

# MECHANICAL SPECIFICATIONS

## MECHANICAL GENERAL

### A. DESCRIPTION:

THIS DIVISION AND THE ACCOMPANYING DRAWINGS COVER FURNISHING OF ALL LABOR, EQUIPMENT, APPLIANCES AND MATERIALS AND PERFORMING ALL OPERATIONS IN CONNECTION WITH THE INSTALLATION OF COMPLETE AIR CONDITIONING, VENTILATING AND HEATING SYSTEMS AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS.

### CODES AND REGULATIONS:

- A. COMPLY WITH THE FOLLOWING CODES AND STANDARDS AS APPLICABLE, INCLUDING ALL GEORGIA AMENDMENTS, FOR ALL HEATING, VENTILATING AND AIR CONDITIONING MATERIALS AND WORKMANSHIP:
1. THE INTERNATIONAL ENERGY CONSERVATION CODE, 2012 EDITION.
  2. THE INTERNATIONAL BUILDING CODE, 2012 EDITION.
  3. THE INTERNATIONAL MECHANICAL CODE, 2012 EDITION.
- B. COMPLY WITH ALL STATE AND LOCAL CODES HAVING JURISDICTION. MAKE ALL MODIFICATIONS REQUIRED BY THESE CODES WITHOUT ADDITIONAL CHARGES.
- C. OBTAIN ALL PERMITS, INSPECTIONS AND APPROVALS AS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION. ASSUME AND PAY ALL FEES AND COSTS OF ANY NATURE WHATSOEVER INCIDENTAL TO THESE PERMITS.
- D. THE DRAWINGS DO NOT GIVE EXACT ELEVATIONS OR LOCATION OF LINES, NOR DO THEY SHOW ALL THE OFFSETS, CONTROL LINES OR INSTALLATION DETAILS. CAREFULLY LAY OUT THE WORK AT THE SITE TO CONFORM TO THE STRUCTURAL CONDITIONS AND TO AVOID ALL OBSTRUCTIONS.

### CUTTING AND PATCHING:

- A. ASSUME ALL COST OF, AND BE RESPONSIBLE FOR, ALL CUTTING AND PATCHING REQUIRED TO COMPLETE THE INSTALLATION OF THE WORK. ALL CUTTING SHALL BE CAREFULLY AND NEATLY DONE SO AS NOT TO DAMAGE OR CUT AWAY MORE THAN IS NECESSARY OF ANY PORTIONS OF THE STRUCTURE.

### CLEANING:

- A. CLEAN THE EXTERIOR SURFACES OF ALL MECHANICAL EQUIPMENT AND DUCTS OF ALL GREASE, OIL, PAINT, DUST AND OTHER CONSTRUCTION DEBRIS.
- B. CLEAN THE INTERIOR OF ALL DUCTS, PLENUMS AND CASINGS OF ALL DEBRIS AND BLOW FREE ALL PARTICLES OF RUBBISH AND DUST BEFORE INSTALLING OUTLET FACES.
- C. PROVIDE TEMPORARY FILTERS FOR ANY FANS OPERATED DURING CONSTRUCTION. CHANGE TEMPORARY FILTERS REGULARLY TO PREVENT CONTAMINATION OF THE EQUIPMENT AND DUCT SYSTEMS. INSTALL NEW AND UNUSED PERMANENT FILTERS ONE WEEK PRIOR TO FINAL INSPECTION.

### WARRANTY:

- A. PROVIDE ALL SYSTEMS AND COMPONENTS WITH A ONE YEAR WARRANTY FROM THE DATE OF FINAL ACCEPTANCE. THE WARRANTY SHALL COVER ALL MATERIALS AND WORKMANSHIP. DURING THIS WARRANTY PERIOD CORRECT ALL DEFECTS IN MATERIALS AND WORKMANSHIP BY REPAIR OR REPLACEMENT WITHOUT INCURRING ANY ADDITIONAL COST TO THE CONTRACT.

## MECHANICAL DEMOLITION

### DESCRIPTION OF WORK:

- A. FURNISH ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO REMOVE ALL EXISTING EQUIPMENT, APPURTENANCES, DUCTWORK AND ACCESSORIES AS INDICATED AND NOT REQUIRED FOR THE PROPER OPERATION OF THE NEW SYSTEMS AND EQUIPMENT. REMOVAL SHALL BE CONSISTENT WITH THE FINAL CONFIGURATION OF THE NEW SYSTEMS AS INDICATED.
- B. BEFORE REMOVAL OF ANY ELECTRICALLY OPERATED EQUIPMENT, CAREFULLY COORDINATE WITH OTHER TRADES TO ENSURE THAT ALL POWER AND CONTROL WIRING HAS BEEN DISCONNECTED AND PROPERLY TERMINATED IN ACCORDANCE WITH APPLICABLE CODES OR HAS BEEN COMPLETELY REMOVED AS INDICATED.

### DEMOLITION REQUIREMENTS:

- A. REMOVE FROM THE SITE ALL EXISTING PIPING, TUBING, DUCTWORK, INSULATION, HANGERS AND SUPPORTS TO BE REMOVED. DO NOT RE-USE THESE MATERIALS IN THE NEW WORK.
- B. WHENEVER DUCTWORK IS REMOVED FOR DISPOSAL, CLOSE OFF THE ADJACENT DUCT THINGS TO REMAIN IN SERVICE WITH SHEET METAL CAPS AND THEN ANCHOR THE FREE END.
- C. PERFORM ALL WORK, WHETHER INDICATED OR NOT, REQUIRED TO PROPERLY TIE IN THE NEW WORK TO THE EXISTING SYSTEMS TO REMAIN AND TO ADAPT THE EXISTING SYSTEMS TO ANY AND ALL CHANGES IN THE BUILDING STRUCTURE. ANY PIPE OR DUCT INSULATION ON EXISTING SYSTEMS THAT ARE TO REMAIN AND THAT ARE DAMAGED DURING DEMOLITION OR CONSTRUCTION OPERATIONS SHALL BE REPLACED WITH NEW INSULATION IN ACCORDANCE WITH THESE SPECIFICATIONS.
- E. VISIT THE SITE PRIOR TO BID AND CAREFULLY EXAMINE THE EXISTING CONDITIONS AFFECTING THE WORK. NO ALLOWANCE WILL BE MADE AFTER THE BID FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

## THERMAL INSULATION FOR MECHANICAL SYSTEMS

### QUALITY ASSURANCE:

- A. ANY METHODS OF APPLICATION OF INSULATION PRODUCTS OR FINISHES NOT SPECIFICALLY DETAILED HEREIN SHALL BE APPLIED IN ACCORDANCE WITH THE INSULATION MANUFACTURER'S PUBLISHED RECOMMENDATIONS. APPLY INSULATION BY EXPERIENCED WORKERS REGULARLY EMPLOYED IN THIS TYPE OF WORK.
- B. INSULATION PRODUCTS MANUFACTURED BY OWENS-CORNING, JOHNS-MANVILLE, CERTAINTEED, KNAUF OR ARMSTRONG WILL BE ACCEPTABLE.

### FIBERGLASS WRAP DUCT INSULATION:

- A. INSULATION SHALL BE 1 PCF MINIMUM DENSITY HAVING A THERMAL CONDUCTIVITY OF 0.27 AT 75 DEGREES F MEAN TEMPERATURE. INSULATION SHALL HAVE A FACTORY APPLIED VAPOR BARRIER OF FOIL-FACED FLAME RESISTANT KRAFT PAPER.
- B. INSULATE ALL CONCEALED SUPPLY AND RETURN DUCTWORK WITH 2" THICK FIBERGLASS WRAP DUCT INSULATION:

### ADHESIVES, MASTICS, COATINGS AND VAPOR BARRIERS:

- A. THE TREATMENT OF DUCT INSULATION FACINGS TO IMPART FLAME SPREAD AND SMOKE DEVELOPED RATINGS SHALL BE PERMANENT. THE USE OF WATER-SOLUBLE TREATMENTS IS PROHIBITED.
- B. VAPOR BARRIERS SHALL BE INSTALLED ON ALL DUCT INSULATION WHICH SHALL HAVE A PERM RATING OF NOT MORE THAN 0.05 PERMS. ADHESIVES, COATINGS AND MASTICS SHALL HAVE A PERM RATING OF NOT LESS THAN 0.25 PERMS.

### TAPE:

- A. WHENEVER TAPE IS USED FOR SEALING PURPOSES, IT SHALL BE OF THE TYPE AND GRADE SHALL BE APPLIED AS RECOMMENDED BY THE COVERING MANUFACTURER. IF THERE IS NO SUCH RECOMMENDATION, THE TAPE USED SHALL BE 3M ADHESIVE EC-132.

### GENERAL INSULATION:

- A. CLEAN ALL SURFACES TO BE INSULATED OF ALL LOOSE SCALE, DIRT, RUST, OIL AND OTHER FOREIGN MATTER AND THOROUGHLY DRY BEFORE APPLYING INSULATION.
- B. WHERE EXISTING INSULATION IS DAMAGED DUE TO DEMOLITION OR CONSTRUCTION OPERATIONS, REMOVE AND REPLACE IT WITH NEW INSULATION TO MATCH THE EXISTING WORK OR AS SPECIFIED HEREIN OR NEW INSULATION.
- C. INSULATE COMPLETELY ALL METAL SURFACES OF PIPING AND DUCTWORK OTHER THAN HANGERS.

### INSULATION FOR DUCTWORK:

- A. COVER ALL STANDING RIMS AND SEAMS WITH INSULATION. SECURE INSULATION TO THE DUCT WITH SPECIFIED ADHESIVE APPLIED IN 4" STRIPS AROUND THE DUCT ON 18" CENTERS. USE NYLON CORD TIES AT 18" INTERVALS TO SECURE THE INSULATION ON ROUND DUCTWORK. OVERLAP FACTORY APPLIED INSULATION, WHERE APPLICABLE, A MINIMUM OF 2" SEAL THE VAPOR BARRIER AT ALL BUTT JOINTS, LAPS AND BREAKS USING 1" WIDE FOIL-REINFORCED TAPE.

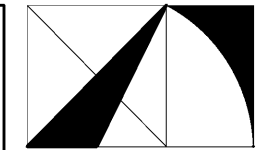
## DUCTWORK AND ACCESSORIES

### PRESSURE CLASSIFICATION:

- A. SMACNA STANDARDS REFERRED TO HEREIN SHALL MEAN STANDARDS PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION, INC. DUCTWORK SHALL BE CONSTRUCTED IN COMPLETE CONFORMANCE WITH THE LATEST EDITION OF THE SMACNA MANUAL.
- B. PRESSURE CLASSIFICATION SHALL BE 2" WG STATIC PRESSURE, CLASS A SEALS.

### LOW PRESSURE DUCT CONSTRUCTION:

- A. CONSTRUCT LOW PRESSURE RECTANGULAR DUCTWORK FROM LOCK FORMING QUALITY GALVANIZED STEEL SHEETS HAVING A GALVANIZED COATING OF 1-1/4 OUNCES TOTAL FOR BOTH SIDES PER ONE SQUARE FOOT OF SHEET. METAL STAMP SHALL BE VISIBLE AFTER INSTALLATION. INSIDE OF UNLINED DUCTS VISIBLE THROUGH SIDEWALL GRILLES AND REGISTERS SHALL BE PAINT FLAT BLACK.
- B. CONSTRUCTION METHODS, METAL GAUGES AND STIFFENING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE. ALL DUCT DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS.
- C. LOW PRESSURE ROUND DUCTWORK UP TO AND INCLUDING 12" IN DIAMETER SHALL BE LONGITUDINAL LOCK SEAM CONSTRUCTION. ROUND DUCTS LARGER THAN 12" SHALL BE SPIRAL LOCK SEAM CONSTRUCTION.
1. GIRTH JOINTS IN DUCTS UP TO AND INCLUDING 12" SHALL BE BEADED-CRIMP TYPE AND EACH JOINT SHALL BE FASTENED WITH SHEET METAL SCREWS, EQUALLY SPACED, NOT MORE THAN 8" ON CENTERS AND WITH A MINIMUM OF THREE SCREWS IN EACH JOINT. THE BEADED-CRIMP JOINT SHALL PROVIDE AT LEAST A 1" LAP TO ACCOMMODATE THE SHEET METAL SCREWS.
1. GIRTH JOINTS IN DUCTS LARGER THAN 12" SHALL BE THE BEADED SLEEVE TYPE. THE BEADED SLEEVE JOINTS SHALL BE FABRICATED OF THE SAME GAUGE GALVANIZED SHEET STEEL AS THE DUCT AND SHALL BE A MINIMUM OF 4" IN LENGTH. EACH SECTION OF DUCT SHALL BE FASTENED TO THE SLEEVE WITH SHEET METAL SCREWS, EQUALLY SPACED, NOT MORE THAN 8" ON CENTERS AND WITH A MINIMUM OF THREE SCREWS IN EACH JOINT.
- D. INSTALL TURNING VANES IN ALL 90 DEGREE SQUARE OR RECTANGULAR ELBOWS.
- E. EXHAUST DUCTWORK SHALL BE PRESSURE TESTED.

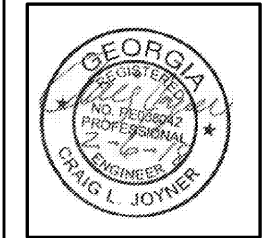


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