

# Gray Flex Systems, Inc.

## Air Duct Installation Instructions

**Application:** Air ducts and air connectors may be connected to any round sheet metal fitting (collar, pipe, coupling, etc.) or spliced any other duct corresponding nominal size.

- Procedure:**
1. Follow detailed instructions on the page for making connections/splices.
  2. Select and use appropriate tools/materials listed below.
  3. Follow "Precautions" listed below.
  4. Refer to installation guidelines.

- Tools & Accessory Material Required:**
1. Knife or scissors/wire cutter to cut duct wall, use wire cutters to cut spiral wire helix.
  2. Metal clamp/screw driver. Use for low, medium or high pressure systems up to 10" W.G.
  3. Duct tape. Use two wraps of 2" minimum width.
  4. Plastic clamp/clamp tool. Use for low pressure systems up to 4" W.G. (Diameter 3"-10") and up to 2" W.G. (12" +), to achieve proper tensioning of clamp. Set clamp tool to maximum tension setting.

**Note:** Use tapes listed and labeled in accordance with U.L. 181b and marked "U.L. 181b-fx".

4. Plastic clamp/clamp tool. Use for low pressure systems up to 4" W.G. (Diameter 3"-10") and up to 2" W.G. (12" +), to achieve proper tensioning of clamp. Set clamp tool to maximum tension setting. Approved types- Panduit PLT-H (tool G), Calamount L/175 (tool L-300), Tylon T-150 (tool T-150).

**Note:** When adhesives/sealants are required use mastics listed and labeled in accordance with U.L. 181b and marked "U.L. 181b-m". (Apply sealant approx. 2" wide uniformly around the collar of the metal fitting. Slide at least 1" of core over fitting and secure with approved clamp). Reference data provided on adhesive/sealant containers for application and handling information.

- 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 Mobile Home ducts).
  - \* 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 adhesives, sealers, screws, or barbed fitting to make connections on ducts with plain ends (See above note).
  - \* Duct should be supported at 5' maximum intervals unless resting on ceiling joints or truss supports.
  - \* Do not use on oval collars for medium or high pressure.

**Code Reference:** The "authority having jurisdiction" should be referenced to determine what law, ordinance or code shall apply in the use of flexible duct. Ducts conforming to NFPA 90A or 906 shall meet the following requirements: (a) Shall be tested in accordance with Sections 6-22 of U.L. Standard for Factory-made air ducts and connectors (b) Shall be installed in accordance with the conditions of their listing (c) Shall be installed within the limitations of the applicable NFPA 90A or 90B Standard.

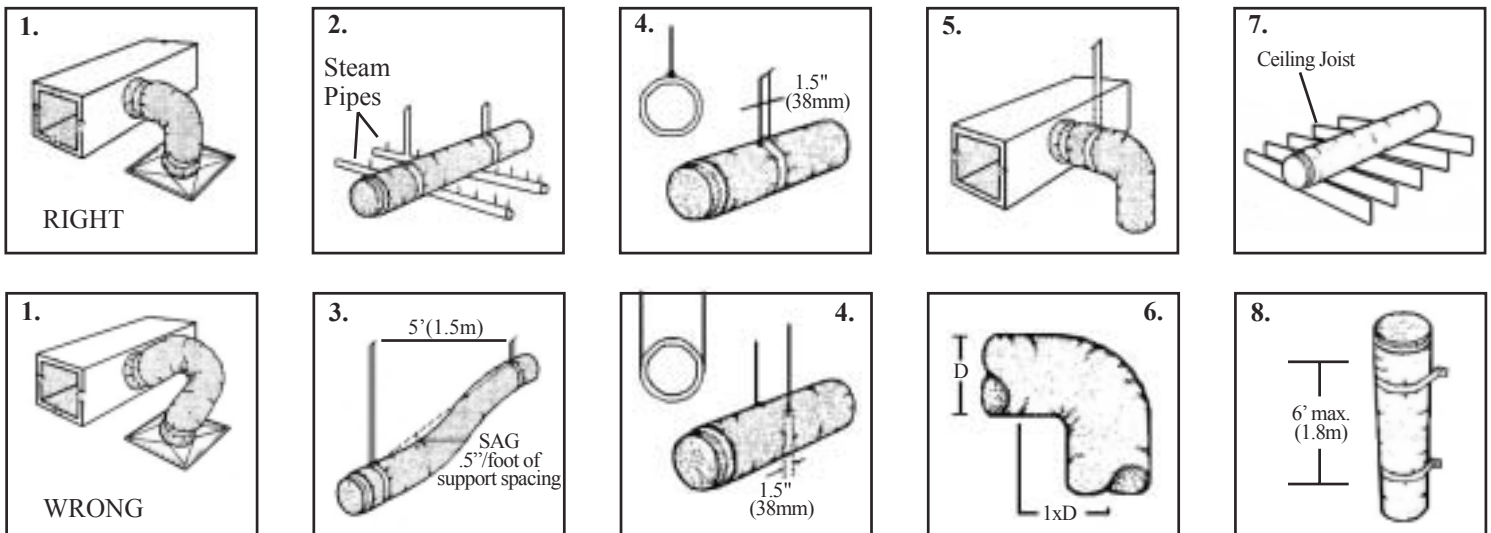
**General:** The routing of flexible duct, the number of bends, the number of degrees of each bend and the amount of sag allowed between support joints will have serious effects on system performance due to the increased resistance each introduces. Use the minimum length of flexible air duct to make connections. It is not recommended that excess lengths of ducts be installed to allow for possible future relocations of air terminal devices. Avoid installations where exposure to direct or indirect sunlight can occur e.g. turbine vents, skylights, canopy windows, etc. Prolonged exposure to sunlight will cause degradation of the vapor barrier. Terminal devices shall be supported independently of the flexible duct. Repair torn or damaged vapor barrier jacket with approved duct tape. If internal core is penetrated, replace flexible duct or treat as a connection.

**Connecting and Splicing Duct:** At connections, joints and splices shall be made in accordance with the manufacturers installation instructions. Unless specified by the manufacturer, adhesives are not recommended to use with nonmetallic flexible air duct as they may chemically react with the duct materials, causing deterioration and degradation. Sheet metal collars, to which the flexible ducts are attached, shall be a minimum of 2" length. Sheet metal sleeves used for joining two sections of flexible duct shall be a minimum of 4" in length.

**Installation/Usage:** (1) Install duct fully extended. Do not install in the compressed state or use excess lengths. This will noticeably increase friction losses. (2) Do not install near hot equipment (furnaces, boilers, steam pipes, etc.) that is above the recommended flexible duct use temperature.

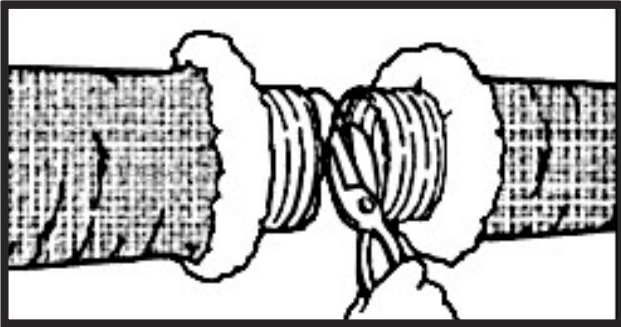
**Supporting Duct:** (3) Flexible duct shall be supported at manufacturers recommended intervals, but at no greater distance than 5'. Maximum permissible sag is about .5" per foot of spacing between supports. A connection to rigid duct or equipment shall be considered a support joint. Long horizontal duct runs with sharp bends shall have additional supports before and after the bend approximately one duct diameter from the center line of the bend. (4) Hanger or saddle material in contact with the flexible duct shall be sufficient width to prevent any restriction of the internal diameter of the duct when the weight of the supported section rests on the hanger or saddle material. In no case will the material contacting the flexible duct be less than 1.5" wide. (5) Support the duct between a metal connection and 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 edge of the sheet metal collar. (6) 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. (7) Flexible ducts may rest on ceiling posts or truss supports. A maximum spacing between supports shall not exceed the maximum spacing per manufacturers installation instructions. (8) Vertically installed duct shall be stabilized by support straps at a maximum of 6' on center.

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

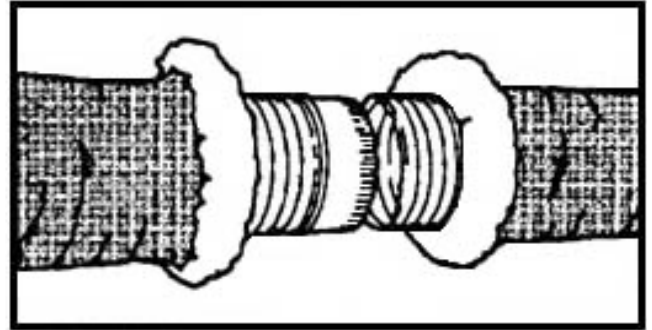


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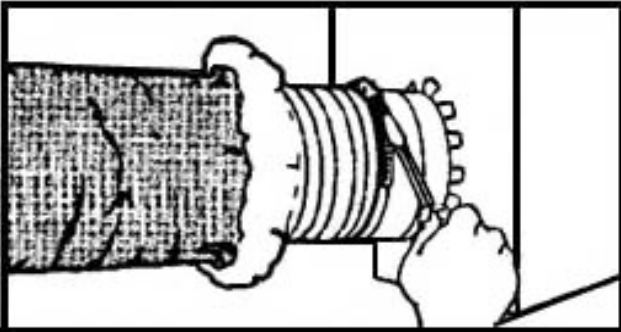
## Air Duct Installation Instructions



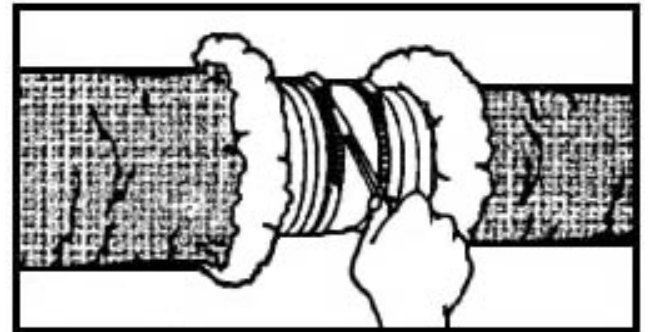
1. After desired length is determined, cut completely around and through duct with knife or scissors. Cut wire with wire cutters.



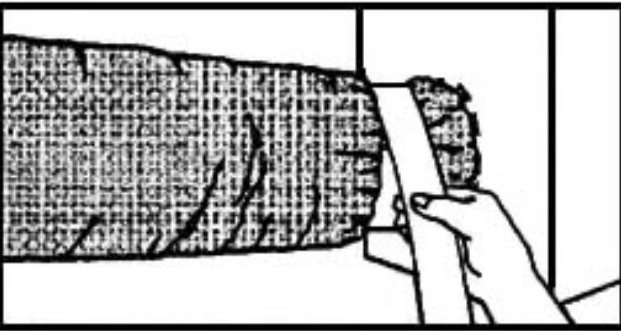
1. Peel back jacket and insulation from core. Butt two cores together on a standard 4"(100mm) metal sleeve.



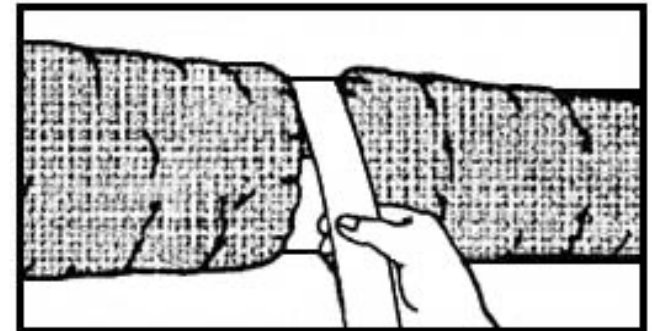
2. Pull back jacket and insulation from core. Slide at least 1"(25mm) of core over collar, pipe or fitting. Tape core with at least two wraps of duct tape. Secure with clamp.



2. Tape cores together with at least 2 wraps of duct tape. Secure with 2 clamps.



3. Pull jacket and insulation back over cores. Tape jackets together with at least 2 wraps of duct tape.



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

### **NOTES:**

1. For uninsulated air ducts and air connectors, disregard references to insulation and jacket.
2. Use beaded fittings for pressure exceeding 2" W.G.(500Pa) and for diameters 12"(300mm) and larger.
3. Use tapes listed and labeled in accordance with Standard U.L. 181b and marked "181b-fx"
4. Use clamps as specified on manufacturers U.L. 181 installation instructions.

### **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: Gray Flex Systems at 910-897-FLEX