WEB BASED
APPLICATION SPECIFIC
INSTALLATION INSTRUCTIONS

Combining and Mulling Windows

Combining Two or More Windows

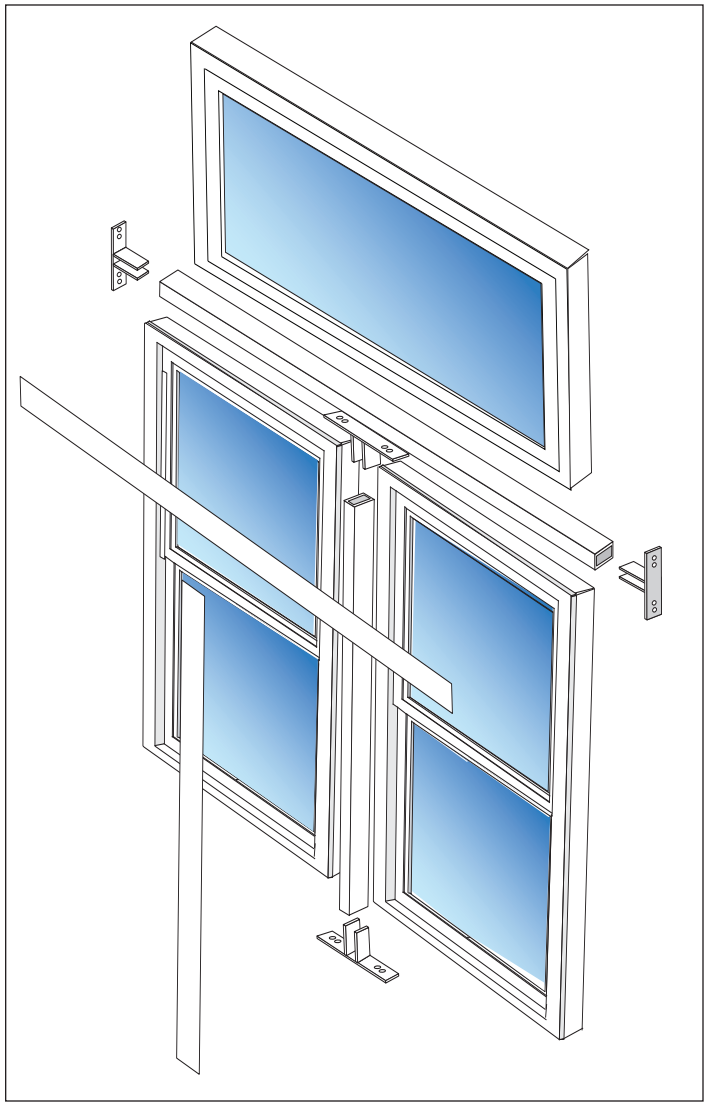
A mulled unit is the combining of 2 or 3 (or more) units into one opening. Replacement windows can be mulled side by side (a picture window flanked by double hung on each side or two double hungs), or “stacked” on top of each other (a transom over a double hung or a picture window over an awning window). The most common mulled units are side by side.

Window units can be joined together, and then installed as a combo unit. These units can be joined side by side.

Structural mulling enables the units to be joined side by siade or stacked. The mulls are anchored then to the opening frame.

Basically, windows can be placed together in multiple units into any opening.In fact, the same installation procedures (blindstop installation or other techniques) will still apply. Mulled units, in essence, become a single unit that will install and mount similarly to single units. The mull systems effectively seal the joint.

Structural Frame-Anchored Mulls



A Structural Mull is usually a piece of steel with legs at top and bottom that allow the mull to be securely fastened to the header and sill - or even to the jambs where a horizontal mull is required.

Then the window units are anchored to the mull with high performance fasteners so that the finished assembly is a structural unit, secured to the surrounding framing and forming a weather and wind resistant fenestration unit.

Where codes demand it, the structural mull is used in testing of the window and door units themselves in order ot get a rating which then is used to determine compliance with the required performance for the climate and region.

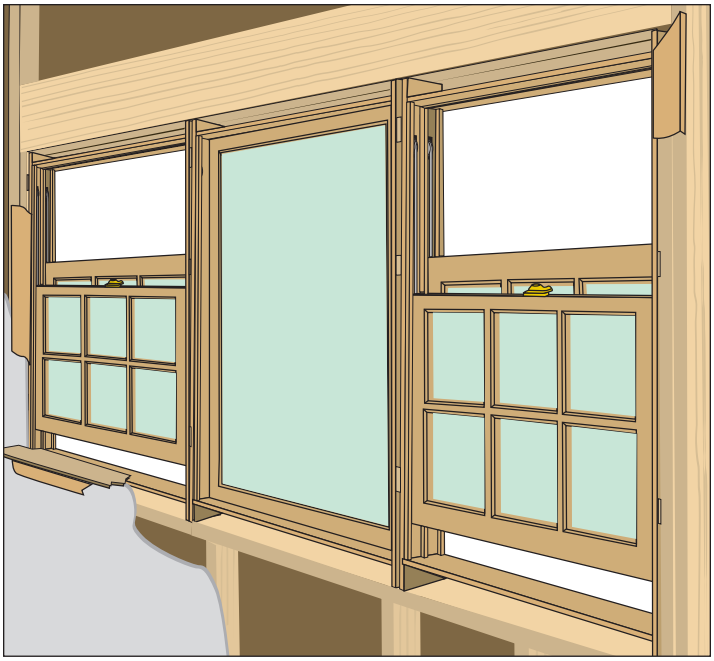
When it is necessary to install window and door assemblies this way, there are usually engineering drawings showing the proper mull size and anchoring details of both the mull(s) and the window or door units.

Replacing Combination Windows

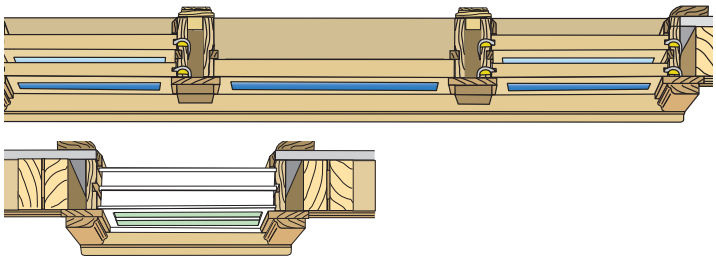
Frame In Replacement

A very common window configuration is the Picture Window flanked by two Double Hung Windows. Usually in the Living Room, these windows are a single unit of individual wood windows attached together and placed in a single opening in the wall.

The most common method of replacing these windows is to treat them the same as single windows and remove the operating sash of the Double-Hungs and the single Picture Window which will leave an opening with stops against which the new replacement pocket window can be placed.

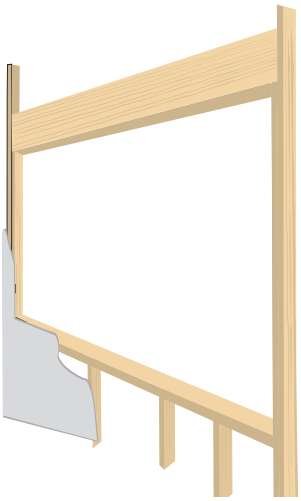


The old window sash are removed to the outside leaving the interior stops and trim intact. Exactly as would be done in an “Outside-In” install, the new windows are put out through the opening and brought back against the interior stops.



Frame Out Replacement

Because most combination windows were installed as a single window unit, the header and rough opening can be cleared out and a new window assembly can be installed. The options are many: You can install a Bay or Bow Window, or a group of Casement Windows or a group of two Double Hung windows flanking a Picture Window with a Mull between each window. The design choice is endless.



Make sure the opening is properly flashed and a suitable sill pan drainage is installed using adhesive backed flashing or a pre-made sill pan.

Spray Foam Insulation

While the term “Spray Foam” is often widely used in construction, there are two different types and each has its advantages and disadvantage.

Spray foam has been shunned by window installers and manufacturers over the years because foams, in the past, have either continued to expand after trim has been applied deforming the more pliable vinyl window frames, or because they have been over used to fill the gaps left when old windows are removed and the underlying rough opening has been exposed.

Make sure the foam you use has been tested in accordance with AAMA 812 and meets standard for low pressure development.

Most standards applying to window installation do not delineate between open cell foam and closed cell foam, the more popular “minimal expansion” foams are most frequently used and they are mostly closed cell. More confusing yet, is when foams are recommended, the compressed foam tape alternatives are called out to be open cell.

When it comes to Spray Foams, it helps to understand the differences.Open-cell spray foam (ocSPF) has a cell structure where the cells are filled with air. The open-cell structure renders soft, flexible foam, with a density of about 0.5-0.8 pounds per cubic foot (pcf).

The R-value per inch of open-cell foam typically ranges from R3.6 to R4.5 per inch. Unlike fiberglass and cellulose, the fine cell structure of ocSPF makes it air-impermeable at certain thicknesses. The air-impermeability of ocSPF qualifies it as an air-barrier material, dramatically reducing air leakage through the building envelope, significantly lowering the building’s heating and cooling costs. However, ocSPF, like fiberglass and cellulose insulations, is moisture-permeable, and may require the installation of a vapor retarder in colder climates.

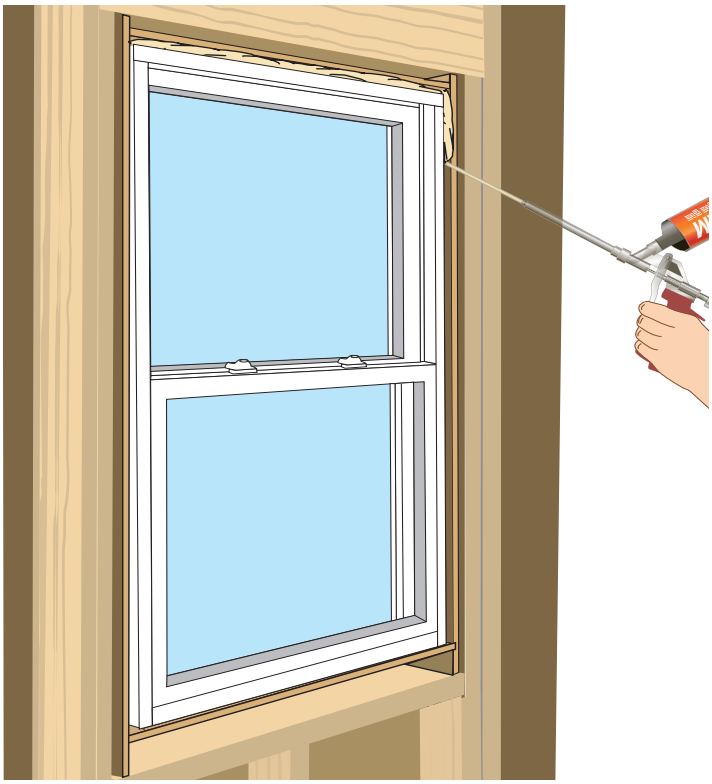
Closed-cell spray foam (ccSPF) has a closed cell structure which yields rigid hard foam, with a density of 1.8-2.3 pound per cubic foot (pcf), and can provide structural enhancement in certain framed buildings. The smaller cells trap insulating gas from the curing, which has a lower thermal conductivity than still air, and increases the R-value to anywhere from R5.8 to R6.9 per inch.

Like ocSPF, ccSPF is also air impermeable at certain thicknesses and can qualify as an air-barrier material. The bigger benefit is that the closed-cell structure of ccSPF also makes it water-resistant, and is the only spray foam that can be used where contact with water is likely.

At a thickness of 1.5 inches, no additional vapor retarder is required for most applications.

Desired Properties

- Make sure the foam used has been tested in accordance with AAMA 812 and meets standard for low pressure development.
- Quick Setting Formulation: can be cut or trimmed in less than 1 hour
- Cold Temperature Application: can be applied in temperatures as low as 14F
- Insulation Value of R5: makes it an efficient method for stopping air and moisture infiltration
- Remains Flexible Once Cured: will not crack or dry out



Using Spray Foam

For the best installation, it is necessary for the gap around the window or door to be sealed to block out air, water and vapor penetration. ccSPF can do that well if selected and used properly. Improper use can create water traps, impede drainage and exert excessive pressure to the window frame during expansion.

Remember: Vapor barriers need to applied on the warm side of the opening. Double vapor barriers (one on the warm side and another on the cool side) encourage condensation between and will trap the resulting condensation. Also, window installation cavities (the space between the window frame and the rough opening, or left-in-place old window frame) need to "breathe" to the outside, and allow drainage of collected water to the outside.

Used wisely, ccSPF can be the best solution. AWDI recommends DAP® DRAFTSTOP 812 Window and Door foam. DAP® DRAFTSTOP 812 also achieves a thermal performance of R-5 per inch.

Application

DAP DRAFTSTOP Foam is applied using a Foam Applicator Gun. This foam and gun combination allows for more precise application than the straw grade foam alternative. This gun offers a rear valve used to control the size of bead applied into the openings. The valve also allows the life of the foam to be extended by closing the opening of the barrel for future use.

For even smaller openings, a detachable screw on top is included with the gun to be able to fill gaps as small as ¼" wide.

Important tips:

• Similar to the sealant gun, it is critical that you balance the movement of the foam gun or straw barrel and how you dispense the foam so that the foam makes contact with both the rough or existing window frame and replacement window frame.

• If the dispensed foam does not make contact with both the rough frame and the window frame, there won't be an adequate bond to seal out water and air.

• Industry Standards suggest application of 1 inch beads, separated by an equal space. Be careful not to create two vapor barriers - one at the exterior and one at the interior. Make sure there is the ability for the opening to breathe to the cold side for drying and drainage. Use backer rod about one inch in the sill as a stop to make a workable back dam

• When applying foam around the perimeter of the window or door, you must maintain a minimum depth of 1 inch. This depth is required to provide the correct thermal performance, to help improve energy savings, and to protect against condensation problems.

• When applying foam as a back dam to the gap between the window frame and the rough sill, do not allow the foam to extend to the exterior edge of the opening. Maintain a minimum of a 1 inch gap between the foam and the exterior edge of the rough sill. If foam fills this gap at the sill, any water from leakage will not be able to drain to the drainage plane or exterior cladding surface. Place backer rod the length of the sill, 1" from edge and use it as a back dam guide.