

MASONRY BIBLIOGRAPHY

2024



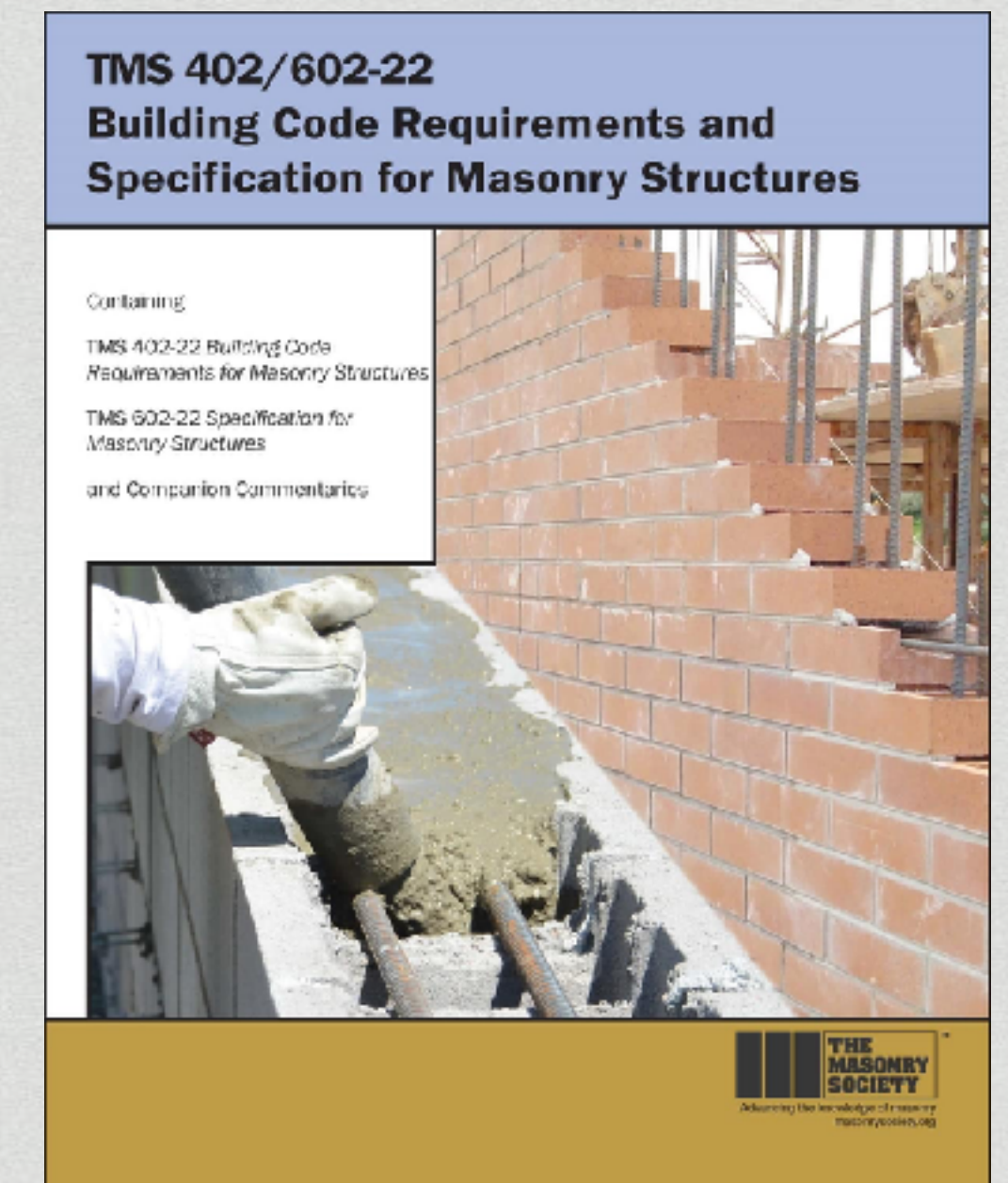
ICC, IBC, IRC

- ◆ ICC - International Code Council
 - ◆ 3 year development cycle
- ◆ IBC - International Building Code
 - ◆ Chapter 14 EXTERIOR
 - ◆ 1403.4 Masonry
 - ◆ Chapter 17 Special Inspection
 - ◆ Chapter 21 Masonry
- ◆ IRC – International Residential Code
 - ◆ 1 and 2 family dwellings



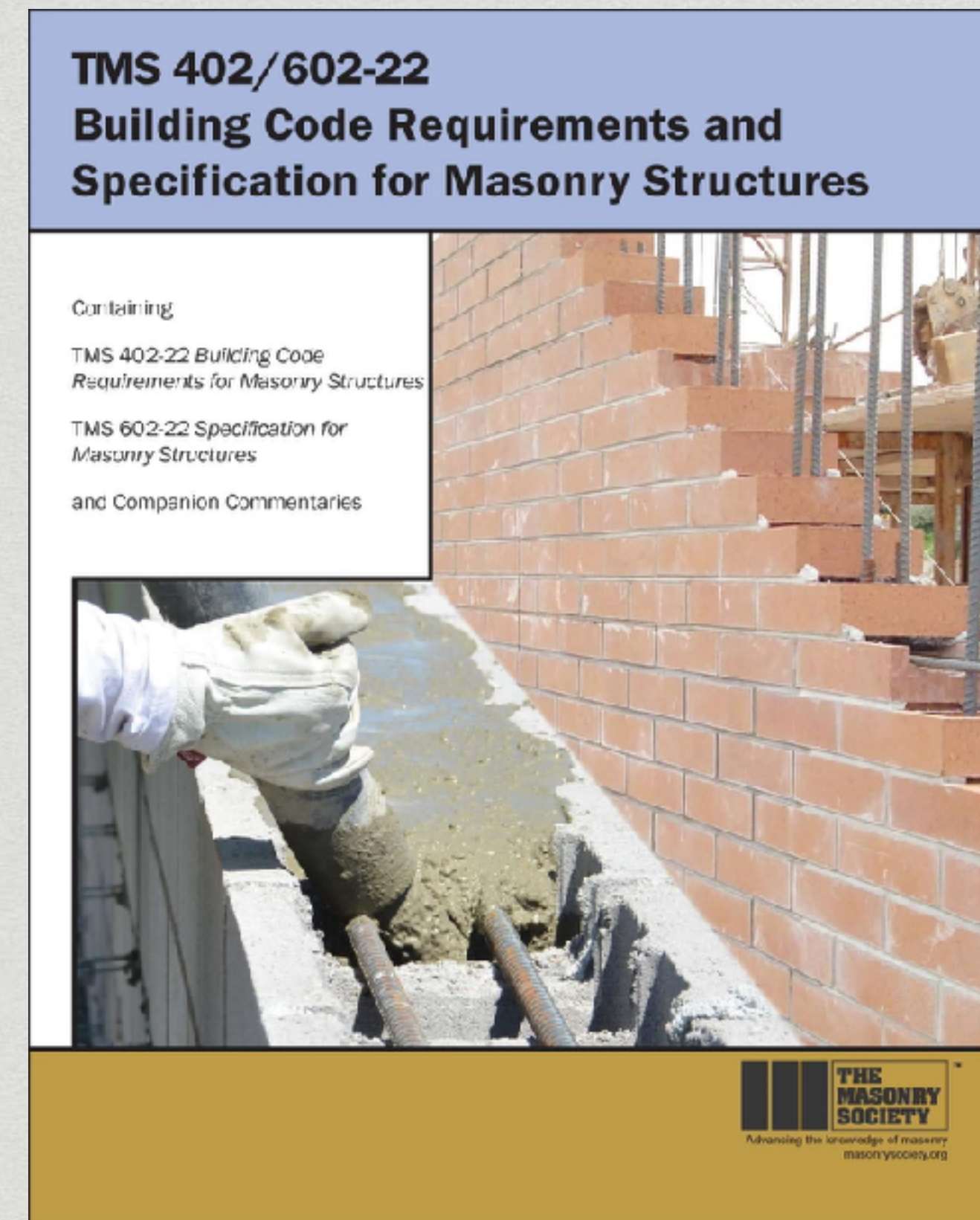
How do they relate?

- ◆ IBC: Model code, legally adopted with or without local amendments
- ◆ MSJC & TMS 402/602: Reference documents



TMS 402/602 (MSJC) Documents

- ◆ **TMS 402 Code** contains primarily **structural** design provisions but also a few Construction Requirements – **Designer oriented**
- ◆ **Construction provisions** are primarily found in the **TMS 602 Specification** – **Contractor & Inspector oriented**
- ◆ Companion Commentary to each – **Non-mandatory**



TMS 402/602 (MSJC) Documents

TMS 402-11 /ACI 530-11 /ASCE 5-11 (MSJC)

TMS 402-13 /ACI 530-13 /ASCE 5-13 (MSJC)

TMS 402-16 (TMS 402)

TMS 402-22 (TMS 402)

Building Code Requirements for Masonry Structures

TMS 602-11 /ACI 530.1-11 /ASCE 6-11 (MSJC)

TMS 602-13 /ACI 530.1-13 /ASCE 6-13 (MSJC)

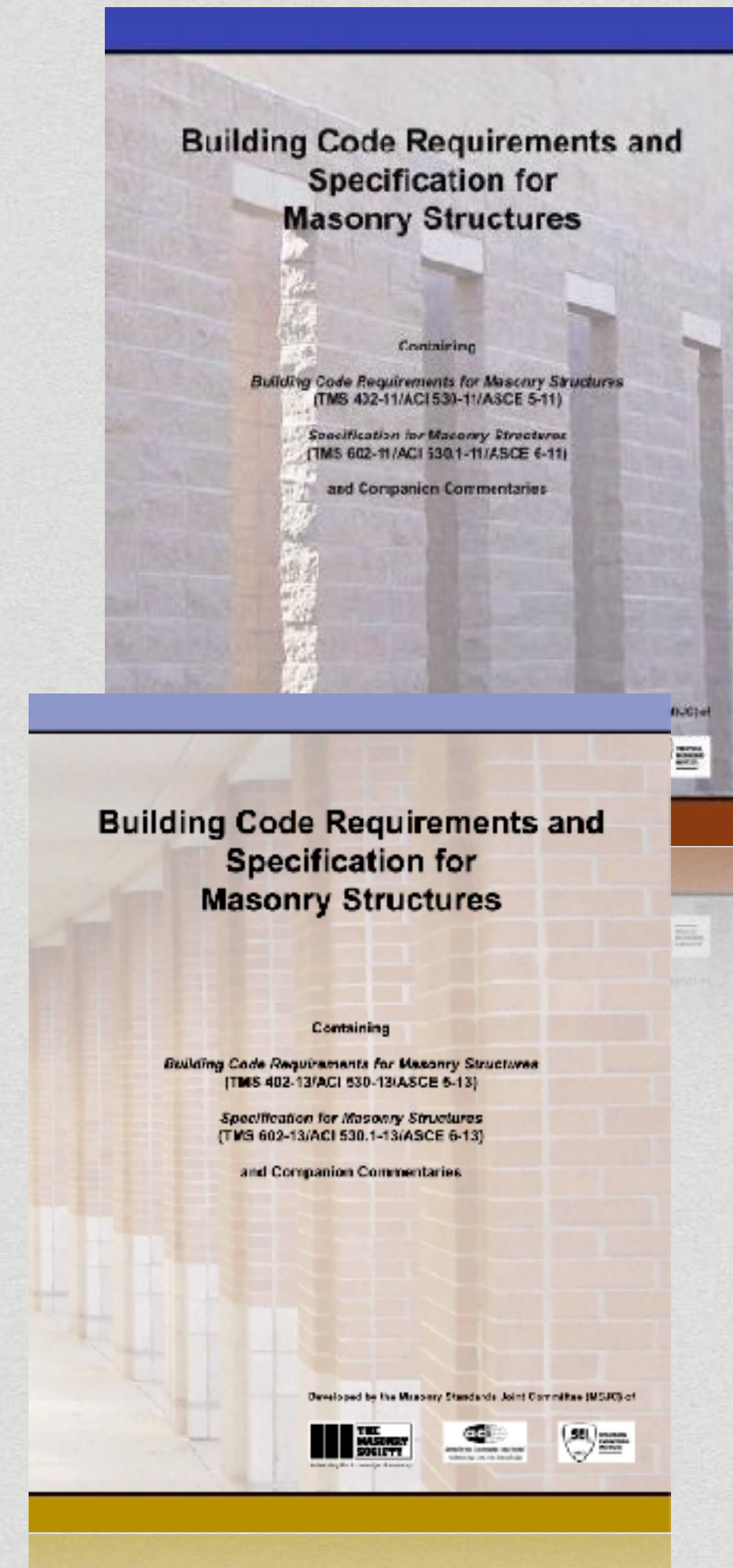
TMS 602-16 (TMS 602)

TMS 602-22 (TMS 602)

Specification for Masonry Structures

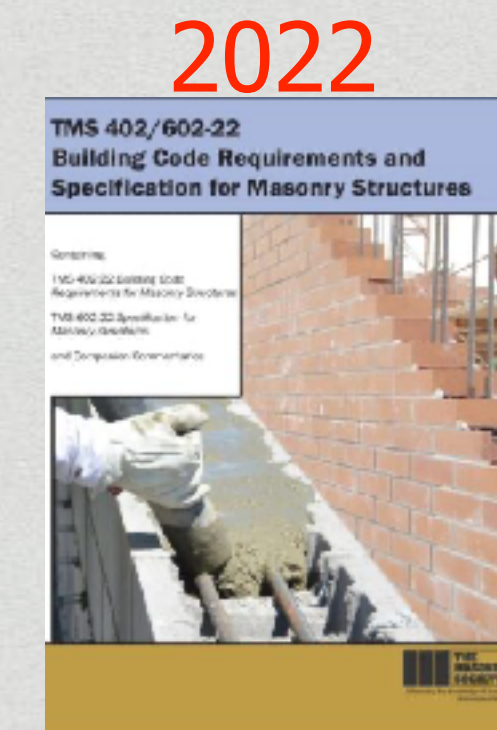
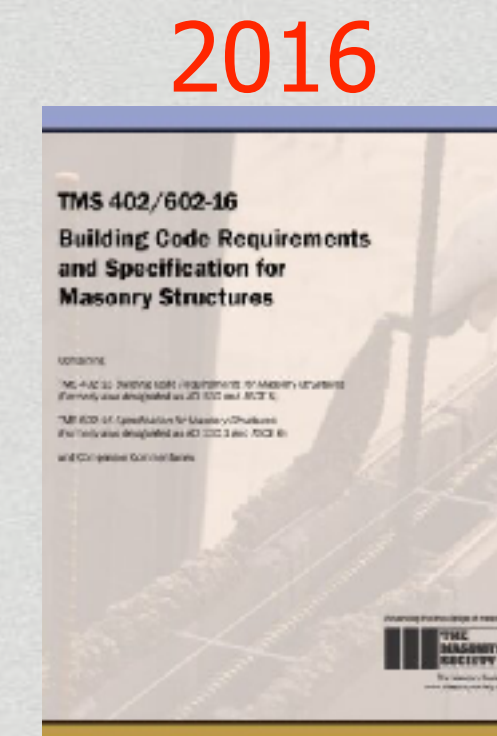
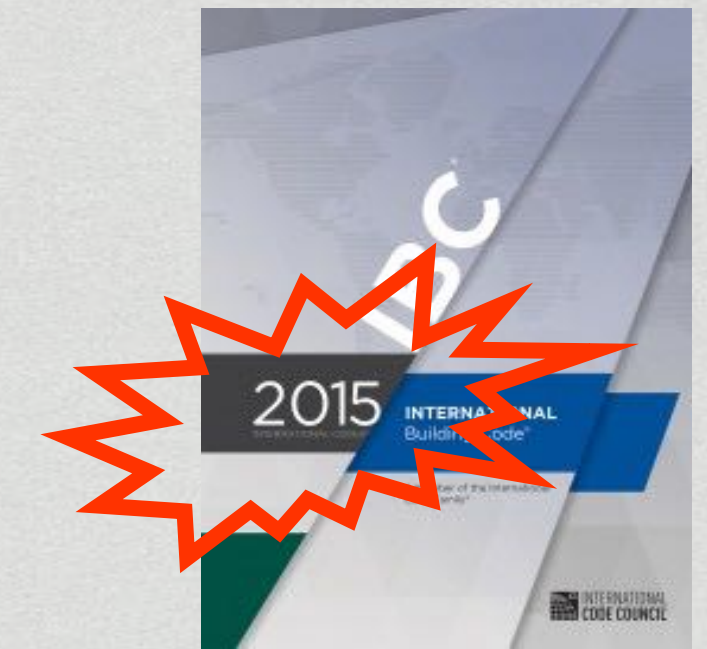
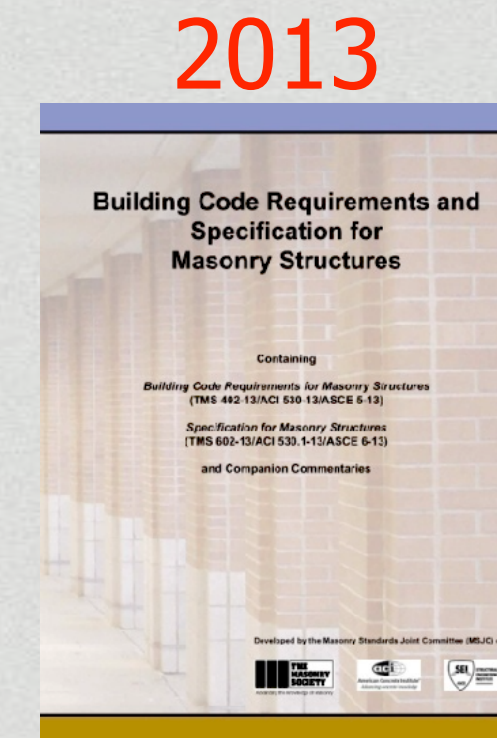
Commentary for each

Non-mandatory



Companion Documents

- ◆ TMS 402/602 (MSJC) will be one or two years PRIOR to its companion IBC
- ◆ '15 IBC goes with '13 MSJC
- ◆ '18 IBC goes with '16 TMS
- ◆ '21 IBC goes with '16 TMS
- ◆ '24 IBC goes with '22 TMS
- ◆ Also check for local amendments & adoptions



Code Adoption Time Lines - 2011 & 2013 MSJC and 2016 & 2022 TMS 402/602

- 2011 MSJC Referenced in the 2012 IBC and IRC
- 2013 MSJC Referenced in the 2015 IBC and IRC
- **2016 TMS 402/ TMS 602** Completed and Referenced in the 2018 IBC and IRC.
- **2022 TMS 402/TMS 602 - A six year cycle!**
Work started Sept. 2016 for reference in the 2024 IBC

Check for local adoption status and
potential local amendments

CODEs and ASTMs

- ◆ Masonry Code
 - ◆ TMS 402 Building Code Requirements for Masonry Structures
 - ◆ TMS 602 Specification for Masonry Structures
- ◆ International Building Code
 - ◆ Masonry Sections
- ◆ ASTM Masonry Standards
 - ◆ More than 123 related to masonry
 - ◆ Several ASTMs are essential

TMS 402/602-22 Building Code Requirements and Specification for Masonry Structures

Containing

TMS 402-22 *Building Code Requirements for Masonry Structures*

TMS 602-22 *Specification for Masonry Structures*

and Companion Commentaries



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Compilation

SUB-MASONRY-PLUS

ASTM Masonry Standards for the Building Industry

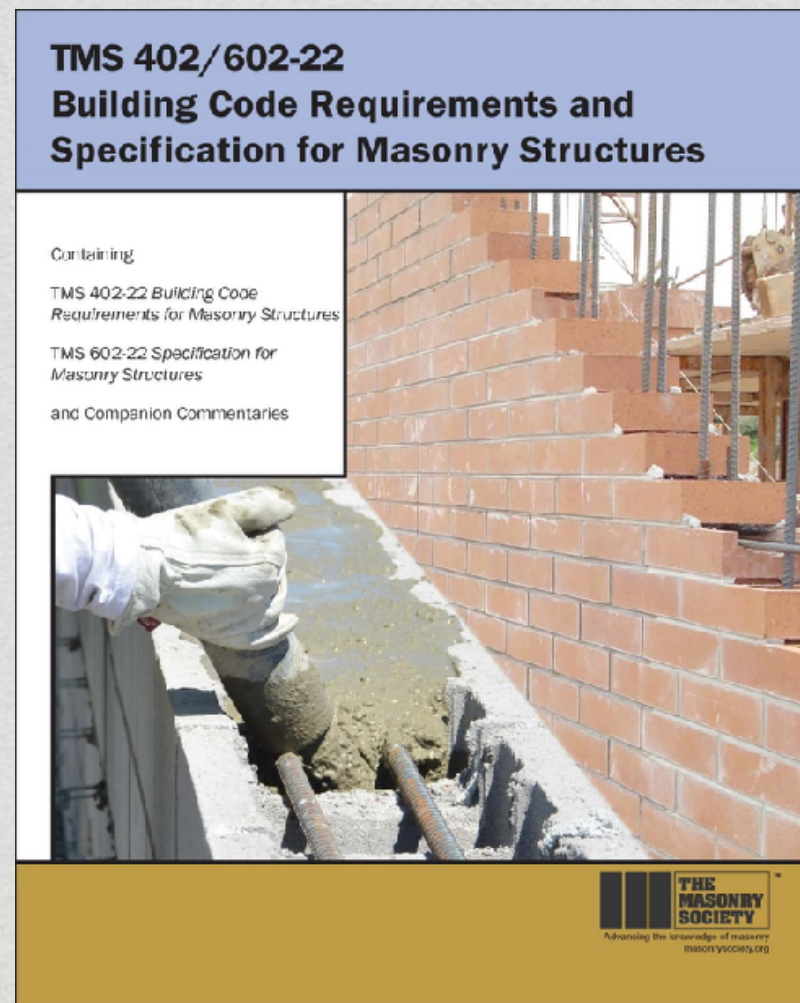
This essential compilation features 123 ASTM International standard specifications, test methods, guides, practices, and terminology relating to the use of mortars with masonry units to fired clay or shale, sand-lime, concrete, stone, and other similar materials, except refractories.

Designers, manufacturers, engineers, architects, specifiers, professors, and consultants involved in production, design, or testing of masonry products or assemblies will all benefit from this powerful online resource.



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Books



- ◆ 2022 TMS 402 Building Code Requirements and 602 Specification for Masonry Structures

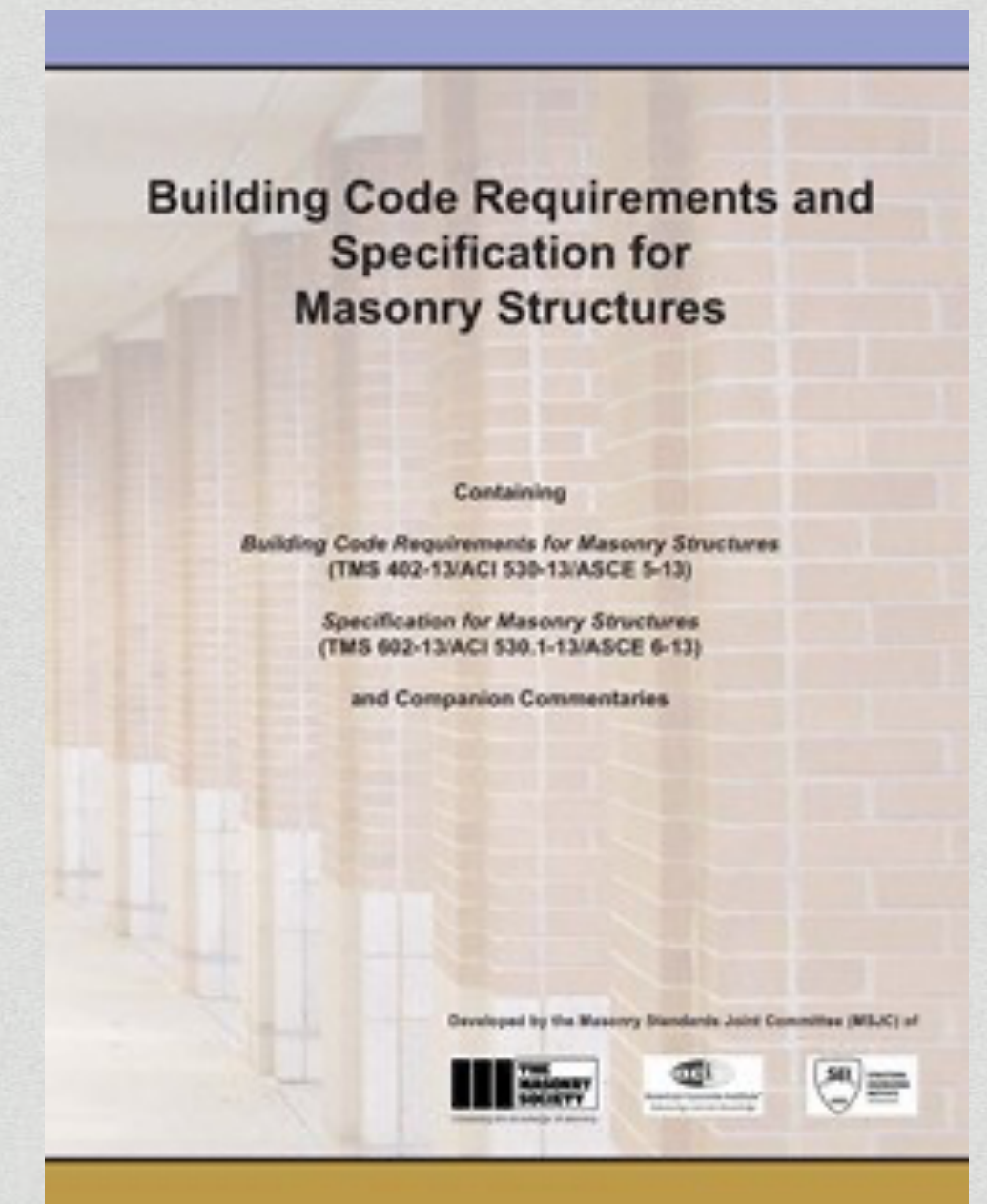
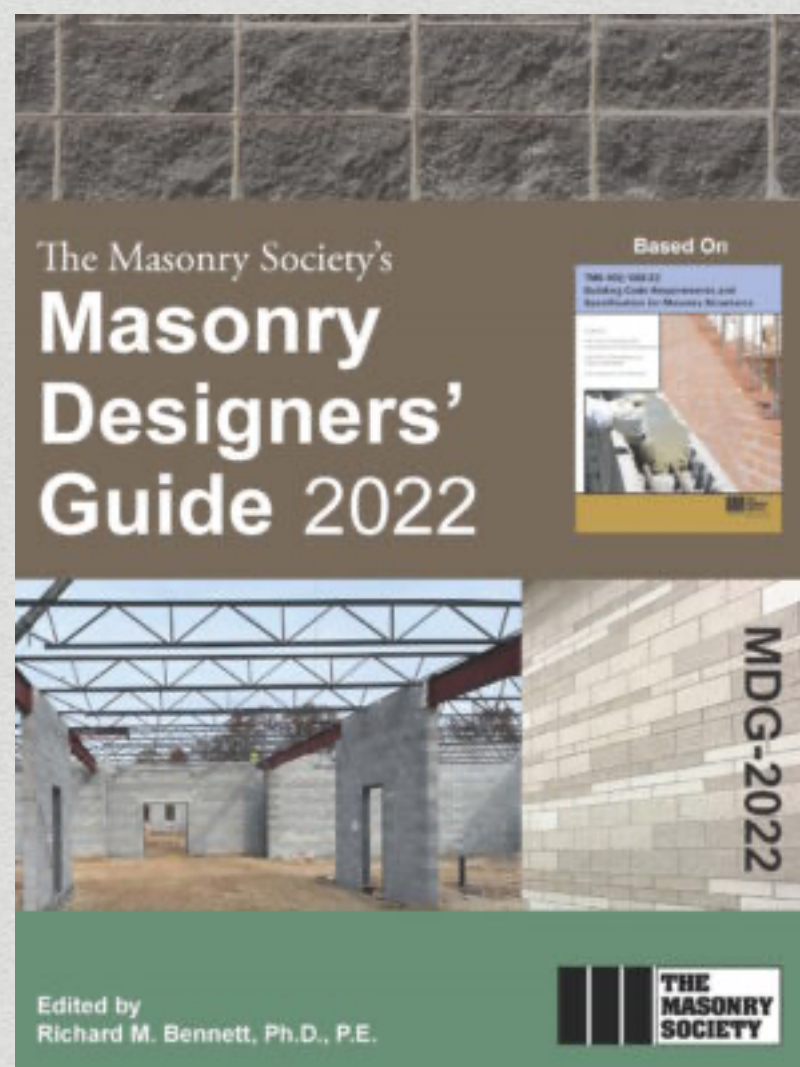
- ◆ By The Masonry Society

- ◆ Formerly - 2013 MSJC Building Code Requirements and Specification for Masonry Structures

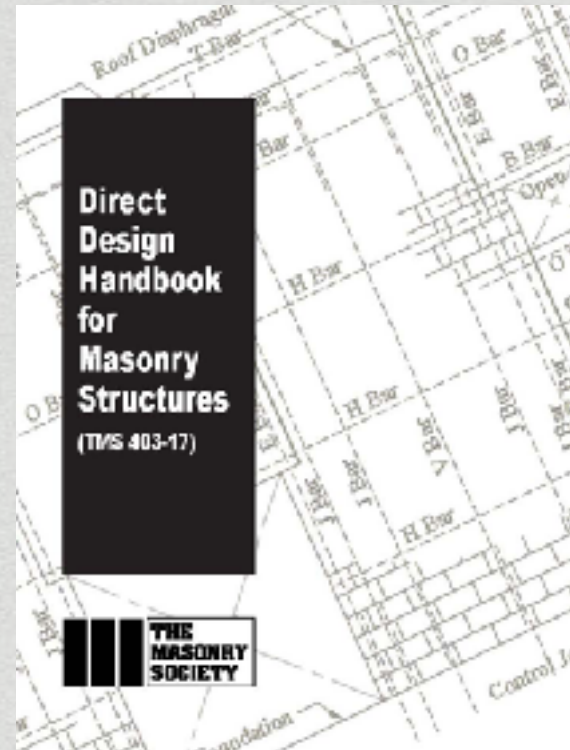
- ◆ By Masonry Standards Joint Committee (MSJC)

- ◆ Masonry Designers' Guide, 2022

- ◆ By The Masonry Society et al.; The Masonry Society, 2022



Books

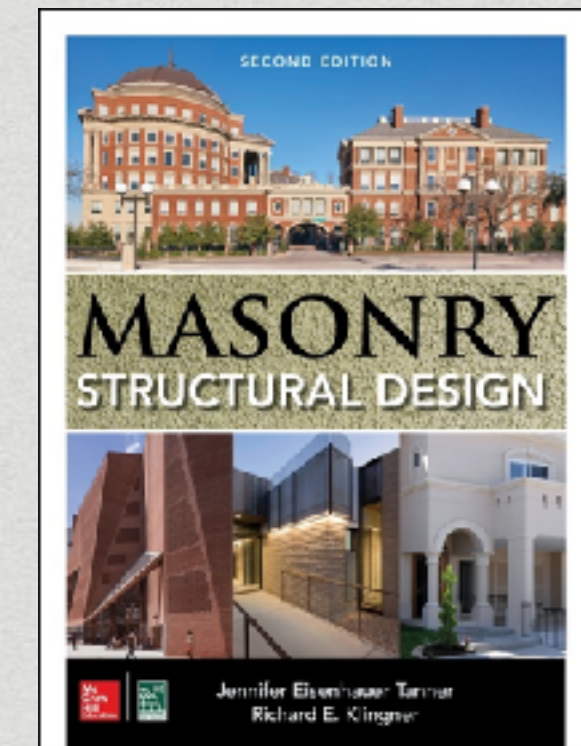


- ◆ Direct Design Handbook for Masonry Structures (TMS-0403-17)

- ◆ By The Masonry Society et al.; The Masonry Society 2017

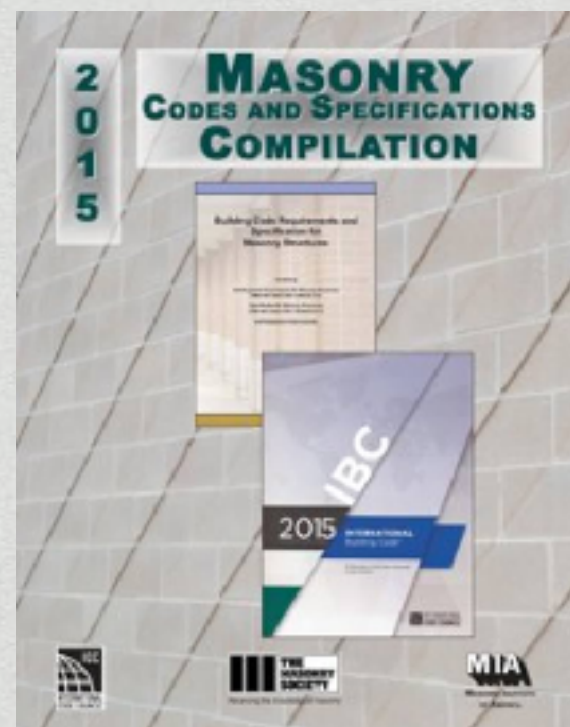
- ◆ Masonry Structural Design, 2nd Edition

- ◆ By Klingner, Richard E. McGraw, 2015

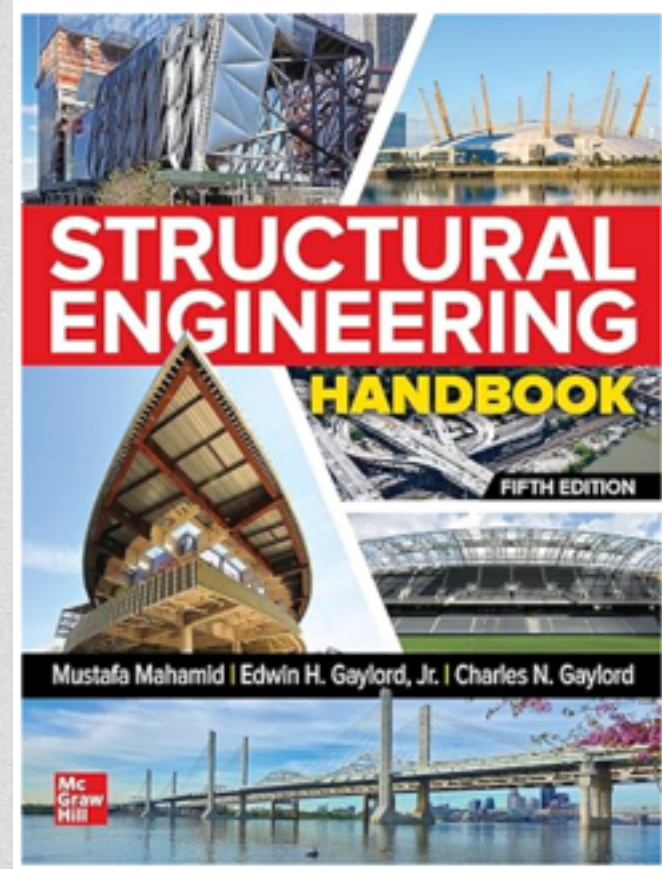


- ◆ 2015 Masonry Codes and Specifications Compilation

- ◆ By The Masonry Society et al.; The Masonry Society 2015



Books

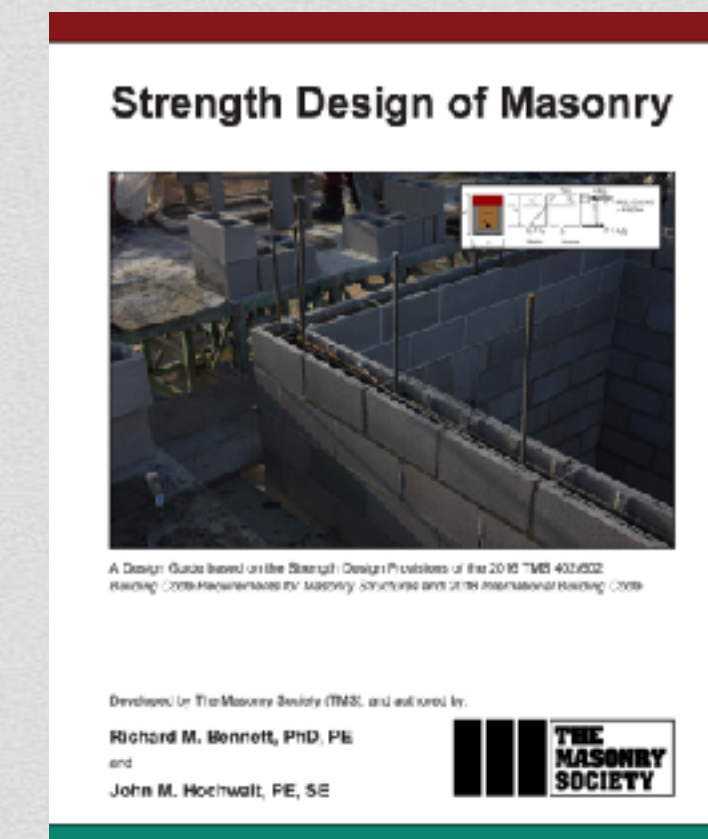


- ◆ **STRUCTURAL ENGINEERING HANDBOOK, 5th Edition (2020)**

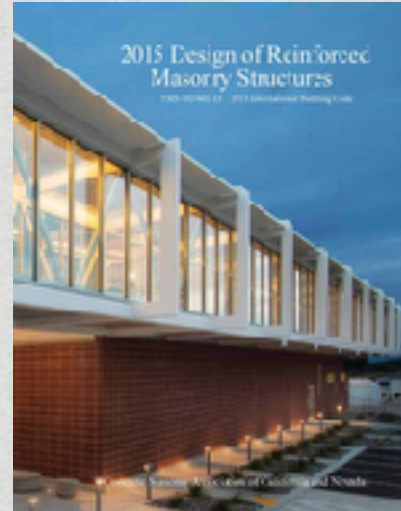
- ◆ CHAPTER 13 MASONRY CONSTRUCTION
- ◆ By Dr. Richard Bennett, and Mr. Sam Rubenzer

- ◆ **Strength Design of Masonry**

- ◆ By The Masonry Society, TMS 2016
- ◆ By Dr. Richard Bennett, and Mr. John Hochwalt



References

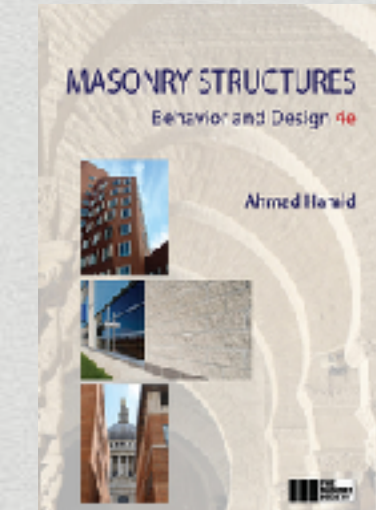


- ◆ 2015 Design of Reinforced Masonry Structures

- ◆ By Bradnow, Ekwueme & Hart Concrete Masonry; Association of California & Nevada, 2015

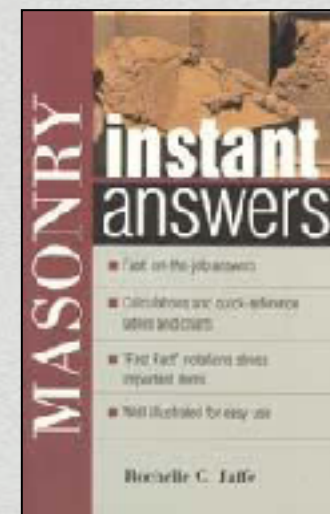
- ◆ Masonry Structures, Behavior and Design, 4th Edition

- ◆ By Drysdale, Robert & Hamid, Ahmad The Masonry Society, 2018



- ◆ Masonry Instant Answers

- ◆ By Jaffe, Rochelle McGraw Hill, 2003

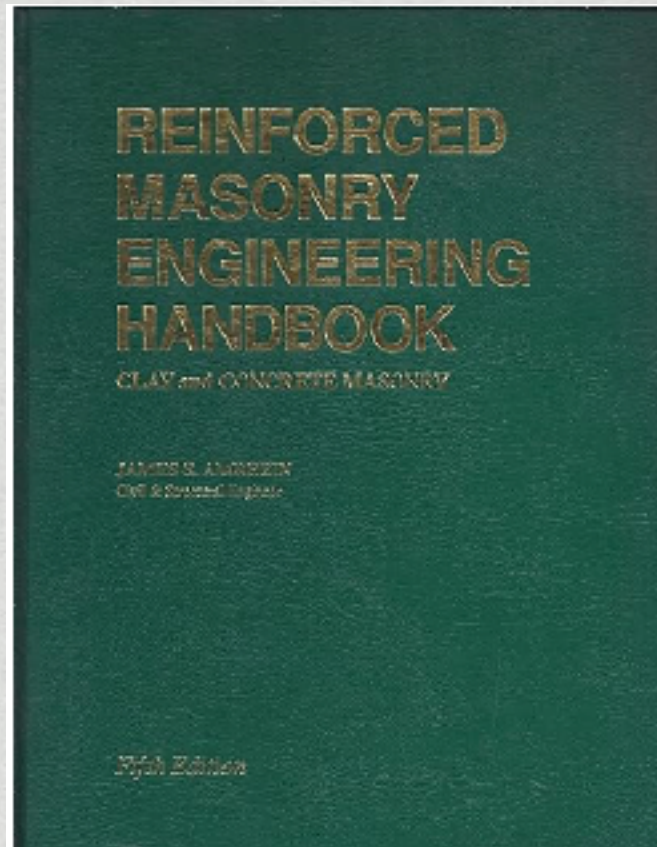


- ◆ Reinforced Concrete Masonry Construction Inspector's Handbook 11th Edition

- ◆ By Chrysler, John Masonry Institute of American and International Code Council, 2021



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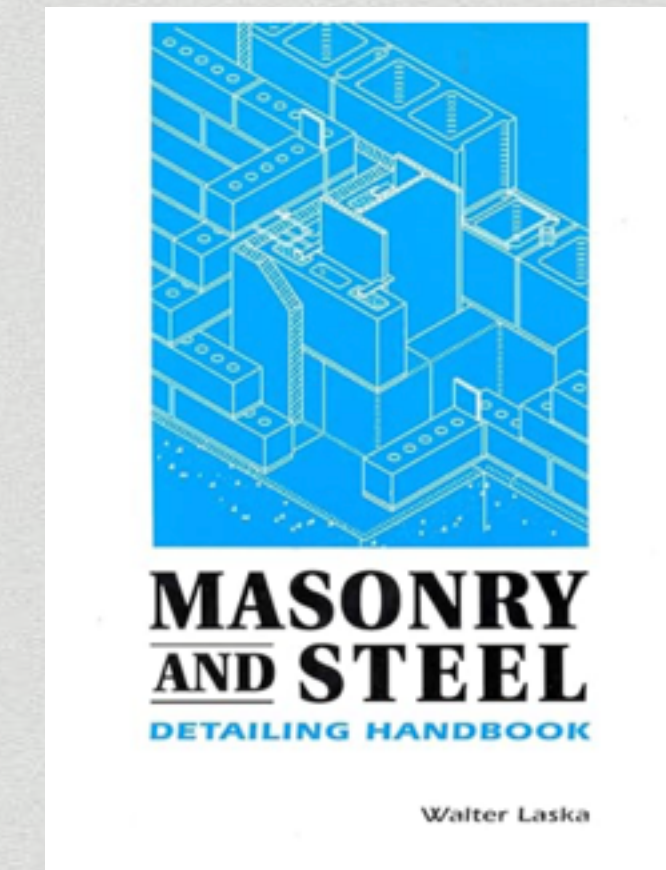


- ◆ REINFORCED MASONRY ENGINEERING HANDBOOK

- ◆ By James Amrhein, 1992

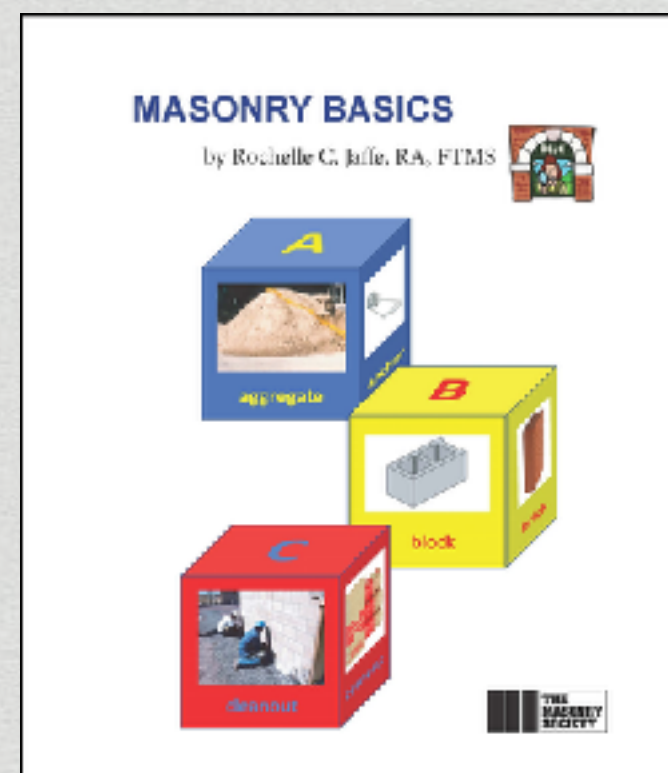
- ◆ Masonry & Steel Detailing Handbook

- ◆ By Laska, Walter Hanley-Wood, 1993



- ◆ Masonry Basics 2nd Edition

- ◆ By Jaffe, Rochelle The Masonry Society, 2017



Hollow Clay Masonry References

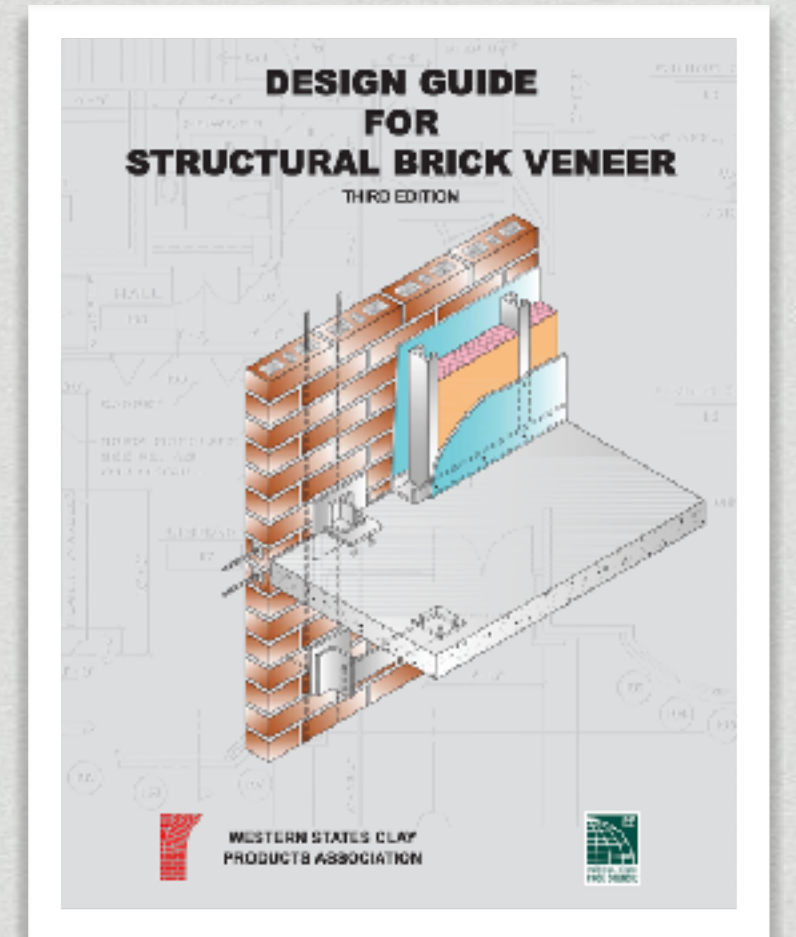
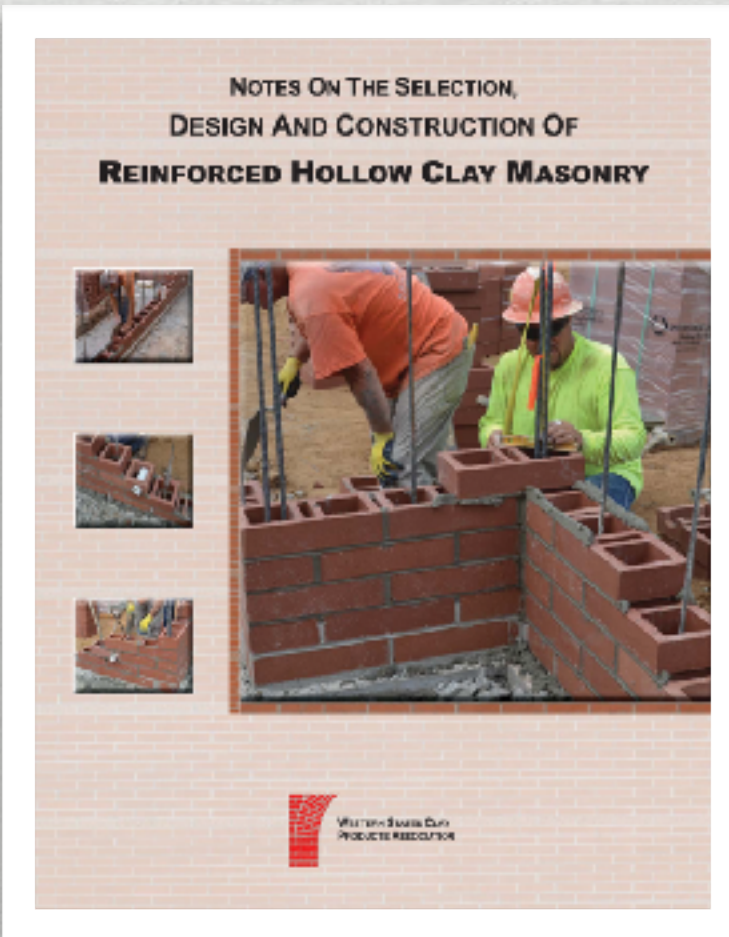
NOTES ON THE SELECTION, DESIGN AND CONSTRUCTION OF

- ◆ **REINFORCED HOLLOW CLAY MASONRY**

- ◆ **Design Guide for Structural Brick Veneer
3rd Edition**

- ◆ By WESTERN STATES CLAY PRODUCT ASSOCIATION, 2023

- ◆ By John G. Tawresey, with review and comments by John Hochwalt



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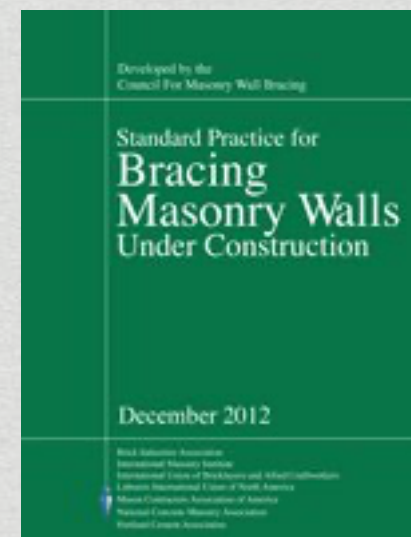
- ◆ Masonry Design and Detailing 6th Edition

- ◆ By Beall, Christine McGraw Hill, 2012



- ◆ Standard Practice for Bracing Masonry Walls Under Construction 2012 Edition

- ◆ By Council for Masonry Wall Bracing Brick Industries Association, Laborers International Union of North America, Mason Contractors Association of America, National Concrete Masonry Association, Portland Cement Association, July 2012



- ◆ CodeMaster

- ◆ Allowable Stress Design for Masonry
- ◆ Masonry Materials
- ◆ Special Inspection for Masonry
- ◆ Strength Design for Masonry
- ◆ Seismic Design

- ◆ By Structure & Codes Institute, Masonry Institute, 2006



Old but good references



- ◆ Masonry Grout Technology Brief **2.11.2**
 - ◆ By International Masonry Institute International Masonry Institute, August **2009**



- ◆ Grouting Masonry Technology Brief **2.11.3**
 - ◆ By International Masonry Institute International Masonry Institute, June **2004**



- ◆ Hybrid Masonry Design Technology Brief **2.13.01**
 - ◆ By International Masonry Institute/National Concrete Masonry Association, International Masonry Institute, December **2009**

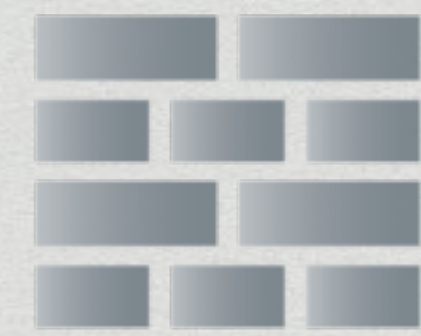


- ◆ Hybrid Masonry Construction Technology Brief **2.13.02**
 - ◆ By International Masonry Institute/National Concrete Masonry Association, International Masonry Institute, February **2010**

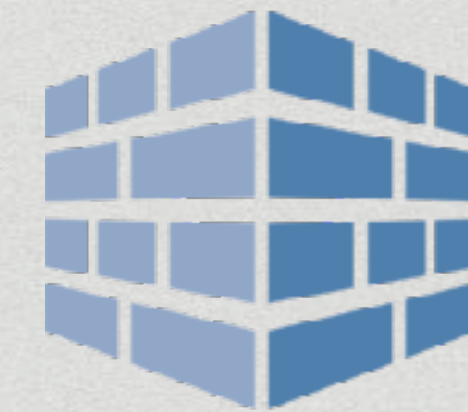
Design Tools & Software

Masonry Component Design

- ◆ EleMasonry, by NCMA
- ◆ DirectDesign, by NCMA - Version 3.1
- ◆ Structural Masonry Design System - Version 7.2
 - ◆ By NCMA, **no longer distributed**
- ◆ IES Quick Masonry - Version 5.6
 - ◆ By IES, 2023
- ◆ TEDDS 2023
 - ◆ By TEKLA, 2023



EleMasonry



Direct Design



Masonry Tools - Components

masonry.forsei.com/technical/masonry-software

We recommend using component design programs for walls that are less complicated and have common load demand, which includes: partition walls, single story building with many walls and low in-plane shear loads, walls with relatively small openings.

IMI Partition Wall

- ◆ <http://imiweb.org/masonry-software/masonry-partition-wall-software/>

DIRECT DESIGN 3.1

- ◆ <https://ncma.org/software/direct-design/>

ELEMASONRY

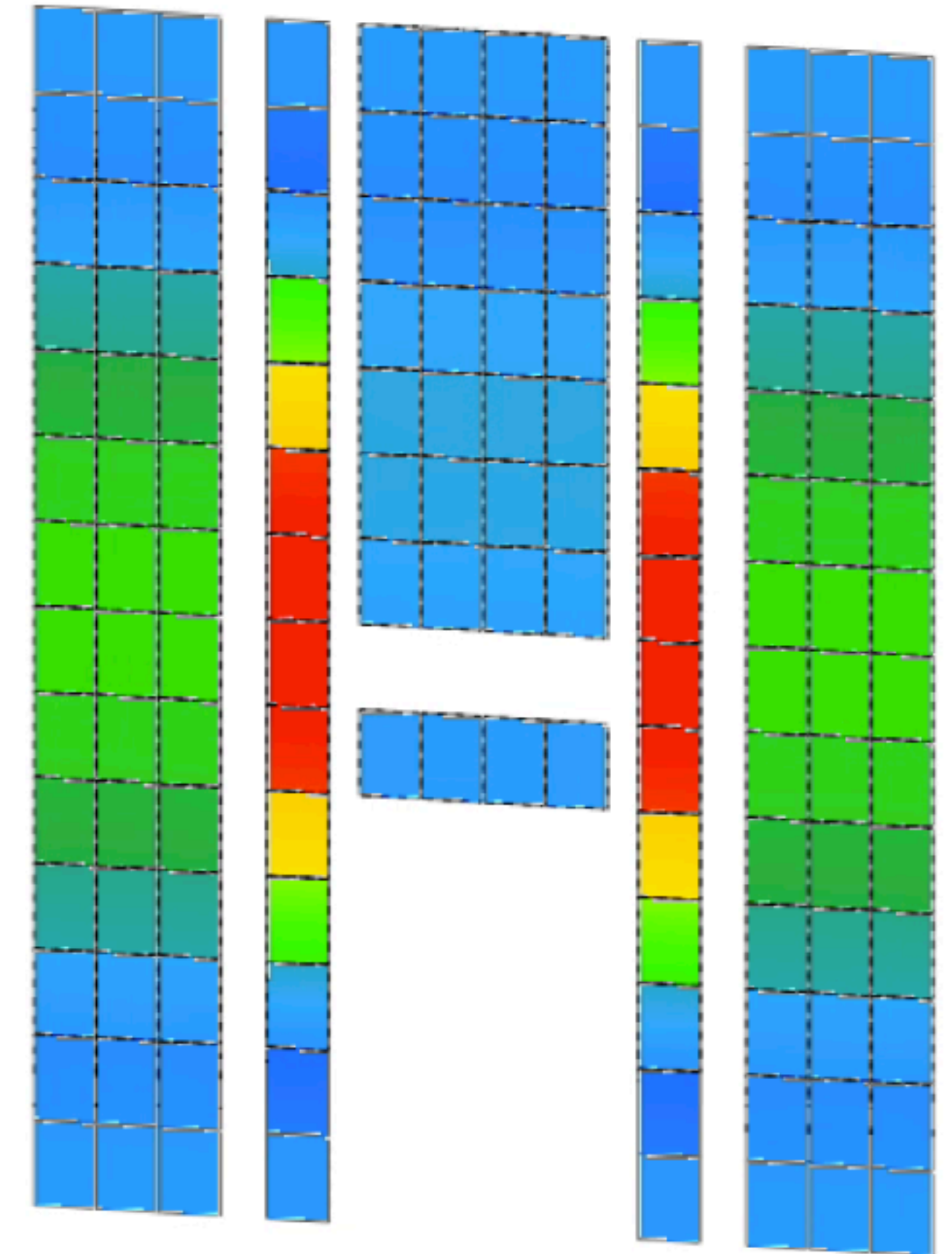
- ◆ <https://ncma.org/software/elemasonry-design-software/>

QuickMasonry

- ◆ <https://www.iesweb.com/quick/#qm>

TEDDS

- ◆ <https://resources.tekla.com/youtube-structural-analysis-and-design-with-tekla-software/masonry-wall-panel>



Design Tools & Software

The International Masonry Institute (IMI) has a team of masonry design experts to help you evaluate the attributes of each of these resources in this section. For free guidance, call 800.464.0988.

General Finite Element Analysis with Masonry Design Features

- ◆ RAM Elements - Version 23.0.1*

- ◆ By Bentley, 2023



- ◆ RISA Floor - Version 17.0.2*

- ◆ RISA 3D - Version 21.0.2*

- ◆ By RISA Technologies, 2023



*-Recommended by IMI, call for free software support and training.

Masonry Tools - FEA

masonrystructure.com/technical/

RAM Elements – Masonry Wall module

- ◆ quick start guide: IMI – RAM Elements
- ◆ <http://masonrystructure.com/technical/>
- ◆ download: <https://www.bentley.com/en/products/product-line/structural-analysis-software/ram-elements>

RISA Floor/ RISA 3D

- ◆ quick start guide: IMI – RISA-3D
- ◆ <http://masonrystructure.com/technical/>
- ◆ download: <https://www.risa.com/products/risa-3d>

ETABS – Masonry walls are all modeled as grouted solid. When the actual wall being modeled is solid, ETABS can be used without issue; if it is partially grouted, modification factors need to be used.

- ◆ quick start guide: not yet available

