

NUCOR BUILDING SYSTEMS

SINGLE CURB

INSTALLATION MANUAL

WATERLOO, IN
305 Industrial Parkway
Waterloo, IN 46793
Phone: 260-837-7891
Fax: 260-837-7384

SWANSEA, SC
200 Whetstone Road
Swansea, SC 29160
Phone: 803-568-2100
Fax: 803-568-2121

TERRELL, TX
600 Apache Trail
Terrell, TX 75160
Phone: 972-524-5407
Fax: 972-524-5417

LANCASTER, PA
210 Granite Run Dr.
Suite 280
Lancaster, PA 17601
Phone: 717-735-7766
Fax: 717-735-7769

BRIGHAM CITY, UT
1050 North Watery Lane
Brigham City, UT 84302
Phone: 435-919-3100
Fax: 435-919-3101

**DUE TO THE PROCESS OF CONTINUOUS IMPROVEMENT,
THE PRODUCTS AND PROCEDURES IN THIS MANUAL ARE
SUBJECT TO CHANGE WITHOUT NOTICE**

GENERAL

1.0 TABLE OF CONTENTS

1.0 TABLE OF CONTENTS 2

1.0 GENERAL 3

 1.1 Purpose of this Manual..... 3

2.0 SAFE ROOF ACCESSORY INSTALLATION 3

 2.1 Regulations..... 3

 2.2 Erector’s responsibility 3

 2.3 Walking and working on roof panels 3

 2.4 Safety equipment..... 3

 2.5 Panel overhang 4

 2.6 Point loads..... 4

 2.7 Slick surfaces 4

 2.8 Electrical conductance 4

 2.9 False security of insulation 4

 2.10 Sharp edges 4

 2.11 Safe Roof Installation Summary..... 5

3.0 INSTALLATION BASICS 6

 3.1 Proper tools 6

 3.2 Mastic 7

 3.3 Fasteners..... 8

 3.4 Field cutting of panels and flashing..... 9

4.0 FLOATING CURB LOCATION AND LAYOUT 10

 4.1 Curb Location 10

 4.2 Curb Layout 11

 4.3 Alternative Curb Flange Cut Back Dimension..... 13

 4.4 Cutting Out The Roof Framed Opening 14

5.0 BACKER CHANNELS 15

 5.1 Layout of backer channels 15

 5.2 Notching of the backer channels 15

 5.3 Installing and Fastening the Backer Channels:..... 16

6.0 INSULATION TIE OFF 17

 6.1 Insulation tie off: 17

7.0 FLOATING CURB INSTALLTION 18

 7.1 Laying out the Floating curb: 18

 7.2 Cutting of The Curb Flange 19

 7.3 Clean-up 19

 7.4 Dry fit curb 19

 7.5 Tube Caulk and mastic placement..... 20

 7.6 Installation Of The Floating Curb..... 20

8.0 INSTALLATION OF RIB COVERS 21

 8.1 Major rib preparation 21

 8.2 Mastic and Tube Caulk Placement..... 23

9.0 FINAL CLEANUP AND PERIMETER CAULKING 24

 9.1 Curb and Panel Cleanup 24

GENERAL**1.0 GENERAL****1.1 PURPOSE OF THIS MANUAL**

This installation manual is provided to Nucor Builders and their erectors as the recommended procedure for the step by step installation of a single curb system onto a Nucor Building Systems (NBS) “CFR & VR 16 II” Roof System after the roof has been installed. **NOTE:** Prior to the CFR™ & VR 16 II roof being installed, **ALL** roof framed opening jambs **must be** in place.

This manual is intended to be used in conjunction with the “CFR™ & VR 16 II” Erection Manual and the project’s erection drawings to help plan and organize the installation of the single roof curb system.

This manual is supplied for both the CFR roof and the VR 16 II roof systems. The drawings and pictures represented in this manual show the curb installation on a CFR roof panel. The VR 16 II roof curb installation will be the same.

2.0 SAFE ROOF ACCESSORY INSTALLATION**2.1 REGULATIONS**

Regulations set forth by the Occupational Safety and Health Act, local, state, and/or federal agencies should be adhered to at all times. NBS is not responsible for injury, damage, or failure, which may be the result from failing to meet any of these regulations. In compliance with the Hazard Communication Rule 1910:1200, Material Safety Data Sheets (MSDS) have been provided for your use and safety. These data sheets should be made available to all personnel that come in contact with these products. These data sheets will give you the necessary information to properly handle such materials and what to do in case of an emergency. (The MSDS sheets are located in one of the warehouse boxes for non-Nucor builders, and in the office of Nucor Builders).

2.2 ERECTOR’S RESPONSIBILITY

The erector of the roof system is responsible for the safe execution of this manual. These instructions are intended to describe the sequence and proper placement of parts. They are not intended to prescribe comprehensive safety procedures. The procedures in this manual are believed to be reliable. However, NBS **shall not be** responsible for injury, damage, or failure due to the misapplication of these procedures, improper erection techniques, or negligence

2.3 WALKING AND WORKING ON ROOF PANELS

DO NOT use a roof panel as a working platform. An unsecured panel could collapse under the weight of a person standing between purlins or at the panel end.

An approved and safe walking platform should be used in high traffic areas to prevent the roof panel from being deformed, scratched, or scuffed

2.4 SAFETY EQUIPMENT

The use of safety equipment for the roof curb installation is recommended at all times during the installation process. However, when using lanyards, ensure that the clasp, belt hooks and wire cables are covered in such a manner that they will not scratch the panel surface if accidentally dragged along the panel.

GENERAL**2.5 PANEL OVERHANG**

DO NOT stand on the end of unsupported (cantilevered or sheared edge) panels at the eave, ridge or the cut roof framed opening. Standing on the cantilever portion may result in panel collapse.

2.6 POINT LOADS

When properly supported by the structural steel, panels are designed to support uniform loads, which are evenly distributed over the panel surfaces. Point loads that occur in small or concentrated areas, such as heavy equipment, ladder, or platform feet, etc., may cause panel deformation or even panel collapse.

2.7 SLICK SURFACES

Panel surfaces and structural steel surfaces are hard, smooth, and nonabsorbent, which causes these surfaces to be very slick when wet or covered with snow or ice. Even blowing sand or heavy dust can make these surfaces difficult to walk on without slipping.

Unpainted panel surfaces are often coated with oil to accommodate the panel-fabrication process. Although designed to wash away or evaporate during normal weather, the oil on new panels can be extremely slick, especially during periods of light rain and dew.

Caution must be exercised to prevent slipping and falling onto the roof surface or even sliding off the roof. Non-slip footwear is a necessity and non-slip working platforms are recommended.

2.8 ELECTRICAL CONDUCTANCE

Metal panels are excellent electrical conductors. A common cause of injury is the contact of metal panels with power lines during handling and installation. The location of all power lines must be noted and, if possible, flagged. The installation process must be routed to avoid accidental contact with all power lines and high voltage services and equipment. All tools and power cords must be properly insulated and grounded and the use of approved ground fault circuit breakers is recommended.

2.9 FALSE SECURITY OF INSULATION

Blanket and rigid board insulation block the installer's view of the ground below the roof. Serious injury can occur when the installer gets a false sense of security because he cannot see the ground and steps through the insulation.

2.10 SHARP EDGES

Some edges or panels and flashing are razor sharp and can cause severe cuts if proper protective hand gear is not worn. Be careful not to injure others while moving panels and flashing.

GENERAL**2.11 SAFE ROOF INSTALLATION SUMMARY**

- **EXTREME CAUTION SHOULD BE EXERCISED WHEN WALKING ON ROOF PANELS.**
- **OILS USED DURING THE ROLL FORMING PROCESS AND/OR NATURAL MOISTURE MAY CAUSE THE PANELS TO BECOME SLIPPERY.**
- **DO NOT STEP ON PANELS WITH CREASED EDGES.**
- **DO NOT STEP ON OR NEAR THE EDGE OF A PANEL.**
- **DO NOT STEP WITHIN 5 FEET OF THE END OF A PANEL.**
- **DO NOT USE LOOSE PANELS AS WORK PLATFORMS.**
- **DO NOT WALK ON UNSECURED PANELS.**
- **DO NOT WALK ON TRANSLUCENT PANELS**
- **SECURE ALL LOOSE PANELS AT THE END OF THE WORK DAY.**
- **USE EXTRA CARE WHEN WORKING ON STEEP SLOPES.**
- **DO NOT STEP NEAR THE SHEARED EDGE OF PANEL AT A ROOF FRAMED OPENING LOCATION.**

IN COMPLIANCE WITH THE HAZARD COMMUNICATION RULE 1910:1200, MATERIAL SAFETY DATA SHEETS HAVE BEEN PROVIDED FOR YOUR USE AND SAFETY. THESE DATA SHEETS SHOULD BE MADE AVAILABLE TO ALL PERSONNEL THAT COME IN CONTACT WITH THESE PRODUCTS. THESE DATA SHEETS WILL GIVE YOU THE NECESSARY INFORMATION TO PROPERLY HANDLE SUCH MATERIALS AND WHAT TO DO IN CASE OF AN EMERGENCY

3.0 ROOF CURB INSTALLATION BASICS

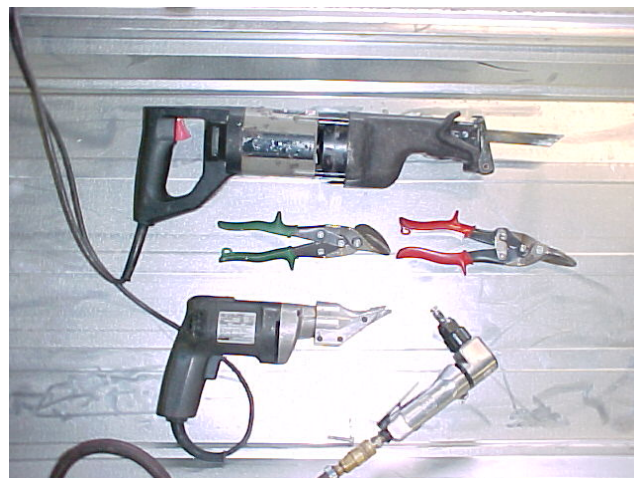
3.0 INSTALLATION BASICS

3.1 PROPER TOOLS

Before starting the roof curb installation, be sure that the proper equipment and tools are on hand. The tools must be in good operating condition and operators should adhere to safety precautions at all times.

The following tools and equipment should be considered for efficient installation of the NBS “CFR™ & VR 16 II” Roof Curb System. Actual tools and equipment required may vary due to variations in building type and construction:

- NBS “CFR™ & VR 16 II” Small Manual Seaming Tool H8100 (buy-out)
- NBS “CFR™ & VR 16 II” 360° Crimper Tool H8150 (buy out)
- Screw Guns-designed for use with self-drilling screws
- Socket Extensions-6” for screw guns
- Hex Socket Heads-5/16” and 3/8”, magnetic
- Electric Drill -1/4” capacity
- Drill Bits-assortment
- Sheet Metal Cutter-or power shears or nibblers
- “C” Clamps-vise grip type
- Pop Rivet Tool-1/8” capacity
- Sheet Metal Shears-left and right cut
- Steel Measuring Tapes-12’, 50’, 100, and 120’
- Blue Chalk Line (Not Red)
- Air nibbler (if possible)
- Brooms
- Marking Pens (do not use pencils)
- Caulk Guns-for 1/10 gallon mastic tubes
- Power Source and Extension Cords-capable of handling the total equipment requirement.
- Power saw and/or jig saw with non-abrasive blades.



Small VL Hand Crimper H8100 (Top)
 Small VL360 Hand Crimper H8150 (Bottom)

3.0 ROOF CURB INSTALLATION BASICS**3.2 MASTIC****TEMPERATURE EFFECTS**

Temperature extremes must be considered during installation of the roof due to the sensitivity of mastics. The recommended installation temperature range is 20-120 degrees Fahrenheit. At colder temperatures, the mastic stiffens resulting in loss of adhesion and compressibility. At hotter temperatures, the mastic becomes too soft for practical handling. On cold but sunny days, the panel surface may become warm enough to accept the application of heated mastic even though the air temperature is below 20 degrees Fahrenheit.

When overnight temperatures fall below freezing, the mastic should be stored in a heated room so it will be warm enough to use the following day. On hot days, the mastic cartons should be stored off the roof in a cool and shaded area. While on the roof, mastic rolls should be kept shaded until actual use.

In very cold weather, it is recommended that the fasteners be tightened slowly and only tight enough that the mastic is in full contact with the panel or flashing. Then on the next sunny day, complete the tightening process after the sun warms the panel and flashing surfaces.

CONTAMINATION

To assure proper adhesion and sealing, the mastic must have complete contact with adjoining surfaces. Contaminants such as water, oil, dirt, and dust prevent such contact. The panel and flashing surfaces **must be dry and thoroughly cleaned of all contaminants**. Before applying tape mastic, the mastic should be checked for contaminants. If the mastic surfaces are contaminated, it must not be used.

During cool weather, condensation or light mist can accumulate on the panel and flashing surface and not be easily noticed. It is recommended that the mastics always be kept under protective cover and that the panel and flashing surfaces be wiped dry immediately before installation.

Tape mastic is provided with a protective paper to reduce contamination. Incomplete removal of the protective paper will prevent the mastic adhesion to the panel or flashing surfaces. Always check that the protective paper is completely removed. **DO NOT** remove the protective paper until immediately before the panel or flashing is installed over the mastic

During cold weather, the fasteners must be tightened slowly to allow the mastic time to compress. If the fasteners are tightened too fast, the fasteners may strip out before the mastic compresses adequately, or the panel or flashing may deform in the immediate area of the fastener, leaving the rest of the mastic insufficiently compressed.

INSIDE CORNERS

An inside radius, such as where the panel flat meets a rib, is usually the most critical area to seal. A common mistake for the installer is to bridge the mastic across the inside radius.

When the lapping panel or flashing is pushed into place, the bridged mastic is stretched and thinned. The mastic may then be too thin to adequately seal this critical area. When tape mastic is applied at an inside radius, it is recommended that the mastic be folded back, then push the mastic fold into the radius.

3.0 ROOF CURB INSTALLATION BASICS

3.3 FASTENERS

SCREW GUNS

Use torque control screw guns for driving self-drilling screws. 2000-2500 RPM screw guns with torque adjustable clutch are necessary to attain efficient drilling speeds. High tool amperage (6-7 AMP) is required to achieve the proper torque for secure fastening. **Do not use impacting tools. Also note that cordless screw guns will not work.**

To assure proper voltage to the tool, extension cords should be checked for proper wire size and cord length:

- 16 ga. wire, max cord length = 100'
- 14 ga. wire, max cord length = 200'
- 12 ga. wire, max cord length = 300'

SOCKETS

Use good quality magnetic sockets. Good fitting sockets reduce wobble and stripping of the screw heads. They also minimize objectionable paint chipping and scuffing on colored screws and minimize damage to the protective coating on unpainted screws.

Magnetic sockets collect drill shavings, which will build up and eventually prevent the socket from seating properly on the screw heads. One method of removing the drill shavings is to roll up a ball of tape mastic and push the socket into the mastic.

When the socket is removed from the mastic, most of the drill shavings will be embedded in the mastic thereby cleaning the socket. This process should be repeated as often as needed to keep the socket clear of drill shavings.

SOCKET EXTENSIONS

A 4" or 6" socket extension is recommended for installing the panel clip screws. With the extension, the screw can be driven straight down without tilting the screw gun to clear the panel or clip.

INSTALLATION

Before starting the screw, the materials to be joined must be pressed together with foot or

hand pressure. The pressure must be maintained until the screw has drilled through all the materials and the threads have engaged.

Most self-drilling screws require 20 pounds of pressure to maintain the drilling action and to start the thread cutting action. Also, applying such pressure before starting the screw gun will usually prevent tip walking or wandering. If too little pressure is applied, the drill point may not cut into the metal and the point will heat up and become dull. If the pressure is too heavy, the bottom material may be deflected away, causing a standoff condition, or the drill tip may be broken or split. Screws must be held perpendicular to the panel or flashing surface during starting and driving.

For proper seating of the fastener-sealing washer, the panel or flashing surface must be clean and drill shavings must be removed from under washers before seating. The fastener must be driven perpendicular to the panel surface so that the washer can seat level without warping or cupping.

Do not over-drive screws. Over-driving can strip the threads and/or damage the sealing washer. Use screw gun with torque control set to function properly for the combination of fastener size, hole size, and material thickness.

The fastener should be driven tight enough to uniformly compress the washer but not so tight that the washer splits or rolls out from under its metal dome. The recommended procedure is to tighten the fastener until the sealing washer just starts to visually bulge from under the metal dome. **Refer to the chart on the following page for a proper fastener-seating diagram.**

As a standard practice, NBS provides oversized (goof) screws. Upon stripping or breaking a screw, the screw must be immediately removed and replaced with the goof screw. Do not defer the screw replacement to be remembered and fixed later, or to be found by the clean-up crew. The majority of such screws are easily overlooked until they cause leak problems later.

3.0 ROOF CURB INSTALLATION BASICS

THIS CHART SHOWS PROPER FASTENER SEATING PRACTICE

<u>CORRECT</u>	<u>TOO LOOSE</u>	<u>TOO TIGHT</u>
		
Sealing Material slightly visible around Metal Washer	Sealing Material not visible around Metal Washer	Sealing Material deformed beyond the edge of the Metal Washer

3.4 FIELD CUTTING OF PANELS AND FLASHING

ABRASIVE SAW PROBLEMS

Abrasive saws (circular saws with friction disks) are not recommended for cutting roof panels or flashing. Abrasive saws create high heat that may burn away the protective cladding from the panel edge, causing the edge to rust.

Also, abrasive saw dust contains fine, hot steel particles, which accumulate on panel and flashing surfaces where they rust and can cause staining and rusting of those surfaces.

Rust caused by abrasive saw damage or abrasive dust particles are excluded from warranty claims.

SHEARING METHODS

It is recommended that panels and flashing be cut with shears or nibblers to provide a clean, undamaged cut. On shear cut edges, the protective cladding extends to the edge of the cut and is often wiped over the edge to further protect the base metal. Whenever possible, fit

the material so that the factory cut edge is exposed and the field cut edge is covered.

When field cutting complex shapes, it is usually easier to cut out a 1” wide strip using both left and right hand shears. The 1” cutout provides clearance to smoothly cut the flats and the clearance to work the shears around tight corners.

When making repetitive cuts (such as cutting panels at a hip condition) it is recommended that a template be made from a piece of drop-off panel or flash to provide fast and accurate marking of the field cut. When using panel material for the template, cut off the top portion of the panel ribs so that the template is easily laid onto the panel being marked.

MARKING PANELS

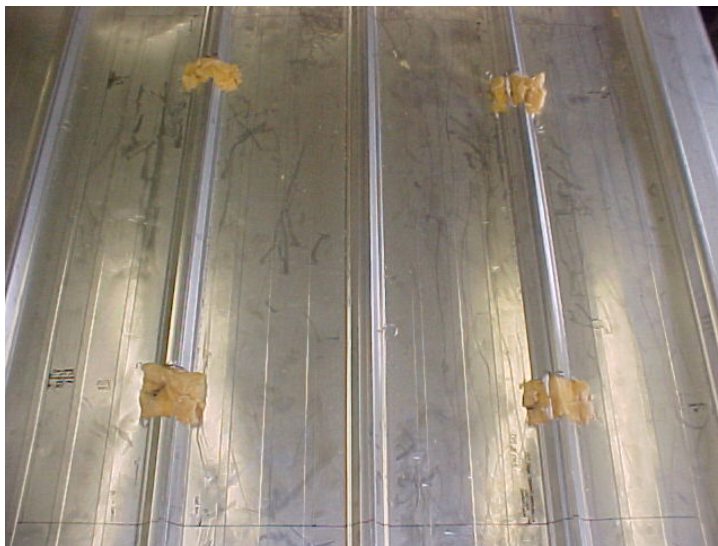
Avoid marking the panels for cutting, etc., in a manner that will leave visible markings, stains, etc., on the finished roof surface. Use chalk or felt tip ink markers. **DO NOT USE GRAPHITE (LEAD) PENCILS ON UNPAINTED PANEL SURFACES, THE GRAPHITE WILL CAUSE RUSTING OF THE SURFACE.**

4.0 ROOF CURB LAYOUT**4.0 FLOATING CURB LOCATION AND LAYOUT****4.1 CURB LOCATION**

Once the CFR & VR 16 II roof is installed the erector needs to locate the inside four corners of the roof framed opening . To do this, you need to come up from underneath and drill through the CFR & VR 16 II roof panels at each corner. (see figure 1)

**FIG. 1**

After the four corners are located and drilled, return to the topside of the roof. Once there, carefully cut away a portion of the CFR & VR 16 II panels to expose the corners of the curb but not cutting the insulation. (see figure 2)

**FIG. 2**

CFR Panel shown VR 16 II Panel similar.

4.0 CURB LOCATION AND LAYOUT

4.2 CURB LAYOUT

After the four corners of the curb have been located and cutout. The next step is to layout the placement of the floating curb. The details below are based off of an **example** single curb system where the clear dimensions are 60” x 60”. The cut dimensions are shown from the inside of the roof framed opening. ALL std Nucor floating curbs (single or double curb system) come with a side flange width of 12” and the top and bottom flange length of 13 1/2”.

The basic formula for figuring out the panel cutout is as follows:

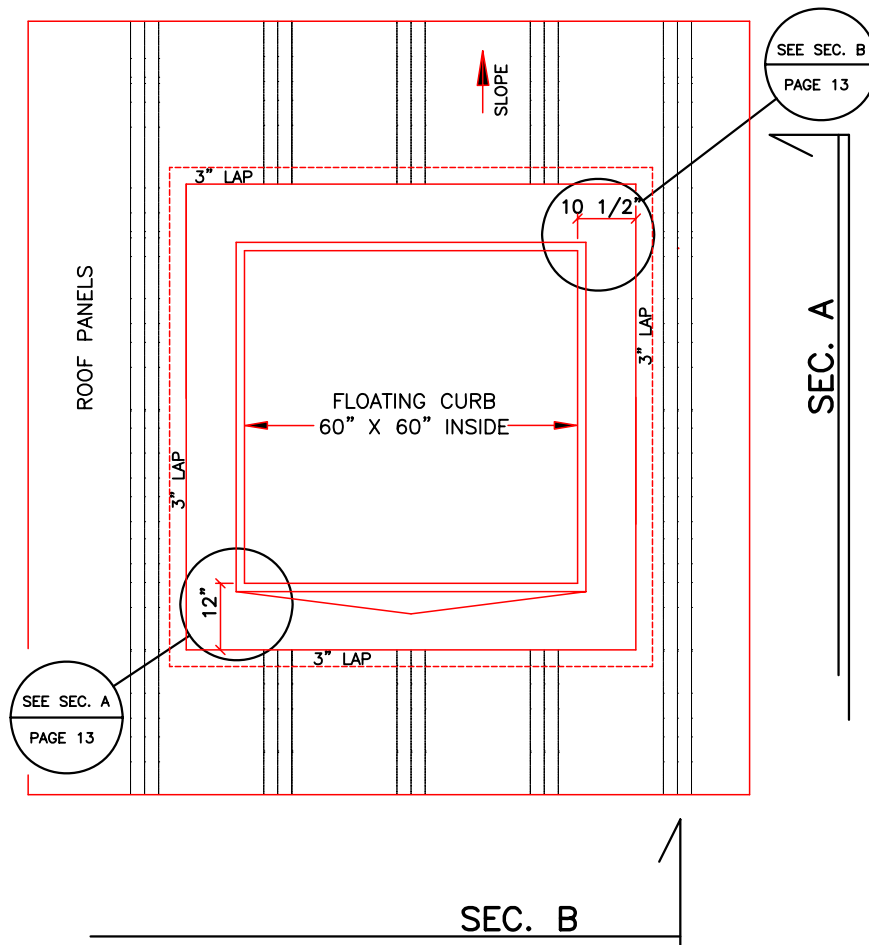
Overall outer curb flange length or width – 6” = R.O. cut-out

Our example:

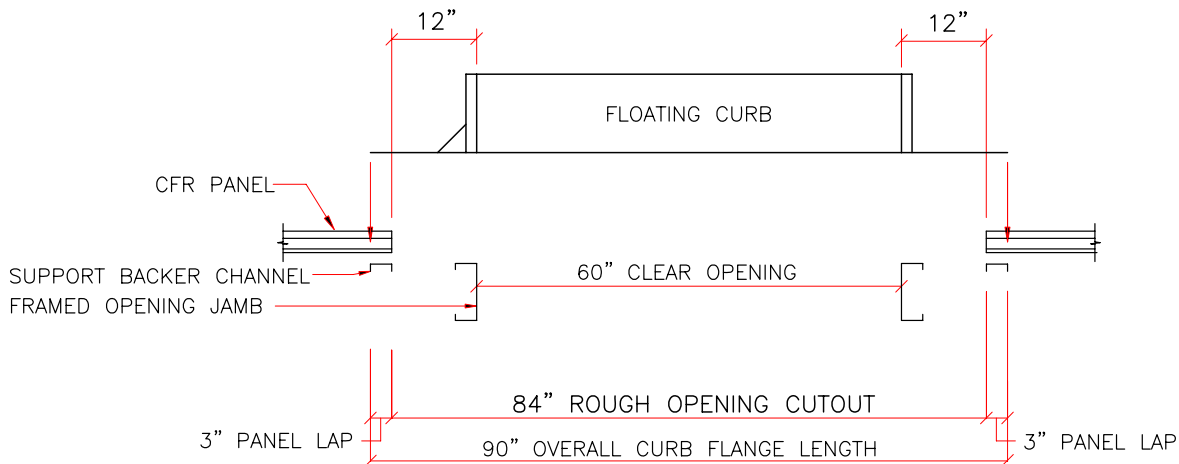
90” O.A.L.(curb length) – 6” = **84”** Rough Opening

87” O.A.W.(curb width) – 6” = **81”** Rough Opening

The attached details will show the cut dimensions from the inside of the roof jambs for this example. Your R.O. cut-out will vary due to different curb sizes.

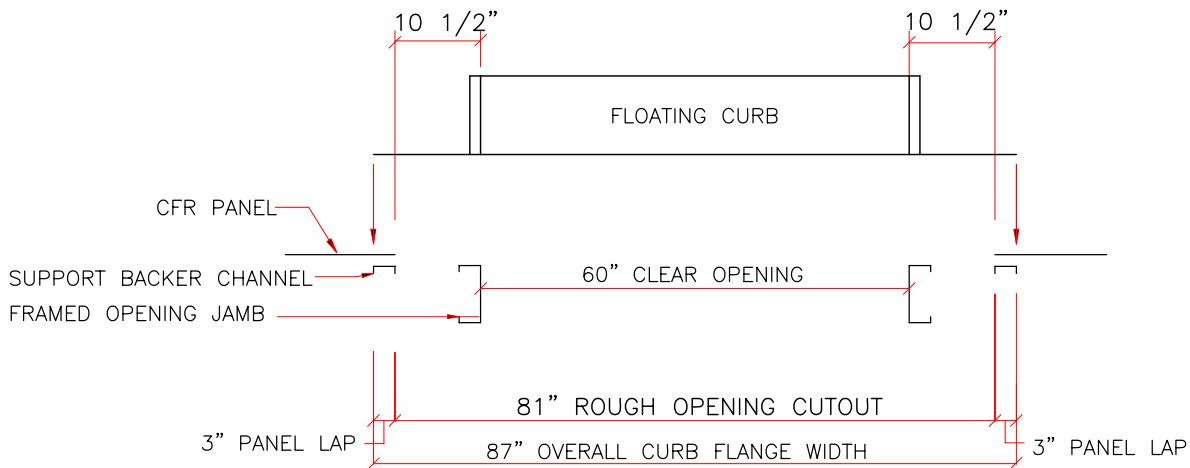


4.0 CURB LOCATION AND LAYOUT



SEC. A

CFR Panel Shown VR 16 II Panel similar.



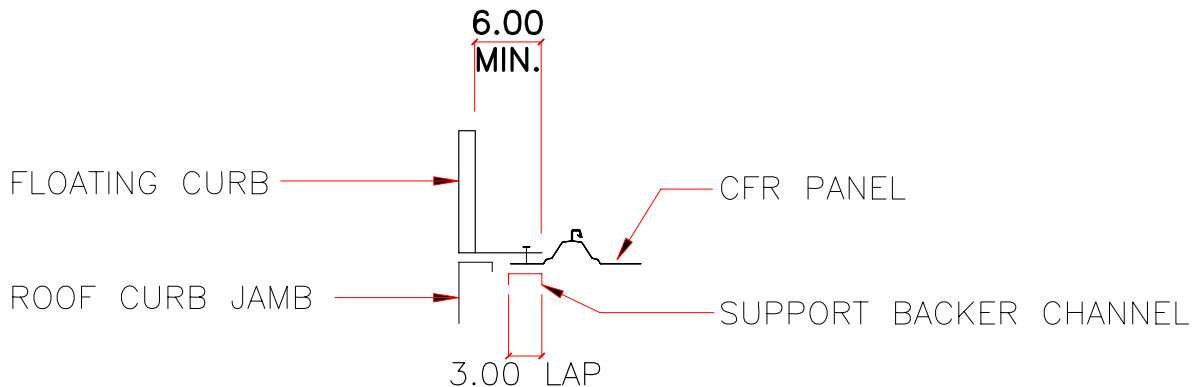
SEC. B

CFR Panel Shown VR 16 II Panel similar.

4.0 CURB LOCATION AND LAYOUT

4.3 ALTERNATIVE CURB FLANGE CUT BACK DIMENSION

In some cases where the curb flange interferes with the major panel rib, field cutting of the curb flange may be required. Whatever the case may be, the erector **must** maintain the 3” curb flange / panel lap. See the detail below for the minimum flange cut-back dimension.



MIN. FLANGE CUT BACK DIMENSION

CFR Panel Shown VR 16 II Panel similar.

4.0 CURB LOCATION AND LAYOUT

4.4 CUTTING OUT THE ROOF FRAMED OPENING

Double check the overall floating curb measurements to insure that the proper R.O. is achieved. **Remember:** Overall outer curb length/width - 6" = R.O. cut-out (see FIG 5). To select the proper cutting tools see FIG 6. Figure 7 shows the completed R.O. cutout with the insulation intact.

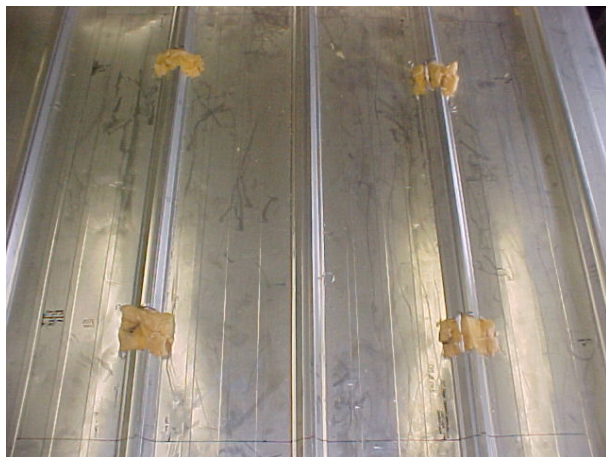


FIG 5

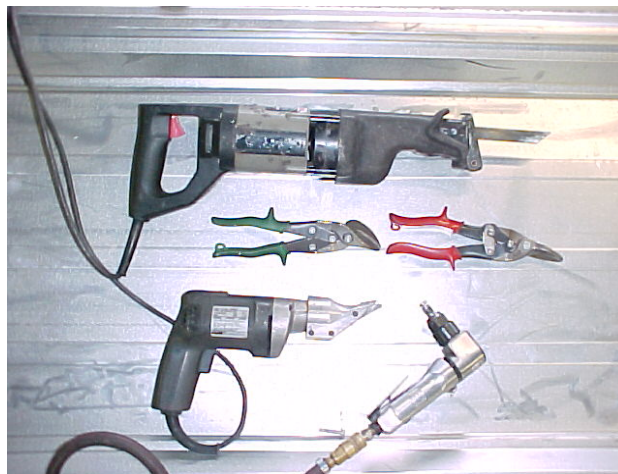


FIG 6

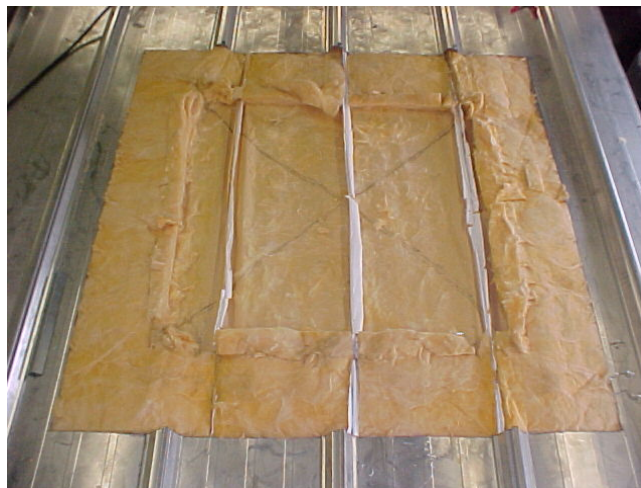


FIG 7

CFR Panel Shown VR 16 II Panel similar.

5.0 BACKER CHANNEL INSTALLATION

5.0 BACKER CHANNELS

5.1 LAYOUT OF BACKER CHANNELS

After the R.O. has been cut out and before the curbs can be installed, it is necessary to layout and install the backer support channels supplied with the curb. This consists of (2) 14 ga. side channels and (2) 14 ga. end channels 3” wide with two 1” side bends(see FIG 8 & 9) These backer channels are 6” longer than the R.O., width/length. They have a 3” cope on each end for lapping purposes.



FIG 8

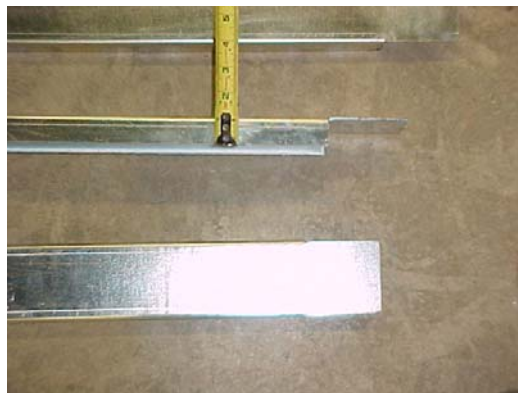


FIG 9

5.2 NOTCHING OF THE BACKER CHANNELS

NOTE: Notching **is not** necessary on the **side channels** for a **tall clip roof**.

Start by laying out the backer support channels around the perimeter of the roof framed opening (on top of the panel). The next step is to field notch the channels at the purlin/joist locations and the roof framed opening jambs for proper roof movement. After marking the locations on the side and end channels, cut out a 6” minimum notch on the side channels (see Fig. 10) and 5” notch on the end channels (see FIG 11) On the **side channels** leave a ½” of material for short clip offset. On the end channel cut the notch **flush** with the 3” flat (Remember: the roof F.O. jamb is flush with the bottom of the roof panel).



FIG 10

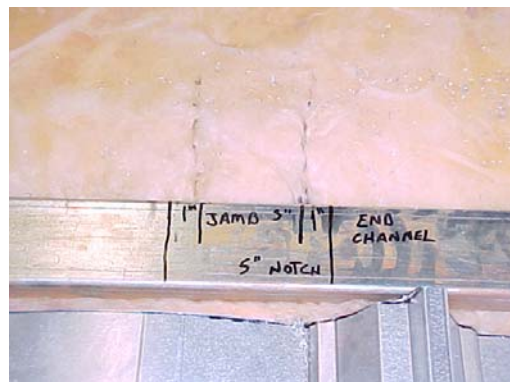


FIG 11

5.0 BACKER CHANNEL INSTALLATION

Once you have the backer channels marked, cut out using a non-abrasive saw (see FIG 12 & 13).

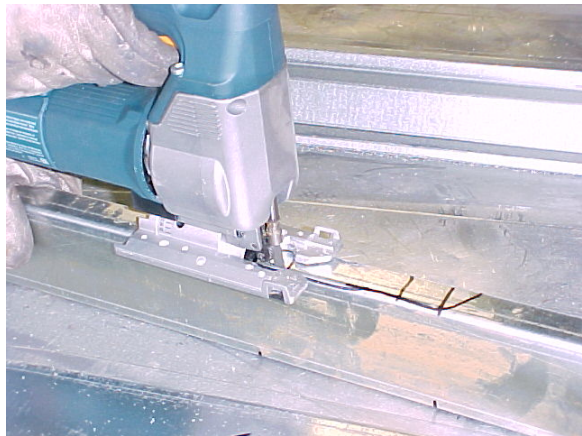


FIG 12



FIG 13

5.3 INSTALLING AND FASTENING THE BACKER CHANNELS:

After the channels have been notched, place loosely under the perimeter of the panel edge. The use of a flat pry bar will aid in the installation (see FIG. 14). Once the channels are installed, temporarily hold in place by using vise grips. Then fasten with a H1100 pop rivet (supplied) OR a small pan head self-drilling screws (not by NBS) (see Fig 15).

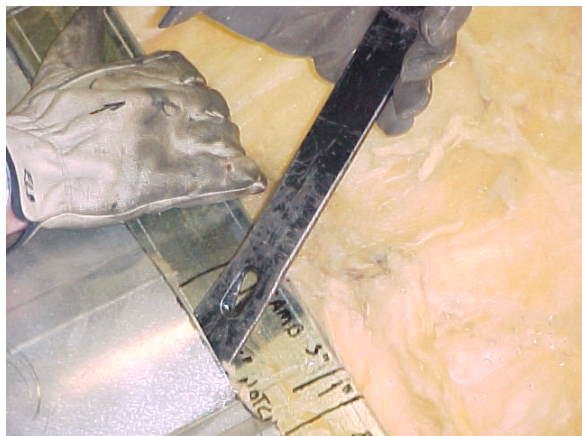


FIG 14



FIG 15

5.0 BACKER CHANNEL INSTALLATION

Finished picture of the backer channels installed (see FIG 16):



FIG 16

CFR Panel Shown VR 16 II Panel similar.

6.0 INSULATION TIE OFF**6.1 INSULATION TIE OFF:**

The next step is to remove the insulation backing from the liner within the roof opening area, then cut the liner from corner to corner. Place double sided tape (not by NBS) on the perimeter of the roof curb jambs (see FIG 17). Press the folded liner firmly in place (see FIG 18).



FIG 17

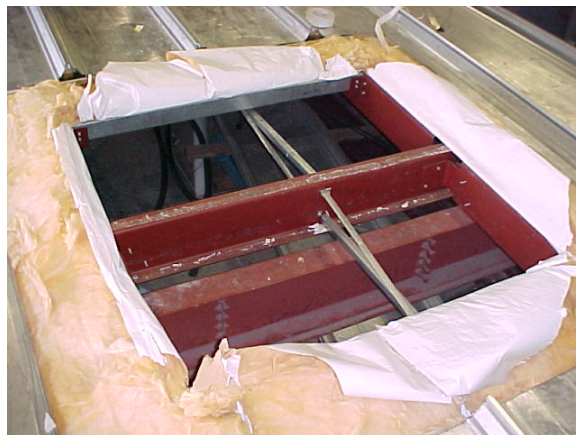


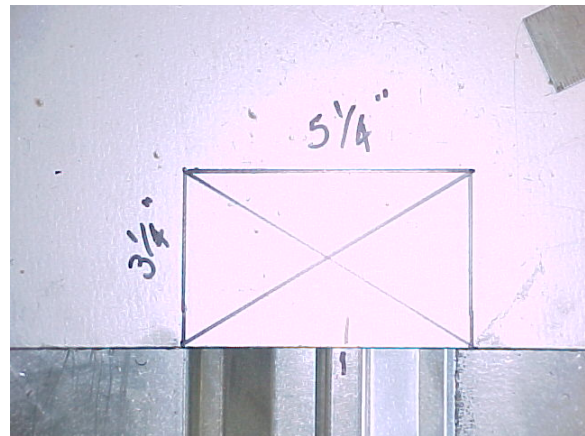
FIG 18

7.0 FLOATING CURB INSTALLATION**7.0 FLOATING CURB INSTALLTION****7.1 LAYING OUT THE FLOATING CURB:**

Prior to installing the outer curb, it is necessary to mark and cutout on the curb the main CFR & VR 16 II panel ribs. To start, mark a 3" lap line the full perimeter of the roof framed opening (see FIG 20). Next, set the curb over panel. Line-up the flanges with the 3" lap marks (see FIG 21).

**FIG 20****FIG 21**

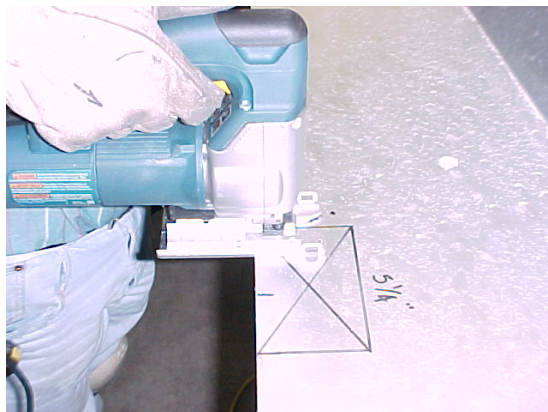
The next step is to transfer the major rib locations onto the curb flange. To do this, use a small adjustable T-square and place it about 1/4" from the edge of the major rib. (see FIG 22). After you have transferred the rib locations to the curb flange, measure in 3 1/4" as shown in figure 23. The finished notch should measure 3 1/4" x 5 1/4".

**FIG 22****FIG 23**

CFR Panel Shown VR 16 II Panel similar.

7.0 FLOATING CURB INSTALLATION**7.2 CUTTING OF THE CURB FLANGE**

After marking out all of the major rib locations, cut out using a non-abrasive saw (see FIG 24).

**FIG 24****7.3 CLEAN-UP**

The next step is to clean off ALL debris, oil and metal shavings from around the roof curb opening (see FIG 25).

**FIG. 25**

CFR Panel Shown VR 16 II Panel similar.

7.4 DRY FIT CURB

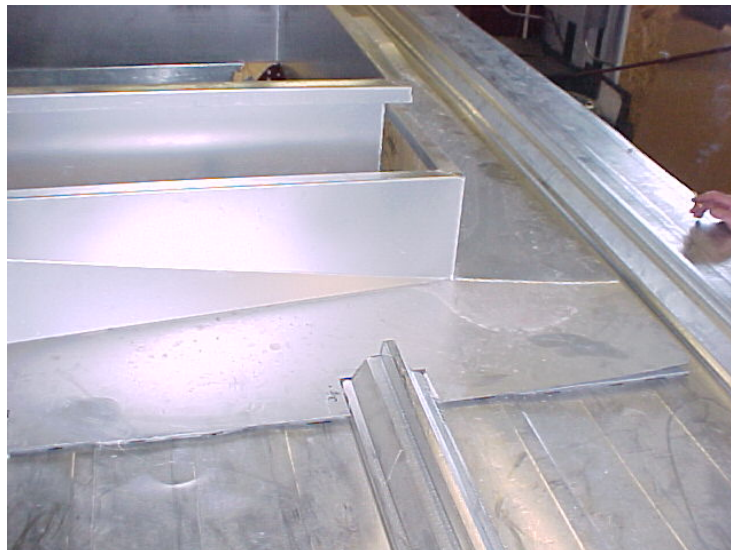
Prior to installing the tape mastics and tube caulk it is a good idea to dry fit the curb. That way the erector can do additional trimming if needed. This will ensure proper curb fit-up once the mastic's are in place.

7.0 FLOATING CURB INSTALLATION**7.5 TUBE CAULK AND MASTIC PLACEMENT**

After all of the debris is cleaned from the roof curb area, place 2 ½ " tape mastic (H3030) the full perimeter of the curb opening. **NOTE:** That the tape mastic is just butted up to the edge of the major rib. Once the tape mastic is in place, before the outer curb has been set, apply a 3/8" bead of butyl tube caulk (H3151) (see FIG 26). **NOTE:** The tube caulk is placed on the inside of the tape mastic.

**FIG. 26****7.6 INSTALLATION OF THE FLOATING CURB**

After the mastic and the tube caulk are installed, set the floating curb carefully in place (see FIG 28).

**FIG 28**

(Double Curb Shown)

CFR Panel Shown VR 16 II Panel similar.

7.0 FLOATING CURB INSTALLATION

After the floating curb has been set, fasten around the perimeter with H1030's, 1" from the edge, spaced 4" O.C. (see Fig 29).

**FIG 29****8.0 INSTALLATION OF RIB COVERS****8.1 MAJOR RIB PREPARATION**

In order to have proper fit up of the plastic rib covers, the upper part of the major rib needs to be manually crimped to form a 360° crimp. To begin this process you first need to crimp the panel with the manual panel crimper (H8100). Start by placing the open crimper on top the rib (see FIG 30), next apply pressure downward to both handles. Note the position of the handles of the finished crimp, they are slightly past horizontal (see FIG 31). This ensures a properly crimped upper panel rib. **Note:** This crimper works on both panel types.

**FIG 30**

CFR Panel Shown VR 16 II Panel similar.

**FIG 31**

8.0 INSTALLTION OF THE RIB COVERS

Next is the process of manually crimping the panel rib into the final 360° crimp. To start, place the open 360° crimper (H8150) on top of the pre-crimped rib (see FIG's 32 & 32A) Make sure that the flat side of the crimper is on the panel rib shoulder and the crimper hook is under the female lip (See Fig. 32A). Note the angle of the crimper. Next, apply outward and downward pressure to the handles to start folding down the top rib. Continue the outward and downward pressure until the rib is flat.(See FIG's 33 & 32A). Note: This crimper works on both panel types.



FIG 32

CFR Panel Shown VR 16 II Panel similar.



FIG 33

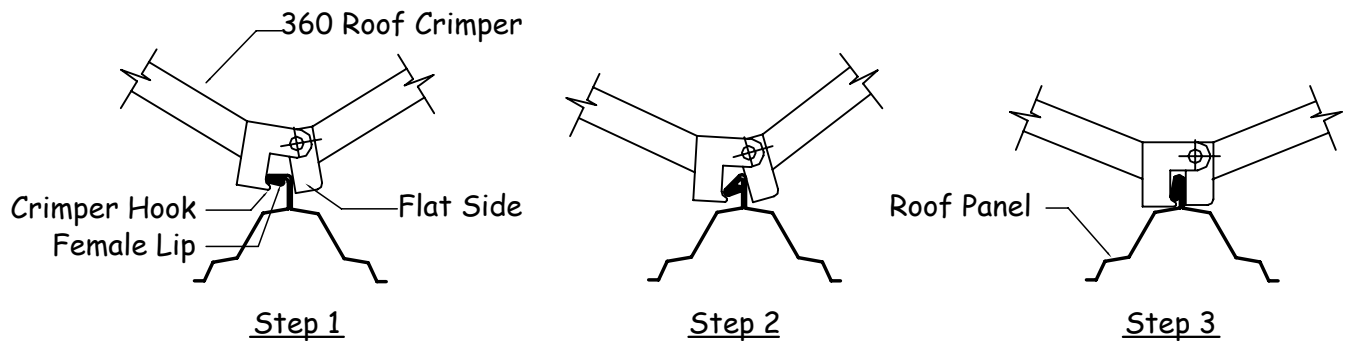
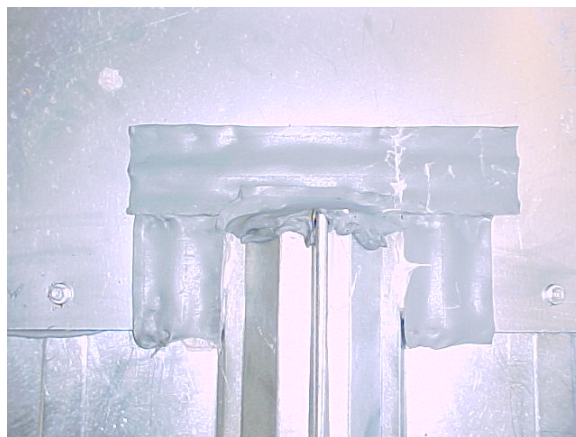


FIG 32A

CFR Panel Shown VR 16 II Panel similar.

8.0 **INSTALLTION OF THE RIB COVERS****8.2** **MASTIC AND TUBE CAULK PLACEMENT**

Prior to the plastic rib cover installation, proper tube caulk and tape mastic placement is necessary to ensure a weathertight seal. The first step is to place a small amount of butyl tube caulk (H3151) in the end of the upper part of the panel rib (see FIG 34). Next take short pieces of 2 ½” tape mastic (H3030) and place around the perimeter of where the rib cover is going to be placed. Then take another piece of 2 ½” tape mastic (H3030) and place it so that it covers the panel void end of the cut rib. Merge the panel void tape mastic together with the base mastic to form a good seal (see FIG 35).

**FIG 34****FIG 35**

CFR Panel Shown VR 16 II Panel similar.

8.0 INSTALLTION OF THE RIB COVERS

The next step is to prep the plastic rib cover (H4190). To do this, apply a generous bead of butyl tube caulk (H3151) to the perimeter of the cap and also fill the upper portion (see FIG 36). Then place the cap directly over the rib, lining it up with the edge of the curb flange and push down firmly in place. Fasten with minimum of (7) H1030 fasteners (see FIG 37). **Note:** There are left and right handed CFR rib covers.

NOTE:

For the VR 16 II roof, the rib covers are non-handed metal covers that are supplied by the roof curb manufacturer. Installation is similar. See the Cad details.



FIG 36



FIG 37

Right handed rib cover shown

9.0 FINAL CLEANUP AND PERIMETER CAULKING

9.1 CURB AND PANEL CLEANUP

After all of the curb system has been installed, it is necessary to clean off of the curb flange and panel of any and ALL loose debris, water, metal shavings, oil and dirt etc.. **NOTE:** It is also necessary to trim away any excess mastic and tube caulk from around the flanges and plastic rib covers (CFR), Metal rib covers (VR 16 II) (see FIG 41).



FIG 41

9.0**FINAL CLEAN-UP AND PERIMETER CAULKING**

After all of the cleanup has been completed and all of the excess tape mastic and tube caulk has been removed, the next step is to caulk the entire perimeter of the curb flange, ALL plastic rib covers (CFR), ALL the metal rib covers (VR 16 II) and the top of the flash collar with polyurethane tube caulk (H3152) (see FIG 42)

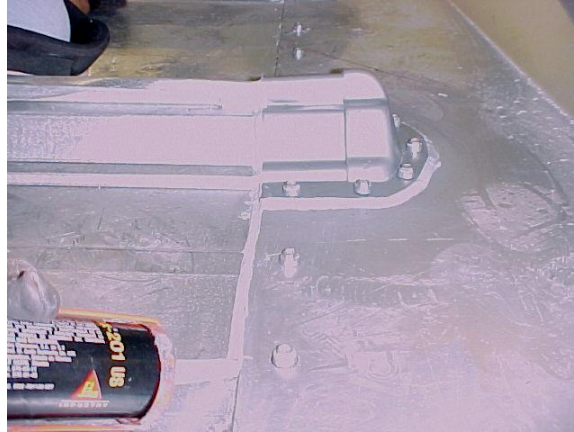


FIG 42

CFR Panel Shown VR 16 II Panel similar.