

# PermaBrick Installation Instructions

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## Overview

Install panels over sheathing with a vapor barrier and the sheathing nailed to studs. Use at least 2 galvanized flat head screws per square foot 2 to 2 1/4" long, depending upon sheathing thickness per ASTM C514 standards or galvanized screws meeting the ASTM C1002 standard. The screws must be long enough to penetrate at least 1" into framing studs. The panels should be sized and fitted before installing. Cut the panels with a standard wet-dry diamond blade in a cutoff saw. The normal galvanized drip flashing is used at the base or startup edge of the wall. Always wear safety glasses and dust protection when cutting panels.

## Preparation - New Construction

Before you begin, make sure that the walls are covered properly with a vapor barrier like Tyvek before applying the PermaBrick panels. To eliminate twisting or racking, make sure all corners are sway braced. Make sure sheathing walls are flat and level. Check all flashings, gutters, and roofing and repair as necessary before installing the PermaBrick panels.

## Preparation - Existing Buildings

Remove all lap wood siding, shingles, vinyl or aluminum siding before you begin installation. Check all plywood and OSB and re-nail as necessary to secure a flat level surface. Apply the vapor barrier. For a flat, level surface on metal siding, remove the hex head or surface mounted fasteners and replace with seal gasketed flat head fasteners. Caulk and seal all dents or leaks for a weather tight seal before installation of panels. If you are covering concrete or concrete blocks, use 3/16" tapcons. Check all flashings, gutters, and roofing and repair as necessary before installing the PermaBrick panels.

## Brick Front Only - Flat Front Elevation Application

Using a level, snap a chalk line at the base of the frame wall above the finished grade for installation of the galvanized "L" channel to the chalk line, then another chalk line 16" above the first one for the top of the panel in order to keep the panel running level. (See Figure 1A.) The panel starting at the outside corner should be

cut to 32" long, leaving a 16" piece for starting the next row above to give the panels a staggered appearance. (See Figure 2.)

Repeat this staggered pattern from the channel up to the soffit at the starting corner. Then measure and cut the brick panel to fit snugly to the outside corner. Starting from the outside corner, place the brick panel into the channel and make sure it is level and square to the outside corner and apply galvanized screws to the first one third of the panel at the corner side in the mortar lines. The screws must penetrate the studs by at least 1".

**IMPORTANT NOTE:** Only apply screws to the end of the panel. Pull the loose edge of the first panel slightly away from the wall and slip the next brick panel into place in order to lock in the panels.

Finish screwing in the first panel using 3 screws on center. (You should have 3 fasteners on each wall stud.) Only fasten the second panel along the joining edge to the first panel - you should be able to easily pull the other edge away from the wall to slide the third panel in and lock in place. Make sure the panels are level.

You must pre-fit all panels to windows and doors before screwing them in. Use the matching color corner cap for outside corners. (Usually, if the side elevation is colored siding, the matching color corner cap is used.) For white doors and windows, use a white "J" channel.

Use normal drip flashings over windows and doors. The PermaBrick panels are usually installed up to the soffit. The soffit area next to the brick panel can be masked with a 2" wide masking tape for easy removal after the mortar has been applied for a clean finish. Leave a 3/8" gap for the mortar on inside corners. Cut the panel so that a long brick staggers with a short brick for the best appearance. (See Figure 4.)

### **Bricking Entire Building**

If possible, begin the installation on the outside corner of a rear wall. (See Figure 1A.) Using a level, snap a chalk line at the base of the frame wall above the finished grade for installation of the galvanized "L" channel to the chalk line, then another chalk line 16" above the first one for the top of the panel in order to keep the panel running level.

Start the panel installation at the lower outside corner. Attach the 4 7/8" wide corner filler strips, starting at the "L" channel and going up to the soffit. Keep the filler strips flush to the corner line and screw them into place. (See Figure 1B.)

Apply the screws in the mortar line between the bricks. Each stud should have 3 screws in it, 12 screws per panel.

Line up the first panel at the bottom "L" channel by placing it in the caulked "L" channel. Check with the corner brick for correct head space. The top of the panel should be level before screwing the end of the panel adjoining the corner filler strip in place. Only screw in the end of the panel by the corner filler strip.

Slightly pull the other end of the panel away from the wall to insert the next brick panel, making sure it is aligned and level, then finish screwing the first panel securely in place, applying 3 screws in every stud and in the first stud on the second panel. Slightly pull the other end of the 2nd panel away from the wall to insert the 3rd brick panel.

Make sure it is level and lines up properly. Then finish screwing the second panel and the first stud of the 3rd panel so you can slightly pull it away from the wall to insert, interlock and level the next panel, and so on.

Some installers allow a 1/8" space between panels to maintain the 3/8" mortar line and to allow for side adjustment for uneven bricks. Once you start this way, you must maintain the same spacing on each panel so that the mortar lines will be consistent for the best appearance.

Mount the rest of the brick panels along the entire wall, making sure that the brick panels are level. Allow 1/8" where panels meet the door and window trim, whether you are inserting the edge into a "J" channel or directly against the door or window molding, to allow for expansion and contraction. For color coordinated "J" channels, use a 1/4" diameter bead of urethane sealant in the side channel to ensure a weather tight seal. Mortar gray or white "J" moldings are easier to match to windows and trim and give the installation a clean appearance. (See Figure 3.)

### **Inside Corners**

For inside corners, cut the end of the brick panel to leave a 1/8" space to allow for expansion. Coming in from the other side, leave a 3/8" space in order to end up with a standard 3/8" mortar joint in the corner. Use a 1/4" diameter bead of urethane sealant on the first corner sheet to ensure a watertight seal. (See Figure 4.)

### **Outside Corners**

As you proceed from one outside corner to another, you will have cut the side edges flush against the windows and doors or into "J" channels where the siding

begins. Plan ahead by starting in from both outside corners, and make a joint where a downspout will cover it, or over or under a window. Make a zipper panel. Cut the panel at one end so that the bricks interlock, and glue in six bricks to interlock on the adjoining panel.

You could also cut one side flush, then cut the adjoining panel flush and allow 3/8" space between the two side edges and just mortar the 3/8" space that is covered by a gutter.

Mortar the joints with a mortar bag, using silica sand and Portland Cement type 'S' mortar. Premixed "K-1" mortar meet the trade requirements of ASTM C144. Masking tape can be applied to the edges of painted soffits and trim before starting to mortar the brick panels. Apply the mortar into the joints. Then tool the joints with a 1" radius tool for a very shallow strike. This allows for maximum mortar in the joint and a complete bond to the edges of the bricks. All excess mortar should be brushed away after troweling.

It is important to remember that grouting should only be done at temperatures above freezing.

For extra strength on modular housing or potential earthquake areas, add reinforcing latex mortar additive to strengthen the bond of the mortar and make it more flexible.

24 hours after mortaring and troweling the brick walls, clean away any mortar film that remains on the bricks with a brick cleaning solution. Brush thoroughly and rinse clean. Then use a urethane sealant to caulk all edges around windows, doors, siding, flashing, "J" channel joints, pipes, ducts, "L" channels and electrical outlet boxes. Inspect every window, door and soffit to ensure that they are properly flashed and caulked with sealant to prevent rain water from seeping behind the panels.

### **Soldiers Row Brick Option**

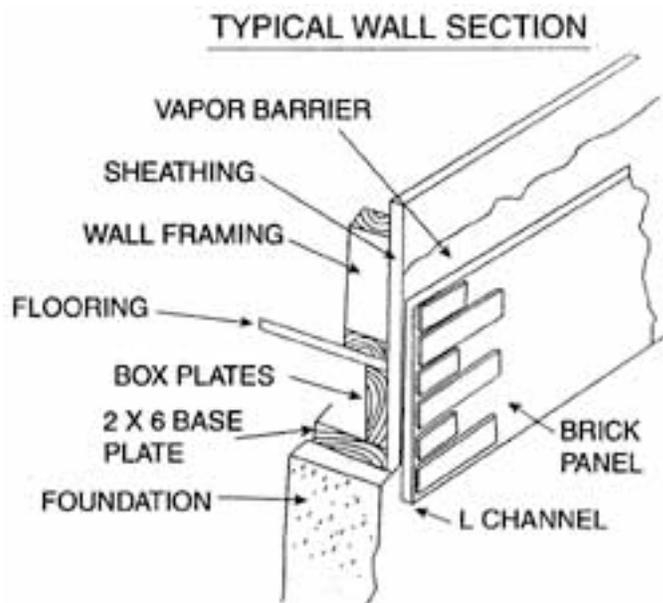
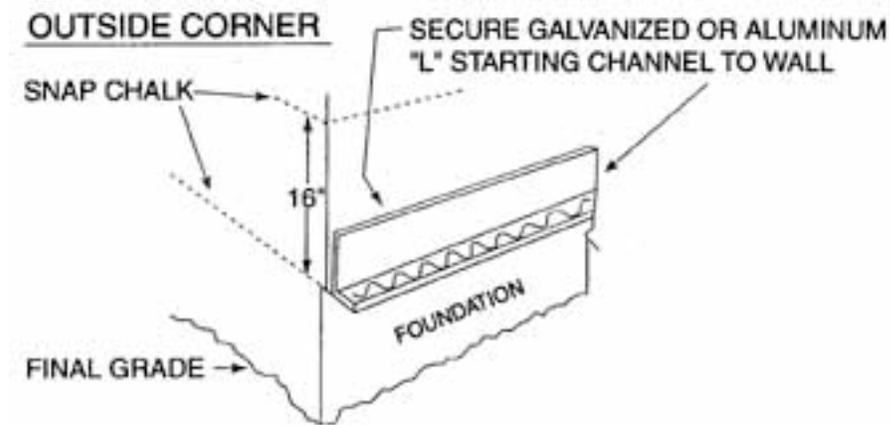
Vertical soldiers row brick panels are also available two bricks high, which can be sawed in two to enhance the masonry appearance over doors and windows. (See Figure 5.) First, be sure to use the proper galvanized flashing and seal properly. Then cut panels into half vertical bricks for windowsill areas. Notch out the area where the vertical brick panels are to be installed, then screw the soldiers row into place. When finished, apply mortar.

### **Cold Climate Installation**

**IMPORTANT NOTE:** When installing panels in cold climates, maintain a minimum distance of two inches between the building panels and the concrete slabs or asphalt. This allows space for heaving when frost lifts the concrete or paving. When paving or pouring concrete against brick panels, be sure that there is an expansion joint underneath the brick panel and against the face of the brick in order to have a slip joint. This will ensure that the expanding slab won't force the wall up, which could cause cracking of drywall and other problems.

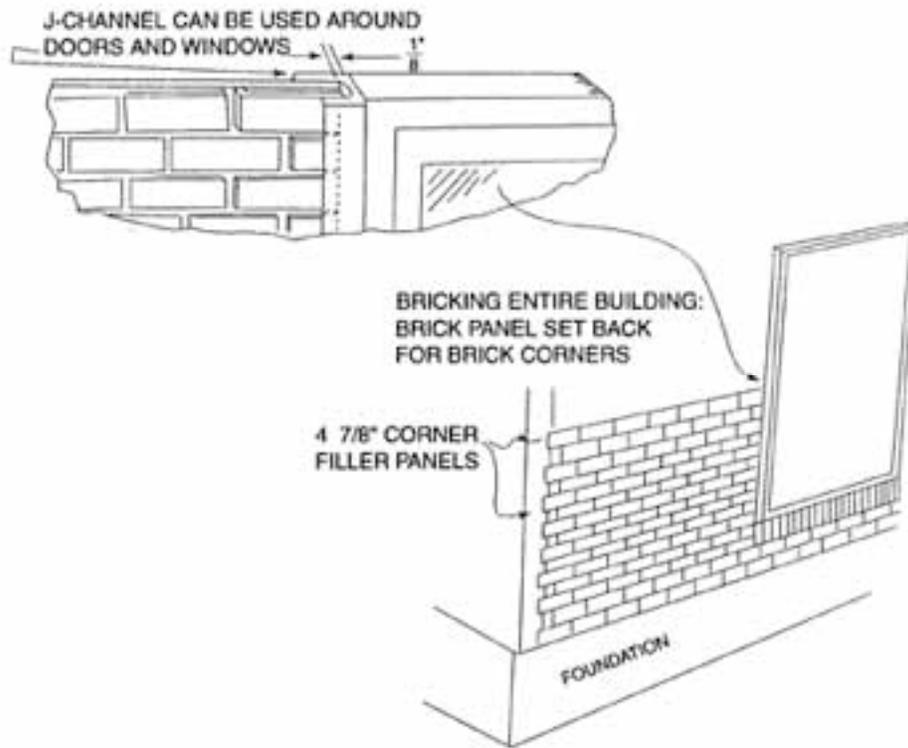
## Figures

**Fig 1A**



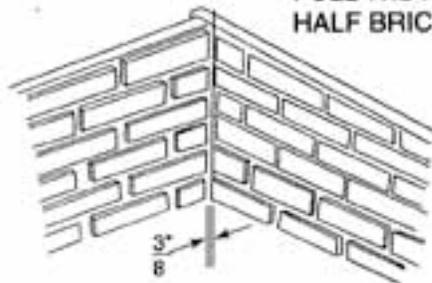


**Fig 3**



**Fig 4**

FOR FITTING INSIDE CORNER-CUT PANEL 1/8" SHORT. THEN CUT THE ADJOINING PANEL 3/8" SHORT TO ALLOW FOR THE 3/8" MORTAR JOINT. CUT PANELS FOR CORNER TO HAVE FULL WIDTH BRICK ABUTT HALF BRICK AS SHOWN.



**Fig 5**

