

LEGEND	
SYMBOLS	DESCRIPTION
X1 X2	DIFFUSER, GRILLE, REGISTER OR LOUVER TAG X1 = TYPE, X2 = CFM
☒	POSITIVE PRESSURE (AIR GOES OUT) DIFFUSER OR REGISTER, 4-WAY AIR PATTERN (UNLESS OTHERWISE NOTED)
☒	NEGATIVE PRESSURE (AIR GOES IN) GRILLE
→	POSITIVE PRESSURE AIRFLOW (TYP. SUPPLY)
←	NEGATIVE PRESSURE AIRFLOW (TYP. RETURN/EXHAUST)
	FLEXIBLE DUCT
┌	MANUAL VOLUME DAMPER (MVD)
└	VERTICAL (TYP. WALL) FIRE DAMPER
└	VERTICAL (TYP. WALL) COMBINATION FIRE/SMOKE DAMPER
└	HORIZONTAL (TYP. FLOOR/CEILING) FIRE DAMPER
└	HORIZONTAL (TYP. FLOOR/CEILING) COMBINATION FIRE/SMOKE DAMPER
⊖	THERMOSTAT
⊕	HUMIDISTAT
⊙	REMOTE TEMPERATURE SENSOR
▭	INTERNALLY LINED DUCT
●	DUCT UP
◻	DUCT UP
◻	DUCT DOWN
▭	SUPPLY DUCT
⊠	EQUIPMENT TYPE EQUIPMENT NUMBER, WHERE A LETTER IS USED, THERE ARE MULTIPLE INSTANCES.

ABBREVIATIONS			
AFF	ABOVE FINISHED FLOOR	MA	MAKE-UP AIR
AHU	AIR HANDLING UNIT	MAU	MAKE-UP AIR UNIT
CO2	CARBON DIOXIDE	MAV	MANUAL AIR VENT
D	CONDENSATE DRAIN	MBH	1,000 BTU PER HR
DB	DRY BULB	MFCU	MINI FAN COIL UNIT
EA	EXHAUST AIR	MHP	MINI HEAT PUMP
EAT	ENTERING AIR TEMPERATURE	MVD	MANUAL VOLUME DAMPER
EDH	ELECTRIC DUCT HEATER	NC	NORMALLY CLOSED
EF	EXHAUST FAN	NO	NORMALLY OPEN
ESP	EXTERNAL STATIC PRESSURE	OA	OUTSIDE AIR
EWH	ELECTRIC WALL HEATER	OBD	OPPOSED BLADE DAMPER
F	DEGREES FAHRENHEIT	PIU	POWER INDUCTION UNIT
FCU	FAN COIL UNIT	RA	RETURN AIR
FD	FIRE DAMPER	RH	RELIEF HOOD
FSD	COMBINATION FIRE/SMOKE DAMPER	RTU	ROOFTOP UNIT
H	HUMIDISTAT	SA	SUPPLY AIR
IH	INTAKE HOOD	SP	STATIC PRESSURE
LAT	LEAVING AIR TEMPERATURE	UC	UNDER CUT DOOR
LWT	LEAVING WATER TEMPERATURE	VAV	VARIABLE AIR FLOW
M	MOTOR	WB	WET BULB

SPECIFICATIONS	
APPLICABLE CODES:	INTERNATIONAL FIRE CODE (IFC), 2012 EDITION 2014 IFC GA AMENDMENTS INTERNATIONAL PLUMBING CODE (IPC), 2012 EDITION 2014 & 2015 IPC GA AMENDMENTS INTERNATIONAL MECHANICAL CODE (IMC), 2012 EDITION 2014 & 2015 IMC GA AMENDMENTS INTERNATIONAL FUEL GAS CODE (IFGC), 2012 EDITION 2014 & 2015 IFGC GA AMENDMENTS INTERNATIONAL ENERGY CONSERVATION CODE (IECC), 2009 EDITION 2011 SUPPLEMENTS AND AMENDMENTS 2012 SUPPLEMENTS AND AMENDMENTS
EXISTING CONDITIONS:	CONTRACTOR SHALL VISIT THE SITE AND UNDERSTAND JOB CONDITIONS BEFORE SUBMITTING A PROPOSAL. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS AND SIZES OF ALL EXISTING UTILITY SERVICES PRIOR TO SUBMITTING HIS PROPOSAL. NO CONSIDERATION WILL BE GIVEN TO CLAIMS FOR EXTRA COST ARISING FROM CONTRACTOR'S FAILURE TO BE FULLY COGNIZANT OF JOB OR SITE CONDITIONS EXISTING AT TIME OF ACCEPTANCE OF BID. ACTIVE SERVICES: WHEN ENCOUNTERED IN WORK, PROTECT, BRACE, SUPPORT EXISTING ACTIVE SEWERS, GAS AND OTHER SERVICES REQUIRED FOR PROPER EXECUTION OF WORK. IF EXISTING ACTIVE SERVICES ARE ENCOUNTERED THAT REQUIRE RELOCATION, RELOCATE AS APPROVED. DO NOT PREVENT OR DISTURB OPERATION OF ACTIVE SERVICES THAT ARE TO REMAIN. INACTIVE SERVICES: WHEN ENCOUNTERED IN WORK, REMOVE, CAP OR PLUG INACTIVE SERVICES, AS INDICATED. INTERRUPTION OF SERVICES: WHERE WORK MAKES TEMPORARY SHUT-DOWNS OF SERVICES UNAVOIDABLE, SHUT DOWN AT NIGHT, OR AT SUCH TIMES AS APPROVED BY OWNER, WHICH WILL CAUSE LEAST INTERFERENCE WITH ESTABLISHED OPERATING ROUTINE. ARRANGE WORK TO ASSURE THAT SERVICES WILL BE SHUT DOWN ONLY DURING TIME ACTUALLY REQUIRED TO MAKE NECESSARY CONNECTION TO EXISTING WORK. WHERE EXISTING WALLS, CEILINGS, FLOORS, ETC., ARE CUT OR OTHERWISE DAMAGED DURING CONSTRUCTION, REPAIR ALL SURFACES TO THEIR ORIGINAL CONDITION.
SHOP DRAWINGS:	SUBMIT SHOP DRAWINGS FOR REVIEW. PDF FILES PREFERRED. SHOP DRAWINGS SHALL BE BOUND INTO VOLUMES (FILES), WITH EACH VOLUME (FILE) CONTAINING ONE COPY OF ALL SHOP DRAWINGS. ALL SHOP DRAWINGS SHALL BE SUBMITTED SIMULTANEOUSLY; NO SHOP DRAWINGS WILL BE CHECKED UNTIL ALL HAVE BEEN SUBMITTED. SUBMITTALS SHALL BE SUPPORTED BY DESCRIPTIVE MATERIAL, SUCH AS CATALOG CUTS, DIAGRAMS, PERFORMANCE CURVES AND CHARTS PUBLISHED BY THE MANUFACTURER, TO SHOW CONFORMANCE TO SPECIFICATION AND DRAWING REQUIREMENTS; MODEL NUMBERS ALONE WILL NOT BE ACCEPTABLE. ALL LITERATURE SHALL CLEARLY INDICATE THE SPECIFIED MODEL NUMBER, DIMENSIONS, ARRANGEMENT, RATING AND CHARACTERISTICS OF THE PROPOSED EQUIPMENT. CAPACITIES AND RATINGS SHALL BE BASED ON CONDITIONS INDICATED OR SPECIFIED HEREIN. ANY DEVIATIONS FROM SPECIFIED EQUIPMENT (PARTICULARLY THOSE WHICH REQUIRE COORDINATION WITH OTHER TRADES) SHALL BE CLEARLY NOTED IN A CONCISE LIST ON A SEPARATE SHEET.
TEST AND BALANCE:	THE CONTRACTOR SHALL RETAIN THE SERVICES OF AN INDEPENDENT TEST AND BALANCE AGENCY THAT IS INDEPENDENT OF ANY CONTRACTOR, SUB-CONTRACTOR, OR MANUFACTURER TO PERFORM THE TESTING AND BALANCING AND PREPARE REPORTS TO THE GENERAL CONTRACTOR. THE INDEPENDENT TEST AND BALANCE AGENCY SHALL HAVE A CERTIFIED MEMBER OF THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TEST AND BALANCE SHALL ALSO PROVIDE QUOTE TO PERFORM BALANCING FOR COMFORT SIX MONTHS AFTER THE SPACE IS OCCUPIED. P-TAB.COM OR EQUIVALENT.
GUARANTEE:	GUARANTEE THAT EACH PIECE OF APPARATUS SHALL BE OF THE CUSTOMARY STANDARD AND QUALITY FURNISHED BY THE DESIGNED MANUFACTURER FOR THAT CATEGORY NUMBER. GUARANTEE THAT THE AIR SYSTEMS SHALL OPERATE WITHOUT AERODYNAMIC NOISE GENERATED FROM THE FAULTY INSTALLATION OF DUCT WORK OR ANY COMPONENT OF THE AIR DISTRIBUTION SYSTEM. GUARANTEE THAT ALL SYSTEMS AND COMPONENTS SHALL BE PROVIDED WITH A ONE-YEAR WARRANTY FROM THE TIME OF DATE OF SUBSTANTIAL COMPLETION. THE WARRANTY SHALL COVER ALL MATERIALS AND WORKMANSHIP. DURING THE WARRANTY PERIOD, ALL DEFECTS IN MATERIALS AND WORKMANSHIP SHALL BE CORRECTED BY REPAIR, REPLACEMENT WITHOUT INCURRING ADDITIONS TO THE CONTRACT.
GENERAL NOTES:	REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED EQUIPMENT. ALL DUCT DIMENSIONS INDICATED IN THE DOCUMENTS ARE INSIDE-CLEAR DIMENSIONS. PORTABLE DUCTWORK OR PIPEWORK PASSIBLE THROUGH GRILLES AND REGISTERS IN FINISHED AREAS SHALL BE PAINTED FLAT BLACK. PAINT BLACK BEHIND ALL GRILLES. ALL WIRING IN CEILING PLENUM SHALL BE PLENUM RATED CABLE. MOUNTED TO CEILING MOUNTED AIR DISTRIBUTION DEVICES SHALL BE COMPATIBLE WITH CEILING TYPE. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPE. WHERE SEPARATIONS MUST BE PROTECTED WHEN APPLICABLE. PROVIDE NEW FILTERS (MERV 7 OR BETTER PER OWNER) FOR ALL APPLICABLE HVAC EQUIPMENT AT THE END OF CONSTRUCTION. ALL MATERIAL IN PLENUM MUST MEET FIRE AND SMOKE SPREAD AS REQUIRED BY NFPA 90A. ALL ROOF PENETRATIONS TO BE 12" APART AND AT LEAST 12" AWAY FROM CURBS, WALLS, AND DRAIN SUMPS TO PROVIDE ROOFING CONTRACTOR WITH SUFFICIENT ACCESS FOR FLASHING EACH ROOF PENETRATION. SUBSTITUTIONS MUST BE APPROVED IN WRITING BY ARCHITECT PRIOR TO BID SUBMISSION. CONTRACTOR SHALL REVIEW ALL CONTRACT DOCUMENTS AND SHALL BE FAMILIAR WITH THE SCOPE AND REQUIREMENTS OF THIS PROJECT. ANY DISCREPANCIES OR LACK OF CLARITY IN THE DOCUMENTS SHALL BE IDENTIFIED TO THE ARCHITECT OR ENGINEER PRIOR TO THE SUBMISSION OF PRICING BIDS. WITH A SUBMITTED BID, CONTRACTOR IS ACCEPTING THESE DOCUMENTS AS SUFFICIENT DEFINITION OF THE SCOPE OF WORK, AND ANY ADDITIONAL COSTS BASED ON UNCLEARITY OF CONTRACT DOCUMENTS WILL NOT BE CONSIDERED. THE CONTRACTOR SHALL REFERENCE THE FULL SET OF CONSTRUCTION DOCUMENTS DURING PRICING AND CONSTRUCTION FOR COORDINATION BETWEEN DISCIPLINES RELATIVE TO THE MECHANICAL SCOPE.

SPECIFICATIONS	
DIFFUSERS, GRILLES, & REGISTERS:	EGGCRATE GRILLE: RETURN GRILLES SHALL BE TITUS MODEL 50F FOR THE SIZES AND MOUNTING TYPES AS SHOWN ON THE PLANS AND OUTLET SCHEDULE. RETURN GRILLES MUST PROVIDE A FREE AREA OF AT LEAST 30%. OUTER BORDERS SHALL BE CONSTRUCTED OF HEAVY EXTRUDED ALUMINUM WITH A THICKNESS OF 0.040-0.050 INCH AND SHALL HAVE COUNTERSUNK SCREW HOLES FOR A NEAT APPEARANCE. BORDER WIDTH SHALL BE 1/4 INCHES ON ALL SIDES AND SHALL BE INTERLOCKED AT THE FOUR CORNERS AND MECHANICALLY STAKED TO FORM A RIGID FRAME. CHOICE OF THREE SIZES OF ALUMINUM GRID: 1/2 X 1/2 X 1/2 INCH, 1/2 X 1/2 X 1 INCH, OR 1 X 1 X 1 INCH SHALL BE AVAILABLE. OPTIONAL OPPOSED-BLADE VOLUME DAMPER SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL OR ALUMINUM. DAMPER MUST BE OPERABLE FROM THE FACE OF THE GRILLE. FLAQUE DIFFUSERS: ARCHITECTURAL SQUARE PANEL CEILING DIFFUSERS SHALL BE OF THE SIZES AND MOUNTING TYPES SHOWN ON THE PLANS AND OUTLET SCHEDULE. THE FACE PANEL IS REMOVABLE BY MEANS OF FOUR HANGER BRACKETS. THE EXPOSED SURFACE OF THE FACE PANEL SHALL BE SMOOTH, FLAT, AND FREE OF VISIBLE FASTENERS. THE BACK OF THE FACE PANEL SHALL HAVE AN AERODYNAMICALLY SHAPED, ROLLED EDGE TO ENSURE A TIGHT HORIZONTAL DISCHARGE PATTERN. CEILING DIFFUSERS WITH A 24 X 24-INCH FULL FACE SHALL HAVE NO LESS THAN AN 1 1/8 X 1 1/8-INCH FACE PANEL SIZE. CEILING DIFFUSERS WITH A 12 X 12-INCH FULL FACE SHALL HAVE NO LESS THAN A 9 X 9-INCH FACE PANEL SIZE. THE BACKPAN SHALL BE ONE PIECE PRECISION DIE-STAMPED AND SHALL INCLUDE AN INTEGRALLY DRAWN INLET. THE DIFFUSER NECK SHALL HAVE A MINIMUM OF 1/4-INCH DEPTH AVAILABLE FOR DUCT CONNECTION. THE FINISH SHALL BE #26 WHITE. THE FINISH SHALL BE AN ANODIC ACRYLIC PAINT, BAKED AT 315°F FOR 30 MINUTES. THE PENIL HARDNESS MUST BE HB TO H. THE PAINT MUST PASS A 100-HOUR ASTM B117 CORROSIVE ENVIRONMENTS SALT SPRAY TEST WITHOUT CREEPAGE, BLISTERING OR DETERIORATION OF FILM. THE PAINT MUST PASS A 250-HOUR ASTM D870 WATER IMMERSION TEST. THE PAINT MUST ALSO PASS THE ASTM D2794 REVERSE IMPACT CRACKING TEST WITH A 50-INCH POUND FORCE APPLIED. OPTIONAL ROUND DAMPER SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL. DAMPER MUST BE OPERABLE FROM THE FACE OF THE DIFFUSER. OPTIONAL DIRECTIONAL BLOW GUPS SHALL BE AVAILABLE TO RESTRICT THE DISCHARGE AIR IN CERTAIN DIRECTIONS. OPTIONAL MOLDED INSULATION BLANKET SHALL BE AVAILABLE. THE INSULATION WILL BE FOLDED-BACKED, AND PROVIDE AN ADDITIONAL 1-INCH GAP AROUND THE NECK TO INSTALL INSULATED FLEX DUCT. THE MANUFACTURER SHALL PROVIDE PUBLISHED PERFORMANCE DATA FOR THE SQUARE PANEL DIFFUSER. THE DIFFUSER SHALL BE TESTED IN ACCORDANCE WITH ASHRAE STANDARD 70-1991.
DUCTWORK AND ACCESSORIES:	INDUSTRY STANDARDS: COMPLY WITH SMACNA SHEET METAL DUCTWORK INSTALLATION CONTRACTORS' NATIONAL ASSOCIATION) HVAC CONSTRUCTION STANDARDS, RECOMMENDATIONS FOR FABRICATION, GAUGES, RESTRICTIONS, HANGINGS, AND INSTALLATION PROCEDURES, EXCEPT AS OTHERWISE INDICATED. COMPLY WITH ASHRAE (AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS) FUNDAMENTALS HANDBOOK RECOMMENDATIONS, EXCEPT AS OTHERWISE INDICATED. DUCTWORK MATERIALS AND GAUGES: UNLESS OTHERWISE INDICATED, FABRICATE DUCTWORK FROM GALVANIZED STEEL CONFORMING WITH ASTM A527, LOCKFORMING QUALITY, WITH ASTM A528 ZINC COATING, ALL FINISHES. GAUGES TO COMPLY WITH SMACNA STANDARD. DUCT SEALANT: NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT (TYPE APPLICABLE FOR THE FABRICATOR'S INSTALLATION DETAILS) AS COMPOUNDED AND RECOMMENDED BY THE MANUFACTURER SPECIFICALLY FOR SEALING JOINTS AND SEAMS IN DUCTWORK. DUCTWORK SUPPORT MATERIALS: EXCEPT AS OTHERWISE INDICATED, PROVIDE UPPER ATTACHMENT HANGERS OF GALVANIZED STEEL STRAPS, OR STEEL RODS AND LOWER ATTACHMENT OR SUPPORT OF DUCTWORK. HANGINGS/SUPPORT SYSTEMS SHALL BE IN ACCORDANCE WITH SMACNA REQUIREMENTS. EXPOSED DUCTWORK SHALL BE DOUBLE-WALL SPIRAL PIPE WITH PAINT GRIP UNLESS OTHERWISE NOTED OR SUBSTITUTION APPROVED BY OWNER. VOLUNTARY ALTERNATE EXPOSED DUCTWORK SHALL BE SINGLE-WALL SPIRAL PIPE UNLESS OTHERWISE NOTED OR SUBSTITUTION APPROVED BY OWNER. ALL EXPOSED DUCTWORK SHALL BE LINED IN LIEU OF WRAPPED. DUCT LINER THERMAL RESISTANCE SHALL MEET THE MINIMUM VALUES SPECIFIED IN PARAGRAPH "DUCT INSULATION" BELOW. DUCT INSULATION: R-5 SUPPLY, OUTSIDE AND RETURN AIR DUCT INSULATION IN UNCONDITIONED SPACES R-8 SUPPLY AND RETURN AIR DUCT INSULATION OUTSIDE THE BUILDING R-8 INSULATION BETWEEN DUCTS AND THE BUILDING EXTERIOR WHEN DUCTS ARE PART OF A BUILDING ASSEMBLY CEILING FAN: CEILING MOUNTED EXHAUST FANS SHALL BE OF THE CENTRIFUGAL DIRECT DRIVE TYPE. THE FAN HOUSING SHALL BE CONSTRUCTED OF STEEL. THE PLASTIC DUCT COLLAR SHALL BE A TAPERED SLEEVE FOR EASE OF CONNECTION TO 3 IN AND 4 IN ROUND DUCTWORK AND SHALL INCLUDE A BACKDRAFT DAMPER. THE GRILLE SHALL BE CONSTRUCTED OF NON-YELLOWING HIGH STRENGTH POLYMER AND ATTACHED TO THE HOUSING WITH TORSION SPRINGS. THE WHEELS SHALL BE CONSTRUCTED OF HIGH STRENGTH POLYMER. THE ACCESS FOR WIRING SHALL BE EXTERNAL. THE MOTOR DISCONNECT SHALL BE INTERNAL AND OF THE PLUG IN TYPE. ALL FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEALS FOR SOUND AND AIR PERFORMANCE AND SHALL BE U.L. LISTED.

SPECIFICATIONS	
ROOFTOP UNITS:	GENERAL OUTDOOR, ROOFTOP MOUNTED, ELECTRICALLY CONTROLLED, HEATING AND COOLING UNIT UTILIZING A FULLY HERMETIC SCROLL COMPRESSOR(S) FOR COOLING DUTY AND GAS COMBUSTION FOR HEATING DUTY. FACTORY ASSEMBLED, SINGLE-PIECE HEATING AND COOLING ROOFTOP UNIT, CONTAINED WITHIN THE UNIT ENCLOSURE SHALL BE ALL FACTORY MIRRORING, FIRING, CONTROLS, AND SPECIAL FEATURES REQUIRED PRIOR TO FIELD START-UP. UNIT SHALL USE ENVIRONMENTALLY SOUND, PURON® REFRIGERANT. UNIT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. UNIT MUST BE SELECTED AND INSTALLED IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL CODES. UNIT CABINET UNIT CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL AND SHALL BE BONDERIZED AND COATED WITH A PRE-PAINTED BAKED ENAMEL FINISH ON ALL EXTERNALLY EXPOSED SURFACES. STANDARD HEAT EXCHANGER CONSTRUCTION HEAT EXCHANGER SHALL BE OF THE TUBULAR-SECTION TYPE CONSTRUCTED OF A MINIMUM OF 20-GAUGE STEEL COATED WITH A NOMINAL 1.2 MIL ALUMINUM-SILICONE ALLOY FOR CORROSION RESISTANCE. BURNERS SHALL BE OF THE IN-SHOT TYPE CONSTRUCTED OF ALUMINUM-COATED STEEL. BURNERS SHALL INCORPORATE ORIFICES FOR RATED HEAT OUTPUT UP TO 250 THRU 1000 BTU/HOUR ELEVATION. ADDITIONAL ACCESSORY KITS MAY BE REQUIRED FOR APPLICATIONS ABOVE 2000 FT (610M) ELEVATION, DEPENDING ON LOCAL GAS SUPPLY CONDITIONS. EACH HEAT EXCHANGER TUBE SHALL CONTAIN MULTIPLE DIMPLES FOR INCREASED HEAT EFFECTIVENESS. STANDARD ALUMINUM-COPPER COILS STANDARD EVAPORATOR AND CONDENSER COILS SHALL HAVE ALUMINUM CLANNED PLATE FINS MECHANICALLY BONDED TO COPPER TUBES UNLESS INTERNALLY GROOVED COPPER TUBES WITH ALL JOINTS BRAZED. EVAPORATOR COILS SHALL BE TESTED TO 100 PSIG, PRESSURE TESTED TO 450 PSIG, AND QUALIFIED TO 1995 BEFORE TEST AT 100 PSIG. CONDENSER COILS SHALL BE LEAK TESTED TO 100 PSIG, PRESSURE TESTED TO 650 PSIG, AND QUALIFIED TO 1995 BEFORE TEST AT 100 PSIG. COMPRESSORS UNIT SHALL USE FULLY HERMETIC, SCROLL COMPRESSOR FOR EACH INDEPENDENT REFRIGERATION CIRCUIT. FILTER SELECTION FILTERS AS SPECIFIED IN THE UNIT CABINET SECTION OF THIS SPECIFICATION. FILTERS SHALL BE INSTALLED BY A PIVOTING FILTER TRAY, FACILITATING EASY REMOVAL AND INSTALLATION. SHALL CONSIDER UNIT FACTORY-INSTALLED, LOW VELOCITY, THROW-AWAY 2-IN. THICK FIBERGLASS FILTERS. FILTER SHALL BE STANDARD, COMMERCIALY AVAILABLE SIZES. EVAPORATOR FAN AND MOTOR EVAPORATOR FAN MOTOR: SHALL HAVE PERMANENTLY LUBRICATED BEARINGS. SHALL HAVE INHERENT AUTOMATIC-RESET THERMAL OVERLOAD PROTECTION OR CIRCUIT BREAKER. SHALL HAVE A MAXIMUM CONTINUOUS BHP RATING FOR CONTINUOUS DUTY OPERATION; NO SAFETY FACTORS ABOVE THAT RATING SHALL BE REQUIRED. BELT-DRIVEN EVAPORATOR FAN: BELT DRIVE SHALL INCLUDE AN ADJUSTABLE-PITCH MOTOR PULLEY. SHALL USE SEALED, PERMANENTLY LUBRICATED BALL-BEARING TYPE. BLOWER FAN SHALL BE DOUBLE-INLET TYPE WITH FORWARD-CURVED BLADES. SHALL BE CONSTRUCTED FROM STEEL WITH A CORROSION RESISTANT FINISH AND DYNAMICALLY BALANCED. CONDENSER FANS AND MOTORS CONDENSER FAN MOTORS: SHALL BE A TOTALLY ENCLOSED MOTOR. SHALL USE PERMANENTLY LUBRICATED BEARINGS. SHALL HAVE INHERENT THERMAL OVERLOAD PROTECTION WITH AN AUTOMATIC RESET FEATURE. SHALL USE A SHAFT-DOWN DESIGN ON 04 TO 12 MODELS AND SHAFT-UP ON 14 SIZE WITH RAIN SHIELD. CONDENSER FANS: SHALL BE A DIRECT-DRIVEN PROPELLER TYPE FAN. SHALL HAVE ALUMINUM BLADES RIVETED TO CORROSION-RESISTANT STEEL SPIDERS AND SHALL BE DYNAMICALLY BALANCED. ACCESSORIES: REFER TO THE EQUIPMENT SCHEDULE FOR A COMPLETE LISTING OF REQUIRED ACCESSORIES. SMOKE DETECTORS: SHALL BE A FOUR-WIRE CONTROLLER AND DETECTOR. SHALL BE ENVIRONMENTAL COMPENSATED WITH DIFFERENTIAL SENSING FOR RELIABLE, STABLE, AND DRIFT-FREE SENSITIVITY. SHALL USE MAGNET-ACTIVATED TEST/RESET SENSOR SWITCHES. SHALL HAVE TOOL-LESS CONNECTION TERMINAL ACCESS. SHALL HAVE A RECESSED MOMENTARY SWITCH FOR TESTING AND RESETTING THE DETECTOR. CONTROLLER SHALL INCLUDE: (1.) ONE SET OF NORMALLY OPEN ALARM INITIATION CONTACTS FOR CONNECTION TO AN INITIATING DEVICE CIRCUIT ON A FIRE ALARM CONTROL PANEL. (2.) TWO FORM-C AUXILIARY ALARM RELAYS FOR INTERFACE WITH ROOFTOP UNIT OR OTHER EQUIPMENT. (3.) ONE FORM-C SUPERVISION (TROUBLE) RELAY TO CONTROL THE OPERATION OF THE TROUBLE LED ON A REMOTE TEST/RESET STATION. (4.) CAPABLE OF DIRECT CONNECTION TO TWO INDIVIDUAL DETECTOR MODULES. (5.) CAN BE WIRED TO UP TO 14 OTHER DUCT SMOKE DETECTORS FOR MULTIPLE FAN SHUTDOWN APPLICATIONS THERMOSTATS: ELECTRIC, SOLID-STATE, MICROCOMPUTER-BASED ROOM THERMOSTAT. AUTOMATIC SWITCHING FROM HEATING TO COOLING. PREFERENTIAL RATE CONTROL TO MINIMIZE OVERSHOOT AND DEVIATION FROM SET POINT. SET UP FOR FOUR SEPARATE TEMPERATURES PER DAY. INSTANT OVERRIDE OF SET POINT FOR CONTINUOUS OR TIMED PERIOD FROM 1 HOUR TO 31 DAYS. SHORT-CYCLE PROTECTION. PROGRAMMING BASED ON EVERY DAY OF WEEK. SELECTION FEATURES INCLUDE DEGREE F DISPLAY, 12- OR 24-HOUR CLOCK, KEYBOARD DISABLE, REMOTE SENSOR, AND FAN ON-AUTO. BATTERY REPLACEMENT WITHOUT PROGRAM LOSS. THERMOSTAT DISPLAY FEATURES INCLUDE THE FOLLOWING: TIME OF DAY. ACTUAL ROOM TEMPERATURE. PROGRAMMED TEMPERATURE. PROGRAMMED TIME. DURATION OF TIMED OVERRIDE. DAY OF WEEK. SYSTEM MODE INDICATIONS INCLUDE "HEATING," "OFF," "FAN AUTO," AND "FAN ON." ELECTRIC HEAT: HEATER ELEMENT OPEN COIL RESISTANCE WIRE, NICKEL-CHROME ALLOY, 0.29 INCHES INSIDE DIAMETER, STRUNG THROUGH CERAMIC INSULATORS MOUNTED ON METAL FRAME. COIL ENDS ARE STAKED AND WELDED TO TERMINAL SCREW SLOTS. HEATER ASSEMBLIES ARE PROVIDED WITH INTEGRAL FUSING FOR PROTECTION OF INTERNAL HEATER CIRCUITS NOT EXCEEDING 48 AMPS EACH. AUTO RESET THERMO LIMIT CONTROLS, MAGNETIC HEATER CONTACTORS (24 V COIL) AND TERMINAL BLOCK ALL MOUNTED IN ELECTRIC HEATER CONTROL BOX (MINIMUM 1/8 GA GALVANIZED STEEL) ATTACHED TO END OF HEATER ASSEMBLY.

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REVISIONS

NO.	DESCRIPTION

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SEAL

SEPTEMBER 24, 2018

100% CONSTRUCTION DOCUMENTS

RELEASE DATE

GENERAL

DRAWING TITLE

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