

ASHRAE Standing Standard Project Committee 180

Cognizant TCs: TC 7.3, Operation and Maintenance Management, TC 2.4, Particulate Air Contaminants and Particulate-Contaminant Removal Equipment, and TC 9.8, Large Building Air-Conditioning Applications

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NOTE

When addenda, interpretations, or errata to this standard have been approved, they can be downloaded free of charge from the ASHRAE Web site at <http://www.ashrae.org>.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

Standard 180 was created in a collaborative effort between ASHRAE and ACCA, the Air Conditioning Contractors of America. Its intent is to address the often inconsistent practices for inspecting and maintaining HVAC systems in commercial, institutional and other buildings where the public may be exposed to the indoor environment. Current practices in such buildings vary widely today. Many facilities choose to follow rigorous policies that maintain the system in new or nearly new condition. Others either lack policy in this area or have adopted a run-to-failure approach where the system or components of the system are attended to only when there is a failure.

To provide consistency and improve the energy efficiency, thermal comfort and indoor air quality of commercial HVAC systems, a standard practice for their inspection and maintenance is needed. When there is no routine inspection and subsequent adjustment or maintenance of system components, the system is typically found operating outside its optimum performance parameters. When systems are not maintained, they do not continue to provide the level of work they were designed for.

A standard practice is also needed to guide maintenance of HVAC systems because the maintenance information often provided by manufacturers applies only to the discrete components that they provide rather than to the entire system. This document considers the integration of those components and the way they interact as well as each component separately.

For the public good, it is essential that the HVAC systems in all buildings where persons work, visit or reside support a high quality indoor environment. In addition, sustainability mandates that those conditions be maintained in as energy efficient a manner as possible.

This document describes the minimum acceptable level of maintenance for commercial building HVAC systems. Other standards or guidance documents may establish more specific or rigorous requirements that apply to certain buildings. Where applicable, those requirements should be followed or considered (if guidelines).

Much of the information that will be required to prepare the maintenance program that is mandated by this standard can most conveniently be obtained from the building commissioning (re-commissioning or retro-commissioning) documents. Although re-commissioning is not a requirement of this standard, it should be considered where the commissioning data is either unavailable or outdated.

This standard is written in code intended language so it may be referenced or adopted by enforcement authorities as the minimum acceptable level of performance within their jurisdiction.

NOTE: *This standard is specifically focused on the impacts of maintenance on occupant thermal comfort, indoor air quality and energy efficiency. Ancillary maintenance issues related to equipment reliability, equipment robustness and minimizing overall maintenance costs are also appropriate in order to protect the HVAC capital investment and/or minimize system downtime. These issues, however, are outside of the scope of this standard.*

1. PURPOSE

The purpose of this standard is to establish minimum HVAC inspection and maintenance requirements that preserve a system's ability to achieve acceptable thermal comfort, energy efficiency, and indoor air quality in *commercial buildings*.

2. SCOPE

2.1 This standard provides minimum requirements for the HVAC system inspection and maintenance practice in new and existing buildings. Where specifically noted in this standard, different requirements apply.

2.2 The provisions of this standard do not apply to:

2.2.1 Single-family houses or multi-family structures of three or fewer stories above grade.

2.2.2 HVAC equipment and portions of building systems that primarily provide for industrial, manufacturing, or *commercial processes*.

2.2.3 Other building HVAC systems or elements of building HVAC systems that this standard specifically identifies.

2.3 This standard shall not be used to circumvent any safety, health, or environmental requirements.

3. DEFINITIONS

Many of the terms used in this standard practice are defined in the ASHRAE *Terminology of Heating, Ventilation, Air-Conditioning, & Refrigeration*. Additional terms used in this standard are defined below:

basis of design: a guidance document that stipulates or lists the desired or intended function and performance of the HVAC system. It lists the needs, requirements, flexibility, efficiency, limits, performance, desired condition, etc., of the space served by the HVAC systems, and it is intended to communicate this information from the HVAC System designer to the *HVAC Systems Owner* to the Operator, or to subsequent Owners and Operators.

building management system (BMS): an energy management system relating to the overall operation of the building in which it is installed. It often has additional capabilities, such as equipment monitoring, protection of equipment against power failure, and building security. It may also be a direct digital control (DDC) system where the mode of control uses digital outputs to control processes or elements directly.

commercial building: Commercial buildings shall include, but are not limited to, governmental and educational facilities, healthcare and hospitality facilities, institutional buildings,