At the Masonry Advisory Council we get several calls each year regarding masonry that is “cracking up”! With the amount of cold weather this year, there should be many calls. Probably one of the most common cracks happens at the heads of windows. Like this...

This type of crack happens due to the lack of expansion joints in the length of the brick wall. The bricks have expanded horizontally above the head of the window, as brick are predicted to do and this type of crack occurs. The steel lintel below the head of the window contributes to this crack as the steel and brick expand at different rates. The location of this crack is near the corner of the building. There are only a few brick from this jamb to the corner, so this side of the window has less resistance and a better chance of being pushed to the point of cracking, more than the other side of the window does.

This crack can be fixed by installing an expansion joint either at the jamb of the window, from the window head where the steel bearing is located, to the top of the wall or by installing an expansion joint at the location of the end of the steel lintel, probably about 8” from the window jamb location. By cutting brick and brick joints vertically, with a power saw, we will create a 3/8” joint that can be caulked, allowing the steel and brick the ability to move at a controlled location. Additionally, we will be eliminating the moisture from penetrating the cracks in the brick, allowing the flashing to direct the planned moisture within the cavity via the weeps.
When this type of window head cracking happens with concrete block, the fix is similar to the brick cracking scenario. A vertical joint can be cut into the concrete block head joints and the concrete block to create a new “control” joint.

This cracking could be eliminated and the design more efficient using reinforced concrete block to move the control joint away from the jam location. Two feet is a good separation from the jamb to the control joint. This will increase the capacity of the masonry letting the vertical reinforcement and bond beam lintel (instead of a steel lintel) working as one to form the opening.
In the case for unreinforced walls, not having reinforcement at openings, smaller openings should have a control joint at one side, while larger openings should have a joint on each side.

Also, note that the joints are “doglegged” above the opening so that the lintel can be supported by the masonry on both sides of the opening, and also to restrain the lintel against uplift by vertical reinforcement at the edges of the opening. The control joints above the windows and doors are normally offset from the jams so that the lintels produced by these joints can have 8 in. of bearing at each end. The control joint placed away from the opening to meet the minimum spacing listed above.

With these ideas for where to place the control joints in concrete block or expansion joints in brick construction we can achieve a more crack free masonry design.