

Blower Door Energy Audit

1. Make sure you have: The fan, blower door assembly, DM2 Manometer, laptop (with “Door Fan 3.0” software and DM2 drivers installed), extension cord (and possibly power strip), and tape measure.
2. When you get to the home, walk around and open all of the interior doors.
3. Also, make sure all of the windows are closed and latched shut.
4. Ensure that the AC/Heating fan is off.
5. Find an exterior door with a flat, smooth frame so the blower door assembly will fit nicely. Frames with rubber weather stripping at the bottom (like most front doors), will make it very difficult to get a nice seal on the blower door assembly.
6. Start piecing the door assembly together. Match up the numbers in the corners, press in the little nubs in the corners, and slide the door pieces together.
7. Loosen the black nobs at all 4 edges of the frame.
8. Push the blower door frame into the home’s door frame and tighten the black nobs to hold the frame into position. Don’t worry about getting this too tight or perfect just yet. Just make sure the frame is the approximate size.
9. Pull the blower door frame out of the home’s door frame then take it to the middle of a room.
10. Unpack the plastic cover for the blower door frame and lay it flat on the floor (with the brand name and velcro strips facing up).
11. Place the blower door frame on the cover with the black nobs facing up.
12. Pull the outside velcro tabs over the door frame and attach it to the strips in the middle. Ensure that they are fairly loose when you attach the velcro. The door will still change in shape a little bit and we don’t want to tear the cover.
13. Place the door assembly (with the cover on) back in the home’s door frame.
14. Snug the frame in a little, but make sure you can see some of the cover’s fabric on your side of the frame. This will help to seal the blower door frame in the home’s door frame.
15. Start tightening the blower door frame (from the bottom up) by loosening the black nobs, pushing the frame tighter, and tightening up the black nobs again.
16. When you have the frame pretty snug, un-attach the velcro strips, pull the fabric towards you, and re-attach the velcro strips to remove slack material.

17. Reach under the fabric and pull the white levers (next to each of the black nobs on the door frame) away from the door frame. This will get an even tighter fit into the home's door frame.
18. Now tighten the bar in the middle of the blower door frame by using its black nob and white lever.
19. Walk outside of the home and visually check your blower door frame to make sure there are no gaping holes in your fit. If the door you are using is the only door in the home, you will have to crawl out of the hole that houses the fan.
20. Now place the fan in the door frame. Make sure the "Air Flow" arrow is pointing out of the home. Also, make sure the red tube is on your side of the door.
21. Set the legs of the fan on the door frame and pull the frame cover's elastic band over the fan until they fit nicely into the groove on the fan.
22. Attach the velcro strip on the middle bar of the frame to the fan's handle and make sure the fan is pretty snug.
23. Grab the red tube and move it as far away from the fan as possible. Make sure it is lying on the floor in an open area and not in danger of sucking in any lint or dirt.
24. Untangle your cords that connect to the DM2 Manometer. You'll want the big red cord on the top, and the blue and green tubes on the bottom.
24. On the DM2 Manometer, grab the blue tube and push it through the hole in the bottom of the blower door cover that is the furthest away from where you will be sitting up your laptop. This tube is the longer of the two, so it will give you the most slack.
25. Push the green tube in the other hole at the bottom of the blower door cover.
26. Make sure your tubes don't have any kinks in them and are pulled through the door all the way (with just enough room inside the home to reach to your laptop).
27. Plug in the DM2 Manometer and your laptop. Then, start up the laptop, connect the USB cable and turn on the Manometer.
28. Once Windows has recognized the DM2 Manometer, startup the "Door Fan 3.0" application.
29. Go to the "Equipment" tab and ensure that your fan and gauge (manometer) are on the screen.
30. Click "Next", and fill in the "Test Group" and "Location" sections.
31. Click on the "Enclosure" tab and fill in the dimensions of the home. If you don't know the dimensions yet, just put in zeros in all of the fields.
32. Click "Next", and verify that all of the information for this test are correct. In the "Environmental

Conditions” section, leave the defaults for the “Barometric Pressure” and “Wind Speed”, but fill in the estimated “Inside Temperature”. Make sure the “Range” is “Open (22)”.

33. Click the “Auto Test” button.

34. Set the “Pressure Settings”: Max = 60, Min = 10, Points = 2, Distribution = Linear; and make sure the “Direction” is set to “Depressurize”.

35. Click the “Start Test” button. DO NOT click any more buttons yet.

36. Get out the “Quick Guide Range Configurations” sheet that comes with the fan, and look for the “Open (22)” range (which is having no rings whatsoever in the fan). Make sure your fan looks just like the diagram on the sheet.

37. Click the “Skip” button, then click “OK”.

38. The fan should startup immediately, and you should see pressure readings on the software. You need to watch the pressure reading at the bottom to see when the fan achieves the 60 maximum. Once it does that, the fan will slow way down to try and reach the 10 minimum.

39. If both limits are achieved, you know that your limits are correct. If they are not achieved, you will need to change your range (by adding rings to the fan) and modify the settings in the software; then re-run the “Auto Test” until the limits are achieved. ** NOTE: if you cannot achieve your limits after several range configurations, you may need to modify your Max. and Min. limits. Try to keep at least a 40 point difference between them (to get decent results). Also, pay attention to the “Speed Device” (on the DM2 Manometer) percentage (this is the load of the fan). If the fan is working at a high percentage and still not achieving your limits (when you get to the last range setting... all rings and plugs), the home may be out of the range for your test to successfully run.

40. Click the “New” button at the top of the screen, and change the “Direction” to “Pressurize”. DO NOT click any more buttons.

41. Remove the fan from the blower door assembly and turn it around so the fan will be blowing in the home.

42. Go back to the laptop, make sure your range is the same, then click the “Auto Test” button, then the “Skip”.

43. The fan should startup immediately, and you should see pressure readings on the software. You need to watch the pressure reading at the bottom to see when the fan achieves the 60 maximum. Once it does that, the fan will slow way down to try and reach the 10 minimum.

44. As you did before, be looking for the limits to be achieved. If they do not (or if you see a pop-up message stating that the pressure is too low), you will need to modify the range (by adding rings to the fan and changing the software range setting); then re-run the “Auto Test” again. ** NOTE: if you cannot achieve your limits after several range configurations, you may need to modify your Max. and Min. limits. Try to keep at least a 40 point difference between them (to get decent results). Also, pay attention to the “Speed Device” (on the DM2 Manometer) percentage (this is the load of the fan). If the fan is working at a high percentage and still not achieving your limits (when you get to the last range setting... all rings and plugs), the home may be out of the range for your test to successfully run.
45. When you have reached your limits for Pressurizing and Depressurizing, write down the “Min.” and “Max.” that were the most difficult to achieve (which is usually the Pressurizing test), and the Range Configurations you used to get them. For example: Max. = 40 Pa, Min. = 15 Pa, Depressurizing Range Config. = Open (22), Pressurizing Range Config = C4.
46. Turn your fan back to the Depressurizing position (with Air Flow pointing out of the home).
47. Click the “New Test” button, and change “Direction” to “Both Directions”.
48. The Depressurizing test will run first; so make sure the “Range” is set to the configuration you found to be the best for that setting.
49. Change the “Min.” and “Max.” to your preferred settings from the pre-tests.
50. Change the “Points” setting to 10; so you will get much more detailed results.
51. Completely cover the back of the fan with all rings and plugs to ensure no air is coming in the house through the fan.
52. Click the “Start Test” button and click the “OK” button to set the baseline. DO NOT click any more buttons.
53. When the baseline has been achieved, make sure the fan is at the correct configuration for the Depressurizing test.
54. Click the “OK” button, and the fan will start immediately.
55. When the test has plotted all 10 data points, your Depressurizing test will be complete. DO NOT click any more buttons.
56. Change the direction of the fan for the Pressurizing test (Air Flow pointing inside the home).
57. Click the “OK” button, and the fan will start immediately.
58. When the test has plotted all 10 data points, your Pressurizing test will be complete. DO NOT click any

more buttons.

59. Completely cover the back of the fan with all rings and plugs to ensure no air is flowing through the fan.
60. Click the “OK” button to re-establish the baseline reading.
61. Click the “Calculate Results” button, then go to the “Results” tab.
62. Click on the “Building” tab, and click the “Exit” button to close the “Door Fan 3.0” application.
63. Now disassemble the blower door frame and pack all of the components safely in their carrying cases.
63. Now measure the home’s walls and ceiling height. You want to treat the home like one big box (don’t worry about counting interior walls against the total volume).
64. Open the “Door Fan 3.0” application again and record the measurements in the “Building” tab in the “Enclosure” tab.
65. Click the “Next” button, and “Calculate Results”.