

## G.I DUCT WORK

### 1. SCOPE

Supply, fabrication, installation and testing of G.I. sheet metal ductwork complete in all respects with accessories for Ventilation systems as per drawings, specified herein and instructed by the Consultant.

### 2. DESCRIPTION

#### a. DUCT WORK CONSTRUCTION & INSTALLATION STANDARDS

All sheet metal duct work as shown on drawings shall be fabricated from Prime quality, prime finish galvanized steel sheets conforming to ASTM A527, lock-forming quality, uncoiled, regular spangle & having min coating of 275 g/m<sup>2</sup>.

All duct construction and installation shall be carried out in accordance with current SMACNA / ASHRAE duct construction standards unless otherwise indicated her in.

All duct joints as specified herein should be completely air tight and made neat and smooth in order to minimize the resistance to air flow. No duct should be constructed of more than 4 ft long section. All duct hangers as specified herein should be firmly fixed with building structure and the great care should be taken in fixing the hanger so that no damage should be occurred to the building structure. Provisions should be made to reinforce the insulation at hanger location so that no damage should be occurred to the insulation.

Generally all elbows should be full radius type, but where there are space limitations existed, short radius elbow should be constructed with approved double width turning vanes.

Generally all takeoffs should be using full radius elbows, but due to space limitation square elbow takeoffs should be constructed with approved double width turning vanes.

Unless otherwise indicated the net free area of the duct dimension given in the contract drawing shall be maintained. The duct dimension shall be increased as necessary to compensate for liner thickness.

Splitter dampers, quadrant volume control dampers, air deflectors, fire door and fire dampers, duct access door and duct test holes shall be installed where shown on the drawings and where required for the proper operation of the system even through not shown on the drawings.

All joints shall be sealed with an approved duct sealant such as Silicon Sealant or approved equivalent. Putty shall not be used.

Ducts passing through walls shall be provided with Deodar Wooden framing  $\frac{3}{4}$ " (20mm) thick & full width of wall.

## Islamabad Club, Islamabad

### b. DUCT WORK SCHEDULE.

All ductwork should be fabricated according to the following schedule.

#### SCHEDULE OF G.I SHEET METAL DUCT:

DUCT DIMENSIONS	MATERIAL GAUGE	TRANSVERSE JOINTS
Upto 12"	24 Gage	Drive slip spaced not more than 4ft.
12" - 26"	24Gage	Standing seam spaced @ 4ft centre.
28" - 52"	22Gage	Reinforced bar slip spaced @ 4ft centre.
52" - 81"	20 Gage	Angle iron slips @ 4ft centre.

All ducts over 18" in either dimensions should be cross broken, except to which rigid insulation applied on area of duct where outlet or duct connection is to be installed. Duct seams should either be Pittsburgh lock seam or lock grooved seam. Longitudinal seam which shall run horizontally on the duct sections are important because these locks must hold the duct pieces securely and tightly and shall not leak under pressure and should be readily and swiftly put together on the job.

### c. DUCT HANGERS.

All hangers supporting duct should be rigidly fixed with building structure by means of expansion bolts or power driven fasteners of selected sizes for various point's loads due to different sizes of ducts. All hangers should generally be spaced at 8ft centers on straight runs of ducts. Hangers should also be provided at each end of all elbows, at the take-off points of all branch ducts and where as required. All hangers should be trapeze types. Trapeze should not be secured to the duct.

#### HANGER SIZE SCHEDULE:

MAXIMUM DIMENSION.	STEEL ROD SIZE	TRAPEZE SIZE
Upto 18"	1/4" dia	1" x 1" x 1/8"
18" - 36"	3/8" dia	1-1/2"x1-1/2"x1/8"
36" -100"	1/2" dia	2" x 2" x 1/2"

### d. GALVANISING

All hangers, angle iron bracing & other iron work shall be hot dip galvanized with one coat of anti rust paint should be applied to the hanger before installation and than one coat after installation.

### e. FLEXIBLE CONNECTIONS

All duct connections with air moving unit should be made through rubber impregnated fibre or equally approved material to avoid the transfer of vibration from fans to the duct work.

All ducts shall also have flexible connection adjacent to the building expansion joints to avoid any damage to the duct system.