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DATE:	SEPTEMBER 2018
PROJECT NUMBER:	18-11011
ISSUED FOR BID	0
REVISION	
DATE	04/23/19

ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING
ELECTRICAL LEGEND AND
GENERAL NOTES

SHEET NO.
E-0.1

SCHEMATIC DIAGRAM SYMBOLS

ONE LINE DIAGRAM SYMBOLS

GENERAL ABBREVIATIONS

GENERAL NOTES:

	CONDUCTORS CONNECTED
	CONDUCTORS NOT CONNECTED
	CONNECTION POINT
	TERMINAL POINT FOR OUTGOING CONDUCTORS, WITH IDENTIFICATION "xx" DENOTES CONTRACTOR ASSIGNED.
	MAGNETIC-ONLY CIRCUIT BREAKER (MCP), WITH CURRENT RATING
	CIRCUIT BREAKER, THERMAL-MAGNETIC UNLESS OTHERWISE NOTED, WITH FRAME SIZE AND TRIP RATING
	FUSE WITH SIZE AND OPTIONAL IDENTIFICATION.
	DISCONNECT SWITCH, RATING OPTIONAL. 30 AMP, 600V RATED MINIMUM UNLESS OTHERWISE NOTED.
	FUSE DISCONNECT SWITCH, RATING OPTIONAL. 30 AMP, 600V MINIMUM UNLESS OTHERWISE NOTED.
	MOTOR (HP AS SHOWN, PHASES AS REQUIRED)
	MOTOR STARTER COIL
	THERMAL MOTOR OVERLOAD
	MOTOR CONTACT
	LIMIT SWITCH NORMALLY CLOSED AND NORMALLY OPEN
	PRESSURE SWITCH NORMALLY CLOSED AND NORMALLY OPEN
	TEMPERATURE SWITCH NORMALLY CLOSED AND NORMALLY OPEN
	FLOW SWITCH NORMALLY CLOSED AND NORMALLY OPEN
	LEVEL SWITCH NORMALLY CLOSED AND NORMALLY OPEN
	PROXIMITY SWITCH NORMALLY CLOSED AND NORMALLY OPEN
	PULLCORD SWITCH NORMALLY CLOSED AND NORMALLY OPEN
	MOMENTARY PUSHBUTTON NORMALLY CLOSED AND NORMALLY OPEN
	SELECTOR SWITCH NORMALLY CLOSED AND NORMALLY OPEN
	TIME DELAY SWITCH NORMALLY CLOSED AND NORMALLY OPEN
	CONTROL RELAY CONTACT NORMALLY CLOSED AND NORMALLY OPEN
	SOLENOID VALVE
	CONTROL RELAY
	PILOT LIGHT X = LENS COLOR A = AMBER B = BLUE G = GREEN R = RED W = WHITE
	ALARM LIGHT
	ALARM HORN
	CONTROL POWER TRANSFORMER, PRIMARY AND SECONDARY VOLTAGE SHOWN. SIZE AS SHOWN OR SPECIFIED.
	CURRENT TRANSFORMER, PRIMARY/SECONDARY. TURNS RATIO AS SHOWN.
	MOTOR SPACE HEATER

	CB-xxx xxA-T xxA-F	LOW VOLTAGE POWER CIRCUIT BREAKER, DRAW-OUT TYPE, FRAME AND TRIP ID SHOWN
	CB-xxx xxA-T xxA-F	MOLDED CASE CIRCUIT BREAKER, FRAME AND TRIP ID SHOWN
	DS-xxx	DISCONNECT OR ISOLATING SWITCH: CONTINUOUS RATING SHOWN
	MCP-xxx xxA-T xxA-F	MAGNETIC-ONLY CIRCUIT BREAKER (MCP), DRAW-OUT TYPE, FRAME AND TRIP ID SHOWN
	FD-xxx xxA-T xxA-F	FUSED DISCONNECT SWITCH, FUSE AND SWITCH CONTINUOUS RATINGS SHOWN
	TFR-xxx xxV-PRI xxV-SEC xxKVA	POWER TRANSFORMER: PRIMARY & SECONDARY VOLTAGES, KVA, SIZE SHOWN
	CT-xxx xS	CURRENT TRANSFORMER: RATIO SHOWN (3 INDICATES NO. OF CT'S) METER SWITCH: xS AS - AMMETER SWITCH VS - VOLTMETER SWITCH FS - FREQUENCY SWITCH
	PT-xxx	POTENTIAL TRANSFORMER, PRIMARY & SECONDARY VOLTAGES & WINDINGS SHOWN. (x) UNITS
	METER	METER: A - AMMETER W - WATTMETER KWH - WATT-HOUR METER F - FREQUENCY METER VAR - VAR METER V - VOLTMETER
	FVNR-xxx OL	FULL VOLTAGE, NON-REVERSING MAGNETIC MOTOR STARTER. NEMA SIZE INDICATED
	FVR-xxx OL	FULL VOLTAGE, REVERSING MAGNETIC MOTOR STARTER. NEMA SIZE INDICATED
	xxHP VFD-xxx	VARIABLE FREQUENCY DRIVE, NEMA SIZE INDICATED
	xxHP RVSS-xxx	REDUCED VOLTAGE SOLID STATE DRIVE (SOFT START), NEMA SIZE INDICATED
	xxHP M-xxx	MOTOR (HP AS SHOWN, PHASES AS REQUIRED)
		GENERATOR RECEPTACLE
	MTS-xxx	MANUAL TRANSFER SWITCH
	xx P-xxx x/g #xx 1/c #xx IN x" C.	CABLE TAG: P - POWER CABLE C - CONTROL CABLE S - SHIELDED SIGNAL CABLE

CIRCUIT AND RACEWAY SYMBOLS

	RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED. (UNLESS OTHERWISE NOTED)
	RACEWAY OR WIRING SYSTEM BELOW FLOOR LEVEL, ABOVE CEILING, HIDDEN, OR EXISTING CABLE/CONDUIT. (UNLESS OTHERWISE NOTED)
	SCHEMATIC DIAGRAM FIELD WIRING. (UNLESS OTHERWISE NOTED)
	ONE LINE DIAGRAM EQUIPMENT ENCLOSURE. (UNLESS OTHERWISE NOTED)
	GROUNDING CONDUCTOR (CONCEALED), #4/0 AWG BARE COPPER
	GROUNDING CONDUCTOR (EXPOSED), #4/0 AWG INSULATED COPPER
	HOME RUN - SEE PANELBOARD SCHEDULE FOR CIRCUIT INFORMATION EXAMPLE: HOME TO PANELBOARD PBD A, CIRCUITS 1, 3, AND 5

AR	ALARM RELAY	MCB	MAIN CIRCUIT BREAKER
AS	AMMETER SELECTOR SWITCH	MCC	MOTOR CONTROL CENTER
A	AMP(S), AMPERE(S)	MCP	MOTOR CONTROL PANEL/MOTOR CIRCUIT PROTECTOR
AC	ALTERNATING CURRENT	MECH	MECHANICAL MANUFACTURE(R)
AFF	AS HIGH AS POSSIBLE ABOVE FINISHED FLOOR	MFR	MANHOLE
AHAP	AMPS INTERRUPTING CAPACITY, SYMM.	MIN	MICROPHONE
AL	ALUMINUM	MISC	MISCELLANEOUS
AT	AMPERE TRIP	MM	MILLIMETER
AF	AMPERE FRAME	MV	MILLIVOLT
AUTO	AUTOMATIC	MCM	MILLI CIRCULAR MILLS
AUX	AUXILIARY	MOP	MOTOR OPERATOR PANEL
AWG	AMERICAN WIRE GAUGE	MFR	MOTOR PROTECTION RELAY
BC	BARE COPPER CONDUCTOR	MS	MOTOR STARTER
BKR	BREAKER	MTR	MOTOR
C	CONDUCTOR/CONTRACTOR	MVS	MEDIUM VOLTAGE STARTER
C/B	CIRCUIT BREAKER	N/A	NOT APPLICABLE
CJB	CIRCUIT JUNCTION BOX	NC	NORMALLY CLOSED
CKT	CIRCUIT	NEUT	NEUTRAL
CLS	CEILING	NO	NOT IN CONTRACT
CR	CONTROL RELAY	NO	NORMALLY OPEN
CND	CONDUIT	NOM	NOMINAL
CONC	CONCRETE	NP	NAMEPLATE
CS	CONTROL SWITCH	NTS	NOT TO SCALE
CONT	CONTROL	OC	ON CENTER
CPT	CONTROL POWER TRANSFORMER	OD	OUTSIDE DIAMETER
CT	CURRENT TRANSFORMER	OH	OVERHEAD
CU	COPPER	OL	OIL
CWP	COLD WATER PIPE	OT	OIL TIGHT
D	DIAMETER	P	POLE
DB	DUCT BANK	PA	PUBLIC ADDRESS
DC	DIRECT CURRENT	PB	PUSHBUTTON, PULLBOX
DET	DETAIL	PE	PHOTO ELECTRIC CELL
DIAG	DIAGRAM	PF	POWER FACTOR
DIFF	DIFFERENTIAL PRESSURE SWITCH	PIB	POWER JUNCTION BOX
DS	DISCONNECT SWITCH	PLC	PROGRAMMABLE LOGIC CONTROLLER
DWG	DRAWING	PP	POWER PANEL
EA	EACH	PR	PAIR
EC	ELECTRICAL CONTRACTOR	PRI	PRIMARY
EF	EXHAUST FAN	PS	PRESSURE SWITCH
EL	ELEVATION	PT	POTENTIAL TRANSFORMER
ELEC	ELECTRIC(IAL)	PVC	POLYVINYL CHLORIDE
EMER	EMERGENCY	PWR	POWER
ENCL	ENCLOSURE/ENCLOSED	QSH	SHEAR PIN LIMIT SWITCH
EXP	EXPLOSION PROOF EQUIP.	RCP	RECEPTACLE
EX, E	EXISTING	RCT	REACTOR
FDP	FURNISHED WITH EQUIPMENT PANEL	REF	REFERENCE REQ'D REQUIRED
FDR	FEEDER	RMS	ROOT MEAN SQUARE
FLA	FULL LOAD AMPS	RTD	RESISTANCE TEMPERATURE DETECTOR
FPP	FIBER OPTIC DISTRIBUTION PANEL	SCH	SCHEDULE
FS	FLOW SWITCH	SE	SECONDARY
FU	FUSE	SEL	SELECTOR
FUT	FUTURE	SER	SERVICE ENTRANCE RATED
FVNR	FULL VOLTAGE NON-REVERSING	SPDT	SINGLE POLE DOUBLE THROW
FVR	FULL VOLTAGE REVERSING	SPEC	SPECIFICATION
GALV	GALVANIZED	SPHTR	MOTOR SPACE HEATER
GEN	GENERATOR	SS	STAINLESS STEEL
GFR	GROUND FAULT RELAY	SSS	SPEED SWITCH
GRD	GROUND	STP	SHIELDED TWISTED PAIR
GRS	GALVANIZED RIGID STEEL	SUB	SUBSTATION
H	HIGH	SW	SWITCH
HGT	HEIGHT	SYMM	SYMMETRICAL
HM	HANDHOLE	SYS	SYSTEM
HID	HIGH INTENSITY DISCHARGE	SV	SOLENOID OPERATED VALVE
HP	HORSEPOWER	SPB	SIGNAL PULL BOX
HS	HAND STATION (SWITCH)	TB	TERMINAL BOX
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	TEL	TELEPHONE
HZ	HERTZ (CYCLES PER SECOND)	TEMP	TEMPERATURE
HQA	HAND/OFF/AUTO	TFR	TRANSFORMER
HOR	HAND/OFF/REVERSE	TH	THERMOSTAT
HMH	HIGH VOLTAGE MANHOLE	TJB	TERMINAL JUNCTION BOX
ID	INSIDE DIAMETER	TSH	TEMPERATURE SWITCH HIGH
IMC	INDIVIDUAL MOTOR CONTROLLER	TV	TELEVISION
INTLK	INTERLOCK	TYP	TYPICAL
INST	INSTANTANEOUS	TR	TRANSIENT VOLTAGE SURGE SUPPRESSOR
INSTR	INSTRUMENT	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
I/O	INPUT-OUTPUT	UG	UNDERGROUND
JB	JUNCTION BOX	UH	UNIT HEATER
KV	KILOVOLT	UON	UNLESS OTHERWISE NOTED
KVA	KILOVOLT-AMPERE	V	VOLT
KVAR	KILOVOLT-AMPERE REACTIVE	VA	VOLT AMPERE
KW	KILOWATT	VAR	VOLT AMPERE REACTIVE
KWH	KILOWATT-HOUR	VFD	VARIABLE FREQUENCY DRIVE
KAIC	KILO AMPERE INTERRUPTING CURRENT	VSH	VIBRATION SWITCH
L-O-R	LOCAL-OFF-REMOTE	W	WATT, WIRE, WIDE
L	LONG	WITH	WITHOUT
LC	LIGHTING CONTACTOR	W/O	WEIGHT LOAD CELL
LCP	LOCAL CONTROL PANEL	WT	WEIGHT INDICATING TRANSMITTER
LP	LIGHTING PANEL	WP	WEATHERPROOF
LOS	LOCK-OUT STOP	XL	WARNING HORN/LIGHT
LSIG	LONG, SHORT, INSTANTANEOUS TRIP SETTING AND GROUND FAULT PROTECTION	XT	ANEMOMETER
LSL	LEVEL SWITCH LOW	ZS	POSITION (LIMIT) SWITCH
LSD	LIMIT SWITCH OPEN	ZSO	POSITION (LIMIT) SWITCH OPEN
LSC	LIMIT SWITCH CLOSED	ZSC	POSITION (LIMIT) SWITCH CLOSED
LTS	LIGHTING	ZT	POSITION TRANSMITTER
LV	LOW VOLTAGE		
LSH	LEVEL SWITCH HIGH		
M	MOTOR CONTACTOR		
mA	MILLIAMPERE		
MAX	MAXIMUM		

- SCOPE:
 - FURNISH ALL LABOR, MATERIAL, EQUIPMENT AND TOOLS REQUIRED TO COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEM INCLUDING BUT NOT LIMITED TO WIRING, BOXES, LIGHT FIXTURES, PANELS, SWITCHES, RECEPTACLES, DISCONNECTS, STARTERS, AND ALL OTHER WORK INDICATED ON THE DRAWINGS OR AS SPECIFIED HEREIN.
 - OBTAIN ALL PERMITS, INSPECTIONS, AND APPROVALS AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION AND DELIVER CERTIFICATE OF APPROVAL TO THE GENERAL CONTRACTOR. ALL ASSOCIATED FEES SHALL BE PAID BY THE CONTRACTOR.
 - ALL MATERIALS AND EQUIPMENT OF THE ELECTRICAL SYSTEM NECESSARY FOR ITS PROPER AND SAFE OPERATION OR OTHERWISE REQUIRED BY CODE, BUT NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, SHALL BE FURNISHED AND INSTALLED WITHOUT ADDITIONAL CHARGE.
 - WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF NATIONAL ELECTRICAL CODE, THE LATEST STANDARD BUILDING CODE, NFPA 820, ANY OTHER LOCALLY ADOPTED CODES AND LOCAL AUTHORITIES HAVING JURISDICTION.
- SUBSTITUTIONS FOR EQUIPMENT AND MATERIAL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
- CONTRACTOR SHALL COORDINATE ALL WORK WITH ALL OTHER TRADES. IT IS THE RESPONSIBILITY OF CONTRACTOR TO VERIFY THE ACTUAL LOCATION OF EQUIPMENT, DUCTWORK, PIPING, ETC. AND COORDINATE THE INSTALLATION ACCORDINGLY. THE EQUIPMENT WIRING SHALL INCLUDE ALL NECESSARY CABLES AND CONDUIT REQUIRED FOR THE PROPER AND SAFE EQUIPMENT OPERATION.
- ALL CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM CONDUCTOR SIZE FOR POWER AND LIGHTING WIRING. USE #14 AWG MINIMUM CONDUCTOR FOR SIGNAL WIRING. THE INSULATION FOR ALL CONDUCTORS SHALL BE THIN-2. SERVICE ENTRANCE CONDUCTORS SHALL BE XHHW. ALL CABLE INSTALLED IN CABLE TRAYS SHALL BE TC RATED.
- POWER WIRE SIZES #12 AWG AND #10 AWG SHALL BE SOLID TYPE. ALL OTHER SIZES SHALL BE STRANDED. CABLES BETWEEN THE VFD AND ASSOCIATED MOTOR SHALL BE SHIELDED POWER VFD RATED CABLES.
- ALL EXPOSED CONDUITS SHALL BE ALUMINUM, UNLESS NOTED OTHERWISE ON THE DRAWINGS, MINIMUM OF 3/4". ALL BURIED CONDUIT SHALL BE PVC-40, MINIMUM OF 1". ALL UNDERGROUND CONDUITS SHALL HAVE RIGID STEEL ELBOWS.
- ALL FITTINGS SHALL BE CAST WITH THREADED HUBS. ALL CONNECTIONS SHALL BE COMPRESSION TYPE.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CABLES AND EQUIPMENT LUG SIZES. IN CASE THE CABLE IS OF A LARGER SIZE THAN THE EQUIPMENT LUG, CONTRACTOR SHALL PROVIDE THE REQUIRED CONNECTOR AT NO ADDITIONAL CHARGE TO OWNER.
- CONTRACTOR SHALL PROVIDE PULL STRING AND IDENTIFICATION LABELS AT EACH CONDUIT END FOR ALL SPARE CONDUITS.
- CONTRACTOR SHALL CONFIRM ALL DIMENSIONS AND DISTANCES IN THE FIELD. IN CASE OF DISCREPANCY, CONTRACTOR SHALL INCLUDE A MORE EXPENSIVE OPTION.
- CONTRACTOR SHALL ADJUST CIRCUIT BREAKER SIZES, CABLES, AND CONDUITS FOR VENDOR SUPPLIED EQUIPMENT AT NO ADDITIONAL COST BASED ON THE ACTUAL APPROVED SHOP DRAWINGS.
- ALL SCHEMATIC WIRING DIAGRAMS ARE GENERAL IN NATURE. CONTRACTOR SHALL ADJUST NUMBER AND SIZE OF CABLES/CONDUITS BASED ON THE APPROVED VENDOR DRAWINGS.
- WHEN THE CABLES ARE LARGER THAN THE TERMINATING LUGS OR TERMINALS (DUE TO VOLTAGE DROP), THE CONTRACTOR SHALL PROVIDE A TERMINAL JUNCTION BOX FOR CABLE SIZE REDUCTION.
- ALL PHONE AND COMPUTER WIRING TO BE EMT CONDUIT.
- CONTRACTOR SHALL INSTALL ALL WIRING BETWEEN TELEPHONE BACKBOARD AND DATA/PHONE BOXES. COORDINATE WITH TELEPHONE COMPANY FOR EXACT TYPE AND REQUIREMENTS.
- CONTRACTOR SHALL ADJUST CIRCUIT BREAKER SIZES, CABLES, AND CONDUITS FOR VENDOR SUPPLIED EQUIPMENT AT NO ADDITIONAL COST BASED ON THE ACTUAL APPROVED SHOP DRAWINGS.
- CONTRACTOR SHALL PROVIDE ALL REQUIRED PULLBOXES AND/OR CONDUITS TO MEET NEC ARTICLE 314 FOR CABLE PULLS.

PLAN DRAWING SYMBOLS

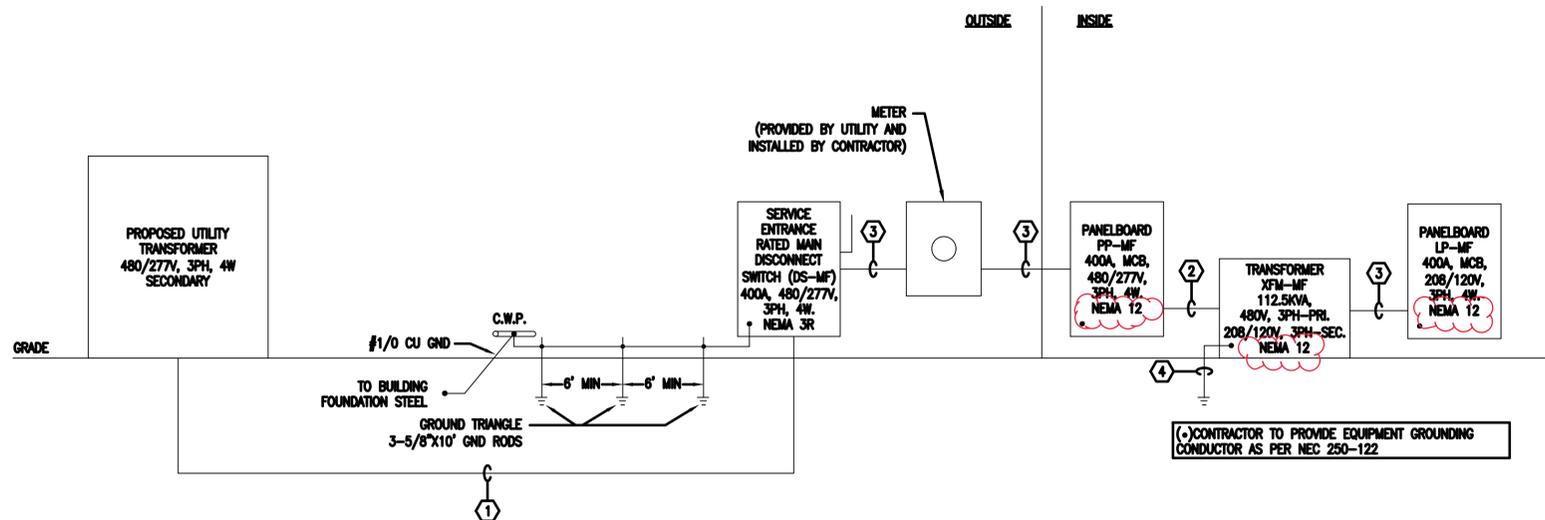
	MOTOR CONNECTION
	MOTOR STARTER, INDIVIDUAL -- NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY IN NEMA 4X ENCLOSURE UNLESS OTHERWISE NOTED. MOUNT AT 4"-8" TO CENTER OF STARTER.
	COMBINATION MOTOR STARTER/DISCONNECT, INDIVIDUAL -- NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY IN NEMA 4X ENCLOSURE UNLESS OTHERWISE NOTED. MOUNT AT 4"-8" TO CENTER OF STARTER/DISCONNECT.
	DISCONNECT SWITCH. DISCONNECT SWITCHES ARE HEAVY DUTY, SINGLE THROW, WITH NEMA 4X ENCLOSURE UNLESS OTHERWISE NOTED. MOUNT AT 4"-8" TO CENTER OF DISCONNECT.
	FUSED DISCONNECT, NON-FUSED. PROVISION FOR CLASS R FUSES.
	FIELD INSTRUMENT CONNECTION
	START/STOP HAND STATION MOUNTED TO HANDRAL (NEMA 4X UNLESS OTHERWISE NOTED)
	120V, 20A, 1P TOGGLE SWITCH [BLANK] = 1P TOGGLE SWITCH 2 = 2P TOGGLE SWITCH 3 = 3P TOGGLE SWITCH D = SLIDE DIMMER M = MOTOR RATED S = TOGGLE WITH OCCUPANCY SENSOR
	DUPLEX 120V RECEPTACLE, 120V, 20A, 1P. MOUNT 18" ABOVE FINISHED FLOOR (A.F.F.) OR 6" ABOVE COUNTER, DESK, OR CABINET.
	GFCI DUPLEX 120V RECEPTACLE, 120V, 20A, 1P. MOUNT 18" ABOVE FINISHED FLOOR (A.F.F.) OR 6" ABOVE COUNTER, DESK, OR CABINET.
	QUADPLEX 120V RECEPTACLE, 120V, 20A, 1P. MOUNT 18" ABOVE FINISHED FLOOR (A.F.F.) OR 6" ABOVE COUNTER, DESK, OR CABINET.
	JUNCTION BOX
	60A, 480V, 3PH WELDING RECEPTACLE
	EXHAUST FAN



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- RISER DIAGRAM NOTES:**
- CONTRACTOR SHALL COORDINATE LOCATION OF THE 480/277V TRANSFORMER AND CONCRETE PAD REQUIREMENTS WITH SNAPPING SHOALS EMC DAVID FORD, DEORD@SSEM.COM, (770) 365-2712. CONTRACTOR IS RESPONSIBLE FOR PAYING ALL COSTS ASSOCIATED WITH BRINGING 480/277V, 3PH, 4W SERVICE TO THE SITE.
 - CONTRACTOR SHALL PROVIDE A GROUND TRIANGLE CONSISTING OF THREE (3) 3/4" DIAMETER x 10' LONG COPPERCLAD GROUND RODS. THE RODS SHALL BE DRIVEN IN GROUND CONNECTED TOGETHER WITH #1/0 AWG BARE STRANDED COPPER CONDUCTORS. PROVIDE A GROUND WELL FOR ONE ROD.
 - CONTRACTOR SHALL CONFIRM THE REQUIRED FEEDER BREAKER SIZES FOR THE APPROVED HVAC AND PLUMBING EQUIPMENT AND ADJUST BREAKERS, CABLES, AND CONDUIT SIZES AS NEEDED.

CONDUCTOR/CONDUIT SCHEDULE

1	4/c #600KCMIL IN 4" C.
2	3/c #2/0 & 1/c #6 GND IN 1-1/2" C.
3	4/c #600KCMIL & 1/c #3 GND IN 3-1/2" C.
4	1/c #1/0 IN 1" C.

1 ELECTRICAL RISER DIAGRAM

PANELBOARD PP-MF											
VOLTAGE (L-N):		277V		ENCLOSURE TYPE:		NEMA 3R					
VOLTAGE (L-L):		480V		MOUNTING:		SURFACE					
PHASES, WIRES:		3 φ 4 W		AIC RATING (A):		42000					
MINIMUM BUS CAPACITY (A):		400A		NOTES:							
MAIN O.C. DEVICE (A):		400A MCB									
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (AMP)			POLE	TRIP AMPS	DESCRIPTION	CKT NO	
				A	B	C					
1	UNIT HEATER UH-1	30	3	18.0	18.0		3	30	UNIT HEATER UH-2	2	
3					18.0	18.0				4	
5						18.0				6	
7	UNIT HEATER UH-3	30	3	18.0	18.0		3	30	UNIT HEATER UH-4	8	
9					18.0	18.0				10	
11						18.0				12	
13	UNIT HEATER UH-5	30	3	18.0	5.5		3	20	WATER HEATER WH-1	14	
15					18.0	5.5				16	
17						18.0				18	
19	AIR COMPRESSOR	100	3	40.0	0.0				SPACE	20	
21					40.0	0.0			SPACE	22	
23						40.0			SPACE	24	
25	SPARE	30	3	0.0	0.0				SPACE	26	
27					0.0	0.0			SPACE	28	
29						0.0			SPACE	30	
31	SPARE	50	3	0.0	0.0				SPACE	32	
33					0.0	0.0			SPACE	34	
35						0.0			SPACE	36	
37	SPACE		1	0.0	82.8		3	175	TRANSFORMER XFM-MF	38	
39	SPACE				0.0	96.0				40	
41	SPACE		1			0.0				42	
				CONNECTED LOAD PHASE TOTALS (AMP)							
				218.5	231.7	219.2					

REFER TO RISER DIAGRAM FOR CABLES THAT ARE NOT LISTED

USE #12 FOR 20A CB
USE #10 FOR 30A CB
USE #8 FOR 50A CB
USE #1 & #6GND FOR 100A CB

PANELBOARD LP-MF											
VOLTAGE (L-N):		120V		ENCLOSURE TYPE:		NEMA 3R					
VOLTAGE (L-L):		208V		MOUNTING:		SURFACE					
PHASES, WIRES:		3 φ 4 W		AIC RATING (A):		22000					
MINIMUM BUS CAPACITY (A):		400A		NOTES:		PROVIDE 54 CIRCUIT PANELBOARD					
MAIN O.C. DEVICE (A):		400A MB									
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (AMP)			POLE	TRIP AMPS	DESCRIPTION	CKT NO	
				A	B	C					
1	AIR HANDLER AH-1	40	3	31.5	31.5		3	40	AIR HANDLE AH-2	2	
3					31.5	31.5				4	
5						31.5				6	
7	HEAT PUMP HP-1	30	2	16.2	16.2		2	30	HEAT PUMP HP-2	8	
9					16.2	16.2				10	
11	EXHAUST FAN EF-2	20	2			4.8	1	20	SHOP RECEPTACLES	12	
13				4.8	6.0				SHOP RECEPTACLES	14	
15	OPEN OFFICE RECEPTACLES	20	1		12.0	4.5			SHOP RECEPTACLES	16	
17	MICROWAVE	20	1			12.0	1.5		BATHROOM RECEPTACLE	18	
19	SMALL REFRIGERATOR	20	1	12.0	6.0				OFFICE 3 RECEPTACLES	20	
21	OFFICE 2 RECEPTACLES	20	1		6.0	6.0			OFFICE 1 RECEPTACLES	22	
23	OFFICE 4 RECEPTACLES	20	1			6.0	6.0		OFFICE 5 RECEPTACLES	24	
25	RECORDS RECEPTACLES	20	1	6.0	6.0				RECORDS RECEPTACLES	26	
27	FIRE ALARM CONTROL PANEL ACP-MF	20	1		15.0	2.7			OUTDOOR LIGHTING	28	
29	FIRST FLOOR LIGHTING	20	1			5.5	5.0		SECOND FLOOR LIGHTING	30	
31	SHOP LIGHTING	20	1	10.0	1.0				LOUVER L-1	32	
33	WELDING RECEPTACLE WR-1	50	2		40.0	40.0		2	50	WELDING RECEPTACLE WH-2	34
35						40.0	40.0			36	
37	AIR DRYER AD-1	20	1	12.0	12.0				SCADA COMPUTER	38	
39	SPARE	20	1			0.0	0.0		SPARE	40	
41	SPARE	20	1			0.0	3.0		EXHAUST FAN EF-1	42	
43	PHONE BOARD RECEPTACLE	20	1	5.0	5.0				LIGHTING CONTACTOR LC-MF	44	
45	SPARE	20	1			0.0	0.0		SPARE	46	
47	SPARE	20	1			0.0	0.0		SPARE	48	
49	BLASTING CAB	20	1	10.0	0.0				SPACE	50	
51	SPACE		1			0.0	0.0		SPACE	52	
53	SPACE		1			0.0	0.0		SPACE	54	
				CONNECTED LOAD PHASE TOTALS (AMP)							
				191.2	221.6	192.8					

USE #12 FOR 20A CB
USE #10 FOR 30A CB
USE #8 & #10GND FOR 50A CB
USE #8 FOR 40A CB

2 PANELBOARD SCHEDULES

PROJECT NUMBER: 18-11011

DATE:	SEPTEMBER 2018
REVISION	DATE
0	04/23/19
ISSUED FOR BID	

DSGN: JB
DRWN: JB
CHK: AZ

BAR BELOW IS 1" LONG FOR SCALES SHOWN ON THIS SHEET. IF NOT 1" LONG ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING

ELECTRICAL RISER DIAGRAM
AND PANELBOARD SCHEDULE

SHEET NO.
E-1.1

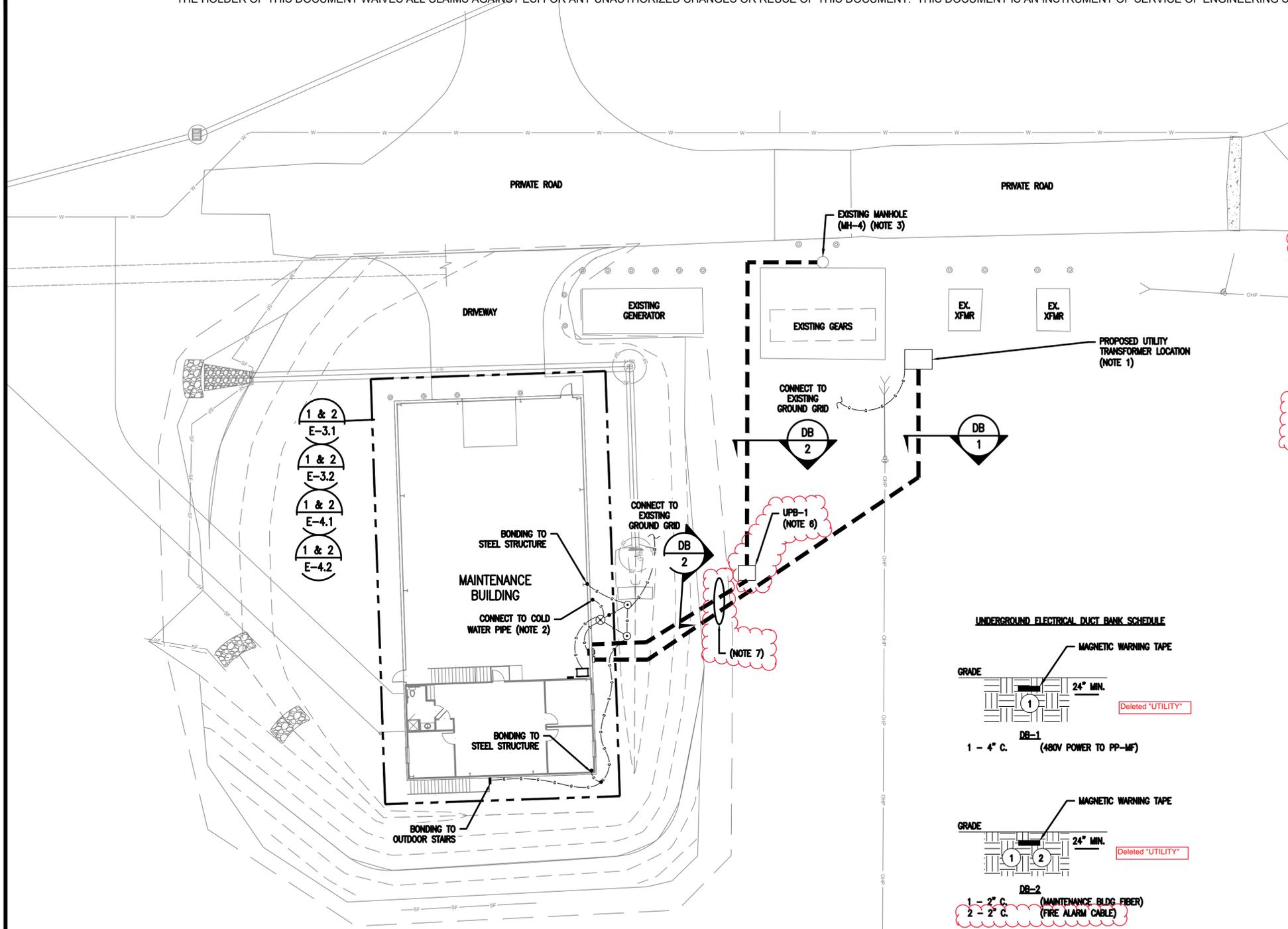
X:\active Projects\2018 Projects\18017-es Rwr Maintenance Building\1.0 Drawings\1.1 Electrical\E-1.1 RISER.dwg - 4/26/2019



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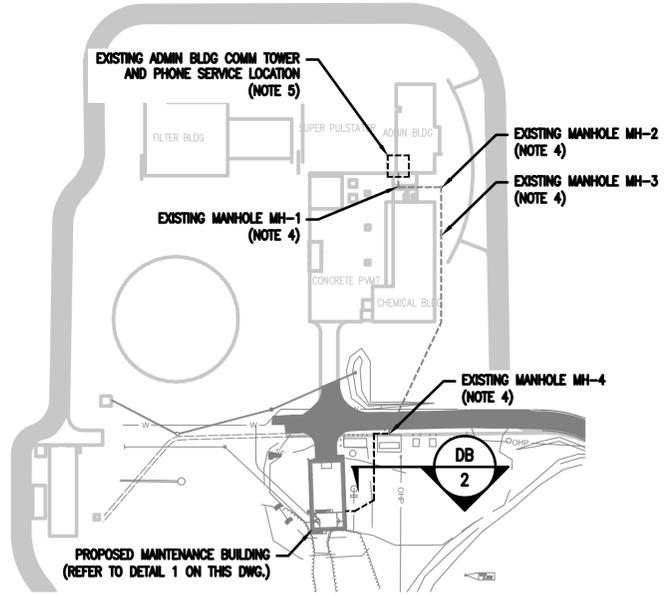
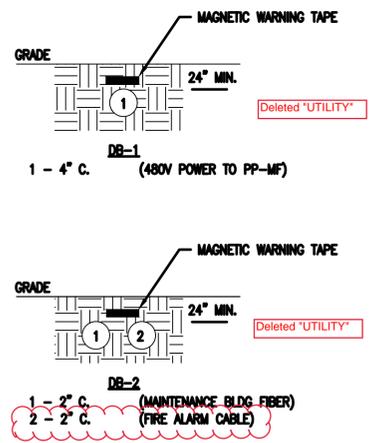
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3855 SHALLOWFORD ROAD, SUITE 525
MARIETTA, GA 30062
(770) 429-0001



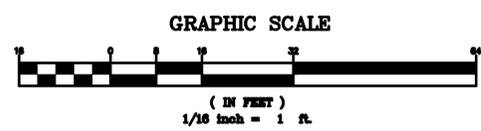
ELECTRICAL SITE PLAN NOTES:

- CONTRACTOR SHALL COORDINATE LOCATION OF THE 480/277V TRANSFORMER AND CONCRETE PAD REQUIREMENTS WITH SHAPPING SHOALS EMC DAVID FORD, DFORD@SSEM.COM, (770) 385-2712. CONTRACTOR IS RESPONSIBLE FOR PAYING ALL COSTS ASSOCIATED WITH BRINGING 480/277V, 3PH, 4W SERVICE TO THE SITE.
- CONTRACTOR SHALL PROVIDE CONNECTION TO THE COLD WATER PIPING AS PER NEC 250 FOR GROUNDING TERMINATION. REFER TO RISER DIAGRAM ON DWG. E-1.1, DETAIL 1 FOR FURTHER DETAILS.
- CONTRACTOR SHALL ROUTE DUCT BANK DB-2 INTO EXISTING MANHOLE MH-4 AND USE THE EXISTING SPARE CONDUITS TO CONNECT THE PROPOSED MAINTENANCE BUILDING'S FIBER CABLE TO THE PLANT SCADA SYSTEM. CONTRACTOR SHALL COORDINATE MAINTENANCE BUILDING TERMINATION POINT WITH THE PLANT PERSONNEL. ESTIMATED REQUIRED FIBER CABLE LENGTH IS 400 FT. CONTRACTOR SHALL INCLUDE ALL REQUIRED MODIFICATIONS IN PLANT PLC PANEL FOR PROPER CONNECTION OF THE FIBER CABLE. THE FIBER CABLE IS INTENDED FOR CONNECTING MAINTENANCE BUILDING SCADA COMPUTER TO THE PLANT SCADA NETWORK AND FOR PROVIDING INTERNET AND TELEPHONE SERVICE TO THE MAINTENANCE BUILDING. ALSO PLANT SCADA SYSTEM HMI SHALL BE MODIFIED TO INCLUDE MAINTENANCE BUILDING FIRE ALARM.
- EXISTING MANHOLES ARE SHOWN IN APPROXIMATE LOCATIONS FOR CONTRACTOR TO CALCULATE REQUIRED CABLE DISTANCES BETWEEN EXISTING PLANT AND PROPOSED MAINTENANCE BUILDING.
- CONTRACTOR SHALL COORDINATE WITH ROCKDALE COUNTY TECHNOLOGY SERVICES TO PROVIDE THE REQUIRED FIBER CABLE TO EXTEND THE INTERNET AND PHONE SERVICE TO THE PROPOSED MAINTENANCE BUILDING AND TO PERFORM THE REQUIRED TERMINATIONS TO EXISTING PLANT COMMUNICATION TOWER/SERVICE AND TO PROPOSED EQUIPMENT AT THE MAINTENANCE BUILDING.
- CONTRACTOR SHALL PROVIDE AND INSTALL UNDERGROUND PULL BOXES AS REQUIRED TO PULL THE UNDERGROUND CABLES AS PER NEC ARTICLE 314. SEE DETAIL E ON DWG. E-9.2 FOR UNDERGROUND PULL BOX DETAILS.
- ALL UNDERGROUND DUCTBANKS UNDER THE ROADS AND PARKING AREAS SHALL BE CONCRETE ENCASED.

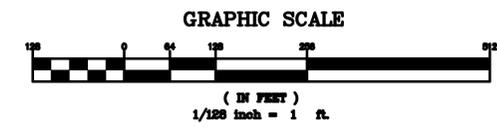
UNDERGROUND ELECTRICAL DUCT BANK SCHEDULE



1 MAINTENANCE BUILDING ELECTRICAL SITE PLAN
SCALE: 1/16" = 1'-0"



2 EXISTING PLANT ELECTRICAL SITE PLAN
SCALE: 1/128" = 1'-0"



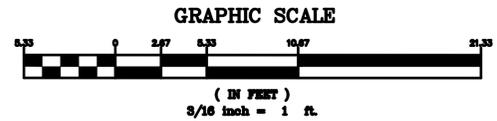
PROJECT NUMBER: 18-11011	DATE: SEPTEMBER 2018
ISSUED FOR BID	DATE: 04/23/19
REVISION	
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DESIGN: JB	
DRAWN: JB	
CHECK: AZ	

ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING
POWER AND GROUNDING
ELECTRICAL SITE PLAN

SHEET NO.
E-3.0

BID SET

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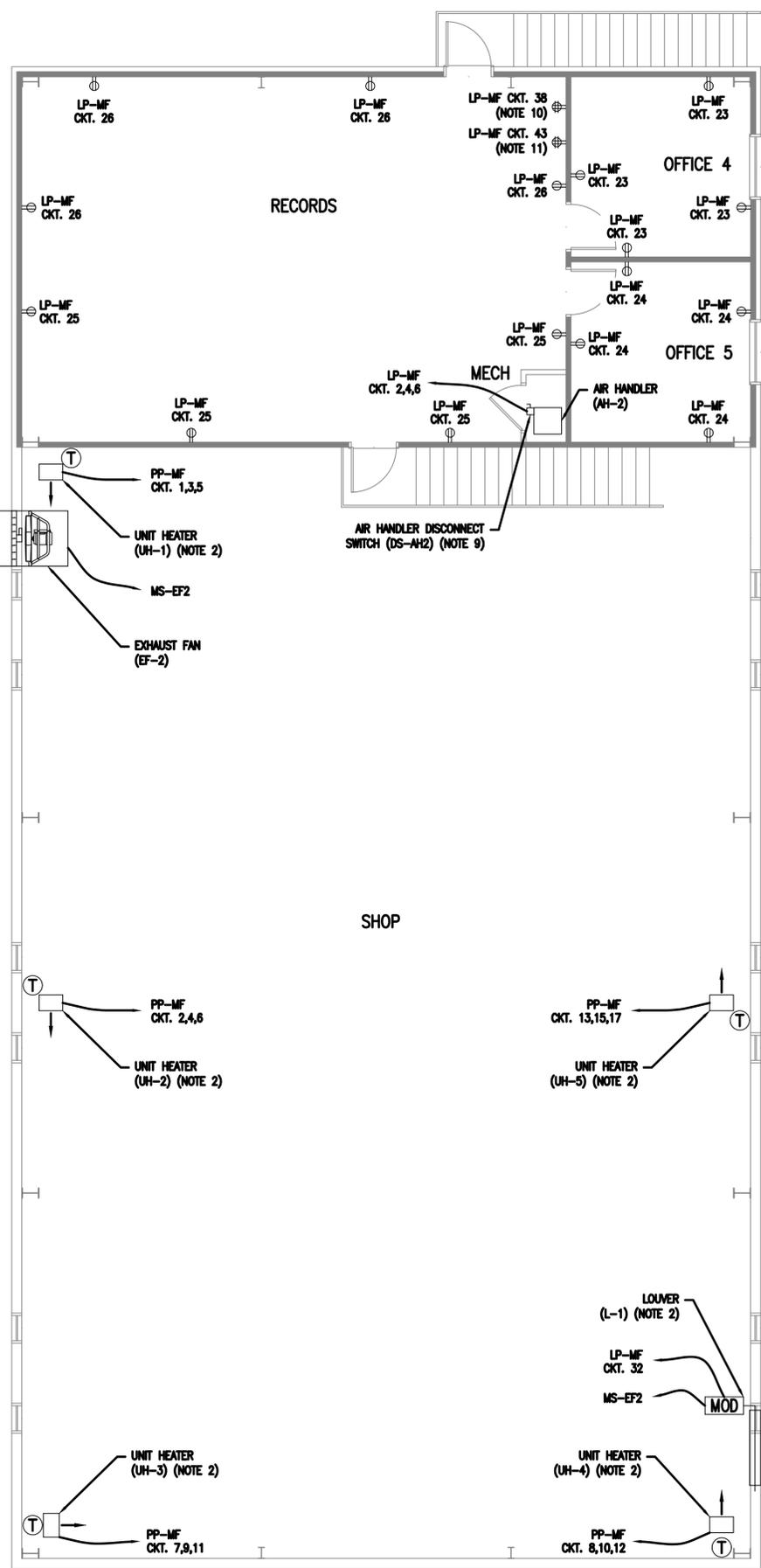
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DATE:	SEPTEMBER 2018
PROJECT NUMBER:	18-11011
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0	04/23/19
ISSUED FOR BID	

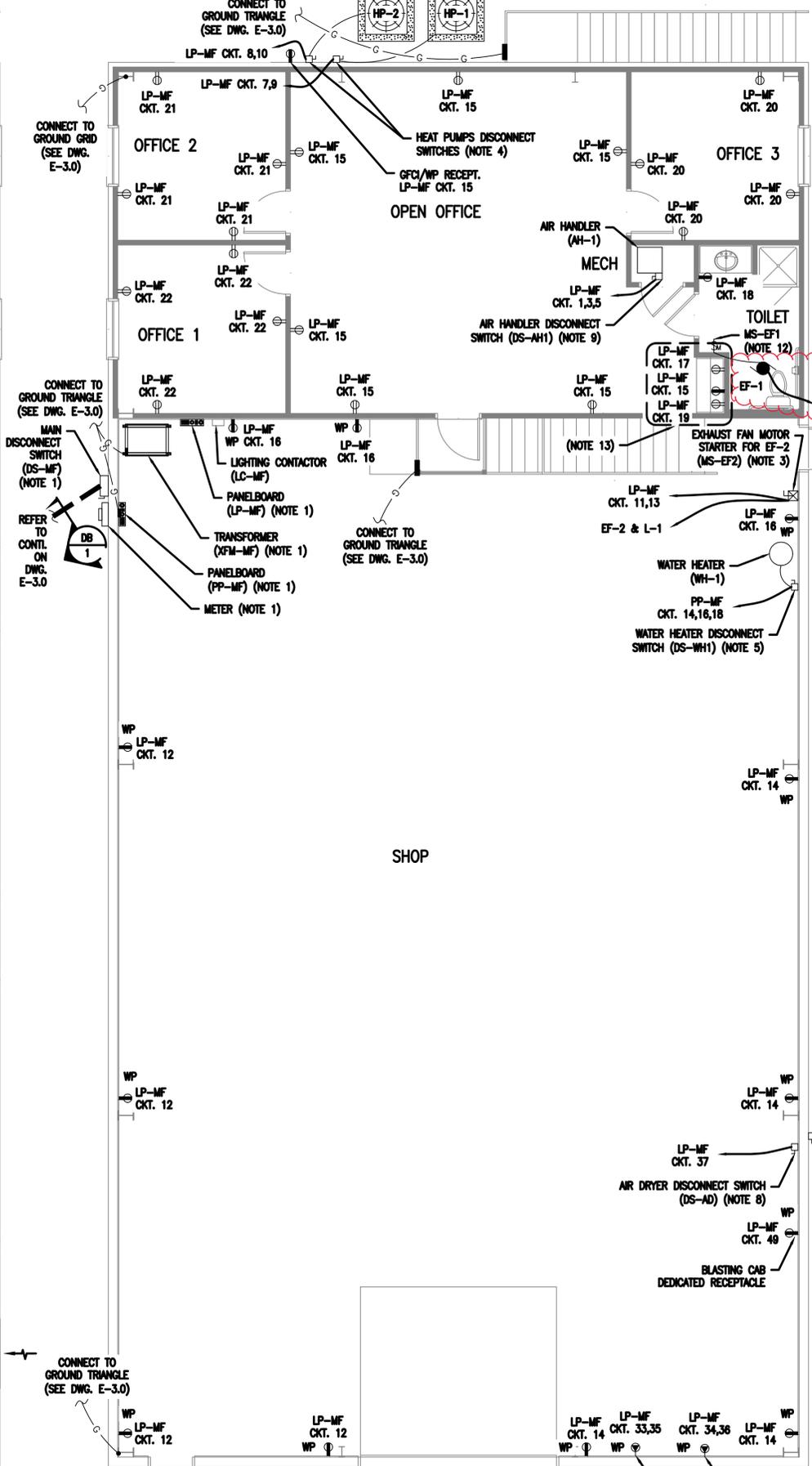
DESIGN: JB	DRWN: JB	CHK: AZ
BAR BELOW IS 1" LONG FOR SCALES SHOWN ON THIS SHEET. IF NOT 1" LONG ON THIS SHEET, ADJUST SCALES ACCORDINGLY.		

ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING
ELECTRICAL POWER
FIRST AND SECOND FLOOR PLANS

SHEET NO.
E-3.1



1 UPPER FLOOR ELECTRICAL PLAN
SCALE: 3/16" = 1'-0"



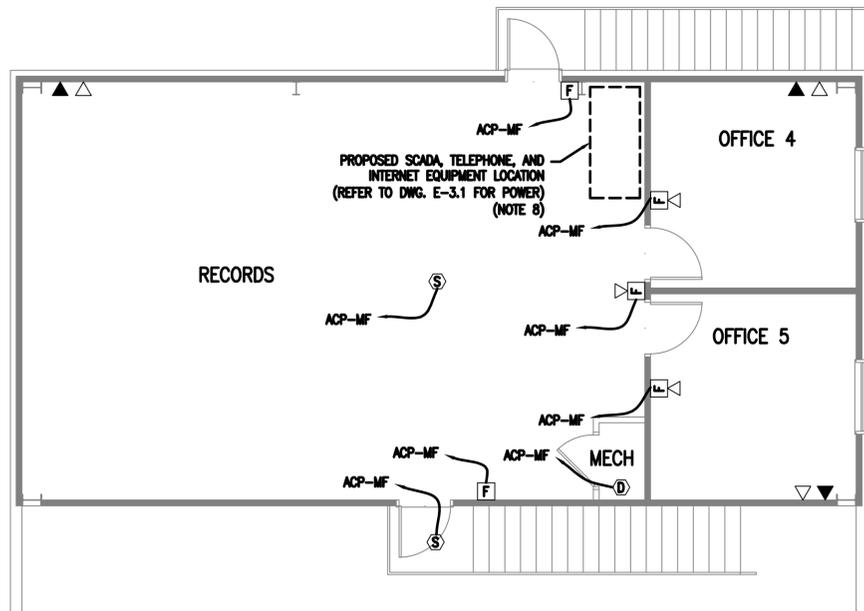
2 MAIN FLOOR ELECTRICAL PLAN
SCALE: 3/16" = 1'-0"

ELECTRICAL PLANS NOTES:

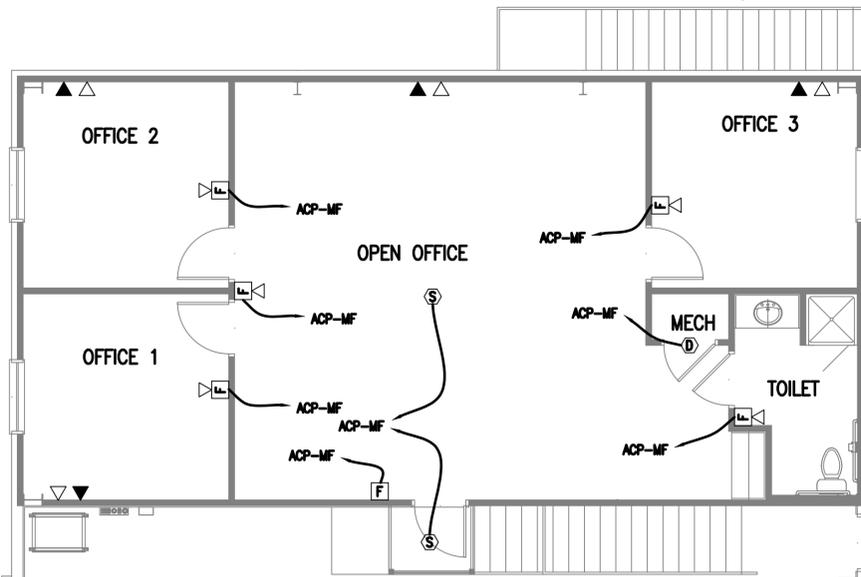
- CONTRACTOR SHALL REFER TO ONE LINE DIAGRAM AND PANELBOARD SCHEDULES ON DWG. E-1.1, FOR FURTHER EQUIPMENT DETAILS AND INFORMATION.
- ELECTRIC UNIT HEATERS SHALL BE PROVIDED WITH INTEGRAL FUSIBLE OVER CURRENT PROTECTION AS INDICATED IN MECHANICAL DRAWING SPECS. TO BE PROVIDED BY MECHANICAL CONTRACTOR.
- EXHAUST FAN 2 MOTOR STARTER SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. REFER TO MECHANICAL DRAWINGS FOR FURTHER DETAILS. MOTOR STARTER SHALL BE PROVIDED WITH INTEGRAL OVER CURRENT PROTECTION AND BE FIELD LOCATED TO AVOID ANY INTERFERENCES AND TO PROVIDE THE REQUIRED WORKING CLEARANCES AND SHALL BE WITH IN LINE OF SITE OF THE EXHAUST FAN EF-2.
- CONTRACTOR SHALL PROVIDE AND INSTALL 30A, 2POLE, 208V DISCONNECT SWITCH IN NEMA 3R ENCLOSURE FOR THE OUTDOOR HEAT PUMPS. DISCONNECT SWITCH SHALL BE FIELD LOCATED TO AVOID ANY INTERFERENCES AND TO PROVIDE THE REQUIRED WORKING CLEARANCES.
- CONTRACTOR SHALL PROVIDE AND INSTALL 30A, 3POLE, 480V DISCONNECT SWITCH IN NEMA 12 ENCLOSURE FOR THE WATER HEATER. DISCONNECT SWITCH SHALL BE FIELD LOCATED TO AVOID ANY INTERFERENCES AND TO PROVIDE THE REQUIRED WORKING CLEARANCES.
- CONTRACTOR SHALL PROVIDE AND INSTALL 50A, 208V, 1PH WELDING RECEPTACLE AND SHALL COORDINATE WITH OWNER FOR EXACT WELDING RECEPTACLE LOCATIONS. MOUNT WELDING RECEPTABLES AT COUNTER HEIGHT ELEVATION.
- CONTRACTOR SHALL PROVIDE AND INSTALL 100A, 3POLE, 480V DISCONNECT SWITCH IN NEMA 12 ENCLOSURE FOR THE AIR COMPRESSOR. DISCONNECT SWITCH SHALL BE FIELD LOCATED TO AVOID AND INTERFERENCES AND TO PROVIDE THE REQUIRED WORKING CLEARANCES. CONTRACTOR SHALL COORDINATE WITH OWNER FOR EXACT EQUIPMENT LOCATION.
- CONTRACTOR SHALL PROVIDE AND INSTALL 20A, 1POLE, 120V DISCONNECT SWITCH IN NEMA 3R ENCLOSURE FOR THE AIR DRYER. DISCONNECT SWITCH SHALL BE FIELD LOCATED TO AVOID AND INTERFERENCES AND TO PROVIDE THE REQUIRED WORKING CLEARANCES. CONTRACTOR SHALL COORDINATE WITH OWNER FOR EXACT EQUIPMENT LOCATION.
- CONTRACTOR SHALL PROVIDE AND INSTALL 60A, 3POLE, 208V DISCONNECT SWITCHES IN NEMA 3R ENCLOSURE FOR THE AIR HANDLERS. DISCONNECT SWITCHES SHALL BE FIELD LOCATED TO AVOID AND INTERFERENCES AND TO PROVIDE THE REQUIRED WORKING CLEARANCES.
- CONTRACTOR SHALL COORDINATE WITH OWNER FOR EXACT LOCATION OF THE SCADA COMPUTER SYSTEM AND PROVIDE THE DEDICATED RECEPTACLE/CIRCUIT. (BRIAN PATTERSON @ TECHNOLOGY SERVICES - 770-278-7084).
- CONTRACTOR SHALL COORDINATE WITH OWNER FOR EXACT LOCATION OF THE TELEPHONE/INTERNET SYSTEM BOARD AND PROVIDE THE DEDICATED RECEPTACLE/CIRCUIT. (BRIAN PATTERSON @ TECHNOLOGY SERVICES - 770-278-7084).
- CONTRACTOR SHALL PROVIDE AND INSTALL HP RATED TOGGLE SWITCH FOR EXHAUST FAN EF-1.
- CONTRACTOR SHALL INSTALL THE FOLLOWING RECEPTABLES AT SPECIFIED HEIGHT:
 - DEDICATED RECEPTACLE ON LP-MF CKT. 17 MOUNTED @ COUNTER HEIGHT
 - GFI RECEPTACLE ON LP-MF CKT. 15 MOUNTED @ COUNTER HEIGHT
 - DEDICATED RECEPTACLE ON LP-MF CKT. 19 MOUNTED @ 18" A.F.F.

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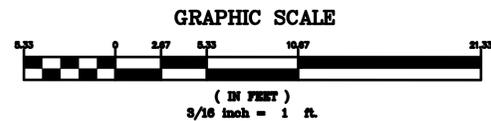
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1 UPPER FLOOR FIRE ALARM & COMMUNICATIONS PLAN
SCALE: 3/16" = 1'-0"



2 MAIN FLOOR FIRE ALARM & COMMUNICATIONS PLAN
SCALE: 3/16" = 1'-0"



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PHONE AND INTERNET NOTES:

1. PROVIDE IEEE CATEGORY 6E ETHERNET CABLE FROM EACH NEW TELEPHONE JACK TO TELEPHONE BOARD IN RECORDS ROOM.
2. PROVIDE IEEE BOOTED CATEGORY 6E ETHERNET CABLE FROM EACH NEW NETWORK JACK TO THE RECORDS ROOM FOR CONNECTION TO INTERNET SERVICE SYSTEM EQUIPMENT.
3. CONTRACTOR SHALL PROVIDE ALL NECESSARY CABLE TERMINATIONS AND FACEPLATES FOR THE NETWORK AND TELEPHONE JACKS ON BOTH ENDS.
4. ROUTE TELEPHONE AND NETWORK CABLE IN 0.5" EMT CONDUIT.
5. CONTRACTOR SHALL ROUTE/PULL ETHERNET CABLES TO THE RECORDS ROOM FROM THE PROPOSED ETHERNET NETWORK CONNECTION JACKS AND CONNECT INTO PROPOSED NETWORK EQUIPMENT.
6. MOUNTING LOCATION OF ALL TELEPHONE AND NETWORK JACKS SHALL BE COORDINATED WITH THE RECEPTACLES SHOWN ON DWG. E-3.1.
7. TELEPHONE AND NETWORK JACKS SHALL BE MOUNTED IN THE WALL ABOVE THE CABINETS BACK SPLASH WHERE APPROPRIATE.
8. CONTRACTOR SHALL ROUTE 12 STRANDS, 62.5 μ MULTIMODE FIBER CABLE RATED FOR INDOOR/OUTDOOR INSTALLATION FROM MAINTENANCE BUILDING FIBER CONNECTION POINT TO THE PLANT FIBER OPTIC NETWORK. (SEE SITE PLAN E-3.0 FOR DETAILS.) MAINTENANCE BUILDING SCADA, TELEPHONE AND INTERNET EQUIPMENT SHALL BE SUPPLIED BY THE COUNTY IT DEPARTMENT AND INSTALLED BY CONTRACTOR.

FIRE ALARM SYSTEM NOTES:

1. FURNISH AND INSTALL WIRING AND CONDUIT IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND THE NATIONAL ELECTRIC CODE. ALL WIRING SHALL BE IN METALLIC CONDUIT UP TO 15' A.F.F., 3/4" MIN. TRADE SIZE. WIRING ABOVE 15' A.F.F. SHALL BE SUPPORTED AND TRAINED ALONG STRUCTURAL MEMBERS. WALL MOUNTED DEVICES ARE TO BE RECESSED WHERE POSSIBLE. WHERE DEVICES AND RACEWAYS ARE REQUIRED TO BE SURFACE MOUNTED, USE SURFACE METAL RACEWAY WITH MATCHING FITTINGS AND BOXES.
2. NO WIRING SHALL BE SMALLER THAN #14 AWG. NO WIRING OTHER THAN THAT DIRECTLY ASSOCIATED WITH THE FIRE ALARM SYSTEM AND ITS AUXILIARY FUNCTIONS SHALL BE PERMITTED IN FIRE ALARM RACEWAYS.
3. SIGNALING LINE CIRCUITS SHALL BE CLASS "A" WIRING WITH NO "T" TAPS AND A MINIMUM OF 25% SPARE ADDRESSES FOR FUTURE USE. NOTIFICATION APPLIANCE CIRCUITS SHALL BE CLASS "B" WIRING, NOT TO EXCEED 80% OF RATED MODULE OUTPUT.
4. THE RISER DIAGRAM INDICATES TYPICAL SYSTEM DEVICES REQUIRED ONLY. SEE FLOOR PLANS FOR NUMBER AND LOCATION OF ALL DEVICES REQUIRED. FINAL LOCATION OF FIRE ALARM DEVICES SHALL CONFORM TO ALL APPLICABLE STATE AND LOCAL CODES AND FIRE MARSHAL REQUIREMENTS.
5. LOCATE SMOKE DETECTORS AWAY FROM THE DIRECT AIR FLOW AND NO CLOSER THAN 3 FEET FROM AIR SUPPLY DIFFUSERS.
6. ALL AUDIBLE NOTIFICATION DEVICES SHALL ALARM WITH A 3-PULSE TEMPORAL PATTERN WHEN BUILDING EVACUATION IS REQUIRED.
7. NOTIFICATION DEVICES SHALL BE SYNCHRONIZED ACCORDING TO NFPA 72 6.8.6.4.3 AND ANNEX A WHERE MORE THAN TWO VISIBLE APPLIANCES ARE LOCATED WITHIN THE SAME FIELD OF VIEW OR NOTIFICATION ZONE. MORE THAN TWO VISIBLE APPLIANCES ARE NOT PERMITTED IN ANY FIELD OF VIEW UNLESS THEIR FLASHES ARE SYNCHRONIZED.
8. ENTIRE FIRE ALARM SYSTEM DESIGN SHALL BE APPROVED BY THE FIRE MARSHAL PRIOR TO ROUGH-IN.
9. FIRE ALARM SYSTEM DEVICE AND EQUIPMENT QUANTITIES, WIRING SIZES, ROUTING, ETC. SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS AND REQUIREMENTS OF THE FIRE ALARM SYSTEM MANUFACTURER AND AS APPROVED BY THE OFFICE OF THE FIRE MARSHAL.
10. PROVIDE ANY ADDITIONAL FIRE ALARM DEVICES TO COMPLY WITH CODE REQUIREMENTS.
11. FURNISH AND INSTALL ALL REQUIRED INTERLOCK WIRING BETWEEN THE FIRE ALARM SYSTEM AND AIR HANDLING EQUIPMENT CONTROLS, DUCT SMOKE DAMPERS AND/OR MOTORIZED DAMPERS AS REQUIRED TO PERFORM THE AIR HANDLING SYSTEM SHUTDOWN FUNCTIONS AS DESCRIBED IN THE PROJECT SPECIFICATIONS OR AS REQUIRED BY CODE. PROVIDE ALL NECESSARY WIRING TO FIRE DAMPERS. SEE MECHANICAL DRAWINGS FOR QUANTITIES AND LOCATIONS.

FIRE ALARM SYSTEM SEQUENCE OF OPERATION:

- IN THE EVENT OF A FIRE CONDITION THE FOLLOWING FUNCTIONS WILL OCCUR ON ALL PANELS.
- A. SOUND AND DISPLAY LOCAL FIRE ALARM SIGNALING DEVICES.
 - B. TRANSMIT ZONE CODE SIGNAL TO REMOTE STATION EQUIPMENT.
 - C. INDICATE LOCATION OF ALARM ZONE AND DEVICE ADDRESS ON FIRE ALARM CONTROL PANEL.
 - D. TRANSMIT SIGNAL TO BUILDING MECHANICAL CONTROL PANEL TO INITIATE SHUT DOWN OF MECHANICAL EQUIPMENT.
 - E. TRANSMIT SIGNAL TO RELEASE DOOR HOLD-OPEN DEVICES BY ZONE.

IN THE EVENT OF A TROUBLE CONDITION THE FOLLOWING FUNCTIONS WILL OCCUR ON ALL PANELS.

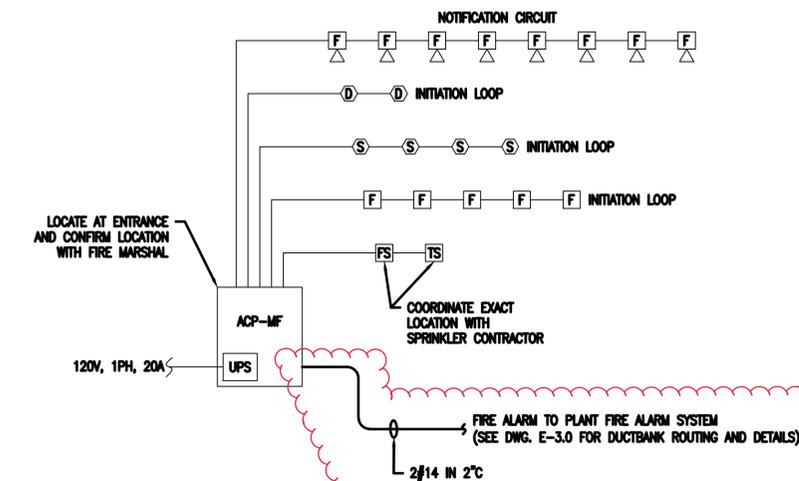
- A. VISUAL AND AUDIBLE TROUBLE ALARM INDICATED BY ZONE AT THE FIRE ALARM CONTROL PANEL.
- B. MANUAL ACKNOWLEDGE FUNCTION AT FIRE ALARM CONTROL PANEL SILENCES AUDIBLE TROUBLE ALARM. VISUAL ALARM IS DISPLAYED UNTIL INITIATING FAILURE OR CIRCUIT TROUBLE IS CLEARED.

FIRE ALARM SYSTEM SYMBOLS:

- ACP - ALARM CONTROL PANEL
- F - PULL STATION
- S - SMOKE DETECTOR
- D - DUCT SMOKE DETECTOR
- F - SPEAKER/STROBE (CANDELA NOTED) WALL MOUNTED. (WP INDICATES WEATHERPROOF)
- FS - AIR FLOW SWITCH INSIDE AIR DUCT

PHONE AND INTERNET SYMBOLS:

- ▷ TELEPHONE BOX. MOUNT 18" A.F.F., INSTALL A 1/2" CONDUIT FROM BOX TO 6" ABOVE CEILING. PROVIDE PULL CORD FOR FUTURE CONNECTIONS AS REQUIRED.
- ▶ ETHERNET BOX. MOUNT 18" A.F.F., INSTALL A 1/2" CONDUIT FROM BOX TO 6" ABOVE CEILING. PROVIDE PULL CORD FOR FUTURE CONNECTIONS AS REQUIRED.



3 FIRE ALARM RISER DIAGRAM

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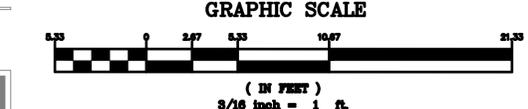
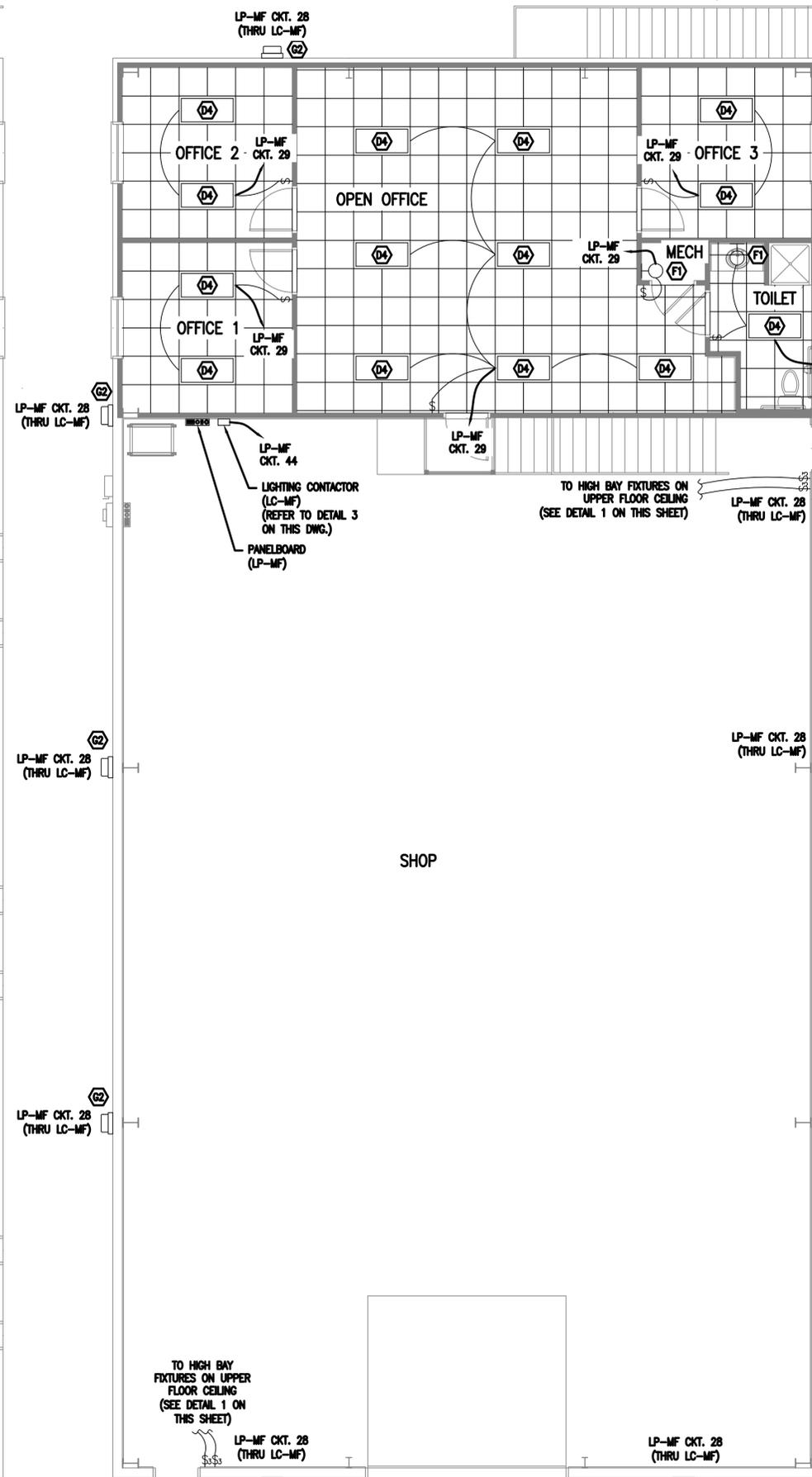
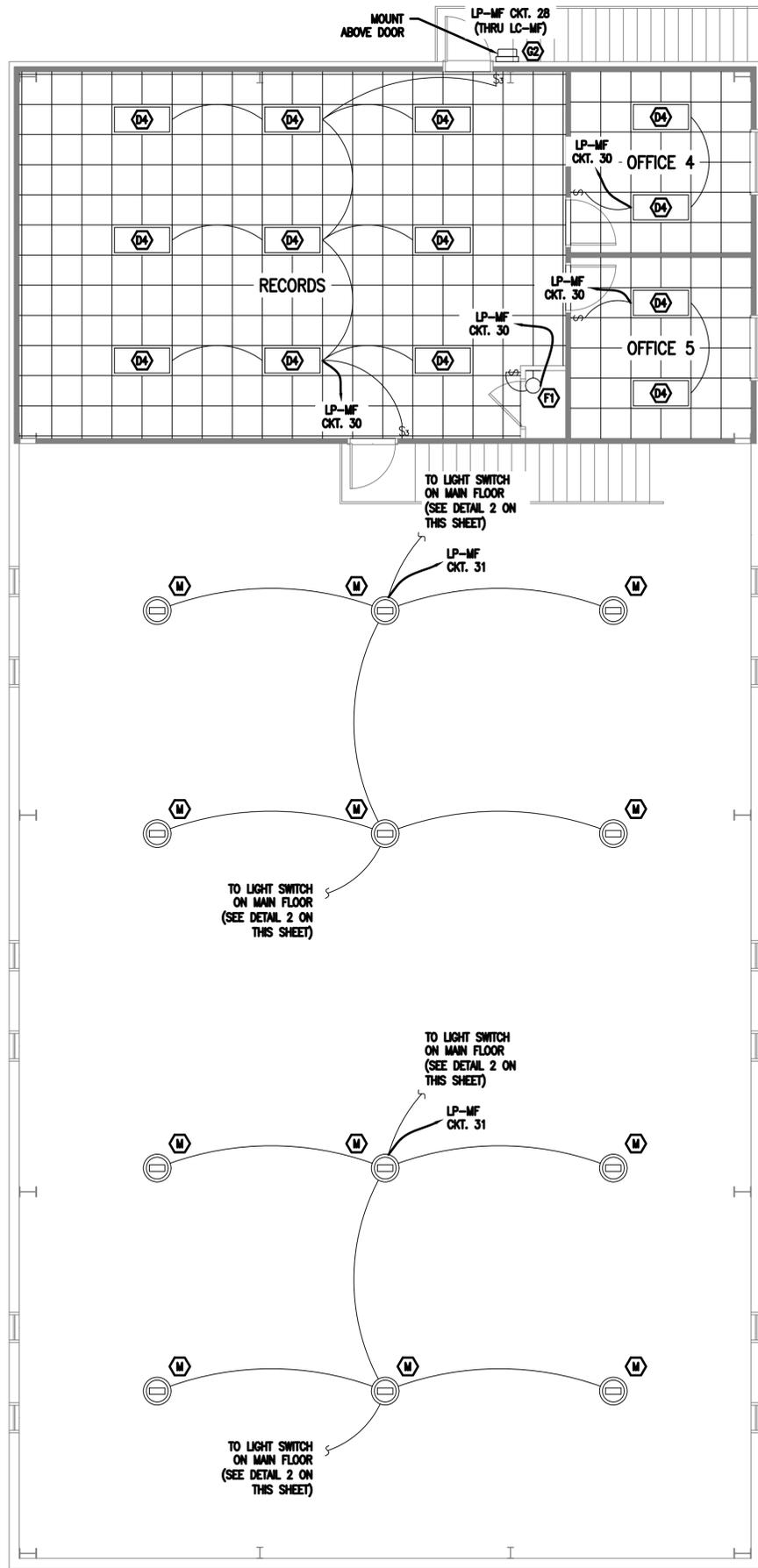
BAR BELOW IS 1" LONG FOR SCALES SHOWN ON THIS SHEET. IF NOT 1" LONG ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING
FIRE ALARM AND COMMUNICATIONS
FIRST AND SECOND FLOOR PLANS

SHEET NO. E-3.2

BID SET

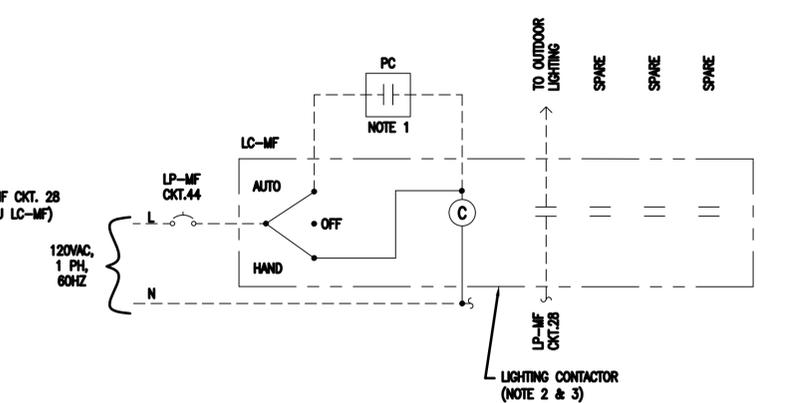
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LIGHTING/POLE SCHEDULE			
SYMBOL/TYPE	DESCRIPTION	LAMP/VOLTAGE	MOUNTING
D4	2' X 4' INDOOR LIGHT FIXTURE LITHONIA #ZTL4-48L-FW-A19-LP850	LED 120/277V, 1PH 40WATTS	CEILING/ RECESSED Ø8'A.F.F.
F1	ARCHITECTURAL INDOOR SCONCE LIGHT FIXTURE LITHONIA #ANWSC-BNP & DRBL-1001	LED 120V, 1PH 9.5WATTS	WALL/ SURFACE
G2	ADJUSTABLE WALLPACK FIXTURE, FOR WET LOCATIONS, CORROSION RESISTANT (27W-100W-MH) LITHONIA #TWHLED-P1-50K-T3M-1VOLT-DBXD	LED 120/277V, 1PH 27WATTS	WALL/ SURFACE Ø15'A.F.F.
M	LED HIGH BAY LIGHT FIXTURE LITHONIA MODEL #JEBL-18L-50K-80CR-WH WITH ALL THE REQUIRED MOUNTING HARDWARE	LED 120/277V, 1PH 135WATTS	CEILING/ SURFACE Ø18'A.F.F.

NOTE:
DESIGN IS BASED ON THE EQUIPMENT SHOWN IN THE ABOVE SCHEDULE. LIGHTS AND POLE SHALL BE PROVIDED AND INSTALLED BY CONTRACTOR PER SCHEDULE. ANY SUBSTITUTIONS SHALL BE APPROVED BY ENGINEER PRIOR TO PURCHASE/INSTALLATION.



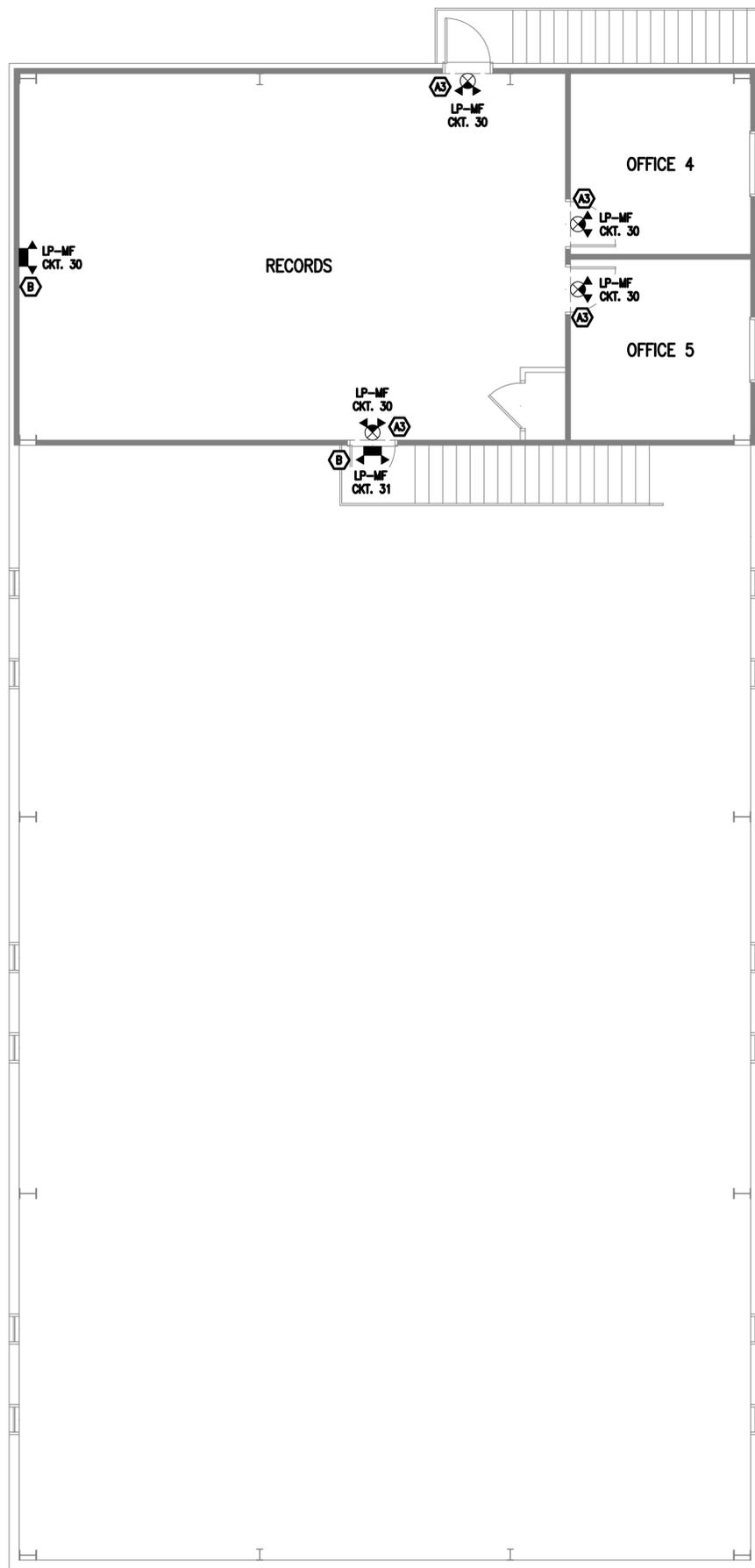
- NOTES:
- "PC" - PHOTOCELL, 120V. LOCATE ON THE ROOF FACING NORTH. "TS" - TIME SWITCH WITH MANUAL INTEGRAL OVERRIDE SWITCH.
 - ELECTRICALLY-HELD HEAVY-DUTY LIGHTING CONTACTOR. 4 POLES, 20A RATED CONTACTS. TAG THE CONDUCTORS ON THE LINE SIDE OF THE LIGHTING CONTACTOR WITH THEIR RESPECTIVE CIRCUIT NUMBER.
 - INSTALL LIGHTING CONTROL IN NEMA 3R, 12 GAUGE GALVANIZED STEEL CABINET, FINISHED IN GRAY ENAMEL WITH HINGED DOOR AND LOCKING HANDLE. THE CONTACTOR SHALL BE 4 POLES, 120V COIL VOLTAGE EATON CLASS ECC03 OR APPROVED EQUAL.

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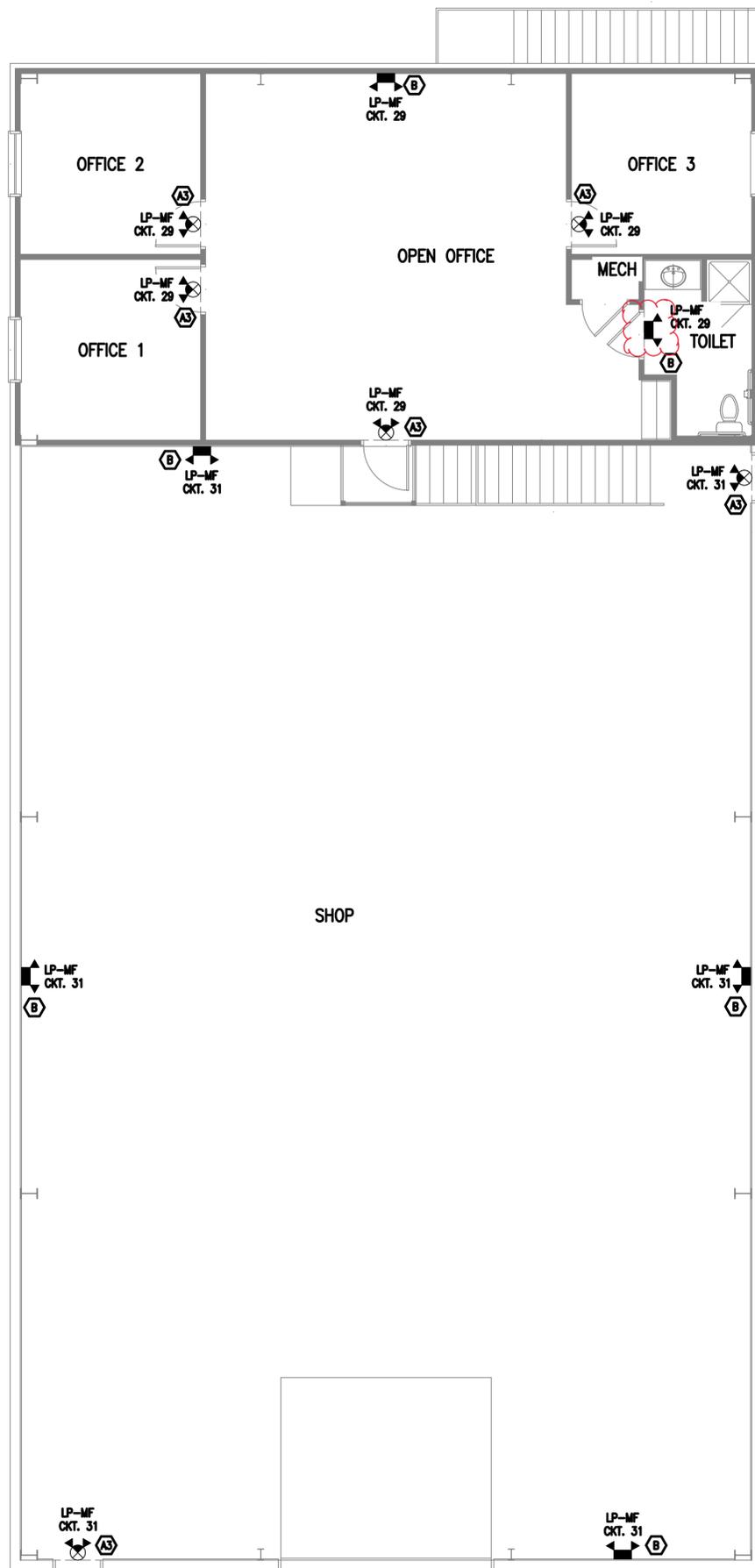
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ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING
ELECTRICAL LIGHTING
FIRST AND SECOND FLOOR PLANS

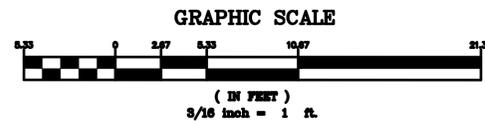
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1 UPPER FLOOR EMERGENCY LIGHTING PLAN
SCALE: 3/16" = 1'-0"



2 MAIN FLOOR EMERGENCY LIGHTING PLAN
SCALE: 3/16" = 1'-0"



EDEC, INC.
3069 PEACHTREE IND. BLVD.
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LIGHTING PLANS NOTES:

- CONTRACTOR SHALL CONNECT ALL EMERGENCY LIGHTING AHEAD OF THE LOCAL LIGHTING SWITCH. ALL EMERGENCY LIGHTING FIXTURES SHALL BE POWERED BY THE LOCAL LIGHTING CIRCUIT AS NOTED.

LIGHTING/POLE SCHEDULE			
SYMBOL/TYPE	DESCRIPTION	LAMP/VOLTAGE	MOUNTING
	EMERGENCY LIGHT COMBO FIXTURE, CORROSION RESISTANT, CLASS I & II, DIVISION 2, GROUPS A, B, C, AND D, ZONE 2, GROUPS II, IIB + H2 AND IC. LITHONIA #LHZ618-S-1-R-H0806-SD	LED 120/277V, 1PH 18WATTS	CEILING/WALL/SURFACE
	EMERGENCY INDOOR LIGHT FIXTURE, FOR DAMP LOCATIONS, CORROSION RESISTANT LITHONIA #ELM2-LED-H0	LED 120/277V, 1PH 12WATT	CEILING/WALL/SURFACE

NOTE:
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ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING
ELECTRICAL EMERGENCY LIGHTING
FIRST AND SECOND FLOOR PLANS

SHEET NO.
E-4.2

BID SET



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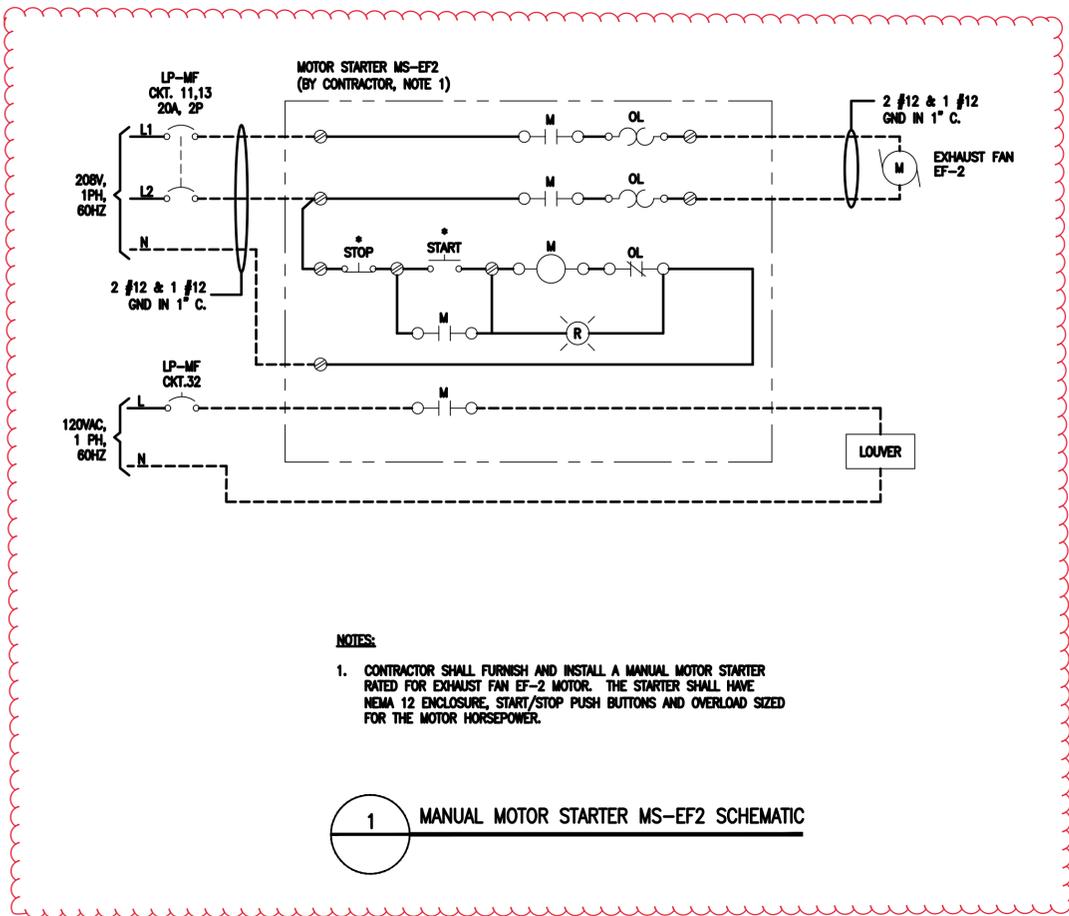
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ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING

SCHEMATIC WIRING
DIAGRAMS

SHEET NO.
E-5.1

BID SET



NOTES:

- CONTRACTOR SHALL FURNISH AND INSTALL A MANUAL MOTOR STARTER RATED FOR EXHAUST FAN EF-2 MOTOR. THE STARTER SHALL HAVE NEMA 12 ENCLOSURE, START/STOP PUSH BUTTONS AND OVERLOAD SIZED FOR THE MOTOR HORSEPOWER.

1 MANUAL MOTOR STARTER MS-EF2 SCHEMATIC

LEGEND:

- - MCC POWER TERMINAL
- - MCC CONTROL TERMINAL
- △ - LOCAL CONTROL PANEL TERMINAL
- ⊗ - SCADA PANEL TERMINAL
- - DEVICE TERMINAL



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(770) 429-0001

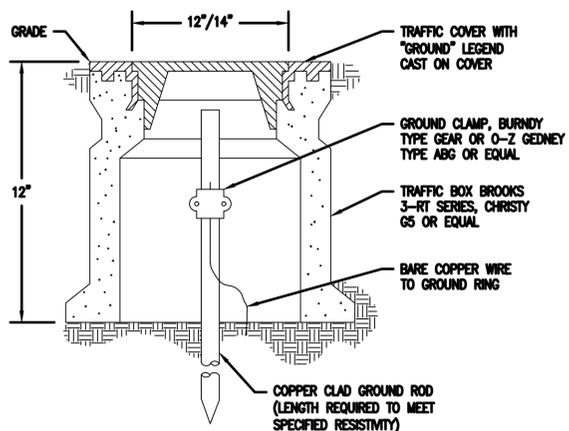
PROJECT NUMBER: 18-11011	DATE: SEPTEMBER 2018
REVISION	DATE
0	04/23/19
ISSUED FOR BID	

DSGN: JB
DRWN: JB
CHK: AZ

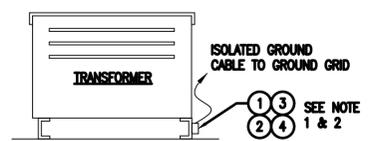
BAR BELOW IS 1" LONG FOR SCALES SHOWN ON THIS SHEET. IF NOT 1" LONG ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING
ELECTRICAL INSTALLATION DETAILS

SHEET NO.
E-9.1



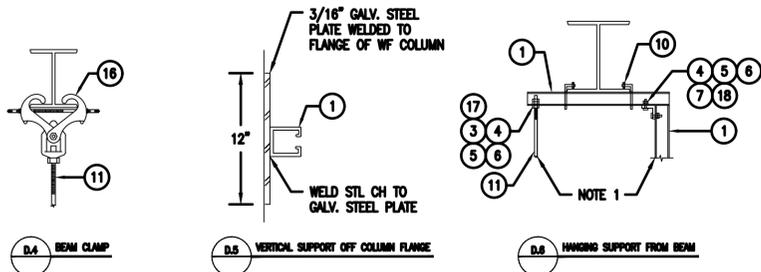
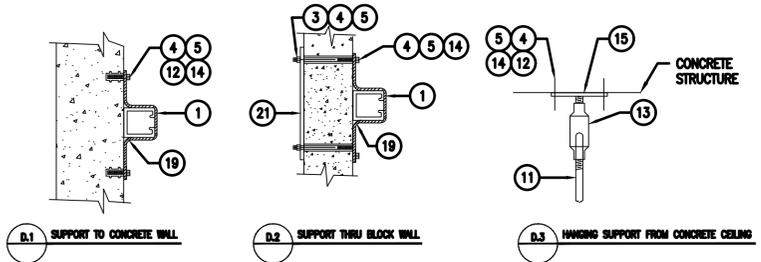
A GROUND WELL INSTALLATION DETAIL



- EQUIPMENT GROUNDING NOTES:**
- DRILL AND TAP (2) 3/8" U.N.C. HOLES IN EQUIPMENT OR USE NUT AND STAR WASHER ON INSIDE OF EQUIPMENT FRAME WHEN THICKNESS OF FRAME IS LESS THAN 3/8".
 - EQUIPMENT SURFACE MUST BE CLEANED TO BARE METAL AND GROUNDING GREASE APPLIED PRIOR TO LUG ATTACHMENT

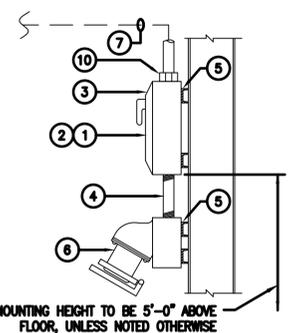
BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	REMARKS
1	1	COMPRESSION LUG, 2 HOLE	
2	2	BOLT, HEX HD 3/8" UNC X 3/4" LONG	
3	2-4	WASHER STAR LOCK 3/8"	
4	0-2	NUT, HEX 3/8" UNC	
5	2	LIQUIDTIGHT CONNECTOR	
6	1	CONDENSATE DRAIN AND BREATHER	

B TRANSFORMER GROUNDING INSTALLATION DETAIL



BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	REMARKS
1	A/R	STRUT GALVANIZED STEEL CHANNEL 1-5/8" X 1-5/8"	
2	A/R	STRUT METAL FRAMING CHANNEL 1-5/8" X 3-1/4" (DOUBLE IF REQ'D)	
3	A/R	HEXAGON NUT	
4	A/R	FLAT WASHER OR CLEVIS WASHER	
5	A/R	LOCK WASHER	
6	A/R	SPRING NUT	
7	A/R	HEX HEAD CAP SCREW	
8	A/R	TRAY HOLD DOWN CLIP	
9	A/R	VERTICAL TRAY HANGER	
10	A/R	"U" BOLT BEAM CLAMP (ONE FOR EACH SIDE)	
11	A/R	THREADED ROD (SIZED TO SUIT CONDITIONS)	
12	A/R	CONCRETE INSERT (SIZED TO SUIT APPLICATION)	
13	A/R	THREADED ROD COUPLING	
14	A/R	GALVANIZED MACHINE BOLTS (LENGTH TO SUIT)	
15	A/R	NELSON TYPE STUD (SIZED TO SUIT)	
16	A/R	BEAM CLAMP	
17	A/R	FLANGE	
18	A/R	PLATE FITTING 90°	
19	A/R	U SHAPED STRUT FITTING	
20	A/R	SUPPORT ANGLE	
21	A/R	GALVANIZED FLAT STEEL PLATE-1/4" TH X 3" WIDE X LENGTH TO SUIT WITH TWO 9/16" DIA. HOLES	
22	A/R	ONE HOLE FLAT PLATE FITTING - FOR STRUT CHANNEL	

- ELECTRICAL SUPPORT AND CONNECTION NOTES:**
- FIELD DETERMINE TYPE OF SUPPORT TO USE (THREADED RODS, OR METAL STRUT CHANNELS). MIXING PROHIBITED. RODS AND STRUT ARE SHOWN FOR INFORMATION PURPOSES ONLY.
 - ALL MOUNTING MATERIAL AND HARDWARE SHALL BE GALVANIZED STEEL, UNLESS OTHERWISE NOTED.
 - A MAXIMUM LOAD ON A THREADED STEEL ROD SHALL NOT EXCEED 1100 POUNDS FOR 1/2" ROD.
 - MEMBER SIZE AFFECTED BY WEIGHT AND SPAN

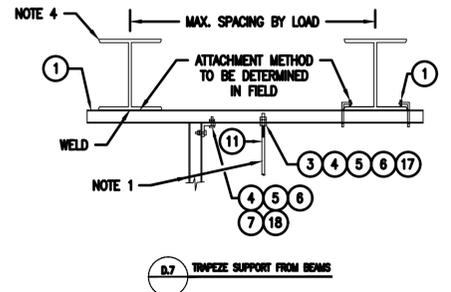


NOTE:
1. ALL MOUNTING HARDWARE SHALL BE GALV. STEEL.

BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	REMARKS
1	A/R	NEMA 12 FUSED SAFETY SW. OR CIRCUIT BREAKER	
2	A/R	REFER TO ELECTRICAL SPECIFICATIONS FOR CIRCUIT BREAKER OR FUSE SIZE AND TYPE	
3	A/R	NAMEPLATE WITH 1/4" CHARACTERS	
4	A/R	CONDUIT NIPPLE	
5	A/R	GALVANIZED CHANNEL TACK WELD TO COLUMN	
6	A/R	WELDING RECEPTACLE, REFER TO ELECT. SPEC. FOR TYPE	
7	A/R	REFER TO PANELBOARD SCHEDULE	

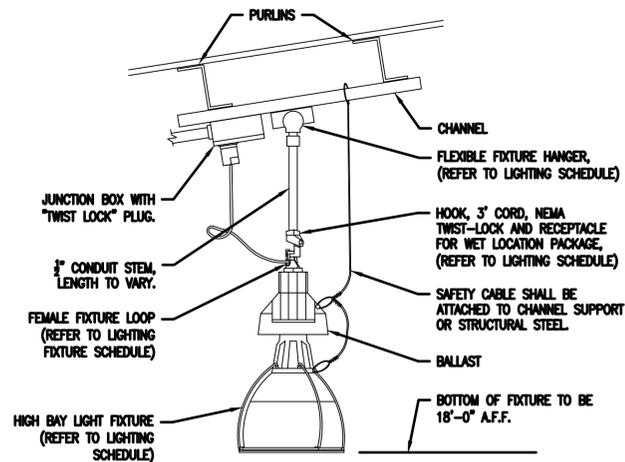
A/R=AS REQUIRED

C WELDING RECEPTACLE INSTALLATION DETAIL

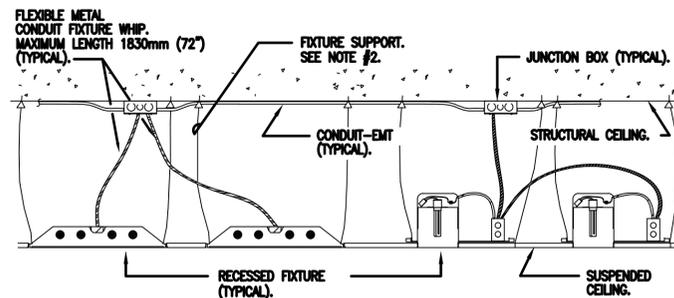


D ELECTRICAL SUPPORT AND CONNECTION INSTALLATION DETAILS

A/R=AS REQUIRED

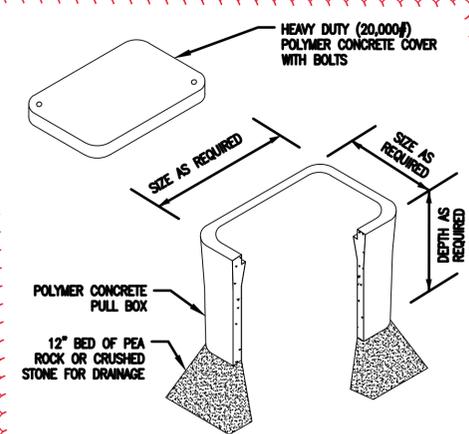


A HIGH BAY FIXTURE MOUNTING INSTALLATION DETAIL



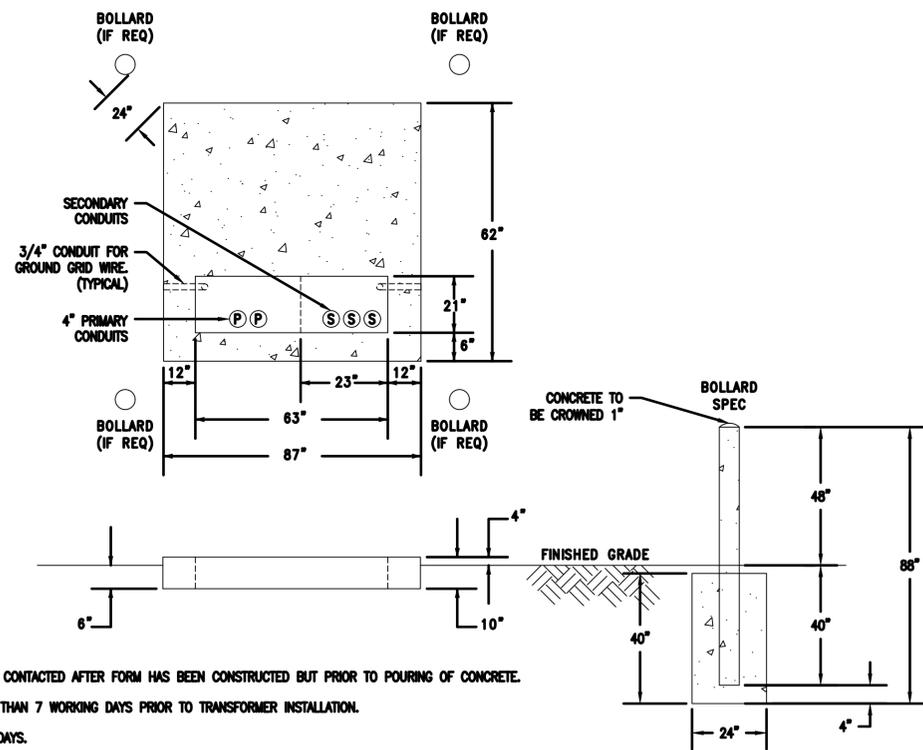
- NOTES:**
1. MC CABLE IS ACCEPTABLE ONLY IN NON-SCIENCE APPLICATIONS.
 2. FOR LINEAR FLUORESCENT: MINIMUM TWO 2.5mm (0.1") (#10 AWG) GALVANIZED STEEL WIRES AT DIAGONAL CORRIDORS (WITHIN 100mm (4") OF FIXTURE CORRIDOR) DIRECTLY FROM STRUCTURES.
FOR DOWNLIGHTS: MINIMUM ONE 2.5mm (0.1") WIRE FROM STRUCTURE.

B SUSPENDED CEILING LIGHT INSTALLATION DETAIL



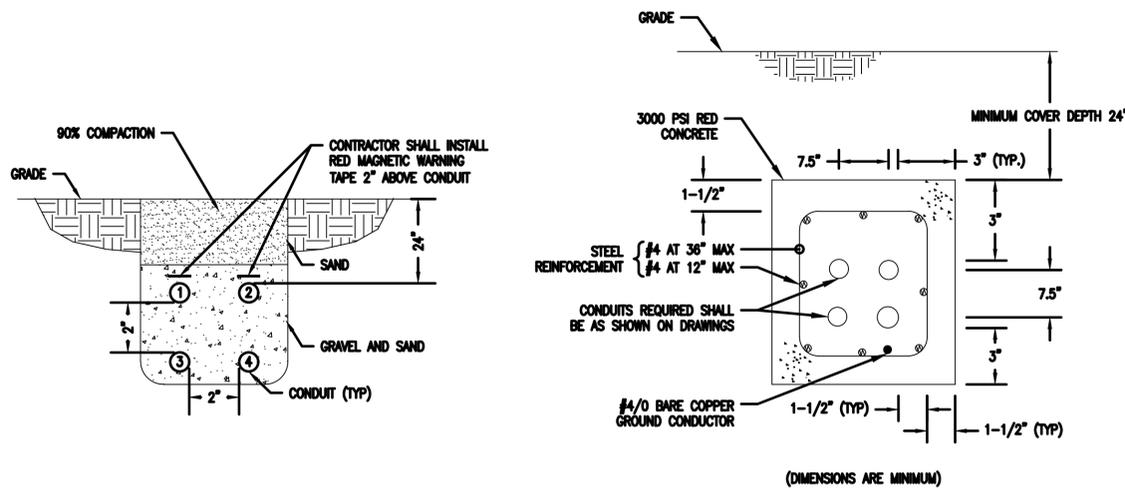
- UNDERGROUND PULL BOX NOTES:**
1. PULL BOX TO BE "HUBBELL" QUARTZITE BOX MADE WITH PRECAST POLYMER CONCRETE FIBERGLASS REINFORCED, STACKABLE WITH SELF-ALIGNING, REPLACEABLE EZ-NUT.
 2. CONTRACTOR SHALL SIZE THE PULL BOXES BASED ON THE NUMBER OF CONDUITS. USE MANHOLES WHERE PULL BOX WIDTH/HEIGHT IS NOT SUFFICIENT TO ACCEPT ALL ENTERING/EXITING CONDUITS.

E UNDERGROUND PULL BOX INSTALLATION DETAIL



- TRANSFORMER PAD NOTES:**
1. EMC STAKING TECHNICIAN SHALL BE CONTACTED AFTER FORM HAS BEEN CONSTRUCTED BUT PRIOR TO POURING OF CONCRETE.
 2. PAD SHALL BE INSTALLED NO LESS THAN 7 WORKING DAYS PRIOR TO TRANSFORMER INSTALLATION.
 3. CONCRETE TO BE 3000 PSI IN 30 DAYS.
 4. REINFORCE CONCRETE WITH NO. 4 REBAR ON 12" CENTERS.
 5. SCH. 40 PVC CONDUITS FOR PRIMARY CABLES TO BE STUBBED OUT THREE (3) FEET FROM PAD (UNLESS IT HAS TO BE EXTENDED UNDER PAVEMENT). 42" DEEP IN DIRECTION OF THE PRIMARY FEEDER ROUT. (SIZE OF CONDUIT WILL BE SPECIFIED BASED ON EACH CASE.)
 6. ALL SECONDARY CONDUITS TO BE LOCATED WITHIN THE SECONDARY COMPARTMENT AREA AND CENTERED.
 7. NOT LESS THAN SIX (6) FEET OF SECONDARY CABLE PER RUN SHALL BE LEFT ABOVE TRANSFORMER PAD FOR CONNECTIONS.
 8. PAD TO BE POURED SO PRIMARY AND SECONDARY COMPARTMENT DO NOT FACE BUILDING.
 9. PLACEMENT OF TRANSFORMER PAD SHALL MEET LOCAL STATE AND FEDERAL FIRE CODES.
 10. SNAPPING SHOULDS EMC WILL NOT BE RESPONSIBLE FOR ANY DELAYS IN INSTALLATION OF ELECTRICAL SERVICE DUE TO TRANSFORMER PAD CONSTRUCTION.
 11. BOLLARDS/BARRIERS MAY BE REQUIRED DEPENDING ON LOCATION OF TRANSFORMER PAD. (TO BE DETERMINED BY STAKING TECH)
 - a. BOLLARD WILL BE A MINIMUM 6" STEEL PIPE FILLED WITH CONCRETE, SET IN A 40" H x 24" W, 3000 PSI CONCRETE FOUNDATION AS SHOWN.
 - b. BOLLARD LOCATION MAY VARY DEPENDING ON EXACT LOCATION OF PAD.

C TRANSFORMER PAD INSTALLATION DETAIL



- DUCT BANK NOTES:**
1. ALL DUCT BANKS SHALL BE CONCRETE ENCASED. ALL DUCT BANKS CROSSING ROADS OR HEAVY TRAFFIC AREAS SHALL BE REINFORCED WITHIN 5 (FIVE) FEET OF TRAFFIC AREAS.
 2. CONTRACTOR SHALL FIELD COORDINATE EXACT DUCT BANK ROUTING WITH PROCESS PIPING.

D DUCT BANK INSTALLATION DETAILS



EDEC, INC.
3069 PEACHTREE IND. BLVD.
SUITE 110
DULUTH, GEORGIA 30097
TEL. (770) 493-8685



ESI
ENGINEERING STRATEGIES, INC.
3855 SHALLOWFORD ROAD, SUITE 525
MARIETTA, GA 30062
(770) 429-0001

PROJECT NUMBER: 18-11011	DATE: SEPTEMBER 2018
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ROCKDALE COUNTY WATER RESOURCES
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ELECTRICAL INSTALLATION DETAILS

SHEET NO.

E-9.2

MECHANICAL SPECIFICATIONS

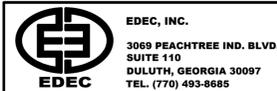
- 1) Provide all heating, ventilation and air conditioning items indicated on the drawings, described in this specification or required for a complete and proper installation.
- 2) Comply with all pertinent codes, ordinances and regulations. Refer to website for Dept. of community Affairs at <http://www.dcas.state.ga.us/development/constructioncodes/programs/codes2.asp> for current Codes Editions.
- 3) The contractor shall not attempt to precisely scale dimensions from these drawings to obtain construction dimensions and clearances. The contractor shall verify all actual dimensions and clearances. Although these plans are diagrammatic in nature, they shall be followed as closely as site conditions, new construction, and work by other trades shall permit. Deviations from these drawings, which are required to conform to the available space or the actual building construction, shall be made at no additional cost to the owner.
- 4) Furnish without extra charge, any additional material and labor required to comply with the above codes and standards, even though the work may not be described in the contract documents. Where the requirements of the contract documents exceed the requirements of the above codes and standards, the contract documents shall take precedence.
- 5) All equipment and material shall be new and of first quality. Equipment and material shall be the same or equal to the basis of design listed on these drawings and shall be UL listed.
- 6) Cooperate and coordinate with other trades in order that all systems in the work may be installed in the best arrangement.
- 7) Examine the areas and conditions under which work of this section will be installed. Correct conditions detrimental to the proper and timely completion of the work. Notify Architect of any discrepancies. Do not proceed until unsatisfactory conditions have been corrected.
- 8) Avoid interference with structure, and with work of other trades. Install all equipment per manufacturer's instructions. Install accessible parts, including equipment, coils, valves, dampers, controls, and filters with adequate clearance for inspection, adjustments, repair and replacement.
- 9) All other materials not specifically described but required for a complete and proper installation shall be as selected by the contractor subject to acceptance by the Engineer.
- 10) All ductwork shall be fabricated from galvanized sheet metal duct and conform to SMACNA "HVAC Duct Construction Standards--Metal and Flexible. Seal all joints in ductwork with mastic sealant.
- 11) Flexible duct: Flexmaster; Atco UPC#30(R-4.2); Atco UPC#31 (R-8) or Thermaflex, Type 3, insulated. 5'-0" Maximum length unless noted otherwise. Class 1 rating with R-value of 4.2 when located inside building insulation envelope and R-8 when located outside building insulation envelope. Install with no more than 135 degrees maximum of total bends per run. Maximum individual bend shall not exceed 45 degrees each. Support at five feet on centers with hangers having at least 2-inches of width at duct contact points.
- 12) Duct Liner: Owens Corning Aeroflex Plus, or equivalent. Incombustible glass fiber complying with ASTM C 1071; flexible blanket; impregnated surface and edges coated with acrylic polymer shown to be fungus and bacteria resistant by testing to ASTM C 21. Apparent Thermal Conductivity: Maximum of 0.31 at 75 degrees F. Service Temperature: 250 degrees F. Density: 1.5 pounds/cubic foot. Install using adhesive (50% coverage) and galvanized steel fasteners with welded press-on head Thickness: 1--inch.
- 13) Condensate drain piping shall be ASTM D2665 PVC with solvent welded fittings. Drain piping shall be no smaller than the drain connection size on equipment. Slope at 1/8 inch per foot continuously toward drains. All indoor condensate drain piping shall be insulated with preformed flexible plastic cellular foam. All outdoor condensate drain piping shall be primed and painted with a coating system recommended by the piping manufacturer for protection against deterioration from weather and UV-light exposure. All piping shall be adequately supported to maintain proper slope and avoid sagging.
- 14) Refrigerant piping shall conform to manufacturer's recommendations and installation instructions. Refrigerant piping shall be ASTM B280 Type ACR or ASTM B88 Type L drawn copper tubing with wrought copper fittings. Insulate suction line with 1/2" thick flexible foamed plastic cellular foam (Armaflex or equivalent). All piping shall be adequately supported. Insulation installed outdoors shall be painted with two coats of Armacell MB coating or equivalent.
- 15) Thermostats: Provide 24 volt, programmable 24 hour, 7 day thermostat to control heating stages in sequence with delay between stages and supply fan to maintain temperature setting. For Heat Pumps include system selection switch heat--off--cool and fan control switch (auto--on), emergency heat switch (auxiliary/emergency heat indicator lights).
- 16) Provide fire and smoke rated flexible connections between fans and ducts. Material shall comply with NFPA 90A requirements for material in supply air stream.
- 17) Install all equipment in accordance with manufacturer's instructions and recommendations including clearances recommended for proper operation or service. All filters and serviceable parts shall be readily available.
- 18) Indoor duct insulation: Foil-faced fiberglass, Owens Corning type 75 or equal, 2" thick, unless the insulated duct is outside building insulation envelope (attic, crawlspace or unconditioned space) in which case the duct insulation thickness shall be 3" thick. Duct shall have a flame spread rating of not more than 25 and smoke developed rating of not more than 50. Glass-Fiber Insulation: All service duct wrap with foil scrim and having backing and a k-value of 0.30 at 75° F mean temperature and an average maximum density of 0.75 lb/cu. ft.
- 19) All supply, return and outside air ducts shall be insulated. Install acoustical duct liner on the interior surface of the first five (5) linear feet of supply duct downstream and the last five (5) linear feet of return duct upstream of all air handlers and rooftop units. Insulate the concealed tops of all ceiling mounted supply air diffusers with foil-faced fiberglass, 1.5#/cubic foot density, 2" thick. Seal edges to ceiling grid with foil faced tape to provide vapor tight seal.
- 20) All low pressure duct branches shall contain manual balancing dampers. Manual balancing dampers shall also be installed in the continuation of the main, if the main duct is smaller or the same size as the branch duct, or if the continuation of the main serves only one device.
- 21) Make all duct elbows right angle type with single -thickness turning vanes or construct with centerline radius 1-1/2 times the duct width.
- 22) Duct sizes shown on plans are clear, interior dimensions. Duct sizes shown has been enlarge to allow for liner at locations of interior liner.
- 23) Do not cut into or reduce the size of any structural member without the permission of the Architect.
- 24) Provide weather--proof flashing at all duct and pipe penetrations through the building walls and roof. As a minimum, flashings shall be designed and installed in accordance with SMACNA standards. Flashings shall be guaranteed weatherproof for the duration of the guarantee.
- 25) Support all HVAC units, ductwork, piping and other appurtenances from structure, provide vibration isolation at all fans which are not internally isolated. Provide hanger rod with built in rubber--in--shear isolator. Between drain pan and unit provide 4 each rubber--in--shear isolator. Do not attach vibration isolator to drain pan. Do not screw or drive fasteners into non--structural components such as roof decks or non-load bearing walls.
- 26) Thoroughly clean all components and remove all dirt, scale, oil, and other foreign substances. Provide clean air filters for all equipment.
- 27) Perform all tests necessary to demonstrate the integrity of the complete installation to the approval of the Engineer and all other authorities having jurisdiction. Make all adjustments necessary and balance the completed system in accordance with the data shown. Balance the systems in accordance with NEBB or AABC standards. Acceptable tolerances shall be minus ten percent to plus five percent of all measurements. Balancing shall be done by an independent licensed (by NEBB or AABC) TAB contractor. Make the following tests and submit reports to the Architect:
 - a) Airflow rate at each supply, return and exhaust outlet or inlet.
 - b) Total airflow rate and total static pressure for each supply and exhaust fan. Test exhaust fans with room doors closed.
 - c) Motor speed, for multiple speed fans (e.g. high, medium, low).
 - d) For direct drive fans, provide speed settings and actual rpm, including ECM motor driven fans
 - e) Provide fan and motor rpm for belt driven fans. Provide sheave sizes.
 - f) Outside airflow rate to each HVAC unit and supply fan.
 - g) Motor current (and compare with nameplate data) at all motors.
 - h) Entering and leaving air dry--bulb and wet--bulb conditions at all cooling coils.
 - i) Heat output capacity for unit heaters, heating devices and coils (kW or MBH).

- j) Manufacturer, model and serial number for each piece of HVAC equipment scheduled on drawings.
 - k) Calibrate thermostats to be within one degree of actual temperature at thermostat.
 - l) Verify that all HVAC devices operate as scheduled or indicated (i.e. ON--OFF, 2--stage, variable output (SCR heaters), etc.
- 28) The entire system shall be warranted for a period of one (1) year beginning with Owner's acceptance of the work. Compressors shall include a minimum of five (5) year parts only warranty from the manufacturer. All labor and materials necessary to repair or replace the system or portions thereof, during that time shall be warranted for a period of one (1) year from the repair or replacement.SUBMITTALS AND SUBMITTAL PROCEDURES:
- a. Contractor shall review the submittal data and check for the purpose of compliance with safety requirements, verification of dimensions, contract documents and methods and means prior to submitting to design professional. Contractor shall indicate approval by indicating such on the submittal.
 - b. Transmit each submittal electronically in PDF format.
 - c. Sequentially number submittal files and transmittal form. Revise submittals with original number and a sequential alphabetic suffix. File names shall describe item included in file.
 - d. Identify Project, the Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy. Each file shall include an index of items included in file.
 - e. Apply the Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
 - f. Submittal data for all items in project shall be submitted at one time. Submittal shall be divided into groups with file sizes not exceeding 6 MB. If there is unavailable data such as control submittal, etc., these may be submitted later if not doing so would delay project progress. Data shall include capacities, complete installation instructions, dimensional data and electrical data, BHP, motor HP, operating weights and load distribution at mounting points.
 - g. Deliver submittals electronically to the Design Professional.
 - h. Schedule submittals to expedite the Project, and coordinate submission of related items.
 - i. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
 - j. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
 - k. Provide space for the Contractor and the Architect/ review stamps.
 - l. When revised for resubmission, identify all changes made since previous submission.
 - m. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
 - n. Submittals not requested will not be recognized or processed.
 - o. Provide files containing only related items (such as piping, equipment, air distribution, etc.)
- 30) Instruct Owner's representative in the operation of the systems, using the operation and maintenance manual as a teaching aid.
- 31) Provide an operation and maintenance manual. As a minimum, the manual shall contain:
- a. A complete list of all equipment and appurtenances with equipment designations (per Drawings), manufacturers, and catalog numbers.
 - b. Copies of manufacturers' brochures and instructions for operation and maintenance of all mechanical equipment, including replacement parts lists.
 - c. Typed system operation and maintenance instructions, including inspection, lubrication, and service instructions and schedules.
 - d. List of names, addresses and phone numbers of distributors of all equipment and appurtenances.
 - e. Manufacturers' warranties.
- 32) Verticle Air Handler unit(AH-1,2): Indoor fan--coil unit shall be direct--expansion verticle heat pump air handler with electric strip heat mounted on plenum with auxiliary drip pan and condensate drain. Provide float switch in drip pan to shut down unit if pan begins to fill. Unit shall be complete with cooling coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, and integral temperature sensing. Cabinet shall be fully insulated for improved thermal and acoustic performance. Condensate pan shall have internal trap and auxiliary drip pan under coil header. Provide condensate trap recommended by manufacturer. Air filters shall be 1 inch thick glass fiber, disposable type arranged for easy replacement. Provide number of stages as scheduled. Provide condensate overflow switch (Rectorseal Safe--T--Switch Model SS1 or equivalent) wired to shut unit down in case of condensate overflow.
- 33) Air Source Heat Pumps (HP-1, 2): outdoor--mounted, air--cooled split system outdoor section suitable for rooftop installation, consisting of a hermetic compressor, an air--cooled coil, propeller--type blow--thru outdoor fans, accumulator, full refrigerant charge (R-410A), and control box. Unit shall function as the outdoor component of an air--to air cooling system and used in a refrigeration circuit matched to the indoor unit. Unit construction shall comply with ANSI/ASHRAE 15, latest revision, the NEC, and UL standards. Provide rail support system compatible with roofing system. Refer to Schedule on Drawings for additional specifications.
- 34) Wall fans shall be direct-- or belt--driven propeller fans, as scheduled, consisting of wall housing, wheel, fan shaft, bearings, motor and disconnect switch, drive assembly, and accessories including but not limited to 1/2" mesh bird screen, flanged wall discharge shutter, and OSHA guard. Housing shall be heavy--gauge, galvanized steel or painted aluminum, with a venturi inlet cone.
- 35) Grilles, Registers and Diffusers: Grilles, registers, and diffusers as indicated on the drawings have been selected from the catalog of the manufacturer noted as the basis of design. Sizes, types, and performance of the devices to be provided must be coordinated to insure conformity with design basis. Sidewall supply grilles and registers shall have vertical front blades; sidewall return grilles shall have horizontal blades. Grilles and registers with borders shall have felt or rubber gaskets cemented to the back face and holding screws not over 18 inches on centers around the perimeter. Holding screws shall be counter--sunk to fit flush with face of grille or register. Grilles passing air through partitions shall be as described for wall return grilles, one for each side of partition. Register dampers shall be of the gang--operated, opposed blade type, operated through the face of the register. Operating mechanism shall not project through the register face. Mounting frame shall be coordinated with architectural reflected ceiling plans. Construction shall be of steel or aluminum as scheduled, with frame type to match ceiling construction. Sidewall supply grilles and registers shall be double--deflection type, with vertical front vanes. Construction shall be of steel, with 3/4 inch blade spacing. Return air grilles, return air registers, exhaust grilles, exhaust registers and transfer air grilles located in ceilings shall be constructed of aluminum with "egg--crate" design, with 1/2 inch x 1/2 inch x 1/2 inch grids. Frame style shall be compatible with ceiling construction. Install wall grilles and registers with horizontal edges parallel to ceiling. Concentric diffuser assemblies at roof top units shall have paint--ready exterior finish and 1--inch lined supply and return ducts that transition to diffuser size within 24 inches vertically of the bottom of roof top unit curb.
- 36) Basic motor requirements: basic requirements apply to mechanical equipment motors, unless otherwise indicated. Motors 1/2 hp and larger: Polyphase, unless otherwise scheduled. Motors smaller than 1/2 hp: single phase. Frequency rating: 60 Hz. Service factor: according to NEMA MG 1, general purpose continuous duty, design type "B." Enclosure: open drip--proof, unless otherwise indicated. Efficiency: motors shall have a higher efficiency rating than industry standard overage motor as delineated in IEEE Standard 112, test method 13. Thermal protection: where indicated or required, internal protection automatically opens power supply circuit to motor when winding temperature exceeds a safe value calibrated to temperature rating of motor insulation. Thermal protection device automatically resets when motor temperature returns to normal range, unless otherwise indicated.
- 37) Hangers and supports: Building attachments: concrete inserts or structural--steel fasteners appropriate for building materials, and beam clamps. Hanger materials: galvanized, sheet steel or round, threaded steel rod. Hangers installed in corrosive atmospheres: electrogalvanized, all--thread rod or galvanized rods with threads painted after installation. Straps and rod sizes: comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for sheet steel width and thickness and for steel rod diameters. Duct attachments: sheet metal screws, blind rivets, or self--tapping metal screws; compatible with duct materials. Trapeze and riser supports galvanized steel shapes and plates: steel shapes complying with ASTM A 36/A 36M.
- 38) Sealant materials: joint and seam sealants, general: the term "sealant" is not limited to materials of adhesive or mastic nature but includes tapes and combinations of open--weave fabric strips and mastics. Joint and seam tape: 2 inches wide; glass--fiber fabric reinforced. Joint and seam sealant: one--part, nonsag, solvent--release--curing, polymerized butyl sealant, formulated with a minimum of 75 percent solids. Flanged joint mastics: one--part, acid--curing, silicone, elastomeric joint sealants, complying with ASTM C 920, type S, grade NS, class 25, use 0.
- 39) Unit Heaters--Electric: Cabinet shall be steel with baked--enamel finish with manufacturer's custom paint for harsh moist environment, in color selected by Architect. Provide vertical unit, with minimum 0.0677--inch--thick, galvanized, sheet steel, removable panels with channel--formed edges secured with tamperproof cam fasteners. Electric--resistance heating coil shall be nickel--chromium heating wire, free from expansion noise and hum, mounted in ceramic inserts in a galvanized--steel housing; with fuses in terminal box for overcurrent protection and limit controls for high--temperature protection. Terminate elements in stainless--steel machine--staked terminals secured with stainless--steel hardware. Propeller fan, directly connected to motor, galvanized--steel.
- 40) All HVAC equipment such as AH, CU, EF, AC, HP, and RTU shall have visible nameplates with their associated marks on them.
- 41) Louvers: 6" deep, 12 gauge (0.081) etched and 30 minute clear anodized extruded aluminum, drainable blades and frame; back mounted 1/2" mesh 19 gauge screen; flange frame. Louver shall be rated for no water carry--through at 900 face velocity, 0.15" maximum pressure drop for 4--foot square sample tested according to AMCA Standard 500, 1973. American Warming LE--33 (alum.); Ruskin (LF--6375D); Louvers & Dampers IEL--6; Industrial Louvers 653 alum.; Vent Products #4650; Shipman LE--33 (alum.); Arrow United EA615-D (alum.); Greenheck ESD--603. Provide adapter to match corrugations in metal panel.

42) Combination Starters with Circuit Breakers: Three Phase Single: Provide NEMA 3R type combination starters (IEC type are not acceptable) with circuit breakers for all 3--phase motors in HVAC equipment. Circuit breaker shall be adjustable magnetic trip type with 10,000 amp minimum symmetrical amps interrupting capacity. Breaker operating mechanism shall be lock--out type. Contactor shall be magnetic across--the--line type. Provide ON--OFF pushbutton switches in cover. Enclosure shall be NEMA 1. Manufacturers: Square D class 8539; Cutler--Hammer type AN40 or A41; Furnas Class 18; Allen Bradley 513 or 522; Joslyn--Clark Bulletin 6020; Siemens SCB. Provide auxiliary contacts (2 minimum).

43) Ceiling Ventilator shall have corrosion resistant galvanized steel housing with four--point mounting capability. It shall be ducted to a cap on wall using 6" round ductwork. Blower assembly shall be removable, have a centrifugal--type blower wheel and a permanently lubricated motor designed for continuous operation. Non--metallic damper/duct connector shall be included. Air delivery shall be no less than scheduled and sound level no greater than 0.3 sones. All air and sound ratings shall be certified by HVI. Ceiling ventilator shall be Energy Star® qualified and have an energy efficient permanent split capacitor motor. Acceptable Manufacturers are:

Air Handlers & Heat Pumps, Packaged Units: Carrier, Trane, York, Lennox.
 Grilles, Registers & Diffusers: Tilus, Nalor, Price, Tuttle & Bailey (Color selection submitted to Architect)
 Fans: Twin--City, Cook, Greenheck, PennBarry, Acme, American CoolAir
 Electric Heaters: Markel, Q--Mark, Roywall
 Louvers/Dampers/Fire Dampers: United Entech, Greenheck, Ruskin, Arrow United, Lloyd Industries (Color selection submitted to Architect)
 Controls--provided with unit: Provide thermostats by same manufacturer as equipment



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DSGN: JB	DRWN: JB	CHKD: AZ
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ROCKDALE COUNTY WATER RESOURCES
 GEES MILL WTP MAINTENANCE BUILDING

MECHANICAL SPECIFICATIONS

SHEET NO.

M-0.1

BID SET



MECHANICAL SYMBOLS & ABBREVIATIONS LEGEND	
	NEW PIPE, DUCTWORK OR EQUIPMENT
	DUCT SIZE: FIRST DIMENSION IS SIDE DRAWN
	FLEXIBLE ROUND DUCTWORK
	FIRE DAMPER, SMOKE DAMPER, SMOKE DETECTOR
	CEILING SUPPLY DIFFUSER
	CEILING RETURN OR EXHAUST AIR
	S.A. DUCT OUT OF TU BOX WITH DUCT LINER FOR THR FIRST FIVE FEET OF DUCT OUT OF TU BOX
	SIDEWALL REGISTER OR GRILLE
	CHANGE IN PIPE OR DUCT SIZE OR SHAPE
	REFRIGERANT PIPING
	CONDENSATE OR OTHER DRAIN PIPING
	ELBOW TURNED DOWN OR TURNED UP IN PIPING
	THERMOSTAT, ARROW SHOWS CONTROL WIRING PATH
	TIME CLOCK
	DIAMETER
	UNDER-CUT DOOR 3/4", UNLESS OTHER SIZE NOTED
	INDICATES EQUIPMENT ON PLANS; TOP ITEM SHOWS TYPE OF EQUIPMENT AND BOTTOM ITEM SHOWS SPECIFIC MARK NUMBER
	ITEM IN HEXAGON SHOWS AIR DEVICE MARK NUMBER, ITEM ABOVE LINE SHOWS NECK SIZE, ITEM BELOW LINE SHOWS AIR FLOW THROUGH DEVICE, AND NUMBER IN FRONT SHOWS QUANTITY IF MORE THAN ONE
AFF	ABOVE FINISHED FLOOR
AH	AIR HANDLING UNIT
BD	BYPASS DAMPER
BTUH, MBH	BRITISH THERMAL UNITS, THOUSAND BRITISH THERMAL UNITS
CAP	CAPACITY
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CU	CONDENSING UNIT
DB, WB	DRY BULB TEMPERATURE, WET BULB TEMPERATURE
EA, EG	EXHAUST AIR, EXHAUST GRILLE
EF	EXHAUST FAN
EXT SP	EXTERNAL STATIC PRESSURE (USUALLY EXPRESSED IN INCHES OF WATER IN GAGE)
HP	HEAT PUMP UNIT
MVD, VD	MANUAL VOLUME DAMPER
OA	OUTSIDE AIR
RA, RG	RETURN AIR, RETURN GRILLE
RTU	PACKAGED ROOFTOP UNIT
SA	SUPPLY AIR
SF	SUPPLY FAN FOR SHOP VENTILATION
VAC, PH	VOLTS ALTERNATING CURRENT, NUMBER OF PHASES
W, KW	WATTS, KILOWATTS
UH	UNIT HEATER
	AUDIBLE/VISUAL ALARM DEVICE CONNECTED TO DUCT SMOKE DETECTOR
	ACCESS DOOR
	CONTROL DAMPER-OPPOSED BLADE
	CONTROL DAMPER-PARALLEL BLADE
	BACKDRAFT DAMPER
	RADIUS ELBOW (R=1.5)
	VANED ELBOW
	MANUAL VOLUME DAMPER (MVD), MOTOR OPERATED DAMPER (MOD)
	X INDICATES SECTION NUMBER/XX INDICATES ON WHICH DRAWING SECTION APPEARS
	CONNECT NEW TO EXISTING
	TERMINATION POINT OF DEMOLITION
	OCCUPANCY SENSOR, ENERGIZE UPON OCCUPANCY AND PROVIDE 15 MIN. DELAY TO "OFF" AFTER NO OCCUPANCY IS SENSED

HEAT PUMP AIR HANDLING UNIT SCHEDULE															
MARK	SUPPLY AIR CFM	OUTSIDE AIR CFM	EXT. SP. IN. W.G.	EVAP. FAN HP	EVAP. COIL ENTERING AIR DESIGN CONDITIONS DB F WB F	EVAP. COIL LEAVING AIR DESIGN CONDITIONS DB F WB F	SYSTEM COOLING MAX. REQUIREMENTS (MBH)	SUPPL. HEAT KW	WEIGHT (LBS)	POWER VAC/PH	BASIS OF DESIGN CARRIER	NOTES			
AH-1	700	110	0.60	1/2	77.8	64.9	55.0	54.0	23.0	18.0	6.8	250	208/230/3ø	FV4CNB003L00	1:2:3:4:5:6:7:8
AH-2	700	110	0.60	1/2	77.8	64.9	55.0	54.0	23.0	18.0	6.8	250	208/230/3ø	FV4CNB003L00	1:2:3:4:5:6:7:8

- VERIFY ELECTRIC POWER REQUIREMENTS WITH ELECTRICAL PLANS, WHICH TAKE PRECEDENCE OVER THIS INFORMATION.
- PROVIDE AIR FILTERS, FLEXIBLE DUCT CONNECTIONS AND VIBRATION ISOLATION. PROVIDE PROGRAMMABLE THERMOSTAT AND SUPP. ELEC. HEAT MODULE CONNECTED TO UNIT FOR SINGLE POINT OF CONNECTION.
- PROVIDE CONDENSATE TRAP(S) AS RECOMMENDED BY MANUFACTURER AND ROUTE CONDENSATE PIPING TO HUB DRAIN AS SHOWN ON PLANS. HUB DRAIN SHALL BE PROVIDED BY PLUMBING.
- PROVIDE AUXILIARY DRAIN PAN UNDER THE AIR HANDLERS WITH FLOAT ACTIVATED SWITCH TO SHUT THE UNIT DOWN IN CASE OF CONDENSATE OVERFLOW. REFER TO DETAIL PROVIDED.
- FLOAT ACTIVATED CONDENSATE SWITCH AND COIL OUTLET SWITCH SHALL BE PROVIDED AND INSTALLED BY HVAC CONTRACTOR.
- REFER TO PLUMBING PLANS FOR HUB DRAIN LOCATION.
- AIR HANDLING UNIT WITH ECM MOTOR. PROVIDE COIL OUTLET SWITCH. COIL OUTLET SWITCH SHALL BE WIRE IN SERIES WITH FLOAT ACTIVATED SWITCH LOCATED AT DRAIN PAN. REFER TO CONDENSATE DETAIL PROVIDED.
- UNIT SHALL HAVE SINGLE POINT CONNECTION.

AIR COOLED HEATPUMP UNIT SCHEDULE										
MARK	AHU SERVED	HEAT PUMP HEATING CAP (MBH)	NOM. CAP. (TONS)	REFRIG	OA TEMP SUMMER (DB)	OA TEMP WINTER (DB)	WEIGHT (LBS)	POWER VAC/PH	BASIS OF DESIGN CARRIER	NOTES
HP-1	AH-1	20.0	2.0	R410A	93	17	350	208/230/1ø	25HCB624A003	1:2:3:4:5
HP-2	AH-2	20.0	2.0	R410A	93	17	350	208/230/1ø	25HCB624A003	1:2:3:4:5

- PROVIDE WITH DEFROST CONTROLS, LOW AMBIENT HEAD PRESSURE CONTROLS, AND ANTI-SHORT CYCLE TIMER. PROVIDE COIL GUARD.
- VERIFY ELECTRIC POWER REQUIREMENTS WITH ELECTRICAL PLANS, WHICH TAKE PRECEDENCE OVER THIS INFORMATION.
- PROVIDE LIQUID LINE SOLENOID, CRANKCASE HEATER, TXV, START CAPACITOR AND RELAY AS RECOMMENDED BY MANUFACTURER FOR LONG LINE APPLICATIONS.
- FOR GROUND MOUNT UNITS PROVIDE MOUNTING PAD AS PER DETAIL PROVIDED.
- 2-STAGE COMPRESSOR UNIT.

FAN SCHEDULE									
MARK	CFM	EXT. SP IN W.G.	DRIVE TYPE	MOTOR WATTS/HP	MAX FAN SPEED (RPM)	MAX TIP SPEED (FPM)	POWER/PHASE	BASIS OF DESIGN	NOTES
EF-1	70	0.25	DIRECT	20 W	-	-	115/1	GREENHECK SP-B90	1:2:3
EF-2	6,500	0.25	DIRECT	1 HP	1215	9587	208/1	GREENHECK AER-E30C-310-V6	1:5:6:7:8

- VERIFY ELECTRIC POWER REQUIREMENTS WITH ELECTRICAL PLANS, WHICH TAKE PRECEDENCE OVER THIS INFORMATION.
- FAN TO BE INTERLOCK WITH LIGHT SUCH THAT FAN COMES ON WHEN LIGHTS ARE ON.
- CENTRIFUGAL CEILING MOUNTED FAN. PROVIDE MANUFACTURER'S GRILL, ROUND DUCT CONNECTION, SOLID STATE SPEED CONTROL AND MOTOR WITH THERMAL OVERLOAD.
- DIRECT DRIVE PROPELLER WALL FAN. PROVIDE WALL SLEEVE, FAN SPEED CONTROLLER, AND GRAVITY SHUTTER AT THE DISCHARGE.
- PROVIDE FACTORY SOLID STATE FAN SPEED CONTROLLER. FAN MOTOR ACCESS SHALL BE FROM INTERIOR OF BUILDING.
- PROVIDE LONG WALL HOUSING FLUSH WITH EXTERIOR. PROVIDE WEATHER HOOD.
- FAN SHALL BE CONTROLLED BY A STARTER WITH PUSH BUTTONS PROVIDED AT THE FACE OF STARTER. REFER TO PLAN FOR STARTER LOCATION.
- FAN STARTER SHALL BE PROVIDED BY MECHANICAL CONTRACTOR.

LOUVER SCHEDULE											
MARK	CFM	SERVICE	SIZE W X H (INCHES)	MIN. FREE AREA (SQ. FT.)	MAXIMUM PRESS. DROP (IN. W.G.)	FINISH (COLOR BY ARCHITECT)	MOTOR OPERATOR	INTERLOCK WITH	POWER VAC/PH	BASIS OF DESIGN	NOTES
L-1	6,500	OUTSIDE AIR	60"x60"	11.95	0.08	ENAMEL	YES	EF-2	115/1	GREENHECK ECD 401	1:2:3

- OPERABLE EXTRUDED ALUMINUM DRAINABLE BLADE LOUVER, PROVIDE WITH BIRDSCREEN AND FACTORY BAKED ENAMEL FINISH. COORDINATE COLOR WITH ARCHITECT.
- COMBINATION LOUVER/DAMPER. PROVIDE MANUFACTURER'S ELECTRIC MOTOR ACTUATORS BELIMO, SEIMANS GGD WITH 6" PROJECTION.
- REFER TO ARCHITECTURAL FOR LOUVER ELEVATION.

AIR DEVICE SCHEDULE									
MARK	SERVICE	SIZE	FACE SIZE	MATERIAL	TYPE	PATTERN	MOUNTING TYPE	LAYOUT BASIS	NOTES
S1	SUPPLY	SEE PLANS	24" X 24"	STEEL	SQUARE CONC	4-WAY	LAY-IN	TMS	1:2:3
S2	SUPPLY	SEE PLANS	12" X 12"	STEEL	SQUARE CONC	4-WAY	LAY-IN	TMS	1:2:3
R1	RETURN	SEE PLANS	12"x24"	ALUMINUM	EGGCRATE	----	LAY-IN	50F	1:4
R2	RETURN	SEE PLANS	24"x24"	ALUMINUM	EGGCRATE	----	LAY-IN	50F	1:4

- PROVIDE STANDARD WHITE FINISH.
- INSULATE BACK OF DEVICE.
- BALANCE AIRFLOW TO QUANTITY SHOWN.
- PROVIDE FULL SIZE SHEET METAL PLENUM ON TO OF GRILL FOR CONNECTION.

ELECTRIC UNIT HEATER SCHEDULE						
MARK	HEATER KW	CFM	STEPS	VOLTS/PH	BASIS OF DESIGN	NOTES
UH-1	15.0	910	1	480/3ø	Q-MARK MUH-15-4	1:2
UH-2	15.0	910	1	480/3ø	Q-MARK MUH-15-4	1:2
UH-3	15.0	910	1	480/3ø	Q-MARK MUH-15-4	1:2
UH-4	15.0	910	1	480/3ø	Q-MARK MUH-15-4	1:2
UH-5	15.0	910	1	480/3ø	Q-MARK MUH-15-4	1:2

- MOUNT UNIT HEATERS AT 10'-0" AFF.
- VERIFY ELECTRIC POWER REQUIREMENTS WITH ELECTRICAL PLANS, WHICH TAKE PRECEDENCE OVER THIS INFORMATION.

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DRWN: JB
CHK: AZ

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ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING
MECHANICAL SCHEDULE

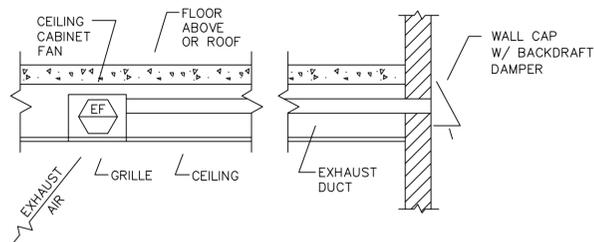
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M-0.2



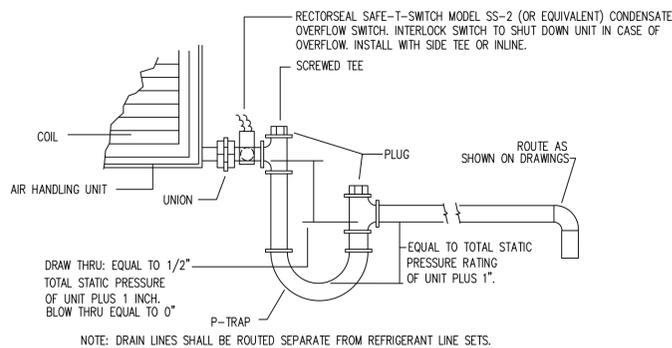
EDEC, INC.
 3069 PEACHTREE IND. BLVD.
 SUITE 110
 DULUTH, GEORGIA 30097
 TEL. (770) 493-8685



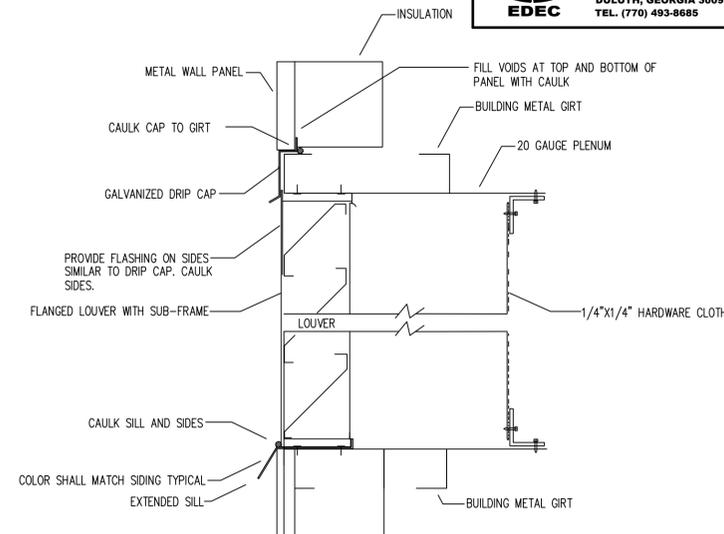
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1 CEILING EXHAUST FAN W/SIDEWALL DISCHARGE-DETAIL
 SCALE: N.T.S.

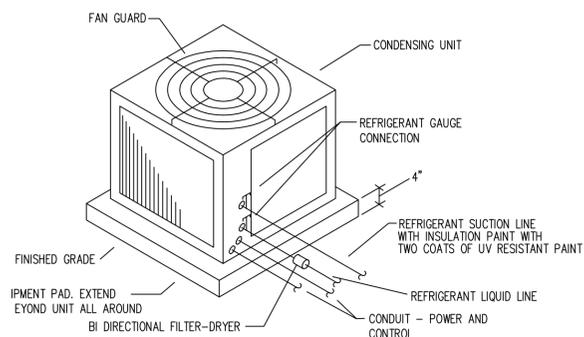


2 CONDENSATE DRAIN DETAIL
 SCALE: N.T.S.



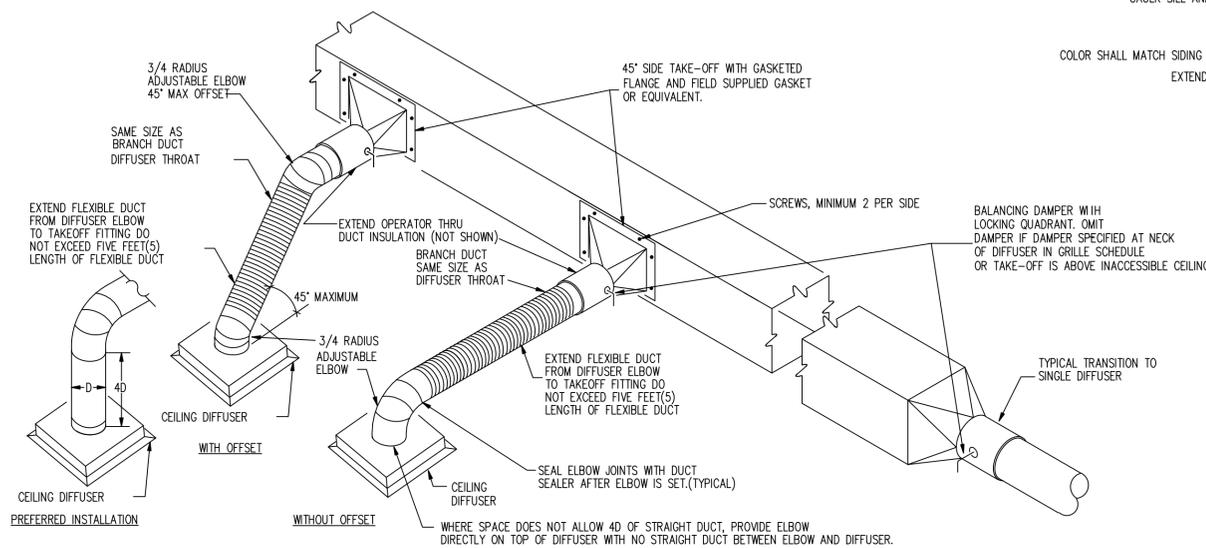
3 LOUVER IN METAL PANEL WALL DETAIL
 SCALE: N.T.S.

INSTALL LOUVER SUCH THAT SIDES ARE ON FLAT PART OF METAL SIDING
 PROVIDE MOTORIZED DAMPER WHERE INDICATED ON DRAWINGS

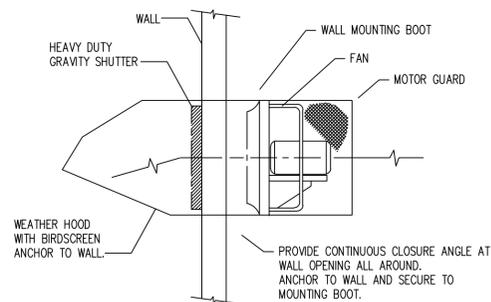


NOTE: 1) THIS DETAIL IS FOR HEAT PUMP UNIT 5 TONS AND UNDER
 2) PROVIDE 4"x4" WELDED WIRE MESH REINFORCING AT CENTER LINE FOR THE CONCRETE PAD.
 3) PAD MAY BE PREFABRICATED DIVERSITECH ULTRALITE EQUIPMENT PAD OR EQUIVALENT.

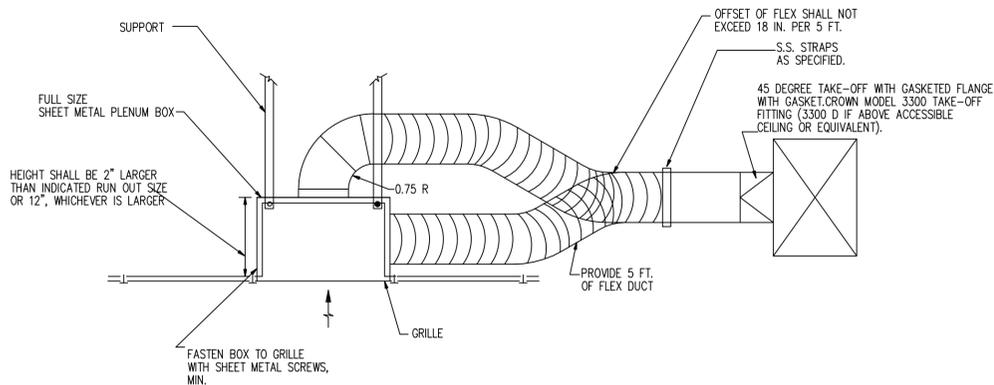
4 AIRCOOLED CONDENSING UNIT SLAB MOUNTED
 SCALE: N.T.S.



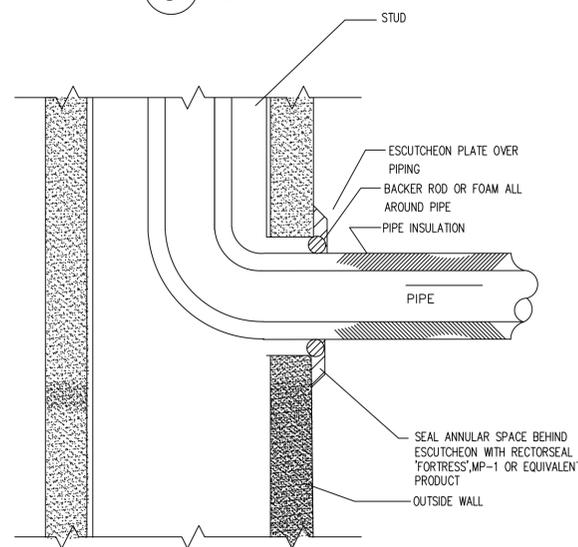
5 DIFFUSER RUN OUT DETAIL
 SCALE: N.T.S.



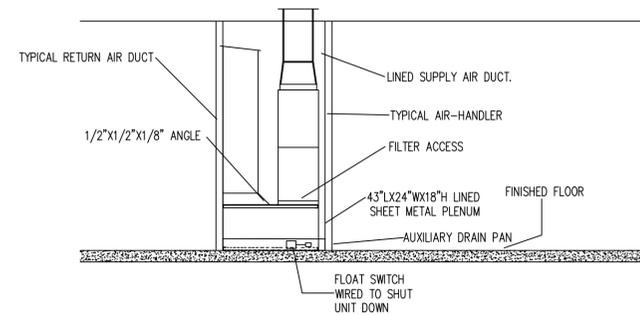
8 WALL FAN MOUNTING
 SCALE: N.T.S.



6 TYPICAL GRILLE WITH PLENUM DETAIL
 SCALE: N.T.S.



7 REFRIGERANT PIPE SLEEVE THROUGH WALL DETAIL
 SCALE: N.T.S.



9 TYPICAL AIR HANDLING UNIT
 SCALE: N.T.S.

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ROCKDALE COUNTY WATER RESOURCES
 GEES MILL WTP MAINTENANCE BUILDING
 MECHANICAL DETAILS

SHEET NO.

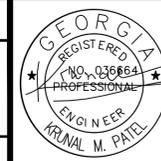
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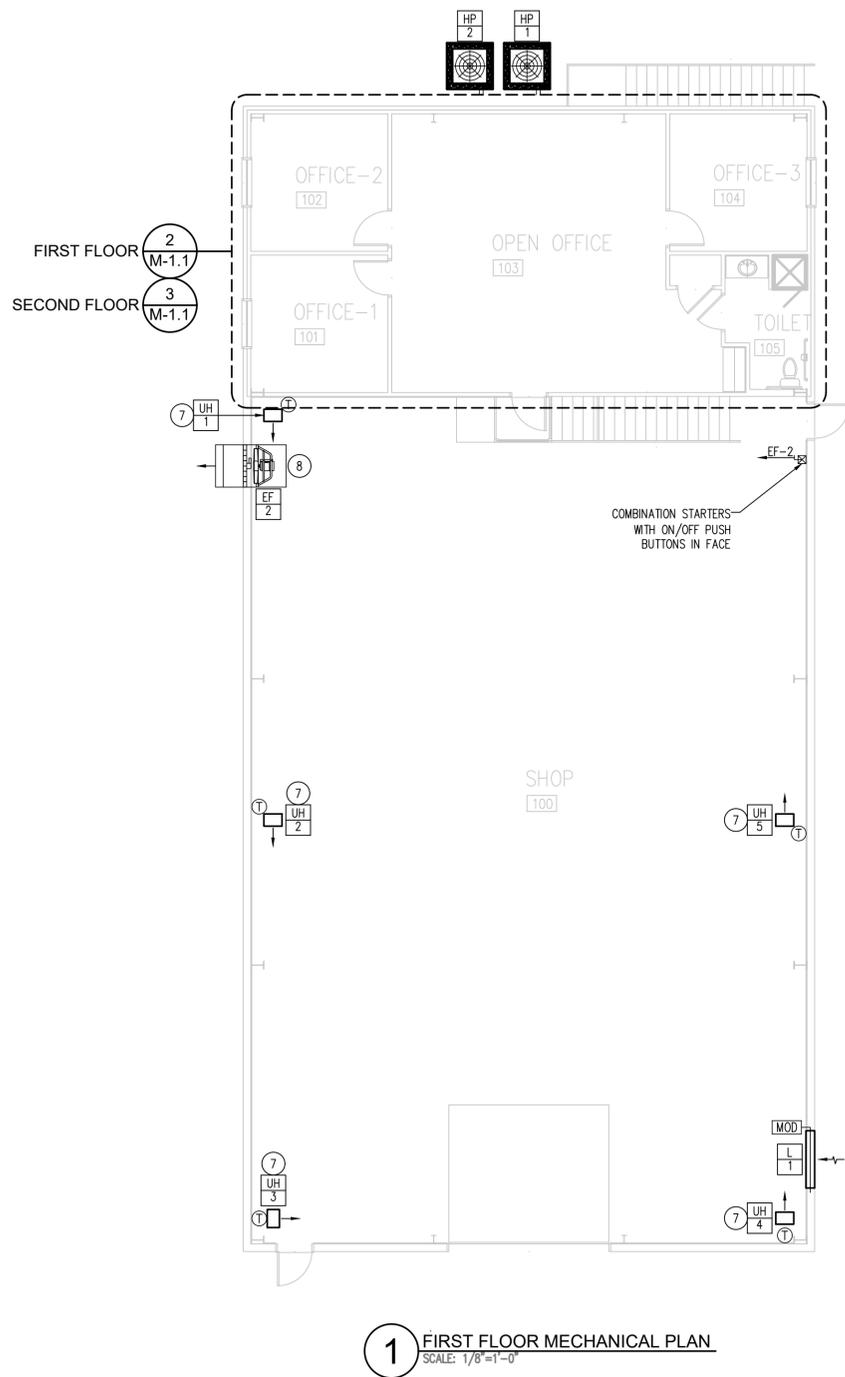
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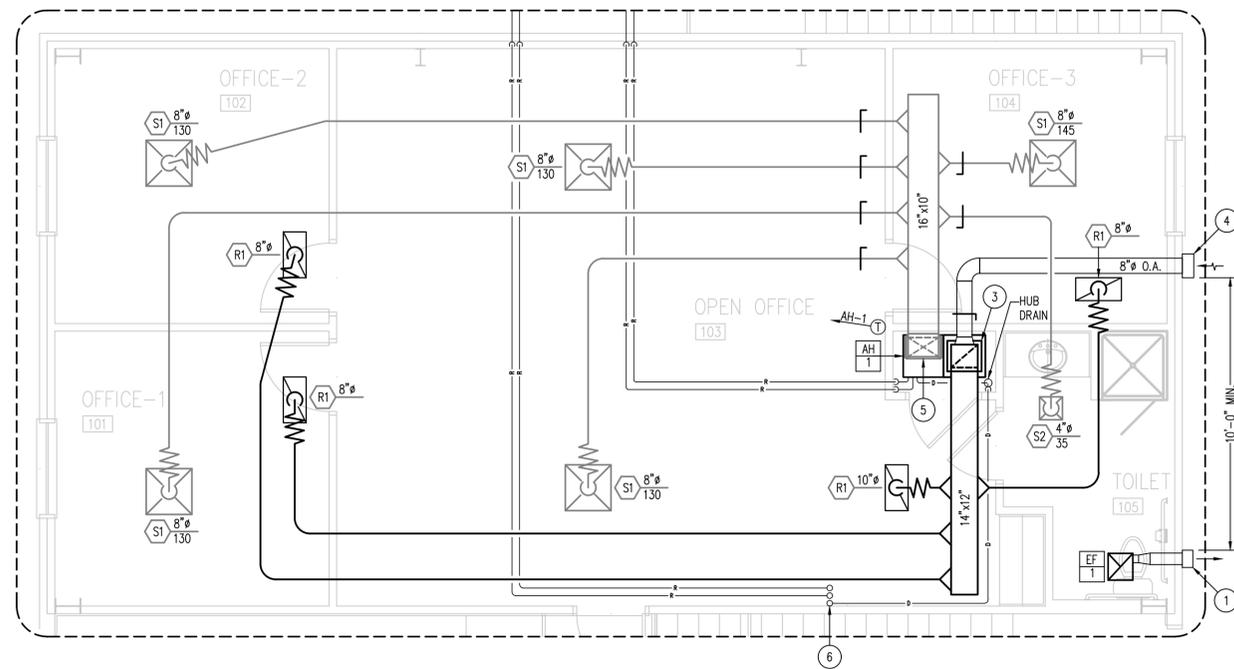
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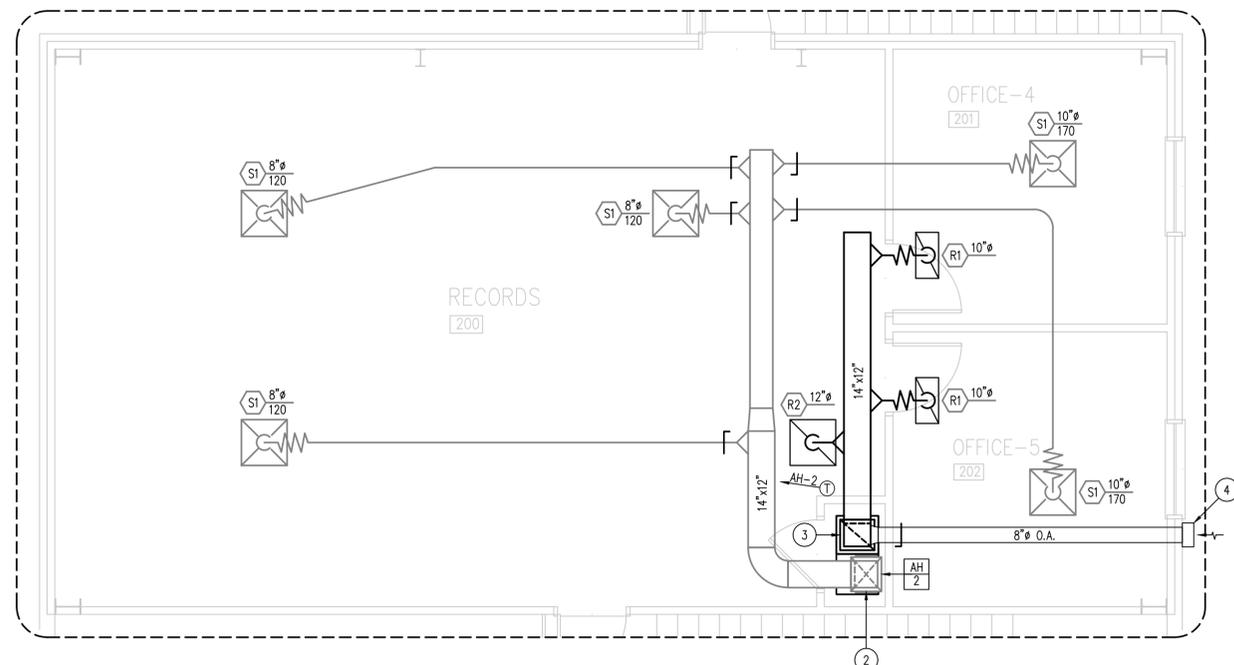
1 FIRST FLOOR MECHANICAL PLAN
 SCALE: 1/8"=1'-0"

KEYED NOTES: (THIS SHEET ONLY)

- ① 6"Ø EXHAUST WALL CAP. PAINT WALL CAP TO MATCH BUILDING WALL.
- ② 16"x14" LINED SUPPLY AIR DUCT. PROVIDE LINER FOR FIRST FIVE FEET OF DUCT OUT OF AIR HANDLER. TRANSITION TO 14"x12" AFTER 5'-0" OF LINED DUCTWORK. DUCT HAS BEEN SIZED LARGER TO INCORPORATE LINER.
- ③ 16"x14" LINED RETURN AIR DUCT. PROVIDE LINER FOR FIRST FIVE FEET OF DUCT OUT OF FLENUM. TRANSITION TO 14"x12" AFTER 5'-0" OF LINED DUCTWORK. DUCT HAS BEEN SIZED LARGER TO INCORPORATE LINER.
- ④ 8"Ø OUTSIDE AIR INTAKE WALL CAP. PAINT WALL CAP TO MATCH BUILDING WALL.
- ⑤ 18"x12" LINED SUPPLY AIR DUCT. PROVIDE LINER FOR FIRST FIVE FEET OF DUCT OUT OF AIR HANDLER. TRANSITION TO 16"x10" AFTER 5'-0" OF LINED DUCTWORK. DUCT HAS BEEN SIZED LARGER TO INCORPORATE LINER.
- ⑥ REFRIGERANT AND CONDENSATE DRAIN FROM AH-2 ON SECOND FLOOR.
- ⑦ MOUNT BOTTOM OF UNIT HEATER AT 10'-0" A.F.F.
- ⑧ TOP OF FAN AT BOTTOM OF STRUCTURE.



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



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

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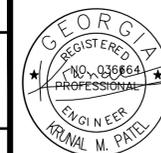
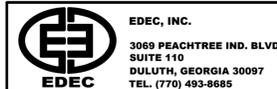
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ROCKDALE COUNTY WATER RESOURCES
 GEES MILL WTP MAINTENANCE BUILDING
 MECHANICAL PLANS

SHEET NO.
 M-1.1

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ROCKDALE COUNTY WATER RESOURCES
GEES MILL WTP MAINTENANCE BUILDING
PLUMBING SPECIFICATIONS

SHEET NO.
P-0.1

PLUMBING SPECIFICATIONS

Provide all plumbing items indicated on the drawings, described herein or otherwise required for a complete and proper installation, including:
A. Plumbing fixtures, fittings and equipment.
B. Hot and cold water systems.
C. Drain waste and vent piping systems.
D. Indirect waste piping, including all valves, traps, piping and accessories for all equipment. Size per equipment requirements.

Comply with all applicable codes, standards and ordinances, including requirements of the Georgia State Minimum Plumbing Code (2012 International Plumbing Code with all Georgia State Amendments) and the DOJ 2010 ADA Standards for Accessible Design.

The contractor should not attempt to precisely scale dimensions from these drawings to obtain construction dimensions and clearances. The contractor shall verify all actual dimensions and clearances. Although these plans are diagrammatic in nature, they shall be followed as closely as site conditions, new construction, and work by other trades shall permit. Deviations from these drawings, which are required to conform to the available space or to actual building construction, shall be made at no additional cost to the owner.

The submission of a bid or proposal will be construed a evidence that the contractor has familiarized himself with the plans and building site. Claims made subsequent to the proposal for materials and/or labor due to difficulties encountered will not be recognized unless these difficulties could not have been foreseen, even though proper examination had been made.

Fabrication or ordering of any material or equipment prior to verification of site conditions shall be done at the contractor's risk.

All equipment and material shall be new and of first quality. Equipment and material shall be the same or equal to the basis of design listed on these drawings.

Coordinate with all trades and verify all equipment rough-in items and locations with the equipment supplier or contractor. All re-work and corrections required due to lack of coordination shall be the contractor's responsibility, and done at no cost to the owner.

Submit shop drawings and material data submittals to the engineer for approval before installation. No substitutions shall be allowed without prior approval by the engineer. Product data for piping, insulation, valves, specialties and all fixtures and equipment scheduled and specified here.

All equipment and fine materials shall be U.L. listed.

Installation shall comply with manufacturer requirements including all clearances recommended for proper operation of service. All serviceable parts shall be readily accessible.

Below ground sanitary drain and vent piping shall be solid-wall ASTM D2865 schedule 40 PVC, install underground, PVC plastic drainage piping according to ASTM D2321. Above ground sanitary drain, roof drainage, overflow roof drainage, and vent piping shall be cellular-core ASTM F891 schedule 40 PVC. Install aboveground PVC piping according to ASTM D 2865. All aboveground piping shall be adequately supported. Sanitary drain, roof drainage, overflow roof drainage, and vent piping shall have PVC Socket Fittings (ASTM D 2865, made to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe). Slope at 1/8 inch per foot continuously toward public sewer.

All above ground domestic water distribution piping shall be ASTM D 2846, SDR11, schedule 40 CPVC with socket fittings. All piping shall be adequately supported. Disinfect all domestic water piping after installation. All underground domestic water distribution piping shall be ASTM D 1785 schedule 40 PVC with ASTM D 2466 PVC socket fittings. Wrap piping larger than 2" in return air plenums with fire barrier plenum rated wrap.

Insulate all above ceiling domestic water piping with 3/4" flexible elastomeric. Flexible Elastomeric insulation shall be closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials.

HW & CW Valves: Use pipe size valves, as shown below:
A. Ball: Watts #B-6000 or B-6001.
B. Check: Watts #600 or #601S.

Fixture tailpieces, wall escutcheon, and traps for lavatories and sinks shall be brass tubing, semi-cast, or cast iron. All brass tubing shall be 17 gage, chrome plated. Exemption: If the fixture tailpieces and traps are located in cabinets, the tailpiece & trap shall be schedule 40 PVC. Grid drains for public lavatories. Basket strainers for break room sinks.

Thermometers shall comply with standard ASME B40.200.

Lavatory/ Sink supply fittings: NSF Standard. Comply with NSF/ANSI 61 Annex G, "Drinking Water System Components - Health Effects," for supply-fitting materials that will be in contact with potable water. Standard: ASME A112.18.1/CSA B125.1. Supply Stops: Chrome-plated-brass, one-quarter-turn, ball-type valve with inlet connection matching supply piping. Wheel handle operation. Risers: Chrome-plated, soft-copper flexible tube for exposed applications and ASME A112.18.6, braided- or corrugated-stainless-steel, flexible hose for conceal behind cabinet applications.

Provide ADA Supply and Drain Protective Shielding Guards on ADA fixtures that piping is exposed. Supply and Drain Protective Shielding Guards shall comply with ICC A117.1 and Americans with Disabilities Act (ADA) requirements. Manufactured plastic wraps shall cover hot and cold water supplies, trap, and drain piping.

All pipe hangers, clamps and channels shall be adequately sized to carry pipe loads and prevent sagging.

All other materials not specifically described but required for a complete and proper installation of work of this section, shall be new, first quality of their respective kinds, and as selected by the contractor subject to acceptance by the engineer.

Lay out the plumbing system in careful coordination with the drawings, determining proper elevations for all components of the system and using only the minimum number of bends to produce a satisfactorily functioning system. Follow the general layout shown on the drawings in all cases except where other work may interfere. Unless shown otherwise, lay out all pipes to fall within partition, wall floor, or roof cavities, and to not require furring other than as shown on the drawings.

Do not cut into or reduce the size of any load-carrying member without the prior approval of the architect. Install all pipes to clear all beams and obstructions.

Permanently close and make weatherproof any openings or penetrations of the building envelope made for plumbing systems. All wall and floor penetrations shall be sleeved. All exterior wall or foundation wall penetrations shall use a mechanical seal.

Coordinate all roof penetrations with architectural plans and building and roofing trades.

Provide shut-off balls valves and unions at all water connections to equipment and appliances. Provide chrome plate brass stops and rigid chrome plated brass supplies at all fixtures.

PLUMBING SPECIFICATIONS(continued)

Isolate all dissimilar metals with "EPCO" dielectric unions, except for brass or bronze valves with steel pipe.

Protect the potable water supply against backflow and siphonage from equipment, fixtures, etc., using approved backflow and anti-siphon devices.

Thoroughly clean all piping and equipment. Removing all dirt, rust, oil, and plaster.

Test Sanitary drainage piping by plugging all openings and filling with water to a height equal to a 10 foot head. Allow to stand one hour or longer as required. Repair leaking joints and then re-test.

No work shall be covered until it has been inspected and accepted by the local authority and the engineer.

Test water lines at 100 PSIG. Retain for 24 hours, repair all leaks and retest.

The entire system shall be warranted for a period of one (1) year beginning with Owner's acceptance of the work. All labor and materials necessary to repair or replace the system, or portions thereof, during that time shall be warranted for a period of one (1) year from the repair or replacement.

Install piping in concealed locations, unless otherwise indicated and except in equipment rooms, and service areas. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal. Install piping to permit valve servicing. Install piping at indicated slopes. Install piping free of sags and bends. Install fittings for changes in direction and branch connections. Install piping to allow application of insulation. Select system components with pressure rating equal to or greater than system operating pressure. Install escutcheons for penetrations of walls, ceilings, and floors. Verify final equipment locations for roughing-in.

Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

Seal fixtures to wall and floor surfaces with sealant, color to match fixture.

Approved manufactures: (Items submitted shall be approved by architect and engineer. Architect and engineer reserve the right to reject any item substituted for basis of design item for any reason.)

- China Fixtures: American Standard, Kohler, Toto, Zurn, Sloan
- Faucets: Delta, T&S Brass, Chicago Faucets, Zurn, Kohler, Grohe, Moen, Speakman, Symmons
- Supplies & Traps: Engineered Brass CO., McGuire, Charlotte Pipe, Brascraft, IPS, Watts, Zurn
- Floor Drains & Cleanouts: Zurn, Jay R Smith, Proset, Watts, Mifab, Wade, Josam, Sioux Chief, Oatey
- Water Heaters: A.O. Smith, Lochinar, Bradford White, State, Vaughn
- Toilet Seats: Bemis, Centoco, Church Seats, Olsonite, Beneke, Zurn, Mahline
- ADA Protective Shielding Pipe Covers: Engineered Brass, McGuire, Plumbers, TRUEBRO, Zurn, Oatey
- Fixture Supports: MIFAB, Jay R. Smith, Wade, Watts, Zurn
- Mixing Valves: Armstrong, Leonard, Powers, Symmons, Lawler
- Wall Hydrants/ Hose Bibbs: MIFAB, Jay R. Smith, Wade, Watts, Woodford, Zurn
- Expansion Tanks: AMTROL, State, Watts, Wilkins
- Water Hammer Arresters: AMTROL, Josam, MIFAB, PPP, Sioux Chief, Jay R. Smith, Wade, Watts, Zurn
- Brass Valves: American, Crane, Watts, Apollo
- Showers: Aqua Bath, Aquarius, Clarion, Best Bath, Aqua Glass, Aquatic

Location of tables changed; however, information did not change.

#	FIXTURE TYPE	WASTE		WATER SUPPLY		WATER FIX. CONN.		MODEL NUMBER
		BELOW FLOOR	FIXTURE CONN.	COLD	HOT	COLD	HOT	
WC	TANK TYPE ADA WATER CLOSET RIGHT-HAND TRIP LEAVER	3"	3"	1/2"	3/8"			KOHLER K-3999 WATER CLOSET. BEMIS 1655SSCT SEAT
LAV	ADA DROP-IN LAVATORY	2"	1-1/4"	1/2"	1/2"	1/2"	1/2"	KOHLER K-2196-4 LAVATORY. MOEN 84948 FAUCET.
SHR	ADA TRANSFER SHOWER	2"	2"	1/2"	1/2"	1/2"	1/2"	AQUATIC BATH 1363BP'S SHOWER WITH STAINLESS STEEL L-SHAPED GRAB BAR, L-SHAPED FOLD-UP SEAT, DRAIN & SOAP DISH. MOEN 8342 FAUCET.
HD	HUB DRAIN	3"	3"					PROSET TG34HD WITH WATERLESS TRAP PRIMER.
GCO	GRADE CLEANOUT	3"	3"					ZURN Z1400
SWVT	SIDE WALL VENT TERMINAL	3"	3"					ZURN Z1471
HB	EXTERIOR HOSE BIBB			3/4"		3/4"		ZURN Z1346
MV	MIXING VALVE			1/2"	1/2"	1/2"	1/2"	LEONARD 270-LF.
FD	FLOOR DRAIN	3"	3"					SIoux CHIEF 842-3-P-NR FLOOR DRAIN. RECTORSEAL "SURESEAL PLUS" WATERLESS TRAP PRIMER.

SHOWER DIMENSIONS SHALL BE COORDINATED WITH ARCHITECT BEFORE INSTALLATION.

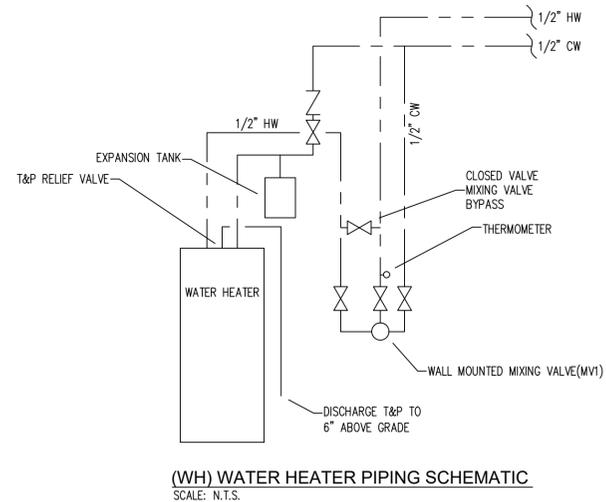
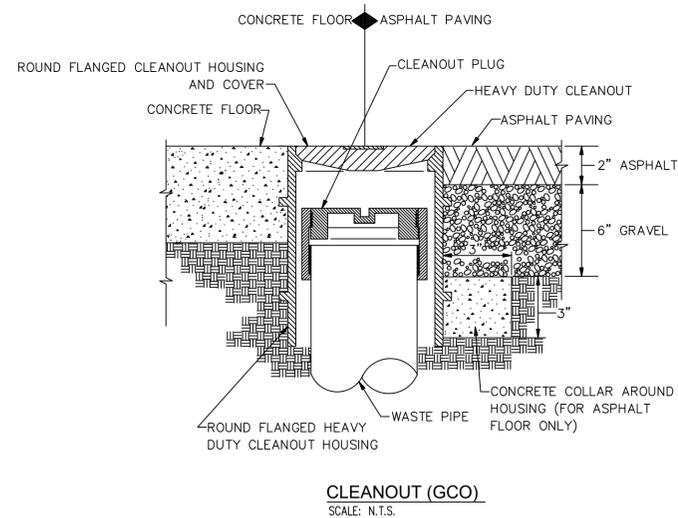
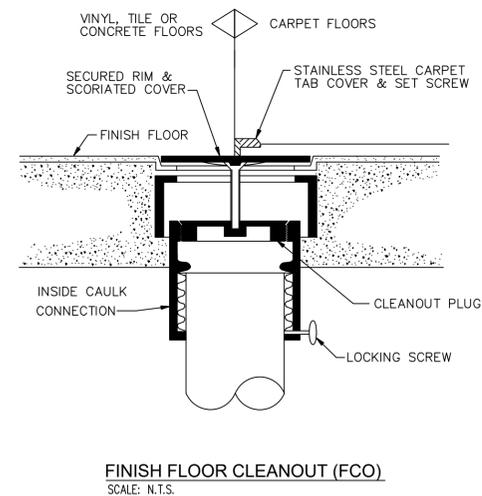
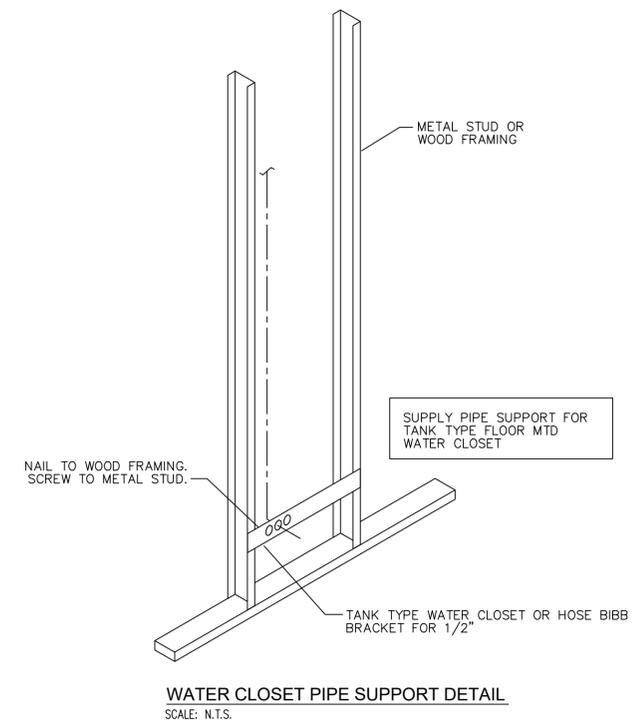
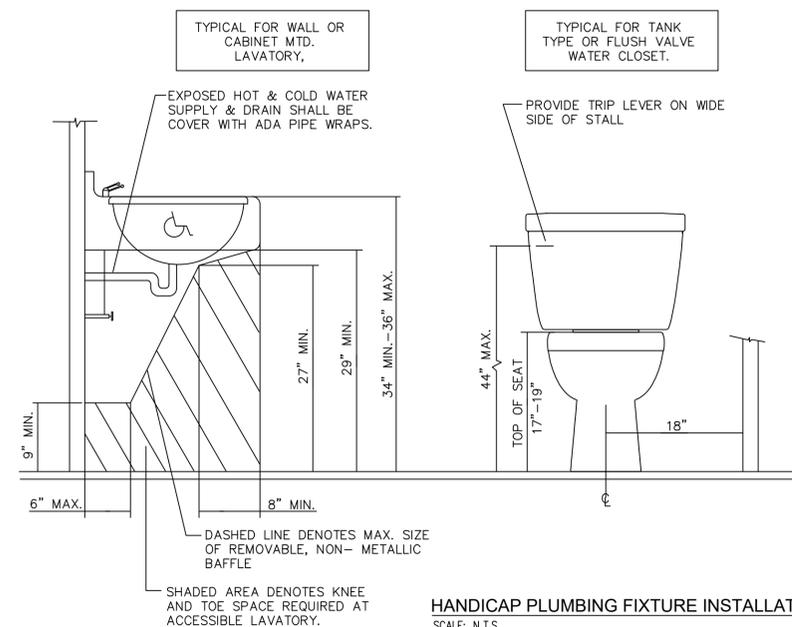
MARK	MANUFACTURER	MODEL NUMBER	TYPE	GPH @100' RISE	GALLON	KW	VOLT/ PHASE
WH	BRADFORD WHITE	LE240S3-3	ELECTRIC	19	40	4.5	480/3
ET	ZURN/WILKINS	XT-8	EXPANSION TANK		2.1		

CONTRACTOR SHALL CONSULT THE ELECTRICAL DOCUMENTS FOR VOLTAGE AND PHASE

	BALL VALVE	---	COLD WATER
	CHECK VALVE	----	HOT WATER
	PIPE UP	-----	VENT
	PIPE DOWN	-----	SEWER
	PDI UNIT	---	CW
	WATER HAMMER ARRESTOR	---	COLD WATER
	UNDER GROUND	---	HW
	TYPICAL		
	NOT TO SCALE		
	VENT THRU ROOF		



ESI
ENGINEERING STRATEGIES, INC.
 3855 SHALLOWFORD ROAD, SUITE 525
 MARIETTA, GA 30062
 (770) 429-0001



PROJECT NUMBER: 18-11011	DATE: SEPTEMBER 2018
REVISION	DATE
0	04/23/19
ISSUED FOR BID	

DESIGN: JB
 DRAWN: JB
 CHECK: AZ

BAR BELOW IS 1" LONG FOR SCALES SHOWN ON THIS SHEET. IF NOT 1" LONG ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

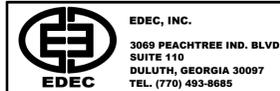
ROCKDALE COUNTY WATER RESOURCES
 GEES MILL WTP MAINTENANCE BUILDING
 PLUMBING DETAILS

SHEET NO.
 P-0.4

Deleted Sheets P-0.2 and P-0.3

BID SET

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ESI
ENGINEERING STRATEGIES, INC.
 3855 SHALLOWFORD ROAD, SUITE 525
 MARIETTA, GA 30062
 (770) 429-0001

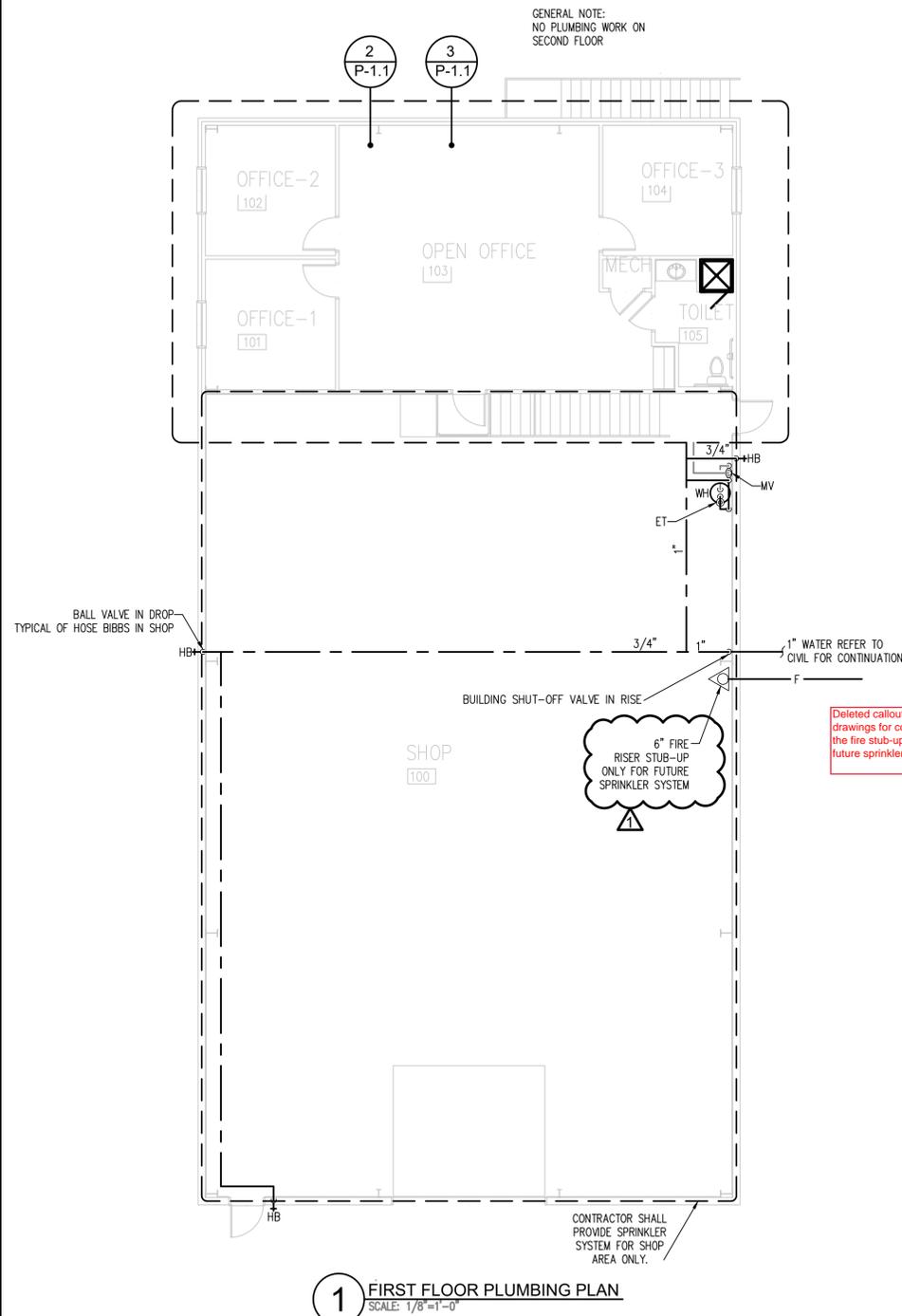
PROJECT NUMBER: 18-11011	DATE: SEPTEMBER 2018
REVISION	DATE
0 ISSUED FOR BID	04/23/19
1 DELETED SPRINKLER SYSTEM	10/12/20

DSGN: JB	DRWN: JB	CHK: AZ
BAR BELOW IS 1" LONG FOR SCALES SHOWN ON THIS SHEET. IF NOT 1" LONG ON THIS SHEET, ADJUST SCALES ACCORDINGLY.		

ROCKDALE COUNTY WATER RESOURCES
 GEES MILL WTP MAINTENANCE BUILDING
 PLUMBING PLANS

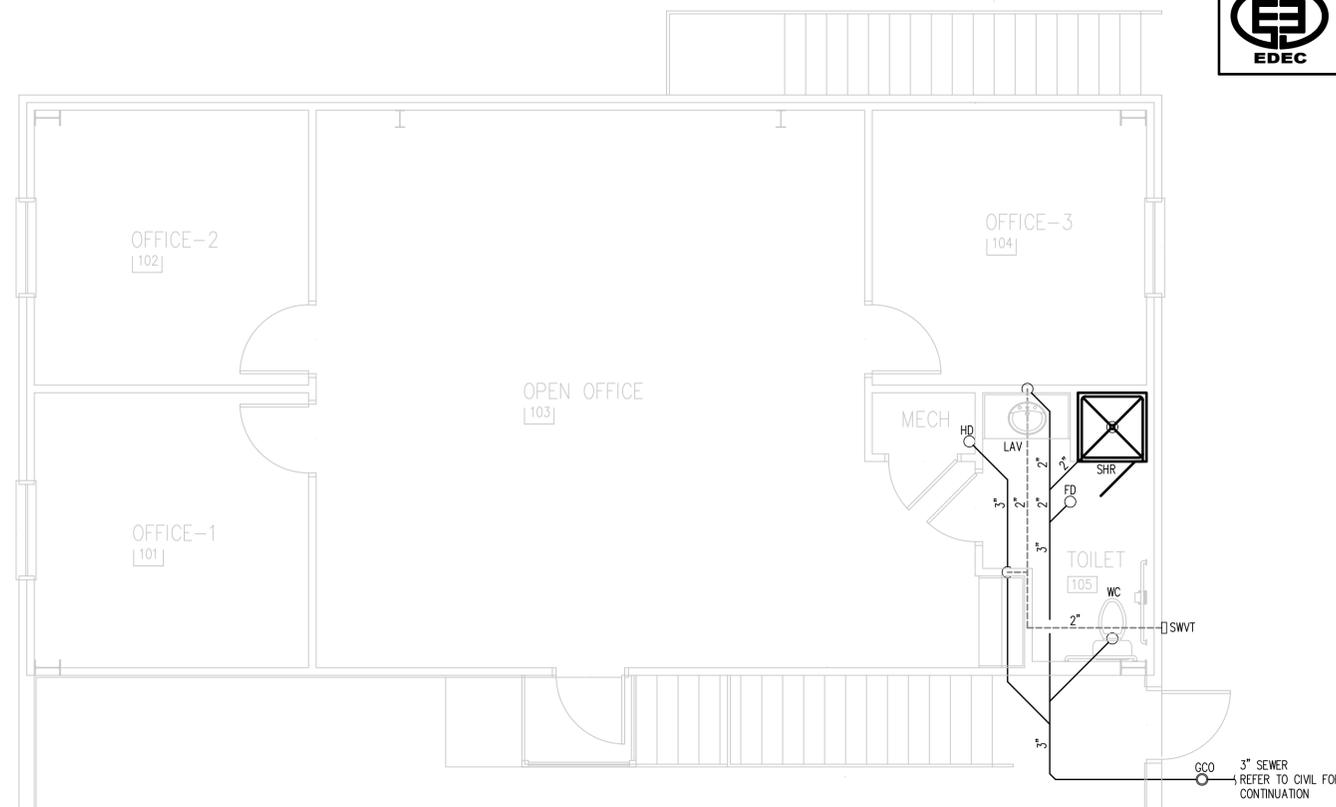
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BID SET

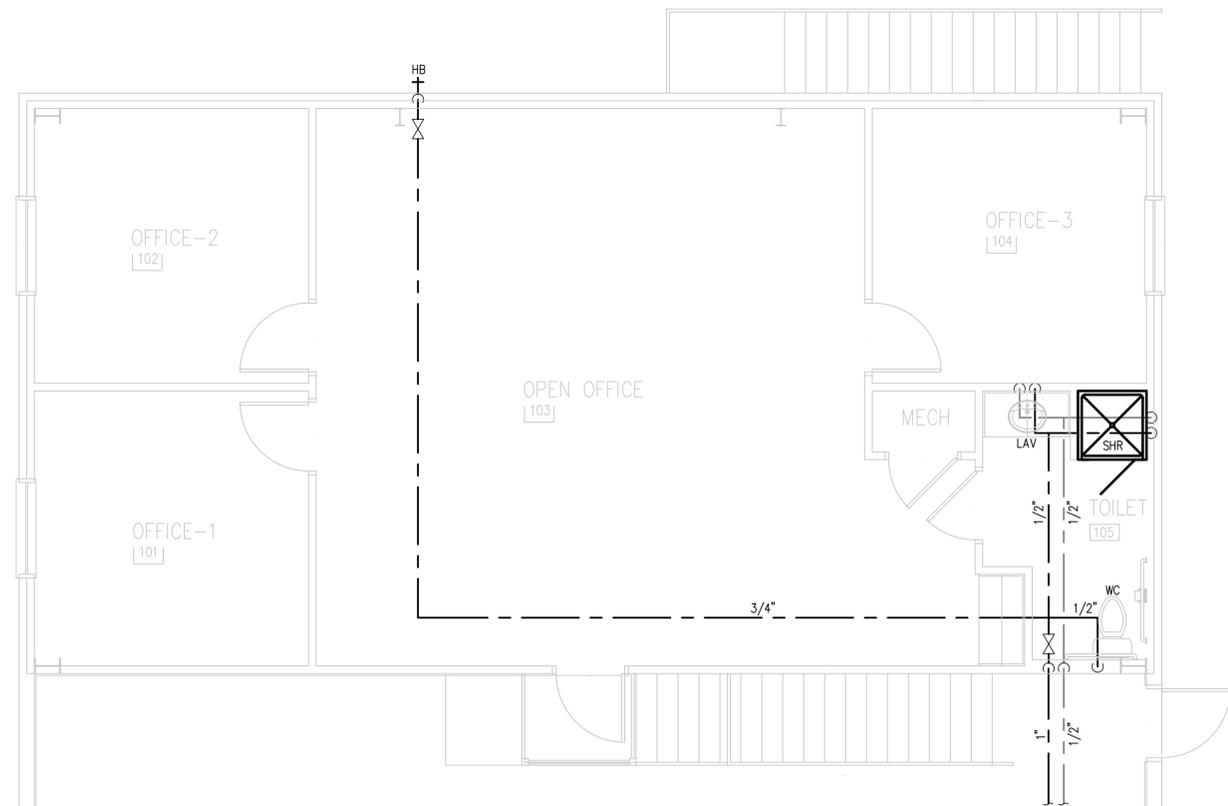


1 FIRST FLOOR PLUMBING PLAN
 SCALE: 1/8"=1'-0"

Deleted callout to refer to Civil drawings for continuation. Only the fire stub-up is needed for a future sprinkler system.



2 FIRST FLOOR PLUMBING PLAN - SEWER
 SCALE: 1/4"=1'-0"



3 FIRST FLOOR PLUMBING PLAN - WATER
 SCALE: 1/4"=1'-0"

X:\Active Projects\2018 Projects\18017-ES RWR Maintenance Building\1.0 Drawings\1.1 Electrical\1.1 PLUMBING PLANS.dwg - 10/12/2020