

## If You Need Assistance

We hope these instructions are clear and answer your questions about the installation of Pittsburgh Corning Glass Block. A "How-To Install" video is available for purchase wherever glass block is sold or by calling 1-800-624-2120.

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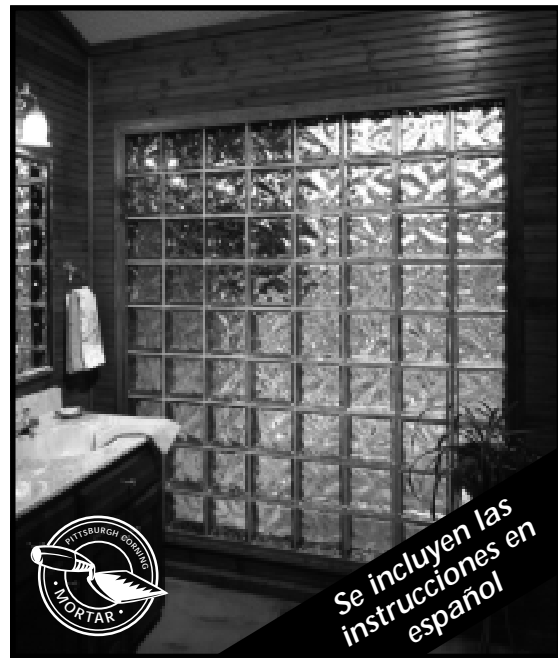
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# PITTSBURGH CORNING

## Mortar I & Mortar II Systems with VeriTru® Spacers

### ASSEMBLY INSTRUCTIONS



**PITTSBURGH  
CORNING**  
GLASS BLOCK®  
www.pittsburghcorning.com

Mortar I & Mortar II Systems with VeriTru® Spacers

## MORTAR I SYSTEM

### Introduction

The Mortar I System utilizes Pittsburgh Corning perimeter channels for all four sides. You'll also use VeriTru® Spacers and glass block mortar to produce clean, consistent  $\frac{1}{4}$ " joints and a traditional grid look.

**Pittsburgh Corning offers an easy to follow Glass Block Installation Video. This video is available for purchase where glass block is sold or can be ordered with your VISA or MasterCard by phoning 1-800-624-2120.**

Looking for glass block ideas? "A Touch of Glass" idea book can also be ordered by calling the above number.

### 1. General Information

- The installation recommendations presented here are for small residential panels of 25 ft<sup>2</sup> or less.
- Designed for use with Pittsburgh Corning **Premiere** (4" thick) and **Thinline™** (3" thick) **Series** Glass Block.
- Not for use in constructing curved glass block walls.
- Interior and exterior panels must be framed on all four sides.
- All glass block panels are non-load bearing, so adequate provisions must be made for support of construction around the panel.

### 2. Tools Required

- Margin trowel, mortar pan, polyfoam brush, sponge, tin snips, screwdriver, fine tooth saw, caulking gun, utility knife, metal file, measuring tape,  $\frac{3}{8}$ " to  $\frac{1}{2}$ " striking tool and a two foot level.

### 3. Materials Required

- The Pittsburgh Corning Glass Block Project Planner is available where glass block is sold or on our website at [www.pittsburghcorning.com](http://www.pittsburghcorning.com). This is a step by step guide you can use to determine the exact amount of materials required for your project.

Materials Required Include:

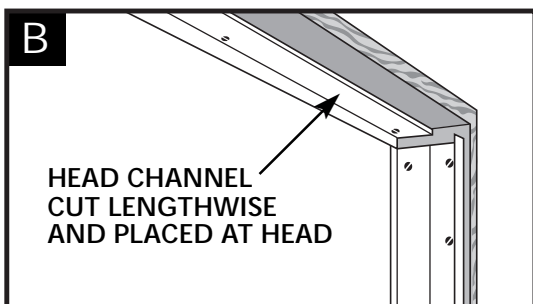
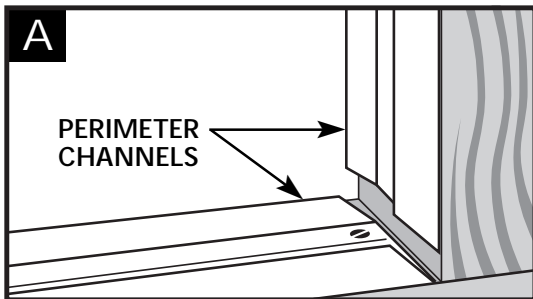
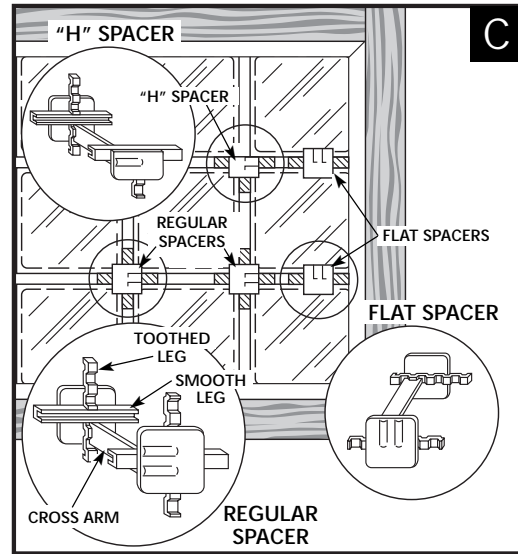
- Pittsburgh Corning Premiere or Thinline™ Series Glass Block.
- VeriTru® Spacers which support, align and speed installation.
- Pittsburgh Corning Perimeter Channels must be applied on all four sides of your opening and are available in 48" lengths.
- Expansion Strips are used at the head and are available in 24" lengths.
- #6 zinc-plated, one inch, flat head screws (approx. three per lineal foot of perimeter channel).
- Mortar: Glass Block white premixed mortar, or you can mix your own using white portland cement, powdered hydrated lime and white sand.
- Pittsburgh Corning Glass Block Sealant.

### 4. Preparation

- Prepare the rough opening where the panel will be located. To determine the width of your rough opening, multiply the number of glass block horizontally, times the nominal width of the glass block, and to that sum, add  $\frac{1}{4}$ ". To determine the height of your rough opening, multiply the number of glass block vertically, times the nominal height of the glass block, and to that sum, also add  $\frac{1}{4}$ ".
- Cut the perimeter channels to length to fit the bottom, top, and both sides of the opening (Illus. A). These may be cut square or mitered. Screw channels to the bottom and two sides of opening with #6 zinc-plated, one inch, flat head screws, using the holes provided. Use two screws to fasten each end. If you cut off the predrilled holes when trimming the length, simply drill new ones at each end of the cut piece. Paint the screw heads white to reduce visibility.
- So that the last row of Pittsburgh Corning Glass Block units can be installed easily, cut the top

perimeter channel in half lengthwise with a utility knife. Install half of the channel at the top of opening (Illus. B).

- VeriTru® Spacers are sold in bags of 25. Roughly, you'll need 50% more spacers than the number of glass block being used. Where four block come together spacers are used as supplied. These are called "REGULAR" spacers (Illus. C). Where glass block meet the curb and framework, spacers are modified using tin snips. Clip off both sets of smooth legs forming a flat spacer. Twist-off tabs remain in place (Illus. C). File off any remaining burrs so that the spacer will lay flat. These spacers are called "FLAT" spacers. The spacers for the top row of glass block are called "H" spacers and should be modified by clipping off one upper toothed leg and then cutting the twist-off tab in half (Illus. C).
- Expansion Strip will be used along the entire width of the head and should be cut to a 1 1/2" width for both Premiere and Thinline™ Series glass block.



**Mortar Preparation**

**WHITE PREMIXED GLASS BLOCK MORTAR**

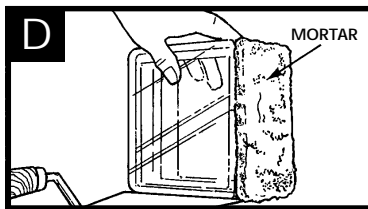
The following gives an idea of the number of block that can be installed per 50 pound bag of mortar:

Block Sizes (Nominal)	4"x 8"	6"x 6"	6"x 8"	8"x 8"	12"x12"
*No. of Premiere Series (4" thick)	34	34	30	26	18
*No. of Thinline™ Series (3" thick)	42	42	36	32	N/A

\*Based on 1/4" mortar joints.

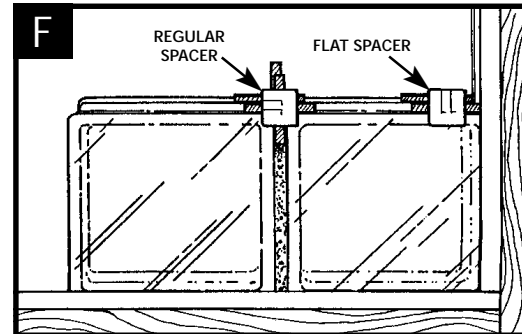
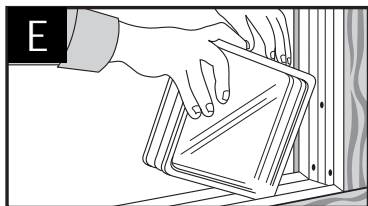
- Follow instructions on the premix mortar bag. Be sure to read and understand all precautions outlined by the mortar manufacturer. Freshly mixed mortar may cause skin irritation. Avoid direct contact where possible and wash exposed skin areas promptly with water. If any gets into eyes, rinse immediately with water and seek prompt medical attention. Mixed mortar should be of a consistency that will allow it to stick to the edge of the glass block when the block is turned 90°. It's best to test the mortar on the block (Illus. D), and add water or mortar to the mix as needed.

**NOTE:** Preparing mortar is an important step. If you have ever laid brick or concrete block, be aware that glass block are nonabsorbent and, accordingly, the mortar must be much less moist. The consistency should be spreadable, but not dry to the point of separating or crumbling. When mixed to its proper consistency, mortar should stick to the edges of the block when it's turned on edge. Mix what you think you'll use in about an hour.



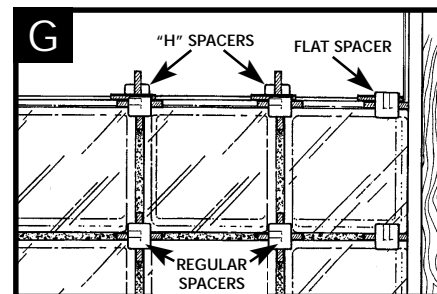
## 5. Laying the First Course

- Place two glass blocks into the sill channel. Slide one block into the right jamb, and one into the left jamb (Illus. E). NOTE: No mortar is applied to any edge that is placed in a channel.
- Next, take another block and apply  $\frac{3}{8}$ " to  $\frac{1}{2}$ " of mortar to the vertical edge that will contact the preceding block. Place this block in the channel adding a "REGULAR" spacer with the cross arm down where the two blocks meet (Illus. F). Push firmly in place forming a  $\frac{1}{4}$ " mortar joint. Make sure the joint is completely filled with mortar. Repeat these steps for each remaining block in the first horizontal course. Apply mortar to both sides of the last block you are inserting in this course. While working, take a polyfoam brush to remove excess mortar and fill any voids that exist. Follow this procedure for both sides of your panel.

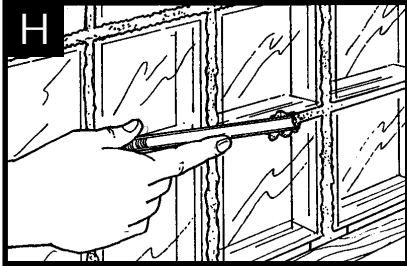


## 6. Laying the Remaining Courses

- To begin the second course of block, apply a  $\frac{3}{8}$ " to  $\frac{1}{2}$ " mortar bed on top of the first row. Be careful to keep the smooth legs of the spacers free of mortar to ensure that the next course of block will sit flat on the spacers.
- Take one of the modified "FLAT" spacers and place it on top of the first block in the first course where the block fits into the channel. Then, set the first block of your second row into the jamb channel, and on top of the spacers (Illus. F).
- Continue with each block as you did with the first course. Repeat for all remaining rows and remember to check periodically to ensure that your panel remains level and plumb. In other words, straight, both horizontally and vertically. If you find a problem, adjust the block into place before proceeding.



- Use the "H" and "FLAT" spacers as shown (Illus. G), when installing the next to the last row of glass block.

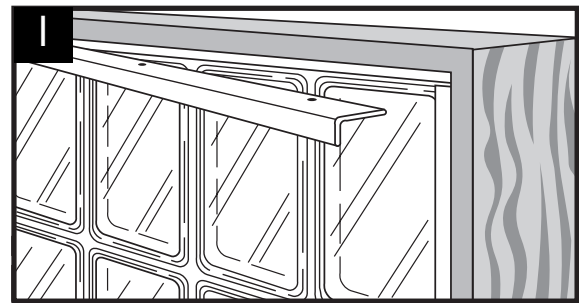


- Lay a bed of mortar on top of this next to last course, insert "FLAT" spacers at each corner. Proceed with final course of block by first placing block into both corners. For ease of block placement you may want to snap off the tab of the "FLAT" spacer before placing it in position. Work towards the middle. Don't forget to butter both sides of the final block.
- After installing the final block, be sure to press back into the joints any mortar that has been forced out.

## Finishing/Cleanup

- After allowing the mortar to set up for about one hour, twist off the spacer tabs on both sides of the panel.
- Remove excess mortar from the block faces using a damp sponge. Be sure to rinse the sponge frequently. Try not to let any mortar on the block faces dry or set before attempting to remove it. Don't be concerned about the dry film that remains on the block, it will be cleaned off later. Be sure you don't use abrasive materials for this cleanup, since they scratch the glass surfaces.
- Take the striking tool and run it with moderate pressure over all the joints. It is best to strike all the horizontal joints first, then the vertical joints, so that the pattern is uniform (Illus.H). Striking removes excess mortar and compacts it to create a smooth, concave, moisture-proof seal. Again, fill any voids that may appear. When you're done with both sides of the panel, all joints should be completely filled with mortar and you'll have a clean, professional-looking job.

- About two to three hours after striking the joints, and once they are dry, you can use a soft, dry cloth to remove the excess film. A common household plastic scouring pad can also be used to clean any excess film.
- Cut the expansion strip to a 1 1/2" width for both Premiere and Thinline™ Series glass block. Insert Expansion Strip across the top front of the head. Wedge the remaining half-section of the perimeter channel between the expansion strip and frame as shown (Illus.I).



- Around the perimeter use the glass block sealant to seal between the glass block and channel and to seal the top channel to the frame at the head. For exterior panels or wet areas, you should also seal between the channels and the framing. You may want to cover the edges of the channel with trim molding depending on the look you're trying to achieve.

## Maintenance

An important part of the functional beauty of Pittsburgh Corning Glass Block products is that they are virtually maintenance free! There's nothing to rot, rust, peel or paint. All that is needed is an occasional wiping with a damp, soft cloth on interior panels or a hosing on exterior panels. With minimal attention, your Pittsburgh Corning Glass Block panel will remain sparkling and beautiful for years!

## MORTAR II SYSTEM

### Introduction

The Mortar II System does not use the Pittsburgh Corning perimeter channels but instead utilizes expansion strips, panel reinforcing and panel anchors. You'll also use VeriTru® Spacers and glass block mortar to produce clean, consistent 1/4" joints and a traditional grid look.

**Pittsburgh Corning offers an easy to follow Glass Block Installation Video. This video is available for purchase where glass block is sold or can be ordered with your VISA or MasterCard by phoning 1-800-624-2120.** Looking for glass block ideas? "A Touch of Glass" idea book can also be ordered by calling the above number.

### 1. General Information

- The installation recommendations presented here are for interior or exterior residential panels larger than 25 ft<sup>2</sup> or panels enclosed on three sides.
- Panel Size Limitations:  
Premiere Series — Interior (250 sq. ft. max.) and Exterior (144 sq. ft. max.).  
Thinline™ Series — Interior (150 sq. ft. max.) and Exterior (85 sq. ft. max.).
- Designed for use with Pittsburgh Corning **Premiere** (4" thick) and **Thinline™** (3" thick) Series Glass Block.
- All glass block panels are non-load bearing, so adequate provisions must be made for support of construction around the panel.

### 2. Tools Required

- Margin trowel, mortar pan, polyfoam brush, sponge, wire cutters, tin snips, screwdriver, caulking gun, utility knife, metal file, measuring tape, 3/8" to 1/2" striking tool and a minimum two foot level.

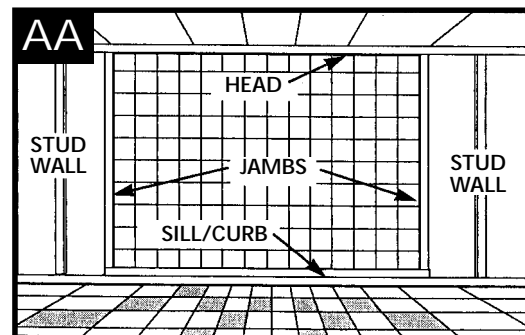
### 3. Materials Required

- The Pittsburgh Corning Glass Block Project Planner is available where glass block is sold or on our website

at [www.pittsburghcorning.com](http://www.pittsburghcorning.com). This is a step by step guide you can use to determine the exact amount of materials required for your special project.

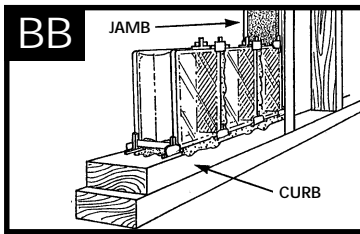
#### Materials Required Include:

- Pittsburgh Corning Premiere or Thinline™ Series Glass Block.
- VeriTru® Spacers which support, align and speed installation.
- Expansion Strips allow for expansion at jambs and head and are available in 24" lengths.
- Panel Reinforcing is installed in every other horizontal course and adds strength to panels larger than 25 sq. ft. Sold in 48" lengths.
- Panel Anchors are installed every other course along the jambs and the head and anchor the panel to the surrounding framework. They're sold in 24" lengths and cut to form two, 12" anchors.
- #12 zinc-plated, one inch, pan head screws (use four screws per 24" anchor).
- Mortar: Glass Block white premixed mortar, or you can mix your own using white portland cement, powdered hydrated lime and white sand.
- White silicone sealant for around the perimeter of the panel on both sides.

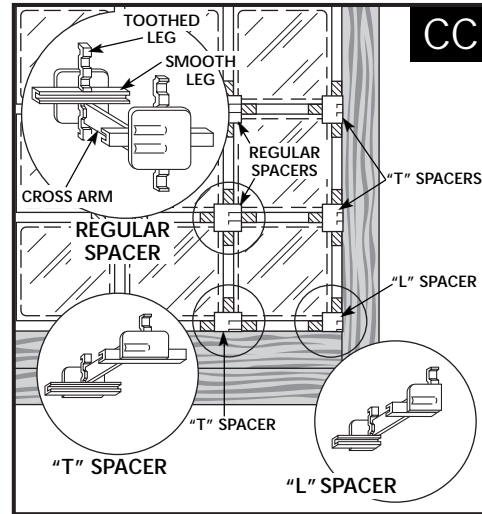


## 4. Preparation

- Prepare the rough opening where the panel will be located (Illus. AA). To determine the width of your rough opening, multiply the number of glass block horizontally, times the nominal width of the glass block, and to that sum, add  $\frac{1}{2}$ ". To determine the height of your rough opening, multiply the number of glass block vertically, times the nominal height of the glass block, and to that sum, also add  $\frac{1}{2}$ ".
- We recommend that you make a curb base as wide as the glass block being used (Illus. BB). This will help protect the bottom course of block from damage (vacuum cleaners, mops, etc.).

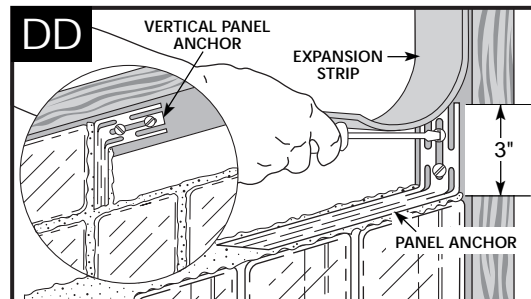


- VeriTru® Spacers are sold in bags of 25. Roughly, you'll need 50% more spacers than the number of glass block being used. Where glass block meet each other, spacers are used as supplied (Illus. CC). Where glass block meet the curb and jamb, spacers are modified using tin snips. "L" spacers are used at the two bottom corners of the panel (Illus. CC). To create this spacer, clip off the two upper toothed legs and two of the smooth legs and modify tabs as shown (Illus. CC). File off any burrs on the spacer so that it will sit flat. You will require only two of these "L" spacers for your project. "T" spacers go between all the perimeter block, at the curb and jambs except at the four corners of the panel. To create the "T" spacer, remove the upper toothed legs only and modify the tabs as shown (Illus. CC). Be sure to file off any cutting burrs. It's a good idea to prepare a supply of "T" spacers before you start, so that your panel construction can continue without interruption. At this point, you may want to construct your panel dry (without mortar) to ensure that your block fits



the opening and you have an adequate supply of prepared spacers.

- Panel anchors will be installed at every other joint along both jambs and the head in order to tie the panel into the frame (anchors will be embedded into the mortar joint). Do not install panel anchors on the sill. Panel anchors are supplied in 24" lengths and can be cut into two anchors, 12" long. They should be bent to produce both a short (approx. 3") and a long arm (Illus. DD). Screw the short arms of the anchors to the jambs and head (Illus. DD). Use two screws per anchor. If you are attaching to tile or masonry, plastic screw anchors should be used. Panel anchors are installed as required during construction. Do not install in advance of use.



- Trim expansion strip for length based on the distance between anchors with scissors or utility knife. The expansion strip width should be trimmed to  $2\frac{1}{8}$ " for Thinline™ Series block and  $2\frac{7}{8}$ " for Premiere Series block. The length should also cover the anchor short arm. Strips are installed between the anchors for the full length of the jamb and head (Illus. DD).

#### Mortar Preparation

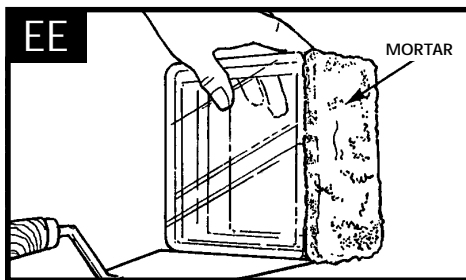
##### WHITE PREMIXED GLASS BLOCK MORTAR

The following gives an idea of the number of block that can be installed per 50 pound bag of mortar:

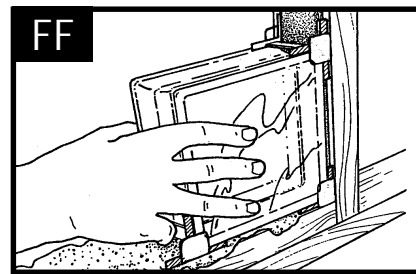
Block Sizes (Nominal)	4"x 8"	6"x 6"	6"x 8"	8"x 8"	12"x12"
*No. of Premiere Series (4" thick)	34	34	30	26	18
*No. of Thinline™ Series (3" thick)	42	42	36	32	N/A

\*Based on  $\frac{1}{4}$ " mortar joints.

- Follow instructions on the premix mortar bag. Be sure to read and understand all precautions outlined by the mortar manufacturer. Freshly mixed mortar may cause skin irritation. Avoid direct contact where possible and wash exposed skin areas promptly with water. If any gets into eyes, rinse immediately with water and seek prompt medical attention. Mixed mortar should be of a consistency that will allow it to stick to the edge of the glass block when the block is turned 90°. It's best to test the mortar on the block (Illus. EE), and add water or mortar to the mix as needed.

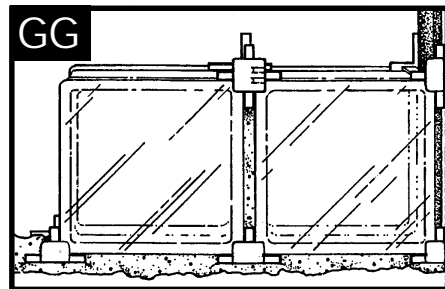


**NOTE:** Preparing mortar is an important step. If you have ever laid brick or concrete block, be aware that **glass block are nonabsorbent** and, accordingly, the mortar must be much less moist. The consistency should be spreadable, but not dry to the point of separating or crumbling. When mixed to its proper consistency, mortar should stick to the edges of the block when it's turned on edge. Mix what you think you'll use in about an hour.



## 5. Laying the First Course

- Using the trowel apply approximately a  $\frac{1}{2}$ " mortar bed to the curb or floor.
- Without applying any mortar to the first block, place an "L" spacer at the lower outside corner of the block so that the cross arm will be at the bottom, between the glass block and the curb (Illus. FF). Place a "T" spacer at the other lower corner of the block with the spacer cross arm up (Illus. FF). Slip a 16" long piece of trimmed expansion strip between the block and jamb, and push the block firmly into place (Illus. FF).





- Slip a "T" spacer between the block and the jamb so that the cross arm is on top of the block.
- Take a second block and apply  $\frac{3}{8}$ " to  $\frac{1}{2}$ " of mortar to the vertical edge that will contact the preceding block. Position the second block using a "T" spacer on the bottom and a "REGULAR" spacer at the top between the two blocks (with the cross arm down between the blocks). Push the two blocks together (Illus. GG). Follow this procedure for all remaining block in the first course except for the last block. This last block is installed similar to the first block.
- Take the level and check periodically to ensure that your panel remains level and plumb. In other words, straight, both horizontally and vertically. If you find a problem, adjust the block into place with a rubber mallet before proceeding. While working, take a polyfoam brush to remove excess mortar and fill any voids that exist. Follow this procedure for both sides of your panel.

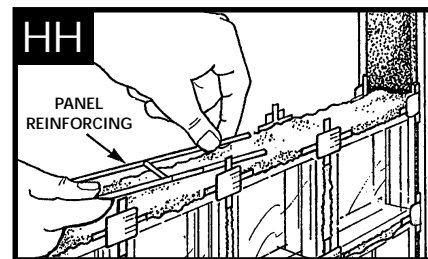
## 6. Laying the Remaining Courses

- Apply a  $\frac{3}{8}$ " to  $\frac{1}{2}$ " mortar bed on top of the first course. Be careful to keep the smooth legs of the spacers free of mortar to ensure that the next course of block will sit flat on the spacers.
- To start your next course, place a block (without mortar) against the jambs using spacers that are already in place from the previous course, for alignment. Place a "T" spacer at the upper corner of this block (against the jamb). Install the remaining block in the same manner as you did in the first course.
- At this point, remove the previously installed "T" spacers at both jambs at the top of the second course. Apply a  $\frac{3}{8}$ " to  $\frac{1}{2}$ " mortar bed on top of this course.
- Install panel anchors at both jambs by completely embedding them in the mortar and fastening them to the jamb using #12 zinc-plated, one inch, pan head screws. Use two screws per anchor (Illus. DD). If attaching to tile or masonry, plastic screw anchors should be used. Reinsert the "T" spacers previously removed. Additional mortar may need to be applied to cover the anchor.

- Now it's time to install panel reinforcing. Panel reinforcing is always installed in the same horizontal joints as the panel anchors. Lightly press panel reinforcing into the mortar bed along the entire length of the panel so that it is completely embedded in the mortar. Where more than one reinforcing strip is needed, overlap them six inches (Illus. HH).

**NOTE: Panel Anchors and Panel Reinforcing are only installed in every second horizontal course of block. However, they are not required on top of the next to last course of block.**

- Proceed with remaining courses as previously described. Remember to install expansion strips along the jambs as you continue.

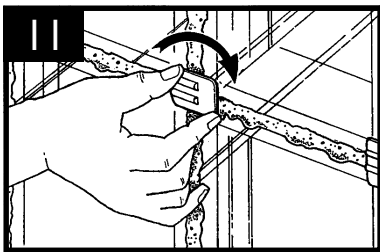


- As your panel is built, remember to check periodically to ensure that your panel remains level and plumb. In other words, straight, both horizontally and vertically. If you find a problem, adjust the block into place before proceeding. Don't forget to use your polyfoam brush to press squeezed out mortar back into the joints.
- Installing the last course will be different than the previous course in that you will be installing vertical panel anchors. First, twist off the spacer tabs along the top of next to last course on one side of the panel. Then install two blocks, remembering to butter both sides of the second block before installing. Spacers are not required at the top of the panel.
- Install the vertical panel anchor with the long leg facing down (Illus. DD). Completely embed the long leg of the anchor into the vertical mortar joint. Screw the three inch leg of the anchor to the top of the opening. Continue this two block procedure across the final course.

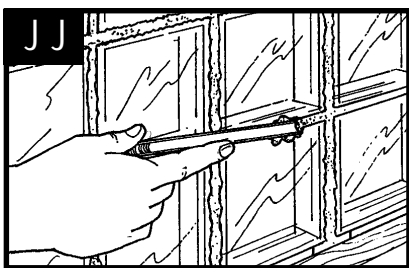
- Install expansion strip across the head. Because the top course meets the expansion strip at the head, no mortar is placed at the top edge of these blocks.
- After installing the final block, be sure to press back into the joints any mortar that has been forced out.

## Finishing/Cleanup

- After allowing the mortar to set up for about one hour, twist off the spacer tabs on both sides of the panel (Illus. II).



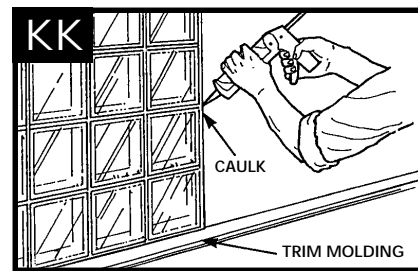
- Remove excess mortar from the block faces using a damp sponge. Be sure to rinse the sponge frequently. Try not to let any mortar on the block faces dry or set before attempting to remove it. Don't be concerned about the dry film that remains on the block, it will be cleaned off later. Be sure you don't use abrasive materials for this cleanup, since they scratch the glass surfaces.



- Take the striking tool and run it with moderate pressure over all the joints. It is best to strike all the horizontal joints first, then the vertical joints, so that the pattern is uniform (Illus. JJ). Striking removes

excess mortar and compacts it to create a smooth, concave, moisture-proof seal. Again, fill any voids that may appear. When you're done with both sides of the panel, all joints should be completely filled with mortar and you'll have a clean, professional-looking job.

- About two to three hours after striking the joints, and once they are dry, you can use a soft, dry cloth to remove the excess film. A common household plastic scouring pad can also be used to clean any excess film.
- Use a white silicone sealant around the perimeter of the panel on both sides. Where curb was used, you'll want to cover it with trim molding. You may also use moldings at the jambs and head (Illus. KK).



## Maintenance

An important part of the functional beauty of Pittsburgh Corning Glass Block products is that they are virtually maintenance free! There's nothing to rot, rust, peel or paint. All that is needed is an occasional wiping with a damp, soft cloth on interior panels or a hosing on exterior panels. With minimal attention, your Pittsburgh Corning Glass Block panel will remain sparkling and beautiful for years!

**NOTE:** If your glass block panel will function as a shower wall, after about a week, coat the mortar joints on both sides of the panel with a clear silicone or acrylic sealer for mold and mildew protection.