

**CROSSWALL.** A new or existing wall that meets the requirements of Section A111.3 and the definition of Section A111.3. A crosswall is not a shear wall.

**CROSSWALL SHEAR CAPACITY.** The unit shear value times the length of the crosswall,  $v_c L_c$ .

**DIAPHRAGM EDGE.** The intersection of the horizontal diaphragm and a shear wall.

**DIAPHRAGM SHEAR CAPACITY.** The unit shear value times the depth of the diaphragm,  $v_u D$ .

**NORMAL WALL.** A wall perpendicular to the direction of seismic forces.

**OPEN FRONT.** An exterior building wall line without vertical elements of the lateral-force-resisting system in one or more stories.

**POINTING.** The partial reconstruction of the bed joints of an unreinforced masonry wall as defined in UBC Standard 21-8.

**RIGID DIAPHRAGM.** A diaphragm of reinforced concrete construction supported by concrete beams and columns or by structural steel beams and columns.

**UNREINFORCED MASONRY.** Includes burned clay, concrete or sand-lime brick; hollow clay or concrete block; plain concrete; and hollow clay tile. These materials shall comply with the requirements of Section A106 as applicable.

**UNREINFORCED MASONRY BEARING WALL.** A URM wall that provides the vertical support for the reaction of floor or roof-framing members.

**UNREINFORCED MASONRY (URM) WALL.** A masonry wall that relies on the tensile strength of masonry units, mortar and grout in resisting design loads, and in which the area of reinforcement is less than 25 percent of the minimum ratio required by the building code for reinforced masonry.

**YIELD STORY DRIFT.** The lateral displacement of one level relative to the level above or below at which yield stress is first developed in a frame member.

**SECTION A104  
SYMBOLS AND NOTATIONS**

For the purpose of this chapter, the following notations supplement the applicable symbols and notations in the building code.

- $a_n$  = Diameter of core multiplied by its length or the area of the side of a square prism.
- $A$  = Cross-sectional area of unreinforced masonry pier or wall, square inches ( $10^{-6}$  m<sup>2</sup>).
- $A_b$  = Total area of the bed joints above and below the test specimen for each in-place shear test, square inches ( $10^{-6}$  m<sup>2</sup>).
- $D$  = In-plane width dimension of pier, inches ( $10^{-3}$  m), or depth of diaphragm, feet (m).
- $DCR$  = Demand-capacity ratio specified in Section A111.4.2.

- $f'_m$  = Compressive strength of masonry.
- $f_{sp}$  = Tensile-splitting strength of masonry.
- $F_{wx}$  = Force applied to a wall at level  $x$ , pounds (N).
- $H$  = Least clear height of opening on either side of a pier, inches ( $10^{-3}$  m).
- $h/t$  = Height-to-thickness ratio of URM wall. Height,  $h$ , is measured between wall anchorage levels and/or slab-on-grade.
- $L$  = Span of diaphragm between shear walls, or span between shear wall and open front, feet (m).
- $L_c$  = Length of crosswall, feet (m).
- $L_i$  = Effective span for an open-front building specified in Section A111.8, feet (m).
- $P$  = Applied force as determined by standard test method of ASTM C 496 or ASTM E 519, pounds (N).
- $P_D$  = Superimposed dead load at the location under consideration, pounds (kN). For determination of the rocking shear capacity, dead load at the top of the pier under consideration shall be used.
- $p_{D+L}$  = Press resulting from the dead plus actual live load in place at the time of testing, pounds per square inch (kPa).
- $P_w$  = Weight of wall, pounds (N).
- $R$  = Response modification factor for Ordinary plain masonry shear walls in Bearing Wall System from Table 12.2-1 of ASCE 7, where  $R = 1.5$ .
- $S_{DS}$  = Design spectral acceleration at short period, in g units.
- $S_{D1}$  = Design spectral acceleration at 1-second period, in g units.
- $v_a$  = The shear strength of any URM pier,  $v_m A/1.5$  pounds (N).
- $v_c$  = Unit shear capacity value for a crosswall sheathed with any of the materials given in Table A1-D or A1-E, pounds per foot (N/m).
- $v_m$  = Shear strength of unreinforced masonry, pounds per square inch (kPa).
- $V_a$  = The shear strength of any URM pier or wall, pounds (N).
- $V_{ca}$  = Total shear capacity of crosswalls in the direction of analysis immediately above the diaphragm level being investigated,  $v_c L_c$ , pounds (N).
- $V_{cb}$  = Total shear capacity of crosswalls in the direction of analysis immediately below the diaphragm level being investigated,  $v_c L_c$ , pounds (N).
- $V_p$  = Shear force assigned to a pier on the basis of its relative shear rigidity, pounds (N).
- $V_r$  = Pier rocking shear capacity of any URM wall or wall pier, pounds (N).