PTM
MANUFACTURING, LLC

SECTION 15816

DUAL-TECH

PRE-MANUFACTURED EXTERIOR DUCTING

PART 1 - PRODUCTS

1.1 MANUFACTURERS

A. Exterior duct system shall be Dual-Tech system, by PTM Manufacturing, LLC. Newark, DE, 19713 302-455-9733. PTM design guidelines shall be strictly adhered too.

B. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

1.2 EXTERNAL-DUCTWORK

A. Exterior duct system shall be Dual-Tech system, by PTM Manufacturing, LLC. Newark, DE, 19713 302-455-9733. PTM design guidelines shall be strictly adhered too. Duct work shall be Double Wall Kingspan KoolDuct encased with PTM beaded and silicone sealed embossed.032Aluminum.

B. Outdoor Ductwork Insulation

Material:

1. Duct work shall be double wall R8 (30mm) Kingspan KoolDuct. The panels used in the fabrication of Dual-Tech ductwork from the Kingspan KoolDuct System shall be Kingspan KoolDuct rigid phenolic insulation panels of nominal dimensions 12.89 ft x 3.94 ft and minimum compressive strength 29 psi, as manufactured by Kingspan Insulation Ltd and detailed in App. A1.

2. Kingspan KoolDuct 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 to a 1 mil low vapor permeability aluminum foil facing reinforced with a 0.2" glass scrim.

3. Kingspan KoolDuct rigid phenolic insulation panels are available in thicknesses of 1 3/16" (R-8.1 ft2.hr.ºF/Btu), as per design Thermal Requirements for double wall and a combined R16 thermal value.

4. All other components required for the fabrication of ductwork from the Kingspan KoolDuct System including the silicone sealant, contact adhesive, aluminum tape, self–adhesive gasket, ductwork reinforcements, closures, connectors and flanges shall be as approved / supplied by Kingspan Insulation Ltd.

5. Weather barrier shall be fabricated of mill finished embossed aluminum sheeting, 0.032" in thickness. Exposed seams to be covered with 1" butyl and a 8" embossed aluminum beaded bands, secured with #10 self tapping, stainless screws with weather seal washers.

6. At weather barrier abutment locations, an industrial grade RTV silicone caulk shall be utilized, where applicable.

5. Seams exposed to the weather shall be covered and sealed with a 1" wide by 1/8" thick butyl compound.

6. All screws utilized to fasten panel system together shall be #10 x 1/2" self-tapping, stainless steel, weather seal washer screws.

7. Contact cement or 2-sided adhesive tape shall be utilized for laminating insulation material to the weather barrier sheeting.

8. Foil tape used for sealing the insulation edges shall be a minimum thickness of 1.25 mil.

C. Fabrication

1. Sizing: Panel system shall be sized in four overlapping sections to provide a complete seal surrounding KoolDuct ducting.

2. Shall be laminated to the weather barrier and sized to allow for sufficient overlap as indicated in section 3.0 above. Second wall ducting shall be adhered utilizing appropriate contact method.

3. Where feasible all general fabrication shall be performed in the shop and be based off of approved project drawing or direct field measurements.

4. Field fabrication should be limited to routing and sealing of the ducting sections to allow for duct angle, supports, gauges or other duct related necessities. All routed areas shall be resealed with appropriate foil faced cast tape. No insulation/phenolic material shall be exposed to the environment.

D. Installation

1. Ducting system sections shall be fitted into place and connected using aluminium flange and KoolDuct gasket as designed by Kingspan.

2. Once fitted, joints will be covered with 1 3/16" (30mm) R8 KoolDuct with overlap seams and covered with an 5" beaded banding fabricated of mill finished embossed aluminum sheeting, 0.032" in thickness. Edges to be covered with 1" butyl. Embossed aluminum beaded bands, secured with #10 self tapping, stainless screws with weather seal washers.

3. At weather barrier abutment locations, an industrial grade RTV silicone caulk shall be utilized, where applicable.

Note:All Specifications and material are subject to change as new and better products are utilized without notice.

1.3 MATERIALS

1.4 FIRE AND SMOKE PERFORMANCE

A. The rigid phenolic insulation panels used in the fabrication of KoolTech ductwork and / or ductwork sections fabricated from the Kingspan KoolDuct System shall achieve the following fire and smoke performance requirements:
1. ASTM E 84–08a – unfaced or composite (insulation, facing and adhesive) of low contribution to fire growth not exceeding 25 Flame Spread and 50 Smoke Developed indices;
2. UL 723 – unfaced or composite (insulation, facing and adhesive) of low contribution to fire growth not exceeding 25 Flame Spread and 50 Smoke Developed indices; and
3. UL 181 – UL/ULC classification as a Class 1 Air Duct to NFPA Standards 90A & 90B.

1.5 SEALANT MATERIALS

A. All internal seams must be fully sealed with an unbroken layer of silicone sealant.

B. Each ductwork section must be duly connected with a jointing system approved Kingspan Insulation Ltd., and sufficient silicone sealant should be applied in order to seal the rigid phenolic insulation panel and ensure minimum air leakage.

C. Ductwork reinforcement, if necessary, shall be applied to protect against side deformation from both positive and negative pressure.

D. All external seams where two separate panels join must be taped to achieve a permanent bond and a smooth wrinkle free appearance.

1.6 HANGERS AND SUPPORTS

A. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches (100 mm) thick.
2. Exception: Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches (100 mm) thick.

B. Hanger Materials: Galvanized sheet steel or threaded steel rod.

1. Hangers Installed in Corrosive Atmospheres: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
2. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards—Metal and Flexible" for steel sheet width and thickness and for steel rod diameters.
3. Galvanized-steel straps attached to aluminum ducts shall have contact surfaces painted with zinc-chromate primer.

C. Penetration into duct is not permitted.

D. Trapeze and Riser Supports: Steel shapes complying with ASTM A 36/A 36M.

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
2. Supports for Stainless-Steel Ducts: Stainless-steel support materials.

3. Supports for Aluminum Ducts: Aluminum support materials unless materials are electrolytically separated from ducts.