

FRUIT, FORD & ASSOCIATES, INC.
CONSULTING ENGINEERS
100 BROAD STREET, SUITE 3A
AUSTON, GEORGIA 30814
706-729-289 • FAX 706-729-237

THESE DOCUMENTS, AS INSTRUMENTS OF SERVICE, REMAIN THE PROPERTY OF FRUIT, FORD & ASSOCIATES, INC. NO PART THEREOF MAY BE REPRODUCED OR USED IN ANY FORM WITHOUT WRITTEN PERMISSION.

DATE	
REVISIONS	
NO.	

CONSTRUCTION DOCUMENTS

HVAC PLAN
SCALE: 1/8" = 1'-0"
SHEET
M4.01
18 OF 32
FILE: 18_04
DATE: 12/14/18

H.V.A.C. LEGEND

SYMBOL	DESCRIPTION
— SL —	REFRIGERANT SUCTION / LIQUID
— D —	CONDENSATE DRAIN
Ⓣ	THERMOSTAT 4"-6" A.F.
Ⓢ	SENSOR
◀ FD	FIRE DAMPER
Ⓢ or C.F.M.	CUBIC FEET PER MINUTE
1/M-1	DETAIL NO. 1/M-1 SHEET NO.
⊠	SUPPLY DIFFUSER
◻	RETURN OR EXHAUST GRILLE
Ⓜ or MVD	MANUAL VOLUME DAMPER
Ⓜ or MVD	MOTOR OPERATED DAMPER
Ⓢ	SQUARE WALL WITH SINGLE BANK TURNING VANES
Ⓢ	AIR DEVICE NECK CONNECTION SIZE
Ⓢ	NEW TO EXISTING CONNECTION
∅	DIAMETER
Ⓢ	TYPICAL
Ⓢ	DEMOLITION EXTENTS (DEMO. PLANS ONLY)

HVAC NOTES:

NOT ALL EXISTING WORK IS SHOWN, AND THAT SHOWN IS IN ITS APPROXIMATE LOCATION AND ARRANGEMENT. EXACT LOCATION, ARRANGEMENT AND SIZES SHALL BE VERIFIED ON THE JOB BEFORE STARTING ANY NEW WORK.

INSTALL PIPING AND DUCTWORK IN EQUIPMENT ROOMS ADJACENT TO WALLS AND CEILING, WHERE POSSIBLE, TO PROVIDE MAXIMUM ROOM CLEARANCE.

COORDINATE THE INSTALLATION OF THIS WORK WITH THAT OF OTHER TRADES TO PROVIDE THE BEST ARRANGEMENT OF PIPING, DUCTWORK, AND EQUIPMENT. REFER TO PLUMBING AND ELECTRICAL DRAWINGS.

PIPING, DUCTWORK, AND EQUIPMENT IS SHOWN IN ITS GENERAL LOCATION, UNLESS DIMENSIONED. EXACT LOCATION SHALL BE DETERMINED BY THE LOCATION OF OTHER EQUIPMENT, AND TO PROVIDE SERVICE CLEARANCE.

ARRANGE PIPING AND DUCTWORK TO CLEAR STRUCTURAL MEMBERS, PLUMBING, PIPING AND LIGHT FIXTURES.

EXACT LOCATION OF GRILLES AND CEILING OUTLETS SHALL BE DETERMINED ON THE JOB. COORDINATE WITH LIGHTS AND ARCHITECTURAL REQUIREMENTS TO PROVIDE A UNIFORM AND SYMMETRICAL APPEARANCE. REFER TO ARCHITECTURAL AND ELECTRICAL DRAWINGS AND DETAILS.

ALL PIPING SHALL BE CONCEALED, UNLESS NOTED OTHERWISE.

PROVIDE FLEXIBLE DUCT CONNECTIONS TO ALL AIR HANDLING EQUIPMENT.

PROVIDE UNION OR FLANGE CONNECTIONS IN PIPING AT ALL EQUIPMENT AND CONTROL VALVES, AND AS REQUIRED FOR SERVICE.

PROVIDE MVD IN EACH ZONE SUPPLY DUCT OF MULTI-ZONE AHUS.

PROVIDE ACCESS DOORS IN DUCTWORK FOR ALL FIRE AND SMOKE DAMPERS, AND DUCT-MOUNTED COILS AND CONTROL DEVICES.

PROVISIONS SHALL BE MADE FOR DRAINING ALL OUTSIDE LINES SUBJECT TO FREEZING.

UNDERGROUND PIPING SHALL HAVE A MINIMUM COVER OF 24 INCHES.

SLOPE DRAIN LINES TOWARD DRAIN WITH A MINIMUM SLOPE OF 1/4" PER FOOT.

THRU-WALL UNITS SHALL BE LOCATED SO AS TO BE SYMMETRICAL WITH ROOM, WINDOWS, WALL SECTIONS, AND OTHER ARCHITECTURAL REQUIREMENTS.

-- AIR DISTRIBUTION SCHEDULE --

MARK	TYPE	NECK CONNECTION (1)	FINISH	OBD	PRICE NO. UNLESS NOTED	REMARKS (2)
A	CEILING DIFFUSER	6"Ø	MANUFACTURER'S STANDARD FINISH	YES	SCD-4C	24 X 24 PANEL (3)
B	CEILING DIFFUSER	8"Ø	MANUFACTURER'S STANDARD FINISH	YES	SCD-4C	24 X 24 PANEL (3)
C	CEILING DIFFUSER	10"Ø	MANUFACTURER'S STANDARD FINISH	YES	SCD-4C	24 X 24 PANEL (3)
D	CEILING RETURN/EXHAUST	10" X 10"	MANUFACTURER'S STANDARD FINISH	NO	80	12 X 12 PANEL WITH BORDER FRAME
E	CEILING RETURN/EXHAUST	22" X 22"	MANUFACTURER'S STANDARD FINISH	NO	80	24 X 24 PANEL WITH BORDER FRAME
F	SUPPLY REGISTER	SEE PLANS	MANUFACTURER'S STANDARD FINISH	YES	5200	DOUBLE DEFLECTION 3/4" BLADE SPACING
G	RETURN GRILLE	SEE PLANS	MANUFACTURER'S STANDARD FINISH	NO	535	45° DEFLECTION 1/2" BLADE SPACING

- DUCT RUNOUT SIZE SAME AS NECK CONNECTION SIZE, UNLESS NOTED OTHERWISE.
- PROVIDE LAY-IN TYPE FOR T-BAR CEILINGS AND SURFACE TYPE FOR ALL OTHER CEILINGS. REFER TO ARCHITECTURAL FINISH SCHEDULE FOR CEILING TYPES.
- PROVIDE WITH REMOVABLE CORE (RC) AND MOLDED, INSULATED BACKPAN WITH FOIL SKIRM VAPOR BARRIER.
- NOT USED.
- NOT USED.
- DMIT OBD FOR WALL MOUNT HVAC UNITS.

-- PACKAGED HEATING & AIR CONDITIONING UNIT SCHEDULE --

ITEM	NO. TONS	C.F.M. TOTAL	EXT. S.P. INCHES W.C.	C.F.M. O.A.	COOLING CAP. SENS/TOT MBH (1)	S.E.E.R. MIN. (1)	HTG. CAP. MBH N. GAS IN.	CARRIER MODEL NO.
AC-1	10	3,380	1.0	315	114.0	11.1 E.E.R.	224.0	48TCE112 (2)(3)
AC-2	8.5	3,000	1.0	300	99.0	11.0 E.E.R.	180.0	1CDE09 (2)(3)(4)
AC-3	25	10,000	1.0	1700	280.0	9.8 E.E.R.	400.0	18TCE29 (2)(3)(5)

- RATINGS IN ACCORDANCE WITH A.R.I. STANDARD 210.
- FURNISH FACTORY INSTALLED DISCONNECT AND HOT GAS REHEAT DEHUMIDIFICATION SYSTEM.
- FURNISH ION GENERATOR AS SCHEDULED.
- UNITS SHALL HAVE ROOF CURB.
- MODIFY EXISTING EQUIPMENT RAILS TO SUPPORT NEW UNIT.

-- ION GENERATORS --

ITEM	AHU NO.	MAX. TREATED AIRFLOW	CITY	ELECTRODE SPACING	POWER (VA)	VARIABLE OUTPUT WITH AIRFLOW	MANUFACTURER & MODEL NUMBER
IG-1	WGU/FUR	2,000	1	INCLUDED	24 VA	INTEGRAL	GPS-2400 (1)(2)(3)(4)
IG-1	AHU/AC	2,000	2	1	INCLUDED	24 VA	GPS-2400 (1)(2)(3)(4)

- INSTALL ION GENERATOR IN SUPPLY AIR DUCT OF EACH UNIT WHERE INDICATED.
- ION GENERATORS SHALL BE WIREDED FROM THE ZONE FAN CONTROL CIRCUIT. LOOSE TRANSFORMERS ARE NOT ACCEPTABLE.
- FAULT RESET SHALL BE AUTOMATIC. MANUAL FUSE REPLACEMENT WILL NOT BE ACCEPTED.
- PROVIDE WITH A FULL PERIMETER GAS TIGHT FLANGE OF EACH ION GENERATOR.

-- CONDENSING UNIT SCHEDULE --

ITEM	SERVES	CAPACITY M.B.H.	S.E.E.R.	CARRIER MODEL NO.
CU-1	AHU-1	121.0	11.2 E.E.R.	3BAU2812
CU-2	COIL-1	34.5	13.0	2AAB9336

-- GAS FIRED FURNACE SCHEDULE --

ITEM	LOCATION	O.A. C.F.M.	C.F.M.	S.P.	HP.	HEATING M.B.H. INPUT	CARRIER MODEL NO.
FUR-1	MECH 159	300	1350	0.8	1/5	66.0	S85TA070 (1)

-- AIR HANDLING UNIT SCHEDULE --

ITEM	C.F.M.	EXT. S.P.	FAN HP.	O.A. C.F.M.	COOLING CAPACITY MBH SENSIBLE	TOTAL	CARRIER MODEL NO.	REMARKS
AHU-1	3750	1.0	2.4	240	—	121.0	40RUAA12	(1)(2)

- RATINGS IN ACCORDANCE WITH A.R.I. STANDARD 240.
- FURNISH ION GENERATOR AS SCHEDULED.

FMS INPUT/OUTPUT SUMMARY

TYPICAL PACKAGED AND SPLIT AIR CONDITIONING UNIT (WITH GAS HEAT)

	OUTPUTS		INPUTS		SOFTWARE		NOTES
	BINARY	ANALOG	BINARY	ANALOG	ALARM	DDC	
START/STOP							
ENABLE/DISABLE							
OPEN/CLOSE							
SETPOINT ADJUST							
DDC CONTROL							
DIFF. PRESSURE SWITCH							
AUX. CONTACT							
ALARM CONTACT							
PULSE CONTACT							
CONCENTRATION (PPM)							
TEMPERATURE							
RELATIVE HUMIDITY							
PRESSURE							
VOLUME (CFM)							
WATER/PERLOCK							
START/STOP UNIT							
RUN TIME TOTALIZATION							
PROPORTIONAL							
PROP. + INTEGRAL							
TIME SCHEDULE S/S							
OPTIMUM START/STOP							
DAY/NIGHT SETBACK							
DEMAND LIMIT/CYCLE							
RESET OPTIMIZATION							
ECONOMIZER							
FAN SYNCHRONIZATION							

FMS INPUT/OUTPUT SUMMARY

TYPICAL DUCTLESS SPLIT SYSTEM HEAT PUMP

	OUTPUTS		INPUTS		SOFTWARE		NOTES
	BINARY	ANALOG	BINARY	ANALOG	ALARM	DDC	
START/STOP							
ENABLE/DISABLE							
OPEN/CLOSE							
SETPOINT ADJUST							
DDC CONTROL							
DIFF. PRESSURE SWITCH							
AUX. CONTACT							
ALARM CONTACT							
PULSE CONTACT							
TEMPERATURE							
RELATIVE HUMIDITY							
PRESSURE							
VOLUME (CFM)							
WATER/PERLOCK							
START/STOP UNIT							
RUN TIME TOTALIZATION							
PROPORTIONAL							
PROP. + INTEGRAL							
TIME SCHEDULE S/S							
OPTIMUM START/STOP							
DAY/NIGHT SETBACK							
DEMAND LIMIT/CYCLE							
RESET OPTIMIZATION							
ECONOMIZER							
FAN SYNCHRONIZATION							

(1) TEMPERATURE POINT FOR INFORMATION ONLY. CONTROL SHALL BE BY THERMOSTAT FURNISHED BY UNIT MANUFACTURER.

FMS INPUT/OUTPUT SUMMARY

TYPICAL FOR WALL-MOUNT UNIT (GAS HEAT)

	OUTPUTS		INPUTS		SOFTWARE		NOTES
	BINARY	ANALOG	BINARY	ANALOG	ALARM	DDC	
START/STOP							
ENABLE/DISABLE							
OPEN/CLOSE							
SETPOINT ADJUST							
DDC CONTROL							
DIFF. PRESSURE SWITCH							
AUX. CONTACT							
ALARM CONTACT							
PULSE CONTACT							
TEMPERATURE							
RELATIVE HUMIDITY							
PRESSURE							
HUMIDITY							
WATER/PERLOCK							
START/STOP UNIT							
RUN TIME TOTALIZATION							
PROPORTIONAL							
PROP. + INTEGRAL							
TIME SCHEDULE S/S							
OPTIMUM START/STOP							
DAY/NIGHT SETBACK							
DEMAND LIMIT/CYCLE							
RESET OPTIMIZATION							
ECONOMIZER							
FAN SYNCHRONIZATION							

CONTROL DEHUMIDIFICATION CYCLE WITH DEVICES FURNISHED BY UNIT MANUFACTURER.

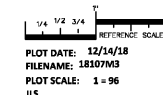
FMS INPUT/OUTPUT SUMMARY

MISCELLANEOUS

	OUTPUTS		INPUTS		SOFTWARE		NOTES
	BINARY	ANALOG	BINARY	ANALOG	ALARM	DDC	
START/STOP							
ENABLE/DISABLE							
OPEN/CLOSE							
SETPOINT ADJUST							
DDC CONTROL							
DIFF. PRESSURE SWITCH							
AUX. CONTACT							
ALARM CONTACT							
PULSE CONTACT							
CURRENT SENSING RELAY							
TEMPERATURE							
RELATIVE HUMIDITY							
PRESSURE							
FREQUENCY							
VOLUME (CFM)							
WATER/PERLOCK							
START/STOP UNIT							
RUN TIME TOTALIZATION							
PROPORTIONAL							
PROP. + INTEGRAL							
TIME SCHEDULE S/S							
OPTIMUM START/STOP							
DAY/NIGHT SETBACK							
DEMAND LIMIT/CYCLE							
RESET OPTIMIZATION							
ECONOMIZER							
FAN SYNCHRONIZATION							

FREZZER TEMPERATURE SENSOR
COOLER TEMPERATURE SENSOR
OUTSIDE AIR TEMPERATURE
OUTSIDE AIR HUMIDITY
CABINET HEATING
THRU-WALL (PTAC) UNIT
EXHAUST

Order Plans @



PLOT DATE: 12/14/18
FILENAME: 18107M3
PLOT SCALE: 1 = 96
JLS

FRUIT, FORD & ASSOCIATES, INC.
100 BROAD STREET, SUITE 3A
AUSTON, GEORGIA 30814
706-729-289 • FAX 706-729-237