

Best Practice – Manual J use in WAP

Date: Revised September 2016

Subject: Manual J use in the Weatherization program

Problem or Question: Are we required to have a Manual J in the client file?

Discussion: Chapter 14 of the International Residency Code (IRC 2015) section M1401.3 states: “Heating and cooling *equipment* shall be sized in accordance with ACCA Manual S or other approved sizing methodologies based on building loads calculated in accordance with ACCA Manual J or other *approved* heating and cooling calculation methodologies.

Exception: Heating and cooling equipment and appliance sizing shall not be limited to the capacities determined in accordance with Manual S where either of the following conditions applies:

1. The specified equipment or appliance utilizes multistage technology or variable refrigerant flow technology and the loads calculated in accordance with the approved heating and cooling calculation methodology are within the range of the manufacturer’s published capacities for that equipment or appliance.
2. The specified equipment or appliance manufacturer’s published capacities cannot satisfy both the total and sensible heat gains calculated in accordance with the approved heating and cooling calculation methodology and the next larger standard size unit is specified.” The IRC 2015 was approved by the Texas Legislature in 2016 for all of Texas, effective 1 September 2016.

Both the Manual J and Manual S must be produced for the weatherization program whenever an HVAC unit is replaced. As the above law states, Manual S and/or approved sizing methodologies should be used to size the actual HVAC systems installed because HVAC specifications vary from manufacturer to manufacturer and model to model. HVAC systems also have different characteristics (such as ability to move CFMs of air) which affect their efficacy in different home circumstances. The Manual J tells you how many BTUs will be required to heat or cool a home. The Manual J does not tell you what HVAC system is best for the home in question; the Manual S and/or other approved sizing methodologies do.

Manual J, Manual S, and/or other approved sizing methodologies documents, once completed, should be maintained with the client file. The contractor’s Manual J, Manual S, and/or other approved sizing methodologies shall be the definitive documents used to size and select the HVAC equipment installed by the WAP program. Chapter 14 of the International Residency Code (IRC 2015) section M1401.3 requires that a Manual J be run every time an air conditioner is installed in a home. HVAC installers should, in general, be the organization to run this Manual J and ensure proposed air conditioners and furnaces are properly sized. The licensed contractor is responsible, professionally and ethically, for properly sizing and installing air conditioners that are appropriate for the house or apartment in question.

On the other hand, the Subrecipient administering the weatherization program has oversight responsibilities for the actions of its contractors and employees. If they detect that a contractor, by omission or commission, is over-sizing AC units then the Subrecipient should take corrective action. No system is perfect. For example, contractors may not have taken into account the planned weatherization measures for the house which will reduce the BTU load required from an AC unit. Additionally, Agencies should include a copy of the contractor Manual J in the file every time a new AC is installed. An audit request “value-stream map” may look like this.

1. Assessors’ PL work order is submitted to Subrecipient approving authority.
 - a. Assessment justification must identify why the HVAC replacement is necessary and what process was used to make that determination.
2. Subrecipient approves the WO and gives it to prime contractor along with the house map, counter-infiltration instructions, etc.
3. The prime contractor forwards the WO to the HVAC contractor, and requests a quote confirmation along with the HVAC contractor’s own Manual J, Manual S, and/or other approved sizing methodologies.
4. The prime contractor evaluates the quote confirmation, AC sizing recommendation, and other Manual J data. If the Manual J,S, and/or other approved sizing methodologies calculations raise any suspicions to the prime contractor or Subrecipient staff, then the prime contractor would work with the Subrecipient to explain the variance and get the proper (higher or lower) AC tonnage approved.
5. Subrecipient approves the higher tonnage AC unit installation (higher costs) and work begins.
6. The contractor Manual J, Manual S, and/or other approved sizing methodologies (and any other existing documentation justifying the larger unit) are to be placed in the client file.

Recommendation Summary: Subrecipients establish the licensed contractor’s ACCA Manual J, Manual S, and/or other sizing methodology as the definitive way to determine the tonnage size and equipment selection for an air conditioner installed in the WAP program. Recommend administering Subrecipients utilize the above generally accepted technique to identify contractor sizing recommendations for air conditioners that may be oversized, for whatever reason.