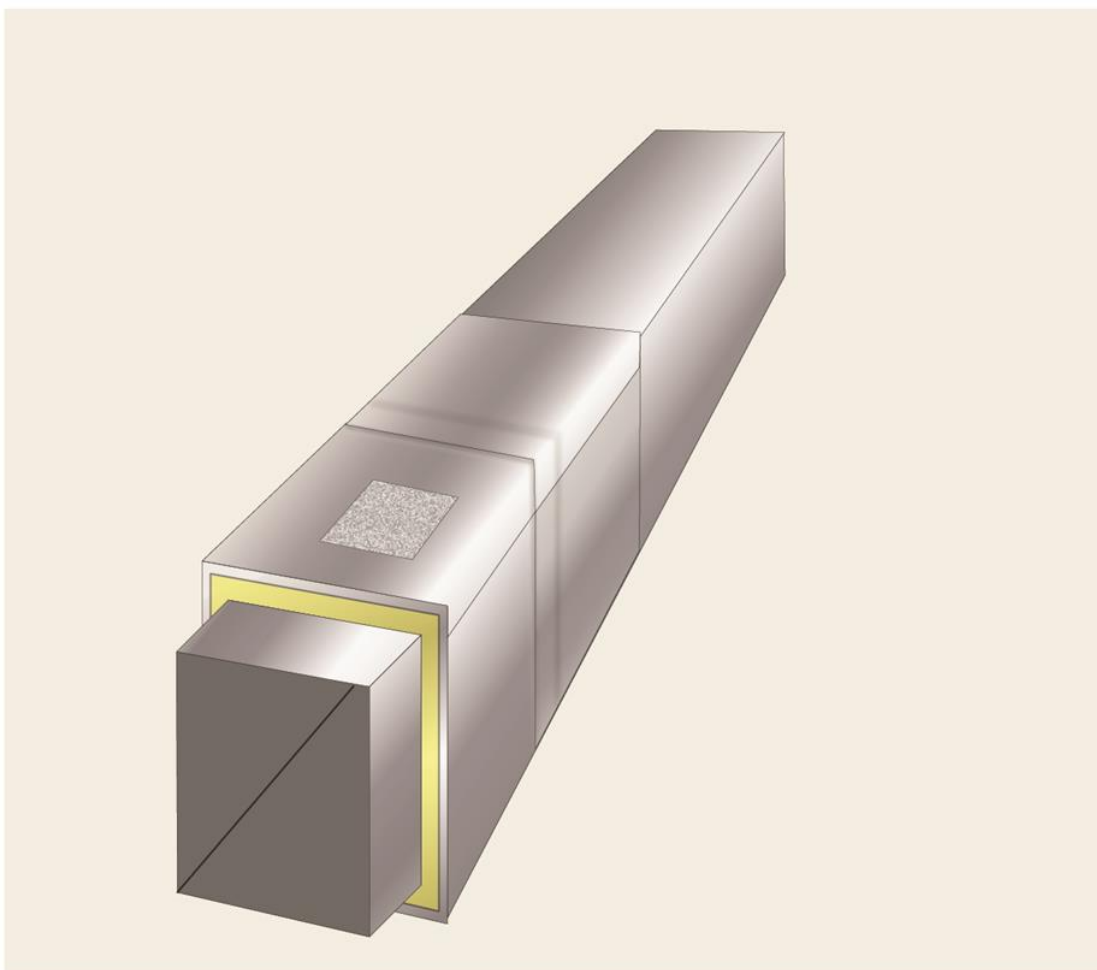


***3M™ VentureClad™ Insulation Jacketing Products on Insulation Ducts***

***Recommended Installation Guide***

***Duct Insulation Jacketed with Factory and  
Field Installed 3M™ VentureClad™ Products***



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Product Key	
<b>1577CW-EMJ</b>	Flat silver aluminum with adhesive
<b>1577CWE-EMJ</b>	Embossed silver aluminum with adhesive
<b>1577NA-EMJ</b>	Flat silver aluminum without adhesive
<b>1577CW-WM</b>	Flat white with adhesive and a membrane
<b>1577CW-WME</b>	Embossed white with adhesive and a membrane
<b>1579GCW-EMJ</b>	Flat silver aluminum with adhesive
<b>1579GCWE-EMJ</b>	Embossed silver aluminum with adhesive
<b>1579GNA-EMJ</b>	Flat silver aluminum without adhesive
<b>1579GCW-WM</b>	Flat white with adhesive and a membrane
<b>1579GCW-WME</b>	Embossed white with adhesive and a membrane

## **1. Scope**

- a. Using 3M™ VentureClad™ products 1577CW-EMJ, 1579GCW-EMJ, and 1579GNA-EMJ, the following recommended installation guidelines apply when installing these materials to rigid or semi-rigid duct insulation materials. It will apply to either factory or field jacketing. “CW” products have a pressure sensitive adhesive, covered with a release liner, over their entire inside surface. “NA” products have no adhesive.
- b. 1577CW-EMJ, 1579GCW-EMJ, and 1579GNA-EMJ are suitable for both indoor and outdoor applications. It is recommended that 1577CW-EMJ pressure sensitive seaming tape be used for sealing all 1579GCW-EMJ and 1579GNA-EMJ seams, whether they are lap or butt joints. 4-inch wide seaming tape should be considered the standard if not recommended otherwise.
- c. 3M™ VentureClad™ products can be painted. 3M™ recommends that you consult with a paint specialist on how best to paint the given surface for outdoor use. Please note, however, that if you paint 3M™ VentureClad™ products, then the product performance test data and certifications associated with unpainted material, such as fire and smoke testing, are no longer applicable. Historically, many customers have successfully used the 3M™ VentureClad™ Insulation Jacketing System as a jacket over a variety of rigid and semi-rigid insulation products such as, but not limited to the following: polystyrene, polyisocyanurate, phenolic foam, cellular glass, calcium silicate, polyolefin, faced fiberglass, mineral wool, molded expanded perlite, flexible aerogel, and flexible elastomeric. Flexible elastomeric insulation can expand and contract under various conditions. 3M VentureClad™ is not designed to hold insulation in place, it is designed for insulation protection. If additional securement is required and allowed by the specification, metal bands or 4-inch (100mm) wide 1577CW-EMJ, cut to the length of the insulation circumference +3 inches or more can be used. Many factors beyond 3M’s control and uniquely within user’s knowledge and control can affect the use and performance of the 3M Product in a particular application. User is solely responsible for evaluating the 3M Product and determining whether it is fit for a particular purpose or suitable for user’s method of application.
- d. These procedures assume the ducts will operate at below ambient temperatures and therefore include sealing against water vapor intrusion. Since all the 3M™ VentureClad™ products covered by this manual will have a low water vapor permeance, no additional vapor retarder needs to be used so long as the 3M™ VentureClad™ is sealed tightly at all locations.
- e. The maximum use temperature of the Natural Aluminum 3M™ VentureClad™ products is 300°F (149°C). The maximum use temperature of the Membrane 3M™ VentureClad™ products is 248°F (120°C).
- f. Proper adhesion of the materials is paramount in the long-term success of the jacketing and the tape products. It is recommended that for both the 3M™ VentureClad™ and the 3M™ Venture Tape™ installation, the installer keep the adherent surfaces free of dust, dirt, grease, and water, including water from surface condensation. It is recommended that the application is to seal immediately once this adhesive is exposed by removing the release liner.

## **2. Notes that apply to the installation of 3M™ VentureClad™ jacketing on insulated air handling ducts:**

**Note 1:** The guidelines in this manual do not purport to address all engineering issues associated with the use of 3M™ VentureClad™ jacketing products and duct insulation system design. It is the responsibility of the facility owner to have (1) qualified structural engineers perform calculations, as required, to make certain that the duct securement is sufficient, accounting for the weight of the insulation system; (2) qualified mechanical engineers determine the insulation meets the required thermal requirements and (3) qualified corrosion engineers to specify type and thicknesses of insulation materials and coatings to protect the metal surfaces from corrosion under insulation.

**Note 2:** Users of this manual should use only trained, skilled, and experienced insulation workers. The guidelines included in this manual are not of enough detail to advise the installer of all techniques required to install insulation systems correctly.

**Note 3:** The guidelines in this manual do not purport to address all the safety concerns, if any, associated with the use of 3M™ VentureClad™ Products. At a minimum, 3M™ recommends that the insulation workers wear safety goggles and protective gloves for all work with 3M™ VentureClad™ and 3M™ Venture Tape™. However, it is the responsibility of the user of this manual to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

**Note 4:** 3M™ strongly recommends the facility owner/operator to conduct regular duct insulation system maintenance. Outdoor, damaged insulation systems can perform poorly allowing ingress of water from rain or melting snow or, on below ambient systems, water vapor intrusion with subsequent condensation. Wet insulation will not perform thermally on a par with that provided by the insulation material's manufacturer; further, it can lead to corrosion under insulation. The best prevention of these problems is a proactive insulation system maintenance program that includes sealing of the 3M™ VentureClad™ jacketing.

**Note 5:** 3M™ generally recommends the use of either 3M™ Venture Tape™ 1577CW-EMJ as a seaming tape, where necessary, and with all 3M™ VentureClad™ 1579GCW-EMJ products.

**Note 6:** When installing 3M™ VentureClad™ in locations where high winds are possible, 3M™ recommends increasing the overlaps from 3" to 6". If your project requires additional securement, it is the responsibility of the facility owner to have a qualified professional review the appropriate securement.

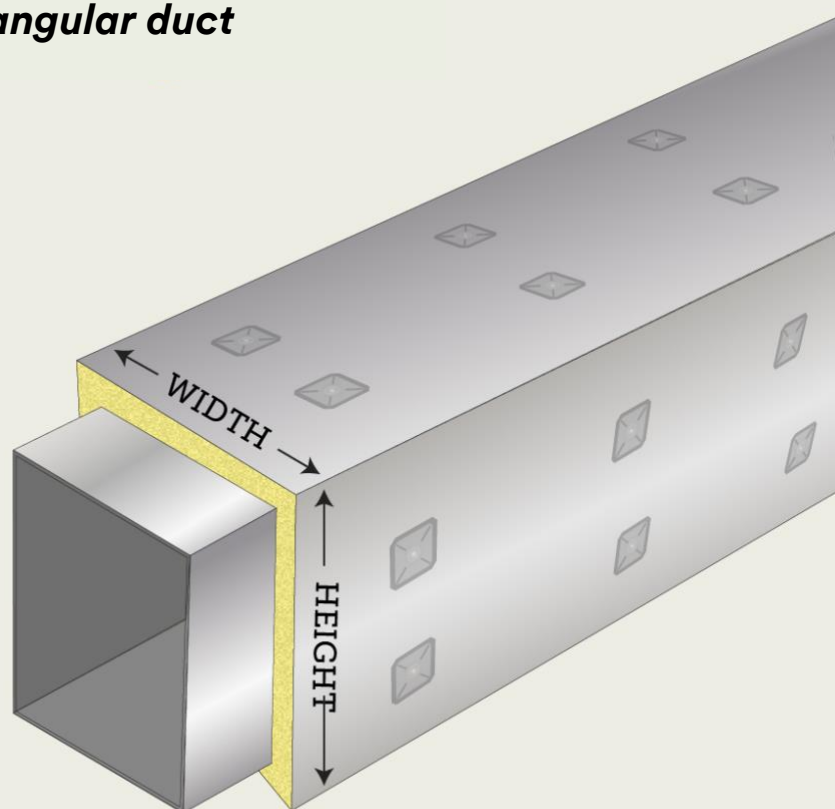
**Note 7:** Water shed, for North America only — 3M™ recommends that air duct designers follow the guidelines given in Section 3.4 (page 6.5) of SMACNA's "HVAC Duct Construction Standard — Metal and Flexible" for sloping of the top surface for the purposes of rainwater drainage. In lieu of this, the insulation workers can insert dowel rods between the top horizontal duct surfaces and the bottom of the insulation boards, insulating those top surfaces, to create a slope, prior to applying the 3M™ VentureClad™. The rods can be placed on one edge for smaller ducts or in the middle of larger ducts. Contractors in other countries should follow their local industry guidelines and requirements for insulated outdoor ducts.

### 3. Insulated Rectangular Ducts

Prior to adding 3M™ VentureClad™, ducts should first be insulated. Typically, they are insulated with a fiberglass board faced with FSK or some other factory applied facing. Before applying 3M™ VentureClad™, all seams should first be taped with an aluminum foil-based 3M™ Venture Tape™ such as 1525CW FSK tape or 1520CW aluminum foil tape. These boards are also typically first installed and held in place using pins and speed washers (as shown on Figure 1 below). Be certain that the pins have been cut as close as possible to the speed washers. The 3M™ VentureClad™ should be applied over top of the pins and washers after first applying 3M™ Venture Tape™ foil tape over each pin-washer combination. See Figure 2.

#### ***Insulated rectangular duct***

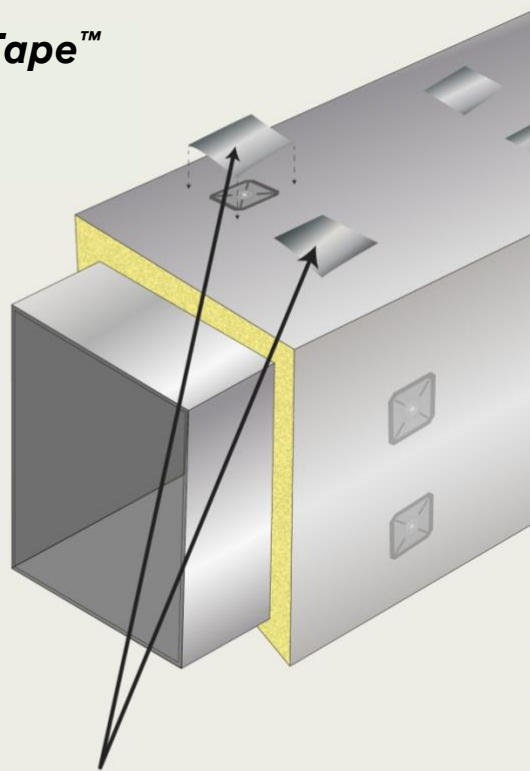
**Fig. 1**



**Figure 1** shows an insulated, rectangular duct with an insulation board which should be factory faced. As shown, the exposed pins and washers will first need to be covered, prior to installing 3M™ VentureClad™ jacketing, to protect against later puncturing of that jacketing.

**3" x 3" strips of 3M™ Venture Tape™  
used to cover washers**

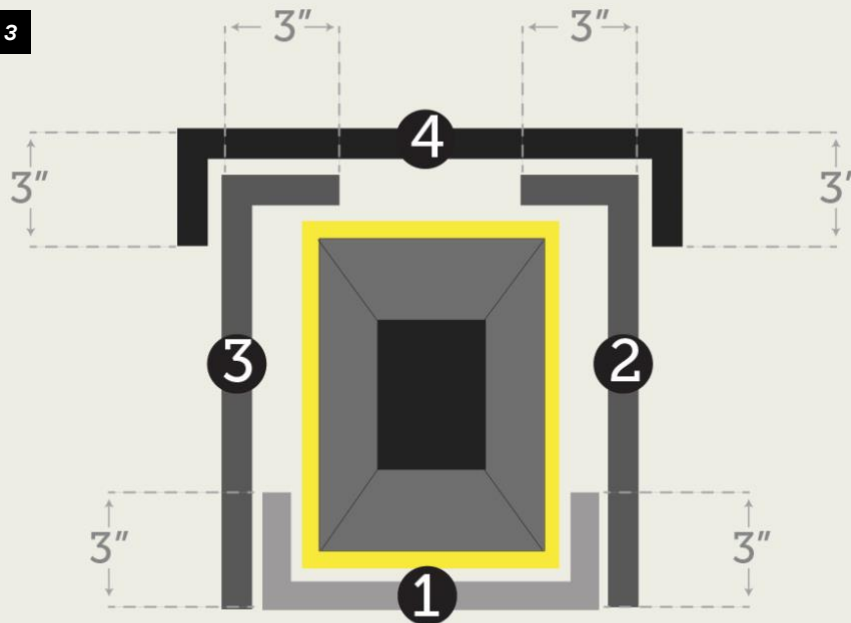
**Fig. 2**



**Figure 2** shows the process of covering the pins and washers, used to secure the insulation board, using 3M™ Venture Tape™. 3M™ recommends the use of 3" (75mm) wide FSK or aluminum foil based 3M™ Venture Tape™ cut into 3" (75mm) long strips.

## Sequence of cutting and applying 3M™ VentureClad™

**Fig. 3**



1. Bottom
2. Side overlaps top by 3"
3. Other side overlaps top by 3"
4. Top overlaps each side by 3"

**Figure 3** sequence of cutting and applying four cut sheets of 3M™ VentureClad™ to a section along the insulated duct: (1) bottom (2) first vertical side (3) second vertical side and (4) top, all using 3" (75mm) overlaps. Note that the 3 inch (75mm) overlap on (2) and (3), as well as on (4), are conservative 3M recommendations that should result in longer term performance of the 3M™ VentureClad™ jacket system. 3M™ recommends that the insulation contractor not trim the bottom edges of pieces 2 and 3, where they come in contact with piece 1. Instead, when pieces 2 and 3 are longer than necessary, 3M™ recommends that pieces 2 and 3 be folded over onto piece 1 to prevent the need for trimming.



**Cutting bottom piece of 3M™ VentureClad™ to width of insulated duct + 6" (3" overlap on each side)**

**Fig. 4**



**Figure 4** shows an installer cutting a sheet of 3M™ VentureClad™ from the roll. In this case, the sheet dimensions will be the width of the roll x the width of the insulated duct. This cut sheet will be applied to the bottom of the insulated duct after first removing several inches of the release liner. Note the 3-inch (75mm) overlaps and hence the 6 inches (150mm) greater length).



***Peeling back the release liner part way from front edge***

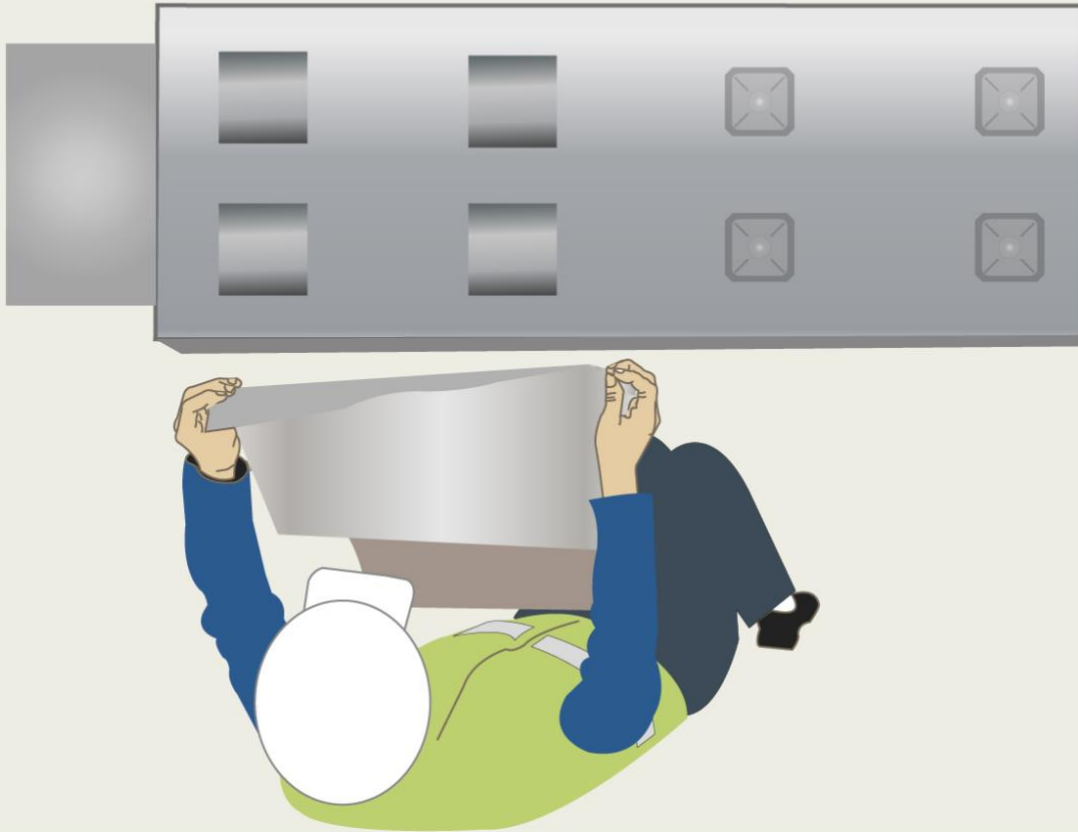
**Fig. 5**



**Figure 5** shows the installer starting to remove the release liner to expose the pressure sensitive adhesive. He should only pull the release liner back 3–4 inches (75–100mm), then start applying it to the face of the insulated duct, as shown in Figure 6.

## Applying 3M™ VentureClad™ to bottom of duct

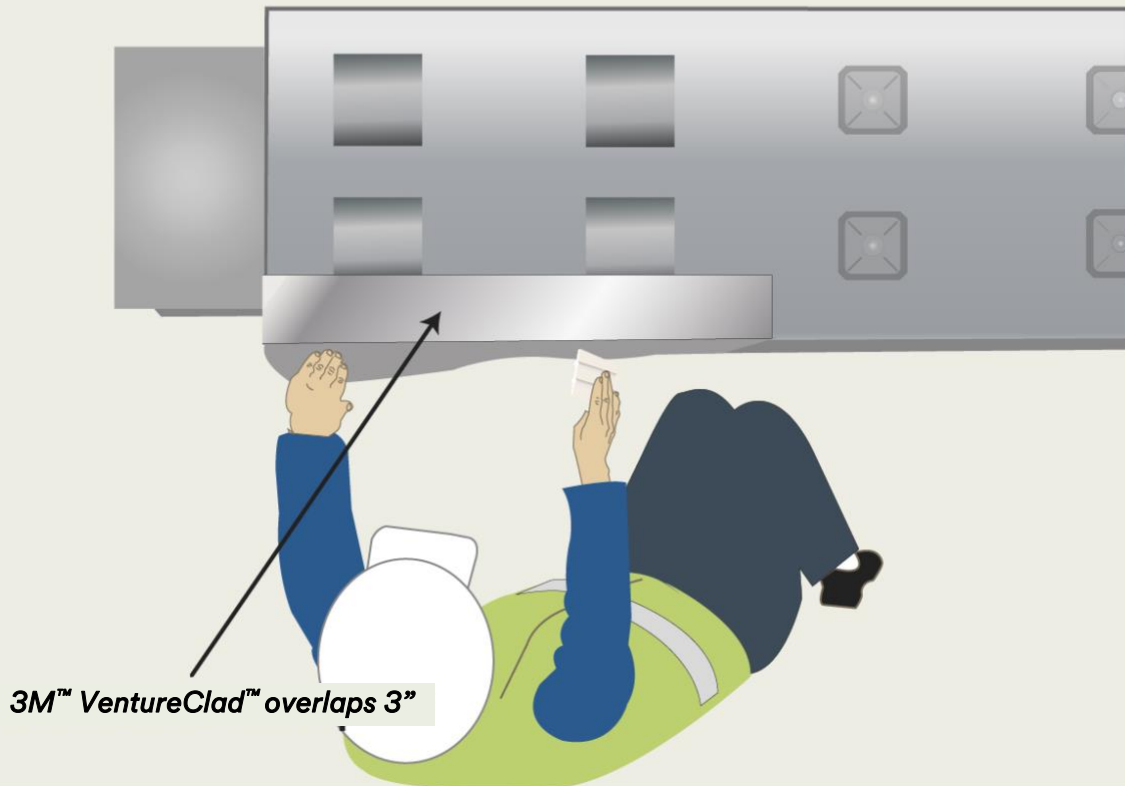
**Fig. 6**



**Figure 6** shows the installer working underneath the insulated duct. He will apply this first sheet of 3M™ VentureClad™ (piece 1) to the insulated duct bottom (where the speed washers have already been covered with 3M™ Venture Tape™).

## Using a squeegee to press 3M™ VentureClad™ onto bottom of duct

Fig. 7



**Figure 7** shows the installer using a squeegee to press the entire surface of the installed 3M™ VentureClad™ piece 1, on the bottom surface of the insulated duct, to assure that there is good adhesion of the 3M™ VentureClad™ jacket to the insulation.

**Cutting side piece of 3M™ VentureClad™ from roll that is height + 3" long**

**Fig. 8**



**Figure 8** shows the installer cutting his second sheet (piece 2 or 3) of 3M™ VentureClad™, this one to be applied to one of the two vertical sides. Note that its minimum dimension is equal to the insulated duct height + 3 inches (75mm).

**Applying 3M™ VentureClad™ to side of insulated duct.  
Note that 3M™ VentureClad™ will overlap top by 3"**

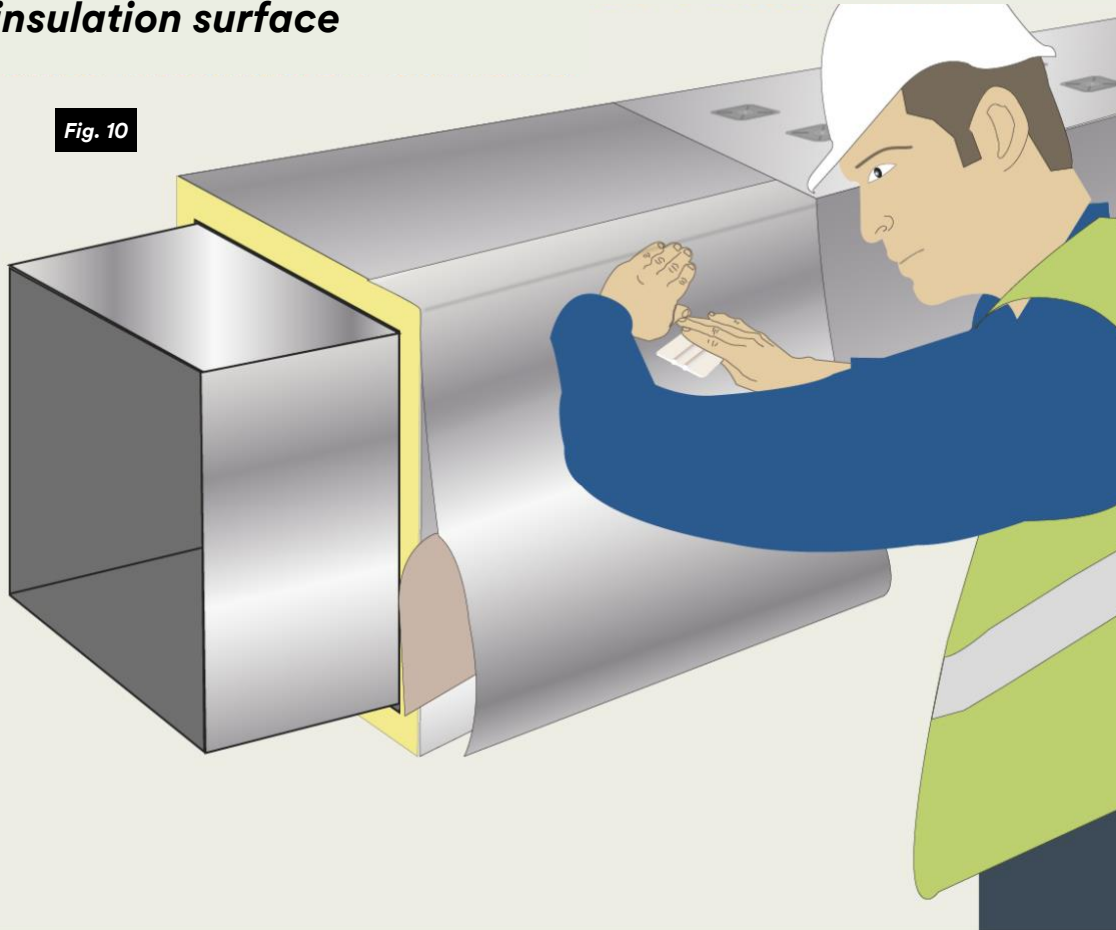
**Fig. 9**



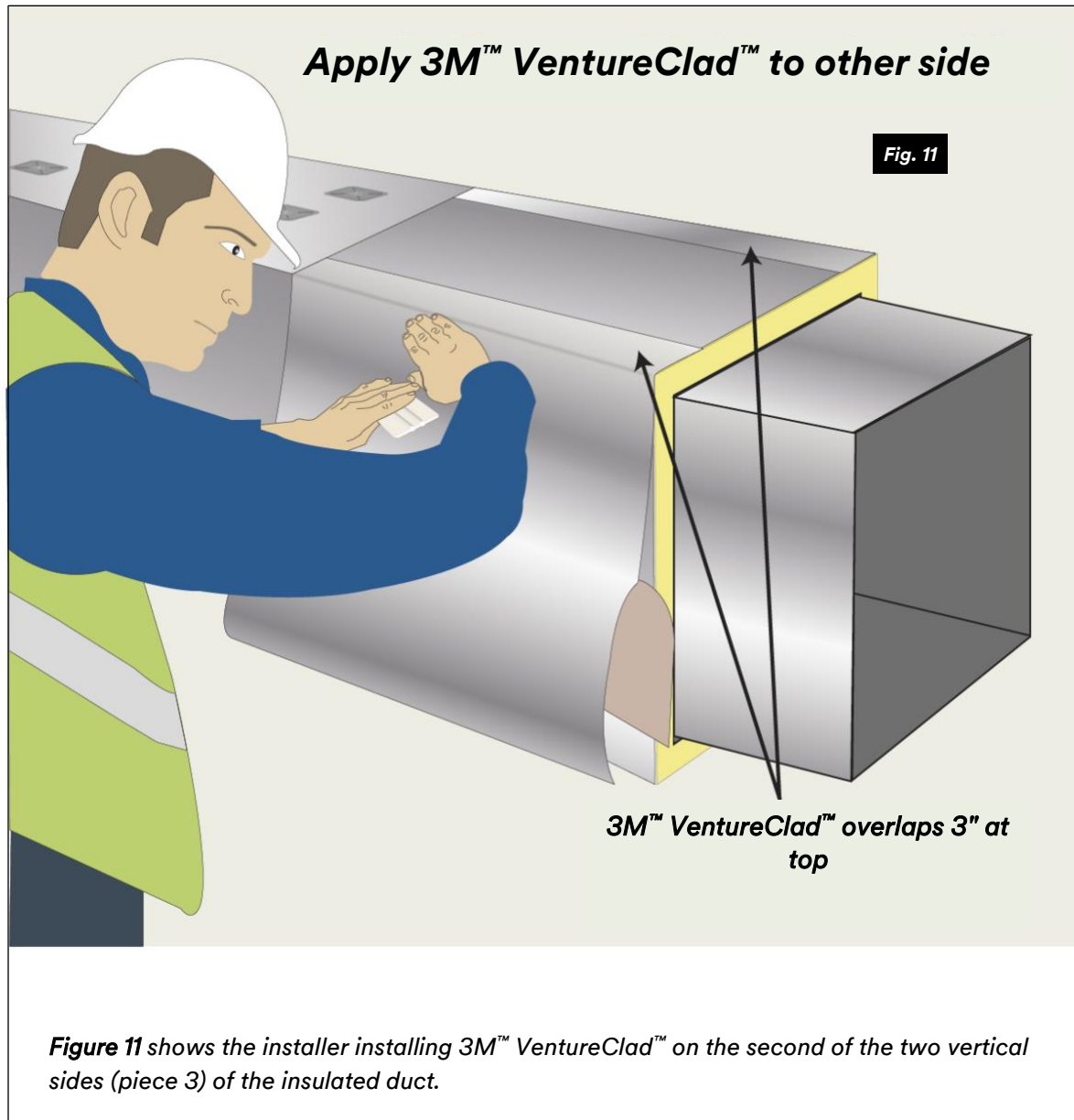
**Figure 9** shows the installer applying the cut sheet of 3M™ VentureClad™ to the vertical side (piece 2). Note that he first lines up the top edge of the 3M™ VentureClad™ with the top edge of the insulated duct, then works his way down the side, peeling back the release liner in steps, then applying that section with the exposed adhesive.

**Using a squeegee to press 3M™ VentureClad™ onto insulation surface**

**Fig. 10**



**Figure 10** shows the installer using the squeegee to make certain that the 3M™ VentureClad™ is fully adhered to the vertical side of the insulated duct (piece 2).





**Cutting top piece of 3M™ VentureClad™ from roll that is width + 6" long**

**Fig. 12**



**Figure 12** shows the installer cutting a sheet of 3M™ VentureClad™ for the top of the insulated duct (piece 4).

***Applying the 3M™ VentureClad™ to top of insulated duct  
— edges should overlap each vertical side by 3"***

**Fig. 13**



**Figure 13** shows the installer lining up the 3M™ VentureClad™ top sheet with the duct's edges (piece 4). After being installed, this sheet of 3M™ VentureClad™ should overlap each vertical side by 3 inches (75mm).

**Using a squeegee to press 3M™ VentureClad™ onto insulation top surface**

**Fig. 14**

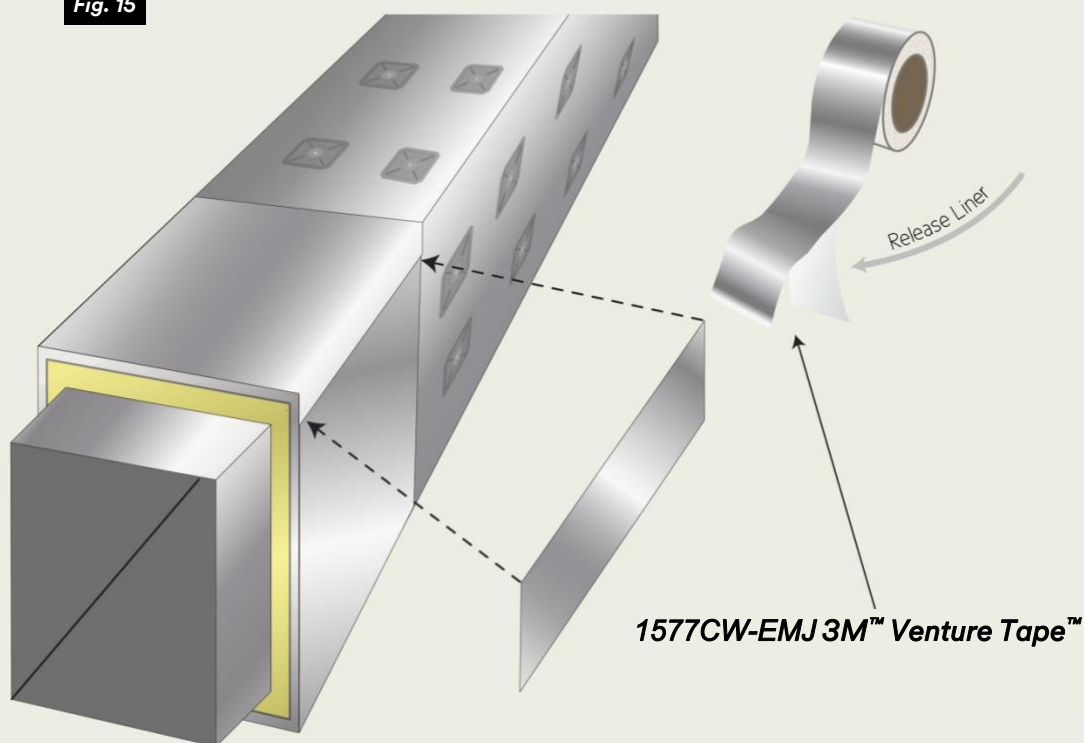
**3M™ VentureClad™ overlaps  
3" on both sides**



**Figure 14** shows the installer using the squeegee to smooth out the 3M™ VentureClad™ and to assure himself that the 3M™ VentureClad™ has completely adhered to the top surface of the insulated duct (piece 4).

**Cut a piece of 3M™ Venture Tape™ to fit the length of the joint — peel off release liner**

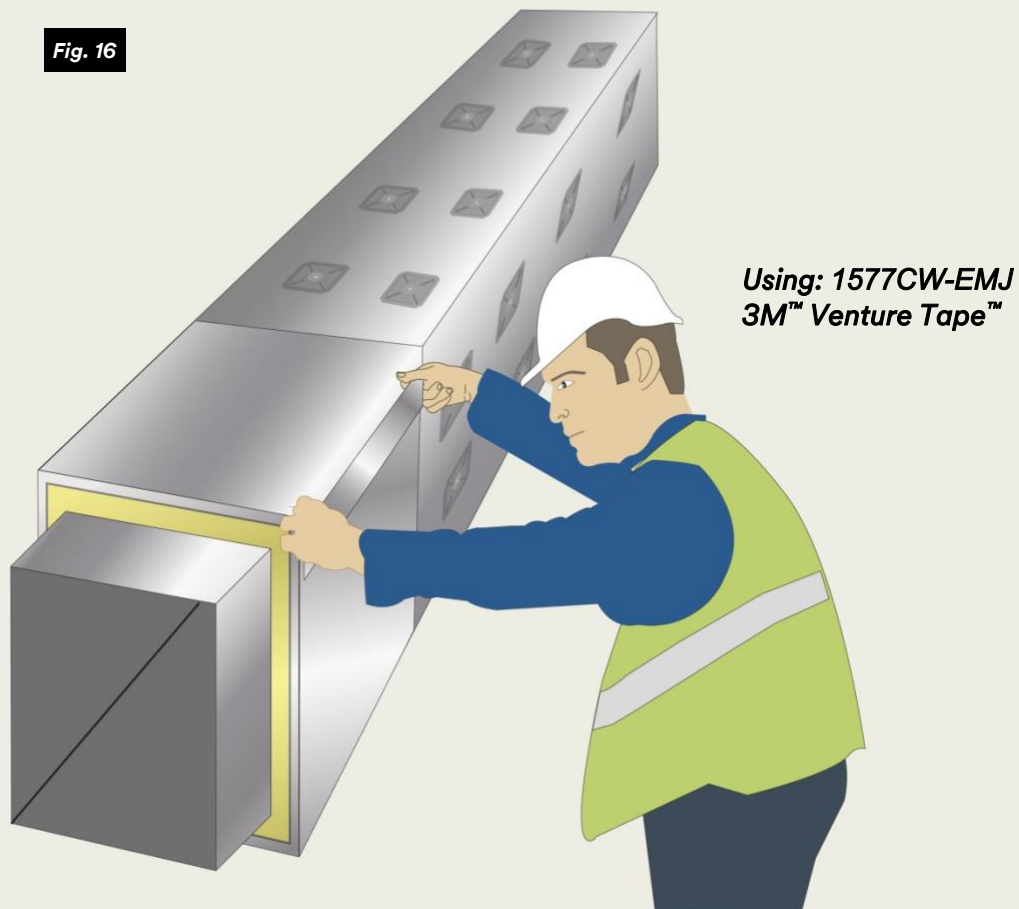
**Fig. 15**



**Figure 15** shows the location where a cut strip of 4 inch (100mm) wide 1577CW-EMJ 3M™ Venture Tape™ will be applied to reinforce one of the 3M™ VentureClad™ 1579GCW-EMJ joints. This step is unnecessary when using the lighter weight 1577CW-EMJ 3M™ VentureClad™.

## Taping 1579CGW 3M™ VentureClad™ Joints

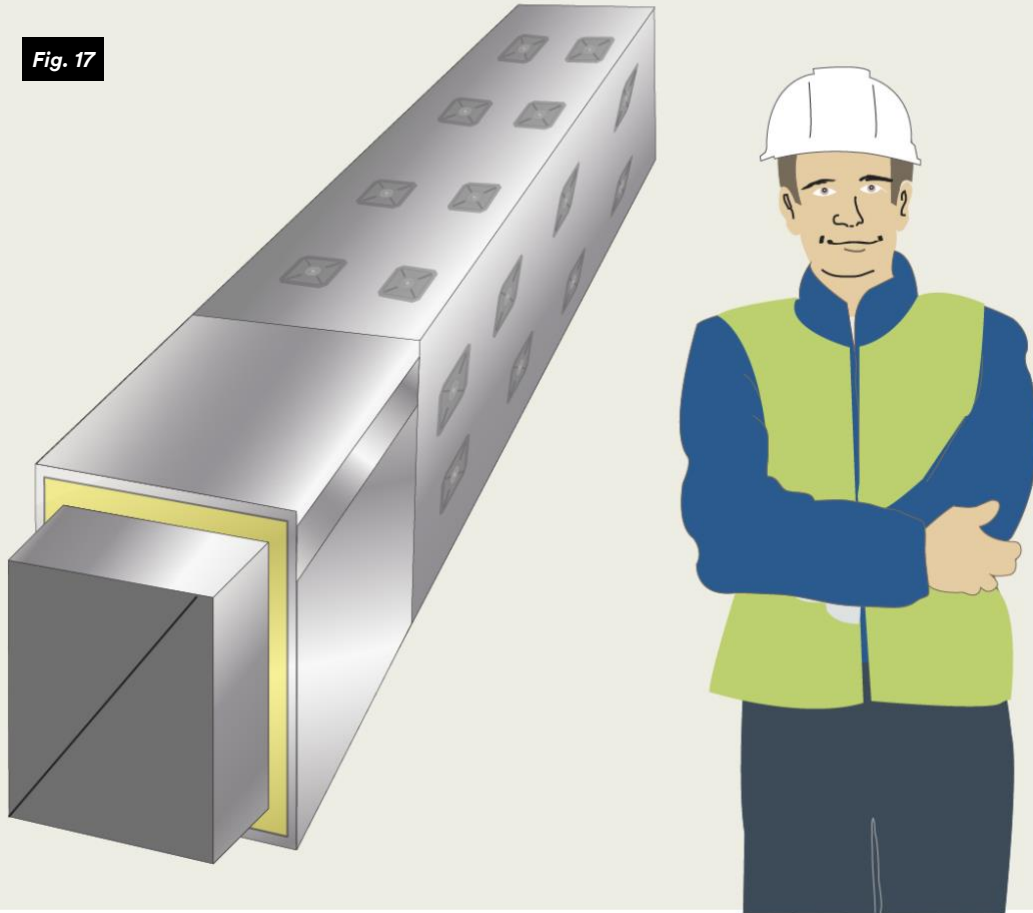
Fig. 16



**Figure 16** shows the cut strip of 4 inch (100mm) wide 1577CW-EMJ 3M™ Venture Tape™ being applied to reinforce a joint when using 1579GCW-EMJ 3M™ VentureClad™. Be certain to run over the tape with a squeegee after applying it to the 3M™ VentureClad™ seam.

***First section sealed with 3M™ VentureClad™***

**Fig. 17**



**Figure 17** shows a first section of 3M™ VentureClad™ applied to the insulated duct. Note the joint reinforced with 1577CW-EMJ 3M™ Venture Tape™ is only necessary when using 1579GCW-EMJ 3M™ VentureClad™. The next step will be to duplicate this process on the duct section adjacent to this section.

**Continue to apply 3M™ VentureClad™ same as before overlapping previous applications by 3"**

**Fig. 18**

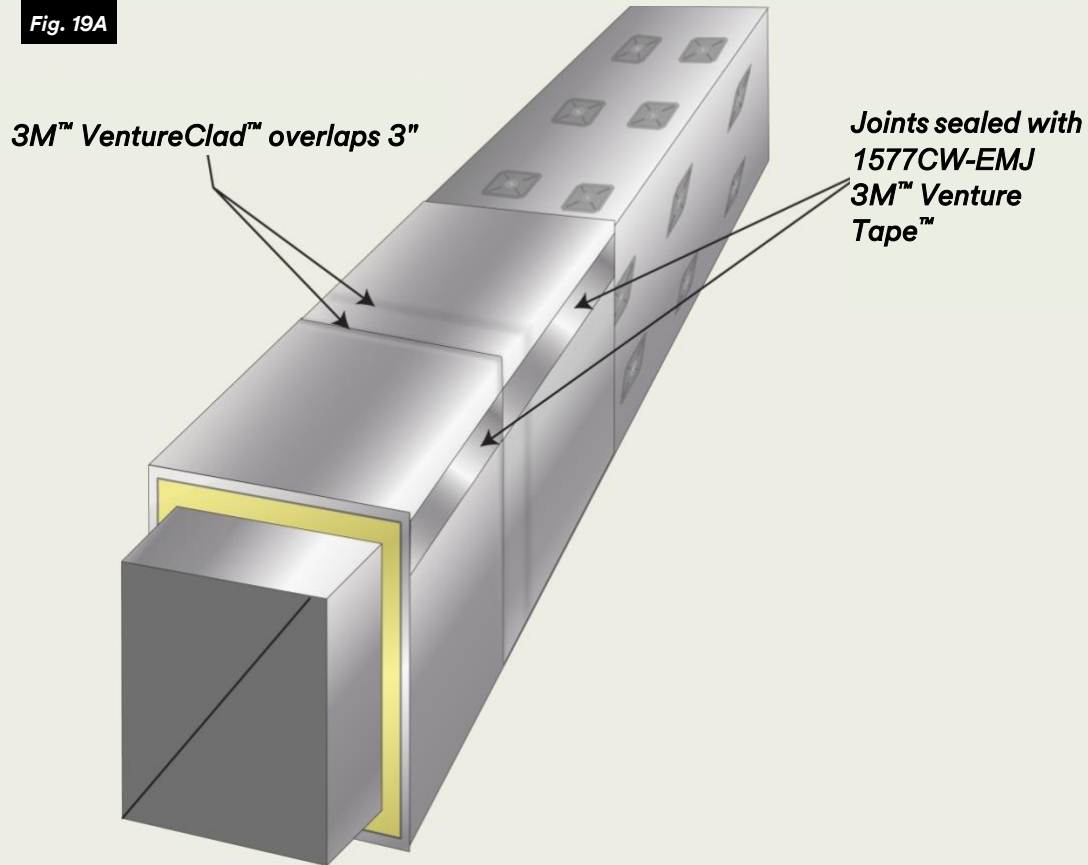


**Figure 18** shows the insulator applying 3M™ VentureClad™ to the next section of duct. Note that he will overlap the first section's 3M™ VentureClad™ by 3 inches (75mm). Note that the installer should have first covered the speed washers with pieces of 3 inch x 3 inch (75mm x 75mm) 3M™ Venture Tape™, as shown in Figure 2.



## ***First two sections sealed with 3M™ VentureClad™***

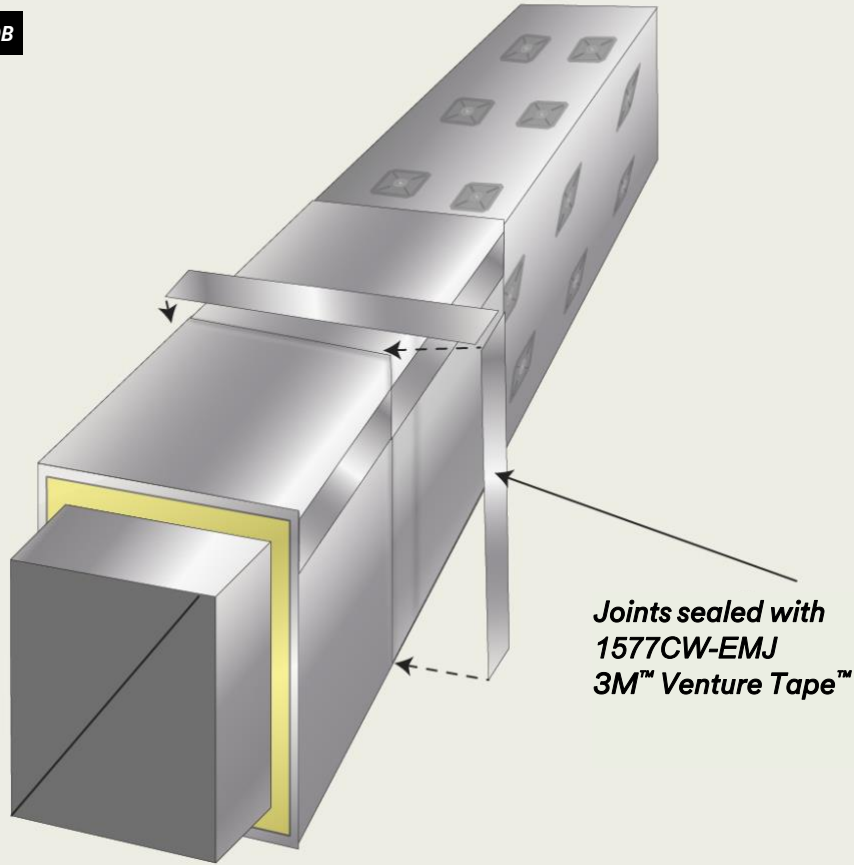
**Fig. 19A**



**Figure 19A** shows the first two sections of this straight, insulated duct with 3M™ VentureClad™ and joints reinforced with 4 inch (100mm) wide 1577CW-EMJ 3M™ Venture Tape™ when using 1579GCW-EMJ 3M™ VentureClad™.

## Seal joint between two sections

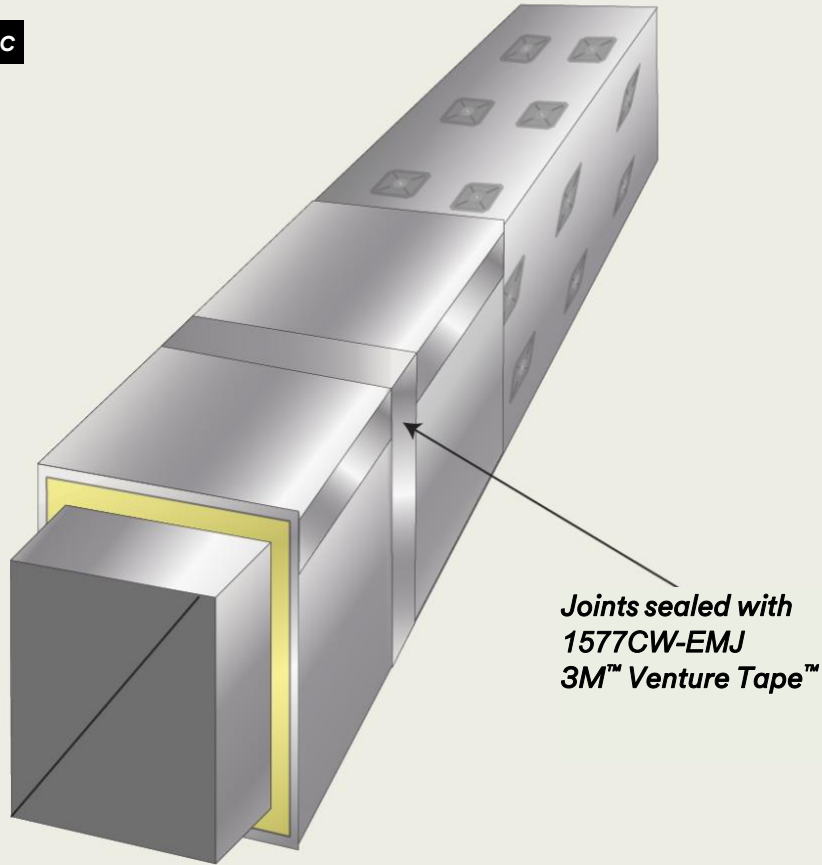
**Fig. 19B**



**Figure 19B** shows the first step in the addition of 4 inch (100mm) wide 1577CW-EMJ 3M™ Venture Tape™ over a circumferential 1579GCW-EMJ 3M™ VentureClad™ butt joint. When using the lighter weight 1577CW-EMJ 3M™ VentureClad™ jacket, the addition of the tape is unnecessary.

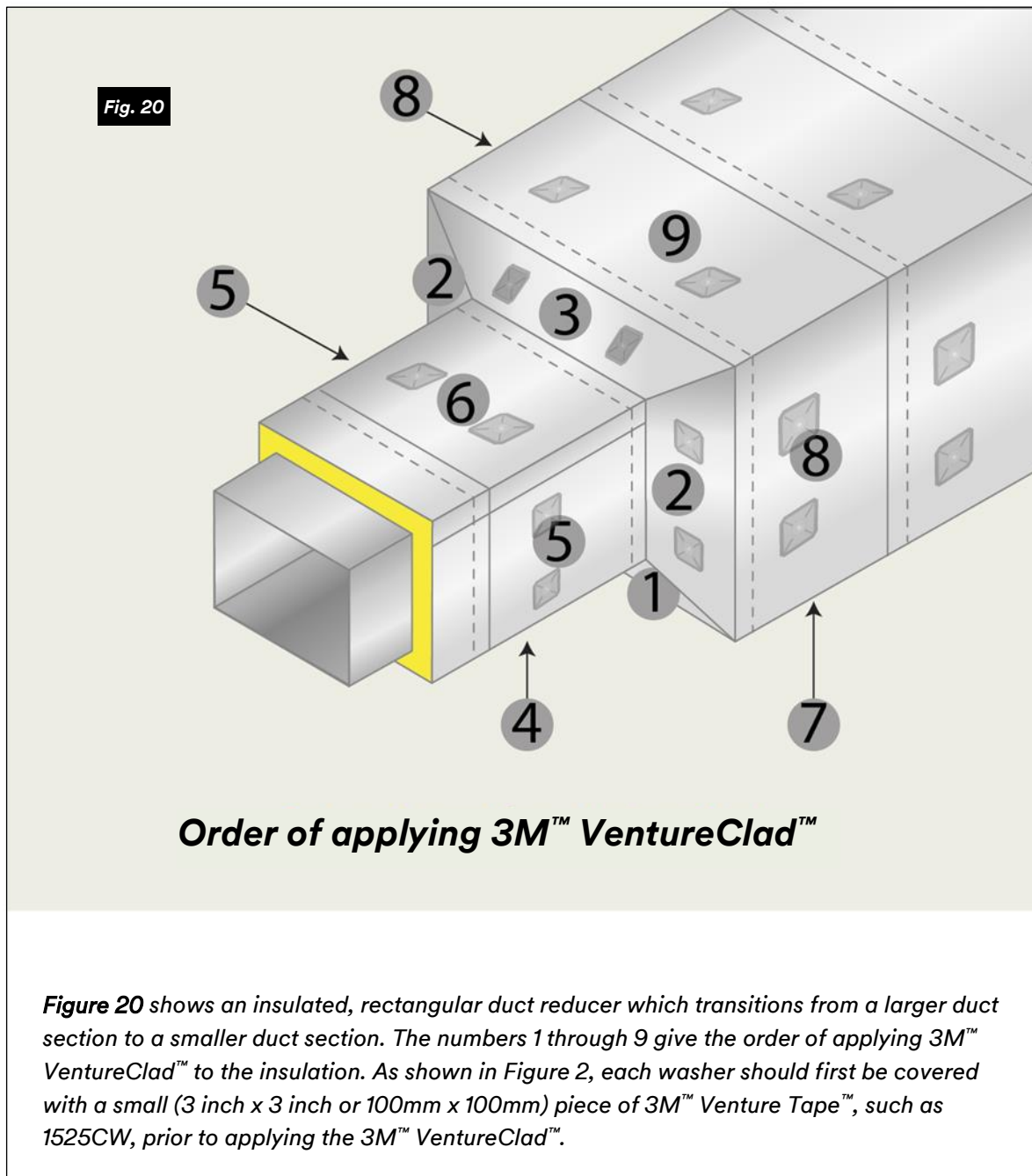
## Seal joint between two sections

Fig. 19C



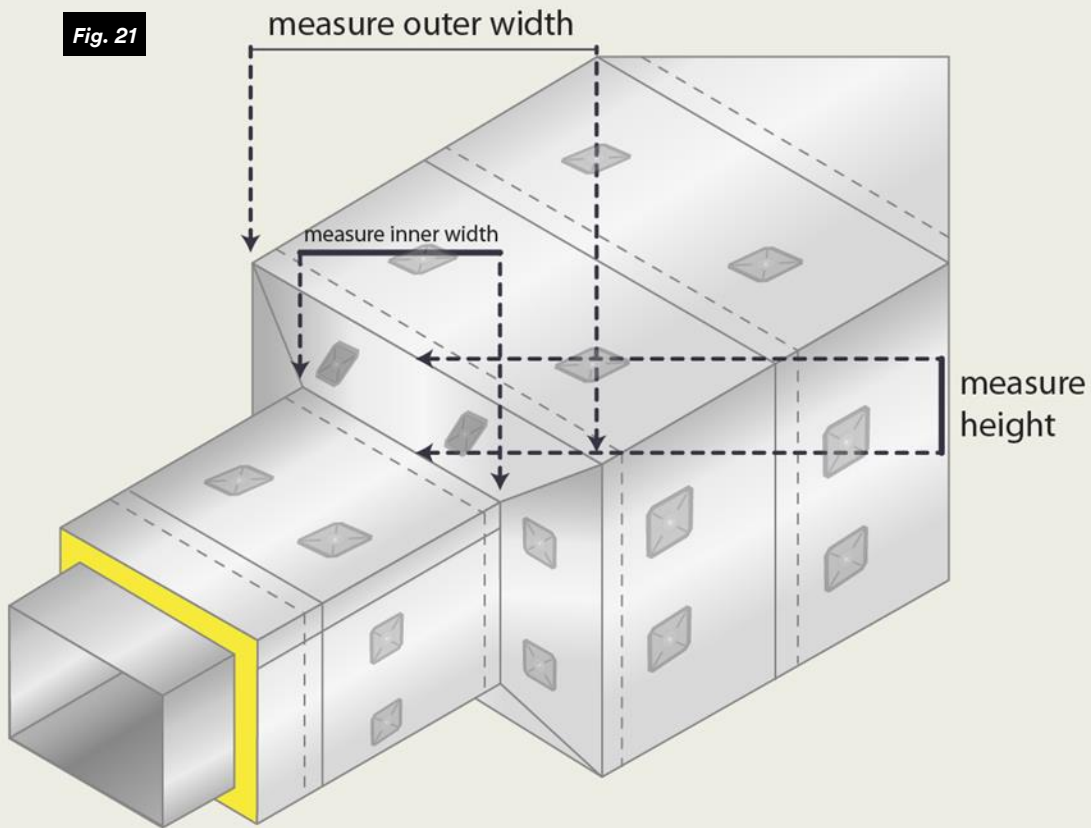
**Figure 19C** shows the finished lap and butt joints where the first and second jacket sections join when using 1579GCW-EMJ 3M™ VentureClad™ as the jacket. Note that they are taped with 4 inch (100mm) wide 1577CW-EMJ 3M™ Venture Tape™. When using the lighter weight 1577CW-EMJ 3M™ VentureClad™ as the jacket, taping of the joints like this is unnecessary.

#### 4. Insulated rectangular duct reducers



## Measure for cutting top and bottom pieces

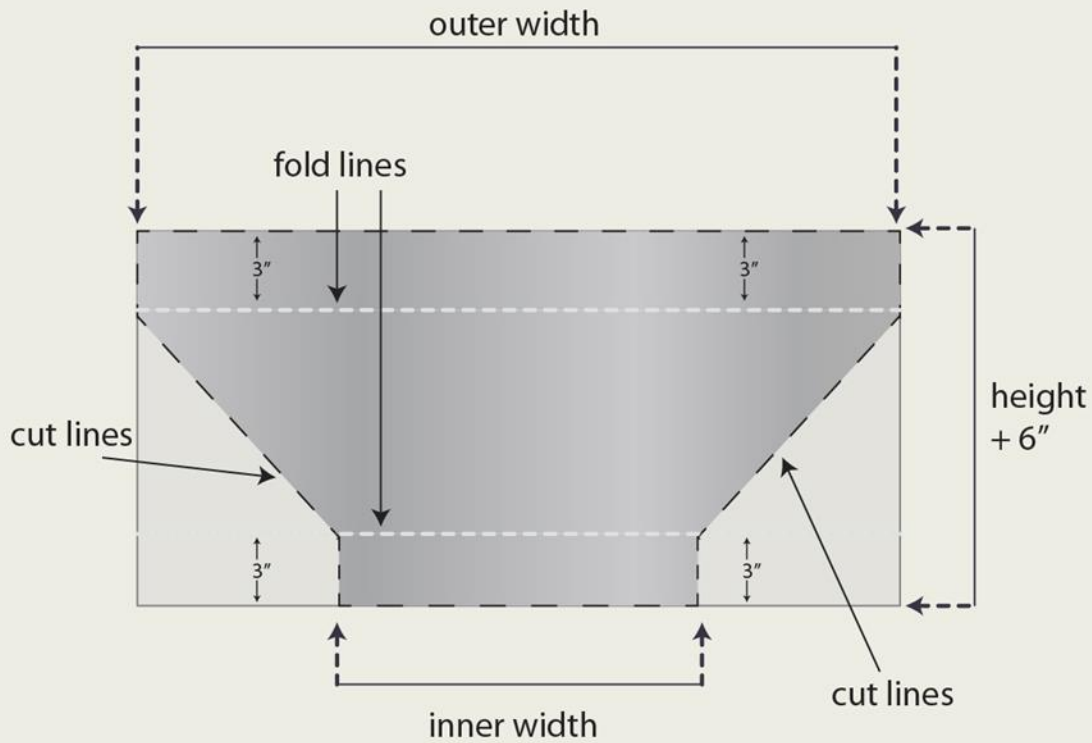
**Fig. 21**



**Figure 21** shows where to make measurements for the 3M™ VentureClad™ sections that will be applied to the insulated duct reducer sections.

**Cut 2 pieces of 3M™ VentureClad™ as demonstrated below for bottom and top**

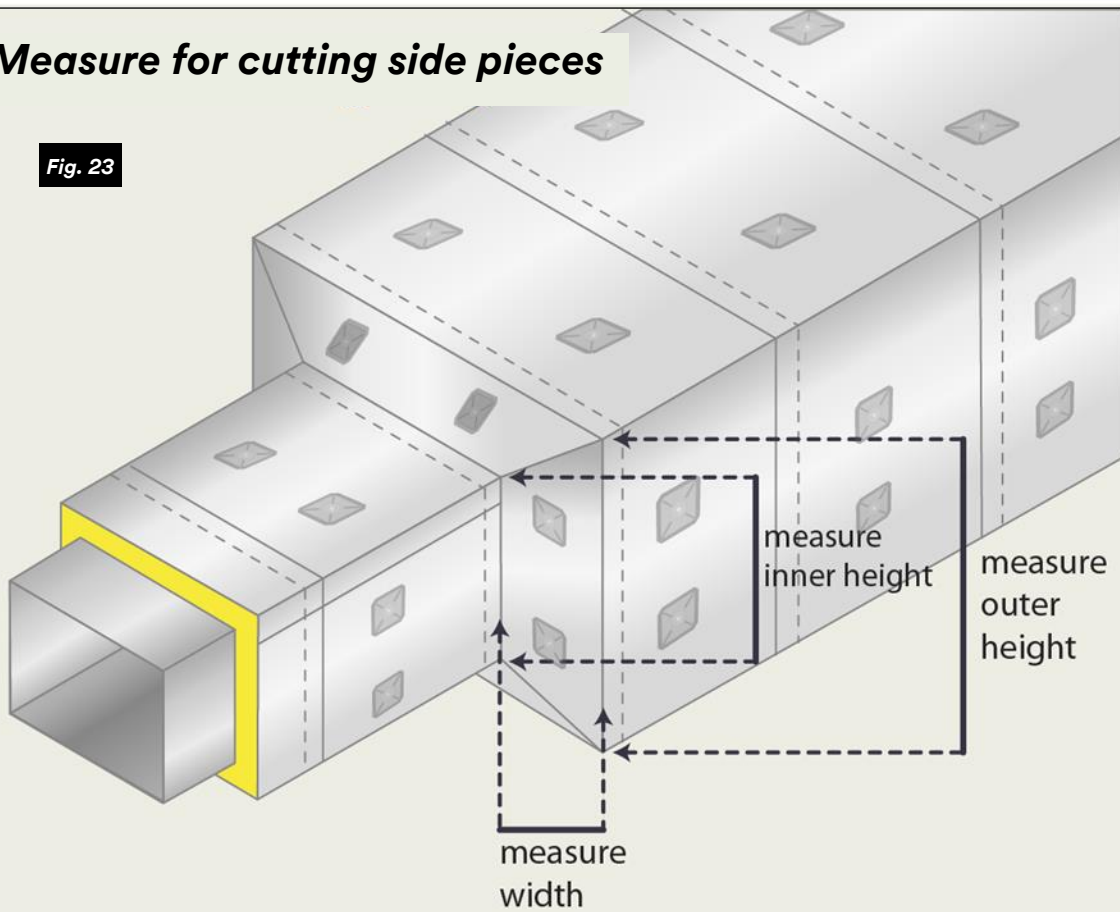
**Fig. 22**



**Figure 22** shows where to make cuts to the 3M™ VentureClad™ used to cover the bottom and top faces of the insulated duct reducer. Note that the installer should first start with a rectangular section measuring outer width x height + 6 inches (150mm), then mark the cut lines, and finally cut along the cut lines.

## Measure for cutting side pieces

Fig. 23

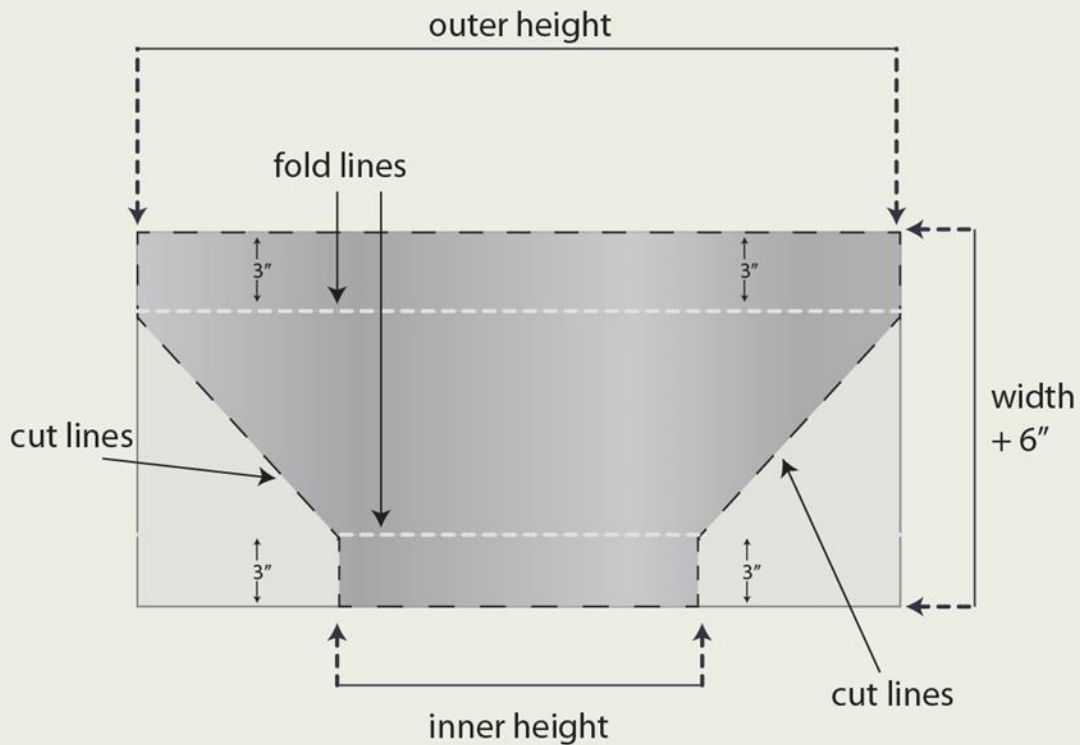


**Figure 23** shows where to make measurements for the 3M™ VentureClad™ to be applied to the left and right sides.



**Cut 2 pieces of 3M™ VentureClad™ as demonstrated below for two side pieces**

**Fig. 24**

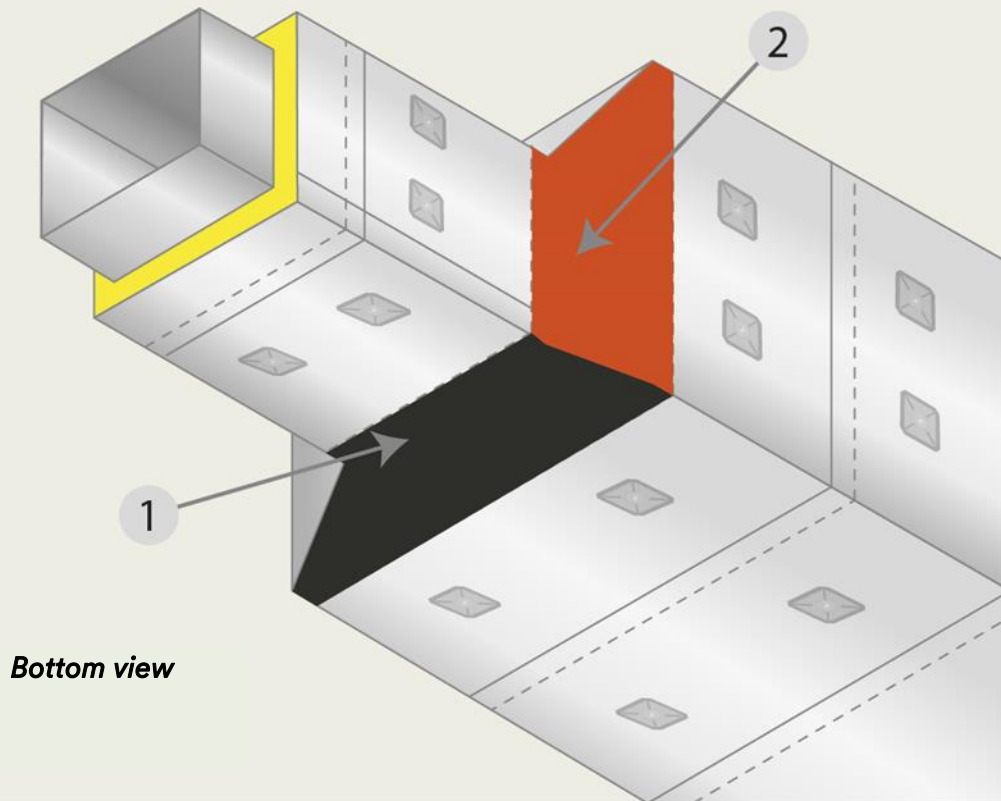


**Figure 24** is similar to Figure 18 except this is for the two side pieces of 3M™ VentureClad™ that are to be applied to the left and right sides of the insulated rectangular duct reducer.

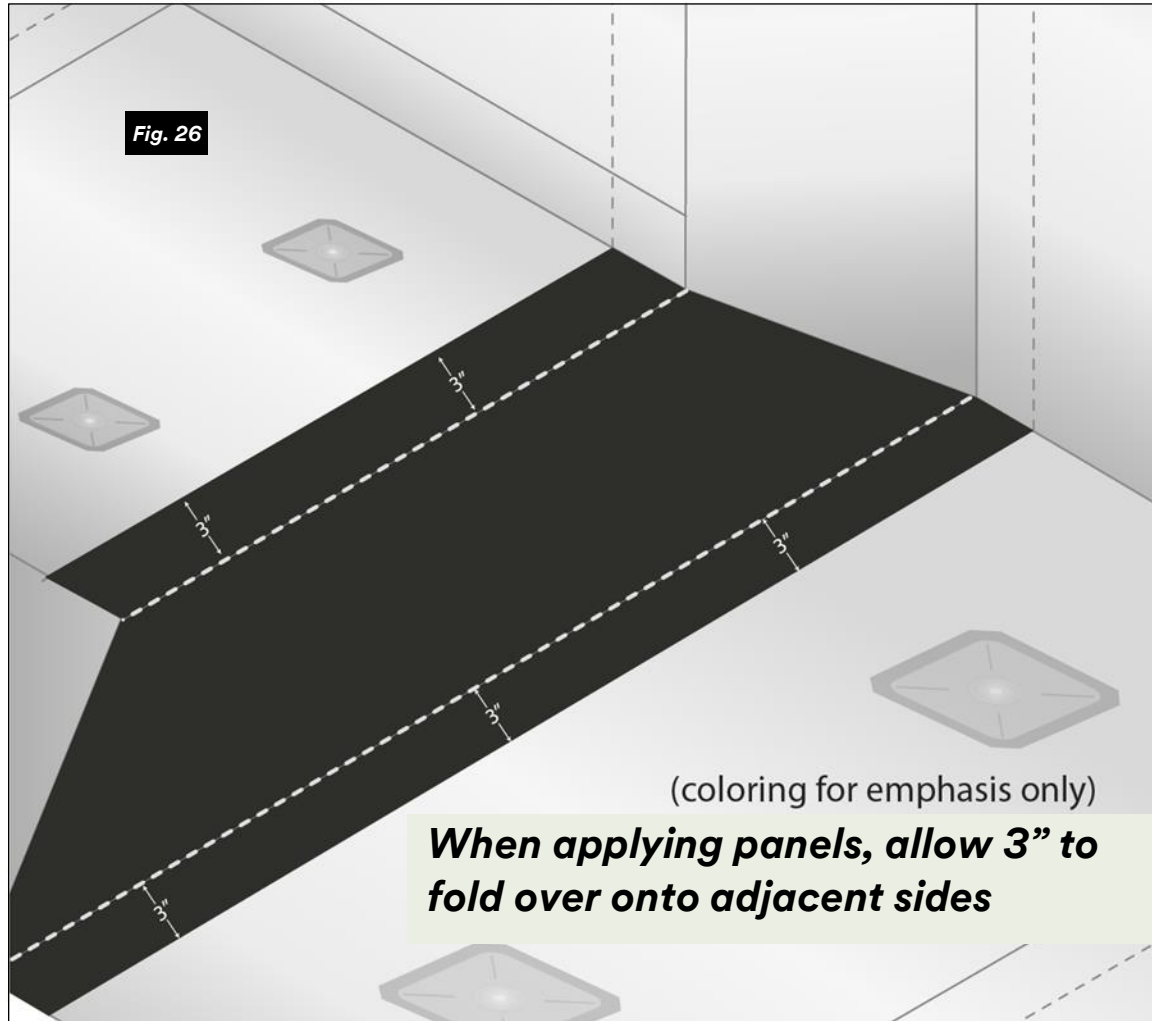
**Apply cut 3M™ VentureClad™ to bottom and side panel**

**Fig. 25**

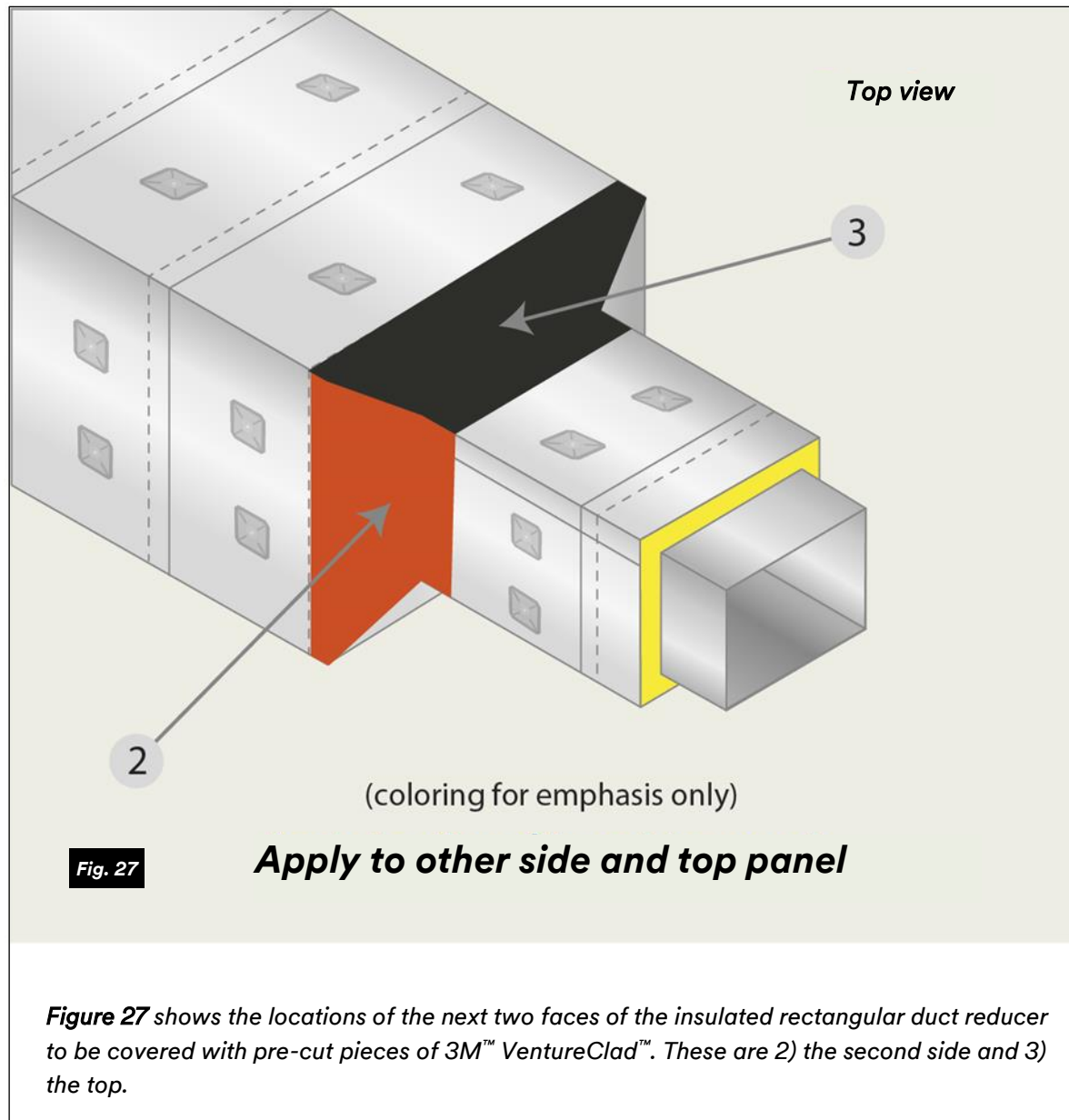
(coloring for emphasis only)

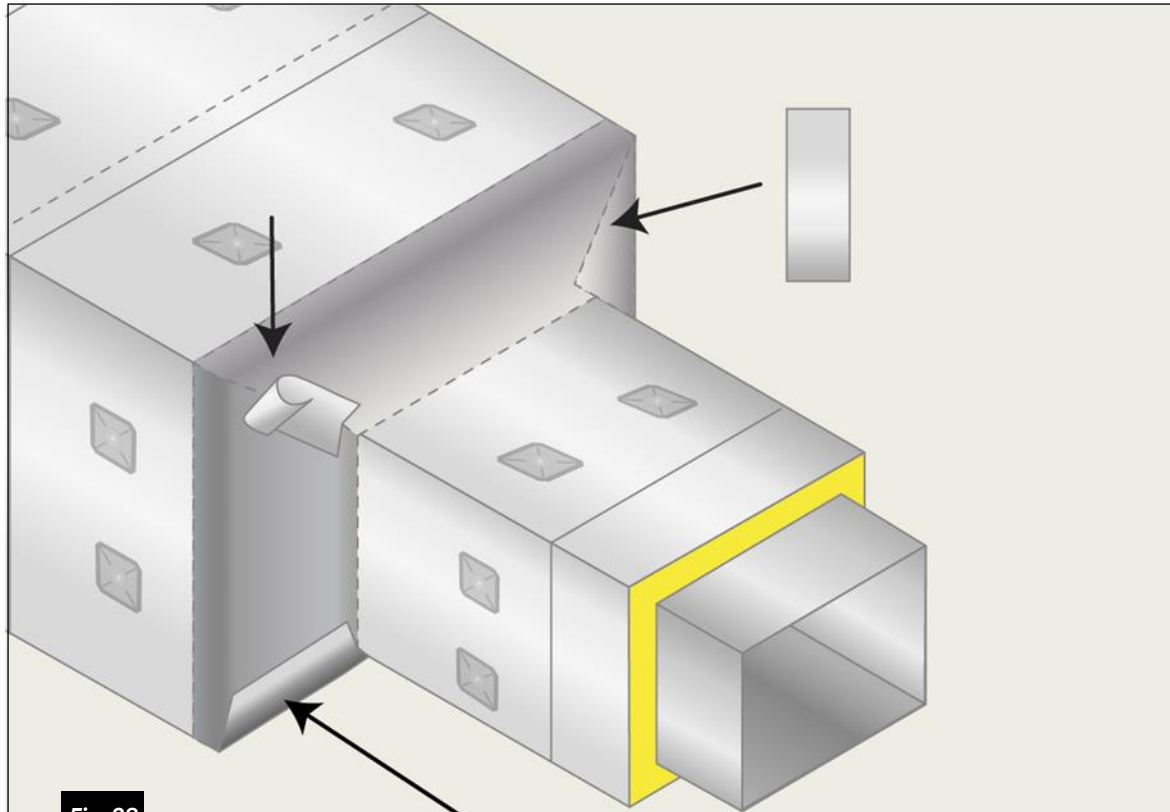


**Figure 25** shows the first two faces to be covered with 3M™ VentureClad™ on the insulated rectangular duct. These are 1) the bottom and 2) one of the two sides.



**Figure 26** shows the location for the application of the cut 3M™ VentureClad™ to bottom of the insulated rectangular duct reducer. Note that there will be a 3 inch (75mm) overlap of each of the bottom faces of both the larger and smaller insulated duct sections.





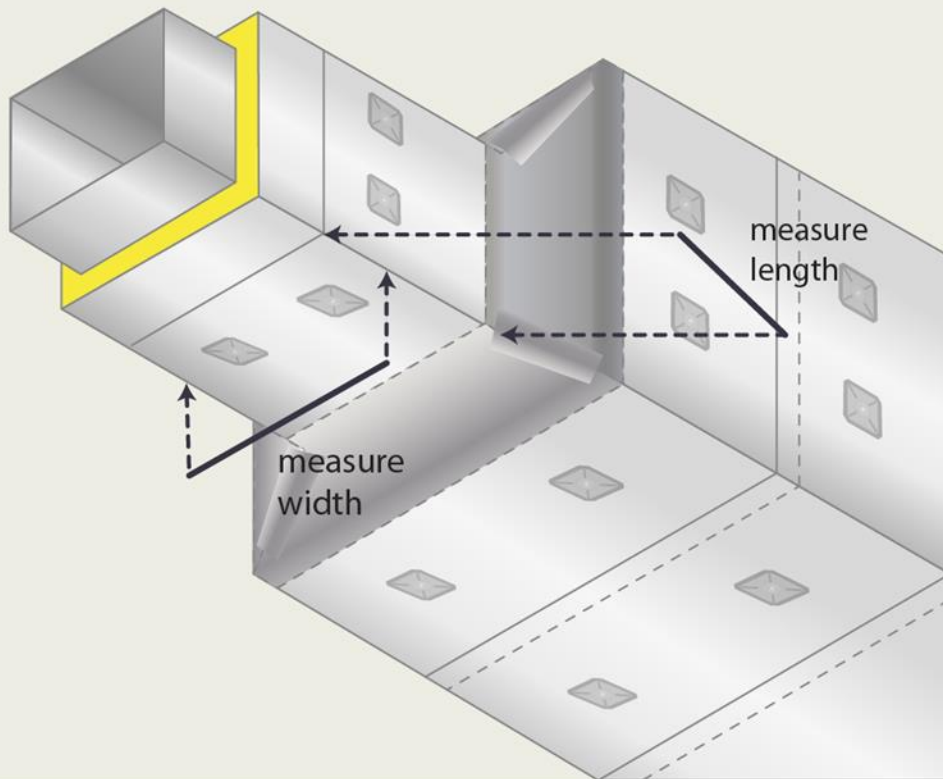
**Fig. 28**

**Apply a strip of 1577CW-EMJ  
3M™ Venture Tape™ to each corner**

**Figure 28** shows the application of a strip of 1577CW-EMJ 3M™ Venture Tape™ being applied to one of the four corners of this rectangular duct reducer. This is done when using both 1577CW-EMJ and 1579GCW-EMJ 3M™ VentureClad™.

## Measure for cutting bottom and top of small rectangle

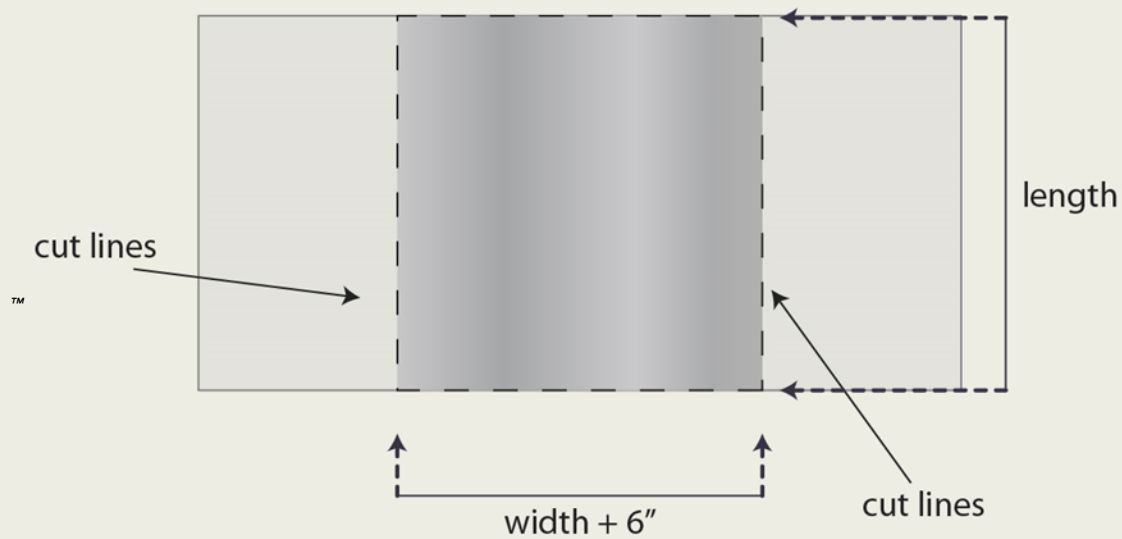
**Fig. 29**



**Figure 29** shows measurements to be made of the smaller of the two insulated rectangular ducts that connects to the reducer.

**Cut 2 pieces of 3M™ VentureClad™ as demonstrated below for bottom and top pieces**

**Fig. 30**

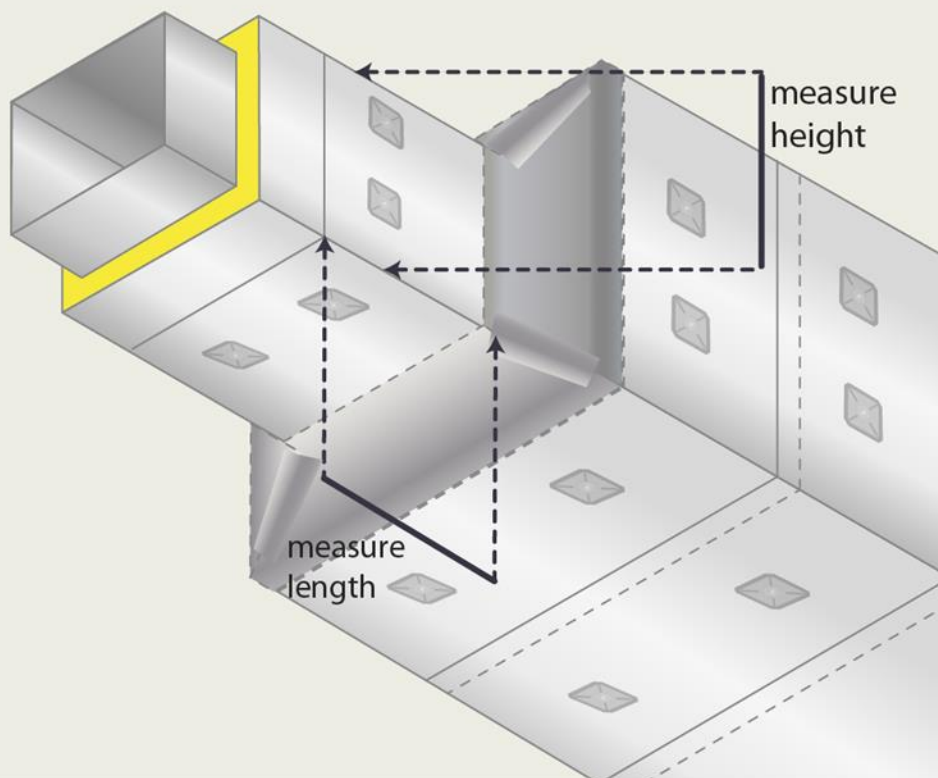


**Figure 30** shows the cuts to be made to the 3M™ VentureClad™ to cover the bottom of the smaller insulated rectangular duct. In this case, “length” may be the 3M™ VentureClad™ roll width. The extra 6 inches (150mm) on the width allows the 3M™ VentureClad™ to be folded, by 3 inches (75mm), over each of the two vertical sides.



## Measure for cutting sides of small rectangle

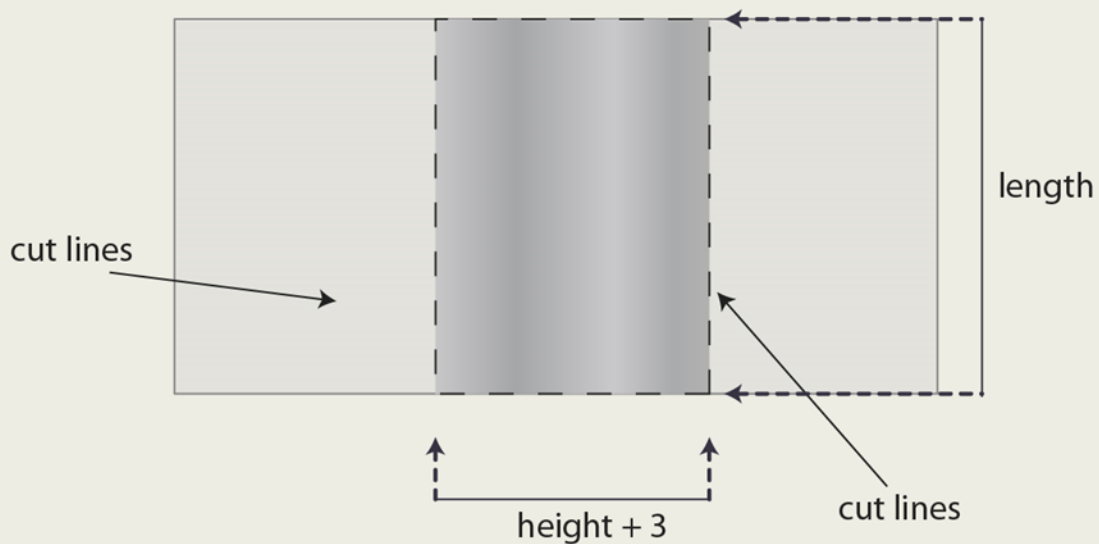
Fig. 31



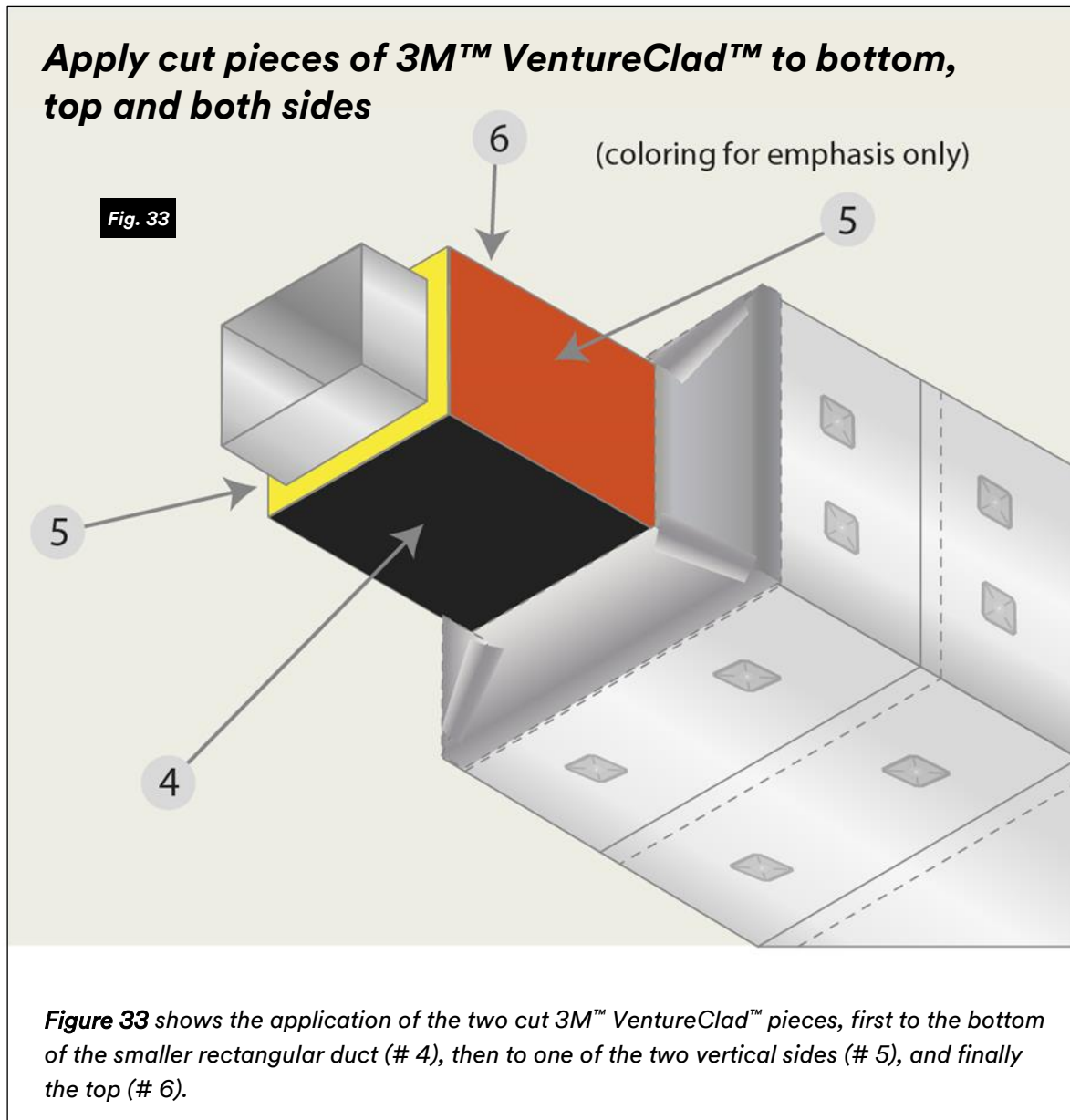
**Figure 31** shows measurements to be made on the sides of the smaller insulated rectangular ducts.

**Cut 2 pieces of 3M™ VentureClad™ as demonstrated below for sides**

**Fig. 32**

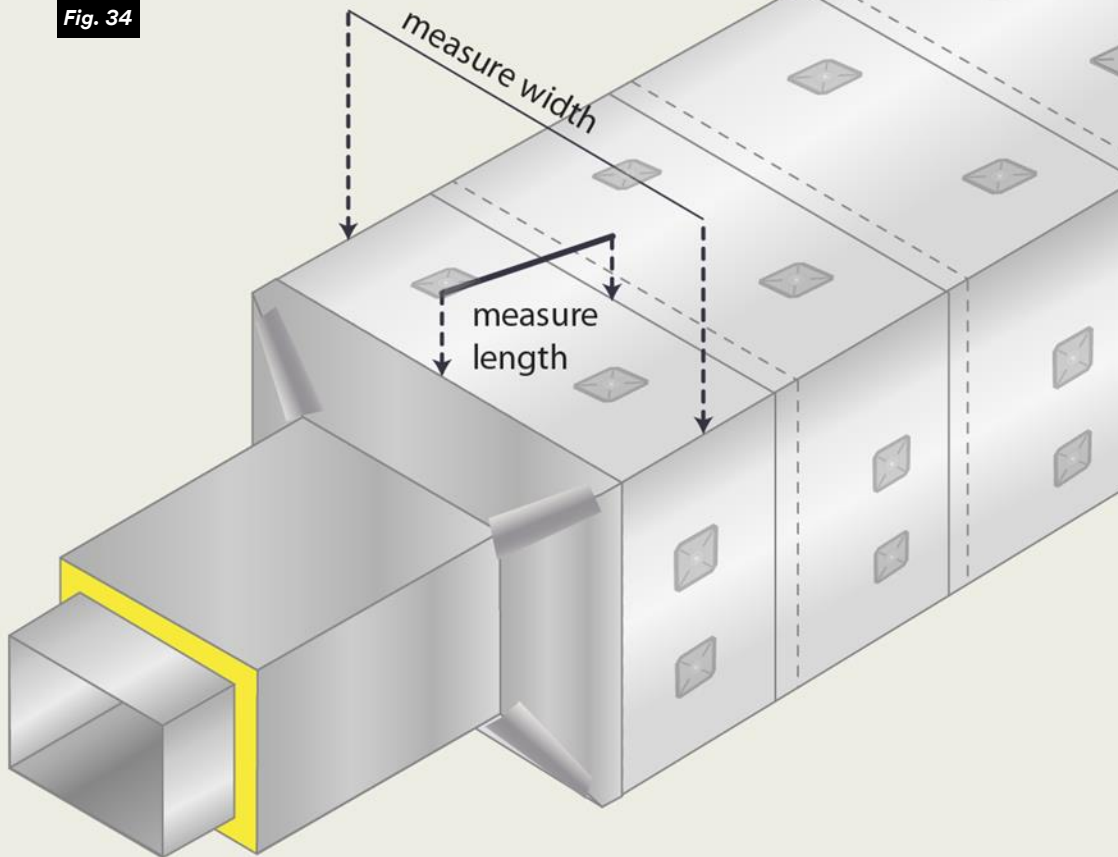


**Figure 32** shows cut lines for cutting a piece of 3M™ VentureClad™ for each of the two sides of the smaller insulated rectangular ducts that connects to the insulated reducer. The extra 3 inches (75mm) added to the height allows for the 3M™ VentureClad™ application to start on the top surface before being applied to the sides.



## Measure for cutting top and bottom pieces

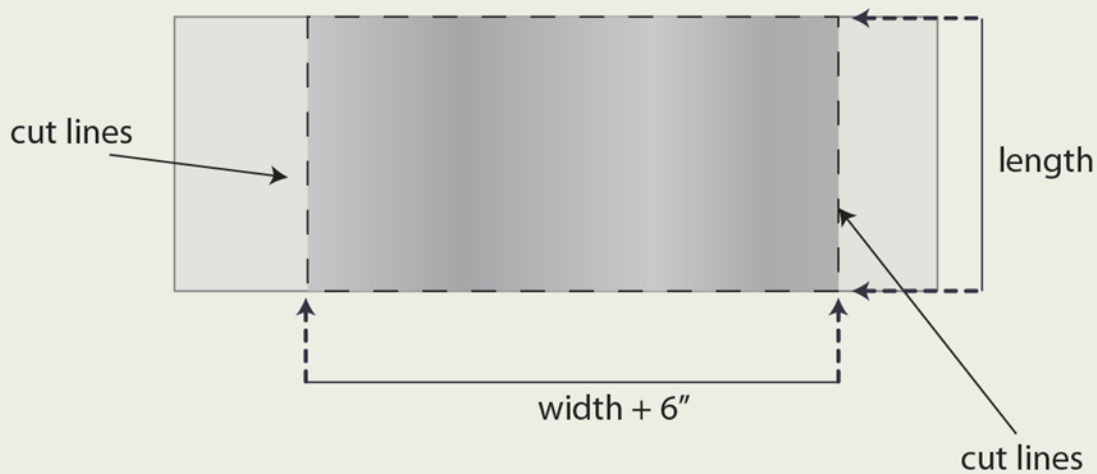
Fig. 34



**Figure 34** shows measurements to be made for the 3M™ VentureClad™ pieces to be applied to the bottom and top of the larger insulated rectangular duct section that connects to the reducer. Note that prior to applying the 3M™ VentureClad™, each washer should be first covered with a piece of 3M™ Venture Tape™, as shown in Figure 2.

**Cut 2 pieces of 3M™ VentureClad™ as demonstrated below for bottom and top pieces**

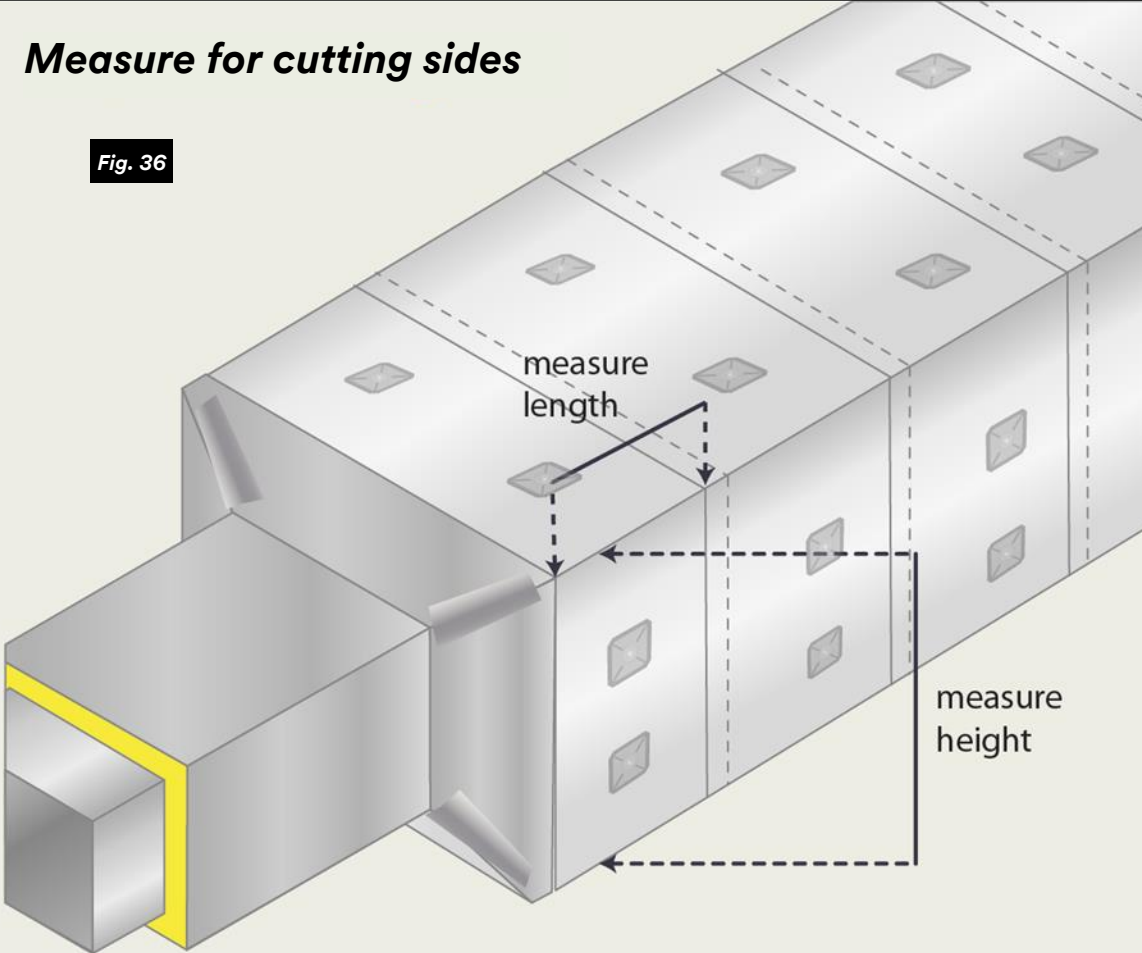
**Fig. 35**



**Figure 35** shows the cut lines for the bottom and top pieces of 3M™ VentureClad™ to be applied to the larger insulated rectangular duct section connecting to a reducer. The dimension on the drawing shown as “length” may simply be the 3M™ VentureClad™ roll width. The extra 6 inches (150mm), added to the dimension “width”, allows for a 3 inch (75mm) overlap of each of the two vertical sides.

### Measure for cutting sides

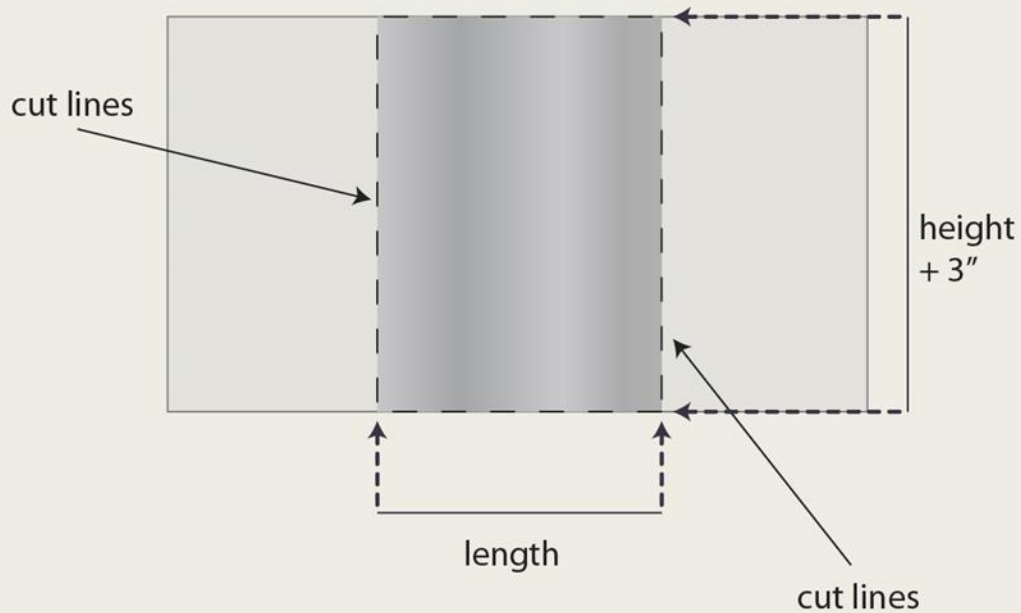
Fig. 36



**Figure 36** shows measurements to be made on the sides of the larger insulated rectangular duct that connects to the reducer.

***Cut 2 pieces of 3M™ VentureClad™ as demonstrated below for side pieces***

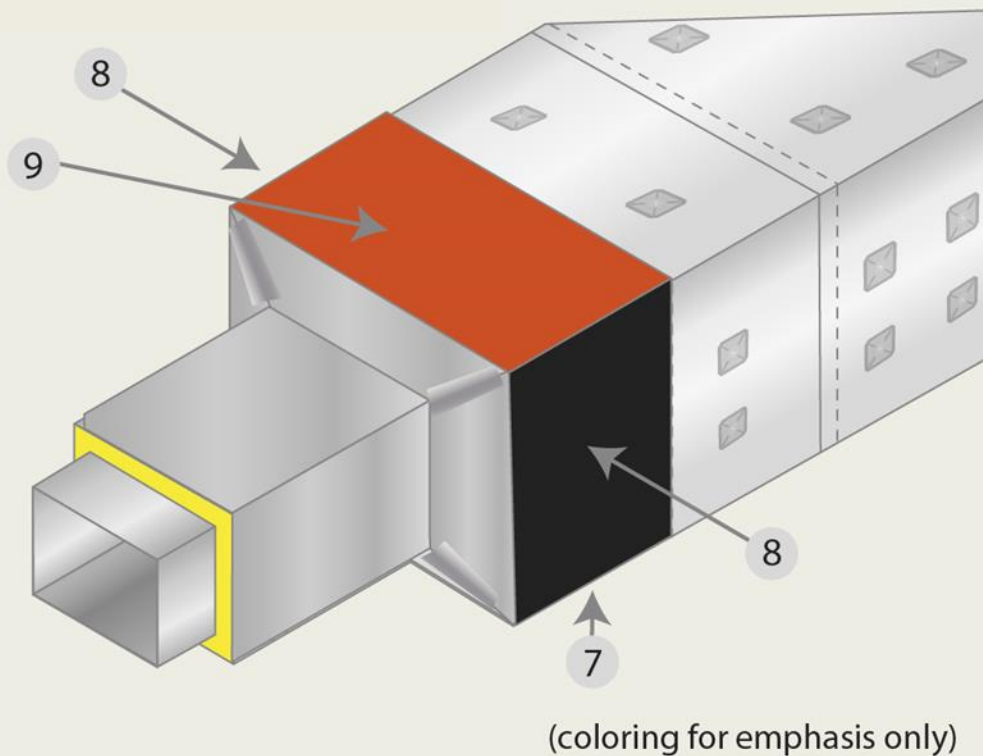
**Fig. 37**



**Figure 37** shows cut lines for cutting the two sidewall pieces of 3M™ VentureClad™ to cover the larger insulated rectangular duct. Note that the extra 3 inches (75mm), added to the height, allows for the 3M™ VentureClad™ to start on the top surface and then be folded over to cover the sidewall. Also, note that “length” may simply be equal to the width of the 3M™ VentureClad™ roll.

**Apply cut pieces of 3M™ VentureClad™ to sides, bottom first and overlapping previously applied pieces — leave 3" at the bottom to go under next application**

**Fig. 38**

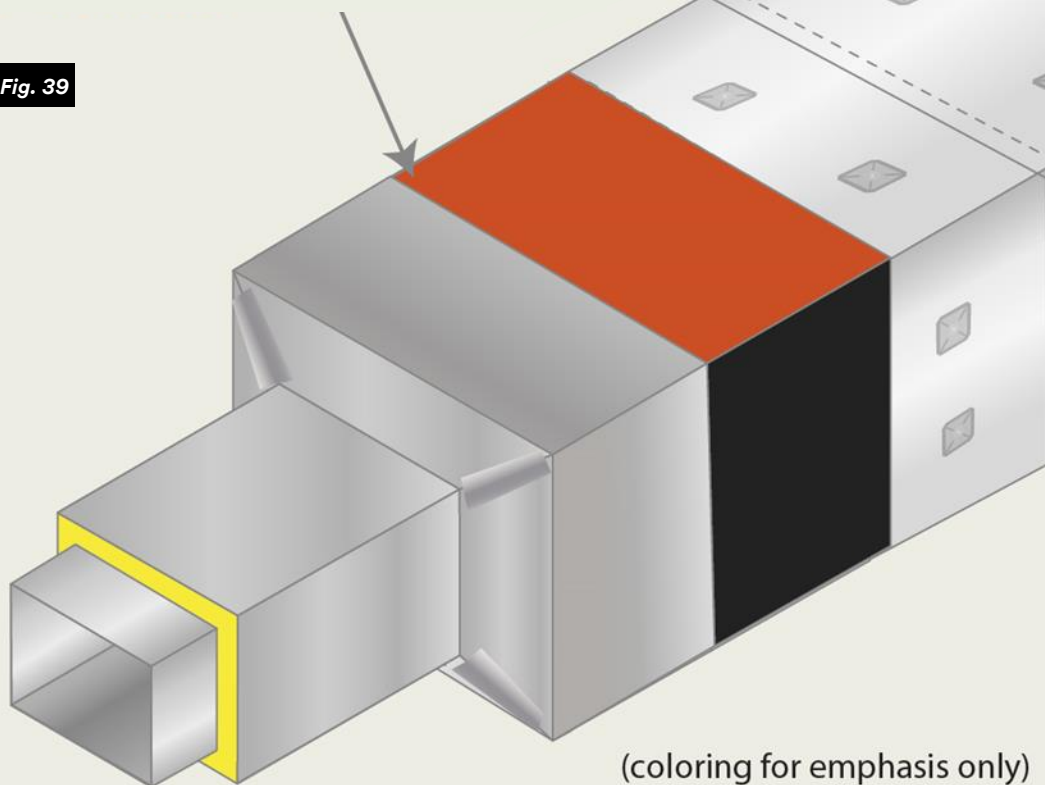


**Figure 38** shows the first two pieces of 3M™ VentureClad™ to be applied to the surfaces of the larger insulated rectangular duct that connects to the reducer. First, apply the 3M™ VentureClad™ to the bottom (# 7), then apply it to each of the two sides (# 8), and finally apply it to the top (# 9).



**Continue to cut measured pieces for sides and top and apply overlapping the previous by 3" each time**

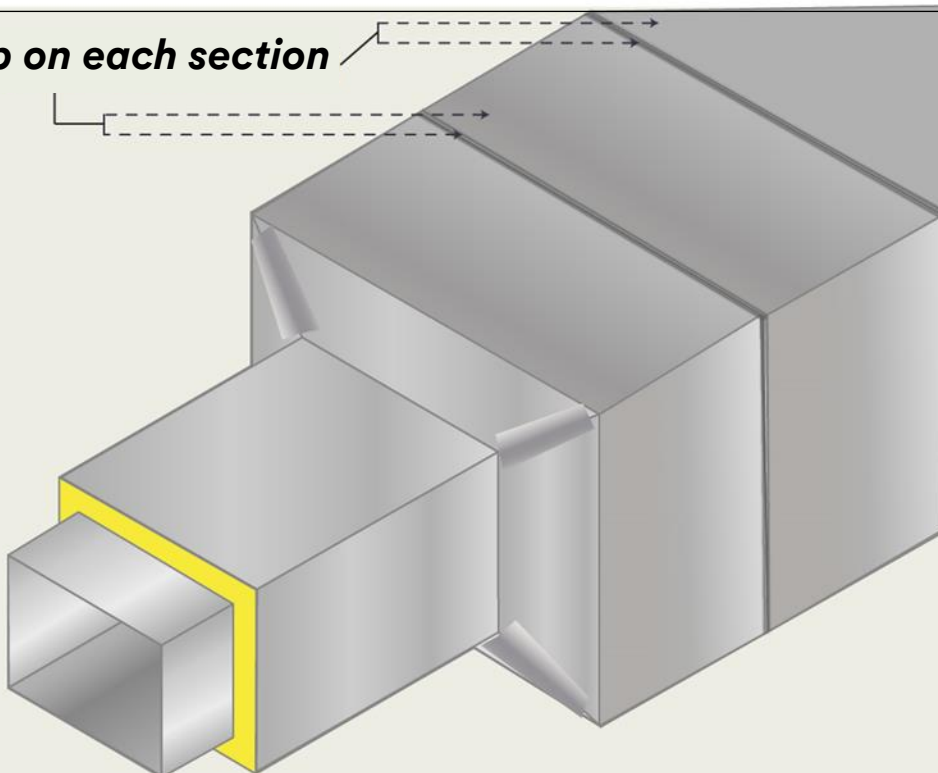
**Fig. 39**



**Figure 39** shows where the next pieces of 3M™ VentureClad™ are to be applied on the larger section of the insulated rectangular duct that connects to the reducer.

**3" overlap on each section**

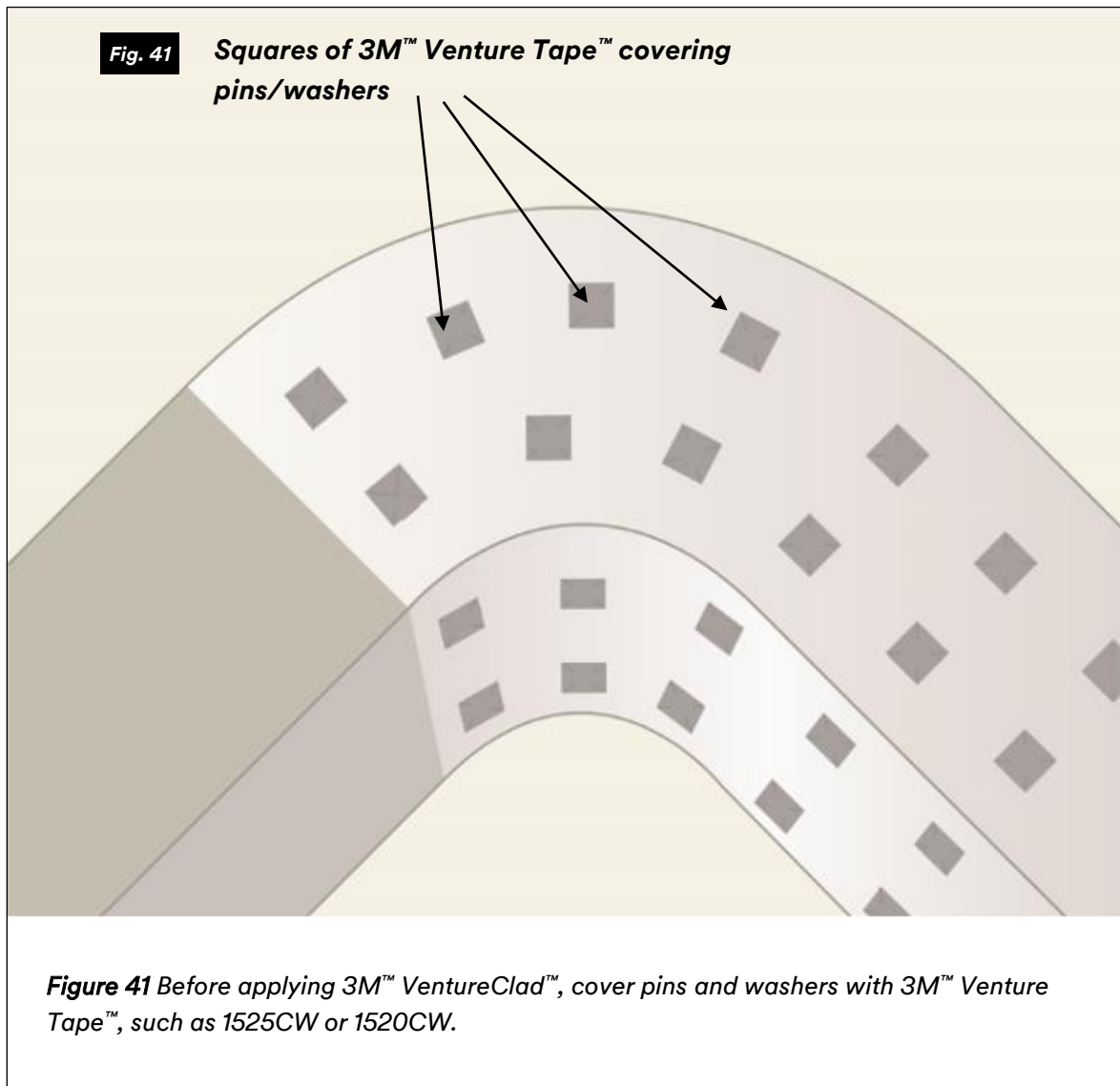
**Fig. 40**

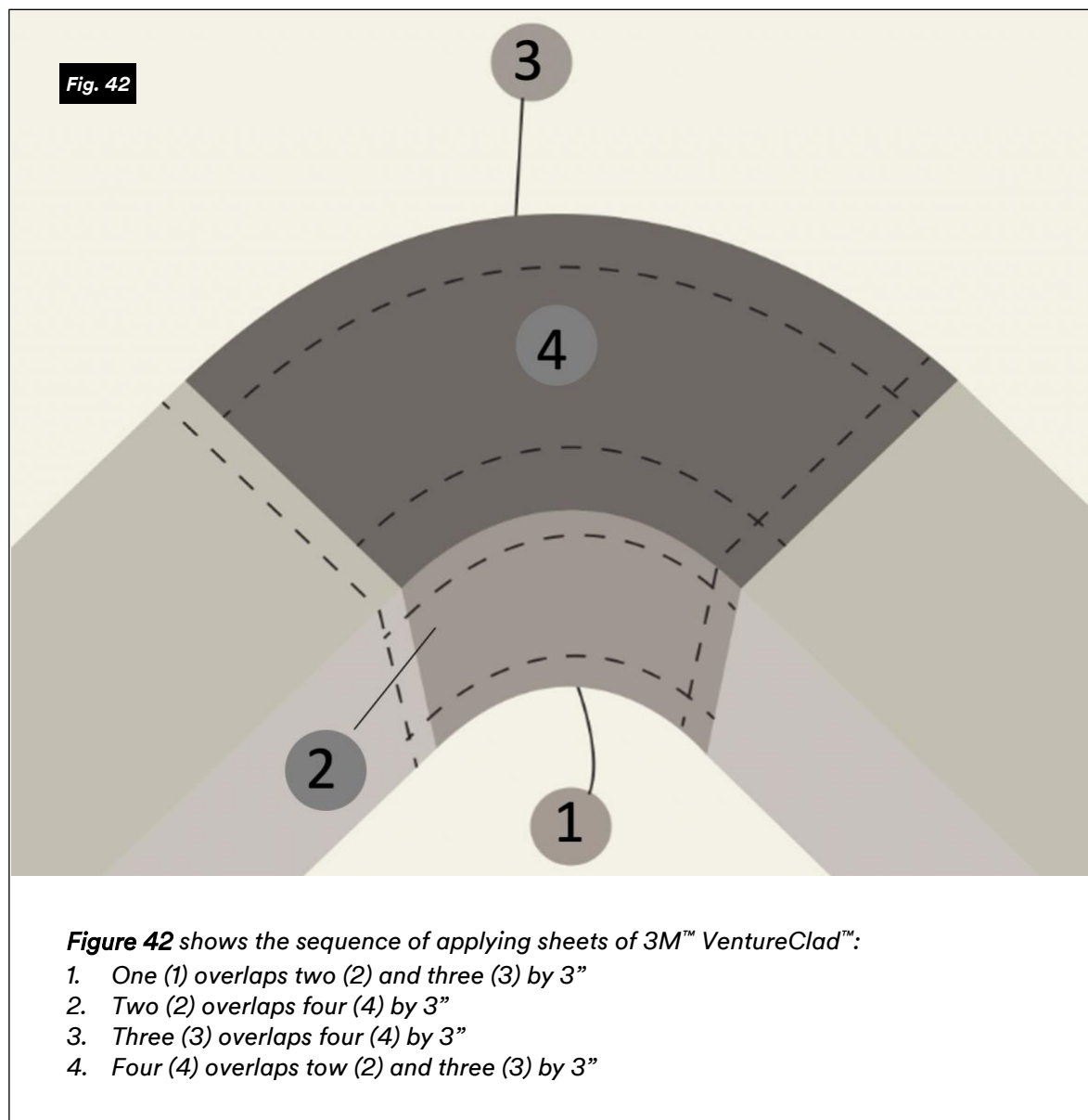


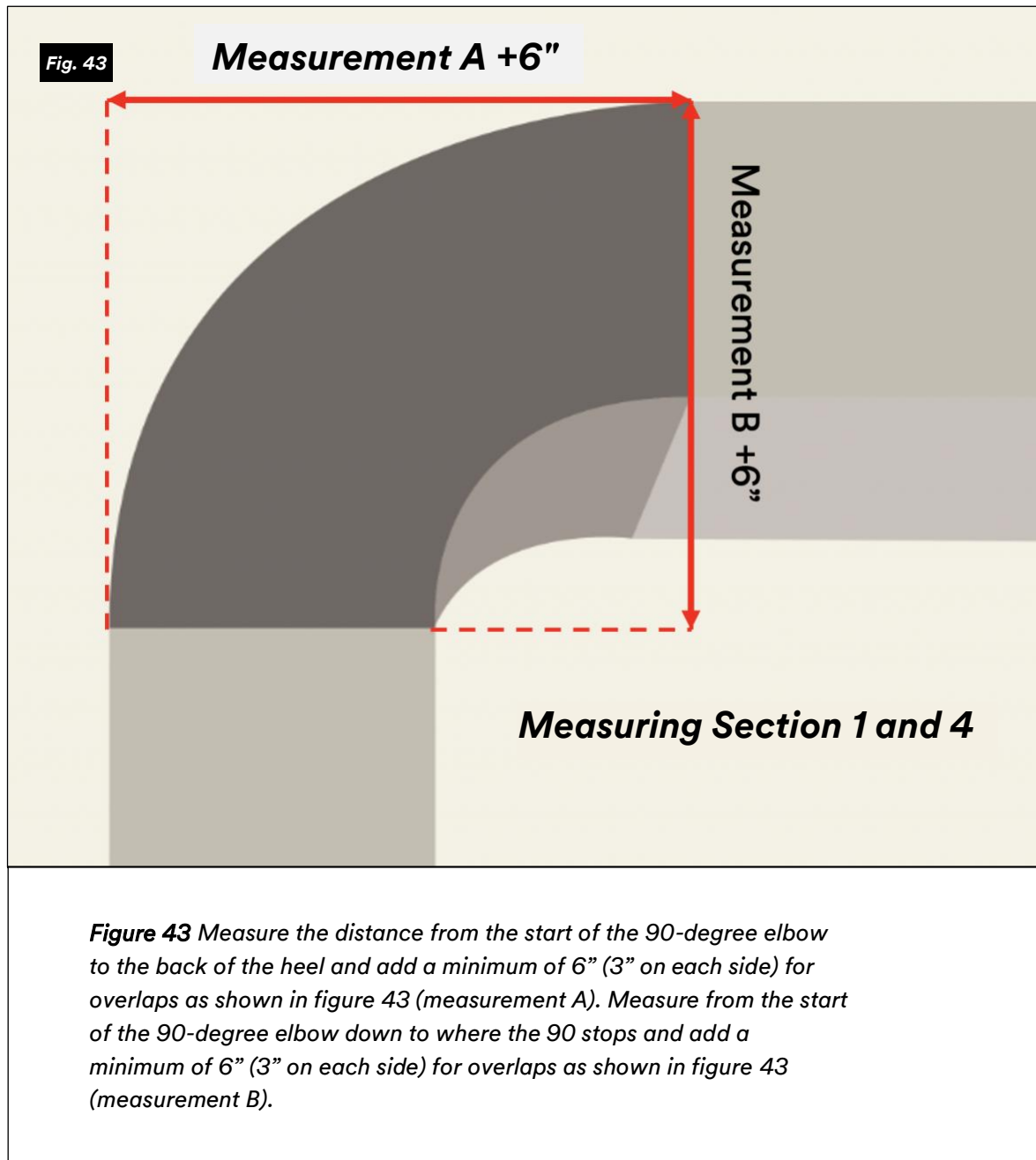
**3M™ VentureClad™ application complete**

**Figure 40** shows the completed application of the 3M™ VentureClad™ to the first two sections of the larger insulated rectangular duct section that are adjacent to the reducer.

## 5. Insulated Rectangular Duct, 90° Elbows

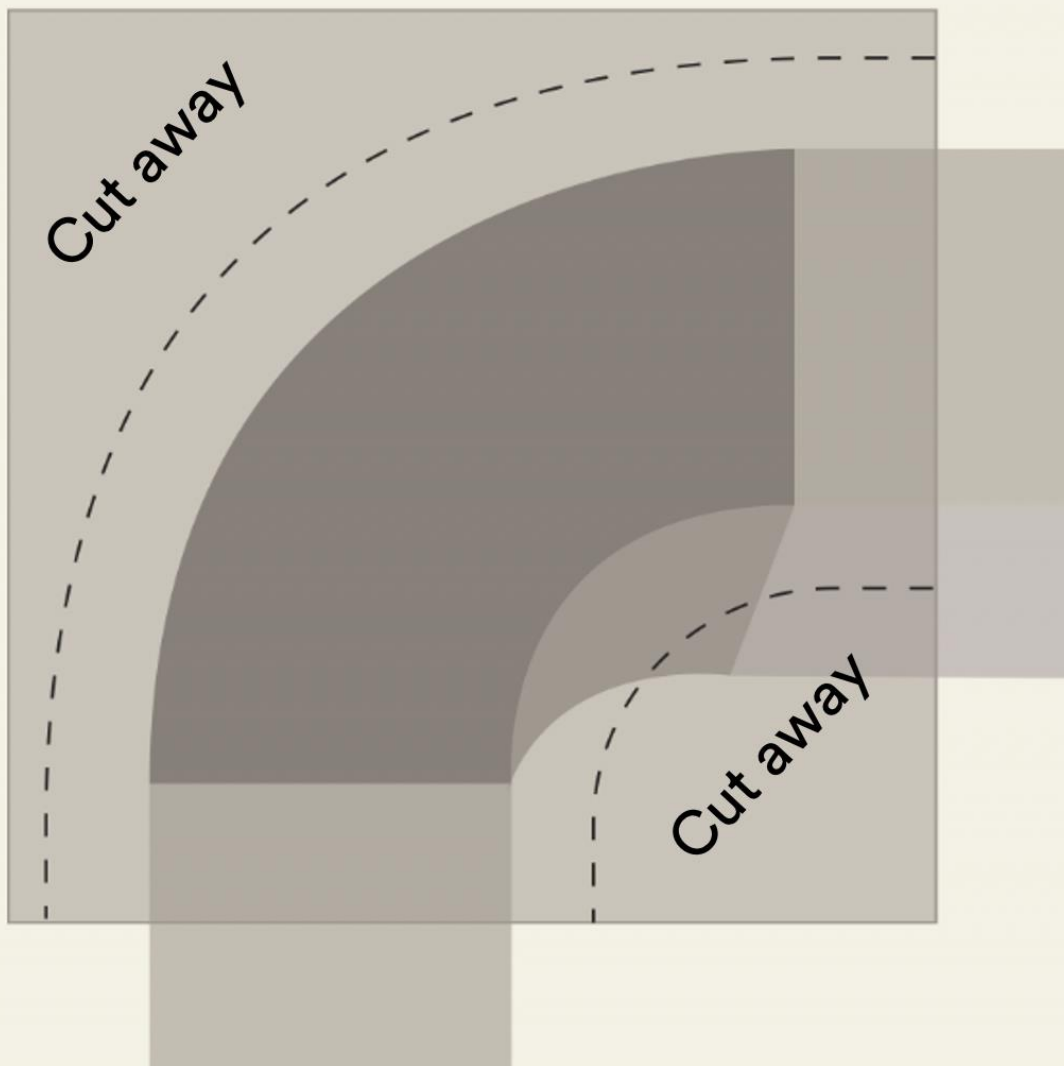




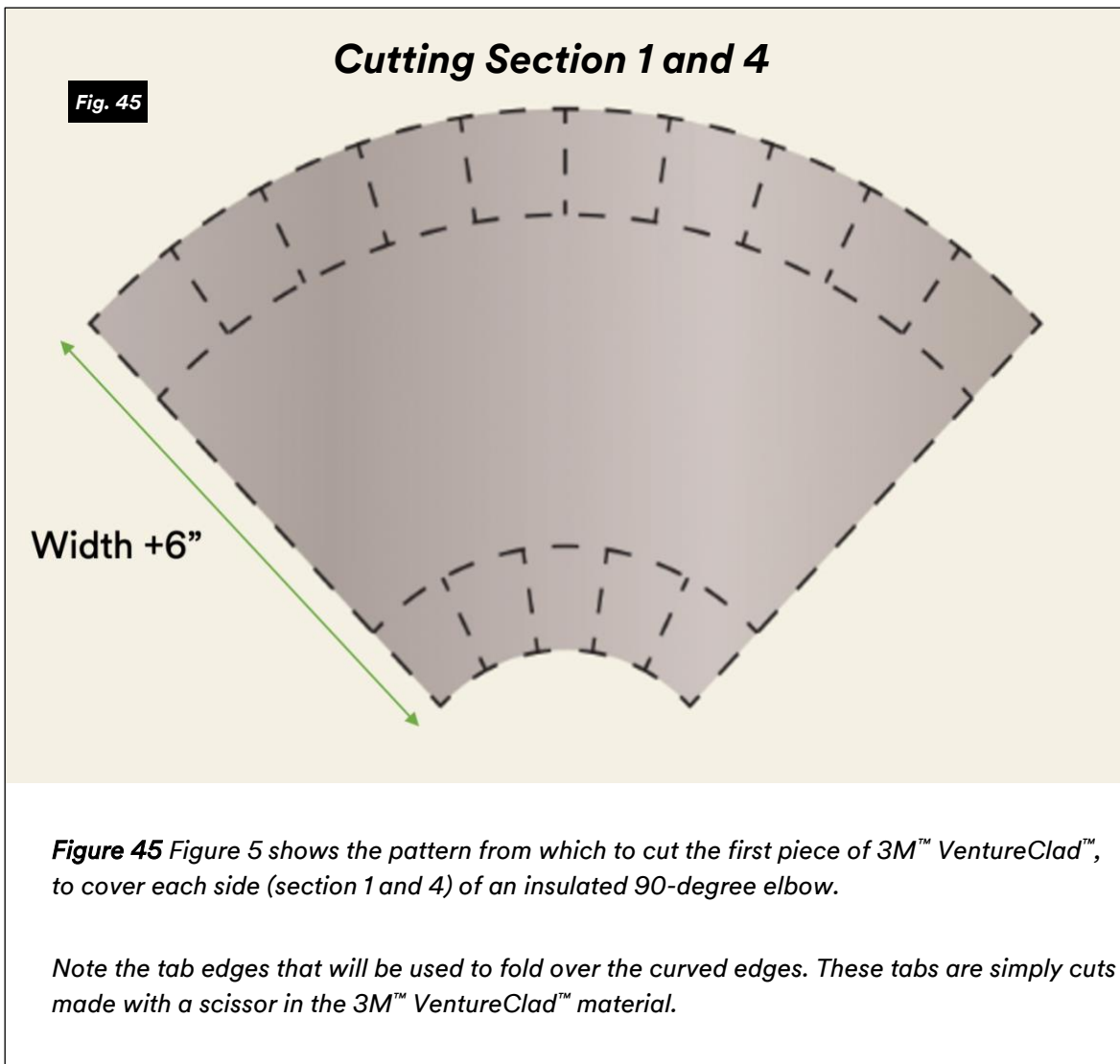


## Measuring Section 1 and 4

**Fig. 44**

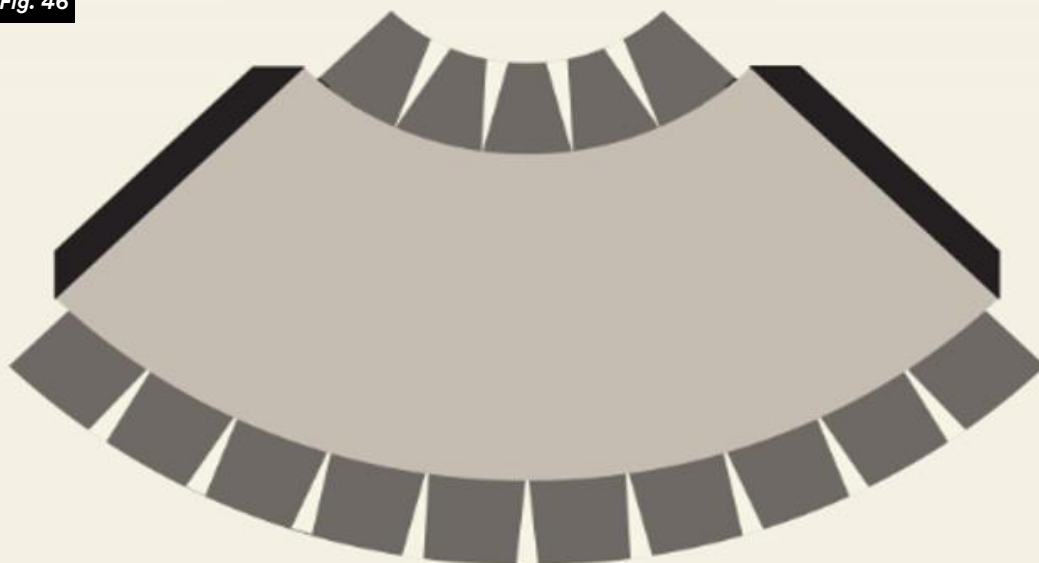


**Figure 44** Cut a piece of 3M™ VentureClad™ to the length and width of the A and B dimensions plus a minimum of 6 inches (3" on each side). Place the square piece of 3M™ VentureClad™ on the duct and trace the heel and throat arc. Be sure to extend these dimensions a minimum of 3 inches on both sides for your overlap. Cut away excess material and apply.



**Fig. 46**

### ***Applying Section 1***

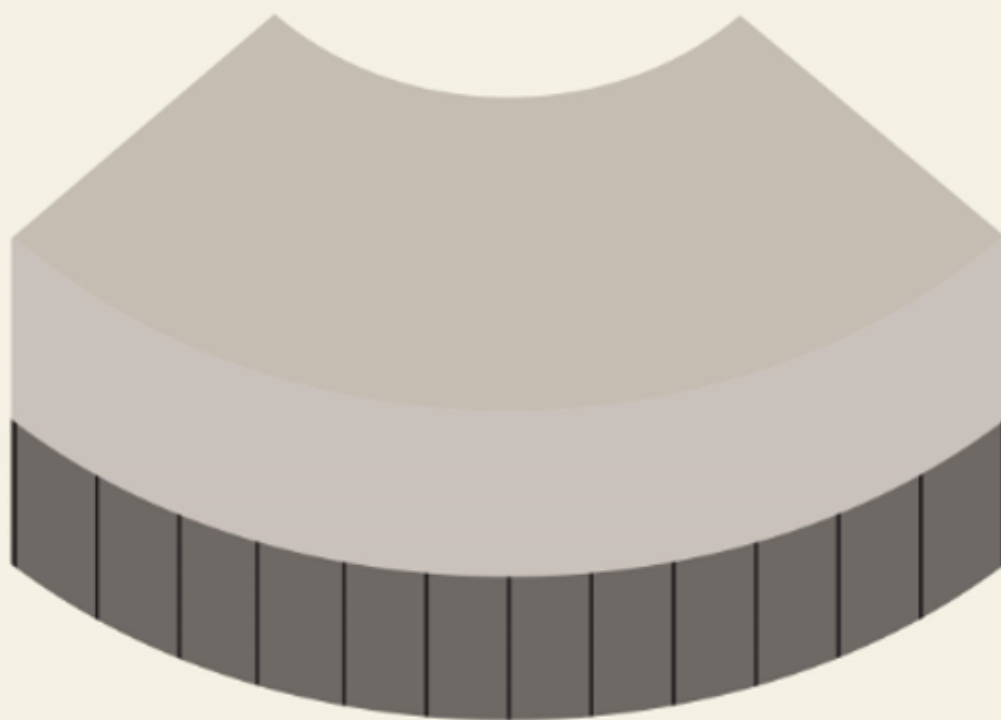


**Figure 46** shows section 1 of the rectangular elbow with a piece of 3M™ VentureClad™ in place prior to removing the release liner.

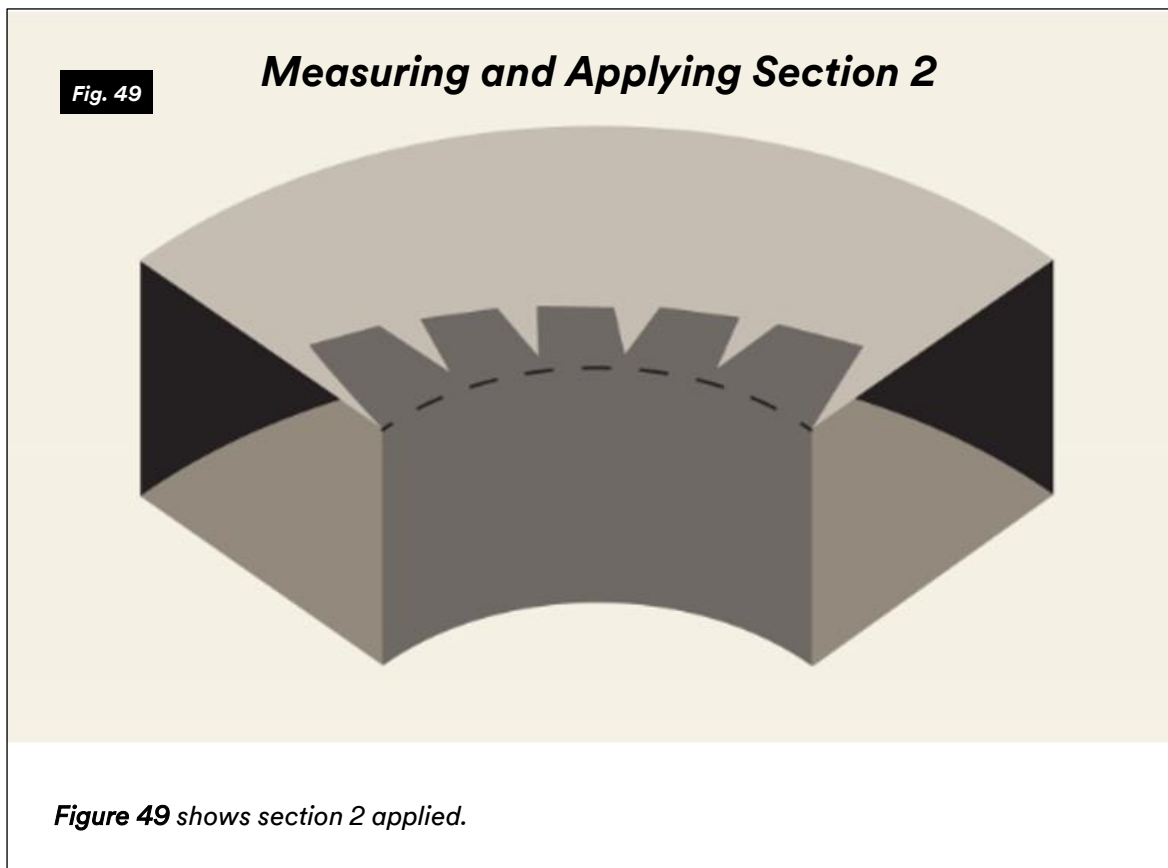
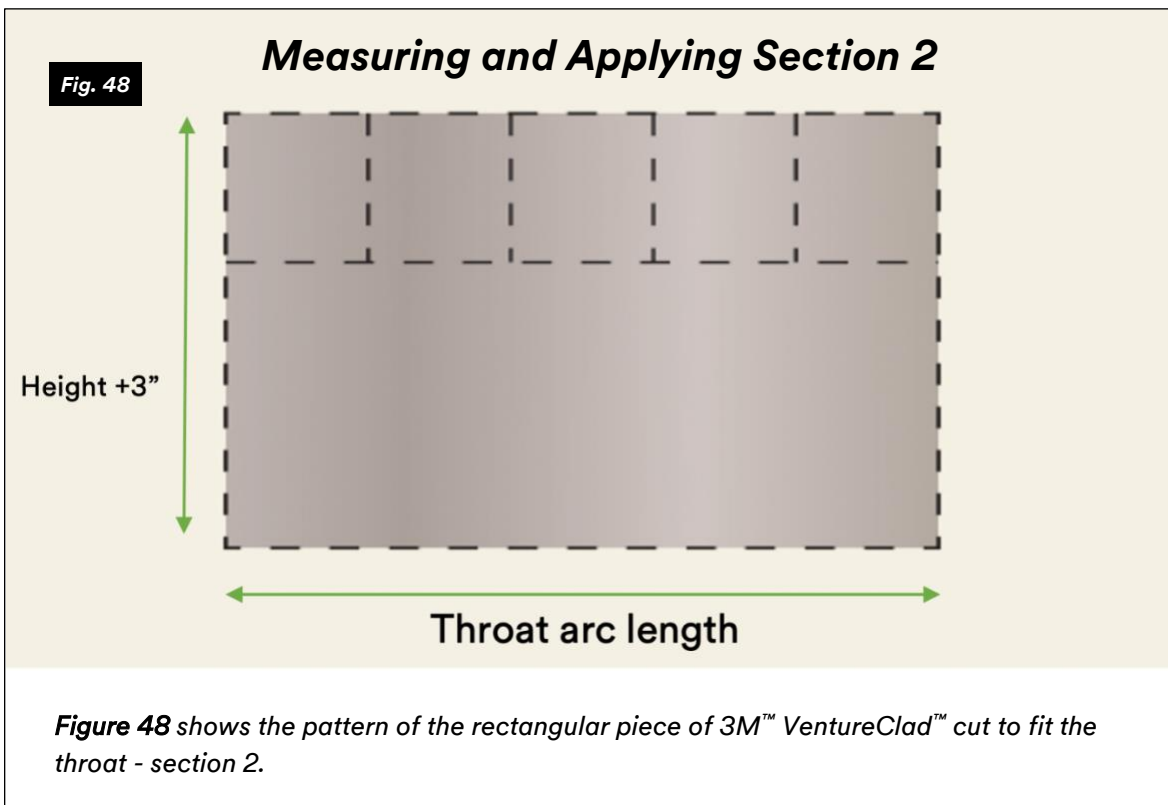


**Fig. 47**

### ***Applying Section 1***

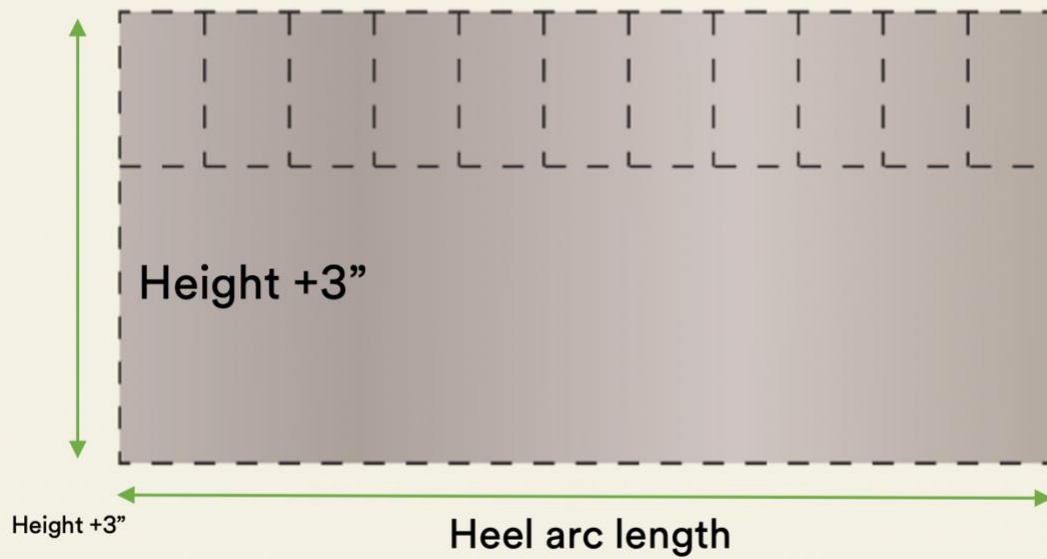


**Figure 47** shows section 1 applied. The tabs will be folded over and adhered to the heel and throat. The tabs will overlap onto sections 2 and 3 by 3”.



**Fig. 50**

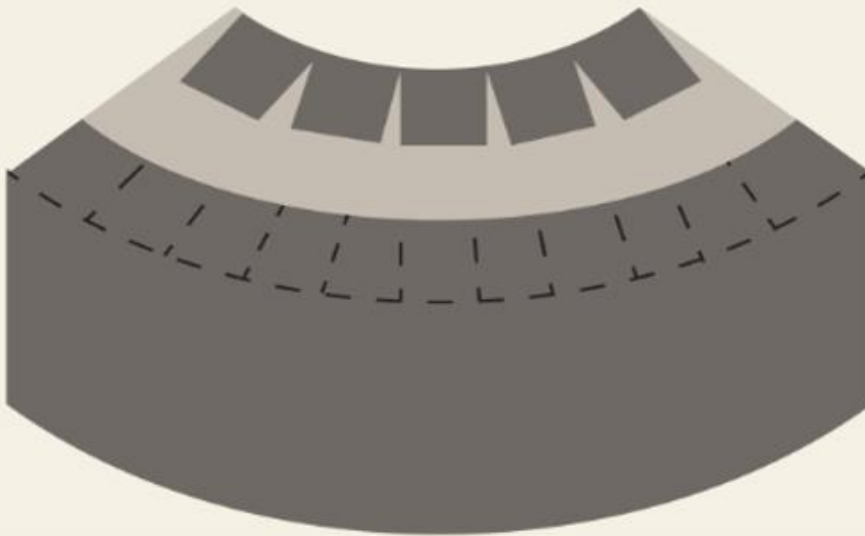
### Measuring and Applying Section 3



**Figure 50** shows the pattern of the rectangular piece of 3M™ VentureClad™ cut to fit the heel - section 3.

**Fig. 51**

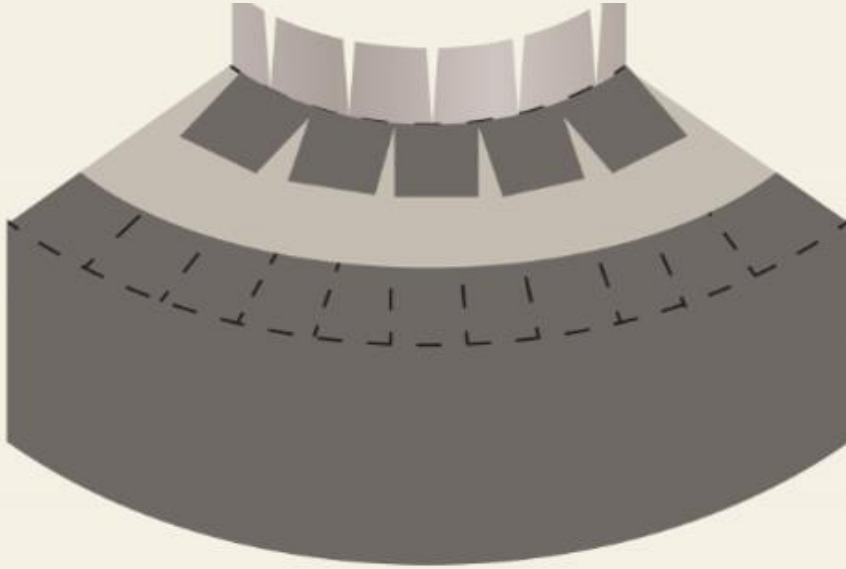
### Measuring and Applying Section 3



**Figure 51** shows section 3 applied.

### ***Applying Additional Material to Section 2***

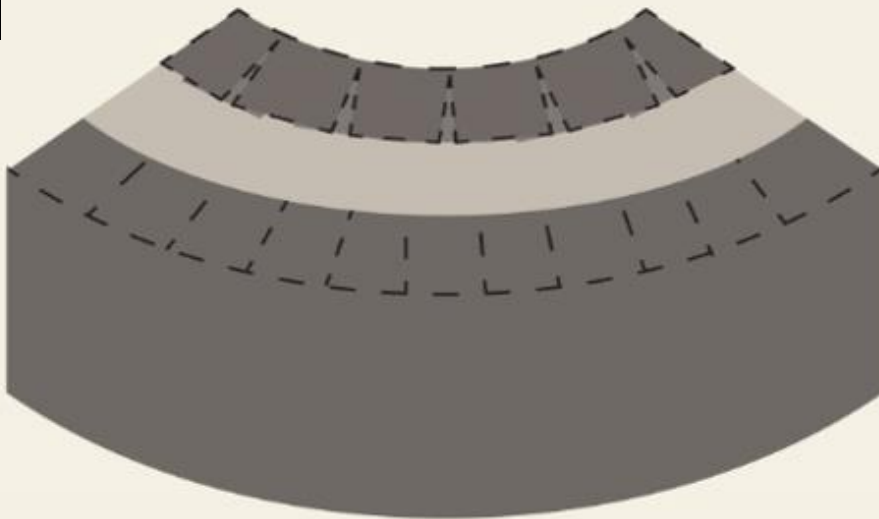
**Fig. 52**



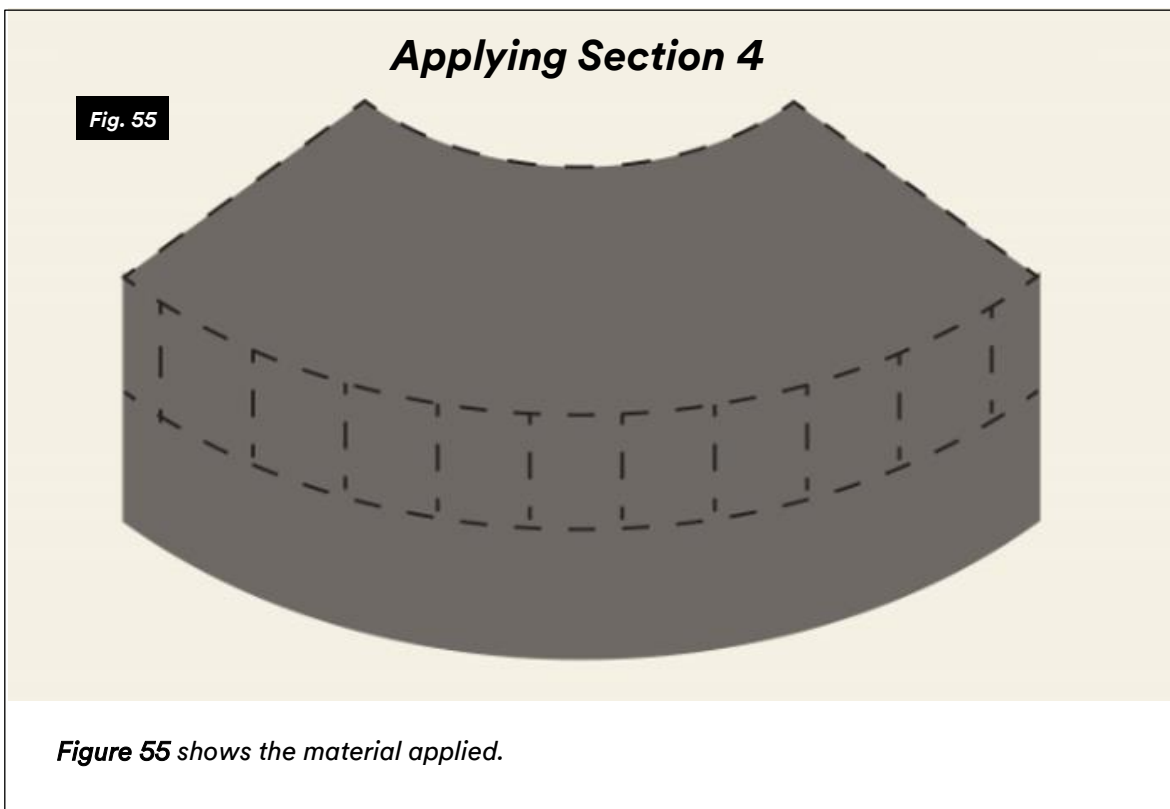
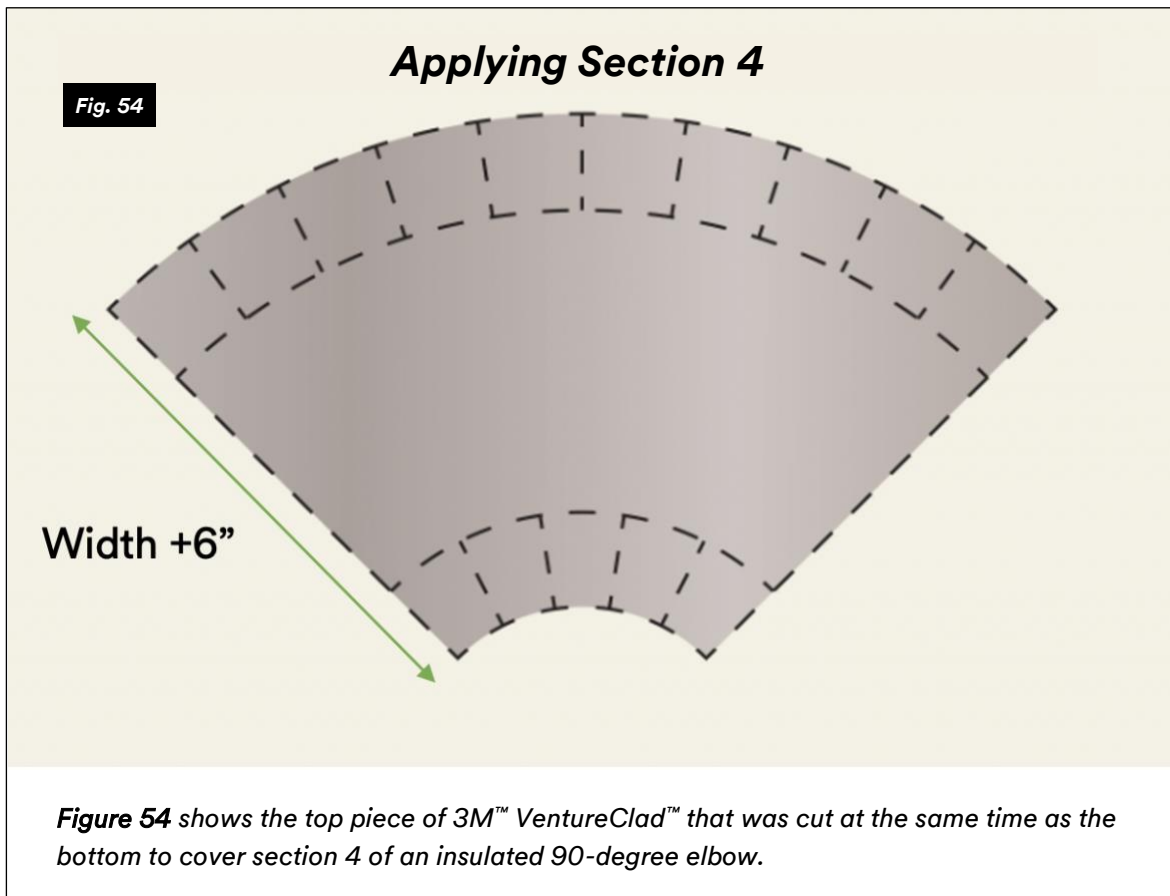
**Figure 52** shows an additional piece of 4" 3M™ VentureClad™ applied over the tabs on section 2. Note that the 4" 3M™ VentureClad™ tabs are offset.

### ***Applying Additional Material to Section 2***

**Fig. 53**

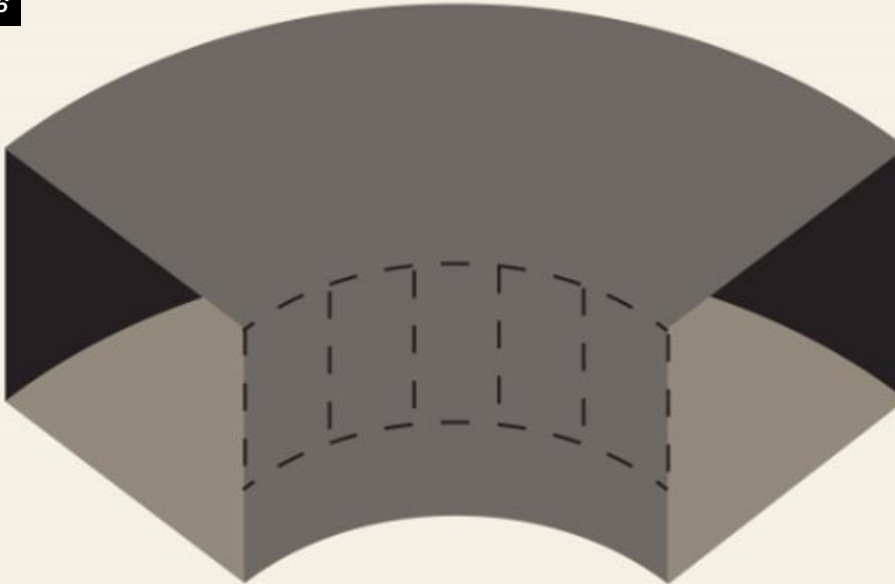


**Figure 53** shows an additional piece of 4" 3M™ VentureClad™ applied over the tabs on section 2. Note that the 4" 3M™ VentureClad™ tabs are offset.



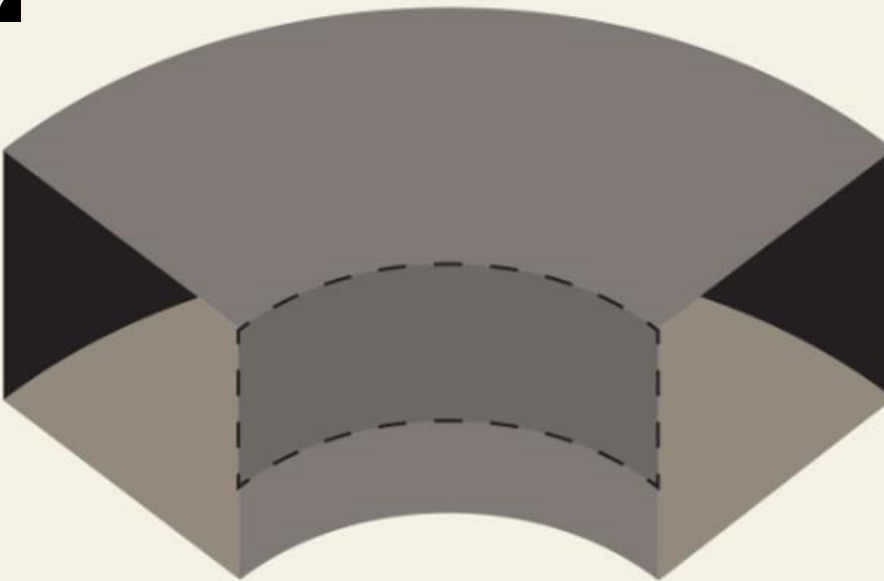
### ***Applying Beauty Strip to the Throat***

**Fig. 56**



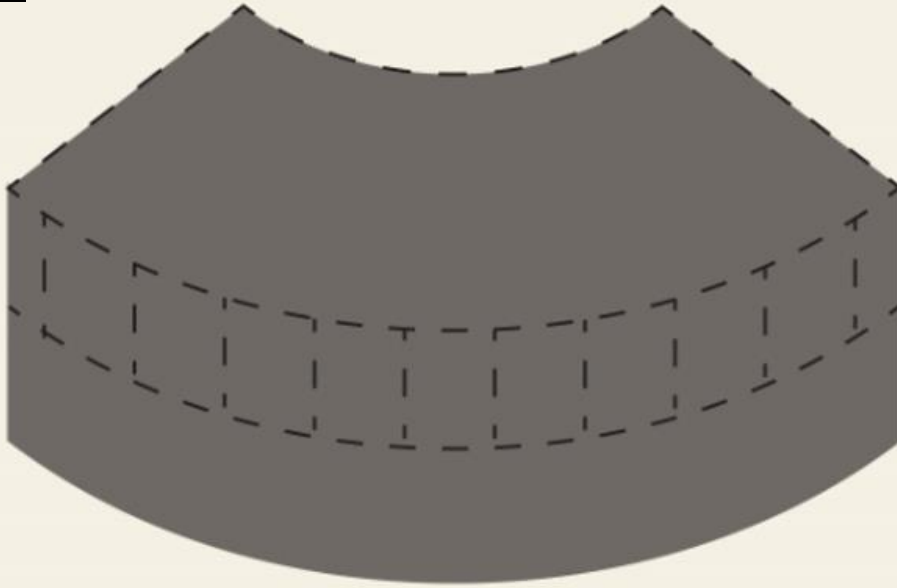
**Figure 56** shows the exposed tabs on the throat (from section 4). 3M recommends that a 4" piece of 3M™ VentureClad™ be applied over the tabs as shown in figure 57.

**Fig. 57**



### ***Applying Beauty Strip on the Heel***

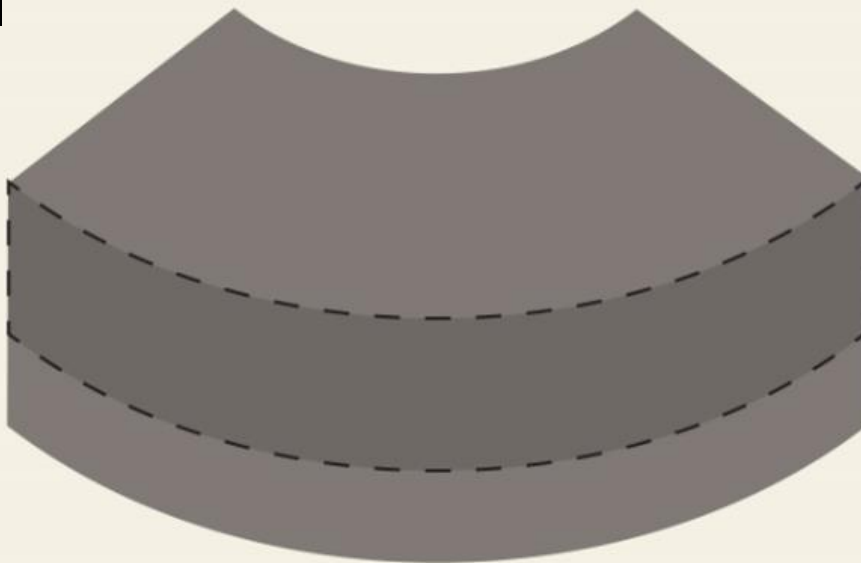
**Fig. 58**



**Figure 58** shows the exposed tabs on the heel (from section 4). 3M recommends that a 4" piece of 3M™ VentureClad™ be applied over the tabs as shown in figure 59.

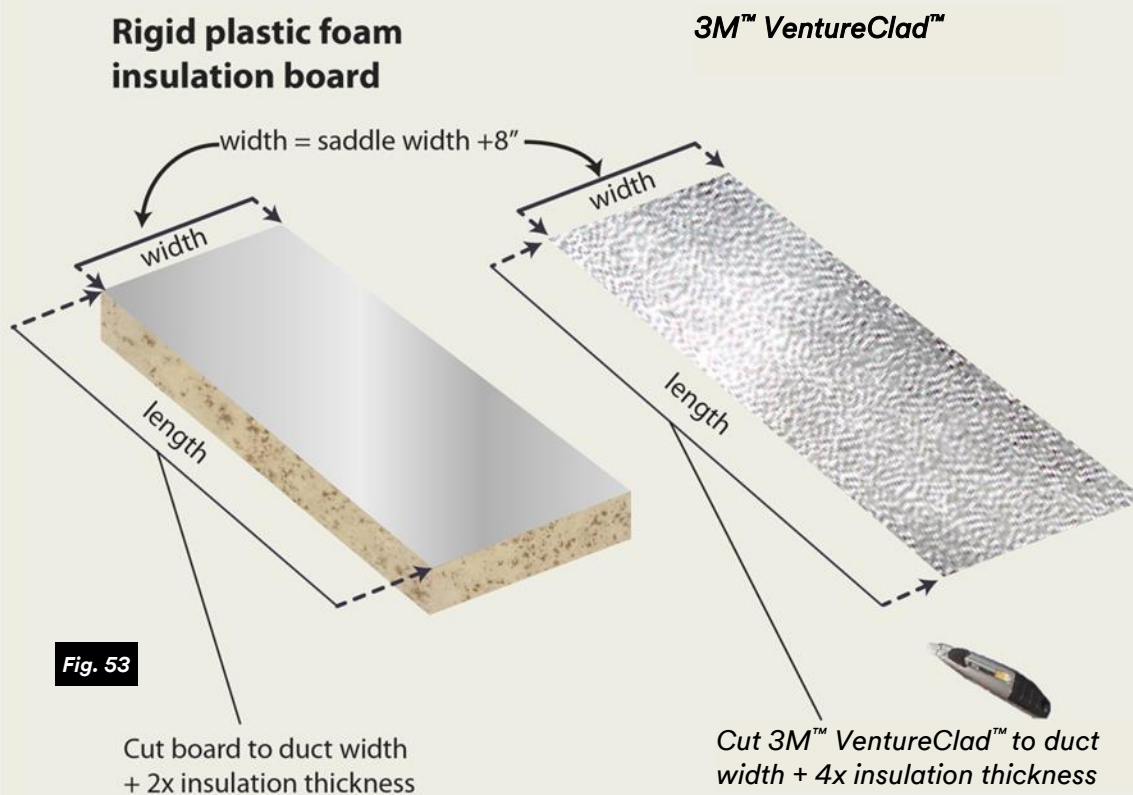
### ***Applying Beauty Strip on the Heel***

**Fig. 59**



## 6. Insulated Rectangular Duct Supports

### Cut materials for insulated horizontal duct support with 3M™ VentureClad™



**Figure 53:** To form a horizontal duct support, the installer should start with a sheet of high compressive strength foam insulation board (i.e., high density expanded polystyrene or polyisocyanurate are typically used successfully). 3M™ recommends that the insulation board dimensions be (duct width + 2x insulation thickness) x (saddle width + 8 inches (200 mm)). 3M™ then recommends that the installer cut a sheet of 3M™ VentureClad™ that has dimensions of (duct width + 4 x insulation thickness) x (saddle width + 8 inches (200 mm)).



## ***Apply 3M™ VentureClad™ to foam insulation board***

**Fig. 54**

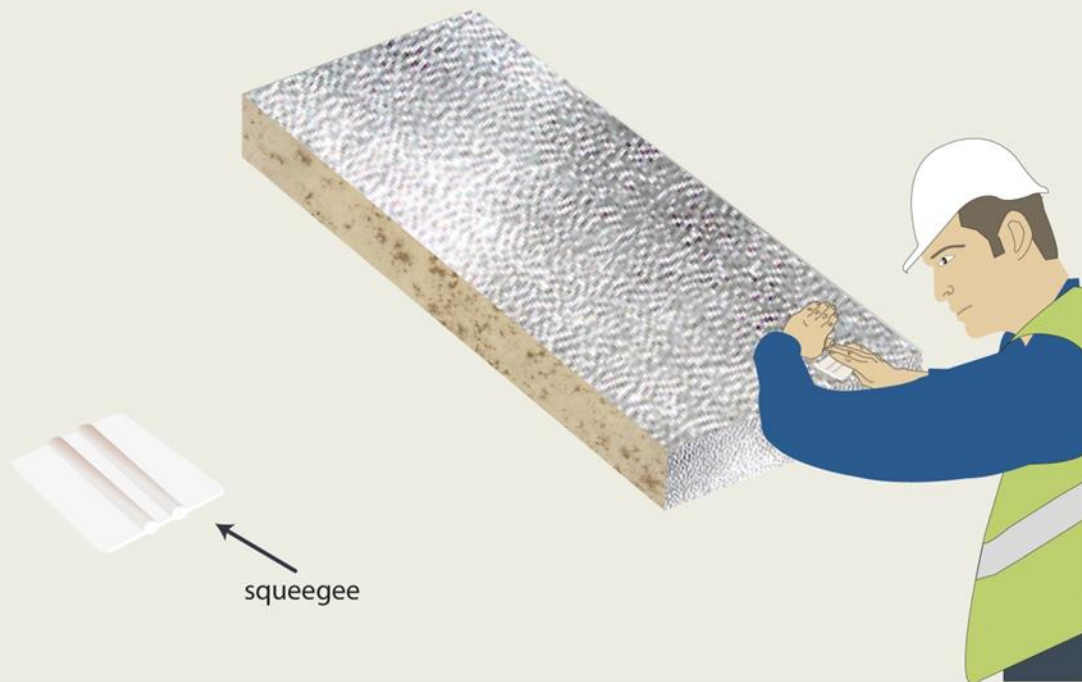
***After removing release liner, apply 3M™ VentureClad™ to insulation board, wrapping edges to cover exposed foam board ends***



**Figure 54:** After removing the release liner from the 3M™ VentureClad™, adhere it to the insulation board as shown above, being certain to wrap the board ends with the 3M™ VentureClad™ and press to get good adhesion over the entire surface.

***Using a squeegee to assure good adhesion of 3M™ VentureClad™ Product to foam insulation board***

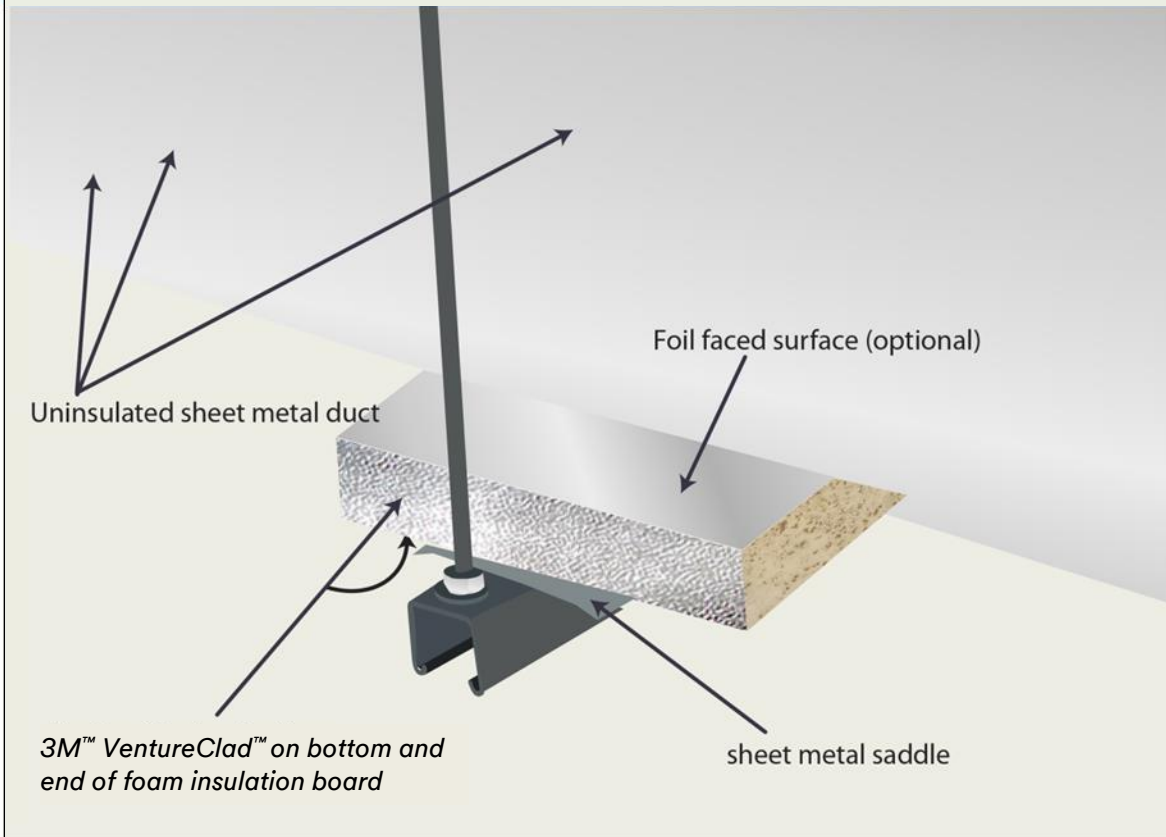
**Fig. 55**



**Figure 55:** 3M™ recommends the installer use a squeegee, as shown above, to make certain that the 3M™ VentureClad™ is well adhered over the entire insulation board surface.

## Install foam insulation board

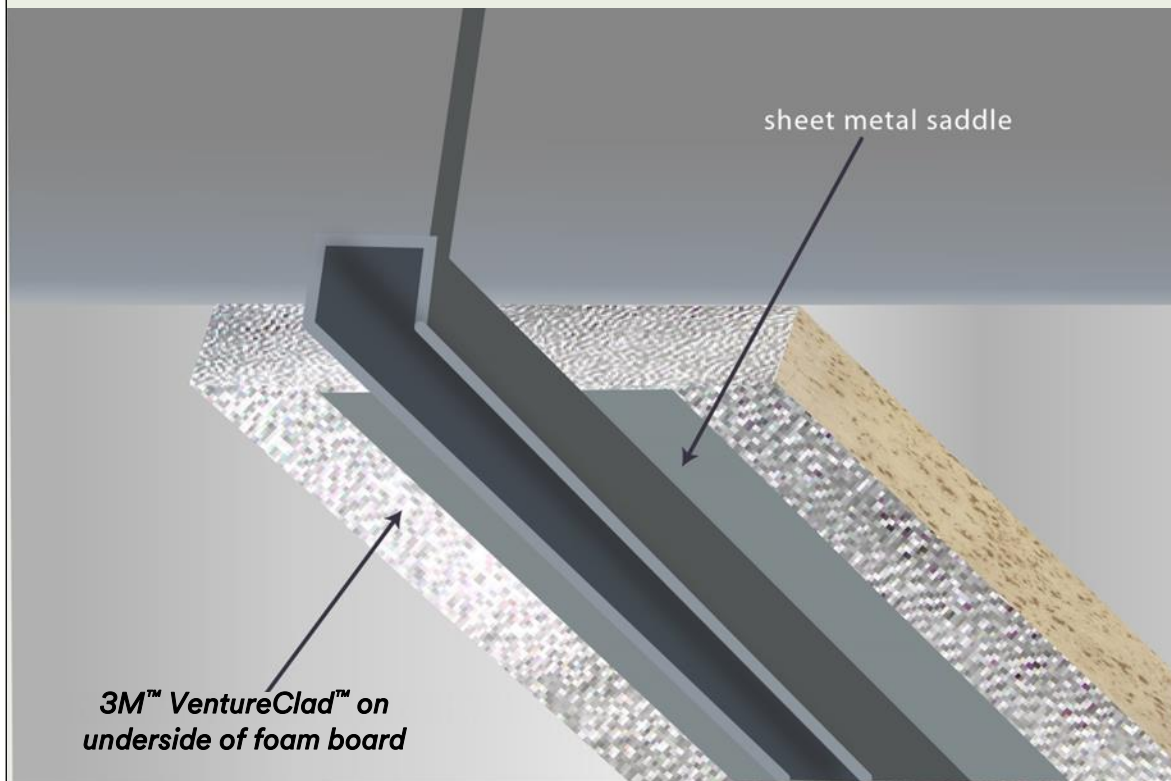
Fig. 56



**Figure 56:** 3M™ recommends that at least two installers slide the faced insulation board between the sheet metal duct and the duct hanger + sheet metal saddle, with the 3M™ VentureClad™ facing down towards the saddle. Be certain to center this faced insulation board. Notice that the insulation board is wider than the sheet metal duct by 2 x insulation thickness (or by 1 x insulation thickness on each side).

***Bottom view of foam board between saddle and duct***

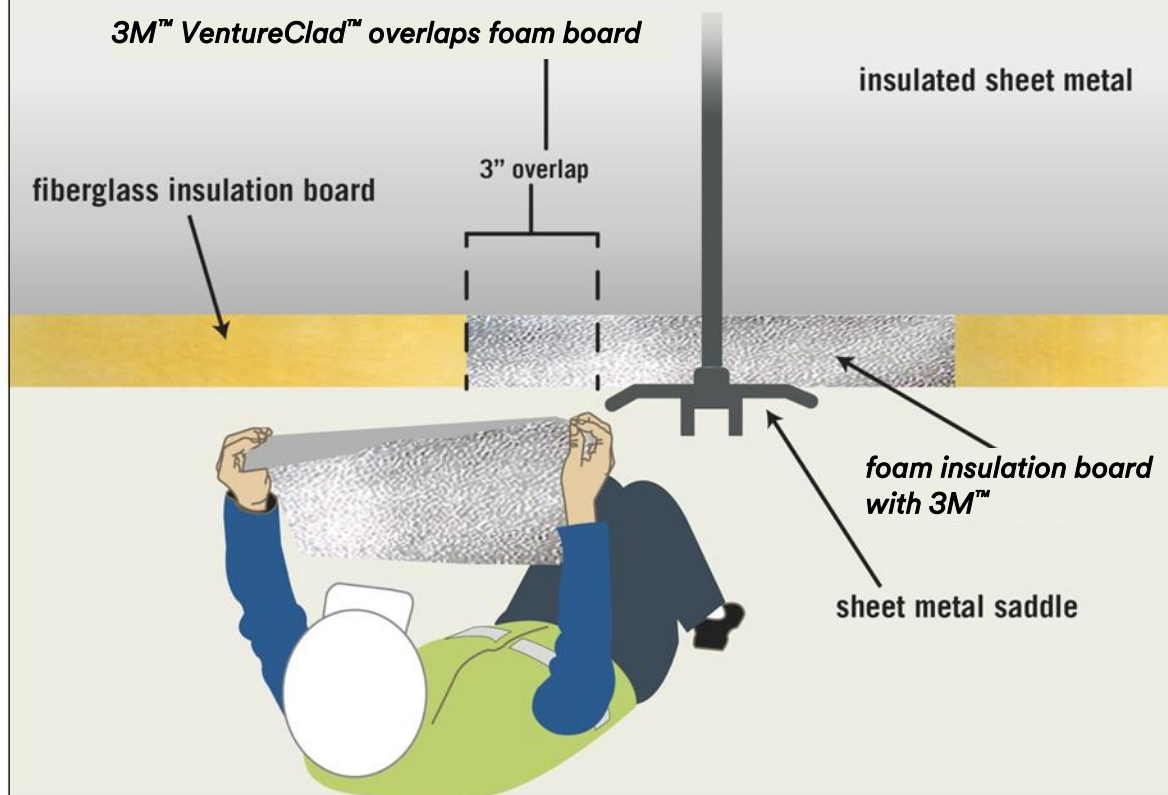
**Fig. 57**



**Figure 57:** This view shows the 3M™ VentureClad™ facing down, towards the sheet metal saddle.

## Fully insulated duct — First step: Applying 3M™ VentureClad™ to bottom surface

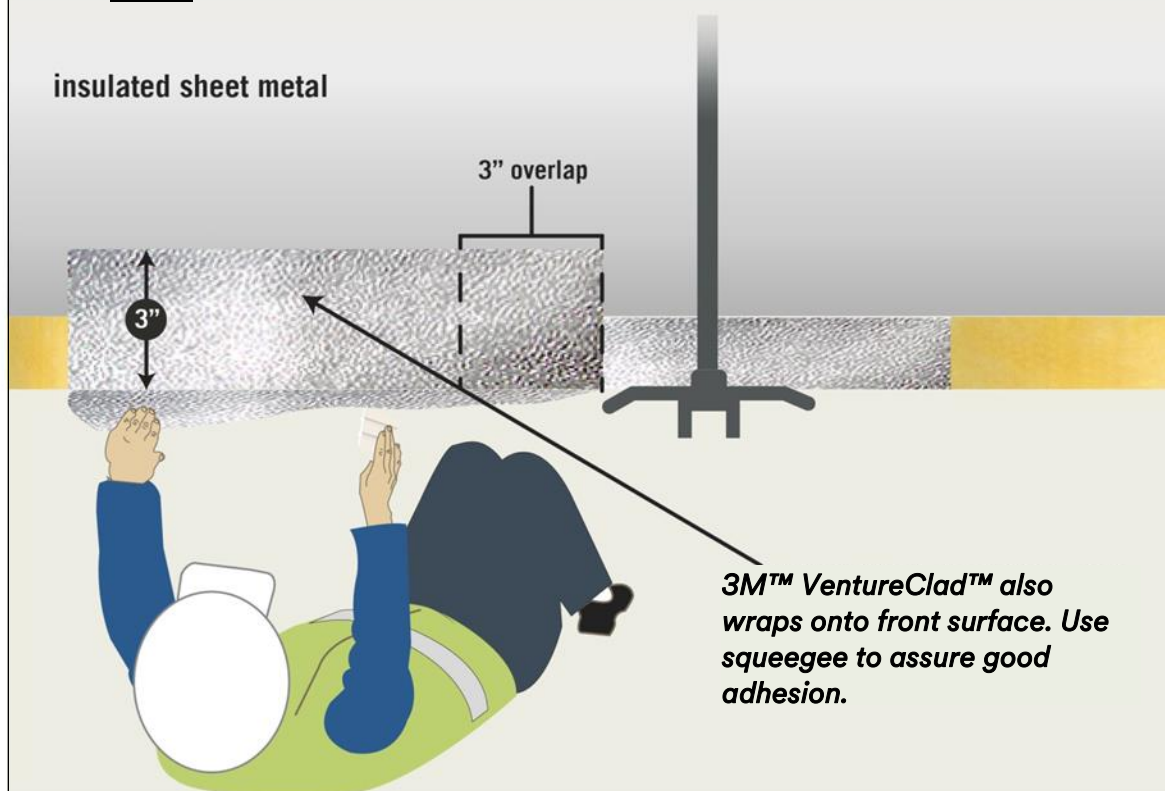
Fig. 58



**Figure 58:** After the four duct surfaces have been insulated (typically with 3 pcf (48 kg/m<sup>3</sup>) fiberglass boards on the bottom and side and 6 pcf (96 kg/m<sup>3</sup>) fiberglass boards on the top surfaces), 3M™ recommends that the installer apply a pre-cut sheet of 3M™ VentureClad™ to that bottom surface. Be certain to overlap the insulation board by 3 inches (75mm), as shown above. As shown in Figures 3 through 7, the 3M™ VentureClad™ on this bottom surface should wrap around the duct sides by 3 inches (75mm) on each side.

***Last step in applying 3M™ VentureClad™ Product to insulation surface on bottom of duct***

**Fig. 59**

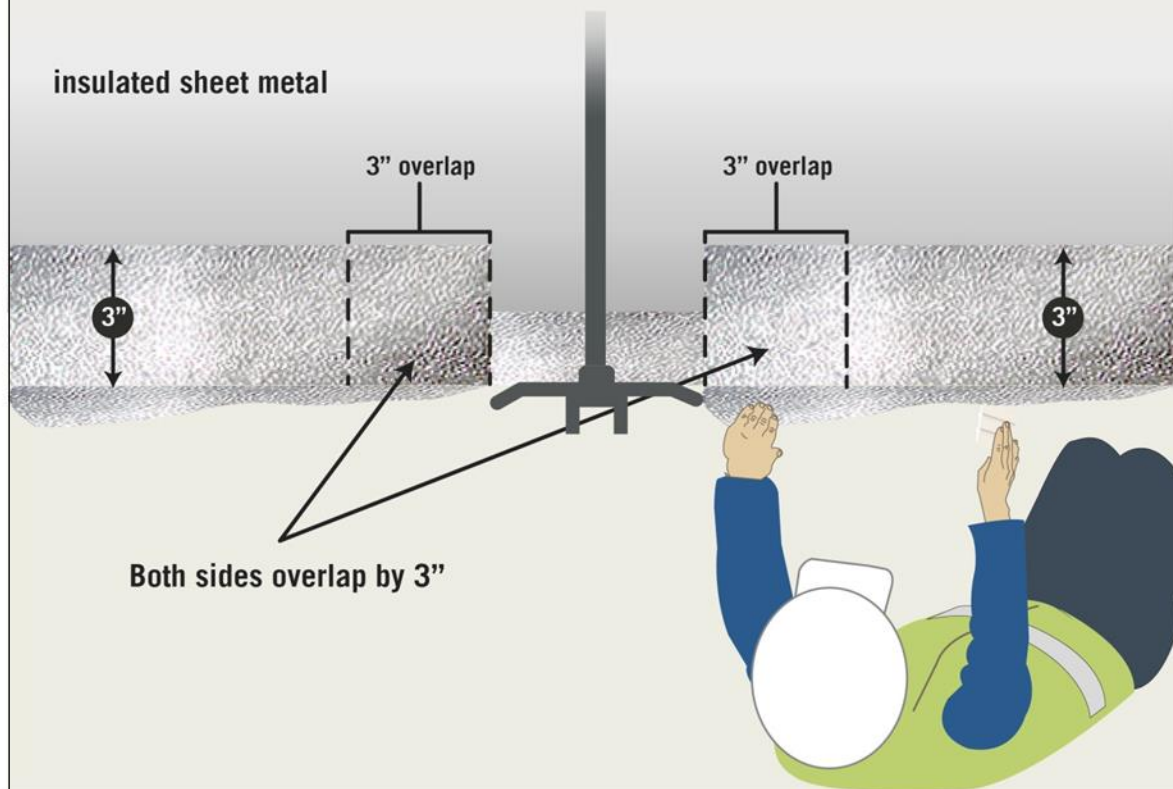


**Figure 59:** 3M™ recommends the installer use a squeegee to get a complete adhesion of the 3M™ VentureClad™ to the bottom surfaces of the insulation board. Also use the squeegee to assure good adhesion to the duct sides, as show in the drawing above.



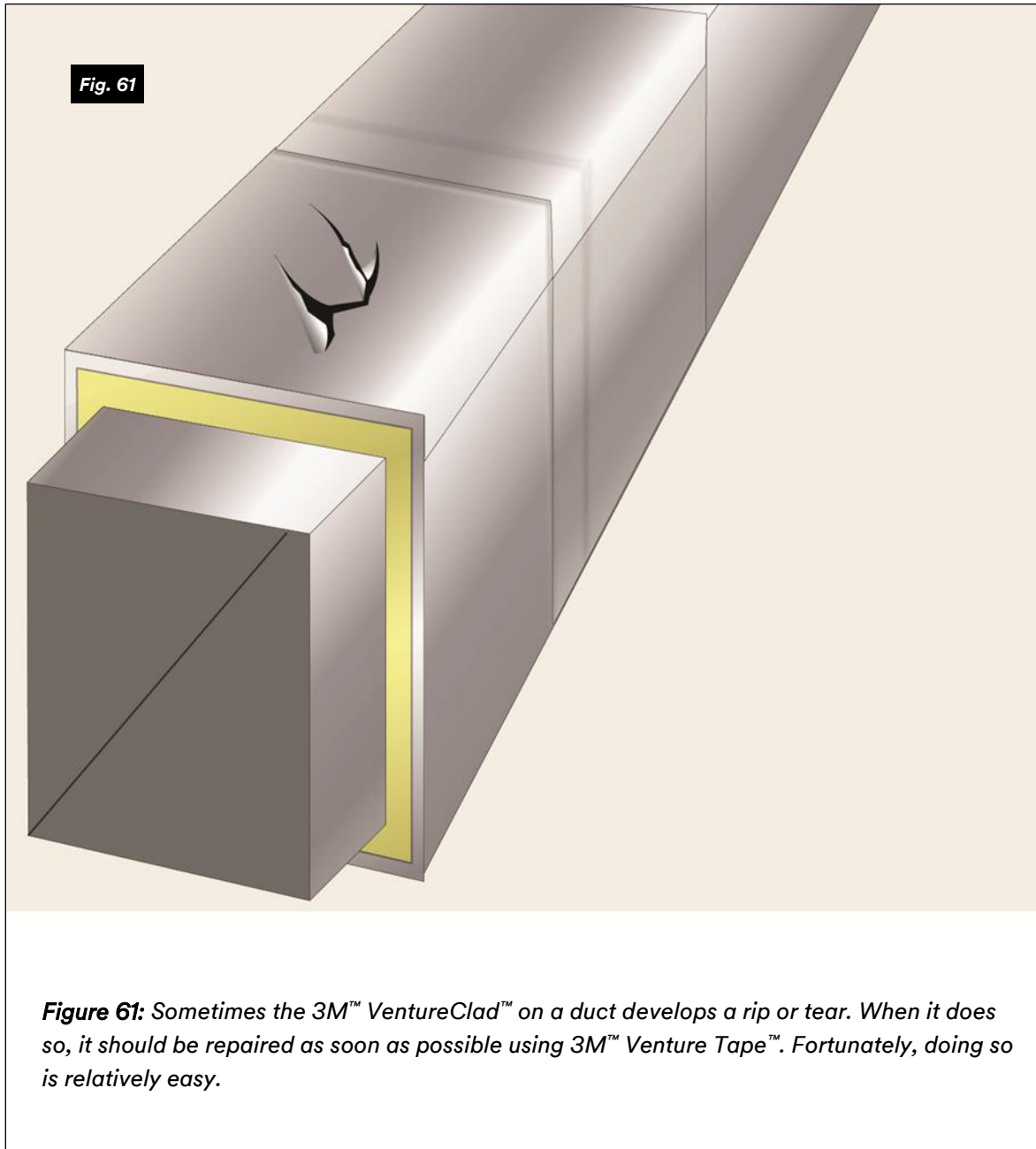
**Both sides overlap by 3" using 3M™ VentureClad™**

**Fig. 60**

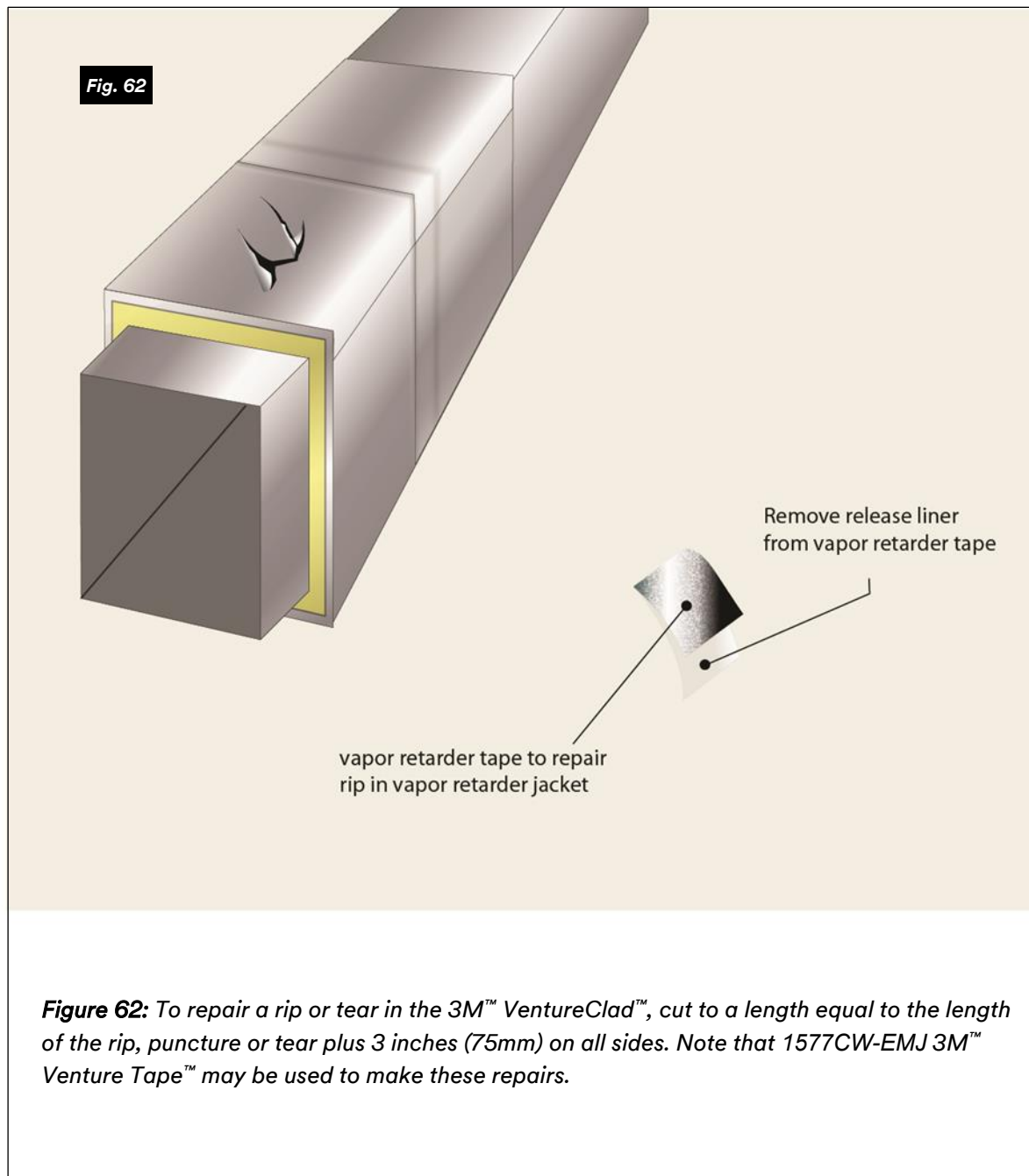


**Figure 60:** As shown above, after the 3M™ VentureClad™ on one side of the duct has been applied, 3M™ recommends that the installer apply the 3M™ VentureClad™ on the other side of the duct support saddle. Be certain to cut the 3M™ VentureClad™ to get a 3 inch (75mm) overlap on each side, then use the squeegee to get good adhesion over the complete surface.

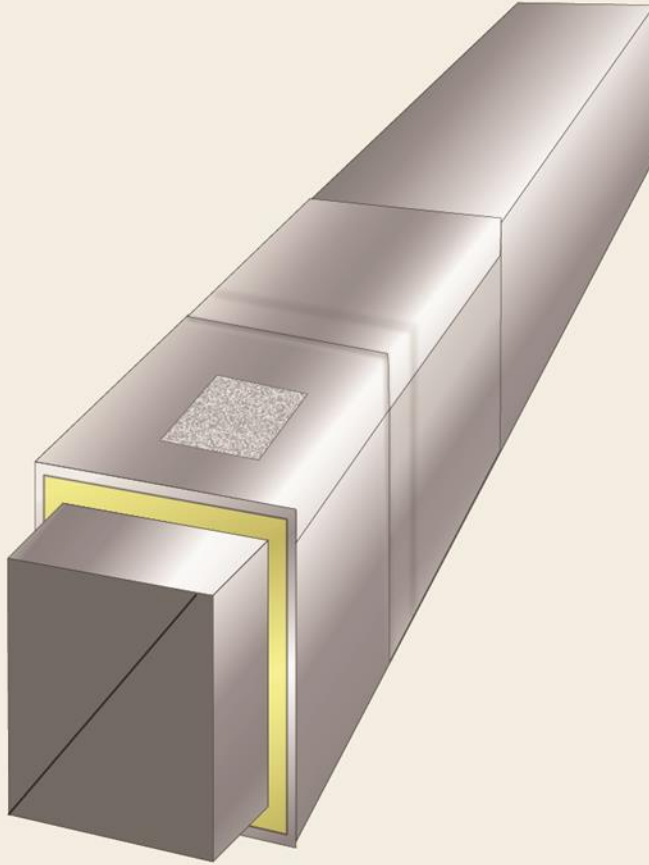
**7. Repairs to rips and tears in 3M™ VentureClad™ Product on Insulated Ducts**





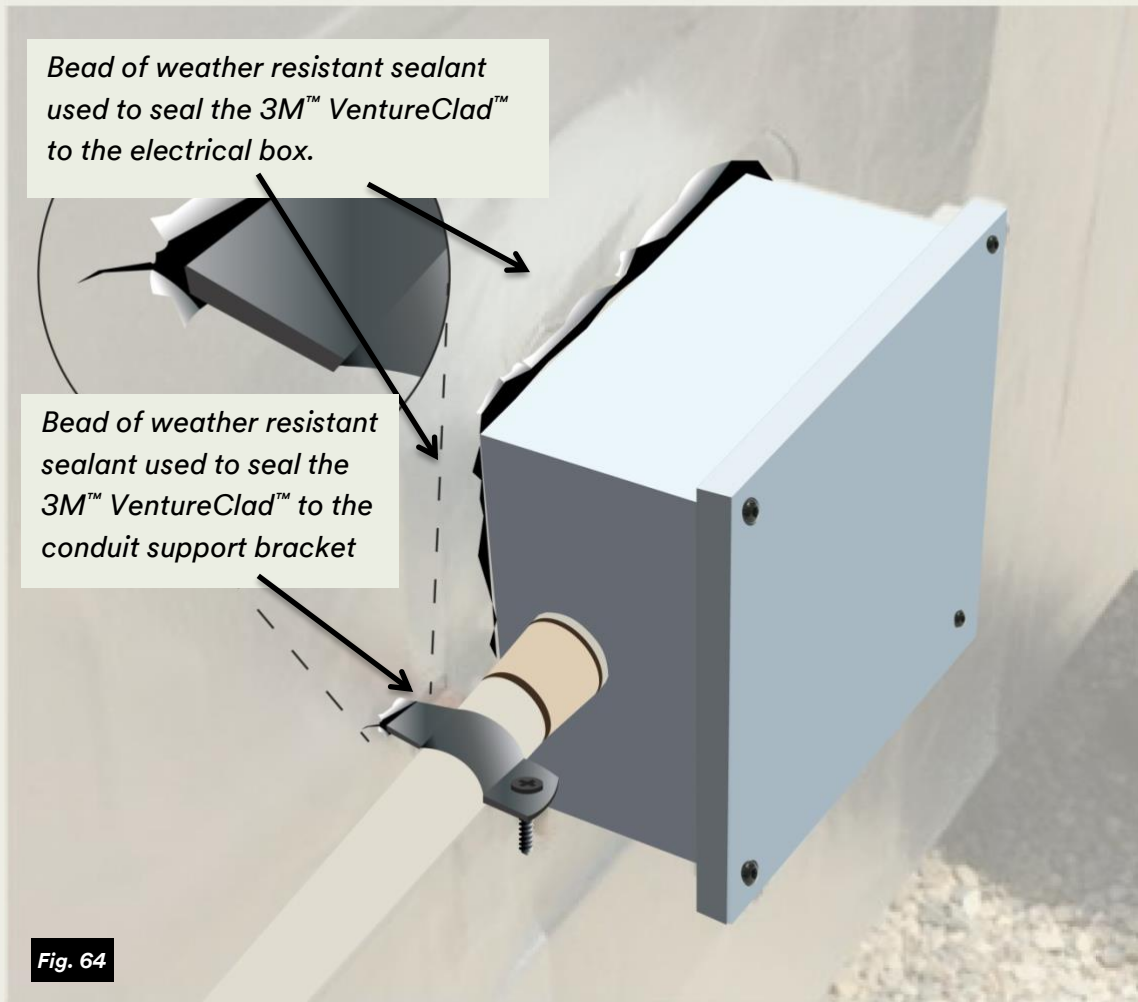


**Fig. 63**

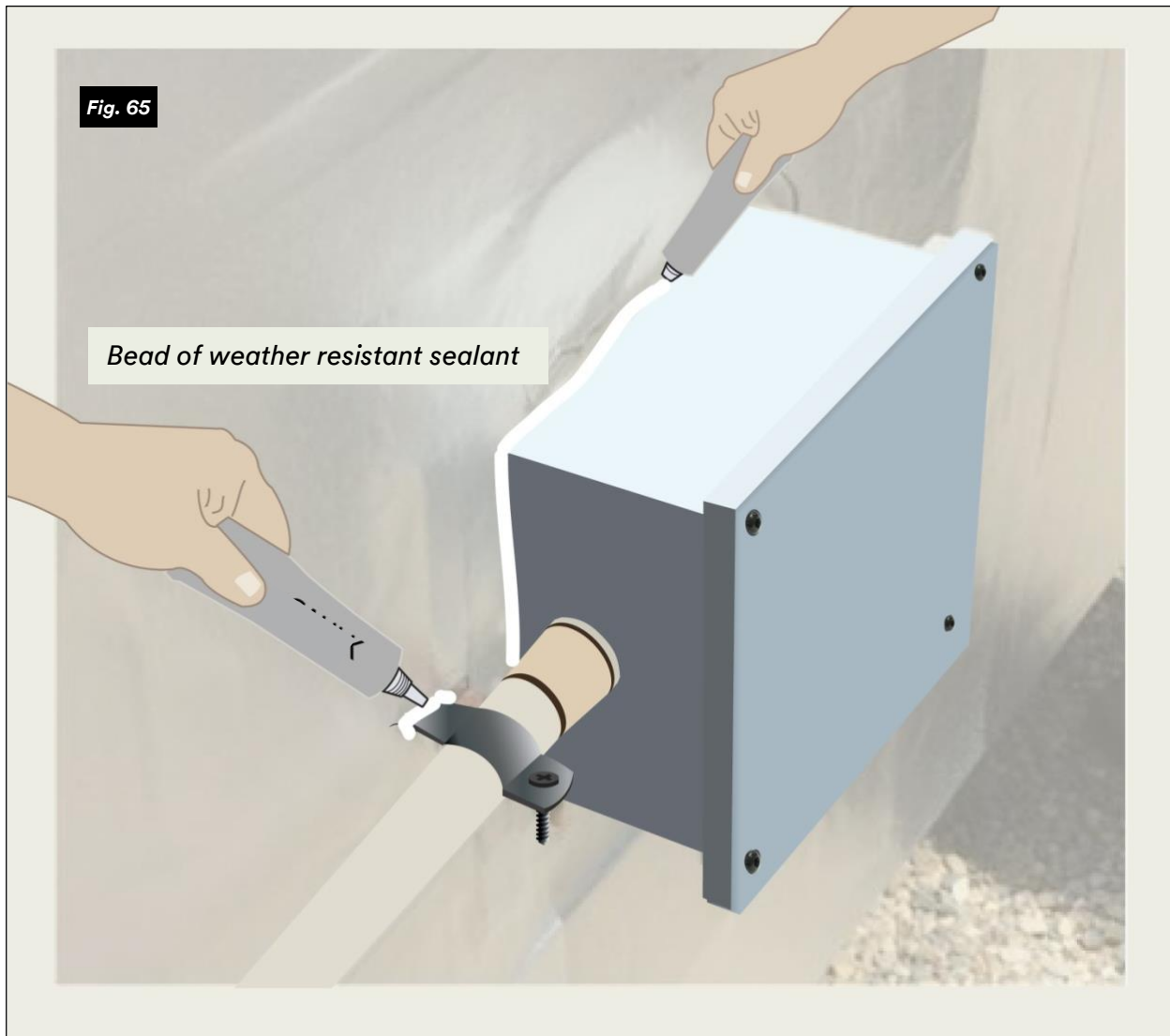


**Figure 63:** Press the piece of 3M™ Venture Tape™ over the rip or tear, being certain to cover the damaged portion of the 3M™ VentureClad™. Run a squeegee over the repair to make certain that the 3M™ Venture Tape™ is firmly adhered to the 3M™ VentureClad™. Note that 1577CW-EMJ 3M™ Venture Tape™ may be used to make these repairs.

**8. Using bead of weather resistant sealant to seal penetrations**



**Figure 64** shows a couple of penetrations of 3M™ VentureClad™ jacketing on the side of an insulated duct. 3M™ Venture Tape™ cannot be effectively used to seal this electrical box and conduit bracket. So, there are gaps surrounding those components that need to be sealed.



**Figure 65** shows 3M™'s recommendation, namely that a suitable weather resistant sealant can be applied to seal the four sides of the electrical box and the conduit bracket. 3M™ also recommends that the weather resistant sealant seams be inspected once a year and, if the sealant is found to have cracked and / or separated from the 3M™ VentureClad™, that it be removed and replaced with fresh sealant.

## Technical Information

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