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Preparation of Operations and Maintenance Documentation for HVAC&R Systems

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NOTE

Approved addenda, errata, or interpretations for this guideline can be downloaded free of charge from the ASHRAE website at www.ashrae.org/technology.

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(This foreword is not part of this guideline. 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

This is a revision of ASHRAE Guideline 4-2008. This guideline was prepared under the auspices of ASHRAE. It may be used, in whole or in part, by an association or government agency with due credit to ASHRAE. Adherence is strictly on a voluntary basis and merely in the interests of obtaining uniform guidelines throughout the industry.

1. PURPOSE

To guide those responsible for the design, manufacturing, construction, commissioning, and operation of building HVAC&R and on-site generation systems in the preparation and delivery of operations and maintenance (O&M) documentation that

a. is simple to prepare and update,
b. is delivered on time,
c. is easy to use, and
d. provides accurate and relevant information.

2. SCOPE

This guideline covers the format, content, delivery, and updating of building HVAC&R systems operations and maintenance (O&M) documentation that is normally provided by the Design Team and Construction Team members.

This guideline can be used for two separate purposes. First, it can be used in the construction of new buildings that are not commissioned buildings. Second, it can be used as a guide for existing building documentation as a guideline for O&M documentation.

3. DEFINITIONS

Many of the terms used in this guideline and recommended for use in the O&M documents are defined in *ASHRAE Terminology of Heating, Ventilating, Air Conditioning, & Refrigeration*[1]. Others are defined in ASHRAE Guideline 0, *The Commissioning Process* [2]; ASHRAE Guideline 1.1, *HVAC&R Technical Requirements for The Commissioning Process*[3]; and ASHRAE Guideline 1.4, *Procedures for Preparing Facility Systems Manuals*[4]. Additional terms are defined as follows.

Basis of Design (BoD): a document that records the concepts, calculations, decisions, and product selections used to meet the Owner's Project Requirements (OPR) and to satisfy the applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

building project: a task with the objective of delivering a base building or a building shell that must be fitted out before it is suitable for occupancy.

Commissioning Provider (CxP): an entity identified by the Owner who leads, plans, schedules, and coordinates the CxP Team to implement the Commissioning Process (Cx).

Current Facility Requirements (CFR): a written document in which the Owner details the current functional requirements of a facility and the expectations for how it should be used and operated. This includes goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information to meet the requirements of occupants, users, and Owners of the facility.

design authority: a prime consultant, usually an architect, responsible for the quality of the design that is proposed to meet the Owner's requirements.

design intent: see *Basis of Design*.

designer: a member of the project team involved in providing design solutions to meet the Owner's requirements and in preparing construction and O&M documents during the conceptual design, the completion of construction documents (the design), the construction, and the operational stages of the project delivery.

electronic documentation: as used in this guideline, a compilation of electronic files relevant to all components and systems of a project. The documentation adheres to the content requirements described by this guideline and has an overall structure and search capabilities that allow navigation, access, and search of all files contained through networked, standalone, and/or portable devices.

fit-out project: a project through which furnishings, including partitions, furniture, and tenant equipment (e.g., copy machines, fax machines, personal computers) are delivered.

O&M designer: a designer specializing in the O&M aspects of a project.

O&M documentation: a comprehensive set of documents providing information pertaining to a specific facility, new construction, or renovation, including information regarding the design, operation, and maintenance of the facility.

Owner: the person or legal entity that will own the delivered facility or an agent representing the Owner. The Owner defines the project requirements.

Owner's Project Requirements (OPR): a written document that details the functional requirements of a project and the expectations for how it will be used and operated. This includes project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information. The term "Project Intent" is also used as a substitute by some Owners.

Preliminary Operating Manual: an elaboration of the design intent that includes operating information developed during the construction documents (design) stage.

project brief: see *Owner's Project Requirements*.

project delivery stages: the progressive stages in the development of a project marking the delivery of a distinct product: planning, conceptual design, construction document preparation, construction, operation, and evaluation.