

### 2.5.3 Hangers, support and load distribution systems

Flexible ducts shall be supported as follows:

- (a) At manufacturer's recommended intervals but at no greater distance than 1.5 m (see Figure 2.5.2(A)).
- (b) The maximum permissible sag between supports shall be 40 mm/m of support spacing (see Figure 2.5.2(A)).
- (c) Flexible duct shall extend straight for a minimum of 100 mm from a connection to an air terminal device before any change of direction, as shown in Figure 2.5.2(B)(a).
- (d) Hanger or saddle material in contact with the flexible duct shall be a minimum width of 25 mm. A semi-rigid, fire-resistant, load-distributing support material shall be a minimum width of 75 mm, shall be in contact with the flexible duct for at least a quarter of its circumference, and shall be placed between the flexible duct and hanger/saddle material to spread the flexible duct weight. The load distribution support system shall prevent or minimize the following (see Figure 2.5.2(C)):
  - (i) Chaffing between flexible duct and support/hanger.
  - (ii) Flexible duct sagging.
  - (iii) Flexible duct shape distortion.
  - (iv) The compression of insulation to the point where thermal bridging could occur.
  - (v) Any sharp edges shall be trimmed to prevent flexible duct puncture.
- (e) Hangers shall be adequately attached to the building structure.
- (f) Air terminal devices and branch take-offs connected to flexible duct shall be supported independently of the flexible duct.
- (g) Flexible duct installed in subfloor situations shall be supported such that no part of the flexible duct shall be in contact with the ground.
- (h) Where flexible ducts are required to penetrate non-fire-rated walls or partitions, penetration sleeves with the same internal diameter of the outside diameter of an insulated duct's outer sleeve or outside diameter of an uninsulated duct's inner core shall be permanently fixed and sealed in the wall or partition. Penetration sleeves shall be 0.6 mm thick galvanized sheet metal, and have flexible duct running uninhibited and uncompressed inside the penetration sleeve throughout the length of the penetration.
- (i) Flexible ducts shall be installed with a bend radius to duct diameter ratio of 1 to 1, as a minimum, as shown in Figure 2.5.2(D).
- (j) Flexible duct shall be fully extended when installed. All excess flexible duct or flexible duct left in a compressed state shall be removed from the system so as not to affect designed airflows and/or pressures. Excess flexible duct shall not be installed such as to allow for possible future relocation of air terminal devices.

NOTE: Examples of above are shown in Figure 2.5.2(E).