



Issue Date	August 15, 2007, Rev. 7/2013
Code/Section	2012 International Energy Conservation Code Section C403.2.2
Approved:	Technical Review Team
Developed By:	David McCarthy, P.E., Mechanical Plans Engineer

Issue:

The purpose of this guideline is to establish an over sizing threshold for space cooling and heating equipment and what is required to justify equipment sizing in excess of calculated loads.

Section C403.2.2 – Equipment and System Sizing: Heating and cooling equipment and systems capacity shall not exceed the loads calculated in accordance with Section 403.2.1. A single piece of equipment providing both heating and cooling must satisfy this provision for one function with the capacity for the other function as small as possible, within available equipment options.

Discussion Summary: Design load calculations for heating and cooling equipment and systems are required by IMC section 312.1 and IECC section C403.2.1. These calculations are required to be based on equipment sizing procedures described in the ASHRAE/ACCA Standard 183. IECC Section C403.2.2 then requires that specified equipment sizes do not exceed those calculated load values determined under Section C403.2.1. The predominant design load for Phoenix is the cooling season. Typical equipment sizing design for the Phoenix climate is based on the calculated sensible cooling load for a space. Factors that contribute to the cooling design include number of occupants, building usage and activities, outdoor air ventilation rate, heat gain from equipment, and indoor design temperatures. It is our policy to accept cooling and heating load calculation summaries under the Registrant’s seal and signature. There are several qualifying methods used to obtain results and we depend on the designer to provide equipment that operates at peak performance. Oversized equipment tends to short-cycle and leads to poor thermal performance and an increase in energy consumption.

Interpretation:

Construction plan specifications for space cooling and heating equipment and systems shall not exceed the calculated loads by more than 15% without prior approval by the Building Official. Designers that specify equipment and systems that exceed 15% over calculated loads shall provide a letter of request under Registrant seal and signature that describes the technical justification for exceeding the sizing limits set forth by this guideline. Complete and detailed load calculations based on the methods of ASHRAE/ACCA Standard 183, manufacturer’s equipment specifications, and signed owner acknowledgement shall be included with the letter of request. Approval will be based on the merits of the technical justification only and is not guaranteed.