Concrete Masonry Association of California and Nevada

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Why Masonry?
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ASTM C90-11b

A significant change was made to ASTM C90-11b this past year. Nick Lange with NCMA put a great deal of effort into making these changes happen. The best news is that we will no longer need to certify our "standard" open-end units for "grouted construction" only.

The following is an excerpt from a recent NCMA publication outlining the changes to ASTM C90:

In 2011, web thickness requirements were significantly revised. Prior to ASTM C90-11b, there were different minimum web thicknesses based on unit width. Additionally, equivalent web thickness, a measure of the width of web per foot of wall length was used to determine if sufficient web was present to transfer shear loads. In ASTM C90-11b, these requirements were replaced with a single minimum web thickness (0.75 in., 19.1 mm), regardless of unit width. The equivalent web thickness was replaced with a normalized web area, a measure of the area of web contact with the face shells per square foot of wall.

Concrete Masonry Units must now meet the physical requirements of ASTM C90-11b Table 1.

TABLE 1 Minimum Face Shells and Web Requirements[A]

Nominal Width (W) of Units, in. (mm)	Face Shell Thickness (t_{fs}), min, in. (mm)[B,C]	Webs	
		Web Thickness[C] (t_w), min, in. (mm)	Normalized Web Area (A_{nw}), min, in.^{2}/ft^2 (mm^2/m^2)[D]
3 (76.2) and 4 (102)	¾ (19)	¾ (19)	6.5 (45,140)
6 (152)	1 (25)	¾ (19)	6.5 (45,140)
8 (203) and greater	1¼ (32)	¾ (19)	6.5 (45,140)

[A] Average of measurements on a minimum of 3 units when measured as described in Test Methods C140.
[B] When this standard is used for units having split surfaces, a maximum of 10 % of the split surface is permitted to have thickness less than those shown, but not less than ¾ in. (19.1 mm). When the units are to be solid grouted, the 10 % limit does not apply and Footnote C establishes a thickness requirement for the entire faceshell.
[C] When the units are to be solid grouted, minimum face shell and web thickness shall be not less than ⅝ in. (16 mm).
[D] Minimum normalized web area does not apply to the portion of the unit to be filled with grout. The length of that portion shall be deducted from the overall length of the unit for the calculation of the minimum web cross-sectional area.

ASTM C140-12 now includes the proper way of measuring ASTM C90-11b Concrete Masonry Units.

A1.2 Measurement

A1.2.1 For each unit, measure and record the width (W) across the top and bottom bearing surfaces at mid-length, height (H) at mid-length of each face, and length (L) at mid-height of each face to the nearest division required to be reported.

A1.2.2 For each unit, measure the face shell thicknesses (tfs) at the thinnest point 1⁄2 in. (12.7 mm) down from the top surface of the unit as manufactured (typically the bottom surface of the unit as laid) and record to the nearest division required to be reported. Disregard grooves, scores, and similar details in the face shell thickness measurements.

A1.2.3 For each unit, measure the web thickness (tw) at the minimum thickness of each web to the nearest 0.01 in. (0.25mm). For each unit, measure the web height (th) at the minimum height of each web to the nearest 0.1 in. (2.5 mm). A1.2.4 For each unit, when the thinnest point of opposite face shells differ in thickness by less than 1⁄8 in. (3.2 mm), calculate the minimum face shell thickness by averaging the recorded measurements. When the thinnest points differ by more than 1⁄8 in. (3.2 mm), the minimum face shell thickness shall be taken as the smaller of the two recorded measurements.

A1.2.5 For each unit, calculate the minimum web area for each web (Aw) by multiplying the minimum web thickness (tw) and minimum web height (th) for measured web dimensions of 0.75 in. (19.1 mm) or greater. For each unit, calculate the total minimum web area (Awt) by summing the web area (Aw) of each web.

NOTE A1.1—Webs with minimum heights or thickness less than 0.75 in. (19.1 mm) do not typically contribute to the unit's structural stability. Such webs should not be included in the minimum web area calculation.

We encourage our members to certify Concrete Masonry Units to the new requirements of ASTM C90.