

### **Stewart Engineering & Construction**

40680 STATE HWY 59 BAY MINETTE, ALABAMA 36507

TELEPHONE OFFICE 251 937-6313 FAX 251 937-1782

May 4, 2020

**City of Orange Beach – Public Works** 4400 William Silvers Parkway Orange Beach, Alabama 36561

Re:

**New Public Works Building – Engineering Changes** 

Dear Mr. Tim Tucker:

The purpose of this document is to address field changes that have occurred since permit approval.

- 1. Change toilet exhaust method from roof mounted to individual space exhaust fans and wall cap or louver.
- 2. Change HVAC duct from metal to insulated duct-board.

We take no exception to these changes.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

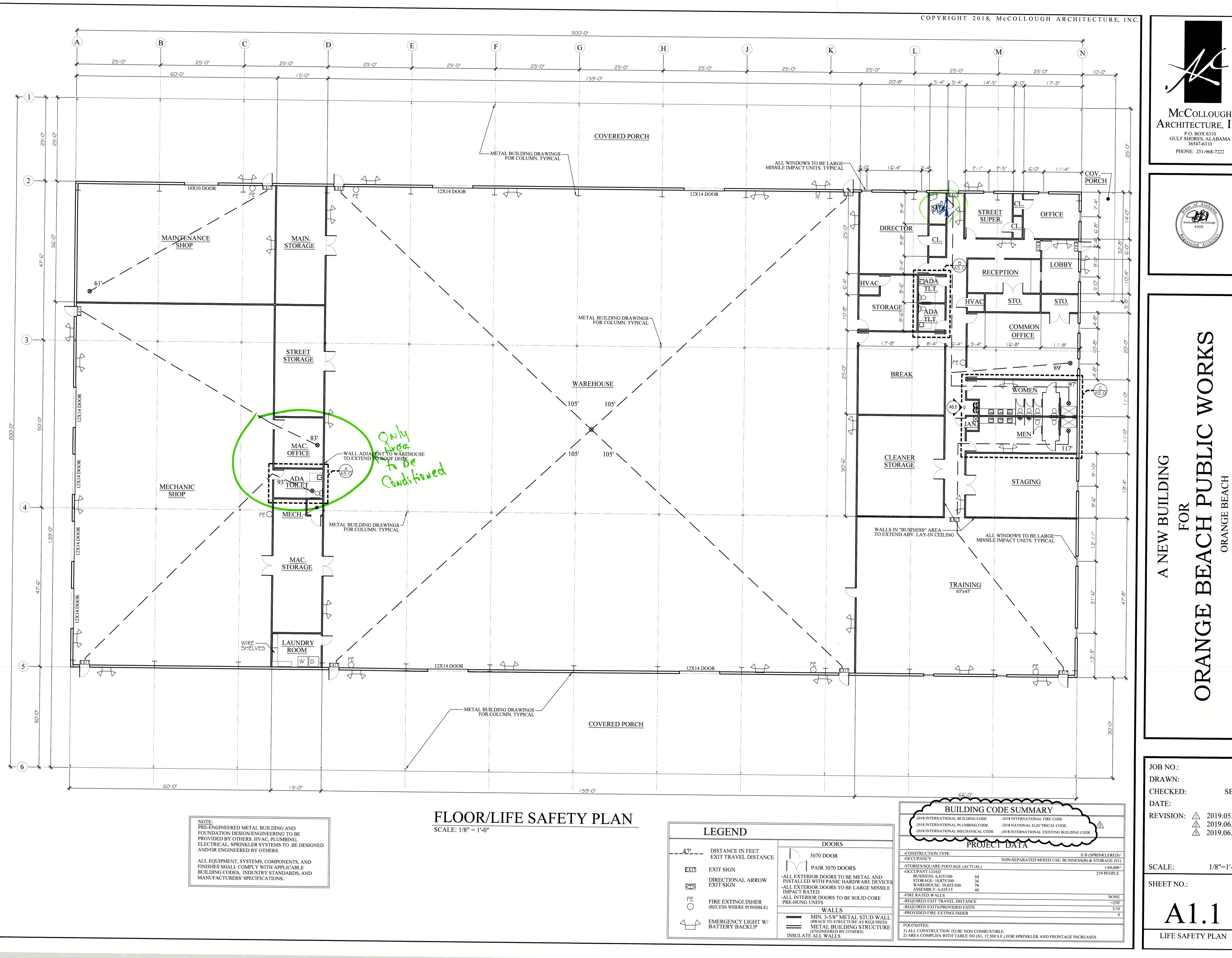
Glen Wade Stewart, P.E.

President

NO. 26767
PROFESSIONAL

5/4/2020

MADE S







CHECKED:

2019.05.28 **2019.06.05 2019.06.10** 

SBM

1/8"=1'-0"

## 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

SYS TEMP TSTAT TYP VEL VF

SYSTEM TEMPERATURE THERMOSTAT

TYPICAL VELOCITY

WITH

VENTILATION FAN

SD SMOKE DAMPER BDD BACK DRAFT DAMPER

# **HVAC ABBREVIATIONS**

ALL ABBREVIATIONS SHOWN MAY NOT APPEAR IN DRAWINGS. AFF ABOVE FINISHED FLOOR AIR HANDLING UNIT AUX AUXILIARY BDD BRD BACK DRAFT DAMPER BAROMETRIC RELIEF DAMPER CEIL CEILING COND CONDENSATE DIAMETER ENTERING AIR TEMPERATURE ROOM EXHAUST FAN EQUIP EQUIPMENT FIRE DAMPER **FURN** FURNACE GAUGE GAS RADIANT HEATER GAS UNIT HEATER HEAT PUMP HOUR MAX MAXIMUM MCA MINIMUM CIRCUIT AMPACITY MOTORIZED DAMPER MECH MECHANICAL MFR MANUFACTURER MINIMUM MOCP MAXIMUM OVERCURRENT PROTECTION NOT IN CONTRACT OUTSIDE AIR PENETRATION PACKAGED TERMINAL AIR CONDITIONER RETURN AIR ROOM REG REGISTER ROUND ROOFTOP UNIT

											SPLIT SYSTEM	1 SCHEDU	JLE	-								W	
	4 110	1551 05515	Talla	TOTAL	O.A.	EER @	COOLING	CAPACITY	HEATING	CAPACITY		11	NDOOR UNIT					0	UTDOOR UN	IIT			
MARI	NO.	AREA SERVED	TONS	CFM	(CFM)	ARI COND.	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)	NOTES
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

. 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. . 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

					VENTILAT		III ATION	***************************************		**************************************	
		I VENTUATION									
	APPROX	VENTILATION REQUIREMENTS	OCCUPANCY	VALUES "Pz"	RATES "Vbz"	EXHAUST AIR RATES	ZONE AIR DISTRIBUTION	VENTILATION	VENTILATION RATE AS	EXHAUST AIR	
ROOM	ROOM SIZE (SF) "Az"	IMC 2015 TABLE 403.3	IMC 2015 TABLE 403.3	PEOPLE REQUIRED PER DESIGN	IMC 2015 TABLE 403.3	IMC 2015 TABLE 403.3	EFFECTIVENESS "Ez" PER IMC 403.3.1.2	RATE AS DESIGNED (CFM)	DESIGNED PER IAQ ALT (CFM)	RATE AS DESIGNED (CFM)	REMARKS
OFFICES	2617	5/1000 5 CFM/PERSON + 0.06 CFM/SF	13	13	222	-	0.8	278	200		
BREAK	633	5/1000 5 CFM/PERSON + 0.06 CFM/SF	3	3	53	-	0.8	66	60		,5,
TRAINING	3049	35/1000 5 CFM/PERSON + 0.06 CFM/SF	107	70	533	-	0.8	666	400		CONTO ON US
LOBBY	176	10/1000 5 CFM/PERSON + 0.06 CFM/SF	2	2	21	-	0.8	26	25		POLETING TO THE SCHOOL
CORRIDOR	736	0.06 CFM/SF	_	-	44	-	0.8	55	30		Pr.S.
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	_		

1320 840 SPACE ONLY

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 PER	FORMANC	E DATA				
TAG	SERVICE	CFM	SONES	El	_ECTRICAL DA	ТА	BASIS O	F DESIGN	NOTES
170	SERVICE	CFWI	SONES	POWER	E.S.P.	VOLTAGE	MFGR	MODEL	NOTES
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- <mark>1</mark> /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

MFGR SPECIED IS "BASIS OF DESIGN" OR EQUAL. CONTRACTOR SHALL SUBMIT MFGR,

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

R, MODEL AND PERFORMANCE DATA.	1 /
0/ 41/00	120
er supp	
HOOD W/SCREENING.	n stalled

			AIR PUR	RIFICATION I	DEVICE SCH	EDULE			
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: . 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.

0	FFICE AREA SPAC	E PRESSURIZATIO	N
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 PF	RESSURIZATION = (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

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.

CERTIFICATE OF FINAL INSPECTION, AND TURN OVER TO OWNER AT COMPLETION OF PROJECT.

4. MECHANICAL CONTRACTOR TO PROVIDE GENERAL CONTRACTOR WITH AS-BUILT DRAWINGS, ALL EQUIPMENT SHOP DRAWINGS, INFORMATION ON THERMOSTATS, CONTROL WIRING DIAGRAMS AND

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

OTHER PERTINENT INFORMATION AT COMPLETION OF PROJECT.

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. 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

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.

CONDITIONS. COORDINATE EXACT MOUNTING HEIGHT IN FIELD WITH GENERAL CONTRACTOR. ROUND

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





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

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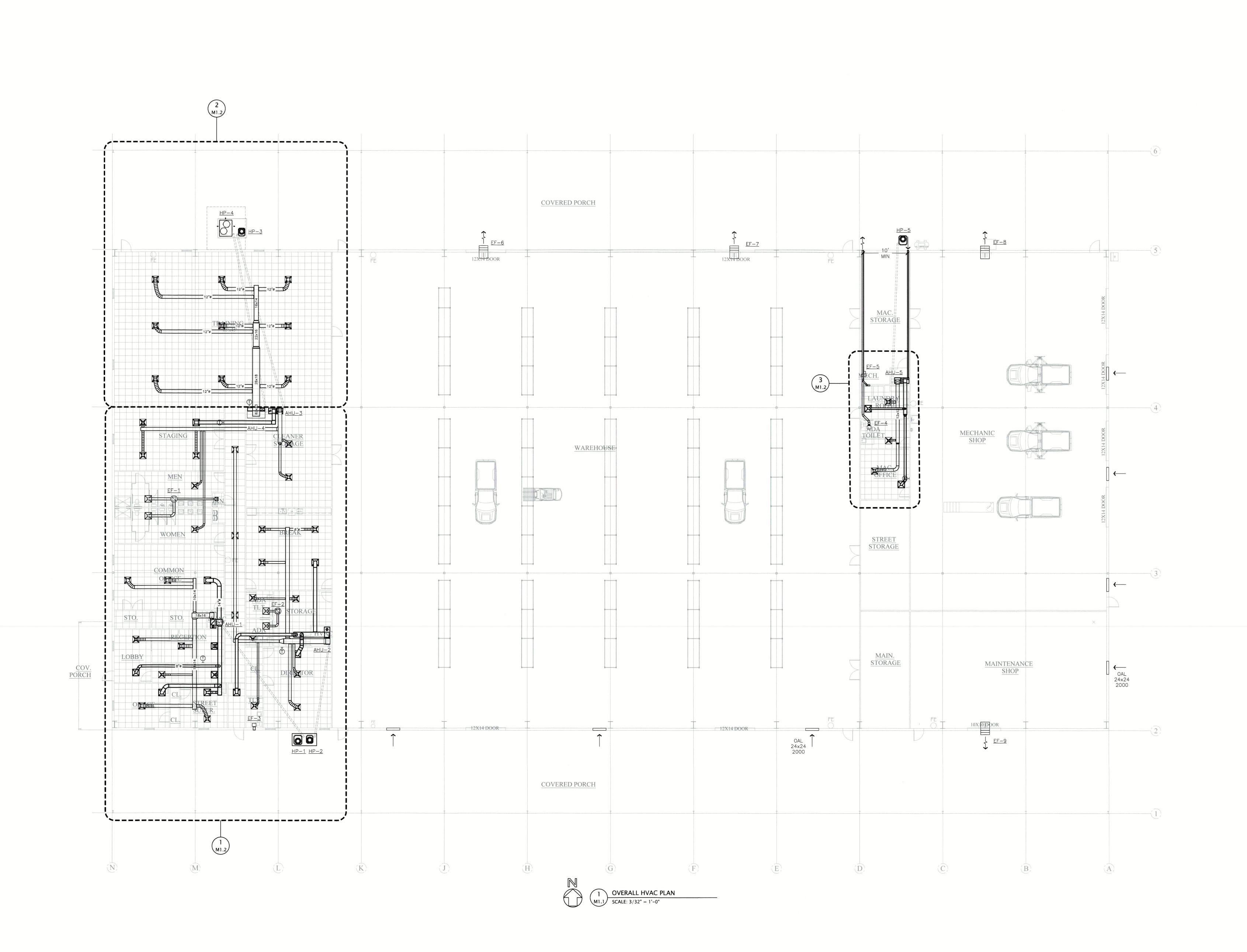
**HVAC NOTES,** LEGEND, AND **SCHEDULES** 

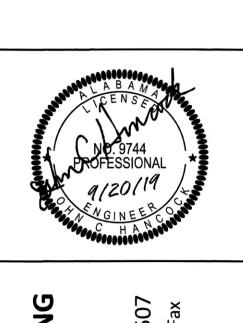
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Project No.: ----Drawn By: Wade Stewart, PE Checked: GWS, JHC Date: September 30, 2019

Sheet Number:





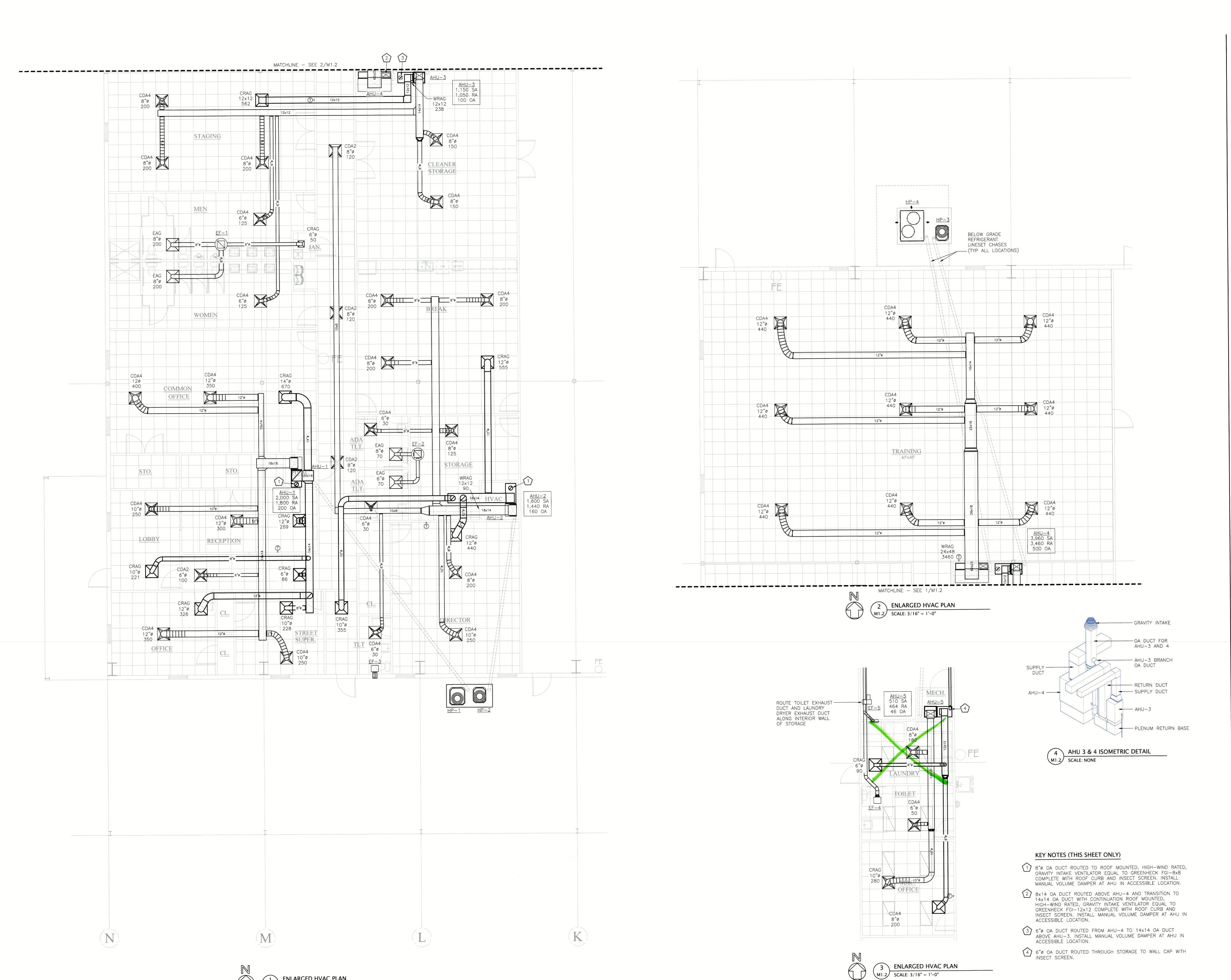
No. Date Description
A 9/20/19 ABC CODE REVIEW/PRE-PERMIT

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OVERALL HVAC PLAN

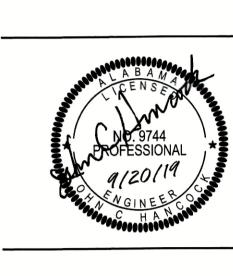
Project No.: ----Drawn By: Wade Stewart, PE
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Date: September 30, 2019

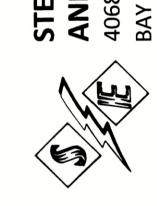
Sheet Number:



1 ENLARGED HVAC PLAN

M1.2 SCALE: 3/16" = 1'-0"



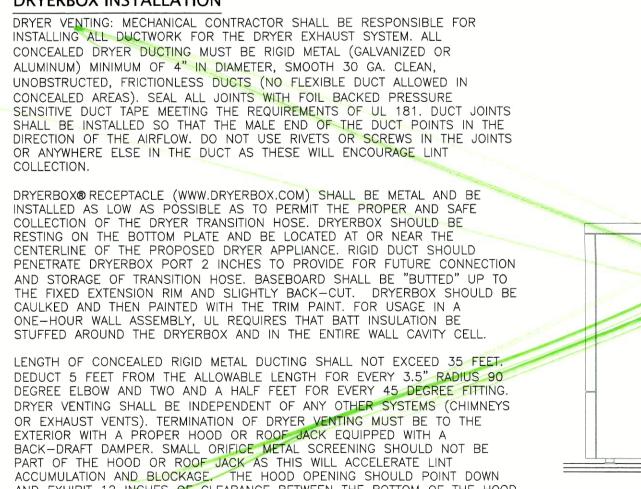


Public

**ENLARGED HVAC PLAN** 

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

Sheet Number: M1.2



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 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.

DRYERBOX INSTALLATION

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. 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.

PARTITION WALL IN HC UNITS, SEE PLANS FOR ROUTING.

ANCHOR FAN TO -

DUCT TRANSITION —— FROM CEILING

BACKDRAFT —

5 ROOF MOUNTED DOWN BLAST EXHAUST FAN DETAIL

DAMPER

M2.0 SCALE: N.T.S.

GRILLE SIZE TO DAMPER SIZE

RUN FLASHING — UP UNDER FAN BASE

CURB

M2.0 SCALE: NONE

EXACT ELEVATION WITH ARCHITECT FIRRING STRIP ADDED TO 2X4 TO ACHIEVE ADEQUATE DEPTH FOR - MODEL 425 FIRRING STRIP -IF REQ'D RIDGID PIPE NOT TO EXCEED 2" THROUGH DRYER BOX TFLEX TRANSITION HOSE → MOUNT DRYERBOX AS LOW AS REFER TO NOTES DRYER VENT IS IN 1-HOUR DRYERBOX 350 DETAIL

POSSIBLE UNLESS YOU HAVE A PEDASTAL OR STACKABLE DRYER

EXTEND DUCT TO LOCATIONS SHOWN ON PLANS AND CONNECT TO WALLCAP WITH INTEGRAL BACKDRAFT DAMPER. COORDINATE

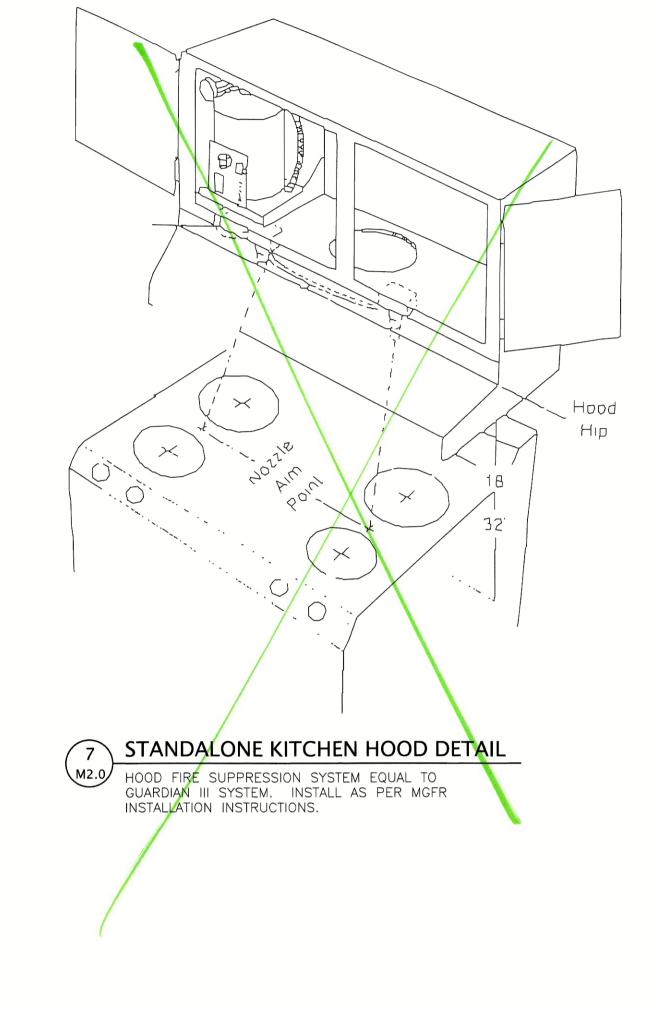
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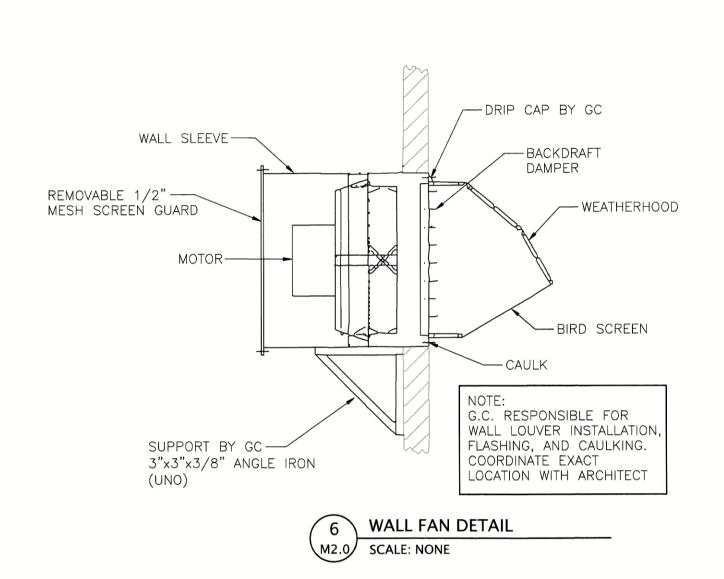
ROUTE EXHAUST DUCT DOWN
BETWEEN ROOF JOISTS AND
SIZE PER PLAN REQUIREMENTS

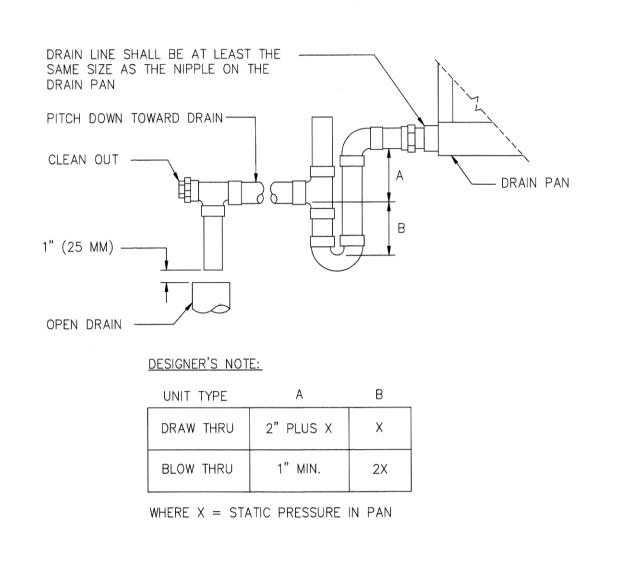
USE THIS WITH RECTANGULAR — DUCT TAKEOFF — SMACNA 45° ENTRY FITTING: L= 1/4 W, (4" MIN.) (MAY ALSO BE PARALLEL FLOW FITTING)

M2.0 SCALE: NONE

LOW PRESSURE DUCT VOLUME DAMPER REQUIREMENTS







1 AHU DRAIN TRAP DETAIL

----UNIT WIDTH----

PLUS 12" MINIMUM

M2.0 SCALE: NONE

REFRIG.

2 OUTDOOR UNIT INSTALLATION DETAIL

INTERIOR

EXTERIOR

(SEE SCHEDULE)

NOTE: WHERE MULTIPLE UNITS ARE TO BE INSTALLED, PAD MAY BE POURED CONTINUOUS MEETING MINIMUM

DIMENSIONS

OUTDOOR UNIT

BUILDING WALL

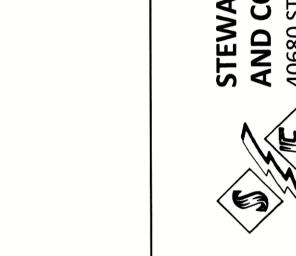
— 6" ТНІСК

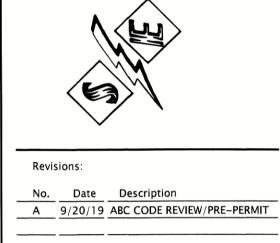
(MINIMUM) 6x6

CONCRETE PAD; CHAMFER TOP EDGES

WIRE REINFORCED

M2.0 SCALE: NONE





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**HVAC DETAILS** 

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Project No.: ----Drawn By: Wade Stewart, PE Checked: GWS, JHC

Date: September 30, 2019 Sheet Number: **M2.0**