PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Furnish and install above-grade low-pressure steel ducts and related items as described in Contract Documents.

B. Products Installed But Not Furnished Under This Section:
   1. Duct smoke detectors.

C. Related Sections:
   1. Section 23 0593: Smoke testing.
   2. Section 23 0581: Thermal Insulation for ducts, plenum chambers, and casings.
   4. Section 23 0933: Temperature control damper actuators and actuator linkages.
   5. Section 23 0933: Furnishing of duct smoke detectors.

1.2 REFERENCES

A. American Society For Testing And Materials:
   1. ASTM A 653-02a, 'Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.'

PART 2 - PRODUCTS

2.1 COMPONENTS

A. Sheet Metal:
   1. Fabricate ducts, plenum chambers and casings of zinc-coated, lock-forming quality steel sheets meeting requirements of ASTM A 653, with G 60 coating.

B. Ducts:
   1. Round Duct:
      a. Spiral Seam: 28 ga 0.4 mm minimum for ducts up to and including 14 inches 350 mm in diameter.
      b. Longitudinal Seam:
         1) 28 ga 0.4 mm minimum for ducts up to and including 8 inches 200 mm in diameter.
         2) 26 ga 0.48 mm minimum for ducts over 8 inches 200 mm and up to 14 inches 350 mm in diameter.

C. Duct Sealer For Interior Ducts:
   1. Category Four Approved Products. See Section 01 6000 for definitions of Categories.
f. 44-41 by Mon-Eco Industries Inc, East Brunswick, NJ (800) 899-6326 or (908) 257-7942.
h. Water Base Duct Sealer by United McGill Corp, Columbus, OH  www.unitedmcgill.com.

D. Duct Sealer For Exterior Ducts:
   1. Category Four Approved Products. See Section 01 6000 for definitions of Categories.

2.2 FABRICATION

A. Ducts:
   1. Straight and smooth on inside with joints neatly finished.
   2. Ducts shall be large enough to accommodate inside acoustic duct liner. Dimensions shown on
      Drawings are net clear inside dimensions after duct liner has been installed.
   3. Duct panels through 48 inch 1 200 mm dimension having acoustic duct liner need not be cross-
      broken or beaded. Cross-break unlined ducts, duct panels larger than 48 inch 1 200 mm vertical
      and horizontal sheet metal barriers, duct offsets, and elbows, or bead 12 inches 300 mm on
      center.
      a. Apply cross-breaking to sheet metal between standing seams or reinforcing angles.
      b. Center of cross-break shall be of required height to assure surfaces being rigid.
   4. Duct drops to diffusers shall be round, square, or rectangular to accommodate diffuser neck.
      Drops shall be same gauge as branch duct.
      a. Seal joints air tight.
      b. Externally insulate round drops.
      c. Internally line square and rectangular drops.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Interface With Other Work: Reseal transverse joint duct leaks and seal longitudinal duct joint leaks
   discovered during air test and balance procedures specified in Section 23 0593, at no additional cost
   to Owner.

B. Install internal ends of slip joints in direction of flow. Seal transverse and longitudinal joints air tight
   using specified duct sealer. Cover horizontal and longitudinal joints on exterior ducts with two layers
   of specified tape installed with specified adhesive.

C. Securely anchor ducts and plenums to building structure with specified duct hangers attached with
   screws. Do not hang more than one duct from a duct hanger. Brace and install ducts so they shall be
   free of vibration under all conditions of operation.

D. Ducts shall not bear on top of structural members.

E. Paint ductwork visible through registers, grilles, and diffusers flat black.

F. Properly flash where ducts protrude above roof.

G. Under no conditions will pipes, rods, or wires be allowed to penetrate ducts.

H. Where ducts are shown connecting to concrete or masonry openings and along edges of plenums at
   floors and walls, provide continuous 2 by 2 by 1/4 inches 50 by 50 by 6 mm galvanized angle iron.
   1. Bolt angle iron to structure and make airtight by applying sealant between angle and structure.
2. Bolt or weld sheet metal at these locations to angle and calk airtight.
3. Apply two coats of aluminum paint to angles after installation.

END OF SECTION