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FOREWORD

The concept of sustainability has had a major impact on what we expect from our buildings and the built environment. It has brought new focus on energy, water, health, and productivity dimensions of how our buildings perform and how that performance is measured. This has been a significant and continuing change in the buildings industry.

ASHRAE Guideline 32 is intended to assist those who operate and maintain buildings to achieve sustainable, high performance (SHP): safe, productive indoor environments; low economic life-cycle cost; low energy, water, and resource use; and low impacts on the environment. It applies to the systems and assemblies of commercial, institutional, industrial, multistory residential, and government buildings as they affect occupant comfort, indoor air quality, health and safety, and energy and water use. These systems include the building enclosure, HVAC&R, plumbing, electrical, and complementary and renewable energy systems. Many Owners will also include exterior landscaping, surface parking, and sidewalks. These have not been addressed in this guideline but can be easily added to an organization's existing SHP program. The guideline is intended to provide guidance and action steps to support sustainability requirements of ANSI/ASHRAE/ACCA Standard 180, Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems*, and to provide concepts, methods, and details that meet the intent of the minimum standards of care for compliance under ANSI/ASHRAE/USGBC/IES Standard 189.1,* Standard for the Design of High-Performance Green Buildings.

Guideline 32 recognizes that many new buildings are designed to be sustainable and high performance and that other new facilities—and existing older facilities—will be upgraded and enhanced to achieve such designations. Both new and upgraded SHP buildings and systems require performance-monitored operations and maintenance (O&M) to maintain their intended performance and to continuously enhance their SHP. This guideline is intended to make all buildings more sustainable and high performance in their O&M practice and methods, not only those newly labeled "sustainable," "green," or "high performance."

The purpose of the guideline is to provide an initial format for organization management, facilities managers, and building operators to implement current best practices and to shape, develop, and evolve this document through future revisions based on users' experience and successful SHP practice.

This guideline is not written in code-intended language. It is intended to be a reference guideline document only, and, as such, its content has not been developed for implementation within building codes. However, it can be used as a reference document to support standards and codes.

1. PURPOSE

The purpose of this guideline is to provide guidance to achieve, maintain, and continuously enhance sustainable, high-performance (SHP) buildings and building systems and assemblies through operations and maintenance (O&M) practices at the lowest economic and environmental life-cycle cost while maintaining safety, indoor air quality (IAQ), and functionality, including productivity.

2. SCOPE

This guideline applies to the ongoing operational practices for building assemblies and systems, particularly with respect to energy efficiency, water consumption, productivity, occupant comfort, IAQ, health, and safety.

3. DEFINITIONS, ABBREVIATIONS, AND ACRONYMS

3.1 General. This section contains definitions for certain terms, abbreviations, and acronyms used in this guideline. These definitions are applicable to all sections. Terms that are not defined herein but that are defined in ASHRAE/USGBC/IES Standard 189.1 [1], ASHRAE/ACCA Standard 180 [2], and *ASHRAE Terminology of Heating, Ventilation, Air-Conditioning, and Refrigeration* shall have the meanings defined in those documents.

3.2 Definitions

change management: a process for directed organizational change.

commissioning: see *Commissioning Process (Cx)*; can also apply to the initiation or reinitiation of a building component or system(s) to meet current facilities requirements.

Commissioning Process (Cx): a quality-focused process for enhancing the delivery of a project and enhancing existing facilities. For new facilities, the process focuses on verifying and documenting that the facility and all its systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the Owner's Project Requirements (OPR). For existing facilities, the process includes an assessment and investigation to determine the Current Facilities Requirements (CFR), implementation, and planning ongoing activities to achieve the CFR. There are several ASHRAE guidelines and one standard to assist in implementing the Cx for both new and existing facilities.

competencies: skills, behaviors, or knowledge identified as performance standards for a task, job, or project. Competencies are applied to a specific requirement rather than an individual employee. They are typically validated by employees who are performing the competency at an acceptable level; this may be the "journeyman" level to distinguish between entry and mastery levels of a skill. In developing competency requirements, include how each will be evaluated.

Current Facility Requirements (CFR): the requirements for a facility or building to meet the current needs of users, Owners, occupants, visitors, and customers, usually in a formal document that is updated periodically or as required by the changing needs of the Owner and occupants.