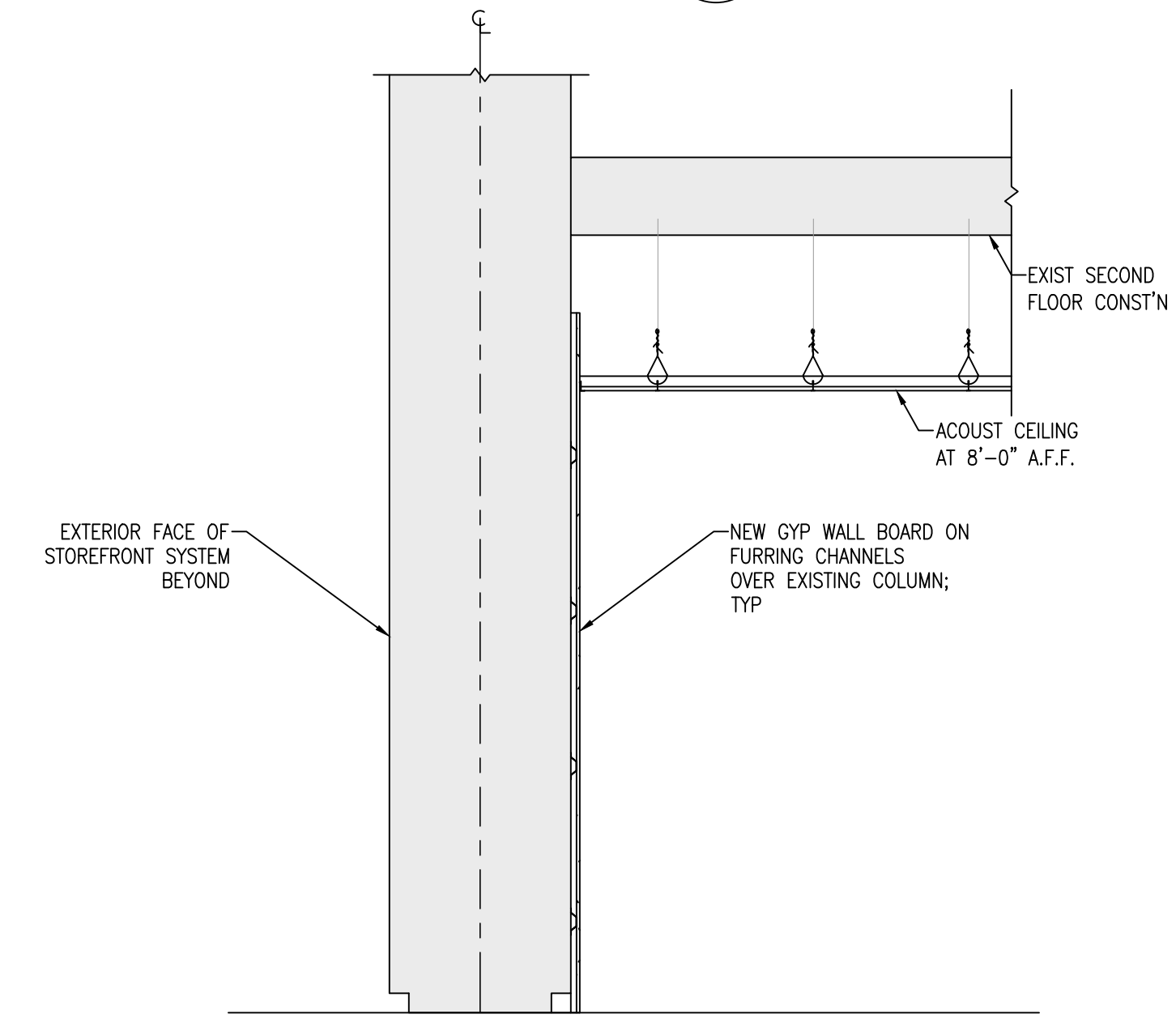
2 WEST ELEVATION LOOKING EAST
A2.00 1/4" = 1'-0"



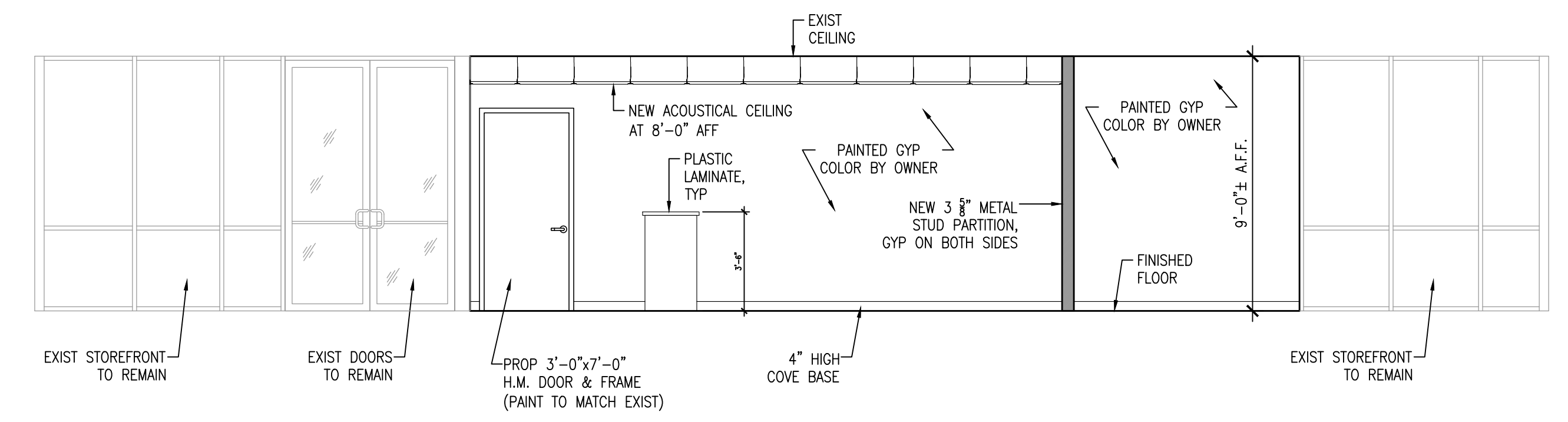
A2.00



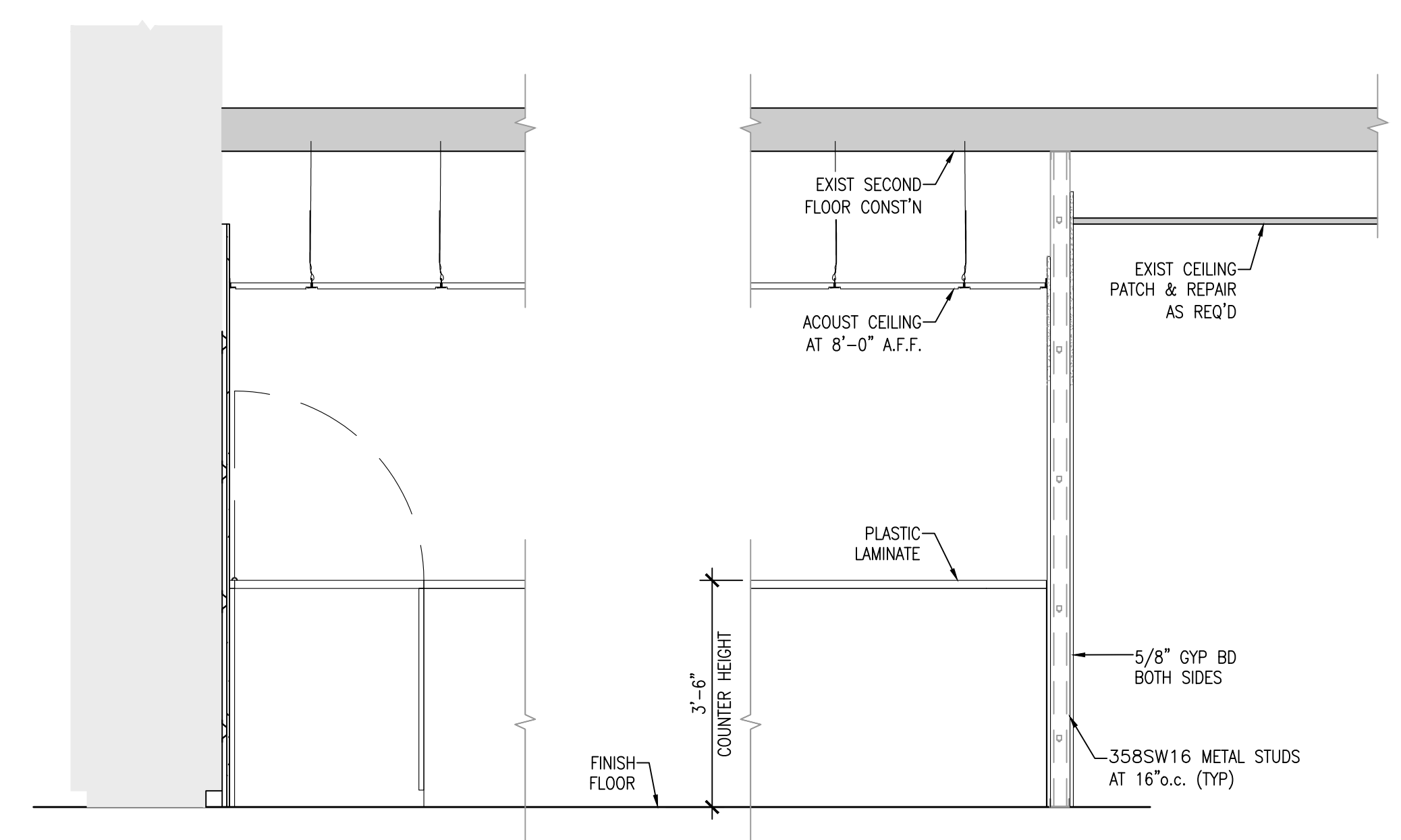
1 EAST ELEVATION LOOKING WEST
 A2.01 1/4" = 1'-0"



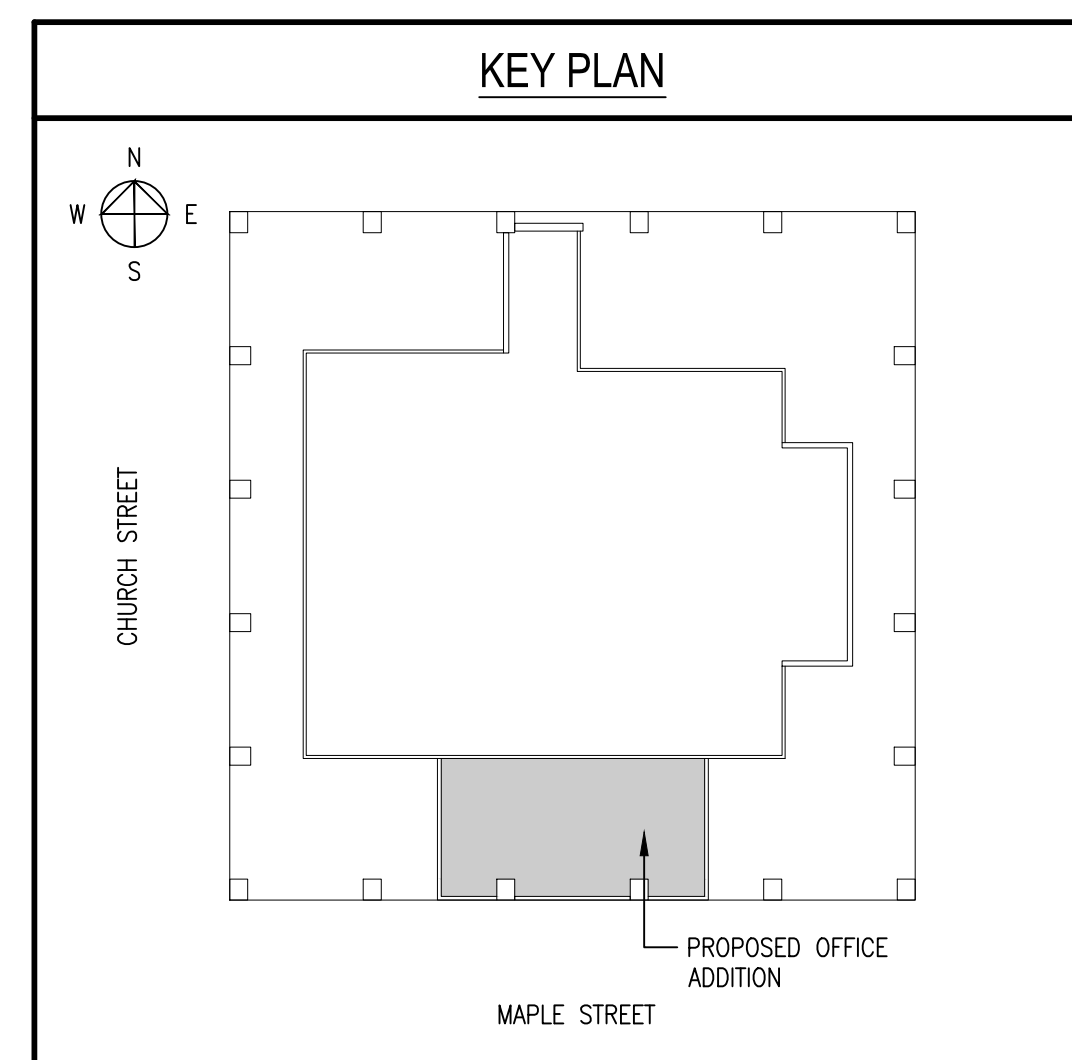
TYP SECTION AT EXISTING COLUMN
 A2.01 1/2" = 1'-0"



2 PROPOSED INTERIOR ELEVATION
 A2.01 1/4" = 1'-0"



3 SECTION AT TRANSACTION COUNTER
 A2.01 1/2" = 1'-0"



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Seal is affixed hereto.

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PROPOSED EAST EXTERIOR & INTERIOR ELEVATIONS

DATE: 03/06/2023
 SCALE: AS NOTED
 PROJECT NO.: 22208.00
 CHECKED BY: KP

A2.01

REVISIONS

REV	DESCRIPTION	DATE
2	REVISION #2	3/6/2023

CONSULTANTS

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PROPOSED TOWN HALL ADDITION
 229 CHURCH ST.
 NAUGATUCK, CONNECTICUT

BOROUGH OF NAUGATUCK
 229 CHURCH ST.
 NAUGATUCK, CONNECTICUT 06770

MECHANICAL FLOOR PLAN

DATE: 09/27/2022
 SCALE: AS NOTED
 PROJECT NO.: 22208.00
 CHECKED BY: TL

M.001

MECHANICAL DUCTWORK SYMBOL LIST

	NEW SUPPLY DUCT
	NEW RETURN DUCT
	ACOUSTICALLY LINED DUCT
	NEW EQUIPMENT
	DUCT SIZE (FIRST FIGURE INDICATES HORIZONTAL SIZE)
	ROUND DUCT DIAMETER
	TRANSITION FROM RECTANGULAR TO ROUND OR OVAL DUCT
	FLEXIBLE CONNECTION
	VOLUME DAMPER
	SUPPLY CEILING DIFFUSER
	RETURN CEILING GRILLE OR REGISTER
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	RETURN OR EXHAUST DUCT UP
	RETURN OR EXHAUST DUCT DOWN
	ELBOW WITH TURNING VANES
	RADIUS ELBOW
	DUCT SPLIT OR BRANCH TAKEOFF
	THERMOSTAT - WALL OR DUCT MOUNTED
	MECHANICAL PLAN NOTE TAG
	REVISION SYMBOL

MECHANICAL ABBREVIATIONS

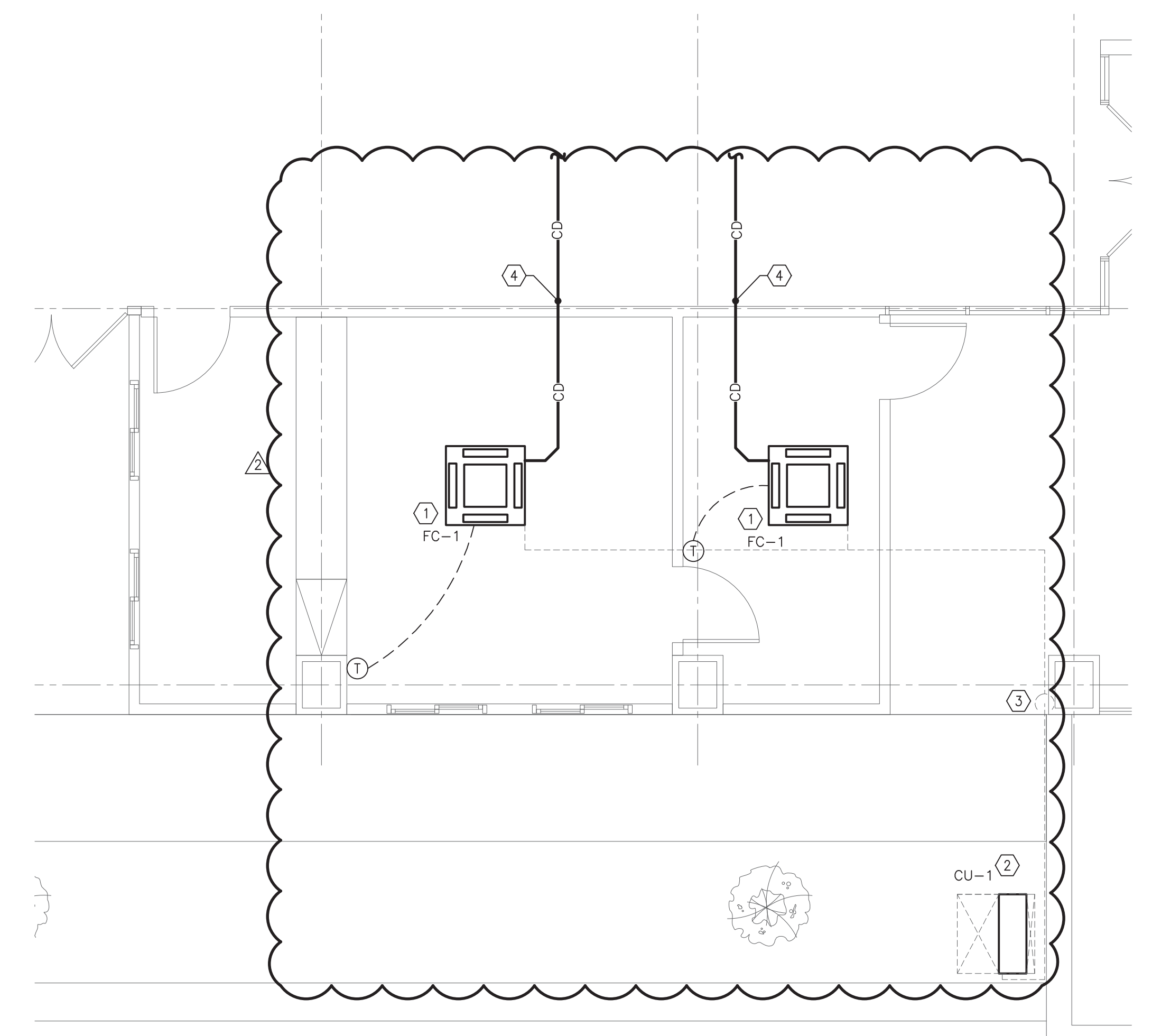
ATC	AUTOMATIC TEMPERATURE CONTROL
CD-A	DIFFUSER TYPE - REFER TO SCHEDULE
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNITS
CC	COOLING COIL
CFM	CUBIC FEET PER MINUTE
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
FC	FAN COIL
FLA	FULL LOAD AMPS
HZ	HERTZ
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
NIC	NOT IN CONTRACT
PH	PHASE
PSI	POUNDS PER SQUARE INCH
SHC	SENSIBLE COOLING (IN MBH)
TC	TOTAL COOLING (IN MBH)
TYP	TYPICAL
V	VOLTS
VD	VOLUME DAMPER
WMS	WIRE MESH SCREEN

GENERAL NOTES

- THESE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF WORK AS WELL AS INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTWORK AND PIPING. THE CONTRACTOR SHALL ADHERE TO THESE DRAWINGS AS CLOSELY AS POSSIBLE. HOWEVER, THE RIGHT IS RESERVED TO VARY THE RUNS OF DUCTWORK AND PIPING AND TO MAKE OFFSETS, WHERE NECESSARY, TO ACCOMMODATE CONDITIONS ARISING AT THE JOB SITE. THE CONTRACTOR SHALL PREPARE SHOP DRAWINGS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL. NO WORK SHALL BE PERFORMED PRIOR TO RECEIPT OF EQUIPMENT, DUCTWORK AND PIPING FABRICATION DRAWING APPROVAL.
- ANY MATERIAL, WORK OR INCIDENTAL ACCESSORIES OR MINOR DETAILS NOT SHOWN BUT NECESSARY TO MAKE THE WORK COMPLETE IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SHOWN ON THE DRAWINGS, SHALL BE PROVIDED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
- DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS, WHERE ACOUSTICALLY LINED DUCT IS SPECIFIED. DUCT DIMENSIONS SHALL BE INCREASED TO ACCOMMODATE LINING.
- ALL LOW PRESSURE TERMINAL BRANCH DUCTWORK (SUPPLY AND RETURN) SHALL BE PROVIDED WITH VOLUME CONTROL DAMPERS. ALL BRANCH DUCT VOLUME DAMPERS SERVING DIFFUSERS IN GYPSUM BOARD CEILINGS (OTHERWISE INACCESSIBLE) SHALL BE REMOTELY (CORD OR CABLE) OPERABLE THROUGH THE FACE OF THE DIFFUSER.
- THERMOSTAT LOCATIONS SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS, FINISHED PAINT COLOR TO BE SELECTED BY THE ARCHITECT. 48" ABOVE FINISHED FLOOR.
- WHERE PIPING CONNECTIONS FOR EQUIPMENT SUCH AS PUMPS, AC UNITS, COIL, ECT. DIFFER FROM THE LINE SIZE PIPING. IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO FURNISH AND INSTALL THE NECESSARY REDUCER/EXPANDER FITTINGS TO ENABLE CONNECTION BETWEEN THE PIPING SYSTEM AND THE EQUIPMENT.
- PROVIDE ONE THERMOSTAT FOR EACH FAN COIL UNIT, ATTIC VENT AIR FAN UNIT, VAV, FPB, CABINET UNIT HEATER AND ELECTRIC BASEBOARD RADIATION. THERMOSTAT LOCATIONS SHALL BE AS SHOWN ON PLANS AND/OR WHERE DIRECTED AND APPROVED BY THE ARCHITECTS AND ENGINEERS.
- BORDER TYPES AND METHOD OF ATTACHMENT FOR ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE COORDINATED WITH THE ARCHITECTURAL CEILING DETAILS AND SPECIFICATIONS.
- REFER TO SPECIFICATIONS FOR ACOUSTIC LINING REQUIREMENTS NOT SHOWN ON THE DRAWINGS.
- ALL PIPING SHALL BE INSTALLED TIGHT TO THE BOTTOM OF STEEL AT ALL TIMES UNLESS OTHERWISE INDICATED OR REQUIRED BY FIELD CONDITIONS.
- ALL PIPING OF DISSIMILAR MATERIALS SHALL HAVE DIELECTRIC FITTINGS.
- ALL HVAC EQUIPMENT THAT CONTAINS A COILING COIL OR FUEL FIRED APPLIANCE WILL BE PROVIDED WITH A SECONDARY DRAIN PAN AND A MOISTURE SENSOR THAT WILL AUTOMATICALLY SHUT THE UNIT DOWN WHEN MOISTURE IS DETECTED.

MECHANICAL PLAN NOTES

- PROVIDE NEW CEILING CASSETTE FAN COIL FC-1. PROVIDE WITH MANUFACTURER SIMPLE WALL MOUNTED THERMOSTAT. ASSOCIATED CONDENSER CU-1 LOCATED OUTSIDE AT GRADE. SIZE AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROVIDE NEW CONDENSER CU-1 TO SERVE FAN COIL FC-1. MOUNT UNIT ON 24" STAND FOR WINTER OPERATION. SIZE AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROPOSED REFRIGERANT PIPE ROUTING SHOWN. ROUTE PIPING UP ALONG COLUMN TO AVOID ROUTING PIPING ACROSS WALKING PATH.
- ROUTE 1-1/4" CONDENSATE DRAIN (CD) FROM CEILING MOUNTED FAN COIL UNIT TO EXISTING JAN CLOSET AND DISCHARGE TO EXISTING MOP SINK INDIRECTLY. COORDINATE EXACT ROUTING IN FIELD.



1 MECHANICAL FLOOR PLAN
 SCALE: 1/4" = 1'-0"

CONDENSING UNIT SCHEDULE

UNIT TAG	SERVICE LOCATION	QTY.	TOTAL COOLING	HEATING	OPERATING TEMP RANGE		#FANS #COMP	REFRIG	SEER	WEIGHT	ELECTRICAL DATA			MANUFACTURER MODEL	REMARKS
					COOLING	HEATING					MCA	VOLTS	PHASE		
CU-1	FC-1 GRADE	1	24 MBH	26 MBH	23°F - 115°F	-13°F - 70°F	1 1	R-410A	21.5	190 LBS	17.0	208	1	mitsubishi PUZ-HA24NH1	NOTES 1-3

- NOTES:
- PROVIDE WITH FACTORY WIRED NEMA 3R DISCONNECT SWITCH.
 - SIZE AND INSTALL REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - MOUNT UNIT ON 24" STAND AT GRADE.
 - PROVIDE WITH MANUFACTURER MSDD-50TR-E DISTRIBUTION PIPE FOR CONNECTION TO TWO INDOOR UNITS.

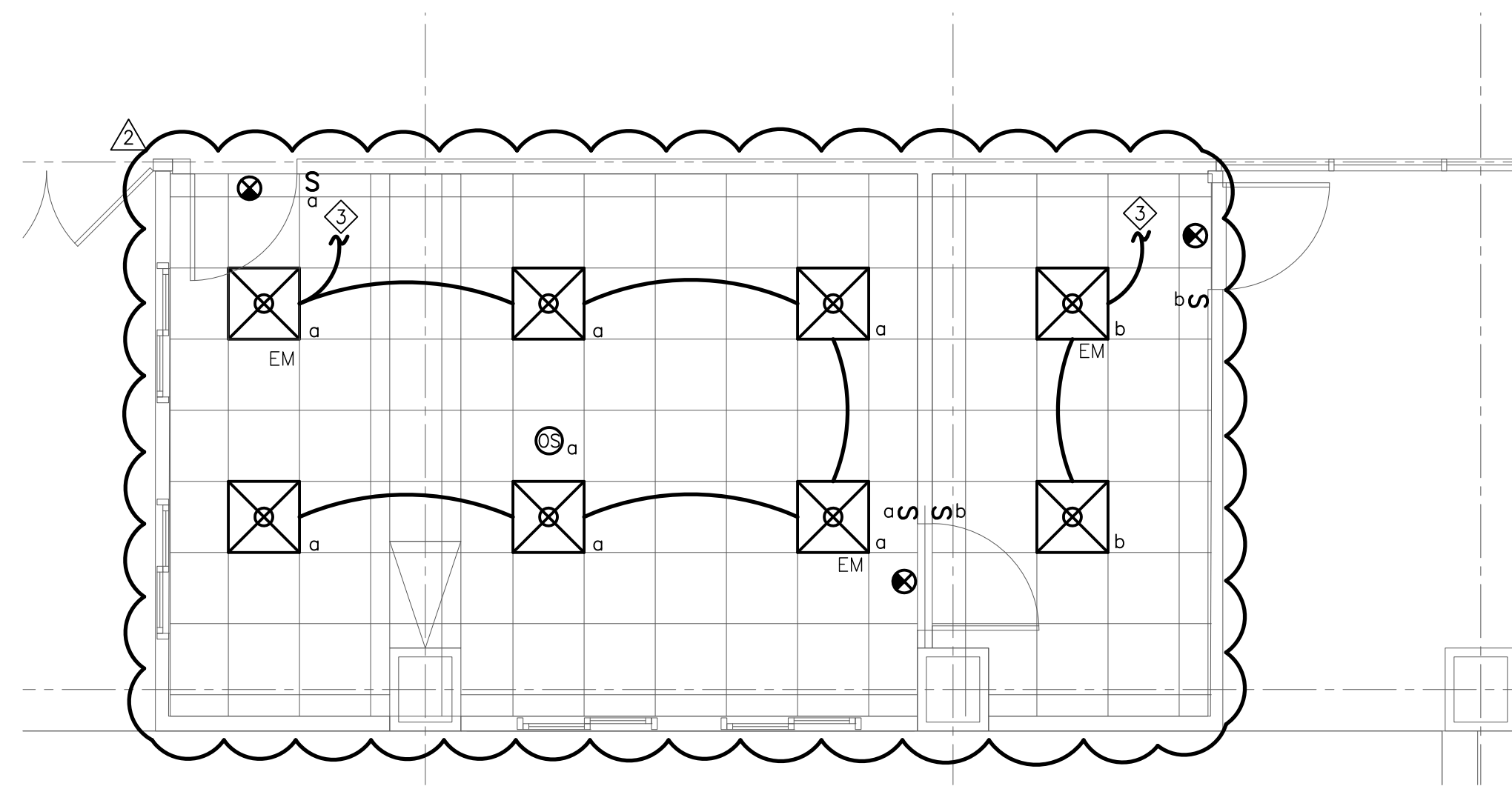
FAN COIL UNITS

UNIT TAG	LOCATION SERVICE	NOM TONS	TOTAL COOLING	HEATING	CFM	OA	SP	REFRIG	ELECTRICAL DATA			MANUFACTURER MODEL	QTY	REMARKS
									MCA	VOLTS	PHASE			
FC-1	CEILING OFFICE/ STORAGE	1.0	12 MBH	13 MBH	530	0	-	R-410A	POWERED BY OUTDOOR UNIT		MITSUBISHI PLA-A12EA7	2	NOTE 1	

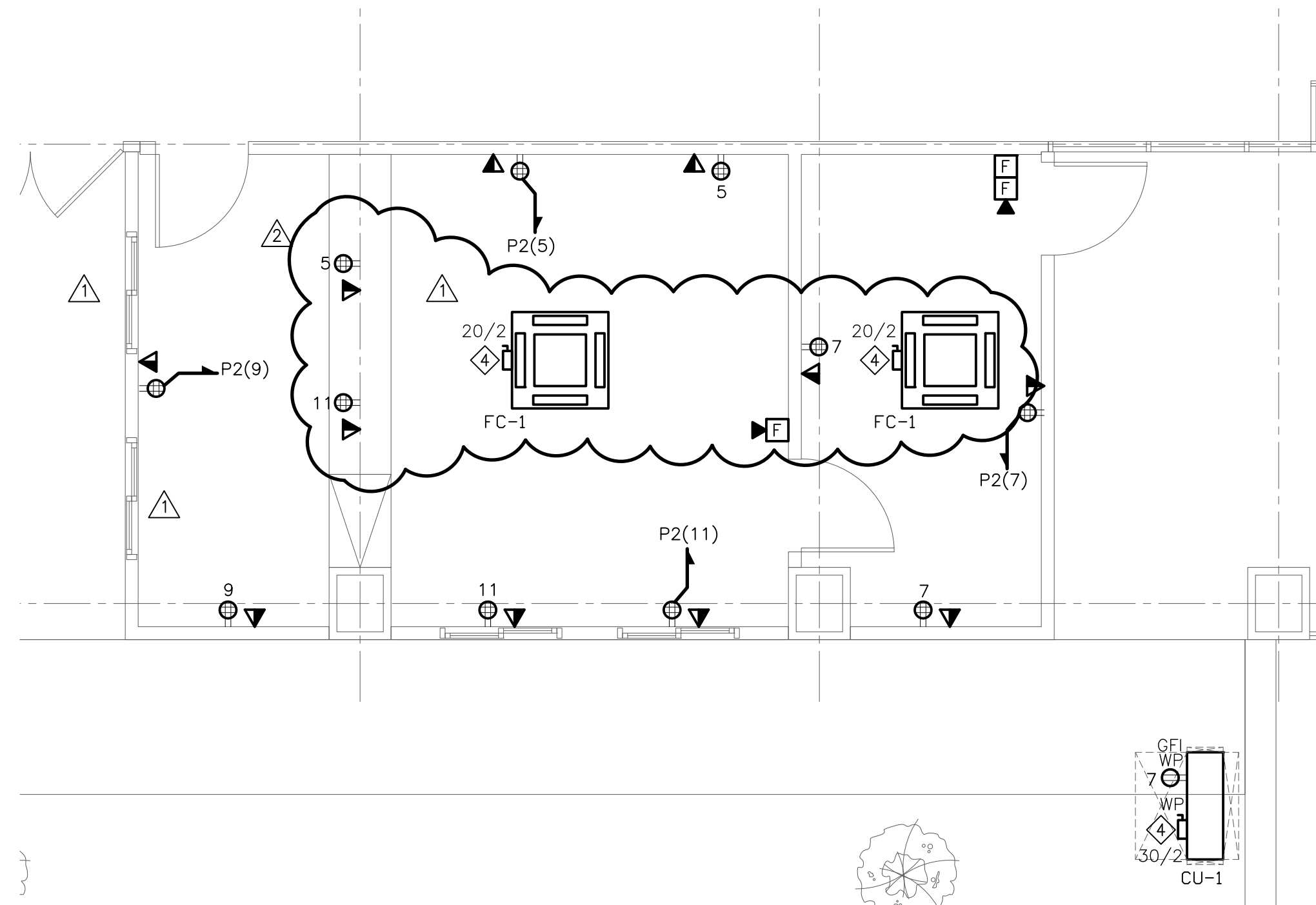
- NOTES:
- PROVIDE MANUFACTURER SIMPLE WALL MOUNTED THERMOSTAT.

MECHANICAL DRAWING INDEX

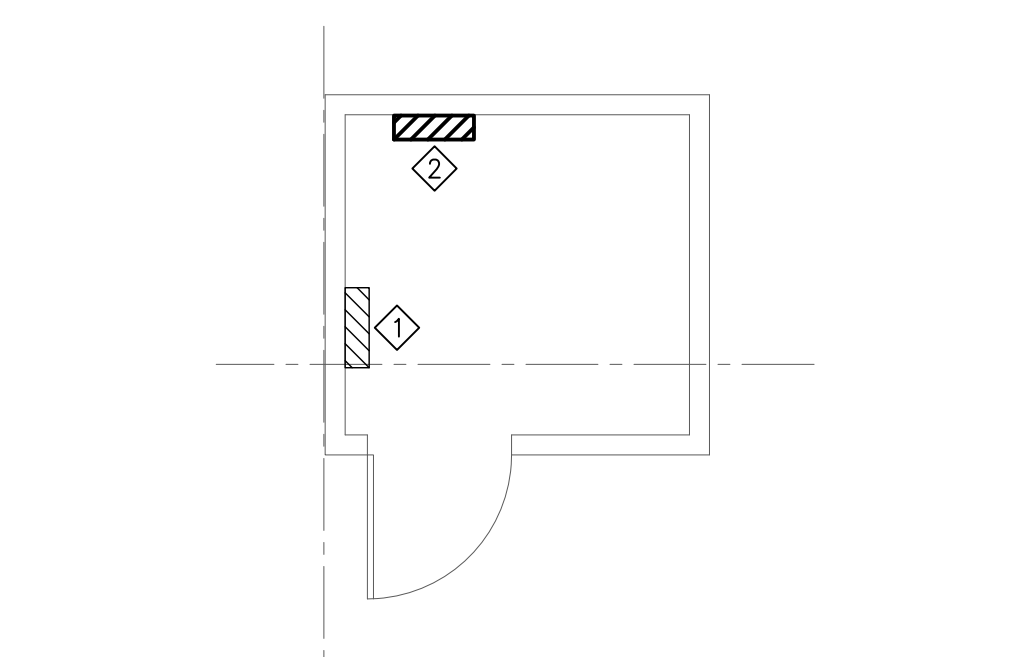
DRAWING NO.	DRAWING TITLE
M.001	MECHANICAL NOTES, LEGEND, AND FLOOR PLAN
M.100	MECHANICAL SPECIFICATIONS



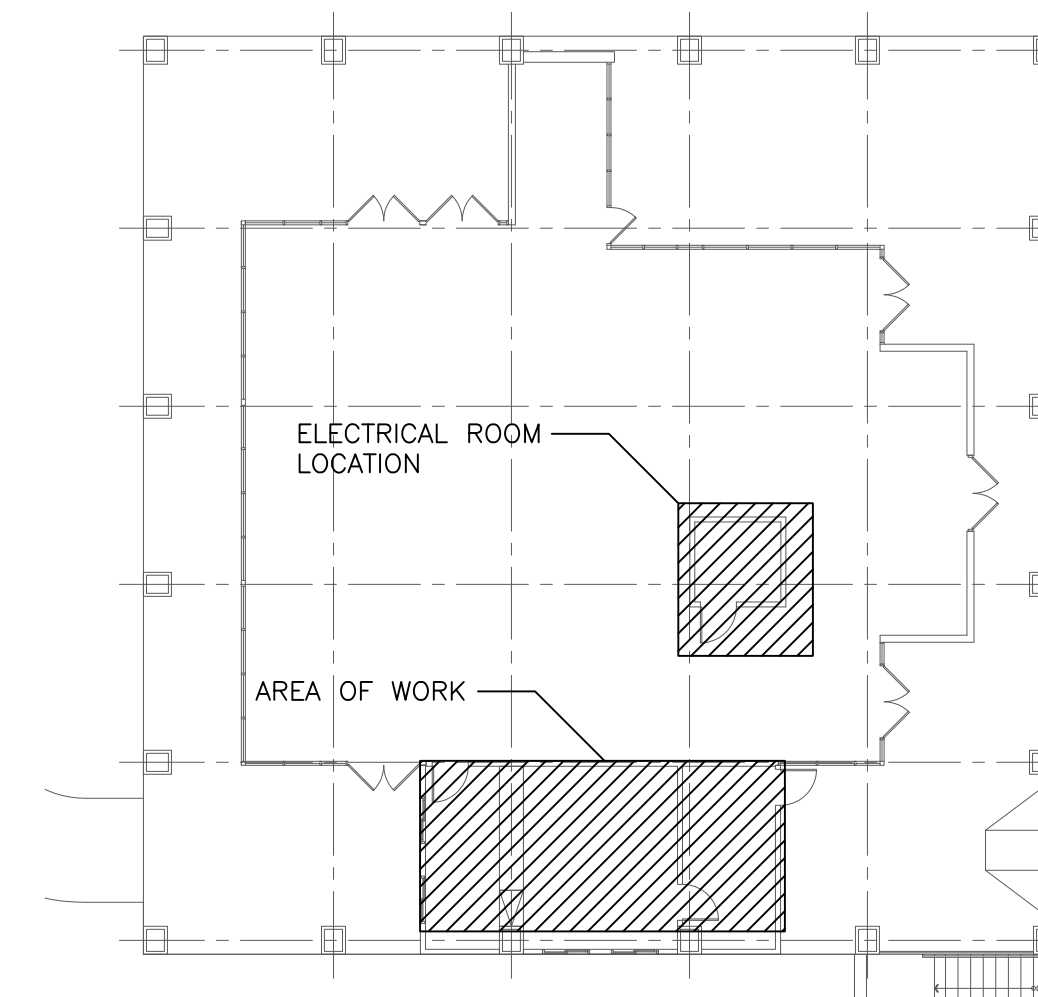
1 ELECTRICAL LIGHTING PLAN
SCALE: 1/4" = 1'-0"



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



3 ELECTRICAL ROOM PART PLAN
SCALE: 1/4" = 1'-0"



4 KEY PLAN
N.T.S.

ELECTRICAL NOTES

- CONTRACTOR SHALL REFER TO DRAWING E001 FOR DEMOLITION WORK AND NOTES. CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK WITH ARCHITECTURAL DRAWINGS.
- CIRCUIT NUMBERS SHOWN ARE FOR REFERENCE ONLY.
- CONTRACTOR SHALL CIRCUIT (2)#12+12 GRD. IN 3/4"C. TO PANEL AND CIRCUIT INDICATED, UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL REUSE EXISTING 20A, 1 POLE CIRCUIT BREAKERS FREED BY DEMOLITION IN EXISTING PANELS. PROVIDE NEW CIRCUIT BREAKERS AS REQUIRED. NEW CIRCUIT BREAKERS TO BE BOLT-ON TYPE MATCHING EXISTING TYPE & KAIC RATING.
- ELECTRICAL CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL BRANCH CIRCUITING TO ELECTRICAL DEVICES TO REMAIN. ELECTRICAL CONTRACTOR SHALL EXTEND AND RECONNECT ANY BRANCH CIRCUITING THAT BECOME DISCONNECTED DUE TO DEMOLITION.
- ALL LIGHTING FIXTURES OUTSIDE THE AREA OF WORK SHALL REMAIN AS IS, MAINTAIN CIRCUITS CONTINUITY AND FUNCTIONALITY.
- PROVIDE ADDITIONAL UNSWITCHED BATTERY PACK POWER SENSING LEG(S) FOR ALL SWITCHED FIXTURES CONTAINING STANDBY EMERGENCY BATTERY BALLAST (EM).
- ALL NEW WALL MOUNTED EMERGENCY LIGHTING UNITS, EXIT SIGNS AND COMBINATION EXIT/EM FIXTURES, SHALL BE CONNECTED TO THE "HOT" UNSWITCHED SIDE OF THE LIGHTING CIRCUIT IN THE AREA THE FIXTURE IS COVERING.
- CONTRACTOR SHALL COORDINATE EXACT LOCATION AND FREQUENCY OF ALL CEILING MOUNTED AND WALL MOUNTED VACANCY / OCCUPANCY SENSORS WITH MANUFACTURER PRIOR TO INSTALLATION. LOCATION OF SENSORS ARE DIAGRAMMATIC. CONTRACTOR SHALL LOCATE AND AIM SENSOR IN LOCATION REQUIRED FOR COMPLETE AND PROPERLY FUNCTIONING COVERAGE WITHIN RANGE OF SENSOR. PROVIDE ALL POWER RACKS, WIRE CONTROL HARDWARE AND EQUIPMENT TO PROVIDE OCCUPANCY SENSOR LIGHTING CONTROL SYSTEM. TYPICAL FOR ALL SENSORS INDICATED.
- CEILING MOUNTED OR WALL MOUNTED VACANCY / OCCUPANCY SENSORS SHALL CONTROL LIGHTING IN THE ENTIRE ROOM, UNLESS OTHERWISE NOTED. LIGHTING CONTROLS IN COMMON AREAS AND COMMON CORRIDORS SHALL BE OCCUPANCY SENSORS. LIGHTING CONTROLS IN INDIVIDUAL ROOMS AND OFFICES SHALL BE VACANCY SENSORS.
- ALL ELECTRICAL DEVICES SHALL BE MOUNTED 18" AFF, U.O.N.
- CONTRACTOR SHALL RUN 1" EMPTY CONDUIT TO NEAREST ACCESSIBLE HUNG CEILING WITH GROMMETED END FITTING FOR TELEPHONE/DATA DEVICE LOCATION. PROVIDE DRAG LINES FOR EMPTY CONDUIT.
- CONTRACTOR TO REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR LOCATION AND EXACT REQUIREMENTS OF ALL MECHANICAL AND PLUMBING EQUIPMENT. CONTRACTOR TO COORDINATE ALL WORK WITH MECHANICAL AND PLUMBING CONTRACTORS AND WITH EQUIPMENT SPECIFICATIONS.

ELECTRICAL KEYNOTES

- ◇ EXISTING PANEL 'P1' 225A, 208V, 3φ, 4W., 42-POLE TO REMAIN.
- ◇ NEW PANEL 'P2' 100A, 208V, 3φ, 4W., 42-POLE.
- ◇ CONTRACTOR SHALL CONNECT NEW LIGHTING AND SWITCHING TO THE EXISTING LIGHTING CIRCUIT IN THIS AREA.
- ◇ CONTRACTOR SHALL PROVIDE POWER TO NEW 'FC-1/CU-1' FROM CIRCUIT P2(1,3) BY (3)#10+10 GRD. IN 3/4"C. PROVIDE A SEPARATE 3/4"C. BETWEEN FAN COIL UNIT 'FC-1' AND CONDENSING UNIT 'CU-1' FOR CONTROL WIRING. REFER TO DRAWING E200 FOR "SPLIT SYSTEM TYPE HVAC UNIT DETAIL". COORDINATE ALL WORK AND REQUIREMENTS WITH MANUFACTURER'S SPECIFICATIONS.

FIRE ALARM NOTES

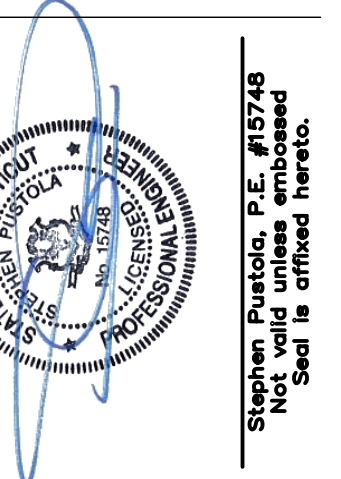
- PROVIDE NEW FIRE ALARM DEVICES AND WIRING AS INDICATED ON FLOOR PLANS AND RISER. ALL FIRE ALARM WIRING SHALL BE #14 TWISTED FOR STROBES PANEL #16 TWISTED/SHEILED FOR SPEAKERS. (PLENUM RATED.)
- CONTRACTOR SHALL EXTEND FIRE ALARM WIRING AND CONDUIT TO NEW FIRE ALARM DEVICES. ALL NEW FIRE ALARM DEVICES SHALL BE ADA COMPLIANT. ALL FIRE ALARM DEVICES IN THE AREA OF WORK SHALL BE SYNCHRONIZED. WHERE EXISTING FIRE ALARM DEVICES DO NOT HAVE SYNCHRONIZING ABILITY THE FIRE ALARM DEVICE SHALL BE REPLACED WITH NEW.
- THE NEW FIRE ALARM SYSTEMS SHALL BE AN EXTENSION OF THE EXISTING BASE BUILDING FIRE ALARM SYSTEM. ALL NEW FIRE ALARM DEVICES SHALL BE COMPATIBLE WITH THE BASE BUILDING FIRE ALARM SYSTEM. COORDINATE ALL WORK WITH THE BASE BUILDING FIRE ALARM VENDOR. ALL FIRE ALARM WIRING SHALL BE CONFIRMED WITH FIRE ALARM VENDOR PRIOR TO INSTALLATION.
- CONTRACTOR IS RESPONSIBLE FOR PROGRAMING/MODIFYING, UPGRADING, CONTROL MODULES, ETC. AS REQUIRED TO PROVIDE A COMPLETE AND CODE COMPLIANT SYSTEM. ELECTRICAL CONTRACTOR SHALL HIRE BUILDING FIRE ALARM VENDOR TO DO FINAL FIRE ALARM CONNECTIONS. CONTRACTOR RESPONSIBLE TO INSTALL END OF LINE RESISTOR FOR NEW DEVICES. PROVIDE CONTROL PANEL PARTS AS REQUIRED.
- CONTRACTOR IS RESPONSIBLE FOR ALL FIRE ALARM PERMIT AND INSPECTION COST.
- CONTRACTOR TO CONFIRM THAT EXISTING FIRE ALARM PANEL IS ADEQUATE TO HANDLE NEW FIRE ALARM STROBES. IF INADEQUATE, CONTRACTOR SHALL PROVIDE AND INSTALL A NEW STROBE INTERFACE PANEL WITH (2) STROBE CIRCUITS TO ACCOMMODATE NEW FIRE ALARM STROBES.
- BUILDING FIRE ALARM SYSTEM TO REMAIN ACTIVE DURING CONSTRUCTION. ELECTRICAL CONTRACTOR SHALL NOTIFY BUILDING OWNER IF CONSTRUCTION FLOORS ARE TAKEN OFF SYSTEM. ELECTRICAL CONTRACTOR TO PAY ANY COST ASSOCIATED WITH ANY FIRE WATCH REQUIRED BY LOCAL OFFICIALS DURING THE TIME THAT SYSTEM IS OFF LINE.

REVISIONS

REV	DESCRIPTION	DATE
2	REVISION #2	3/6/2023
1	REVISION #1	11/15/22

CONSULTANTS

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ELECTRICAL PLAN

DATE: 09/27/2022
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E.100

ELECTRICAL SPECIFICATIONS

PART 1- GENERAL

1. GENERAL REQUIREMENTS:

- A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.
B. ALL APPLICABLE CODES, LAWS, AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS.
C. ITEMS AND SERVICES NOT SHOWN ON DRAWINGS BUT MENTIONED IN SPECIFICATIONS, OR VISE VERSA, OR ITEMS AND SERVICES NECESSARY TO RENDER THE WORK COMPLETE AND READY FOR OPERATION SHALL BE PROVIDED WITHOUT ADDITIONAL COST.
D. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE EXISTING BASE BUILDING CONSTRUCTION STANDARDS.
E. PRIOR TO SUBMISSION OF BID THE CONTRACTOR SHALL VISIT THE JOB SITE AND ASCERTAIN THE ACTUAL FIELD CONDITIONS AS THEY RELATE TO THE WORK AS INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN.
F. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK.
G. INVESTIGATE EACH SPACE THOROUGHLY TO DETERMINE WHICH EQUIPMENT MUST BE MOVED, WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM THE MANUFACTURER IN SECTIONS IN SIZES SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES.
H. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK.
I. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR.
J. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK.
K. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES.
L. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER ORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.
M. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK.
N. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT.
O. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS.
P. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS.
Q. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING.
R. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
S. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
T. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.
U. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.
V. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

2. SCOPE OF WORK:

- A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.
B. THE SCOPE OF WORK SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
1) DISCONNECTION AND REMOVAL OF ELECTRICAL EQUIPMENT AS REQUIRED FOR NEW INSTALLATION, INCLUDING ALL CONDUCTORS AND CONDUIT BACK TO THEIR SOURCE.
2) PROVIDING OF LIGHT FIXTURES AND LAMPS INCLUDING EXIT AND EMERGENCY LIGHTING AND ALL ASSOCIATED COMPONENTS AND BRANCH CIRCUITING.
3) PROVIDING FOR NEW RACEWAYS AND CONDUCTORS FOR LIGHTING AND POWER.
4) CUTTING, CHANNELING, AND CHASING REQUIRED TO ACCOMMODATE THE ELECTRICAL INSTALLATION AND ROUGH PATCHING.
5) ADDITIONS AND MODIFICATIONS TO EXISTING POWER DISTRIBUTION EQUIPMENT AND RELATED FEEDERS.
6) PROVIDING OF HVAC POWER AND WIRING AND FINAL CONNECTIONS TO HVAC EQUIPMENT.
7) PROVIDING OF ELECTRICAL CONDUIT, JUNCTION BOXES, PULL BOXES, ETC., REQUIRED FOR ALL ELECTRICAL AND MECHANICAL EQUIPMENT.

- 8) GROUNDING OF ALL EQUIPMENT AS REQUIRED BY THE NATIONAL ELECTRICAL CODE (NEC) AND AS SHOWN ON THE DRAWINGS.
9) MAINTAIN CONTINUITY OF EXISTING CIRCUITING TO ADJACENT AREAS NOT AFFECTED BY THE NEW WORK.
10) PROVIDING TELEPHONE/DATA AND SIGNAL EMPTY CONDUIT, JUNCTION BOXES, PULLBOXES, SLEEVES, AND FISHWIRES.
11) PROVIDING ALL REQUIRED ADDITIONS AND MODIFICATIONS TO THE NEW/EXISTING BUILDING FIRE ALARM SYSTEM.
12) PROVIDING RECEPTACLES, LIGHT SWITCHES, DISCONNECT SWITCHES, FUSES, DIMMERS, OUTLET BOXES, CONTACTORS AND OTHER WIRING DEVICES INCLUDING RELATED BRANCH CIRCUIT WIRING.
13) PROVIDING TEMPORARY LIGHT AND POWER DURING CONSTRUCTION.

C. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.

D. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

E. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

3. SHOP DRAWINGS:

A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

- 1) PROJECT NAME AND LOCATION
2) NAME OF ARCHITECT AND ENGINEER
3) ITEM IDENTIFICATION
4) APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

- 1) SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.
2) SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT TO THE ENGINEER.
3) SUBMISSIONS MAY BE SUBMITTED ELECTRONICALLY IN PDF FORMAT.
D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING ITEMS AND ASSOCIATED COMPONENTS:

- 1) PANELBOARDS (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS).
2) CIRCUIT BREAKERS
3) FIRE ALARM DEVICES
4) LIGHTING FIXTURES AND LAMPS
5) DISCONNECT SWITCHES AND FUSES
6) WALL SWITCHES
7) WIRING DEVICES

4. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS:

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AND/OR THE CLIENT AFTER COMPLETION OF THE INSTALLATION.

5. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

B. DEFINITIONS:

- 1) "ELECTRICAL CONTRACTOR", "THE CONTRACTOR": THE PARTY OR PARTIES THAT HAVE BEEN DULY AWARDED THE CONTRACT FOR AND ARE THEREBY MADE RESPONSIBLE FOR THE ELECTRICAL WORK AS DESCRIBED HEREIN.
2) "ARCHITECT", "ENGINEER", "OWNERS REPRESENTATIVE": THE PARTY OR PARTIES RESPONSIBLE FOR INTERPRETING, ACCEPTING, AND OTHERWISE RULING ON THE PERFORMANCE UNDER THIS CONTRACT.
3) "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
4) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
5) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
6) "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
7) "WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.
8) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.
9) "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
10) "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

C. TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING HOURS OF ALL TRADES. COST OF ENERGY WILL BE PAID FOR BY OWNER. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

D. QUALITY ASSURANCE:

- 1) QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS LABORATORIES, INC., OR OTHER NATIONALLY APPROVED TESTING AGENCY AND BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.
2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PART 1 PARAGRAPH 2.D.
3) HEIGHTS OF OUTLETS:

- a) FROM FINISHED FLOOR TO CENTER LINE OF OUTLETS FOR:
RECEPTACLES AND TELEPHONES: 1 FT.-6 IN. (U.O.N.)
WALL SWITCHES: 4 FT.-0 IN.
WALL FIXTURES: 7 FT.-0 IN.
MOTOR CONTROLS: 5 FT.-0 IN.
FIRE ALARM STROBE LIGHTS: 6 FT.-8 IN. OR 6 IN. BELOW CEILING (WHICHEVER IS LOWER)
GONGS AND HORNS: 7 FT.-6 IN.
FIRE ALARM PULL STATIONS: 4 FT.-0 IN.
b) EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

PART 2- PRODUCTS/APPLICATION

1. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

- A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.
B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.

2. APPROVED MANUFACTURERS:

- A. DISCONNECT SWITCHES: SQUARE D, GE, EATON, SIEMENS
B. CIRCUIT BREAKERS: SQUARE D, GE, EATON, SIEMENS (MATCH BUILDING STANDARD)
C. RACEWAYS: NATIONAL WIRE PRODUCTS, WHEATLAND, REPUBLIC
D. WIRE/CABLE: ROME PHELPS DODGE, GENERAL CABLE, SIMPLEX, SOUTHWIRE
E. RECEPTACLES: HUBBELL, LEVITON
F. LIGHT SWITCHES: HUBBELL, LEVITON
G. OCCUPANCY SENSORS: HUBBELL, LUTRON
H. EXIT SIGNS: DUAL-LITE, ATLITE, LIGHT ALARM (MATCH BUILDING STANDARD)

3. WIRING DEVICES:

- A. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.
B. LOCAL WALL SWITCHES SHALL BE SPECIFICATION GRADE, TOGGLE, QUIET TYPE, RATED 20 AMP, 120/277 VOLT, AC. SIMILAR TO HUBBELL NOS. 1221 (SINGLE POLE), 1222 (DOUBLE POLE), 1223 (3-WAY) AND 1224 (4-WAY).
C. DIMMERS SHALL BE RATED AT VOLTAGE COMPATIBLE WITH FIXTURE, WATTAGE SIZE AS REQUIRED. WHERE DIMMER SWITCHES ARE LOCATED NEXT TO SINGLE POLE OR VARIABLE SPEED TYPE SWITCHES, THE SINGLE POLE/VARIABLE SPEED SWITCHES SHALL MATCH THE DIMMING SWITCH STYLE. DIMMERS, WHERE GANGED TOGETHER, SHALL BE PROPERLY DERATED BASED ON MANUFACTURERS RECOMMENDATIONS. FINS OF DIMMERS SHALL NOT BE REMOVED IN MULTIGANG INSTALLATIONS. PROVIDE OVER-SIZED JUNCTION BOX FOR MOUNTING OF WALL DIMMERS.
D. INSERTION RECEPTACLES SHALL BE SPECIFICATION GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT. GROUNDED, EXCEPT AS NOTED. MEETING NEMA STANDARDS, PUBLICATION WD-1-1971. SIMILAR TO HUBBELL NOS. 5362 (20 AMP) AND 5262 (15 AMP).
1) SINGLE, EXCEPT AS NOTED: 20 AMP STRAIGHT BLADE, SIMILAR TO HUBBELL NO. 5361, 125 VOLT, 2 POLE, 3 WIRE, GROUNDED.
2) SPECIAL USE: NONINTERCHANGEABLE TYPES AND RATINGS.
3) GROUND FAULT INTERRUPTER RECEPTACLES: FEED-THRU TYPE. SIMILAR TO HUBBELL NOS. GFS362 (20 AMP) AND GF5262 (15 AMP).
4) CLOCKS: SINGLE REGRESSED RECEPTACLE, 5 WIRE, SIMILAR TO HUBBELL NO. 5708.

E. DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBE VOLTAGE AVAILABLE.

F. ALL SWITCHES AND RECEPTACLES TO BE WHITE UNLESS OTHERWISE SPECIFIED BY ARCHITECT.

G. MOUNTING ORIENTATION OF DEVICES (HORIZONTAL OR VERTICAL) TO BE COORDINATED WITH ARCHITECT.

H. MULTIPLE DEVICES AT A COMMON LOCATION SHALL BE INSTALLED IN A COMMON MULTI-GANG BOX WITH A SINGLE COMMON FACEPLATE. DERATE DIMMER SWITCHES PER MANUFACTURER'S REQUIREMENTS WHEN GANGED.

4. RACEWAYS:

- A. PROVIDE RACEWAYS ONLY AS HERE-IN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.
B. PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS, TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.
C. SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPATES.
D. EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.
E. MAINTAIN GROUNDING CONTINUITY OF INTERRUPTED METALLIC RACEWAYS WITH GROUND CONDUCTOR, AND IN FLEXIBLE CONDUIT FOR FEEDERS AND MOTOR TERMINAL CONNECTIONS.
F. EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON ROPE.
G. PROVIDE RACEWAYS COMPLETE WITH BOXES, FITTINGS, AND ACCESSORIES. CONDUIT OR TUBING SIZES REFERRED TO IN SPECIFICATIONS AND ON DRAWINGS ARE NOMINAL DIAMETERS. MINIMUM DIAMETER SHALL BE 3/4 IN.

H. ALL WIRES TO BE RUN IN CONDUIT. METAL CLAD (TYPE MC) MAY BE USED FOR CONCEALED BRANCH CIRCUITRY IN TENANTS SPACE ONLY WHEN APPROVED BY BUILDING MANAGER AND WHERE PERMITTED BY CODE. EMT SHALL BE USED OUTSIDE TENANT SPACE AND IN BUILDING CLOSETS.
I. RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUIT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS, CRCOLOD GALVANIZED.

J. ELECTROMETALLIC TUBING (EMT) SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY IN DRY LOCATIONS, DRY WALL, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS.

K. CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

L. CONDUIT FOR INTERIOR BRANCH CIRCUITS SHALL BE THIN WALL TUBING (EMT), SIZED PER DRAWING, 3/4" MINIMUM.

M. ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.

N. RIGID METAL CONDUIT: INDUSTRY STANDARD STEEL CONDUIT (3/4" MIN., 4" MAX.)

O. THREADED FITTINGS SHALL BE USED WITH RIGID CONDUIT. DOUBLE SET SCREW FITTINGS SHALL BE USED WITH EMT.

P. FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED, GROUNDING TYPE.

- Q. FLEXIBLE STEEL CONDUIT MAY BE USED ONLY FOR:
1) SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICABLE.
2) FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: MINIMUM 4 FT LENGTHS, MAXIMUM 6 FT. LENGTHS.
3) FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMERS AND OTHER VIBRATING EQUIPMENT: WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END.
4) FOR EXPANSION JOINT CROSSINGS. CROSS AT RIGHT ANGLES AND ANCHOR ENDS. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END.

R. EXPANSION FITTINGS: INSTALL AT RIGHT ANGLES WITH CLIP CENTERED IN EXPANSION JOINT. PROVIDE LENGTH OF RUNS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

S. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.

T. BUSHINGS: METALLIC INSULATED TYPE.

U. WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NO. 16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

V. SURFACE METAL RACEWAY: SIZE AS NOTED. BASE 0.04 IN., COVER 0.25 IN. MATERIAL SHALL BE STEEL. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

W. RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION, ALL OPENINGS TO BE SEALED WITH FIRE SEALANT AS REQUIRED TO MAINTAIN THE EXISTING FIRE RATING.

X. INSTALL ACCESSIBLE JUNCTION AND PULLBOXES CLEAR OF OTHER TRADES AND SUPPORTED FROM BUILDING STRUCTURE INDEPENDENT OF CONDUIT.

Y. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING ONE CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

5. PULL BOXES, PANEL BOXES, AND OUTLET BOXES:

- A. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP, BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION.
B. JUNCTION AND PULL BOXES: GALVANIZED STEEL SHEET WITH SCREW-ON COVERS, EXCEPT AS NOTED, FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE: BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

C. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.

D. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

E. PROVIDE PULL BOXES AND JUNCTION BOXES IN LONG STRAIGHT RUNS OF RACEWAY TO ASSURE THAT CABLES ARE NOT DAMAGED WHEN THEY ARE PULLED, TO FULFILL REQUIREMENTS AS TO THE NUMBER OF BENDS PERMITTED IN RACEWAY BETWEEN CABLE ACCESS POINTS, THE ACCESSIBILITY OF CABLE JOINTS AND SPLICES, AND THE APPLICATION OF CABLE SUPPORTS.

F. PULLBOXES AND JUNCTION BOXES SHALL BE SIZED SO THAT THE MINIMUM BENDING RADIUS CRITERIA SPECIFIED FOR THE WIRES AND CABLE ARE MAINTAINED.

G. USE WEATHERPROOF BOXES, JUNCTION BOXES AND DEVICES FOR ALL REQUIRED WEATHERPROOF INSTALLATION.

H. OUTLET BOXES SHALL BE PROVIDED FOR ALL LOW VOLTAGE DEVICES (I.E. TELEPHONE/DATA, SECURITY, FIRE ALARM, ETC.) COORDINATE BOX SIZE AND DEPTH WITH RESPECTIVE VENDOR.

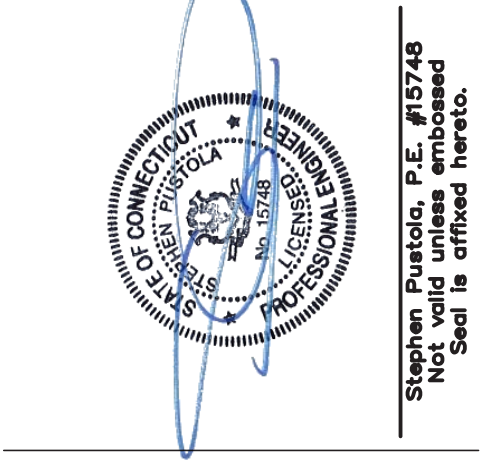
6. WIRES AND CABLES:

- A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.
B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.
C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM.
D. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.
E. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THHN OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR UNDERGROUND ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

Table with 3 columns: REV, DESCRIPTION, DATE. Multiple empty rows for revisions.

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ELECTRICAL SPECIFICATIONS (1 OF 2)

Table with 2 columns: FIELD, VALUE. DATE: 09/27/2022. SCALE: AS NOTED. PROJECT NO.: 22200.00. CHECKED BY: TL.

E.300

