AASHTO Update
NCC
Springfield, MA
September 2025

Mark Felag and Baxter Blue

Mark E. Felag, PE, LLC

Disclaimer

Opinions expressed are my own and not of any other organization.
I assume no responsibility of content.

Also below,

Agenda

HM – 45 – 2025 Updates

re:source Updates

HM-46 – 2025/2026 Ballots

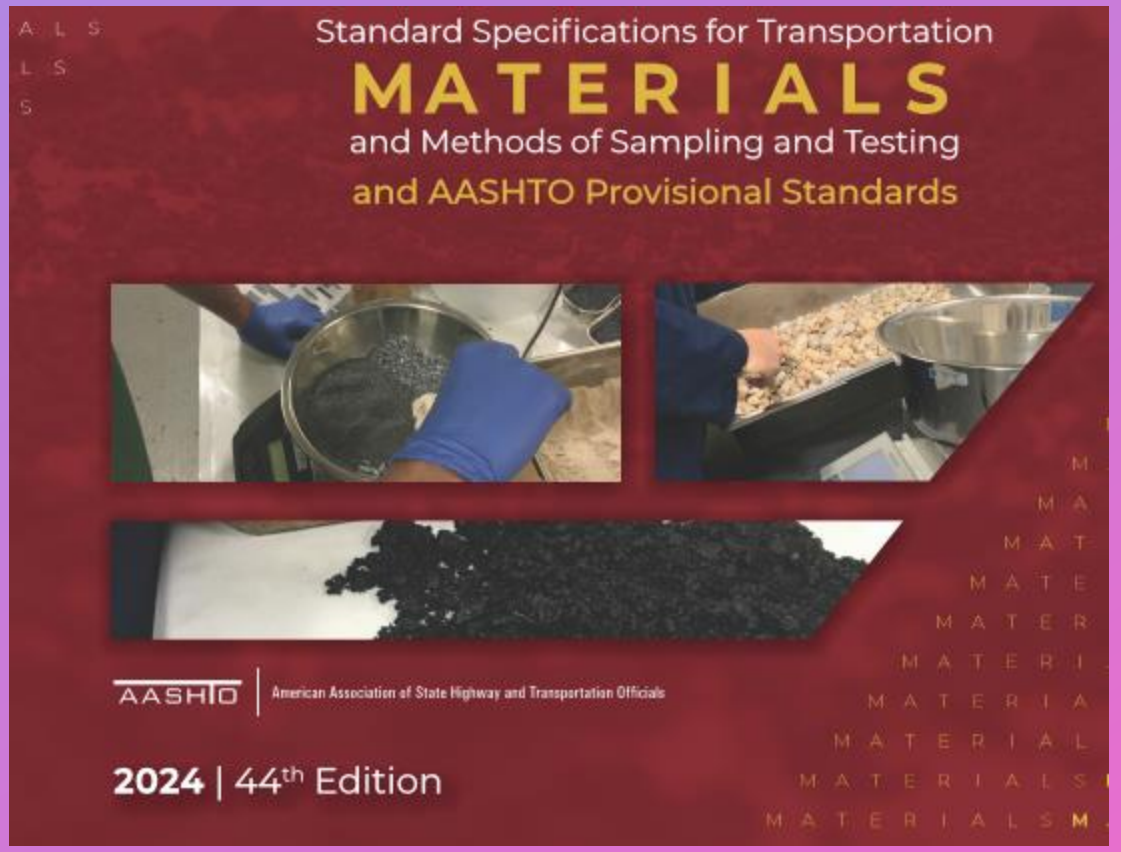
NCHRP Research Projects

NCHRP Synthesis Projects

2025 Overview

HM-45

Released July 31, 2025
583 Standards
Revised 103 Standards
20 New Standards



re:source Changes

Promoting One Stop Shop – Going well so far!

States back to 26 month schedule

Temp Measuring Devices

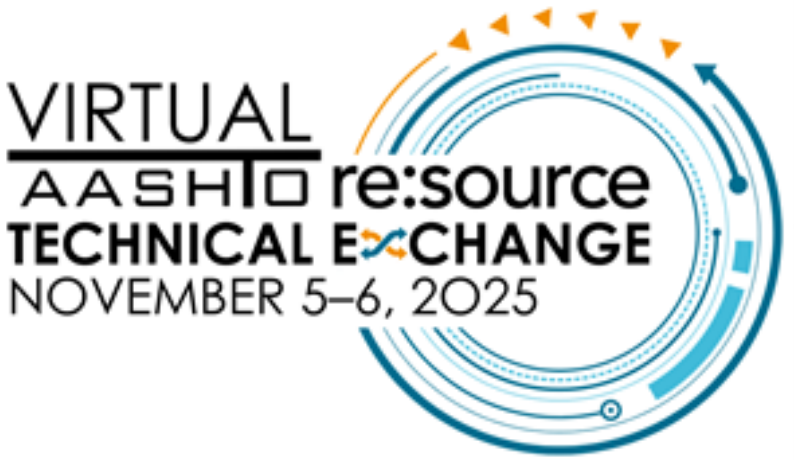
TF on TMD
M 339 – Thermometers
Ballot Coming Soon

re:source Technical Exchange

Upcoming Events

2025 Virtual AASHTO re:source Technical Exchange
November 5-6, 2025

We are still planning this virtual event, so check back for more details.



2026 AASHTO re:source Technical Exchange
March 2026 in Louisville, KY

Check back later for specific dates and other event details. To learn more about this event, visit the below links to past Technical Exchange events.

COMP
5 Divisions

1 – Soils and Aggregates

2 – Asphalt

3 – Cement and Concrete

4 – Miscellaneous – Pipe, Markers, Bearings, Geo

5 – Pavement, Environmental and Quality

TS 1c – Aggregates - Items Completed

- T 416 – Determination of Alkali Threshold for Alkali-Silica Reactivity Used in Concrete (ATT) – 2025 Revisions for Clarity

- TP 144 – Determining the Potential Alkali-Silica Reactivity for Aggregates (TFHRC – TFAST) – 2025 Revisions for Clarity – v2

2025 3a Cement Task Forces

TF 09-01 – Task Force on Harmonization of Cement Standards

M 85 - Portland Cement

M 240 - Blended Cement

M 327 – Processing Additions

2025 3a Cement Task Force

TF 09-01 – Task Force on Harmonization of Cement Standards - Members

Maria Masten, Cochairman	**Minnesota DOT**	**AASHTO**
Jim Pierce, Cochairman	Bureau of Reclamation	ASTM
Rachel Cano	Texas DOT	AASHTO
James Greene	Florida DOT	AASHTO
Doug Hooton	University of Toronto	ASTM
Al Innis	Consultant	ASTM
Jon Kunin	New York DOT	AASHTO
Colin Lobo	NRMCA	ASTM
Paul Tennis	ACA	ASTM
Dan Tobias	Illinois DOT	AASHTO

TF 09-01 – Task Force on Harmonization of Cement Standards - Guests

Larry Sutter	Consultant
Steve Wilcox	Consultant
Mark Niemuth	Cemex
Don Streeter	D.A. Streeter Engr PLLC
Oliver Chung	Florida DOT
Richard Delorenzo	Florida DOT
Dale Deford	Florida DOT
Brandon Sawyer	Florida DOT
Sue Zheng	Florida DOT
Craig Hargis	Fortera
Joe Clendenen	Amrize
Rick Darnell	Amrize
Justin Morris	Louisiana DOT
Brett Trautman	Missouri DOT
Mike Allocco	New York DOT
Dan Dennis	New York DOT
Eric Giannini	ACA
Eric Koehler	Titan
Kerry Sutton	SCA
Ashley Yunkun	Texas DOT

2025 3a Cement Task Force

Task Force on Harmonization of Fly Ash, Etc. Standards

M 295 – Coal Ash and Raw or Calcined Natural Pozzolan

M 302 - Slag Cement

M 307 – Silica Fume

M 321 – High-Reactive Pozzolans

2025 – All Divisions

ASTM Equivalence

WAQTC Edits

2025 – Division 3
TS 3a - Cement

More TF changes:

M 240 – Alkali reporting

M 295 – Limits on LOI for coal ash

M 327 – Removes requirement to use sulfur capping

2025 3b Fresh Concrete - TF 3b 23-01

R 39 – Lab, R 100 – Field, M 157 – Ready Mixed Concrete

Changes for consistency, removing test requirements from cylinder making, etc.

2025 TS 3c - Guide for Reduction of Embodied Carbon Content of Portland Cement Concrete

Published by the CP Tech Center in March 2024

Published by AASHTO in 2025

TS 3c - R 101

Standard Practice for

Developing Performance Engineered Concrete Pavement Mixtures

AASHTO Designation: R 101-22[1]

Adopted: 2022

Technical Subcommittee: 3c, Hardened Concrete

AASHTO

Working Group Established and met in DC in July 2024

Table 2—Specification Worksheet for Mixture Proportioning

Section	Property	Specified Test	Specified Value		Mixture Qualification	Acceptance	Selection Details	Special Notes
6.3 Concrete Strength								
6.3.1	Flexural Strength	T 97M/T 97	4.1 MPa	600 psi	Yes	Yes	Choose either or both	—
6.3.2	Compressive Strength	T 22M/T 22	27.5 MPa	4000 psi	Yes	Yes		—
6.4 Reducing Unwanted Slab Warping and Cracking due to Shrinkage (if cracking is a concern)								
6.4.1.1	Volume of Paste	—	≤25%		Yes	No	Choose only one	—
6.4.1.2	Unrestrained Volume Change	T 160	420 με	At 28 days	Yes	No		—
6.4.2.2	Unrestrained Volume Change	T 160	360, 420, 480 με	At 91 days	Yes	No		—
6.4.2.1.1	Unrestrained Volume Change	T 334	No cracking	At 180 days	Yes	No		
6.4.2.1.2	Restrained Volume Change	T 363	<60% f'r	At 7 days	Yes	No		
6.5 Durability of Hydrated Cement Paste for Freeze–Thaw Durability								
6.5.1.1	Water to Cementitious Ratio	—	0.45	—	Yes	Yes	[a]	—
6.5.1.2	Fresh Air Content	T 152, T 196M/T 196, TP 118	5 to 8%	—	Yes	Yes	Choose only one	—
6.5.1.3	Fresh Air Content/SAM	T 152, T 196M/T 196, TP 118	≥4%; ≤0.20	—	Yes	Yes		—
6.5.2.1	Time of Critical Saturation	ASTM C1585	30	yr	Yes	No	[a, b]	Variation controlled with mixture proportion observation or *F* factor and porosity measures
6.5.3.1	Deicing Salt Damage	—	30%	SCM	Yes	Yes	Choose only one if concrete will be exposed to deicing salts	Are calcium or magnesium chloride used
6.5.3.2	Deicing Salt Damage	M 224	—	Topical treatment	Yes	Yes		Are calcium or magnesium chloride used; use specified sealers
6.5.4.1	Calcium Oxychloride Limit	T 365	<0.15 g CaOXY/100 g paste		Yes	No		Are calcium or magnesium chloride used
6.6 Transport Properties								
6.6.1.1	Water to Cementitious Ratio	—	≤0.45 or ≤0.50	91 days[c]	Yes	Yes	Choose only one	The required maximum water to cementitious ratio is selected based on freeze–thaw conditions
6.6.1.2	Formation Factor	Table 1	≥500 or ≥1000	91 days[c]	Yes	Yes		Based on freeze–thaw conditions; other criteria could be selected
6.6.2.1	Ionic Penetration, *F* Factor		25 mm at 30 yr	91 days[c]	Yes, F	Through ρ		
6.7 Aggregate Stability								
6.7.1	D Cracking	ASTM C1646, T 161	—	—	Yes	No		Procedure A
6.7.2	Alkali Aggregate Reactivity	R 80	—	—	Yes	No		—
6.8 Workability								
6.8.1	Box Test	TP 137	<6.25 mm, <30% surface void			No		—
6.8.2	Modified VKelly Test	T 403	15–30 mm/root s			No		—

Notes:

[a] Choose either Section 6.5.1.1 or 6.5.2.1.

[b] Choose either Section 6.5.1.2, 6.5.1.3, or 6.5.2.1.

[c] Other ages can be used if desired however for SCM sufficient time should be allowed for the pozzolanic reaction.

Recommended Changes

- **Mostly in Tables and corresponding references to them.**
- **Editorials such as updating standards from provisional to full, or renumbering, etc., have been done.**
- **Published in July 2025**

TS 5c – R 122 - QA of Portland Cement Concrete

Functions and Responsibilities

CMD

QC

Agency Acceptance

IA – R 44

Dispute Resolution

Evaluation of Rejected Concrete

Measurement and Payment

Upcoming Good Stuff

Most have passed TS ballot

All will move to COMP or Concurrent (COMP and TS) Ballot

Ballot Opens September 17th

Closes October 15th

AASHTO – ASTM Pilot Project on Standards Development

ASTM SCM --→ AASHTO

AASHTO SAM---→ ASTM

TS Ballot (closes 9/18/25) - WK70466 – SCM for Use in Concrete

2026 – Division 3
TS 3a - Cement

TF changes:

M 240 – Blended Hydraulic Cements

– MgO limit to 6% of PC constituent

- Type Designations – Inc. allow. for production as in batching

- Rev of MS and HS to add ASTM C452 – Pot. Exp. of PC Mortars Exposed to Sulfate

- New Type IC allows for increasing percentages w/o changing limits

2026 – Division 3
TS 3a - Cement

More TF changes:

M 295 – Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

- Remove definitions added to C 125

- Remove Drying Shrinkage from Optional Physical Req'ts

- Scope language added from previous Note

2026 – Division 3
TS 3a - Cement

More TF changes:

M xxx – Natural Pozzolan based on M 295 Class N

M 302 – Slag Cement – Fineness #325 - Air Jet (C1891) alt. to T 192

- Revision of Reporting section

M 327 – Processing Additions – Number and Types of Cements

2026 – Division 3
TS 3a - Cement

T 98M/98 Fineness of Portland Cement

by the Turbidimeter – Withdrawal

2026 3b Fresh Concrete

M 157 – Ready Mixed Concrete – Flex. in Sampling Locations

R 100M/R 100 Casting and Curing Concrete Strength Test Specimens in the Field – Minor Edits

2026 3b Fresh Concrete

T 26 – Quality of Water to be used in Concrete

TS ballot passed but request for standard withdrawn

(ASTM C1602 - Mixing Water Used in the Production of Hydraulic Cement Concrete)

2026 3b Fresh Concrete

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

AASHTO

THE VOICE OF TRANSPORTATION

T 345 Passing Ability of Self-Consolidating Concrete (SCC) by J-Ring

T 347 - Slump Flow of Self-Consolidating Concrete (SCC)

- Clarification to measurement of slump flow diameter

2026 3b Fresh Concrete

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

AASHTO

THE VOICE OF TRANSPORTATION

R 64 – Sampling of 2-inch Cubes – Clarification of Tamping

T 351 – Visual Stability Index of SCC – Use whole #'s

T 396 – Box Test – Comments from Texas

2026 TS 3c – Hardened Concrete

TF 24-01 - ASR

Dana Dietz (ID) - Chair

Maria Masten (MN)

Andy Naranjo (TX)

Richard Geissel (AK)

Robert Spragg (FHWA)

2026 TS 3c – Hardened Concrete

R 80 – ASR Standard – NCHRP Edits

R 80 – ASR Standard – TFHRC Edits – TFAST (TP 144) and ATT (T 416) - Appendix and Examples

T 380 – MCPT – Updates

Alkali–Silica Reactivity Potential and Mitigation - NCHRP RR 1083

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Austin, TX

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LAVAL UNIVERSITY
Quebec City, QC

R 80 - Section 2 – Referenced Documents

- Add T 380 - Potential Alkali Reactivity of Aggregates and Effectiveness of ASR Mitigation Measures (Miniature Concrete Prism Test, MCPT)

- Add ASTM C 1778 - Standard Guide for Reducing the Risk of Deleterious Alkali-Aggregate Reaction in Concrete

R 80 – Section 8 - Preventive Measure – Prescriptive

Table 6—Minimum Levels of SCM to Provide Various Levels of Prevention

Type of SCM[a]	Alkali Level of SCM, (% Na_2Oe)	Minimum Replacement Level[b] (% by Mass of Cementitious Material)				
		Level W	Level X	Level Y	Level Z	Level ZZ
Fly ash (CaO ≤18%)	≤3.0	~~15~~20	~~20~~25	25	35	Table 7
	>3.0, ≤4.5	~~20~~25	~~25~~30	~~30~~Not Permitted	~~40~~Not Permitted	Table 7
Slag Cement	≤1.0	~~25~~30	~~35~~40	50	65	Table 7
Natural Pozzolan (Meeting M 295 Class N)	≤ 8.0	25	Assess in ASTM C1567/T 380	Assess in ASTM C1567/T 380	Assess in ASTM C1567/T 380	Table 7
Silica fume[c] (SiO_2 ≥85%)	≤1.0	2.0 × KGA or 1.2 × LBA	2.5 × KGA or 1.5 × LBA	Not permitted as a sole preventive option ~~3.0 × KGA or 1.8 × LBA~~	Not permitted as a sole preventive option ~~4.0 × KGA or 2.4 × LBA~~	Table 7

[a] The SCM may be added directly to the concrete mixer or it may be a component of a blended cement. SCMs should meet the requirements of M 295, M 302, or

T 380 Recommendations

Table 1—Proposed Criteria for Characterizing the Aggregate Reactivity in the MCPT Protocol

Aggregate Reactivity Class	Degree of Reactivity	Expansion at 56 Days, % (8 Weeks)	~~Average 2-Week Rate of Expansion from 8 to 12 Weeks~~*
R0	Nonreactive	≤0.030	~~N/A~~*
	~~Nonreactive~~	~~0.031–0.040~~	~~≤0.010% per 2 weeks~~
	~~Low/slow reactive~~	~~0.031–0.040~~	~~>0.010% per 2 weeks~~
R1	Moderate reactive	0.03141–0.120	~~N/A~~*
R2	Highly reactive	0.121–0.240	~~N/A~~*
R3	Very highly reactive	>0.240	~~N/A~~*

T 380 Recommendations

Table 2—Proposed Criteria for Characterizing Effectiveness of ASR Mitigation Measures in MCPT Method

Efficiency of Mitigation	Expansion at ~~8456~~ Days, % (12~~8~~ Weeks)
Effective	<0.025~~0~~
~~Uncertain*~~	~~0.020%–0.025~~
~~Not effective~~ Ineffective	>=0.025

~~* Recommend retest with MCPT using a higher dosage of mitigation.~~

TFHRC ASR Work

Appendix (non-mandatory) for

TP 144 - Determining the Potential Alkali–Silica Reactivity of Aggregates (TFHRC-TFAST)

T 416 - Determination of Alkali Threshold for Alkali–Silica Reactivity in Aggregates Used in Concrete (ATT)

RI = reactivity index; Si = silicon.

2026 TS 3c – Hardened Concrete

TF 24-01 – ASR – Still Active

2026 TS 3c – Hardened Concrete

New Standard

Flexural Response of Ultra-High Performance Concrete (UHPC) Prisms in Four-Point Bending

2026 TS 3c – Hardened Concrete

T 357 – Predicting Cl Penetration of PCC by Rapid Migration Procedure

Addition of Method B to follow a European test method to determine a migration coefficient that is widely used and accepted.

2026 TS 3c – Hardened Concrete

Updates to Resistivity Standards

T 358 (Surface) and T 402 (Bulk) – Thermometer and Temp

T 402 – Testing air temp consistent with T 358

T 358 – Edits to Accelerated Curing

- **Allowance for automated systems**
- **Clarified analysis and reporting**
- **Clarified ranges of classification in ‘data interpretation’**

2026 TS 3c – Hardened Concrete

R 101 – PEM and T 160 – Length Change

Notes added to show different curing requirements

2026 TS 3c – Hardened Concrete

New Standard

Autogenous and Total Shrinkage Strain of Paste, Mortar, and Concrete with the Plastic-Sleeve Test Method

NCHRP Projects Research Field 18 Concrete Materials

NCHRP 18-21	Utilization of Alternative Supplementary Cementitious Materials in Highway Applications
NCHRP 18-22	Concrete Shrinkage Measurement and Cracking Mitigation

18-21 Active, 18-22 Pending

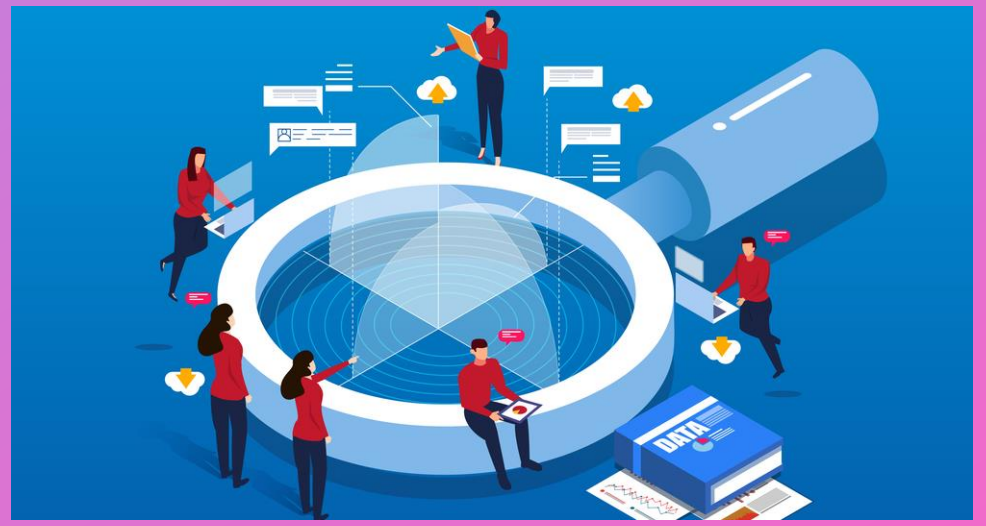
NCHRP FY 27

COMP Research Summit - September 22nd

No Cement or Concrete Items

November 2025 Deadline

NCC??



NCHRP Synthesis Projects

Synthesis 638 - Testing Personnel Certifications - Published

Thank you so much for your time!

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