ABSTRACT: The following instructions are intended to instruct a qualified window and door expert on how to assemble window and doors in various mullion conditions including standard mulls, 3/8” mull reinforcement, space mulls, and LVL mulls. These instructions assume a high level of user competency and that they are confident using power and hand tools, modifying the frame of the window or door, and performing all the tasks within. Read these instructions thoroughly before beginning.

These instructions are used for the following products:

- Ultimate Casement family
- Ultimate Double Hung G2 family
- Ultimate Glider family
- Ultimate Direct Glaze Polygon and Round Top
- All Ultimate doors except Lift and Slide, Bifold, and Multi-Panel Sliding doors.

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MULL TYPES AND CONFIGURATIONS

Ribbon/Stacked (Standard) Mulls

A ribbon or stacked (standard) mull is one in which the frames are joined tightly together with no reinforcement or space between.

Mull Reinforcement (MRF)

Mull Reinforcement or MRF are vertical or horizontal mulls that have aluminum reinforcement members attached to them and are clipped and fastened together making the mull 3/8” wide.

Space Mulls

Space Mulls are vertical or horizontal mulls with wood blocking between them to a specified width. They are sealed at each end and covered at the exterior with a metal space mull cover. Space mulls come in 3/8”, 1”, 2”, 3”, 4” and 6” size widths.
**Laminated Veneer Lumber (LVL) Mull**

LVL Mulls are used for structural applications and come from Marvin in 1” and 2” widths (other widths may be available from other sources). Similar to space mulls and MRFs they are sealed at the ends and covered to the exterior with a metal mull cover.

![Figure 4 LVL Mull (sealant application not shown in inset)](image)

**Stud Pocket Mull**

Stud Pocket Mulls are similar to space mulls except the wood blocking is removed just prior to the window being installed.

![Figure 5 Stud Pocket Mull](image)

**Configurations**

All mull configurations are diagrammed with the same rules as viewed from the exterior. The alphabetical label denotes the horizontal row starting with the top. The numerical label denotes the vertical column starting from the left. For example, A1 is always the top left unit as viewed from the exterior.

![Figure 6 Mull diagram example from quote system](image)

When laying out your assembly, refer to the quote diagram and the corresponding label on the unit.
FIELD PREPARATION

Corner Notches

If you have ordered your assembly factory prepped for mulling, verify that the correct corners have been notched. If not refer to the steps below starting with step 2 on page 5.

The following illustrations show the correct location for notched corners in various configurations regardless of mull type.

Figure 8

1 Standard Mull 2 wide (notch at the headjamb)

Figure 9

1 2 wide x 2 high direct mull, MRF, and spacemull (notch all corners of the intersection)

Figure 10

1 2 wide x 2 high with transom on top (notch tops of both lower units and ends)
1. Any corner that intersects a mull must have a notch cut out of the accessory kerf cladding such as that shown in Figure 11. Notching allows room to apply the mull cap and frame trim later.

![Figure 11](image1)

2. To make a notch, remove the exterior wall of the accessory kerf with a sharp chisel. Only remove material from the accessory kerf that is perpendicular to a mull. (multiple high/multiple wide configurations will have both walls of the corner(s) notched out). See Figure 12 and Figure 13.

![Figure 12](image2)

![Figure 13 Notching detail for intersecting mulls](image3)
This section focuses on preparing an assembly for mull reinforcement if it has NOT been factory applied. Refer to your mull diagram to identify the location of your mull reinforcement(s).

1. **MRF KERF**: If the units in your assembly have not been prepped for MRF and have no accessory kerf in the wood sides of the jamb, you will need to cut a 1/8" wide by 1/4" deep kerf. Use a circular saw and guide to cut the kerf 2 1/4" (32) from the edge of the frame. See Figure 14

**NOTE**: Some full frame units will not have a factory fabricated kerf. All narrow frame product does have a kerf. Images throughout this section show a full frame unit but narrow frame applies as well.

2. **Apply MRF Components** to the frames. Apply a 3/8" bead of Dow Corning® 791 (or equivalent) to the jambs in a wiggle pattern. See Figure 15.

3. The MRF components come in two parts. The beige piece always has the hooked end to the interior. The black piece always has the “hooked” end to the exterior. Insert the alignment leg on the MRF component into the MRF kerf in the frame. Flush the MRF component with the end of the mull and fasten to the frame with #8x5/8" screws in every hole of the MRF. See Figure 16.
Assembly

Direct Mulls

Using a smartphone or similar device, scan the QR code below or click here to play a video of this procedure.

1. When possible, remove operating sash from frames and set aside.

2. Refer to your mull assembly diagram and place the individual units on a flat sturdy surface in the correct orientation, exterior side up. If already applied, remove drip cap(s) and jamb nailing fin where units will be mulled.

3. Notch your corners at the appropriate locations (if not already done). Refer to the section, Corner Notches on page 4 for details if you need to do this.

4. Apply mull sealant tape to one unit ensuring that it is located flush with the exterior edge of the cladding as shown in Figure 17. The tape should extend past the mull and wrap around the corner by at least 1/8". Remove the paper backing.

5. Join the units close to each other so the notched corners are together and slide the aluminum mull clip over the mull as shown Figure 18. Pound the clip in with a plastic headed hammer or wood block and framing hammer until the clip contacts the other side.

6. Fasten the ends of the mulls with three 1 1/4" 16 gauge staples spaced evenly to the interior side of the kerf in the wood members. See Figure 19.

Figure 17

Figure 18

Figure 19

1 Mull sealant tape

1 1/4" 16 gauge staples
7. Carefully turn the assembly over, interior side up. Lightly clamp the units together on the wood frame members ensuring they are flush on the interior and even at the ends of the mull.

8. Fasten the units together with 5/8" x 1/2" staples as shown. Three staples spaced at 2" intervals must be placed on both ends, starting approximately 2" from the edge of the frame. Space the remaining staples at 5-8" intervals. See Figure 20.

![Figure 20](image)

Assembling 3/8" Aluminum Mull Reinforcement (MRF)

Using a smartphone or similar device, scan the QR code below or click here to play a video of this procedure.

1. Set the units on a flat surface interior side up. Hook the MRF pieces together. Align the frames so they are flush and the ends are even. You may need to seat the assembly together with a rubber mallet. Secure the MRF with #8 x 5/8" undercut head screws through the pre-drilled interior face of the beige component. See Figure 21.

![Figure 21](image)

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>#8 x 5/8&quot; undercut head screws</td>
</tr>
</tbody>
</table>
Assembling LVL and Wood Space Mulls-Vertical

**Hint**

Remove the interior covers/stops where mulls will take place.

1. Set the units on a flat surface interior side up. Apply adhesive in a wiggle pattern on the window frame. See Figure 22.

![Figure 22](image1)

2. Clamp the LVL member to one of the units flush with the interior. Fasten the LVL to the unit with #8 x 1 1/4" screws from the interior 4" (102) and 12-15" (305-381) on center (same plane as the jamb screw holes). See Figure 23.

![Figure 23](image2)

3. Apply adhesive in a wiggle pattern on the LVL or space mull. See Figure 24.

![Figure 24](image3)

4. Clamp the two units together and repeat screwing through the jambs as before. See Figure 25

![Figure 25](image4)

<table>
<thead>
<tr>
<th>Vertical Space Mull Fastener Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mull Width</strong></td>
</tr>
<tr>
<td>3/8&quot;</td>
</tr>
<tr>
<td>1&quot;</td>
</tr>
<tr>
<td>2&quot;</td>
</tr>
<tr>
<td>3&quot;</td>
</tr>
<tr>
<td>4&quot;</td>
</tr>
</tbody>
</table>

5. Proceed to section, "Mull Cover Application".
Assembling LVL and Wood Space Mulls-Horizontal

**Hint**

Remove the interior covers/stops where mulls will take place. You will be screwing through the jambs/sills/head jambs to fasten to lvl or blocking.

1. Set the units on a flat surface interior side up. Apply adhesive in a wiggle pattern on the sill of the window frame of the top unit. See Figure 26

![Figure 26](image)

2. (CUDHNG and CUGL, skip to next step)
Clamp the space mull block or LVL to the bottom of the upper unit flush with the interior. Fasten through the sill into the block with #8 2/3 thread screws 4” (102) from each end and every 12-15” (305-381) after. See Figure 27.

![Figure 27](image)

<table>
<thead>
<tr>
<th>Horizontal Space Mull Fastener Lengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mull Width</td>
</tr>
<tr>
<td>3/8”</td>
</tr>
<tr>
<td>1”</td>
</tr>
<tr>
<td>2”</td>
</tr>
<tr>
<td>3”</td>
</tr>
<tr>
<td>4”</td>
</tr>
</tbody>
</table>

3. On CUDHNG and CUGL Horizontal Mulls, clamp the space mull block flush with the interior of the top unit and fasten through the block into the sill with #8 2/3 thread screws 4” (102) from each end and every 12-15” (305-381) after. See Figure 28. (See table below for proper length)

![Figure 28](image)

<table>
<thead>
<tr>
<th>Horizontal Fastener Lengths (CUDHNG &amp; CUGL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mull Width</td>
</tr>
<tr>
<td>3/8”</td>
</tr>
<tr>
<td>1”</td>
</tr>
<tr>
<td>2”</td>
</tr>
<tr>
<td>3”</td>
</tr>
<tr>
<td>4”</td>
</tr>
</tbody>
</table>
4. Apply adhesive in a wiggle pattern on the LVL or space mull. See Figure 29.

5. Clamp the two units together and screw through the head jamb and into the blocking above 4" from each end and 12-15" on center after. See Figure 30.

6. On double hung units, remove the head jamb parting stop (on double hung operator units) from the bottom unit or stops from other Then drive #8 2/3 thread screws through the head jamb and into the space mull block. See Figure 31. (See fastener table above for proper length).

![Figure 29](image)

![Figure 30](image)

![Figure 31](image)

### Fastener Table

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4&quot; from each end and 12-15&quot; after through block into sill</td>
</tr>
<tr>
<td>2</td>
<td>Fasten screws through head jamb into block 4&quot; from each end and 12-15&quot; after</td>
</tr>
</tbody>
</table>

NOTE: Make sure to place fasteners going through the head jamb offset about 1" from those fastening the block to the sill of the upper unit.

7. Replace the stops you removed earlier.
Mull Cover Application

Frame Prep

1. With the assembly facing exterior up, make sure the corner notches are made in the right places. Refer to the previous section "Corner Notches" for details.

2. Apply frame kerf weatherstrip in the accessory kerf along the mullion and all open kerfs that run perpendicular to the mull. Roll the weatherstrip into the kerf with a screen spline roller or similar tool. See Figure 32.

3. If not done already cut two pieces of A148 frame trim. Measure the outside frame measurement and subtract 5/32" (4) for the finished length. Set these aside until sealant application is complete. See Figure 33.

Sealant Application-3/8" MRF

1. Apply 3/4" foam backer rod to the full length of the mullion. See Figure 35.
2. Apply a 1/8" bead of clear sealant 2-3" long on each end of the mull and at any intersections along both edges of the mull. See Figure 36.

Figure 36

Sealant Application-Space Mulls

1. Apply a u-shaped bead of sealant over the ends of the space mull block. Press the foam block into place (notched side down) and apply additional beads of sealant on top. See Figure 37.

Figure 37

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sealant</td>
</tr>
<tr>
<td>2</td>
<td>Foam block (notched side down)</td>
</tr>
<tr>
<td>3</td>
<td>Space mull block/LVL</td>
</tr>
<tr>
<td>4</td>
<td>Sealant on top sides and outer edge of foam block</td>
</tr>
</tbody>
</table>

2. Apply a 1/8" bead of clear sealant 2-3" long in the accessory kerf on each end of the mull and at any intersections along both edges of the mull. See Figure 38.

Figure 38

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sealant</td>
</tr>
<tr>
<td>2</td>
<td>A148 Frame trim (applied in next step)</td>
</tr>
<tr>
<td>3</td>
<td>Space mull cover (applied in next step)</td>
</tr>
</tbody>
</table>
**Mull Cover Application**

1. Use a plastic headed hammer to make minor dents in the cladding accessory kerf where the A148 frame trim will be applied. The frame trim will always run perpendicular to any non-direct mull. See Figure 39.

2. Apply the A148 frame trim to the assembly at each end of a non-standard (direct) mull. Pound the trim on with a plastic headed hammer or block of wood and framing hammer. See Figure 40.

3. Apply the mull cover by inserting one end into the frame kerf and tapping the cover into place with a plastic headed hammer or rubber mallet the first 6-10" from the end. Then insert the opposite end into the frame kerf and tap into place along the length of the mull. See Figure 41.

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**Hint**

Avoid "over-denting" the edges of the frame and use the side of the plastic headed hammer.

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**Multi High/Multi Wide Assemblies**

1. Mull clips are sent cut to length for one high or one wide assemblies. On multi high multi wide assemblies all clips are sent long and you will need to cut them to fit.

2. Mull all direct assemblies first.

3. Mull space mulls, MRFs and LVLs last.
Install Field Applied Casings

Refer to the following instructions for information on how to apply BMC or Flat Casing in the field. Visit www.marvin.com/support/technical-resources and search for the following instructions:

- Rectangular BMC Instructions for Windows and Doors 11708096
- Clad Flat Casing Instruction 19913125
- Ultimate Polygon BMC Instruction 11708097
- Ultimate Round Top BMC Instruction 11708561

Figure 42