

Design Requirements For HVAC Contractors



**SCIENTIFIC
ENVIRONMENTAL
DESIGN™**

Efficient Energy Solutions

ACCA* Manual J & D Eight Edition

"The Mechanical Code, Section 312 requires that for one and two family dwellings and townhouses heating and cooling equipment shall be sized based on building loads calculated in accordance with ACCA Manual J.

This is a code requirement.

Section 603.1 requires that for one and two family dwellings and townhouses supply and return ducts shall be sized according to ACCA Manual D or SMACNA Installation Standards for Residential Heating and Air Conditioning Systems.

This is also a code requirement.

SED Complies 100%

Excerpts from ACCA Manual J Introduction

"Since the load calculation affects every aspect of the system design procedure, it must be as accurate as possible."

SED Complies 100%

"Equipment capacity that matches the size of the applied heating and cooling loads deliver comfort, efficiency and reliability over the entire range of operating conditions."

SED Complies 100%

"Load information also is used to estimate purchased energy requirements and to estimate annual operating cost. In this regard, the energy and operating cost estimates will only be as accurate as the load estimate."

SED Complies 100%. SED goes beyond just estimating your home's energy cost. We tell you exactly what the "not to exceed" cost will be, and we guarantee it for the life of your home.

Oversizing Heating and Cooling Equipment

"Excessively oversized equipment causes short-cycles, marginalizes temperature control, creates pockets of stagnate air (unless the blower operates continuously), degrades humidity control during the cooling season, requires larger duct runs, increases the installed cost, increases the operating cost, increases the installed load on the utility system and causes unnecessary stress on the machinery."

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"The total capacity of the cooling equipment should not exceed the total load by more than 15% for warm climate heat pump applications, or more than 25% for cold-climate applications. This rule applies to air and water source equipment."

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"Safety Factors - Manual J calculations should be aggressive, which means that designers should take full advantage of legitimate opportunities to minimize the size of estimated loads. In this regard, the practice of manipulating the outdoor design temperature, not taking full credit for the efficient construction features, ignoring internal and external window shading device and then applying an arbitrary "safety factor" is indefensible."

SED Complies 100%

"Residential duct systems have a direct and significant effect on equipment size, equipment efficiency, equipment malfunctions, envelope infiltration, operating cost, utility demand loads, vent performance, exhaust system performance, indoor air quality, ambient noise, occupant comfort and owner satisfaction. Therefore, the duct system must be carefully designed and properly installed or the potential benefits that are associated with building an efficient structure and using high-efficiency equipment will not materialize."

SED Complies 100%

*Air Conditioning Contractors of America