



INSTALLATION PROCEDURES FOR AMSCO VINYL WINDOWS IN A NEW CONSTRUCTION, STUD FRAME APPLICATION

The following installation instructions given are based upon ASTM E2112 and the AAMA Installer Training and Certification Program Manual RLC-1 Pictures have been reprinted from the “InstallationMasters Training Manual RLC-1” with permission from the American Architectural Manufacturers Association.

These instructions should meet or exceed window installation codes and regulations in your area; however it is the responsibility of the installer installing all products to know his or her own local requirements.

These instructions are given as a guideline and standard for all installers using AMSCO® products. For any further questions regarding installation of AMSCO products, call AMSCO Windows®.

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GUIDELINES AND CONDITIONS

1. This installation practice is intended for residential and light commercial applications less than four stories in height.
2. Installation of AMSCO® products requires adequate framing and/or sheathing behind the nailing fin to give a continuous surface for nailing and sealing purposes.
3. The details described in these instructions are given as a minimum requirement from AMSCO Windows®, and are subject to all codes and restrictions set by local governments or municipalities, which may require additional procedures for their areas.
4. This installation practice does not apply to windows with bent, cracked, or broken nailing fins. If damage has occurred in this manner consult AMSCO Windows for proper procedure in repairing of the nailing fin. In some cases nailing fins are not repairable. Windows should not be installed with open gaps or holes at any point along the nailing fin, including the corners. Windows also should not be installed or repaired if there are welds that have been fractured or cracked in any way.
5. AMSCO Windows assumes no responsibility for improper installation. All windows must be properly flashed, anchored, and sealed with the proper materials in order to achieve minimum performance criteria for installed products. These installation procedures have been tested in a controlled environment, and pass or exceed strict performance criteria to give optimal performance to window and door products. Any deviation from these specifications, without written prior approval from AMSCO Windows, will void any warranty on AMSCO products.
6. In homes where tile or masonry roof products are used, the roofing material should be installed before the windows are installed. This will apply the actual weight to the header of the window opening before the window is installed, and will prevent the window from bowing or breaking under the additional pressure.
7. Installers typically integrate AMSCO products into a membrane drainage system, using proper flexible flashing and sealant with the window installation. This installation should also incorporate a weather resistant barrier to be used on the building whether it is installed by the window installer, or by another party.
8. Improper installation of AMSCO products may reduce the performance and effectiveness, lead to excessive air, water and sound infiltration, high condensation levels, and can contribute to deterioration of construction materials from such infiltration.
9. All exterior finish systems applied to the building, such as siding, stucco systems (including EIFS and DEFS), masonry products, or any other system, must be installed according to its prescribed installation procedure. AMSCO does not warrant any of its products when incorporated into a building system which has been installed incompletely or incorrectly. These types of exteriors incorporate an engineered drainage system, and all steps must be adhered to in order to function properly.
10. It is highly recommended that all individuals installing AMSCO products attend an AAMA sponsored certification course offered by AMSCO Windows on installation practices and procedures.

WINDOW STORAGE AND HANDLING

1. Windows should be stored and transported in an upright and near vertical position. Never lay windows flat for fear of too much deflection and breakage.
2. They should be stored in an area free of excessive dirt, dust, and debris. This helps to ensure that the window will operate free of obstructions after installation. The storage area should also have good ventilation where heat cannot build up. Never store windows in areas where they can be exposed to direct sunlight. This can result in heat fractures and warping of products due to excessive heat.
3. Windows should always be stored in a dry area, free from dripping or standing water. If moisture has come into contact with the windows and doors from transport or any other means, it is extremely important that while stacking the windows, the moisture is allowed to weep out the windows through the designed weep system in the window. Therefore, windows must be stacked with the weep holes on the inside of the tilt angle, allowing water to escape the sill. If these guidelines are not followed, standing water can freeze and expand, causing cracking and breakage, sometimes not detectable by sight alone.
4. All locks on windows and patio doors should be engaged in the locked position while storing or transporting the product.
5. Adequate pads or bumpers should be applied between each window and door during storage or transport to keep the windows from scratching or rubbing against each other.
6. Nothing should ever be leaned against the glass of a window or door. Make sure that when stacking windows against each other that the frames are not touching the glass of another window. This is a large cause of stress fractures in windows.
7. Standing or rolling windows on their corners will cause fins to be broken and often times broken frames.
8. AMSCO products are not to be painted outside the manufacturing facility. AMSCO's painted windows are painted by the vinyl extruder and require a special paint and painting process. The process cannot be properly done without the extruder's specialized equipment and processes.
9. Often times painters, stucco contractors, and other tradesmen, cover windows with plastic or other masking materials while performing their trade. This can cause extreme heat build up on either inside or outside surfaces causing heat breaks and warping of vinyl frames. If masking materials are required, there must be adequate means of ventilation required for the window products. Typically the easiest method for achieving proper ventilation is to simply cut an opening in the masking material at least 12 inches long.

10. Often times mortar or concrete splatters on the glass, resulting in scratched glass that could have been avoided by covering the glass in that particular area. However, if masking, use proper ventilation methods. See #9 in this section. If removal of concrete splatters must occur, do not use harsh chemicals or solvents that will damage the window or its components.
11. Cleaning smudge marks on vinyl frames is often necessary after installation. When cleaning AMSCO products it is best to use the mildest cleaners possible. Solvents or abrasive cleansers should never be used. Some chemicals can harm the vinyl surfaces and other components in the window product. Fantastik® and other similar products are recommended in cleaning vinyl surfaces on AMSCO products. Over the counter glass cleaning products are acceptable for cleaning the glass on the windows. Below is a chart of cleaners for specific circumstances recommended by the Vinyl Window and Door Institute.

Cleaners to Remove Stains from Vinyl Window and Door Frames

Bubble Gum	Fantastik®, Murphy Oil Soap®, Solution of vinegar(30%), Water(70%), Windex®
Crayon	Lestoil®
DAP (Oil-Based Caulk)	Fantastik®
Felt Tip Pen	Fantastik®, water-based cleaners
Grass	Fantastik®, Lysol®, Murphy Oil Soap®, Windex®
Lipstick	Fantastik®, Murphy Oil Soap®
Lithium Grease	Fantastik®, Lestoil®, Murphy Oil Soap®, Windex®
Mold and Mildew	Fantastik®, Solution of vinegar(30%), Water(70%), Windex®
Motor Oil	Fantastik®, Lysol®, Murphy Oil Soap®, Windex®
Oil	Soft Scrub®
Paint	Brillo® Pad, Soft Scrub®
Pencil	Soft Scrub®
Rust	Fantastik®, Murphy Oil Soap®, Windex®
Tar	Soft Scrub®
Top Soil	Fantastik®, Lestoil®, Murphy Oil Soap®

*Cleaning Materials are listed in alphabetical Order.

AMSCO does not endorse proprietary products or processes and make no warranties for the products referenced herein. References to proprietary names is for illustrative purposes only, and is not intended to imply that there are not equally effective alternatives. **All cleaners used must be thoroughly rinsed off and dried after use or discoloration of vinyl frames could occur.**

MATERIAL REQUIREMENTS

A. Framing Requirements

1. The rough framed opening should be ½” larger than the window in width and ¼” in height to allow for squaring and shimming of the window where necessary. i.e.... A 47 ½” x 47 ½” window should have a rough framed opening of 48” x 47 ¾”. The sill of the window should rest on the sill of the framed opening to give full support to the bottom of the window.
2. Framed openings for windows and doors should be plumb, square, level, and structurally adequate. The studs should be free of voids, holes, chipping, twisting, or other conditions that will not allow for proper installation and sealing of windows to their openings.

B. Fastener Requirements

1. All fasteners should be non-corrosive and should be compatible with all building materials they come into contact with so that galvanic corrosion will not occur.
2. The head of the fastener must be wide enough to cover the pre-punched slot in the nailing fin.
3. It is recommended that galvanized roofing nails with a length of 1 ¼” or more be used to fasten the windows to the substrate. Fasteners must penetrate the sheathing completely to be adequate in length.
4. **Fasteners are not to be installed with any air gun or pneumatic device under any circumstances whatsoever.** It is recommended that all fasteners be nailed by hand into the substrate or sheathing.
5. Fasteners are to be attached to the window at a minimum of 8” apart all around the perimeter of the window **including** the head of the window.

C. Flashing Requirements

1. Proper flashing and sealing is necessary as a barrier to prevent water from infiltrating into the building. Flashing is a recommended part of an overall protective weather barrier system. It is not the responsibility of the manufacturer to design or recommend a flashing system appropriate for each job condition. The recommended flashing installation in these instructions are a general rule, have been tested, and are recommended for most installations, however, codes and restrictions for all municipalities should be adhered to as a first rule. If there are any questions regarding flashing requirements, contact your local municipality for guidelines and requirements. The instructions set forth in the “AMSCO Windows® Installation Guide” are to be used as a **minimum requirement** for AMSCO products.
2. Flashing material must be barrier coated reinforced and must provide a twenty-four hour minimum protection from water penetration when tested in accordance with ASTM D-779. Flashing material should also carry a continuous identification on the exterior.

3. AMSCO Windows recommends the use of the 9” flexible flashing that is carried at a number of building material suppliers. If you have difficulty finding the proper flashing materials, contact AMSCO Windows and a supplier will be recommended. Always use flashing that meets or exceeds the ASTM D-779 standards.
4. All flashing must be installed in weatherboard fashion around the full perimeter of the window or window opening. i.e.... working from the bottom piece first, and then working towards the top.

D. Sealant Requirements

1. The two main factors when choosing a sealant are adhesion and compatibility. Many sealants do not adhere to vinyl windows and are therefore a poor choice in the installation procedure. Also some sealants are not compatible with some types of flashing, especially the rubber-based adhesive flashing, and can cause serious problems.
2. AMSCO Windows recommends the use of sealants meeting an ASTM C920, Class 25, for installing AMSCO products. Sealants meeting this specification will be labeled as such. We have found that “Dow Corning 1199 Silicone Glazing Sealant” and “Sikaflex 1a” are very compatible products and perform well with AMSCO’s products. Others may work equally as well. Check for compatibility and adhesion in your installation process.
3. Wherever sealant is required in the window installation, a 3/8” diameter nominal bead of sealant should be used.
4. When sealant is used, the material it is applied to should always be set or installed immediately before a skin can form on the sealant surface.

INSTALLATION PROCEDURE

There are two accepted methods for installing AMSCO products in accordance with AAMA approved standards and regulations. The guideline set forth in this installation guide is the **minimum requirement** for installation of AMSCO products. There may be a stricter guideline or code set by a local municipality, which must be adhered to. Know the local regulations for the area in which you are installing the windows.

A weather resistant barrier or house-wrap may or may not already be applied to the exterior wall prior to the window installation. If it is already present, some modifications to the house-wrap may be necessary prior to the window installation. See HOUSE-WRAP MODIFICATIONS section within this installation guide.

The two methods addressed in this guide will be referred to as Method A and Method B. Method **A** will cover acceptable installation practices applying flashing to the window **after** the installation of the window. Method **B** will cover acceptable installation practices applying the flashing **before** the window is installed. Substitution or omission of any procedure from one method to another is not acceptable.

METHOD “A”

1. All flashing materials must meet the guidelines in the FLASHING REQUIREMENTS section of this installation guide.
2. The fasteners used to attach the flashing must be non-corrosive. Acceptable fasteners may include staples applied with a hammer-tacker or stapler, or roofing nails. Staples are recommended for flashing installation.
3. Cut flashing according to Table 1:

Flashing Lengths and Cut Formulas	
Sill Flashing	= $RO^W + (2 \times \text{Flashing Width})$
Jamb Flashing	= $RO^H + (2 \times \text{Flashing Width}) - 1"$
Head Flashing	= $RO^W + (2 \times \text{Flashing Width}) + 2"$
Legend	
RO = Rough Opening RO^H = Rough Opening Vertical Height RO^W = Rough Opening Horizontal Width	

Table 1

4. Apply the first strip of flashing material horizontally, immediately below the sill. It must be cut sufficiently long enough to extend past each side of the window; so that it projects even with the vertical jamb flashing that will be applied later. This means that an extension of 9" is required on both ends of the sill flashing when using 9" flashing. The flashing must be fastened at the top edge of the flashing so that the nailing fin covers the fasteners when the window is installed. If the weather resistant barrier has not already been installed previous to the window, the installer should not use fasteners on the bottom edge or the 9" ends extending beyond the sill of the sill flashing so that a weather resistant barrier may be properly installed in weatherboard fashion. The bottom and the ends may be taped down to keep wind and weather from damaging them until the weather resistant barrier is installed.
See Figure 4.1 for illustration

5. The window may now be installed into the rough framed opening using acceptable fasteners discussed in the FASTENER REQUIREMENTS section in this guide. The window should be installed using the following procedures:
 - Apply a 3/8" continuous bead of sealant to the inside perimeter of the nailing fin, making sure that the sealant is in line with, and covering the pre-punched holes in the nailing fin. Do not leave any holes uncovered.
 - Immediately set the window into the rough framed opening, pulling the nailing fin in against the sheathing, bedding the window and the sheathing into the sealant, forming a gasket between the window and the sheathing. **See Figure 5.1 for illustration**
 - When setting the window, make sure that the sill of the window has continuous support underneath it. If shimming is required to level the sill, it is recommended that the sill plate be shimmed. However, if shims can be placed under the sill, offering continuous support, without twisting or binding the frame, this is also acceptable.
 - Once the window has been set in the opening, a single fastener should be installed on the upper corner of the window to hold the window in place. Once this has been done, check the window for plumb, level, and square, also checking the reveals in a vented window.
 - Apply additional fasteners at a minimum of 8" intervals while continually checking plumb, level, and square of the window.
 - Check the operating sashes and locking mechanisms to ensure smooth operation and function during and after the installation procedure.
 - Additional shimming may be required on jamb sides or sill to produce an accurate and true installation.
 - Avoid overdriving fasteners that may cause the window to distort or bind.
 - If any damage to the nailing fin is observed during the installation process, repair the damage if able, or contact AMSCO Windows for further consultation and instruction.

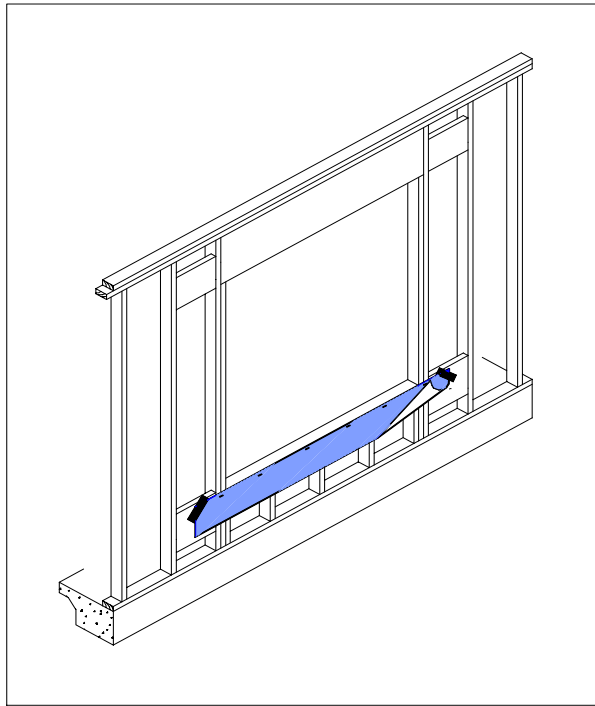
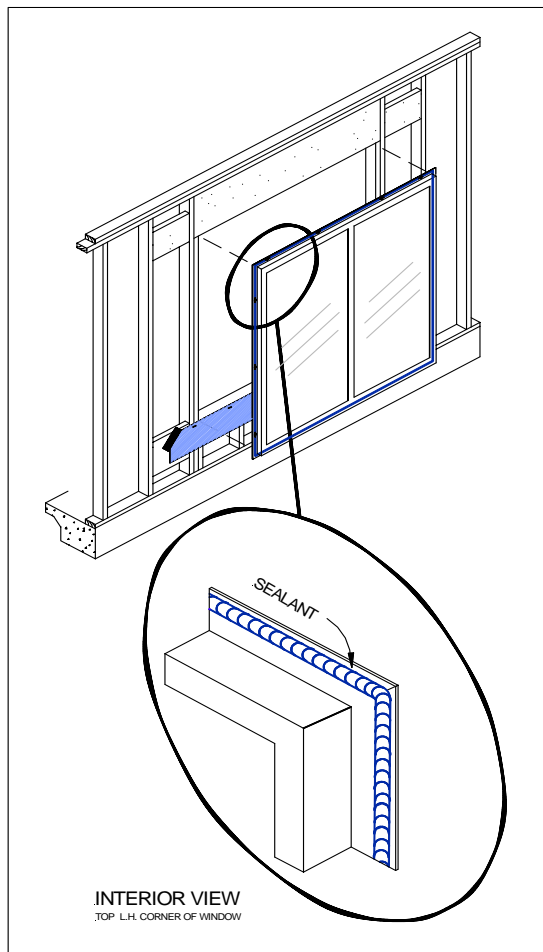


Figure 4.1

Figure 5.1



6. Next, cut the flashings for the rest of the window. Cut the flashings for the jamb sides so that the length extends beyond the bottom of the window vertically approximately 8 ½”, so as to leave ½” short from the bottom of the sill flashing, and to extend beyond the top of the window an additional 8 ½” so that the head flashing will overlap the jamb flashing by ½”. Also cut the head flashing to overlap the jamb flashings by 1” on each side when applied horizontally. **See Table 1 for reference of cut sizes.**
7. Apply a 3/8” continuous bead of sealant over the top of the nailing fin on the exterior side of the window over the jamb sides only. Once again make sure that the sealant is applied over pre-punched holes of the nailing fin and also covering the heads of the fasteners used in installing the window. The sealant applied on the jamb side nail fin of the windows, should extend above the window approximately 8 ½” so that the jamb flashing can bed into it all the way to the top of the flashing. **See Figure 7.1**
8. Starting at each jamb, embed the flashing cut for the jambs into the sealant and fasten them into place and fasten. Do not fasten the bottom 9” of the jamb flashings if the weather resistant barrier has not yet been installed, so that the weather resistant barrier can be tucked underneath the jamb and sill flashing in weatherboard fashion. Tape may be used to secure these flaps from the weather to prevent damage.
See Figure 8.1
9. Next, apply a 3/8” continuous bead of sealant over the exposed nailing fin at the head of the window. **See Figure 9.1.** Apply the head flashing by bedding it into the sealant applied, overlapping it 1” on each side of the jamb flashing, and secure it with fasteners to the sheathing. **See Figure 9.2**
10. The General Contractor is responsible to ensure that the weather resistant barrier or house-wrap is effectively integrated around the window frame in a weatherboard fashion. **See Figure 10.1**

METHOD “B”

1. All flashing materials must meet the guidelines in the FLASHING REQUIREMENTS section of this installation guide.
2. The fasteners used to attach the flashing must be non-corrosive. Acceptable fasteners may include staples applied with a hammer tacker or stapler, or roofing nails. Staples are recommended for flashing installation.
3. Cut flashing according to **Table 1** previously shown.

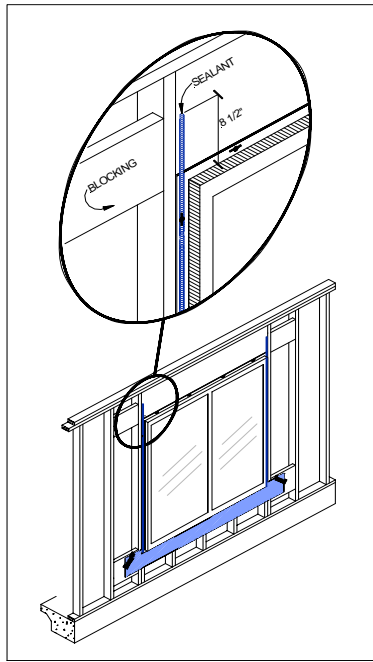


Figure 7.1

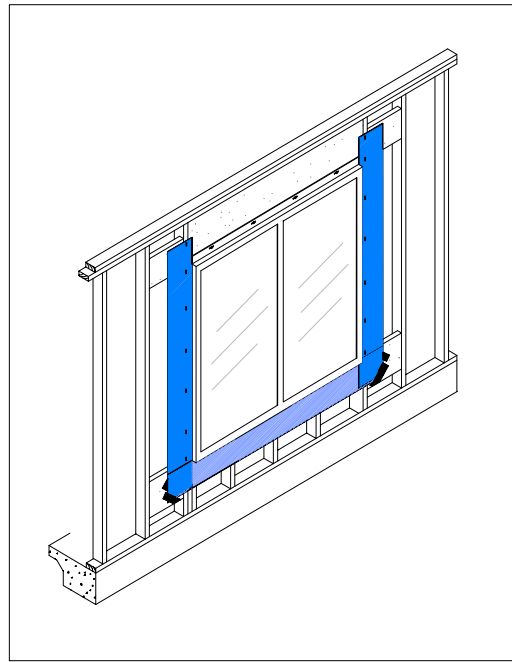


Figure 8.1

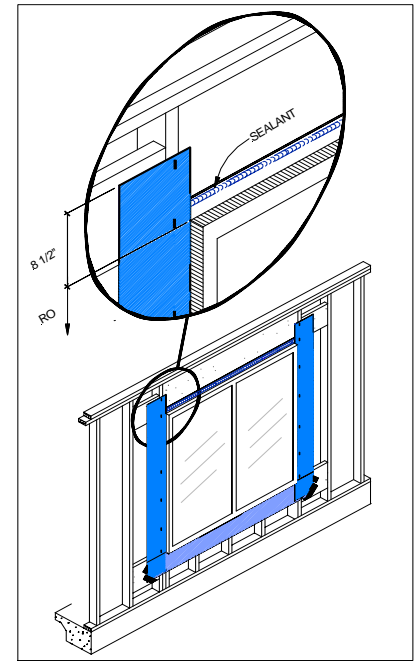


Figure 9.1

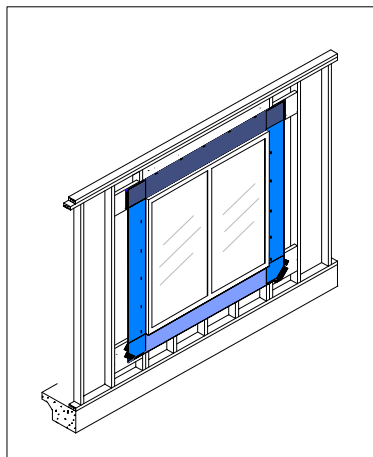


Figure 9.2

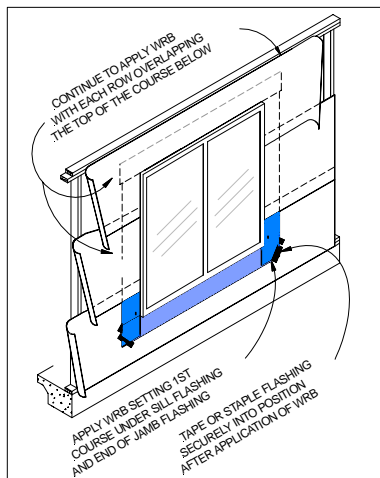
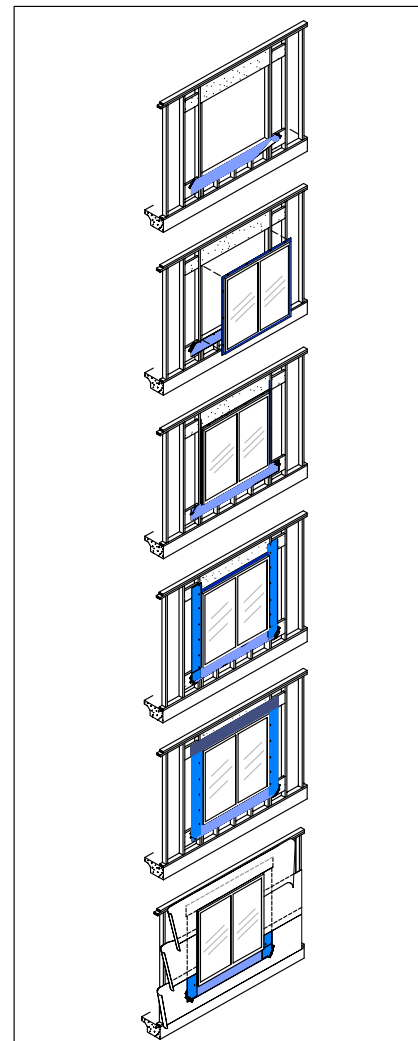


Figure 10.1

Application of Weather Resistant Barrier—Method



Method A Quick View

4. Apply the first strip of flashing material horizontally, immediately below the sill. It must be cut sufficiently long enough to extend past each side of the window; so that it projects even with the vertical jamb flashing that will be applied later. This means that an extension of 9" is required on both ends of the sill flashing if 9" flashing is used. The flashing must be fastened at the top edge of the flashing so that the nailing fin covers the fasteners when the window is installed. If the weather resistant barrier has not already been installed previous to the window, the installer should not use fasteners on the bottom edge or the 9" ends extending beyond the sill of the sill flashing so that a weather resistant barrier may be properly installed in weatherboard fashion. The bottom and the ends may be taped down to keep wind and weather from damaging them until the weather resistant barrier is installed. **See Figure B.4.1**
5. Next, cut the flashings for the rest of the window. Cut the flashings for the jamb sides so that the length extends beyond the bottom of the window vertically approximately 8 ½", so as to leave ½" short from the bottom of the sill flashing, and to extend beyond the top of the window an additional 8 ½" so that the head flashing will overlap the jamb flashing by ½". Also cut the head flashing to overlap the jamb flashings by 1" on each side when applied horizontally. **Refer to Table 1**
6. Starting at each jamb, install the flashing cut for the jambs against the rough framed opening and fasten them into place overlapping the sill flashing. Make sure that the nailing fin of the window can cover the fasteners on the inside of the flashing, next to the opening, when it is installed. Secure the outside edges of the jamb flashings with fasteners as well. Do not fasten the bottom 9" of the jamb flashings if the weather resistant barrier has not yet been installed, so that the weather resistant barrier can be tucked underneath the jamb and sill flashing in weatherboard fashion. Tape may be used to secure these flaps from the weather to prevent damage. **See Figure B.6.1**
7. The window may now be installed into the rough framed opening, using acceptable fasteners discussed in the FASTENER REQUIREMENTS section in this guide. The window should be installed using the following procedures:
 - Apply a 3/8" continuous bead of sealant to the inside perimeter of the nailing fin, making sure that the sealant is in line with, and covering the pre-punched holes in the nailing fin. Do not leave any holes uncovered.
 - Immediately set the window into the rough framed opening, pulling the nailing fin in against the sheathing, bedding the window and the sheathing into the sealant, forming a gasket between the window and the flashing. **See Figure B.7.1**

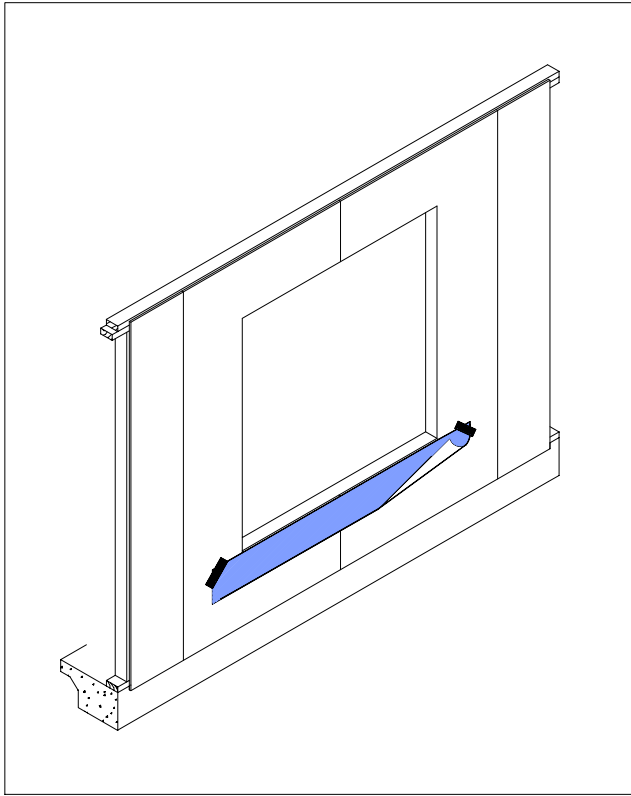


Figure B.4.1

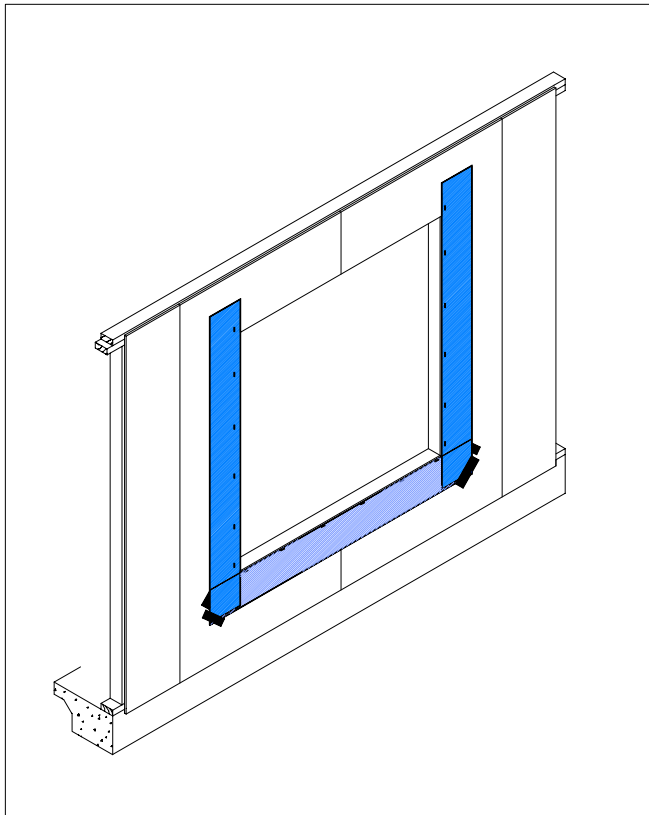


Figure B.6.1

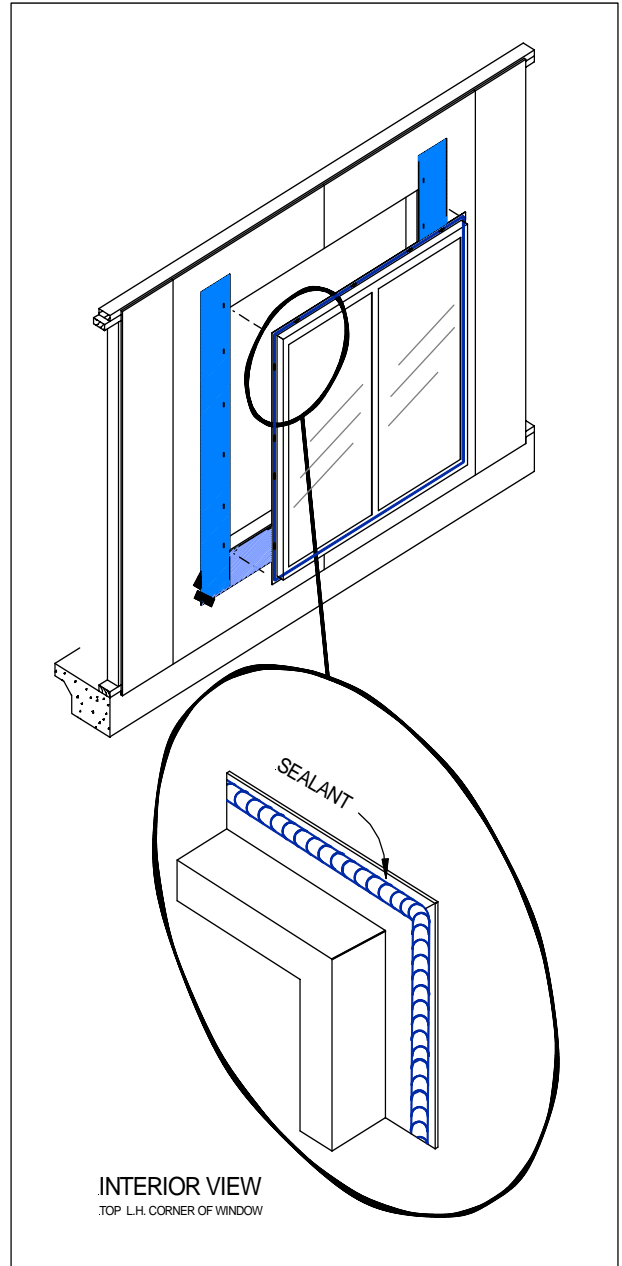


Figure B.7.1

- When setting the window, make sure that the sill of the window has continuous support underneath it. If shimming is required to level the sill, it is recommended that the sill plate be shimmed. However, if shims can be placed under the sill, offering continuous support, without twisting or binding the frame, this is also acceptable.
 - Once the window has been set in the opening, a single fastener should be installed on the upper corner of the window to hold the window in place. Once this has been done, check the window for plumb, level, and square, also checking the reveals in a vented window.
 - Apply additional fasteners at a minimum of 8” intervals while continually checking plumb, level, and square of the window.
 - Check the operating sashes and locking mechanisms to ensure smooth operation and function during and after the installation procedure.
 - Additional shimming may be required on jamb sides or sill to produce an accurate and true installation.
 - Avoid overdriving fasteners that may cause the window to distort or bind.
 - If any damage to the nailing fin is observed during the installation process, repair the damage if able, or contact AMSCO Windows for further consultation and instruction.
8. Apply a 3/8” continuous bead of sealant to the nailing fin at the head of the installed window, covering the pre-punched holes and fasteners previously installed. **See Figure B.8.1**
 9. Apply the head flashing by bedding it into the sealant previously applied, overlapping it 1” on each side of the jamb flashing, and secure it with fasteners to the sheathing. **See Figure B.9.1**
 10. The General Contractor is responsible to ensure that the weather resistant barrier or house-wrap is effectively integrated around the window frame in a weatherboard fashion. **See Figure B.10.1**

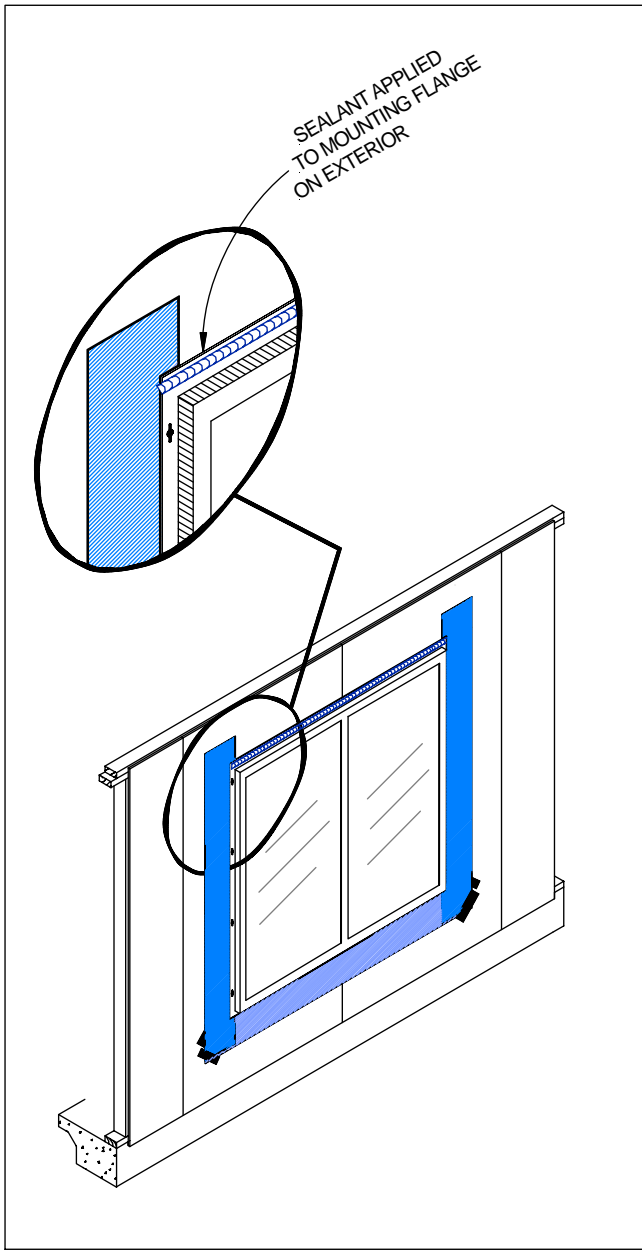


Figure B.8.1

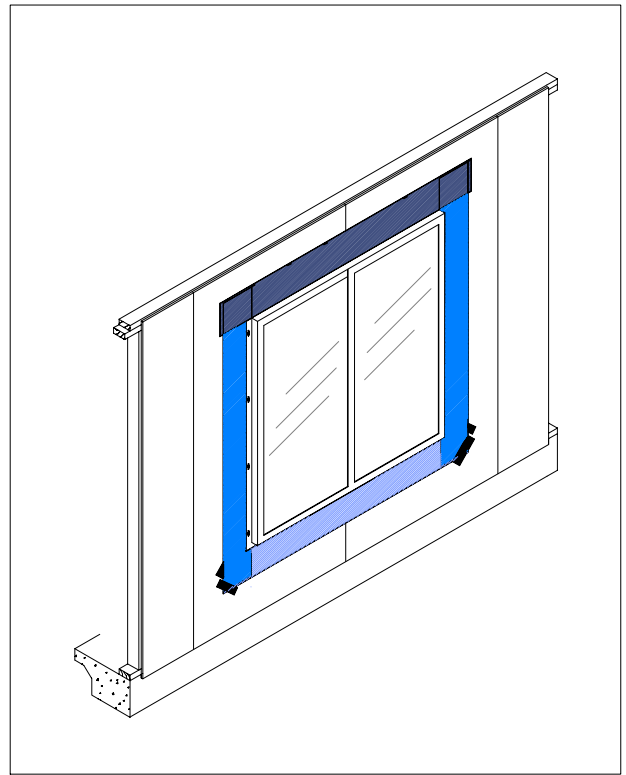


Figure B.9.1

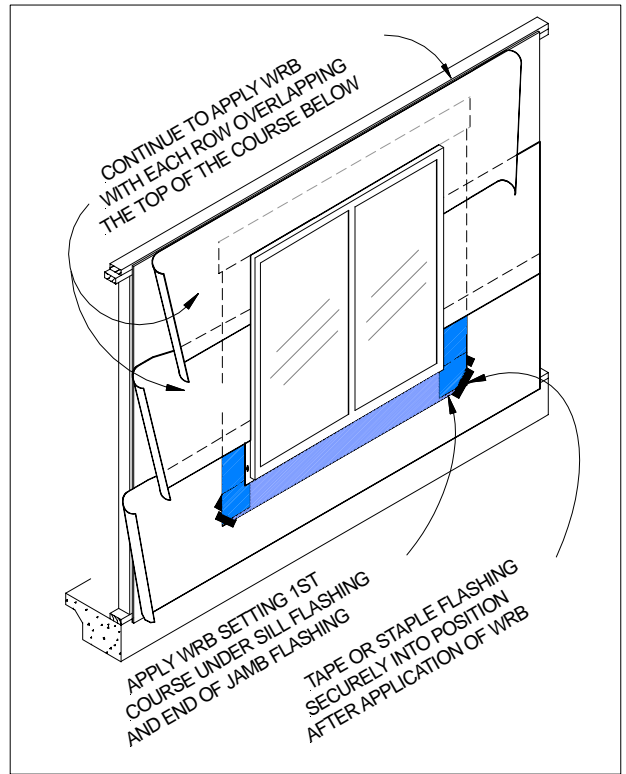


Figure B.10.1

HOUSE-WRAP MODIFICATIONS

Trades other than the window installer may apply the weather resistant barrier or house-wrap. The general contractor shall coordinate this timetable as required. Both installation procedures outlined in this installation guide may be installed prior to, or after the weather resistant barrier or house-wrap has been installed. If the house-wrap has already been installed, there must be accommodations made to such, so that the window installation can take place. Make the following modifications:

1. Make a modified “I-Cut” in the house-wrap.
2. Fold the bottom side flaps over and behind the interior sides of the rough framed opening.
3. Fasten flaps on interior with staples set every 12” to 16”.
4. Measure for diagonal cuts at top of window corners of the house-wrap.
 - Measure from the corner 9” up and 9” over and mark. This will be a 45-degree diagonal cut.
 - Cut on the diagonal from the marked point to the rough opening corner.
 - Measure and cut the other upper corner in the same fashion.
5. Gently raise the top edge of the house-wrap and tape the corners and center to the barrier surface above. This will allow for the window flashing to be installed during the window installation process.

After the modifications have been performed, install the window according to the guidelines in the INSTALLATION PROCEDURES section of this installation guide. After the window has been installed accordingly, follow these steps to complete the house-wrap modifications:

1. The flashing applied to the head of the window is to be installed in the same fashion as in the INSTALLATION PROCEDURES section of this installation guide, except it needs to be tucked underneath the house-wrap in the upper corners in a weatherboard fashion in a **METHOD “A”** installation.
2. Remove the tape holding the flap of house-wrap in place, and fold the flap down over the head flashing previously installed.
3. Using an approved house-wrap tape, tape the 45-degree cut corners down to complete a watertight seal. Tape must completely cover and seal the seam, or cover any exposed head flashing.

See Figure HW Method “A1” for house-wrap modifications for “A” type installations.

See Figure HW Method “B1” for house-wrap modifications for “B” type installations.

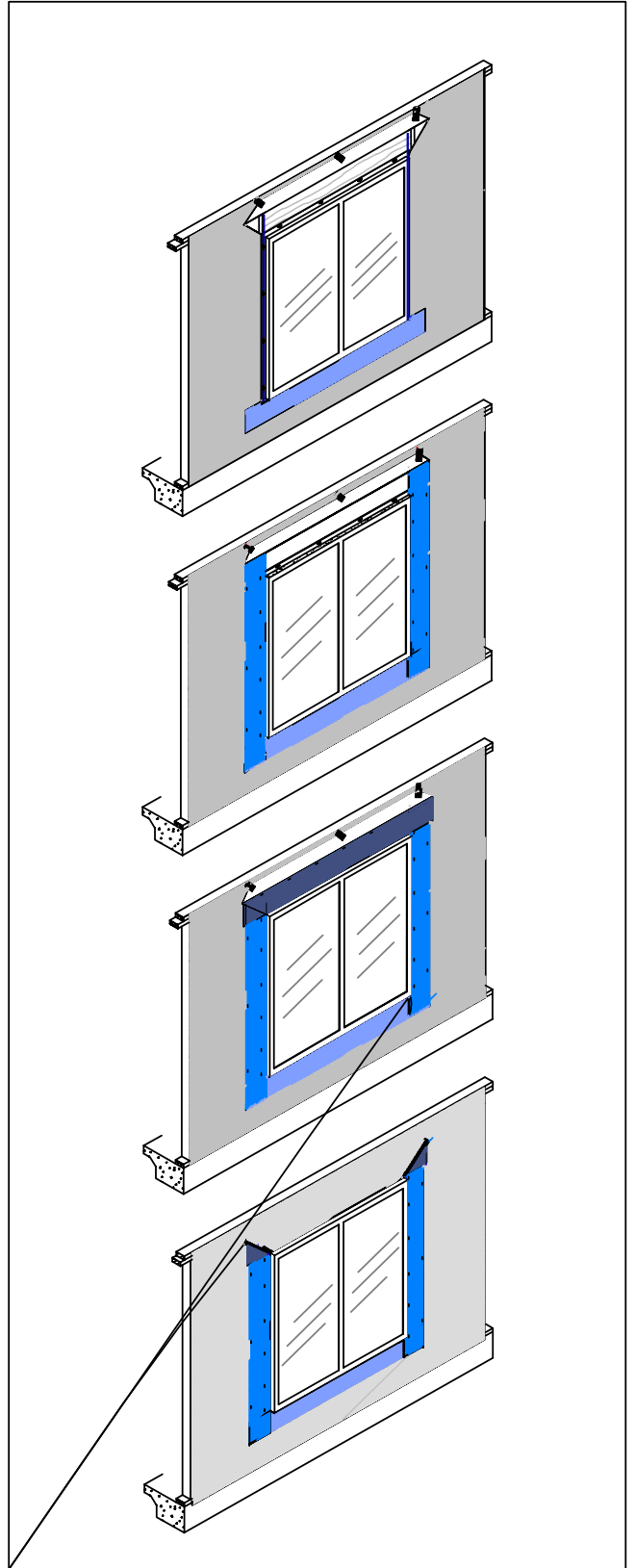
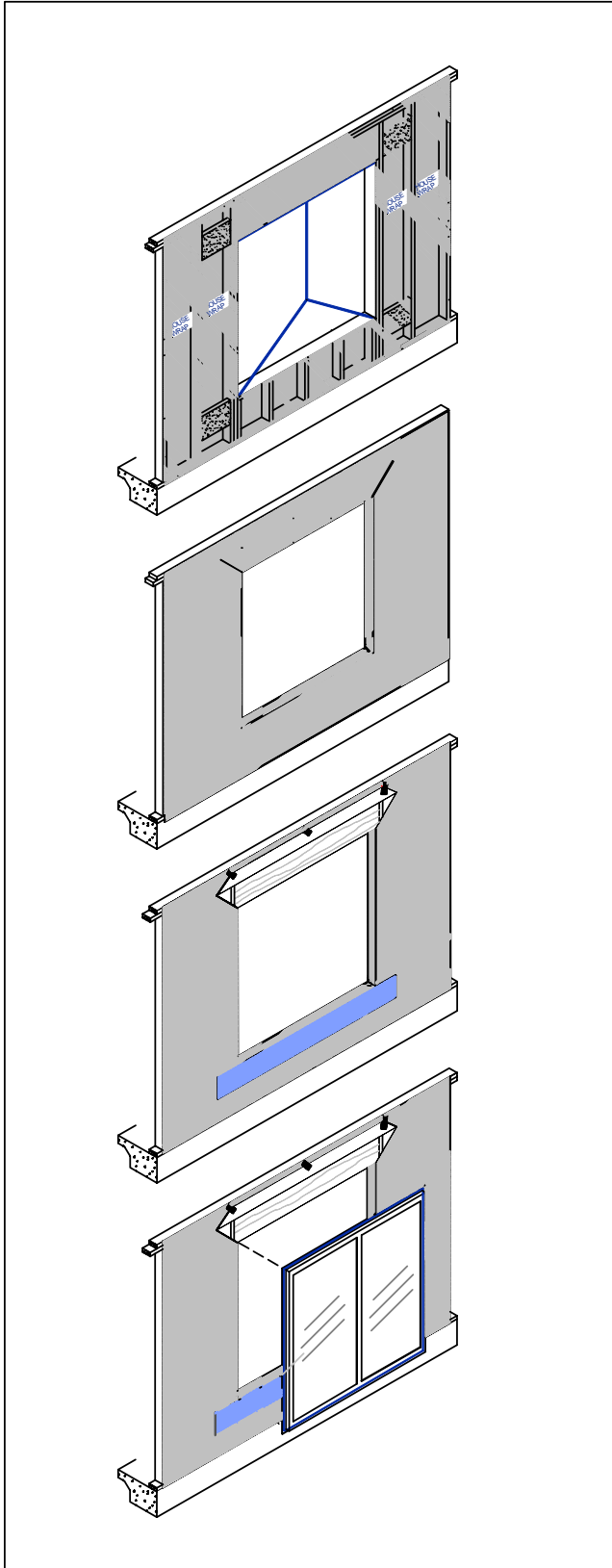


Figure HW Method "A1"

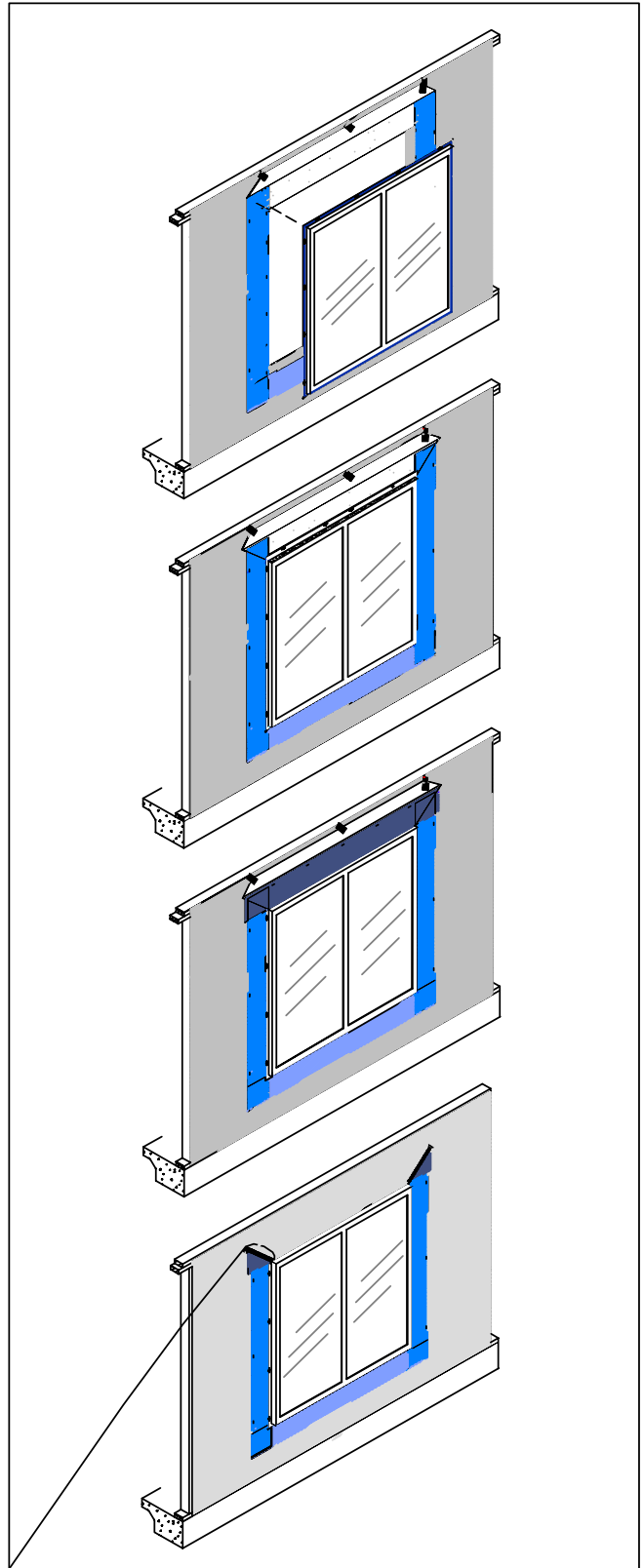
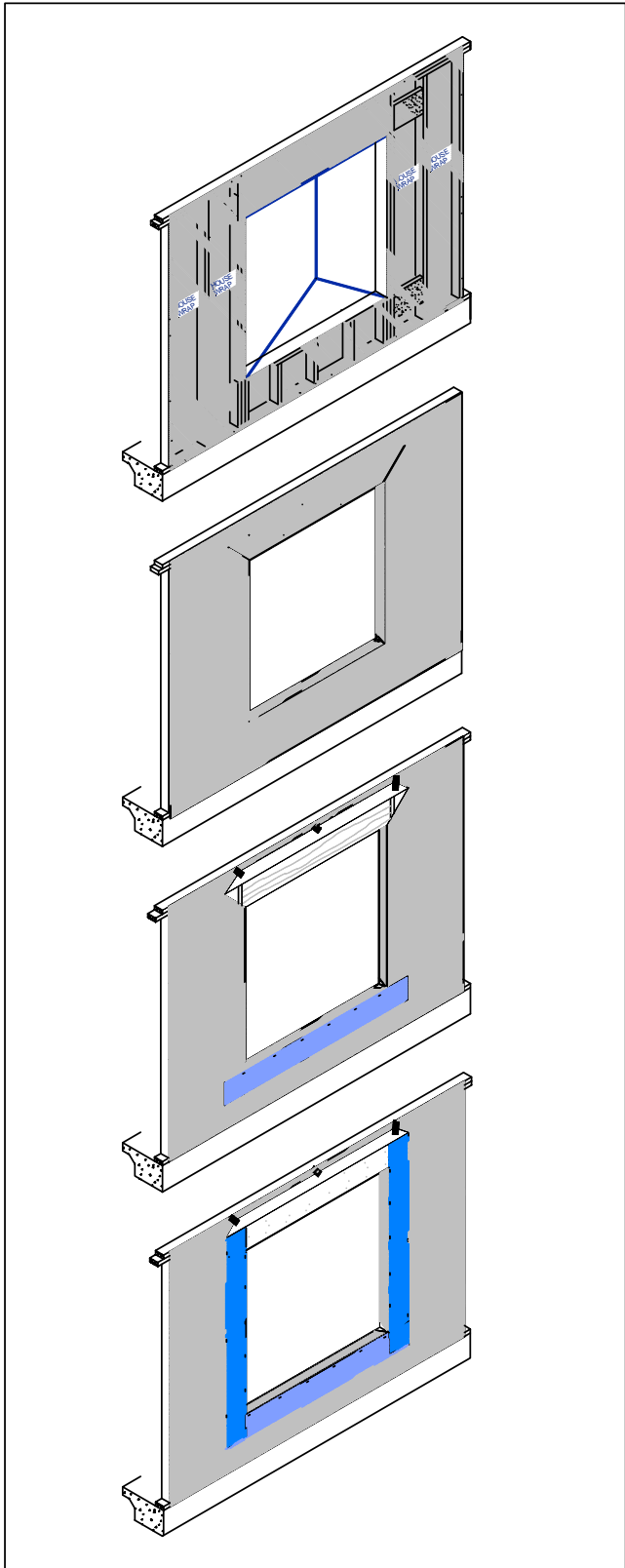


Figure HW Method "B1"