Confined Masonry Network: An Overview of Guidelines and Initiatives

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Why Confined Masonry?

- Poor performance of unreinforced masonry and non-ductile RC frame construction caused unacceptably high human and economic losses in past earthquakes.

- This prompted a need for developing and/or promoting alternative building technologies such as confined masonry.

The goal is to achieve enhanced seismic performance using technologies which require similar level of construction skills and are economically viable.
Components of a Confined Masonry Building
Reinforced Concrete Framed Infill Construction
Launched in 2008 at a meeting in Kanpur, India by experts from 15 countries

Key activities:

- Development of guidelines (2009–)
- Publishing papers at key conferences
- An online repository of resources related to confined masonry technology and its application in various countries
  e.g. research papers, earthquake reconnaissance reports, international codes and guidelines
Guidelines for Confined Masonry

Design Guides
- Engineering Design Guide for Confined Masonry Buildings (under development)

Construction Guides
- Guidebook for Building Earthquake Resistant Houses in Confined Masonry (published in 2015)
Confined Masonry Guides: Objectives

- Compile the best design and construction practices into one document that can then be adapted for use in specific countries

- Design guides written primarily for engineers and architects

- Construction guides written primarily for builders, but should be useful for architects and engineers

- Chapter 1 – Introduction
  - General System Behavior
- Chapter 2 – General Requirements
  - Material Types
- Chapter 3 – Specific Requirements
  - Prescriptive Guidelines
- Appendices
  - Simplified Method for Wall Density Calculations
  - Special Inspection Recommendations
Chapter 1 – General Aspects
  ◦ General building rules

Chapter 2 – Confined Masonry Step by Step
  ◦ Site and foundations
  ◦ Construction tie elements
  ◦ Masonry walls

Chapter 3 – Additional Issues
  ◦ Lightweight roofs

Appendices
  ◦ Concrete, mortar & plaster mixes
  ◦ Wall density calculations
Key topics:

- Seismic design factors (ductility–related)
- Analysis methods and modelling
- Design of confined masonry wall panels for in–plane and out–of–plane seismic effects
New Initiatives

- Implementation of confined masonry in Asian countries – India and Nepal
- Developing retrofitting guideline
- Other initiatives?

All confined masonry resources available free of charge at web site

www.confinedmasonry.org