

## Homeowner Requests Blower Door Test

Many people look forward to selecting paint colors, countertops and appliances when designing their new homes. One other item that they may want to add to the list is how tightly the home is built.

Recently a builder in the Capital District contacted Newport Venture's asking us to visit one of their newly framed homes. The reason was to make sure this home would pass a blower door test with results at or below 4 ACH@50 Pascal's. The new energy code requirement of 3 ACH@50 Pascal's does not go into effect until October of this year. The reason for this request was so that the builder would meet the requirement as part of the contract agreement with the new homeowners.

The early (pre-drywall) site visit to look for air leakage points is very important for all builders to master so that the homes they are building do not fail the blower door test requirements coming with the new Energy Code. A brief walk through of the entire home should be enough to quickly identify all potential leakage points in the homes air barrier.

The initial walk through identified areas of the home that needed to be sealed before drywall (electrical boxes, wiring holes to exterior walls) and other areas were discussed that had to be sealed up after drywall was installed (recessed lights, bath fans). With the initial walk through completed the builder was reassured by Newport that if they follow everything we had discussed the home would meet the 4 ACH@50 Pascal's goal.

About five weeks passed before Newport was invited back to complete the final blower door test after sheetrock, paint and trim were completed. The final results were 3.06 ACH surpassing the homeowner's requirements. The builder was happy with the result but not happy at the same time. This particular home would not meet the new energy code requirement for tightness levels in a single-family house.

"Having a blower door test helped validate the quality and energy efficiency we are getting with our new home. With rising energy costs its great piece of mind that any preventable issues with the home were addressed and we will spend less on heating & cooling as a result."

-New Homeowner, Ballston Lake, NY

To discover missed opportunities, the blower door fan was turned back on to identify leakage points in the home. A key spot was found immediately in the basement where a secondary entrance was installed into the homes basement from the garage. The pictures below detail the leakage points. Most likely if these points were sealed with an air barrier, caulk or foam the home would fall under the 3 ACH number that will be the new code minimum in October.

**Formula for calculating the ACH on a house using a blower door:**

$$ACH50 = CFM50 \times 60 \div \text{House volume}$$



*The fiberglass insulation located in the floor joist should have an air barrier in place blocking air movement from the garage to the conditioned basement.*



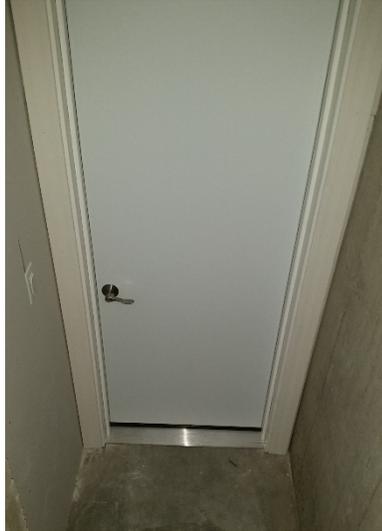
*This door installed in the basement to a stairwell leading to the garage was not sealed at the threshold. Air movement underneath the threshold indicated the door was set on the concrete floor with no caulk or gasket.*



*The same door as the picture above was also not sealed around the perimeter with caulk or foam as required by code.*



*This image is the garage side of the basement door showing the ceiling. The insulation and sill plate shown in the picture has noticeable air leaks in this area during the blower door test.*



*Outside the thermal envelope of the basement (home) the door with access to the basement is shown. Without a blower door test none of the air leakage points would have been discovered.*