

Water running down the basement walls.

Last Updated: Tuesday, September 10th, 2013, Created: Sunday, January 14th, 2001

Carol from Smith Falls has a new home but has had water running down her basement walls from the beginning, and no one, not even her builder, seems to be able to figure out why. As well, the problem seems to get better and worse with time, but still wet.

First of all you need to keep in mind that there are about 800 gallons of water in the concrete itself when you pour a basement. That water will be coming out of the concrete for many months, and in a new basement with insulation in place, it will show up on the inside of the plastic vapour barrier. You will be convinced that the outside wall is leaking. In fact Carol had things re-caulked and hunted all over the outside for the source of the leak. Then they re-landscaped to get the water to flow away from the basement -- always a good idea. The problem seemed to slow down for a while -- I suspect that the basement walls were simply drying out. Then, in the cold of winter with no rain at all outdoors, it all came back, just dripping down the walls. So she pulled off all the insulation to try to clear it up. Carol has a high efficiency gas furnace that uses outdoor air for combustion, so her basement has no exhaust fan or chimney. There is nothing clearing any moisture out of her basement. In fact when I asked, it was 58% relative humidity in her basement, far too high for -15C and colder outdoors as the outdoor temperature will cool the walls and that much humidity will begin to deposit water as condensation, the first step toward mould.

My guess is that the first sign of water was the water coming out of the concrete walls during the summer and moving inwards, showing up on the plastic vapour barrier. Then, six months later, the water she had was simply all the high humidity of the basement moving out past the vapour barrier through small imperfections in corners and overlaps, getting to the cold side of the insulation and condensing. Yes you can get up to 30 liters of water through a single 2cm x 2cm hole in the vapour barrier over the course of a Canadian winter. That is enough to make you really believe the wall is leaking.

My recommendation to Carol is to control the humidity by some kind of ventilation system, the simplest of which is an "exhaust fan" specifically made for basements that draws air off the basement floor and throws it outdoors -- it is controlled by a humidity switch that turns on the fan when the humidity becomes too high and turns the fan off when it is not needed. In her climate she could accomplish the same thing and save a lot of heat by using a "Heat Recovery Ventilator", which will cost more to install, but cost less to operate. Then she could put all that insulation back on and install a really good vapour barrier to keep moisture away from the cold concrete wall.

Unfortunately the province of Ontario is not following the National Building Code on this matter by requiring mechanical ventilation in all new houses as is required in every other province -- endless problems like Carol's are the result of this short-sighted exception in the Ontario building code. Ontario requires that new housing be well insulated and sealed, and in my opinion it is simply irresponsible on the part of those who establish the building codes not to require effective mechanical ventilation along with an air-tight house. Ontario new home buyers should demand that their builders follow at least the minimum ventilation provisions of the National Building Code rather than the lesser requirements of the Ontario building code which is questionable on the matter of ventilation and indoor air quality.

Â

Keywords:

Condensation, Mold, Mould, Leaking, Basement, Water