

# GUIDELINES FOR INSTALLING FLEXIBLE DUCT

## A. CODE REFERENCE

- 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."
- 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

- 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.
- 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.
- The inner core may degrade if the duct is positioned near a bio-treatment lamp (UV emitter) installed within the HVAC system.
- Terminal devices shall be supported independently of the flexible duct.
- 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

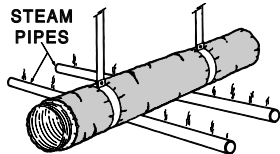
- Install duct fully extended, do not install in the compressed state or use excess lengths. This will noticeably increase friction losses.



- 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.



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

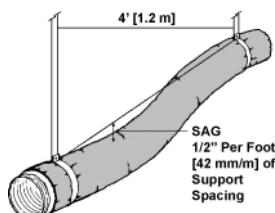


## D. CONNECTING, JOINING AND SPLICING FLEXIBLE DUCT

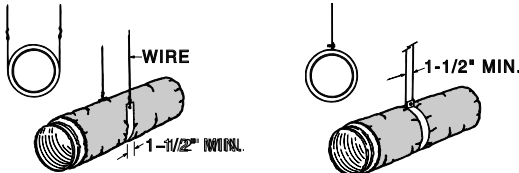
- All connections, joints and splices shall be made in accordance with the manufacturer's installation instructions.
- All tapes, mastics, and non-metallic fasteners (plastic clamps) used for field installation of flexible ducts shall be listed and labeled to Standard UL 181B - Closure Systems for use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

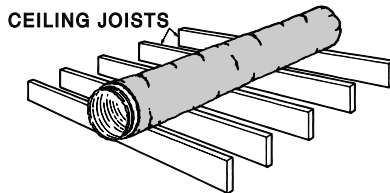
- Flexible duct shall be supported at manufacturer's recommended intervals, but at no greater distance than four feet. Maximum permissible sag is 1/2 inch per foot of spacing between supports. A connection to rigid ducting or equipment shall be considered a support joint. Long horizontal duct runs with sharp bends shall have additional supports before and after the bend approximately one duct diameter distance from the center line of the bend.



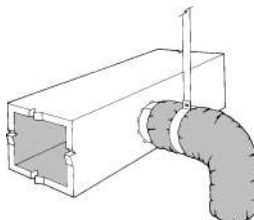
- Hanger or saddle material in contact with the flexible duct shall be of sufficient width to prevent any restriction of the internal diameter of the duct when the weight of supported section rests on the hanger or saddle material. In no case will the material contacting the flexible duct be less than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



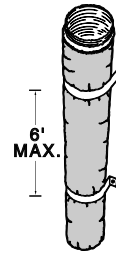
- Flexible ducts may rest on ceiling joists or truss supports. A maximum spacing between supports shall not exceed the maximum spacing per manufacturer's installation instructions.



- 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.



- 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

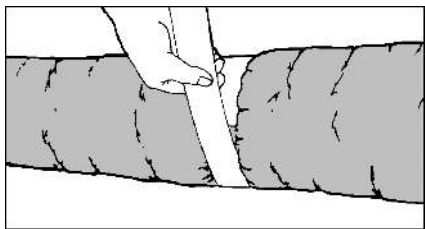
There are specific restrictions and limitations related to the use of flexible duct. Some are due to NFPA Standards, model codes and various state/local codes. Others are due to end use performance where the product was not designed for that specific use. Some, but not all inclusive, are as follows:

- Cannot be used for vertical risers serving more than two stories in height when conformance to NFPA 90A or 90B is required.
- Cannot be used in systems with entering air temperature higher than 250° F [121° C]
- Must be installed in accordance with conditions of listing.
- When installed in a fire-rated floor/roof ceiling assembly, ducts shall conform with the design of the tested fire-resistive assembly.
- 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.
- 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.
- Should not penetrate walls where fire dampers are required.
- Should not be used outdoors unless specifically designed to withstand exposure to direct sunlight and the weathering elements.
- Should not be used to vent appliances for cooking, heating and clothes drying unless approved and recommended by the appliance manufacturer.
- Should not be installed in concrete, buried below grade or in contact with the ground.

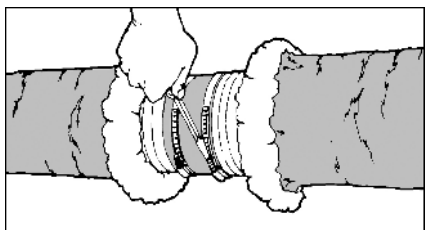


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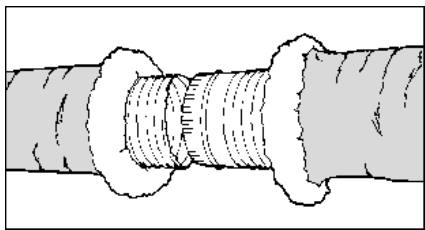
- NOTES:**
- For unlisted air ducts and air connectors, disregard references to insulation and jacket.
  - Use beaded sheet metal fittings and sleeves.
  - Use tapes listed and labeled in accordance with Standard UL 181B and marked "181B-FX".
  - Nonmetallic clamps shall be listed and labeled in accordance with Standard UL 181B and marked "181B-C". Use of nonmetallic clamps shall be limited to 6 in. w.g. [1500 Pa] positive pressure.



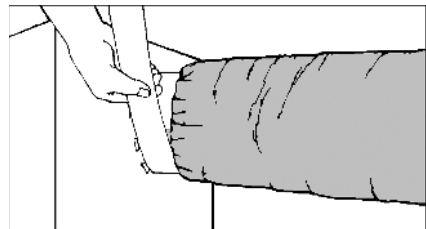
1. Fold back jacket and insulation from core. Butt two cores together on a 4" [100 mm] length metal sleeve.



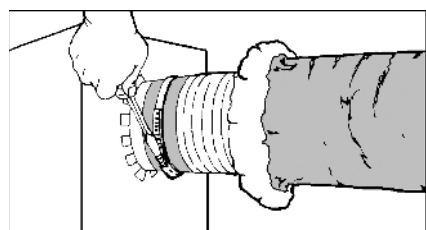
2. Tape cores together with at least 2 wraps of duct jacket. Secure connection with 2 clamps placed over the core and tape and past the beads.



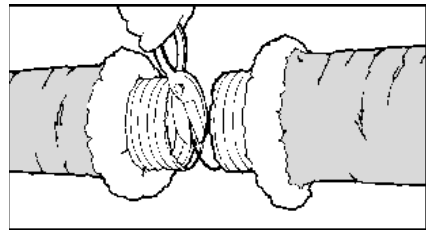
3. Pull jacket and insulation back over cores. Tape jacket with at least 2 wraps of duct tape. A clamp may be used in place of or in combination with the duct jacket with at least 2 wraps of duct tape.



1. After desired length is determined, cut completely around and through duct with knife or scissors. Cut wire with wire cutters. Fold back jacket and insulation.



2. Slide at least 1" [25 mm] of core over fitting and past the bead. Seal core to collar with at least 2 wraps of duct tape. Secure connection with 2 clamps placed over the core and tape and past the bead.



3. Pull jacket and insulation back over core. Tape jacket with at least 2 wraps of duct tape. A clamp may be used in place of or in combination with the duct jacket with at least 2 wraps of duct tape.

Splices

Connections

INSTALLATION INSTRUCTIONS  
Air Ducts and Air Connectors  
Nonmetallic with Plain Ends

1000 E. Woodfield Road  
Suite 102  
Schamburg, IL 60173-5921  
www.flexibduct.org



P/N 00700001 • 6/11

**WARNING**

INSULATED FLEXIBLE DUCT CONTAINS FIBER GLASS WOOL WHICH HAS BEEN CLASSIFIED AS A POSSIBLE CANCER HAZARD BY INHALATION. FIBER GLASS WOOL MAY CAUSE TEMPORARY IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

TAKE THE FOLLOWING PRECAUTIONARY MEASURES WHEN HANDLING OR INSTALLING PRODUCTS WITH FIBER GLASS WOOL:

- Use a properly fitted NIOSH or MSHA approved dust/mist respirator.
- Avoid breathing fiber glass dust.
- Avoid contact with skin and eyes.
- Wear long-sleeved, loose fitting clothing, gloves and eye protection.
- Wash with soap and warm water after handling.
- Wash work clothes separately and rinse washer thoroughly.

CONSULT THE APPROPRIATE Material Safety Data Sheet for further details. For more information about fiber glass wool, please contact: Technical Dept., ATCO Rubber Products, Inc., 7101 Alco Drive, Ft. Worth, Texas 76118, Tel: (817) 595-2894.

- PRECAUTIONS:**
- Do not use "outdoors" or install where duct can be exposed to direct sunlight. Prolonged exposure may cause degradation of vapor barrier. (does not apply to 040 Mobile Home Ducts)
  - Do not install where duct can be exposed to UV radiation from bio-treatment lamps within the HVAC system.
  - Exposure may cause degradation of the inner core.
  - Do not exceed published pressure or temperature limits.
  - Do not use duct to hang or support any diffuser, register or other equipment during installation.
  - Do not use screws or barbed fittings to make connections on ducts with plain ends.
  - Duct should be supported at 4' maximum intervals unless resting on ceiling joists or truss supports.
  - Do not use on oval collars for medium or high pressure.
- TOOLS AND ACCESSORY MATERIALS REQUIRED:**
- Knife or Scissors/Wire Cutter: Use knife or scissors to cut duct wall. Use wire cutters to cut spiral wire helix.
  - Duct Tape: Use only tapes that have been listed and labeled to Standard UL 181B and marked "181B-FX".
  - NOTE: When aluminum foil tapes are required, use only tapes that have been listed and labeled to Standard UL 181A and marked "181A-F". Use one wrap of 2-1/2 inch minimum width.
  - Metal Clamp/Screw Driver: Use for low, medium or high pressure systems up to 10 inch w.g.
  - Non-Metallic Mechanical Fastener (Plastic Clamp)/Fastener Tool: Use for low to medium pressure systems up to 6 inch w.g. maximum positive pressure. Non-Metallic Mechanical Fasteners are limited to use with beaded collars and fittings. Use only non-metallic fasteners that have been listed and labeled to Standard UL 181B and marked "181B-C". Use the appropriate tightening tool per the fastener manufacturer's instructions.
  - Mastic: Use mastic that has been listed and labeled to Standard UL 181B and marked "181B-M" on container. (Apply mastic approximately 2 inches wide uniformly around the collar of the metal fitting. Slide at least 1" of core over the fitting and secure with clamp.) Reference data provided on the mastic container for application and handling information.
- PROCEDURE:**
- Follow detailed instructions on right side of page for making connections/splices.
  - Select and use appropriate tools/materials listed below.
  - Follow "Precautions" listed below.
  - Refer to installation guidelines on reverse side of page.
- APPLICATION:**
- Air ducts and air connectors may be connected to any round sheet metal fitting (collar, pipe coupling, etc.) or spliced to any other duct of a corresponding nominal size.

INSTALLATION INSTRUCTIONS  
Nonmetallic Air Ducts & Air Connectors with Plain Ends  
UL 181 Listed Under File MH9596, 9844

