SECTION 233346 - FLEXIBLE DUCTS

PART 1 - GENERAL

1.1   SUMMARY

    A.   Section Includes:

        1.   Non-insulated flexible ducts.
        2.   Insulated flexible ducts.

1.2   ACTION SUBMITTALS

    A.   Product Data: For each type of product.

    B.   Shop Drawings: For flexible ducts.

        1.   Include plans showing locations and mounting and attachment details.

1.3   INFORMATIONAL SUBMITTALS

    A.   Coordination Drawings: Reflected ceiling plans, drawn to scale, on which ceiling-mounted access panels and access doors required for access to duct accessories are shown and coordinated with each other, using input from installers of the items involved.

PART 2 - PRODUCTS

2.1   ASSEMBLY DESCRIPTION

    A.   Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and with NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

    B.   Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

    C.   Comply with the Air Diffusion Council's "ADC Flexible Air Duct Test Code FD 72-R1."

    D.   Comply with ASTM E96/E96M, "Test Methods for Water Vapor Transmission of Materials."

2.2   NON-INSULATED FLEXIBLE DUCTS

A.   Non-Insulated, Flexible Duct: UL 181, Class 1, two-ply vinyl film supported by helically wound, spring-steel wire.

1.   Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
2.   Maximum Air Velocity: 4000 fpm.
3.   Temperature Range: Minus 10 to plus 160 deg F.

2.3   INSULATED FLEXIBLE DUCTS

A.   Insulated, Flexible Duct: UL 181, Class 1, two-ply vinyl film supported by helically wound, spring-steel wire; fibrous-glass insulation; aluminized vapor-barrier film.

1.   Pressure Rating: 10-inch wg positive and 1.0-inch wg negative.
2.   Maximum Air Velocity: 4000 fpm.
3.   Temperature Range: Minus 10 to plus 160 deg F.
4.   Insulation R-Value: Comply with IECC 2018.

2.4   FLEXIBLE DUCT CONNECTORS

A.   Clamps: Stainless-steel band with cadmium-plated hex screw to tighten band with a worm-gear action in sizes 3 through 18 inches, to suit duct size.

PART 3 - EXECUTION

3.1   INSTALLATION

A.   Install flexible ducts according to applicable details in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for metal ducts and in NAIMA AH116, "Fibrous Glass Duct Construction Standards," for fibrous-glass ducts.

B.   Install in indoor applications only. Flexible ductwork should not be exposed to UV lighting.

C.   Connect terminal units to supply ducts directly or with maximum 12-inch lengths of flexible duct. Do not use flexible ducts to change directions.

D.   Connect diffusers or light troffer boots to ducts directly or with maximum 60 inch lengths of flexible duct clamped or strapped in place.

E.   Connect flexible ducts to metal ducts with draw bands.

F.   Install duct test holes where required for testing and balancing purposes.

G.   Installation:

1.   Install ducts fully extended.
2.   Do not bend ducts across sharp corners.

3. Bends of flexible ducting shall not exceed a minimum of one duct diameter.
4. Avoid contact with metal fixtures, water lines, pipes, or conduits.
5. Install flexible ducts in a direct line, without sags, twists, or turns.

H. Supporting Flexible Ducts:

1. Suspend flexible ducts with bands 1-1/2 inches wide or wider and spaced a maximum of 48 inches apart. Maximum centerline sag between supports shall not exceed 1/2 inch per 12 inches.
2. Install extra supports at bends placed approximately one duct diameter from center line of the bend.
3. Ducts may rest on ceiling joists or truss supports. Spacing between supports shall not exceed the maximum spacing per manufacturer's written installation instructions.
4. Vertically installed ducts shall be stabilized by support straps at a maximum of 72 inches o.c.

END OF SECTION 233346