HVAC SYMBOL LEGEND

ALL SYMBOLS SHOWN MAY NOT APPEAR IN DRAWINGS.

- SUPPLY AIR
- RETURN AIR
- EXHAUST AIR
- ELBOW W/ TURNING VANES
- SPLITTER
- BALANCING DAMPER
- FIRE DAMPER – VERTICAL
- FIRE DAMPER – HORIZONTAL
- MOTORIZED DAMPER
- THERMOSTAT
- WALL CAP
- EXHAUST FAN
- FLEX DUCT
- DUCT TURNING UP/DOWN
- UNDERCUT DOOR 1" MIN.
- SUPPLY AIR
- DG — DOOR GRILLE, SIGHT–PROOF
- EXHAUST AIR
- SD — SMOKE DAMPER
- BDD — BACK DRAFT DAMPER

HVAC ABBREVIATIONS

ALL ABBREVIATIONS SHOWN MAY NOT APPEAR IN DRAWINGS.

AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AUX	AUXILIARY
BDD	BACK DRAFT DAMPER
BRD	BAROMETRIC RELIEF DAMPER
CEIL	CEILING
COND	CONDENSATE
DIA	DIAMETER
EAT	ENTERING AIR TEMPERATURE
EF	ROOM EXHAUST FAN
EQUIP	EQUIPMENT
FD	FIRE DAMPER
FURN	FURNACE
GA	GAUGE
GRH	GAS RADIANT HEATER
GUH	GAS UNIT HEATER
HP	HEAT PUMP
HR	HOUR
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
NIC	NOT IN CONTRACT
OA	OUTSIDE AIR
PENE	PENETRATION
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	RETURN AIR
RM	ROOM
REG	REGISTER
RND	ROUND
RTU	ROOFTOP UNIT
SYS	SYSTEM
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TYP	TYPICAL
VEL	VELOCITY
VF	VENTILATION FAN
W/	WITH

SPLIT SYSTEM SCHEDULE

MARK NO.		AREA SERVED	TONS	TOTAL CFM	O.A. (CFM)	EER @ ARI COND.	COOLING CAPACITY		HEATING CAPACITY		INDOOR UNIT						OUTDOOR UNIT						NOTES
							TOTAL MBH	SENS. MBH	CAPACITY MBH	AUX HEAT KW	MAKE/MODEL	VOLT. PHASE	FAN POWER	E.S.P.	MCA	MOCP	MAKE/MODEL	VOLT. PHASE	FAN FLA (AMPS)	LRA–RLA (AMPS)	MCA	MOCP (HACR)	
AHU–1	HP–1	WEST OFFICE	5	2000	200	12.5	60.6	42.4	36.6	15	CARRIER FV4C	208/3	3/4 HP	0.5	47.1	50	CARRIER 25HNB	208/1	1.5	153–29	37.5	60	ALL
AHU–2	HP–2	EAST OFFICE	4	1600	160	12.5	46.5	37.2	27.8	10	CARRIER FV4C	208/1	3/4 HP	0.5	53.8	60	CARRIER 25HNB	208/1	1.3	104–23	29.8	50	ALL
AHU–3	HP–3	STAGING	3	1160	100	13.3	36.4	25.5	15.4	10	CARRIER FV4C	208/1	3/4 HP	0.5	53.8	60	CARRIER 25HNB	208/1	.6	83–19	23.7	40	1–10,12
AHU–4	HP–4	TRAINING	10	3960	500	11	104.0	83.20	64.5	15	CARRIER 40RUQ	208/3	3.7 BHP	1.0	52.9	60	CARRIER 38AUQ	208/3	1.6	110–16	39	50	ALL
AHU–5	HP–5	MAINTENANCE	1.5	510	46	14	14.1	11.3	3.8	5	CARRIER FV4C	208/1	1/2 HP	0.5	31.2	35	CARRIER 25HCE	208/1	.77	.77	12.4	20	1,2,5,6,7,8,9,10

NOTES:
1. BASIS OF DESIGN CARRIER HEAT PUMP SYSTEM
2. CARRIER INFINITY CONTROLS WITH DEHUMIDIFICATION, 2–STAGE COOL (EXCEPT HP–5) WITH AUTO CHANGEOVER
3. MODULATING OA DAMPER CONTROLS.
4. HOT–GAS BYPASS REHEAT.
5. DRAIN PAN FLOAT SWITCH FOR AHU SHUTDOWN.
6. LOW AMBIENT CONTROLS.
7. ANTI–SHORT CYCLE TIMER.
8. EVAPORATOR DEFROST CONTROL.
9. FASTEN OUTDOOR UNITS TO HOUSEKEEPING PAD.
10. FURNISH OUTDOOR UNIT WITH COIL GUARDS.
11. RAWAL VALVE INSTALLED ON LEAD STAGE.
12. INSTALL SCHEDULED APD IN EXISTING UNIT AND ADJUST OA LEVEL
13. RETURN MTD DUCT SMOKE DETECTOR CONNECTED TO FACP

VENTILATION CALCULATION

ROOM	APPROX ROOM SIZE (SF) "Az"	VENTILATION REQUIREMENTS	OCCUPANCY VALUES "Pz"		VENTILATION RATES "Vbz"	EXHAUST AIR RATES	ZONE AIR DISTRIBUTION EFFECTIVENESS "Ez" PER IMC 403.3.1.2	VENTILATION RATE AS DESIGNED (CFM)	VENTILATION RATE AS DESIGNED PER IAQ ALT (CFM)	EXHAUST AIR RATE AS DESIGNED (CFM)	REMARKS
		IMC 2015 TABLE 403.3	IMC 2015 TABLE 403.3	PEOPLE REQUIRED PER DESIGN	IMC 2015 TABLE 403.3	IMC 2015 TABLE 403.3					
OFFICES	2617	5/1000 5 CFM/PERSON + 0.06 CFM/SF	13	13	222	–	0.8	278	200		ADJUSTED OA RATES PER IAQ ALTERNATIVE METHOD RATES IN REDUCED SYSTEM SCHEDULE
BREAK	633	5/1000 5 CFM/PERSON + 0.06 CFM/SF	3	3	53	–	0.8	66	60		
TRAINING	3049	35/1000 5 CFM/PERSON + 0.06 CFM/SF	107	70	533	–	0.8	666	400		
LOBBY	176	10/1000 5 CFM/PERSON + 0.06 CFM/SF	2	2	21	–	0.8	26	25		
CORRIDOR	736	0.06 CFM/SF	–	–	44	–	0.8	55	30		
STORAGE	1246	0.12 CFM/SF	–	–	150	–	0.8	187	105		
LAUNDRY	147	10/1000 25 CFM/PERSON + 0.06 CFM/SF	1	1	34	–	0.8	42	20		
RESTROOMS	969 SF/12 FIXTURES	70 PER WC OR UR	–	–	–	840	–	–	–	840	OPERATE VIA OCCUPANCY SENSOR WITH TIME DELAY
WAREHOUSE	24400	.06 CFM/SF	–	–	–	1464	–	4000	–		
MAINT SHOP	2100	0.75 CFM/SF	–	–	–	1575	–	2000	–		
MECH SHOP	6400	0.75 CFM/SF	–	–	–	4800	–	5000	–		
							TOTAL BLDG SPACE ONLY	1320	840		

ASHRAE 62.1 ALTERNATE METHOD FOR INDOOR AIR QUALITY

6.1.2 IAQ PROCEDURE

THIS IS A DESIGN PROCEDURE IN WHICH OUTDOOR AIR INTAKE RATES AND OTHER SYSTEM DESIGN PARAMETERS ARE BASED ON AN ANALYSIS OF CONTAMINANT SOURCES, CONTAMINANT CONCENTRATION TARGETS AND PERCEIVED ACCEPTABILITY TARGETS. THE IAQ PROCEDURE ALLOWS CREDIT TO BE TAKEN FOR CONTROLS THAT REMOVE CONTAMINANTS (FOR EXAMPLE, AIR–CLEANING DEVICES) OR FOR OTHER DESIGN TECHNIQUES (FOR EXAMPLE, SELECTION OF MATERIALS WITH LOWER SOURCE STRENGTHS) THAT CAN BE RELIABLY DEMONSTRATED TO RESULT IN INDOOR CONTAMINANT CONCENTRATIONS EQUAL TO OR LOWER THAN THOSE ACHIEVED USING THE VENTILATION RATE PROCEDURE. THE IAQ PROCEDURE MAY ALSO BE USED WHERE THE DESIGN IS INTENDED TO ATTAIN SPECIFIC TARGET CONTAMINANT CONCENTRATIONS OR LEVELS OF ACCEPTABILITY OF PERCEIVED INDOOR AIR QUALITY.

FAN PERFORMANCE DATA

TAG	SERVICE	CFM	SONES	ELECTRICAL DATA			BASIS OF DESIGN		NOTES
				POWER	E.S.P.	VOLTAGE	MFGR	MODEL	
EF–1	OFFICE RESTROOMS	440	7.0	1/10 HP	0.5	120/1	GREENHECK	CUE–090–VG	1–5
EF–2	ADA TLT'S	140	3.8	1/10 HP	0.5	120/1	GREENHECK	CUE–080–VG	1–5
EF–3	DIRECTOR TLT	70	2.7	6 W	0.5	120/1	GREENHECK	SP–80–VG	1–4
EF–4	MAC AREA TLT	70	2.7	6 W	0.5	120/1	GREENHECK	SP–80–VG	1–4
EF–5	MAC LAUNDRY	160	–	50 W	0.5	120/1	TJERNLUND	DE160	–
EF–6	WAREHOUSE	2000	17.8	3/4 HP	0.5	120/1	GREENHECK	SBE–2H24	1–3,6
EF–7	WAREHOUSE	2000	17.8	3/4 HP	0.5	120/1	GREENHECK	SBE–2H24	1–3,6
EF–8	MECH SHOP	5000	26	1–1/2 HP	0.5	208/3	GREENHECK	SBCE–3L24	1–3,6
EF–9	MAINTENANCE	2000	17.8	3/4 HP	0.5	120/1	GREENHECK	SBE–2H24	1–3,6

EQUIPMENT NOTES:
MFGR SPECIED IS "BASIS OF DESIGN" OR EQUAL. CONTRACTOR SHALL SUBMIT MFGR, MODEL AND PERFORMANCE DATA.

1. INTEGRAL DISCONNECT
2. VIBRATION ISOLATION KIT
3. INTEGRAL BACKDRAFT KIT
4. INTERLOCK WITH LIGHTING
5. FAN SPEED CONTROL
6. FURNISH WITH OSHA WIRE GUARD, WALL COLLAR, HD ALUM SHUTTER & WEATHER HOOD W/SCREENING.

AIR PURIFICATION DEVICE SCHEDULE

ZONE	AHU S.A.	O.A.	MAKE/MODEL	PRESSURE DROP	VOLTS (AC)	POWER	MOUNTING LOCATION	DENSITY (IONS/CC)	NOTES
ALL	VARIES	VARIES	GPS–DM48–AC	0.05" W.C.	24–240	12 WATTS	PRE–COIL	200M	ALL

EQUIPMENT NOTES:
1. BASIS OF DESIGN: GLOBAL PLASMA SOLUTIONS. NO SUBSTITUTION ALLOWABLE.
2. MOUNT BI–POLAR ION GENERATOR WHERE INDICATED IN SCHEDULE
3. FURNISH WITH BAS ALARM CONTACT AND INSTALL AUDIBLE ALARM BUZZER EQUAL TO WERMA #10700075, 24VAC ACCESSIBLE
4. FURNISH WITH SELF–CLEANING OPTION.
5. FURNISH WITH WEATHERPROOF ENCLOSURE.

OFFICE AREA SPACE PRESSURIZATION

EQUIPMENT	SUPPLY (CFM)	EXHAUST (CFM)	OUTSIDE AIR
AHU–1	2000	700	200
AHU–2	1600	140	160
AHU–3	1050	0	100
AHU–4	4000	0	500
TOTAL	4650	840	960
SPACE PRESSURIZATION = (OA – EA) / SA			2.6%

GENERAL HVAC NOTES

1. FURNISH ALL LABOR, MATERIALS, TOOLS, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE A COMPLETE HEATING, VENTILATING, AIR CONDITIONING SYSTEM. ALL WORK SHALL BE INSTALLED IN A PROFESSIONAL MANNER AND SHALL MEET ALL THE REQUIREMENTS OF THE 2015 INTERNATIONAL MECHANICAL CODE, SAFETY AND HEALTH CODES, NFPA CODES AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS. ALL COSTS FOR SAID REQUIREMENTS SHALL BE INCLUDED IN THIS CONTRACTORS BID PRICE.
2. THIS CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS AND PERFORM ALL TESTS CALLED FOR OR REQUIRED AS A PART OF HIS WORK. FURNISHED APPROVED CERTIFICATE OF FINAL INSPECTION, AND TURN OVER TO OWNER AT COMPLETION OF PROJECT.
3. MECHANICAL PLANS ARE DIAGRAMMATIC, NOT SHOWING EVERY ITEM IN EXACT LOCATION OR DETAIL. MEASUREMENTS AND LOCATIONS MUST BE FIELD VERIFIED AND COORDINATED WITH ARCHITECTURAL, HVAC, FIRE PROTECTION, STRUCTURAL, ELECTRICAL AND OTHER BUILDING DRAWINGS.
4. MECHANICAL CONTRACTOR TO PROVIDE GENERAL CONTRACTOR WITH AS–BUILT DRAWINGS, ALL EQUIPMENT SHOP DRAWINGS, INFORMATION ON THERMOSTATS, CONTROL WIRING DIAGRAMS AND OTHER PERTINENT INFORMATION AT COMPLETION OF PROJECT.
5. DUCTS USED TO CONVEY THE CONDITIONED AIR SUPPLY AND VENTILATION AIR SHALL BE MADE OF CONTINUOUS SHEET METAL AND SHALL BE FABRICATED IN ACCORDANCE WITH ASHRAE GUIDE AND SMACNA MANUAL LATEST EDITIONS.
6. DUCT LININGS (THERMAL AND ACOUSTICAL), VIBRATION ISOLATION CONNECTORS, FLEXIBLE DUCT CONNECTORS, AND DUCT TYPE SHALL BE APPROVED BY APPLICABLE CODE AND MECHANICAL ENGINEER.
7. ALL RETURN AND SUPPLY AIR DUCTWORK WITHIN 20'–0" OF AIR HANDLING EQUIPMENT SHALL BE DUCT LINED FOR SOUND ATTENUATION. REMAINING DUCT SHALL INSULATED WITH MINERAL FIBER DUCT WRAP.
8. ALL RETURN AND SUPPLY AIR DUCTWORK, THAT IS NOT LINED, SHALL BE EXTERNALLY INSULATED WITH 2" THICK, 1.5 LBS. DENSITY FOIL FACED FIBERGLASS INSULATION. DUCT DIMENSIONS SHOWN ARE INSIDE NET DIMENSIONS, ADD TO SHEET METAL SIZE FOR INSULATION. IN GENERAL, INSTALL DUCTWORK TIGHT TO UNDERSIDE OF STRUCTURE UNLESS OTHERWISE NOTED OR REQUIRED BY FIELD CONDITIONS. COORDINATE EXACT MOUNTING HEIGHT IN FIELD WITH GENERAL CONTRACTOR. ROUND DUCTWORK IN CONDITIONED SPACE DOES NOT REQUIRE INSULATION UNLESS OTHERWISE NOTED.
9. ALL BRANCH TAKE–OFFS SHALL BE PROVIDED WITH MANUAL BALANCING DAMPERS.
10. FLEXIBLE INSULATED DUCTS SHALL BE MAXIMUM 6'–0" LONG AND SHALL MEET INSTALLATION AND MATERIAL REQUIREMENTS OF LOCAL CODES.
11. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE TEMPERATURE CONTROL SYSTEM TO INCLUDE: PANELS, MODULES, RELAYS, WIRING, THERMOSTATS, SENSORS, DAMPERS, ACTUATORS AND ALL MISCELLANEOUS ITEMS AS REQUIRED TO FULFILL THE DESIGN INTENT AS INDICATED ON THE PLANS AND IN THE CODED NOTES.
12. ALL TEMPERATURE CONTROLS, FIRE ALARM COMPONENTS, EQUIPMENT NAMEPLATES, LABELS, OR COLOR CODED COMPONENTS SHALL BE MASKED DURING PAINTING TO PREVENT DAMAGE FROM OVER–SPRAY OR OBSCURING INFORMATION.
13. ALL LOW VOLTAGE WIRING REQUIRED FOR MECHANICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL COORDINATE POWER REQUIREMENTS FOR HVAC EQUIPMENT WITH ELECTRICAL CONTRACTOR.
14. SEAL & TAPE ALL OPENINGS IN DUCTWORK AIRTIGHT AFTER TESTING.
15. CHECK & VERIFY ALL FIELD CONDITIONS & ACTUAL DIMENSIONS BEFORE PREPARING SHOP DRAWINGS BEFORE INSTALLATION. NOTIFY ARCHITECT IMMEDIATELY OF ANY AND ALL DISCREPANCIES.
16. TEST & BALANCE ALL SUPPLY, RETURN & EXHAUST SYSTEMS ACCORDING TO CFM INDICATED ON PLANS. SUBMIT REPORT AS PER SPECIFICATIONS.
17. ALL APPLIANCE AND PLUMBING VENTS SHALL BE AT LEAST TEN (10) FEET IN A HORIZONTAL DIRECTION. OR THREE (3) FEET ABOVE THE OUTSIDE AIR INTAKES FOR HVAC AND MAKE–UP AIR UNITS.

STATE OF ALABAMA LICENSED PROFESSIONAL ENGINEER
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9/20/19

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Revisions:

No.	Date	Description
A	9/20/19	ABC CODE REVIEW/PRE–PERMIT

Orange Beach Public Works
Roscoe Road
Orange Beach, Alabama

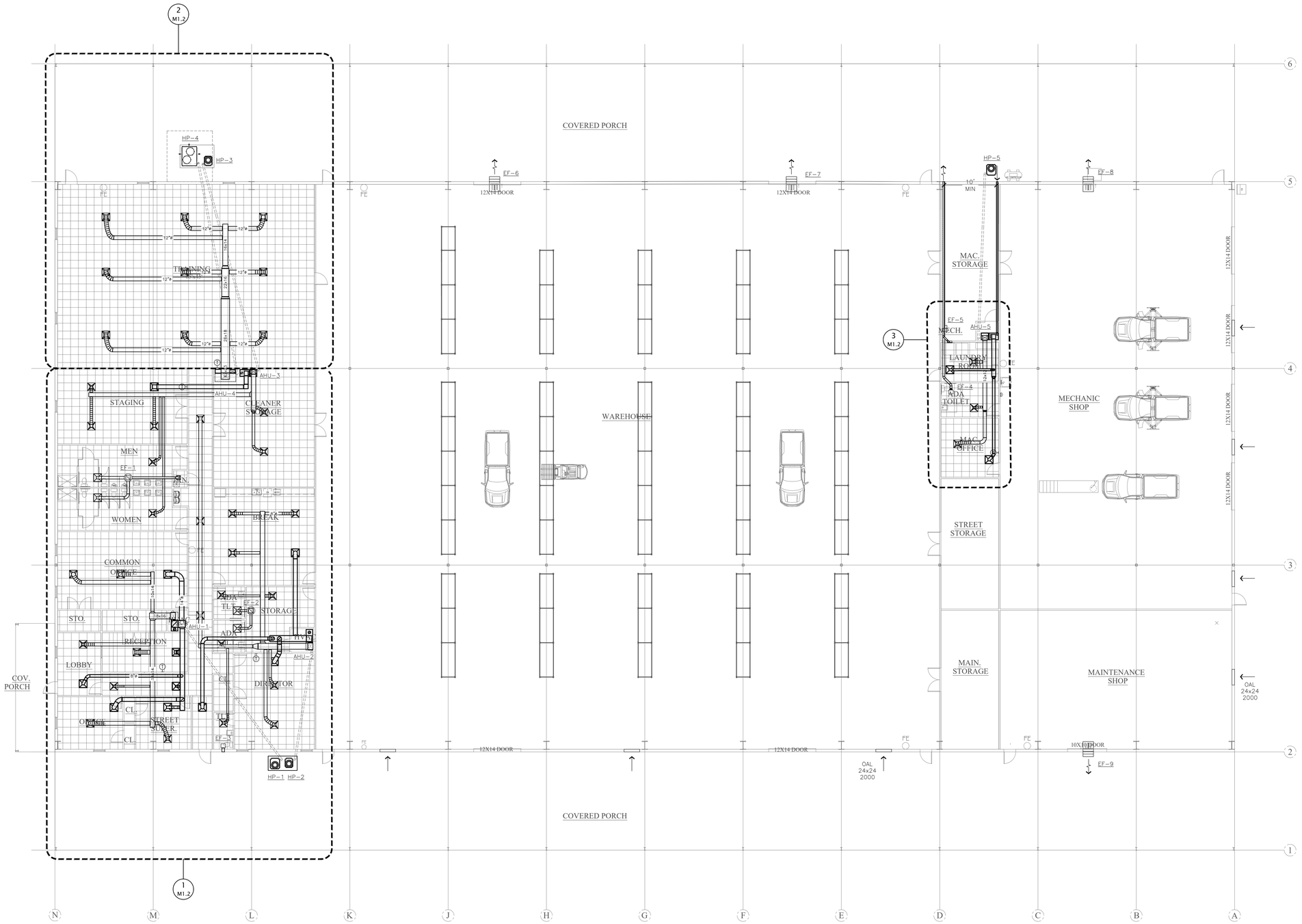
Title:

HVAC NOTES, LEGEND, AND SCHEDULES

Project No.: -----
Drawn By: Wade Stewart, PE
Checked: GWS, JHC
Date: September 30, 2019

Sheet Number:

M1.0



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Revisions:

No.	Date	Description
A	9/20/19	ABC CODE REVIEW/PRE-PERMIT

Orange Beach Public Works

Roscoe Road
Orange Beach, Alabama

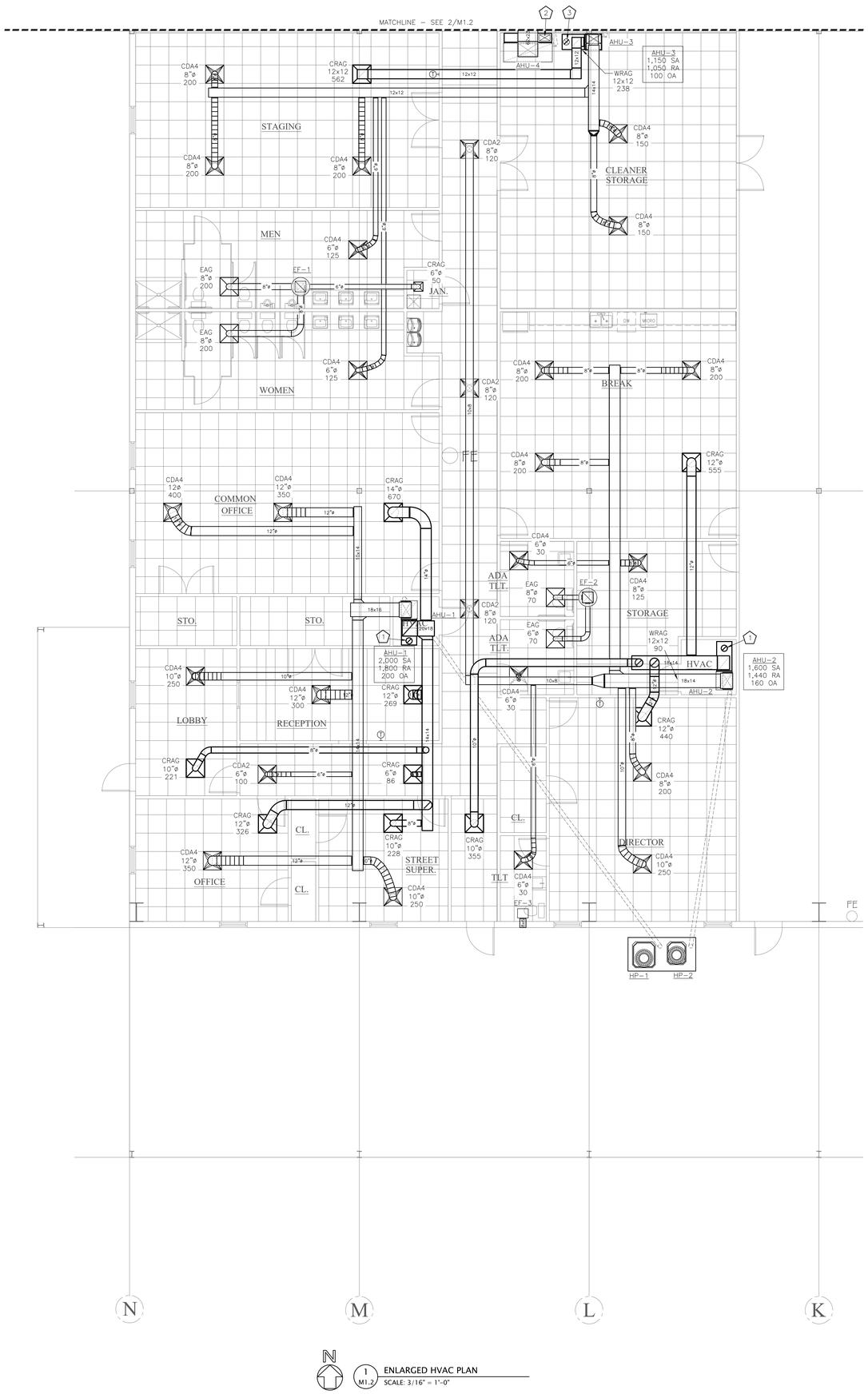
Title:

OVERALL HVAC PLAN

Project No.: -----
Drawn By: Wade Stewart, PE
Checked: GWS, JHC
Date: September 30, 2019

Sheet Number:

M1.1



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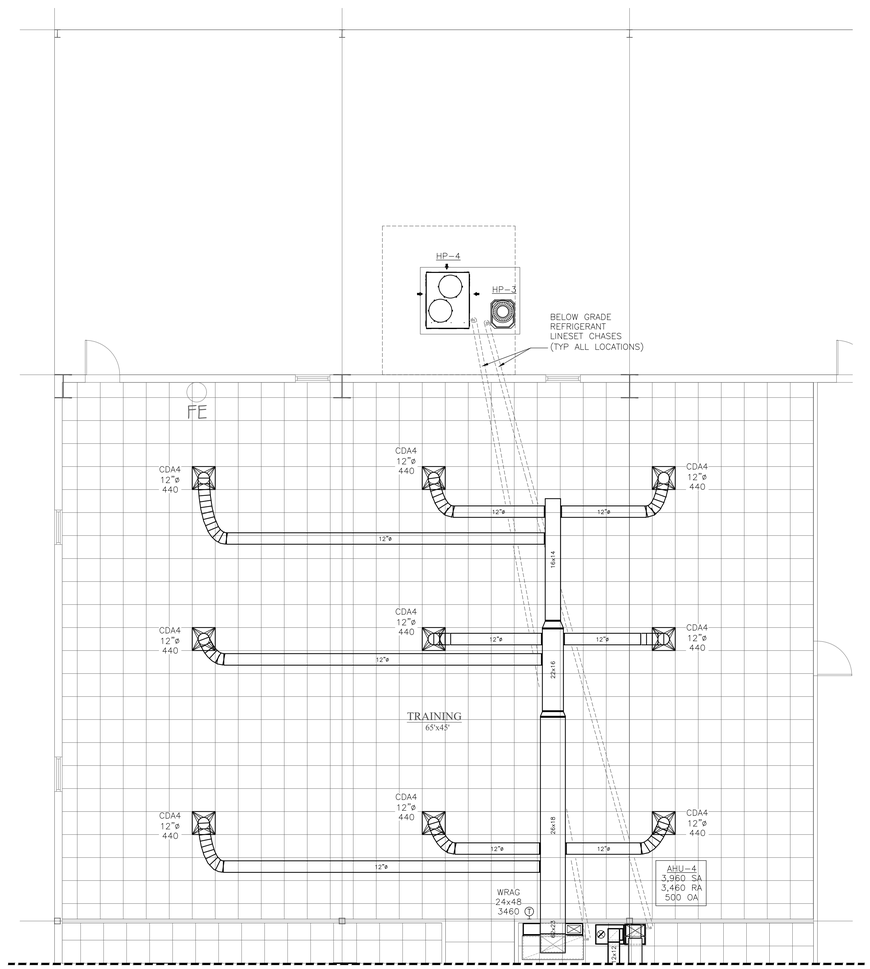
1 M1.2 ENLARGED HVAC PLAN

SCALE: 3/16" = 1'-0"



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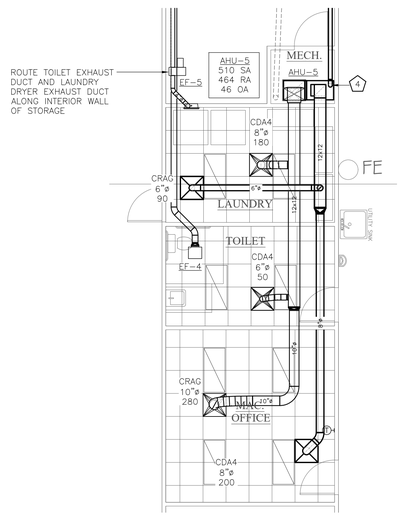
2 M1.2 ENLARGED HVAC PLAN

SCALE: 3/16" = 1'-0"



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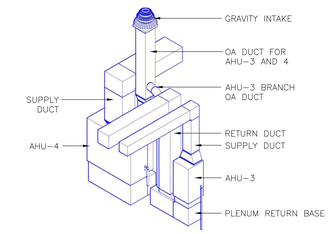
3 M1.2 ENLARGED HVAC PLAN

SCALE: 3/16" = 1'-0"



4 M1.2 AHU 3 & 4 ISOMETRIC DETAIL

SCALE: NONE

KEY NOTES (THIS SHEET ONLY)

1. 8"ø OA DUCT ROUTED TO ROOF MOUNTED, HIGH–WIND RATED, GRAVITY INTAKE VENTILATOR EQUAL TO GREENHECK FGI–8x8 COMPLETE WITH ROOF CURB AND INSECT SCREEN. INSTALL MANUAL VOLUME DAMPER AT AHU IN ACCESSIBLE LOCATION.
2. 8x14 OA DUCT ROUTED ABOVE AHU–4 AND TRANSITION TO 14x14 OA DUCT WITH CONTINUATION ROOF MOUNTED, HIGH–WIND RATED, GRAVITY INTAKE VENTILATOR EQUAL TO GREENHECK FGI–12x12 COMPLETE WITH ROOF CURB AND INSECT SCREEN. INSTALL MANUAL VOLUME DAMPER AT AHU IN ACCESSIBLE LOCATION.
3. 6"ø OA DUCT ROUTED FROM AHU–4 TO 14x14 OA DUCT ABOVE AHU–3. INSTALL MANUAL VOLUME DAMPER AT AHU IN ACCESSIBLE LOCATION.
4. 6"ø OA DUCT ROUTED THROUGH STORAGE TO WALL CAP WITH INSECT SCREEN.

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ENLARGED HVAC PLAN

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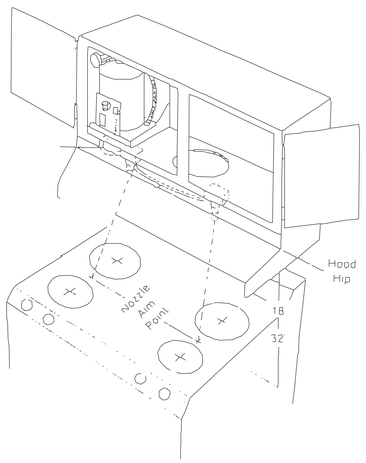
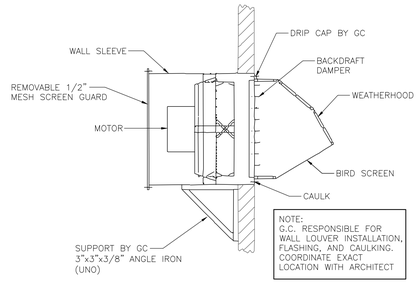
M1.2



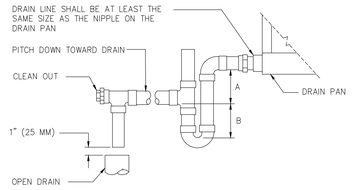
7 M2.0 **STANDALONE KITCHEN HOOD DETAIL**

HOOD FIRE SUPPRESSION SYSTEM EQUAL TO GUARDIAN III SYSTEM. INSTALL AS PER MGFR INSTALLATION INSTRUCTIONS.



6 M2.0 **WALL FAN DETAIL**

SCALE: NONE



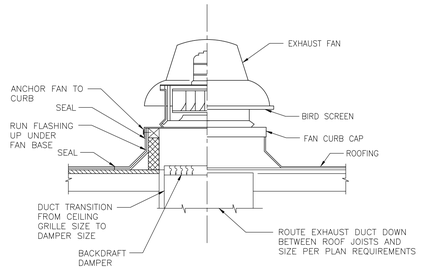
DESIGNER'S NOTE:

UNIT TYPE	A	B
DRAW THRU	2" PLUS X	X
BLOW THRU	1" MIN.	2X

WHERE X = STATIC PRESSURE IN PAN

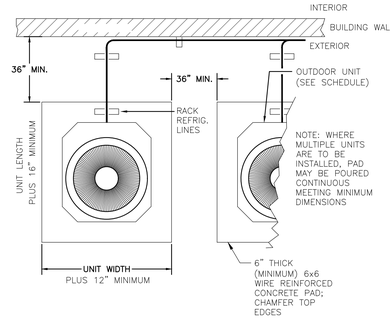
1 M2.0 **AHU DRAIN TRAP DETAIL**

SCALE: NONE



5 M2.0 **ROOF MOUNTED DOWN BLAST EXHAUST FAN DETAIL**

SCALE: N.T.S.



2 M2.0 **OUTDOOR UNIT INSTALLATION DETAIL**

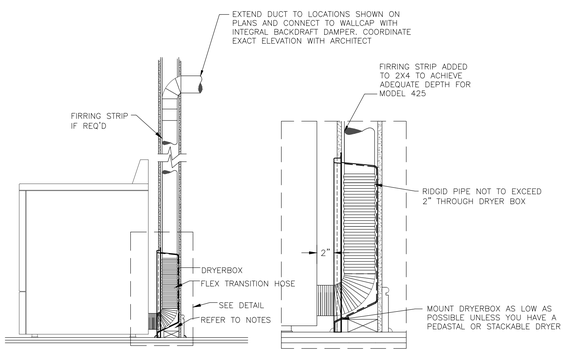
SCALE: NONE

DRYERBOX INSTALLATION

DRYER VENTING: MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL DUCTWORK FOR THE DRYER EXHAUST SYSTEM. ALL CONCEALED DRYER DUCTING MUST BE RIGID METAL (GALVANIZED OR ALUMINUM) MINIMUM OF 4" IN DIAMETER, SMOOTH 30 GA. CLEAN, UNOBSTRUCTED, FRICTIONLESS DUCTS (NO FLEXIBLE DUCT ALLOWED IN CONCEALED AREAS). SEAL ALL JOINTS WITH FOIL BACKED PRESSURE SENSITIVE DUCT TAPE MEETING THE REQUIREMENTS OF UL 181. DUCT JOINTS SHALL BE INSTALLED SO THAT THE MALE END OF THE DUCT POINTS IN THE DIRECTION OF THE AIRFLOW. DO NOT USE RIVETS OR SCREWS IN THE JOINTS OR ANYWHERE ELSE IN THE DUCT AS THESE WILL ENCOURAGE LINT COLLECTION.

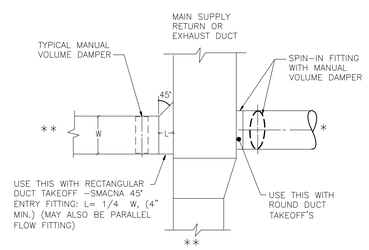
DRYERBOX® RECEPTACLE (WWW.DRYERBOX.COM) SHALL BE METAL AND BE INSTALLED AS LOW AS POSSIBLE AS TO PERMIT THE PROPER AND SAFE COLLECTION OF THE DRYER TRANSITION HOSE. DRYERBOX SHOULD BE RESTING ON THE BOTTOM PLATE AND BE LOCATED AT OR NEAR THE CENTERLINE OF THE PROPOSED DRYER APPLIANCE. RIGID DUCT SHOULD PENETRATE DRYERBOX PORT 2 INCHES TO PROVIDE FOR FUTURE CONNECTION AND STORAGE OF TRANSITION HOSE. BASEBOARD SHALL BE "BUTTED" UP TO THE FIXED EXTENSION RIM AND SLIGHTLY BACK-CUT. DRYERBOX SHOULD BE CAULKED AND THEN PAINTED WITH THE TRIM PAINT. FOR USAGE IN A ONE-HOUR WALL ASSEMBLY, UL REQUIRES THAT BATT INSULATION BE STUFFED AROUND THE DRYERBOX AND IN THE ENTIRE WALL CAVITY CELL.

LENGTH OF CONCEALED RIGID METAL DUCTING SHALL NOT EXCEED 35 FEET. DEDUCT 5 FEET FROM THE ALLOWABLE LENGTH FOR EVERY 3.5" RADIUS 90 DEGREE ELBOW AND TWO AND A HALF FEET FOR EVERY 45 DEGREE FITTING. DRYER VENTING SHALL BE INDEPENDENT OF ANY OTHER SYSTEMS (CHIMNEYS OR EXHAUST VENTS). TERMINATION OF DRYER VENTING MUST BE TO THE EXTERIOR WITH A PROPER HOOD OR ROOF JACK EQUIPPED WITH A BACK-DRAFT DAMPER. SMALL ORIFICE METAL SCREENING SHOULD NOT BE PART OF THE HOOD OR ROOF JACK AS THIS WILL ACCELERATE LINT ACCUMULATION AND BLOCKAGE. THE HOOD OPENING SHOULD POINT DOWN AND EXHIBIT 12 INCHES OF CLEARANCE BETWEEN THE BOTTOM OF THE HOOD AND THE GROUND OR OTHER OBSTRUCTION. VERIFY APPLIANCE MANUFACTURER'S RECOMMENDATIONS FOR ANY OTHER FACTORS.



4 M2.0 **DRYERBOX 350 DETAIL**

SCALE: NONE



* = BRANCH TO INDIVIDUAL DIFFUSER OR GRILLE

**= SUBMAIN, BRANCHMAIN , OR BRANCH.

3 M2.0 **LOW PRESSURE DUCT VOLUME DAMPER REQUIREMENTS**

SCALE: NONE

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Revisions:

No.	Date	Description
A	9/20/19	ABC CODE REVIEW/PRE-PERMIT

Orange Beach Public Works
Roscoe Road
Orange Beach, Alabama

Title:

HVAC DETAILS

Project No.: ------
Drawn By: Wade Stewart, PE
Checked: GWS, JHC
Date: September 30, 2019

Sheet Number:

M2.0

POWER & LIGHTING LEGEND

ALL ABBREVIATIONS SHOWN MAY NOT APPEAR IN DRAWINGS.

	UTILITY STRIP FIXTURE, OVERHEAD OR WALL MOUNTED
	UTILITY STRIP FIXTURE WITH EMERGENCY BATTERY BACKUP
	LED, PENDANT, HIGH BAY FIXTURE
	LED, PENDANT, HIGH BAY FIXTURE WITH BATTERY BACKUP
	RECESSED FIXTURE, 2X2, 1X4, 2X4.
	RECESSED FIXTURE WITH BATTERY BACKUP.
	EMERGENCY BATTERY PACK FIXTURE, WALL / CEILING MOUNTED.
	LIGHT FIXTURE, SURFACE MTD. / RECESSED / WALL MOUNTED.
	LIGHT FIXTURE, SURFACE MTD. / RECESSED / WALL MOUNTED. W/ BATTERY BACKUP.
	EXIT SIGN, CEILING/WALL MOUNTED. PROVIDE ARROWS AS INDICATED ON DRAWINGS. W/ BATTERY BACKUP.
S	SINGLE POLE TOGGLE SWITCH, 120/277V, 20A. 3'–10" AFF
^{3}S / ^{4}S	THREE–WAY TOGGLE SWITCH/FOUR–WAY TOGGLE SWITCH, 120/277V, 20A. 3'–10" AFF
^{M}S	MOTOR RATED SWITCH, AMPERAGE AS REQUIRED. VERIFY REQUIRED VOLTAGE AND # OF POLES W/ EQUIPMENT
^{MC}S	SINGLE POLE, THREE POSITION MOMENTARY CONTACT, 120/277 V, 20A. 3'–10" AFF
^{DM}S	DIMMER SWITCH. 120/277V, FLUOR/INC AND AMPERAGE AS REQUIRED. 3'–10" AFF
^{K}S	KEYED SWITCH. 120/277V, AMPERAGE AS REQUIRED. 3'–10" AFF
OS / OS	OCCUPANCY SENSOR, 3'–10" AFF WATTSTOPPER DW–100 OR EQUAL/ CEILING MTD.
PP	OCCUPANCY SENSOR, RELAY/POWER PACK, CONCEALED, ACCESSIBLE.
PC	PHOTOCELL
	PANEL, LIGHTING OR POWER AS SPECIFIED IN PANEL SCHEDULE.
^{J}	FUSED DISCONNECT SPECIFY AMP/POLE
^{J}	NON–FUSED DISCONNECT SPECIFY AMP/POLE
	VARIABLE FREQUENCY DRIVE/CONTROLLER.
	EXHAUST FAN FURNISHED AND INSTALLED BY HVAC. REFER TO MECHANICAL DWG'S FOR EXACT LOCATION AND ELECTRICAL REQUIREMENTS.
	SINGLE RECEPTACLE 120/277V, AMPERAGE AS REQUIRED. 1'–6" AFF
	DUPLEX/QUAD RECEPTACLE OUTLET, 120/277V, 20A. 1'–6" AFF
	DUPLEX/QUAD RECEPTACLE OUTLET, 120/277V, 20A. 6" ABOVE COUNTER U.N.O.
	DUPLEX/QUAD RECEPTACLE OUTLET, ISOLATED GROUND, 120/277V, 20A. 1'–6"
	RECEPTACLE, FLOOR / CEILING FLUSH MOUNTED. 120/277V, 20A.
	2–POLE SINGLE RECEPTACLE 240V, AMPERAGE AS REQUIRED.
	TVSS RECEPTACLE DUPLEX RECEPTACLE , 120V, 15A. EQUAL TO PANAMAX MODEL# MIW–SURGE.
	SPECIAL PURPOSE RECEPTACLE OUTLET, NEMA CONFIGURATION TO MATCH PLUG.
	("GFI"=GROUND FAULT INTERRUPTER, "WP"=GFI PROTECTED, WEATHER RATED, WEATHERPROOF ENCLOSURE)
	JUNCTION BOX
	ABOVE GROUND CONDUIT
	UNDERGROUND CONDUIT
TBB / CBB	COMMUNICATIONS, TELEPHONE / COMPUTER BACKBOARD.
T	HVAC CONTROLS, 3'–10" AFF U.N.O.
TC	TIME CLOCK.
LC1 / LC2	LIGHTING CONTACTOR. ELECTRICALLY HELD WITH NO. OF POLES AS INDICATED.

ELECTRICAL ABBREVIATIONS

ALL ABBREVIATIONS SHOWN MAY NOT APPEAR IN DRAWINGS.

@	AT	MAX	MAXIMUM
&	AND	MCB	MAIN CIRCUIT BREAKER
A	AMPERE	MCC	MOTOR CONTROL CENTER
AB	ABOVE	MCM	1000 CIRCULAR MILS
AC	ALTERNATING CURRENT	MECH	MECHANICAL
A/C	AIR CONDITIONING	MH	MANHOLE
AFC	ABOVE FINISH CEILING	MIN	MINIMUM
AFF	ABOVE FINISH FLOOR	MISC	MISCELLANEOUS
AFG	ABOVE FINISH GRADE	MLO	MAIN LUGS ONLY
AIC	AMPERE INTERRUPTING CAPACITY	MFR	MANUFACTURER
ALUM	ALUMINUM	MTD	MOUNTED
APPROX	APPROXIMATE(LY)	MTG	MOUNTING
ARCH	ARCHITECT(URAL)	MTS	MANUAL TRANSFER SWITCH
ATS	AUTOMATIC TRANSFER SWITCH	N	NEUTRAL
AUX	AUXILIARY	NA	NOT APPLICABLE
AWG	AMERICAN WIRE GAGE	N.C.	NORMALLY CLOSED
BB	BACKBOARD	NEC	NATIONAL ELECTRICAL CODE
BKR	BREAKER	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSO.
BLDG	BUILDING	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
C	CONDUIT	N.I.C.	NOT IN CONTRACT
CAB	CABINET	NL	NIGHT LIGHT
CIR	CIRCUIT	N.O.	NORMALLY OPEN
CLG	CEILING	NO. OR #	NUMBER
CON	CONTROL	OD	OUTSIDE DIAMETER
CT	CURRENT TRANSFORMER	P	POLE
CTV	CABLE TELEVISION	PF	POWER FACTOR
CU	COPPER	PH OR Ø	PHASE
DEG.	DEGREE	PRI	PRIMARY
DETD	DUAL ELEMENT TIME DELAY	PROVIDE	FURNISH AND INSTALL
DIR	DIRECTED	PT	POTENTIAL TRANSFORMER
DISC	DISCONNECT SWITCH	PVC	POLYVINYL CHLORIDE
DN	DOWN	PW	PART WINDING
DPSL	GARBAGE DISPOSAL	REF	REFERENCE
DPST	DOUBLE POLE – SINGLE THROW	REQ	REQUIRED
DPDT	DOUBLE POLE – DOUBLE THROW	RLA	RATED LOAD AMPERES
DT/XFMR	DRY TYPE TRANSFORMER	RM	ROOM
DW	DISHWASHER	RNC	RIGID NONMETALLIC CONDUIT
EA	EACH	RNG	ELECTRICAL RANGE
EXH	EXHAUST	REF	REFERIGERATOR
EM	EMERGENCY	RT	RAIN TIGHT
EMT	ELECTRICAL METALLIC TUBING	SCCR	SHORT CIRCUIT CURRENT RATING
EP	EXPLOSION PROOF	SCH	SCHEDULE
EQUIP	EQUIPMENT	SD	SOFT DRAWN
ER	EXISTING, REMOVE.	SE	SERVICE ENTRANCE
EWC	ELECTRIC WATER COOLER	SEC	SECONDARY
EX	EXISTING, REPLACE WITH NEW	SH	SHEET
F	FUSE	SI	INTERNATIONAL SYSTEM OF UNITS
f	FLUSH MTG	SLD	SINGLE LINE DIAGRAM
FA	FIRE ALARM	SMR	SURFACE METALLIC RACEWAY
FIN	FINISHED	SN	SOLID NEUTRAL
FLR	FLOOR	SPECS	SPECIFICATIONS
FLA	FULL LOAD AMPERES	SPDT	SINGLE POLE – DOUBLE THROW
FMC	FLEXIBLE METAL CONDUIT	SPST	SINGLE POLE – SINGLE THROW
GA	GAUGE	STS	STATIC TRANSFER SWITCH
GALV	GALVANIZED	SW	SWITCH
GF	GROUND FAULT INTERRUPTER	SW BD	SWITCH BOARD
GRC	GALVANIZED RIGID METAL CONDUIT	SW GR	SWITCHGEAR
GND	GROUND	TB	TERMINAL BACKBOARD
HD	HEAVY DUTY	TELE	TELEPHONE
HH	HANDHOLE	TEMP	TEMPERATURE
HP	HORSEPOWER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSORS
HV	HIGH VOLTAGE	TYP	TYPICAL
HVAC	HEATING/VENTILATION/AIR CONDITIONING	UL	UNDERWRITER'S LABORATORY
HZ	HERTZ (CYCLES PER SECOND)	V	VOLTAGE
ID	INSIDE DIAMETER	VAC	VOLTS ALTERNATING CURRENT
IG	ISOLATED GROUND	VDC	VOLTS DIRECT CURRENT
IMC	INTERMEDIATE METAL CONDUIT	VENT	VENTILATION
J–BOX	JUNCTION BOX	W	WIRE
k	KILO (1000)	W/	WITH
KCMIL	KILO CIRCULAR MILS	WP	WEATHERPROOF
kV	KILO VOLTS	WT	WATERTIGHT
kVA	KILO VOLT – AMPERES	Z	ZONE
kW	KILO WATTS	'	FEET
LFC	LIQUIDTIGHT FLEXIBLE CONDUIT	"	INCHES
LGT	LIGHT(ING)		
LV	LOW VOLTAGE		

AUXILIARY LEGEND

ALL SYMBOLS SHOWN MAY NOT APPEAR IN DRAWINGS.

F	FIRE ALARM MANUAL PULL STATION, 3'–10" AFF
/	FIRE ALARM STROBE / HORN–STROBE, 7'–6" AFF
^{C} / ^{C}	FIRE ALARM STROBE / HORN–STROBE. CEILING MOUNTED.
	FIRE ALARM SMOKE DETECTOR, CEILING MOUNTED.
	FIRE ALARM DUCT–MOUNTED SMOKE DETECTOR W/ SAMPLING TUBE.
	FIRE ALARM REMOTE TEST STATION, 3'–10" AFF
	FIRE ALARM HEAT DETECTOR. CEILING MOUNTED.
R	FIRE ALARM AUXILIARY RELAY.
M	MONITOR MODULE FOR AUXILIARY CONTROL
TS / TS	FIRE ALARM FIRE SPRINKLER SYSTEM VALVE TAMPER SWITCH
FS / FS	FIRE ALARM FIRE SPRINKLER SYSTEM FLOW SWITCH
FACP	FIRE ALARM CONTROL PANEL.
ANN	FIRE ALARM REMOTE PANEL.
/	TELEPHONE/DATA OUTLET AND COVER PLATE. 18" AFF WITH 3/4" C. AAC/UNO
W	WALL MOUNTED TELEPHONE, MOUNT 60" AFF/UNO
	COMBINATION DATA/TELEPHONE OUTLET AND COVER PLATE. 18" ACC WITH 3/4"C TO ACC/UNO
	DATA OUTLET AND COVER PLATE, MOUNTED ON COLUMN OR POWER POLE,
PT	FLOOR BOX, ROUND "POKE THRU" TYPE WITH DUPLEX RECEPTACLE, TELEPHONE AND DATA OUTLET. FLOOR BOX COVER SHALL BE BRUSHED ALUMINUM WITH HINGED COVERS FOR DEVICES.
	FLOOR BOX, MULTI–GANG TYPE WITH DUPLEX RECEPTACLE, TELEPHONE AND DATA OUTLET. FLOOR BOX COVER SHALL BE BRUSHED ALUMINUM WITH HINGED COVERS FOR DEVICES.

ELECTRICAL DESIGNATIONS

A / 2	FIXTURE NOTE	TYPE 'A' FIXTURE (SEE FIXTURE SCHEDULE). CIRCUIT NO. 2 (TYP)
A / 2	FIXTURE NOTE	TYPE 'A' FIXTURE (SEE FIXTURE SCHEDULE). CIRCUIT NO. 2 (TYP)
2	RECPT NOTE	WALL OUTLET WITH RECEPTACLE NOTED, CONNECT TO CIRCUIT NO. 2 (TYP)
PPA–5,6,7	HOME RUN	HOMERUN (TYP) TO PANEL 'PPA', CONNECT TO CIRCUIT NO.'S "5, 6, & 7" EX: 3#12 (PH), 1#12 (N) & 1#12 GND
	MULTI–CONDUCTOR RUN	MULTI–CONDUCTOR RUN (TYP) EX: 3#12 (PH), 1#12 (N) & 1#12 GND
///	WIRE DESIGNATION	TIC INDICATES NUMBER OF CONDUCTORS, EX: 3#12 (PH), 1#12 (N) & 1#12 GND

NOTES:

1. "XL" DESIGNATION REQUIRES FIXTURE TO BE CONFIGURED FOR CONTINUATION OPERATIONAL AT ALL TIMES.
2. ALL CIRCUITS SHALL CONTAIN A GREEN EQUIPMENT GROUNDING CONDUCTOR.
3. EQUIPMENT GROUND CONDUCTOR SHALL BE AS FOLLOWS UNLESS OTHERWISE INDICATED:
   #12 AWG CIRCUIT – #12 GND
   #10 AWG CIRCUIT – #10 GND
   # 8 AWG CIRCUIT – #10 GND
4. UNLESS OTHERWISE INDICATED, CONDUIT SIZE SHALL BE 3/4" MIN. AND SHALL NOT EXCEED A FILL OF 40% MAXIMUM, SEE NEC.

OF CIRCUIT CONDUCTORS — 3 — #_ & 1#_ GND – _C — SIZE OF CONDUIT
SIZE OF CIRCUIT CONDUCTORS "AWG" — SIZE OF GROUNDING CONDUCTOR "AWG"

ELECTRICAL NOTES

1. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING ALL REQUIRED PERMITS AND INSPECTION CERTIFICATES.
2. ALL WORK SHALL COMPLY WITH IBC 2015, NEC 2014, STATE AND LOCAL CODES. VERIFY WITH AUTHORITY HAVING JURISDICTION AND COMPLY AS REQUIRED.
3. OMISSIONS OR MISDESCRIPTION OF DETAILS OF WORK WHICH ARE EVIDENTLY NECESSARY TO CARRY OUT THE INTENT OF THE DRAWINGS, OR WHICH ARE CUSTOMARILY PERFORMED, SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH OMISSIONS AND DETAILS OF WORK, BUT THEY SHALL BE PERFORMED AS IF FULLY AND CORRECTLY SET FORTH & DESCRIBED.
4. EQUIPMENT, MATERIALS, AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE. DEFECTS WHICH APPEAR DURING THIS PERIOD SHALL BE CORRECTED AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.
5. MATERIALS AND ALL COMPONENTS THEREOF SHALL BE NEW AND SHALL BE UL APPROVED WHERE A STANDARD HAS BEEN ESTABLISHED. COMPONENTS SHALL BE EQUAL TO THOSE SCHEDULED ON DRAWINGS.
6. ALL RACEWAY EXPOSED ON THE EXTERIOR SHALL BE RIGID GALVANIZED STEEL "RGS" OR "IMC". EMT SHALL NOT BE ACCEPTABLE. COORDINATE WITH ARCHITECT IF FINISH PAINTING SHALL BE REQUIRED.
7. VERIFY FIELD DIMENSIONS. COORDINATE WORK WITH OTHER TRADES TO AVOID INTERFERENCES.
8. ALL EXIT AND EMERGENCY LIGHTS SHALL BE UNSWITCHED AND SHALL BE SERVED FROM THE SAME CIRCUIT AS THE GENERAL LIGHTING IN THE SAME AREA U.N.O.
9. ALL ELECTRICAL PANELS SHALL HAVE ENGRAVED LAMINATED (BLACK ON WHITE) LABELS IDENTIFYING THEM AS INDICATED ON DRAWINGS.
10. ENSURE THAT ALL PENETRATIONS OF FIRE WALLS AND DECKS ARE PROPERLY SEALED PER IBC, ANY APPLICABLE UL ASSEMBLIES, AND THE SPECIFICATIONS.
11. ALL COMPONENTS USED IN PLENUM SPACES SHALL BE CONSTRUCTED OF NON–COMBUSTIBLE MATERIAL AND SHALL BE RATED FOR INSTALLATION IN PLENUM SPACES.
12. COLOR OF WIRING DEVICES AND PLATES SHALL BE AS SELECTED BY THE ARCHITECT.
13. COORDINATE LAYOUT CAREFULLY WITH SYSTEMS FURNITURE AND MILLWORK SHOP DRAWINGS PRIOR TO ROUGHING IN POWER AND COMMUNICATIONS OUTLETS TO ENSURE PROPER ORIENTATION OF OUTLETS WITH COMPONENTS OF THESE SYSTEMS.
14. AVOID PENETRATING THE OUTER SKIN OF METAL BUILDING WALLS AND ROOF. MOUNT EQUIPMENT ON STRUCTURAL COLUMNS AND PURLINS WHERE POSSIBLE. PROVIDE MOUNTING STRUT BETWEEN STRUCTURAL MEMBERS WHERE NECESSARY. FOR ANY UNAVOIDABLE ROOF PENETRATION, ENSURE THAT METAL BUILDING MANUFACTURER'S ROOF WARRANTY REQUIREMENTS ARE SATISFIED.
15. CONDUCTOR SIZES INDICATED ON THE DRAWINGS HAVE BEEN SELECTED TO PROVIDE FOR ACCEPTABLE VOLTAGE DROP. DO NOT REDUCE WIRE SIZES SHOWN WITHOUT CONSENT OF ENGINEER.
16. CONDUCTORS SHALL BE SINGLE CONDUCTOR COPPER, STRANDED FOR AWG #8 AND LARGER AND SOLID FOR AWG #10 AND SMALLER, WITH 600 VOLT THHN INSULATION.
17. ALL CONDUCTORS SHALL BE INSTALLED IN METALLIC CONDUIT. PVC SCHEDULE 40, MAY BE INSTALLED BELOW GRADE WITH TRANSITIONS TO PVC SCH 80 IF CONCEALED WALL OR "RGS" IF EXPOSED ABOVE GRADE.
18. THE USE OF MC CABLE IS PERMISSIBLE ONLY IN CONCEALED LOCATIONS AND FOR FLEXIBLE CONNECTIONS TO LIGHTING FIXTURES.
19. THE LOCATION OF OUTLETS AND EQUIPMENT SHOWN ON THE DRAWINGS ARE APPROXIMATE AND THE OWNER SHALL HAVE THE RIGHT TO RELOCATE ANY OUTLETS OR FIXTURES BEFORE THEY ARE INSTALLED WITHOUT ANY ADDITIONAL COST.
20. TELECOM OUTLETS WHERE INSTALLED ADJACENT TO RECEPTACLE OUTLETS, SHALL HAVE UNIFORM SPACING BETWEEN RESPECTIVE DEVICES. E.C. SHALL UTILIZE MOUNTING PROVISIONS BETWEEN STUDS, IF REQUIRED, TO MAINTAIN THIS REQUIREMENT.
21. ALL BREAKERS ASSOCIATED WITH HVAC EQUIPMENT SHALL BE HACR RATED.

FIRE ALARM SYSTEM NOTES:

1. THE FIRE ALARM SYSTEM SHALL BE A FIRE SPRINKLER SUPERVISORY TYPE SYSTEM. PROVIDE PRIMARY POWER CIRCUITS AND ALARM NOTIFICATION AND INITIATING CIRCUITS IN ACCORDANCE WITH SPECIFICATIONS.
2. THE FIRE ALARM SYSTEM SHALL BE MONITORED BY AN APPROVED SUPERVISING STATION IN ACCORDANCE WITH NFPA 72. PER IFC 907.7.5.1, AN AUTOMATIC TELEPHONE DIALING DEVICE USED TO TRANSMIT AN EMERGENCY ALARM SHALL NOT BE CONNECTED TO ANY FIRE DEPARTMENT TELEPHONE NUMBER UNLESS APPROVED BY THE FIRE CHIEF.
3. INSTALLATION SHALL COMPLY WITH IBC 2012, NEC 2014, NFPA 72, FACTORY MUTUAL ENGINEERING AND RESEARCH (FM), UL AND LOCAL FIRE MARSHALL REQUIREMENTS.
4. ALL SYSTEM COMPONENTS, ENCLOSURES, FRAMES, SURGE ARRESTORS, ETC. SHALL BE GROUNDED.
5. DUCT DETECTORS SHALL BE PROVIDED BY E.C. AS PART OF THE F/A EQUIPMENT PACKAGE. INSTALLATION OF DUCT DETECTOR, SAMPLING TUBES AND CORRESPONDING FAN SHUTDOWN CONTROL WIRING SHALL BE BY MECHANICAL.
6. IN GENERAL, THE FIRE ALARM WIRING SYSTEM SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR THE SYSTEM SPECIFIED AND AS FOLLOWS:

   POWER, 120VAC, #12 AWG
   NOTIFICATION APPLIANCE CIRCUITS (NAC),
   24VDC, #14 AWG, NFPA 72 STYLE Z (CLASS B)
   SIGNALING LINE CIRCUIT (SLC), 24VDC, STYLE 5 (CLASS B)

   ALL CLASS 'A' CIRCUITS SHALL BE INSTALLED SUCH THAT THE OUTGOING AND RETURN CONDUCTORS, EXITING FROM AND RETURNING TO THE CONTROL UNIT RESPECTIVELY, ARE ROUTED SEPARATELY AND NOT ROUTED THROUGH THE SAME CABLE OR RACEWAY. A LOOP CIRCUIT SYSTEM SHALL BE UTILIZED.
7. ALL WIRING SHALL BE IN A COMPLETE CONDUIT SYSTEM, SIZED IN ACCORDANCE WITH NFPA 70 (NEC). JB COVERPLATES SHALL BE RED IN COLOR. PERMANENT MARKER IDENTIFICATION NOTES SHALL BE WRITTEN INSIDE JB FOR ZONE OR ADDRESS OF DEVICE. INSTALLATION SHALL COMPLY WITH SPECIFICATIONS.
8. ALL EQUIPMENT AND DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, APPLICABLE STANDARDS AND ACCESSIBLE FOR VISUAL INSPECTION AND MAINTENANCE. WIRING DIAGRAMS SHALL BE OBTAINED FROM THE SYSTEM MANUFACTURER AND INSTALLED ACCORDINGLY TO MEET THE SPECIFIED TYPES.
9. E.C. SHALL COORDINATE WITH GENERAL CONTRACTOR, FIRE ALARM CONTRACTOR AND FIRE MARSHALL ALL REQUIRED INSPECTIONS.
10. A "CERTIFICATE OF COMPLETION" IN ACCORDANCE WITH NFPA 72 SHALL BE FURNISHED PRIOR TO FINAL ACCEPTANCE.

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Revisions:

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Orange Beach Public Works
Roscoe Road
Orange Beach, Alabama

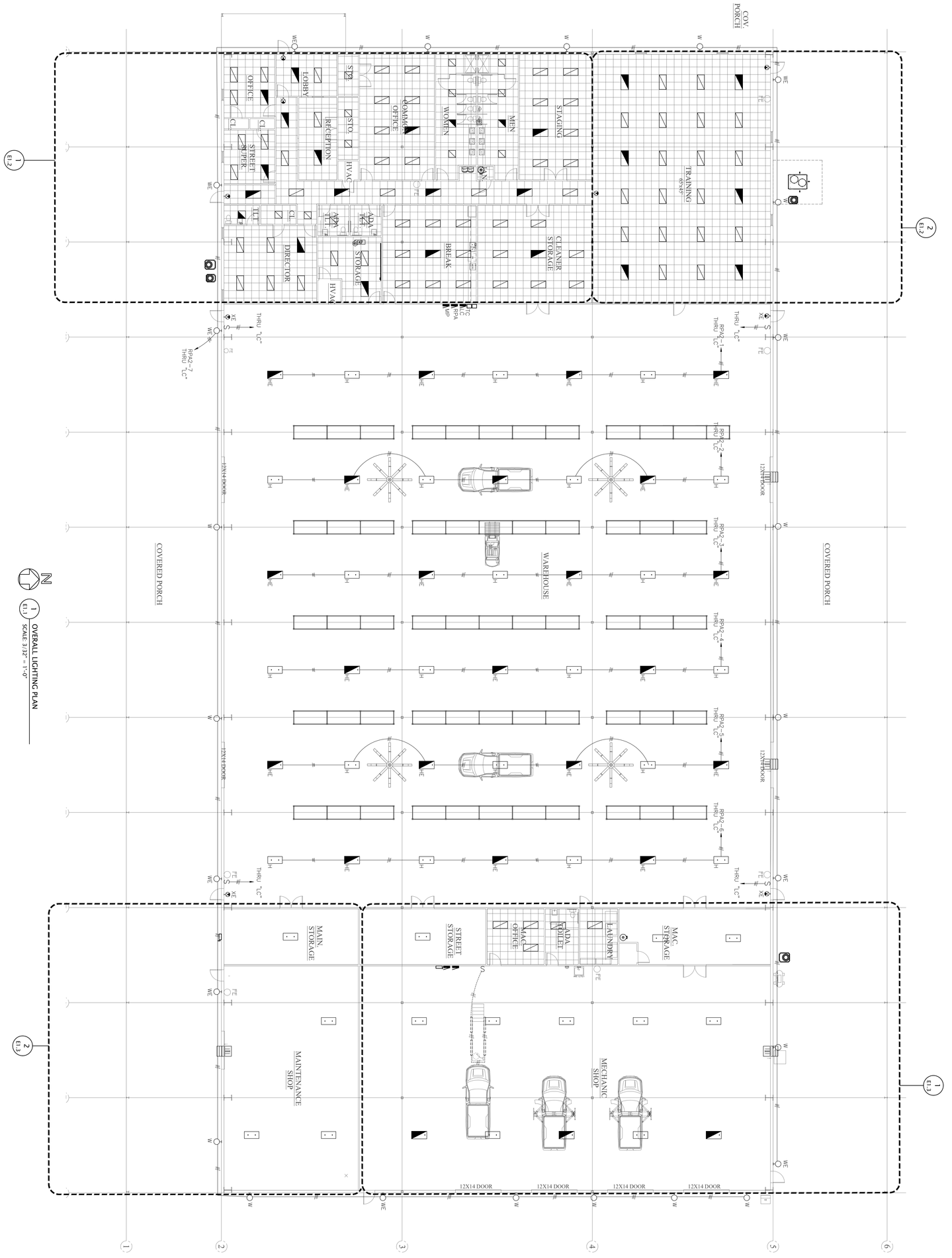
Title:

ELECTRICAL NOTES AND LEGEND

Project No.: ------
Drawn By: Wade Stewart, PE
Checked: GWS, JHC
Date: September 30, 2019

Sheet Number:

E1.0



N

1 E1.1 **OVERALL LIGHTING PLAN**
SCALE 3/32" = 1'-0"

OVERALL LIGHTING PLAN

Project No: -----
Drawn By: Wade Stewart, PE
Checked: CWS, JHC
Date: September 30, 2019

Sheet Number: **E1.1**

Orange Beach Public Works

Roscoe Road
Orange Beach, Alabama

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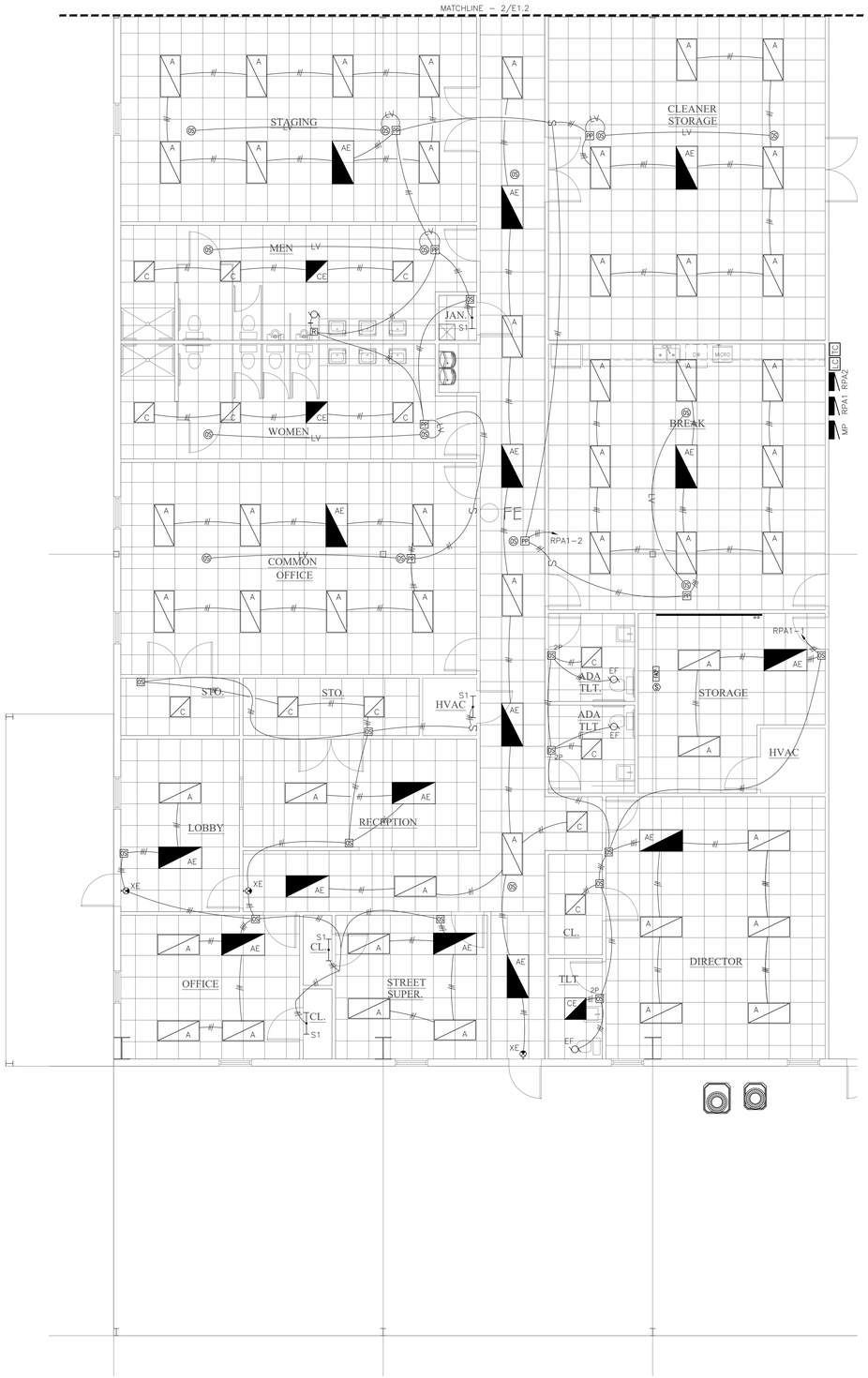
WADE C. STEWART
REGISTERED PROFESSIONAL ENGINEER
9/20/19



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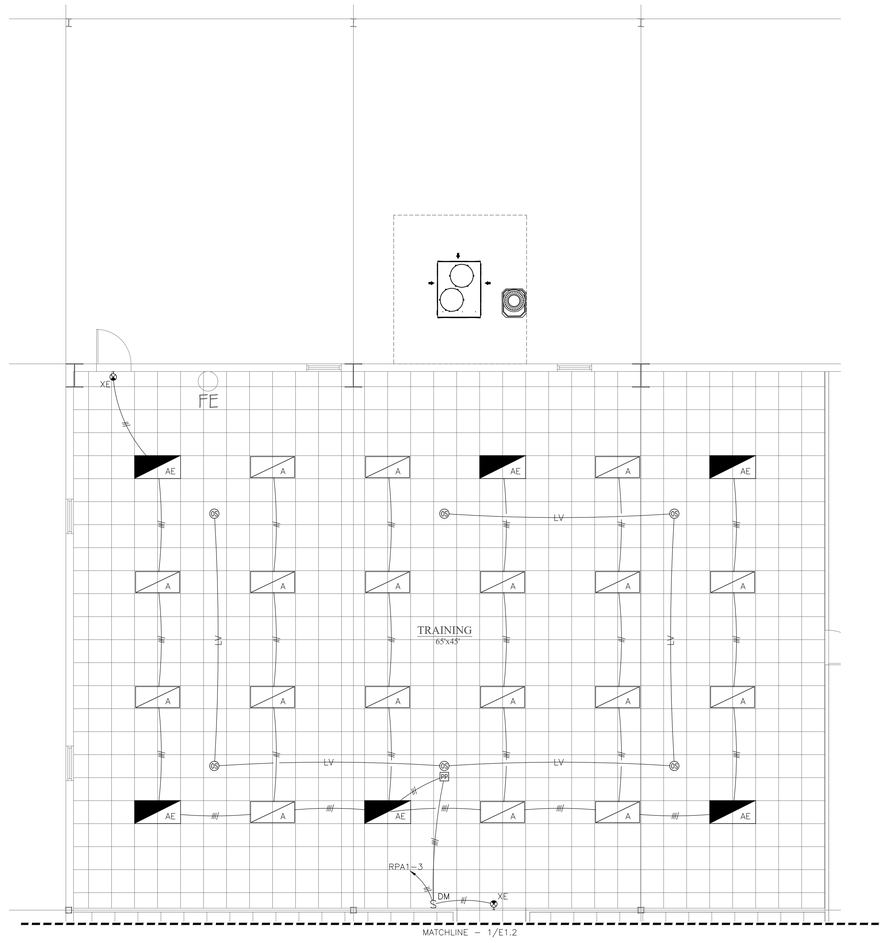
1 E1.2 ENLARGED LIGHTING PLAN

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



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2 E1.2 ENLARGED LIGHTING PLAN

SCALE: 3/16" = 1'-0"

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Revisions:

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Orange Beach Public Works

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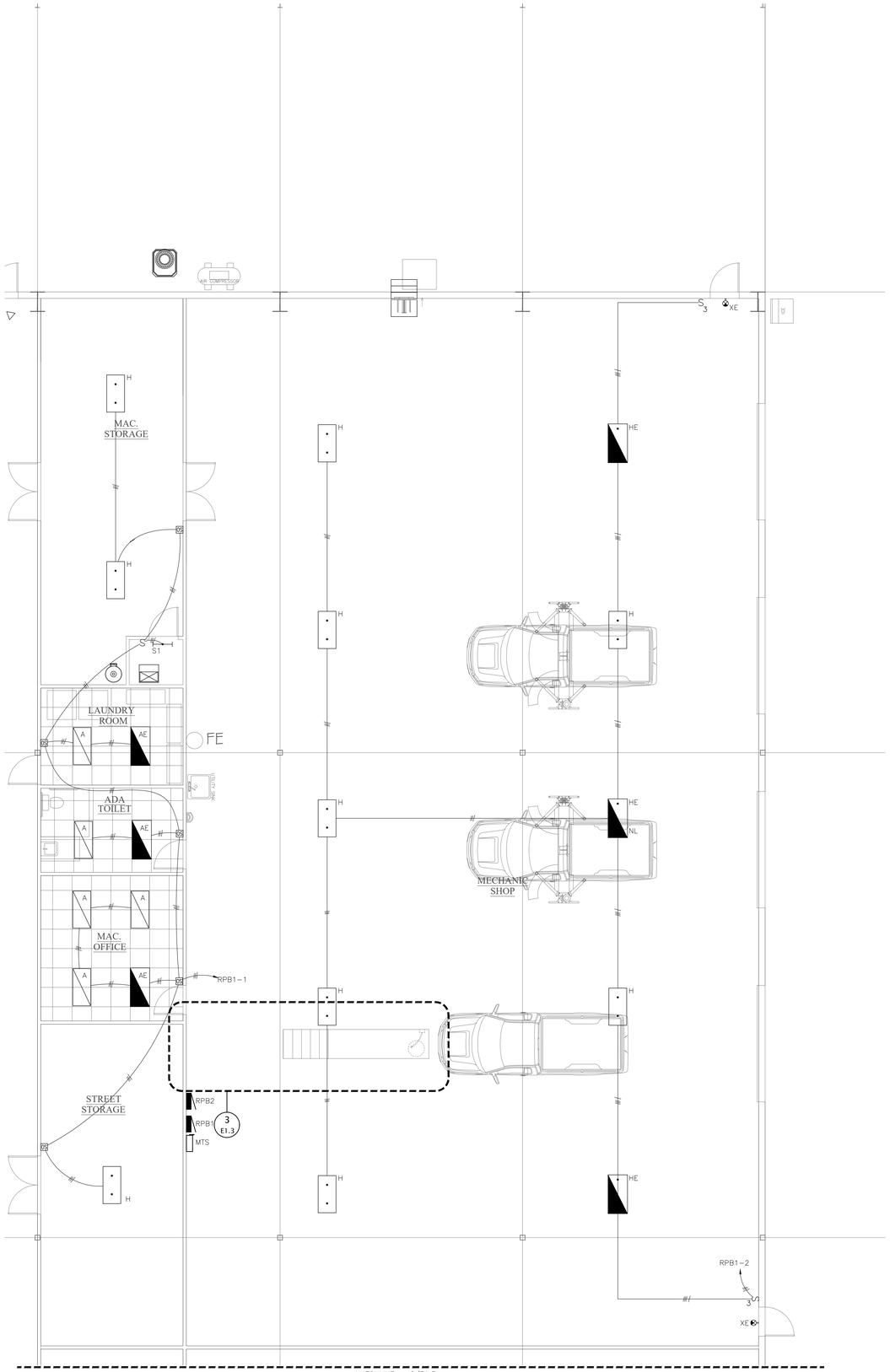
Title:

ENLARGED LIGHTING PLAN

Project No.: ------
Drawn By: Wade Stewart, PE
Checked: GWS, JHC
Date: September 30, 2019

Sheet Number:

E1.2



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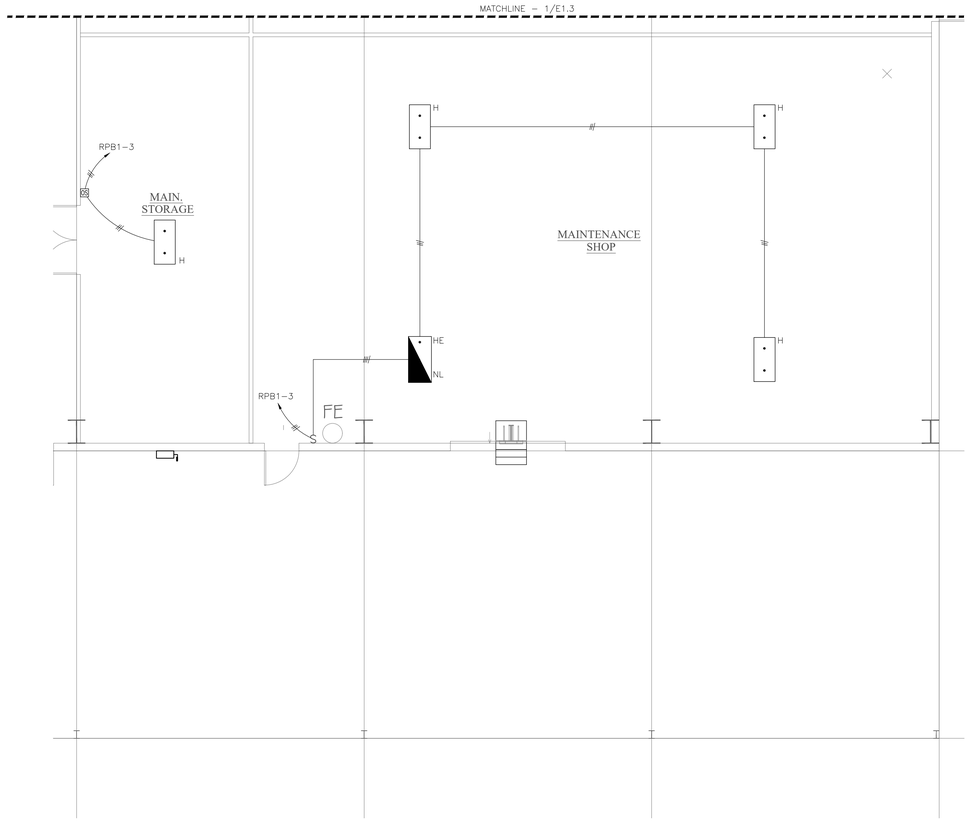
1 E1.3 ENLARGED LIGHTING PLAN

SCALE: 3/16" = 1'-0"



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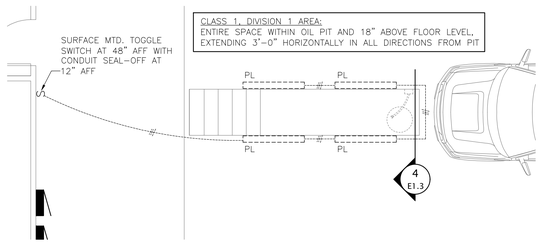
2 E1.3 ENLARGED LIGHTING PLAN

SCALE: 3/16" = 1'-0"



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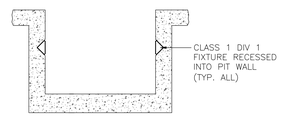
3 E1.3 ENLARGE PIT LIGHTING PLAN

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



4 E1.3 ENLARGED PIT SECTION

SCALE: NONE

W. NO. 26767 PROFESSIONAL 9/20/19 ENGINEER ALABAMA LICENSED

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ENLARGED LIGHTING PLAN

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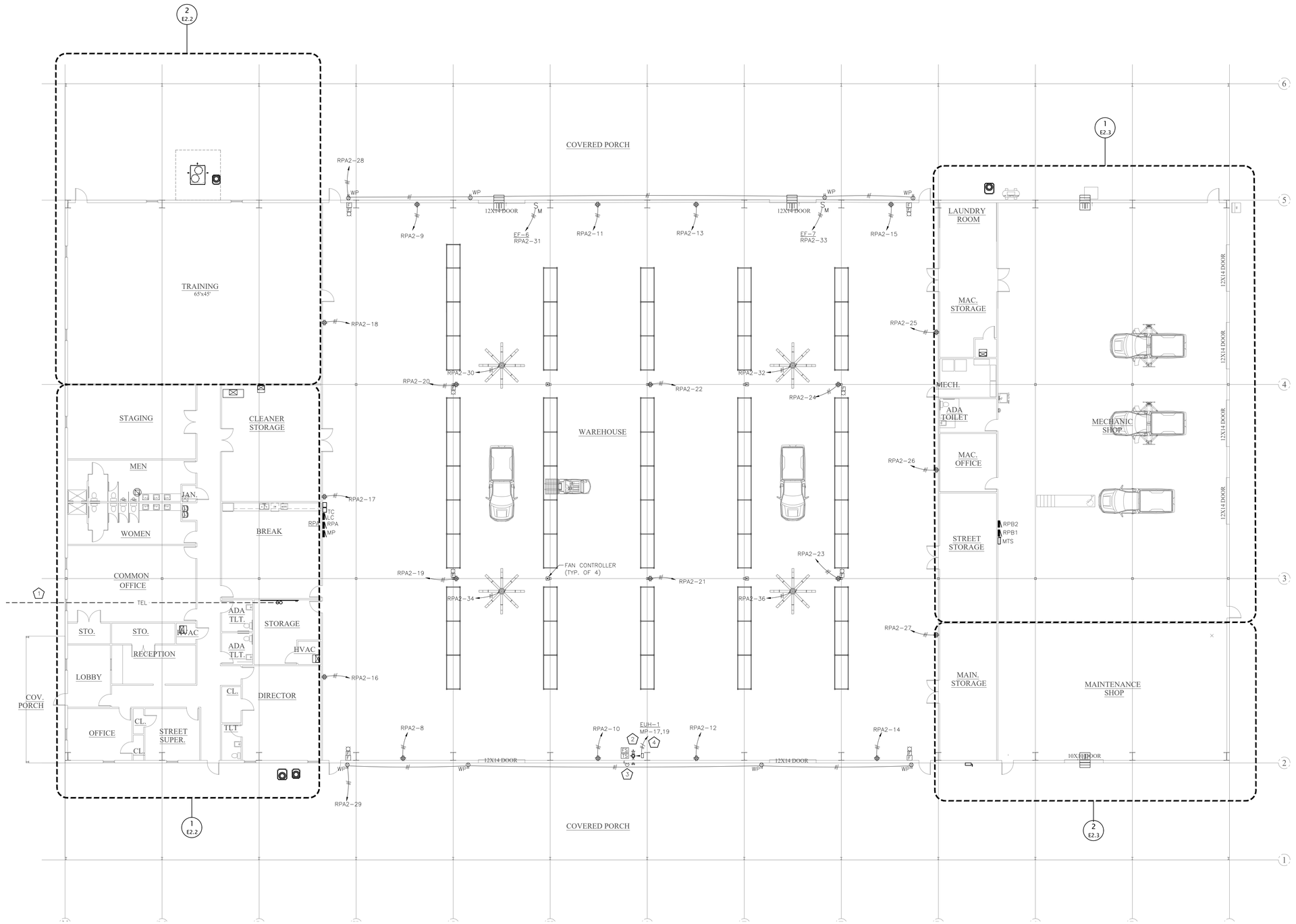
E1.3



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1 E2.1 OVERALL POWER & AUXILIARY PLAN

SCALE: 3/32" = 1'-0"

KEY NOTES (THIS SHEET ONLY)

1. TWO 2" CONDUITS ROUTED TO RIGHT OF WAY FOR TELCO SERVICE ENTRANCE. COORDINATE WITH TELCO PRIOR TO INSTALLATION FOR EXACTION STUB-UP LOCATION.
2. FIRE ALARM TAMPER AND FLOW SWITCHES FOR SUPERVISORY MONITORING OF SPRINKLER SYSTEM
3. SPRINKLER WATER GONG/BELL FURNISHED BY FIRE PROTECTION CONTRACTOR AND INSTALLED BY ELEC CONTRACTOR. E.C. SHALL MAKE ELECTRICAL CONNECTIONS FOR WATER GONG OPERATION WITH WATER FLOW
4. ELECTRIC UNIT HEATER, DAYTON 3WU90 OR EQUAL

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Revisions:

No.	Date	Description
A	9/20/19	ABC CODE REVIEW/PRE-PERMIT

Orange Beach Public Works

Roscoe Road
Orange Beach, Alabama

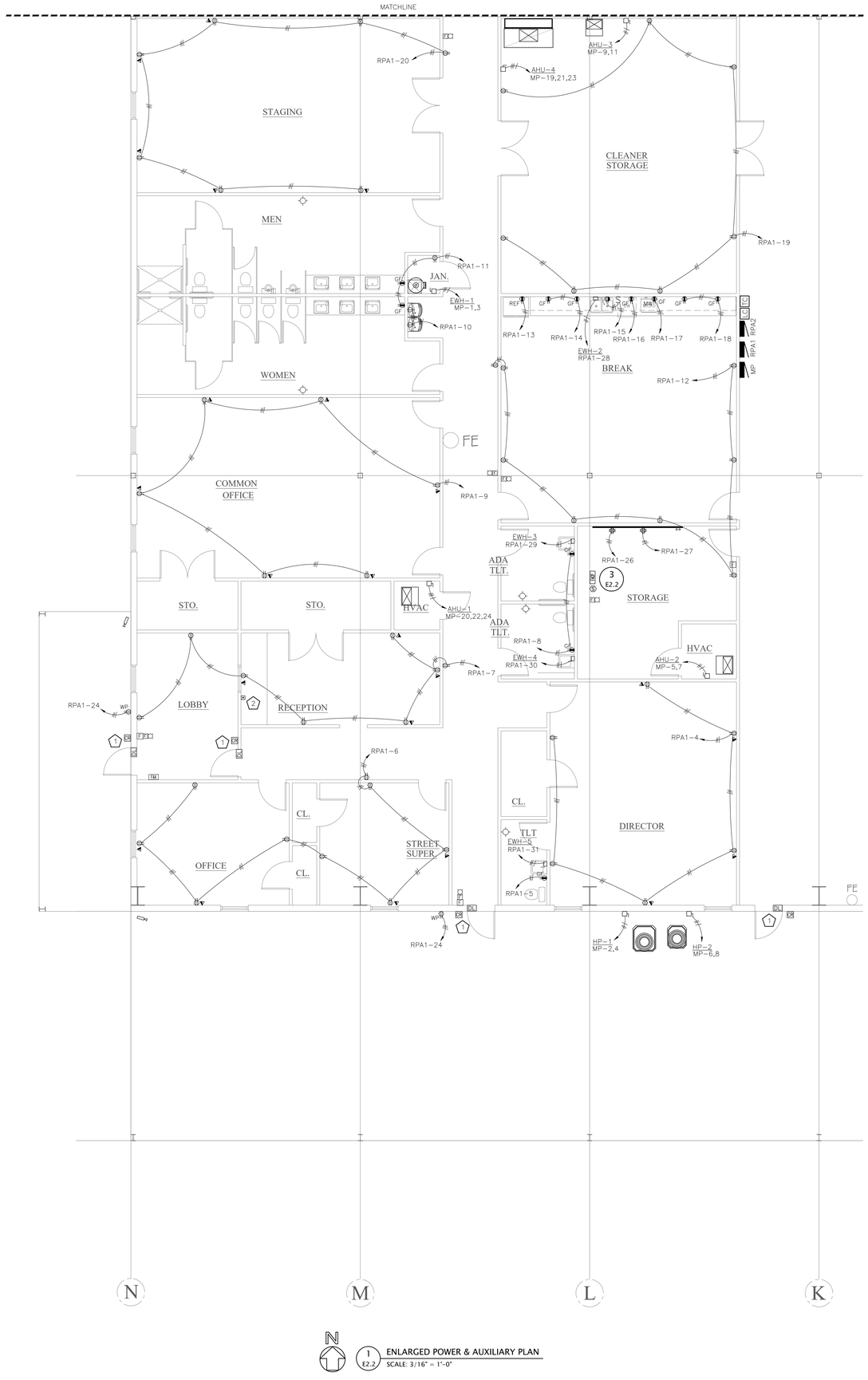
Title:

OVERALL POWER & AUX PLAN

Project No.: ------
Drawn By: Wade Stewart, PE
Checked: GWS, JHC
Date: September 30, 2019

Sheet Number:

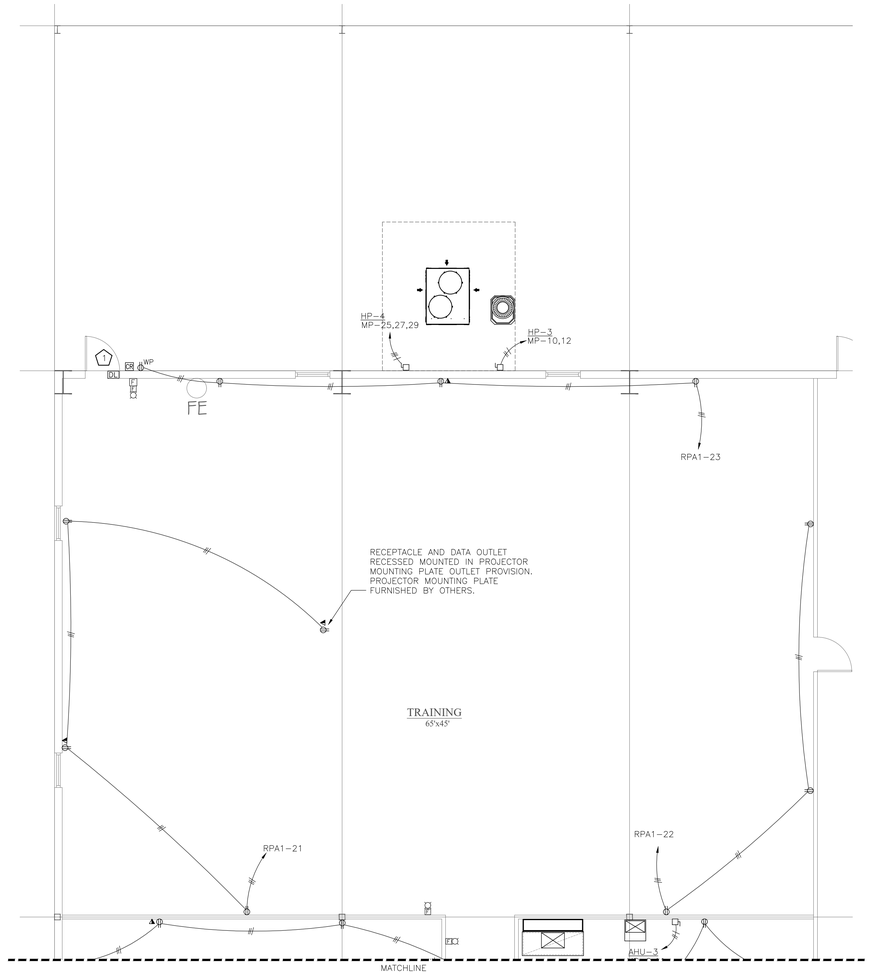
E2.1



N

1 E2.2 ENLARGED POWER & AUXILIARY PLAN

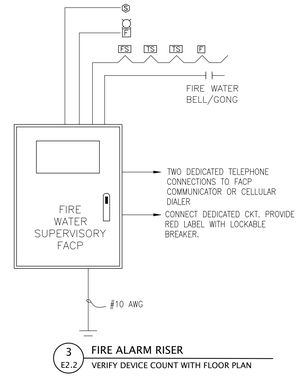
SCALE: 3/16" = 1'-0"



N

2 E2.2 ENLARGED POWER & AUXILIARY PLAN

SCALE: 3/16" = 1'-0"



3 E2.2 FIRE ALARM RISER

VERIFY DEVICE COUNT WITH FLOOR PLAN

KEY NOTES (THIS SHEET ONLY)

1. ROUGH-IN PROVISIONS FOR ACCESS CONTROLLED DOOR. OWNER'S SECURITY VENDOR SHALL COMPLETE THE INSTALLATION
2. PUSH BUTTON SWITCH FOR DOOR LOCK OVERRIDE.

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Roscoe Road
Orange Beach, Alabama

Title:

ENLARGED POWER & AUX PLAN

Project No.: ------
Drawn By: Wade Stewart, PE
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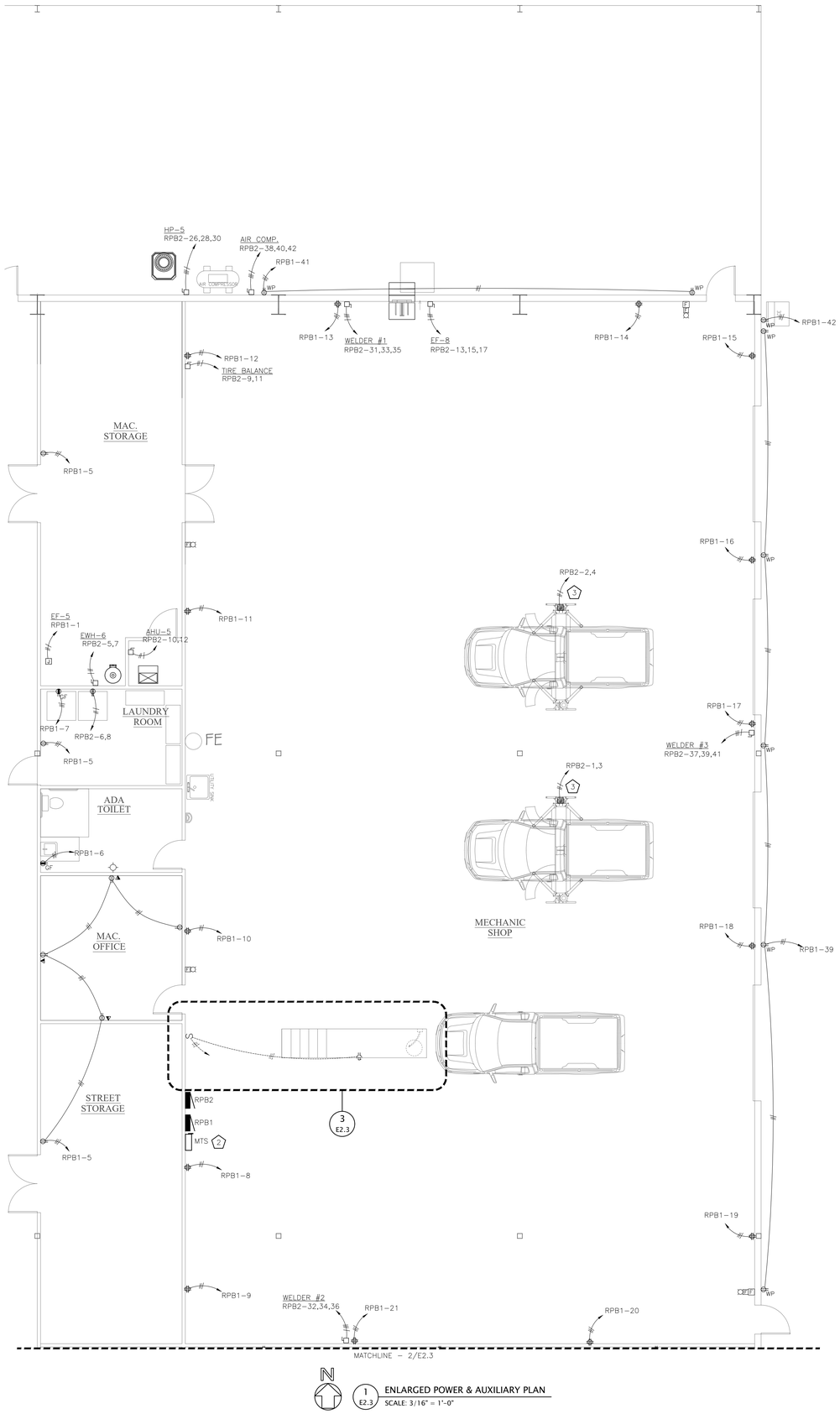
Date: September 30, 2019

Sheet Number:

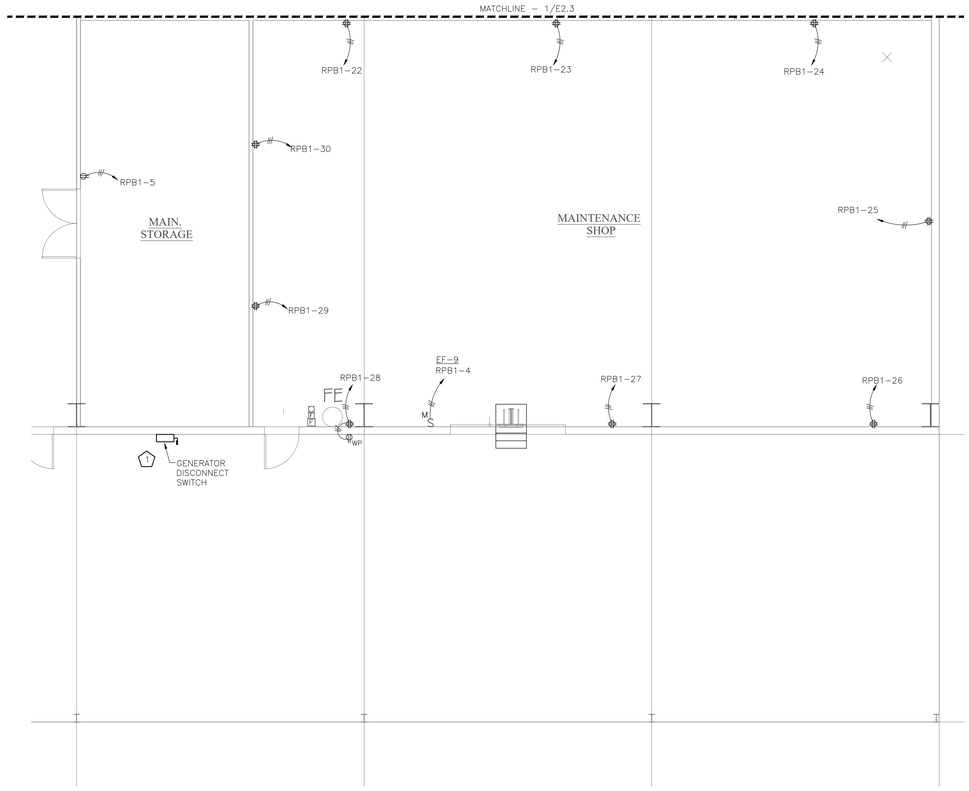
E2.2



N

1 E2.3 ENLARGED POWER & AUXILIARY PLAN

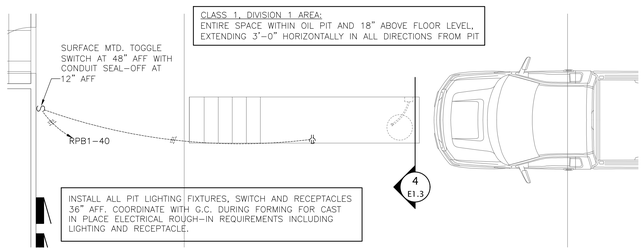
SCALE: 3/16" = 1'-0"



N

2 E2.3 ENLARGED POWER & AUXILARY PLAN

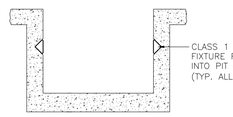
SCALE: 3/16" = 1'-0"



N

3 E2.3 ENLARGE PIT POWER PLAN

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



4 E2.3 ENLARGED PIT SECTION

SCALE: NONE

KEY NOTES (THIS SHEET ONLY)

1. GENERATOR DISCONNECT SWITCH FOR PORTABLE GEN CONNECTION AS NEEDED.
2. MANUAL TRANSFER SWITCH WITH EMERGENCY FEED CONNECTION ROUTED TO GENERATOR DISC SWITCH.
3. CEILING MOUNTED JB FOR VEHICLE LIFT ELECTRICAL CONNECTION.

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9/20/19
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Revisions:

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Orange Beach Public Works

Roscoe Road
Orange Beach, Alabama

Title:

ENLARGED POWER & AUX PLAN

Project No.: -----
Drawn By: Wade Stewart, PE
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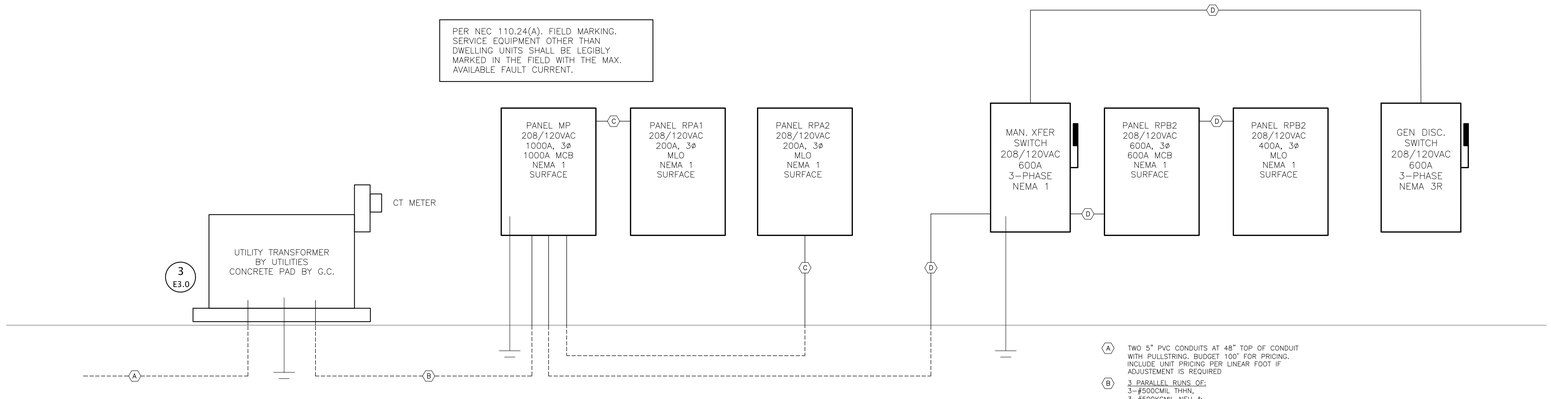
E2.3



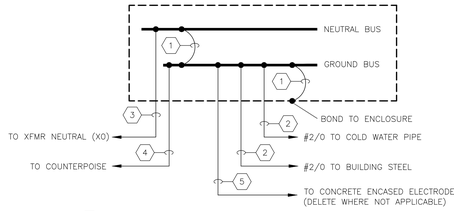
1 E3.0 **ELECTRICAL SERVICE RISER**
SCALE: NONE

(A) TWO 5" PVC CONDUITS AT 48" TOP OF CONDUIT WITH PULLSTRING. BUDGET 100' FOR PRICING. INCLUDE UNIT PRICING PER LINEAR FOOT IF ADJUSTEMENT IS REQUIRED

(B) 3 PARALLEL RUNS OF:
3-#500CMIL THHN,
3-#500KCMIL NEU &
1-#2/0 GND, 4"C

(C) 4-#3/0 AWG THHN 1-#6 GND, 2"C

(D) 2 PARALLEL RUNS OF:
4-#3/0 AWG THHN 1-#3 GND, 2-1/2"C



1 #2/0 MAIN BONDING JUMPER

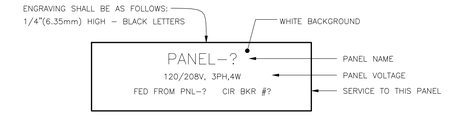
2 #2/0 GROUNDING ELECTRODE BONDING JUMPER CONNECTION

3 SAME SIZE AS PHASE CONDUCTOR

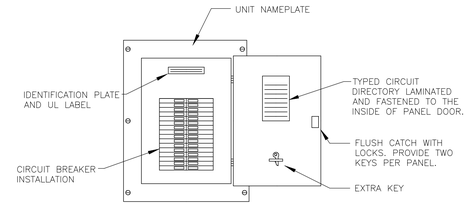
4 SUPPLEMENTAL GROUNDING ELECTRODE BONDING JUMPER SIZED AT #6 AWG (SIZE PER NEC 250.66 IF WATER PIPE AND BLDG. STEEL NOT AVAILABLE)

5 SIZE PER NEC 250.66 BUT NO LARGER THAN #4 THHN

2 E3.0 **MAIN SERVICE GROUNDING DETAIL**
SCALE: NONE



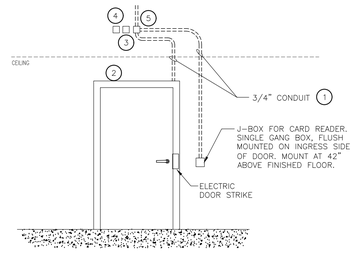
TYP PANEL NAMEPLATE



4 E3.0 **INDENTIFICATION - POWER PANELS**
SCALE: NONE

LIGHTING FIXTURE SCHEDULE

ID	DESCRIPTION	ELECTRICAL DATA		LAMP DATA		BASIS OF DESIGN		MOUNT TYPE												
								LOCATION						ARRANGEMENT						
		LOAD VA	VOLTAGE	QTY	WATTAGE	MANUFACTURER	MODEL OR SERIES	CEILING	FLOOR	GROUND	POLE	ROOF	SUSPENDED	WALL	FLUSH	PEDESTAL	PENDANT	RECESSED	SURFACE	TRACK	MTG HGT
A	2x4, LED, RECESSED	31	120		LED	LITHONIA	2BLT4 40L SDSM LP940	■										■			–
AE	2x4, LED, RECESSED, EMER.	31	120		LED	LITHONIA	2BLT4 40L SDSM LP940 EL14L	■										■			–
C	2x2, LED, RECESSED	30	120		LED	LITHONIA	2BLT2 40LHE LP940	■										■			–
C	2x2, LED, RECESSED, EMER.	30	120		LED	LITHONIA	2BLT2 40LHE LP940	■										■			–
H	HIGHBAY, LED	170	120		LED	LITHONIA	IBGN 4FT 24000LM SEF WD ATL 40K 80CR1	■									■					14'-0"
HE	HIGHBAY, LED	170	120		LED	LITHONIA	IBGN 4FT 24000LM SEF WD ATL 40K 80CR1 PS30250	■									■					14'-0"
PL	OIL PIT	45	120		LED	KENALL	HSECI14 3-T8 4000K 1800LM LED LAMPS 120V AF 2H T												■			–
S1	STRIP	15	120		LED	LITHONIA	ZL1N L24 1500LM MVOLT	■						■					■			–
W	WALLPACK	25	120		LED	LITHONIA	WST LED P2 40K VW MVOLT							■					■			10'-0"
WE	WALLPACK, EMER.	25	120		LED	LITHONIA	WST LED P2 40K VW MVOLT E20WH							■					■			10'-0"
XE	EXIT	6	120		LED	LITHONIA	LQM	■						■					■			–
ZE	EXIT/EMER COMBO	6	120		LED	LITHONIA	LHQM	■						■					■			–



9 E3.0 **SINGLE DOOR ACCESS CONTROL**
SCALE: NONE

KEYNOTES (THIS DETAIL ONLY):

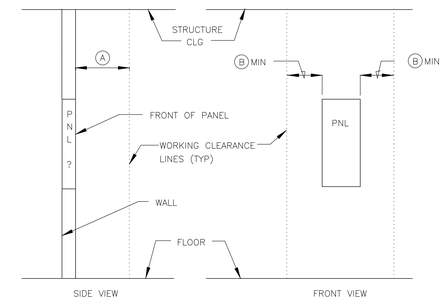
1 CONCEAL CONDUIT IN WALL.

2 DOOR POSITION SWITCH PROVIDED, MOUNTED AND TERMINATED BY SECURITY SYSTEM VENDOR.

3 JUNCTION BOX. INTERCONNECTED TO ACCESS CONTROL CIRCUIT.

4 SINGLE DROP FROM NETWORK RACK FOR DOOR ACCESS CONTROL. INSTALL 1-#18 AWG, 4-CONDUCTOR CABLE.

5 J-BOX FOR SECURITY SYSTEM WIRING (6" x 6"), WALL MOUNTED ON EGRESS SIDE OF DOOR, ABOVE ACCESSIBLE CEILING WHERE APPLICABLE.

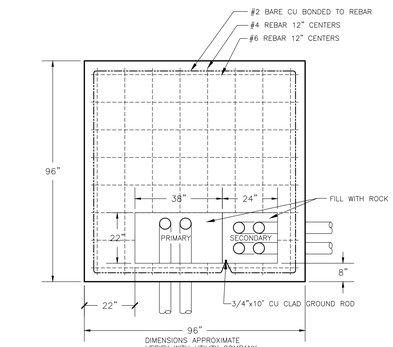


5 E3.0 **PANEL CLEARANCES**
SCALE: NONE

NOTES:

1. DIMENSIONS SHOWN ARE MINIMUM
2. WORKING CLEARANCES SHALL BE MAINTAINED FROM FLOOR TO STRUCTURAL CLG.
3. SEE NFPA 70, ARTICLE 110-16

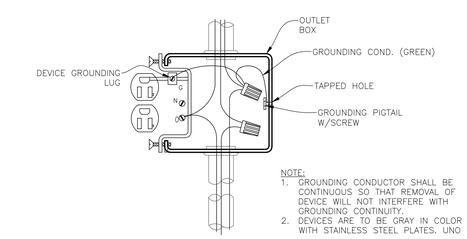
DIMENSION BLOCK	
REF	ENGLISH
A	3'-6"
B	1'-3"
C	6'-7"



3 E3.0 **TRANSFORMER PAD DETAIL**
SCALE: NONE

NOTES:

1. FILL VOID AROUND ALL PRIMARY CABLES WITH NEC APPROVED DUCT SEAL.
2. CAP ALL EMPTY CONDUITS.
3. VERIFY PAD DIMENSIONS & REQUIREMENTS PRIOR TO BUILD.



NOTE:
1. GROUNDING CONDUCTOR SHALL BE CONTINUOUS SO THAT REMOVAL OF DEVICE WILL NOT INTERFERE WITH GROUNDING CONTINUITY.
2. DEVICES ARE TO BE GRAY IN COLOR WITH STAINLESS STEEL PLATES. UNO

6 E3.0 **TYPICAL RECEPTACLE INSTALLATION**
SCALE: NONE

COMMUNICATIONS RACK ELEVATION KEY NOTES:

1 - STANDARD 7'-0" HIGH x 19" WIDE ALUMINUM FLOOR MOUNT RACK WITH UNIVERSAL 5/8", 5/8", 1/2" ALTERNATING HOLE PATTERN FRONT AND BACK, AND BLACK BAKED ENAMEL FINISH. PROVIDE WITH GROUND TERMINAL BLOCK.

2 - DOUBLE SIDED NARROW VERTICAL RACK CABLING SECTION, SIZE 3.65" x 7'-0", COLOR BLACK. PROVIDE WITH CABLING SECTION HINGED PLEX COVER ON FRONT ONLY.

3 - IDENTIFICATION TAG AT TOP OF RACK

4 - ONE RACK SPACE BLANK FILLER PLATE, COLOR BLACK.

5 - TWO RACK SPACE HORIZONTAL CABLE MANAGER ON FRONT SIDE OF RACK. PROVIDE WITH SOLID COVER TO CONCEAL CABLES.

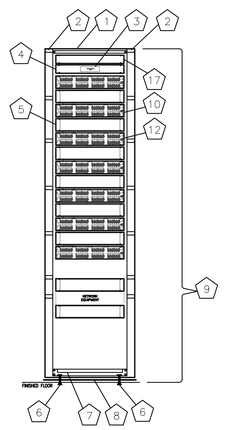
6 - CONCRETE FLOOR RACK MOUNTING KIT.

7 - RACK BASE DUST COVER, BLACK ENAMEL FINISH.

8 - RACK ISOLATION KIT.

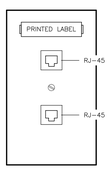
9 - NYLON CABLE STANDOFF BRACKET, MOUNT ON BACK LEFT SIDE OF ALL RACKS AT 12" ON CENTER FOR ROUTING GROUNDING CONDUCTORS AND CORD INDIVIDUALLY ON STANDOFF. (NOT SHOWN ON ELEVATIONS)

10 - 48 PORT CATEGORY 6 HORIZONTAL WIRING PATCH PANEL



7 E3.0 **TYPICAL COMM RACK DETAIL**
SCALE: N.T.S.

DIAGRAMMATIC: COMM VENDOR SHALL PREPARE SHOP DRAWINGS FOR A COMPLETE VOICE AND DATA SYSTEM.



8 E3.0 **TYPICAL TEL/DATA PLATE DETAIL**
SCALE: N.T.S.

NOTES:

1. FURNISH AND INSTALL TWO (2) CAT-6 PLENUM RATED CABLING FROM EACH STATION END TO SERVER ROOM TERMINATED, TESTED AND CONNECTED TO PATCH PANELS.

CATEGORY 6 TERMINATION NOTE:

1. MAKE ALL TERMINATIONS IN STRICT ACCORDANCE WITH TIA GUIDELINES AS WELL AS THE MANUFACTURER'S PRINTED INSTRUCTION FOR BOTH THE CABLE AND THE TERMINATION DEVICE FOR ALL FIELD CONNECTIONS IN THE "HORIZONTAL TELECOMMUNICATIONS LINK". STRIP CABLE JACKET BACK A MAXIMUM OF 1 INCH FROM THE POINT OF TERMINATION. MAINTAIN FACTORY SYMMETRICAL CABLE TWISTS TO WITHIN 0.5 INCHES OF THE POINT OF TERMINATION. PROVIDE CABLE SLACK AT EACH END ALLOW MINIMUM OF FIVE (5) FUTURE RETERMINATIONS WITHOUT RE-ROUTING CABLE.

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Revisions:

No.	Date	Description
A	9/20/19	ABC CODE REVIEW/PRE-PERMIT

Orange Beach Public Works
Roscoe Road
Orange Beach, Alabama

Title:

ELECTRICAL RISER DIAGRAM

Project No.: ------
Drawn By: Wade Stewart, PE
Checked: GWS, JHC
Date: September 30, 2019

Sheet Number:

E3.0

PANEL MP

VOLTAGE (L–N):	120	ENCLOSURE TYPE:	NEMA 1
VOLTAGE (L–L):	208	MOUNTING:	SURFACE
PHASES, WIRES:	3 ϕ 4 W	AIC RATING (A):	22000
MINIMUM BUS CAPACITY (A):	1000 A	NOTES:	----
MAIN O.C. DEVICE (A):	1000 A		

CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA) A	PHASE LOADS (VA) B	PHASE LOADS (VA) C	POLE	TRIP AMPS	DESCRIPTION	CKT NO
1,3	EWH–1	20	2	2000	3900		2	60	HP–1	2,4
1,3	EWH–1	20	2		2000	3900	2	60	HP–1	2,4
5,7	AHU–2	60	2			5595	3099	2	50	HP–2	6,8
5,7	AHU–2	60	2	5595	3099		2	50	HP–2	6,8
9,11	AHU–3	60	2		5595	2464	2	40	HP–3	10,12
9,11	AHU–3	60	2			5595	2464	2	40	HP–3	10,12
13,15	SPARE	20	2	0	0		2	20	SPARE	14,16
13,15	SPARE	20	2		0	0	2	20	SPARE	14,16
17,19	EUH–1	30	2			1800	0	2	30	EUH–1	18,20
17,19	EUH–1	30	2	1800	0		2	30	EUH–1	18,20
----	----	----	----		----	6352	3	60	AHU–4	19,21,23
----	----	----	----			----	6352	3	60	AHU–4	19,21,23
25,27,29	HP–4	50	3	4683	6352		3	60	AHU–4	19,21,23
25,27,29	HP–4	50	3		4683	----	----	----	----	----
25,27,29	HP–4	50	3			4683	0	3	100	SPARE	30,32,34
----	----	----	----	----	0		3	100	SPARE	30,32,34
----	----	----	----		----	0	3	100	SPARE	30,32,34
35,37,39	PANEL RPA1	200	3			15276	15952	3	200	PANEL RPA2	36,38,40
35,37,39	PANEL RPA1	200	3	11861	15400		3	200	PANEL RPA2	36,38,40
35,37,39	PANEL RPA1	200	3		16600	14420	3	200	PANEL RPA2	36,38,40
20,22,24	AHU–1	50	3			5656	----	----	----	----	----
20,22,24	AHU–1	50	3	5656	----		----	----	----	----	----
20,22,24	AHU–1	50	3		5656	----	----	----	----	----	----
----	----	----	----			----	----	----	----	----	----
SFCB	PANEL RPB1	600	3	54934	----		----	----	----	----	----
SFCB	PANEL RPB1	600	3		58936	----	----	----	----	----	----
SFCB	PANEL RPB1	600	3			57655	----	----	----	----	----
				CONNECTED LOAD PHASE TOTALS (VA)							
				115280	120606	124127					

	CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
Welding	73.2	1.00	73.2
Heating	88.5	1.00	88.5
Lighting	15.9	1.25	19.9
Motors	25.0	1.00	25.0
Motors (Largest)	16.2	1.25	20.3
Receptacles (0 – 10 KVA)	10.0	1.00	10.0
Receptacles (Over 10 KVA)	89.7	0.50	44.9
Cooling and Heating	37.4	1.00	37.4
Electric Clothes Dryers	4.0	1.00	4.0
TOTAL:	360.0		323.2
LOAD (AMPS):	999.3		897.1

DEMAND LOAD	323.2 KVA
SPARE CAPACITY	37.1KVA
SPARE CAPACITY	102.9 AMPS
SPARE CAPACITY	10 %
PHASE BALANCE	
A TO B	96 %
B TO C	97 %
C TO A	93 %

PANEL RPB1

VOLTAGE (L–N):	120	ENCLOSURE TYPE:	NEMA 1
VOLTAGE (L–L):	208	MOUNTING:	SURFACE
PHASES, WIRES:	3 ϕ 4 W	AIC RATING (A):	22000
MINIMUM BUS CAPACITY (A):	600 A	NOTES:	----
MAIN O.C. DEVICE (A):	600 A		

CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA) A	PHASE LOADS (VA) B	PHASE LOADS (VA) C	POLE	TRIP AMPS	DESCRIPTION	CKT NO
1	LGTS, LAUNDRY, OFFICE, TOILET	20	1	974	1530		1	20	LGTS, MECHANIC SHOP	2
3	LGTS, MAINT. SHOP & STOR.	20	1		881	600	1	20	EF–9	4
5	REC., OFFICE & STORAGE	20	1			1600	1500	1	20	REC., ADA TLT	6
7	WASHER	20	1	400	1500		1	20	REC., MECHANIC SHOP	8
9	REC., MECHANIC SHOP	20	1		1500	1500	1	20	REC., MECHANIC SHOP	10
11	REC., MECHANIC SHOP	20	1			1500	1500	1	20	REC., MECHANIC SHOP	12
13	REC., MECHANIC SHOP	20	1	1500	1500		1	20	REC., MECHANIC SHOP	14
15	REC., MECHANIC SHOP	20	1		1500	1500	1	20	REC., MECHANIC SHOP	16
17	REC., MECHANIC SHOP	20	1			1500	1500	1	20	REC., MECHANIC SHOP	18
19	REC., MECHANIC SHOP	20	1	1500	1500		1	20	REC., MECHANIC SHOP	20
21	REC., MECHANIC SHOP	20	1		1500	1500	1	20	REC., MAINT. SHOP	22
23	REC., MAINT. SHOP	20	1			1500	1500	1	20	REC., MAINT. SHOP	24
25	REC., MAINT. SHOP	20	1	1500	1500		1	20	REC., MAINT. SHOP	26
27	REC., MAINT. SHOP	20	1		1500	1700	1	20	REC., MAINT. SHOP	28
29	REC., MAINT. SHOP	20	1			1500	1500	1	20	REC., MAINT. SHOP	30
31	SPARE	20	1	0	0		1	20	SPARE	32
33	SPARE	20	1		0	0	1	20	SPARE	34
35	SPARE	20	1			0	0	1	20	SPARE	36
37	SPARE	20	1	0	0		1	20	SPARE	38
39	REC., EXTERIOR	20	1		1000	360	1	20	OIL PIT LGTS & REC	40
41	REC., EXTERIOR	20	1			400	500	1	20	ICE MERCHANDISER	42
SFCB	PANEL RPB2	400	3	41530	----		----	----	----	----	----
SFCB	PANEL RPB2	400	3		43895	----	----	----	----	----	----
SFCB	PANEL RPB2	400	3			41655	----	----	----	----	----
				CONNECTED LOAD PHASE TOTALS (VA)							
				54934	58936	57655					

	CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
Welding	73.2	1.00	73.2
Heating	10.5	1.00	10.5
Lighting	3.5	1.25	4.4
Motors	19.4	1.00	19.4
Motors (Largest)	16.2	1.25	20.3
Receptacles (0 – 10 KVA)	10.0	1.00	10.0
Receptacles (Over 10 KVA)	30.3	0.50	15.2
Cooling and Heating	4.5	1.00	4.5
Electric Clothes Dryers	4.0	1.00	4.0
TOTAL:	171.5		161.3
LOAD (AMPS):	476.1		447.7

DEMAND LOAD	161.3 KVA
SPARE CAPACITY	54.8 KVA
SPARE CAPACITY	152.3 AMPS
SPARE CAPACITY	25 %
PHASE BALANCE	
A TO B	93 %
B TO C	98 %
C TO A	95 %

PANEL RPB2

VOLTAGE (L–N):	120	ENCLOSURE TYPE:	NEMA 1
VOLTAGE (L–L):	208	MOUNTING:	SURFACE
PHASES, WIRES:	3 ϕ 4 W	AIC RATING (A):	22000
MINIMUM BUS CAPACITY (A):	400 A	NOTES:	----
MAIN O.C. DEVICE (A):	400 A		

CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA) A	PHASE LOADS (VA) B	PHASE LOADS (VA) C	POLE	TRIP AMPS	DESCRIPTION	CKT NO
1,3	LIFT	30	2	3120	3120		2	30	LIFT	2,4
1,3	LIFT	30	2		3120	3120	2	30	LIFT	2,4
5,7	EWH–6	20	2			2000	2000	2	30	DRYER	6,8
5,7	EWH–6	20	2	2000	2000		2	30	DRYER	6,8
9,11	TIRE BALANCE	30	2		3120	3245	2	35	AHU–5	10,12
9,11	TIRE BALANCE	30	2			3120	3245	2	35	AHU–5	10,12
13,15,17	EF–8	20	3	6100	0		3	20	SPARE	14,16,18
13,15,17	EF–8	20	3		6100	0	3	20	SPARE	14,16,18
13,15,17	EF–8	20	3			6100	0	3	20	SPARE	14,16,18
19,21,23	SPARE	20	3	0	0		3	20	SPARE	20,22,24
19,21,23	SPARE	20	3		0	0	3	20	SPARE	20,22,24
19,21,23	SPARE	20	3			0	0	3	20	SPARE	20,22,24
25,27,29	SPARE	20	3	0	1490		3	20	HP–5	26,28,30
25,27,29	SPARE	20	3		0	1490	3	20	HP–5	26,28,30
25,27,29	SPARE	20	3			0	1490	3	20	HP–5	26,28,30
31,33,35	WELDER #1	50	3	6100	6100		3	50	WELDER #2	32,34,36
31,33,35	WELDER #1	50	3		6100	6100	3	50	WELDER #2	32,34,36
31,33,35	WELDER #1	50	3			6100	6100	3	50	WELDER #2	32,34,36
37,39,41	WELDER #3	20	3	6100	5400		3	90	AIR COMPRESSOR	38,40,42
37,39,41	WELDER #3	20	3		6100	5400	3	90	AIR COMPRESSOR	38,40,42
37,39,41	WELDER #3	20	3			6100	5400	3	90	AIR COMPRESSOR	38,40,42
				CONNECTED LOAD PHASE TOTALS (VA)							
				41530	43895	41655					

	CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
Welding	73.2	1.00	73.2
Heating	10.5	1.00	10.5
Motors	18.7	1.00	18.7
Motors (Largest)	16.2	1.25	20.3
Cooling and Heating	4.5	1.00	4.5
Electric Clothes Dryers	4.0	1.00	4.0
TOTAL:	127.1		131.1
LOAD (AMPS):	352.7		364.0

DEMAND LOAD	131.1 KVA
SPARE CAPACITY	13.0 KVA
SPARE CAPACITY	36.0 AMPS
SPARE CAPACITY	9 %
PHASE BALANCE	
A TO B	95 %
B TO C	95 %
C TO A	100 %

PANEL RPA1

VOLTAGE (L–N):	120	ENCLOSURE TYPE:	NEMA 1
VOLTAGE (L–L):	208	MOUNTING:	SURFACE
PHASES, WIRES:	3 ϕ 4 W	AIC RATING (A):	22000
MINIMUM BUS CAPACITY (A):	200 A	NOTES:	----
MAIN O.C. DEVICE (A):	200 A		

CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA) A	PHASE LOADS (VA) B	PHASE LOADS (VA) C	POLE	TRIP AMPS	DESCRIPTION	CKT NO
1	LGTS, OFFICE, RECEPTION, BREAK	20	1	1085	1891		1	20	LGTS, RESTRMS, STAGING, CORR.	2
3	LGTS, TRAINING	20	1		961	1200	1	20	REC., DIRECTOR	4
5	REC., DIRECTOR TLT	20	1			1500	1800	1	20	REC., OFFICES	6
7	REC., LOBBY, RECEPTION	20	1	1600	1500		1	20	REC., ADA TOILETTS	8
9	REC., COMMON OFFICE	20	1		1200	700	1	20	EWC–1	10
11	REC., WOMENS & MENS	20	1			1500	1600	1	20	REC., BREAK & STORAGE	12
13	REFRIGERATOR	20	1	400	1500		1	20	REC., BREAK	14
15	DISHWASHER/DISPOSAL	20	1		400	1500	1	20	REC., BREAK	16
17	REC., BREAK	20	1			1500	1500	1	20	REC., BREAK	18
19	REC., CLEANER STORAGE	20	1	1400	1400		1	20	REC., STAGING	20
21	REC., TRAINING	20	1		800	600	1	20	REC., TRAINING	22
23	REC., TRAINING	20	1			800	400	1	20	REC., EXTERIOR	24
25	ACCESS CONTROL	20	1	0	1500		1	25	TBB	26
27	TBB	20	1		1500	3000	1	25	EWH–2	28
29	EWH–3	25	1			3000	3000	1	25	EWH–4	30
31	EWH–5	25	1	3000	0		1	20	FACP (LOCK–ON)	32
33	SPARE	20	1		0	0	1	20	SPARE	34
35	SPARE	20	1			0	0	1	20	SPARE	36
37	SPARE	20	1	0	0		1	20	SPARE	38
39	SPARE	20	1		0	0	1	20	SPARE	40
41	SPARE	20	1			0	0	1	20	SPARE	42
				CONNECTED LOAD PHASE TOTALS (VA)						
				15276	11861	16600				

	CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
Heating	12.0	1.00	12.0
Lighting	3.9	1.25	4.9
Receptacles (0 – 10 KVA)	10.0	1.00	10.0
Receptacles (Over 10 KVA)	17.8	0.50	8.9
TOTAL:	43.7		35.8
LOAD (AMPS):	121.4		99.4

DEMAND LOAD	35.8 KVA
SPARE CAPACITY	36.2 KVA
SPARE CAPACITY	100.6 AMPS
SPARE CAPACITY	50 %
PHASE BALANCE	
A TO B	78 %
B TO C	71 %
C TO A	92 %

PANEL RPA2

VOLTAGE (L–N):	120	ENCLOSURE TYPE:	NEMA 1
VOLTAGE (L–L):	208	MOUNTING:	SURFACE
PHASES, WIRES:	3 ϕ 4 W	AIC RATING (A):	22000
MINIMUM BUS CAPACITY (A):	200 A	NOTES:	----
MAIN O.C. DEVICE (A):	200 A		

CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (VA) A	PHASE LOADS (VA) B	PHASE LOADS (VA) C	POLE	TRIP AMPS	DESCRIPTION	CKT NO
1	LGTS, WAREHOUSE	20	1	1870	1190		1	20	LGTS, WAREHOUSE	2
3	LGTS, WAREHOUSE	20	1		1190	1190	1	20	LGTS, WAREHOUSE	4
5	LGTS, WAREHOUSE	20	1			1190	1190	1	20	LGTS, WAREHOUSE	6
7	LGTS, EXTERIOR	20	1	672	1500		1	20	REC., WAREHOUSE	8
9	REC., WAREHOUSE	20	1		1500	1500	1	20	REC., WAREHOUSE	10
11	REC., WAREHOUSE	20	1			1500	1500	1	20	REC., WAREHOUSE	12
13	REC., WAREHOUSE	20	1	1500	1500		1	20	REC., WAREHOUSE	14
15	REC., WAREHOUSE	20	1		1500	1500	1	20	REC., WAREHOUSE	16
17	REC., WAREHOUSE	20	1			1500	1500	1	20	REC., WAREHOUSE	18
19	REC., WAREHOUSE	20	1	1500	1500		1	20	REC., WAREHOUSE	20
21	REC., WAREHOUSE	20	1		1500	1500	1	20	REC., WAREHOUSE	22
23	REC., WAREHOUSE	20	1			1500	1500	1	20	REC., WAREHOUSE	24
25	REC., WAREHOUSE	20	1	1500	1500		1	20	REC., WAREHOUSE	26
27	REC., WAREHOUSE	20	1		1500	800	1	20	REC., EXTERIOR NORTH	28
29	REC., EXTERIOR SOUTH	20	1			800	1120	1	20	CLG FAN	30
31	EF–6	20	1	600	1120		1	20	CLG FAN	32
33	EF–7	20	1		600	1120	1	20	CLG FAN	34
35	SPARE	20	1			0	1120	1	20	CLG FAN	36
37	SPARE	20	1	0	0		1	20	SPARE	38
39	SPARE	20	1		0	0	1	20	SPARE	40
41	SPARE	20	1			0	0	1	20	SPARE	42
				CONNECTED LOAD PHASE TOTALS (VA)						
				15952	15400	14420				

	CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
Lighting	8.5	1.25	10.6
Motors	4.6	1.00	4.6
Motors (Largest)	1.1	1.25	1.4
Receptacles (0 – 10 KVA)	10.0	1.00	10.0
Receptacles (Over 10 KVA)	21.6	0.50	10.8
TOTAL:	45.8		37.4
LOAD (AMPS):	127.1		103.7

DEMAND LOAD	37.4 KVA
SPARE CAPACITY	34.7 KVA
SPARE CAPACITY	96.3 AMPS
SPARE CAPACITY	48 %
PHASE BALANCE	
A TO B	97 %
B TO C	94 %
C TO A	90 %

PANELBOARD SCHEDULE AND DETAIL NOTES:

1. PANELBOARD & PANELBOARD INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 70, ART. 384. ALL PANELBOARDS SHALL BE UL LISTED AND INSTALLED IN ACCORDANCE WITH THIS LISTING AND FULLY SUPPORTED BY MEANS DESIGNED FOR THAT LISTED INSTALLATION. ALL CLEARANCES REQUIRED BY CODE SHALL BE MAINTAINED AS MINIMUM.
2. EACH PANELBOARD SHALL BE FURNISHED COMPLETE WITH THE PROPERLY SIZED CAN, INTERNAL HARDWARD, DEVICES, COMPONENTS, SUPPORTING STRUCTURES, ETC., FOR A COMPLETE INSTALLATION TO PROVIDE THE DESIGNED PERFORMANCE UNDER THE AMBIENT CONDITIONS ENCOUNTERED. ALL DEVICES, COMPONENTS, FITTINGS, SUPPORTS, ETC., SHALL BE COORDINATED TO PROVIDE A COMPLETE UL LISTED INSTALLATION. ALL DEVICES INSTALLED SHALL HAVE AN INTERRUPTING RATING GREATER THAN OR EQUAL TO THE SPECIFIED SCCR.
3. EACH PANELBOARD SHALL BE FURNISHED WITH A GROUND BAR BONDED TO THE PANEL ENCLOSURE. THIS GROUND BUS SHALL BE UTILIZED TO BOND ALL GROUNDING PROVISIONS IN ORDER TO ESTABLISH EQUAL POTENTIAL TO ALL GROUNDED COMPONENTS OF THE POWER SYSTEM.
4. PANELBOARD CANS SHALL BE RIGID AND CONTAIN KNOCKOUT PROVISIONS TO FACILITATE THE TERMINATION OF THE NUMBER AND SIZE OF CONDUIT SYSTEMS REQUIRED.
5. THE TERMINATION POINT OF THE FEEDER SERVING EACH ASSEMBLY SHALL BE AT THE NEAREST POINT OF FEEDER ENTRY TO MINIMIZE CONDUCTOR FILL IN THE CAN. COORDINATE TOP AND BOTTOM FEED PANELBOARD PROVISIONS WITH EACH FEEDER INSTALLATION.
6. PROVIDE THE PROPERLY SIZED CONDUCTOR TERMINATION POINTS OR LUGS (MULTIPLE LUGS WHEN PARALLEL FEEDERS ARE USED) FOR THE NUMBER AND SIZE CIRCUITS INDICATED.
7. CONDUCTORS, SPLICES AND TERMINATIONS SHALL BE ACCESSIBLE. ONLY CONDUCTORS RATED AND SIZED FOR THE TEMPERATURE OF THE TERMINATION SHALL BE USED.
8. PANELBOARDS SHALL NOT BE INSTALLED IN CONTACT WITH COMBUSTIBLE MATERIALS. ADEQUATE SPACE FOR AIR CIRCULATION AND CODE COMPLIANCE SHALL BE PROVIDED AS A MINIMUM. FURNISH SPACERS, WASHERS, SUPPORTING DEVICES, ETC., AS REQUIRED TO MAINTAIN PROPER CLEARANCES.
9. ALL FLUSH MOUNTED PANELBOARDS SHALL BE PROVIDED WITH FOUR (4) 1" EMPLY SPARE CONDUITS TO ABOE THE NEAREST ACCESSIBLE CEILING.

CONDUCTOR SCHEDULE

CONDUCTORS / CONDUITS SHALL BE SIZED ACCORDING TO THE FOLLOWING CHART UNLESS OTHERWISE NOTED.

CKT BKR	WIRE (AWG)	EQUIP. GND	CONDUIT
15	12	#12	3/4"
20	12	#12	3/4"
30	10	#10	3/4"
40	8	#10	1"
50	6	#10	1"
60	6	#10	1"
70	4	#8	1–1/4"
80	4	#8	1–1/4"
90	3	#8	1–1/4"
100	3	#8	1–1/4"
125	1	#6	1–1/2"
150	#1/0	#6	2"
175	#2/0	#6	2"
200	#3/0	#6	2"
225	#4/0	#4	2–1/2"
250	250KCMIL	#4	3"
400	600KCMIL	#2	4"

NOTES:
1. NEUTRAL CONDUCTOR (IF REQUIRED) SHALL BE THE SAME SIZE AS PHASE CONDUCTORS.
2. ALL HVAC OR OTHER CYCLICAL EQUIPMENT SHALL UTILIZE HACR TYPE CIRCUIT BREAKERS.
3. CONTRACTOR TO PROVIDE QUANTITY OF CONDUCTORS AS NECESSARY TO POWER LOADS.
4. CONDUIT SIZES BASES ON FOUR CONDUCTORS MAXIMUM. CONTRACTOR SHALL FOLLOW NEC GUIDELINES FOR DERATING AMPACITIES AND CONDUIT SIZES FOR ALL COMBINED CIRCUITS.
5. CONDUCTORS SHALL BE COPPER. INDICATED SIZES ARE FOR USE WITH COPPER CONDUCTORS.
6. FOR BREAKERS SIZES NOT INDICATED SUCH AS 25A, COMPLY WITH NEC SECTION 240.4 (PROTECTION OF CONDUCTORS.)
7. CONTRACTOR SHALL COORDINATE THE REQUIRED NUMBER OF CONDUCTORS WITH EQUIPMENT MFR PRIOR TO ROUGH IN.

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Revisions:

No.	Date	Description
A	9/20/19	ABC CODE REVIEW/PRE-PERMIT

Orange Beach Public Works
Roscoe Road
Orange Beach, Alabama

Title:

ELECTRICAL SCHEDULES

Project No.: -----
Drawn By: Wade Stewart, PE
Checked: GWS, JHC
Date: September 30, 2019

Sheet Number:

E3.1

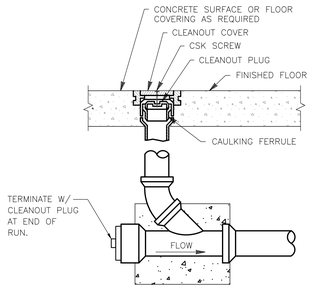
PLUMBING SYMBOL LEGEND

DCW PIPING	
DHW PIPING	
DHC PIPING	
SAN	WASTE PIPING
V	VENT PIPING
G	GAS PIPING
TP	TRAP PRIMER PIPING
WET	FIRE WATER WET PIPING
	PIPE TURNING UP
	PIPE TURNING DOWN
	BALL VALVE
	GATE VALVE
	CHECK VALVE
	TEMP/PRESSURE RELIEF VALVE
	GAS COCK
	UNION
	CLEANOUT
FD	FLOOR DRAIN
FS	FLOOR SINK
	HOSE BIBB
WHA	WATER HAMMER ARRESTOR TYPE "A" (TYP)

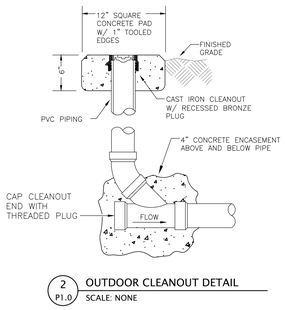
PLUMBING ABBREVIATIONS

ALL ABBREVIATIONS SHOWN MAY NOT APPEAR IN DRAWINGS.
REFER TO HVAC DRAWINGS FOR HVAC EQUIPMENT ABBREVIATIONS.

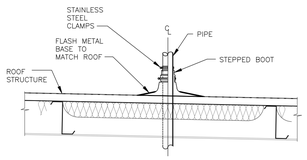
AFF	ABOVE FINISHED FLOOR
AUX	AUXILIARY
CEIL	CEILING
CIRC	CIRCULATING
CO	CLEANOUT
CW	COLD WATER
DCW	DOMESTIC COLD WATER
DHC	DOMESTIC HOT CIRCULATED
DHW	DOMESTIC HOT WATER
DIA	DIAMETER
DST	DEEP SEAL TRAP
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FIXT	FIXTURE
GWH	GAS WATER HEATER
HB	HOSE BIBB
HR	HOUR
HW	HOT WATER
HWR	HOT WATER RETURN
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MTR	METER
NIC	NOT IN CONTRACT
PENE	PENETRATION
RM	ROOM
SAN	SANITARY
SURF	SURFACE
SYS	SYSTEM
T & P	TEMPERATURE & PRESSURE
TEMP	TEMPERATURE
TP	TRAP PRIMER
TYP	TYPICAL
VTR	VENT TO ROOF
WCO	WALL CLEANOUT
WET	WET PIPNG
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
W/	WITH
YCO	YARD CLEANOUT



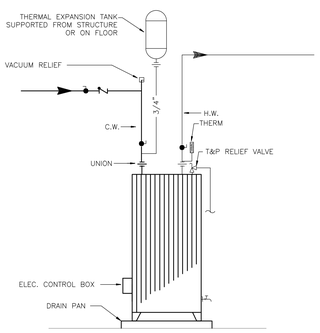
1 P1.0 **FLOOR CLEANOUT DETAIL**
SCALE: NONE



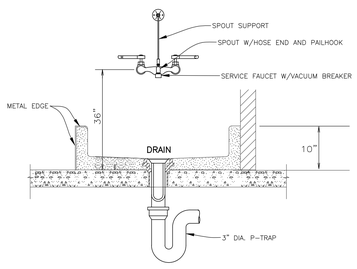
2 P1.0 **OUTDOOR CLEANOUT DETAIL**
SCALE: NONE



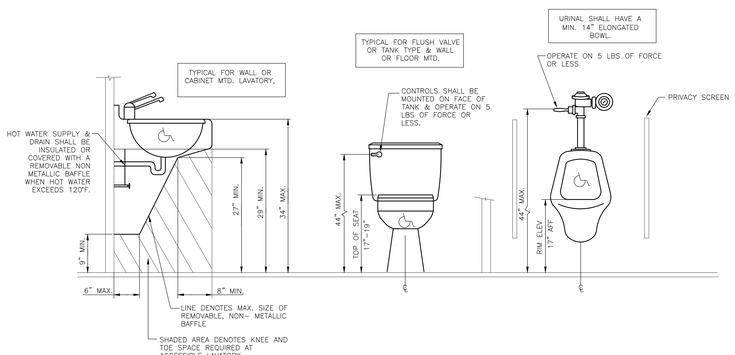
3 P1.0 **VENT THRU ROOF DETAIL**
SCALE: NONE



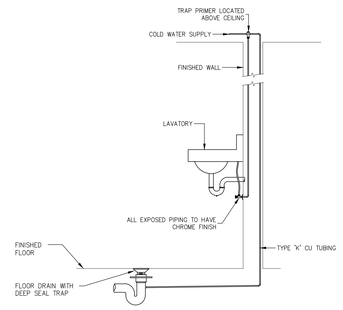
6 P1.0 **WATER HEATER DETAIL**
SCALE: NONE



5 P1.0 **MOP SINK DETAIL**
SCALE: NONE



6 P1.0 **ADA PLUMBING FIXTURE INSTALLATION DETAIL**
SCALE: NONE



7 P1.0 **FLOOR DRAIN TRAP PRIMER DETAIL**
SCALE: NONE

PLUMBING FIXTURE SCHEDULE

ID	DESCRIPTION
CB–1	ICE MAKER WATER CONNECTION. USE SIOUX CHIEF ICE MAKER OUTLET BOX WITH MINIRESTER 696 SERIES WITH 1/2" PEX CONNECTION; MOUNT @ 48" U.N.O. FURNISH FLEXIBLE CONNECTION FROM OUTLET BOX TO WALL MOUNTED WATER FILTER WITH FLEXIBLE CONNECTION TO APPLICANCE. WATER FILTER SHALL BE EQUAL TO WHIRLPOOL WHKF–DWHV OR EQUAL. FURNISH WITH ONE EXTRA FILTER. VERIFY WITH OWNER/CONTRACTOR. APPLIANCES FURNISHED BY OTHERS.
EWC–2H	EWC–1. ELECTRIC WATER COOLER, SPLIT LEVEL, WALL MOUNTED WITH BOTTLE FILLER ELKAY LZSTL8WSVRSK OR EQUAL WITH BOTTLE FILLER/FOUNTAIN ON LEFT AT ADA LEVEL; MOGUIRE 8902 TRAP; BRASSCRAFT 1912–A SUPPLY. MOUNT WITH LOWER SPOUT AT 36" AFF. CONNECTIONS: CW 1/2", WASTE 2", VENT 2" MIN.
FD–1	FLOOR DRAIN, J.R. SMITH 2005/2010 SERIES COATED CAST IRON BODY WITH ADJUSTABLE COLLAR, COMBINATION MEMBRANE CLAMP, AND TRAP PRIMER CONNECTION. PROVIDE WITH 6" ROUND, POLISHED NICKEL BRONZE STRAINER.
TP–1	FLOOR DRAIN, J.R. SMITH 2005/2010 SERIES COATED CAST IRON BODY WITH ADJUSTABLE COLLAR, COMBINATION MEMBRANE CLAMP, AND TRAP PRIMER CONNECTION. PROVIDE WITH 6" ROUND, POLISHED NICKEL BRONZE STRAINER.
HB–1	HOSE BIBB, OUTDOOR TYPE, ZURN Z–1320 WITH CERAMIC DISC, NON–FREEZE, ENCASED, ANTI–SIPHON, AUTO DRAIN, S.S. BOX & HINGED COVER, KEY LOCK, ALL BRONZE INTERIOR PARTS. COVER STAMPED "WATER".
MS–1	MOP BASIN – ZURN Z1996–24 COMPOSITE MOP SINK WITH INTEGRAL 3" DRAIN; Z1996–SF SERVICE FAUCET WITH PALE HOOK, –SDL DRAIN, STRAINER & LINT BASKET, –MH MOP HANGER, –HH HOSE & BRACKET, –BV VINYL BUMPER GUARDS, –WG SS WALL GUARD. COORDINATE WITH GENERAL CONTRACTOR TO INSURE THAT 2" THICK BLOCKING IS PROVIDED IN WALL FOR FAUCET MOUNTING. CONNECTIONS: CW 1/2", HW 1/2" (140°F), WASTE 3", VENT 2" MIN.
SH–1	SHOWER, ARRAY ADA3660, W36–7/8"XL61–3/4" W/ CENTER DRAIN AS DESIGNATED IN PLAN DWGS, SHOWER, SOLID–SURFACE, SMOOTH SHOWER, SOAP HOLDER, GRAB BARS, FOLDING SEAT, ZURN Z7301–SS–MT–DV2P–HW–H7–S8 TEMP–GARD II SHOWER UNIT KIT WITH SINGLE HANDLE PRESSURE BALANCING & MIXING UNIT, 1.5 GPM SHOWER HEAD, FLEX METAL HOSE, INLINE VACUUM BREAKER, WALL CONNECTION, FLANGE AND WALL HOOK FOR HAND SHOWER, PRESSURE BALANCING MIXING VALVE WITH ADJUSTABLE STOP SCREW TO LIMIT HANDLE TURN, 2.5 GPM SHOWER HEAD WITH ARM AND FLANGE. CONNECTIONS: CW 1/2", HW 1/2" TEMPERATURE LIMITING TO 110°F, WASTE 2", VENT 1–1/2" MIN.
SK–1	UTILITY SINK, FREE STANDING, 304 STAINLESS STEEL, 14 GAUGE, LEFT DRAINBOARD, TUBULAR LEGS WITH ADJUSTABLE FEET, TWO 1–1/2" DIA. FAUCET HOLES x 8" CENTERS. EQUAL TO ELKAY MODEL SS8124L WITH ELKAY FAUCET, WALL MOUNT, 8" CENTER, SOLID BRASS CONSTRUCTION WITH CHROME FINISH, 1.5 GPM FLOW RATE, 4" WRIST BLADE HANDLES, 8" SPOUT LENGTH. EXISTING CONNECTIONS: CW 1/2", 140°F HW 1/2", WASTE 1 1/4".
SK–2	KITCHEN SINK, ELKAY CR3322, 20 GAUGE, STAINLESS STEEL, DOUBLE BOWL, 7" DEPTH, DROP IN TYPE, FURNISH WITH ELKAY LKD2437BHC GOOSENECK FAUCET WITH LEVER HANDLES AND GRID WASTE. PROVIDE 1–1/2" P–TRAP AT EXISTING SAN CONNECTION, NEW 1/4" FLEXIBLE SUPPLIES AND WATER STOPS. INCLUDE 1/4" FLEXIBLE SUPPLY CONNECTION TO REFRIGERATOR ICE MAKER UNIT. ROUTE TUBING CONCEALED IN BASE CABINET. STRAP TUBING TO REAR OF CABINET. EXISTING CONNECTIONS: CW 1/2", HW 1/2", WASTE 1 1/4". FURNISH WITH TEMPERATURE LIMITING DEVICE SET FOR 110°F
EWS–1	EYE WASH STATION – BRADLEY S19224DCFW OR APPROVED EQUAL. CONNECTIONS: CW 1/2"
UR–1, UR–1H	UR–1 URINAL, WALL MOUNTED, ZURN ECOVANTAGE SERIES, LOW CONSUMPTION Z5798.207; VITREOUS CHINA WITH ZURN Z6003AV–ULF FLUSH VALVE WITH SPLIT RING PIPE SUPPORT. FOR UR–1H, INSTALL RIM OF URINAL NO HIGHER THAN 17" AFF. CONNECTIONS: CW 3/4", WASTE 2", VENT 2"
WC–1	WC–1 WATER CLOSET, ZURN ECOVANTAGE SERIES Z5572, FLOOR MOUNTED FLUSH TANK, ELONGATED, LOW CONSUMPTION, HIGH PERFORMANCE SIPHON JET/PRESSURE ASSIST, DUAL FLUSH; ZURN Z59565S–AM–EL OPEN FRONT ELONGATED SEAT WITHOUT COVER AND ANTI–MICROBIAL PROTECTION; ZURN Z8800–CR STOP WITH FLEX. CLOSET RISER. MOUNT FIXTURE AS PER INSTALLATION INSTRUCTIONS. CONNECTIONS: CW 1/2", WASTE 3", VENT 2" MIN.
WC–1H	WC–1H WATER CLOSET, ZURN ECOVANTAGE SERIES Z5562, FLOOR MOUNTED FLUSH TANK, ELONGATED, LOW CONSUMPTION, HIGH PERFORMANCE SIPHON JET/PRESSURE ASSIST, DUAL FLUSH; ZURN Z59565S–AM–EL OPEN FRONT ELONGATED SEAT WITHOUT COVER AND ANTI–MICROBIAL PROTECTION; ZURN Z8800–CR STOP WITH FLEX. CLOSET RISER. MOUNT FIXTURE AT ADA HEIGHT WITH RIM AT 16–3/4" AFF. CONNECTIONS: CW 1/2", WASTE 3", VENT 2" MIN.
WF–1	WASH FOUNTAIN, MERIDIAN 3793, ADA COMPLIANT, SELF RIMMING, INTEGRAL ASSE 1070 THERMOSTATIC MIXING VALVE SET TO 110°F, COUNTER MOUNTED, THRE BASIN, SPRAY NOZZLE INCLUDED, W/ SINGLE WASTE OUTLET 1–1/2" P–TRAP, CONNECTIONS: CW 1/2", HW 1/2", MOUNT AT 34" TOP OF RIM FOR ADA REQUIRED MOUNTING HEIGHT.
LV–1H	SELF RIMMING, COUNTER MOUNTED – ZURN Z5124 SERIES WITH VITREOUS CHINA CONSTRUCTION AND 4" FAUCET CENTERS; ZURN Z831R4 FAUCET WITH LEVER HANDLES, ZURN Z8800 SUPPLIES; ZURN Z8700 TRAP; Z8743–PC ADA GRID STRAINER; ZURN Z8946–3–NT ADA PROTECTORS, ASSE 1070 APPROVED TEMPERATURE LIMITING VALVE SET TO 110°F, CONNECTIONS: CW 1/2", HW 1/2", WASTE 1 1/4". MOUNT AT 34" TOP OF RIM FOR ADA REQUIRED MOUNTING HEIGHT.
LV–2H	ZURN Z5840 SERIES WITH VITREOUS CHINA CONSTRUCTION AND 4" FAUCET CENTERS; ZURN Z81104–XL FAUCET WITH LEVER HANDLES, ZURN Z8800 SUPPLIES; ZURN Z8700 TRAP; Z8746–PC ADA GRID STRAINER; ZURN Z8946–3–NT ADA PROTECTORS, ASSE 1070 APPROVED TEMPERATURE LIMITING VALVE SET TO 110°F, ZURN Z1231 CONCEALED ARM CARRIER, CONNECTIONS: CW 1/2", HW 1/2", WASTE 1 1/4". MOUNT AT 34" TOP OF RIM FOR ADA REQUIRED MOUNTING HEIGHT.
HB–1	HOSE BIBB, OUTDOOR TYPE, ZURN Z–1320 WITH CERAMIC DISC, NON–FREEZE, ENCASED, ANTI–SIPHON, AUTO DRAIN, S.S. BOX & HINGED COVER, KEY LOCK, ALL BRONZE INTERIOR PARTS. COVER STAMPED "WATER".

WATER HEATER SCHEDULE

TAG	ELECTRIC DATA				HYDRONIC DATA					BASIS OF DESIGN		WEIGHT	NOTES
	FLA	MOCP	VOLT PHASE	KW	EWT	LWT	RATE OF RECOVERY	RISE OF RECOVERY	CAPACITY (GAL)				
	AMPS	AMPS			DEG.F	DEG.F	GPM	DEG. F		MFGR	MODEL	LBS	
EWH–1	19.2	20	208/1	4	60	140	0.33	80	40	RHEEM	ELD40	108	ALL
EWH 2 THRU 5	25	25	120/1	3	60	110	.5	50	–	STIEBEL ELTRON	DHC 3–1	4.6	3,4
EWH–6	19.2	20	208/1	4	60	140	0.33	80	30	RHEEM	ELD30	108	1–3

NOTES:

1. 3/4" INLET OUTLET CONNECTIONS
2. SUPPLY 140°F WATER TO MOP SINK AND 110°F WATER TO LAVATORIES. LAVATORIES SHALL BE EQUIPPED WITH INDIVIDUAL TEMPERATURE LIMITING DEVICES THAT CONFORM WITH ASSE 1070.
3. OPERATING PRESSURE BETWEEN 20PSI TO 150 PSI
4. 1/2" INLET OUTLET CONNECTIONS

GENERAL PLUMBING NOTES:

1. COMPLY WITH 2015 INTERNATIONAL MECHANICAL & PLUMBING CODE, NFPA, STATE AND LOCAL CODES.
2. PLUMBING CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION CERTIFICATES.
3. OMISSIONS OR MISDESCRIPTION OF DETAILS OF WORK WHICH ARE EVIDENTLY NECESSARY TO CARRY OUT THE INTENT OF THE DRAWINGS, OR WHICH ARE CUSTOMARILY PERFORMED, SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH OMISSIONS AND DETAILS OF WORK, BUT THEY SHALL BE PERFORMED AS IF FULLY AND CORRECTLY SET FORTH & DESCRIBED.
4. PORTIONS OF WALLS AND ARCHITECTURAL FEATURES MAY HAVE BEEN OMITTED FROM THIS PLAN FOR CLARITY OF MECHANICAL FEATURES. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF FIXTURES, AND DIMENSIONS.
5. VERIFY FIELD DIMENSIONS. COORDINATE WORK WITH OTHER TRADES TO AVOID INTERFERENCES.
6. LAY OUT PIPING BASICALLY AS SHOWN. MAJOR CHANGES IN LAYOUT MAY BE MADE ONLY WITH WRITTEN CONSENT OF ARCHITECT OR ENGINEER.
7. ALL COMPONENTS USED IN PLENUM SPACES MUST BE CONSTRUCTED OF NON–COMBUSTIBLE MATERIAL.
8. COLOR OF FIXTURES AND TRIM SHALL BE AS SELECTED BY OWNER/ARCHITECT.
9. FIXTURES INDICATED AS BARRIER FREE SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
10. PROVIDE ELECTRICAL CONTRACTOR WITH EXACT WIRING REQUIREMENTS. IF ELECTRICAL REQUIREMENTS VARY FROM THOSE INDICATED ON PLANS, PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ASSOCIATED ADDITIONAL COSTS.
11. REFER TO SITE PLAN FOR ROUTING OF WATER AND SEWER.
12. ENSURE THAT ALL PENETRATIONS OF FIRE WALLS ARE PROPERLY FIRESTOPPED.
13. ALL WATER LINES, BOTH HOT AND COLD, SHALL BE AS FOLLOWS:
    A. LINES BELOW GRADE SHALL BE TYPE "K" SOFT COPPER OR PEX.
    B. LINES ABOVE GRADE SHALL BE TYPE "L" SOFT COPPER.
    C. FITTINGS SHALL BE OF HARD DRAWN COPPER OF ASTM SPEC B–88.
    D. ALL JOINTING SHALL BE WITH LEAD–FREE SILVER SOLDER.
    E. EQUIPPED WITH SHOCK ABSORBERS AS REQUIRED.
14. PLUMBING CONTRACTOR SHALL FURNISH & INSTALL SHUT–OFF VALVES TO ALL FIXTURES NOT OTHERWISE EQUIPPED.
15. ALL WASTE PIPING SHALL BE SCHEDULE 40 PVC CONFORMING TO ASTM D–1785. PIPING SMALLER THAN 3" SHALL BE LAID OUT AT 1/4" PER FOOT GRADE. PIPING 3" AND LARGER SHALL BE LAID OUT AT 1/8" PER FOOT GRADE. ALL VENT PIPING WITHIN PLENUM OR AIR–HANDLING SPACES SHALL BE COPPER OR CAST IRON.
16. ALL FLOOR DRAINS SHALL BE EQUIPPED WITH TRAP PRIMER. LOCATE TRAP PRIMER EQUIPMENT CONCEALED IN ACCESSIBLE LOCATION.
17. ALL WATER LINES, BOTH HOT AND COLD, SHALL BE CAPPED AND TESTED AT 180 PSI FOR 24 HOURS. ALL WASTE PIPING SHALL BE TESTED WITH A 10' WATER COLUMN FOR A 2 HR PERIOD WITH NO CHANGE IN LEVEL.
18. VENT PIPING SHALL BE LAID OUT SUCH THAT ALL ROOF PENETRATIONS SHALL BE ON BACK SIDE OF ROOF. PAINT EXPOSED VENT PIPING TO MATCH ROOF.
19. COORDINATE ROOF PENETRATIONS WITH ROOFING CONTRACTOR. ENSURE THAT WARRANTY REQUIREMENTS OF ROOFING MANUFACTURER ARE SATISFIED.
20. MATERIALS, EQUIPMENT, AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE. DEFECTS WHICH APPEAR DURING THIS PERIOD SHALL BE CORRECTED AT THE MECHANICAL CONTRACTOR'S EXPENSE.

FIXTURE CONNECTION NOTES:

1. CONNECT TO PLUMBING FIXTURES AND EQUIPMENT PROVIDED UNDER THIS AND OTHER SECTIONS OF SPECIFICATION, ARCHITECTURAL DRAWINGS, AND MANUFACTURER'S SHOP DRAWINGS. PROVIDE ROUGH–IN CONNECTION AS SHOWN IN DRAWINGS.
2. USE FIXTURE SCHEDULE AND DETAILS ON DRAWINGS OR MANUFACTURER'S SHOP DRAWINGS FOR CONNECTION SIZES TO FIXTURES.
3. PROVIDE SEPARATE P–TRAP FOR EACH FIXTURE, FLOOR DRAIN, AND PIECE OF EQUIPMENT.
4. PROVIDE PVC (SCH 80) P–TRAPS FOR UNDER FLOOR DRAINS.
5. MOUNT FIXTURES RIGID TO WALLS AS SHOWN ON DRAWINGS OR DETAILS.
6. PROVIDE OUTLET DEVICES WHICH LIMIT FLOW OF HOT WATER TO LAVATORIES AND HAND SINKS TO A MAXIMUM OF 0.5 GPM AND SIZED AS RECOMMENDED BY MANUFACTURER AND AS REQUIRED BY ASHRAE STANDARD 90–75, PARAGRAPH 7.7.2, LOCAL AND STATE ENERGY CODES.
7. INSTALL LAVATORIES AND HAND SINKS WITH A MINIMUM OF 4" CLEARANCE ON EACH SIDE FROM WALL OR PARTITION.
8. COORDINATE DIMENSIONS REQUIRED FOR MINIMUM FIXTURE CLEARANCE WITH OTHER DIVISIONS.
9. INSTALL APPROVED CAULKING AROUND JOINTS AT FIXTURES MOUNTED ON WALL OR FLOOR.

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Revisions:

No.	Date	Description
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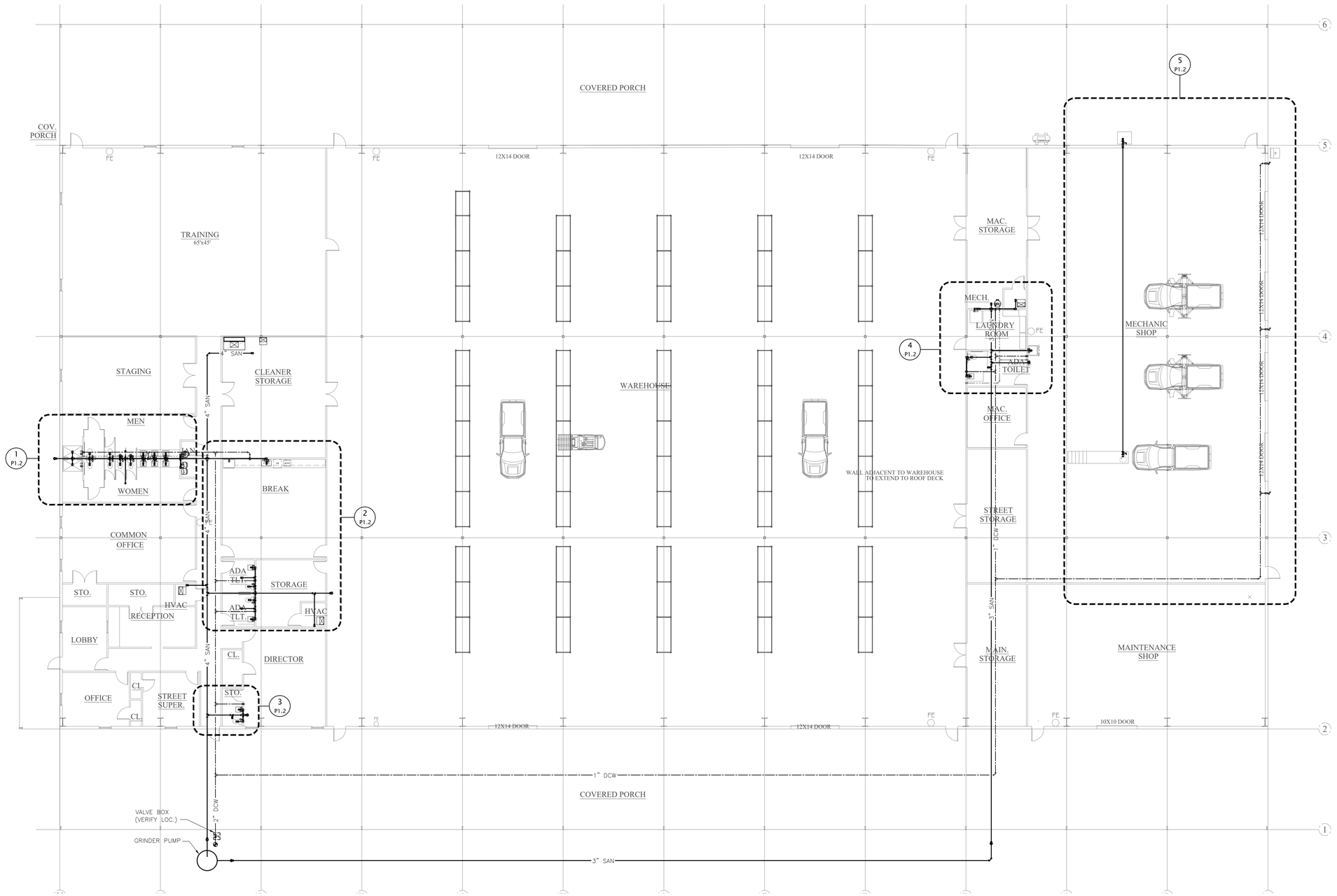
Orange Beach Public Works
Roscoe Road
Orange Beach, Alabama

Title:
PLUMBING NOTES, LEGEND & SCHEDULE

Project No.: ------
Drawn By: Wade Stewart, PE
Checked: GWS, JHC
Date: September 30, 2019

Sheet Number:
P1.0



LICENSED PROFESSIONAL ENGINEER
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Roscoe Road
Orange Beach, Alabama

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OVERALL PLUMBING PLAN

Project No.: -----
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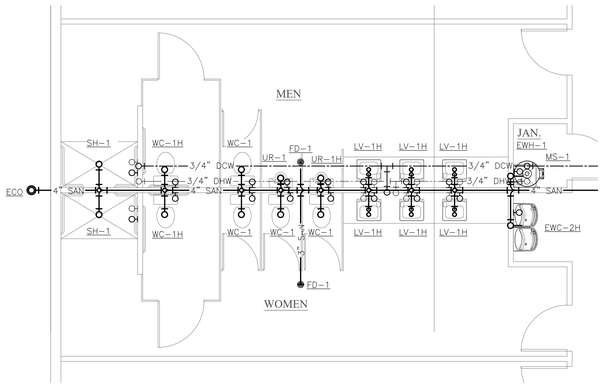

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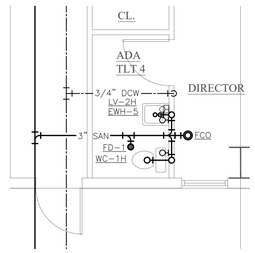
1 P1.2 **ENLARGED PLUMBING PLAN**
SCALE: 1/4" = 1'-0"



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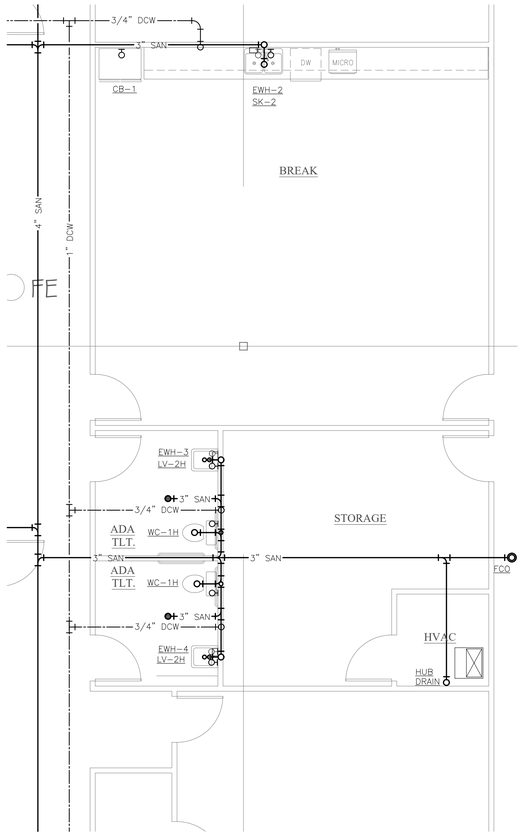
3 P1.2 **ENLARGED PLUMBING PLAN**
SCALE: 3/16" = 1'-0"



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2 P1.2 **ENLARGED PLUMBING PLAN**
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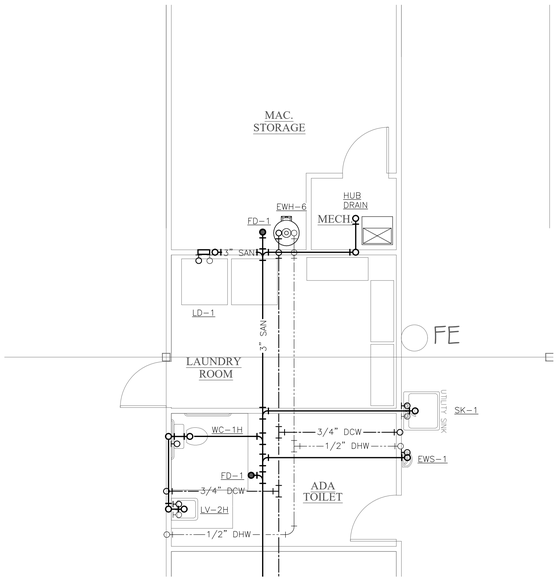

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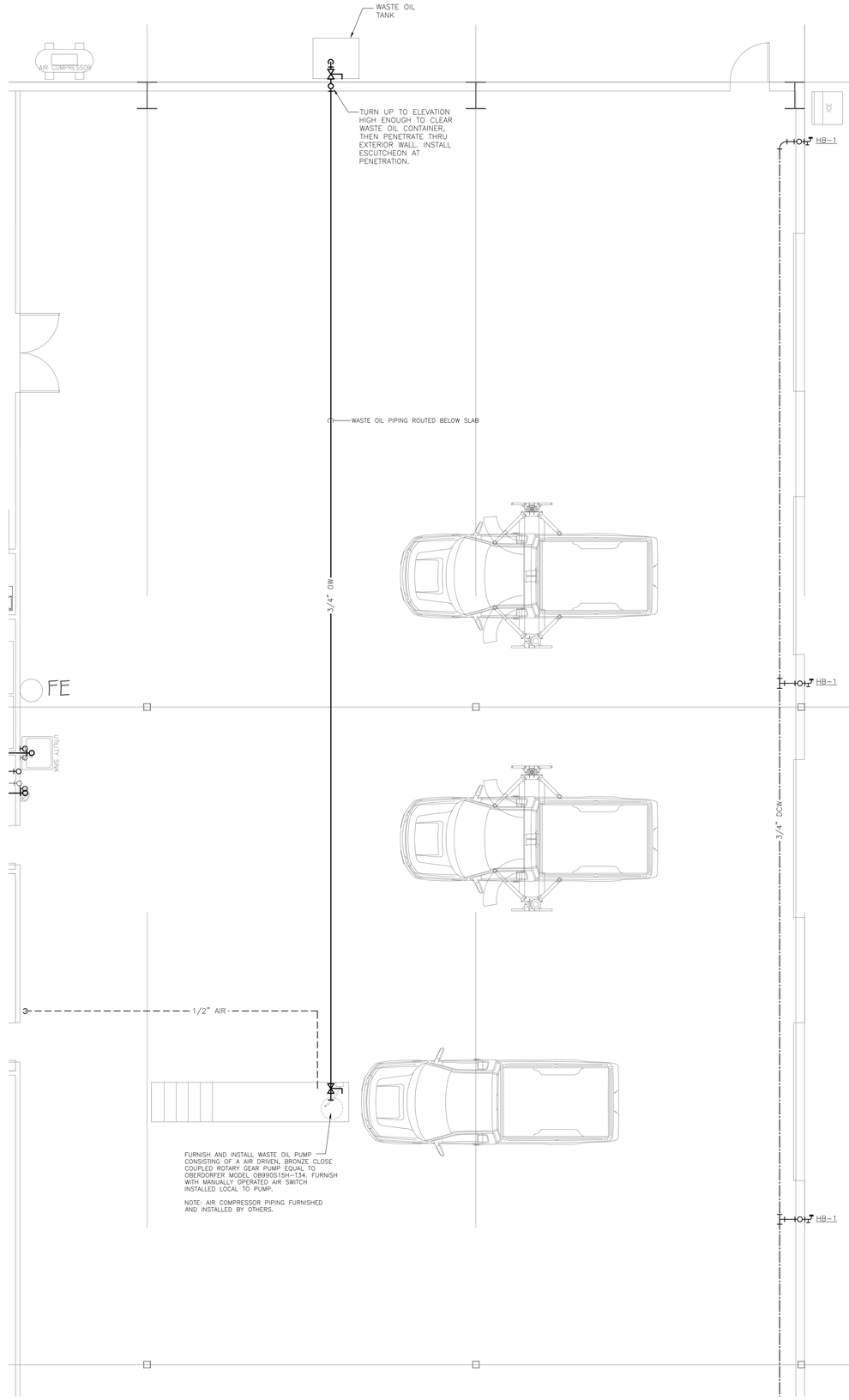
4 P1.2 **ENLARGED PLUMBING PLAN**
SCALE: 1/4" = 1'-0"



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5 P1.2 **ENLARGED PLUMBING PLAN**
SCALE: 1/4" = 1'-0"

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ENLARGED PLUMBING PLAN

Project No.: -----
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Orange Beach Public Works
Roscoe Road
Orange Beach, Alabama

SANITARY WASTE RISER

Project No.: ……
Drawn By: Wade Stewart, PE
Checked: Cody Lee, PE
Date: September 20, 2019

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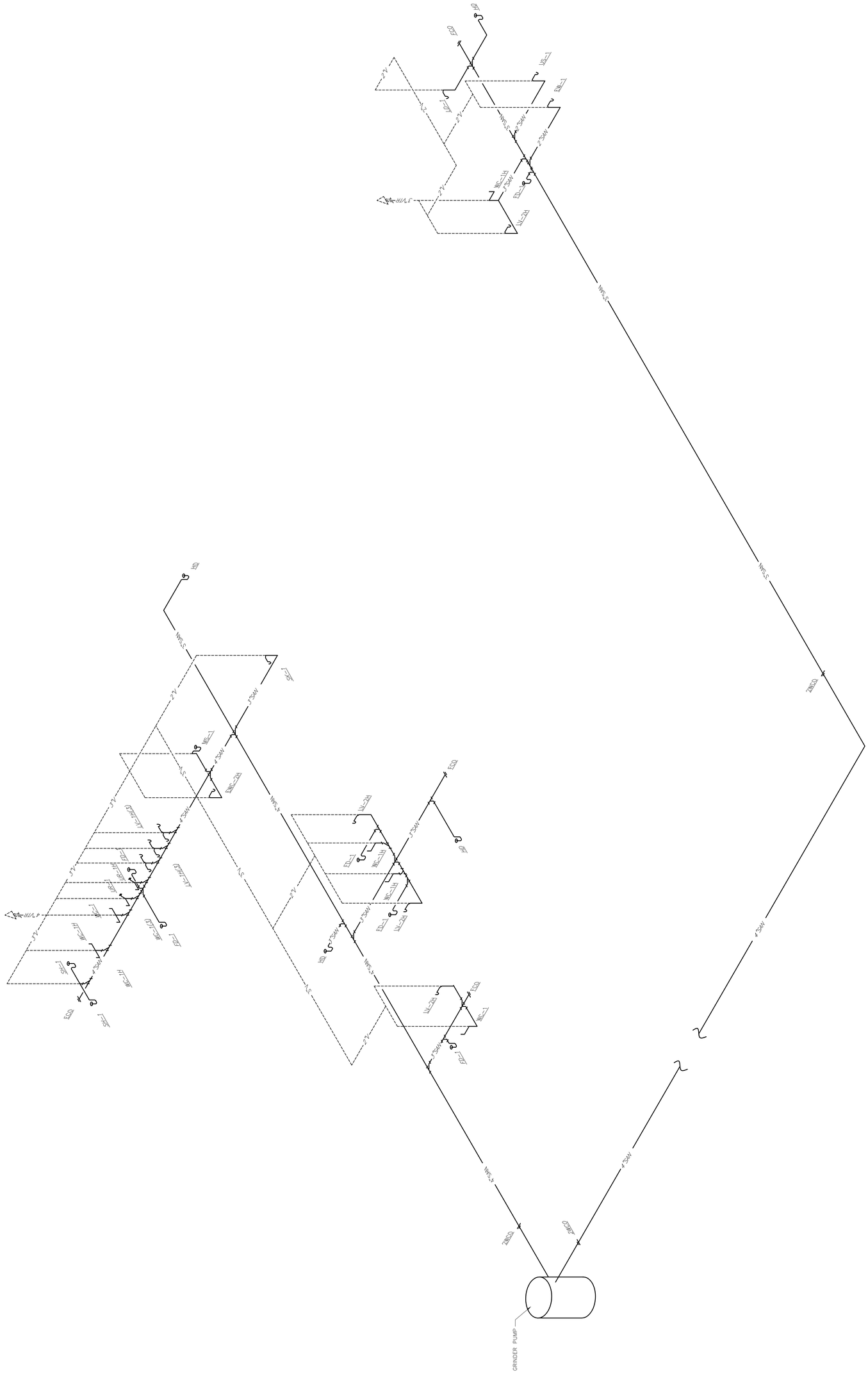
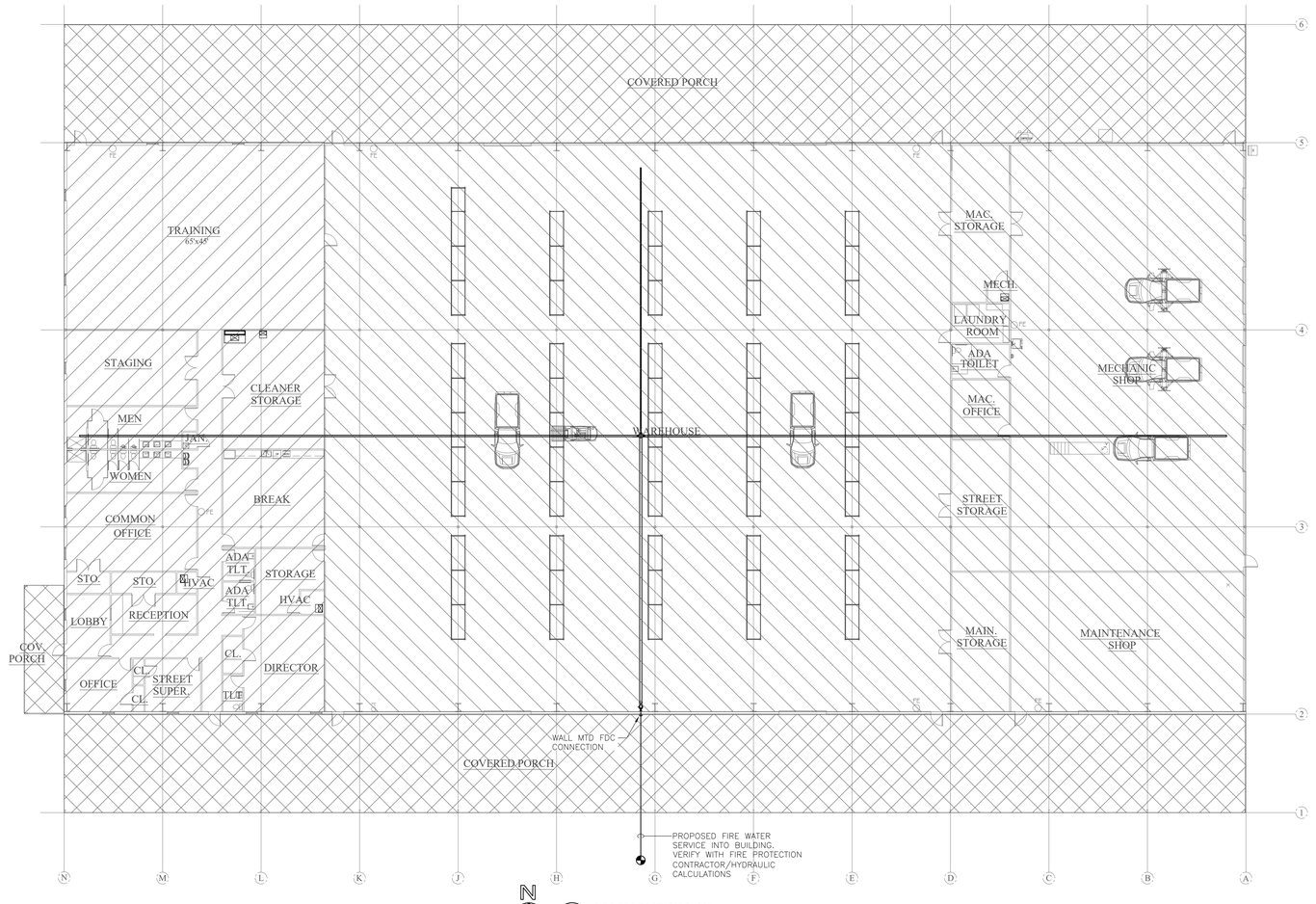


1 / P2.0 SANITARY WASTE RISER
SCALE: NONE



1 FP1.0 **FIRE PROTECTION PLAN**
SCALE: 1" = 15'-0"

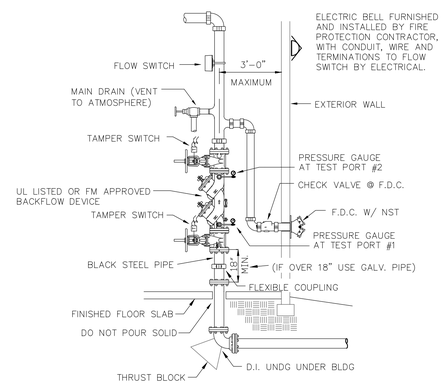
FLOW TEST DATA			
STATIC	RESIDUAL	GPM	REMARKS

NOTE:
CONTRACTOR TO VERIFY DATA PRIOR TO BEGINNING ANY WORK.

NOTE:
FIRE PROTECTION CONTRACTOR SHALL COORDINATE WITH SITE CIVIL PLANS AND EXISTING CONDITIONS FOR ROUTING NEW FIRE PROTECTION LINE TO BLDG. FURNISH HYDRAULIC CALCULATIONS REQUIRED FOR LINE SIZING AND APPROVAL BY FIRE MARSHAL.

FIRE PROTECTION GENERAL NOTES:

1. FIRE PROTECTION CONTRACTOR SHALL DESIGN AND CONSTRUCT A COMPLETE WET PIPE SYSTEM TO COVER THE AREAS INDICATED IN THE FIRE PROTECTION FLOOR PLANS AND IN THE "FIRE PROTECTION BUILDING CLASSIFICATION SCHEDULE" THIS SHEET.
2. CONTRACTOR SHALL OBTAIN INDEPENDENT WATER FLOW AND PRESSURE DATA AND PERFORM SEPARATE HYDRAULIC CALCULATIONS.
3. CONTRACTOR SHALL ADHERE TO ALL APPLICABLE SECTIONS OF THE LATEST EDITION OF NFPA 13 WHEN DESIGNING THE SPRINKLER SYSTEM. HYDRAULIC CALCULATIONS PROVIDED BY THE CONTRACTOR SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF NFPA 13. THE CONTRACTOR SHALL REVIEW THE COMPLETE SET OF CONTRACT DOCUMENTS TO ENSURE THE SYSTEM DESIGNED IS COORDINATED WITH ALL OTHER SYSTEMS IN THE BUILDING.
4. CONTRACTOR SHALL PROVIDE PIPE STANDS, HANGERS, AND SEISMIC BRACING IN ACCORDANCE WITH NFPA 13.
5. CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL FIRE RATED AND ACOUSTICAL ASSEMBLIES.
6. THE FIRE PROTECTION CONTRACTOR SHALL COORDINATE ALL WORK WITH THE GENERAL CONTRACTOR AND OTHER TRADES TO ALLOW FOR A MINIMUM OF INTERFERENCE. SPRINKLER PIPING SHALL NOT BE ROUTED OVER ANY ELECTRICAL GEAR.
7. ALL SPRINKLER HEADS SHALL BE LOCATED IN ACCORDANCE WITH NFPA 13. PROVIDE SEMI-RECESSED SPRINKLERS IN AREAS WITH CEILINGS. LOCATE SPRINKLER HEADS IN THE CENTER OF CEILING TILE IN ACOUSTICAL LAY-IN CEILINGS. PROVIDE UPRIGHT SPRINKLER HEADS IN AREAS WITHOUT CEILINGS. COORDINATE WITH HVAC EQUIPMENT, LIGHTING FIXTURES, ELECTRICAL CONDUITS, DUCTWORK AND PIPING. COORDINATE WITH ARCHITECTURAL PLANS.
8. HYDRAULIC CALCULATIONS AND SPRINKLER SHOP DRAWINGS FOR BUILDING FIRE PROTECTION SYSTEMS MUST BE PREPARED UNDER THE SUPERVISION OF AN ENGINEER LICENSED IN THE STATE OF ALABAMA AND BEAR HIS/HER LICENSURE SEAL WITH SIGNATURE AND DATE.



3 F100 **WET TYPE FIRE SPRINKLER RISER**
SCALE: N.T.S.

* 1. BACKFLOW PREVENTER SHALL BE TESTED FOR PROPER OPERATION PER MUNICIPALITY REQUIREMENTS BY FIRE PROTECTION CONTRACTOR BEFORE CERTIFICATE OF OCCUPANCY IS ISSUED.

2. ADEQUATE CLEARANCE SHALL BE PROVIDED AROUND FIRE RISER. DIMENSIONS FROM FACE OF PIPE SHALL MEASURE A MINIMUM OF 12" OFF THE BACK WALL, 18" ON EACH SIDE AND 36" CLEAR IN FRONT WITH A FULL HEIGHT DOOR. THE FIRE LINE SHALL EXTEND A MAXIMUM OF 3' INTO THE BUILDING FROM INSIDE FACE OF WALL TO CENTER OF PIPE.
3. RISER SHALL BE HYDROSTATICALLY TESTED AT 200 PSI FOR TWO HOURS.
4. AT #1 & #4 TEST PORTS INSTALL A 1/2" BRASS NIPPLE, TEE & PLUGS W/1/2" x 1/4" MALE FLARED CONNECTION W/ CAP (INSTALL PRESSURE GAUGE ON TEE OUTLET)
5. HYDRAULIC DESIGN AND SUMMARY INFORMATION PER NFPA SHALL BE ATTACHED TO RISER.
6. SPARE HEAD BOX SHALL BE MOUNTED IN AREA.

* REDUCED-PRESSURE BACKFLOW REQUIRED WHEN F.D. CONNECTION IS WITHIN 1700 FEET OF AN AUXILIARY SUPPLY.

SPRINKLER SYSTEM DESIGN CRITERIA PER NFPA 13							
AREA	HAZARD CLASS	SYSTEM TYPE	DENSITY (GPM/SF)	COVERAGE AREA	HOSE STREAM	SPRINKLER TYPE	REMARKS
OFFICE AREA	LIGHT HAZARD	WET	0.10	1,500 SF	100 GPM		1
SHOP	ORDINARY HAZARD GROUP 1	WET	0.15	1,500 SF	250 GPM		2
COVERED PORCHES	LIGHT HAZARD	WET	0.10	1,500 SF	100 GPM		1

REMARKS:
1. 30 MIN. DURATION
2. 60-90 MIN. DURATION

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FIRE PROTECTION PLAN

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