HVAC ABBREVIATIONS

SYMBOL	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
AFR	ABOVE FINISHED ROOF
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
AS	AIR SEPARATOR
BOP	BOTTOM OF PIPE
BHP	BRAKE HORSEPOWER
BT	BUFFER TANK
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHM	CHEMICAL SHOT FEEDER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CT	COOLING TOWER
CU	CONDENSING UNIT
CV	CONTROL VALVE
DDC	DIRECT DIGITAL CONTROLS
DN	DOWN
EAT	ENTERING AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
FCU	FAN COIL UNIT
FF	FINAL FILTERS
FM	FLOW METER
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
GPM	GALLONS PER MINUTE
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTUs PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MOCP	MAXIMUM OVER CURRENT PROTECTION
MOD	MOTOR OPERATED CONTROL DAMPER (MOD)
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAL	OUTSIDE AIR LOUVER
PRV	PRESSURE REDUCING VALVE
PRS	PRESSURE REDUCING STATION
PSI	POUNDS PER SQUARE INCH
PSIG	PSI GAUGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	RETURN AIR
RHC	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
UNO	UNLESS NOTED OTHERWISE
V / PH	VOLTS / PHASE
VAV	VARIABLE AIR VOLUMN
VFD	VARIABLE FREQUENCY DRIVE

HVAC PIPING SYMBOL LEGEND

SYMBOL	DESCRIPTION
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLER WATER RETURN
CD	CONDENSATE
CR	CONDENSATE RETURN
PC	PUMPED CONDENSATE
	FLOW DIRECTION
	GATE VALVE
	BALL VALVE
	CALIBRATING BALANCING VALVE
	BUTTERFLY VALVE
	GAS COCK
	UNION
	STRAINER
	CONTROL VALVE
	SOLENOID VALVE
	PSI REG.
	CHECK VALVE
	FLOW SWITCH
	FLEX CONNECTION
	O.S. & Y GATE VALVE
	THREE-WAY CONTROL VALVE
	THERMOMETER
EQUIP	P-TRAP
	TWO-WAY CHECK VALVE
MV	MANUAL VENT
	PRESSURE GAUGE
	ELBOW, TURNED DOWN
	ELBOW, TURNED UP
	TEE, OUTLET DOWN
	TEE, OUTLET UP

EQUIPMENT

SYMBOL	DESCRIPTION
F-1	EXHAUST/ OUTSIDE AIR DUCT UP TO FAN ABOVE
F-1	EXHAUST/ OUTSIDE AIR FAN ON ROOF AND DUCT DROP TO BELOW
F-1	IN-LINE CENTRIFUGAL FAN
EQUIP	P-TRAP

CONTROLS

SYMBOL	DESCRIPTION
T	THERMOSTAT / TEMPERATURE SENSOR
H	HUMIDISTAT / HUMIDITY SENSOR
M	MOTORIZED CONTROL DAMPER
TS	TEMPERATURE SENSOR
P	PRESSURE SENSOR
CO^2	CO2 SENSOR

AIR DISTRIBUTION

SYMBOL	DESCRIPTION
QTY XA(FLOW) TAG CFM	AIR DISTRIBUTION DEVICE: SUPPLY (4-WAY BLOW UNLESS INDICATED BY FLOW ARROW'S)
QTY XA(FLOW) TAG CFM	AIR DISTRIBUTION DEVICE: RETURN
QTY XA(FLOW) TAG CFM	AIR DISTRIBUTION DEVICE: EXHAUST
R S	AIR TERMINAL DEVICE: SIDEWALL MOUNTED RETURN OR SUPPLY
UC	UNDERCUT DOOR. SEE ARCHITECTURAL DRAWINGS

GENERAL TAGS

SYMBOL	DESCRIPTION
AHU-1	AIR HANDLING UNIT
F-1	FAN
CU-1	CONDENSING UNIT
VAV-1	VARIABLE AIR VOLUME TERMINAL UNIT
EDH-1	ELECTRIC DUCT HEATER
P-1	PUMP
1	REVISION REFERENCE
1 M#	DETAIL REFERENCE: TOP: DETAIL # BOTTOM: DRAWING # DETAIL SHOWN ON
0	NEUTRAL RELATIVE PRESSURE
+	POSITIVE RELATIVE PRESSURE
-	NEGATIVE RELATIVE PRESSURE
1 1 1	KEY NOTE CALLOUT

LIFE SAFETY

SYMBOL	DESCRIPTION
FD	FIRE DAMPER WITH ACCESS DOOR PANEL
SD	SMOKE DAMPER WITH ACCESS DOOR PANEL
FSD	FIRE AND SMOKE DAMPER WITH ACCESS DOOR PANEL
	EXISTING FIRE DAMPER TO REMAIN WITH ACCESS DOOR PANEL, UNLESS OTHERWISE NOTED
	EXISTING FIRE AND SMOKE DAMPER TO REMAIN WITH ACCESS PANEL, UNLESS OTHERWISE NOTED
	DUCT SMOKE DETECTOR

DUCTWORK

SYMBOL	DESCRIPTION
24"x12"	NEW DUCTWORK. FIRST DIMENSION IS SIDE SHOWN PROVIDE EXTERNALLY INSULATED SHEET-METAL DUCT
DOWN UP	DUCT ELBOW POSITIVE PRESSURE (SUPPLY)
DOWN UP	DUCT ELBOW NEGATIVE PRESSURE (EXHAUST)
DOWN UP	DUCT ELBOW NEGATIVE PRESSURE (RETURN)
UP DN	CHANGE OF ELEVATION
	FLEXIBLE DUCT
	TRANSITION, CONCENTRIC
	TRANSITION, ECCENTRIC
10X8 8"Ø	TRANSITION, SQUARE TO ROUND
	SQUARE THROAT ELBOW WITH TURNING VANES
	RADIUS ELBOW
	RECTANGULAR / ROUND BRANCH TAKE-OFF OR ROUND / ROUND BRANCH TAKE-OFF
24"x12"	RECTANGULAR DUCTWORK
24"/12"	FLAT OVAL DUCTWORK
8"ø	ROUND DUCTWORK

DUCT ACCESSORIES

SYMBOL	DESCRIPTION
SA-1	SOUND ATTENUATOR
M	MOTOR OPERATED CONTROL DAMPER (MOD)
FM	AIR FLOW MEASURING STATION
	MANUAL BALANCING DAMPER
M	ACCESS DOORS, VERTICAL OR HORIZONTAL
	FLEXIBLE CONNECTION
AF	CFM SENSOR
BD	BACKDRAFT DAMPER

GENERAL NOTES

1. **SCOPE:**
WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY FOR A COMPLETE AND PROPERLY FUNCTIONING MECHANICAL INSTALLATION IN ACCORDANCE WITH ALL APPLICABLE CODES AND CONTRACT DRAWINGS AND SPECIFICATIONS. WORK SHALL INCLUDE ALL WORK NORMALLY SPECIFIED IN DIVISION 23.

PAY FOR ALL REQUIRED LICENSES, FEES, INSPECTIONS AND PERMITS.

2. **CODES:**
INSTALL ALL WORK IN ACCORDANCE WITH THE LATEST EDITION OF ALL APPLICABLE REGULATIONS AND GOVERNING CODES, INCLUDING THE REGULATIONS OF THE UTILITY COMPANIES SERVING THE PROJECT.

WHERE A CONFLICT IN CODE REQUIREMENTS OCCURS THE MORE STRINGENT REQUIREMENT SHALL GOVERN.

3. **STANDARDS:**
ALL EQUIPMENT AND DEVICES SHALL BEAR U.L. LABEL, THE LABEL OF AN INDUSTRY RECOGNIZED APPROVED TESTING AGENCY OR A.G.A. CERTIFICATION FOR SAID ITEM OF EQUIPMENT OR DEVICE.

ALL ELECTRICAL DEVICES MUST BE U.L. LISTED.

4. **DRAWINGS:**
DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT AND EXTENT OF WORK. EXACT LOCATIONS AND ARRANGEMENT OF MATERIALS AND EQUIPMENT SHALL BE DETERMINED, WITH THE ACCEPTANCE OF THE ARCHITECT / ENGINEER, AS WORK PROGRESSES TO CONFORM IN THE BEST POSSIBLE MANNER WITH THE SURROUNDINGS AND WITH THE ADJOINING WORK OF OTHER TRADES. WHERE LOCATIONS OF EQUIPMENT, DEVICES OR FIXTURES ARE CONTROLLED BY ARCHITECTURAL FEATURES, ESTABLISH SUCH LOCATIONS BY REFERRING TO DIMENSIONS ON ARCHITECTURAL DRAWINGS, AND NOT BY SCALING DRAWINGS.

5. **DISCREPANCIES:**
IN CASE OF DIFFERENCES BETWEEN DRAWINGS AND SPECIFICATIONS OR WHERE DRAWINGS AND SPECIFICATIONS ARE NOT CLEAR OR DEFINITE, THE SUBJECT SHALL BE REFERRED TO ARCHITECT / ENGINEER FOR CLARIFICATION AND INSTRUCTIONS.

6. **ELECTRICAL PROVISIONS:**
WORK INCLUDES VARIOUS ELECTRICAL REQUIREMENTS (A) WHICH INCORPORATE SPECIAL ELECTRICAL FEATURES AND COMPONENTS WHICH ARE REQUIRED TO BE PHYSICALLY INTEGRAL WITH MECHANICAL EQUIPMENT, OR (B) WHICH REQUIRE NECESSARY ELECTRICAL INTERCONNECTING COMPONENTS FOR THE MECHANICAL SYSTEMS.

DEFINITIONS: DEFINITIONS FOR THE PURPOSE OF MECHANICAL / ELECTRICAL CONTROL AND POWER COORDINATION ARE AS GIVEN BELOW. ANY ITEMS WHICH DO NOT FALL WITHIN THE SCOPE OF THIS PARAGRAPH SHALL BE COORDINATED AS INDIVIDUALLY SPECIFIED.

'FURNISH' MEANS TO PROCURE AN ITEM AND TO DELIVER IT TO THE PROJECT FOR INSTALLATION.

'INSTALL' MEANS TO DETERMINE (IN COORDINATION WITH OTHERS AS NECESSARY) THE APPROPRIATE INTENDED LOCATION OF AN ITEM AND TO SET AND CONNECT IT IN PLACE.

'PROVIDE' MEANS TO BOTH FURNISH AND INSTALL.

7. **AUXILIARIES AND ACCESSORIES:**
INCLUDE ALL AUXILIARIES AND ACCESSORIES FOR A COMPLETE AND PROPERLY OPERATING SYSTEMS.

8. **INVESTIGATION OF SITE:**
CHECK SITE AND EXISTING CONDITIONS THOROUGHLY BEFORE PROVIDING A BID PRICE. ADVISE ARCHITECT / ENGINEER OF DISCREPANCIES OR QUESTIONS BEFORE BIDDING.

9. **COORDINATION:**
PROVIDE ALL REQUIRED COORDINATION AND SUPERVISION WHERE MECHANICAL WORK INTERFACES DIRECTLY OR INDIRECTLY WITH WORK OF ANY TRADES.

10. **PROVISIONS FOR OPENINGS:**
PROVIDE ALL REQUIRED OPENINGS TO ACCOMPLISH THE WORK. PROVIDE SLEEVES OR OTHER APPROVED METHODS TO ALLOW PASSAGE OF ITEMS INSTALLED.

11. **INTERRUPTION OF EXISTING SERVICES:**
ANY INTERRUPTION OF EXISTING MECHANICAL AND ELECTRICAL SERVICES SHALL BE COORDINATED IN ADVANCE WITH THE OWNER'S REPRESENTATIVE. THIS INCLUDES, BUT IS NOT LIMITED TO, SERVICES PROVIDING CHILLED WATER, ELECTRICITY OR OTHER CRITICAL SYSTEMS AS MAY BE PERTINENT TO THIS PARTICULAR PROJECT. SERVICE INTERRUPTION TIMES AND DURATION OF INTERRUPTION OF SERVICES SHALL BE DECIDED BY THE OWNER. PROVIDE APPROPRIATE PROVISIONS (E.G., ISOLATION SHUT-OFF VALVES, DAMPERS, END CAPS AND SIMILAR ITEMS) AS NECESSARY TO ACCOMMODATE THE REQUIRED SERVICE INTERRUPTIONS. IF SHUTDOWNS CANNOT BE ACCOMMODATED, PROVIDE MEANS FOR 'WET' TAPPING OR 'HOT' TAPPING OF PIPING SYSTEMS.

12. **CLEANING AND PROTECTION:**
EQUIPMENT: ALL MECHANICAL EQUIPMENT PROVIDED SHALL BE THOROUGHLY CLEANED OF ALL DIRT, OIL, CONCRETE, ETC...ANY DENTS, SCRATCHES OR OTHER VISIBLE BLEMISHES SHALL BE CORRECTED AND THE APPEARANCE OF THE EQUIPMENT MADE 'LIKE NEW' AND TO THE SATISFACTION OF THE ARCHITECT / ENGINEER.

UPON COMPLETION AND BEFORE FINAL ACCEPTANCE OF THE WORK, ALL DEBRIS, RUBBISH, LEFTOVER MATERIALS, TOOLS AND EQUIPMENT SHALL BE REMOVED FROM THE SITE.

PROTECTION OF WORK UNTIL FINAL ACCEPTANCE: PROTECT ALL MATERIALS AND EQUIPMENT FROM DAMAGE, ENTRANCE OF DIRT AND CONSTRUCTION DEBRIS FROM THE TIME OF INSTALLATION UNTIL FINAL ACCEPTANCE. ANY MATERIALS AND EQUIPMENT WHICH ARE DAMAGED SHALL BE REPAIRED TO 'AS NEW' CONDITION OR REPLACED AT THE DIRECTION OF THE ARCHITECT / ENGINEER. WHERE FACTORY FINISHES OCCUR AND DAMAGE IS MINOR, FINISHES MAY BE TOUCHED UP. IF IN THE OPINION OF THE ARCHITECT / ENGINEER THE DAMAGE IS EXTENSIVE, FACTORY FINISH SHALL BE REPLACED TO 'NEW' CONDITION.

CODE COMPLIANCE

1. TO THE BEST OF MY KNOWLEDGE, THESE PLANS AND SPECIFICATIONS ARE COMPLETE AND COMPLY WITH THE FOLLOWING CODES:
   - 2017 FLORIDA BUILDING CODE
   - 2017 FLORIDA MECHANICAL CODE
   - 2017 FLORIDA ENERGY CODE
   - 2017 FLORIDA ACCESSIBILITY CODE
   - ANSI/AWC NDS - 2015 & SUPPLEMENT
   - ASHRAE 90.1 2016
   - ASHRAE 62.1 2016
   - ASHRAE 55 2016
   - NFPA 70 - 2014 NEC
   - NFPA 101 - 2015
   - ALL ADDITIONAL REFERENCES PER FBC 2017 6TH EDITION, BUILDING CODE CHAPTER 35
2. ENGAGE A COMMISSIONING AGENT TO PROVIDE COMMISSIONING SERVICES IN ACCORDANCE WITH THE FLORIDA BUILDING CODE - ENERGY EFFICIENCY.
3. PER FBC ENERGY - 2017 SECTION C408.2.4, A COPY OF THE PRELIMINARY COMMISSIONING REPORT IS TO BE PROVIDED FOR REVIEW AT THE FINAL MECHANICAL INSPECTION. ADDITIONALLY, PER FBC - ENERGY 2017 SECTION C408.2.4 A LETTER OF TRANSMITTAL FROM THE BUILDING OWNER ACKNOWLEDGING THAT THE BUILDING OWNER HAS RECEIVED THE PRELIMINARY COMMISSIONING REPORT IS TO BE PROVIDED FOR FINAL MECHANICAL INSPECTION.

SHEET INDEX

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I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THESE DRAWINGS COMPLY WITH ALL RELEVANT BUILDING CODES

PERMIT SET

05/06/2020

FGA PROJECT NUMBER
19048

ISSUE DATE
04-15-2020

REVISIONS		
NO	DATE	NOTES

SHEET NAME
LEGEND - HVAC

SHEET NUMBER
M0.0