HERS Rating on Commercial Structures

Non Residential Alteration Requirements

Commercial buildings regardless of the climate zones fall under the HERS guidelines. We recommend that you download this change-out flow chart and print it up to help guide you before reading further.

If more than 25 % of the ductwork is outdoors or in unconditioned airspace, duct sealing and testing may be required.

And If the ductwork has no asbestos (most will not have asbestos) duct sealing and testing may be required.

And If your system is a constant volume system like a package A/C unit (not a VAV system), duct sealing and testing may be required.

And

If your system serves 5000 square feet of floor area or less duct sealing and testing may be required.

And If the job includes adding or replacing any of the following items duct sealing and testing may be required:

An air handler (a furnace is an air handler).
A coil (condensing or evap coils)
A heat exchanger (even under warranty)
An outdoor condensing unit.
A package A/C and or heating unit.
Any ductwork. (This means that if you extend, replace, split or otherwise alter the ductwork)

Follow the flowchart and if you determine that duct sealing and testing is required you will need some forms to take you to the next step.

First download these Change-out Contractors Forms.
Print the MECH-4A form. These are the "contractors forms". You must fill out the forms completely and sign them on the bottom before a HERS Rater can test the ductwork. The HERS Rater will need information from these forms in order to do the tests.

You will need a complete form MECH-4A for each system that you are altering.

MECH-4A Part 1 of 3

Enter the project name and address at the top including the Enforcement Agency and permit number as well. The "Enforcement Agency" is the local building department (not the HERS Rater).
The "SYSTEM NAME " is the system's name (a unique name like UNIT 1)
When finished sign and date the bottom of the form.

MECH-4A Part 2 of 3

Again enter the project name and address at the top including the "SYSTEM NAME " and area served This

page helps you determine if duct testing is required and tells you what materials are required to do the work. Just read and check the boxes that apply to the system.

MECH-4A part 3 of 3 You will need a **duct tester** to test the system in order to fill this out. If you do not own a duct tester you may hire a HERS Rater to do the "contractors test" for you to complete the forms but we recommend that you purchase a duct tester for yourself. It will save you lots of money in the long run. As before fill in the top of the form. This is where it gets tricky.

I will use a 3 ton system as an example to help guide you through.
If this is an alteration it is highly recommended that you test the system prior to touching the ductwork and enter the leakage measured on line 6 in the "measured Values column". Doing so helps make you look more professional and could prevent a big headache when the work is completed.

Line 1A (cooling) enter 3 tons in the "Capacity" blank. Multiply 3 x 400 cfm/ton to get 1200. Enter 1200 in the "CFM" blank.
Line 1B is for heating only units so for this example we leave it blank.
Line 2 enter 1200 in the "Enter Values column".
Lines 3 & 4 are for an entirely new system (this is an alteration for the purposes of this example) so go to line 6.
Line 5 is for your pretest results. I will go into that later.
Line 6 This is where you need a Ductblaster. Enter the tested leakage flow in CFM in the "Enter Values column".. We will enter 135 CFM (for this example).
Line 7 is the math part. Use the values from above to fill in the equation. Enter [135 / 1200] x 100 = 11.25 . Enter 11.25 in the "measured Values column".
That is equal to or less than 15 % so you check the Pass box to the right. Go down to the bottom pass fail boxes at the bottom and check the pass box.

Your system passes and you must now fill in the bottom of the form.
You must give a copy of this form to the building department, the builder, the building owner, and the HERS Rater.
Now you need a HERS Rater to verify the test results.
Once the HERS Rater has comlpeted the MECH-4-HERS then you will be ready for the building inspector.

As I stated above it is in your best interest that you test the ducts prior to starting the work.
Lets assume that you have an old system that is very leaky and possibly has broken or ripped ducts. In this scenario it may be nearly impossible to get the ducts sealed well enough to reach the required 15 % once you replace the package unit on the roof. That being the case you should pretest the system and enter the results on line 5 of the MECH-4A. It might go like this;

Lines 1, 2, and 3 remain the same so line 3 = 1200 line 5 has your pretest readings of 584. Now you do the work. After replacing the package unit you get a reading of 500 (which if you do the math gives you a 41.66 %) or a fail. You open the suspended ceiling and you see a duct is detached and one is ripped. You effect repairs and test again. This time you get 210 (which if you do the math gives you a 17.5 %) or a fail on line 8 but now you go to line 8

- Line 8, Here you need to reduce the leakage by 60 % so lets do the math [1 - (210 {line 7} / 584 {line 6})] x 100 = 64 % so this system now passes because it is equal to or greater than 60 % reduction of leakage.

Unless you took a pretest reading you can not use line 8 and you could spend hours finding and sealing leaks until you get it down to 15 %.
Without your own duct tester you have no way to do a pretest without hiring someone else to do it for you.
The other option is line 9 and believe me when I say you don't want to go there.
Good Luck.

MECH-4-HERS

This is the form you will need for the building inspector before they will sign off final inspection on your HVAC job. The HERS Rater will complete this form on the passing of the sealed duct testing. Only a HERS Rater certified for nonresidential testing can legally complete this document.

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