

SPECIFICATIONS

GENERAL:

- ALL HVAC WORK SHALL BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
THE MECHANICAL CONTRACTOR SHALL VISIT THE SITE TO DETERMINE ALL PRE-EXISTING CONDITIONS AND WORK NECESSARY PRIOR TO SUBMISSION OF BID PRICE.
THE MECHANICAL CONTRACTOR SHALL BE FAMILIAR WITH ALL CONTRACT DOCUMENTS FOR ALL TRADES AND COORDINATE WITH OTHER CONTRACTORS.
THE MECHANICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURAL AND STRUCTURAL CONDITIONS.
DRAWINGS ARE DIAGRAMMATIC ONLY. FINAL ROUTING OF DUCTWORK, PIPING AND EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD.
EXTERNAL STATIC PRESSURE DOES NOT INCLUDE COIL, CASING OR FILTER PRESSURE DROP.
SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE DESIGN TEAM PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY MECHANICAL EQUIPMENT.
THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE HVAC WORK COMPLETE AND READY FOR OPERATION.
ALL HVAC EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY OWNER.
ALL HVAC COMPRESSORS SHALL HAVE EXTENDED 5-YEAR MANUFACTURER'S WARRANTY.
THE MECHANICAL CONTRACTOR SHALL INFORM AND COORDINATE WITH THE OWNER ALL NECESSARY INTERRUPTIONS TO EXISTING BUILDING SYSTEMS AND SERVICE THAT MAY AFFECT THE NORMAL OPERATION OF OCCUPIED PORTIONS OF THE BUILDING.
THE MECHANICAL CONTRACTOR SHALL INFORM THE OWNER WELL IN ADVANCE OF ANY WORK TO BE UNDERTAKEN IN OCCUPIED AREAS OF THE BUILDING ASSOCIATED WITH THIS PROJECT.
THE MECHANICAL CONTRACTOR SHALL FURNISH TO THE GENERAL CONTRACTOR ALL INFORMATION REQUIRED FOR SETTING OF WALL, ROOF AND PARTITION OPENINGS FOR HVAC WORK.
THE MECHANICAL CONTRACTOR SHALL FIELD MEASURE EXACT SIZES AND VERIFY ALL OPENINGS FOR SHAFTS AND LOUVERS PRIOR TO SUBMISSION OF SHOP DRAWINGS AND INSTALLATION.
ANY EXISTING WALL, FLOOR, OR CEILING SURFACE THAT IS DISTURBED DURING THE COURSE OF THE HVAC WORK SHALL BE REPAIRED TO MATCH NEW AND/OR EXISTING CONDITIONS.
PROVIDE ACCESS PANELS IN NON-ACCESSIBLE CEILINGS AND IN WALL STRUCTURE OF ADEQUATE SIZE TO ALLOW FOR MAINTENANCE, BALANCING AND COMPLETE REPLACEMENT OF EQUIPMENT WITHOUT DISTURBING PERMANENT CONSTRUCTION.
REFER TO ARCHITECTURAL FOR EXACT LOCATION OF OUTDOOR AIR CONDITIONING EQUIPMENT.
THE CONTROLS CONTRACTOR SHALL COORDINATE THERMOSTAT AND/OR TEMPERATURE SENSOR LOCATIONS WITH THE ARCHITECTURAL PLANS.
PORTIONS OF DUCTWORK AND PIPE INSULATION VISIBLE THROUGH AIR DISTRIBUTION DEVICES IN FINISHED AREAS SHALL BE PAINTED FLAT BLACK.
ALL PIPE AND DUCT PENETRATIONS OF FIRE AND/OR SMOKE-RATED ASSEMBLIES SHALL BE FIRE-STOPPED AS REQUIRED TO RESTORE THE ASSEMBLY TO ITS ORIGINAL INTEGRITY.
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.
WHERE ABOVE CEILING VOLUMES ARE UTILIZED AS A RETURN AIR PLENUM, ALL MATERIALS EXPOSED WITHIN THE PLENUMS SHALL BE NON-COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 AS DETERMINED IN ACCORDANCE WITH ASTM E84.
THE MECHANICAL CONTRACTOR SHALL COORDINATE ELECTRICAL AND PLUMBING REQUIREMENTS WITH THE ELECTRICAL AND PLUMBING CONTRACTORS.
THE MECHANICAL CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS PRIOR TO SUBMITTING SHOP DRAWINGS OR ORDERING EQUIPMENT.
ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH A DISCONNECT SWITCH AT EACH PIECE OF EQUIPMENT.
ALL REQUIRED CONTROL WIRING (INCLUDING POWER WIRING REQUIRED FOR CONTROL PANELS, DEVICES, ETC.) NOT SHOWN ON THE ELECTRICAL DRAWINGS SHALL BE INCLUDED AS PART OF THE MECHANICAL WORK.

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- UNLESS NOTED OTHERWISE, TRANSFORMERS, CONTROLS AND CONTROL WIRING REQUIRED FOR ALL MECHANICAL SYSTEMS SHALL BE FURNISHED WITH THE EQUIPMENT IT SERVES AND INSTALLED BY THE MECHANICAL CONTRACTOR.
ALL MECHANICAL EQUIPMENT SHALL BE CLEARLY LABELED AND SHOW THE EQUIPMENT TAG USED IN THESE DOCUMENTS.
ALL EVAPORATORS AND COOLING COILS LOCATED ABOVE THE LOWEST LEVEL FINISHED FLOOR SHALL BE INSTALLED WITH AN AUXILIARY CONDENSATE DRAIN PAN UNDER THE UNIT.
AS AN ALTERNATE TO THE AUXILIARY CONDENSATE DRAIN PAN, AN ELECTRONIC WATER LEVEL DETECTOR WIRED TO SHUTDOWN THE UNIT UPON DETECTION OF WATER IN THE AUXILIARY DRAIN PAN.
AT THE COMPLETION OF CONSTRUCTION, THE MECHANICAL CONTRACTOR SHALL CLEAN DUCTWORK AND REPLACE ALL FILTERS.
AFTER CONSTRUCTION, THE ENTIRE HVAC SYSTEM SHALL BE TESTED, ADJUSTED AND BALANCED TO DELIVER THE AIR FLOW QUANTITIES SHOWN IN THESE DOCUMENTS.
TEST AND BALANCE AGENCY SHALL BE A CERTIFIED MEMBER OF THE AABC OR THE NEBB.
AIRSIDE:
ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS.
DUCTWORK, UNLESS NOTED OTHERWISE, SHALL BE GALVANIZED STEEL.
LOW PRESSURE SUPPLY DUCT PRESSURE CLASS = +1" W.G. CLASS B SEALS, MEDIUM PRESSURE SUPPLY DUCT PRESSURE CLASS = +2" W.G. CLASS B SEALS, RETURN AND EXHAUST DUCTS = -1" W.G. CLASS B SEALS.
VOLUME DAMPERS SHALL BE INSTALLED AT ALL LOW PRESSURE SUPPLY, RETURN AND EXHAUST DUCTWORK BRANCH TAKE-OFFS.
EACH SUPPLY AIR DEVICE BRANCH TAKE-OFF SHALL BE PROVIDED WITH A VOLUME DAMPER.
ALL VOLUME DAMPERS LOCATED ABOVE HARD NON-ACCESSIBLE CEILINGS SHALL BE PROVIDED WITH A YOUNG REGULATOR VOLUME DAMPER FOR REMOTE BALANCING OR A DUCT MOUNTED VOLUME DAMPER WITH ACCESS PANEL.
ALL FANS SUPPLYING MORE THAN 2,000 CFM OF AIR TO ANY SPACE SHALL BE INSTALLED WITH A SMOKE DETECTOR IN THE SUPPLY DUCTWORK.
FLEXIBLE DUCT LENGTH SHALL NOT EXCEED 3'-0" IN LENGTH.
FIRE DAMPERS AND ACCESS PANELS SHALL BE INSTALLED IN ALL PENETRATIONS, TRANSFER DUCTS OR OPENINGS OF FIRE RATED ASSEMBLIES AND FLOOR PENETRATIONS.
CONDENSATE FROM ALL EVAPORATOR COILS SHALL BE TRAPPED AND ROUTED TO THE NEAREST HUB/FLOOR DRAIN, SINK, STORM OR EXTERIOR DRY WELLS.
REFRIGERANT PIPING SHALL BE TYPE L OR REFRIGERATION SERVICE COPPER TUBING WITH BRAZED JOINTS.
REFRIGERANT PIPING CARRYING OTHER THAN GROUP A1 OR B1 REFRIGERANTS AND INTERCONNECTING SEPARATE PIECES OF EQUIPMENT AND PASSING VERTICALLY THROUGH FLOORS FROM ONE STORY TO ANOTHER SHALL BE ENCLOSED IN A CODE APPROVED RIGID AND TIGHT CONTINUOUS FIRE RESISTING PIPE DUCT OR SHAFT HAVING NO OPENINGS INTO FLOORS NOT SERVED BY THE REFRIGERATING SYSTEM, AS REQUIRED BY LOCAL CODE AUTHORITIES.
PIPING:
MINIMUM PIPE SIZE SHALL BE 3/4" UNLESS OTHERWISE NOTED.
PIPING AT EQUIPMENT SHALL BE SUPPORTED SO THAT NO PIPING OR ACCESSORY LOAD IS CARRIED BY THE EQUIPMENT.
ALL PIPING ABOVE GRADE SHALL BE SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE.
CONDENSATE FROM ALL EVAPORATOR COILS SHALL BE TRAPPED AND ROUTED TO THE NEAREST HUB/FLOOR DRAIN, SINK, STORM OR EXTERIOR DRY WELLS.
CONDENSATE PIPING SHALL BE INSULATED COPPER IN HVAC PLENUMS, SCHEDULE 40 PVC IS ACCEPTABLE ELSEWHERE.
CONDENSATE SHALL BE PUMPED AS REQUIRED.
REFRIGERANT PIPING SHALL BE TYPE L OR REFRIGERATION SERVICE COPPER TUBING WITH BRAZED JOINTS.
REFRIGERANT PIPING CARRYING OTHER THAN GROUP A1 OR B1 REFRIGERANTS AND INTERCONNECTING SEPARATE PIECES OF EQUIPMENT AND PASSING VERTICALLY THROUGH FLOORS FROM ONE STORY TO ANOTHER SHALL BE ENCLOSED IN A CODE APPROVED RIGID AND TIGHT CONTINUOUS FIRE RESISTING PIPE DUCT OR SHAFT HAVING NO OPENINGS INTO FLOORS NOT SERVED BY THE REFRIGERATING SYSTEM, AS REQUIRED BY LOCAL CODE AUTHORITIES.

SPECIFICATIONS

- APPLICABLE CODES:
INTERNATIONAL FIRE CODE (IFC), 2012 EDITION
INTERNATIONAL PLUMBING CODE (IPC), 2012 EDITION
INTERNATIONAL MECHANICAL CODE (IMC), 2012 EDITION
INTERNATIONAL FUEL GAS CODE (IFGC), 2012 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE (IECC), 2009 EDITION
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.
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 CATALOG 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.
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.
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.
ALL FIRE SEPARATIONS MUST BE PROVIDED WHEN APPLICABLE.
EQUIPMENT AT THE END OF EACH SECTION.
ALL MATERIAL IN PLENUM MUST MEET FIBERGLASS 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.
THE CONTRACTOR SHALL REFERENCE THE FULL SET OF CONSTRUCTION DOCUMENTS DURING PRICING AND CONSTRUCTION FOR COORDINATION BETWEEN DISCIPLINES RELATIVE TO THE MECHANICAL SCOPE.
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.
ALUMINUM SUPPLY GRILLES SHALL BE OF THE SIZES AND MOUNTING TYPES SHOWN ON THE PLANS AND OUTLET SCHEDULE.
DEFLECTION BLADES SHALL BE AVAILABLE PARALLEL TO THE LONG OR SHORT DIMENSION OF THE GRILLE OR REGISTER.
DEFLECTION BLADES SHALL BE CONTOURED TO A SPECIFICALLY DESIGNED AND TESTED CROSS-SECTION TO MEET PUBLISHED TEST PERFORMANCE DATA.
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.
DIFFUSERS, GRILLES & REGISTERS (CONTINUED):
PLAQUE DIFFUSERS:
ARCHITECTURAL SQUARE PANEL CEILING DIFFUSERS SHALL BE OF THE SIZES AND MOUNTING TYPES SHOWN ON THE PLANS AND OUTLET SCHEDULE.
THE FINISH SHALL BE #26 WHITE. THE FINISH SHALL BE AN ANODIC ACRYLIC PAINT, BAKED AT 315°F FOR 30 MINUTES.
THE PAINT MUST PASS A 100-HOUR ASTM B117 CORROSIVE ENVIRONMENTS SALT SPRAY TEST WITHOUT CREEPAGE, BLISTERING OR DETERIORATION OF FILM.
OPTIONAL ROUND DAMPER SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL DAMPER MUST BE OPERABLE FROM THE FACE OF THE DIFFUSER.
OPTIONAL MOLDED INSULATION BLANKET SHALL BE AVAILABLE.
THE MANUFACTURER SHALL PROVIDE PUBLISHED PERFORMANCE DATA FOR THE SQUARE PANEL DIFFUSER.
DUCTWORK AND ACCESSORIES:
INDUSTRY STANDARDS: CONFORM WITH SMACNA (SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION) HVAC DUCT CONSTRUCTION STANDARDS, RECOMMENDATIONS FOR FABRICATION, GAUGES, CONSTRUCTION AND DETAILS, 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 METAL AND GAUGES: EXCEPT AS OTHERWISE INDICATED, FABRICATE DUCTWORK FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A527, LOCKFORMING QUALITY, WITH ASTM A525 G90 ZINC COATING, MILL PHOSPHATIZED.
DUCT SEALANT: NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT (TYPE APPLICABLE FOR THE FABRICATION/INSTALLATION DETAIL) 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 FOR SUPPORT OF DUCTWORK.
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.
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
ROOF CENTRIFUGAL EXHAUST FAN:
ROOF EXHAUST FANS SHALL BE CENTRIFUGAL DIRECT DRIVE TYPE.
THE FAN WHEEL SHALL BE CENTRIFUGAL BACKWARD INCLINED, CONSTRUCTED OF ALUMINUM AND SHALL INCLUDE A WHEEL CONE CAREFULLY MATCHED TO THE INLET CONE FOR PRECISE RUNNING TOLERANCES.
THE FAN HOUSING AND SHROUD SHALL BE CONSTRUCTED OF HEAVY GAUGE ALUMINUM AND SHALL INCLUDE A WHEEL CONE CAREFULLY MATCHED TO THE INLET CONE FOR PRECISE RUNNING TOLERANCES.
THE FAN HOUSING AND SHROUD SHALL BE CONSTRUCTED OF HEAVY GAUGE ALUMINUM WITH A RIGID INTERNAL SUPPORT STRUCTURE.
ALL FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEAL FOR SOUND AND AIR PERFORMANCE.
EACH FAN SHALL BEAR A PERMANENTLY AFFIXED MANUFACTURER'S NAMEPLATE CONTAINING THE MODEL NUMBER AND INDIVIDUAL SERIAL NUMBER FOR FUTURE IDENTIFICATION.
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.
ALL FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEALS FOR SOUND AND AIR PERFORMANCE AND SHALL BE U.L. LISTED.
WALL LOUVERS:
THE WALL LOUVER SHALL BE AMCA CERTIFIED.
THE WALL LOUVER SHALL BE A STATIONARY, DRAMBLER BLADE TYPE.
THE WALL LOUVER 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.
THE FRAME AND BLADES SHALL BE CONSTRUCTED FROM HEAVY GAUGE, EXTRUDED, ALUMINUM.
REFER TO THE EQUIPMENT SCHEDULE FOR A FULL LISTING OF REQUIRED LOUVER ACCESSORIES.

SPECIFICATIONS

- DIFFUSERS, GRILLES & REGISTERS (CONTINUED):
PLAQUE DIFFUSERS:
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OPTIONAL MOLDED INSULATION BLANKET SHALL BE AVAILABLE.
THE MANUFACTURER SHALL PROVIDE PUBLISHED PERFORMANCE DATA FOR THE SQUARE PANEL DIFFUSER.
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VOLUNTARY ALTERNATE EXPOSED DUCTWORK SHALL BE SINGLE-WALL SPIRAL PIPE UNLESS OTHERWISE NOTED OR SUBSTITUTION APPROVED BY OWNER.
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R-5 SUPPLY, OUTSIDE AND RETURN AIR DUCT INSULATION IN UNCONDITIONED SPACES
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