ARCH D

HVAC SPECIFICATIONS

I. GENERAL

A. SCOPE: FURNISH ALL LABOR, MATERIALS, EQUIPMENT, CONTROL SYSTEMS, DEVICES, ACCESS PANELS, PERMITS, AND SERVICES NECESSARY TO INSTALL THE COMPLETE AND OPERABLE AIR CONDITIONING, HEATING, AND VENTILATING SYSTEM INDICATED ON THE DRAWINGS, AS SPECIFIED HEREIN, AND IN ACCORDANCE WITH ALL CITY, STATE, AND NATIONAL CODES, IF THERE IS A CONFLICT BETWEEN CODES AND OR THE CONTRACT DOCUMENTS, THE CONTRACTOR IS TO FOLLOW THE MORE STRINGENT OF THE REQUIREMENTS. ALL MATERIALS SHALL BE NEW AND ALL WORKMANSHIP AND MATERIALS SHALL BE IN STRICT ACCORDANCE WITH APPLICABLE LOCAL CODES, PRODUCT APPROVAL, RULES AND ORDINANCES. ANY DAMAGED EQUIPMENT SHALL BE REPLACED OR RESTORED TO ORIGINAL CONDITION. ALL MECHANICAL EQUIPMENT SHALL BE ARI & U.L. LISTED WHERE APPLICABLE AND RATED FOR THE REQUIRED SERVICE, PRESSURES, TEMPERATURES AND SHALL BE PROVIDED WITH ALL NECESSARY TRANSFORMERS, SEALS, VALVES, CONNECTIONS, ETC. TO FUNCTION PROPERLY.

B. ELECTRICAL WORK: ALL CONDUIT, ROUGH IN ELECTRICAL BOXES AND WIRING, EXCLUDING LOW VOLTAGE CONTROL WIRING, SHALL BE INCLUDED UNDER THE ELECTRICAL SECTION OF THE CONTRACT DOCUMENTS, COORDINATE REQUIREMENTS AND ROUGH IN LOCATIONS FOR ALL EQUIPMENT. CONTROL WIRING SHALL BE PROVIDED AND INSTALLED UNDER THE MECHANICAL SECTION OF THE CONTRACT DOCUMENTS.

C. SUBMITTAL DATA: PRIOR TO ORDERING EQUIPMENT THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A MINIMUM OF THREE (3) COPIES OF THE EQUIPMENT BROCHURES, TECHNICAL DATA AND/OR SHOP DRAWINGS.

D. NOISE AND VIBRATION: EQUIPMENT SHALL OPERATE QUIETLY. THE OPERATION OF THE EQUIPMENT SHALL CAUSE NO PERCEPTIVE VIBRATION OR OBJECTIONABLE NOISE IN ANY PORTION OF THE BUILDING OR STRUCTURE.

E. MAINTENANCE MANUALS AND INSTRUCTIONS: FURNISH (3) THREE SETS OF OPERATING INSTRUCTIONS COVERING HEATING, VENTILATING AND AIR CONDITIONING SYSTEM AND EQUIPMENT,WARRANTIES, CONTROL SEQUENCE AND DIAGRAMS, BOUND AND COVERED AND DELIVERED TO THE ARCHITECT. INCLUDE A COMPLETE DESCRIPTION OF THE OPERATION OF THE CONTROL SYSTEM. THE CONTRACTOR SHALL INSTRUCT THE OWNER'S REPRESENTATIVE IN THE PROPER OPERATION OF ALL EQUIPMENT.

F. WARRANTIES:
1. FURNISH A FIVE (5) YEAR WARRANTY ON ALL COMPRESSORS AND REFRIGERATION CIRCUIT AND A ONE (1) YEAR GUARANTEE ON ALL CONTROLS AND OTHER EQUIPMENT.
2. THE MC WILL WARRANTY ALL MECHANICAL SYSTEMS, DUCTWORK, THERMOSTATS, AND ALL OTHER EQUIPMENT, PARTS, AND LABOR SHOWN ON THE MECHANICAL DRAWINGS AND IN THE SPECIFICATIONS FOR A PERIOD OF ONE (1) YEAR AFTER ISSUANCE OF THE CERTIFICATE OF OCCUPANCY. SEE HVAC GENERAL NOTE 17.
3. ANY REPAIRS REQUIRING SYSTEM SHUT DOWN WILL BE DONE DURING NON-OPERATIONAL PERIODS.
4. THE MC SHALL COORDINATE WITH ALL OTHER TRADES PRIOR TO BIDDING AND PURCHASING ANY EQUIPMENT.

G. EQUIPMENT ANCHORAGE: PROVIDE ALL MATERIALS AND LABOR REQUIRED FOR EQUIPMENT ANCHORAGE TO BUILDING STRUCTURE.

H. PERMITS, ORDINANCES, AND INSPECTIONS:
1. OBTAIN AND PAY FOR ALL PERMITS AND INSPECTION FEES REQUIRED. DELIVER TO THE ARCHITECT, ALL CERTIFICATES AND INSPECTION REPORTS.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CITY, COUNTY, STATE, OR NATIONAL ORDINANCES AND CODES. EFFORT HAS BEEN MADE TO MEET OR EXCEED REQUIREMENTS. THE CONTRACTOR SHALL MAKE ANY MINOR ADJUSTMENTS TO MEET THESE REQUIREMENTS AT NO ADDITIONAL COST TO OWNER.

II. PRODUCTS

A. SHEET METAL WORK:
1. PROVIDE GALVANIZED STEEL SHEET METAL WORK IN THE VENTILATION SYSTEMS IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS.
2. PROVIDE FLEXIBLE WOVEN DUCT CONNECTIONS IN DUCTS AS INDICATED. SECURE CONNECTIONS WITH GALVANIZED CHANNELS. PROVIDE A BRAIDED COPPER BRIDGE STRAP ACROSS FLEXIBLE CONNECTIONS.
3. DIMENSIONS INDICATED ON THE DRAWINGS ARE INSIDE AREAS. IF DUCTS ARE LINED INCREASE SHEET METAL DIMENSIONS TO ACCOMMODATE INSULATION THICKNESS.

B. DAMPERS:
1. PROVIDE APPROVED MANUAL BALANCE DAMPERS WHERE SHOWN ON THE PLANS FOR THE PROPER REGULATION OF THE AIR HANDLING SYSTEM AND SO LOCATE AS TO BE ACCESSIBLE.
2. INSTALL NFPA APPROVED, FUSIBLE LINK OPERATED TYPE 'B' FIRE DAMPERS OF SUITABLE RATING IN ALL DUCTWORK PENETRATIONS OF RATED WALLS AND FLOORS IN LOCATIONS REQUIRED BY LOCAL AND STATE ORDINANCES. PROVIDE ACCESS IN BOTH CEILING CONSTRUCTION AND DUCTWORK FOR MAINTENANCE OF FIRE DAMPERS.

C. GRILLES, REGISTERS, AND DIFFUSERS:
1. FURNISH AND INSTALL WHERE INDICATED RETURN AND SUPPLY GRILLES, COMPLETE WITH BAKED ENAMEL FINISH AND OPPOSED BLADE DAMPERS.
2. ALL DUCTWORK AND DIFFUSERS SHALL BE RATED FOR THE USE, PRESSURE AND TEMPERATURE SPECIFIED AND AS REQUIRED BY THE CEILING OR WALL SYSTEM RATING. IF THE CEILING ASSEMBLY IS RATED PROVIDE RADIATION DAMPERS AT THE PENETRATION WHEN THE AREA OF ALL PENETRATIONS, INCLUDING DUCT AND DIFFUSERS, IN THE MEMBRANE EXCEED AN AGGREGATE AREA OF 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF CEILING AREA.
3. DUCT INSULATION: INSULATE ALL SUPPLY, RETURN AND OUTDOOR AIR DUCTWORK WITH A MINIMUM OF 2" THICK 3/4# DENSITY DUCTWRAP INSULATION. ALL INSULATION WILL HAVE FIRE/SMOKE RATING LESS THAN 25/50. ALL EXTERIOR DUCTWORK SHALL BE WEATHER-PROOFED WITH A COVERING OF 'ALUMIGUARD' WRAP.

D. EXHAUST FANS:
1. FANS SHALL BE AS INDICATED ON DRAWINGS.

E. CONTROLS:
1. CONTROLS SHALL BE ELECTRIC/ELECTRONIC TYPE, PROVIDE ALL WIRING, ACTUATORS, AND CONTROL DEVICES.
2. FURNISH ALL THERMOSTATS AND SENSORS WITH INSULATED SUB-BASE.

HVAC GENERAL NOTES

1. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATE THE APPROXIMATE ROUTING OF PIPING AND DUCTWORK. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS AND DELAYS. MINOR OFFSETS AND ADJUSTMENTS SHALL BE PROVIDED WHERE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

2. COORDINATE CEILING DIFFUSERS AND REGISTER LOCATIONS WITH THE ARCHITECTURAL REFLECTED CEILING. COORDINATE SIDE WALL GRILLES AND REGISTERS WITH STRUCTURAL AND ARCHITECTURAL ELEMENTS.

3. DUCT DIMENSIONS INDICATED ON THE DRAWINGS ARE NET AIR SIDE DIMENSIONS.

4. DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. SEAL ALL DUCTS, JOINTS AND SEAMS IN DUCTWORK TO INSURE AGAINST LEAKAGE. MITERED ELBOWS SHALL BE PROVIDED WITH SINGLE THICKNESS TURNING VANES. SUPPLY, RETURN, AND OUTSIDE AIR DUCTWORK SHALL BE GALVANIZED STEEL WITH INSULATION AS NOTED. EXHAUST DUCTWORK SHALL BE GALVANIZED STEEL.

5. INSULATE SUPPLY, RETURN, AND OUTSIDE AIR DUCTWORK WITH A MINIMUM OF 2" THICK 3/4 PCF BLANKET INSULATION WITH FOIL VAPOR BARRIER. SEAL ALL JOINTS AND SEAMS IN THE VAPOR BARRIER.

6. THE CONTRACTOR MAY INSTALL DIFFUSERS WITH OF INSULATED FLEXIBLE DUCTWORK EQUAL TO FLEXMASTER TYPE 8. ALL FLEXIBLE DUCTWORK SHALL BE INSTALLED AND ENDS TERMINATED IN COMPLIANCE WITH THE METHODS SHOWN IN THE ADC INSTALLATION MANUAL AND USE METAL STRAPS NOT LESS THAN 1-1/2" WIDE AT A MAXIMUM OF 5 FEET ON CENTER. DUCTS SHALL NOT DEFLECT MORE THAN 1/2" IN 5 FEET NOR HAVE ANY KINKS OR RESTRICTIONS TO FLOW. ELBOWS SHALL HAVE A MINIMUM RADIUS OF ONE DUCT DIAMETER WITH INTERIOR LINER FULLY EXTENDED.

7. RECTANGULAR SUPPLY AND RETURN BRANCH TAKE-OFFS SHALL BE 45° THROAT TAKE-OFFS WITH BALANCING DAMPERS IN THE BRANCH DOWN STREAM OF THE TAKE-OFF. ROUND SUPPLY AND RETURN TAKE-OFFS SHALL BE 'BELLMOUTH' OR SPIN-IN FITTINGS WITH DAMPERS IN THE BRANCH DOWNSTREAM. PROVIDE BACKDRAFT DAMPERS ON ALL EXHAUST FANS AND/OR INLINE FANS.

8. ALL LOUVERS, GRILLES, EXPOSED PIPING, EXPOSED EQUIPMENT, AND EXPOSED DUCTWORK SHALL BE PAINTED TO MATCH ADJACENT SURFACE COLOR AND TEXTURE OR AS DIRECTED BY THE ARCHITECT. VERIFY COLOR AND TEXTURE WITH THE ARCHITECT PRIOR TO PAINTING. PAINT ALL EXPOSED MECHANICAL EQUIPMENT WITH BENJAMIN MOORE EPOXY ENAMEL 182 OR AS DIRECTED BY THE ARCHITECT.

9. THERMOSTATS AND SENSORS SHALL BE LOCATED 48" AFF UNLESS OTHERWISE NOTED. ALL CONDUIT, ROUGH IN ELECTRICAL BOXES AND WIRING, EXCLUDING LOW VOLTAGE CONTROL WIRING, SHALL BE INCLUDED UNDER THE ELECTRICAL SECTION OF THE CONTRACT DOCUMENTS, COORDINATE REQUIREMENTS AND ROUGH IN LOCATIONS FOR ALL CONTROL DEVICES, ELECTRICAL CONNECTIONS TO EQUIPMENT, AND SWITCH LOCATION. CONTROL WIRING SHALL BE PROVIDED AND INSTALLED UNDER THE MECHANICAL SECTION OF THE CONTRACT DOCUMENTS.

10. PROVIDE A 12/12 (MINIMUM) ACCESS DOOR FOR ACCESS TO ALL DAMPERS, CONTROL DAMPERS, EXTRACTORS, PLENUMS, OR ANY OTHER DEVICE MOUNTED IN THE DUCT SYSTEM.

11. INSTALL ALL EQUIPMENT ACCORDING TO THE MANUFACTURERS' INSTRUCTIONS.

12. REFRIGERANT PIPING SHALL BE PRECHARGED TUBING PACKAGES OR TYPE ACR COPPER TUBING IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.

13. PROVIDE A MINIMUM OF 10' CLEARANCE BETWEEN FRESH AIR INTAKES AND EXHAUST OUTLETS, RELIEF OUTLETS, PLUMBING VENTS, ETC.

14. PROVIDE CONDENSATE DRAINS WITH A VENTED P-TRAP FOR ALL COOLING COILS. P-TRAPS TO BE PVC ON INTERIOR INSTALLED EQUIPMENT AND TYPE M COPPER ON EXTERIOR INSTALLED EQUIPMENT.

15. THE OUTSIDE AIR QUANTITIES ARE CALCULATED ACCORDING TO TABLE 6-1 'MINIMUM VENTILATION RATES IN BREATHING ZONE' OF ASHRAE STANDARD 62.1. CHAPTER 6 'DESIGN FOR VARYING OPERATING CONDITIONS' HAS BEEN UTILIZED AS ALLOWED TO REDUCE AIRFLOW RATES FOR INTERMITTENT USE.

16. AFTER THE CONSTRUCTION OF THE BUILDING HAS REACHED A POINT WHERE THE PERMANENT HEATING AND COOLING SYSTEMS ARE OPERABLE, THE CONTRACTOR MAY, AT HIS OPTION, USE THE PERMANENT HEATING AND COOLING EQUIPMENT FOR TEMPORARY ENVIRONMENTAL CONTROL. THE CONTRACTOR MUST SUBMIT A REQUEST FOR USE TO THE ARCHITECT OUTLINING THE INTENDED USE. THE HEATING SYSTEM SHALL NOT BE USED FOR TEMPORARY HEAT UNTIL THE BUILDING IS BROOM CLEAN AND SHALL NOT BE USED WITHOUT ALL FILTERS IN PLACE. FILTERS MUST BE CHECKED WEEKLY AND REPLACED AS REQUIRED TO PROTECT THE EQUIPMENT AND DUCT SYSTEMS. UPON THE COMPLETION OF THE WORK, AND PRIOR TO SUBSTANTIAL COMPLETION, ALL DUCTWORK AND EQUIPMENT SHALL BE INTERNALLY CLEANED AND ALL FILTERS SHALL BE REPLACED WITH NEW FILTERS.

17. ALL WARRANTIES SHALL BEGIN UPON FINAL ACCEPTANCE BY THE OWNER, NOT BENEFICIAL USE BY THE CONTRACTOR.

18. ALL OF THE COSTS ASSOCIATED WITH PROVIDING TEMPORARY HEATING AND COOLING SHALL BE BORNE SOLELY BY THE CONTRACTOR, INCLUDING BUT NOT LIMITED POWER CONSUMPTION, ADDITIONAL ACCESS DOORS FOR CLEANING, FILTERS, DUCT AND EQUIPMENT CLEANING, ENGINEER'S TIME, TEST AND BALANCE AGENT TIME TO SUPPORT THE ENGINEER'S INSPECTION, ETC.

19. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL EQUIPMENT WITH THE ELECTRICAL SERVICE AND THE EC. THE SCOPE OF THIS COORDINATION INCLUDES BUT IS NOT LIMITED TO, REQUIRED VOLTAGE, PHASE, AMP CAPACITY, WIRE SIZE, CONDUIT SIZE AND LOCATION, DISCONNECT SIZE AND LOCATION, FUSE SIZE, ETC. IN THE EVENT OF A CONFLICT, THE MC IS TO NOTIFY THE ENGINEER PRIOR TO MECHANICAL AND ELECTRICAL EQUIPMENT BEING ORDERED.

20. ALL CUTTING, PATCHING, STRUCTURAL STEEL, WEATHER PROOFING, PAINTING, AND WALL OPENINGS REQUIRED FOR THE INSTALLATION OF MECHANICAL WORK SHALL BE PROVIDED BY THE CONTRACTOR AT NO COST TO THE OWNER. COORDINATE WITH OTHER TRADES.

21. PROVIDE VIBRATION ISOLATORS ON ALL MECHANICAL EQUIPMENT. IF NOT SPECIFICALLY CALLED OUT, PROVIDE AS RECOMMENDED BY MANUFACTURER FOR QUIET OPERATION.

22. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BIDDING, ORDERING, FABRICATION OR INSTALLATION OF MATERIALS OR EQUIPMENT.

23. DUCT SEALING: PRESSURE SENSITIVE TAPE USED AS THE PRIMARY SEALANT IS TO BE CERTIFIED AND SHALL COMPLY WITH UL- 181A OR UL-181B. PROVIDE LONGITUDINAL SEAMS ON RIGID DUCT AND TRANSVERSE SEAMS ON ALL DUCTS. MECHANICAL FASTENERS AND SEALANTS SHALL BE USED TO CONNECT DUCTS AND AIR DISTRIBUTION DEVICES.

24. SUBMITTALS AND ACCEPTANCE: THE CONTRACTOR SHALL SUBMIT A MINIMUM OF THREE (3) SETS OF HVAC SHOP DRAWINGS TO THE PROJECT MANAGER WHO SHALL THEN RELAY THEM TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE PURCHASE OF EQUIPMENT. AT THE COMPLETION OF THE PROJECT THE CONTRACTOR SHALL SUBMIT OPERATION AND MAINTENANCE MANUALS FOR ALL MECHANICAL EQUIPMENT INCLUDED IN THE PROJECT. THE MANUALS SHALL BE COMPILED INTO A THREE RING BINDER AND TURNED OVER TO BUILDING OWNER.

HVAC LEGEND AND SYMBOLS

DUCTWORK	
12'Ø	ROUND DUCTWORK. DIAMETER INDICATED IN INCHES
20x12	RECTANGULAR SUPPLY AND RETURN DUCTWORK. SIZE INDICATED IN INCHES, FIRST NUMBER IS SIDE SHOWN
20x12 (12'Ø)	ROUND OR RECTANGULAR METAL DUCTWORK
	FLEXIBLE DUCT
	SUPPLY OR OUTSIDE AIR DUCT
	RETURN AIR DUCT
(T) EQUIP-#	THERMOSTAT
(S) EQUIP-#	SENSOR
(S) EQUIP-#	SWITCH
(M)	MOTOR OPERATED DAMPER
(SD)	SMOKE DETECTOR - FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR
	FIRE DAMPER
	SECURITY BAR
(C)	PROVIDE AND INSTALL U.L. LISTED CEILING RADIATION DAMPER
OD-1 TYPE 100 AIRFLOW (CFM)	DIFFUSER/GRILLE LABEL
	90 DEGREE DUCTWORK ELBOW.
	RADIUS DUCTWORK ELBOW - ROUND OR RECTANGULAR
	FLARED SPIN-IN WITH DAMPER AND FLEX DUCT (DIFFUSER CONNECTION)
	ROUND AND RECTANGULAR DUCT BRANCH TAKE-OFF FROM RECTANGULAR MAIN WITH CONICAL TAP
	DUCTWORK SIZE TRANSITION
	DUCTWORK SQUARE TO ROUND TRANSITION
	SUPPLY OR OUTSIDE AIR DUCT UP
	SUPPLY OR OUTSIDE AIR DUCT DOWN
	RETURN AIR DUCT UP
	RETURN AIR DUCT DOWN
	VOLUME CONTROL DAMPER
20X12	EXISTING DUCTWORK TO REMAIN

HVAC ABBREVIATIONS

AC	AIR CONDITIONER (ING)
ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BALV	BALANCING VALVE
BF	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
BV	BALL VALVE
CAD	COMPUTER AIDED DRAFTING
CCC	CLOSED CIRCUIT COOLER
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
COP	COEFFICIENT OF PERFORMANCE
CP	CONTROL PANEL
CR	CEILING RETURN OR CONDENSATE RETURN
CS	CIRCUIT SETTER
CT	COOLING TOWER
CU	CONDENSING UNIT
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
DB	DRY BULB (TEMPERATURE)
DG	DOOR GRILLE
DMS	DUCTLESS MINI-SPLIT SYSTEM
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EER	ENERGY EFFICIENCY RATING
EF	EXHAUST FAN
ELEV	ELEVATION
ERV	ENERGY RECOVERY VENTILATOR
EVAP	EVAPORATION OR EVAPORATIVE
EWT	ENTERING WATER TEMPERATURE
FC	FAN COIL
FD	FLOOR DRAIN
FP	FIRE PROTECTION
FPC	FIRE PROTECTION CONTRACTOR
FPM	FEET PER MINUTE
FS	FLOOR SINK
FZ	FREEZE
GC	GENERAL CONTRACTOR
GV	GATE VALVE
HD	HUB DRAIN
HEPA	HIGH EFFICIENCY PARTICULATE ARRESTANCE
HP	HEAT PUMP OR HORSEPOWER
HVAC	HEATING, VENTILATING, AND AC
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
MBH	1,000 BTU/HOUR
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LEED	LEADERSHIP IN ENERGY EFFICIENT DESIGN
LWT	LEAVING WATER TEMPERATURE
M	MOTOR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE UP AIR UNIT
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPERES
MOCP	MAXIMUM OVER CURRENT PROTECTION (AMPERES)
MOD	MOTOR OPERATED DAMPER
MVD	MANUAL VOLUME DAMPER
OA	OUTSIDE AIR
PA	PRESSURIZATION AIR
PC	PLUMBING CONTRACTOR OR PERSONAL COMPUTER
PL	PRIMARY LOOP
PTAC	PACKAGED TERMINAL AC
PT	PRESSURE TRANSMITTER
PU	PACKAGED UNIT
PWR	PROCESS WATER RETURN
PWS	PROCESS WATER SUPPLY
RA	RETURN OR RELIEF AIR
RF	RETURN OR RELIEF FAN
RH	REHEAT OR RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SEER	SEASONAL ENERGY EFFICIENCY RATTING
SF	SUPPLY FAN
SL	SECONDARY LOOP
SS	STAINLESS STEEL
ST	STEAM
SWS	SIDE WALL SUPPLY (GRILLE)
SWR	SIDE WALL RETURN (GRILLE)
TDV	TRIPLE DUTY VALVE
TG	TRANSFER GRILLE
TOD	TOP OF DUCT
TT	TEMPERATURE TRANSMITTER
UV	ULTRAVIOLET LIGHT
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
VVT	VARIABLE (AIR VOLUME) VARIABLE (AIR TEMPERATURE)
WB	WET BULB (TEMPERATURE)
WSHP	WATER SOURCE HEAT PUMP
XWS	CONDENSER WATER SUPPLY
XWR	CONDENSER WATER RETURN
#	POUNDS

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PROJECT INFORMATION

PROJECT:

WESTWOOD AT WINTER HAVEN APARTMENTS

PROJECT ADDRESS:

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PROJECT NO.: 180888

ACTIVE DESIGN PHASE

- ☐ FOR REVIEW ONLY
- ☐ FOR PERMITTING ONLY
- ☐ SCHEMATIC DESIGN
- ☐ DESIGN DEVELOPMENT
- ☐ CONSTRUCTION BIDDING
- ■ CONSTRUCTION DOCUMENTS
- ☐ AS-BUILT RECORD SET

REVISION INFORMATION

NO.	DATE	DESCRIPTION

KEY PLAN

SHEET INFORMATION

SHEET ISSUED:	03-25-19
DESIGNED BY:	ALJ
DRAWN BY:	ALJ
REVIEWED BY:	KH

SHEET TITLE:

HVAC LEGEND, SPECIFICATIONS AND NOTES

SHEET NO.:

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