SECTION 233116 - NONMETAL DUCTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes PVC ducts.

B. See Division 23 Section "Air Duct Accessories" for dampers, duct-mounting access doors and panels, turning vanes, and flexible ducts.

1.2 SUBMITTALS

A. Product Data: For PVC duct materials.

B. Shop Drawings: Show fabrication and installation details for PVC ducts.

1. Duct accessories, including fittings and plenums.

1.3 QUALITY ASSURANCE

A. NFPA Compliance:

1. NFPA 90A, "Installation of Air Conditioning and Ventilating Systems."

B. UL Compliance: UL listed and labeled as complying with UL 181, Class 1.

C. ASTM Standards:

1. ASTM D1784 – Compounds.
2. ASTM D635 – Flammability.
3. ASTM E84 – Flame spread.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. P.E. Plastics.
2. Harvel.
3. Harrison.
4. U.S. Plastic Corp.

2.2 PVC DUCTS

A. PVC Materials: The material used in the manufacture of the duct shall be a virgin, rigid polyvinyl chloride (PVC) compound, with a Cell Classification of 12454 as defined in ASTM D1784. This compound shall be dark gray in color or as specified, and shall be domestically produced PVC material designated as Harvel H707 compound, PVC 1120.

B. Marking: Product marking shall include the manufacturer's name (or the manufacturer's trademark when privately labeled); the normal duct size; material designation; and the date of manufacture.

C. Joining: Thermal welding shall be performed by personnel adequately trained in the art of PVC welding utilizing the hot gas fusion welding method using virgin PVC filler welding rod as manufactured for this purpose. All duct joints should be tacked and then PVC welded with (3) passes of 5/32" diameter welding rod on all exterior connections.

D. Hangers and Supports:

1. Hangers selected shall have an adequate load-bearing surface free of rough or sharp edges and shall not cause damage to the duct during use. Hangers and hanger hardware shall be of a corrosive-resistant material suitable for use in the system environment.

2. Ductwork is to be supported independently of hoods, scrubbers, fans, tanks or other equipment wherever possible. Where flexible connections are provided as expansion joints, a suitable hanger or support shall be provided at each end of the flexible connection. Consideration shall be given to the possibility of solids accumulation; adequate system support shall be provided where required.

E. System Components: All duct fittings, fume hoods, fans, blast gates and other system components shall be fabricated from PVC sheet or PVC duct material of the same wall thickness. The use of Type I Grade I (Cell Classification 12454 per ASTM D1784) PVC material is recommended to maintain system compatibility.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install ducts with fewest possible joints.

B. Install ducts, unless otherwise indicated, vertically and horizontally and parallel and perpendicular to building lines; avoid diagonal runs.

C. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

D. Install ducts with a clearance of 1 inch.

E. Conceal ducts from view in finished spaces. Do not encase horizontal runs in solid partitions unless specifically indicated.

F. Duct Attachments: Support horizontal ducts with sheet metal strips or trapeze-type hangers with saddles.

G. Hangers: Suspend duct attachments from building attachments with one of the following hanger types:

1. Galvanized sheet metal strips, a minimum of 0.034 by 1 inch wide.
2. Galvanized-steel rods, 1/4 inch in diameter, threaded along entire length.

H. Attach hangers to joints and reinforcing channels that occur within required hanger spacing. Attach hangers to transmit load to sides and bottom channels and no more than 6 inches from sides of ducts.

I. Support equipment and other components and accessories independent of ducts.

J. Support terminal components separately.

END OF SECTION 233116