

What's Happening in Masonry

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Masonry Lintels

Historically, different materials have been used to provide support for windows, doors and openings so a masonry wall can continue. The following pictures show brick, stone, concrete block, steel, wood and reinforced concrete providing that support.



Detailed brick lintel



Stone lintel



Concrete block lintel



Reinforced concrete lintel



Steel lintel



Wood lintels

Masonry Lintels (cont.)

A lively design and constructability question today is, should we use a pair of steel lintels or a steel beam and plate or a concrete block bond beam to support the concrete block above an opening. The industry has found comfort with steel lintels as they provide a solid means of support and no slowing of production, just keep laying the wall up. Two angle irons placed across an opening with a bond beam block inverted or a regular concrete block with part of its webs removed is all that is needed to continue laying up the wall. If the wall is a steel beam and a plate, there is typically some cutting of concrete block to accommodate the I-beam on the next one or possibly two or more courses (depending on the height of the beam) above the steel. It is possible 2" or 3" soaps could be laid, on either side of the beam to minimize cutting. The other problem with the steel lintel is that typically over time we see a failure in the concrete block where the steel is bearing causing a shearing of the face of the concrete block.

The alternative to the steel option for lintel design is to go all masonry! By using a concrete block bond beam, called a U-block and placing rebar and grout into the bond beam we can form a very strong lintel. One of the challenges with a masonry lintel is that it cannot be placed over the opening and immediately loaded, like steel, unless the lintel is prebuilt or supported by some type of shoring while the rebar and grout are installed. With a little preplanning this can easily be accomplished. Masonry lintels can be prebuilt easily, on the job or off the job, then lifted into place.

Here are some advantages of masonry lintels:

- **Masonry lintels can be prebuilt and eliminate the need for any shoring. By being prebuilt it can be ready for installation with no delay.**
- **No need to order steel angles or beams for openings. So mason can start and not be delayed by a steel delivery. Good for the schedule.**
- **With no steel over an opening, we can move control joints away from the opening and let the jamb reinforcing work like it is really designed, no sheared concrete block at bearing. This is a more robust design.**
- **The masonry lintel takes advantage of the arching action of the concrete block. The design load can be smaller than with steel.**
- **Masonry lintels can be designed to handle the same designs of steel lintels, without the steel.**
- **With masonry lintels there should be no or greatly reduced sawing of concrete block which will be less dust, less silica pollution.**

