AASHTO Update on New PCC Related Methods and Equipment

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2022 NESMEA
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Introduction

I hope to provide you with an overview of the activities within AASHTO Committee on Materials and Pavements and NCHRP with an emphasis on cement and concrete materials.

QR Codes and Links will be provided within this document to direct you to further details.
Agenda

AASHTO 2022 - HM-42
AASHTO 2023 - HM-43
PEM Work
NCHRP Research Projects
NCHRP Synthesis Projects
AASHTO 2022
HM - 42

https://www.transportation.org/aashto-store/

List of changes - 27 Pages
2022 Overview

Total Standards - 580+
Revised 276 with 325 Ballot Items
New Standards - 3
TMD Ballots - 203

“I survived the Temperature Measuring Devices (TMD) changes!”
2022 TMD

NCHRP 20-07, Task 427

Developing a Recommended AASHTO Standard Practice for Selection of Temperature Measuring Devices (TMD)

### Why we Survived the TMD Changes!

<table>
<thead>
<tr>
<th>Group</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 (Concrete, Pave. Pres., Environ. &amp; QA)</td>
<td>44</td>
<td>100</td>
<td>45</td>
</tr>
<tr>
<td>Group 2 (Misc. Materials)</td>
<td>10</td>
<td>59</td>
<td>34</td>
</tr>
<tr>
<td>Group 3 (Soils and Asphalts)</td>
<td>27</td>
<td>166</td>
<td>~28</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>81</td>
<td>325</td>
<td>~103</td>
</tr>
</tbody>
</table>
2022 TMD – New Standard

M 339M/M 339 - Thermometers Used in the Testing of Construction Materials
AASHTO re:source will follow the 2021 standard to allow folks to become familiarized with and acquire equipment for TMS until release of the 44th edition in late 2024

Presentation to Don Streeter
2022 3a Cement

TF 09-01 - Task Force on Harmonization of Cement Standards
M 85 - Portland Cement
M 240 - Blended Cements
M 327 - Process Additions
2022 3a Cement 1

M 85 Portland Cement - Remove T 107 (Autoclave Expansion) reference

M 327 Process Additions - Remove Flexural Strength requirements
Added and revised information on porcelain crucibles
2022 3a Cement 3

Appendix revisions and ASTM Equivalencies mostly for clarification.
2022 3b Fresh Concrete

“There is no truth to the rumor that this is Tyler as a youth!”
Congratulations 1!

TP 118 is now T 395 - Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method

Now a Full Standard
Congratulations 2!

TP 137 is now T 396 - Box Test in Slip Form Paving of Fresh Portland Cement Concrete

Now a Full Standard
2022 3c Hardened Concrete

HARDENED CONCRETE

Hardened concrete is concrete that must be sufficiently strong to withstand the structural and service applied loads.
Congratulations 3!

PP 84 is now R 101 - Developing Performance Engineered Concrete Pavement Mixtures

Now a Full Standard
Congratulations 4!

New Standard

T 397 - Tensile Response of Ultra-High Performance Concrete

Dr. Ben Greybeal at TF HRC
2022 3c Hardened Concrete - 1

T 97 – Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)

New Terminology Section and Additional Information on Verifying the Accuracy of Testing Machines
2022 3c Hardened Concrete - 2

T 148 – Measuring Length of Drilled Concrete Cores
T 276 – Measuring Early-Age Compression Strength and Projecting Later-Age Strength

Added/Updated Precision information
New/Updated Terminology Section
Updated Other Requirements
2022 3c Hardened Concrete - 3

T 277 - Electrical Indication of Concrete’s Ability to Resist Chloride Ion Penetration

Updated Vacuum Pump, Precision and TMD
2022 3c Hardened Concrete - 4

TP 119 - Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test

T 358 - Surface Resistivity Indication of Concrete’s Ability to Resist Chloride Ion Penetration

- Revised extensively throughout but Terminology List, Measuring and Reporting of Temp with an IR temp gun, Conditioning and New Appendix in T 358 (geometry correction).
2022 3c Hardened Concrete - 5

TP 129 - Vibrating Kelly Ball (Vkelly) Penetration in Fresh Portland Cement Concrete

Editorially revised to remove specific brands
2022 3c Hardened Concrete - 6

Revisions for TMD & ASTM equivalence
2022 4a Concrete Drainage Structures

M 259 - Precast Reinforced Concrete Box Sections for Culverts, Storm Drains and Sewers Designed According to AASHTO LRFD

- Title Change, LRFD (2019) & TMD
2022 TSs 5b and 5c
Preservation Area

More Provisional were moved to Full Standards.
Standards related to preservation such as fog seals, sand seals, etc.
TS 1b – Geotechnical
New 2022 AASHTO
Subsurface Investigation Manual
TS 5d – Pavements

Pavement Design, Con., & Man.: A Digital Handbook – Will include interlocking (and interlocking permeable) pavements.
Pavement Management Guide (2012) - Revised by RPS?
AASHTO 2023 – HM-43

“Return to Normalcy”

We met IN PERSON in 2022 in Miami!!

Group 1 and 2 Ballots Out
2023 3a Cement

M 85 - Portland Cement
M 240 - Blended Cement

Remove special property designations for MH, LH, and Type IV cement, and replace with an option for purchaser to require C1702 heat of hydration
2023 3a Cement

M 240 - Blended Cements
M 327 - Processing Additions

- Remove T 107 Autoclave Requirements
2023 3a Cements

Modify some Appendix language, equivalence to ASTM Jointly Owned standards and make one Test method a Practice
2023 3b Fresh Concrete

M 194 - Chemical Admixtures for Concrete
Allow Type IL Cement
2023 3b Fresh Concrete

Updates to ASTM Equivalency mostly for clarifications.
2023 3c Hardened Concrete

TP 119 - Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test

Ballot to make a Full Standard
2023 3c Hardened Concrete

TP 129 - Vibrating Kelly Ball (Vkelly) Penetration in Fresh Portland Cement Concrete

Ballot to make a Full Standard
2023 3c Hardened Concrete

Updates to ASTM Equivalency
PEM Work

CP Tech Center

https://cptechcenter.org/
Precision and Bias

T 395 - Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method
T 396 - Evaluating the Workability of Slip Form Concrete Paving with the Box Test
TP 129 - Vibrating Kelly Ball (VKelly) Penetration in Fresh Portland Cement Concrete
TP 119 - Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test
T 358 - Surface Resistivity Indication of Concrete’s Ability to Resist Chloride Ion Penetration
Precision and Bias

Looking for Volunteers to be a part of this research effort!

SAM, Vkelly or Box Tests – Mid West in March 2023

Resistivity Tests – Perform in your laboratory
Minor changes will be made to the frequency of the vibrator.
NCHRP Recently Completed Project

NCHRP 961 - Entrained Air Void Systems for Durable Highway Concrete

Peter Taylor - ISU and John Kevern - UMO

https://www.trb.org/Main/Blurbs/181668.aspx
FY 23 - 3 Research Projects Related to Materials

C-06: Impact of Flooding and Inundation on the Resiliency of Pavements
$650,000 for 24 months

D-04: Variability in Pavement Materials and Construction
$500,000 for 30 months

D-18: Quality Assurance and Sustainability
$350,000 for 24 months
FY 24 – COMP SUBMITTALS

TS 2d - Feasibility Evaluation and Guidance Dev Implementing Practical Protocols for BMD
TS 3a - Alternate SCM’s for Concrete
TS 4c - Pavement Markings Friction Levels
TS 5d - Update the AASHTO Pavement Management Guide
NCHRP Synthesis
Projects Completed

20-05/06-05 - Rapid Setting Materials for Repairing Concrete
20-05/07-01 - Consolidation of Concrete for Pavements, Bridge Decks and Overlays
20-05/12-04 - Resealing Joints and Cracks in Rigid and Flexible Pavements
Many others in many different areas
Current Synthesis Projects...and More

20-05/53-07 – Curing Practices for Concrete Pavements

20-05/53-19 – State DOT Product Evaluation Practices
New Synthesis Projects
22 in total

54-17 - State DOT Innovation Programs and Practices
Synthesis Projects

Due February 17, 2023
Talk then do!

Mark Felag
Summary

I hope you found this presentation useful. Within this document there are QR Codes and links associated with the topics that may be helpful. Please feel free to reach out to me if you need further assistance.
Thank you so much for your time!

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