

CHAPTER 1

INTRODUCTION

1.1 GENERAL

This manual has been developed to provide the inspector with information and to serve as a general guide for **reinforced hollow unit concrete masonry construction**.

Reinforced hollow unit concrete masonry construction uses concrete blocks (also called concrete masonry units, or CMU for short) with steel reinforcement embedded in grout or mortar so that the separate materials act together to form a single effective structural system.

This publication has been prepared to assist masonry construction inspectors with the information needed to do a thorough professional job.

In order to understand a material and system, it is necessary to know its terminology. The first section of this book includes terms and definitions used in reinforced concrete masonry construction and Chapter 14 contains a more detailed glossary.

Since a construction project cannot begin until the proper materials are selected, materials are discussed first.

The Materials Section is followed by Quality Control, Sampling and Testing, describing the necessary sampling and testing of masonry to assure that the materials used are in keeping with the prescribed standards and specifications.

Inspection of the actual construction follows, which specifically deals with code concerns and inspection requirements of reinforced concrete masonry.

The handbook's last sections are on typical concrete masonry shapes, names and functions, glossary of terms and general information that relate to concrete masonry.

This edition incorporates *Building Code Requirements for Masonry Structures* (TMS 402-11/ACI 530-11/ASCE 5-11) and *Specification for Masonry Structures* (TMS 602-11/ACI 530.1-11/ASCE 6-11), also known as the *Masonry Standards Joint Committee Code* referred to as the MSJC Code and MSJC Specification; and the *2012 International Building Code* (IBC). Also contained are metric (SI) references in parenthesis after the English dimension or quantity.

1.2 THE INSPECTOR

A vital part of any construction project is good inspection. The inspector's job is, therefore, quite important. Knowledge and good judgment are essential in obtaining the results required by the approved plans and specifications. The materials furnished on the project represent the manufacturers' efforts to supply products meeting applicable industry standards and project specifications. It is the inspector's responsibility to verify that these products are properly used to construct the project as designated.

1.3 RESPONSIBILITIES AND DUTIES

Prior to starting masonry construction, the inspector must verify that necessary material testing has been performed as required. Some tests may be conducted well in advance of jobsite delivery, such as high strength block testing and pre-construction prism testing. All materials must meet the specified requirements.

The inspector should keep a daily log from the first day on the project. The status of the project from the beginning should be noted.

The daily log should record weather, temperature and project conditions. The inspector should record all material deliveries, test specimens and construction progress and note what work was accomplished and where it was done. This includes laying of masonry units and grout pours that are completed.

The inspector should note how many masons and laborers are on the project each day and verify the delivery of materials. Any special conditions, problems or adverse events that may take place should also be noted.

If there are project conferences, a list of attendees, what was accomplished and the decisions made should be noted.

Complete and thorough project records are invaluable and the inspector is key to maintaining the records.

1.4 EQUIPMENT AND MATERIALS FOR THE INSPECTOR

As with all competent and skilled professionals and craft workers, construction inspectors must have tools and materials to properly carry out their inspection duties and responsibilities. Maintenance of project documents, codes and reports can be accomplished by using a laptop computer. The following is a minimum suggested list of tools that an inspector should have:

1. A current set of plans and specifications, including all change orders.
2. Applicable building codes and standards to which the project was designed and the requirements of the governing jurisdiction.
3. A list of architects, engineers, contractors and subcontractors; names, addresses, telephone numbers and responsible person(s) in charge.
4. A laptop computer, notebook or log to keep daily notes.
5. Necessary forms for filing reports with required agencies.
6. Pens, pencils and erasers.
7. Folding rule or retractable tape and long steel tape.
8. String to check straightness and plumbness.
9. Keel (Lumber Crayon) in yellow, blue and black.
10. Permanent felt tip markers for labeling specimens.
11. Hand level and plumb bob.
12. Small trowel and smooth rod for making and rodding mortar and grout samples.
13. Sample molds obtained from testing laboratory.
14. Absorbent paper towels and masking tape for use in grout specimens.
15. Watch.

There can be more items needed, depending on the project and scope of duties required of the inspector.

1.5 TERMINOLOGY

Masonry, like all materials, systems and specialties, has its own vocabulary. Knowing and understanding the terms is a basic requirement.

IBC Section 2102 provides selected terms (now defined in IBC Chapter 2, Section 202) relative to masonry materials, design and construction with which masonry inspectors should be familiar. Also included are other definitions listed in MSJC Code and MSJC Specification as noted. Additional definitions are contained in the Glossary, Chapter 14. Terms exclusive in the MSJC Code or MSJC Specification and not in the IBC are designated by the parenthesis following the definition.

IBC Section 2102, except as noted

2102 DEFINITIONS

2102.1 General. The following terms are defined in Chapter 2:

SECTION 202 DEFINITIONS

AAC MASONRY. Masonry made of autoclaved aerated concrete (AAC) units, manufactured without internal reinforcement and bonded together using thin- or thick-bed mortar.

ACCEPTABLE, ACCEPTED. Acceptable to or accepted by the Architect/Engineer. (*MSJC Specification*)

ADOBE CONSTRUCTION. Construction in which the exterior load-bearing and nonload-bearing walls and partitions are of unfired clay masonry units, and floors, roofs and interior framing are wholly or partly of wood or other approved materials.

Adobe, stabilized. Unfired clay masonry units to which admixtures, such as emulsified asphalt, are added during the manufacturing process to limit the units' water absorption so as to increase their durability.