

1.14 — Seismic design requirements

1.14.1 Scope

The seismic design requirements of this section apply to the design and construction of masonry, except glass unit masonry and masonry veneer.

1.14.2 General

1.14.2.1 Seismic design category classification

Masonry shall comply with the requirements of Sections 1.14.3 through 1.14.7 based on the Seismic Design Category as defined in ASCE 7-02. In addition, masonry shall comply with either the requirements of Section 1.1.3 or the requirements of Section 2.1.3.4.

1.14.2.2 Lateral force-resisting system

Buildings relying on masonry shear walls as part of the lateral force-resisting system shall have shear walls that comply with the requirements of Section 1.14.2.2.1, 1.14.2.2.2, 1.14.2.2.3, 1.14.2.2.4, or 1.14.2.2.5.

Exception: Buildings assigned to Seismic Design Category A shall be permitted to have shear walls complying with Section 5.3.

Exception: AAC masonry shear walls shall be permitted to comply with Sections 1.14.2.2.6, 1.14.2.2.7 or 1.14.2.2.8.

1.14.2.2.1 Ordinary plain (unreinforced) masonry shear walls — Design of ordinary plain (unreinforced) masonry shear walls shall comply with the requirements of Section 2.2, Section 3.2, or Chapter 4.

1.14.2.2.2 Detailed plain (unreinforced) masonry shear walls — Design of detailed plain (unreinforced) masonry shear walls shall comply with the requirements of Section 2.2 or Section 3.2, and shall comply with the requirements of Sections 1.14.2.2.2.1 and 1.14.2.2.2.2.

1.14.2.2.2.1 Minimum reinforcement requirements — Vertical reinforcement of at least 0.2 in.^2 (129 mm^2) in cross-sectional area shall be provided at corners, within 16 in. (406 mm) of each side of openings, within 8 in. (203 mm) of each side of movement joints, within 8 in. (203 mm) of the ends of walls, and at a maximum spacing of 120 in. (3048 mm) on center.

Reinforcement adjacent to openings need not be provided for openings smaller than 16 in. (406 mm) in either the horizontal or vertical direction, unless the spacing of distributed reinforcement is interrupted by such openings.

Horizontal joint reinforcement shall consist of at least two wires of W1.7 (MW11) spaced not more than 16 in. (406 mm) on center, or bond beam reinforcement shall be provided of at least 0.2 in.^2 (129 mm^2) in cross-sectional area spaced not more than 120 in. (3048 mm) on center. Horizontal reinforcement shall also be provided at the bottom and top of wall openings and shall extend not less than 24 in. (610 mm) nor less than 40 bar diameters past the opening, continuously at

structurally connected roof and floor levels, and within 16 in. (406 mm) of the top of walls.

1.14.2.2.2 Connections

Connectors shall be provided to transfer forces between masonry walls and horizontal elements in accordance with the requirements of Section 2.1.8. Connectors shall be designed to transfer horizontal design forces acting either perpendicular or parallel to the wall, but not less than 200 lb per lineal ft (2919 N per lineal m) of wall. The maximum spacing between connectors shall be 4 ft (1.22 m).

1.14.2.2.3 Ordinary reinforced masonry shear walls — Design of ordinary reinforced masonry shear walls shall comply with the requirements of Section 2.3 or Section 3.3, and shall comply with the requirements of Sections 1.14.2.2.2.1 and 1.14.2.2.2.2.

1.14.2.2.4 Intermediate reinforced masonry shear walls — Design of intermediate reinforced masonry shear walls shall comply with the requirements of Section 2.3 or Section 3.3. Design shall also comply with the requirements of Sections 1.14.2.2.2.1 and 1.14.2.2.2.2, except that the spacing of vertical reinforcement shall not exceed 48 in. (1219 mm).

1.14.2.2.5 Special reinforced masonry shear walls — Design of special reinforced masonry shear walls shall comply with the requirements of Section 2.3 or Section 3.3. Design shall also comply with the requirements of Sections 1.14.2.2.2.1, 1.14.2.2.2.2, 1.14.6.3, and the following:

- The maximum spacing of vertical and horizontal reinforcement shall be the smaller of one-third the length of the shear wall, one-third the height of the shear wall, or 48 in. (1219 mm).
- The minimum cross-sectional area of vertical reinforcement shall be one-third of the required shear reinforcement.
- Shear reinforcement shall be anchored around vertical reinforcing bars with a standard hook.

1.14.2.2.6 Ordinary plain (unreinforced) AAC masonry shear walls — Design of ordinary plain (unreinforced) AAC masonry shear walls shall comply with the requirements of Section A.2.

1.14.2.2.7 Detailed plain (unreinforced) AAC masonry shear walls — Design of detailed plain (unreinforced) AAC masonry shear walls shall comply with the requirements of Section A.2 and the minimum reinforcement requirements for members of the lateral force-resisting system in AAC masonry as follows: Vertical reinforcement of at least 0.2 in.^2 (129 mm^2) shall be provided within 24 in. (610 mm) of each side of openings, within 8 in. (203 mm) of movement joints, and within 24 in. (610 mm) of the ends of walls. Reinforcement adjacent to openings need not be provided for openings smaller than 16 in. (406 mm), unless the minimum reinforcement requirements are interrupted by such openings. Horizontal reinforcement shall be provided at the bottom and top of wall openings