TMS 402/602 COMMITTEE

WWW.MASONRYSTANDARDS.ORG

MAIN COMMITTEE

TMS 402/602 CHAIR	TMS 402/602 VICE CHAIR	TMS 402/602 2ND VICE CHAIR	TMS 402/602 SECRETARY
JOHN CHRYSLER MASONRY INSTITUTE OF AMERICA 1315 STORM PARKWAY TORRANCE, CA 90501 (310) 257-9000 JC@MASONRY.PRO	DAVID L. PIERSON ARW ENGINEERS 1594 W. PARK CIRCLE OGDEN, UT 84404 (801) 782-6008 DAVEP@ARWENGINEERS.COM	RICHARD M. BENNETT UNIVERSITY OF TENNESSEE 103 ESTABROOK HALL KNOXVILLE, TN 37996 (865) 974-7540 RMBENNETT@UTK.EDU	GERALD A. DALRYMPLE WDP & ASSOCIATES, P.C. 10621 GATEWAY BLVD #200 MANASSAS, VA 20110 (703) 257-9280 MSJC@WDPA.COM

STAFF CONTACT, TMS PHILLIP J. SAMBLANET, (303) 939-9700, EMAIL: PSAMBLANET@MASONRYSOCIETY.ORG

CHAIR
JOHN CHRYSLER

VICE-CHAIR
DAVE PIERSON

2ND VIICE-CHAIR
DICK BENNETT

SECRETARY
ANDY DALRYMPLE

SUBCOMMITTEES

CONSTRUCTION REQUIREMENTS
JONATHON MERK

DESIGN
MARK McGINLEY

FORM & STYLE
JAMES FARNY

EMPIRICAL
JASON THOMPSON

GENERAL REQUIREMENTS
CHARLES CLARK

PARTITION & INFILLS
CHARLES TUCKER

PRESTRESSED MASONRY
ARTURO SCHULTZ

REINFORCEMENT & CONNECTORS
HEATHER SUSTERSIC

SEISMIC & LIMIT DESIGN
JOHN HOCHWALT

STRUCTURAL MEMBERS
ECE ERDOGMUS

VENEER & GLASS BLOCK
BRIAN TRIMBLE

To: John Chrysler – Chair
David Pierson – Vice Chair
Richard Bennett – 2nd Vice Chair

CC: TMS 402/602 Committee
Phil Samblanet, TMS

From: Andy Dalrymple
Secretary

Date: March 21, 2022

Reference: TMS 402/602 Main Committee
2022-21 Main Committee Ballot Summary Report

When this ballot opened, the voting membership of the Main Committee consisted of 46 members, with 39 members returning on-time ballot responses. Table 1 presents the Ballot Summary Report. Tables 2 and 3 provide summaries of individual Committee voting responses and comments received.

TMS rules require affirmative votes from at least one-half of all eligible voters and affirmative votes from two-thirds of the affirmative and negative votes cast. Based on these criteria, the ballot items received sufficient affirmative votes to successfully pass balloting.

All Main Committee voting members are reminded that they are expected to reply to Committee ballots and that the Chair must terminate their voting privileges for failure to return two consecutive ballots per Section 1.8 of the Technical Committee Operations Manual. The following Main Committee voting members did not return a ballot: Chukwuma Ekwueme, Mohamed ElGawady, Ed Freyermuth, Andy Dalrymple, John Zarzecki, John Tawresey, and Scott Walkowicz.

Attached are all comments received on the ballot items. The voting Main Committee member comments are arranged by the comments received with “Affirmative with Comment”, “Negative”, and “Abstain” votes appearing before “Comments” from non-voting committee members.

In addition to the regular voting membership of the Committee, comments may have been received from non-voting members. In accordance with TMS balloting procedures, the viewpoints expressed by non-voting members of the Committee are not counted in the final

ballot tally but must be distributed to the Committee for consideration. Therefore, any comments received from non-voting individuals are included within this package.

Comments received with “Affirmative with Comment” and “Abstain with Comment” votes are enclosed for your review and consideration, as deemed appropriate. Comments received with “Negative” votes must be resolved unless they pertain solely to finding a person persuasive, nonpersuasive, or unrelated.

The subcommittee meeting minutes should reflect the actions taken by the subcommittee to resolve comments along with any votes taken and the vote count. The Committee Secretary will document Main Committee resolution of each item listed.

Should you have any questions, please contact me at your convenience.

Table 1. Ballot Summary: 2022 TMS 402/602 Main Committee Ballot 21

Item Number	Pass/Fail	Affirmative	Affirmative With Comment	Negative	Abstain
21-CR-001A #049	Pass	38	0	0	1
21-CR-001B #049	Pass	35	1	2	1
21-CR-002 #152	Pass	38	1	0	0
21-DE-PC171 #171	Pass	39	0	0	0
21-EX-001 #004	Pass	38	0	1	0
21-EX-002 #002	Pass	35	4	0	0
21-EX-003 #150	Pass	39	0	0	0
21-EX-004 #002	Pass	38	1	0	0
21-GR-044 #044	Pass	37	1	0	1
21-GR-096 #096	Pass	36	2	0	1
21-GR-125 #125	Pass	35	2	2	0
21-GR-130 #130	Pass	39	0	0	0
21-GR-131 #131	Pass	39	0	0	0
21-GR-135 #135	Pass	36	2	1	0
21-GR-160 #160	Pass	37	1	1	0
21-GR-169 #169	Pass	38	0	1	0
21-PI-149 #149	Pass	38	0	0	1
21-PR-001 #030	Pass	39	0	0	0
21-PR-002 #175	Pass	39	0	0	0
21-PR-003 #179	Pass	39	0	0	0
21-PR-004 #180, 181, 189	Pass	38	0	0	1
21-PR-005 #187	Pass	38	1	0	0
21-PR-006 #188	Pass	38	1	0	0
21-PR-007 #191	Pass	39	0	0	0
21-RC-001 #045	Pass	37	0	2	0
21-RC-002 #045	Pass	36	0	2	1
21-RC-003 #185	Pass	39	0	0	0
21-RC-004 #211	Pass	39	0	0	0
21-RC-005 #037	Pass	39	0	0	0
21-RC-006 #063	Pass	39	0	0	0
21-RC-007 #086	Pass	39	0	0	0

Item Number	Pass/Fail	Affirmative	Affirmative With Comment	Negative	Abstain
21-RC-008 #095	Pass	38	1	0	0
21-RC-009 #086	Pass	38	0	1	0
21-RC-010 #095	Pass	39	0	0	0
21-SL-001 #013	Pass	35	1	0	3
21-SL-006 #094	Pass	39	0	0	0
21-SL-009 #114	Pass	37	0	0	2
21-SL-018 #116	Pass	33	0	4	2
21-SL-018.1 #116	Pass	23	3	9	4
21-SL-018.2 #116	Pass	24	1	9	5
21-SL-018.3 #116	Pass	21	3	10	5
21-SL-018.4 #116	Pass	24	1	9	5
21-SL-020 #104	Pass	39	0	0	0
21-SL-023 #147	Pass	38	0	0	1
21-SL-024 #137	Pass	32	3	3	1
21-SL-025 #063	Pass	39	0	0	0
21-SM-PC17 #017	Pass	39	0	0	0
21-SM-PC21A #021	Pass	39	0	0	0
21-SM-PC21B #021	Pass	39	0	0	0
21-SM-PC23 #023	Pass	39	0	0	0
21-SM-PC24 #024	Pass	39	0	0	0
21-SM-PC25 #025	Pass	39	0	0	0
21-SM-PC26 #026	Pass	37	1	1	0
21-SM-PC27 #027	Pass	38	1	0	0
21-SM-PC28-29 #028, 029	Pass	39	0	0	0
21-SM-PC34 #034	Pass	37	2	0	0
21-SM-PC207	Pass	39	0	0	0
21-VG-014-015 #-014, 015	Pass	36	1	2	0
21-VG-041-042-184 #041, 042, 184	Pass	35	3	0	1
21-VG-056A-067A #056, 067	Pass	37	1	0	1
21-VG-059 #059	Pass	39	0	0	0
21-VG-060B #060	Pass	38	0	0	1
21-VG-065B1 #065	Pass	39	0	0	0
21-VG-065B #065	Pass	38	1	0	0

Item Number	Pass/Fail	Affirmative	Affirmative With Comment	Negative	Abstain
21-VG-073 #073	Pass	39	0	0	0
21-VG-098B #098	Pass	39	0	0	0
21-VG-103B #103	Pass	38	1	0	0
21-VG-112-186 #112, 186	Pass	36	1	2	0
21-VG-129-1-167 #129, 167	Pass	38	0	0	1
21-VG-129-2 #129	Pass	38	0	0	1
21-VG-129-3 #129	Pass	38	0	0	1
21-VG-129-4 #129	Pass	37	1	0	1
21-VG-129-5 #129	Pass	38	0	0	1
21-VG-129-6 #129	Pass	36	0	1	2
21-VG-129-7 #129	Pass	38	0	0	1
21-VG-144-148 #144, 148	Pass	35	2	1	1
21-VG-145 #145	Pass	38	0	0	1
21-VG-146 #146	Pass	38	0	0	1
21-VG-153-218 #153, 218	Pass	38	1	0	0
21-VG-154-213 #154, 213	Pass	37	1	0	1
21-VG-156-157 #156, 157	Pass	37	0	1	1
21-VG-173 #173	Pass	38	0	0	1
21-VG-174A #174	Pass	38	0	0	1
21-VG-174B #174	Pass	38	0	0	1
21-VG-176 #176	Pass	38	0	0	1
21-VG-220B #220	Pass	36	2	0	1

Notes to Table 1:
PASS/FAIL Criteria used per Section 4.2.4 of the Technical Committee Operating Manual:

1. Affirmative votes from at least 50% of all eligible voters (46 Voting members requires 23 Affirmative votes minimum).
2. Affirmative votes from 2/3 of the votes cast, not including abstentions.

Per Section 4.5 of the Technical Committee Operating Manual, names of those abstaining or voting negatively on the ballots must be reported to the Technical Advisory Committee and is being done so by copy of this report as recorded in Table 2, attached.

Table 2. Comment Resolution Table: 2022 TMS 402/602 Main Committee Ballot 21

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
21-CR-001A #049	Abstain	Mr. David B. Woodham dwoodham@ana-usa.com							
21-CR-001B #049	Abstain	Mr. David B. Woodham dwoodham@ana-usa.com							
	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
	Negative	Dr. Richard M. Bennett rmbennett@utk.edu							
		Mr. Jason J. Thompson jthompson@ncma.org							
21-CR-002 #152	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
21-EX-001 #004	Negative	Mr. Jason J. Thompson jthompson@ncma.org							
21-EX-002 #002	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com							
		Mr. Brian E. Trimble btrimble@imiweb.org							
		Mr. John M. Hochwalt johnh@kpff.com							
		Mr. Keith Itzler kitzler@dewberry.com							
21-EX-004 #002	Affirmative With Comment	Ms. Heather A. Sustersic hsustersic@colbycoengineering.com							
21-GR-044 #044	Abstain	Dr. Richard M. Bennett rmbennett@utk.edu							
	Affirmative With	Mr. David T. Biggs biggsconsulting@att.net							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
	Comment								
21-GR-096 #096	Abstain	Mr. James A. Farny jfarny@cement.org							
	Affirmative With Comment	Mr. John M. Hochwalt johnh@kpff.com							
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com							
21-GR-125 #125	Affirmative With Comment	Mr. David T. Biggs biggsconsulting@att.net							
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com							
	Negative	Mr. Alan Robinson arobinson@trseinc.com							
		Mr. Jason J. Thompson jthompson@ncma.org							
21-GR-135 #135	Affirmative With Comment	Mr. Edwin T. Huston huston@smithhustoninc.com							
		Mr. Thomas Michael Corcoran tmcorcoran@comcast.net							
	Negative	Dr. Max L. Porter mporter@iastate.edu							
21-GR-160 #160	Affirmative	Ms. Heather A. Sustersic hsustersic@colbycoengineering.com							
	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com							
	Negative	Dr. Richard M. Bennett rmbennett@utk.edu							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
21-GR-169 #169	Affirmative	Ms. Heather A. Sustersic hsustersic@colbycoengineering.com							
	Negative	Mr. Jason J. Thompson jthompson@ncma.org							
21-PI-149 #149	Abstain	Mr. David B. Woodham dwoodham@ana-usa.com							
21-PR-004 #180, 181, 189	Abstain	Mr. James A. Farny jfarny@cement.org							
21-PR-005 #187	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com							
21-PR-006 #188	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com							
21-RC-001 #045	Negative	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
		Mr. David T. Biggs biggsconsulting@att.net							
21-RC-002 #045	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
	Negative	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
		Dr. Richard M. Bennett rmbennett@utk.edu							
21-RC-008 #095	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
21-RC-009 #086	Negative	Mr. David T. Biggs biggsconsulting@att.net							
21-SL-001 #013	Abstain	Dr. Khaled Nahlawi khaled.nahlawi@concrete.org							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
		Mr. David L. Pierson davep@arwengineers.com							
		Mr. David T. Biggs biggsconsulting@att.net							
	Affirmative With Comment	Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com							
21-SL-009 #114	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
		Mr. James A. Farny jfarny@cement.org							
21-SL-018 #116	Abstain	Mr. David B. Woodham dwoodham@ana-usa.com							
		Mr. Thomas Michael Corcoran tmcorcoran@comcast.net							
	Negative	Dr. Daniel P. Abrams d-abrams@illinois.edu							
		Dr. Richard M. Bennett rmbennett@utk.edu							
		Mr. David L. Pierson davep@arwengineers.com							
		Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com							
21-SL-018.1 #116	Abstain	Dr. Charles J. Tucker ctucker@fhu.edu							
		Mr. David B. Woodham dwoodham@ana-usa.com							
		Mr. David T. Biggs biggsconsulting@att.net							
		Mr. Thomas Michael Corcoran							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
		tmcorcoran@comcast.net							
	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com							
		Mr. Brian E. Trimble btrimble@imiweb.org							
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com							
	Negative	Dr. Andres Lepage alepage@ku.edu							
		Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
		Dr. Richard M. Bennett rmbennett@utk.edu							
		Mr. Charles B. Clark Jr. cclark@bia.org							
		Mr. David L. Pierson davep@arwengineers.com							
		Mr. Jason J. Thompson jthompson@ncma.org							
		Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com							
		Mr. Paul G. Scott pscott@ctsaz.com							
		Ms. Jamie L. Davis jdavis@ryanbiggs.com							
21-SL-018.2 #116	Abstain	Dr. Charles J. Tucker ctucker@fhu.edu							
		Mr. David B. Woodham dwoodham@ana-usa.com							
		Mr. David T. Biggs biggsconsulting@att.net							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
		Mr. James A. Farny jfarny@cement.org							
		Mr. Thomas Michael Corcoran tmcorcoran@comcast.net							
	Affirmative With Comment	Dr. Andres Lepage alepage@ku.edu							
	Negative	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
		Dr. Daniel P. Abrams d-abrams@illinois.edu							
		Dr. Richard M. Bennett rmbennett@utk.edu							
		Mr. Alan Robinson arobinson@trseinc.com							
		Mr. Charles B. Clark Jr. cclark@bia.org							
		Mr. David L. Pierson davep@arwengineers.com							
		Mr. Edwin T. Huston huston@smithhustoninc.com							
		Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com							
		Mr. Paul G. Scott pscott@ctsaz.com							
21-SL-018.3 #116	Abstain	Dr. Charles J. Tucker ctucker@fhu.edu							
		Mr. David B. Woodham dwoodham@ana-usa.com							
		Mr. David T. Biggs							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
		biggsconsulting@att.net							
		Mr. James A. Farny jfarny@cement.org							
		Mr. Thomas Michael Corcoran tmcorcoran@comcast.net							
	Affirmative With Comment	Dr. Andres Lepage alepage@ku.edu							
		Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
		Dr. Richard M. Bennett rmbennett@utk.edu							
	Negative	Dr. Daniel P. Abrams d-abrams@illinois.edu							
		Mr. Alan Robinson arobinson@trseinc.com							
		Mr. Brian E. Trimble btrimble@imiweb.org							
		Mr. Charles B. Clark Jr. cclark@bia.org							
		Mr. David L. Pierson davep@arwengineers.com							
		Mr. Edwin T. Huston huston@smithhustoninc.com							
		Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com							
		Mr. Paul G. Scott pscott@ctsaz.com							
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
		Ms. Jamie L. Davis jdavis@ryanbiggs.com							
21-SL-018.4 #116	Abstain	Dr. Charles J. Tucker ctucker@fhu.edu							
		Mr. David B. Woodham dwoodham@ana-usa.com							
		Mr. David T. Biggs biggsconsulting@att.net							
		Mr. James A. Farny jfarny@cement.org							
		Mr. Thomas Michael Corcoran tmcorcoran@comcast.net							
	Affirmative With Comment	Mr. David L. Pierson davep@arwengineers.com							
	Negative	Dr. Andres Lepage alepage@ku.edu							
		Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
		Dr. Daniel P. Abrams d-abrams@illinois.edu							
		Mr. Alan Robinson arobinson@trseinc.com							
		Mr. Brian E. Trimble btrimble@imiweb.org							
		Mr. Edwin T. Huston huston@smithhustoninc.com							
		Mr. John M. Hochwalt johnh@kpff.com							
		Ms. Heather A. Sustersic hsustersic@colbycoengine							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
		ering.com							
		Ms. Jamie L. Davis jdavis@ryanbiggs.com							
21-SL-023 #147	Abstain	Mr. David L. Pierson davep@arwengineers.com							
21-SL-024 #137	Abstain	Mr. David L. Pierson davep@arwengineers.com							
	Affirmative With Comment	Dr. Richard M. Bennett rmbennett@utk.edu							
		Mr. Brian E. Trimble btrimble@imiweb.org							
		Ms. Jamie L. Davis jdavis@ryanbiggs.com							
	Negative	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
		Mr. Paul G. Scott pscott@ctsaz.com							
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com							
21-SM-PC26 #026	Affirmative With Comment	Dr. Richard M. Bennett rmbennett@utk.edu							
	Negative	Mr. John M. Hochwalt johnh@kpff.com							
21-SM-PC27 #027	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com							
21-SM-PC34 #034	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com							
		Mr. John M. Hochwalt johnh@kpff.com							
21-VG-014-015	Affirmative	Dr. Arturo Ernest Schultz							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
#-014, 015	With Comment	arturo.schultz@utsa.edu							
	Negative	Mr. David T. Biggs biggsconsulting@att.net							
		Mr. Thomas A. Gangel tag@wallacesc.com							
21-VG-041-042-184 #041, 042, 184	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com							
		Mr. Jason J. Thompson jthompson@ncma.org							
		Mr. John M. Hochwalt johnh@kpff.com							
21-VG-056A-067A #056, 067	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
21-VG-060B #060	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-065B #065	Affirmative With Comment	Dr. Richard M. Bennett rmbennett@utk.edu							
21-VG-103B #103	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com							
21-VG-112-186 #112, 186	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
	Negative	Mr. David T. Biggs biggsconsulting@att.net							
		Mr. John M. Hochwalt							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
		johnh@kpff.com							
21-VG-129-1-167 #129, 167	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-129-2 #129	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-129-3 #129	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-129-4 #129	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
	Affirmative With Comment	Mr. James A. Farny jfarny@cement.org							
21-VG-129-5 #129	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-129-6 #129	Abstain	Dr. Richard M. Bennett rmbennett@utk.edu							
		Mr. David T. Biggs biggsconsulting@att.net							
	Negative	Mr. Jason J. Thompson jthompson@ncma.org							
21-VG-129-7 #129	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-144-148 #144, 148	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
	Affirmative With Comment	Mr. James A. Farny jfarny@cement.org							
		Ms. Jamie L. Davis jdavis@ryanbiggs.com							
	Negative	Mr. John M. Hochwalt johnh@kpff.com							
21-VG-145 #145	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-146 #146	Abstain	Mr. David T. Biggs							

Item Number	Comment Type	Commenter	Unrelated	Withdrawn	Pers Editorial	Pers Substantive	Non-Persuasive	Action to Resolve Comment Negative	Vote Record
		biggsconsulting@att.net							
21-VG-153-218 #153, 218	Affirmative With Comment	Mr. John M. Hochwalt johnh@kpff.com							
21-VG-154-213 #154, 213	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
	Affirmative With Comment	Mr. John M. Hochwalt johnh@kpff.com							
21-VG-156-157 #156, 157	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
	Negative	Mr. John M. Hochwalt johnh@kpff.com							
21-VG-173 #173	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-174A #174	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-174B #174	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-176 #176	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
21-VG-220B #220	Abstain	Mr. David T. Biggs biggsconsulting@att.net							
	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu							
		Ms. Jamie L. Davis jdavis@ryanbiggs.com							

Table 3. 2022 TMS 402/602 Main Committee Ballot 21 – Comments

Item Number	Comment Type	Commenter	Comment	Comment File
21-CR-001B #049	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	I agree with the intent of the proposed change. However, I believe that the statement "taking the area of vertical and horizontal reinforcement into account" is subject to interpretation, and that greater clarity should be provided here.	
	Negative	Dr. Richard M. Bennett rmbennett@utk.edu	I think we need some limitation on how big a reinforcement positioner can be, but this seems too restrictive. For a figure 8 rebar positioner, https://wirebond.com/products/figure-8-rebar-positioners, 9 gage, for 8 inch block I estimate the area to be the diameter (0.148 inch) times about a 10 inch length in the cell, or 1.48 in^2. At this area, there is no room left for any rebar. This would be good business for next cycle where we can give it appropriate thought and conduct trial designs in the sense of seeing what works and what does not.	
		Mr. Jason J. Thompson jthompson@ncma.org	I get one can put too much stuff in a wall and restrict grout consolidation...but I don't think this is the way to approach this. In part the proposed language could be interpreted too many different ways. My interpretation: For a standard cell size measuring 5.1 in. in width and 6.3 in. in length, the gross area of the cell would be 32 square inches. If I were to lay a single 9 gage wire across the lenght of this cell, the area of the wire occupied would be (0.15)(6.3) = 0.95 square inches...or 3% of the cell area. I'm not sure how to use the tables for vertical steel limits in this scenario, but if applying Table 6.1.3.2.5, simply by placing a 9 gage bar positioner across the cell I've used 75% of the permitted area of reinforcement.	

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			Effectively by using the tables in Chapter 6, the use of pretty much any bar positioner would preclude the introduction of reinforcement...which is sort of self-defeating.	
21-CR-002 #152	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	I agree with the intent of the proposed change, however I do not see how the proposed change from "Typical positioners for reinforcement" to "Examples of positioners for reinforcement" dispels any assumed or inferred requirement for positioners. However, as a Commentary Figure title, I do not see a concern.	
21-EX-001 #004	Negative	Mr. Jason J. Thompson jthompson@ncma.org	I disagree. Partitions designed per Chapter 15 should not be indiscriminately connected to boundary frames...which including Section 4.4 in the list of exemptions would permit. Granted one could argue that if the limits of 15.2.3 are met then the reqiurements of 4.4 are satisfied...which I'd agree is mostly true other than accomodating differential movement and elastic deflections. A good design using Chapter 15 would inherently meet the requirements of 4.4...hence, leaving it in shouldn't be problematic.	
21-EX-002 #002	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com	ACI 117 is referenced for steel fabrication tolerances in TMS 602 article 2.7 along with the associated commentary. Is the 1990 version of ACI 117 the best reference for these tolerances? Also, based on 20-EX-002, ACI 117 (2010) is in TMS 602 article 1.3 and ACI 117 is referenced in TMS 602 article 3.1A, along with the Part 3 reference to be changed by this proposal. It looks like this proposed change is only for the reference TMS 602 article 3.1A, but I think the various references should be clarified.	
		Mr. Brian E. Trimble btrimble@imiweb.org	While this is definitely the right change to make, it would be good to have new business consider if some wording could be added that explains why the most current version of ACI 117 isn't referenced, I don't suppose we can convince ACI 117 committee to reverse their tolerance requirements?	

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		Mr. John M. Hochwalt johnh@kpff.com	This is okay as a temporary patch, but not as a permanent solution. We need to reach out to the ACI-117 committee to work to revisise the tolerances for concrete construction supporting masonry.	
		Mr. Keith Itzler kitzler@dewberry.com	I understand the reason to reference the older ACI 117 Standard, but i see this as a significant issue. Most designers and specifications will revert to the most recent edition of ACI 117. Since masonry has an issue with th e minus dimension in the most recent ACI 117 what mechanism is available to the Committee to reach out and coordinate with ACI 117 on this issue?	
21-EX-004 #002	Affirmative With Comment	Ms. Heather A. Sustersic hsustersic@colbycoengineering.com	ACI 318 is also referenced in the following sections of TMS 602 specification (references below are taken from the 11/05/2021 working draft). Should these references remain generic to "ACI 318" or should a similar year designation as proposed in this ballot for TMS 402 be inserted for consistency? Specification section 2.5 F.3 Commentary section: 2.7A, 2nd & 3rd paragraphs Specification section: 3.4 D.6.c	
21-GR-044 #044	Affirmative With Comment	Mr. David T. Biggs biggsconsulting@att.net	The change should be unnecessary. If the designer shows the movement joints, they then avoid the locations where not permitted. This change seems to say ..We show the joint locations on the drawings but you can change them.	
21-GR-096 #096	Affirmative With Comment	Mr. John M. Hochwalt johnh@kpff.com	In looking at this ballot, it is apparent that Chapter 8 lacks a reference to designing for the moment induced by relative lateral displacement, as is present in Chapters 9,10 and 11. This could lead some users to conclude that this is intentional, and that moments induced by lateral displacements need not be considered when designing to Chapter 8. This should be corrected in the next code cycle.	

Item Number	Comment Type	Commenter	Comment	Comment File
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com	Grammatical correction: delete the word "as" from "as designated in..." in all proposed sections. We either remove "the" in front of "strength design load combinations" and "allowable stress design load combinations" or we remove "as". Because "as" is proposed text in all sections and "the" is pre-existing, I suggest deleting the word "as" throughout.	
21-GR-125 #125	Affirmative With Comment	Mr. David T. Biggs biggsconsulting@att.net	Doesn't this negate an item like 21-EX-004 since the "building code" is based upon ACI 318-19?	
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com	I don't want to hold up progress so I am voting affirmative with comment; however, I chafe at the proposed insertion. Couldn't we say something like this instead? "This Code supplements the legally adopted building code and shall govern in matters pertaining to structural design and construction of masonry~~,~~. Where this code is in conflict with the building code, the more stringent provisions shall govern. In areas without a legally adopted building code, this Code defines the minimum acceptable standards of design and construction practice."	
	Negative	Mr. Alan Robinson arobinson@trseinc.com	TMS 402 Section 1.1.2 already indicates TMS 402 "supplements the legally adopted building code." TMS 402 is therefore, not a replacement for the code and that language should be sufficient to deal with conflicting provisions. In addition, we should not be deferring to outside groups for provisions for design in masonry, which this added language permits. Currently the IBC and ASCE7 modify sections of TMS 402, so there provisions already conflict even without the added language. These conflicting provisions have not been an issue so far. However, this new language implies we are in agreement with these modifications to the masonry code as we state any conflicting provisions in the adopting code	

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			govern. We have rarely brought provisions in from other codes to TMS402 without modification, so the provisions in other codes may not be the best for design in masonry. With this proposed change, anyone could produce a code and modify TMS 402 in ways that are potentially unsafe and without any review from TMS. We should not be leaving such an open ended exception in the code. Also, there is nothing that stops the IBC, ASCE7, etc. from modifying section 1.1.2 with this propsed language to allow further changes or resolution of conflicts in the codes. We should continue to state that the published TMS402/602 are the TMS designated requirements for the design and construction of masonry. We already indicate the TMS code and specifications are the minimum standards used in the absence of a building code. If other code provisions conflict, they should be resolved by whatever code adopts the masonry code.	
		Mr. Jason J. Thompson jthompson@ncma.org	I don't think this added language is necessary. Code enforcement has this well defined. I also think the proposed language is confusing as it doesn't stipulate which set of provisions control where there are conflicts.	
21-GR-135 #135	Affirmative With Comment	Mr. Edwin T. Huston huston@smithhustoninc.com	I almost voted negative on this ballot issue, but will vote affirm with comment, in the hopes that it is addressed again in the next cycle. The comment was focused on tributary area lateral force distribution, which assumes a flexible diaphragm. In this method, the engineer does not determine a relative stiffness of the diaphragm. The engineer just determines that it is very low, If the engineer determines a relative stiffness of the diaphragm and uses that, a semi-rigid diaphragm analysis is the logical choice for design. I fear	

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			many engineers reading this section will assume that TMS 402-22 prohibits a flexible diaphragm analysis. ASCE 7-22 gives guidance of when a flexible diaphragm analysis may be assumed, even though those diaphragms actually do have relative stiffness.	
		Mr. Thomas Michael Corcoran tmcorcoran@comcast.net	Suggest adding the word "the" after the word with in the code change: .....in accordance with "<u>the</u>" relative member stiffnesses.....	
	Negative	Dr. Max L. Porter mporter@iastate.edu	Ballot 21-GR-135 refers to ASCE/SEI 7, but the Working draft lists ASCE/SEI 7 - 16; however, the ASCE/SEI 7-22 is now available and needs to be listed. If not, we have the potential of being 6-7 years out of date by the time our standard is printed before the next version is issued. Also, the next issued ICC/IBC is likely to include the ASCE/SEI 7 - 22. This negative ballot is proposing the ASCE/SEI 7 - 22 in place of ASCE/SEI 7 - 16 in the section where the standards years are listed.	
21-GR-160 #160	Affirmative	Ms. Heather A. Sustersic hsustersic@colbycoengineering.com		
	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com	Does the gross grout space need to be specified if the wall is constructed in half running bond? If half running bond is deemed to comply, then the note needs to be modified to indicate such. Also, how does the contractor show compliance with a specified minimum gross grout space? Does a section of wall need to be constructed and measured to show compliance?	
	Negative	Dr. Richard M. Bennett rmbennett@utk.edu	While I understand the possibility of the disconnect between the design and construction I am worried the proposed provision could create unneccessary problems between the contractor, designer, and inspector. For example, consider	

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			that block at https://images.thdstatic.com/productImages/05a3e7bc-9472-4299-b65d-e1df763e301b/svn/cinder-blocks-080000sash-64_600.jpg. This is a common block. I sash indentation and the accompanying protrusion of the web into the grout space reduces the gross grout space. Also having a double interior web to make a half block affects the gross grout space. Will this provision cause an inspector to reject this block? I believe we need to wait until next cycle to consider this and make sure we are not creating unintentional consequences.	
21-GR-169 #169	Affirmative	Ms. Heather A. Sustersic hsustersic@colbycoengineering.com	Editorial question - would "k" for this ballot become "l" if ballot item 21-GR-160 passes? This would make it the last requirement in the list, which seems appropriate.	
	Negative	Mr. Jason J. Thompson jthompson@ncma.org	I'm fine with the proposed revisions except for the last sentence in the new commentary language. If a contractor messes something up in the field, it doesn't invalidate the provisions of 402. I don't think anything is lost by simply omitting this last sentence.	
21-PR-005 #187	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com	The language in the commentary to TMS 402 section 10.2.2 implies the strength f'mi is always required prior to prestressing. If that is the case, verification of f'mi should always be required for all Quality Assurance Levels. If so, a new row needs to be added to Table 3: Minimum Verification Requirements with reference to article 1.4 B 1 for prism testing.	
21-PR-006 #188	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com	I agree with the comment from Biggs. There does not need to be any change to section 10.1.4. If it is left as is, there will not need to be changes as new member types are added to the chapter.	
21-RC-001	Negative	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	I find that Biggs is persuasive. The diagram, even the one modifies in Ballot Item 21-RC-002 is confusing.	

Item Number	Comment Type	Commenter	Comment	Comment File
#045				
21-RC-002 #045	Negative	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	The proposed change to the Figure CC-6.1-8 is incorrect because the effective depth is in a negative moment region for the continuous beam. As such, the compression face is at the bottom of the beam, and the effective depth â€œdâ€ is the one that is struck-through. The dimension shown in the red cloud is for positive moment regions. As a side comment, the biggest improvement that can be made to this figure is to orient the continuous beam horizontally and not vertically.	
		Dr. Richard M. Bennett rmbennett@utk.edu	I disagree with underlining centered, primarily because it raises the question of what else in the code should be underlined. I don't think we want to be in the situation of determining what should be underlined or not. I agree with all the other changes. My proposed resolution is to find me editorially persuasive, which allows this to move on and just deletes the underlining.	
21-RC-008 #095	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	I think that the proposed change make an optimistic statement even more optimistic. As a minimum I suggest that some mention be added that any future change would depend on test results indicating better performance of hooked bars in masonry than is implied in current TMS 402 provisions.	
21-RC-009 #086	Negative	Mr. David T. Biggs biggsconsulting@att.net	1. Maintaining grout cover for mechanical splices is unnecessary because grout bond is not required for the splice capacity. What is required is masonry clearance for corrosion in 3.4B 4 and that was addressed in 20-RC-015. 2. The phrase "and reinforcing bars in mechanical splices" is redundant with "reinforcing bars" earlier in the sentence. Suggestion:	

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			Return 3.4B 3. to its pre-20-RC-015 state whereby the grout cover is only for the bars.	
21-SL-001 #013	Abstain	Mr. David L. Pierson davep@arwengineers.com	I guess if this passes, the code is no worse that it was, so I'm not voting negative here. But, I find a couple of things difficult to understand. In the rationale, one sentence states "None of the IBC, ASCE 7, or TMS 402 prohibit non-participating elements from providing stiffness; there is not a contradiction between treating these elements as non-participating elements and recognizing the stiffness that they contribute". Yet our very definition of Non-Participating Elements states that they are "Not Part of the Seismic Force Resisting System". The way I read that, they cannot resist any Seismic Force except that created by their own mass. Hence, ALL of the Seismic Force must be resisted by Participating Elements. Even if you detail the "Non Participating" Columns to accomodate the deformation as eloquently described in the commentary for 7.3.1, you still cannot take any seismic loads into the Non Participating Elements when designing the Seismic Force Resisting Elements (walls). I may be crazy, but if something provides 20% of the stifffness along a line of resistance, I thought that meant it attracted 20% of the force. But if you can't design that 20% to resist any force, then the other parts (walls) must be designed for 100%. Which, as I understand it, means that the non-participating elements must be ignored when distributing the forces to the participating elements.	

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			Of course, all of this goes out the window if you invoke Section 1.3 and ASCE 7 Section 1.3.1.3. But that is the only time that it makes any sense to mention columns providing lateral stiffness. Since this should be passed on to the 2028 committee, here is my initial attempt at clarity of this section: 7.4.3.2.4 Lateral Stiffness - Unless the building code has a stricter requirement, along each line of lateral resistance at each story, not more than 20% of the lateral stiffness may be provided by masonry columns. Exception: Where seismic loads are determined based on a seismic response modification factor, R, not greater than 1.5, columns are permitted to contribute more than 20% of the lateral stiffness along any line of resistance and may be used to provide seismic load resistance.	
	Affirmative With Comment	Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com	This ballot improves the provision so I am voting for it, however I still think it would be better if the section were removed entirly, I disagree with johns response to my negative comment at the commitee level, The exception in the provison allows the use of columns so it does not "protect" against the use of only masonry columns in a larger buildings lateral system. I suggest that this section should be discussed further in the new cycle.	
21-SL-018 #116	Negative	Dr. Daniel P. Abrams d-abrams@illinois.edu	I am voting negative to find the negative voters (Bennett and Pierson) persuasive so that the subsequent ballot items 21-SL-018x can be addressed.	
		Dr. Richard M. Bennett rmbennett@utk.edu	Ballot 20-SL-018 proposed three changes. The first change was to not require hooks for shear reinforcement in ordinary and intermediate reinforced shear walls. I did not object to this change. The second change was to move the	

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			requirements for hooks for shear reinforcement in special reinforced shear walls from Chapter 6 to Chapter 7. I did not object to this change. The third change was to now require hooks for all horizontal reinforcement in special reinforced shear walls, including prescriptive horizontal reinforcement. This is the part I objected to. TMS Technical Committee Operations Manual Section 4.2.7.3 states that â€œThe Committee must state technical justification for finding the Negative non-persuasive.â€ I do not believe there was any technical justification provided in this ballot for the finding of my negative non-persuasive. There were four parts to my negative. The first part was simply a statement and does not need to be resolved. The other three parts provided technical reasons. The second part of the negative related to whether there was a statistically significant difference between 180, 90, and straight bars. Since there was only one test of each type, I will admit I donâ€™t know of a statistical test. However, I would note the following. The displacement ductilities at 1% drift (the limit of ASCE 7) were (3.4,3.4), (3.2,3.3), and (3.3,3.4), where the first number in the pair is for positive displacement and the second number in the pair is for negative displacement, and the order is 180 hooks, 90 hooks, and straight bars. The difference is small. There are greater differences at 80% of ultimate, with the results being (4.2,4.1), (3.9,4.0), and (3.6,3.8). Letâ€™s compare these results to the fourth wall that was tested by Seif ElDin, H.M., and Galal, K., the article referenced in the proposed commentary. The fourth test was a wall with 180 hooks but	

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			the shear reinforcement being 15M@800 instead of 10M@400, or approximately #5 at 32 inch and #3 at 16 inch. The article reported the same nominal shear capacity for both walls per the CSA standard. The displacement ductilities at 1% drift were again about the same (3.5,3.5). The displacement ductilities at 80% of ultimate for this wall were (3.4,3.1), or a much greater difference. We implicitly accept this difference in displacement ductility in the TMS 402 code, or we are saying there is not a enough difference to warrant a code provision; both are acceptable and code compliant. Whether 180 hooks, 90 hooks, or straight bars has less variability than other factors that are code compliant. The third part of the negative was based on the expected behavior as outlined in a TMS Responds article. No response was provided to this. Indeed the TMS Responds article was used in subsequent ballots as a justification for proposed changes. I donâ€™t see how this argument is both non-persuasive and also part of a rationale for a change at the same time. The last part of the negative was â€œWith the Rigid Wall, Flexible Diaphragm procedure introduced in ASCE/SEI 7, the walls are not relied upon for ductility. There does not seem to be a compelling reason to require hooked bars in this case.â€ This part of the negative was not addressed at all in the ballot item. A technical reason for requiring hooks when the structure is specifically designed so that the yielding and energy absorption will be in the diaphragm and not the wall was not provided.	

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			The only thing close to a technical reason for the negative not being persuasive is the statement â€œThereâ€™s broad consensus that there are scenarios where hooks at the ends of shear reinforcement are necessary and numerous research investigations have shown that these hooks increase system ductility and performance, especially in high demand assemblies such as special reinforced shear walls.â€ The real technical reason is the â€œnumerous research investigations have shown that these hooks increase system ductility and performance.â€ Remember that we are just talking about prescriptive reinforcement, or cases where there is adequate shear strength in just the masonry. We are also talking about research that specifically focuses on the benefit of hooks, or comparing hooks to straight bars. I am not arguing against the prescriptive horizontal reinforcement, just the hooks. Therefore the only relevant research is where hooks are being compared to nonhooks in walls where the shear demand is less than the masonry shear strength. I am unaware of any research on that, and certainly not numerous research investigations. I am aware of two research investigations on hooks vs nonhooks. Hoque (2013) stated in the conclusions: The tests showed no significant difference in strength due to changes in the bond beam anchorage type from straight to 180 degree hooks. This is most likely due to insufficient stress in the bar, stresses that do not exceed the bond strength between the grout and the reinforcement. Unless the stress in the bar exceeds the bond stress, the end anchorage is irrelevant. Future research must be carried out such that the full bond stress develops. One of the	

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			solutions may be to use a smaller size of reinforcement in the bond beams than used in this research. Another reason behind the fact that the full capacity of reinforcement with 180 degree did not develop may be due to the large bend diameter of the reinforcement required by the code. If it is possible to provide a smaller bend diameter without breaking the reinforcement while bending it, it would wrap around the vertical reinforcement more closely, theoretically providing better anchorage. The size of walls tested here are similar to the piers between openings where diagonal cracks in walls are typically visible as shown in Figure 2.1. It may simply be the case that in practice, for cases like this, the effect of the anchorage of the reinforcement is not at all an issue to be taken into account. Further study is required. Rizaee (2015) had the following conclusion: The results of this research and comparisons to past studies showed no beneficial effect of having 180Â° hooks at the ends of horizontal rebar over having it straight, having 90o hooks, or having studded ends. Therefore, there is no justification for complicating the construction by requiring 180o hooks. Having straight bars would simplify construction considerably, however, it is recommended to carry out further tests on walls with unanchored horizontal reinforcement before adopting this practice.	

Item Number	Comment Type	Commenter	Comment	Comment File
			When I asked about the numerous research investigations, I received the following reply from Jason. I have not received anything further. John's timeline fits in with my understanding of the genesis of all this. The download I received years back from the TCCMAR crew was essentially some panels were tested with hooks and the group gut-check was it seemed to be a good idea...not that they specifically tried to understand the differences in performance of hooks or no hooks. Benson also looked at how hooks performed in his shake table tests, but admittedly I don't come to quite the same conclusions he did...nor dude(sic) he do direct comparisons, but I'll dig that up as well. It appears that the statement that there were numerous research investigations that these hooks increase system ductility and performance is not a true statement. Perhaps hooks do increase system ductility and performance but we do not know, and in particular we do not know for prescriptively required reinforcement. The primary reason for finding the negative nonpersuasive seems to be that the negative is just not convenient. I offered a simple solution in the negative. The proper procedure would have been to find the negative persuasive (it obviously is based on subsequent ballots) and reballot the two major changes separately. Inconvenience or many	

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			permutations is not a technical reason to find a negative nonpersuasive. Why would I spend the time and effort and to fight this? That is a good question. But the primary reason is that this would increase the cost of construction in Knoxville and I am sure other places. We rarely if ever require shear reinforcement in shear walls. Thus, whether shear reinforcement needs to be hooked or not in shear walls is irrelevant to our construction. With an over 50% increase in seismic demand in Knoxville with ASCE 7-16, parts of Knoxville are now in SDC D. Thus horizontal reinforcement will be required where it was not previously. This ballot item would now require hooks on this prescriptive horizontal reinforcement further increasing the cost of masonry construction. Without a technical basis, I am opposed to increasing the cost of masonry construction and making masonry construction less competitive. I hope that others will also not support this increase in cost with no technical justification. I just want it clear that if the negative is found nonpersuasive the cost of masonry construction will increase in Knoxville.	
		Mr. David L. Pierson davep@arwengineers.com	I still feel very strongly about this. This is a penalty that will adversely affect masonry in the West. Tilt-up is already taking a pretty decent share of big-box - this will push more toward that. My prior negative is still valid. And Mr. Bennett has additional valid points in his negative as well. I certainly wish we had the chance to discuss this at a live meeting rather than simply within a ballot. I feel that trying to push a change of this magnitude through during the last days of a cycle due to a public comment is not a good approach.	

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		Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com	I stand on my sub vote rational, Dick and Daves negatives are valid and this proposal does not adaquatly address the their negatives	
21-SL-018.1 #116	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com	The provisions tying the threshold to MCEr are more similar to other code provisions for boundary elements and Appendix C, so it is the preferred limit.	
		Mr. Brian E. Trimble btrimble@imiweb.org	I believe either Option 1 or Option 2 to be appropriate, with Option 2 being my favored option.	
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com	I agree with the Lepage suggestion to reword with respect to "ductility".	
	Comment Non-Voting	Ms. Cortney Fried cfried@bia.org	Negative - agree with the original comments in 21-SL-018 Main	
	Negative	Dr. Andres Lepage alepage@ku.edu	I oppose using 15%. The use of two digits conveys accuracy not adequately supported in the Commentary or by the background of the proposed change.	
		Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	Requiring all prescriptive horizontal reinforcing bars to be hooked imposes an unnecessary and costly requirement to masonry shear wall construction. Hooks should be required only if shear demands on the shear wall are sufficiently high. Identifying the proper threshold for shear demand to require hooks has been particularly difficult for the Seismic Design and Limit States Subcommittee of TMS 402. Moreover, test data has not been provided which strongly suggests that all prescriptive horizontal reinforcing bars require hooked ends. But, in the interest of conservatism in design, a 40% threshold in shear strength demand seems the most reasonable option. Threshold values of 15% or 20% seems too low, and having no limit does not seem prudent.	
		Dr. Richard M. Bennett rmbennett@utk.edu	From a procedure viewpoint this ballot makes no sense. Ballot 21-SL-018 is to find a negative nonpersuasive that proposed this modification based on a TMS Responds article. This ballot item then proposes to make changes	

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			based on that same TMS Responds article. I do not see how a negative can be found nonpersuasive and then a few pages later on the same ballot the proposed change in the negative be balloted. This entire series of ballots is a total mess and does not follow our established procedures. The entire series of ballots should be just be withdrawn.	
		Mr. Charles B. Clark Jr. cclark@bia.org	Agree with assessment provided by Dick Bennett and Dave Pierson as presented in 21-SL-18 Main.	
		Mr. David L. Pierson davep@arwengineers.com	15% is WAY TOO LOW. Fvm is already penalized by 50% for Special Walls.	
		Mr. Jason J. Thompson jthompson@ncma.org	This is simply a placeholder negative to preclude a scenario where more than one sub-ballot receives no negative votes.	
		Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com	I am voting no for parts 1,2,and 3. They are too restrictive. an intermidiate reinforced wall would be able to be designed for higher forces even after the different R is considered	
21-SL-018.2 #116	Affirmative With Comment	Dr. Andres Lepage alepage@ku.edu	Commentary states that for demand-to-resistance less than 20% (related to shear strength), elastic response is expected. Note that shear demands can be low even if the wall is yielding in flexure. Walls designed with R=5.5 are not likely to respond elastically. Consider using "expected to <u>have limited ductility demands</u> ~~respond elastically~~ during a risk-..." The use of the word "ductility" also ties it nicely with the preceding sentence of the commentary.	
	Comment Non-Voting	Ms. Cortney Fried cfried@bia.org	Negative - agree with the original comments in 21-SL-018 Main	
	Negative	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	Requiring all prescriptive horizontal reinforcing bars to be hooked imposes an unnecessary and costly requirement to masonry shear wall construction. Hooks should be required	

Item Number	Comment Type	Commenter	Comment	Comment File
			only if shear demands on the shear wall are sufficiently high. Identifying the proper threshold for shear demand to require hooks has been particularly difficult for the Seismic Design and Limit States Subcommittee of TMS 402. Moreover, test data has not been provided which strongly suggests that all prescriptive horizontal reinforcing bars require hooked ends. But, in the interest of conservatism in design, a 40% threshold in shear strength demand seems the most reasonable option. Threshold values of 15% or 20% seems too low, and having no limit does not seem prudent.	
		Dr. Daniel P. Abrams d-abrams@illinois.edu	I am voting affirmative on ballot item 21-SL-018.1 and negative on the other options.	
		Dr. Richard M. Bennett rmbennett@utk.edu	From a procedure viewpoint this ballot makes no sense. Ballot 21-SL-018 is to find a negative nonpersuasive that proposed this modification based on a TMS Responds article. This ballot item then proposes to make changes based on that same TMS Responds article. I do not see how a negative can be found nonpersuasive and then a few pages later on the same ballot the proposed change in the negative be balloted. This entire series of ballots is a total mess and does not follow our established procedures. The entire series of ballots should be just be withdrawn.	
		Mr. Alan Robinson arobinson@trseinc.com	See comment for 21-SL-18.1.	
		Mr. Charles B. Clark Jr. cclark@bia.org	Agree with assessment provided by Dick Bennett and Dave Pierson as presented in 21-SL-18 Main.	
		Mr. David L. Pierson davep@arwengineers.com	20%? Still Too Low! The comments I am seeing for these options make it sound like reinforcing will lose essentially all of it's strength without the hooked ends. In other words, the rationale makes it sound like the wall will not get any help at all from the prescriptive reinforcing if it is not hooked at the ends. This seems wrong to me. For the majority of walls,	

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			losing a hook at the ends might mean 5%" to 10% of the length will be "undeveloped", with the remaining length of the wall having fully developed shear reinforcing. So arguments that we need to be so low (again, remembering there is a 50% penalty on Fvm already) don't quite cut it for me.	
		Mr. Edwin T. Huston huston@smithhustoninc.com	Sub ballot part 1 provisions bring provide limits to ensure continued ductility. The other sub ballots do not, in my opinion, provide sufficient limits to ensure the wall will behave as anticipated during very large events.	
		Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com	This is too restrictive	
21-SL-018.3 #116	Affirmative With Comment	Dr. Andres Lepage alepage@ku.edu	For a wall yielding in flexure, the Commentary is incorrect stating that the effective R value is approximately 2. Consider keeping it simple: When the demand-to-resistance ratio is less than 40%, inelastic response is generally expected with <u>limited ductility demands.</u>~~, but coupled with the shear capacity check required for special reinforced shear walls, the effective R value for these systems is approximately 2 where the benefit of prescriptive hooks for shear reinforcement is marginal (Hochwalt (2018))~~.	
		Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	Requiring all prescriptive horizontal reinforcing bars to be hooked imposes an unnecessary and costly requirement to masonry shear wall construction. Hooks should be required only if shear demands on the shear wall are sufficiently high. Identifying the proper threshold for shear demand to require hooks has been particularly difficult for the Seismic Design and Limit States Subcommittee of TMS 402. Moreover, test data has not been provided which <u>strongly</u> suggests that all	

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			prescriptive horizontal reinforcing bars require hooked ends. But, in the interest of conservatism in design, a 40% threshold in shear strength demand seems the most reasonable option. Threshold values of 15% or 20% seems too low, and having no limit does not seem prudent.	
		Dr. Richard M. Bennett rmbennett@utk.edu	From a procedure viewpoint this ballot makes no sense. Ballot 21-SL-018 is to find a negative nonpersuasive that proposed this modification based on a TMS Responds article. This ballot item then proposes to make changes based on that same TMS Responds article. I do not see how a negative can be found nonpersuasive and then a few pages later on the same ballot the proposed change in the negative be balloted. This entire series of ballots is a total mess and does not follow our established procedures. The entire series of ballots should be just be withdrawn. I will reluctantly vote affirmative for this. It is unfortunate that the logical solution of not requiring hooks for prescriptive reinforcement was not a part of this series of ballots.	
	Comment Non-Voting	Ms. Cortney Fried cfried@bia.org	AWC - agree with the original comments in 21-SL-018 Main, but this could be a reasonable option since it is consistent with the content of the TMS Responds article.	
	Negative	Dr. Daniel P. Abrams d-abrams@illinois.edu	I am voting affirmative on ballot item 21-SL-018.1 and negative on the other options.	
		Mr. Alan Robinson arobinson@trseinc.com	See comment for 21-SL-18.1.	
		Mr. Brian E. Trimble btrimble@imiweb.org	I believe Option #2 should be used.	
		Mr. Charles B. Clark Jr. cclark@bia.org	Agree with assessment provided by Dick Bennett and Dave Pierson as presented in 21-SL-18 Main.	

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		Mr. David L. Pierson davep@arwengineers.com	40%. This one is closer, maybe, but still too low. With R = 5 for special reinforced shear walls in a bearing wall system, and then the shear capacity provisions punishing that by 2, you get an effective R = 5/(2) = 2.5. (Building Frame Systems get R=5.5, so 5.5/(2) = 2.75 effective R. Ironically, just a few ballot items previous to this (Item 21-SL-001) we essentially affirmed that if an R=1.5 is used, Columns can be used to resist lateral load, presumably on the assumption that such a system will essentially remain elastic. (The rationale for that ballot states that at R = 1.5, performance is "essentially elastic"). Even if we are trying to get to an effective R of 1.5, we only need to go down to 60% for this limit (1.5/2.5). And again, let's not forget. Most of the length of the wall is not compromised by the lack of a hook at the end. Most Special Walls that do not need shear reinforcing but only need prescriptive reinforcing are long - if they were not long, they would need shear reinforcing, which reinforcing would be hooked.	
		Mr. Edwin T. Huston huston@smithhustoninc.com	Sub ballot part 1 provisions bring provide limits to ensure continued ductility. The other sub ballots do not, in my opinion, provide sufficient limits to ensure the wall will behave as anticipated during very large events.	
		Mr. Matthew D. Jackson mjackson@mjstructuralengineers.com	This is too restrictive	
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com	I agree with the Shing negative.	
21-SL-018.4 #116	Affirmative With Comment	Mr. David L. Pierson davep@arwengineers.com	Hoping beyond hope that if 21-SL-18 passes, that this one also passes.	

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	Negative	Dr. Andres Lepage alepage@ku.edu	Before voting Affirmative in Part 4, I would like to see supporting documentation showing that the use of hooks is not associated with improved behavior of yielding walls.	
		Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	Requiring all prescriptive horizontal reinforcing bars to be hooked imposes an unnecessary and costly requirement to masonry shear wall construction. Hooks should be required only if shear demands on the shear wall are sufficiently high. Identifying the proper threshold for shear demand to require hooks has been particularly difficult for the Seismic Design and Limit States Subcommittee of TMS 402. Moreover, test data has not been provided which strongly suggests that all prescriptive horizontal reinforcing bars require hooked ends. But, in the interest of conservatism in design, a 40% threshold in shear strength demand seems the most reasonable option. Threshold values of 15% or 20% seems too low, and having no limit does not seem prudent.	
		Dr. Daniel P. Abrams d-abrams@illinois.edu	I am voting affirmative on ballot item 21-SL-018.1 and negative on the other options.	
		Mr. Alan Robinson arobinson@trseinc.com	See comment for 21-SL-18.1.	
		Mr. Brian E. Trimble btrimble@imiweb.org	I believe Option #2 should be used.	
		Mr. Edwin T. Huston huston@smithhustoninc.com	Sub ballot part 1 provisions bring provide limits to ensure continued ductility. The other sub ballots do not, in my opinion, provide sufficient limits to ensure the wall will behave as anticipated during very large events.	
		Mr. John M. Hochwalt johnh@kpff.com	This does not provide a sufficient level of safety for larger than expecetd seismic events.	
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com	I agree with the Shing negative.	

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21-SL-023 #147	Abstain	Mr. David L. Pierson davep@arwengineers.com	Though I think the provision is not required, and voted negative on the previous version of this, if the Seismic Subcommittee thinks it is required, and if the Main Committee thinks it is required, I will not derail this.	
21-SL-024 #137	Abstain	Mr. David L. Pierson davep@arwengineers.com	Wow. Okay, well I have watched this issue of foundation dowels be debated, balloted, and discussed for what now feels like forever. And how it has morphed, and morphed.... And I have voted my share of negatives on this.... On this issue, I am now throwing up my hands and walking away. If the committee feels this is the way to go, then I will no longer be a stumbling block. However, as I leave the battlefield, hear my final words spoken into the wind over my left shoulder. 1- Thinking in terms of out-of-plane loads, and the genesis of this issue (which was internal bracing for walls under construction), now we are requiring (in SDC D+) that the dowels match the size and spacing of wall reinforcing. This will result in many cases that the footings must be thicker than typically required, especially if the plan reviewer reads the commentary and tells the engineer these must be developed for fy. And the benefit, I fear, is often not what you think. Many footings supporting tall masonry walls just are not that wide. So the moment that you can develop at the base of the masonry should be (and in times past was) limited to what the foundation can develop (before it rotates and twists right out of the ground). This moment may be much less than the strength of the wall reinforcing. So, we should allow smaller dowels (which would allow shorter	

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			development lengths into the footings, keeping the footings reasonably thin). Especially if the design assumes a pinned base at the top of the footing.	
	Affirmative With Comment	Dr. Richard M. Bennett rmbennett@utk.edu	Editorially change ASCE 7 to ASCE/SEI 7. Extra dowels provided by a contractor could also affect the maximum reinforcement provisions of 9.3.5.6.1. Something to add to the commentary next cycle.	
		Mr. Brian E. Trimble btrimble@imiweb.org	While I agree with the change, moving the requirements into the seismic chapter eliminates any discussion of dowels that are used in storm shelters which require continuity between the foundation and masonry wall. As new business, consider adding some language to an approprite location that would address this. In addition, although this code doesn't address contruction site safety, many of the code provisions are used to determine the approprite construction loads especially when considering internal bracing of walls during construciton. Commentary on this would also be advantgeous.	
		Ms. Jamie L. Davis jdavis@ryanbiggs.com	yowzer - Part (c) is a mouthful.How about just saying #4 @ 48 is the minimum dowel requirement?	
	Negative	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	I think that this ballot is premature and the topic of foundation dowels requires a more sustained effort, probably including a Task Group that will consider all issues and points of view. McGinely, Pierson and Biggs prsent a number of relevant issues that require more careful consideration. Setting aside some time in one of the early TMS 402 meetings next cycle to hold a "workshop" is advisable.	
		Ms. Heather A. Sustersic hsustersic@colbycoengineering.com	Wow, addressing this comment has really snowballed. My initial impression is that the new provisions are extensive and complex as to be overwhelming to designers, difficult to	

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			interpret, and difficult to enforce. Specifically, the SDC A provisions seem overly complicated. **Code 7.4.1.2.1 c. in SDC A** Why are we including the weight of the foundation in the minimum tensile reinforcement calculation? The referenced IBC section 1616.3.2.4 requires that vertical ties in a bearing wall develop a minimum nominal tensile strength "equal to the weight of the wall within that story plus the weight of the diaphragm tributary to the wall in the story below." Ostensibly, said diaphragm is spanning to (and gravity-supported by) the bearing wall making the IBC vertical tie provision related to a load that the wall is supporting. The foundation below a wall is not supported by the wall above and often the slab at the foundation level is ground-supported. I don't see the merit of requiring the weight of the foundation (which could be significant for reasons unrelated to the CMU load/force demand) to be considered in the dowel calculations. For SDC A, consider instead something like this: *(c) For walls, sufficient area to develop a minimum nominal tension strength as prescribed by the legally adopted building code that need not exceed 3,000 pounds per foot of wall tributary to the reinforcement. For allowable stress design, the nominal tension strength values provided above are permitted to be divided by 1.9 for comparison to the allowable tension stress in the reinforcement.* The following paragraph appears to be part of requirement c, but I think the intent is for it to apply to all options, a, b and	

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			c. Therefore, insert this paragraph between "...vertical reinforcement." and "The provided area..." *The reinforcement shall be anchored into the foundation. Where dowels are provided, the dowels shall be spliced with the vertical reinforcement in the masonry element. Where the dowels are a smaller size than the vertical reinforcement, the splice requirements may be determined based on the size of the dowel.* **Code 7.4.4.2.1 SDC D** Does the exception mean that I do not have to also meet 7.4.1.2.1c in an SDC D wall? **Commentary to 7.4.4.2.1 c** Is the #4@48 bar applicable for both ASD and SD design approaches? I suggest moving the last sentence in this paragraph to be the 2nd sentence with the "Since no phi..." following it. If #4@48" o.c. satisfies the requirement, best to put this near the top of the paragraph to save designers time.	
21-SM-PC26 #026	Affirmative With Comment	Dr. Richard M. Bennett rmbennett@utk.edu	Very minor: we usually do not put a period at the end of a figure title.	
	Negative	Mr. John M. Hochwalt johnh@kpff.com	The line of commentary proposed to be deleted was added relatively recently, in the 2013 code, when it was inserted into the existing commentary. I am reluctant to delete this without our having attempted to determine the original intent of inserting this commentary. I also have concerns about the propose figure. While the figure helps to clarify which wythe is intended to take the vertical load, the depiction of the rotation at the support may	

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			lead some users astray. It suggests that user may need to design the wythe assuming that the reacton occurs at the face of the masonry, whereas I beieve that the user can assume the reaction is centered on the supporting wythe. As new business next cycle, the code provision associated with this commentary should be clarified. Specifically, in item (b) it is unclear why the load bearing on one wythe would general weak axis bending, given that the wythes are non-composite.	
21-SM-PC27 #027	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com	It might be clearer if the statement "when shear reinforcement is required" is better defined. The code could indicate "when shear reinforcement is required per section 8.3.5.2, 9.3.3.2.3 or 11.3.4.2.3." or similar language.	
21-SM-PC34 #034	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com	Should the reference in section 5.1.1.1.1 be to both 5.1.1.1.5(b) and 5.1.1.1.5(c) or just 5.1.1.1.5(c) as shown?	
		Mr. John M. Hochwalt johnh@kpff.com	The provisions for wall intersections next cycle need to be revised to address the relationship between 5.1.1.1.4 and 5.1.1.1.5. Specific issues to address include the following: • 5.1.1.1.5 (a): For unreinforced masonry, presumably this qualifies the interface to be evaluated as running bond for determining compliance with 5.1.1.1.4. For reinforced masonry, shear strength is independent of bond pattern so this would be a minimum prescriptive detail that would not affect compliance with 5.1.1.1.4. • 5.1.1.1.5 (b): There is no means of determining the contribution of the straps to compliance with 5.1.1.1.4; this is only a minimum prescriptive detail.	

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			• 5.1.1.1.5 (c): Presumably this means that the wall would be at least partially grouted which could affect compliance with 5.1.1.1.4. The reinforcing in the bond beam would not affect compliance with 5.1.1.1.4 as it is ignored for unreinforced masonry design or is perpendicular to the shear force for reinforced masonry design. It seems odd that some of the prescriptive detailing requirements affect compliance with 5.1.1.1.4 and some do not. In addition it seems odd that the allowable loads / design capacities at the interface are required to be determined using the beam shear provisions, rather than the shear friction provisions which are intended for the evaluation of interfaces.	
21-VG-014-015 #-014, 015	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	The adjective "conservative" in the proposed addition "Table 13.3.2.5 assumes a conservative specific gravity value of 0.40 for the wood light frame backing and no strength adjustments for loading duration, wet service conditions, or extreme temperatures" should be dropped. It is assumed here that "no strength adjustments" means adjustment factors equal to unity. In such case, the assumed specific gravity and the loading duration factor are conservative, but not the assumed wet service condition or extreme temperature condition factors as those are less than unity for less favorable conditions.	
	Negative	Mr. David T. Biggs biggsconsulting@att.net	I agree with the PC. Wood values have no place in the masonry standard. The rationale states that "Directing users to the NDS would be of little help as the NDS does not contain the appropriate design properties." Then the response explains how the	

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			values are acceptable because they were derived using the Wood Handbook. However, the proposed Commentary states "Table 13.3.2.5 assumes a conservative specific gravity value of 0.40 for the wood light frame backing and **no strength adjustments for loading duration, wet service conditions, or extreme temperatures."** This all seems like a recipe for failure. There are no adjustments and no reference to NDS reduction factors. The Wood Handbook states "The withdrawal resistance for nails driven into wood that is subjected to changes in moisture content may be as low as 25% of the values for nails tested soon after driving. On the other hand, if the wood fibers deteriorate or the nail corrodes under some conditions of moisture variation and time, withdrawal resistance is erratic; resistance may be regained or even increased over the immediate withdrawal resistance. However, such sustained performance should not be relied on in the design of a nailed joint." I disagree with the rationale that just because we require a weather protection that the wood can be treated as a dry condition. "Section 13.1.2.1 requires all masonry veneers to comply with the weather protection requirements of the adopted building code. Doing so would preclude the use of wood frame construction subjected to wet service conditions. The commenter is correct that wet service conditions would reduce the fastener strength in wood construction, but if all the requirements of Chapter 13 are met, these conditions would be avoided. This is a reasonable assumption as opposed to taking worse-case conditions	

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			across the board effectively dropping the fastener strength to zero. " There is no control over the wetness of the wood by the mason. Wood framing can arrive wet and be rained/snowed on prior to the masons arriving. Putting weather protection over wet wood is a bit late. My suggestion: 1. Remove the values from 402 and refer to NDS and the Wood Handbook. 2. In commentary, discuss and list the critical requirements...ie wet conditions, partial embedment, etc. 3. Work with TMS to produce a tabulated values where the calculations can be made transparent. Then they can be peer reviewed as well. Calculations for assumptions like wet vs dry conditions can be compared. Partial embedment of the fasteners calculations or tests can be shown for withdrawal plus lateral load. Approving this ballot is asking the designer to trust the masonry industry for wood values!	
		Mr. Thomas A. Gangel tag@wallacesc.com	I am voting negative on this item for 3 reasons: 1.) The tabulated values for nail attachment do not include reductions for withdrawal loads in wet service conditions as per the current NDS code. Refer to the Cm, wet service	

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			factors for connections in the NDS. The reduction factor Cm, for nails in withdrawal can range from 1.0 to 0.25. This is a significant reduction. The 0.25 reduction factor is applicable in two conditions. The first condition is where the wood moisture content at fabrication is > 19% and changes to â‰¤ 19% at the time of installation and during service. Imagine a large podium type apartment project, 4 stories high, in Arizona with brick veneer. These type of projects are becoming quite commone everywhere in the United States. The wood arrives in the middle of the summer at 19% MC, but by time the faming is complete, veneer installed and the interior space is conditioned, the wood has been exposed for 6 months to exterior dry conditions and the MC has dropped below 19%. The withdrawal value would now be only 25% of that lised in the TMS table. The second reduction condition is when MC is â‰¤ 19% at fabrication and at installation and service the MC changes to > 19%. This is also a condition that could occur in may areas if lumber has be staged on a site outdoors. In Lousiana, lumber can sit outdoors in the heat durring the summer and dry out and then reabsorb moisture during the fall when storms are more prevalent. What the code is trying to account for is the volume change of wood due to moisture content change. The swelling or shrinking of wood, both have a detremental effect on nail withdrawal. 2.). My second reason for voting negative is that the attachment values of connectors in wood or steel has nothing to do with masonry. The TMS document is an authoritative document, qualified to offer guidance for attachments into masonry, grout or mortar. It is also qualified to offer guideance on the attrachment item itself	

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			such as a tie. The capacity values of these connectors themselves and their embedment into masonry, grout or mortar can be supported by direct calculations that have been vetted and verified by testing that specifically pertained to masonry, grout or mortar. TMS has no authority to offer guidance for connector capacities in steel or wood . Creating and publishing code capacity values for a system that uses embedment or attachment in two materials, such as masonry and then wood or steel, that have been determined using multiple material standards, but not verified by testing, and absent the vetting of the testing, is beyond the scope and authority of this masonry buiulding code. 3.) Finally, I would also go as far as to say that those who have calculated these values and published them, are by statute in most states, practicing "engineering" becasue the guidance is for a system of attachment that includes multiple materials such as masonry, a wire tie and another material like wood or steel. The authors are not in a position to meet the statutes of "responsible charge" whereby they have first hand and direct control of the proper application of these values, such as ensuring whether or not the wet service reduction factor were properly applied. I feel that these tables could be put in the commentary with statements that qualify their use. A better solution would be for TMS to create a more broad technical document, not code, that includes values for multible systems, not just ties attached to steel or wood.	
21-VG-041-	Affirmative With	Mr. Alan Robinson arobinson@trseinc.com	The arrow for "Continuous Insulation" in the new figure on the right side appears to be misplaced.	

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042-184 #041, 042, 184	Comment	Mr. Jason J. Thompson jthompson@ncma.org	The call outs and dimensions seem to shift ever slightly each time I see the commentary figure. Not sure how the figure was generated, but should verify things are properly aligned prior to publication.	
		Mr. John M. Hochwalt johnh@kpff.com	The figure needs some editorial clean-up. For example, the leader to the continuous insulation in the right hand figure appears to terminate at the cement backer unit. It would also be hepful to have a title under the left and right figures to explain what they are, so that the user doesn't have to compare the figures side-by-side to figure what the differences are.	
	Comment Non-Voting	Ms. Cortney Fried cfried@bia.org	Propose minor corrections to the right side of the figure--hopefully, they would be considered editorial: Leader for continuous insulation does not point to the insulation--currently ends at the cement backer unit. Line depicting the edge of the stud is not visible--lineweight issue?	
21-VG-056A-067A #056, 067	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	I do not disagree with the proposed change, but the response does not address directly the substance of the two Public Comments, and the proposed change has little, if anything, to do with them either.	
21-VG-065B #065	Affirmative With Comment	Dr. Richard M. Bennett rmbennett@utk.edu	The 11-05-2021 working draft has the backing type of Cold-formed Metal Framing in Table 13.2.2.3. I am not sure how to evaluate the change of: Cold-formed <u>Steel</u> Light ~~Steel~~ Frame. Hopefully this can be ignored since it is a change to something that does not exist in the working draft.	

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21-VG-103B #103	Affirmative With Comment	Mr. Alan Robinson arobinson@trseinc.com	Suggest specifying the reinforcement in 602 article 3.4 B. 11. as "wire reinforcement" to distinguish the reinforcement in this section from "bar reinforcement." This would occur in: Specifications: 11.a "Place wire reinforcementâ€¦" 11.c "Provide continuity of wire reinforcementâ€¦" and "...fabricating wire reinforcementâ€¦" 11.d "...ends of wire reinforcement..." Specifications Commentary: 11.a "...cover for the wire reinforcement..." 11.c "Continuity of wire reinforcementâ€¦" and "Alternatively, wire reinforcementâ€¦" 11.d "..occur in wire reinforcement..."	
21-VG-112-186 #112, 186	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	The response should be limited to "These assumptions are stated in the commentary to 13.3.2.5 (e)." What was or was not used in other TMS 406/602 tables is not relevant here. If any additional information on Table 13.3.2.5 can be provided here, that would be useful.	
	Negative	Mr. David T. Biggs biggsconsulting@att.net	I agree with the comments.	

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		Mr. John M. Hochwalt johnh@kpff.com	This should be responded to as "committee is unable to fully develop a response to punblic comment" and carried over to next cycle. This distinction I would draw between Table 13.3.2.5 and the examples referenced in the response are: • Underlying assumptions in Table 13.3.2.5 are not related to masonry materials, the area of the committee's primary expertise. • I assume that TMS 402 Table 8.2.4.2 and TMS 602 Table 2 are applicable with minimally compliant materials - i.e. a unit that has a minimally compliant IRA would still achieve the allowable flexural strength per Table 8.2.4.2. I don't believe that is true for Table 13.3.2.5 - there are minimally compliant materials for which Table 13.3.2.5 would not achieve the design intent.	•
21-VG-129-4 #129	Affirmative With Comment	Mr. James A. Farny jfarny@cement.org	Since you are removing the terms "jointing mortar" and "pointing mortar", suggest that the section title of 13.3.2.3 "Scratch coat, setting bed, and jointing mortar requirements" be changed as well to remove that term. Suggest "Mortar requirements for scratch coat, setting bed, and joints between units"	
21-VG-129-6 #129	Negative	Mr. Jason J. Thompson jthompson@ncma.org	The deflection limits of 13.3.1.2 aren't intended to preclude the testing of properties such as MOR. Say one wanted to use a unit material not permitted under the prescriptive option that had a size much greater than that permitted by the prescriptive limits. One could meet the deflection limits of 13.3.1.2 and still cause the unit to crack in service. I think the entire commentary sentence being proposed for modification could be deleted, but would prefer to keep it as-	

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			is over its modified form as the latter is more misleading to the user. What tests are necessary can/will vary depending on the application. Additional guidance can be developed, but given its breadth, should be tackled as new business next cycle.	
21-VG-144-148 #144, 148	Affirmative With Comment	Mr. James A. Farny jfarny@cement.org	Given the concerns of the negative voters, would it be appropriate to add some more QA language to the commentary for guidance? That would not change the requirements but could be beneficial for designers to call attention to the extra QA they might want to consider.	
		Ms. Jamie L. Davis jdavis@ryanbiggs.com	Having a field test procedure is a great improvement but do the test results from the field test compare apples to apples to the specified 50 psi value?	
	Negative	Mr. John M. Hochwalt johnh@kpff.com	This should be responded to as "committee is unable to fully develop a response to punblic comment" and carried over to next cycle. We have increased the permitted weight of adhered units from 15 psf to 30 psf. While an historical assumption of 50 psi may heve produced acceptable performance for lighter units, that may not be the case for heavier untits. I also agree withbthe commenter that inspection requirements of both adhered and anchored veneers should be revisited. At a minimum, engineered veneer designs should be treated lie other engineered "Part 3" designs and isnpected accordingly.	
21-VG-153-218 #153, 218	Affirmative With Comment	Mr. John M. Hochwalt johnh@kpff.com	If we were at a different point in the cycle, I would have voted negatively on this ballot because it opens more new issues than it resolves. However, the one issue it addresses - the use of dimension stone in veneers - is a very important one, and I believe that the risk of life safety issues due to the open issues this ballot creates is low.	

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			The fiollowing comments are offered for consideration in the next code cycle: Section 4.2.3 In the commentary to Section 4.2.3, a reference for the thermal expansion coefficients of dimension stone should be provided. Section 13.2.2.3 The commentary statement "Due to empirical results and industry recommendations, dimension stone veneer height limitations should not exceed the limits stated" should be expanded upon. If there are empirical results, they should be listed. If there are relevant industry standards, they should be cited. As it is, it is completely unclear what the basis of the 30 foot limit is, so a user wanting to use the engineered methods to assess the safety and performance of taller veneers won't actually how they should treat dimension stone differently when applying the engineered methods. If there are engineering differences in dimension stone that led to the 30' limit, it is unclear whether either of the engineered methods will be able to capture the behavior(s) of concern. In particular, the tributary area method does not consider the properties of the veneer, so it would be unaffected by the characterization of the veneer. Section 13.2.2.2	

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			The 16" unit height seems reasonable, but results in bed joints that are spaced further apart than I believe was assumed in the analytical work that supports the tributary area method. I don't expect this to make a big difference, but it should be looked into. Section 13.2.3 The inclusion of dimension stone brought to mind that there are veneers constructed with other than horizontal bed joints - what I have heard referred to as "rubble" or, in an Hawaiian context, "moss rock." This leads to two observations. First, part of the reason that cracking of veneer is acceptable under services level loading is that it is assumed that the resulting cracks will be aesthetically unobjectionable. In the absence of horizontal bed joints, the potential of through unit cracking increases which may not be aesthetically acceptable. I understand that this not a safety issue and therefore does not need to prevented by the code, but is something that the user should be alerted to. Second, one of the assumptions made in the development of the tributary area method was that there would be horizontal bed joints in the veneer that acted as planes of weakness where cracks could occur. The cracks in the bed joints allow the deformations of the veneer to more closely match those of the backing which has the effect of reducing the tie forces. Veneers which do not have horizontal bed joints may not crack and may instead tend to span the height of the backing and predominantly load the top and bottom ties. If the veneer behaved that way, the tributary area for	

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			the tie design would tend towards the height of the backing, divided by two, and then multiplied by the horizontal tie spacing, and not the areas presented in 13.2.3.2.	
21-VG-154-213 #154, 213	Affirmative With Comment	Mr. John M. Hochwalt johnh@kpff.com	It would have been better to have responded "only requires a response" because both commenters are just asking to better understand the background for the code changes. In addition, our response doesn't address the question about in-plane behavior of the veneer in comment 213. The commenter's concern is partaially addressed by the commentary to 13.1.2.2 which discusses strategies for isolating veneers from building movements. This does not, however, address inertial forces within the veneer, which could result in horizontal forces on the veneer in excess of gravity. Perhaps we should limit the prescriptive provisions to applications where the seismic forces in the veneer do not exceed gravity. More generally, increasing attention is being focused on the in-plane bahvior of veneers. While the in-plane performance of veneers in seismic events has generally been good, there are valid questions being asked about load paths, whether allowing sliding of the veneer on the support is permissible, and whether friction can be relied upon to transfer in-plane forces at the base of the veneer. In thinking about the in-plane bahavior of veneers, we need to bear in mind that there are both conditions where there are solid panels of veneer which will tend to slide, but there	

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			are also conditions where there are narrow piers of veneer which will tend to rock. The in-plane behavior of veneers deserves further attention next code cycle.	
21-VG-156-157 #156, 157	Negative	Mr. John M. Hochwalt johnh@kpff.com	It does not appear that we have addressed comment #157. I will be willing to withdraw this negative vote if some other means of addressing comment #157 is provided. I understand that our only option at this point would be to acknoweldge that we have been unable to fully develop a response to that comment. It will be interesting to see what users do with the exception. Based on the usual tie spacings, veneers are typically a two-way system. As a practical matter, however, most veneers are highly anisotropic. The veneer has a lot of strength and stiffness in the horizontal direction such that even with the engineered methods, the veneer is considered to have adequate capacity in the horizontal direction without doing engineering. The strength and stiffness in the vertical diurection is typically much less and this is assumed to be the critical direction for behavior and design. Most veneers cannot be reinforced in the vertical direction, so the veneer will need to designed as unreinforced / uncracked in the vertical direction. However, with the passage of 19-SL-03, it is required to provide the minimum prescriptive reinforcement in the direction of the span. Will it be code compliant to only reinforce the veneer in the horizontal direction? Should it be? It should also be noted that we are not precluding the possibilty of there being permanent gravity loads in the	

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			veneer ties as I had recommended in my negative votes on previous ballots related to this provision. The proposed tie testing criteria in Section 13.2.3.1.2 would not be sufficient to assess tie performance under sustained gravity load, especially if the ties contain components such as plastics that are subject to creep. I would also note that while for tie design extra flexibility is good as it tends to lower the tie forces, it may have unintended consequences under permanent gravity loads. Sources of extra flexibility that have been discussed previously include free play in the tie and local deformations in the backing (e.g. bendng of the flange of CFMF). We have also not considered the effects of the added mass on the in-plane behavior of the veneer. If, for example, this provision is used to justify the attachment of a canopy to narrow vertical masonry piers, the added mass may be a significant increase to the pier mass where the load path is already uncertain as discussed on ballot 21-VG-154-213.	
21-VG-220B #220	Affirmative With Comment	Dr. Arturo Ernest Schultz arturo.schultz@utsa.edu	I agree with the intent of the proposed changes, but the Code and Commentary changes seem to be in conflict. I suggest that the Code change be modified as follows: "Exterior adhered veneer wall systems shall be designed and detailed to resist water penetration through the building envelope."	
		Ms. Jamie L. Davis jdavis@ryanbiggs.com	I think this definitely warrants further thought. The only adherred veneer projects I've been involved with have been forensic studies of their failures. We won't design them on any of our projects. In our northeast climate I think they are all eventually doomed to failure from freeze-thaw issues.	

TMS Antitrust Statement

The antitrust laws are the rules under which the United States competitive economic system operates. Their primary purpose is to preserve and promote free competition. It is The Masonry Society's policy to strictly comply in all respects with the antitrust laws.

Society meetings, association events and workshops by their very nature bring competitors together. Accordingly, it is absolutely necessary to avoid discussions of legally sensitive topics and especially important to avoid recommendations with respect to these sensitive subjects. Agreements to fix prices, allocate mark1e25ts or customers, engage in product boycotts and to refuse to deal with third parties are automatically or per se illegal under the antitrust laws. It doesn't matter what the reason for the agreement.

Accordingly, at any Society meeting, discussions of prices, including elements of prices such as allowances and credit terms, quality ratings of suppliers, and discussions which may cause a competitor to cease purchasing from a particular supplier, or selling to a particular customer, must be avoided. Also, there may not be any discussion that might be interpreted as a dividing up of territories or customers.

An antitrust violation does not require proof of a formal agreement. A discussion of a sensitive topic, such as prices, followed by parallel action by those involved in or present at the discussion is enough to show a price fixing conspiracy. As a result, those attending Society-sponsored meetings must remember the importance of avoiding not only unlawful activities, but even the appearance of unlawful activity.

As a practical matter, violations of these rules can have serious consequences for a company and its employees. The Sherman Antitrust Act is both a civil and criminal statute. Violations are felonies punishable by penalties of up to $10 million for corporations and by imprisonment of up to three years or penalties of up to $100,000, or both, for individuals. The Justice Department, state attorney general, and any person or company injured by a violation of the antitrust laws may bring civil actions for three times the amount of the damages, plus attorneys' fees and injunctive relief.

Antitrust investigations and litigation are lengthy, complex, disruptive and expensive. Therefore, all companies and their employees must not only comply with the antitrust laws in fact, but must conduct themselves in a manner that avoids even the slightest suspicion that the law is being violated. Associations, because they bring competitors together, are natural targets, along with members alleged to have participated with or through the association.

The following is a list of topics that must never be the subject of any type of agreement among competitors, whether explicit or implicit, formal or informal. Such topics should NEVER be discussed at TMS meetings. This list is not exhaustive of prohibited topics or subjects. Please consult legal counsel in the event of any confusion or question over whether a topic is permissible or appropriate for discussion among Society members:

a. Prices to be charged to clients, customers or by suppliers;
b. Specific methods by which prices are determined, with directions as to "how to do it" or even less;
c. Division or allocation of markets or customers;
d. Coordination of bids or requests for bids;
e. Terms and conditions of sales, including credit or discount terms;
f. Terms for distribution of products;
g. Targets for production of products or the level of production;
h. Specific profit levels;
i.Exchange of price information as to specific customers;
j.A boycott of or a refusal to deal with a customer or supplier;
k. Compilation of "approved" lists of customers or suppliers.
l."Profit" levels...i.e., "here's what our members need to do to make money."
m. Whether a company's pricing practices are "unethical," "improper," etc.
n. Coordination of "bids" or "requests for bids" or requests for proposals ("RFPs").
o. Standards or codes to eliminate competition.

When in doubt about discussing any topic, consult with your own legal counsel, or with the Society's legal counsel, to be sure you are on safe antitrust ground. When unsure, play it safe and avoid the topic.

Conflict of Interest Considerations:

- placing (or the appearance of placing) one's own self-interest or any third-party interest above that of the

Society; while the receipt of incidental personal or third-party benefit may necessarily flow from certain Society activities, such benefit must be merely incidental to the primary benefit to the Society and its purposes;

- abusing their Board membership by improperly using their Board membership or the Society's staff, services, equipment, resources, or property for their personal or third-party gain or pleasure, or representing to third parties that their authority as a Board member extends any further than that which it actually extends;
- engaging in any outside business, professional or other activities that would directly or indirectly materially adversely affect the Society;
- engaging in or facilitate any discriminatory or harassing behavior directed toward Society staff, members, officers, directors, meeting attendees, exhibitors, advertisers, sponsors, suppliers, contractors, or others in the context of activities relating to the Society;
- soliciting or accepting gifts, gratuities, free trips, honoraria, personal property, or any other item of value from any person or entity as a direct or indirect inducement to provide special treatment to such donor with respect to matters pertaining to the Society without fully disclosing such items to the Board of Directors; and
- providing goods or services to the Society as a paid vendor to the Society only after full disclosure to, and advance approval by, the Board, and pursuant to any related procedures adopted by the Board.