

SPECIFICATIONS

GENERAL NOTES:
 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED EQUIPMENT.
 ALL DUCT DIMENSIONS INDICATED IN THESE DOCUMENTS ARE INSIDE-CLEAR DIMENSIONS.
 PORTIONS OF DUCTWORK OR PIPING VISIBLE THROUGH GRILLES AND REGISTERS IN FINISHED AREAS SHALL BE PAINTED FLAT BLACK; PAINT BLACK BEHIND ALL GRILLES.
 ALL WIRING IN THE CEILING PLENUM SHALL BE PLENUM RATED CABLE.
 MOUNTING FRAME OF CEILING MOUNTED AIR DISTRIBUTION DEVICES SHALL BE COMPATIBLE WITH CEILING TYPE. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPE.
 ALL FIRE SEPARATIONS MUST BE PROTECTED WHEN AFFICABLE.
 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.

ELECTRIC WALL HEATER

ELECTRIC WALL HEATERS SHALL BE QMARK MODEL AWH OR EQUAL.
 THE HEATER ASSEMBLY WHICH FITS INTO THE BACK BOX SHALL CONSIST OF A FAN PANEL UPON WHICH IS MOUNTED ALL OF THE OPERATIONAL PARTS OF THE HEATER.
 THE HEATING ELEMENT SHALL BE OF NON-GLOWING DESIGN CONSISTING OF AN 80/20 NICKEL-CHROMIUM RESISTANCE WIRE ENCLOSED IN A STEEL SHEATH TO WHICH PLATE FINS ARE COPPER BRAZED. IT SHALL BE WARRANTED FOR 5 YEARS.
 THE FAN SHALL BE FIVE-BLADED ALUMINUM. THE FAN MOTOR SHALL BE TOTAL ENCLOSED.
 FAN CONTROL SHALL BE OF BI-METALLIC, SNAP-ACTION TYPE AND SHALL ACTIVATE FAN AFTER HEATING ELEMENT REACHES OPERATING TEMPERATURE. THE FAN SHALL CONTINUE TO OPERATE AFTER THE THERMOSTAT IS SATISFIED AND UNTIL THE HEATING ELEMENT IS COOL.
 THE TAMPER-PROOF THERMOSTAT SHALL BE OF BI-METALLIC, SNAP-ACTION TYPE WITH ENCLOSED CONTACTS. IT SHALL BE COMPLETELY CONCEALED BEHIND THE FRONT COVER TO BECOME TAMPER PROOF.
 A THERMAL CUTOFF SHALL BE BUILT INTO THE SYSTEM TO SHUT OFF THE HEATER IN THE EVENT OF OVERHEATING.
 A DOUBLE-POLE SINGLE THROW DISCONNECT SWITCH SHALL BE MOUNTED ON THE BACK BOX FOR POSITIVE DISCONNECT OF POWER SUPPLY. IT WILL BE COMPLETELY CONCEALED BEHIND THE FRONT GRID PANEL.
 WHERE SCHEDULED, NORMALLY OPEN 24-VOLT AND 120-VOLT LOW VOLTAGE HOLDING COIL RELAYS SHALL BE AVAILABLE TO CONTROL HEATERS IN CONJUNCTION WITH CENTRAL ENERGY CONTROL SYSTEMS. THE BUILT-IN THERMOSTAT CAN THEN BE USED AS ONE OF THE THERMOSTATS IN AN AUTOMATIC NIGHT SET BACK OPERATION.

THE BACK BOX SHALL BE DESIGNED FOR DUTY AS RECESSED ROUGH-IN BOX IN EITHER MASONRY OR FRAME INSTALLATIONS AND IS ALSO USED WITH THE SURFACE MOUNTING FRAME IN SURFACE MOUNTING INSTALLATIONS. THE BACK BOX SHALL BE 20-GAUGE GALVANIZED STEEL AND SHALL CONTAIN KNOCKOUTS THROUGH WHICH POWER LEADS ARE BROUGHT.
 THE FRONT PANEL SHALL BE OF THE BAR GRILLE TYPE AND SHALL BE CONSTRUCTED OF 1/8-GAUGE COLD-ROLLED STEEL, WELDED INTO A UNIFORM GRILLE AND FINISHED IN BAKED ENAMEL TO DIRECT THE WARMED AIR TOWARD THE FLOOR. THE FRONT GRILLE SHALL BE SURROUNDED BY A DECORATIVE SATIN-FINISH ALUMINUM FRAME.
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SPECIFICATIONS

DIFFUSERS, GRILLES, & REGISTERS:
 EGGRATE 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 90%, 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 1/4" MINIMUM RESISTANCE 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.
 DOUBLE DEFLECTION REGISTERS:
 ALUMINUM SUPPLY GRILLES SHALL BE OF THE SIZES AND MOUNTING TYPES SHOWN ON THE PLANS AND OUTLET SCHEDULE. THE DEFLECTION BLADES SHALL BE AVAILABLE PARALLEL TO THE LONG OR SHORT DIMENSION OF THE GRILLE OR REGISTER. CONSTRUCTION SHALL BE OF ALUMINUM WITH A 1/4-INCH WIDE BORDER ON ALL SIDES. SIZES 24 X 24 INCHES AND BELOW SHALL HAVE ROLL-FORMED BORDERS WITH A MINIMUM THICKNESS OF 0.032 INCH. LARGER SIZES SHALL BE CONSTRUCTED USING CONTINUOUS ALUMINUM EXTRUSIONS WITH A NOMINAL THICKNESS OF 0.040 THROUGH 0.050 INCH AND SHALL BE INTERLOCKED AT THE FOUR CORNERS AND MECHANICALLY STAKED TO FORM A RIGID FRAME. SCREW HOLES SHALL BE COUNTERSUNK FOR A NEAT APPEARANCE.
 DEFLECTION BLADES SHALL BE CONToured TO A SPECIFICALLY DESIGNED AND TESTED CROSS-SECTION TO MEET PUBLISHED TEST PERFORMANCE DATA. BLADES SHALL BE SPACED ON 3/4-INCH CENTERS. BLADES SHALL HAVE FRICTION PIVOTS ON BOTH SIDES TO ALLOW INDIVIDUAL BLADE ADJUSTMENT WITHOUT LOOSING OR RATTLING OR BE INTERLOCKED THROUGH THE FRAME AND HELD TIGHT WITH STEEL SPRING WIRE INTERLOCKED TO THE FRAME ON BOTH ENDS OF EACH SIDE. PLASTIC BLADE PIVOTS ARE NOT ACCEPTABLE.
 OPTIONAL ROUND BLADE VOLUME DAMPER SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL OR ALUMINUM. DAMPER MUST BE OPERABLE FROM THE FACE OF THE GRILLE.
 THE GRILLE FINISH SHALL BE #26 WHITE. THE FINISH SHALL BE AN ANODIC ACRYLIC PAINT, BAKED AT 315° F FOR 30 MINUTES. THE FINISH HARDNESS MUST BE HB TO H. THE PAINT MUST PASS A 100-HOUR ASTM B117 CORROSIVE ENVIRONMENTS SALT SPRAY TEST WITHOUT CREEPAGE, BUSTERING 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-POUND FORCE APPLIED.
 THE MANUFACTURER SHALL PROVIDE PUBLISHED PERFORMANCE DATA FOR THE GRILLE. THE GRILLE SHALL BE TESTED IN ACCORDANCE WITH ANSHASHRAE STANDARD 70-2006.
 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 1/8 X 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 PEECE 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 FINISH HARDNESS MUST BE HB TO H.
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 OPTIONAL ROUND DAMPER SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL. DAMPER MUST BE OPERABLE FROM THE FACE OF THE DIFFUSER. OPTIONAL DIRECTIONAL BLOW CLIPS SHALL BE AVAILABLE TO RESTRICT THE DISCHARGE AIR IN CERTAIN DIRECTIONS.
 OPTIONAL MOLDED INSULATION BLANKET SHALL BE AVAILABLE. THE INSULATION WILL BE R-6, FOIL-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 ANSHASHRAE STANDARD 70-1991.
 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 FURNISHED 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 ARCHITECT OR CONTRACTOR. THE INDEPENDENT TEST AND BALANCE AGENCY SHALL HAVE A CERTIFICATE OF REGISTRATION FROM THE NATIONAL ENVIRONMENTAL BALANCEING BOARD (NEBB).
 TEST AND BALANCE SHALL ALSO PROVIDE QUOTE TO PERFORM BALANCING FOR 6 MONTHS AFTER THE SPACE IS OCCUPIED.
 F-TAB.COM OR EQUIVALENT.

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GAS FURNACE:
 GENERAL SYSTEM DESCRIPTION
 FURNISH A SCHEDULED FIXED CAPACITY GAS-FIRED FURNACE FOR USE WITH NATURAL GAS OR PROPANE. FURNISH COIL AIR RETURN BOX WITH EXTERIOR MEDIAL CABINET FOR USE WITH ACCESSORY MEDIA FILTER OR STANDARD FILTER.
 QUALITY ASSURANCE
 UNIT WILL BE DESIGNED, TESTED AND CONSTRUCTED TO THE CURRENT ANSI Z 21.47/CSA 2.3 DESIGN STANDARD FOR GAS-FIRED CENTRAL FURNACES.
 UNIT WILL BE 3RD PARTY CERTIFIED BY CSA TO THE CURRENT ANSI Z 21.47/CSA 2.3 DESIGN STANDARD FOR GAS-FIRED CENTRAL FURNACES.
 UNIT WILL CARRY THE CSA BLUE STAMP AND BLUE FLAME LABELS.
 UNIT EFFICIENCY TESTING WILL BE PERFORMED PER THE CURRENT DOE TEST PROCEDURE AS LISTED IN THE FEDERAL REGISTER.
 UNIT WILL BE CERTIFIED FOR CAPACITY AND EFFICIENCY AND LISTED IN THE LATEST GAMA CONSUMER'S DIRECTORY OF CERTIFIED EFFICIENCY RATINGS.
 UNIT SHALL CARRY THE CURRENT FEDERAL TRADE COMMISSION ENERGY GUIDE EFFICIENCY LABEL.
 DELIVERY, STORAGE AND HANDLING
 UNIT SHALL BE SHIPPED AS SINGLE PACKAGE ONLY AND IS STORED AND HANDLED PER UNIT MANUFACTURER'S RECOMMENDATIONS.
 EQUIPMENT COMPONENTS SHALL INCLUDE: SLOW-OPENING GAS VALVE TO REDUCE IGNITION NOISE, REGULATE GAS FLOW, WITH ELECTRIC SWITCH GAS SHUT-OFF; FLAME PROVING SENSOR, HOT SURFACE IGNITER, PRESSURE SWITCH ASSEMBLY, FLAME ROLLOUT SWITCH, BLOWER AND INDUCTION ASSEMBLY, 40VA TRANSFORMER, DIGITAL LOW-VOLTAGE HEATING/COOLING THERMOSTAT.
 BLOWER/WHEEL AND BLOWER/MOTOR
 GALVANIZED BLOWER WHEEL SHALL BE CENTRIFUGAL TYPE, STATICALLY AND DYNAMICALLY BALANCED. BLOWER MOTOR OF PSC TYPE SHALL BE PERMANENTLY LUBRICATED WITH SEALED BEARINGS, AND SHALL BE MULTIPLE-SPEED DIRECT DRIVE. BLOWER MOTOR SHALL BE SOFT MOUNTED TO THE BLOWER SCROLL TO REDUCE VIBRATION TRANSMISSION.
 FILTERS
 FURNACE MAY HAVE REUSABLE-TYPE FILTERS.
 CASING
 CASING SHALL BE OF .030 IN. THICKNESS MINIMUM, PRE-PAINTED GALVANIZED STEEL.
 INDUCERMOTOR
 INDUCER MOTOR SHALL BE SOFT MOUNTED TO REDUCE VIBRATION TRANSMISSION.
 DRAFT SAFEGUARD SWITCH
 DRAFT SAFEGUARD SWITCH SHALL BE FACTORY INSTALLED TO REDUCE THE POSSIBILITY OF VENT GAS INFILTRATION DUE TO A BLOCKED OR TESTED VENT PIPE.
 HEAT EXCHANGERS
 INDUCTION ASSEMBLY SHALL BE A 4-PASS 2-1/2" ALUMINUM STEEL OF FOLD-BED CRIMP SECTIONAL DESIGN WHEN APPLIED OPERATING UNDER NEGATIVE PRESSURE.
 CONTROL
 CONTROL SHALL INCLUDE A MICRO-PROCESSOR CONTROL INTEGRATED ELECTRONIC CONTROL BOARD WITH A 1-1 SERVICE THROUGHOUT. SERVICE CODES DISPLAYED VIA DIAGNOSTIC FLASHING LED INDICATOR. CONTROL BOARD SHALL CHECK ALL MAJOR FUNCTIONS OF THE FURNACE WITHIN ONE MINUTE. ALL REPLACEABLE AUTOMOTIVE-TYPE CIRCUIT PROTECTION INCLUDING MULTIPLE OPERATIONAL SETTINGS AVAILABLE INCLUDING: AIR-BLOWER, AIR UPWARD AS SHOWN ON CONTRACT DRAWINGS. UNIT WILL BE USED IN A REFRIGERATION CIRCUIT TO MATCH UP TO A PACKAGED FAN COIL OR COIL UNIT.
 QUALITY ASSURANCE
 — UNIT WILL BE RATED IN ACCORDANCE WITH THE LATEST EDITION OF AHRI STANDARD 210.
 — UNIT WILL BE CERTIFIED FOR CAPACITY AND EFFICIENCY, AND LISTED IN THE LATEST AHRI DIRECTORY OF APPROVAL. UNIT WILL HAVE UL-181-UL3 APPROVAL.
 — UNIT CONSTRUCTION WILL COMPLY WITH LATEST EDITION OF ANSI/ASHRAE AND WITH NEC.
 — UNIT WILL BE CONSTRUCTED IN ACCORDANCE WITH UL STANDARDS AND WILL CARRY THE UL LABEL OF APPROVAL. UNIT WILL HAVE 6-18-181 APPROVAL.
 — UNIT CABINET WILL BE CAPABLE OF WITHSTANDING FEDERAL TEST METHOD STANDARD NO. 141 (METHOD 506.1) 500-HR SALT SPRAY TEST.
 — AIR-COOLED CONDENSER COILS WILL BE LEAK TESTED AT 150 PSIG AND PRESSURE TESTED AT 450 PSIG.
 — UNIT CONSTRUCTED IN ISO9001 APPROVED FACILITY.
 DELIVERY, STORAGE, AND HANDLING
 — UNIT WILL BE SHIPPED AS SINGLE PACKAGE ONLY AND IS STORED AND HANDLED PER UNIT MANUFACTURER'S RECOMMENDATIONS.
 PRODUCTS EQUIPMENT
 FACTORY ASSEMBLED, SINGLE PIECE, AIR-COOLED AIR CONDITIONER UNIT, CONTAINED WITHIN THE UNIT ENCLOSURE IS ALL FACTORY WIRING, PIPING, CONTROLS, COMPRESSOR, REFRIGERANT CHARGE R-410A, AND SPECIAL FEATURES REQUIRED PRIOR TO FIELD START-UP.
 UNIT CABINET
 — UNIT CABINET WILL BE CONSTRUCTED OF GALVANIZED STEEL, BONDZERIZED, AND COATED WITH A POWDER COAT PAINT.
 — 3 PHASE EQUIPMENT AVAILABLE WITH DENSE GRILLE ONLY.
 — SINGLE PHASE EQUIPMENT AVAILABLE WITH WIDE (W) OR DENSE (D) GRILLE OPTION.
 FANS
 — CONDENSER FAN WILL BE DIRECT-DRIVE PROPELLER TYPE, DISCHARGING AIR UPWARD.
 — CONDENSER FAN MOTORS WILL BE TOTALLY ENCLOSED, 1-PHASE TYPE WITH CLASS B INSULATION AND PERMANENTLY LUBRICATED BEARINGS. SHAPTS WILL BE COMROSON RESISTANT.
 — FAN BLADES WILL BE STATICALLY AND DYNAMICALLY BALANCED.
 — CONDENSER FAN OPENINGS WILL BE EQUIPPED WITH COATED STEEL WIRE SAFETY GUARDS.
 — COMPRESSOR WILL BE HERMETICALLY SEALED.
 — COMPRESSOR WILL BE MOUNTED ON RUBBER VIBRATION ISOLATORS.
 CONDENSER COIL
 — CONDENSER COIL WILL BE AIR COOLED.
 — COIL WILL BE CONSTRUCTED OF ALUMINUM FINS MECHANICALLY BONDED TO COPPER TUBES WHICH ARE THEN CLEANED, DEHYDRATED, AND SEALED.
 REFRIGERATION COMPONENTS
 — REFRIGERATION CIRCUIT COMPONENTS WILL INCLUDE LIQUID-LINE SHUTOFF VALVE WITH SWEAT CONNECTIONS, VAPOR-LINE SHUTOFF VALVE WITH SWEAT CONNECTIONS, SYSTEM CHARGE OF R-410 REFRIGERANT, AND COMPRESSOR OIL.
 — UNIT WILL BE EQUIPPED WITH HIGH-PRESSURE SWITCH, LOW PRESSURE SWITCH AND FILTER DRIER FOR PURCH REFRIGERANT.

REFER TO EQUIPMENT SCHEDULE FOR BASIS OF DESIGN AND ACCEPTABLE ALTERNATES.

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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) FIRE/SMOKE DAMPER
┌└└└	HORIZONTAL (TYP. FLOOR) COMBINATION FIRE/SMOKE DAMPER
⊙	THERMOSTAT
⊙	REMOTE THERMOSTAT SENSOR
—	INTERMEDIATE DUCT
┌	DUCT UP
└	DUCT UP
└	DUCT DOWN
┌	SUPPLY DUCT
□	EQUIPMENT TYPE EQUIPMENT NUMBER, WHERE A LETTER IS USED, THERE ARE MULTIPLE INSTANCES.

ABBREVIATIONS

AF	ABOVE FINISHED FLOOR	MA	MAKE-UP AIR
AHU	AIR HANDLING UNIT	MAU	MAKE-UP AIR UNIT
CD2	CARBON DIOXIDE	MV	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	ODD	OPPOSED BLADE DAMPER
F	DEGREES FA		