

PAL DUCT PHENOLIC DUCT SYSTEM SPECIFICATION

PART 1: PRODUCTS

1.0 PHENOLIC FOAM PRE-INSULATED DUCTWORK

- A. Ductwork System materials, including the panel, adhesive, tape, sealant, flanges and gasket to be certified by Underwriters' Laboratory standard as a Class 1 air duct (UL 181)
- B. The panel shall be manufactured of CFC-free phenolic foam thermo-bonded on both sides to a factory applied aluminum foil facing with a minimum thickness of 60 micron internal and 200 micron external. The standard panel is to be no less than 1.2" (30mm) in thickness.

PART 2: LOW AND MEDIUM PRESSURE DUCT CONSTRUCTION

2.0 PHENOLIC FOAM PRE-INSULATED DUCT CONSTRUCTION

- A. Acceptable Manufacturers: AQC Industries Pal Duct (www.aqcind.com)
- B. All duct construction shall strictly adhere to the following requirements:
 - 1. All duct segments to be fabricated, handled and installed in accordance with the manufacturer's Installation Instructions.
 - 2. Duct segments are to be constructed utilizing the V-groove method of fabrication which leaves the outer 200 micron aluminum liner intact. All external seams shall be taped and all internal seams shall be fully sealed with an unbroken layer of adhesive or silicon as detailed by manufacturers Installation Instructions. Each duct segment shall be connected as required by manufacturer guidelines with manufacturer approved connectors in accordance with the manufacturers Installation Instructions. Duct reinforcement shall be applied to protect against side deformation from both positive and negative pressure per the manufacturers Installation Instructions based on ductwork size and system pressure.
 - 3. All fabricated duct segments and fittings shall be designed in accordance with "SMACNA HVAC Phenolic Duct Construction Standards" latest edition.

PART 3: DUCT INSTALLATION

3.0 PHENOLIC FOAM PRE-INSULATED DUCT INSTALLATION

- A. All fabricated duct installation shall be completed in accordance with "SMACNA HVAC Phenolic Duct Construction Standards" latest edition.
- B. The contractor is responsible for the fabrication and installation of the Phenolic foam pre-insulated ductwork per manufacturer's design guide.
- C. The Contractor shall be certified by the manufacturer of the Phenolic foam pre-insulated ductwork.

- D. Handling: Care shall be exercised in the handling and transport of duct segments in order to prevent objectionable aesthetic damage to the outer surface. Storage of duct segments shall be under cover and all material protected from the environment prior to installation.
- E. Installation: Duct segments shall be installed by authorized/certified contractors in accordance with the manufacturers Installation Instructions as they pertain to the “SMACNA HVAC Duct Construction Standards”. It is the responsibility of the contractor to ensure that the ductwork system is properly and adequately supported. It shall be the responsibility of the contractor to ensure that the chosen connection system is compatible with the specific ductwork system. Supports on straight runs of ductwork shall be positioned at centers not exceeding 13 feet (3.96 m) for duct sections when fabricated in 13 foot (3.96 m) lengths with sides up to 46”(1168 mm). Larger duct sizes and short segments (4 feet long) (1220 mm) are supported at 6 foot centers or less, in accordance with the manufacturers Installation Instructions. Additionally, ductwork shall be supported at changes of direction, at branch duct connections, tee fittings, and all duct accessories such as dampers, etc. The load of such accessories to the ductwork shall be neutralized by the accessory support.
- F. Air Leakage: Duct air leakage rates to be in compliance with per applicable leakage class based on pressure.
- G. **Outdoor Installations:** All externally mounted ductwork shall be 10 year warranted QDuct® as manufactured by AQC Ind., protected against the elements with a weatherproof finish per the “QDuct System Design Guide.” The finish shall be VentureClad 1577CW or equal as determined by manufacturer.
1. QDuct Exterior Ductwork is to be a double layered duct system using Pal Phenolic Duct panels pre-fabricated and assembled into inter-locking sections, otherwise known as Q Duct supplied by AQC Industries. QDuct is available in (specifiers selection): 2.5” thick: R-12, 2.0” thick: R-10
 2. The panels used in the fabrication of the QDuct ductwork system shall Pal Phenolic Duct rigid phenolic insulation panels with a thermal conductivity of 0.1977 BTU-in/hr•ft² °F and a minimum compressive strength of 29 psi, as manufactured by Pal International.
 3. Pal Phenolic Duct rigid phenolic insulation panels shall comprise a 3.4–3.75 pcf nominal density CFC/HCFC-free rigid phenolic insulation core with zero Ozone Depletion Potential (ODP), autohesively bonded on both sides: 60 micron aluminum internal liner and a 200 micron aluminum external liner. Both liners are to be solid aluminum with no perforations.
 4. All other components required for the fabrication of the QDuct system shall be from the Pal Phenolic Duct System guidelines including the sealant, contact adhesive, aluminum tape, self-adhesive gasket, ductwork reinforcements, closures, connectors and flanges or alternate as approved / supplied by AQC Industries.
 5. Exterior weatherproof cladding shall be Venture Clad 1577 CW, 5 ply, zero permeability vapor barrier, puncture resistant, tear resistant, flexible, and meet UL1709 or equal as determined by AQC.