

COMMITTEE ON MATERIALS AND PAVEMENTS

Meeting (<i>Annual or Mid-Year</i>)	Annual
Date	August 6 th , 2019
Scheduled Time	10:15 to 12:00 Noon
Technical Subcommittee & Name	Flexible and Metallic Pipe
Chair Name and (State)	Tim Ruelke (FL)
Vice Chair Name and (State)	Ian Rish (GA)
Research Liaison Name and (State)	

I. Introduction and Housekeeping

II. Call to Order and Opening Remarks

A. New chair and Vice Chair – Many thanks to Bill Bailey for his many years of service to COMP.

III. Roll Call of Voting Members

Present	Member Name	State	Present	Member Name	State
<input type="checkbox"/>	Ruelke, Tim	FL	<input type="checkbox"/>	Fung, Clement	MA
<input type="checkbox"/>	Rish, Ian	GA	<input type="checkbox"/>	Stanton, John	MI
<input type="checkbox"/>	Peoples, Christopher A.	NC	<input type="checkbox"/>	Trautman, Brett	MO
<input type="checkbox"/>	Ingram, Steven	AL	<input type="checkbox"/>	Streeter, Donald A.	NY
<input type="checkbox"/>	San Angelo, Michael	AK	<input type="checkbox"/>	Horner, Ron	ND
<input type="checkbox"/>	Pinkerton, Jennifer M.	DE	<input type="checkbox"/>	Lane, Becca	Ontario
<input type="checkbox"/>	Tobias, Dan	IL	<input type="checkbox"/>	Ramirez, Timothy	PA
<input type="checkbox"/>	Barezinsky, Richard	KS	<input type="checkbox"/>	Short, Temple and Merrill Zwanka	SC
<input type="checkbox"/>	Davis, Jason	LA	<input type="checkbox"/>	Egan, Brian (Mike Doran, Danny Lane)	TN
<input type="checkbox"/>	Bradbury, Richard L	ME	<input type="checkbox"/>	Williams, Kurt	WA
	Schuler, John	VA		Seward, Kenny	OK
	Stanevich, Ron	WV		Lawrence, William	UT

Quorum Rules Met?

Annual Meeting: Simple majority of voting members (☐y/ ☐n) | Mid-Year Meeting: Voting members present (☐y/ ☐n)

A. Review of Membership (*New members, exiting members, etc.*)

1. New Members-
2. Exiting Members -

IV. Approval of Technical Subcommittee Minutes – 2019 Mid-Year Webinar – Jan. 22nd, 2019

Attachment A and posted to <https://materials.transportation.org/meetings/mid-year/>

V. Old Business

(*Outstanding or action items from previous meeting; use Heading 1 through Heading 6 styles to get outline format.*)

A. Items remaining unresolved from Fall Ballot

Item 1: Propose a new Standard Practice for Service Life Determination of Corrugated HDPE Pipes Manufactured with Recycled Materials R XX.

Status Report August 2019 – All comments resolved. Published as R 93.

Item 2: Propose a new Provisional Standard Specification for Steel-Reinforced Polyethylene (SRPE) Corrugated Pipe MP ZZZ.

FL Comments - Table 1 (7.4) includes requirements for "Minimum Inner Wall Thickness" Looking at Figure 1, the thickness of the "inner wall" could correspond to "encapsulation thickness" identified in Figure 2. Was the intent to specify "Minimum Liner Wall Thickness"? This needs clarification.

Status Report August 2019 - With the concurrence of Tim Toliver, the heading for the last column of Table 1 will be changed to "Minimum Liner Thickness". Revision sent AASHTO Publications.

VA comments

Virginia places an administrative negative on this item for TS 4b Chair such that the standard will not be published unless the pipe design for this standard is covered by the LRFD Bridge Design Guide requirements and passes AASHTO Bridge Committee ballot. In addition, testing on a 72" diameter pipe will have to be completed and submitted to the Bridge Committee for review. If these requirements are met then the negative will be withdrawn.

Suggested Outcome – Persuasive. Status report - Tim Toliver indicated testing for the Bridge Committee is ongoing on 24 and 48 inch pipe diameters and profiles. This test data will be sent to the bridge committee once complete. Testing must be complete by January 2019 for the Bridge Committee to consider. The AASHTO bridge specification is expected to be voted on and approved by May 2019. Concerns were expressed that the largest diameter pipe (72") was not being tested; 48" is the largest diameter being tested. This is a departure from the way this has been handled in the past, where the technical subcommittee has required that the largest diameter pipe be tested.

Status Report August 2019– Tim Toliver indicated that 72" testing was sent to the AASHTO Technical Committee T-13 Culverts. Their ballot passed. This will resolve the administrative negative. The new number received from publications will be MP 42.

Item No. 3 - Concurrent Ballot

Revise Standard Specification for Steel-Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 1500-mm (12- to 60-in.) Diameter M335 -18 to increase the wall thicknesses in Table 1. This standard M 335 will first published in June 2018 after several years as provisional standard MP 20. Based on Tennessee's observation that the thicknesses in the standard are not consistent with the product currently being manufactured in the United States the standard is being revised to specify thicker walls in Table 1. A couple of other changes to Figures 1 and 2 were made to correspond with common terminology used in other AASHTO HDPE pipe standards. See page 15 and 19 of TS4b minutes for the comments and discussion on this Standard.

Status Report August 2019 – All comments resolved. Updates published.

Item No. 4 - COMP Ballot

Propose a New Provisional Standard Specification MP XXX for Steel-Reinforced Polyethylene (PE) Ribbed Pipe, 1650- to 3000-mm (66- to 120-in.) Diameter - COMP ballot This Provisional Standard Specification MP XXX is Steel Reinforced PE Ribbed pipe (M 335) with increased diameters 66 to 120 inches.

Status Report August 2019 – All comments resolved. Published as MP 40-19.

Item No. 5 - Concurrent Ballot

Revise Standard Specification for Polypropylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter M 330-18 to match the inside diameter tolerances for HDPE inside diameter tolerances.

Status Report August 2019 – All comments resolved. Published as M 330-19

B. COMP Ballot Items *(Include any ASTM changes/equivalencies, including ASTM standards' revision years.)*

COMP Ballot #	Standard	Results (neg/affirm)	Comments/Negatives	Action

C. Technical Subcommittee Ballots

TS Ballot #	Standard	Results (neg/affirm)	Comments/Negatives	Action

D. Reconfirmation Ballots

Reconf. Ballot #	Standard	Results (neg/affirm)	Comments/Negatives	Action
	M 246		Reconfirmed	Now M 246-15(2019)
	M 278		Reconfirmed	Now M 278-15(2019)
	M 304		Reconfirmed	Now M 304-11(2019)
	T 341		Reconfirmed	Now T 341 -10(2019)

E. Task Force Reports

Task Force #	Title	Members	Status/Update
2017-01	Review/Update M 190 and M243	Ramirez (PA) and Kemp(WI)	

VI. New Business

A. AASHTO re:source/CCRL/NTPEP *(Observations from assessments, as applicable.)*

1. Discussion of NTPEP evaluation of Labs that test plastic pipe. There is no accreditation for these tests. Need an update and discussion.

B. Presentation by Industry/Academia

1. Proposed changes to M 330 by Dan Currence and/or Greg Baryluk – Plastic Pipes Institute
Proposed changes to AASHTO M330 to make it more consistent with ASTM F2881.

The changes we've proposed were initiated by Greg Baryluk with ADS, then reviewed & approved by the industry. The primary change is to eliminate the upper limit of resin strength. This topic was discussed last week at the NTPEP meeting for Thermoplastic Pipe. NTPEP believes this change will eliminate a point of confusion for their auditors.

Notes from Chair – Changes will require COMP Ballot. We can do a voice TS ballot now and then send to COMP or do a Concurrent Ballot. What is the desire of the TS?

C. Revisions/Work on Standards for Coming Year

Proposal from Dan Currence – Plastic Pipes Institute – Revisions to M 330

6.1.1. *Extruded Pipe and Fittings*—Pipe and fittings shall be made of virgin polypropylene compounds meeting the minimum properties as shown or exceeding the requirements in Table 1. Compounds that have higher performance properties shall be permitted provided the density of the base resin shall not exceed 0.950 g/cm³ (0.0343 lb/in.³) and all other product requirements are met. Polypropylene compounds shall be comprised of the base polypropylene resin and all additives, colorants, UV inhibitors, and stabilizers. Conditioning, sampling, preparation, and testing of specimens shall be in accordance with the requirements in ASTM D4101.

Table 1—Polypropylene Compound Properties

Property	ASTM Test Method	Units (SI Units)	Minimum Value	Maximum Value
Melt Flow Rate (@446°F (230°C))	D1238	g/10 min	0.15	1.50
Density	D792, D1505	g/cm ³ (lb/in. ³)	0.900 (0.0325)	0.95 (0.0343)
Tensile Strength at Yield	D638	N/mm ² (psi)	24 (3500)	31 (4500)
Elongation at Yield	D638	% (%)	5 (5)	25 (25)
Flexural Modulus (1% secant)	D790 (Procedure B)	N/mm ² (psi)	1200 (175,000)	1900 (275,000)
IZOD Impact Strength (73°F (23°C))	D256	kJ/m ² (ft-lb/in. ²)	50 (23.8)	No-Break
Oxidative-Induction Time (392°F (200°C))	D3895	min	25	200

D. Review of Stewardship List

See Attachment C

E. Proposed New Standards

1.

F. NCHRP Issues

G. Correspondence, Calls, Meetings

From Temple Short (SC)

At the recent NTPEP meeting, the auditors brought an issue to the Thermoplastic Pipe (THP) Technical Committee that the group would like TS 4b to consider. Manufacturers are typically using a V-holder to test M294 pipe brittleness by impact testing as described in ASTM D2444. ASTM D2444 section 5.4 allows the use of either a V-holder or flat plate. However, M294 specifies the flat plate be used so they are technically not following the spec. It appears the V-holder is considered safer as well as being a more severe test of brittleness. The THP TC would like TS 4b to discuss whether M294 should be revised to allow the option of the V-holder.

Also, M252 references ASTM F405 which has been replaced by F667. F667 has been revised to using a tup for brittleness testing instead of parallel plates. Should the technical subcommittee consider revising M252 for harmonization with ASTM? Either Matt Mueller or Sarc can provide much more detail on the matter.

H. Proposed New Task Forces *(Include list of volunteers to lead and/or join TF.)*

I. New TS Ballots

1. Reconfirmation Ballots

a. M 36, M 218, M 196, M 197, T 249 and M 245

2. New Ballots

a. Proposal from Dan Currence?

b. Proposal from Temple Short on M 294 (pipe holder)

VII. Open Discussion

A.

B.

VIII. Adjourn

TS Meeting Summary

Meeting Summary		
Items Approved by the TS for Ballot <i>(Include reconfirmations.)</i>		
Standard Designation	Summary of Changes Proposed	Ballot Type
M 36	Recon. - O.K. to Ballot without changes – Stanton MI	<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
M 218	Recon. – (NY and PA)	<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
M 196	Recon. – Numerous editorial changes – Rick Barenzinski (KS) Attachment B	<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
M 197	Recon. – (FL and TN)	<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
T 249	Recon. – (MO and GA)	<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
M 245	Recon. – (FL and IL)	<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
M 330	Changes to Table 1 Deleting maximums – Dan Currence	<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
M 294	Changes to M 294 related to V- holder	<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
		<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
		<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
		<input type="checkbox"/> TS <input type="checkbox"/> COMP <input type="checkbox"/> CONCURRENT
New Task Forces Formed		
Task Force Name	Summary of Task	TF Member Names and (States)
Research Proposals <i>(Include number/title/states interested.)</i>		

Meeting Summary
Other Action Items

Attachment A – 2019 Mid-Year minutes

COMMITTEE ON MATERIALS and Pavements

2019 Mid-Year Webinar

Tuesday January 22nd, 2019

1:30 to 3:30 PM EDT

TECHNICAL SUBCOMMITTEE 4b

Flexible and Metallic Pipe

Agenda

I. Call to Order and Opening Remarks

II. Roll Call

Voting Members

Name State Present

Virginia

Peoples, Christopher A. North Carolina X

Ingram, Steven Alabama

San Angelo, Michael Alaska X

Pinkerton, Jennifer M. Delaware

Tim Ruelke Florida X

Douds, Richard Georgia

Trepanier, Jim (Dan Tobias) Illinois X

Niehaus, Curt (Rick

Barezinsky)

Kansas X

Davis, Jason Louisiana

Bradbury, Richard L Maine

Fung, Clement Massachusetts

Kline, Therese R. Michigan X

Trautman, Brett Missouri X

Streeter, Donald A. New York X

Horner, Ron North Dakota

Lane, Becca Ontario

Ramirez, Timothy Pennsylvania

Short, Temple and Merrill

Zwanka

South Carolina X

Egan, Brian (Mike Doran,

Danny Lane)

Tennessee X

Williams, Kurt Washington

West Virginia requested to become a member of Technical Subcommittee 4B

Friends and Non-Voting Members

Technical Subcommittee 4b

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Name Affiliation Present

Malusky, Katheryn AASHTO - Liaison X

Fragapane, Ryan AASHTO - Liaison X

Clawson, Chad AASHTO

Lenker, Steven E. AMRL

Uherek, Greg AMRL

Knake, Maria AMRL
McGough, Michael NCSPA X
Chestnut, Brian W BTB Consulting
Currence, Daniel PPI X
Christensen, Heather Prinsco, Inc.
Beakley, Josiah W ACPA X
Pluimer, Michael Crossroads Eng.
Delery, Oliver Forterra X
Paredes, Mario TRI/ENV X
Baryluk, Greg ADS X
Sarcinella, Robert AASHTO X
California
Kemp, Peter Wisconsin X
Henry Lacinak AASHTO X

III. Approval of Technical Subcommittee Minutes

Approval of Minutes from the 2018 Cincinnati Ohio SOM Meeting – Minutes sent by e-mail
-Motion made by NC, seconded by NY. All were in favor of approving the minutes.

IV. Old Business

A. SOM Ballot Items – Rolling Ballot Group 2

Item 1: Propose a new Standard Practice for Service Life Determination of Corrugated HDPE Pipes Manufactured with Recycled Materials R XX. This standard practice details the procedure for determining the service life of corrugated high density polyethylene (HDPE) pipes manufactured with recycled materials relative to brittle failures via the slow crack growth mechanism. This standard practice is applicable for pipes containing recycled materials and manufactured in accordance to M 294. It is applicable both for pipes manufactured with post-consumer recycled (PCR) materials and post-industrial recycled (PIR) materials. It is not intended for pipes manufactured with virgin materials.

Ballot Results: Affirmative =44 Negative=0 No Vote=8 Comments from PA

PA comments sent to Michael Pluimer and Chase Knight (FL) for review.

PA Comments:

1) In Section 5.1, 1st line, suggest revising from "sticks of pipes" to "sticks of pipe".

Suggested Outcome – Persuasive and editorial. All were in favor.

2) In Section 5.3, 4th line, revise from "(176°F)and" to "(176°F) and" [i.e., add space between "(176°F)" and "and"].

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Suggested Outcome – Persuasive and editorial. All were in favor.

3) In Section X1.6, 2nd line, suggest revising from "temperature of 23°C, the" to "temperature of 23°C (73.4°F), the" for consistency with Section X1.6, 4th line.

Suggested Outcome – Persuasive and editorial. All were in favor.

4) In Section X1.7, 4th line, suggest revising from "to a service condition of (93.0)(499.2)" to "to a service condition of 23°C (73.4°F) calculated as (93.0)(499.2)" as something seems to be missing here.

Suggested Outcome – Persuasive. Seems to be editorial. Need input from Michael Pluimer. All were in favor of making this editorial change.

5) In Table X1.1, footnotes a, c, d, f, g and i, are the correct Equations referenced in each of these footnotes? They don't seem to match up. For example, in footnote a, it references "Average of the 5 log failure times" and "Equation X1.4", but Equation X1.4 is for the Stress Shift Factor.

Suggested Outcome – Persuasive. Need input from Michael Pluimer. All were in favor of making this editorial change.

6) In Section X2.8, I was not familiar with the term "ceiling". I read the minutes and the discussion on this term. I also found it is a function in Microsoft Excel.

In Section X2.8, 1st line, suggest revising from "Using the rounding procedure specified" to

"Using ceiling rounding to a 1 h significance" as the required significance is not clear and is important especially since the examples show values with different decimal places (33.1 and 17.33).

Suggested Outcome – Persuasive. Need input from Michael Pluimer. Chase Knight agrees a definition can be used here. The Chair proposes to clarify what this is, add a sentence to specify what “ceiling” means. Vice-Chair recommended “Use the ceiling rounding method to a 1 h significance.....” All were in favor of making this editorial change. The Chair will make the editorial changes once he makes follows up with Mike on any clarifications.

Item 2: Propose a new Provisional Standard Specification for Steel-Reinforced Polyethylene (SRPE) Corrugated Pipe MP ZZZ. This proposed new specification covers the requirements and methods of tests for steel-reinforced polyethylene (SRPE) corrugated pipe, couplings, and fittings for use in surface and subsurface drainage applications. This new proposed Polyethylene pipe with a corrugated structure contains two reinforcing steel profiles. One steel profile for SRPE pipe is proposed for diameters 300 to 1050 mm (12 to 42 inches) and a separate steel profile is proposed for pipes 1200 to 1800 mm (48 to 72 inches).

Ballot Results: Affirmative =43 Negative=1 No Vote=8 Comments from PA and FL

As discussed at the SOM meeting and reflected in the minutes, the Negative is administrative from Virginia (See specifics below)

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PA and FL comments sent to Michael Pluimer. Chase Knight (FL) reviewed PA’s comments. Sent FL’s comments to Chris Peoples (NC) for a staff review.

PA Comments:

1) In Section 6.1.3, 1st line, revise from "Injection Molding Fittings and Couplings" to "Injection Molded Fittings and Couplings" for consistency with subsection title in Section 6.1.2.

Suggested Outcome – Persuasive and editorial. All were in favor of making this editorial change.

2) In Section 6.4, 2nd line, revise from "cut pipe end" to "cut pipe ends" to match plural tense of "repairs" and "joints".

Suggested Outcome – Persuasive and editorial. All were in favor of making this editorial change.

3) In Figure 2 Caption, the term "Wall Thickness" is used, but in Figure 1, the "Valley" seems to be a combination of the "Outer Wall" and "Liner". In the Figure 2 Caption, it is suggested to revise from "Wall Thickness" to "Valley Wall Thickness" for clarification. Also, it is suggested to revise Figure 1 by adding a label and arrow for "Valley Wall" since this is not exactly the same as the "Outer Wall", "Inner Wall", or "Liner". The term "Valley Wall" is used in Section 9.8.2.

Suggested Outcome – Persuasive and editorial. In addition, since Figure 2 also indicates steel thickness, the title should be revised to “Steel, Encapsulation, and Valley Wall Thicknesses”.

All were in favor of making this editorial change.

4) In Table 2 and the column 2 header, a footnote, "a", is included in the column 2 header, but there is not a footnote a at bottom of table.

Suggested Outcome – Persuasive and editorial. Michael Pluimer needs to confirm no footnote is needed. All were in favor of making this editorial change.

5) In Section 7.8, 5th line, the term "steel plate" is used, but in Section 6.2.1, the term "steel sheet" is used. These terms should be consistent and the same for clarity.

Suggested Outcome – Persuasive and editorial. Let’s use “steel sheet”. All were in favor of making this editorial change.

6) In Section 7.11.2.2.1, 1st line, at beginning of line, delete space before the word "Geotextile".

Suggested Outcome – Persuasive and editorial. All were in favor of making this editorial

change.

7) In Section 7.11.2.2.1, "M 288" is referenced for geotextile, but M 288 does not specifically address an application and requirements for "geotextile wraps" for pipes. The closest Technical Subcommittee 4b

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application in M 288 is for Subsurface Drainage Requirements (M 288, Table 2); however, none of the M 288, Table 2 requirements specify AOS > 70. Suggest either providing specific geotextile requirements within Section 7.11.2.2.1 or reference a specific M 288 geotextile class (from M 288, Table 1) with specific requirements for each parameter in M 288 Table 2 if they will be different for the "geotextile wrap" application.

Agreed, specifying minimum AOS would be consistent with M 335 Section 7.12.2.2. Revise to "no greater than 70" and it is a subsurface drainage utilization. Josh Beakley (ACPA) mentioned this language is in R82. NC will take a look at this and resolve this.

8) In Section 9.1.3, 2nd line and at end of 2nd sentence, delete the space between the text "(1/8 in.)" and the period (".").

Suggested Outcome – Persuasive and editorial. All were in favor of making this editorial change.

9) In Section 9.1.5 at end, delete the space between the text "(+0.001 in.)" and the period (".").

Suggested Outcome – Persuasive and editorial. All were in favor of making this editorial change.

10) In Section 9.3, last line, revise from "atmosphere" to "conditioning temperature".

Suggested Outcome – Persuasive and editorial. All were in favor of making this editorial change.

11) For Sections 9.5 and 9.6, revise Section numbers from "9.5" to "9.4.1" and from "9.6" to "9.4.2". Revise remaining Section 9 numbers for proper sequencing.

Suggested Outcome – Persuasive and editorial. All were in favor of making this editorial change.

FL Comments reviewed by NC:

1) Table 1 (7.4) includes requirements for "Minimum Inner Wall Thickness" Looking at Figure 1, the thickness of the "inner wall" could correspond to "encapsulation thickness" identified in Figure 2. Was the intent to specify "Minimum Liner Wall Thickness"? This needs clarification. As we reviewed it, we thought we understand it to say that encapsulation thickness can be measured at any point in which the steel reinforcement is encapsulated by PE. Figure 2 just happens to show that dimension on the inner wall so it is not saying that encapsulation thickness is the same as inner wall thickness in our opinion. While reviewing this we noticed that 7.4.4. references 9.6.4. which does not exist. We believe this should have been 9.8.4.. Note 4 in 9.8.4. goes on to further explain how to measure both inner wall and outer wall encapsulation thickness. As with any other AASHTO standard there is a lot of jumping back and forth but I think overall the intent is that encapsulation thickness is the same whether measured on the inner or outer wall. The one thing we can't reconcile is why wouldn't encapsulation thickness and inner wall thickness be the same in the table? As we looked through this we noticed that there is no definition for inner wall thickness. Maybe

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defining the inner wall thickness measurement and how to do it and explaining how that is not the same as encapsulation thickness would clarify it.

Suggested Outcome – Persuasive and editorial. All were in favor of making this editorial change.

2) The pipe joint specification (7.11) has been modified to preclude the polyurethane bell/spigot. In response to previous comments, additional details have been included on the replacement joint system(s). The screw-on collar will be a single piece of molded HDPE.

However, I would request more details be specified on the fastening method for the splitcollar bands. i.e. what type of hardware will be used to lock/fasten? **We agree with this. We understand they use zip ties but it would be nice to have that explained or maybe even specified in the standard.**

Suggested Outcome – Persuasive. TS proposed language? Additional technical language needs to be added. FL will work with Tim to get this improved in more detail.

3) Recommend adding the pipe diameters to the Title, to be consistent with the other corrugated/ribbed plastic pipe standards. **100% agree.**

Suggested Outcome – Persuasive and editorial. All were in favor of making this editorial change.

VA comments

Virginia places an administrative negative on this item for TS 4b Chair such that the standard will not be published unless the pipe design for this standard is covered by the LRFD Bridge Design Guide requirements and passes AASHTO Bridge Committee ballot. In addition, testing on a 72" diameter pipe will have to be completed and submitted to the Bridge Committee for review. If these requirements are met then the negative will be withdrawn.

Suggested Outcome – Persuasive. Status report - *Tim Toliver indicated testing for the Bridge Committee is ongoing on 24 and 48 inch pipe diameters and profiles. This test data will be sent to the bridge committee once complete. Testing must be complete by January 2019 for the Bridge Committee to consider. The AASHTO bridge specification is expected to be voted on and approved by May 2019. Concerns were expressed that the largest diameter pipe (72") was not being tested; 48" is the largest diameter being tested. This is a departure from the way this has been handled in the past, where the technical subcommittee has required that the largest diameter pipe be tested.*

Item No. 3 - Concurrent Ballot

Revise Standard Specification for Steel-Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 1500-mm (12- to 60-in.) Diameter M335 -18 to increase the wall thicknesses in Table 1. This standard M 335 will first published in June 2018 after several years as provisional standard MP 20. Based on Tennessee's observation that the thicknesses in the standard are not consistent with the product currently being manufactured in the United States the standard is being revised to specify thicker walls in Table 1. A couple of other changes to Figures 1 and 2 were made to correspond with common terminology used in other AASHTO HDPE pipe standards. See page 15 and 19 of TS 4b minutes for the comments and discussion on this Standard.

Ballot Results: Affirmative =44 Negative=0 No Vote=8 Comments from PA and FL

PA and FL comments sent to Tim Toliver. Chase Knight (FL) reviewed PA's comments. Sent FL's comments to Chris Peoples (NC) for a staff review.

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PA Comments:

1) In Section 7.6, Table 2, 2nd column heading, there is a footnote, "a", included as part of the 2nd column heading. The footnote a at bottom of Table 2 is in regard to the conversion of SI units to U.S. Customary units. It is suggested to move the footnote, "a", from the 2nd column heading to the end of the Table 2 Caption as it appears the footnote a applies to the entire table. Or, as alternative, add a footnote, "a", to the 1st column heading and the last column heading.

Suggested Outcome – Persuasive and editorial

2) In Section 7.10, 2nd line, the term "lap seam" is used, but in Figure 1, there are two labels for "weld seam", but none for "lap seam". In Section 7.10, suggest revising from "lap seam" to "weld seam" for consistency with labeling in Figure 1.

Suggested Outcome – Persuasive and editorial

3) In Section 7.10, last line, suggest revising from "lapped seam" to "weld seam" for consistency with labeling in Figure 1.

Suggested Outcome – Persuasive and editorial

FL Comments

Under 1.2, Note 1 should be changed to match the wording in the proposed Standard from ballot item 2.

NC review of FL comment: It looks like Bill put this wording in Note 2 for this standard. I think Note 1 here can go away if the title contains the pipe diameters covered and then Note 2 could replace Note 1. I think this might have been due to Darrell's original intent was to add these sizes to the original standard and not have two standards. That was not the direction the TS wanted to take if I recall correctly and it was decided we needed a second standard.

Item No. 4 - COMP Ballot

Propose a New Provisional Standard Specification MP XXX for Steel-Reinforced Polyethylene (PE) Ribbed Pipe, 1650- to 3000-mm (66- to 120-in.) Diameter - COMP ballot This Provisional Standard Specification MP XXX is Steel Reinforced PE Ribbed pipe (M 335) with increased diameters 66 to 120 inches. The deep burial research report by Ian Moore Ph.D. P.E. at Queens University in Ontario Canada is contained in the TS 4b Annual meeting minutes as Attachment #4. This provisional standard is the same as M 335 with increased diameters. The TS is in favor of advancing this standard with increased diameters as a provisional standard. See pages 14 through 19 of TS 4b minutes for the comments and discussion on this standard.

Ballot Results: Affirmative =44 Negative=0 No Vote=8 Comments from PA

Chase Knight (FL) reviewed PA's comments.

PA's Comments:

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1) In Section 1.1, Note 1, 1st line, revise from "AASHTO M335" to "M 335".

Suggested Outcome – Persuasive and editorial. (Check if this is AASHTO publication format). In Section 2.1, a space is also missing in "M335." Ryan will check with publications to see what the standard format is.

2) In Section 1.1, Note 1, second line, revise from "diameters 12" - 60"." to "diameters 300 to 1500 mm (12 to 60 in.).".

Suggested Outcome – Persuasive and editorial, This would match the title of M 335. All were in favor of making this editorial change.

3) In Section 7.6, 5th line, revise from "per AASHTO M145" to "in accordance with M 145".

Suggested Outcome – Persuasive and editorial (Check if this is AASHTO publication format). Ryan will check with publications to see what the standard format is.

4) In Section 7.6, Table 2, 2nd column heading, there is a footnote, "a", included as part of the 2nd column heading. The footnote a at bottom of Table 2 is in regard to the conversion of SI units to U.S. Customary units. It is suggested to move the footnote, "a", from the 2nd column heading to the end of the Table 2 Caption as it appears the footnote a applies to the entire table. Or, as alternative, add a footnote, "a", to the 1st column heading also.

Suggested Outcome – Persuasive and editorial. Add footnote reference "a" to 1st column heading and remove "in inch-pound measurement" from the end of the footnote. All were in favor of making this editorial change.

5) In Section 7.10, 2nd line, the term "lap seam" is used, but in Figure 1, there is a label for "weld seam", but none for "lap seam". In Section 7.10, 2nd line, suggest revising from "lap seam" to "weld seam" for consistency with labeling in Figure 1.

Suggested Outcome – Persuasive and editorial All were in favor of making this editorial change.

6) In Section 7.10, 3rd line, the term "lap area" is used, but in Figure 1, there is a label for "weld seam", but not a label for "lap area". In Section 7.10, 3rd line, suggest revising from "lap area" to "weld seam" for consistency with labeling in Figure 1.

Suggested Outcome – Persuasive and editorial All were in favor of making this editorial change.

7) In Section 7.10, 4th line, suggest revising from "lapped seam" to "weld seam" for

consistency with labeling in Figure 1.

Suggested Outcome – Persuasive and editorial All were in favor of making this editorial change.

Item No. 5 - Concurrent Ballot

Revise Standard Specification for Polypropylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter M 330-18 to match the inside diameter tolerances for HDPE inside diameter tolerances. M 330

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Section 7.2.3. Inside Diameter Tolerances will be revised to read: Inside Diameter Tolerances—

The tolerance on the specified inside diameter shall be 4.5 percent oversize and 1.5 percent undersize, but not more than 37 mm (1.5 in.) oversize when measured in accordance with Section 9.6.1. See Proposed New Task Forces pages 20 and 21 of TS 4b minutes for the comments and discussion on this standard.

Ballot Results: Affirmative =44 Negative=0 No Vote=8 NO COMMENTS

B. TS Ballots

Reconfirmation Ballots:

M 246, M 278, M 304 and T 341 were balloted to the TS for reconfirmation.

Results for all: Affirmative =20 Negative=0 No Vote=2 NO COMMENTS

C. Task Force Reports

Task Force 2017-01 - Assignment was to review the corrugated metal pipe specification for M190 and consider adding a subsection for determining the coating thickness to Section 7. The task force was also asked to review M243 and to determine if a method should be specified to measure the coating thickness of 1.27 mm. Should the specified measurement be modified to “minimum of 1.3 mm” given this is a field applied asphalt mastic coating?

Task Force Members are Mike McGough (NCSPA), Tim Ramirez (PA) and VA.

Progress report – The task force has not yet met. Tim Ramirez will take the lead on this task force and will coordinate how to move forward. Pete Kemp (WIDOT) will also join the task force as well.

Task Force to reconcile the ID tolerances in M 294 and M 330.

John Kurdziel briefly discussed the issue: It was proposed that the tolerances in M 294 and M 330 be the same. John will send a recommendation to Chair and stewards of M 330 and M 294. The group will review and agree on the recommendation. A motion was made by North Carolina and a Second by Maine to ballot the recommended change concurrently to both standards. The motion passed unopposed.

Note: On August 17, 2018, John recommended that the inside diameter tolerances for M 330 be changed to match the M 294 inside diameter tolerances. This change will be sent to Missouri and Florida the stewards for M 330 for concurrence with John’s recommendation. Once concurrence is obtained, then M 330 will be placed on COMP ballot.

Progress report – Change was balloted and passed without a negative or comment.

Task Force Complete – This task force’s work is complete and the will now be sunset.

V. New Business

A. Research Proposals

1. 20-7 RPS
2. Full NCHRP RPS

New proposals – None

AASHTO Re:Source/CCRL - Observations from Assessments – None

C. NCHRP Issues - None

D. Correspondence, calls, meetings, webinar, - None

E. Presentation by Industry/Academia - Any presentations? –None

F. Proposed New Standards – None

G. Proposed New Task Forces – None

H. Standards Requiring Reconfirmation

M 036, M 167, M 190, M 196, M 197, M 218, M219, M 243, M245, M 274, M 289, R 063, R

082, T 241 and T 249 are required to be revised or reconfirmed this year.

The stewards will review the standards and bring any changes to the in person meeting in August. The list of the stewards was attached the calendar invite. If you need the list please contact Casey.

I. COMP Ballot Items (including any ASTM changes/equivalencies)

NTPEP has a few suggested changes. They will get these suggestions over to Tim within the next week.

VI. Open Discussion – None

VII. Comment – None

VIII. Adjourn

Attachment B - Proposed changes to M 196

by Rick Barenzinski (KS)

AASHTO M196 Corrugated Aluminum Pipe for Sewers and Drains Review

Note that comments concerning values in the Tables are primarily compared with ASTM B745/B745M table values

Cover Sheet		Change ASTM Designation Year to 15
M 196-1		Change ASTM Designation Year to 15
M 196-1	2.2	Add Reference ASTM A796/A796M REV A It's referenced in Note 1.
M 196-1	2.2	Change ASTM C990 to ASTM C443. Section 9.3 refers to Rubber Gaskets and not Preformed Flexible Joint Sealants
M 196-2	2.2	To F738M add (withdrawn 2014)
M 196-3	6.3	Alloy 6053-T4 is not in ASTM B316M. Suggest using verbiage in ASTM B745/B745M as follows: alloy 6053-T61 and alloy 5056 H32, to meet or exceed the following mechanical properties:
M 196-4	6.3	The Elongation in ASTM B316/B316M uses Table 5 for SI units. M 196 is using the Elongation for inch-pound units with the incorrect value. It should be Elongation in 5 x Diameter $5.65\sqrt{A}$ with a min % of 12 for 6053-T61.
M 196-4	6.3	Bolts and Nuts Table: Capitalize Steel and Alloy. Add the Letter M behind F568, F738, and F836
M 196-4	6.5	Suggest using ASTM C443 in lieu of ASTM C990
M-196-4	7.1.2	Places where a '-' is placed between the number and "mm"
	7.2.2	It is not consistent through the spec and should be removed
		Table 1, footnote e
	7.3.1	
	8.3.2.2	Note 9
	9.1.7	
	9.3	
		Tables 6, 7 & 8
M 196-5	Table 1	Change first word in title to "Corrugation"
M 196-5	Note 1	ASTM A796/A796M is not referenced
M 196-5	Table 2	remove the 0.1875 in and the parenthesis around 4.8 mm
	Footnote a	
M 196-8	Table 5	Several values for the min Outside Circumference seem to be off. I Don't have the equation used, but these should be checked. 375 mm should be 1148 mm and not 1226 mm 525 mm should be 1620 mm and not 1540 mm 675 mm should be 2091 mm and not 2169 mm 750 mm should be 2325 mm and not 2483 mm 1500 mm should be 4675 mm and not 4875 mm

M 196-8	Table 5	change Rib size to Rib sizes
	Footnote b	
M 196-9	Table 6	Not sure why the span for 885 by 610 is 870 and not 885
M 196-9	Table 7	Span for 1850 by 1400 should be 1850-85 and not 1150-85 Span for 2050 by 1500 should be 2050-95 and not 2050-90?
M 196-11	Table 9	Using the equation in footnote c, the L for the 525 mm dia pipe should be 336 and not 338.
M 196-11	Note 8	Seems inconsistent to use 500 mm pipe when the spec has been using 525 mm pipe throughout.
M 196-11	8.3.2.3	Inconsistent use of 12.7 mm when 13 mm is used in 7.5 & 8.3.2.2
M 196-13	Table 11	Several differences in the Nominal Pipe Inside Dia range as compared to ASTM
M 196-15	15	Suggest adding Sections 15 and 15.1 for Keywords similar to the ASTM

Attachment C – Stewards

Std Sort	Designation No	Title	ASTM Eq	Immediate Action Needed?	Stewards
M 036-16	M 36-16	Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains	A760/A 760M-01a	Revise or Reconfirm	Washington, Michigan
M 167M/M 167-17	M 167M/M 167-17	Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches	A761/A 761M-04	No	Georgia, Alabama
M 190-04 (2017)	M 190-04 (2017)	Asphalt-Coated Corrugated Metal Culvert Pipe and Pipe-Arches		No	Michigan, Pennsylvania
M 196-16	M 196-16	Corrugated Aluminum Pipe for Sewers and Drains	B745/B 745M-95	Revise or Reconfirm	Kansas, AASHTO
M 197-06 (2016)	M 197-06 (2016)	Aluminum Alloy Sheet for Corrugated Aluminum Pipe	B744/B 744M-05	Revise or Reconfirm	Florida, Tennessee
M 218-03 (2016)	M 218-03 (2016)	Steel Sheet, Zinc-Coated (Galvanized), for Corrugated Steel Pipe		Revise or Reconfirm	New York, Pennsylvania
M 219-92 (2017)	M 219-92 (2017)	Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe-Arches, and Arches	B746/B 746M-92	No	Washington, Tennessee
M 243-96 (2017)	M 243-96 (2017)	Field-Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches		No	New York, Maine
M 245-16	M 245-16	Corrugated Steel Pipe, Polymer-Precoated, for Sewers and Drains	A762/A 762M-98	Revise or Reconfirm	Florida, Illinois
M 246-15 (2019)	M 246-15 (2019)	Steel Sheet, Metallic-Coated and Polymer-Precoated, for Corrugated Steel Pipe	A742/A 742M-13	No	Connecticut, Louisiana
M 252-18	M 252-18	Corrugated Polyethylene Drainage Pipe		No	Alabama, Delaware
M 274-87 (2017)	M 274-87 (2017)	Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe		No	Ontario, Maine
M 278-15 (2019)	M 278-15 (2019)	Class PS46 Poly(Vinyl Chloride) (PVC) Pipe		No	Connecticut, Washington
M 289-91 (2017)	M 289-91 (2017)	Aluminum-Zinc Alloy Coated Sheet Steel for Corrugated Steel Pipe		No	Louisiana, Pennsylvania

M 294-18	M 294-18	Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter		No	Virginia, North Carolina
M 304-11 (2019)	M 304-11 (2019)	Poly(Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter		No	Maine, Tennessee
M 326-18	M 326-18	Polyethylene (PE) Liner Pipe, 300- to 1600-mm Diameter, Based on Controlled Outside Diameter		No	Delaware, Virginia
M 330-19	M 330-19	Polypropylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter		No	Florida, Missouri
M 335-19	M 335-19	Steel-Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 1500-mm (12- to 60-in.) Diameter		No	Michigan, North Carolina
R 063-13 (2017)	R 63-13 (2017)	Solid Wall High-Density Polyethylene (HDPE) Conduit for Non-Pressure Applications Used for the Protection of Power and Telecommunications Cables		No	Louisiana, Tennessee
R 082-17	R 82-17	Pipe Joint Selection for Highway Culvert and Storm Drains		No	Virginia, Alabama
R 093-19	R 93-19	Service Life Determination of Corrugated HDPE Pipes Manufactured with Recycled Content		No	
T 241-95 (2017)	T 241-95 (2017)	Helical Continuously Welded Seam Corrugated Steel Pipe		No	Missouri, Louisiana
T 249-03 (2016)	T 249-03 (2016)	Helical Lock Seam Corrugated Pipe		Revise or Reconfirm	Missouri, Georgia
T 341-10 (2019)	T 341-10 (2019)	Determination of Compression Capacity for Profile Wall Plastic Pipe by Stub Compression Loading		No	South Carolina, Kansas
Std Sort	Designation No	Title	Prov Yr 1	Immediate Action Needed?	
MP 040-19	MP 40-19	Steel-Reinforced Polyethylene (SRPE) Corrugated Pipe 300- to 1800-mm (12- to 72-in.) Diameter	2019	No	