



March 30, 2015

California Energy Commission (CEC)
Dockets Office
1516 Ninth Street, MS-4
Sacramento, CA 95814

California Energy Commission

DOCKETED

15-BSTD-01

TN # 7551

MAR 30 2015

Re: *2016 Building Standards Update* (Docket Number 15-BSTD-01)

Dear CEC staff:

These comments are submitted by Goodman Global, Inc. ("Goodman") in response to the publishing of CEC's Express Terms (45-Day Language) of the proposed amendment language on February 13, 2015.

Goodman manufactures residential and light commercial heating and cooling equipment. Our products are sold and installed by contractors in every state within the United States. Goodman is a member of Daikin group, the largest HVAC manufacturer in the world. We appreciate the opportunity to comment during this process of updating the 2016 building standards. Our comments are provided below.

Section 150.1(c)9

The proposed requirement in subparagraph B states that "Air handlers containing a combustion component shall be direct-vent, and shall not use air from conditioned space as combustion air." We believe this requirement does not apply to furnaces and should be deleted from Title 24 altogether. Furnaces already have to meet the provisions of ANSI Standard Z21.47 – a standard referenced within several sections within Title 24. Therefore, there is no reason why furnaces should be subject to this additional provision. At the very minimum, CEC should ensure that residential and duct furnaces are exempted from this proposed requirement.

Additionally, the requirements regarding ducts and air handlers located in conditioned spaces should specify a maximum external static pressure. Not specifying such a value will continue to ignore the potential issues that could arise due to poor ductwork practices. The U.S. Department of Housing and Urban Development (HUD) adequately addresses this issue within the federal construction and safety standards for manufactured homes. Section 715(a)(3)(i)(ii) of 24 CFR Part 3280 mandates a maximum duct static pressure of 0.3 inches of water at a minimum of 300 cfm per 10,000 Btu/h. It should also be noted that according to Section 715(a)(2)(i), the maximum static pressure measured in the furnace casing during the normal heating mode is 90% of the furnace rating. CEC should follow a similar approach within this section.

Section 150.0(m)15

The section mandates a minimum of 350 CFM per ton of nominal cooling capacity for zonally controlled central forced air systems. However, many equipment manufacturers offer products that have AHRI rated performance with less than 350 CFM per ton airflow. It is important to note that airflow rates were not included within the AHRI Directory of Certified Product Performance when the final version 2013 edition of Title 24 was issued. Airflow rates for all models are now available on this online rating directory and we recommend that CEC update its standards to acknowledge the changes made by the industry.

A manufacturer's rated performance is a) certified to the U.S. Department of Energy (DOE) at the airflow published in the AHRI directory; and b) specified to achieve peak efficiency for the given combination. Therefore, other airflow rates will yield lower efficiency values. By mandating an airflow value other than what is certified to DOE, CEC is essentially reducing the energy efficiency of the equipment. Furthermore, for baseline equipment designed to meet the minimum federal energy conservation standards, any compromise in efficiency due to this provision within Title 24 would render the product to perform at an efficiency below its rated value as certified to meet federal energy conservation standards.

CEC should allow the use of airflow values associated with AHRI's certified ratings, including values below 350 CFM per ton.

2013 Residential Alternative Calculation Method (ACM) Reference Manual

On April 22, 2014 a revised Residential ACM Reference Manual was published by CEC. Included in this version was the addition of the following statement on page 18, "Until there is an approved compliance option for ductless heat pumps (mini-split, multi-split VRF systems) they are simulated as a split system equivalent to the standard design with default duct conditions."

We have great concern with this provision as it will essentially force all ductless heat pumps to be modeled as 13 SEER units, when in reality they are capable of producing much higher efficiency, as indicated within the AHRI Directory of Certified Performance. The proposed design provision within section 2.4 of the 2013 Residential ACM Reference Manual severely handicaps ductless systems in comparison to other systems, effectively banning them from new construction applications. Additionally, by forcing ductless systems to be modeled as 13 SEER units, this provision promotes a process that minimizes the contribution of these systems to CEC's goal of striving towards net-zero energy for residential buildings by the year 2020.

It is important to note that the compliance option for ducted central systems took approximately eight years and two code cycles to develop, with much, if not all of the cost funded by CEC. During this time, ducted systems were not forced to be handicapped while measures were developed to address installation issues that could negatively affect the systems' operational efficiencies.

We appreciate CEC staff's recent efforts to work with manufacturers on this important issue and resolve it as soon as possible. Until final language is developed, we would recommend that mini-split and multi-split VRF system efficiencies listed within the AHRI Directory of Certified Product Performance be used to model performance. The industry has developed a HERS inspector checklist for such products and has shared it with CEC staff.

Refrigerant Charge for Single-Package Systems

Single-package air conditioners and heat pumps are always sufficiently charged at the factory. Factory charging is more accurate given the differences between a) manufacturer laboratory & production equipment and methodology accuracies and b) field contractor measurement equipment and methodology accuracies. Therefore, we do not see any benefit from having these systems verified in the field for refrigerant charge in addition to the instructions provided in the installation instructions (i.e. I/O manual).

Charging instructions for installers/contractors are clearly provided in our I/O manual – as long as the airflow is within a given range of rated value, any charging adjustment is unnecessary, and if airflow is different, our I/O manual provides the necessary adjustment instructions to installers/contractors.

Concluding Remarks

Goodman appreciates the opportunity to provide these comments. If you have any questions regarding this submission, please do not hesitate to contact me, Rusty Tharp (at either 713-263-5906 or rusty.tharp@goodmanmfg.com), or Aniruddh Roy (at either 703-657-0398 or aniruddh.roy@goodmanmfg.com).

Sincerely,

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