

GUIDELINES FOR INSTALLING FLEXIBLE DUCT

A. CODE REFERENCE

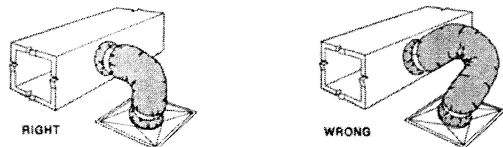
1. The "authority having jurisdiction" should be referenced to determine what law, ordinance or code shall apply in the use of flexible "Air Ducts" and "Air Connectors."
2. Air Ducts, identified by a rectangular shape listing mark, have no installed length limitation. Air Connectors, identified by a round shape listing mark, shall not be installed in lengths greater than 14 feet.

B. GENERAL

1. The routing and length of flexible duct, the number of degrees of each bend and the amount of sag allowed between support joints will have serious effects on system performance due to the increased resistance each introduces. Use the minimum length of flexible duct to make connections. It is not recommended that excess lengths of ducts be installed to allow for possible future relocations of air terminal devices.
2. This product is for indoor use only. Do not install product where exposure to direct sunlight can occur. Prolonged exposure to sunlight may cause degradation of vapor barrier.
3. The inner core may degrade if the duct is positioned near a bio-treatment lamp (UV emitter) installed within the HVAC system.
4. Terminal devices shall be supported independently of the flexible duct.
5. Repair torn or damaged vapor barrier/jacket with duct tape listed and labeled to Standard UL 181B. If internal core is penetrated, replace flexible duct or treat as a connection.

C. INSTALLATION

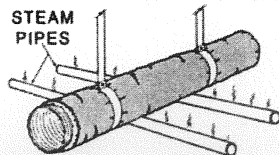
1. Install duct fully extended, do not install in the compressed state or use excess lengths. This will noticeably increase friction losses.



2. Avoid bending ducts across sharp corners or incidental contact with metal fixtures, pipes or conduits. Radius at center line shall not be less than one duct diameter.



3. Do not install near hot equipment (e.g., furnaces, boilers, steam pipes, etc.) that is above the recommended flexible duct use temperature.



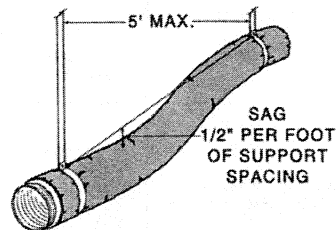
D. CONNECTING, JOINING AND SPLICING FLEXIBLE DUCT

1. All connections, joints and splices shall be made in accordance with the manufacturer's installation instructions.
2. All tapes, mastics, and non-metallic fasteners (plastic clamps) used for field installation of flexible ducts shall be listed and labeled to Standard UL 181B – Closure Systems for use with Flexible Air Ducts and Air Connectors. Non-metallic fasteners are limited to 6 inch w.g. maximum positive pressure.
3. Sheet metal collars to which the flexible ducts are attached shall be a minimum of two inches in length and shall be beaded.
4. Sheet metal sleeves used for joining two sections of flexible duct shall be a minimum of 4 inches in length and shall be beaded on both ends.

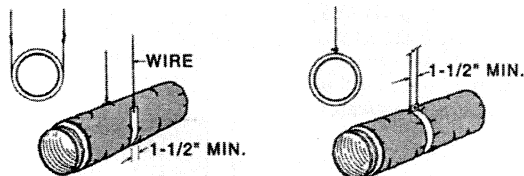
E. SUPPORTING FLEXIBLE DUCT

1. Flexible duct shall be supported at manufacturer's recommended intervals, but at no greater distance than five feet. Maximum permissible sag is 1/2 inch per foot of spacing between supports.

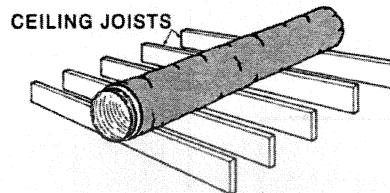
A connection to rigid ducting or equipment shall be considered a support joint. Long horizontal duct runs with sharp bends shall have additional supports before and after the bend approximately one duct diameter distance from the center line of the bend.



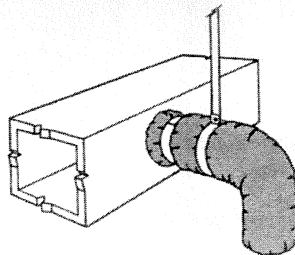
2. Hanger or saddle material in contact with the flexible duct shall be of sufficient width to prevent any restriction of the internal diameter of the duct when the weight of supported section rests on the hanger or saddle material. In no case will the material contacting the flexible duct be less than 1-1/2 inch wide.



3. Flexible ducts may rest on ceiling joists or truss supports. A maximum spacing between supports shall not exceed the maximum spacing per manufacturer's installation instructions.

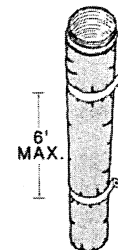


4. Support the duct between a metal connection and a bend by allowing the duct to extend straight for a few inches before making the bend. This will avoid possible damage of the flexible duct by the edge of the sheet metal collar.



5. Vertically installed duct shall be stabilized by support straps at a maximum of 6 feet on center.

NOTE: Factory-made air ducts may not be used for vertical risers in air duct systems serving more than two stories.



F. INSTALLATION RESTRICTIONS AND USE LIMITATIONS

There are specific restrictions and limitations related to the use of flexible duct. Some are due to NFPA Standards, model codes and various state/local codes. Others are due to end use performance where the product was not designed for that specific use. Some, but not all inclusive, are as follows:

1. Cannot be used for vertical risers serving more than two stories in height when conformance to NFPA 90A or 90B is required.
2. Cannot be used in systems with entering air temperature higher than 250° F [121° C]
3. Must be installed in accordance with conditions of listing.
4. When installed in a fire-rated floor/roof ceiling assembly, ducts shall conform with the design of the tested fire-resistive assembly.
5. Should be interrupted at the immediate area of operation of electric, fossil fuel or solar energy collection heat sources to meet listed equipment clearances specified.
6. Air connectors (does not apply to air ducts) shall not be installed in lengths greater than 14 feet [4.3 m] for any given run; shall not pass through any wall, partition or enclosure of a vertical shaft with a 1 hour or more fire resistive rating; shall not pass through floors.
7. Should not penetrate walls where fire dampers are required.
8. Should not be used outdoors unless specifically designed to withstand exposure to direct sunlight and the weathering elements.
9. Should not be used to vent appliances for cooking, heating and clothes drying unless approved and recommended by the appliance manufacturer.
10. Should not be installed in concrete, buried below grade or in contact with the ground.