

Answer: There are two perspectives that need to be looked at when answering this question, one is code and the other is Weatherization (WX).

The short answer from strictly code perspective is no. However, this does not mean we are abandoning the evaluation of the attic ventilation altogether, nor are we eliminating existing attic ventilation.

The short answer from WX perspective is also typically no. In traditional one and two-story homes we want to evaluate the existing condition of the building and then apply current building science knowledge to each individual home in determining need when it comes to attic venting.

Consider the following when deciding upon whether, and how, to add attic venting to traditional one and two-story site-built homes: *(Keep in mind that this will not necessarily apply to cape cod or story and a half style homes with knee walls, roof rafters, and collar beams as their principles and function are a bit different)*

Health and safety guidance WPN 17-7 and CSPM 614 Section 7.7 states that it is beyond the scope of the Weatherization Assistance Program (WAP) to bring existing homes up to current codes unless the installation of an Energy Conservation Measure (ECM) triggers a code compliance issue. This issue could be treated as Health and Safety (H&S) or it could be treated as an Incidental Repair Measure (IRM), if it were related to the performance or preservation of the ECM. It would be a stretch to consider attic ventilation as an H&S issue once the ceiling plane is completely air sealed (verified through ZPD testing) and properly insulated. Building science in the attic ventilation arena has progressed a great deal in recent years and attic ventilation code simply has not caught up.

The most important thing to consider from a WX perspective is the condition of the existing structure. If the attic/roof and all of its components are in good condition, with no indications of moisture or ice-damming issues, then the addition of attic ventilation is not required. It does not matter if you are in Detroit or the Upper Peninsula, if the building has been functioning well under current conditions, the addition of air sealing and insulation measures will only make the situation better. At that point, installing attic ventilation could be considered a waste of time and money.

When moisture issues or ice-damming are found to affect the structure, the inspector is obligated to determine the cause and to provide solutions. Often, air sealing and insulation will eliminate most of these problems. That is not to say that ALL moisture and ice-damming issues will be resolved.

The absolute best outcome for any WX project in any Michigan climate zone is a completely air-tight and well insulated ceiling plane. If the warm, wet interior air cannot get through the ceiling plane, can we assume then that there is no need for attic vents to eliminate potential ice-dams and roofing system failure? There is a bit more to it than that, snow actually has

thermal resistance and an R value of approximately R1.5 per inch. If we have 10 inches of snow we could feasibly have an R15 snow blanket on top of the shingles. Even if you have performed perfect air sealing, without attic venting washing air across the bottom of the roofing assembly, there is still going to be potential for ice-damming due to the increased attic temperature from conductive heat loss through the ceiling and the snow insulation on the roof deck. This is an instance where you might want to call for attic venting along with increased insulation levels to make sure you fix the issue. This can be a problem in areas with high regular snow load.

Another odd scenario might be when a south facing exterior wall (particularly dark colors) heats up from the sun and warm surface air rises and collects under the eaves on a calm day. This can melt the snow near the eaves and create an ice-dam and roof problems. Here, consider alternative styles of eave venting and eave insulation.

If you were going to add attic ventilation, the determination (per Michigan IRC) of the amount of ventilation required is based on climate zone, existence of a vapor retarder, or location of the venting. For functionality, regardless of how much ventilation is required, the most important aspect might just be the location of the vents. In order for the physics at play to work, we must have both low and high venting; however, they do not need to have an equal ratio. Low venting is more important than high venting. Without low venting there is no air washing up across the bottom side of the roofing system. Too much high venting can be sucking on the house instead of the low venting. What we want is more low venting than high venting for optimal performance. When venting is installed high and low to allow the 1/300 sizing criteria, the Michigan IRC says at least 40% of the vents should be high, but not more than 50%. Realistically, low soffit venting is easier to install, holds much less liability, and is more important than having potentially large amounts of high-only venting.

So, do we have to ventilate to code in WX? No.

Do we want to investigate the need to ventilate in WX? Yes.

This means evaluating the specific situation and applying building science knowledge that makes sense. Most of the time for WX, attic ventilation would not be required when there are no existing problems. If you have a leaky ceiling, attic venting may not eliminate the ice-damming or moisture issues. This is why we stress the importance of air sealing and insulation.

When addressing an existing problem, there is nothing wrong with calling for attic ventilation to ensure there will not be a problem post weatherization. In those instances, where the inspector decides ventilation is necessary, try to be smart in how it is provided. Keep in mind the physics at play that allow attic venting to perform as it is intended. In certain specialty situations attic ventilation is going to need to be called for as part of a holistic approach to treating the entire attic space.

In the occasional situation where venting may be required, please see the Attic – Crawlspace Ventilation worksheet located in the Resource Library tab of the MiTEC website for further information.