

Header Flashing End Dams for Windows and Doors

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Welcome to the Eakes' Origami Guide to the Building Code -- or "how to actually build new flashing requirements in the building code".

Water leaking in around windows and doors represents one of our major construction problems. The building codes seem to be constantly changing in an effort to minimize our reliance on caulking, which will always eventually crack. In addition we want to provide a drainage path back out of the wall for any water we fail to stop. One of the most common on-site errors is to rely on caulking rather than proper flashing over the top of windows and doors and in an effort to eliminate this unnecessary leakage problem the codes have gotten very specific as to what is required in the way of a header flashing.

Aside from the code details on header flashings, which I will give you further down, tradespeople are telling me that they don't know how to do the work to satisfy the new codes.

First, just how do you bend the sheet metal to make end dams that do not need any caulking? There are actually several ways to bend the metal that will technically satisfy the code, but several of the possibilities will still be prone to leakage because the way the metal folds doesn't totally block water flow. If you have ever tried folding Japanese Origami you know a bit about the problem, only with sheet metal it is even more difficult than with paper. This video will show you how to make guide templates and a simple jig which will allow you to make perfect end dams that require no caulking in the corner while totally preventing water flow into the wall. It will take you half an hour to make the jigs, and less than a minute to make a perfect leak proof end dam right on site.

The second difficulty end dams present is the need to slot aluminum or vinyl siding to drop down over the raised sections of the end dams. I am told from the field that trying to snip the slot, or cut it with regular saws is making an unsightly mess at the top of windows. As I set out to find a tool that would take care of this, I discovered that I already had it in my tool box: the FEIN Multi-Master. It is available in Canada through Home Hardware stores and various web stores as well as through most industrial tool outlets. This tool was originally designed for auto body work before we got wood cutting blades to allow us to use it in renovation and finishing. But if we go back to the segmented metal cutting blades, the fact that it oscillates rather than spins allows for easy clean cutting into vinyl or aluminum siding before or after it is put on a wall -- with no breaking of the plastic, bending of the metal or cutting into the sheathing.

So now you simply measure the width of the window or door plus the trim on each side (header flashing must go over the trim all the way to the siding), then add the height of the end dams on each end and you have the length of your header flashing. Draw the cut and fold marks on each end with the drawing templates. Snip out the corners. Place the bending jig over the flashing and bend up the end dam with a pair of needle nose pliers. Then hammer it down flat against the jig. Use the FEIN Multi-Master to cut the aluminum or vinyl to go around the window and two small slots for the end dams. Caulk the outside of the end dam to the siding while you are caulking it to the window anyway. You now have a better window installation than you have ever had before.

The video shows a 'generic' jig in that there are no dimensions since the siding thickness, strapping and window placement details will determine the exact size of the flashing material required. But once you make a specific jig, it will work for all windows and doors that you install under the same circumstances. In Canada, windows and doors must be installed according to the CSA-A440.4-07 standard. The Canadian Standards Association was kind enough to give me permission to include in this Origami Guide the specific 2007 details on the head flashing. The following is reproduced from

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10.2.5.2

Head flashing shall

(a) be a continuous piece long enough to cover the entire window or door head, except as provided in Clause 10.2.5.5 ;

(b) slope a minimum 6% (5.4?) to the exterior to limit the running of water along the flashing and entering the wall at upper corners of windows;

(c) extend upward behind the wall sheathing membrane, or insulating sheathing installed instead of the sheathing membrane, at least 50 mm (2 in);

(d) extend not less than 19 mm (3/4 in) beyond the face of the window or door frame below and have a drip edge to prevent the backflow or runoff of water onto the window or door below;

(e) extend horizontally past the trim at the top corner of the window or door to span the width of the joint between the window or door and the cladding; and

(f) terminate at each end with an end dam

(i) with a height not less than 25 mm (1 in) or 1/10 the value of the 1 in 10 driving rain wind pressure in Pa; and

(ii) at the height defined in Item (f)(i), extending to the face of the adjacent cladding. For more information on CSA or to purchase standards, please visit their website at "www.Shop.CSA.ca"

That saw cut in the vinyl siding at the end of the video was made with a FEIN MultiMaster oscillating tool. I have a whole series of videos on working with this tool in the Learning Curve tab above.

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