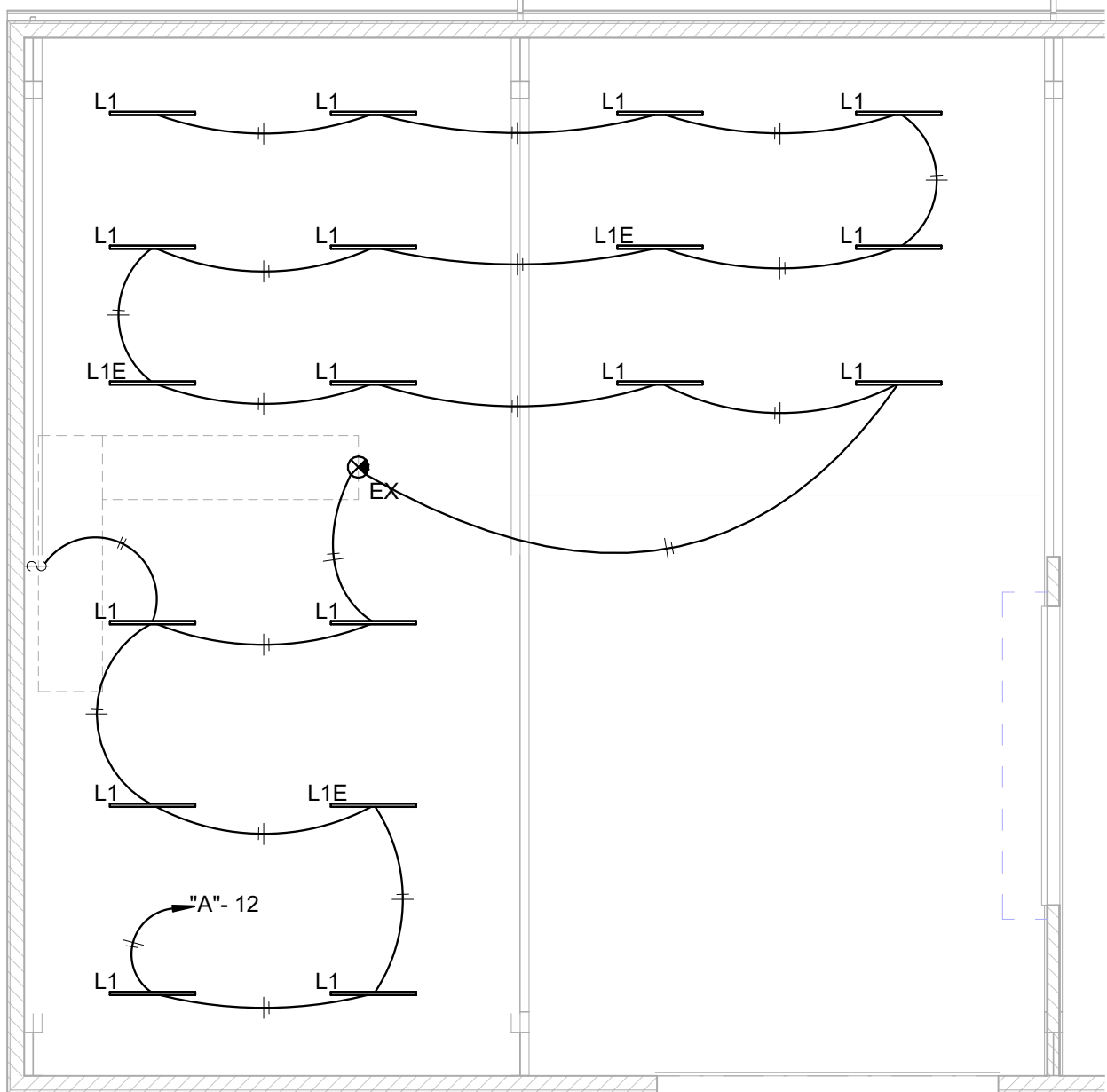
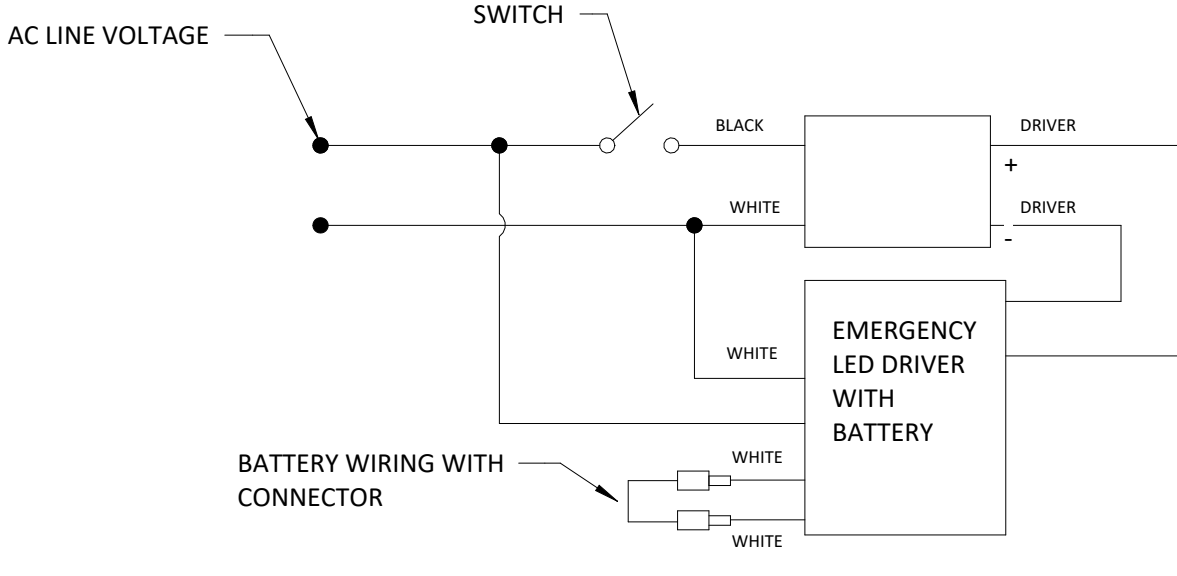


Light Fixture Schedule									
Type Mark	DESCRIPTION	MANUFACTURER	MODEL	LAMP TYPE	Watts	VOLTAGE	MOUNTING	REMARKS	
EX	THERMOPLASTIC EXIT SIGN WITH BATTERY BACKUP AND SELF DIAGNOSTIC	MULE LIGHTING	MX-BR-R-U-SD-REM	LED	3 W	120 V	UNIVERSAL		
HB1	12" LED LINEAR HIGH BAY, SWITCHABLE OUTPUT UP TO 24,000 LMS, SWITCHABLE CCT, PENDANT MOUNT KIT, NETWORKED MOTION SENSOR	SLG LIGHTING	HCL-LS240-G2-FSK / HCL-PMB / MSB-DCE-06-BTS.0	LED	160 W	120 V	SUSPENDED	FIXTURE TO BE PENDANT MOUNTED WITH RIGID STEM PROVIDED BY CONTRACTOR	
HB1E	12" LED LINEAR HIGH BAY, SWITCHABLE OUTPUT UP TO 24,000 LMS, SWITCHABLE CCT, PENDANT MOUNT KIT, NETWORKED MOTION SENSOR, EMERGENCY BATTERY	SLG LIGHTING	HCL-LS240-G2-FSK-EMAX-DH / HCL-PMB / MSB-DCE-06-BTS.0	LED	160 W	120 V	SUSPENDED	FIXTURE TO BE PENDANT MOUNTED WITH RIGID STEM PROVIDED BY CONTRACTOR	
HB2	SQUARE LED HIGH BAY, SWITCHABLE OUTPUT UP TO 30,000 LMS, IP69 RATED, PENDANT MOUNT KIT	SLG LIGHTING	CSF-LS300-G1-50K	LED	150 W	120 V	SUSPENDED	FIXTURE TO BE PENDANT MOUNTED WITH RIGID STEM PROVIDED BY CONTRACTOR	
HB2E	SQUARE LED HIGH BAY, SWITCHABLE OUTPUT UP TO 30,000 LMS, IP69 RATED, PENDANT MOUNT KIT, EMERGENCY BATTERY BACKUP	SLG LIGHTING	CSF-LS300-G1-50K	LED	150 W	120 V	SUSPENDED	FIXTURE TO BE PENDANT MOUNTED WITH RIGID STEM PROVIDED BY CONTRACTOR	
L1	4' LED SUSPENDED STRIP LIGHT, SWITCHABLE OUTPUT UP TO 5,200 LMS, 80 CRI, SWITCHABLE CCT	ENVISION	LED-RST-4FT-3M40W-4CCT / SK-10FT-Y-LC-PD	LED	40 W	120 V	SUSPENDED		
L1E	4' LED SUSPENDED STRIP LIGHT, SWITCHABLE OUTPUT UP TO 5,200 LMS, 80 CRI, SWITCHABLE CCT, EMERGENCY BATTERY BACKUP	ENVISION	LED-RST-4FT-3M40W-4CCT-EMB / SK-10FT-Y-LC-PD	LED	40 W	120 V	SUSPENDED		
L2	8' LED VAPORLIGHT, SWITCHABLE OUTPUT UP TO 12,000 LMS, SWITCHABLE CCT, IP66 & NSF RATED	SLG LIGHTING	YTS-8-LS2-G1-FSK	LED	90 W	120 V	WALL		
R1	LED TROFFER 2X4, SWITCHABLE OUTPUT UP TO 6,250 LMS, 80 CRI, SWITCHABLE CCT	ENVISION	LED-CBT-2X4-5P50-5CCT	LED	50 W	120 V	RECESSED		
R1E	LED TROFFER 2X4, SWITCHABLE OUTPUT UP TO 6,250 LMS, 80 CRI, SWITCHABLE CCT, EMERGENCY BATTERY BACKUP	ENVISION	LED-CBT-2X4-5P50-5CCT-EMB	LED	50 W	120 V	RECESSED		
RH	DARK SKY COMPLIANT REMOTE HEAD	MULE LIGHTING	EDGE-RMT-B	LED	3 W	120 V	WALL	TO BE CONNECTED TO ADJACENT EXIT SIGNS	
W1	ARCHITECTURAL TRAPEZOID WALL PACK, SWITCHABLE OUTPUT UP TO 8,700 LMS, SWITCHABLE CCT, T3 OPTIC	ENVISION	LED-WPFC-TRZ-5P60-TRI-BL	LED	60 W	120 V	WALL	CONTRACTOR TO USE QUICK DISCONNECT ON PHOTOCCELL	

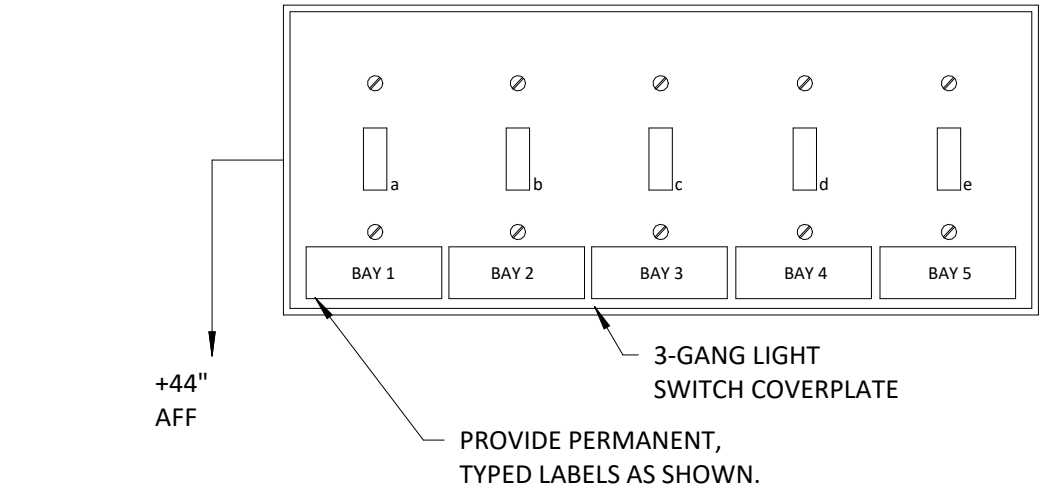


Mezzanine Lighting Plan
1/8" = 1'-0"



EMERGENCY LIGHTING WIRING DIAGRAM
NOT TO SCALE

- NOTES:
- DO NOT MATE CONNECTOR UNTIL INSTALLATION IS COMPLETE AND AC POWER IS SUPPLIED
 - FOR EMERGENCY LIGHTING FIXTURES CALLED OUT AS UNSWITCHED NIGHT LIGHTS IN PLANS, REMOVE SWITCH FROM INSTALLATION AND DIAGRAM
 - ABOVE DIAGRAM IS TYPICAL, CONTRACTOR TO VERIFY EMERGENCY LIGHTING WIRING PER MANUFACTURER'S INSTRUCTIONS PRIOR TO PROCEEDING WITH ANY INSTALLATION.



BAY AREA SWITCH BANK DETAIL
NOT TO SCALE

GENERAL NOTES

- LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF SUSPENDED CEILINGS OR THE SUSPENDED CEILING SHALL BE SUPPORTED WITHIN SIX (6) INCHES OF EACH CORNER OF THE FIXTURE IN ACCORDANCE WITH ASTM C 636-76.
- ALL WALL AND CEILING VACANCY SENSORS IN CONJUNCTION WITH LOW VOLTAGE SWITCHES SHALL BE MANUAL ON/OFF, AUTO OFF UNLESS NOTED OTHERWISE.
- ALL LUMINARIES AND LIGHTING CONTROL DEVICES IN AN ENCLOSED SPACE/ROOM ARE CIRCUITED TO THE SAME CIRCUIT. THE CIRCUIT NUMBER INDICATED BY LIGHT FIXTURE.
- IN A SPACE/ROOM WHERE THERE ARE MULTIPLE OCCUPANCY SENSORS, THE OCCUPANCY SENSORS SHALL BE WIRED AND/OR PROGRAMMED TO OPERATE IN PARALLEL SUCH THAT THE OCCUPANCY SENSOR SWITCHES ALL OF THE LIGHTING AT THE SAME TIME.
- PER ADAG, THE HEIGHT OF ALL SWITCHES AND CONTROLS SHALL BE:
-MAXIMUM 48" ABOVE FINISHED FLOOR PER SECTION 4.2.5
-MINIMUM 15" ABOVE FINISHED FLOOR PER SECTION 4.27.3
- SEE ARCHITECTURAL PLAN FOR COVER PLATE FINISH.
- ALL SWITCHES CONTROLLING CIRCUITS POWERED BY A GENERATOR TO BE RED (NOTE, THIS REFERS TO THE SWITCH AND NOT THE COVER PLATE).
- ALL CONDUIT LOCATED ON CMU WALLS TO BE RAN IN CORE AND TO HAVE FLUSH MOUNTED RECEPTACLES.
- ALL EXISTING UNUSED ELECTRICAL WIRE, CONDUIT AND EQUIPMENT SHALL BE REMOVED.
- ALL EXIT SIGNS ARE TO BE CIRCUITED TO THE EMERGENCY LIGHTING CIRCUIT IN THE SPACE/ROOM AHEAD OF ANY LIGHTING CONTROL DEVICES.
- ALL EMERGENCY BATTERY BACKUPS AND NIGHT LIGHTING SHALL BE CONNECTED AHEAD OF LOCAL SWITCH IN ACCORDANCE WITH THE N.E.C.
- MAXIMUM LOAD ON A 20 AMP CIRCUIT MUST NOT EXCEED 80% OR 16 AMPS.
- ALL LIGHTING AND ELECTRICAL CALCULATIONS SHALL CONFORM WITH ASHRAE 90.1-2016.
- GFCI OUTLETS WILL BE USED WHERE DEEMED BY 2020 NEC 210.8(B). SEE ELECTRICAL PLANS FOR MORE INFORMATION.
- ELECTRICAL INSTALLATION SHALL FOLLOW ALL REQUIREMENTS OF THE CURRENTLY ADOPTED NATIONAL ELECTRICAL CODE (NEC).

KEY NOTES

- LIGHT FIXTURE TO BE WALL MOUNTED ON THE WALLS OF THE SERVICE PIT.
- NEW 120/208 VOLT, 3 PHASE, 4 WIRE, 225 AMP PANEL WITH 200 AMP MAIN BREAKER.



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Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
LIGHTING PLAN

ISSUE

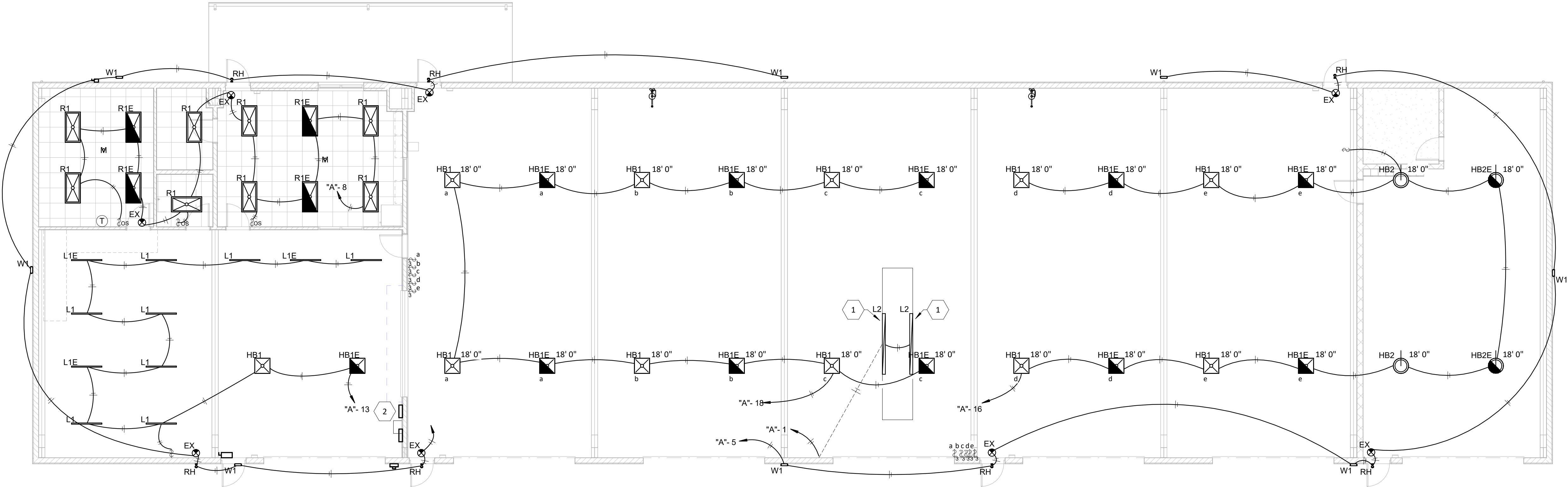
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NO.	DESCRIPTION	DATE

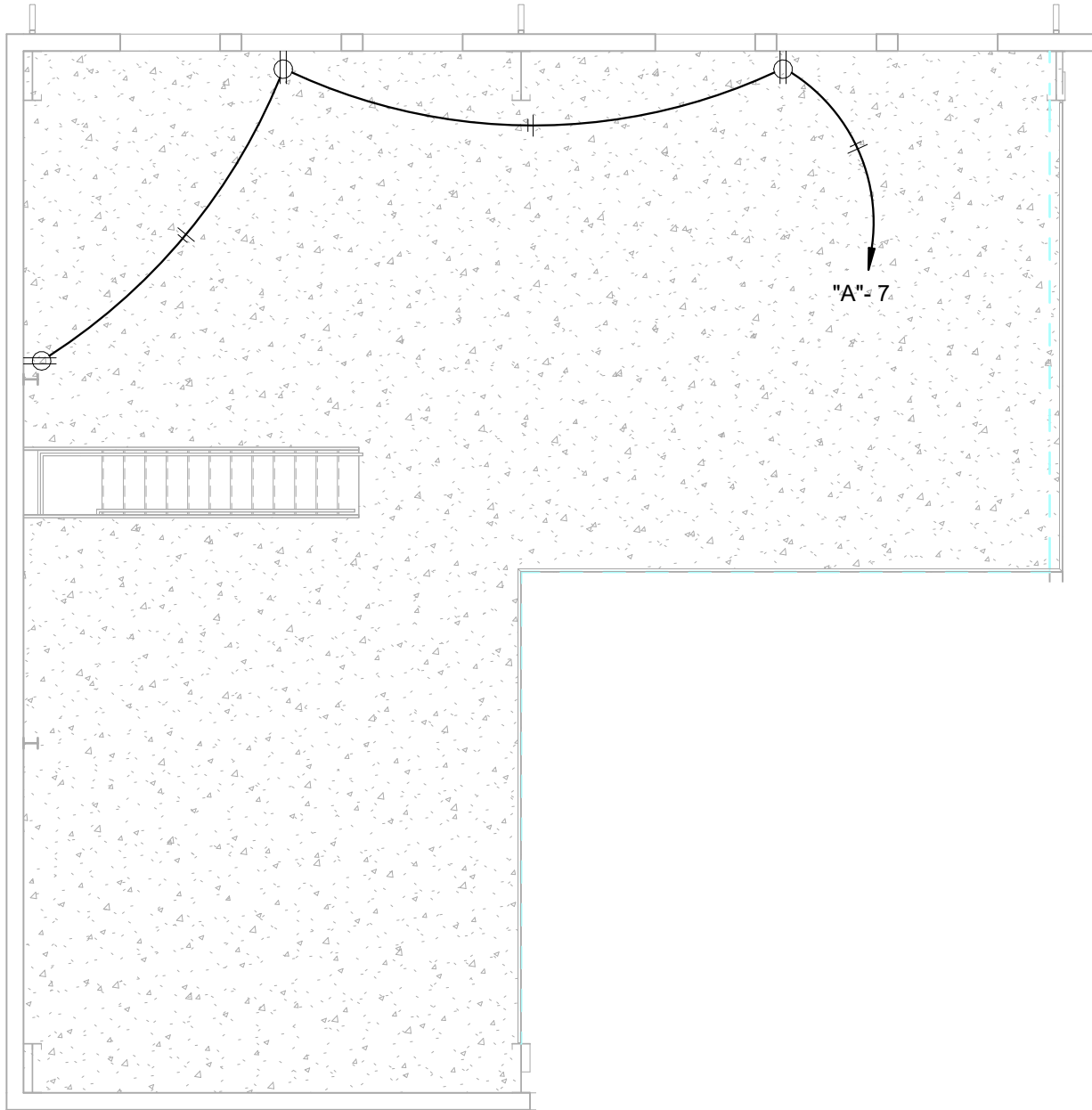
PROJECT NUMBER
DATE 03/31/23

E1.1

Lighting Plan

1/8" = 1'-0"



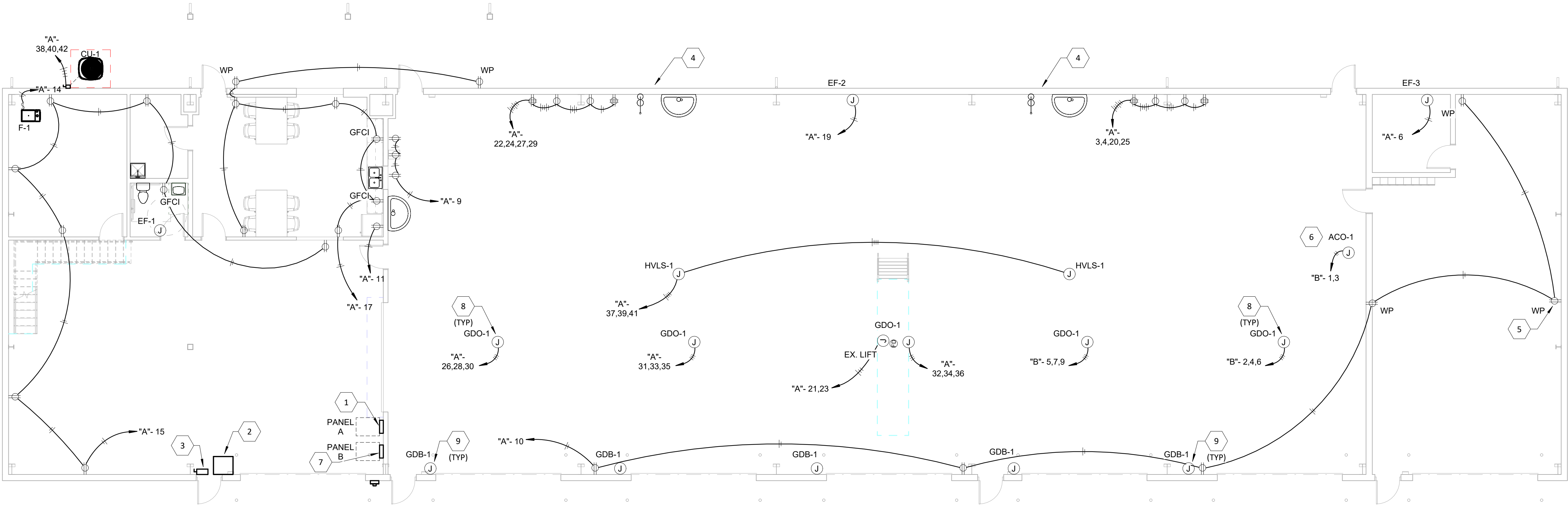


Mezzanine Miscellaneous Power Plan

1/8" = 1'-0"

- ### KEY NOTES
- FURNISH AND INSTALL NEW 120/208 VOLT, 3 PHASE, 4 WIRE, 225 AMP PANEL WITH 200 AMP MAIN BREAKER. SQUARE D, MODEL #NQ, WITH NEMA 1 ENCLOSURE. (DESIGNATED "A").
 - FURNISH AND INSTALL NEW TRANSFORMER. SEE RISER DIAGRAM ON E2.2 FOR MORE INFORMATION.
 - FURNISH AND INSTALL NEW DISCONNECT SWITCH. SEE RISER DIAGRAM ON E2.2 FOR MORE INFORMATION.
 - GENERAL POWER WITH DEDICATED CIRCUITS FOR SHOP TASKS. (EXACT REQUIREMENTS ARE UNKNOWN AT TIME OF DESIGN - POWER SHOWN FOR PRICING PURPOSES).
 - PROVIDE WP RECEPTACLE WITH WATERPROOF ENCLOSURE.
 - FURNISH AND INSTALL NEW JUNCTION BOX 60-GALLON AIR COMPRESSOR AS SHOWN.
 - FURNISH AND INSTALL NEW 120/208 VOLT, 3 PHASE, 4 WIRE, 225 AMP PANEL WITH 200 AMP MAIN BREAKER. SQUARE D, MODEL #NQ, WITH NEMA 1 ENCLOSURE. (DESIGNATED "B").
 - FURNISH AND INSTALL JUNCTION BOX FOR POWER OF OVERHEAD APPARATUS BAY DOORS. INSTALLATION SHALL INCLUDE ALL LOW VOLTAGE CONNECTIONS TO DOOR SAFETY SENSORS. VERIFY WITH OWNER AND COORDINATE EXACT LOCATION AND INSTALLATION REQUIREMENTS WITH OVERHEAD DOOR INSTALLER.
 - FURNISH AND INSTALL JUNCTION BOX FOR APPARATUS BAY DOOR CONTROLS. ROUTE CONDUIT FROM APPARATUS BAY DOOR MOTOR TO CONTROL LOCATION. COORDINATE EXACT REQUIREMENTS AND LOCATION PRIOR TO INSTALLATION. CONTROLS SHALL BE PROVIDED AT ENTRANCES FROM INTERIOR AND ADJACENT TO EACH DOOR. DOORS SHALL BE CONNECTED THROUGH A TIMER, VERIFY WITH OWNER AND COORDINATE WITH DOOR INSTALLER AND OWNER.

- ### GENERAL NOTES
- A. ALL RECEPTACLES ARE MOUNTED BELOW COUNTER OR +18" AFF (TO CENTER), UNLESS OTHERWISE NOTED.
- B. SEE ARCHITECTURAL PLAN FOR COVER PLATE FINISHES.
- C. ALL RECEPTACLES POWERED BY A GENERATOR TO BE RED (NOTE, THIS REFERS TO THE OUTLET AND NOT THE COVER PLATE).
- D. COORDINATE DEVICE MOUNTING HEIGHTS WITH ARCHITECTURAL PLANS AND TRADES PRIOR TO ROUGH-IN.
- E. REVIEW AND COORDINATE ELECTRICAL REQUIREMENTS WITH OTHER TRADES SHOP DRAWINGS FOR ELECTRICAL CONNECTIONS TO EQUIPMENT FURNISHED BY OTHER TRADES AND/OR THE TENANT.
- F. PER ADAAG, THE HEIGHT OF ALL SWITCHES AND CONTROLS SHALL BE:
-MAXIMUM 48" ABOVE FINISHED FLOOR PER SECTION 4.2.5
-MINIMUM 15" ABOVE FINISHED FLOOR PER SECTION 4.27.3
- G. BASE BID: ALL WIRE SHALL BE IN EMT CONDUIT. FLEXIBLE CONDUIT AND MC (METAL-CLAD) CABLE CAN BE USED FOR FINAL CONNECTIONS. FLEXIBLE CONDUIT AND MC CABLE SHALL NOT EXCEED 5 FEET IN LENGTH. ROMEX IS NOT PERMITTED.
- H. CONTRACTOR SHALL CONFIRM AND COORDINATE ELECTRICAL REQUIREMENTS FOR EQUIPMENT FURNISHED BY OTHER TRADES AND/OR THE TENANT/OWNER.
- I. CONTRACTOR SHALL FIELD VERIFY EXACT SIZE, LOCATIONS, AND CONNECTION REQUIREMENTS FOR ALL EQUIPMENT.
- J. CONTRACTOR SHALL LABEL ALL ELECTRICAL METERS WITH THEIR RESPECTIVE SUITE NUMBER/IDENTIFICATION PER 2012 IFC 509.1.1.
- K. ALL INTERIOR WIRING SHALL BE IN EMT CONDUIT. FLEXIBLE CONDUIT AND MC CABLE CAN BE USED FOR FINAL CONNECTIONS. CONDUIT RAN EXTERIOR TO BUILDING SHALL BE RIGID METAL CONDUIT (RMC). ROMEX IS NOT PERMITTED.
- L. ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECT TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIED FOR FIRE STOPS ASTM-E814.
- M. ALL CONDUIT LOCATED ON CMU WALLS TO BE SURFACE MOUNTED RECEPTACLES WITH SHALLOW BOXES.
- N. ALL SURFACE MOUNTED CONDUIT AND BOXES ARE TO BE SHALLOW AND PAINTED SUCH THAT THEY MATCH EXISTING OR ARCHITECTURAL FINISH.
- O. ALL CIRCUIT NUMBERS LISTED ARE PLACEHOLDERS FOR DESIGN PURPOSES ONLY. CONTRACTOR TO VERIFY EXACT CIRCUITS BEING USED PRIOR TO BID. CONTRACTOR TO VERIFY THAT NO OVERLOADING OCCURS.
- P. HOMERUNS SHOWN ARE SCHEMATIC. CONTRACTOR MAY ORIGINATE HOMERUNS FROM DIFFERENT LOCATIONS. ALL WIRE INCLUDING HOMERUNS SHALL BE DELINEATED ON AS-BUILT DRAWINGS.
- Q. COORDINATE THE FINAL LOCATIONS OF CEILING DEVICES WITH THE REFLECTED CEILING PLAN, ARCHITECTURAL PLANS, AND OTHER TRADES.
- R. MAXIMUM LOAD ON A 20 AMP CIRCUIT MUST NOT EXCEED 80% OR 16 AMPS.
- S. PROVIDE GFCI PROTECTION TO 15 AMP OR 20 AMP RECEPTACLES WITHIN 6'-0" OF A SINK.
- T. GFCI OUTLETS WILL BE USED WHERE REQUIRED BY 2020 NEC 210.8(B). SEE ELECTRICAL PLANS FOR MORE INFORMATION.
- U. ALL EXISTING UNUSED ELECTRICAL WIRE, CONDUIT AND EQUIPMENT SHALL BE REMOVED.



Miscellaneous Power Plan

1/8" = 1'-0"



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Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
MISCELLANEOUS POWER PLAN

ISSUE		

REVISIONS		
NO.	DESCRIPTION	DATE

PROJECT NUMBER
DATE 03/31/23

E1.2



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Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
LOW VOLTAGE PLAN

ISSUE		

REVISIONS		
NO.	DESCRIPTION	DATE

PROJECT NUMBER
DATE 03/31/23

E1.4

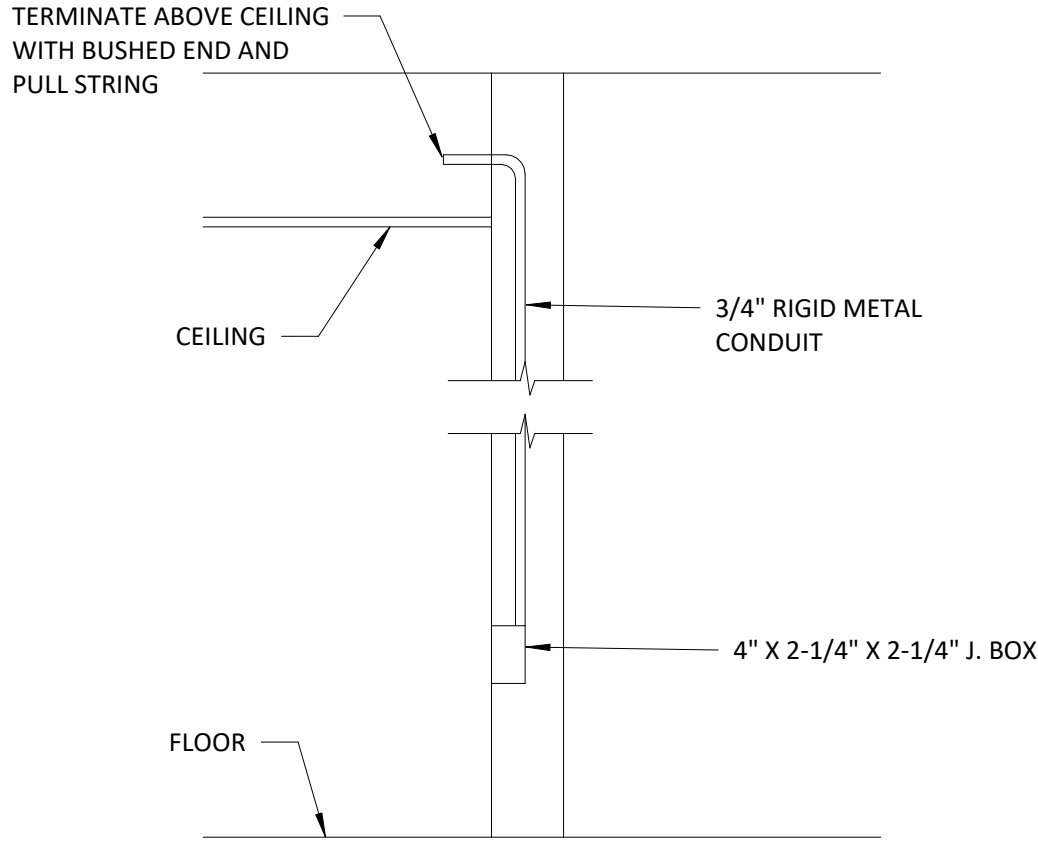
KEY NOTES

- FURNISH AND INSTALL NEW CO2 SENSOR DESIGNATED "SCO-1" TO BE ARMSTRONG MODEL AMC-1222, SENSOR TO BE LOW-MOUNTED AND CONNECT TO SENSOR CONTROL SYSTEM DESIGNATED "SCTRL-1".
- FURNISH AND INSTALL NEW CO2 CONTROL SYSTEM DESIGNATED "SCTRL-1" TO BE ARMSTRONG MODEL AMC-1AD AND SENSE CO2 THROUGH "SCO-1" COMPONENT(S) IN AREA AND CONTROL LOUVERS 'LV-1' AND TRANSFER GRILLES 'TF-# ' TO OPEN AND TURN ON EXHAUST FAN 'EF-2'.

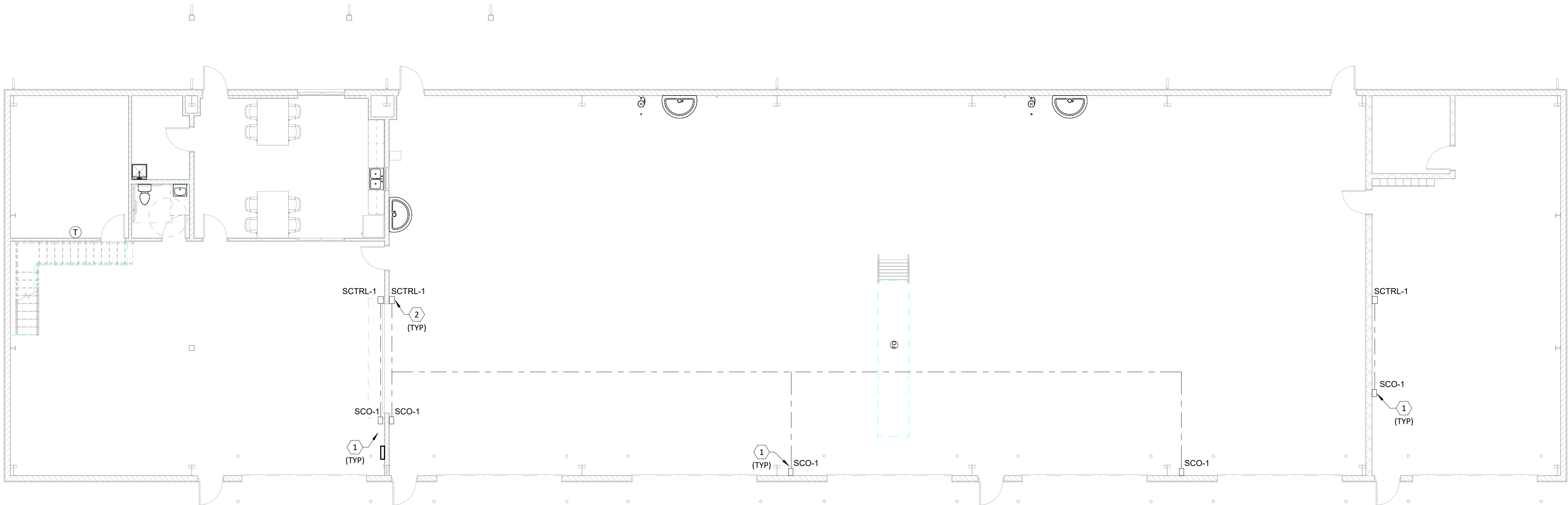
GENERAL NOTES

- A. ALL DATA AND VOICE OUTLETS ARE MOUNTED BELOW COUNTER OR +24" AFF (TO CENTER), UNLESS OTHERWISE NOTED.
- B. ELECTRICIAN AND DATA CABLING INSTALLER SHALL COORDINATE EXACT HEIGHTS OF BOXES WITH INTERIOR ELEVATION SHEETS.
- C. ELECTRICIAN TO PROVIDE CABLE MANAGEMENT RACKS AT UNDERSIDE OF ALL WORKSTATION LOCATIONS. TYPE OF RACK TO BE DETERMINED.
- D. GC TO PROVIDE (2) 4" EMT SLEEVES IN CEILING FOR I.T. CABLING PENETRATIONS.
- E. THE PURPOSE OF THIS PLAN IS TO ILLUSTRATE VOICE DATA LOCATIONS ONLY. CONTRACTOR TO COORDINATE WITH I.T. REPRESENTATIVE.
- F. DEVICES SHOWN HERE SHOULD BE INCLUDED IN FINAL PLAN, BUT NOT LIMITED TO THESE LOCATIONS. FINAL PLAN SHALL MEET ALL APPLICABLE CODES.
- G. ALL SECURITY, ACCESS, ETC. SHALL BE PROVIDED BY INTRUSION ALARM INSTALLER.
- H. G.C. SHALL PROVIDE AND INSTALL ALL POWER, CONDUIT, AND JUNCTION BOXES FOR ALL SECURITY DEVICES INDICATED ON THIS SET OF DRAWINGS. COORDINATE WITH SECURITY VENDOR PRIOR TO BID. ROUGH-IN AND INSTALLATION TO INCLUDE ALL WORK IN BASE BID; NO EXTRAS WILL BE ALLOWED IF NOT COORDINATED PRIOR TO BID.
- I. ALL CABLING FOR SECURITY MONITOR TO BE HD CABLING.
- J. INTERIOR ACCESS CONTROL DOORS REQUIRE CONDUIT, BOXES, RACEWAY, AND/OR STUB THROUGH BY ELECTRICIAN.
- K. EXTERIOR DOORS WILL REQUIRE 3/4" CONDUIT STUB UP TO PLENUM CEILING WITH STUB THROUGH EXTERIOR WALL TO 42" AFF FOR READERS AND INTERCOMS.
- L. ALL EXTERIOR ACCESS CONTROL DOORS ARE TO HAVE TWO (2) RECESSED CONTACTS. ONE FOR INTRUSION, ONE FOR ACCESS CONTROL. NO DOUBLE POLE/DOUBLE THROW CONTACTS ALLOWED.
- M. REFERENCE "TELEPHONE/DATA CONDUIT DETAIL" FOR ALL TELEPHONE/DATA BOXES (TYPICAL)

NOTE ON CONTAMINATION:
IN THE EVENT ARMSTRONG SENSOR MOUNTED LOW IN SERVICE BAY, AMC-1222, DETECTS CO LEVELS GREATER THAN IS PROGRAMMED SAFE, AUDIO/VISUAL ALARM ACTIVATES, SENDS SIGNAL TO MOTORIZED DAMPER WHICH OPENS, LOUVER'S AND EF-2 AND 3 SHALL ENERGIZE TO MAXIMUM VENTILATION TO ACHIEVE 6 AIR CHANGES PER HOUR. ONCE DETECTION IS NO LONGER SENSED FOR A DURATION OF 5-MINUTES, LOUVER'S, EF'S AND MOTORIZED DAMPER SHALL DE-ENERGIZE AND DAMPER GOES BACK TO NORMALLY CLOSED POSITION. LOUVER'S/EF'S RETURN TO NORMAL OPERATION.



TELEPHONE/DATA CONDUIT DETAIL
NOT TO SCALE



Low Voltage Plan
1/8" = 1'-0"



Branch Panel: A															
Location: SERVICE 105						Volts: 120/208 Wye						A.I.C. Rating:			
Supply From:						Phases: 3						Mains Type:			
Mounting: Surface						Wires: 4						Mains Rating: 225 A			
Enclosure: Type 1												MCB Rating: 200 A			
												Main Lug Only:			
CKT	Note	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	Note	CKT
1		Lighting - Garage Pit	20 A	1	180 VA			261 VA			1	20 A	Lighting - EM/Exterior		2
3		Recept - E Garage	20 A	1		180 VA			360 VA		1	20 A	Recept - E Garage		4
5		Lighting - EM/Exterior	20 A	1			258 VA			456 VA	1	20 A	EF-3		6
7		Recept - Mezzanine	20 A	1	540 VA			606 VA			1	20 A	Lighting - Break Area		8
9		Recept - N Garage	20 A	1		540 VA			1080 VA		1	20 A	Recept - W Garage		10
11		Recept - Break Room	20 A	1			600 VA			723 VA	1	20 A	Lighting - Mezzanine		12
13		Lighting - N Garage	20 A	1	760 VA			1356 VA			1	15 A	FU-1		14
15		Recept - N Garage	20 A	1		1440 VA			1876 VA		1	20 A	Lighting - S Garage		16
17		Recept - Break	20 A	1			1440 VA			1920 VA	1	20 A	Lighting - N Garage		18
19		EF-2	20 A	1	4500 VA			180 VA			1	20 A	Recept - E Garage		20
21		Existing Lift	30 A	2		2496 VA			180 VA		1	20 A	Recept - E Garage		22
23	--	--	--	--			2496 VA			180 VA	1	20 A	Recept - E Garage		24
25		Recept - E Garage	20 A	1	360 VA			467 VA			3	20 A	Garage Door Opener 1		26
27		Recept - E Garage	20 A	1		360 VA			467 VA		--	--	--		28
29		Recept - E Garage	20 A	1			360 VA			467 VA	--	--	--		30
31		Garage Door Opener 2	20 A	3	467 VA			467 VA			3	20 A	Garage Door Opener 3		32
33	--	--	--	--		467 VA			467 VA		--	--	--		34
35	--	--	--	--			467 VA			467 VA	--	--	--		36
37		HVLS-1	20 A	3	553 VA			1955 VA			3	20 A	CU-1		38
39	--	--	--	--		553 VA			1955 VA		--	--	--		40
41	--	--	--	--			553 VA			1955 VA	--	--	--		42
					Phase A		Phase B		Phase C						
Total Load:					12652 VA		12419 VA		12342 VA						
Total Amps:					106 A		104 A		103 A						
Load Classification					Connected Load		Demand Factor		Estimated Demand		Panel Totals				
Lighting					4147 VA		125.00%		5184 VA						
Lighting - General					2415 VA		125.00%		3019 VA		Total Conn. Load: 37412 VA				
Other					5886 VA		100.00%		5886 VA		Total Est. Demand: 39052 VA				
Power					15809 VA		100.00%		15809 VA		Total Conn.: 104 A				
Receptacle					9156 VA		100.00%		9156 VA		Total Est. Demand: 108 A				
											Balance: 2 %				
Notes:															

Branch Panel: B															
Location: SERVICE 105						Volts: 120/208 Wye						A.I.C. Rating:			
Supply From:						Phases: 3						Mains Type:			
Mounting: Surface						Wires: 4						Mains Rating: 225 A			
Enclosure: Type 1												MCB Rating: 200 A			
												Main Lug Only:			
CKT	Note	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	Note	CKT
1		ACO-1	20 A	2	2496 VA			467 VA			3	20 A	Garage Door Opener 5		2
3	--	--	--	--		2496 VA			467 VA		--	--	--		4
5		Garage Door Opener 4	20 A	3			467 VA			467 VA	--	--	--		6
7	--	--	--	--	467 VA						--	--	--		8
9	--	--	--	--		467 VA					--	--	--		10
11															12
13															14
15															16
17															18
19															20
21															22
23															24
25															26
27															28
29															30
31															32
33															34
35															36
37															38
39															40
41															42
					Phase A		Phase B		Phase C						
Total Load:					3430 VA		3430 VA		934 VA						
Total Amps:					32 A		32 A		8 A						
Load Classification					Connected Load		Demand Factor		Estimated Demand		Panel Totals				
Power					7794 VA		100.00%		7794 VA						
											Total Conn. Load: 7794 VA				
											Total Est. Demand: 7794 VA				
											Total Conn.: 22 A				
											Total Est. Demand: 22 A				
											Balance: 73 %				
Notes:															

ELECTRICAL SYMBOLS	
	DUPLEX RECEPTACLE: HUBBELL, MODEL #5362-W
GFI 	GROUND FAULT DUPLEX RECEPTACLE: HUBBELL, MODEL #GF20
USB 	COMBINATION USB/RECEPTACLE: EATON, MODEL #TR7756W
C 	SWITCH CONTROLLED DUPLEX RECEPTACLE: HUBBELL, MODEL #HBL5362LC1W
WP 	WEATHERPROOF DUPLEX RECEPTACLE: HUBBELL, MODEL #GF-5362 WITH "A8" ALUMINUM COVER PLATE
	QUAD RECEPTACLE: TWO(2) HUBBELL, MODEL #5362 - W DUPLEX RECEPTACLE IN A COMMON JUNCTION BOX WITH A 4 GANG COVER PLATE
\$ 	SINGLE POLE SWITCH: LUTRON, MODEL #CA-1PS-WH
\$ ₃ 	3-WAY SWITCH: LUTRON, MODEL #CA-3PS-WH
\$ _D 	DIMMER SWITCH: LUTRON, MODEL #DVS-TV-WH, 0-10V
\$ _{OS} 	OCCUPANCY/VACANCY SWITCH LUTRON, MAESTRO MODEL #MS-OPS2-WH
\$ _{OSD} 	OCCUPANCY/VACANCY DIMMER LUTRON, MAESTRO MODEL #MS-Z101-WH
	CEILING MOUNTED OCCUPANCY SENSOR: LUTRON, LOS-C SERIES. POWER PACK FOR USE WITH WALL SWITCH FOR MANUAL ON/AUTOMATIC OFF CAPABILITIES.
\$ _T 	TIMER SWITCH: LUTRON, MAESTRO ECO-TIMER MODEL #MA-TS30G-WH
	SPECIAL PURPOSE RECEPTACLE
	JUNCTION BOX
	COMBO VOICE/DATA OUTLET
	COMBO VOICE/DATA OUTLET
	TELEVISION OUTLET
	DISCONNECT SWITCH
	PULL STATION
	CEILING MOUNTED HORN/STROBE
	CEILING MOUNTED STROBE ONLY
	SMOKE DETECTOR
	PHOTOCELL
	DOOR CONTACT
	CAMERA LOCATION
	PANIC SWITCH
	KEY PAD
	SECURITY MONITOR
	CARD READER
	TRANSFORMER

ELECTRICAL ABBREVIATIONS	
A	AMPERES
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERES INTERRUPTING CURRENT
ATS	AUTOMATIC TRANSFER SWITCH
C	CIRCUIT
CT	CURRENT TRANSFORMER
DIST	DISTRIBUTION
DS	DISCONNECT SWITCH
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EM	EMERGENCY
EX	EXISTING
EXR	EXISTING RELOCATED
F	FUSE
FLA	FULL LOAD AMPS
GD	GARBAGE DISPOSAL
GC	GENERAL CONTRACTOR
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HP	HORSE POWER
IG	ISOLATED GROUND
KVA	KILOVOLT AMPERE(S)
KW	KILOWATT(S)
MCA	MINIMUM CIRCUIT AMPERE(S)
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
NL	NIGHT LIGHT
PH	PHASE
PNL	PANEL
RECPT	RECEPTACLE
SW	SWITCH
V	VOLT(S)
W	WATT(S)
WP	WEATHERPROOF



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Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
ELECTRICAL DETAILS

ISSUE		

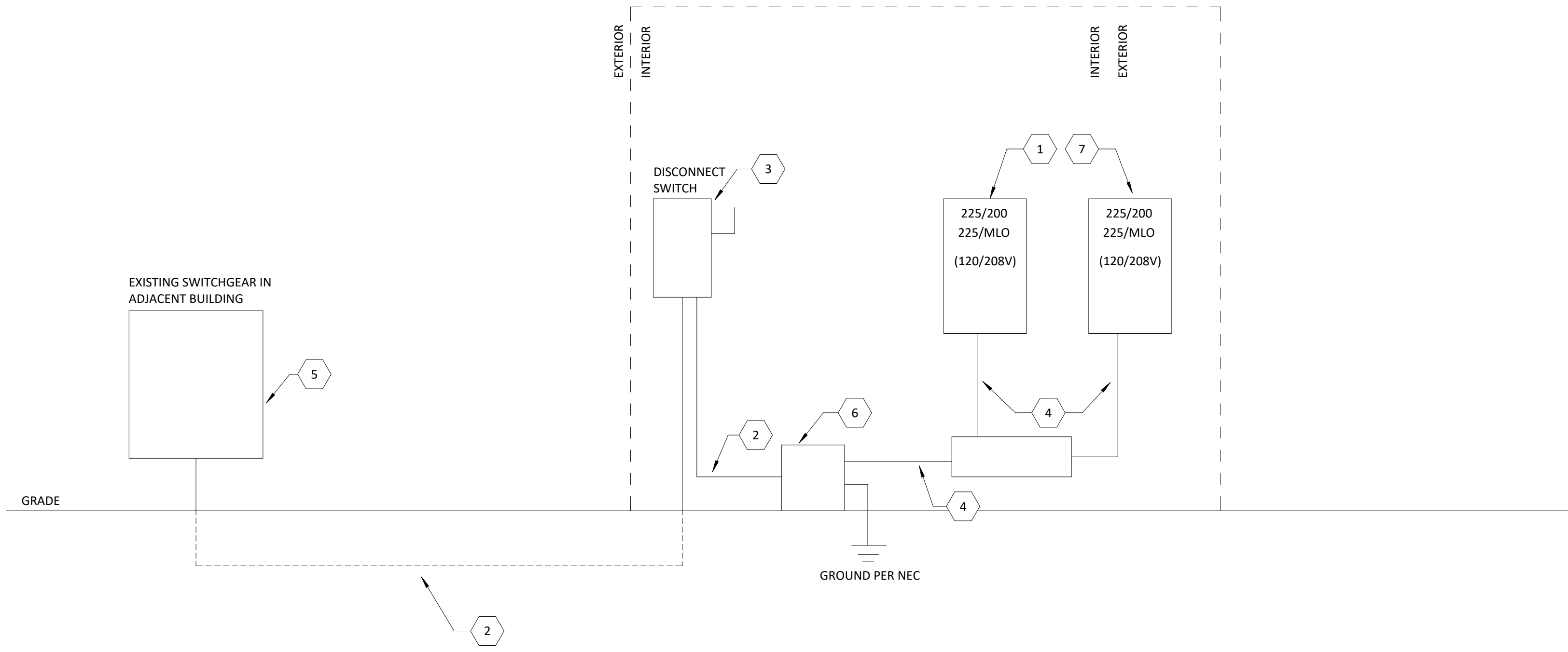
REVISIONS		
NO.	DESCRIPTION	DATE

PROJECT NUMBER
DATE 03/31/23

E2.2

KEY NOTES

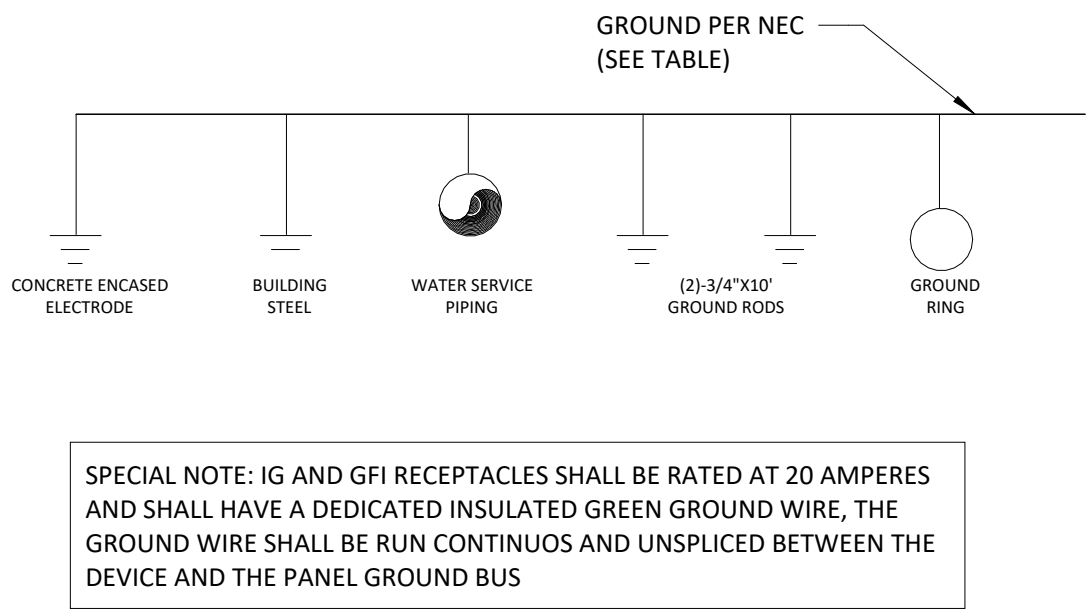
- NEW 120/208 VOLT, 3 PHASE, 4 WIRE, 225 AMP PANEL WITH 200 AMP MAIN BREAKER. SQUARE D, MODEL #NQ, WITH NEMA 1 ENCLOSURE. (DESIGNATED "A").
- FURNISH AND INSTALL NEW CONDUIT AND WIRING, 3-#1 AWG-2"C. (200 AMP).
- NEW 100/100 DISCONNECT SWITCH AT 480V.
- FURNISH AND INSTALL NEW CONDUIT AND WIRING, 4-#3/0 AWG-2"C. (200 AMP).
- EXISTING SWITCHGEAR TO REMAIN. FUNISH AND INSTALL 100A OCP IN EXISTING SWITCHGEAR AS NESSISARY. COORDINATE WITH CIVIL ENGINEER FOR EXACT SPECIFICATIONS ON SWITCHGEAR AND OCP DEVICE.
- FURNISH AND INSTALL NEW 75KVA TRANSFORMER. SQUARE D MODEL #EXN75T3H
- NEW 120/208 VOLT, 3 PHASE, 4 WIRE, 225 AMP PANEL WITH 200 AMP MAIN BREAKER. SQUARE D, MODEL #NQ, WITH NEMA 1 ENCLOSURE. (DESIGNATED "B").



- RISER DIAGRAM NOTES**
- CONTRACTOR SHALL OBTAIN AVAILABLE FAULT CURRENT RATING AND PROVIDE PROTECTION FOR MAIN CIRCUIT.
 - CONTRACTOR TO MAINTAIN ALL REQUIRED CLEARANCES PER ARTICLE 110-26 NEC.

ELECTRICAL RISER DIAGRAM

NOT TO SCALE



SUGGESTED SERVICE GROUND DETAIL

NOT TO SCALE

GROUNDING SHALL CONSIST OF COPPER CONDUCTORS IN CONDUIT WITH BOLTED, OR BRAZED, CONNECTION TO EACH ILLUSTRATION BELOW FOR THE GROUND. GROUNDING AND BONDING SHALL COMPLY WITH NEC ARTICLES 230 & 250. ALL METALLIC RACEWAYS SHALL BE GROUNDDED.

GROUNDING ELECTRODE CONDUCTOR	
SIZE LARGEST UNDERGROUND SERVICE CONDUCTOR	SIZE GROUNDING ELECTRODE
COPPER	COPPER
2 OR SMALLER	#8
1 OR 1/0	#6
2/0 OR 3/0	#4
OVER 3/0 THRU 350	#2
OVER 350 THRU 600	#1/0
OVER 600 THRU 1100	#2/0

VOLTAGE DROP NOTE: THE MAXIMUM COMBINED VOTLAGE DROP ON BOTH INSTALLED FEEDER CONDUCTORS AND BRAND CIRCUIT CONDUCTORS TO THE FARTHEST CONNECTED LOAD OR OUTLET SHALL NOT EXCEED 5 PERCENT PER NEC 210.19

$$VD = \frac{1.73 \times L \times R \times I}{1000}$$

$$VD = \frac{1.73 \times 300 \times 0.1540 \times 100}{1000} = 7.993 \times .866 = 6.922$$

$$\%VD = \frac{6.922}{480V} = 0.0144 \times 100 = 1.44\% VD$$

1.44% < 2% THEREFORE THREE (3) #1 AWG IS JUSTIFIED.

VOLTAGE DROP CALCULATION IS CALCULATED FOR FULL LOAD. CONTRACTOR SHALL DETERMINE WHAT EXACT DEMAND LOAD IS.

VOLTAGE DROP CALCULATION (SERVICE TRANSFORMER TO METER/CT CABINET)

16A 2-2 COINCIDENTAL DAMAGE

REPAIR ALL STREETS, SIDEWALKS, DRIVES, PAVING, WALLS, FINISHES, AND OTHER FACILITIES DAMAGED IN THE COURSE OF THIS WORK. REPAIR MATERIALS SHALL MATCH EXISTING CONSTRUCTION. ALL BACKFILLING AND REPAIRING SHALL MEET ALL REQUIREMENTS OF THE OWNER, CITY AND OTHERS HAVING JURISDICTION. REPAIR WORK SHALL BE THOROUGHLY FIRST CLASS. CONFORM TO ALL REQUIREMENTS OF DIVISION 2 OF THESE SPECIFICATIONS.

16A 2-3 CUTTING AND PATCHING

FOLLOWING THE REQUIREMENTS IN DIVISION 1, CUT WALLS, FLOORS, CEILINGS, AND OTHER PORTIONS OF THE FACILITY AS REQUIRED TO PERFORM WORK UNDER THIS DIVISION. OBTAIN PERMISSION OF THE ENGINEER, OWNER, OR BOTH, BEFORE DOING ANY CUTTING. CUT ALL HOLES AS SMALL AS POSSIBLE. PATCH WALLS, FLOORS, AND OTHER PORTIONS OF THE FACILITY AS REQUIRED BY WORK UNDER THIS DIVISION. ALL PATCHING SHALL BE THOROUGHLY FIRST CLASS AND SHALL MATCH THE ORIGINAL MATERIAL AND CONSTRUCTION, INCLUDING FIRE RATINGS IF APPLICABLE.

COORDINATE WITHOUT DELAY ALL ROUGHING-IN WITH OTHER DIVISIONS. CONCEAL ALL RACEWAYS EXCEPT IN UNFINISHED AREAS AND WHERE OTHERWISE INDICATED ON THE DRAWINGS.

16A 2-5 SUPPORT SYSTEMS

STEEL SLOTTED SUPPORT SYSTEMS (SLOTTED CHANNEL): COMPLY WITH MFMA-3, FACTORY-FABRICATED COMPONENTS FOR FIELD ASSEMBLY; 12-GAUGE, 1-5/8-INCH BY 1-5/8-INCH; COOPER B-LINE, ERICO INTERNATIONAL CORPORATION, HILTI, INC., POWER-STRUT, THOMAS & BETTS CORPORATION, UNISTRUT. FINISHES:

- RETAIN ONE OR MORE COATING SYSTEMS IN FIRST THREE SUBPARAGRAPHS BELOW (USUALLY GALVANIZED IS ACCEPTABLE FOR MOST USES) - STAINLESS STEEL SHOULD NOT REQUIRE ANY ADDITIONAL FINISHES. IF RETAINING MORE THAN ONE, SPECIFY WHERE EACH COATING SYSTEM IS REQUIRED. USE STAINLESS STEEL OUTDOORS OR INDOORS WHERE ADDED CORROSION PROTECTION IS DESIRED (TYPE 316 STAINLESS STEEL IS AVAILABLE FOR USE IN VERY CORROSIVE LOCATIONS). CONSULT WITH MANUFACTURER BEFORE SPECIFYING EITHER STAINLESS TYPES, DUE TO USAGE LIMITATIONS AND COSTS.
- METALLIC COATINGS: HOT-DIP GALVANIZED AFTER FABRICATION AND APPLIED ACCORDING TO MFMA-3.
- NONMETALLIC COATINGS: MANUFACTURER'S STANDARD PVC, POLYURETHANE, OR POLYESTER COATING APPLIED ACCORDING TO MFMA-3.
- PAINTED COATINGS: MANUFACTURER'S STANDARD PAINTED COATING APPLIED ACCORDING TO MFMA-3.
- STAINLESS STEEL: TYPE 304, PER ASTM A240.

ALUMINUM SLOTTED SUPPORT SYSTEMS (SLOTTED CHANNEL): COMPLY WITH MFMA-3, TYPE 6063-T6, PER ASTM B221; FACTORY-FABRICATED COMPONENTS FOR FIELD ASSEMBLY; 12-GAUGE, 1-5/8-INCH BY 1-5/8-INCH; COOPER B-LINE, ERICO INTERNATIONAL CORPORATION, HILTI, INC., POWER-STRUT, THOMAS & BETTS CORPORATION, UNISTRUT.

FIELD FABRICATION:

- WHERE FIELD CUTTING OF STANDARD LENGTHS OF CHANNEL ARE REQUIRED, MAKE CUTS STRAIGHT AND PERPENDICULAR TO MANUFACTURED SURFACES.
- FOR FIELD-CUT OR DAMAGED SURFACES OF COATED CHANNELS, DRESS CUT ENDS, DAMAGED SURFACES, OR BOTH, WITH AN ABRASIVE MATERIAL (E.G., FILE, GRINDING STONE, OR SIMILAR) AND CLEANSER TO REMOVE OILS, RUST, SHARP EDGES AND SHARDS.
- FOR CHANNEL WITH A FACTORY-APPLIED COATING, RE-FINISH CUT EDGES WITH A COATING COMPATIBLE WITH THE FACTORY FINISH AND AS RECOMMENDED BY THE MANUFACTURER (E.G., MANUFACTURER'S TOUCH-UP PAINT OR ZINC-RICH COLD-GALVANIZING COMPOUND, AS APPLICABLE).

16A 2-6 PENETRATIONS

COORDINATE SLEEVE SELECTION AND APPLICATION WITH SELECTION AND APPLICATION OF FIRE-STOPPING SPECIFIED IN DIVISION 7 SECTION "THROUGH-PENETRATION FIRESTOP SYSTEMS."

ROOFS:

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

WALLS AND FLOORS:

- SLEEVES FOR RACEWAYS AND CABLES
 - STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS AND DRIP RINGS.
 - AST-IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE," EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL WATERSTOP, UNLESS OTHERWISE INDICATED.
- SLEEVES FOR RECTANGULAR OPENINGS: GALVANIZED SHEET STEEL WITH MINIMUM 0.052-INCH THICKNESS AS INDICATED AND OF LENGTH TO SUIT APPLICATION.

16B 2-7 FIRE-STOPPING THROUGH PENETRATIONS

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

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

SUBMITTALS

- SUBMIT PRODUCT DATA: MANUFACTURER'S SPECIFICATIONS AND TECHNICAL DATA FOR EACH MATERIAL INCLUDING THE COMPOSITION AND LIMITATIONS, DOCUMENTATION OF UL FIRESTOP SYSTEMS TO BE USED AND MANUFACTURER'S INSTALLATION INSTRUCTIONS TO COMPLY WITH DIVISION 1.
- MANUFACTURER'S ENGINEERING JUDGMENT IDENTIFICATION NUMBER AND DRAWING DETAILS WHEN NO UL SYSTEM IS AVAILABLE FOR AN APPLICATION. ENGINEERING JUDGMENT SHALL INCLUDE BOTH PROJECT NAME AND CONTRACTOR'S NAME WHO WILL INSTALL FIRESTOP SYSTEM AS DESCRIBED IN DRAWINGS.
- SUBMIT MATERIAL SAFETY DATA SHEETS PROVIDED WITH PRODUCT DELIVERED TO JOB-SITE.

16A 2-8 ACCESS DOORS

PROVIDE ACCESS DOORS IN CEILINGS AND WALLS, WHERE INDICATED OR REQUIRED FOR ACCESS OR MAINTENANCE TO CONCEALED EQUIPMENT INSTALLED UNDER THIS SECTION. PROVIDE CONCEALED HINGES, SCREWDRIVER-TYPE LOCK, AND ANCHOR STRAPS. MANUFACTURED BY MILCOR, ZURN, TITUS, OR EQUAL. OBTAIN ARCHITECT'S APPROVAL OF TYPE, SIZE, LOCATION AND COLOR BEFORE ORDERING.

16A 2-9 EQUIPMENT FURNISHED BY OTHERS

PROVIDE NECESSARY EQUIPMENT AND ACCESSORIES THAT ARE NOT PROVIDED BY THE EQUIPMENT SUPPLIER OR OWNER TO COMPLETE INSTALLATION OF EQUIPMENT FURNISHED BY OTHERS, IN LOCATIONS AS INDICATED ON THE DRAWINGS, SPECIFIED HEREIN, OR BOTH. EQUIPMENT AND ACCESSORIES NOT PROVIDED BY THE EQUIPMENT SUPPLIER MAY INCLUDE SUCH ITEMS AS FLEXIBLE CORDS AND PLUGS, AS REQUIRED FOR PROPER OPERATION OF THE COMPLETE SYSTEM, IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS.

BE RESPONSIBLE FOR CORRECT ROUGH-IN DIMENSIONS, AND VERIFY THEM WITH ENGINEER, OWNER'S REPRESENTATIVE, EQUIPMENT SUPPLIER, OR ALL THREE, PRIOR TO ROUGH-IN AND SERVICE INSTALLATIONS.

16A 2-10 CLEANING

IN ADDITION TO THE REQUIREMENTS OF DIVISION 1, REMOVE FROM THE PREMISES DIRT AND REFUSE RESULTING FROM THE PERFORMANCE OF THE ELECTRICAL WORK, AS REQUIRED, TO PREVENT ACCUMULATION. COOPERATE IN MAINTAINING REASONABLY CLEAN PREMISES AT ALL TIMES. IMMEDIATELY PRIOR TO FINAL INSPECTION, MAKE A FINAL CLEANUP OF DIRT AND REFUSE RESULTING FROM THE WORK. CLEAN ALL MATERIAL AND EQUIPMENT INSTALLED UNDER THIS DIVISION. REMOVE DIRT, DUST, PLASTER, STAINS AND FOREIGN MATTER FROM ALL SURFACES. TOUCH UP AND RESTORE ALL DAMAGED FINISHES TO THEIR ORIGINAL CONDITION.

16A 2-11 ADJUSTING, ALIGNING AND TESTING

ADJUST, ALIGN, AND TEST ALL ELECTRICAL EQUIPMENT ON THIS PROJECT PROVIDED UNDER THIS DIVISION AND ALL ELECTRICAL EQUIPMENT FURNISHED BY OTHERS FOR INSTALLATION OR WIRING UNDER THIS DIVISION, FOR PROPER OPERATION.

TEST ALL SYSTEMS AND EQUIPMENT ACCORDING TO THE REQUIREMENTS IN NETA ATS (LATEST EDITION) AND ALL ADDITIONAL REQUIREMENTS SPECIFIED IN FOLLOWING SECTIONS.

MAINTAIN THE FOLLOWING ON THE PROJECT PREMISES AT ALL TIMES: A TRUE RMS READING VOLTMETER, A TRUE RMS READING AMMETER, AND A MEGOHMMETER INSULATION RESISTANCE TESTER. PROVIDE TEST DATA READINGS AS REQUESTED OR AS REQUIRED BY THE ENGINEER.

16A 2-12 EQUIPMENT IDENTIFICATION

PROVIDE EQUIPMENT IDENTIFICATION NAMEPLATES:

- ON ALL PANELBOARDS AND SWITCHES.

NAMEPLATES:

- ENGRAVED, CONTRASTING COLOR, THREE-LAYER, LAMINATED PLASTIC INDICATING THE NAME OF THE EQUIPMENT, LOAD, OR CIRCUIT AS DESIGNATED ON THE DRAWINGS AND IN THE SPECIFICATIONS.
- FIELD-APPLIED PERMANENT EPOXY ADHESIVE, COMPATIBLE WITH THE EQUIPMENT FINISH.
- ATTACHMENT METHOD SHALL BE ACCEPTABLE TO THE MANUFACTURERS OF THE EQUIPMENT TO WHICH THE NAMEPLATES ARE BEING APPLIED.
- COLOR: BLACK BACKGROUND WITH WHITE LETTERS FOR NORMAL POWER. LETTER HEIGHT: 1/2-INCH MINIMUM.

16A 2-13 SYSTEM START UP

PRIOR TO STARTING UP THE ELECTRICAL SYSTEMS:

- CHECK ALL COMPONENTS AND DEVICES.
- LUBRICATE ITEMS ACCORDINGLY.
- TIGHTEN SCREWS AND BOLTS FOR CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A.
- ADJUST TAPS ON EACH TRANSFORMER FOR RATED SECONDARY VOLTAGE.
- CHECK AND RECORD BUILDING'S SERVICE ENTRANCE VOLTAGE, GROUNDING CONDITIONS, GROUNDING RESISTANCE, AND PROPER PHASING.
- IF ANY CHANGES ARE MADE TO PANEL SCHEDULES ON DRAWINGS, RE-BALANCE ALL SINGLE-PHASE LOADS AT EACH PANELBOARD, REDISTRIBUTING BRANCH CIRCUIT CONNECTIONS UNTIL BALANCE IS ACHIEVED. DO NOT TYPE UP FINAL PANELBOARD DIRECTORIES UNTIL ALL RE-BALANCING AND REDISTRIBUTION OF CIRCUITS ARE COMPLETE.
- REPLACE ALL BURNED-OUT LAMPS AND LAMPS USED FOR TEMPORARY CONSTRUCTION LIGHTING IN PERMANENT LIGHT FIXTURES.
- AFTER ALL SYSTEMS HAVE BEEN INSPECTED AND ADJUSTED, CONFIRM ALL OPERATING FEATURES REQUIRED BY THE DRAWINGS AND SPECIFICATIONS AND MAKE FINAL ADJUSTMENTS AS NECESSARY.

16A 3 EXISTING EQUIPMENT REUSE AND REMOVAL

REMOVE ALL EXISTING WIRING, LIGHT FIXTURES, EXPOSED CONDUITS AND OTHER ELECTRICAL INSTALLATIONS NOT REUSED PRIOR TO SUBSTANTIAL COMPLETION OF THE WORK.

EXISTING RACEWAYS MAY BE REUSED IF THEIR POINTS OF TERMINATIONS ARE SUITABLE; IF THEY ARE CLEAN INSIDE WITH NO EVIDENCE OF RUST OR BURRS; IF FREE FROM CRACKS, FLATTENED SECTIONS OR SHARP BENDS; AND, IF SUITABLY LOCATED TO AVOID CONFLICTS WITH OTHER TRADES OR INSTALLATIONS. CAREFULLY "FISH" ALL EXISTING CONDUITS REUSED UNDER THIS CONTRACT TO REMOVE ALL DEBRIS AND OBSTRUCTIONS, AND SWAB UNTIL ALL MOISTURE IS REMOVED.

CUT, PATCH, AND REPAIR WHERE REQUIRED FOR NEW ELECTRICAL INSTALLATIONS, AND PATCH AND REPAIR ALL SURFACE DAMAGE RESULTING FROM THIS WORK. CUT FLUSH WITH THE FLOOR AND PLUG AT BOTH ENDS, RACEWAYS STUBBED ABOVE THE FLOOR AND NOT USED AT SUBSTANTIAL COMPLETION OF THE WORK.

RELOCATE ALL EXISTING ELECTRICAL SYSTEMS REQUIRED TO BE IN OPERATION AT SUBSTANTIAL COMPLETION OF THE CONTRACT, IF REQUIRED, AS A RESULT OF WORK INCLUDED UNDER THIS CONTRACT, EVEN IF NOT SPECIFICALLY INDICATED IN THE DRAWINGS OR SPECIFICATIONS.



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Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
ELECTRICAL SPECIFICATIONS

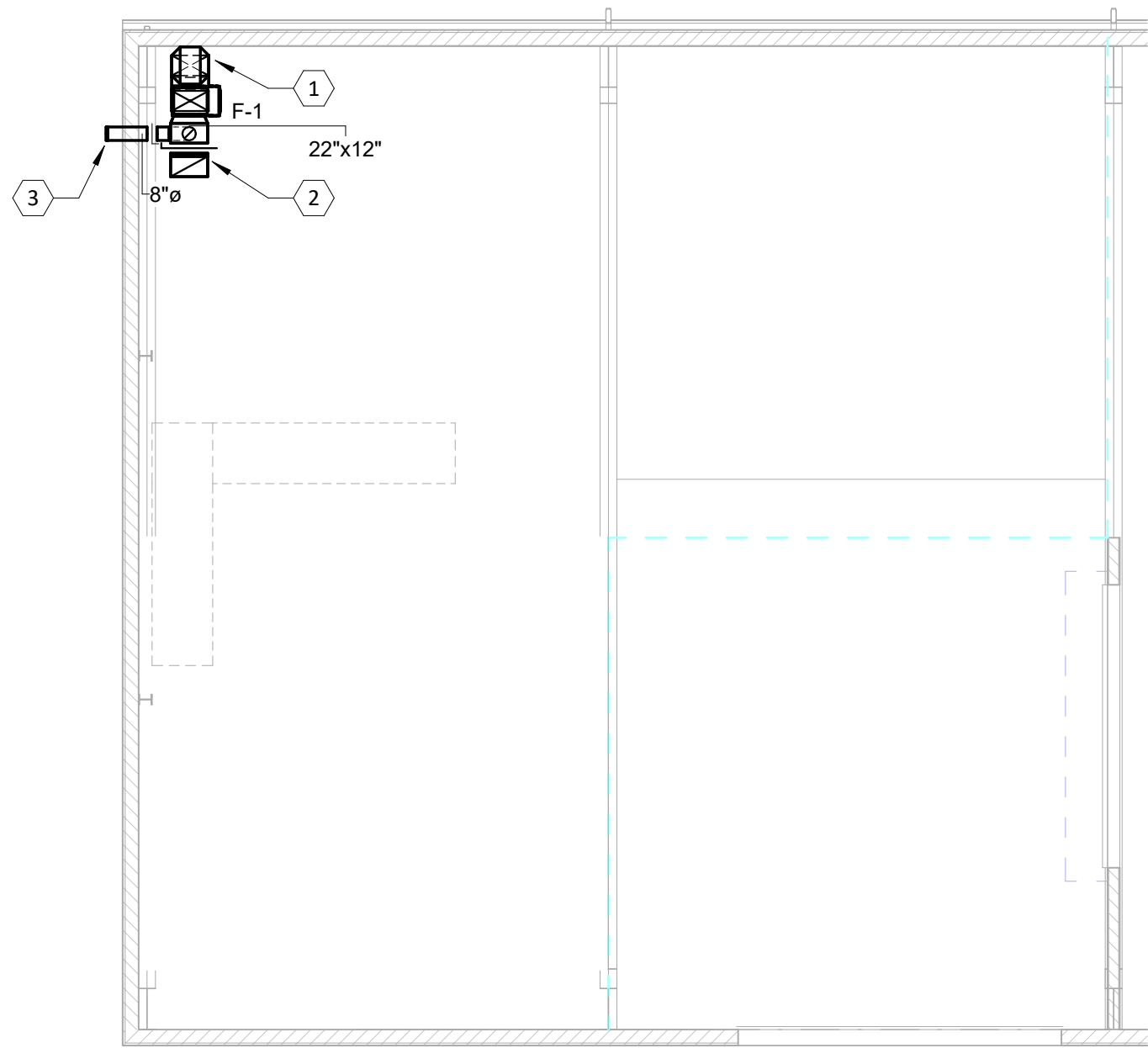
ISSUE		

REVISIONS		
NO.	DESCRIPTION	DATE

PROJECT NUMBER

DATE 03/31/23

E3.2



Mechanical Plan - Supply/Return Mezzanine

1/8" = 1'-0"

GENERAL NOTES

A. FURNISH AND INSTALL NEW DIFFUSERS AND REGISTERS AS SHOWN AND SPECIFIED.

B. FURNISH AND INSTALL VOLUME DAMPERS AT ALL NEW BRANCH TAKE-OFFS.

C. TEMPERATURE CONTROLS, INCLUDING WIRING, SHALL BE PART OF THE MECHANICAL CONTRACT.

D. DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.

E. FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS (IF REQUIRED) IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES. VERIFY EXACT METHOD OF FIRE AND MOISTURE CONTROL WITH LANDLORD AND /OR ARCHITECT.

F. ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECT TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIED FOR FIRE STOPS ASTM-E814.

G. ALL DUCTWORK SHALL CONFORM TO THE LATEST EDITION OF SMACNA STANDARDS AND RECOMMENDATIONS. FOR LOW PRESSURE DUCTWORK.

H. NEW DUCTWORK SHALL BE INSTALLED USING THE FOLLOWING MATERIALS:

1. RIGID: GALVANIZED SHEET METAL.
2. ROUND: SPIRO-SAFE ROUND DUCTWORK AND FITTINGS AS MANUFACTURED BY LINLAB, INC. (OR EQUAL) GALVANIZED STEEL, IN ACCORDANCE WITH ASTM, ASHRAE AND SMACNA REQUIREMENTS FOR LOW PRESSURE DUCTS. ALL VOLUME DAMPERS SHALL BE SPIRO-SAFE TYPE DRU, DSU OR DTU OR APPROVED EQUAL.
3. FLEXIBLE: SHALL BE FLEXMASTER TYPE 8, THERMAFLEX TYPE G-KM, OR EQUAL (FIRE RETARDANT POLYETHYLENE) PROTECTIVE VAPOR BARRIER, U.L.181 CLASS 1, ACOUSTICAL INSULATED DUCT, 2" (R-6.0) FIBERGLASS INSULATION. PROVIDE CPE LINER WITH STEEL WIRE HELIX MECHANICALLY LOCKED OR PERMANENTLY BONDED TO THE LINER.

I. FLEXIBLE DUCT RUNS SHALL NOT EXCEED 5 FEET IN LENGTH AND SHALL BE INSTALLED STRAIGHT AS POSSIBLE AVOIDING TIGHT TURNS. CONNECT EACH END WITH STAINLESS STEEL SCREW OPERATED METAL DRAWBANDS.

J. FIBERGLASS DUCTWORK IS NOT PERMITTED.

K. A MINIMUM OF R-6 DUCT INSULATION SHALL BE INSTALLED ON ALL DUCTWORK.

L. NEW DUCTWORK INSULATION SHALL BE INSTALLED USING THE FOLLOWING MATERIALS:
-WRAP: 1.5" THICK, 3/4 LB. DENSITY FIBERGLASS INSULATION WITH VAPOR BARRIER JACKET.

M. ALL EXHAUST DISCHARGE SHALL BE 3'-0" FROM PROPERTY LINES; 3'-0" FROM OPERABLE OPENINGS INTO BUILDINGS AND 10'-0" FROM MECHANICAL AIR INTAKES. IMC 501.3.1.

N. EXHAUST OPENINGS THAT TERMINATE OUTDOORS SHALL BE PROTECTED WITH CORROSION-RESISTANT SCREENS, LOUVER OR GRILLES. OPENINGS IN SCREENS, LOUVERS AND GRILLES SHALL BE SIZED NOT LESS THAN 1/4" AND NOT LARGER THAN 1/2". OPENINGS SHALL BE PROTECTED AGAINST LOCAL WEATHER CONDITIONS. LOUVERS THAT PROTECT EXHAUST OPENINGS IN STRUCTURES LOCATED IN HURRICANE-PRONE REGIONS, AS DEFINED IN THE INTERNATIONAL BUILDING CODE, SHALL COMPLY WITH AMCA STANDARD 550. OUTDOOR OPENINGS LOCATED IN EXTERIOR WALLS SHALL MEET THE PROVISIONS FOR EXTERIOR WALL OPENING PROTECTION IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE. IMC 501.3.2.

O. DRAWING IS BASED UPON AVAILABLE INFORMATION ON SITE, ANY DISCREPANCIES REPORT TO ENGINEER.

AIR BALANCE SCHEDULE		
	EXHAUST AIR (CFM)	OUTSIDE AND MAKE-UP AIR (CFM)
SPLIT SYSTEM (FURNACE)		160 CFM
EXHAUST	75 CFM	
GROSS OA & MUA AIR		160 CFM
GROSS EXHAUST & RELIEF AIR	75 CFM	
NET SPACE PRESSURE	85 CFM	

KEY NOTES

1. SUPPLY DUCT DROPS FROM SECOND FLOOR TO FEED FIRST FLOOR DIFFUSERS.

2. RETURN DUCT TURNS UP TO SECOND FLOOR BACK TO FURNACE.

3. FURNISH AND INSTALL NEW WEATHER PROOF CAP, BACKDRAFT DAMPER, AND BIRD SCREEN TO PROVIDE OUTSIDE AIR TO SPLIT SYSTEM IN MEZZANINE.

TEMPERATURE CONTROL NOTES

A. TEMPERATURE CONTROL WORK SHALL BE A PART OF THE MECHANICAL CONTRACT. FURNISH AND INSTALL ALL THERMOSTATS, WIRING, ETC., REQUIRED FOR A COMPLETE SYSTEM.

B. FURNISH AND INSTALL NEW A.C. UNIT CONTROLS IN THE LOCATION SHOWN.

C. ALL WIRING SHALL BE IN CONDUIT.

D. INSTALL IN THE LOCATION SHOWN.

E. VERIFY THE NUMBER OF CONTROL WIRES REQUIRED FOR A COMPLETE INSTALLATION.

F. INSTALLATION OF THE THERMOSTATS SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

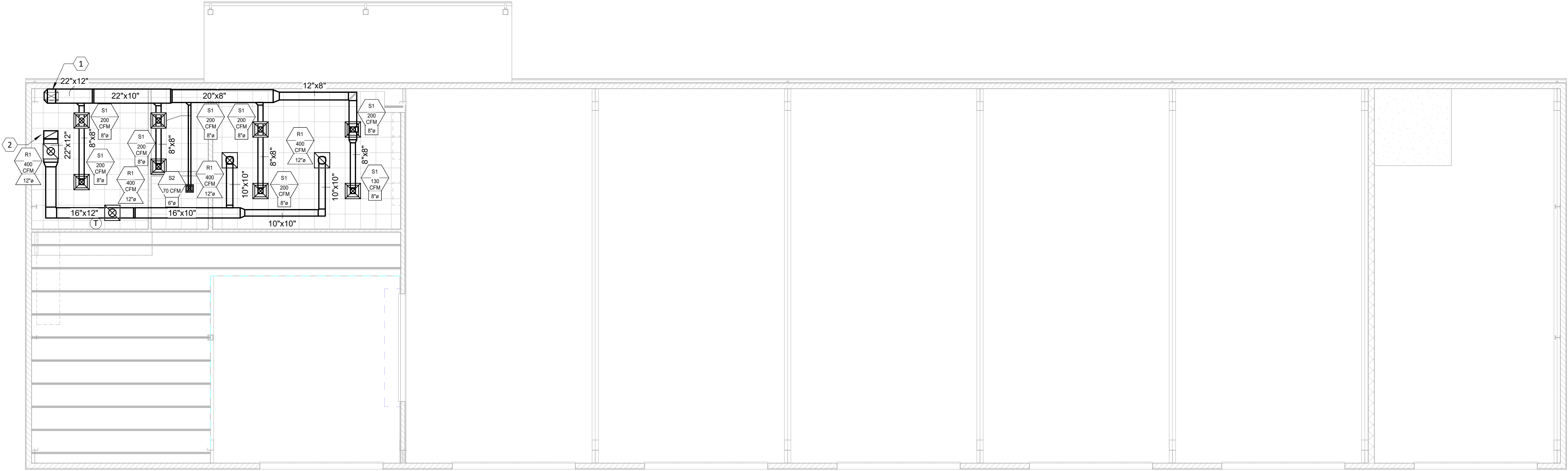
G. ON "DAY" CYCLE:

1. SUPPLY FAN RUNS CONTINUOUSLY.
2. ECONOMIZER CYCLE OPERATIVE (AS APPLICABLE).
3. THERMOSTAT SHALL ENERGIZE COOLING OR HEATING CYCLES IN THE A.C. UNIT AS REQUIRED.

H. ON "NIGHT" CYCLE:

1. SUPPLY FAN OFF.
2. ECONOMIZER CYCLE INOPERATIVE (AS APPLICABLE), FRESH AIR DAMPER CLOSED.
3. COOLING CYCLE INOPERATIVE.
4. ON A CALL FOR HEATING FROM THE THERMOSTAT, FAN SHALL START AND HEATING CYCLE SHALL BE ENERGIZED; BOTH SHALL CONTINUE TO OPERATE UNTIL THE THERMOSTAT IS SATISFIED.

I. PROVIDE A MORNING WARMUP CYCLE WHICH SHALL HOLD THE PRIMARY AIR DAMPER CLOSED, START THE FAN AND ENERGIZE THE HEATING COIL UNTIL THE SYSTEM REACHES THE "DAY" THERMOSTAT SETTING.



Mechanical Plan - Supply/Return

1/8" = 1'-0"



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Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
MECHANICAL PLAN -
SUPPLY/RETURN

ISSUE

REVISIONS

NO.	DESCRIPTION	DATE

PROJECT NUMBER

DATE 03/31/23

M1.1

KEY NOTES

- FURNISH AND INSTALL NEW CO2 SENSOR DESIGNATED "SCO-1" TO BE ARMSTRONG MODEL AMC-1222, SENSOR TO BE LOW-MOUNTED AND CONNECT TO SENSOR CONTROL SYSTEM DESIGNATED "SCTRL-1".
- FURNISH AND INSTALL NEW CO2 CONTROL SYSTEM DESIGNATED "SCTRL-1" TO BE ARMSTRONG MODEL AMC-1AD AND SENSE CO2 THROUGH "SCO-1" COMPONENT(S) IN AREA AND CONTROL LOUVERS 'LV-1' AND TRANSFER GRILLES 'TF-4' TO OPEN AND TURN ON EXHAUST FAN 'EF-2'.
- FURNISH AND INSTALL NEW ACTUATING LOUVER DESIGNATED 'LV-1' TO BE RUSKIN MODEL ELM6DW, SIZE 30" X 18", WALL-MOUNTED HIGH AND CONNECT TO SENSOR CONTROL SYSTEM IN ASSOCIATED BAY DESIGNATED "SCTRL-1".
- FURNISH AND INSTALL NEW ACTUATING LOUVER DESIGNATED 'LV-2' TO BE RUSKIN MODEL ELM6DW, SIZE 24" X 18", WALL-MOUNTED HIGH AND CONNECT TO SENSOR CONTROL SYSTEM IN ASSOCIATED BAY DESIGNATED "SCTRL-1".
- FURNISH AND INSTALL NEW ACTUATING TRANSFER GRILLE DESIGNATED 'TF-1' TO BE RUSKIN MODEL ELM6DW, SIZE 18" X 18", WALL-MOUNTED HIGH AND CONNECT TO SENSOR CONTROL SYSTEM DESIGNATED "SCTRL-1".
- FURNISH AND INSTALL NEW WEATHER PROOF CAP, BACKDRAFT DAMPER, AND BIRD SCREEN TO ACT AS EXHAUST FOR EXHAUST FAN DESIGNATED "EF-1".
- FURNISH AND INSTALL NEW EXHAUST FAN 'EF-1' TO BE CONTROLLED BY LIGHT SWITCH.
- FURNISH AND INSTALL NEW EXHAUST FAN 'EF-2' GREENHECK MODEL CUBE-180 WITH WEATHERHOOD, WALL HOUSING, AND DAMPER TO BE CONTROLLED BY INPUT CONTROLLERS DESIGNATED 'SCTRL-1'
- FURNISH AND INSTALL NEW EXHAUST FAN 'EF-3' GREENHECK MODEL CUE-120-VG WITH WEATHERHOOD, WALL HOUSING, AND DAMPER TO BE CONTROLLED BY INPUT CONTROLLER IN BAY DESIGNATED 'SCTRL-1'
- FURNISH AND INSTALL NEW UNIT HEATER DESIGNATED 'UH-1', REZNOR MODEL UDXC-150.
- FURNISH AND INSTALL NEW UNIT HEATER DESIGNATED 'UH-2', REZNOR MODEL UDXC-60
- FURNISH AND INSTALL NEW 8' CEILING-MOUNTED (MOUNTED AT 20') SHOP FAN DESIGNATED 'HVLS-1' SKYBLADE MODEL SP-0824-523-3.
- FURNISH AND INSTALL NEW EXHAUST RAIL SYSTEM FOR VEHICLE EXHAUST HOSE CONNECTION, CONNECT TO EXHAUST FAN 'EF-3' TO BE MOUNTED ON EXTERIOR SIDE WALL.
- FURNISH AND INSTALL NEW EXHAUST FAN 'EF-4' WITH WEATHERHOOD, WALL HOUSING, AND DAMPER.

GENERAL NOTES

- A. FURNISH AND INSTALL NEW DIFFUSERS AND REGISTERS AS SHOWN AND SPECIFIED.

B. FURNISH AND INSTALL VOLUME DAMPERS AT ALL NEW BRANCH TAKE-OFFS.

C. TEMPERATURE CONTROLS, INCLUDING WIRING, SHALL BE PART OF THE MECHANICAL CONTRACT.

D. DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.

E. FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS (IF REQUIRED) IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES. VERIFY EXACT METHOD OF FIRE AND MOISTURE CONTROL WITH LANDLORD AND /OR ARCHITECT.

F. ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECT TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIED FOR FIRE STOPS ASTM-E814.

G. ALL DUCTWORK SHALL CONFORM TO THE LATEST EDITION OF SMACNA STANDARDS AND RECOMMENDATIONS. FOR LOW PRESSURE DUCTWORK.

H. NEW DUCTWORK SHALL BE INSTALLED USING THE FOLLOWING MATERIALS:
A. RIGID: GALVANIZED SHEET METAL
B. ROUND: SPIRO-SAFE ROUND DUCTWORK AND FITTINGS AS MANUFACTURED BY LINLAB, INC. (OR EQUAL) GALVANIZED STEEL, IN ACCORDANCE WITH ASTM, ASHRAE AND SMACNA REQUIREMENTS FOR LOW PRESSURE DUCTS. ALL VOLUME DAMPERS SHALL BE SPIRO-SAFE TYPE DRU, DSU OR DTU OR APPROVED EQUAL.
C. FLEXIBLE: SHALL BE FLEXMASTER TYPE 8, THERMAFLEX TYPE G-KM, OR EQUAL (FIRE RETARDANT POLYETHYLENE) PROTECTIVE VAPOR BARRIER, U.L.181 CLASS 1, ACOUSTICAL INSULATED DUCT, 2" (R-6.0) FIBERGLASS INSULATION. PROVIDE CPE LINER WITH STEEL WIRE HELIX MECHANICALLY LOCKED OR PERMANENTLY BONDED TO THE LINER.

I. FLEXIBLE DUCT RUNS SHALL NOT EXCEED 5 FEET IN LENGTH AND SHALL BE INSTALLED STRAIGHT AS POSSIBLE AVOIDING TIGHT TURNS. CONNECT EACH END WITH STAINLESS STEEL SCREW OPERATED METAL DRAWBANDS.

J. FIBERGLASS DUCTWORK IS NOT PERMITTED.

K. A MINIMUM OF R-6 DUCT INSULATION SHALL BE INSTALLED ON ALL DUCTWORK.

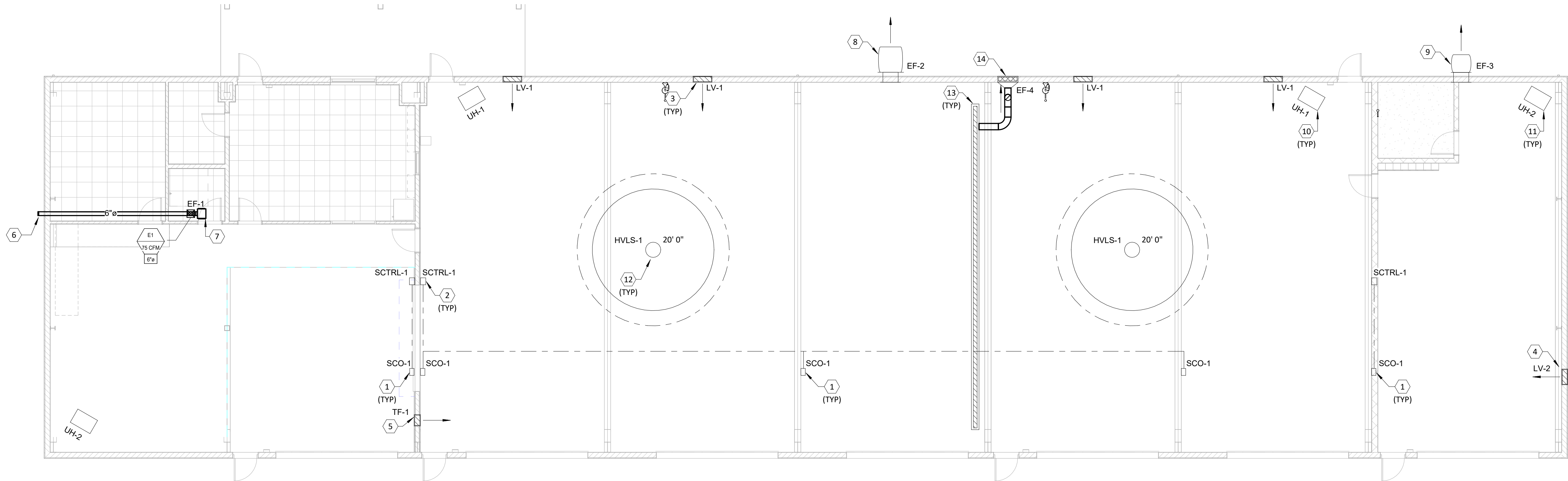
L. NEW DUCTWORK INSULATION SHALL BE INSTALLED USING THE FOLLOWING MATERIALS:
-WRAP: 1.5" THICK, 3/4 LB. DENSITY FIBERGLASS INSULATION WITH VAPOR BARRIER JACKET.

M. ALL EXHAUST DISCHARGE SHALL BE 3'-0" FROM PROPERTY LINES; 3'-0" FROM OPERABLE OPENINGS INTO BUILDINGS AND 10'-0" FROM MECHANICAL AIR INTAKES. IMC 501.3.1.

N. EXHAUST OPENINGS THAT TERMINATE OUTDOORS SHALL BE PROTECTED WITH CORROSION-RESISTANT SCREENS, LOUVER OR GRILLES. OPENINGS IN SCREENS, LOUVERS AND GRILLES SHALL BE SIZED NOT LESS THAN 1/4" AND NOT LARGER THAN 1/2". OPENINGS SHALL BE PROTECTED AGAINST LOCAL WEATHER CONDITIONS. LOUVERS THAT PROTECT EXHAUST OPENINGS IN STRUCTURES LOCATED IN HURRICANE-PRONE REGIONS, AS DEFINED IN THE INTERNATIONAL BUILDING CODE, SHALL COMPLY WITH AMCA STANDARD 550. OUTDOOR OPENINGS LOCATED IN EXTERIOR WALLS SHALL MEET THE PROVISIONS FOR EXTERIOR WALL OPENING PROTECTION IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE. IMC 501.3.2.

O. DRAWING IS BASED UPON AVAILABLE INFORMATION ON SITE, ANY DISCREPANCIES REPORT TO ENGINEER.

NOTE ON CONTAMINATION:
IN THE EVENT ARMSTRONG SENSOR MOUNTED LOW IN SERVICE BAY, AMC-1222, DETECTS CO LEVELS GREATER THAN IS PROGRAMMED SAFE, AUDIO/VISUAL ALARM ACTIVATES, SENDS SIGNAL TO MOTORIZED DAMPER WHICH OPENS, LOUVER'S AND EF-2 AND 3 SHALL ENERGIZE TO MAXIMUM VENTILATION TO ACHIEVE 6 AIR CHANGES PER HOUR. ONCE DETECTION IS NO LONGER SENSED FOR A DURATION OF 5-MINUTES, LOUVER'S, EF'S AND MOTORIZED DAMPER SHALL DE-ENERGIZE AND DAMPER GOES BACK TO NORMALLY CLOSED POSITION. LOUVER'S/EF'S RETURN TO NORMAL OPERATION.



Mechanical Plan - Exhaust

1/8" = 1'-0"



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Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

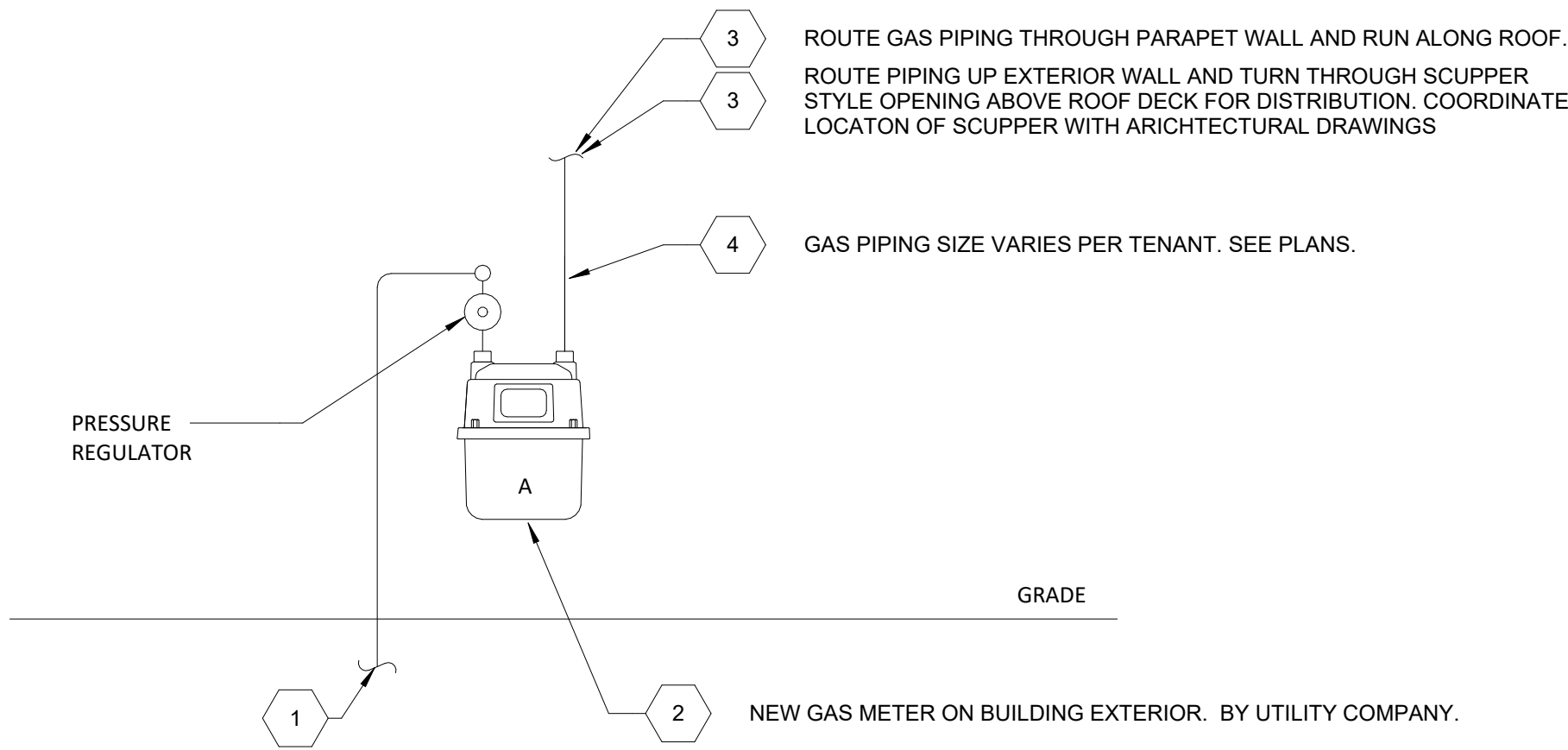
DRAWING
MECHANICAL PLAN - EXHAUST

ISSUE		

REVISIONS		
NO.	DESCRIPTION	DATE

PROJECT NUMBER
DATE 03/31/23

M1.2



GAS SERVICE AND METER DIAGRAM

NOT TO SCALE

- NEW GAS WORK:
- EXISTING GAS METER TO REMAIN BUT HAVE NEW GAS LOAD AS SHOWN IN DETAIL AND PLAN. DESIGN INTENT IS TO RUN NEW MAIN AND BRANCH GAS PIPING THROUGHOUT BUILDING. ALL NEW GAS PIPING HAS BEEN SIZED BASED ON LONGEST LENGTH METHOD WITH A DISTANCE OF ± 250'-0", 2" PSI INLET PRESSURE, 0.5" PSI PRESSURE DROP AND 0.60 SPECIFIC GRAVITY (PER TABLE 402.4 IFGC). TOTAL GAS LOAD ON THIS METER (A) IS 506 MBH.
 - CONTRACTOR SHALL VERIFY EXISTING FIELD CONDITIONS AND DETERMINE IF DESIGN INTENT CAN BE MET GIVEN THE EXISTING ASSUMPTIONS STATED. IF EXISTING ASSUMPTIONS ARE NOT CONSISTENT WITH EXISTING FIELD CONDITIONS, CONTACT ENGINEER FOR DISPOSITION PRIOR TO BID.

FUTURE BUILDING GAS LOAD

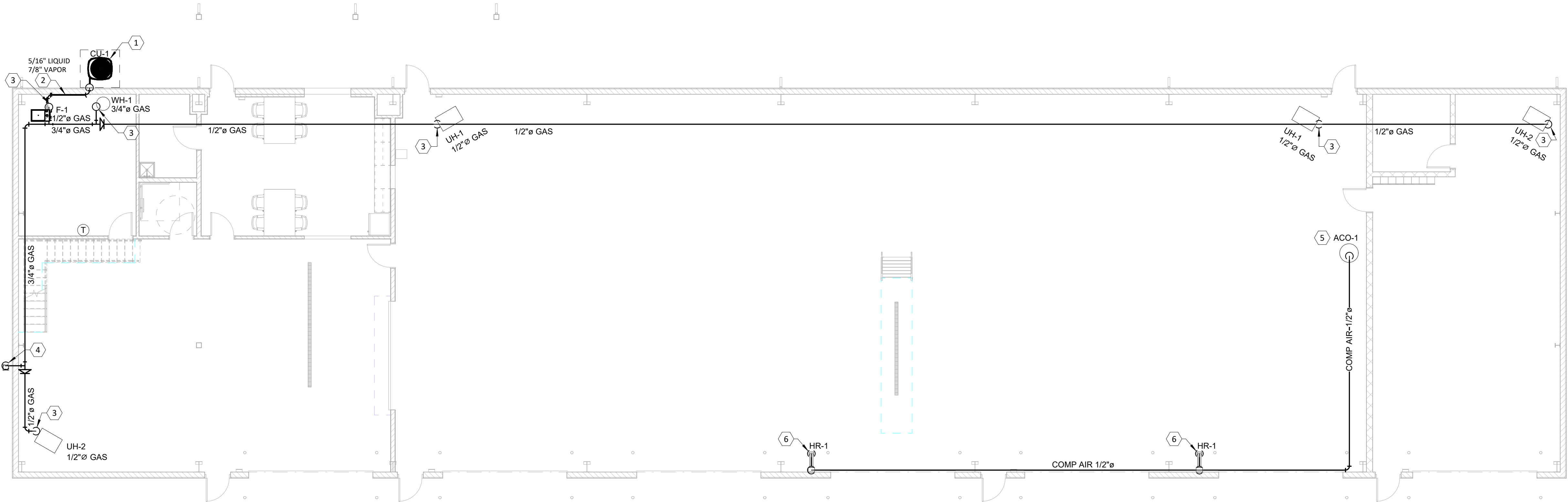
EQUIPMENT MARK	QTY	INPUT PER EQUIPMENT (MBH)	CONNECTION SIZE
FU-1	1	46	1/2"
WH-1	1	40	3/4"
UH-1	2	150	1/2"
UH-2	2	60	1/2"
TOTAL		506	
GAS PIPE SIZED USING 2 PSI AND LONGEST LENGTH METHOD WITH A DISTANCE OF ±250'-0"			

GENERAL NOTES

- FURNISH AND INSTALL NEW DIFFUSERS AND REGISTERS AS SHOWN AND SPECIFIED.
- FURNISH AND INSTALL VOLUME DAMPERS AT ALL NEW BRANCH TAKE-OFFS.
- TEMPERATURE CONTROLS, INCLUDING WIRING, SHALL BE PART OF THE MECHANICAL CONTRACT.
- DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
- FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS (IF REQUIRED) IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES. VERIFY EXACT METHOD OF FIRE AND MOISTURE CONTROL WITH LANDLORD AND /OR ARCHITECT.
- ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECT TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIED FOR FIRE STOPS ASTM-E814.
- ALL DUCTWORK SHALL CONFORM TO THE LATEST EDITION OF SMACNA STANDARDS AND RECOMMENDATIONS. FOR LOW PRESSURE DUCTWORK.
- NEW DUCTWORK SHALL BE INSTALLED USING THE FOLLOWING MATERIALS:
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B. ROUND: SPIRO-SAFE ROUND DUCTWORK AND FITTINGS AS MANUFACTURED BY LINLAB, INC. (OR EQUAL) GALVANIZED STEEL, IN ACCORDANCE WITH ASTM, ASHRAE AND SMACNA REQUIREMENTS FOR LOW PRESSURE DUCTS. ALL VOLUME DAMPERS SHALL BE SPIRO-SAFE TYPE DRU, DSU OR DTU OR APPROVED EQUAL.
C. FLEXIBLE: SHALL BE FLEXMASTER TYPE 8, THERMAFLEX TYPE G-KM, OR EQUAL (FIRE RETARDANT POLYETHYLENE) PROTECTIVE VAPOR BARRIER, U.L.181 CLASS 1, ACOUSTICAL INSULATED DUCT, 2" (R-6.0) FIBERGLASS INSULATION. PROVIDE CPE LINER WITH STEEL WIRE HELIX MECHANICALLY LOCKED OR PERMANENTLY BONDED TO THE LINER.
- FLEXIBLE DUCT RUNS SHALL NOT EXCEED 5 FEET IN LENGTH AND SHALL BE INSTALLED STRAIGHT AS POSSIBLE AVOIDING TIGHT TURNS. CONNECT EACH END WITH STAINLESS STEEL SCREW OPERATED METAL DRAWBANDS.
- FIBERGLASS DUCTWORK IS NOT PERMITTED.
- A MINIMUM OF R-6 DUCT INSULATION SHALL BE INSTALLED ON ALL DUCTWORK.
- NEW DUCTWORK INSULATION SHALL BE INSTALLED USING THE FOLLOWING MATERIALS:
-WRAP: 1.5" THICK, 3/4 LB. DENSITY FIBERGLASS INSULATION WITH VAPOR BARRIER JACKET.
- ALL EXHAUST DISCHARGE SHALL BE 3'-0" FROM PROPERTY LINES; 3'-0" FROM OPERABLE OPENINGS INTO BUILDINGS AND 10'-0" FROM MECHANICAL AIR INTAKES. IMC 501.3.1.
- EXHAUST OPENINGS THAT TERMINATE OUTDOORS SHALL BE PROTECTED WITH CORROSION-RESISTANT SCREENS, LOUVER OR GRILLES. OPENINGS IN SCREENS, LOUVERS AND GRILLES SHALL BE SIZED NOT LESS THAN 1/4" AND NOT LARGER THAN 1/2". OPENINGS SHALL BE PROTECTED AGAINST LOCAL WEATHER CONDITIONS. LOUVERS THAT PROTECT EXHAUST OPENINGS IN STRUCTURES LOCATED IN HURRICANE-PRONE REGIONS, AS DEFINED IN THE INTERNATIONAL BUILDING CODE, SHALL COMPLY WITH AMCA STANDARD 550. OUTDOOR OPENINGS LOCATED IN EXTERIOR WALLS SHALL MEET THE PROVISIONS FOR EXTERIOR WALL OPENING PROTECTION IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE. IMC 501.3.2.
- DRAWING IS BASED UPON AVAILABLE INFORMATION ON SITE, ANY DISCREPANCIES REPORT TO ENGINEER.

KEY NOTES

- FURNISH AND INSTALL NEW CONDENSING UNIT. SET ON CONCRETE PAD AS SHOWN. PAD IN BY OTHERS.
- FURNISH AND INSTALL NEW LIQUID AND GAS LINES AS SHOWN.
- FURNISH AND INSTALL NEW GAS PIPING AND PRESSURE REGULATOR AT CONNECTION POINT, COORDINATE EXACT CONNECTION LOCATION WITH EQUIPMENT.
- FURNISH AND INSTALL NEW PRESSURE REGULATOR AT CONNECTION TO METER.
- FURNISH AND INSTALL NEW 60-GALLON AIR COMPRESSOR QUINCY MODEL 2V41C60VC WITH COPPER OUTLETS, AIR FILTER, PRESSURE REGULATOR, AND MAINTENANCE KIT.
- FURNISH AND INSTALL NEW 75' 1/2" DIAMETER COMPRESSOR AIR POLY HOSE REEL.



Mechanical Plan - Piping

1/8" = 1'-0"



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Storage Facility

593 E BRAGG AVE
UPLAND, IN 46989

Town of Upland

DRAWING
MECHANICAL PLAN - PIPING

ISSUE

REVISIONS

NO.	DESCRIPTION	DATE

PROJECT NUMBER

DATE 03/31/23

M1.3

Split System Schedule																		
Mark	MANUFACTURER	MODEL	NOMINAL CAPACITY	SUPPLY AIR	OUTSIDE AIR	SENSIBLE COOLING CAPACITY (MBH)	TOTAL COOLING CAPACITY (MBH)	EER	SEER	Gas Heat_BTU Input	Gas Heat_BTU Output	VOLTAGE	PHASE	COMPRESSOR QTY.	CONDENSER QTY.	MCA	APPROXIMATE OPERATING WEIGHT (LBS)	REMARKS
CU-1	TRANE	5TTA4048A3000A	4 TONS	--	--	36.43	44.47	--	--	--	--	208 V	3	1	1	16.00 A	257.0	1, 2, 3, 6
F-1	TRANE	5TXCB006AS3+S9 X2B080U4PSB	4 TONS	1600 CFM	160 CFM			11.7	14.3	80.0 Btu/h	77.6 Btu/h	120 V	1			11.00 A	127.0	1, 4, 5, 6

- NOTES:
- RATED @ 80° EDB, 67° EWB, 95° AMBIENT
 - PROVIDE 5 YEAR COMP. WARRANTY
 - LOW AMBIENT CONTROL TO 0°
 - PROVIDE 2" THICK THROWAWAY FILTERS
 - FURNISH AND INSTALL MANUFACTURER CURB AS REQUIRED.
 - HIGH EFFICIENCY MODEL COMPLETE WITH ECONOMIZER CYCLE AND ALL FACTORY SAFETY AND OPERATING CONTROLS

Air Device Schedule								
MARK	SERVICE	SIZE	MANUFACTURER	MODEL	BORDER TYPE	PATTERN	NOTES	REMARKS
S1	SUPPLY	24"x24"	TITUS	TDCA	3-LAY-IN	PER PLAN	1, 2, 6	
S2	SUPPLY	12"x12"	TITUS	TDCA	3-DRYWALL	PER PLAN	1, 2, 6	
R1	RETURN	24"x24"	TITUS	50F	3-LAY-IN	PER PLAN	1, 2, 6	
TF-1	--	18"x18"	RUSKIN	ELM6DW	3-DRYWALL	--	11, 12, 14	
LV-1	--	30"x18"	RUSKIN	ELM6DW	3-DRYWALL	--	11, 12, 14	
LV-2	--	24"x18"	RUSKIN	ELM6DW	3-DRYWALL	--	11, 12, 13, 14	

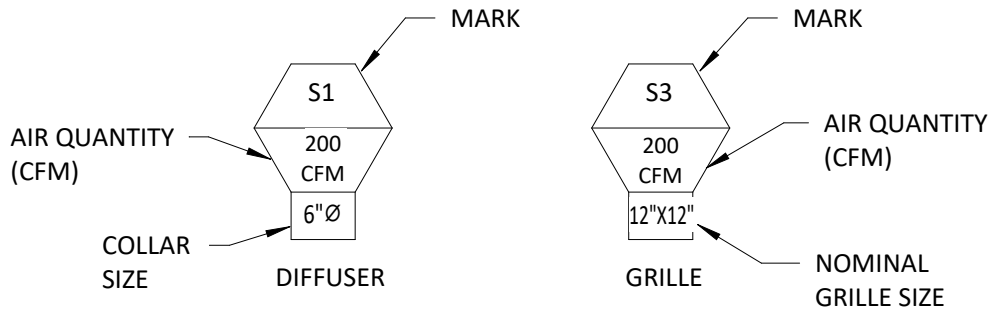
- NOTES:
- PROVIDE WITH MODEL EG EQUALIZING GRID
 - PROVIDE WITH MODEL AG-75 OPPOSED BLADE VOLUME DAMPER (ROUND NECK)
 - PROVIDE WITH MODEL AG-95 OPPOSED BLADE VOLUME DAMPER (SQUARE NECK)
 - PROVIDE WITH MODEL AG-15-AA VOLUME DAMPER (RECTANGULAR RETURN AIR, 50F)
 - PROVIDE WITH TRM PLASTER FRAME
 - LIMIT FLEXIBLE DUCT CONNECTION TO 6'-0" MAXIMUM
 - PROVIDE WITH TITUS MODEL MP137 INSULATED PLENUM (DO NOT SUPPLY FOR BLANK SECTIONS)
 - PROVIDE WITH MODEL AG-35-AA OPPOSED BLADE VOLUME DAMPER (RECTANGULAR SUPPLY AIR, 272RL & 23RL)
 - PROVIDE WITH ASD-AIR SCOOP DEVICE
 - PROVIDE WITH RUSKIN MODEL CFD FIRE DAMPER
 - PROVIDE WITH APPROPRIATE SLEEVE.
 - PROVIDE WITH APPROPRIATE SEAL.
 - PROVIDE WITH APPROPRIATE BUG SCREEN.
 - MUST MATCH FIRE RATING OF ASSOCIATED WALL.

Fan Schedule											
MARK	MANUFACTURER	MODEL	DESIGN CFM	PRESSURE DROP	DRIVE TYPE	WATTS	FAN RPM	VOLTAGE	CONTROL TYPE	AREA SERVED	REMARKS
EF-1	GREENHECK	SP-A90	75	.15 IN-WG	DIRECT	16 W	900	120 V	OCCUPANCY SENSOR WALL SWITCH	RESTROOM	USED INTERMITTENTLY
EF-2	GREENHECK	CUBE-180	4500	.5 IN-WG	DIRECT	2400 W	1,311	120 V	CO2 SENSOR	GARAGE	USED IN CONTAMINATION
EF-3	GREENHECK	CUE-120-VG	900	.5 IN-WG	DIRECT	456 W	1,107	120 V	CO2 SENSOR	GARAGE	USED IN CONTAMINATION
EF-4	TBD	TBD	900	--	--	--	--	--	TBD	GARAGE	USED INTERMITTENTLY
HVLS-1	SKYBLADE	SP-0824-523-3	--	--	--	829 W	--	208 V	TBD	GARAGE	USED CONTINUOUSLY

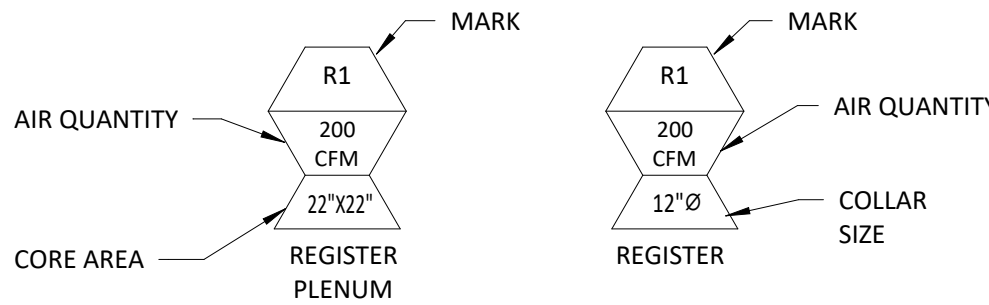
UNIT HEATER SCHEDULE								
MARK	MANUFACTURER	MODEL	UNIT SIZE	WATTS	AMPS	VOLTS	MOUNTING TYPE	AREA SERVED
UH-1	REZNOR	SP-UDXC-150	150	440 W	3.8	115	ROOF-HUNG	GARAGE
UH-2	REZNOR	SP-UDXC-60	60	280 W	2.4	115	ROOF-HUNG	GARAGE

MECHANICAL SYMBOL SCHEDULE

	KEYNOTE		CEILING RETURN AIR GRILLE
	THERMOSTAT		CEILING SUPPLY AIR DIFFUSER
	SUPPLY AIR		4-WAY THROW UNLESS OTHERWISE NOTED
	RETURN AIR		FLOOR SUPPLY AIR REGISTER
	10"Ø ROUND DUCT DIMENSION		WALL MOUNTED SUPPLY AIR REGISTER
	16X14 RECTANGULAR DUCT DIMENSION		WALL MOUNTED RETURN AIR GRILLE
	/// FLEX DUCT		DRYWALL MOUNTED SUPPLY AIR REGISTER
	TURNING VANE		DRYWALL MOUNTED RETURN AIR GRILLE
	VOLUME DAMPER		CEILING MOUNTED EXHAUST FAN
	PIPE BREAK		EF-11 EXHAUST FAN MARK
	GAS COCK		
	REGULATOR		
	CU-1 MECHANICAL EQUIPMENT MARK		
	CONDENSATE		
	LIQUID		
	SUCTION		
	CONDENSATE		
	GAS		



SUPPLY AIR TAGS



RETURN AIR/EXHAUST TAGS

MECHANICAL WORK NOTES - GENERAL

- A. MECHANICAL WORK SHALL BE COMPLETE IN EVERY DETAIL AND ALL MISCELLANEOUS ITEMS OF MATERIAL AND LABOR NECESSARY TO COMPLETE THE WORK DESCRIBED, SHOWN OR REASONABLY IMPLIED ON DRAWINGS OR SPECIFICATIONS SHALL BE INCLUDED IN THE CONTRACT. CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO THE WORK WHERE REQUESTED BY THE TENANT, WHEN SUCH ADJUSTMENTS ARE NECESSARY TO PROPER OPERATION AND WITHIN THE INTENT OF THE CONTRACT.
- B. MECHANICAL CONTRACTOR SHALL VISIT THE SITE AND VIEW ALL EXISTING CONDITIONS BEFORE SUBMITTING A PROPOSAL FOR THE WORK AS DESCRIBED AND SHOWN. NO EXTRAS WILL BE ENTERTAINED FOR FAILURE TO MAKE THIS VISIT.
- C. MECHANICAL CONTRACTOR SHALL ACCEPT SOLE AND COMPLETE RESPONSIBILITY FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK.
- D. CONFORM TO GENERAL CONTRACTOR'S SCHEDULE AND INSTRUCTIONS THROUGHOUT THE DURATION OF THE PROJECT AS REQUIRED TO COMPLY IN EVERY WAY NECESSARY.
- E. CONTRACTOR SHALL NOTIFY THE ARCHITECT AND/OR ENGINEER OF ERRORS, OMISSIONS OR DISCREPANCIES BEFORE CONSTRUCTION OR FABRICATION OF AFFECTED WORK, OR, FAILING SUCH NOTICE, SHALL BE RESPONSIBLE FOR CORRECTING SAME WITHOUT COST TO TENANT, ARCHITECT OR ENGINEER.
- F. ORDER EQUIPMENT ON A TIMELY BASIS (WITHIN 5 DAYS OF RECEIPT OF CONTRACT) TO MAINTAIN CONSTRUCTION SCHEDULE.
- G. SUBMIT ELECTRONIC COPIES OF SHOP DRAWINGS OF ALL EQUIPMENT FOR REVIEW BY ARCHITECT/ENGINEER. ONE (1) COPIES WILL BE RETAINED FOR RECORD. ONLY FURNISH SYSTEMS, EQUIPMENT AND MATERIAL IN COMPLIANCE WITH APPROVED SHOP DRAWINGS.
- H. WORK SHALL INCLUDE STARTUP OF ALL SYSTEMS, FURNISHING OF OPERATING AND MAINTENANCE INSTRUCTIONS, WARRANTEE FOR ALL EQUIPMENT AND ONE YEAR GUARANTEE OF ALL WORKMANSHIP, COMMENCING ON DATE OF ACCEPTANCE BY THE TENANT.
- I. WORK SHALL ALSO INCLUDE FULL ONE (1) YEAR MAINTENANCE, PARTS AND SERVICE CONTRACT FOR ALL EQUIPMENT FURNISHED UNDER THE CONTRACT.
- J. ON ALL AIR CONDITIONING EQUIPMENT WHICH INCLUDES COMPRESSORS (ROOFTOP, SPLIT SYSTEMS, ETC.), INCLUDE AN EXTENDED FOUR (4) YEAR WARRANTY FOR THE COMPRESSOR.
- K. VOLUME DAMPERS, SPLITTERS AND DEFLECTORS SHALL BE INSTALLED IN ALL DUCTS TO PERMIT ACCURATE BALANCING OF SYSTEM. THE DAMPERS, SPLITTERS AND DEFLECTORS SHALL BE ADJUSTED TO SATISFY THE HVAC REQUIREMENTS OF THE CONDITIONED SPACE AND LOCKED IN PLACE AS REQUIRED.
- L. WORK SHALL ALSO INCLUDE TESTING AND BALANCING OF A.C. SYSTEM BY A CERTIFIED BALANCING CONTRACTOR. CONTRACTOR SHALL SUBMIT COPIES OF TEST AND BALANCE REPORTS SHOWING DETAILED RESULTS OF WORK, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING: FLOW READINGS, STATIC PRESSURES, TEMPERATURE READINGS, MOTOR AMPERAGE, BALANCING OF AIR QUANTITIES TO PLAN REQUIREMENTS, ETC. AS REQUIRED. MAKE ALL ADJUSTMENTS AS REQUIRED TO PROVIDE DESIGN AIR FLOW.
- M. FURNISH ALL EQUIPMENT MANUALS AND WARRANTIES TO TENANT AT THE COMPLETION OF THE PROJECT.
- N. WHERE APPLICABLE, FURNISH AND INSTALL VIBRATION ISOLATION AS REQUIRED TO REDUCE, LIMIT OR REMOVE ALL VIBRATIONS FOR ALL MOVING EQUIPMENT. VIBRATION ISOLATION SHALL BE IN ACCORDANCE WITH ASHRAE RECOMMENDATIONS.
- O. ALL FABRICATED COMPONENTS (CONTRACTOR OR MANUFACTURER) OF THE OUTSIDE AIR, SUPPLY AIR, RETURN AIR AND EXHAUST AIR SYSTEMS SHALL BE CONSTRUCTED AND INSTALLED AIR TIGHT. THE INSTALLED SYSTEMS SHALL BE PRESSURE TESTED AS REQUIRED.
- P. FURNISH TWO (2) COPIES OF RECORD DRAWINGS OF THE A.C. SYSTEM TO THE OWNER FOR REVIEW AND APPROVAL, AND SUBMIT A LETTER TO THE OWNER CONFIRMING THAT THE SYSTEM WAS INSTALLED AS PER PLANS AND SPECIFICATIONS. DOCUMENTS WILL BE REQUIRED IN PDF AND CAD FORMAT. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS, AND ANY CHANGES MADE DURING CONSTRUCTION THAT ARE NOT IN COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS SHALL BE RESUBMITTED FOR APPROVAL AS AN AMENDED SET OF CONSTRUCTION DOCUMENTS.
- Q. ALL WORK AND EQUIPMENT SHALL BE CLEANED TO THE SATISFACTION OF THE OWNER BEFORE TURNING PROJECT OVER TO THE OWNER.
- R. SEAL ALL PENETRATIONS THROUGH WALLS, CEILINGS, FLOORS, ETC. SO THAT THEY ARE AIR, WATER AND FIRE TIGHT.
- S. FURNISH AND INSTALL ACCESS PANELS FOR ALL CONCEALED EQUIPMENT, FIRE DAMPERS, PIPING VALVES, CLEANOUTS, ETC. ACCESS PANELS SHALL BE OF SUFFICIENT SIZE TO PROVIDE ADEQUATE WORKING CLEARANCE AND ACCESS.
- T. FURNISH ALL MATERIAL AND EQUIPMENT AS SPECIFIED, EXCEPT WHERE SPECIFIC APPROVAL FOR SUBSTITUTION IS GIVEN BY THE TENANT.
- U. PROPOSAL SHALL BE BASED ON SPECIFIED MATERIAL AND EQUIPMENT. IN ORDER TO PROMOTE COMPETITION, HOWEVER, BIDDERS ARE ENCOURAGED TO SUBMIT ALTERNATE PROPOSALS ON ANY ALTERNATE MATERIALS AND/OR EQUIPMENT THEY WISH TO PROPOSE, INCLUDING ANY PRICE CHANGES EFFECTED BY ACCEPTANCE OF ALTERNATES.
- V. COST OF ANY CHANGES REQUIRED BY OTHER TRADES DUE TO SUBSTITUTION OF ALTERNATE EQUIPMENT SHALL BE INCLUDED IN THE ALTERNATE PROPOSAL.
- W. ALTERNATE PROPOSALS WILL BE ACCEPTED OR REJECTED BEFORE ISSUANCE OF CONTRACTS. NO CHANGES WILL BE ALLOWED AFTER THE CONTRACT IS SIGNED. ANY UNAUTHORIZED CHANGES TO THE DESIGN AND LAYOUT MAY BE REQUIRED TO BE REMOVED AT CONTRACTOR'S EXPENSE IF DEEMED NECESSARY BY THE ARCHITECT, ENGINEER OR OWNER'S REPRESENTATIVE.
- X. VERIFY LOCAL CONDITIONS AT SITE.
- Y. COMPLY WITH ALL APPLICABLE CODES.
- Z. SECURE AND PAY FOR ALL REQUIRED PERMITS.
- AA. SEE REFLECTED CEILING PLAN FOR EXACT LOCATION OF CEILING GRID, LIGHT FIXTURES, ETC.
- AB. ALL INSULATION MATERIALS, INCLUDING, BUT NOT LIMITED TO DUCT INSULATION AND PIPING INSULATION SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS (ON THE FLAME SPREAD TEST SCALE) AND SMOKE DEVELOPMENT OF 50 OR LESS (ON THE SMOKE TEST SCALE) OR AS DEFINED BY NFPA 255 STANDARD METHOD OF TESTING OF SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS, LOCAL CODES AND LOCAL AUTHORITIES HAVING JURISDICTION.
- AC. DIELECTRIC UNIONS SHALL BE USED TO CONNECT DISSIMILAR METALS OR METAL PIPING SHALL HAVE METAL CONNECTIONS ON EACH END THREADED TO MATCH THE ADJACENT PIPING. METAL COMPONENTS SHALL BE SEPARATED BY A NYLON INSULATOR TO PREVENT CURRENT FLOW BETWEEN DISSIMILAR METALS. UNIONS SHALL BE SUITABLE FOR THE SYSTEM OPERATING PRESSURES AND TEMPERATURE WELD TYPE: ASTM A-234.



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Upland Wastewater Treatment Utility Storage Facility

Town of Upland

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
MECHANICAL SCHEDULES AND
NOTES

ISSUE		

REVISIONS		
NO.	DESCRIPTION	DATE

PROJECT NUMBER
DATE 03/31/23

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Town of Upland

Upland Wastewater Treatment Utility Storage Facility

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
MECHANICAL DETAILS

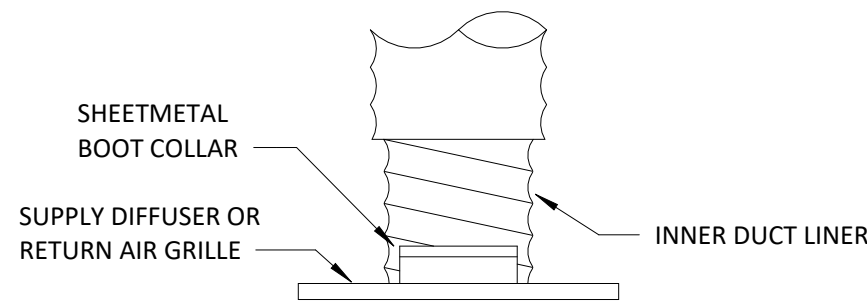
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REVISIONS		
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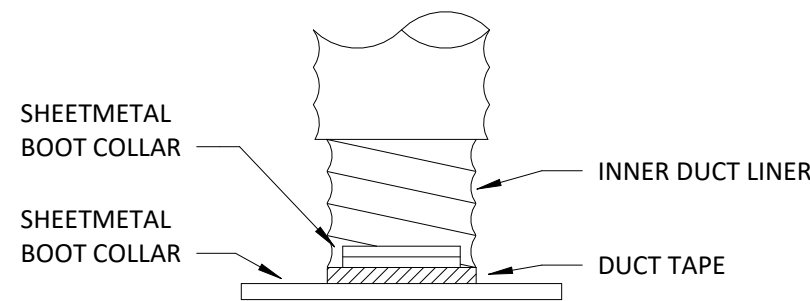
PROJECT NUMBER
DATE 03/31/23

M2.2

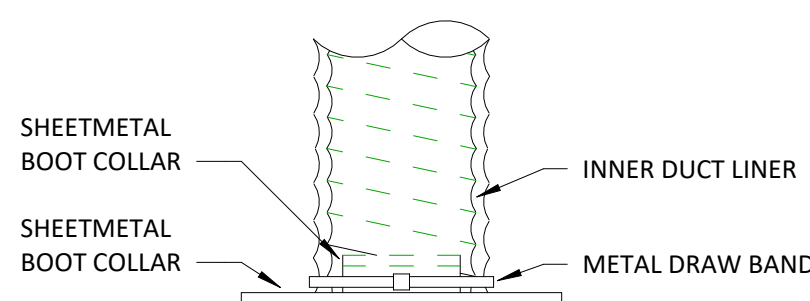
1. PULL OUTER INSULATION JACKET BACK AND SLIDE INNER LINER OVER SHEETMETAL COLLAR



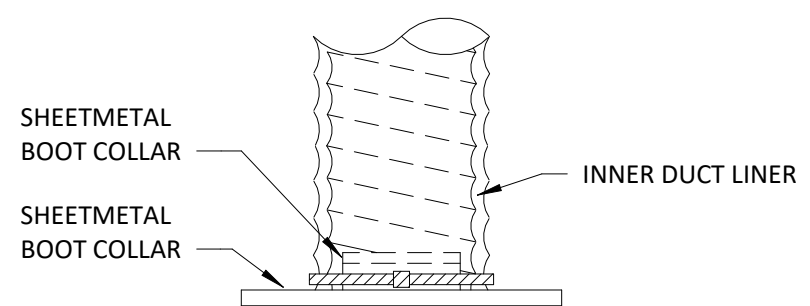
2. TAPE INNER-LINER TO SHEETMETAL COLLAR WITH SILVER DUCT TAPE. DUCT TAPE SHOULD BE WRAPPED AROUND SHEETMETAL COLLAR TWO FULL TURNS.



3. PULL OUTER INSULATION JACKET OVER SHEETMETAL COLLAR AND PLACE A METAL DRAW BAND OVER THE OUTER INSULATED JACKET BELOW THE SHEETMETAL COLLAR BEAD

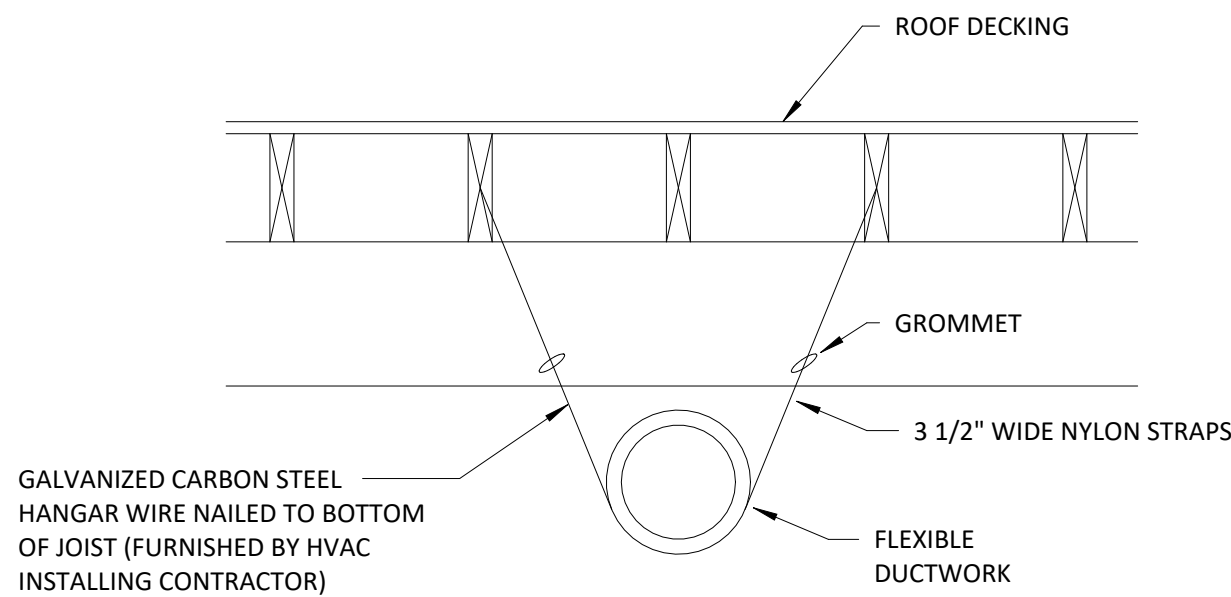


4. CUT EXCESS METAL DRAW BAND OFF AND WRAP METAL DRAW BAND WITH SILVER DUCT TAPE.



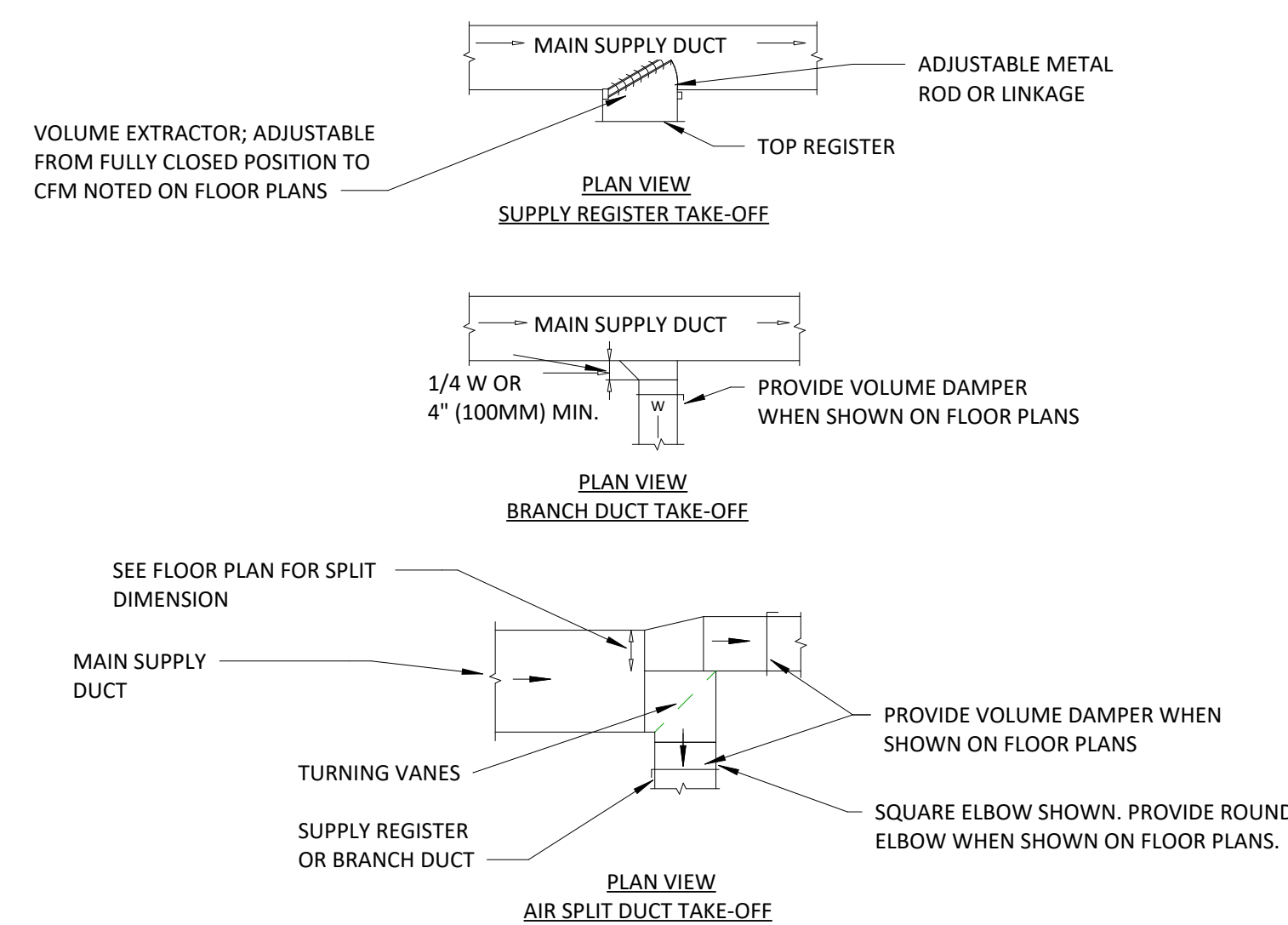
FLEX DUCT CONNECTION TO DIFFUSERS, GRILLES, AND SHEETMETAL PLENUM COLLARS

NOT TO SCALE



FLEXIBLE DUCT SUPPORT DETAIL

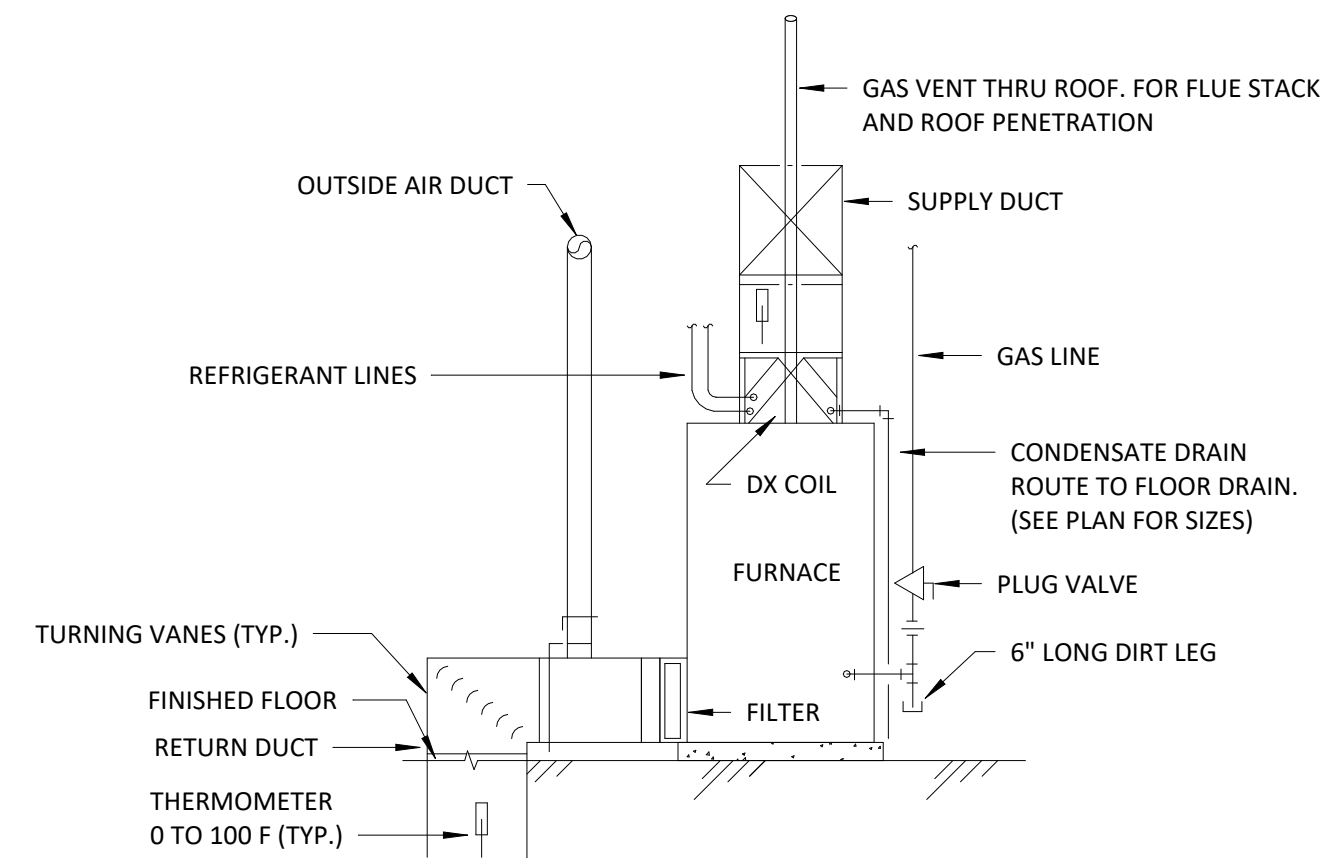
NOT TO SCALE



- DESIGNER'S NOTES:
1. THE SUPPLY REGISTER TAKE-OFF MAY BE USED FOR UP TO 25% OF THE MAIN DUCT CFM. THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM ANYTIME AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM (5 M/S) OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES AND MAY BE USED AT ANYTIME.
 2. SHOW VOLUME DAMPERS ON FLOOR PLANS.

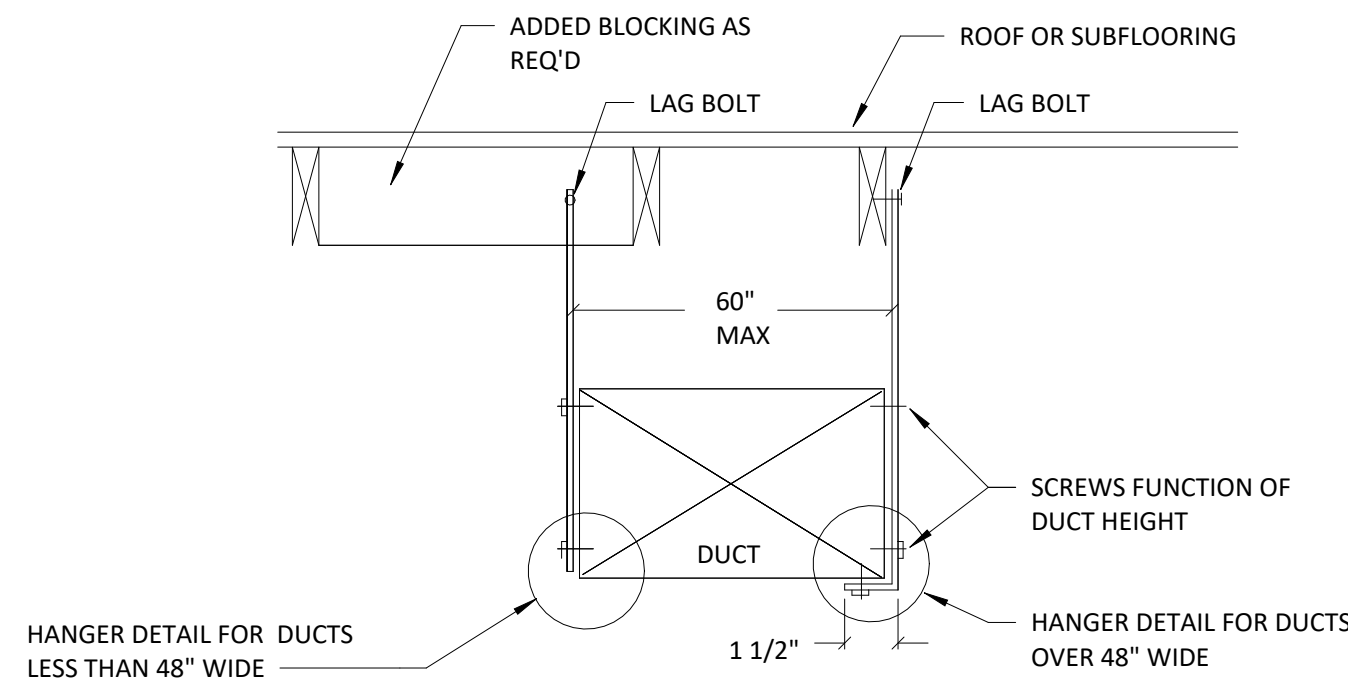
SUPPLY DUCTWORK TAKE-OFFS

NOT TO SCALE



UPFLOW GAS-FIRED FURNACE DETAIL

NOT TO SCALE



HANGER SIZE		HANGER SPACING	
DUCT SIZE	HANGER SIZE	DUCT SIZE	MAX SPACING
UP TO 2 SQ. FT.	1" X 1/16"	UP TO 4 SQ. FT.	8'-0"
2 TO 8 SQ. FT.	1" X 1/8"	4 TO 10 SQ. FT.	6'-0"
OVER 8 SQ. FT.	1" X 1/8"	OVER 10 SQ. FT.	4'-0"

NOTES:

1. ALL SUPPLEMENTARY STEEL OR ANGLE TO BE EITHER GALVANIZED OR BLACK.
2. DUCTS OVER 60" TO TRAPEZE WITH ROD AND ANGLE AS PER SMACNA.
3. DUCT SEALANT: UNITED DUCT SEALER, OR EQUAL. PROVIDE A NON HARDENING, NON-MIGRATING, MASTIC OR LIQUID ELASTIC SEALANT OF A TYPE AS RECOMMENDED BY THE MANUFACTURER SPECIFICALLY FOR SEALING JOINTS AND SEAMS IN SHEET METAL DUCTWORK. ALL DUCTWORK SHALL HAVE SEALED LONGITUDINAL AND TRANSVERSE JOINTS. WHERE SLIP AND DRIVE JOINTS ARE MADE, A SEALER SHALL BE APPLIED OVER THE ENTIRE JOINT AFTER THE DRIVE IS IN PLACE. APPLY A SECONDARY LAYER OF SEALER AT THE CORNERS AFTER THE DRIVE ENDS ARE CRIMPED IN PLACE. ALL LONGITUDINAL SEAMS SHALL BE COVERED WITH A SEALING MASTIC. ALL SLIP JOINTS SHALL BE MADE AND COATED, THEN INSERTED INTO THE DUCT OR COLLAR AND SECURED WITH SHEET METAL SCREWS. COVER THE ENTIRE OUTER JOINT AND SCREWS WITH MASTIC. COVER JOINTS AROUND ALL SPIN-IN FITTINGS. INTERNALLY CLEAN DUCTWORK OF DUST AND DEBRIS.

DUCT HANGING DETAILS

NOT TO SCALE

ROUND OR OVAL DUCTWORK SHALL BE SEMCO, UNITED, WESCO OR EQUAL, SHEETMETAL, WITH SMOOTH INTERIOR SURFACE, WITH LOW PRESSURE (DUCT PRESSURE CLASS UP TO AND INCLUDING 2" W.G.) ROUND DUCTWORK GAUGES PER THE FOLLOWING TABLE (REFERENCE SMACNA HVAC DUCT CONSTRUCTION STANDARDS FOR GAUGES WHEN PRESSURES EXCEED 2" W.G.):

SIZE	GAUGE
14" & UNDER	26
15" THRU 26"	24

LINDAB SPIROSAFE, LEWIS & LAMBERT OR APPROVED EQUAL FACTORY-MANUFACTURED ROUND DUCTWORK AND FITTINGS MAY BE SUBSTITUTED FOR SPECIFIED ROUND BRANCH DUCTWORK, AT CONTRACTORS OPTION. HEAVY LIQUID JOINT SEALANT MAY BE OMITTED ON FACTORY-MANUFACTURED ROUND DUCTWORK.

LOW PRESSURE (DUCT PRESSURE CLASS UP TO AND INCLUDING 2" W.G.) FITTINGS 24" IN DIAMETER AND LESS SHALL BE PREFABRICATED, SPOTWELDED AND INTERNALLY SEALED. CONTINUOUSLY WELD FITTINGS LARGER THAN 24" IN DIAMETER. FITTING GAUGE SHALL BE 22 GAUGE FOR 36" FITTINGS AND UNDER, 20 GAUGE FOR LARGER SIZES. 90 DEGREE TEE'S SHALL BE CONICAL TYPE. SEAL LONGITUDINAL AND TRANSVERSE DUCTWORK JOINTS AIRTIGHT WITH HEAVY LIQUID SEALANT APPLIED ACCORDING TO MANUFACTURER'S INSTRUCTIONS. PROVIDE GAUGE THICKNESS IN MEDIUM PRESSURE (DUCT PRESSURE CLASS 3" TO 6" W.G.) DUCTWORK AS RECOMMENDED BY SMACNA.

15A 2-3. FLEXIBLE DUCT

LOW PRESSURE (DUCT PRESSURE CLASS UP TO AND INCLUDING 2" W.G.) AND MEDIUM PRESSURE (DUCT PRESSURE CLASS 2.1" TO 6" W.G.) FLEXIBLE DUCT SHALL BE FLEXMASTER TYPE 8, THERMAFLEX TYPE G-KM, OR EQUAL (FIRE RETARDANT POLYETHYLENE) PROTECTIVE VAPOR BARRIER, U.L.181 CLASS 1, ACOUSTICAL INSULATED DUCT, 2" (R-6.0) FIBERGLASS INSULATION. PROVIDE CPE LINER WITH STEEL WIRE HELIX MECHANICALLY LOCKED OR PERMANENTLY BONDED TO THE LINER. FLEXIBLE DUCT RUNS SHALL NOT EXCEED 5 FEET IN LENGTH, AND SHALL BE INSTALLED STRAIGHT AS POSSIBLE AVOIDING TIGHT TURNS. CONNECT EACH END WITH STAINLESS STEEL SCREW OPERATED METAL DRAWBANDS.

15A 2-4. FLUES

WHERE FLUES ARE INDICATED ON THE DRAWINGS, PROVIDE SELKIRK METALBESTOS MODEL QC OR RV OR EQUAL BY METAL-FAB, SIMPSON OR VAN-PACKER, TYPE "B" DOUBLE WALL GAS VENT FLUES FROM THE VARIOUS ITEMS OF GAS-FIRED EQUIPMENT UP TO FLUE CAPS ABOVE THE ROOF. SINGLE WALL FLUES ARE UNACCEPTABLE. FLUES SHALL BE COMPLETE WITH NECESSARY FITTINGS, CONNECTORS, FLASHING CONE, STORM COLLAR, THIMBLE SUPPORTS, GUY WIRES, AND OTHER ACCESSORIES, AND SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER, AND IN CONFORMANCE WITH APPLICABLE CODES. FLASH FLUES WATERTIGHT AT THE ROOF LINE.

15A 2-5. AIR DEVICES

PROVIDE AIR DEVICES AS SCHEDULED ON DRAWINGS, MANUFACTURED BY CARNES, E.H. PRICE, KRUEGER, NAILOR INDUSTRIES, TITUS, OR TUTTLE & BAILEY. SELECT AIR DEVICES TO LIMIT ROOM NOISE LEVEL TO NO HIGHER THAN NC-30 UNLESS OTHERWISE SHOWN. PROVIDE DEVICES WITH A SOFT PLEASTIC GASKET TO MAKE AN AIRTIGHT SEAL AGAINST THE MOUNTING SURFACE. COORDINATE FINAL LOCATION, FRAME, AND MOUNTING TYPE OF AIR DEVICES WITH ARCHITECTURAL REFLECTED CEILING PLANS.

SUBMIT COMPLETE SHOP DRAWINGS INCLUDING INFORMATION ON NOISE LEVEL, PRESSURE DROP, THROW, CFM FOR EACH AIR DEVICE, STYLES, BORDERS, ETC. CLEARLY MARKED WITH SPECIFIED EQUIPMENT NUMBER. SUBMIT SAMPLES OF EACH AIR DEVICE AS REQUESTED BY THE ENGINEER.

PROVIDE WALL SUPPLY AIR REGISTERS WITH DOUBLE DEFLECTION BLADES AND OPPOSED BLADE DAMPERS. PROVIDE CEILING SUPPLY AIR REGISTERS OF ALUMINUM CURVED BLADE TYPE WITH BLADES PARALLEL TO LONG DIMENSION AND WITH THROW PATTERN AS INDICATED ON DRAWINGS. PROVIDE WALL MOUNTED RETURN AIR GRILLES AND EXHAUST AIR REGISTERS WITH HORIZONTAL 45 DEGREE ANGLE VISION-PROOF BARS. PROVIDE CONCEALED FASTENERS FOR WALL MOUNTED REGISTERS AND GRILLES. PROVIDE FLOOR SUPPLY AIR REGISTERS OF ALUMINUM HEAVY DUTY TYPE WITH 0 DEGREE DEFLECTION. PROVIDE OPPOSED BLADE DAMPERS FOR SUPPLY AIR REGISTERS AND EXHAUST AIR REGISTERS UNLESS INDICATED OTHERWISE.

15A 2-6. EXHAUST AIR SYSTEMS

PROVIDE ROOF/CEILING EXHAUST FANS AS SCHEDULED ON THE DRAWINGS COMPLETE WITH ISOLATED BLOWER UNIT AND CEILING GRILLE. PROVIDE DISCONNECT SWITCH, BACKDRAFT DAMPER, DISCHARGE DUCT, ROOF JACK, AND NEOPRENE VIBRATION ISOLATORS WITH ALL-THREAD HANGING RODS.

15A 3. HVAC EQUIPMENT 15A 3-1.

ROOFTOP UNITS (GAS FIRED HEAT)

PROVIDE ELECTRIC COOLING, GAS HEATING ROOFTOP UNITS AS SCHEDULED ON THE DRAWINGS COMPLETE WITH FACTORY INSTALLED DIRECT-DRIVE HERMETIC COMPRESSORS WITH INTERNAL SPRING VIBRATION ISOLATION, BUILT-IN MOTOR THERMAL OVERLOAD PROTECTION, CRANKCASE HEATER, AND LOW PRESSURE SWITCHES; DIRECT EXPANSION COOLING AND CONDENSING COILS, 11.5 MINIMUM EER RATING (COOLING); CENTRIFUGAL EVAPORATOR BLOWER; AIR FILTER RACK WITH 2" THICK THROWAWAY FILTERS, PROPELLER TYPE CONDENSER FAN; ALUMINIZED STEEL HEAT EXCHANGER, 81 PERCENT MINIMUM AFUE RATING (HEATING), FORCED COMBUSTION AIR BLOWER; COMPLETE FACTORY INSTALLED MICRO-PROCESSOR CONTROLS INCLUDING ANTI-SHORT CYCLE TIMERS, TIME DELAY RELAYS AND MINIMUM "ON" TIME CONTROLS, 100 PERCENT SAFETY GAS SHUTOFF, DIRECT SPARK IGNITION SYSTEM; BUILT-IN THERMAL OVERLOAD PROTECTION ON MOTORS AND COMPRESSORS; 100 PERCENT OUTDOOR AIR ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF DAMPER; WEATHERTIGHT HOUSING CONSTRUCTED OF ZINC COATED, HEAVY GAUGE, GALVANIZED STEEL WITH WEATHER-RESISTANT BAKED ENAMEL FINISH; MINIMUM INSULATED DOWNFLOW ROOF CURB WITH MINIMUM HEIGHT OF 12 INCHES FOR ROOFS WITH NO INSULATION, 14" FOR ROOFS WITH INSULATION OR AS SCHEDULED ON THE DRAWINGS; SINGLE POINT ELECTRICAL POWER CONNECTION. PROVIDE GUARDS OR LOUVERED PANELS TO PROTECT THE CONDENSER COIL FROM HAIL OR OTHER DAMAGE. PROVIDE A 125 VAC, 20 AMP DUPLEX CONVENIENCE RECEPTACLE MOUNTED TO UNIT READY FOR FIELD WIRING WITH A COVER UL LISTED FOR WET AND DAMP LOCATIONS WHEN IN USE. PROVIDE HONEYWELL OR EQUAL ELECTRONIC PROGRAMMABLE TYPE THERMOSTAT, SEVEN-DAY MODEL, MANUAL CHANGEOVER, SWITCHING SUBBASE, MULTI-STAGE AS REQUIRED TO MATCH UNIT COOLING/HEATING STAGING. DIVISION 16 CONTRACTOR SHALL PROVIDE A UL LISTED DUCT TYPE SMOKE DETECTOR IN SUPPLY AIR OR RETURN AIR DUCTWORK AS REQUIRED BY CODE TO SHUT DOWN ROOFTOP UNIT UPON DETECTION OF SMOKE. PROVIDE UNIT COMPLETE WITH MANUFACTURER'S ONE YEAR GUARANTEE ON COMPONENTS PLUS AN ADDITIONAL FOUR YEAR GUARANTEE ON THE COMPRESSORS AND HEAT EXCHANGERS.

15A 4. TEMPERATURE CONTROLS

15A 4-1. GENERAL REQUIREMENTS

PROVIDE A SYSTEM OF TEMPERATURE CONTROLS INCLUDING THERMOSTATS, CONTROL PANELS, TIME SWITCHES, OVERRIDE TIMERS, DAMPER MOTORS, AND RELAYS REQUIRED TO PROVIDE THE DESIRED SEQUENCE OF OPERATION. PROVIDE INTEGRATED WIRING DIAGRAMS SHOWING INTERCONNECTIONS BETWEEN FIELD INSTALLED EQUIPMENT AND PACKAGE WIRING FURNISHED WITH THE HVAC EQUIPMENT.

PROVIDE SUPERVISION AND ON-JOB CHECKOUT SERVICE AS REQUIRED TO ENSURE THAT INSTALLATION MEETS REQUIREMENTS OF THE SPECIFICATION. THE SYSTEM SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FOLLOWING THE ACCEPTANCE OF THE SYSTEM BY THE ARCHITECT/ENGINEER. CORRECT DEFECTS OCCURRING DURING THIS PERIOD AT NO ADDITIONAL COST TO THE OWNER.

15A 4-2. EQUIPMENT

MANUFACTURERS AND MODEL NUMBERS ARE LISTED FOR REFERENCE AS TO QUALITY AND FEATURES REQUIRED FOR THE CONTROL DEVICES. PROVIDE CONTROL DEVICES BY BARBER-COLMAN, HONEYWELL, JOHNSON CONTROLS, TRANE OR WHITE RODGERS WITH QUALITY AND FEATURES AS INDICATED.

SEVEN DAY PROGRAMMABLE, OCCUPIED/UNOCCUPIED THERMOSTATS FOR MULTIPLE STAGES OF HEATING AND COOLING SHALL BE HONEYWELL SERIES T7350 THERMOSTAT WITH INTEGRAL SUBBASE. INSTALL THERMOSTATS AT 48" AFF TO MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON THE PLANS.

PROVIDE DUCT TYPE SMOKE DETECTORS WITH UL LISTING FOR EACH UNIT TO SHUT DOWN SUPPLY FAN UPON ACTIVATION.

15A 4-3. TEMPERATURE CONTROL SYSTEM

ALL UNITARY HEATING OR COOLING SYSTEMS, INCLUDING HEAT PUMPS, NOT CONTROLLED BY A CENTRAL ENERGY MANAGEMENT CONTROL SYSTEM (EMCS) SHALL HAVE A SETBACK THERMOSTAT. a. SETBACK CAPABILITIES. ALL THERMOSTATS SHALL HAVE A CLOCK MECHANISM THAT ALLOWS THE BUILDING OCCUPANT TO PROGRAM THE TEMPERATURE SETPOINTS FOR AT LEAST FOUR PERIODS WITHIN 2 HOURS.

HEAT PUMPS WITH SUPPLEMENTARY ELECTRIC RESISTANCE HEATERS SHALL HAVE CONTROLS:

a. THAT PREVENT SUPPLEMENTARY HEATER OPERATION WHEN THE HEATING LOAD CAN BE MET BY THE HEAT PUMP ALONE; AND

b. IN WHICH THE CUT-ON TEMPERATURE FOR COMPRESSION HEATING IS HIGHER THAN THE CUT-ON TEMPERATURE FOR SUPPLEMENTARY HEATING, AND THE CUT-OFF TEMPERATURE FOR COMPRESSION HEATING IS HIGHER THAN THE CUT-OFF TEMPERATURE FOR SUPPLEMENTARY HEATING.

ALL UNITARY SINGLE ZONE, AIR CONDITIONERS, HEAT PUMPS, AND FURNACES, THE THERMOSTAT MUST COMPLY WITH THE REQUIREMENTS CALIFORNIA ENERGY COMMISSION, T-24, PART 6, REFERENCE JOINT APPENDIX JAS, ALSO KNOWN AS THE OCCUPANT CONTROLLED SMART THERMOSTATS, WHICH ARE CAPABLE OF RECEIVING DEMAND RESPONSE SIGNALS IN THE EVENT OF GRID CONGESTIONS AND SHORTAGES DURING HIGH ELECTRICAL DEMAND PERIODS.

15A 5. SEQUENCE OF OPERATION

15A5-4. ROOFTOP UNIT CONTROL (COMPARATIVE ENTHALPY ECONOMIZER)

DURING OCCUPIED HOURS, OPERATE ROOFTOP UNIT SUPPLY FAN CONTINUOUSLY AND OPEN OUTDOOR AIR DAMPER TO MINIMUM POSITION TO MAINTAIN MINIMUM VENTILATION. CYCLE STAGE(S) OF COOLING AND HEATING TO MAINTAIN ROOM THERMOSTAT SET POINT (75 DEGREES FAHRENHEIT COOLING, 72 DEGREES FAHRENHEIT HEATING). MODULATE ENTHALPY TYPE OUTDOOR AIR ECONOMIZER AND STAGE COOLING SYSTEM, IF NEEDED, TO MAINTAIN SPACE TEMPERATURE WHEN OUTDOOR AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY. RETURN ECONOMIZER TO MINIMUM POSITION WHEN OUTDOOR AIR ENTHALPY EXCEEDS RETURN AIR ENTHALPY. DUCT MOUNTED SMOKE DETECTORS SHALL SHUTDOWN UNIT UPON ALARM. DURING UNOCCUPIED HOURS, CYCLE THE ROOFTOP UNIT SUPPLY FAN AND COOLING OR HEATING SYSTEM TO MAINTAIN UNOCCUPIED SETBACK TEMPERATURE SET POINTS. OUTDOOR AIR DAMPER SHALL BE CLOSED DURING UNOCCUPIED HOURS. PROVIDE FREEZESTAT IN THE SUPPLY AIR DUCT TO SHUT DOWN THE SUPPLY FAN AND CLOSE THE OUTDOOR AIR DAMPER IF TEMPERATURE IN THE SUPPLY DUCT DROPS BELOW 40 DEGREES FAHRENHEIT.

15A5-6. EXHAUST FAN CONTROL

EXHAUST FAN SHALL BE INTERLOCKED WITH RESPECTIVE LIGHT SWITCH AND BE ENERGIZED WHEN LIGHT SWITCH IS 'ON' AND DE-ENERGIZED WHEN LIGHT SWITCH IS 'OFF'.



CERTIFIED BY:

PRELIMINARY
NOT FOR CONSTRUCTION

Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
MECHANICAL SPECIFICATIONS

ISSUE

REVISIONS		
NO.	DESCRIPTION	DATE

PROJECT NUMBER

DATE 03/31/23

M3.2

FIXTURE UNIT CALCULATION

PLUMBING FIXTURES	QUANTITY	SAN. F.U. EACH	SAN. F.U. TOTAL	WATER F.U. EACH	WATER F.U. TOTAL
WATER CLOSET	1.0	4.0	4.0	5.0	5.0
LAVATORY	1.0	1.0	1.0	2.0	2.0
SINK	4.0	2.0	8.0	2.0	8.0

TOTAL			13.0		15.0
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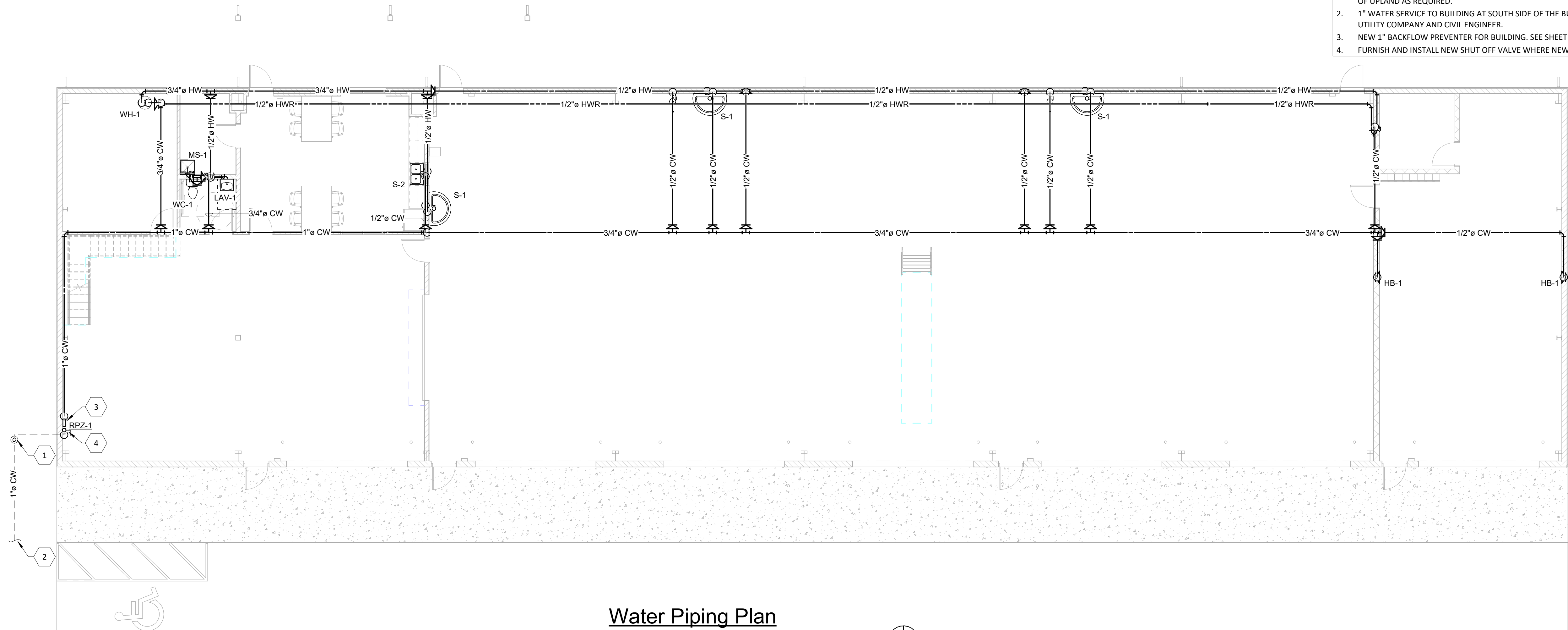
SERVICE SIZE REQ.		VENT	WASTE	WATER
		4"	4"	1"

GENERAL PLUMBING NOTES

- A. CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN THIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.
- B. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING, THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.
- C. ALL WORK SHALL CONFORM TO STATE AND LOCAL PLUMBING AND BACKFLOW PREVENTION CODES, AND THE REQUIREMENTS OF THE LOCAL WATER UTILITY.
- D. VACUUM BREAKERS MUST BE INSTALLED ON ALL EXISTING OR PROPOSED HOSE THREAD FITTINGS, INCLUDING BUT NOT LIMITED TO HOSE BIBS, WALL/YARD HYDRANTS, MOP/SERVICE SINKS.
- E. A CROSS-CONNECTION CONTROL DEVICE INSPECTOR SHALL TEST ALL BACKFLOW DEVICES AT THE TIME OF INSTALLATION AND SUBMIT REPORTS TO THE LOCAL WATER UTILITY AS REQUIRED.
- F. ALL WATER LINES 3" AND LARGER MUST BE DISINFECTED PER ANSI/AWWA C651-92. SAMPLES FROM 2 CONSECUTIVE DAYS MUST BE TAKEN TO AN APPROVED TEST LAB. LAB ANALYSIS REPORTS SHALL BE SUBMITTED TO THE LOCAL WATER UTILITY AS REQUIRED FOR COMPLIANCE.
- G. ALL MATERIALS INSTALLED WITHIN PLENUM SHALL HAVE FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT EXCEEDING 50 IN ACCORDANCE WITH STATE CODES.
- H. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, MATERIALS AND LABOR FOR CORE DRILLING AS REQUIRED FOR INSTALLATION OF PIPING PENETRATING BUILDING CONSTRUCTION.
- I. TYPE "K" COPPER TUBING SHALL BE USED FOR ALL DOMESTIC SUPPLY PLUMBING BELOW SLAB. NO FITTINGS SUCH AS COUPLINGS, TEES, OR ELBOWS SHALL BE USED BELOW OR WITHIN SLAB.
- J. ALL EQUIPMENT USING NATURAL GAS SHALL HAVE A GAS COCK AND DIRT LEG FOR EACH PIECE OF EQUIPMENT.
- K. REFERENCE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS (TYPICAL).
- L. ALL PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES WHEN SUBJECT TO THE REQUIREMENTS OF THE TEST STANDARD SPECIFIED FOR FIRE STOPS ASTM-E814.
- M. CONTRACTOR SHALL REMOVE ALL UNUSED WATER SUPPLY PIPING AND EQUIPMENT NOT REQUIRED.
- N. PLUMBING CONTRACTOR SHALL RECOGNIZE ALL EXISTING OBSTRUCTIONS IN THE SPACE, INCLUDING, BUT NOT LIMITED TO, STORAGE RACKING, PIPING, DUCTWORK, LOW STRUCTURAL ELEMENTS (BEAMS, JOISTS, ETC.) AND ACCOMMODATE THE INSTALLATION OF ALL PIPING AS SHOWN.
- O. ALL HOT WATER AND DRAIN PIPES THAT ARE EXPOSED UNDER SINKS SHALL BE INSULATED OR OTHERWISE CONFIGURED SO AS TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER SINKS.
- P. MAINTAIN A SLOPE OF 1/4" PER LINEAL FOOT FOR SANITARY PIPE LESS THAN 3" DIAMETER.; 1/8" PER LINEAL FOOT FOR SANITARY PIPE 3" TO 6" DIAMETER.

KEY NOTES

1. FURNISH AND INSTALL NEW WATER METER IN PIT OUTSIDE. COORDINATE METERING REQUIREMENTS WITH UTILITY COMPANY OR THE TOWN OF UPLAND AS REQUIRED.
2. 1" WATER SERVICE TO BUILDING AT SOUTH SIDE OF THE BUILDING. COORDINATE FINAL CONNECTION AND ANY SITE WORK WITH LOCAL UTILITY COMPANY AND CIVIL ENGINEER.
3. NEW 1" BACKFLOW PREVENTER FOR BUILDING. SEE SHEET P2.2 FOR MORE INFORMATION.
4. FURNISH AND INSTALL NEW SHUT OFF VALVE WHERE NEW WATER SERVICE ENTERS BUILDING.



Water Piping Plan
1/8" = 1'-0"



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NOT FOR CONSTRUCTION

Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
WATER PIPING PLAN

ISSUE

REVISIONS		
NO.	DESCRIPTION	DATE

PROJECT NUMBER
DATE 03/31/23

P1.1

KEY NOTES

- ROUTE AND TERMINATE PIPING TO DAYLIGHT AS REQUIRED FOR SITE DRAINAGE. COORDINATE WITH CIVIL ENGINEER LOCATION AND DEPTHS.
- SEE NARITIVE FOR PIT PLUMBING WORK. NOT YET SHOWN.
- EXTEND AND CONNECT SANITARY WASTE TO NEAREST AVAILABLE CONNECTION ON SITE. COORDINATE EXACT LOCTION, DEPTH, AND LENGTH PIPING WITH CIVIL ENGINEER. (INCLUDE 200' OF PIPING FOR PRICING PURPOSES).

GENERAL PLUMBING NOTES

- A.

CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN THIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.
- B.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING, THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.
- C.

ALL WORK SHALL CONFORM TO STATE AND LOCAL PLUMBING AND BACKFLOW PREVENTION CODES, AND THE REQUIREMENTS OF THE LOCAL WATER UTILITY.
- D.

VACUUM BREAKERS MUST BE INSTALLED ON ALL EXISTING OR PROPOSED HOSE THREAD FITTINGS, INCLUDING BUT NOT LIMITED TO HOSE BIBS, WALL/YARD HYDRANTS, MOP/SERVICE SINKS.
- E.

A CROSS-CONNECTION CONTROL DEVICE INSPECTOR SHALL TEST ALL BACKFLOW DEVICES AT THE TIME OF INSTALLATION AND SUBMIT REPORTS TO THE LOCAL WATER UTILITY AS REQUIRED.
- F.

ALL WATER LINES 3" AND LARGER MUST BE DISINFECTED PER ANSI/AWWA C651-92. SAMPLES FROM 2 CONSECUTIVE DAYS MUST BE TAKEN TO AN APPROVED TEST LAB. LAB ANALYSIS REPORTS SHALL BE SUBMITTED TO THE LOCAL WATER UTILITY AS REQUIRED FOR COMPLIANCE.
- G.

ALL MATERIALS INSTALLED WITHIN PLENUM SHALL HAVE FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT EXCEEDING 50 IN ACCORDANCE WITH STATE CODES.
- H.

CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, MATERIALS AND LABOR FOR CORE DRILLING AS REQUIRED FOR INSTALLATION OF PIPING PENETRATING BUILDING CONSTRUCTION.
- I.

TYPE "K" COPPER TUBING SHALL BE USED FOR ALL DOMESTIC SUPPLY PLUMBING BELOW SLAB. NO FITTINGS SUCH AS COUPLINGS, TEES, OR ELBOWS SHALL BE USED BELOW OR WITHIN SLAB.
- J.

ALL EQUIPMENT USING NATURAL GAS SHALL HAVE A GAS COCK AND DIRT LEG FOR EACH PIECE OF EQUIPMENT.
- K.

REFERENCE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS (TYPICAL).
- L.

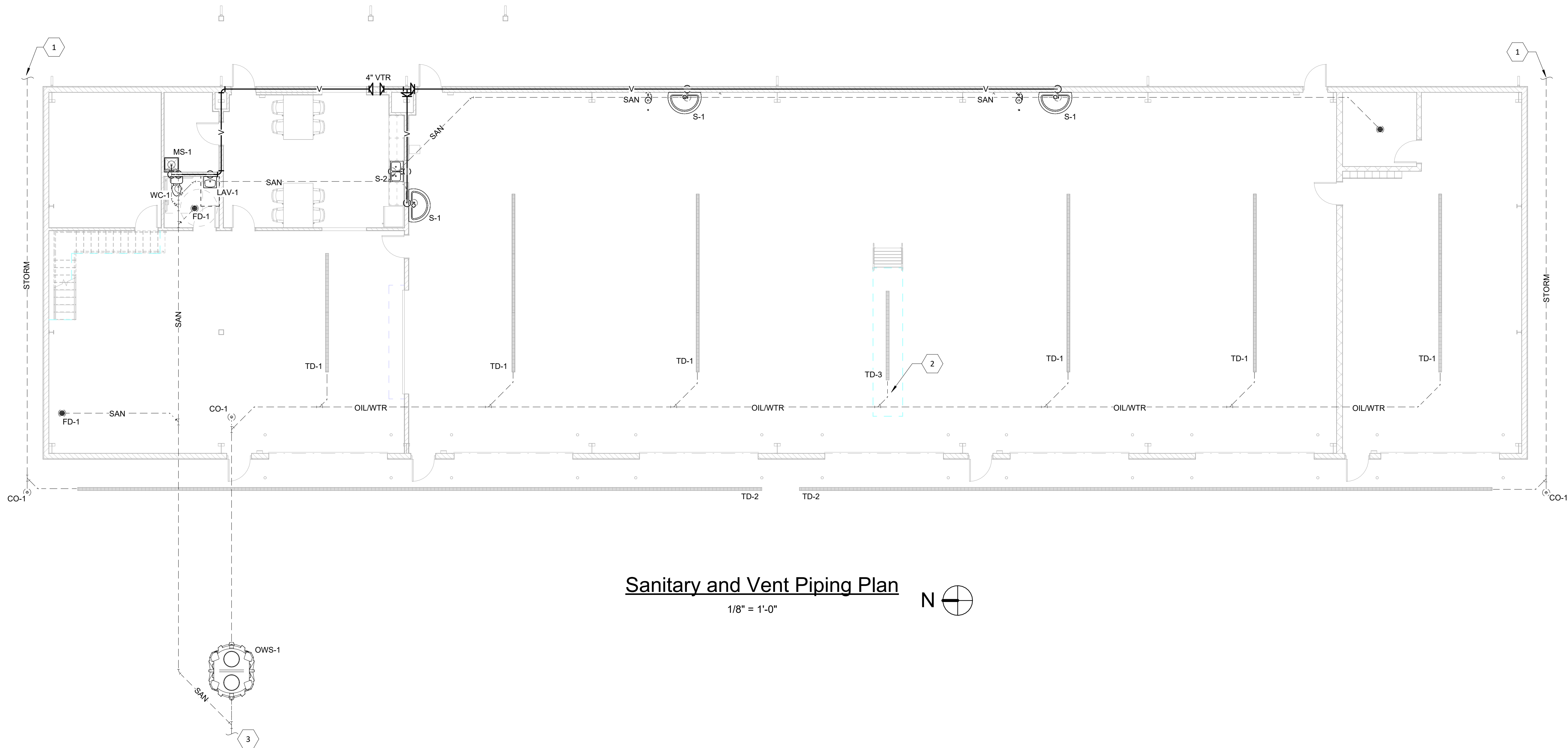
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- M.

CONTRACTOR SHALL REMOVE ALL UNUSED WATER SUPPLY PIPING AND EQUIPMENT NOT REQUIRED.
- N.

PLUMBING CONTRACTOR SHALL RECOGNIZE ALL EXISTING OBSTRUCTIONS IN THE SPACE, INCLUDING, BUT NOT LIMITED TO, STORAGE RACKING, PIPING, DUCTWORK, LOW STRUCTURAL ELEMENTS (BEAMS, JOISTS, ETC.) AND ACCOMMODATE THE INSTALLATION OF ALL PIPING AS SHOWN.
- O.

ALL HOT WATER AND DRAIN PIPES THAT ARE EXPOSED UNDER SINKS SHALL BE INSULATED OR OTHERWISE CONFIGURED SO AS TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER SINKS.
- P.

MAINTAIN A SLOPE OF 1/4" PER LINEAL FOOT FOR SANITARY PIPE LESS THAN 3" DIAMETER.; 1/8" PER LINEAL FOOT FOR SANITARY PIPE 3" TO 6" DIAMETER.



Sanitary and Vent Piping Plan

1/8" = 1'-0"



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Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
SANITARY AND VENT PIPING
PLAN

ISSUE		

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DATE 03/31/23

P1.2



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Town of Upland

Upland Wastewater Treatment Utility Storage Facility

593 E BRAGG AVE
UPLAND, IN 46989

DRAWING
SANITARY AND VENT RISER
DIAGRAM

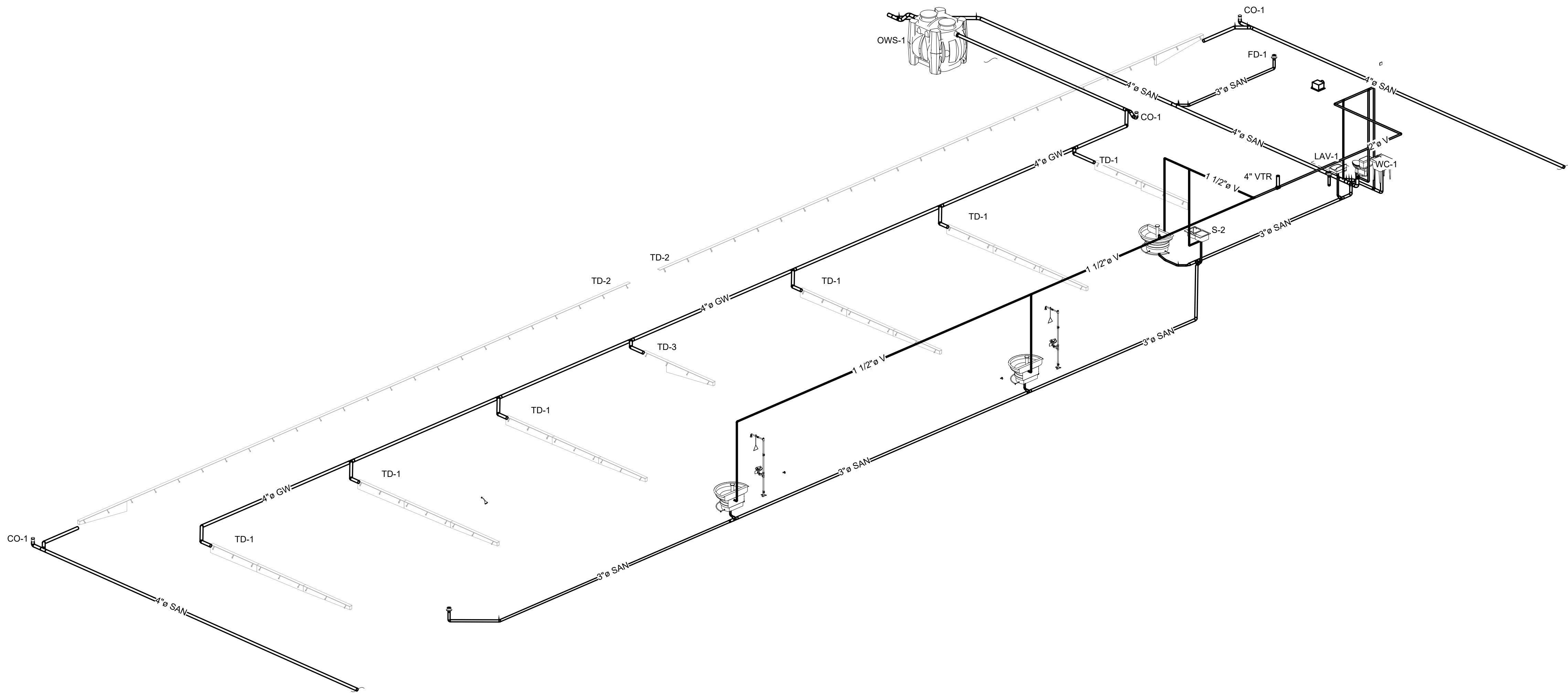
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DATE 03/31/23

P2.1



Sanitary Vent Riser Diagram

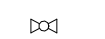
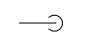
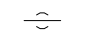
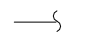
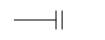
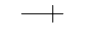
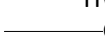
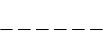
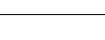
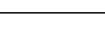
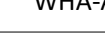
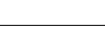
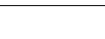
Plumbing Fixture Schedule										
MARK	DESCRIPTION	MANUFACTURER	MODEL	TRIM	CW	HW	WASTE	VENT	MOUNTING HEIGHT	REMARKS
LAV-1	KATHRYN UNDER-MOUNT SINK 20" X 15"	KOHLER	K-2330	DELTA MODEL 500-DST FAUCET. 1.5 GPM SINGLE HANDLE FAUCET, THREE HOLE, WASHERLESS WITH DIAMOND COATED CERAMIC CARTRIDGE CONTROL MECHANISM. 2 PIECE ADJUSTABLE P-TRAP WITH GRID DRAIN ASSEMBLY AND ESCUTCHEON. 1/2" IPS X 3/8" O.D. ANGLE SUPPLY STOPS WITH FLEXIBLE RISERS WITH 1/2" C.P. NIPPLES AND ESCUTCHEONS. FURNISH AND INSTALL THERMOSTATIC MIXING VALVE (POWERS #LFLM495) IN ACCESSIBLE LOCATION ABOVE CEILING FOR TEMPERING OF LAVATORY HOT WATER SUPPLY. SET THERMOSTATIC MIXING VALVE TO 110°F.	1/2"	1/2"	2"	1 1/2"		
MS-1	MOP SINK, 24"x24"x10"	FIAT PRODUCTS	MSBIDTG2424		1/2"	1/2"	3"	1 1/2"		
S-1	WASHFOUNTAIN, 54" SEMI CIRCULAR WITH 9" DEEP BOWL	BRADLEY CORP	WF2704		1/2"	1/2"	1 1/2"			
S-2	DOUBLE COMPARTMENT SINK 22" X 33" - (2) HOLE ON 4" CENTERS, 16 GAUGE S/S SELF RIM COUNTER INSERT WITH 8" DEEP BOWL	JUST	DL-2233-16-GR 16	DELTA MODEL 27C4244. DECKMOUNT LESS POP-UP FAUCET WITH 4" CENTERS. TWO 4" BLADE HANDLES. 8" TUBULAR SPOUT WITH 1.5 GPM STANDARD AERATOR OUTLET. HEAVY DUTY CAST BRASS, POLISHED CHROME PLATED FINISH ADJUSTABLE P-TRAP WITH GRID DRAIN ASSEMBLY AND ESCUTCHEON. 1/2" IPS X 3/8" O.D. ANGLE SUPPLY STOPS WITH FLEXIBLE RISERS WITH 1/2" C.P. NIPPLES AND ESCUTCHEONS.	1/2"	1/2"	2"	1 1/2"		
WC-1	HIGHLINE 1.6 GPF, TANK TYPE FLOOR MOUNTED WATER CLOSET	KOHLER	K-3979	BENEKE MODEL 527 SS XHVV WHITE ELONGATED OPEN FRONT SEAT LESS COVER.	1/2"	0"	4"	2"		

Plumbing Equipment Schedule										
MARK	DESCRIPTION	MANUFACTURER	MODEL	HP	KW	VOLTAGE	AMPS	PHASE	REMARKS	
WH-1.	40-GALLON ATMOSPHERIC VENT NATURAL GAS WATER HEATER	A.O. SMITH	G12-CADT4040NV				1 A	1		
MX-1.	THERMOSTATIC MIXING VALVE HI/LO	WATTS	LFN170-M3		4.5	208 V	0 A	1		
RCP-1	DOMESTIC HOT WATER RETURN PUMP 120F	GRUNDFOS	UPS 28-99 BFC						5 GPM @ 24' T.D.H.	
PET-1	PRESSURE EXPANSION TANK	STATE	ETC-10X						10 GALLON WITH A MIN. OF 6.55 GALLON ACCEPTANCE	
RPZ-1	1" BACKFLOW PREVENTOR	WATTS	LF909							
SP-1	SEWAGE EJECTION PUMP, PROVIDE WITH BASIN MODEL #CDUP3648LS2	BELL & GOSSETT	2DWS1A2F2D1A			120 V	10 A	1	PROVIDE WITH DUPLEX PANEL CDD16310	

Plumbing Miscellaneous Schedule							
MARK	DESCRIPTION				MANUFACTURER	MODEL	REMARKS
CO-1	EXTRA HEAVY-DUTY ADJUSTABLE FLOOR CLEANOUT				ZURN WATER, LLC	Z1400	
FD-1	FLOOR DRAIN				ZURN WATER, LLC	Z4158ZN	
HB-1	HOSE BIBB				ZURN WATER, LLC	Z1341XL-P34	
TD-1	4" WIDE VEE BOTTOM FIBER REINFORCED POLYMER CONCRETE TRENCH DRAIN CHANNEL. GRATE: DURATRENCH MODEL 05SBHC24DBD, 5" DUCTILE IRON SLOTTED GRATE, FRAME: DURATRENCH MODEL S3ZMB3S318E, HEAVY DUTY BLACK POWDER COATED FRAME FOR 4" WIDE TRENCH. CLIPLOCK: DURATRENCH MODEL CX. 06, FOR 3" & 5" WIDE GRATES. BASKET: DURATRENCH MODEL TB4-125, TRASH BASKET FOR 4" WIDE TRENCH WITH 0.125" PERFORATIONS. BASIN: DURATRENCH MODEL SCP3S04, 4" WIDE FIBER REINFORCED POLYMER CONCRETE CATCH BASIN CHANNEL.				ERICSONS DURATRENCH	STP3V04	GRATES MUST BE RATED FOR HEAVY VEHICLES.
TD-2	6" WIDE ROUND BOTTOM FIBER REINFORCED POLYMER CONCRETE TRENCH DRAIN CHANNEL, FURNISH AND INSTALL WITH FRAME: DURATRENCH MODEL S6ZMB3S318E, HEAVY DUTY BLACK POWDER COATED FRAME FOR 6" OR WIDER TRENCH. GRATE: DURATRENCH MODEL 08SBHC24DBD, 8" DUCTILE IRON SLOTTED GRATE. CLIPLOCK: DURATRENCH MODEL CX. 12, FOR 8" OR WIDER GRATES.				ERICSONS DURATRENCH	STP3R06	GRATES MUST BE RATED FOR HEAVY VEHICLES.
TD-3	4" WIDE VEE BOTTOM FIBER REINFORCED POLYMER CONCRETE TRENCH DRAIN CHANNEL, FURNISH AND INSTALL WITH FRAME: DURATRENCH MODEL S3ZTG211COB, LIGHT DUTY GRAY THERMOPLASTIC FRAME FOR 4" WIDE TRENCH.				ERICSONS DURATRENCH	STP3V04	GRATES MUST BE RATED FOR HEAVY VEHICLES.

Oil/Water Seperator Schedule								
MARK	MANUFACTURER	MODEL	Inlet Size	Outlet Size	Max Flow Rate	Solid Capacity	Liquid Capacity	Unit Weight (lbs)
OWS-1	STRIEM	OT-1000	4"	4"	314 GPM	477 GAL	1000 GAL	1324
REMARKS								
NOTES:								
1.								

AIR COMPRESSOR SCHEDULE						
MARK	MANUFACTURER	MODEL	DESCRIPTION	MOUNTING TYPE	AREA SERVED	REMARKS
ACO-1	QUINCY	2V41C60VC	60-GALLON AIR COMPRESSOR	STATIONARY	GARAGE	1,2,3
NOTES:						
1. FURNISH AND INSTALL WITH NEW FILTER DRYER: QUINCY MODEL QMF-25 COMPRESSED AIR FILTER.						
2. FURNISH AND INSTALL WITH NEW FILTER REGULATOR: QUINCY MODEL K93216 RAPID AIR 1/2".						
3. FURNISH AND INSTALL WITH NEW MAINTENANCE KIT: QUINCY MODEL EWK-2 MAINTENANCE KIT FOR 2V41C60VC.						

PLUMBING SYMBOL SCHEDULE			
	BALL VALVE	EWC	ELECTRIC WATER COOLER
	GAS COCK	FCO	FLOOR CLEANOUT
	PIPING DROP	WCO	WALL CLEANOUT
	INLINE PIPE DROP	FD	FLOOR DRAIN
	PIPING RISE	HB	HOSE BIB/WALL HYDRANT
	PIPE BREAK	L	LAVATORY
	WALL CLEANOUT/END FERRULE CLEANOUT	MSB	MOP SINK BASIN
	GATE VALVE	PHI	PET HAIR INTERCEPTOR
	SHOCK ABSORBER (SA)	RB	REFRIGERATOR WATER SUPPLY BOX
	CLEANOUT	S	SINK
	FLOOR DRAIN	U	URINAL
	HOSE BIB/WALL HYDRANT	WB	WASHER BOX
	SANITARY DRAIN	WC	WATER CLOSET
	SANITARY DRAIN BELOW FLOOR	WH	WATER HEATER
	EXISTING SANITARY DRAIN BELOW FLOOR	BFP	BACK FLOW PREVENTER
	GREASE WASTE	SA	SHOCK ABSORBER
	VENT	TMV	THERMOSTATIC MIXING VALVE
	COLD WATER (NON SOFTENED)	RPZ	REDUCED PRESSURE ZONE ASSEMBLY
	SOFT COLD WATER	VTR	VENT THROUGH ROOF
	HOT WATER	"H"	SUFFIX INDICATES HANDICAP ACCESSIBLE
	HOT WATER RETURN	A.F.F.	ABOVE FINISHED FLOOR
	NATURAL GAS	A.F.G.	ABOVE FINISHED GRADE
	ROOF DRAIN		
	STORM DRAIN		
	CONDENSATE		
	LIQUID		
	SUCTION		
	VACUUM		
	COMPRESSED AIR		
	NITROGEN		
	OXYGEN		
	VACUUM		
	WASTE ANESTHESIA GAS DISPOSAL		
	SCAVENGER GAS		

WATER HAMMER ARRESTOR SCHEDULE						
MARK	FIXTURE UNIT RATING	I.P.S.	J.R. SMITH MODEL NO.	WADE MODEL N.O.	ZURN MODEL N.O.	NOTES
WHA-A	1-11	3/4"	5005	5	100	--
WHA-B	12-32	1'	5010	10	200	--
WHA-C	33-60	1'	5020	20	300	--
WHA-D	61-113	1'	5030	50	400	--
WHA-E	114-154	1'	5040	75	500	--
WHA-F	155-330	1'	5050	100	600	--



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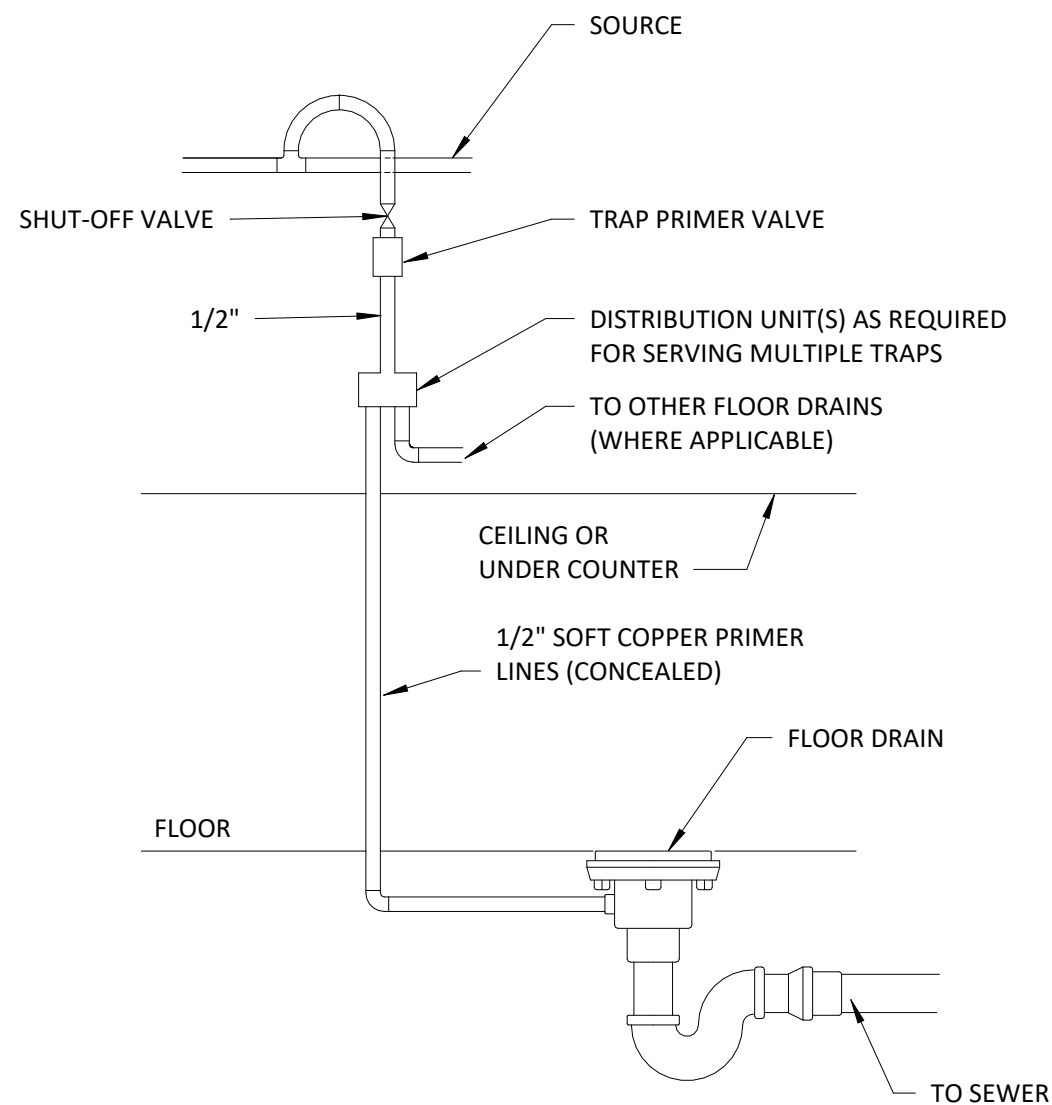
Town of Upland

**Upland Wastewater Treatment Utility
Storage Facility**

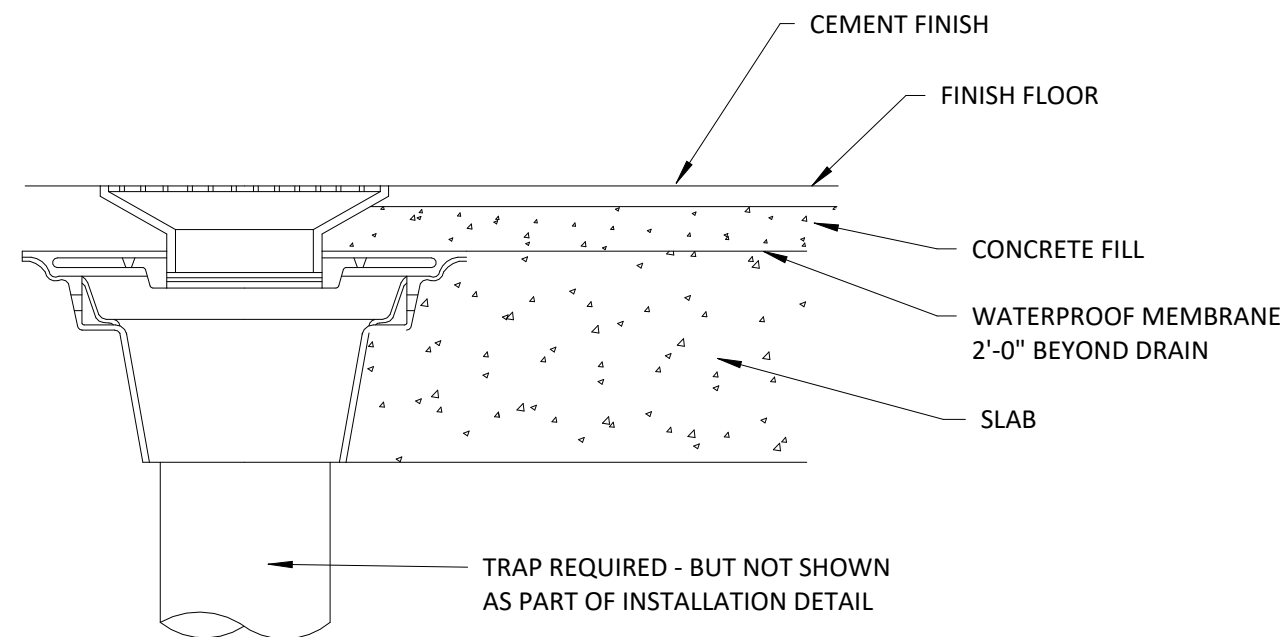
593 E BRAGG AVE
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DRAWING PLUMBING SCHEDULES AND NOTES		
ISSUE		
REVISIONS		
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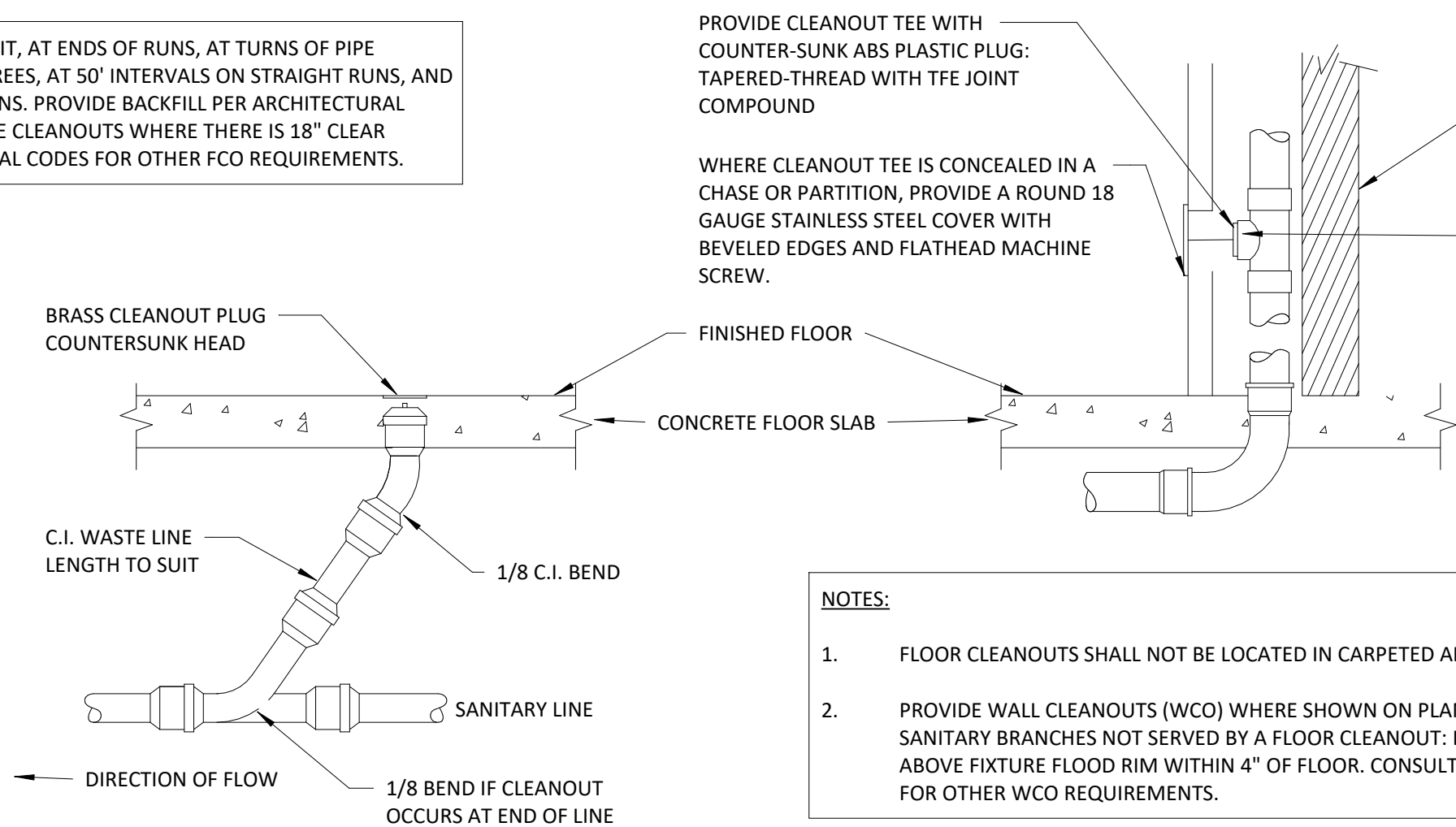


TRAP PRIMER DETAIL
NOT TO SCALE

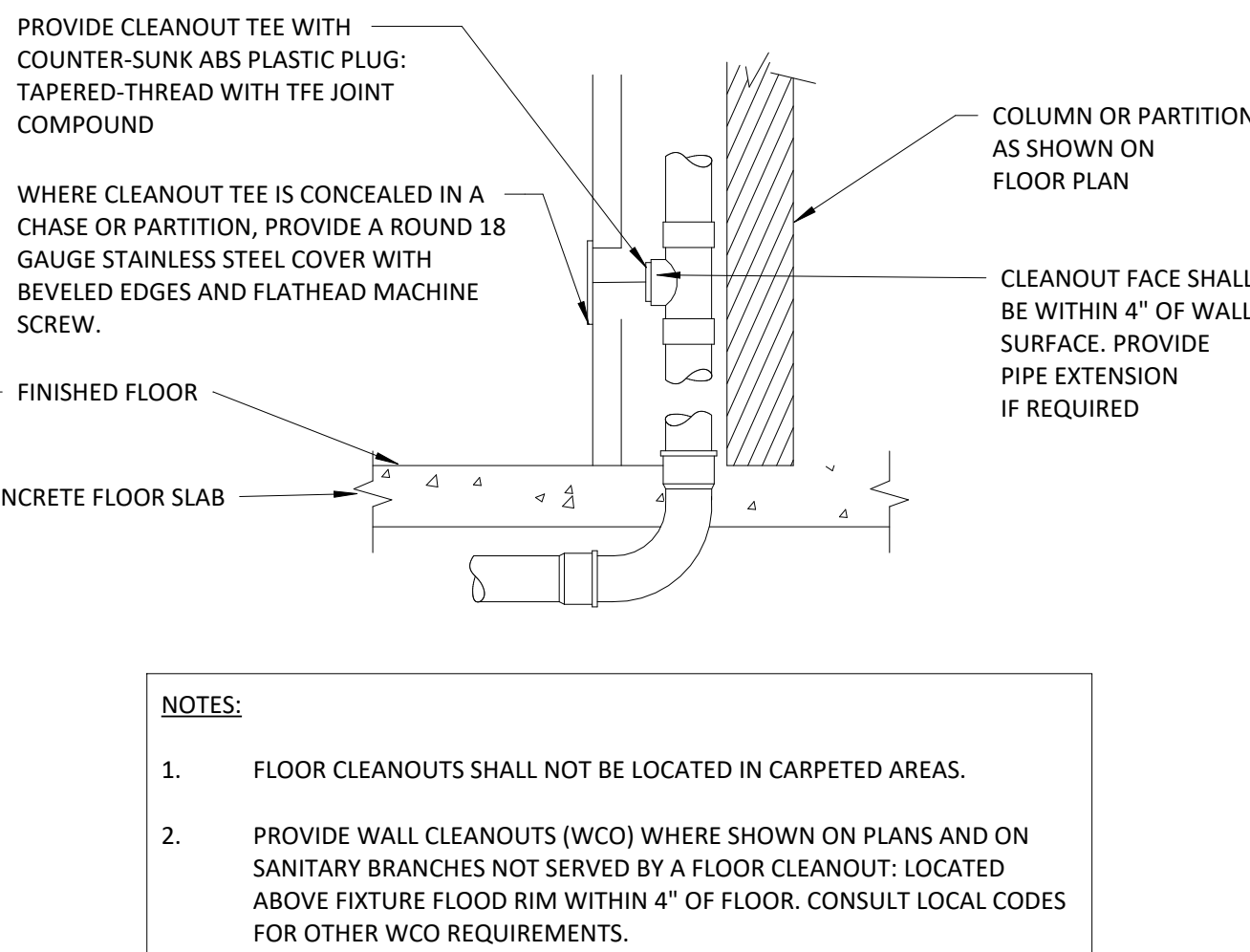


FLOOR DRAIN DETAIL
NOT TO SCALE

LOCATE AT BUILDING EXIT, AT ENDS OF RUNS, AT TURNS OF PIPE GREATER THAN 45 DEGREES, AT 50' INTERVALS ON STRAIGHT RUNS, AND WHERE SHOWN ON PLANS. PROVIDE BACKFILL PER ARCHITECTURAL SPECIFICATIONS. LOCATE CLEANOUTS WHERE THERE IS 18" CLEAR AROUND. CONSULT LOCAL CODES FOR OTHER FCO REQUIREMENTS.



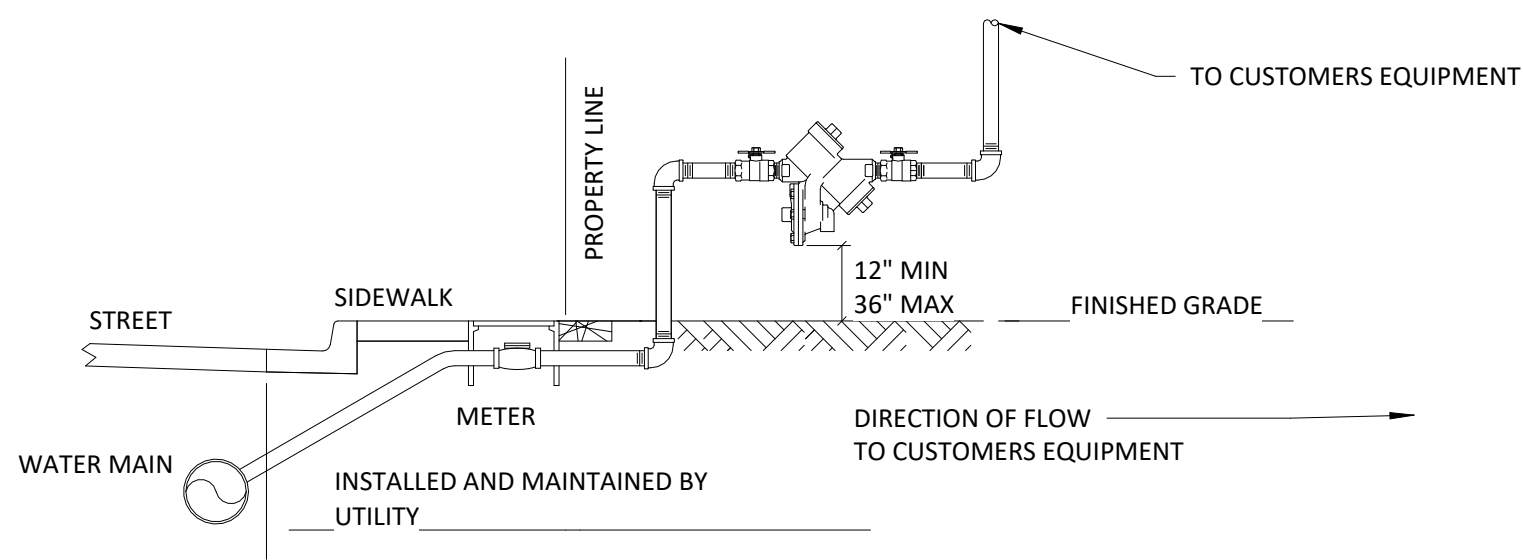
FLOOR CLEANOUT



WALL CLEANOUT DETAIL

SANITARY CLEANOUT DETAILS

NOT TO SCALE

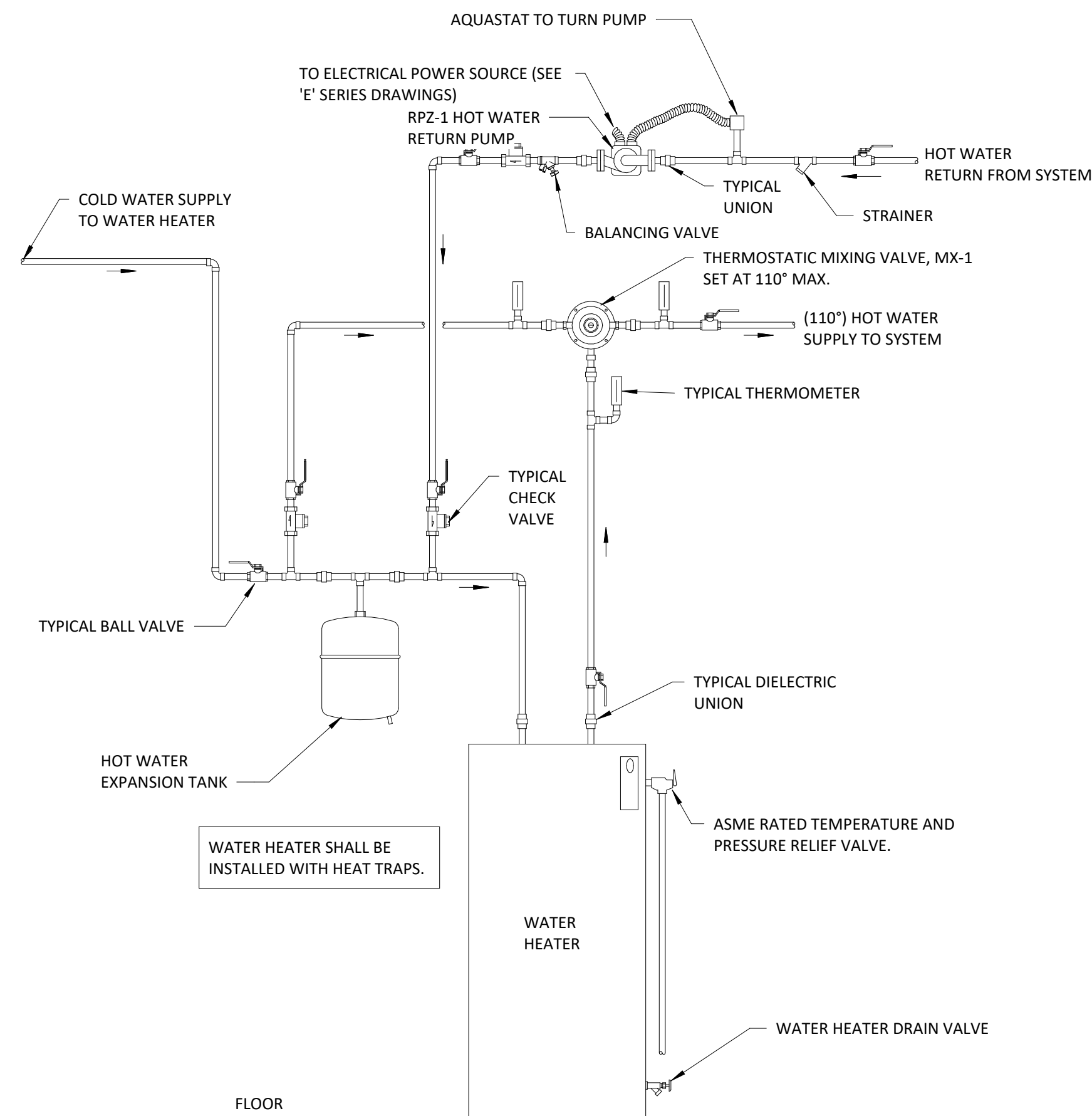


TYPICAL BACKFLOW INSTALLATION DETAIL NOTES

1. BACKFLOW INSTALLATION DETAIL SHOWN ABOVE IS FOR INFORMATION ONLY. CONTRACTOR SHALL VERIFY EXACT LOCATION, PIPE SIZE, AND LAYOUT PRIOR TO BID. COORDINATE ALL NECESSARY WORK WITH ENGINEER OF RECORD.
2. BACKFLOW SHALL BE INSTALLED IN EACH TENANT SPACE AS PART OF TENANT IMPROVEMENT DESIGN PRIOR TO DISTRIBUTION OF DOMESTIC WATER TO CUSTOMER EQUIPMENT.

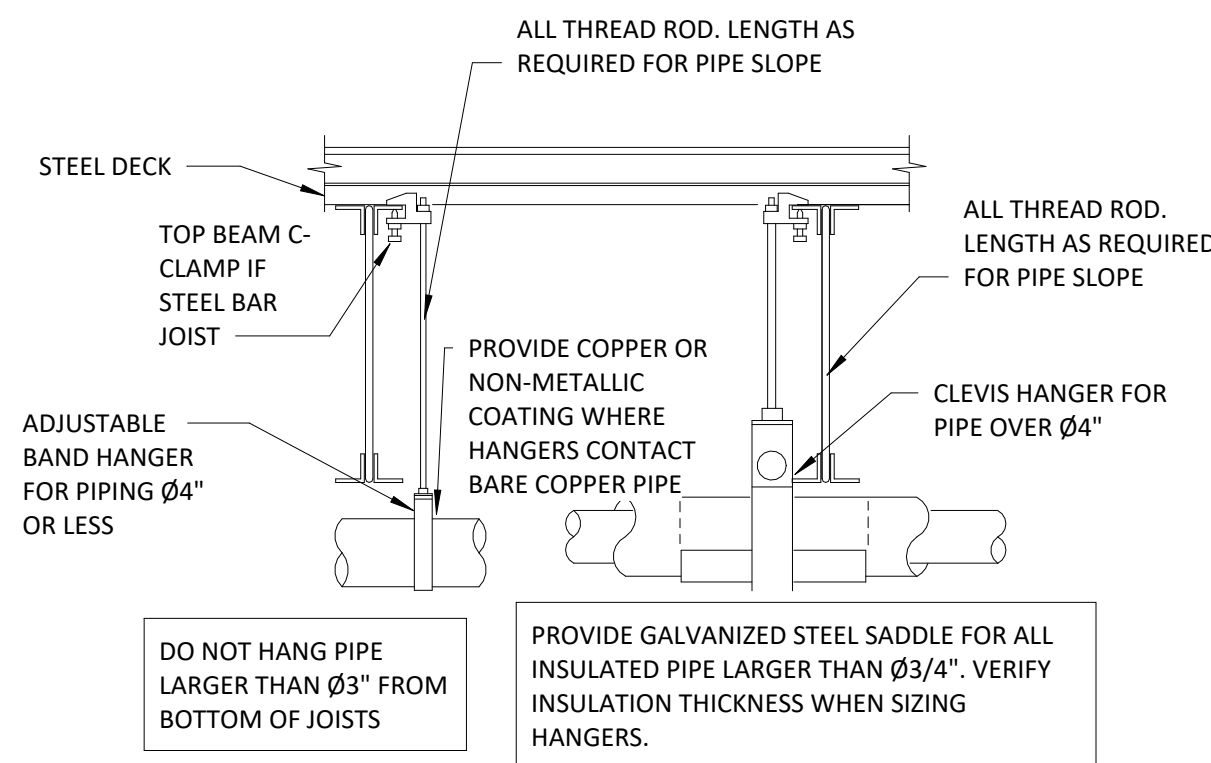
TYPICAL BACKFLOW INSTALLATION DETAIL

NOT TO SCALE



WATER HEATER PIPING DETAIL

NOT TO SCALE



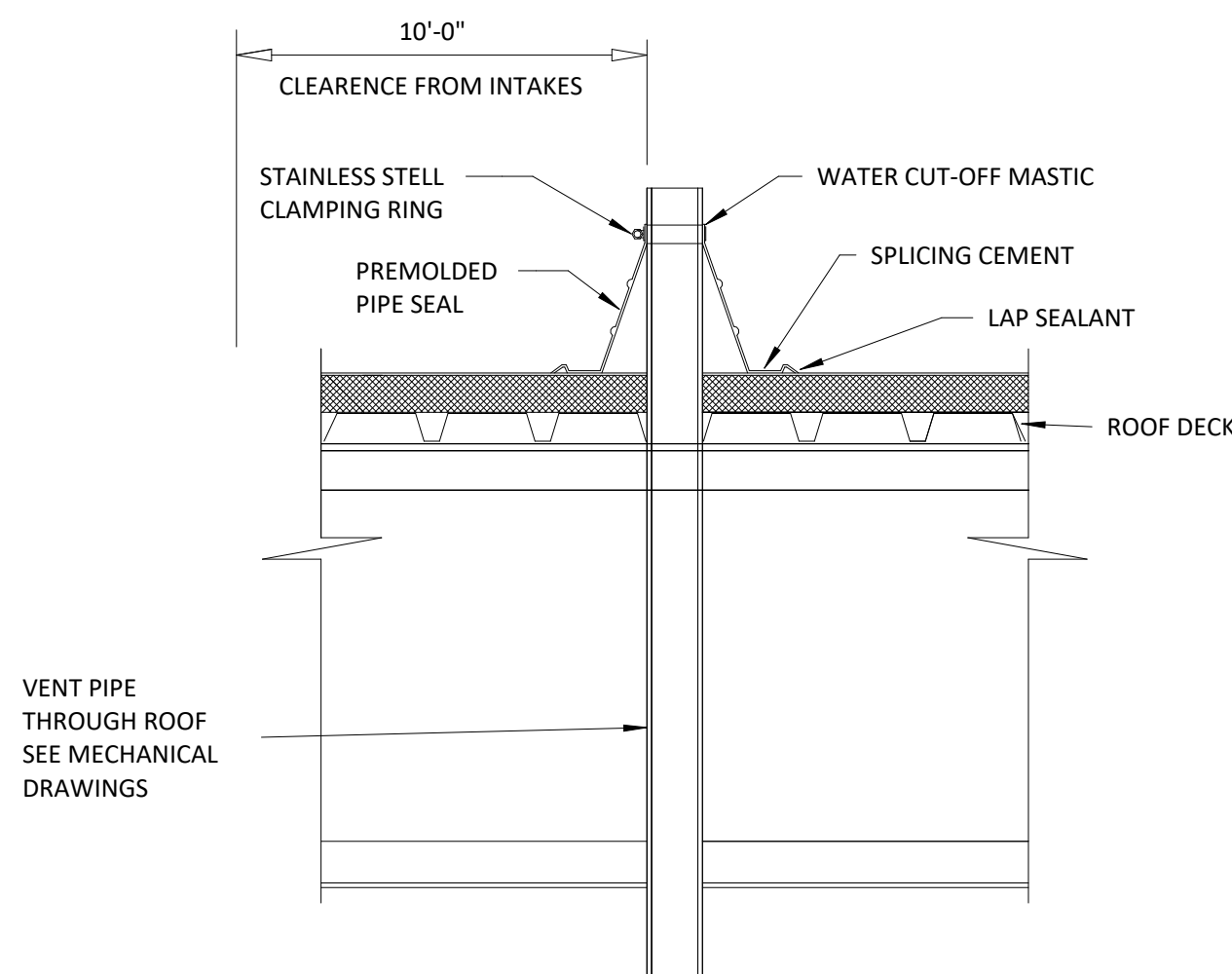
PROVIDE UPPER ATTACHMENT AS REQUIRED FOR CASES NOT SHOWN HERE. DO NOT INSTALL HANGER INSIDE INSULATION OR OTHERWISE PENETRATE VAPOR BARRIER. DO NOT HANG ONE PIPE FROM ANOTHER EXCEPT IN CHASES. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE PARALLEL PIPES.

HANGER SPACING FOR PIPE SIZE:
COPPER: 4" = 12' 3" = 11' 2-1/2" = 10' 2" = 9' 1-1/2" = 8' 1-1/4" = 7' 1" = 6' 3/4" = 6' 1/2" = 5'.
CAST IRON: 10' AND ONE NEAR ALL JOINTS.
STEEL: 4" = 14' 3" = 12' 2-1/2" = 11' 2" = 10' 1-1/2" = 9' 1" = 7' 3/4" = 6' 1/2" = 5'.

LOCATE HANGERS AS CLOSE AS POSSIBLE TO TURNS AND TEES OF PIPE. PROVIDE SUPPLEMENTARY STEEL STRUTS BETWEEN JOISTS IF REQUIRED. LOCATE HANGERS TO TAKE LOAD OFF OF EQUIPMENT CONNECTIONS. ANCHOR WATER PIPE AGAINST SWAYING DUE TO CHANGES IN WATER VELOCITY. PROVIDE SEISMIC BRACING IF/AS REQUIRED BY LOCAL AUTHORITIES. CHAINS OR PERFORATED STRAP IRON OR STEEL IS NOT ACCEPTABLE. REFER TO CODES FOR FURTHER INFORMATION.

PIPE SUPPORT DETAILS

NOT TO SCALE



VENT PIPE THRU ROOF DETAIL

NOT TO SCALE



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Upland Wastewater Treatment Utility
Storage Facility
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UPLAND, IN 46989

DRAWING
PLUMBING DETAILS

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P2.3

