

CASE STUDY



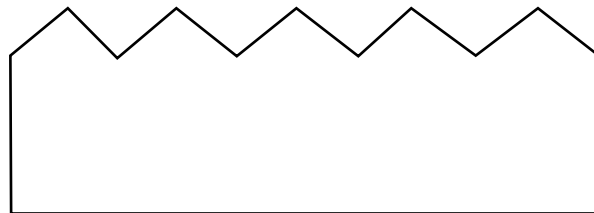
Duct Insulation

Installation Guidelines DFW Project
2" K-FLEX Clad® AL on Round Duct



INSTALLATION INSTRUCTIONS ROUND DUCTS

- 1. Installation should begin at the elbows. All adhesive and taping applications should be completed at 40° F and above (wind chill temperatures).**
- 2. Elbow gores*** should be cut from 2" thick black rubber. K-FLEX Cladding® AL will then be cut to overlay onto the gores.
- 3.** Fabricate the Gores based on circumference of elbow along with outside and inside radius dimensions of the elbow. Sufficient gore length should be realized to avoid stress on the elbow seam. After cutting the first gore, test fit on the duct elbow to ensure a loose fit.
- 4.** It may be an easier application to cut the rubber Gores, then assemble the Gores into an elbow by applying K-FLEX® 320 Contact Adhesive to adjacent side walls of each miter and assemble by applying pressure to each of the gore seam areas.
- 5.** Installation of the rubber elbow can begin once the elbow is fully assembled on the ground. Do not fully adhere the rubber elbow to the duct. Apply K-FLEX® 320 Contact Adhesive 6" on either side of the butt seam. Apply contact adhesive to the butt seam area. Allow adhesive to become tacky before installation. Apply firm pressure to the rubber butt seam during installation.
- 6.** The K-FLEX Clad® AL Gores can now be cut for installation. Provide for overlap along the gore length on all the adjacent K-FLEX Clad® AL Gores. Some portions of the K-FLEX Clad® AL Gores will probably require segmenting the overlap to allow the K-FLEX Clad® AL overlap to lie flat around the curvature of the elbow. See sketch below. There should also be an overlap for the butt seam area. You should always strive for 2" overlap to give maximum protection for straight runs. For joints, allow 1" overlap for better presentation.



- 7.** Install one gore at a time in a watershed manner. (i.e. begin at the bottom of the vertical portion of the elbow). Use K-FLEX® 320 Contact Adhesive to fully adhere the K-FLEX Clad® AL Gore to the rubber elbow. Continue in this manner until the K-FLEX Clad® AL elbow is fully installed.
- 8.** After clad gores are adhered 100 % to the insulation surface with contact adhesive, apply rivets across the butt seam of each gore a maximum of 3" apart. If butt seam gore width is less than 3 inches apply 2 rivets one on each edge of butt seam.
- 9.** Tape seamed areas at overlap joints and joints connecting gores to straight runs. This is required to eliminate water penetration. Note: All seam areas should be cleaned prior to applying tape. Acetone is an applicable cleaner. Do not use petroleum based cleaning products such as mineral spirits. Align tape at the beginning of the tape run allowing 1/2 of tape width to cover each adjacent side of seam. Apply minimum tension just to keep tape aligned (i.e. Do not stretch tape). Remove release liner several inches at a time. Use squeegee tool to smooth tape of any wrinkles by applying firm pressure. Make several firm pressure passes with squeegee to ensure tape is fully adhered and sealed.
- 10.** Once all elbows are installed the straight sections of the round duct can be insulated. All adhesive and taping applications should be completed at 40° F and above (wind chill temperatures).
- 11.** On the ducts 18" and larger diameter use the 2" K-FLEX Clad® AL product. On ducts smaller than 18" the following options are recommended. Option 1: Use 1" thick black rubber as the base layer. Apply second layer of 1" K-FLEX Clad® AL product. Option 2: Apply 2" layer black rubber. Apply K-FLEX Clad® AL covering on top of 2" black rubber.
- 12.** Note: Since this is exterior duct application all layers of material must be fully adhered to either the duct or to the ad-

* Gores refers to the geometric cuts in the foam and jacketing

jacent material layer. The K-FLEX Clad® AL layer must always be fully adhered to the rubber layers with K-FLEX® 320 Contact Adhesive only.

- 13.** Begin by insulating the straight sections that are adjacent to the elbows.
- 14.** Sufficient circumference length should be realized to avoid stress on the seam. After cutting the first section test fit on the duct to ensure a loose fit.
- 15.** K-FLEX Clad® AL overlap must be provided for water shed. You should always strive for 2" overlap to give maximum protection.
- 16.** On overlaps where the rubber is removed, the overlap must be thoroughly cleaned of all rubber and PSA residue. Acetone is an applicable cleaner. Do not use petroleum based cleaning products such as mineral spirits.
- 17.** On confined small areas and all butt seams K-FLEX® 320 Contact Adhesive should be used.
- 18.** Apply adhesive to the insulation sheet and the metal duct. When applying adhesive to the sheet and duct area apply only to a small area at a time and gradually work around the round duct applying the insulation product keeping the product aligned and taunt to avoid wrinkles and/or creases.
- 19.** Once the sheet has been adhered to the duct apply K-FLEX® 320 Contact Adhesive to the butt seam and seal the seam by applying pressure. Now apply K-FLEX® 320 Contact Adhesive to the K-FLEX Clad® AL overlap and to the K-FLEX Clad® AL sheet overlap area. Seal the overlap by applying firm pressure.
- 20.** Apply rivets across the butt seam of each sheet a maximum of 9" apart. If butt seam width is less than 9 inches apply 2 rivets one on each edge of butt seam.
- 21.** On all duct component configurations: Use either 2" or 4" tape as needed to yield proper seal. Note: For maximum protection always strive to have minimum 2" of tape overlap on each adjacent corner section of K-FLEX Clad®. Corners should always have 4" wide tape applied for this specific application (i.e. 2" tape width devoted to each leg of corner). **On corners that have 2" of Black Rubber exposed 6" wide tape is required. For best results pre-bend tape to create a corner with 3" by 3" legs then apply to corner. 4" tape should be pre-bent to create a corner with 2" by 2" legs then apply to corner.**

Note: All seam areas should be cleaned prior to applying tape. Acetone is an applicable cleaner. Do not use petroleum based cleaning products such as mineral spirits.

Align tape at the beginning of the tape run allowing 1/2 of tape width to cover each adjacent side of seam. Apply minimum tension just to keep tape aligned (i.e. Do not stretch tape). Remove release liner several inches at a time. Use squeegee tool to smooth tape of any wrinkles by applying firm pressure. Make several firm pressure passes with squeegee to ensure tape is fully adhered and sealed.

22. Note: On odd shapes, i.e. where the rectangular trapezoid duct transitions to round duct, the tape may need to be segmented on the round duct shape side as shown below. 4" wide tape is recommended at this joint. After applying this tape layer equally divided at the joint apply a second layer of 2" wide tape over the first layer on the round side duct only to cover up the segmented areas. Marine grade caulking may need to be added to ensure a proper seal on transition areas such as this.

