

MASONRY IN A BOX

ENGINEERING CURRICULUM

*Empowering the next generation of structural engineers
through masonry design education*

DEVELOPED BY DR. RICHARD BENNETT, UNIVERSITY OF TENNESSEE

OVERVIEW

Masonry in a Box provides comprehensive resources for teaching a masonry structural design course — including PowerPoint slides, homework problems with solutions, example midterm and final exams, and a design project. The material was developed by Dr. Richard Bennett, Professor Emeritus, Civil and Environmental Engineering, University of Tennessee, Honorary Member of The Masonry Society, Chair of the 2016 TMS 402/602 Code Committee, and Editor of the 2022 Masonry Designers' Guide.

1-2 CLASS INTRO

PowerPoint for
introductory lectures

HALF-SEMESTER

Sample schedule for
combining materials

FULL-SEMESTER

Sample schedule for
complete curriculum

GUEST SPEAKERS & FIELD TRIPS

- Invite local masonry association representatives or anchor manufacturers for practical demonstrations.
- Consider a field trip to a concrete block plant where students can observe manufacturing and lay a block. These experiences help reinforce classroom learning and connect theory with real-world applications.

"Masonry design education is crucial for preparing students to tackle the real-world challenges that professional structural engineers face."



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SAMPLE SCHEDULES

7-Week Course (2 classes/week, 75 minutes each)

1. Introduction
2. CMU Units
3. Mortar and Grout
4. Material Properties
5. Nonloadbearing Walls
6. Beams and Lintels
7. Interaction Diagrams
8. Loadbearing Walls
9. Loadbearing Walls (continued)
10. Shear Wall Types
- 11–12. Shear Wall Design
13. Anchor Bolts
14. Exam

14-Week Course (2 classes/week, 75 minutes each)

1. Introduction
2. Clay Masonry
3. CMU Units
4. Mortar
5. Grout and Construction
6. Material Properties
7. Codes
8. Nonloadbearing Walls
- 9–10. Beams and Lintels
11. Interaction Diagrams
- 12–13. Loadbearing Walls
14. Moment Magnification
15. Diaphragms
- 16–18. Shear Wall Design
19. Anchor Bolts
20. Unreinforced Masonry
- 21–22. Allowable Stress Design
23. Veneer
- 24–28. Exams, Guest Speakers, Field Trips, Design Project



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