DOCKETED

Docket Number:	17-BSTD-02
Project Title:	2019 Title 24, Part 6, Building Energy Efficiency Standards Rulemaking
TN #:	223296
Document Title:	Trane - Comments on the Draft 2019 Building Energy Efficiency Standards
Description:	N/A
Filer:	System
Organization:	Trane/Beth Braddy
Submitter Role:	Public
Submission Date:	4/30/2018 2:18:21 PM
Docketed Date:	4/30/2018

Comment Received From: Beth Braddy
Submitted On: 4/30/2018
Docket Number: 17-BSTD-02

Title 24-2019 15-day language - Ingersoll Rand

Additional submitted attachment is included below.

Commercial HVAC North America
7610 Industrial Highway
Macon, GA 31216
Tel (478) 784-2518 Fax (478) 784-4239
Mobile (478) 319-0369
bbraddy@trane.com
www.trane.com

April 30, 2018

California Energy Commission
Docket Unit, MS-4
Re: Docket No. 17-BTSD-02
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Docket No. 17-BTSD-02 – Draft 2019 Building Energy Efficiency Standards (15-Day Language)

Dear California Energy Commission:

Thank you for the opportunity to submit comments regarding the Draft 2019 Building Energy Efficiency Standards, 15-Day Language, published by the California Energy Commission (CEC) on April 20, 2018.

Ingersoll Rand (NYSE:IR) advances the quality of life by creating and sustaining safe, comfortable and efficient environments. Our people and our family of brands - including Club Car, Ingersoll Rand, Thermo King and Trane - work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. Our company is helping to solve some of the world's most pressing challenges including the demand for energy resources and its impact on the environment. As such Ingersoll Rand announced in 2014 a roadmap to increase energy efficiency and reduce environmental impact from our operations and product portfolio to result in 20.85 million metric tons of CO_2e avoidance globally by 2020. Most recently, Ingersoll Rand was an original signatory to the "We Are Still In" declaration confirming our commitment to stand by plans that align with the targets set by the Paris Agreement regarding reducing carbon emissions to avert the worst effects of climate change.

Trane is a U.S. and global manufacturing leader of commercial heating, ventilation and cooling (HVAC) products. The measures covered under the Title 24 15-Day Language affect a number of Trane products and applications, including both HVAC equipment and controls. Collectively, these products account for a significant portion of our company's commercial and HVAC revenue.

MERV 13 Filtration Proposal (Mandatory Requirement 120.1.b and c):

In the 15-Day Language, CEC has expanded the requirement for MERV 13 filters to include a 1" filter depth option, rather than requiring 2" or greater as proposed in the 45-day language. This is a welcome revision, and is especially useful for applications utilizing smaller air-handling equipment, which have increased filter depth constraints.

However, there were additional changes in the 15-day language with regard to filter requirements that will place significant burdens on airside applications. In 120.1.c.1.A, the 15-day language was changed to require MERV 13 filtration of both the outdoor air and return air, rather than requiring MERV 13 filtration of the outdoor air only. We recommend that the CEC remove the words "and return" from the language in 120.1.c.1.A to avoid placing a MERV 13 filtration requirement on air streams containing 100% return air. It is a common practice in commercial buildings to completely decouple the outdoor air from the comfort cooling equipment, and utilize Dedicated Outdoor Air Systems (DOAS) for outdoor air treatment. The distributed air-handling systems in buildings that utilize DOAS for outdoor air are only recirculating the indoor return air in the cooling system. In all reasonable commercial applications, there will be no particulates or contaminants contained in return air that require MERV 13 filtration, but

this level of filtration will create an additional pressure drop, and in turn lead to an energy penalty for the system. As such, requiring 100% return air systems to use a MERV 13 filter will lead to an increase in their energy use, while providing no added filtration benefit.

In addition, the language added in 120.1.c.1.A.i to require this level of filtration for space conditioning systems that "utilize forced air ducts to supply air" effectively excludes ductless systems from this requirement. There are many small ducted HVAC systems (such as fan-coils, blower-coils and water-source heat pumps) that have the same space constraint challenges with meeting the MERV 13 requirement as ductless equipment, yet this added requirement penalizes these systems while exempting ductless equipment. Rather than using the language currently proposed in the 15-day language, we propose that the CEC follow ASHRAE 62.1-2016 with regard to determining the scope of the filtration requirements. ASHRAE 62.1-2016 uses the following language to define equipment subject to the filtration requirements:

> **5.8 Particulate Matter Removal.** Particulate matter filters or air cleaners having a minimum efficiency reporting value (MERV) of not less than 8 when rated in accordance with ANSI/ASHRAE Standard 52.2 12 shall be provided upstream of all cooling coils or other devices with wetted surfaces through which air is supplied to an occupiable space. **Exception:** Cooling coils that are designed, controlled, and operated to provide sensible cooling only.

We propose that the CEC follow suit with ASHRAE 62.1 and use similar language for 120.1.c.1.A.i that would read:

> i. Mechanical space conditioning systems with cooling coils or other devices with wetted surfaces through which air is supplied to an occupiable space.
> **Exception:** Cooling coils that are designed, controlled, and operated to provide sensible cooling only.

This change would both drive consistency with the ASHRAE 62.1-2016 standard and more equitably define the scope of the requirements across various HVAC systems.

Fan Power Limitation Proposal (Prescriptive Requirement 140.4.c):

The 15-Day language also contains new changes to the Fan Power Limitation requirements in Section 140.4.c which place significant burdens on system applications and building owners by removing the pressure drop adjustment credits for MERV 9 through 12 and MERV 13 through 15 filters. We recognize that a CASE study was performed with findings that suggest the credits for these MERV filters were too generous with respect to available MERV 13 filters (as an example). However, it is common practice in using higher MERV level filtration to include a lower MERV pre-filter upstream, in order to protect the more expensive, higher MERV level filter downstream and limit the frequency that it must be changed. The combined pressure drop through both the pre-filter and a MERV 13 filter would justify the credits as they were originally published in the 45-day language (which is also consistent with ASHRAE 90.1). Deviating from this pre-filtration practice will place a very significant expense burden on equipment owners who will be required to replace MERV 13 filters with a much higher frequency, as they will be exposed to all of the particulates and contaminants in the airstream.

In addition, the CASE letter to the CEC dated April 2, 2018 (posted to the CEC site on 4/12/18) justifies the requirement of MERV 13 filtration and the removal of the MERV pressure drop adjustment credits by stating that their survey of 200 fans indicated that two-thirds of these installations had MERV 13 filters. The letter does not indicate what types of systems were part of this sample. Our concern is that this sample reviewed only larger, centralized fans in air-handlers and packaged systems and did not

consider smaller zone-level equipment such as fan-coils and water-source heat pumps. Adding higher level filtration to larger, centralized systems is burdensome, but it is even more significant for distributed, terminal systems. The majority of these systems have fans smaller than 5HP, but there are a number of small air-handlers and water-source heat pumps that do include fan motors 5HP or higher. These systems would be impacted significantly by both the MERV 13 requirement in the outdoor and return airstreams and the elimination of the MERV 13 fan bhp credits.

Ingersoll Rand has a long history of working collaboratively and constructively with the California Energy Commission and looks forward to further discussion regarding our comments. If you would like further elaboration on our comments or additional background, please do not hesitate to contact me.

Sincerely,

Beth Braddy

Beth Braddy
Trane Unitary Product Planning