

Answer: This is a difficult question with a seemingly ambiguous answer. The answer is “When we have sealed what we need to seal.” We need to seal high as best we can, followed by leaks low in the building and then large holes in the middle. After that, we need to evaluate if more sealing is required, but first we are going to have to get past the potential methods we don’t want to use in making this determination.

First, let us discuss setting a percentage reduction target for CFM₅₀ based on the ACH₅₀ of the building. You may be familiar with these numbers: If the ACH₅₀ is 11-17, the goal is 25%; ACH₅₀ = 18 – 22, the goal is 35%; ACH₅₀ > 23, the goal is 40%. While this method may give a rough starting point, it should not be used across the board because air sealing may stop before it should. It often does not get used as a minimum reduction; it is used as a stopping point. The percentage reduction based on ACH₅₀ is an antiquated idea that probably needs to be fully abandoned. There have been too many houses not air sealed properly because of this.

As an example, if you had a 1200 sq. ft. house that was 2500 CFM₅₀ – the ACH₅₀ would be 15.6 which would specify a target reduction of 25%. The target number would be 1875 CFM₅₀. There might still be appropriate air sealing to be accomplished, or if the same house started out much leakier at 3500 CFM₅₀ – the ACH₅₀ would be 21.8 with a 35% target. That would be 2275 CFM₅₀ for the same 1200 sq. ft. house. Again, there may be good air sealing left to do, but this can get out of control when you have homes that are starting out at 5000 CFM₅₀ and higher. You can’t stop there just because you hit your target if there is appropriate air sealing left. **We need to seal what we need to seal.**

Second, we cannot use the “no-need-to-ventilate” rate in the ASHRAE calculator to set target reduction goals. That’s not appropriate either. We don’t want to stop air sealing just so an ASHRAE fan is not required. Let’s weatherize the home to the best of our abilities and air sealing is a primary and fundamental part of that goal.

So, is there a target CFM₅₀ goal for all homes? Yes, but it is not a number. It is when you have sealed what you need to seal. When that is accomplished and all you are doing is increasing the needed cfm of the ASHRAE fan by performing more air sealing, then we need to stop. For example, you should likely not be chasing wall tops on a 1000 sq. ft. house that is at 1200 cfm₅₀ with an attic PD of 48. Typically, that is too time consuming and not cost effective and all you end up doing is increasing the ASHRAE fan cfm requirement.

The Michigan Field Guide is not very specific on what the “goals” are when it says, “Stop air sealing after all major bypasses have been sealed and air-sealing goals have been achieved.” The above perspective on what those “goals” are will be taught as part of our MiTEC class offerings. It makes it easy to deal with air sealing with no stress about looking for a specific number. This is not to say that we don’t care about reductions in the blower door number. We will get appropriate reductions when we do proper air sealing.

To summarize, we need to get rid of the idea that we are looking at a specific target number. Once you have sealed/addressed all the major sources of air leakage (the usual suspects high and low, other major penetrations and pressure imbalances), then look at where you are. If your diagnostics suggest you missed something, go after it. If not, and further air sealing is going to do nothing but increase the cfm requirement of the ASHRAE fan – stop.