

THERMAL VAPOR BARRIER (TVB)^{12EZ}

1" - 40" VERTICAL

INSTALLATION INSTRUCTIONS



IMPORTANT INFORMATION

Prior to the commencement of Installation all materials **MUST** be inspected for Damage. Any damage must be reported to Construction Specialties as soon as possible, so that replacement materials may be furnished without delay.

All work must be completed as per Architect's Approved "Shop Drawings", and in accordance with these Installation Instructions. When installation is complete, all materials must be protected from damage until the Architect's FINAL INSPECTION.

All materials should be arranged in the order that they are to be installed. All hardware required for each portion of the work should be placed with the appropriate materials.

Please review all Approved Shop Drawings and this Document to familiarize yourself with all the details and components of this assembly.

IMPORTANT:

READ THROUGH ALL INSTRUCTIONS PRIOR TO STARTING INSTALLATION

8/14/2023



Construction Specialties™

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GENERAL NOTES

General Instructions:

- Thermal Vapor Barrier (TVB) is to be installed in accordance with architectural drawings, CS shop drawings or details provided for the specific projects requirements and these installation instruction.
- Although the installation process is similar for horizontal and vertical TVB applications, these instructions apply to vertical TVB applications.
- The TVB installation is to be coordinated with any CS joint cover installation when indicated.
- For applications where no CS joint cover is installed with the TVB, galvanized washer strips or continuous alum. frames, and anchors, are provided to secure the TVB in place. These conditions are referenced in these instructions.
- The installation procedures are the same regardless of barrier size.

Material Preparation:

- All sections should be removed from the shipping containers and laid out to allow material to relax and flatten prior to installation.
- All TVB is supplied with wide anchor flanges.
- All TVB barriers are intended to be installed with a minimum $1\frac{1}{2}$ " recess into the joint, however, this recess can be increased to accommodate the installation of additional vapor barrier and/or joint cover components. (Fig. 1 & 2)
- Review the CS project shop drawings and/or details to establish the recess requirement for each location and application.
- The wide flanges are intended to allow the TVB to be mated to building waterproofing membranes. If not needed, the excess flange material can be cut off beyond the attachment.

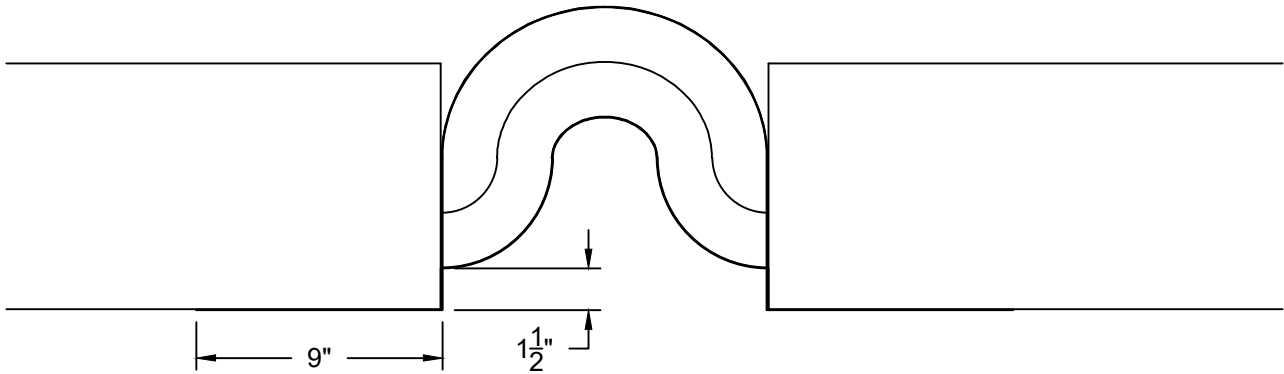


FIG. 1 - TVB - MINIMUM RECESS

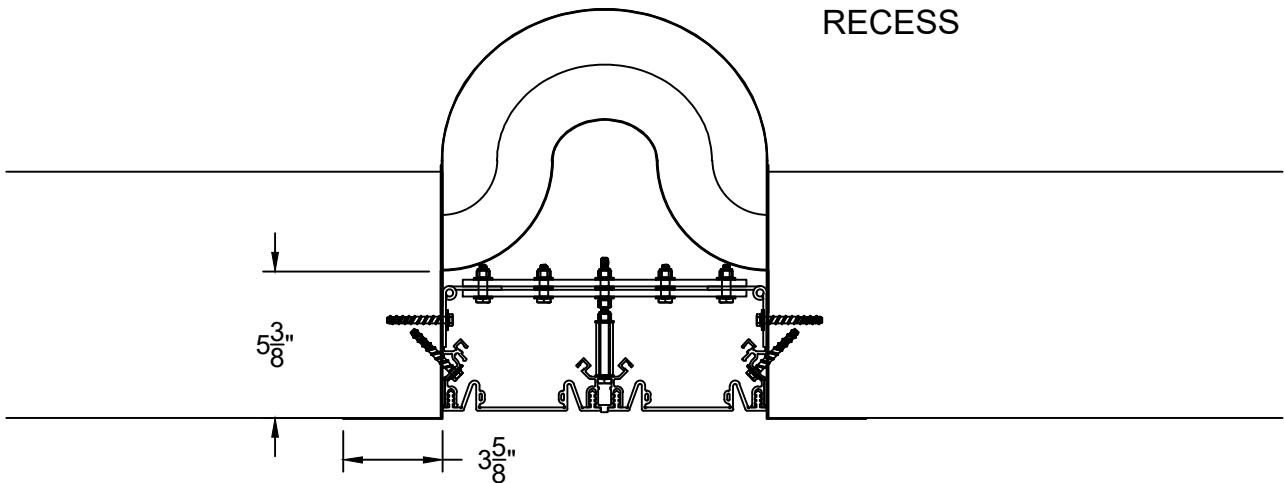
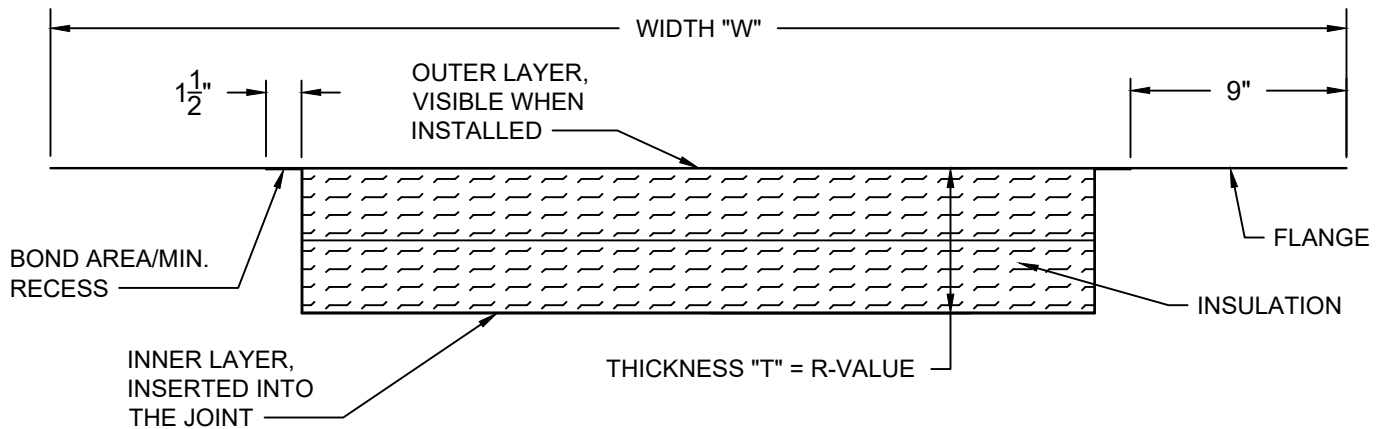


FIG. 2 - TVB - RECESS ADJUSTED FOR JOINT COVER FRAMES

IDENTIFYING TVB BARRIERS

Note: When multiple sizes/models of TVB have been supplied, the info. below can be used to aid in identifying the appropriate barrier for a given joint location. The size, construction and components of the TVB are the same for both horizontal and vertical applications.

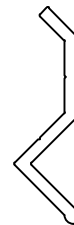


TVB - SECTION DETAIL

BARRIER IDENTIFICATION		
MODEL	WIDTH "W"	OVERALL LENGTH
TVB1	22.5"	21'-0"
TVB2	24"	21'-0"
TVB3	25.5"	21'-0"
TVB4	27"	21'-0"
TVB6	30"	11'-0"
TVB8	33"	11'-0"
TVB10	36"	11'-0"
TVB12	39"	11'-0"
TVB14	42"	11'-0"
TVB16	45"	11'-0"
TVB18	48"	11'-0"
TVB20	51"	11'-0"
TVB22	54"	11'-0"
TVB24	57"	11'-0"
TVB26	60"	11'-0"
TVB28	63"	11'-0"
TVB30	66"	11'-0"
TVB32	69"	11'-0"
TVB34	72"	11'-0"
TVB36	75"	11'-0"
TVB38	78"	11'-0"
TVB40	81"	11'-0"

BARRIER IDENTIFICATION		
MODEL	WIDTH "W"	OVERALL LENGTH
TVB12	23"	21'-0"
TVB24	25"	21'-0"
TVB36	27"	21'-0"
TVB48	29"	21'-0"
TVB612	33"	11'-0"
TVB816	37"	11'-0"
TVB1020	41"	11'-0"
TVB1224	45"	11'-0"
TVB1428	49"	11'-0"
TVB1632	53"	11'-0"
TVB1836	57"	11'-0"
TVB2040	61"	11'-0"
TVB2244	65"	11'-0"
TVB2448	69"	11'-0"
TVB2652	73"	11'-0"
TVB2856	77"	11'-0"
TVB3060	81"	11'-0"
TVB3264	85"	11'-0"
TVB3468	89"	11'-0"
TVB3672	93"	11'-0"
TVB3876	97"	11'-0"
TVB4080	101"	11'-0"

R-VALUE IDENTIFICATION		
THICKNESS "T"	R-VALUE	LAYERS OF INSULATION
4"	R13	2
6"	R19	2
9"	R30	3

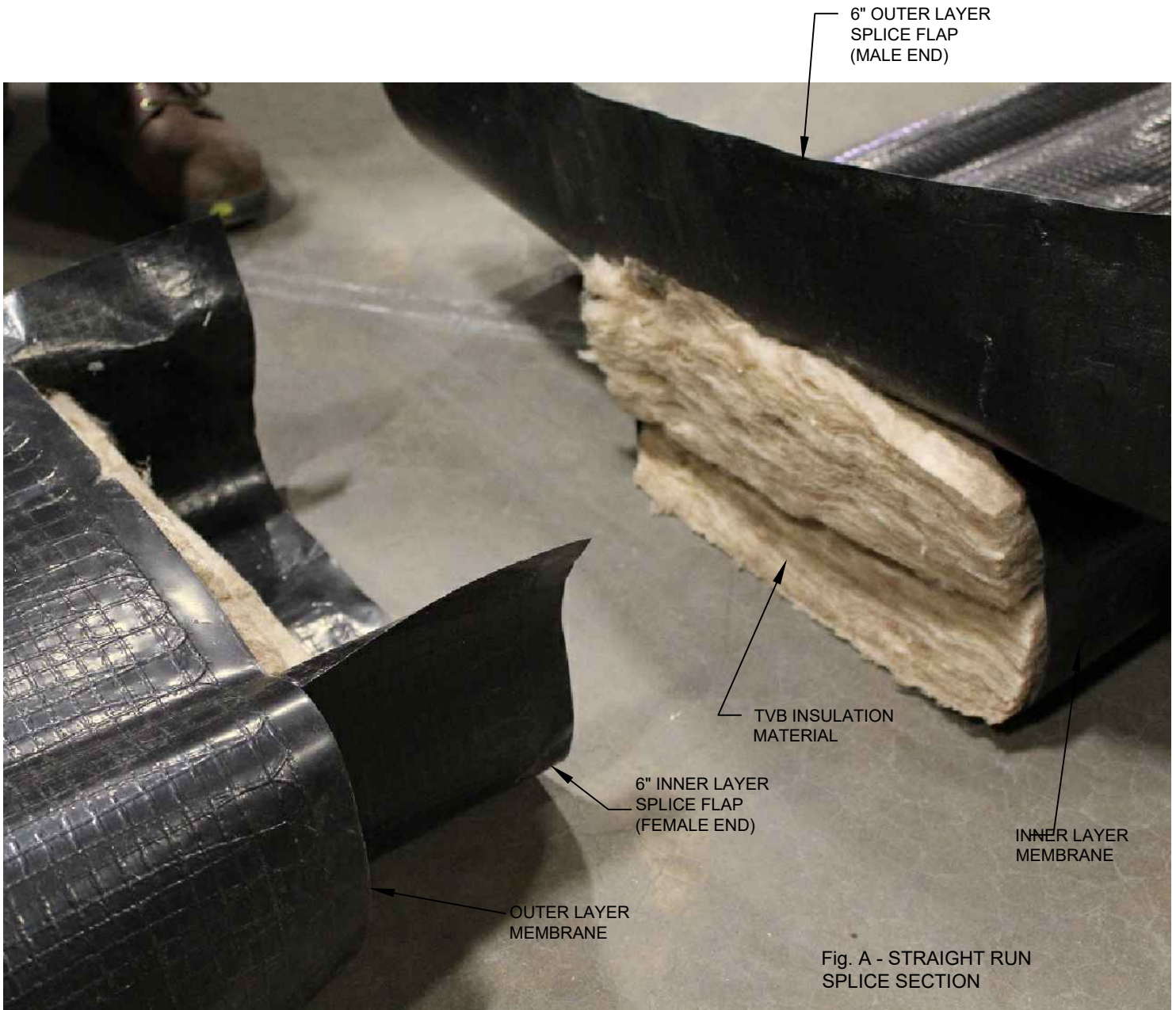


ALUM. FRAME (12A810008)
 - MODEL A1 - TBV INSTALLED WITH ALUM. FRAME ONE SIDE.
 - MODEL A2 - INSTALLED WITH ALUM. FRAME BOTH SIDES.



GALV. WASHER STRIP (12M218003)
 - MODEL G1 - TBV INSTALLED WITH GALV. WASHER STRIP ONE SIDE.
 MODEL A2 - INSTALLED WITH GALV. WASHER STRIP BOTH SIDES.

INSTALLATION NOTES



Installation Notes:

- Installation of vertical TVB begins at the bottom of a vertical joint or run.
- If a run of TVB requires a transition (horizontal to vertical), it is recommended to install the transition area first and work outward from the transition. (See Page 14 for transition instructions.)

Reference: The Outer Layer Membrane is the plastic sheet material that will be visible once installed. The Inner Layer Membrane is the plastic sheet portion that is first inserted into the joint towards the inside of the building.

Barrier Lengths:

- 1"-4", R13, R19 and R30 barriers are shipped in 21'-0" lengths, and 6"-40" R13, R19 and R30 barriers are shipped in 11'-0" lengths.
- All barriers are supplied with a 6" splice flap extension of the Outer Layer (Male End) at one end and Inner Layer (Female End) at the other end to facilitate splicing.
- When the length of a run of TVB is greater than the supplied length of TVB barrier, field splicing will be required. There are two methods of creating field splices; out-of-joint and in-joint. For ease and effectiveness, the out-of-joint method is recommended, however, for very long runs and/or wide barriers, splicing together too many barriers prior to installation becomes cumbersome. In these cases, a combination of out-of-joint and in-joint splicing is required. Both methods are indicated in the following instructions.

INSTALLATION: VERTICAL JOINT

Step 1 - Installation Prep

- 1.1 Review the architectural drawings, CS shop drawings, and details of where the first run of TVB is to be installed. Take note of the required recess for this location (a minimum 1 1/2" recess is required).
- 1.2 Calculate the surface flange width using the formula $1\ 1/2" - \text{recess depth} = \text{surface flange width}$. (TVB barriers are supplied with a 10 1/2" wide flange along each edge. At the minimum 1 1/2" recess depth, the surface width of the flange is 9". As the barrier is recessed further into the joint, the surface flange width decreases.)
- 1.3 On each side of the joint, measure back from the joint edge and place a mark on the wall representing the outer edge of the surface flange. (Note: These marks will assist in locating the barrier and setting the recess depth for the barrier. (Fig. 1A). To further assist, you can measure, mark, fold and crease the flange at this dimension.
- 1.4 If either end of this run requires a transition, refer to Page 14. If no transition is required, proceed to Step 2. If a transition was already installed, refer to Step 6.



Fig. 1A

Step 2 - First Barrier Prep - No Transition

- 2.1 If no transition is required, begin at the bottom of the run and measure the overall length of the run.
- 2.2 Place a length of TVB barrier on the roof or ground with the Male End oriented to the beginning end of the run. (Fig. 2A)
- 2.3 Using scissors, cut off the Outer Layer, 6" splice flap, creating a square end of the Inner Layer, Outer Layer and Insulation. (Fig. 2B)

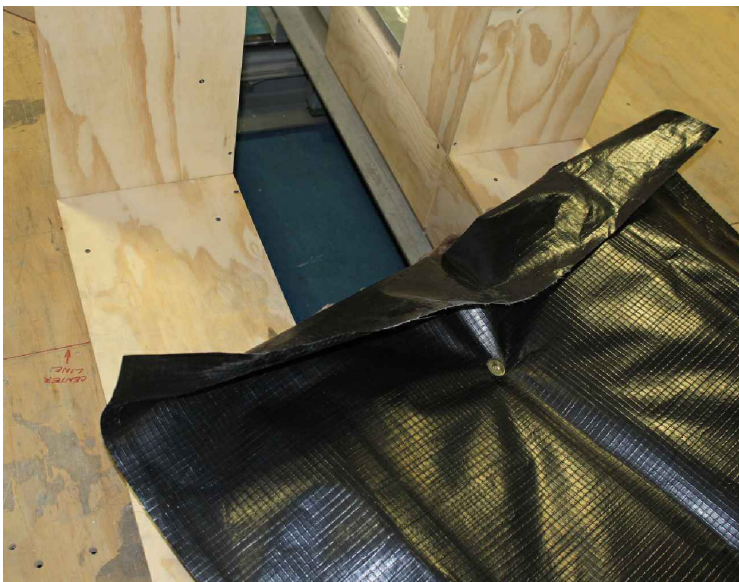


Fig. 2A



Fig. 2B

INSTALLATION: VERTICAL JOINT

Step 2 - First Barrier Prep - No Transition (Continued)

2.4 Measure the overall length of the run. If the first barrier length exceeds the run length, from the square cut end (Male End) of the first barrier, measure and mark the required length on the surface of the Outer Layer. (Note: If the run length exceeds the barrier length, see Step 4 for splicing instructions.)

2.5 Using a square, place a perpendicular line across the width of the Outer Layer. Using a straight edge and utility knife, compress the barrier and cut through the entire barrier creating a square cut end. (Fig. 2C)

Note: Larger TVB barriers contain pins to retain the insulation within the barrier. When cutting the barrier to a required length, if the pin or pins are cut off, new pins are to be installed. If the cut length of the barrier is less than 3' long, adding pins is not necessary.

For barriers with a single pin at each end, centered in the width:

2.6 Place the barrier face down (Inner Layer facing up) measure in 6" from the cut end and at the center of the width of the insulation and place a location mark on the barrier.

2.7 Flip the barrier over (Outer Layer facing up) and place a mark at the same dimensional location on the surface of the Outer Layer.

2.8 Select the appropriate pin length for the R-value of your barrier (R13 = 4 1/2", R19 = 6 1/2" and R30 = 9 1/2" pins). Hold the point of the Pin on the mark and perpendicular to the surface of the barrier. Push the Pin through the Outer Layer and the insulation.

2.9 Lift the end of the barrier so you can see the mark on the bottom (Inner Layer). Move the Pin until you can feel the point is aligned with the mark and push the pin through the Inner Layer.

2.10 Flip the barrier over. Place a Locking Washer over the point of the Pin. Push the Washer approx. 3/4" - 1" onto the Pin.

2.11 Approx. 3/4" above the washer, cut off the end of the pin with cutting pliers (Fig. 2D). Using two pliers, place one pliers just under the washer and grip the pin firmly. With the second pliers, grip the Pin just above the Washer and bend the pin over 90° (Fig. 2E and 2F).

For barriers with two pins at each end:

2.12 Follow the steps above, however, at the pins remaining in the barrier, measure the distance from the outer edge of the insulation to the pins. Place the mark at this dimension and 6" in from the cut end.



Fig. 2C



Fig. 2D

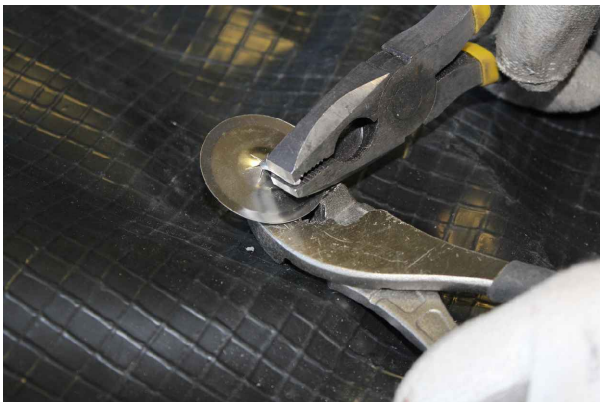


Fig. 2E

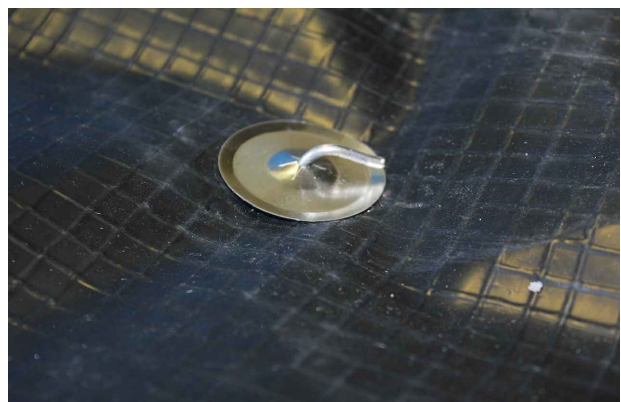


Fig. 2F

INSTALLATION: VERTICAL JOINT

Step 3 - First barrier installation

Note: The insulation thickness varies with R-Value (R13 = 4" thick, R19 = 6" thick and R30 = 9" thick) and the insulation width varies based on nominal joint width and movement requirement. In some barriers the insulation is thicker than it is wide. The installation method for these barriers follows:

- 3.1 Stand the barrier centered over the joint, align the bottom end of the barrier with the bottom end of the joint run. The opposite end should align with the other end of the joint. (Fig. 3A)
- 3.2 At the upper end of the barrier, reach behind the flanges and place your hands on the outside surface of the barrier on each side.
- 3.3 Push your hands together compressing the width of the barrier. (Fig. 3B)
- 3.4 Insert the inside end of the inner layer into the joint.
- 3.5 Continue to compress and insert the barrier into the joint, along the height, walking the barrier into the joint. (Fig. 3C)
- 3.6 Push the barrier into the joint until the flanges reach the surface. Lay the flanges across the surface.
- 3.7 Push the barrier further into the joint to set the recess. Align the outer edge of the flanges with the location marks and/or until the flange crease seats on the corner of the substrate. (Fig. 3D)
- 3.8 Measure from the substrate surface in to the TVB insulation area to confirm the recess depth. Adjust as needed.
- 3.9 Place strips of duct tape along the outer edges of the flanges, over the height of the installed barrier, to hold the barrier in position as installation continues. (Fig. 3E)

Note: See Page 8 for instructions for barriers with insulation that is wider than it is thick.



Fig. 3A



Fig. 3B

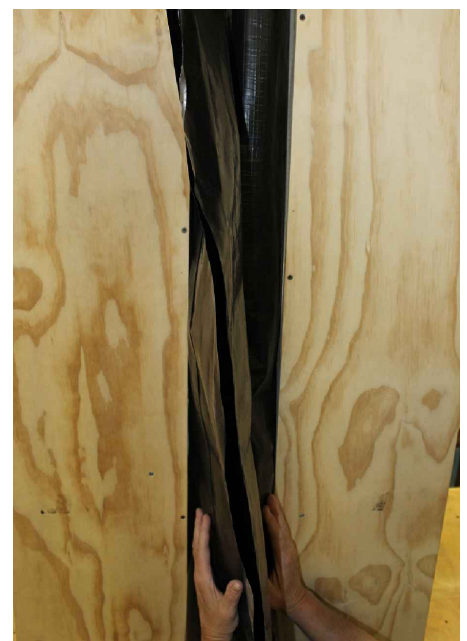


Fig. 3C



Fig. 13D



Fig. 3E

INSTALLATION: VERTICAL JOINT

Step 3 - First barrier installation

Note: Installation method for barrier with insulation that is wider than it is thick:

3.1 Place the barrier on floor/roof.

3.2 Lift up on the edge flange on one side of the barrier and fold it over to the opposite flange, folding the barrier in half to form the barrier into a "U" shape. (Note: To assist with the fold, place a long thin item, such as a piece of pipe, a rod, a 2x4 or similar, along the centerline of the barrier and compress the insulation while folding). (Fig. 3A).

3.3 Lift the barrier by the flanges while maintaining the folded U-shape and stand the barrier vertically. Align the first end of the barrier with the bottom end of the joint run. The opposite end should align with the other end of the joint.

3.4 Begin to push the bottom of the barrier into the joint. If needed, place your hands on the outside surface, on each side of the barrier, and compress the sides to fit the barrier into the joint. (Fig. 3B)

3.5 Work along the length of the barrier and continue to push the barrier into the joint until the flanges reach the surface. Lay the flanges across the surface.

3.6 Push the barrier further into the joint to set the recess. Align the outer edge of the flanges with the location marks and/or until the flange crease seats on the corner of the substrate. (Fig. 3C)

3.7 Measure from the substrate surface down to the TVB insulation area to confirm the recess depth. Adjust as needed. (Fig. 3D)

3.8 Place strips of duct tape along the outer edges of the flanges, over the length of the installed barrier, to hold the barrier in position as installation continues. (Fig. 3E)



Fig. 3A

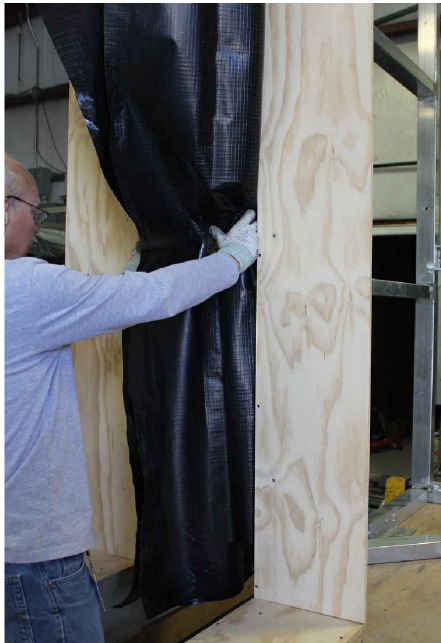


Fig. 3B

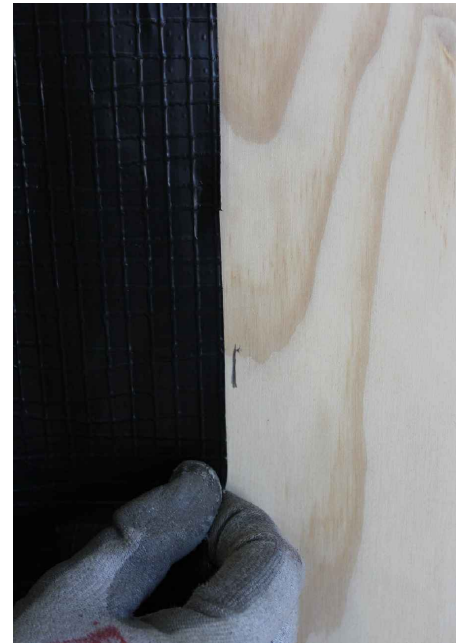


Fig. 3C

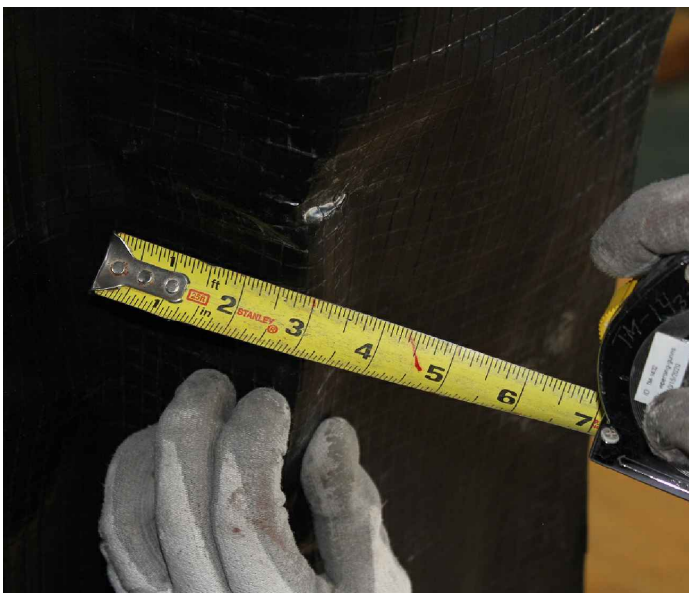


Fig. 3D



Fig. 3E

INSTALLATION: VERTICAL JOINT

Step 4 - Out-of-Joint Splicing

Note: For vertical installation, the barrier should always be installed with the female splice end at the top to facilitate water drainage across the splice joints.

4.1 When the run length exceeds the supplied barrier length, barriers are to be spliced together.

4.2 Place additional lengths of barrier, equaling or exceeding the run length, extending from the uncut end of the first barrier.

4.3 Place each barriers so that the Male End and Female End are oriented to facilitate splicing. (Fig. 4A)

4.4 At the ends of the first and second barrier, prepare to create an out-of-joint splice.

4.5 At the end of the first barrier, apply the supplied CS Fab Tape to the inside surface of the inner splice flap, approximately 1/2" in from edge of the flap (Fig. 4B). (Do not remove the paper backing from the Fab Tape at this time.) Use a roller to apply pressure to seat the tape to the vapor barrier. (Fig. 4C) (Note: To increase the bond strength, use a non-flaming or sparking heat gun and heat the Fab Tape area. Apply heat when installing at temperatures below 40° F.)

4.6 At the second barrier, turn the barrier face down. Apply Fab Tape to the Outer Splice Flap, approximately 1/2" in from edge of the flap. (Do not remove the paper backing from the Fab Tape at this time.) Use a roller to apply pressure to seat the tape to the vapor barrier. (Fig. 4D) Note: When additional barrier will be required, apply the Fab Tape at each end of all additional barriers.

Continued on Page 10.



Fig. 4A



Fig. 4B



Fig. 4C



Fig. 4D

INSTALLATION: VERTICAL JOINT

Step 4 - Out-of-Joint Splicing (Continued)

4.7 Flip the second barrier back upright so that insulation material from each barrier will mate together.

4.8 Peel off the paper backing from the Fab Tape on the Inner Splice Flap (Female End) inside the first barrier. (Fig. 4E)

4.9 Carefully lift and place the second barrier (Male End) inside the Inner Splice Flap (Female End) of the first barrier, bringing ends of the insulation together. While keeping the insulation butted tightly together, seat the second barrier down onto the Fab Tape and along the vertical sides. (Fig. 4F) Note: The bond of the tape can be unforgiving so use caution to try to center the barrier within the first barrier.

4.10 Apply pressure on the outer surface of the Inner Layer to get the tape to adhere.

4.11 Lift the Outer Splice Flap of the second barrier and peel the paper backing from the Fab Tape. Working from the middle of the barrier width towards to outside edges, seat the flap and tape against the top surface of the Outer Layer of the the first barrier. (Fig. 4G)

4.12 Apply pressure to the area of the Fab Tape to adhere the tape. Use a roller to ensure a secure bond at the taped area. (Note: To increase the bond strength, use a non-flaming or sparking heat gun and heat the Fab Tape area. Apply heat when installing at temperatures below 40° F.)

Note:

Because the TBV product width and weight varies greatly over the size range, it is necessary to evaluate the the assembly of multiple barriers to determine what overall length can be effectively handled for installation. After splicing barriers together, lift the barriers from the ends to evaluate if a longer length is manageable.

- If additional length or lengths are manageable, proceed to add additional lengths to the assembly by following the splice procedures above, accessing the manageable length after each.
 - When the splice-assembled barrier length exceeds the run length, follow instructions at Step 2.4 and 2.5 to measure, mark and cut the barrier to the required run length.
 - Proceed to install the barrier assembly per Step 3.
- If a longer length cannot be handled effectively, install the assembled length into the joint per Step 5.
 - Splice additional barriers together as needed for the overall run length.
 - Install additional assemblies while forming In-Joint splices per Step 5.
 - Cut the assembled barrier to the required length to finish the run per the instruction in Step 2.4 and 2.5.



Fig. 4E

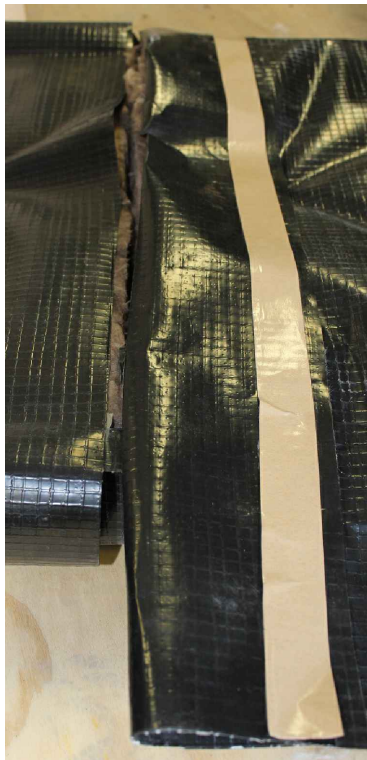


Fig. 4F

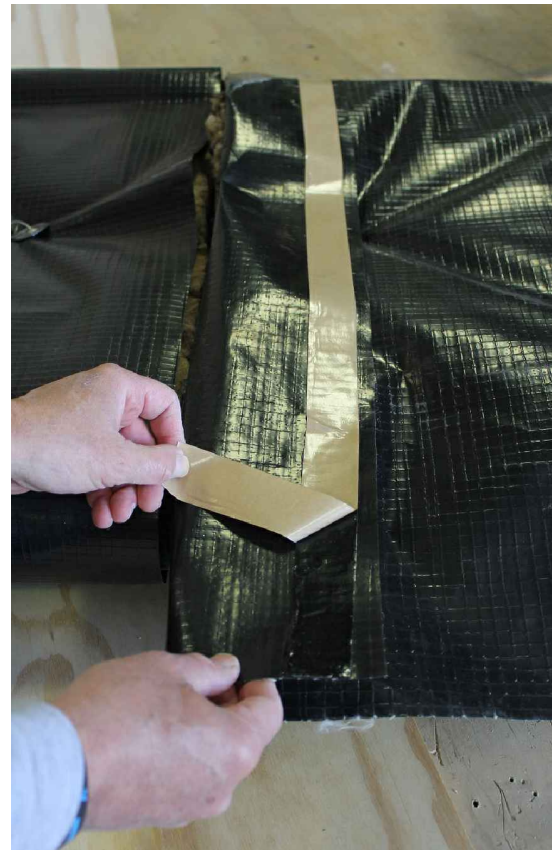


Fig. 4G

INSTALLATION: VERTICAL JOINT

Step 5 - In-Joint Splicing

Note: For vertical installation, the barrier should always be installed with the female splice end at the top to facilitate water drainage across the splice joints.

5.1 When the run length requires additional barriers or multiple barrier assemblies, barrier may be spliced within the joint. Note: In-Joint splicing is more difficult to create, so it is recommended that Out-of-Joint splicing is used when possible.

5.2 If not previously applied, follow Step 4.5 - 4.6 to apply the Fab Tape to the Male and Female end of each barrier/barrier assembly to be spliced.

5.3 Place the next barrier or barrier assembly centered over the joint with the male end aligned over the female end of the installed barrier. (Fig. 5A)

5.4 At the upper end of the barrier/multi-barrier assembly, form and insert the upper half of the barrier into the joint per Step 3. Recess the barrier to the required depth and tape the edges to support the barrier.

5.4 At the splice, reach under the barrier and peel the paper backing off the Fab Tape within the installed barrier.

5.5 At the mating end of the barrier, compress the end of the barrier or form the barrier to a "U" shape so it can fit within the installed barrier. (Fig. 5B)

5.6 Carefully insert the end of the barrier into the joint and female end of the installed barrier, butt the end of the insulation to the insulation of the installed barrier, and seat the backside of the barrier onto the Fab Tape. Try to center the barrier onto the tape and within the installed barrier.

5.7 Seat the remainder of the barrier onto the joint. Adjust the height of the upper barrier if needed to remove sagging and flatten the flanges and reapply the duct tape at the flanges to hold the barrier in place. (Fig. 5C)

5.8 Once the full length of the barrier is seated, place your hands inside the barrier at the splice area and press outward to seat the outer barrier onto the tape.

5.9 Lift the Outer Splice Flap of the upper barrier and peel the paper backing from the Fab Tape. (Fig. 5D) Working from the middle of the barrier width towards to outside edges, seat the flap and tape against the top surface of the installed barrier. (Note: To increase the bond strength, use a non-flaming or sparking heat gun and heat the Fab Tape area. Apply heat when installing at temperatures below 40° F.)

5.10 Use your hands to apply pressure to the area of the Fab Tape to adhere the tape. (Fig. 5E)

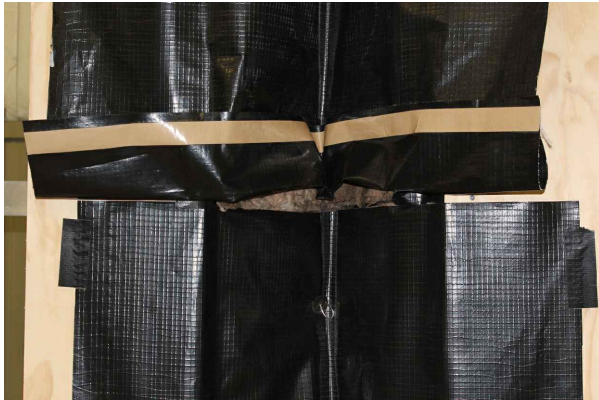


Fig. 5A

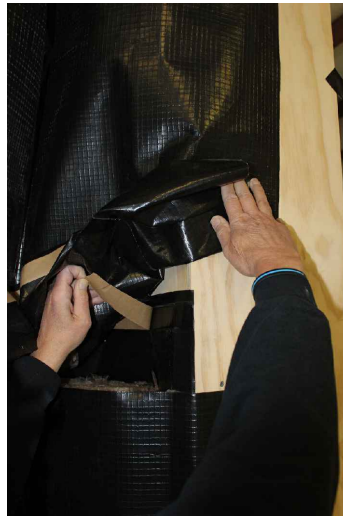


Fig. 5B



Fig. 5E



Fig. 5C

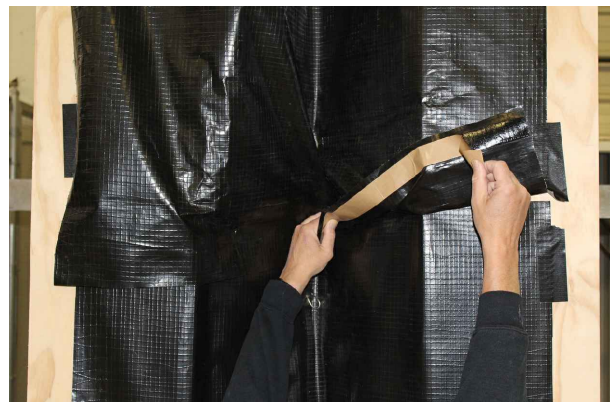


Fig. 5D

INSTALLATION: VERTICAL JOINT

Step 6 - First Barrier Prep from a Transition

6.1 When a Transition (such as horizontal to vertical, vertical to horizontal) occurs at the end of a run, it is recommended that the Transition barrier is installed first and the installation is continued from the transition. Prepare the Transition Barrier per instructions on Page 14.

6.2 Measure from the insulation at the end of the transition to the end of the run. Note the end condition (male or female) at the transition barrier.

6.3 Prepare barriers for the run per splice instructions in Step 4 and 5.

6.4 Place the barrier/barriers in the appropriate orientation to mate with the male or female end of the transition barrier. (Fig. 6A)

6.5 Place the first barrier or multi-barrier assembly over the joint.

6.6 Insert the barrier into the joint per Step 3 and create the In-Joint splice per Step 5 instructions.

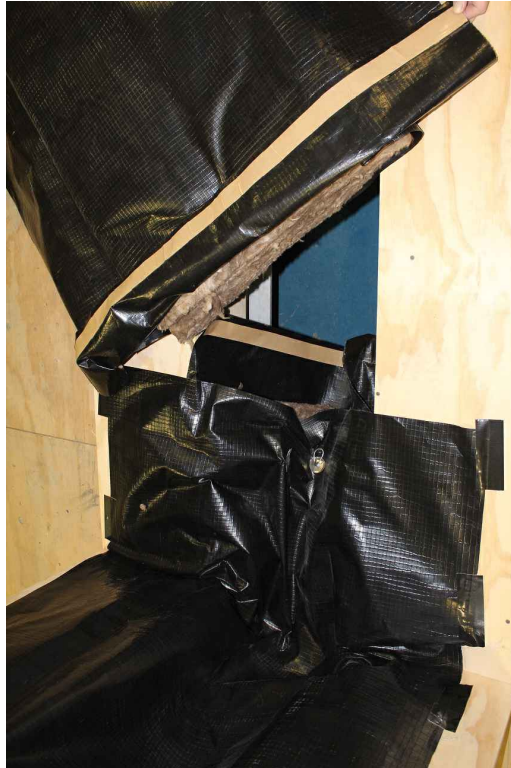


Fig. 6A

INSTALLATION: VERTICAL JOINT

Step 7 - Install Aluminum Frames or Galvanized Strips

Note: In many application the TVB is anchored by the frames or retainers of an adjacent expansion joint cover (e.j.c.). For application where there is no e.j.c., the TVB can be anchored with Alum. Frames or Galvanized Strips, based on the substrate and recess depth. Refer to CS-provided drawings and details for TVB-A and TVB-G models for the required application.

7.1 Based on the details, position an Alum. Frame or Galv. Strip at the location indicated.

7.2 Using the Frame or Galv. Strip as a template, mark the locations for the anchors. Refer to the drawings for the CS-supplied anchor type and spacing.

7.3 Based on the anchor type, pre-drill the substrate with the appropriate size and type of drill. (Fig. 7A & 7B) Note: For some anchor types and substrates (example: thin metal, wood), it may not be necessary to pre-drill.

7.4 Reposition the frame/strip and anchor it using the appropriate anchor. (Fig. 7C & 7D)

7.5 Repeat for each piece of of frame/strip required to full anchor this run of TVB.

Notes:

- The wide wings of the TVB are intended to be mated to the building weather membrane when required. Dow Corning 758 Silicone Weather Barrier Sealant has been tested with TVB barrier and has proven to provide an acceptable water seal between the TVB and common building membranes.

- When the wide flange is not needed, it can be removed beyond the attachment.



Fig. 7A



Fig. 7B



Fig. 7C



Fig. 7D

TRANSITIONS / MITERS

In transitions it is important to minimize the cutting of the top layer of vapor barrier material on the TVB system. The vapor barrier material is flexible and easily transitions with minimal penetrations.

VERTICAL TO HORIZONTAL TRANSITION

It is recommended to use one continuous section of TVB to transition from a vertical to a horizontal condition. Without cutting the material, fold TVB material into a "U" shape and install in the expansion joint area. If using a spliced piece of material make sure the splice area is not at the 90° corner of the transition. (See Fig. T1.)

Orient the barrier so that the Inner Layer Splice Flap is at the upper end of the vertical portion to facilitate splicing to the next vertical barrier.



Fig. T1