

Building Bond Beams and a Michigan Style Movement Joint with Korfil Hi-R



Korfil Hi-R is a pre-insulated masonry wall system that offers thermal values that are superior to traditional concrete masonry, while still delivering the considerable thermal mass benefits of concrete masonry. Typical R-Values for Hi-R are 4 to 5 times higher than conventional masonry. This note will discuss how to build a bond beam and a movement joint using Korfil Hi R units using what is called a Michigan Style Joint. The advantage of this approach is that it allows us to build the joint without sacrificing the thermal properties of the pre-insulated Korfil Hi-R units by using conventional masonry units at the joint location.

Building Bond Beams with Korfil Hi-R

One of the benefits of the Hi-R insulated wall system is that it is designed to accommodate both horizontal and vertical grout placement for reinforcement without the need to remove the insulation inserts.

The Hi-R units can form a bond beam with some simple modifications. Korfil Hi-R units can serve as knock out bond beam units by saw cutting the webs of the Korfil Hi-R units so that the top portion of the webs behind the insulation can be removed to reduce the height of the cross webs to accommodate the placement of steel reinforcement rebar.

The Korfil insulation comes pre-installed in the units. As each course is laid, the insulation should be pressed down into place so that it is snug with the cross webs in the unit. When placed correctly, the top of the units will have the insulation insert spanning the length of the units.

QUICK POINTS

- Korfil Hi-R offers superior energy efficiency
- Korfil Hi-R units may be used as knock-out bond beam units to build bond beams
- A Michigan style movement joint maintains the insulative properties of the Korfil Hi-R Wall system at joint locations.

The insulation inserts each have two offset parts, and these will form lap joints with the insulation in adjacent units both to each side and above and below. To ensure optimal insulation performance, the mason should take care that the units are placed so that the insulation in each unit are tight and flush with the insulation inserts in the adjacent units.

After the first course is laid, the knock out portions of the webs in the bond beam are removed with a hammer to accommodate placement of reinforcement rebar. Due to the pre-cuts, they will remove easily.



Movement Joint at Bond Beam



At the movement joint location in the bond beam, we are going to want to break the bond of the grout in the bond beam so that the joint can function as a means of accommodating any slight movement that may occur in the wall. To do this, we are going to place a sheet of material at the joint to break the bond of the grout. This break could be composed of construction paper or any material that will break the bond effectively. The break material is cut to fit the joint, and a hole is cut into it to accommodate a sleeve that will surround one element of the rebar in the bond beam as it passes through the joint.

The bond break is placed at the joint. Dual runs of rebar will be placed in the bond beam. On one side, the rebar will not pass through the joint. On the other side, a sleeve is placed through the bond beam, and a continuous strand of rebar will pass through the sleeve. This design allows a structural rebar connection through the joint while the sleeve will allow slight movement. The bond beam is filled with grout up to and on both sides of the bond break at the movement joint.

Drainage and Flashing Considerations



Whenever the vertical drainage path in a single wythe wall is interrupted we need to place flashing and weeps so that if any moisture reaches the cores in the blocks, it has a path to drain to the exterior of the wall. Bond beams form a horizontal barrier to the drainage path, and could become a collection point for any moisture that is in the cores of the wall. For this reason, we are going to install a flashing and weep system above the bond beam to allow a means for moisture to drain to the exterior of the wall.

One popular method of building the flashing and weep system is to use the Block-flash® pan flashing and weep system. The units are placed above the bond beam. These units combine a pan to collect moisture with a weep spout that will cross through the mortar joint to the exterior of the wall.



The mortar bed is placed along the course with the flashing units just as it would be normally. Care should be taken to clean out the weep spouts of the flashing units after the mortar joint is in place and is being tooled so that no mortar blocks the spouts. Mesh pieces are stuffed in the cores of the units above the flashing system to prevent mortar or grout droppings from plugging the system.

Forming the Movement Joint above the Bond Beam

Additional courses of the Hi-R units are laid above the flashing system. On alternating courses, half-length units will be needed since the wall is built in a running bond pattern. For these units, the Korfil Hi-R units are saw cut to size, and the units are placed so that the overlapping portions of the insulation inserts will fit together as normal.

In order to complete the movement joint above the bond beam, additional bond breaking material is placed to continue the bond break above the bond beam; it is placed to continue up the same side of the core that is formed in the wall at the joint location. The core is then grouted, and the bond break material will allow the joint to accommodate slight wall movement, while providing good weather protection. After the joint is completed, the exterior of the joint will be sealed using a suitable masonry joint sealant.





Conclusion

Bond beams can be readily built using Korfil Hi-R units.

Using a Michigan style movement joint is a great way to maintain the superior thermal properties of the Hi-R system by using the Hi-R insulated units to form the movement joint. The use of a grout column with bond break material at the movement joint accommodates movement while assisting in weather protection.

Hi-R is a registered trademark of Concrete Block Insulating Systems, Inc.

Block-Flash is manufactured by and a registered trademark of Mortar Net Solutions, Burns Harbor, IN.



Questions?

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