

ASHRAE Guideline 4-1993

# ASHRAE<sup>®</sup> GUIDELINE

## Preparation of Operating and Maintenance Documentation for Building Systems

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REFRIGERATING AND  
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## FOREWORD

This guideline for the preparation of operating and maintenance (O&M) documentation for building systems complements *ASHRAE Guideline 1-1989, Commissioning of HVAC Systems*.

The guideline is directly applicable to HVAC&R systems but can also be used for other building systems.

Accurate and relevant O&M documentation is essential for the safe, reliable, and efficient operation of buildings and building systems. Timely delivery of O&M documentation is also important because the documentation is initially needed during commissioning.

This guideline addresses the requirements of accuracy, relevancy, and timeliness. It presents a comprehensive and systematic approach to the preparation of O&M documentation to effectively support the development and management of O&M programs in buildings.

## 1. PURPOSE

The purpose of this document is to guide those responsible for the design, construction, and commissioning of HVAC building systems in the preparation and delivery of operating 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 the HVAC building systems O&M documentation normally provided by the design and construction team members.

## 3. DEFINITIONS

Many of the terms used in this guideline and terms recommended for use in the O&M documentation package are defined in the *ASHRAE Terminology of Heating, Ventilation, Air-Conditioning, & Refrigeration* published by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., 1791 Tullie Circle N.E., Atlanta, Georgia 30329. Additional terms used herein but not included in the *Terminology* are defined below:

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

**commissioning authority:** an agent responsible for receiving on behalf of the owner a completed project that complies with the owner's requirements.

**design authority:** a prime consultant, usually an architect, responsible for the quality of the design solution to the owner's requirements.

**design intent:** an initial version of the operating manual developed in the conceptual design stage. It contains a description of the building functions for which the design is intended, lists the design parameters of systems to perform these functions, and provides a brief description of the operating routines that are to be followed to comply with the functional requirements of the building.

**designer:** a member of the project team involved in the finding of design solutions to the owner's requirements and the preparation of construction and O&M documents during the conceptual design, construction documents (design), construction, commissioning, and operational stages of the project delivery.

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

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

**owner:** a person or legal entity that will own the delivered facility or an agent representing the owner, who defines the project requirements.

**preliminary operating manual:** an elaboration of the design intent that includes operating information developed during the construction documents (design) stage.

**project brief:** an owner's set of requirements and instructions to the participants in design, construction, commissioning, operation, and maintenance.

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

## 4. IMPLEMENTATION

### 4.1. Primary Users of the Guideline

Participants in the design, construction, commissioning, operating, and maintenance activities can use this guideline as follows:

- (a) the owners, for guidance in specifying the scope and process of development, delivery, and upkeep of the O&M documentation;
- (b) the design authorities and the designers, including the O&M designer, for guidance in
  - preparing their portion of the O&M documentation,
  - specifying O&M documentation requirements for the equipment suppliers and system installers,
  - reviewing information prepared by others and assembling it into documents composing the O&M documentation package, and
  - delivering the documentation package to the owners;
- (c) the equipment suppliers, for guidance in preparing and submitting their information to the installers;