



## Energy Vanguard Blog

[Current Articles](#) |  [RSS Feed](#)

### An Air Conditioner Sizing Benchmark for High Performance Homes

[Posted by Allison Bailes on Wed, Sep 21, 2011](#)



One of the most frustrating parts of my job as a Home Energy Rating ([HERS](#)) provider is dealing with the size of air conditioners installed in [ENERGY STAR homes](#). My frustration has spilled over here in the Energy Vanguard blog several times, and the topic in all its manifestations ([HVAC sizing](#), [Manual J load calculations](#), the [HVAC industry](#)...) has been one of my favorites to write about. I've got an idea of how to make things better now, though. Keep reading.

Today it happened again. I was checking HERS rating files, and, as I usually do, I applied my [AC sizing rule of thumb](#) to see if the HVAC contractors treated the homes as a true high performance homes. Turns out they didn't. For the three homes in question, the air conditioning capacity was one ton for each 529 square feet, 544 sf, and 781 sf. Those numbers are not good. The first two, actually, are terrible.

In case you're new to this subject, air conditioners should be sized to meet the cooling load of the house, and bigger is NOT better. If the AC is too big, it doesn't run long enough to dehumidify well, and the constant on-and-off cycles will shorten the life of the equipment. A [Manual J load calculation](#) is how you find out what size air conditioner the house needs.

So, here's my idea, and I'm starting a campaign for it. HVAC contractors like rules of thumb, so let's take that idea and adapt it. If you're a builder, home buyer, HVAC contractor, or real estate agent, here's a way that you can do a quick analysis to see if the air conditioner is oversized: Find the conditioned floor area. Find the air conditioner's capacity in tons. Divide the former by the latter. What you get is the number of square feet of conditioned floor area per ton of AC capacity.

I told you above that 529, 544, and 781 aren't good, so what is a good number? As a rough guide, you can use the following:

**High Performance Home = 1000 sf/ton or more**

We've done a lot of load calculations here at Energy Vanguard, and I don't think we've had a single new home come in lower than 1000 sf/ton. [I built a house](#) here in Georgia that came in at about 2000 square feet per ton, and we recently worked on another one that was higher than



ideas?

Tags: [ENERGY STAR](#), [HVAC](#), [design](#)

**Post Comment**

Name

 \*

Email

 \*

Website (optional)

Comment

 \*

Allowed tags: <a> link, <b> bold, <i> italics

- Receive email when someone replies.
- Subscribe to this blog by email.

Post Comment



TEST CENTER

