



GUIDELINE

ASHRAE Guideline 1.4-2014

Procedures for Preparing Facility Systems Manuals

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NOTE

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

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FOREWORD

A Systems Manual contains information and documentation on a building's planning, design, construction, and commissioning, along with operational requirements, maintenance information, training and testing documentation for the use of building operations, and maintenance and optimization of the facility over its useful life.

Developing the Systems Manual encompasses gathering information from the facility, planning, design, construction, testing, commissioning, and training activities and adding operations and maintenance information to create a usable information resource. This resource includes final project documentation, including Owner's Project Requirements (OPR), Basis of Design, the final Commissioning Plan, Commissioning Progress Reports, submittals, manufacturer installation manuals, manufacturer Operation and Maintenance (O&M) manuals, system schematics, record drawings, checklists, inspections, testing results, and training and other relevant materials. This information is edited and organized to focus on key systems (roofing, walls, fire alarm, chilled water, hot water, etc.) in the facility. Coordination with O&M personnel in developing standard formats and divisions (shops) is accomplished to simplify future Systems Manual revisions.

It is the intent that the Systems Manual be assembled in electronic format to facilitate access and reduce storage requirements. The electronic format also reduces the possibility of loss of parts or all of the information. For Systems Manuals assembled in hardcopy format, larger documents such as record drawings, specifications, submittals, and O&M documents can be stored in secure locations, with these locations referenced in the Systems Manual.

Also included in the Systems Manual is the development of periodic maintenance and information for insertion into a computer maintenance management system, including equipment make and model, checking requirements, maintenance requirements, and troubleshooting items.

If the Systems Manual is assembled during a commissioning process, the Commissioning Authority (CxA) should be responsible for evaluating the development of the Systems Manual. At other times, the responsible person or agency will be designated by the Owner.

The entity responsible for developing the Systems Manual should include all items involved in the project and capture the system and assembly data in either an electronic or printed version. In addition, printed operations, service, maintenance, spare parts lists, and repair manuals may be provided. This entity (Owner, contractor, design professional, CxA, other) shall have the skills of design, construction, and operations required to develop a cohesive Systems Manual.

For existing facilities, the Systems Manual will have multiple sections, depending on the Owner's Current Facility Requirements and the number of systems focused on during the facility development, renovation, or repair process.

The format and content of the Systems Manual provided in this guideline can be effectively used in both new construction and for an existing building, even if the building is not commissioned.

Systems Manual Documentation Collection Requirements

The Systems Manual process captures project requirements, design documentation, construction details, evaluation and testing results, and training programs as the information becomes available. Additionally, the recommended operating and maintenance procedures and ongoing documentation requirements are assembled and included. Changes to the manuals are expected as the building maintenance systems are developed and changes to the systems occur.

The arrangement of the Systems Manual shown in Section 4 is based on collection of documentation during the normal construction process. It is also acceptable to arrange the documentation by system if that is the Owner's preference. This system arrangement may require substantial additional time and documentation effort to rearrange the information and should be specified at the time of OPR development.

1. PURPOSE

This guideline provides procedures for producing a Systems Manual as a resource for training, operations, maintenance, and upgrading of facilities.

2. SCOPE

This guideline applies to information from planning, commissioning, design, construction, testing, and training activities, and operations planning for new, renovated, and existing facilities, equipment, and assemblies.

3. DEFINITIONS

acceptance: a formal action, taken by a person with appropriate authority (which may or may not be contractually defined) to declare that some aspect of the project meets defined requirements, thus permitting subsequent activities to proceed.

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 applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

checklists: project- and element-specific checklists that are developed and used during all phases of the Commissioning Process to verify that the OPR is being achieved. Checklists are used for general evaluation, testing, training, and other design and construction requirements.

commissioning (Cx): see *Commissioning Process*.