

CE111-19

IECC: C202, (New), C403.2, C403.2.3(New)

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2018 International Energy Conservation Code

SECTION C202 GENERAL DEFINITIONS

Add new text as follows:

FAULT DETECTION AND DIAGNOSTICS (FDD) SYSTEM A software platform that utilizes building analytic algorithms to convert data provided by sensors and devices to automatically identify faults in building systems and provide a prioritized list of actionable resolutions to those faults based on cost or energy avoidance, comfort and maintenance impact.

Revise as follows:

C403.2 System design (Mandatory). Mechanical systems shall be designed to comply with Sections C403.2.1 and ~~C403.2.2 through C403.2.3~~. Where elements of a building's mechanical systems are addressed in Sections C403.3 through C403.12, such elements shall comply with the applicable provisions of those sections.

Add new text as follows:

C403.2.3 Fault Detection and Diagnostics (Mandatory) New buildings with a gross conditioned floor area of 100,000 square feet (9290 square meters) or larger shall include a fault detection and diagnostics (FDD) system to monitor the HVAC system's performance and automatically identify faults. The FDD system shall:

1. Include permanently installed sensors and devices to monitor the HVAC system's performance;
2. Sample the HVAC system's performance at least once per 15 minutes;
3. Automatically identify and report HVAC system faults;
4. Automatically notify authorized personnel of identified HVAC system faults;
5. Automatically provide prioritized recommendations for repair of identified faults based on analysis of data collected from the sampling of HVAC system performance; and
6. Be capable of transmitting the prioritized fault repair recommendations to remotely located authorized personnel.

Reason: Energy efficiency of a new building's HVAC system will degrade over time caused by poorly maintained, failing and improperly controlled equipment. The proposed FDD requirement will reduce that degradation by detecting HVAC system faults and notifying building operators so that actions may be taken to reduce energy consumption of the building. Additionally, FDD systems are being utilized to drive operational efficiency, make better use of maintenance personnel, and resolve comfort issues.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. The code change proposal "will" increase the cost of construction because it will require additional hardware, software and labor during installation. Providing specific cost would violate antitrust laws, however a published example of cost and savings is provided from the following link <https://ecobuilding.schneider-electric.com/documents/10807/217223/Lab+Project+Building+Analytics+Case+Study/a6d8b9b6-7fdd-4e87-a90b-c98ece595a25>: Setup/install cost - \$23,190, Annual maintenance cost - \$35,407, and Annual savings - \$286,000.

