SECTION 15500 - HVAC

GENERAL

SCOPE: PROVIDE AND INSTALL A COMPLETE WORKING SYSTEM FOR HEATING, VENTILATION AND AIR CONDITIONING AS SHOWN ON DRAWINGS AND AS SPECIFIED HEREIN.

DRAWINGS: ARE DIAGRAMMATIC AND DO NOT SHOW EVERYTHING REQUIRED FOR A COMPLETE INSTALLATION.

QUALITY ASSURANCE: COMPLY WITH 1991 UNIFORM MECHANICAL CODE AND CITY OF ROUND ROCK'S AMENDMENTS. COMPLY WITH REFERENCE STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.

COORDINATION: COORDINATE WITH THE GENERAL CONTRACTOR ALL SPACE REQUIREMENTS FOR DUCTWORK AND EQUIPMENT. VERIFY REQUIRED SPACE FOR EQUIPMENT AND DUCTWORK BEFORE STARTING. PROVIDE CLEARANCE DIMENSIONS TO GENERAL CONTRACTOR.

INSTRUCTIONS: PROVIDE OPERATING/MAINTENANCE INSTRUCTIONS, SPARE PARTS AND TOOLS TO OWNER AT COMPLETION OF PROJECT.

REFER TO SECTION 16010 FOR CONNECTION WORK TO BE PERFORMED BY ELECTRICAL CONTRACTOR.

SHOP DRAWINGS AND SUBMITTALS

SUBMITTALS: SUBMIT THREE COPIES MINIMUM OF THE FOLLOWING TO ARCHITECT FOR APPROVAL: MANUFACTURER'S CATALOG INFORMATION FOR ALL EQUIPMENT, DIFFUSERS AND GRILLES, AND EXHAUST FANS.

ROOF-TOP PACKAGED HEAT PUMP UNITS

MANUFACTURER: LENNOX, CARRIER, GENERAL ELECTRIC

GENERAL: PROVIDE THE PACKAGED ROOF-TOP AIR CONDITIONING UNITS SHOWN ON THE DRAWINGS AND HAVING THE CAPACITIES LISTED IN THE EQUIPMENT SCHEDULE. UNITS SHALL BE ENCLOSED WITHIN WEATHER-PROOF CABINETS AND SHALL BE COMPLETE WITH DIRECT-EXPANSION COOLING COIL, EVAPORATOR FAN SECTION WITH CENTRIFUGAL FAN WHEEL AND FAN MOTOR, INSULATED DRAIN PANEL, REVERSING VALVE, PERMANENT FILTERS, AIR COOLED CONDENSER WITH HERMETIC COMPRESSOR, CONDENSER FANS AND FAN MOTORS, AUXILIARY ELECTRIC HEAT, TEMPERATURE AND SAFETY CONTROLS AND ROOF-MOUNTING FRAME.

UNIT CASING: SHALL BE CONSTRUCTED OF 20 GAUGE MINIMUM GALVANIZED STEEL WITH FACTORY BAKED ENAMEL FINISH. THE CASING SHALL BE INSULATED WITH A MINIMUM OF 1" THICK, 1 1/2 LB. DENSITY FIBERGLASS BLANKET. PROVIDE GASKETED ACCESS PANELS AND MAKE WEATHERPROOF BY CAULKING WITH POLYSULFIDE SEALANT AS REQUIRED.

ADDITIONAL EQUIPMENT FEATURES: EACH UNIT SHALL HAVE CONTROL TRANSFORMER AND SHALL BE COMPLETE WITH STANDARD SAFETY CONTROLS NECESSARY FOR PROPER AND SAFE OPERATION, INCLUDING:

- HIGH AND LOW PRESSURE CUT-OUTS FOR EACH REFRIGERANT CIRCUIT.
- OIL SAFETY SWITCH
- CRANK-CASE HEATER
- FILTER-DRYER
- REFRIGERANT SIGHT GLASS
- TIMER TO PREVENT SHORT-CYCLING.
- LOW AMBIENT CONTROL KIT OR CAPABILITY TO OPERATE IN COOLING MODE IN 35 DEGREE F OUTSIDE TEMPERATURE.
- STARTERS
- INTERNAL MOTOR PROTECTION OR FUSES.
- ADJUSTABLE V-BELT DRIVE ON EVAPORATOR FAN
- TWO-STAGE HEATING AND ONE-STAGE COOLING
- HEAT PUMP THERMOSTAT WITH AUTOMATIC CHANGEOVER

GUARANTEE: PROVIDE WRITTEN 5 YEAR GUARANTEE TO OWNER ON COMPRESSORS. PROVIDE WRITTEN ONE YEAR GUARANTEE TO OWNER FOR REPLACEMENT OR REPAIR WITHOUT ADDITIONAL COST TO OWNER OF ANY DEFECTIVE MATERIAL OR FAULTY WORKMANSHIP, INCLUDING REFRIGERANT CHARGE.

FILTERS

FURNISH EACH UNIT WITH 1" THICKNESS TEMPORARY THROW-AWAY FILTERS WHICH SHALL REMAIN IN THE UNIT UNTIL FINAL ACCEPTANCE BY THE OWNER. AFTER ACCEPTANCE BY THE OWNER, THE TEMPORARY AIR FILTERS SHALL BE REMOVED AND REPLACED WITH 1" MINIMUM THICKNESS NEW THROW-AWAY FILTERS.

DUCTWORK

STANDARD: CONSTRUCT AND INSTALL GALVANIZED SHEET METAL DUCT AND FITTINGS IN ACCORDANCE WITH THE 5TH EDITION OF SMACNA "LOW VELOCITY DUCT CONSTRUCTION STANDARDS."

INSTALLATION: RUN DUCT LEVEL AND IN NEAT LINE WITH BUILDING LINE AND/OR AS SHOWN ON PLANS. SUPPORT AT INTERVALS NECESSARY TO PREVENT SAGGING. SPACE HANGERS AT NOT MORE THAN 8' ON CENTERS. PROVIDE ROD HANGERS WITH SUITABLE INSERTS OR DECK SUPPORTS ABOVE. WHERE ANGLES ARE USED TO SUPPORT DUCT BETWEEN JOINTS, PROVIDE CANVAS FABRIC BETWEEN DUCT AND ANGLE.

INTERNAL DUCT INSULATION: SHALL BE 1" THICKNESS, 1 1/2 LB. DENSITY DUCT LINER WITH VINYL COATING ON AIR SIDE EQUAL TO JOHNS MANVILLE OR OWENS-CORNING AEROFLEX DUCT LINER.

FLEXIBLE AIR DUCT: EQUAL TO GLEMFLEX 'HPL-181', MEETS UL 181, CLASS 1 AIR DUCT. INSTALLED TO SMACNA "FLEXIBLE DUCT INSTALLATION STANDARDS". 5 FEET MAXIMUM LENGTH. RUN FULLY EXTENDED WITH NO UNNECESSARY BENDS, AND SHEETMETAL SADDLES 18" LONG FOR SUPPORT IN MIDDLE SPANS OF SIX FEET OF MORE.

TURNING VANES: IN ALL 90 ELBOWS EQUAL TO TUTTLE AND BAILEY "DUCTVANE" OR APPROVED EQUAL.

EXHAUST FANS

TOILET FANS: IF DUCT PENETRATES WALL, PROVIDE WALLCAP. IF EXHAUST DUCT PENETRATES ROOF, PROVIDE FLASHING COLLAR AND GAS FLUE TOP.

TYPE: SHALL BE OF TYPE AND CAPACITY SHOWN ON DRAWINGS. ALL FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEAL AND THE UL LABEL.

BALANCING SYSTEM

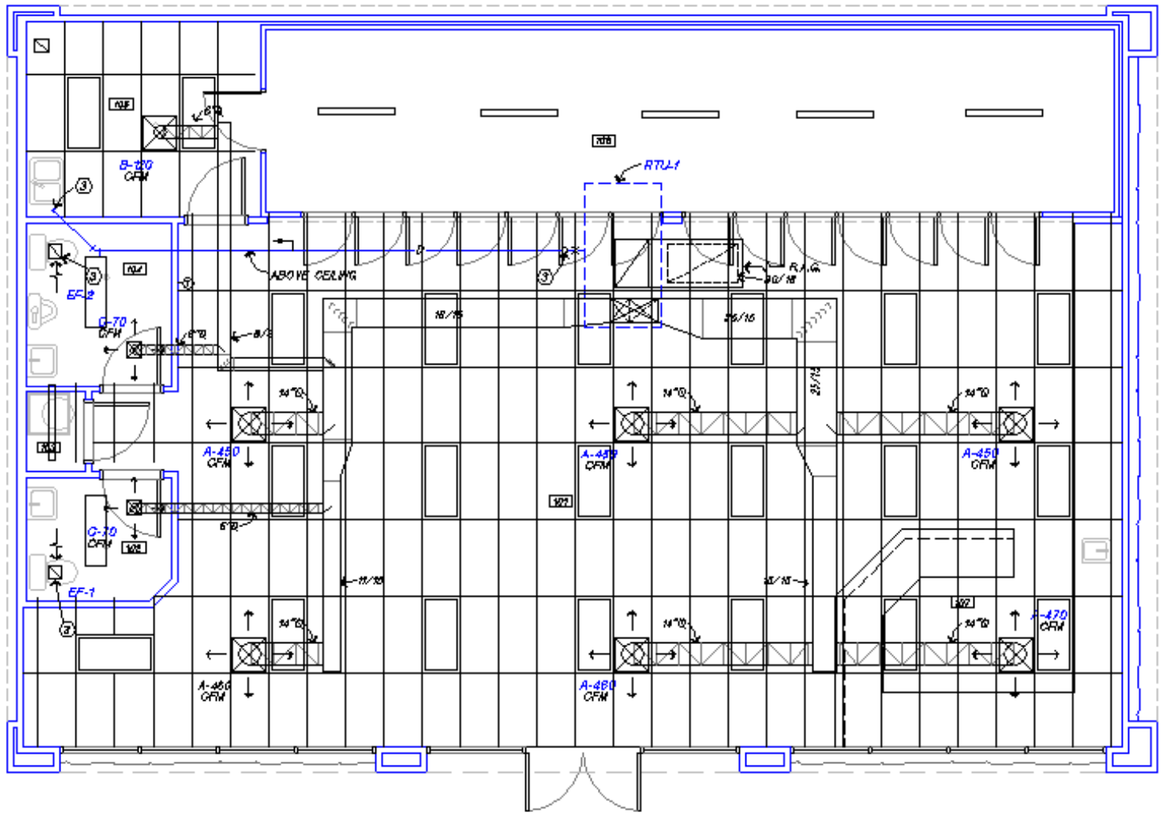
UPON COMPLETION OF INSTALLATION, THE CONTRACTOR SHALL TEST AND ADJUST THE ENTIRE SYSTEM FOR PROPER OPERATION. THIS SHALL CONSIST OF BALANCING AIR FLOW BY MEANS OF AN ANEMOMETER OR VELOMETER AND BY TEMPERATURE. A REPORT SHALL LIST EACH AIR OUTLET BY ROOM NUMBER AND ITS CFM ALONG WITH THE NAME OF THE BALANCER AND HIS SUPERVISOR. THIS REPORT SHALL BE FURNISHED TO AND APPROVED BY THE OWNER BEFORE FINAL PAYMENT CAN BE MADE.

CONTROLS

PROVIDE FOR EACH HEAT PUMP/DX COOLING A/C UNIT A HONEYWELL #T8300A1011 PROGRAMMABLE THERMOSTAT AND Q630DA1010 SUBBASE.

VERIFY COMPATIBILITY AND SUITABILITY OF ABOVE MODEL NUMBERS WITH APPROVED SUBMITTED A/C UNIT. COORDINATE CONTROL WIRING INSTALLATION WITH ELECTRICAL SUBCONTRACTOR.

END OF SECTION



HVAC PLAN

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

GENERAL NOTES

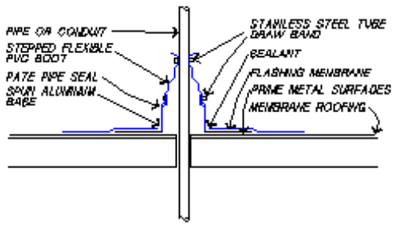
DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO SHOW EACH AND EVERY ITEM.

COORDINATE WITH OTHER TRADES.

REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR DIMENSIONS AND ADDITIONAL INFORMATION.

REFER TO SPECIFICATIONS FOR DATA NOT SHOWN ON DRAWINGS.

REPORT CONFLICTS TO ARCHITECT/GENERAL CONTRACTOR.



PIPE SEAL FLASHING

2 / M-1 SCALE: 1 1/2"=1'-0"

AIR DEVICE SCHEDULE

MARK	DESCRIPTION	FINISH	MFR. AND MODEL NUMBER
A	24"x24" MODULE-14" NK S/A CLG. DIFF. W/OBD *	#26 WHITE	TITUS TMSA TYPE 3
A	24"x24" MODULE-14" NK S/A CLG. DIFF. W/OBD *	#26 WHITE	TITUS TMSA TYPE 3
A	24"x24" MODULE-14" NK S/A CLG. DIFF. W/OBD *	#26 WHITE	TITUS TMSA TYPE 3
A	24"x24" MODULE-14" NK S/A CLG. DIFF. W/OBD	#26 WHITE	TITUS TMSA TYPE 3

*OPPOSED BLADE DAMPER EQUAL TO TITUS D-7E.

SINGLE PACKAGED ROOFTOP A/C UNIT SCHEDULE

MARK		RTU #1
FAN	CFM	3,000
	ESP "wg	0.60
	H.P.	2
	VOLT /PH	208/3
OUTDOOR CFM	CFM	900
COOLING @ AIR 95/67 & 80F	SENSIBLE	66,836
	TOTAL CAP	81,600
MIN. EER		9.0
HEAT STRIP	KW	20
HEATING	VOLT/PH	208/3
PACKAGED UNIT	MCA	45.0
	VOLT/PH	208/3
MANUFACTURER		LENNOX
MODEL		GHP16-663
HEAT STRIP KIT		ECH16-20/35-20
OPTIONS		-
OUTDOOR AIR DAMPER		OAD19-65
ROOF CURB		RMF19-65

HVAC PLAN LEGEND

- T — THERMOSTAT
- —D— CONDENSATE DRAIN
- SUPPLY AIR DUCT
- RETURN AIR DUCT
- DUCT SMOKE DETECTOR
- TURNING VANES
- FLEXIBLE DUCT
- AIR EXTRACTOR

ABBREVIATIONS

A	ABOVE FINISH FLOOR
AFF	ABOVE FINISH GRADE
AIC	AMPERES INTERRUPTING CAPACITY
BRKR	CIRCUIT BREAKER
CU	CONDENSING UNIT
EC	EMPTY CONDUIT
EDF	ELECTRIC DRINKING FOUNTAIN
EWH	ELECTRIC WATER HEATER
EF	EXHAUST FAN
FEC	FAN AND COIL UNIT
GFI	GROUND FAULT INTERRUPTER
GRND	GROUND
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
MH	METAL HALIDE
V	VOLT
UON	UNLESS OTHERWISE NOTED

A New Building for
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REVISIONS

SHEET
M-1
OF 11

MECHANICAL PLAN