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To: ICC-ES Evaluation Committee
From: Howard Silverman, P.E., and Vincent Chui, S.E., ICC-ES Staff
Date: October 2, 2020
Subject: Proposed Revisions to the Acceptance Criteria for Adhesive Anchors in Cracked and Uncracked Masonry Elements, Subject AC58-1020-R1 (HS/VC)

MEMO

Proposed Revisions to the Acceptance Criteria for Adhesive Anchors in Cracked and Uncracked Masonry Elements, Subject AC58-1020-R1 (HS/VC), was posted with our staff letter dated August 18, 2020 for comment. In response to the posting, we received an email from Simpson Strong-Tie company dated September 8, 2020 identifying a change proposed in the CAMA letter of June 12, 2020 that was not included in the Acceptance Criteria draft posted August 18, 2020.

Staff is in agreement that the change proposed by CAMA should have been included in the Acceptance Criteria draft, as noted by Simpson Strong-Tie. Specifically, the reference in Table 4.4 to footnote [§] will be removed for Tests 6a and 6b.

In addition, due to the effect of the COVID-19 pandemic on testing laboratory availability, staff is proposing to extend the compliance date for AC58 from November 15, 2022 to April 15, 2023.

Included with this memo are the revised pages of AC58: Front page showing the change in compliance date, and Table 4.4 showing the footnote references struck for Test Series 6a and 6b.

We appreciate the input received.

HS/VC

PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR ADHESIVE ANCHORS IN CRACKED AND UNCRACKED MASONRY ELEMENTS

AC58

Proposed August 2020

Compliance date - ~~November 15, 2022~~ April 15, 2023

Previously approved October 2019, March 2018, November 2015, May 2012, October 2011, June 2011, December 2009, December 2006, June 2005, February 2005, November 2001, January 2001, July 2000, January 1999, January 1998, September 1997, April 1995, January 1995

(Previously editorially revised August 2013)

PREFACE

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PROPOSED REVISIONS TO THE ACCEPTANCE CRITERIA FOR ADHESIVE ANCHORS IN CRACKED AND UNCRACKED MASONRY ELEMENTS (AC58)

TABLE 4.4—TEST PROGRAM FOR EVALUATING ADHESIVE ANCHOR SYSTEMS FOR USE IN BRICK WALL CONSTRUCTION^x

Test no.	Test ref.	Purpose	Testing			Assessment		h_{ef} [†]	Dia.	Min. sample-size	Batch
			Test param.	Location	Masonry [‡]	α_{req}	Load & displ.				
<i>Reference tests</i>											
1a	5.0	Reference strength	Unconfined tension	Solid portion	Uncracked	-	-	all	all	5	1
1b [*]	5.0	Reference strength	Unconfined tension	Hollow portion	Uncracked	-	-	all	all	5	2
1c	5.0	Reference strength	Unconfined tension	Bed joint	Uncracked	-	-	all	all	5	3
1d [*]	5.0	Reference strength	Unconfined tension	Head joint	Uncracked	-	-	all	all	5	4
1e [*]	5.0	Reference strength	Confined tension	Hollow portion	Uncracked	-	-	min max	1/2 ⁺ , L	5	5
1f	5.0	Reference strength	Confined tension	Solid portion	Uncracked	-	-	max	SML [*]	5	6
<i>Reliability tests</i>											
2a	6.5.1	Hole cleaning, dry	Confined tension	Solid portion	Uncracked	6.5.3	8.5	max	SML [*]	5	6
2b	6.5.2	Hole cleaning, saturated	Confined tension	Solid portion	Uncracked	6.5.3	8.5	max	SML [*]	5	6
2c	6.6	Mixing effort	Confined tension	Center of cell	Uncracked	6.5.3	8.5	max	1/2 ⁺	5	4
3	6.7	Freezing and thawing	Confined tension	Cylinder	Uncracked	0.9	8.5 6.7.3	min	1/2 ⁺	5	6
4	6.9	Sustained load	Confined tension	Hollow portion [*]	Uncracked	0.9	8.5 6.9.5	min	1/2 ⁺	5	5
5	6.10	Installation direction	Confined tension	Hollow portion [*]	Uncracked	0.9	8.5 6.10.4	max	L	5	5
<i>Service-condition tests</i>											
6a [§]	7.4	Elevated temperature	Confined tension	Hollow portion [*]	Uncracked	-	8.5 7.4.3	min	1/2 ⁺	5	5
6b ^{§¶}	7.5	Decreased temperature	Confined tension	Hollow portion [*]	Uncracked	-	8.5 7.5.3	min	1/2 ⁺	5	5
6c ^{#§}	7.6	Curing time at std. temperature	Confined tension	Hollow portion [*]	Uncracked	-	8.5 7.6.3	min	1/2 ⁺	5	5
7a ^{^#§}	7.7	Resistance to alkalinity	Confined tension	Cylinder	Uncracked	-	7.7.4	-	1/2 ⁺	10	7
7b ^{^#§} ₁	7.7	Resistance to sulfur	Confined tension	Cylinder	Uncracked	-	7.7.4	-	1/2 ⁺	10	7
8	7.8	Seismic tension	Unconfined cyclic tension, unconfined residual test	Hollow portion [*]	Uncracked	-	8.5 7.8.4	-	all	5	5
9	7.9	Static shear away from edges	Shear	Bed joint, loaded parallel to bed joint	Uncracked	-	7.9.3	min	all	5	8
10	7.10	Seismic shear	Shear	Bed joint, loaded parallel to bed joint	Uncracked	-	7.10.6	min	all	5	8

For SI: 1 inch = 25.4 mm, 1 psi = 6.89 kPa.

^x Reported values from this test program are only valid for brick construction with all of the following characteristics: same material type (e.g., clay/shale/similar), equal or greater compressive strength (ASTM C67 for clay/shale/similar, ASTM C140 for concrete materials), equal or greater ratios of brick unit net cross-sectional area to gross cross-sectional area, and equal or greater number of wythes used in testing. For additional qualification of brick construction types, refer to Section 4.7.

[†] Where M_{PII} specify multiple embedment depths for single anchor diameter, test anchor at minimum or maximum embedment depth as noted.

^{*} This test shall be omitted if the net and gross cross-sectional area of the brick units are equal in all dimensions.

⁺ Test the nominal 1/2 in. (12.7 mm) diameter or the smallest nominal diameter if it is larger than 1/2 in. (12.7 mm).

^{*} Where recognition is sought for a maximum of 4 anchor diameters, only the smallest and largest diameters are required to be tested.

S = smallest anchor element diameter for which recognition is sought.

M = middle anchor element diameter for which recognition is sought.

L = largest anchor element diameter for which recognition is sought

[•] This test shall be installed in the solid portion if the net and gross cross-sectional area of the brick units are equal in all dimensions.

[#] It shall be permitted to use the results of tests performed in grouted masonry in accordance with **Table 4.1** or **Table 4.2** using the same adhesive.

[^] Test not conducted in brick; see test description for material preparation conditions.

[§] It shall be permitted to use the results of tests performed in concrete in accordance with AC308 using the same adhesive.

^{||} Optional test.

^{*} Anchors shall be normalized to the minimum brick unit strength permitted by the respective brick standard in accordance with Section 8.3.