

COMMITTEE ON MATERIALS AND PAVEMENTS

2018 Mid-Year Web Meeting

Monday, January 22, 2018

2:00 PM – 3:00 PM EST

TECHNICAL SUBCOMMITTEE 4f - Metals

I. Call to Order and Opening Remarks

- A. Chair: Merrill Zwanka (South Carolina)
- B. Vice Chair: Steven Ingram (Alabama)

II. Roll Call

- A. Voting Members
- B. Non-voting Members/Friends/Visitors

The members who were in attendance are in blue font below.

Individual Name	Agency Name	Designation	Member Type
Zwanka, Merrill E	South Carolina Department of Transportation	Chair	Voting
Ingram, Steven	Alabama Department of Transportation	Vice Chair	Voting
San Angelo, Michael	Alaska Department of Transportation	Member	Voting
Lauzon, Robert G	Connecticut Department of Transportation	Member	Voting
Duke, Steve M	Florida Department of Transportation	Member	Voting
Wu, Peter	Georgia Department of Transportation	Member	Voting
Pfeifer, Brian	Illinois Department of Transportation	Member	Voting
Nichaus, Curt	Kansas Department of Transportation	Member	Voting
Bradbury, Rick L	Maine Department of Transportation	Member	Voting
Hood, Woody	Maryland Department of Transportation	Member	Voting
Trautman, Brett Steven	Missouri Department of Transportation	Member	Voting
Tedford, Darin P (Charlie Pan)	Nevada Department of Transportation	Member	Voting
Seward, Kenny R.	Oklahoma Department of Transportation	Member	Voting
Ramirez, Timothy	Pennsylvania Department of Transportation	Member	Voting
Lane, Danny L.	Tennessee Department of Transportation	Member	Voting
Gagulic, Mladen	Vermont Agency of Transportation	Member	Voting
Bailey, William R	Virginia Department of Transportation	Member	Voting
Lane, Becca	Ontario Ministry Of Transportation	Associate Member	Voting
Malusky, Katheryn	AASHTO	Liaison	Non-Voting
Fragapane, Ryan	AASHTO	Liaison	Non-Voting
Knake, Maria	AASHTO Re:source	Member	Non-Voting
Lenker, Steven	AASHTO Re:source	Member	Non-Voting
Uherek, Gregory V	AASHTO Re:source	Member	Non-Voting
Blackburn, Lyndi D	Alabama Department of Transportation	Member	Non-Voting
Hoffman, Keith D (Dan Spear)	California Department of Transportation	Member	Non-Voting

Boardman, Jonathan T	Connecticut Department of Transportation	Member	Non-Voting
Trepanier, Jim	Illinois Department of Transportation	Member	Non-Voting
Rothblatt, Evan	AASHTO	AASHTO Staff	Non-Voting
Geary, Georgene M	GGfGA Engineering, LLC	AASHTO Staff	Non-Voting
Holt, Anne	Ontario Ministry Of Transportation	Associate Member	Non-Voting
Schell, Hannah	Ontario Ministry Of Transportation	Associate Member	Non-Voting
Dvorak, Dennis V	Federal Highway Administration	Ex Officio	Non-Voting
Halsted, Greg	Concrete Reinforcing Steel Institute	Friend	Non-Voting
Gagne, Martin	International Zinc Association	Friend	Non-Voting
Krouse, Dean C	Krouse Consulting	Friend	Non-Voting
Miller, David R.	MMFX Technologies Inc.	Friend	Non-Voting
Schoen, Jim	Nucor-Yamato	Friend	Non-Voting
Arnesen, Tore Olav	Vector Corrosion Technologies, Inc.	Friend	Non-Voting
Lacinak, Henry	AASHTO	AASHTO Staff	None

Others in Attendance: Michael Benson (AR), Rick Barazensky (KS), Ivan Lasa (FL), Paul Hendrajik (NJ), Oak Metcalfe (MT), and Temple Short (SC).

III. Approval of Technical Subcommittee Minutes

Minutes from the August 1, 2017 TS 4f annual meeting in Phoenix, AZ need approval. Motion made by AL, seconded by OK. All were in favor of approving the minutes.

IV. Old Business

A. TS Ballots

1. None

B. Task Force Reports

1. None (see proposed new task force later in the agenda)

C. Other

1. Illinois provided the chair with proposed revisions to M103, M163, M204, M285, and T65 to bring their ASTM equivalency up to date. Was unable to get this finalized prior to this meeting. The Chair will work with AASHTO to get these standards revised and out for ballot. One or two tech section ballots may come from this task.
2. Per Shannon Pole, ASTM A123 has passed recently. Asking to update AASHTO M 111- one minor editorial change to make sure AASHTO is in line with ASTM. Chair made this change for 2018.
3. Per CRSI, AASHTO T253 and AASHTO M254 need to be updated. Need to check with CRSI to see what changes need to be made.

V. New Business

A. Standards Requiring Reconfirmation

1. For the 2017 COMP reconfirmation ballot, the following standards were included:
 - a. M105 – Affirmative 16, Negative 0 – PA comments
 - b. M204 – Affirmative 16, Negative 0 – no comments

- c. M255 – Affirmative 15, Negative 1 – PA comments
- d. M314 – Affirmative 16, Negative 0 – PA comments

Agency	Item No. 1 - Reconfirm M105	
	Decision	Comments
Pennsylvania Department of Transportation	Affirmative	Affirmative with comments:1) In Section 1.2, it refers to "test coupons" and "test coupon values", but no where else in the standard does it refer to "coupons". In subsequent Sections, the terminology refers to "tension test specimen" or just "specimen". Suggest revising the "test coupon" and "test coupon values" language to "test specimens" and "tension specimen values", respectively, or "test coupon or specimen" and "tension coupon or test specimen values", respectively for consistency with terms used throughout the majority of the standard.

PA's comment is editorial. The Chair agrees with PA's comments. Nobody else had any comments. The Chair will make this change.

Agency	Item No. 3 - Reconfirm M255M/M255	
	Decision	Comments
Pennsylvania Department of Transportation	Negative	Negative with comments:1) M255M/M255 currently indicates equivalency to ASTM A675/A675M-03, but the current version of the ASTM equivalent standard is ASTM A675/A675M-14. This ballot item does not indicate if an equivalency review has been performed. ASTM A675/A675M-14 appears to have some technical changes that should be reviewed for consideration in maintaining equivalency between the two standards.2) If the intent of TS-4f is to maintain equivalency with the referenced ASTM A675/A675M-03, until an equivalency review is performed, then I can withdraw my negative. Editorial comments:1) In Section 4.1.11, Note 2, 2nd line, suggest revising from "Round, M255M/M255" to "Round, M255M [M255]" for consistency with other SI [inch-pound] unit format within this Note related to a typical ordering description.2) In Section 6.1, ASTM D675/A675M-14 deleted "open-hearth".3) In Section 6.2.1, ASTM D675/A675M-14 revised from "rimmed, capped, semikilled, or killed at the producer's option" to just "killed".4) In Section 6.2.2, 1st sentence, although not revised in ASTM D675/A675M-14, this sentence may need revised based on the ASTM D675/A675M-14 revision to Section 6.2.1 unless the detail of "dependent on strength grade specified, purchaser's methods of fabrication, and end-use requirements" is still important to include. Section 6.2.1 begins with "Unless otherwise specified" which should already cover at least the first sentence of Section 6.2.2. Perhaps all of Section 6.2.2 should be converted to a Note underneath Section 6.2.1.5) In Section 7.4, the ASTM D675/A675M-14 entirely deleted this Section.6) Table 1, for Chemical Requirements, should be relocated to Section 7 (Chemical Composition) instead of being located in Section 8 (Mechanical Properties).7) In Table 2, footnote c, the ASTM D675/A675M-14 revised the Section numbering as a result of the next comment.8) In Section 8.1.1.2, the ASTM D675/A675M-14 entirely deleted this Section.9) In Section 8.1.3, 5th line, the text "(larger than the sizes in Section 8.1.1.2)" may need revised due to the ASTM D675/A675M-14 revision to entirely delete Section 8.1.1.2.

Needs ASTM equivalency review. The Chair will work with Georgene to get this done. PA withdrew their negative.

Agency	Item No. 4 - Reconfirm M314	
	Decision	Comments
Pennsylvania Department of Transportation	Affirmative	<p>Affirmative with editorial comments: 1) In Section 6.4.1.2, last line, suggest revising from "of Class C of M 232M/M232" to "of M 232M/M 232, Class C" to match format of same reference in Section 6.4.1.4, 2nd line. 2) In Section 6.4.1.3, last line, suggest revising from "of Class 50 of ASTM B695" to "of ASTM B695, Class 50" to match format of same reference in Section 6.4.1.4., last line. 3) In Section 7, suggest labeling the table as "Table 2 - Chemical Composition". 4) In Section 7.1, if table in this Section is numbered and labeled, revise from "to the following chemical limitations" to "to the chemical composition requirements shown in Table 2". 5) In Section 8.1, revise from "Table 2" to "Table 3" if the table in Section 7 is numbered and labeled. 6) In Section 8, revise table caption from "Table 2" to "Table 3" if the table in Section 7 is numbered and labeled. 7) In Section 9, suggest labeling the table as "Table 4 - Dimensional Thread Tolerances". 8) In Section 9.2.1, last line, revise from "by the following amount:" to "by the tolerances shown in Table 4". 9) In existing Section 8 and existing Table 2 and footnote a, revise footnote from "applies to test on machined specimens" to "applies to tests on machined specimens". 10) In Section 9.3.3, revise each of the three where statements to include dimensions for each parameter within each where statement for consistency with Section 10.6, Equation (2). For Ab, revise from "the bend;" to "the bend, mm² (in.²);". For d, revise from "the bend; and" to "the bend, mm (in.); and". For D, revise from "major diameter, at the" to "major diameter, mm (in.), at the". 11) In Figure 1, does the figure for "Straight Anchor Bolt" need to include and show the z dimension for length of zinc coating when partial zinc coating is required? It is assumed that the "Straight Anchor Bolt" could also be partially coated.</p>

The Chair agrees with PA's comments. This section of M 314 was reviewed during the call (Figure 1). The Chair will make the edits Tim mentions.

B.

COMP Ballot Items

2017 COMP Rolling Ballot Number 2 - TS 4f		Affirmative	Negative	No Vote	Comments	
14	COMP ballot item to revise M203M/M203-12 Steel Strand, Low Relaxation Uncoated Seven-Wire for Concrete Reinforcement, to be equivalent with ASTM A416-17. See pp. 2-3 and pp. 26-27 of the minutes.	45	0	6	None	
15	COMP ballot item to revise T244, <i>Mechanical Testing of Steel Products</i> , to bring it up to date with ASTM A370 and also to include a new annex for weld pull testing. See p. 3 and pp. 28-39 of the minutes.	45	0	6	SC - editorial	Section 26.4.3.7: Remove the first sentence since it is repeated in the new wording. Section K5.3.2 (Second Sentence) "When using grips either of these types, care shall be taken..." Change to: "When using either types of these grips, care shall be taken..." Section K5.6 "The representative specimens shall be pull-tested in a manner and load rate that provides the ultimate strength of the welded splice." Since load rate is addressed in Section K5.4.2, that section should be referenced here. Section K5.7 Since it is a universal abbreviation for the length measurement of feet, would it be clearer to choose another variable nomenclature for "Specified nominal wire tensile strength"?
16	COMP ballot to delete M32M/M32, Steel Wire, Plain, for Concrete Reinforcement. M32 was combined with three other wire standards into one standard, MP30, Steel Wire and Welded Wire, Plain and Deformed, for Concrete Reinforcement. MP30 is equivalent to ASTM A1064 and is on this SOM ballot to move it to a full standard. See p. 3 and pp. 40-41 of the minutes.	45	0	6	None	
17	COMP ballot to delete M55M/M55, Steel Welded Wire Reinforcement, Plain, for Concrete. M55 was combined with three other wire standards into one standard, MP30, Steel Wire and Welded Wire, Plain and Deformed, for Concrete Reinforcement. MP30 is equivalent to ASTM A1064 and is on this SOM ballot to move it to a full standard. See p. 3 and pp. 40-41 of the minutes.	45	0	6	None	
18	COMP ballot to delete M221M/M221, Steel Welded Wire Reinforcement, Deformed, for Concrete. M221 was combined with three other wire standards into one standard, MP30, Steel Wire and Welded Wire, Plain and Deformed, for Concrete Reinforcement. MP30 is equivalent to ASTM A1064 and is on this SOM ballot to move it to a full standard. See p. 3 and pp. 40-41 of the minutes.	45	0	6	None	
19	COMP ballot to delete M225M/M225, Steel Wire, Deformed, for Concrete Reinforcement. M225 was combined with three other wire standards into one standard, MP30, Steel Wire and Welded Wire, Plain and Deformed, for Concrete Reinforcement. MP30 is equivalent to ASTM A1064 and is on this SOM ballot to move it to a full standard. See p. 3 and pp. 40-41 of the minutes.	45	0	6	None	
20	COMP ballot to adopt MP30, <i>Steel Wire and Welded Wire, Plain and Deformed, for Concrete Reinforcement</i> , as a full standard. MP30 is the equivalent to ASTM A1064. MP30 was on the Fall 2016 SOM ballot to move this newly created equivalency to a provisional standard. The ballot item passed and MP30 was published in 2017. Since MP30 is equivalent to ASTM A1064 which has been in practice for several years now, chair suggests moving it to the fall 2017 SOM ballot to become a full standard. See p. 3, 6 and pp. 40-41 of the minutes.	45	0	6	None	

For ballot Item 20, MP30 will be published in 2018 as M336.

2017 COMP Rolling Ballot Number 2 ADDENDUM - TS 4f		Affirmative	Negative	No Vote	Comments	
1	Revised Table 3 of M31 (to be equivalent to ASTM A706 Table 2)	38	1	7	IL - Negative	Since the intent of the change was to harmonize with ASTM A706, I recommend that the columns for Type W Grade 280 [40] and Type W Grade 520 [75] in Table 3 of M31 be omitted in order to match Table 2 in A706.

Chair concurs with the comments by Illinois. The two columns in Table 2 were inadvertently added to M31 during the editing and were not intended to be included. Recommend making this revision. Additionally, the previously balloted changes to the tensile strength of Type W Grade 420 (60) and Type W Grade 550 (80) were incorrectly published in the 2017 edition. Being corrected for 2018. These revisions were reviewed during the webinar. AL suggests doing a TS ballot and then have Jack do a COMP ballot. Recommend the Chair talk to Evan about this on what to do. The negative was found persuasive during the discussion.

However, after the web meeting the chair contacted Brian Pfeifer of Illinois to discuss the current situation with M31. The tensile strength values were corrected (the rationale behind this addendum

to the rolling ballot) but the removal of the two columns in Table 3 were not part of the ballot. Since we need to get the currently published tensile strengths corrected as soon as possible, Illinois agreed to withdraw their negative with the understanding that we will have a TS ballot to address the Type W Grades 280 and 520 that will still be included in the table for the 2018 publication. The table that was included in the ballot and passed (due to Illinois withdrawing their negative) with no additional comments is:

Table 3—Tensile Requirements, SI Units

	Type S Grade 280 [40] ^a	Type S Grade 420 [60]	Type S Grade 520 [75]	Type S Grade 550 [80]
Tensile strength, min MPa [psi]	420 [60,000]	620 [90,000]	690 [100,000]	725 [105,000]
Yield strength, min, MPa [psi]	280 [40,000]	420 [60,000]	520 [75,000]	550 [80,000]
Elongation in 200 mm, min %				
Bar Designation No.				
10 [3]	11	9	7	7
13, 16 [4, 5]	12	9	7	7
19 [6]	12	9	7	7
22, 25 [7, 8]	—	8	7	7
29, 32, 36 [9, 10, 11]	—	7	6	6
43, 57 [14, 18]	—	7	6	6
	Type W Grade 280 [40] ^a	Type W Grade 420 [60]	Type W Grade 520 [75]	Type W Grade 550 [80]
Tensile strength, min MPa [psi]	420 [60,000] ^b	620 550 [90,000] ^b	690 [100,000] ^b	725 690 [100,000] ^b
Yield strength, min, MPa [psi]	280 [40,000]	420 [60,000]	520 [75,000]	550 [80,000]
Yield strength, max, MPa [psi]		540 [78,000]		675 [98,000]
Elongation in 200 mm, min %				
Bar Designation No.				
10 [3]	15	14	12	12
13, 16 [4, 5]	16	14	12	12
19 [6]	16	14	12	12
22, 25 [7, 8]	—	12	12	12
29, 32, 36 [9, 10, 11]	—	12	12	12
43, 57 [14, 18]	—	10	10	10

^a Grade 280 bars are furnished only in sizes 10 through 19. [Grade 40 bars are furnished only in sizes 3 through 6.]

^b Tensile strength shall not be less than 1.25 times the actual yield strength.

- C. 2017 Technical Subcommittee ballot items were addressed during the August 1 meeting in Phoenix.
- D. Research Proposals
 - 1. 20-7 RPS- None
 - 2. Full NCHRP RPS - None
- E. Re:source/CCRL - Observations from Assessments
 - i. AASHTO re:source Technical Exchange – March 12-15, 2018, San Diego, CA
- F. NCHRP Issues- None
- G. NTPEP REBAR/WWR Program Update
- The same number of audits will be done this year that were done last year. A 1064 wire will be audited for this year (a few facilities have signed up). 7 wire strand will be added to the audit program in 2019.
- H. Correspondence, calls, meetings- None
- I. Proposed New Standards- None
- J. Proposed New Task Forces
 - 1. Recommendation for a Task Force to continue the work of TF 2017-01 concerning coated bars. Need a Task Force chair.
 - History: Starting with Task Force 2017-01: This task force was charged with determining how coated bars could be incorporated into the AASHTO Tombstone Test method T 374. A webinar was held on May 31, 2017 and NYDOT sent out a survey to the states to determine how much interest there was in modifying test procedure T 374 to include testing of coated reinforcing bars. The survey showed that of the thirty (30)

states that responded, twenty-seven (27) specify epoxy coated steel reinforcing bars and eight (8) have a need for a test method that compares the relative corrosion resistance of coated and uncoated steel. States that are interested in a test method are AK, CO, GA, MN, NJ, NY, PA and TX.

- Task Force 2017-01 members from VA, PA, FL, NY, and MMFX decided that developing a new test method would take a considerable amount of time to implement. The Task force suggested in the short term to develop a note to be placed in section 1.1 for T 374. This note would indicate that the test procedure (T 374) could be used for coated bars but there are a lot of considerations, challenges and decisions that will have to be made in developing a test procedure that includes coated bars and is able to accurately compare coated bars. After the Technical section meeting in Phoenix AZ, the task force members set up a teleconference with Wes Miller with the Epoxy Interest Group (EIG) and Shannon Pole with the Zinc Association. The group discussed three options: 1) Define coated bars in the note developed for T 374 as metallic and non-metallic coatings; 2) develop a coated bar test method for states interested in a coated bar test; 3) drop the note all together.
- Resolution: The task force decided the best option was to develop the appropriate test method for coated bars and not include the proposed note in T 374. The task force also recommended that a new task force be initiated with the states identified in the survey as interested in a coated bar test along with Wes Miller and Shannon Pole. Wes suggested reviewing the current ASTM test methods (A775, A934, A1055, A1094 and A767) and looking at past research as a starting point. Shannon suggested CRSI has information on coated bar studies and guides.

- Martin (IZA) is interested in being on the task force. The Chair will see if he can get some states to volunteer to be on this task force.

K. List of TS standards

- The list of standards were reviewed during the webinar

VI. Open Discussion

- Dean Krouse wants to know what will be done with AASHTO M 270. This standard is four versions behind the ASTM standard. He recommends this standard be dropped and the ASTM standard can be used. PA is involved on the ASTM committee.

VII. Adjourn