

1. GENERAL

1.1 Scope

- .1 Hangers and supports for pipe less than 300 mm diameter.
- .2 Sleeving for mechanical systems.
- .3 Anchors for pipe less than 300 mm diameter.
- .4 Refer to Division 5 for structural supports of pipe greater than 300mm diameter.

1.2 Reference Standards

- .1 Pipe supports shall meet the requirements of ANSI B31.1, Power piping.

1.3 Submittals

- .1 Submit shop drawings of each factory-manufactured component.

1.4 General Requirements

- .1 Provide hangers and supports to secure equipment in place, prevent vibration, maintain grade, provide for expansion and contraction and to accommodate insulation; provide insulation protection saddles.
- .2 Install supports of strength and rigidity to suit loading without unduly stressing building. Locate adjacent to equipment to prevent undue stresses in piping and equipment.
- .3 Select hangers and supports for the service and in accordance with the manufacturer's recommended maximum loading. Hangers shall have a safety factor of 5 to 1.
- .4 Fasten hangers and supports to building steel or inserts in concrete construction.
- .5 Provide and set sleeves required for equipment, including openings required for placing equipment. Provide sleeves for all pipe and duct penetrations through walls, ceilings, floors and footings.
- .6 Dielectrically isolate dissimilar metals.
- .7 Obtain approval from the Contract Administrator prior to drilling for inserts and supports for piping systems.
- .8 Obtain approval from the Contract Administrator prior to using percussion type fastenings.
- .9 Use of piping or equipment for hanger supports is not permitted.
- .10 Use of perforated band iron, wire or chain as hangers is not permitted.

- .11 Do not weld piping or equipment supports to building roofing or building structural steel unless prior written approval has been obtained from the Contract Administrator.

2. PRODUCTS

2.1 Inserts

- .1 Inserts shall be malleable iron case or galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms.
- .2 Size inserts to suit threaded hanger rods.

2.2 Pipe Hangers and Supports

- .1 Hangers: Pipe sizes 15 to 40 mm: Adjustable wrought steel ring.
- .2 Hangers: Pipe sizes 50 to 100 mm: Adjustable wrought steel clevis.
- .3 Hangers: Pipe Sizes 150 mm and Over: Adjustable steel yoke and cast iron roll.
- .4 Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods, cast iron roll and stand for pipe sizes 150 mm and over.
- .5 Wall Support: Pipe Sizes to 80 mm: Cast iron hook.
- .6 Wall Support: Pipe Sizes 100 mm and Over: Welded steel bracket and wrought steel clamp, adjustable steel yoke and cast iron roll for pipe sizes 150 mm and over.
- .7 Vertical Support: Steel riser clamp.
- .8 Floor Support: Pipe Sizes to 100 mm: Cast iron adjustable pipe saddle, locknut nipple, floor flange and concrete pier to steel support.
- .9 Floor Support: Pipe Sizes 125 mm and Over: Adjustable cast iron roll and stand, steel screws and concrete pier or steel support.
- .10 Design hangers so they cannot become disengaged by movements of supported pipe.
- .11 Provide copper plated hangers and supports for copper piping or provide sheet lead packing between hanger or support and piping. Provide galvanized hangers and supports for galvanized piping.

2.3 Hanger Rods

- .1 Provide steel hanger rods, threaded both ends, threaded one end, or continuous threaded.

2.4 Sleeves

- .1 Pipes through Floors: Form with 1.2 mm galvanized steel.

- .2 Pipes through Beams, Walls, Fire Proofing, Footings, and Potentially Wet Floor: Form with steel pipe or 1.2 mm thickness galvanized steel.
- .3 Size large enough to allow for expansion with continuous insulation.

2.5 Finishes on Hanger Rods, Hangers and Supports

- .1 All steel hanger rods, hangers and supports shall be galvanized or factory primed with alkyd red oxide primer to CGSB 1-GP-40m.
- .2 All steel supports located outside or in unheated spaces shall be epoxy-coated with high temperature (600°C) 2-part epoxy.

3. EXECUTION

3.1 Inserts

- .1 Use inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams wherever practicable.
- .2 Set inserts in position in advance of concrete work. Provide reinforcement rod in concrete for inserts carrying piping over 100 mm.
- .3 Where concrete slabs form finished ceiling, finish inserts flush with slab surface.
- .4 Where inserts are omitted, drill through concrete slab from below and provide rod with recessed square steel plate and nut above slab.

3.2 Pipe Hangers and Supports

- .1 Support horizontal steel and copper piping as follows:

Nominal Pipe Size	Distance Between Supports		Hanger Rod Diameter
	Steel	Copper	
15 mm	1.8 m	1.5 m	10 mm
20 to 40 mm	2.1 m	1.8 m	10 mm
50 and 65 mm	3.0 m	2.4 m	10 mm
80 and 100 mm	3.6 m	3.0 m	16 mm
150 to 300 mm	4.2 m	4.0 m	22 mm

- .2 Install hangers to provide minimum 12 mm clear space between finished covering and adjacent work.
- .3 Place a hanger within 300 mm of each horizontal elbow.
- .4 Use hangers, which are vertically adjustable 40 mm minimum after piping is erected.

- .5 Support horizontal soil pipe near each hub with 1.5 m maximum spacing between hangers.
- .6 Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
- .7 Where practical, support riser piping independently of connected horizontal piping.
- .8 Use oversized hangers to accommodate pipe insulation thickness. For pipes up to 50 mm use high-density rigid pipe insulation at hanger location, with an insulation protection shield. For pipes 65 mm and over, use insulation protection saddle.

3.3 Sleeves

- .1 Extend sleeves through potentially wet floors 25 mm above finished floor level. Caulk sleeves full depth and provide floor plate.
- .2 Piping passing through floor, ceiling or wall, close off space between duct and sleeve and non-combustible insulation. Provide tight fitting metal caps on both sides and caulk.
- .3 Sleeves provided through walls or floors where liquids could potentially pass from one side to the other, provide sleeves with a 25 mm “flange” welded to the external face of the sleeve at the mid point of the thickness of the structure to provide a water stop.
- .4 Install chrome plated escutcheons where piping passes through finished surfaces.

END OF SECTION