

STANDARD SPECIFICATIONS
for
TRANSPORTATION MATERIALS
and
METHODS OF SAMPLING AND TESTING
and
PROVISIONAL STANDARDS

41ST EDITION

(JULY 2021)

PART 1: SPECIFICATIONS AND PRACTICES

PART 2: TEST METHODS

PART 3: PROVISIONAL STANDARDS

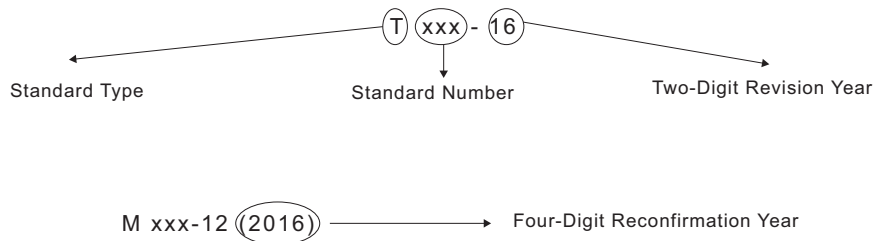
Adopted by the



ABOUT AASHTO DESIGNATION NUMBERS

Anatomy of a Designation Number

Components



Standard Types

Standard types are represented by a one-letter abbreviation for full standards. The letter “P” is added for provisional standards. The standard type abbreviations are as follows:

- M (Materials, full)
- T (Test, full)
- R (PRactice, full)
- MP (Materials, provisional)
- TP (Test, provisional)
- PP (Pactice, provisional)

Standard Numbers

Standard numbers are sequential within standard type. A provisional that is subsequently adopted as a full standard will receive a new number; likewise a standard that changes types (e.g. test to practice).

Revised vs. Reconfirmed and Discontinued vs. Deleted

A full or provisional standard is designated as *revised* if technical changes have been balloted and approved by AASHTO’s Highways Subcommittee on Materials. A standard is designated as *reconfirmed* if it has undergone technical review to determine that it is up to date and in use and that it does not require revision; such a review is required:

- every four years for a full standard, and
- every one or two years for a provisional standard, depending on its progress through its 8-year provisional life cycle.

If a standard is no longer used, it may be *discontinued* by Subcommittee vote, in which case the standard header will be published that year with a notice saying that the standard has been discontinued and giving a brief explanation as to why. In subsequent years, the standard will be *deleted* from the book, meaning that it is no longer maintained.

Designation Key

As of 2021, a key is provided below the designation number. The information on the left indicates what year the standard was most recently technically revised, or when it was first published, adopted, or reclassified. If the standard has been reconfirmed or extended, the center tab will read “Reviewed but Not Updated:” and the year; otherwise, it will be empty. If unballoted technical corrections or clarifications have been made by the author subcommittee, the right tab will read “Editorially Revised:” and the year; otherwise, it will be empty.

PART 1—STANDARD SPECIFICATIONS AND STANDARD PRACTICES

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M 33M/M 33-21	Preformed Expansion Joint Filler for Concrete (Bituminous Type)
M 36-16 (2020)	Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains
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T 194-97 (2018)	Determination of Organic Matter in Soils by Wet Combustion
T 206-19	Penetration Test and Split-Barrel Sampling of Soils
T 207-12 (2020)	Thin-Walled Tube Sampling of Soils
T 208-15 (2019)	Unconfined Compressive Strength of Cohesive Soil
T 211-90 (2021)	Determination of Cement Content in Cement-Treated Aggregate by the Method of Titration
T 215-14 (2018)	Permeability of Granular Soils (Constant Head)
T 216-07 (2020)	One-Dimensional Consolidation Properties of Soils
T 217-14 (2018)	Determination of Moisture in Soils by Means of a Calcium Carbide Gas Pressure Moisture Tester
T 218-86 (2018)	Sampling Hydrated Lime
T 219-87 (2018)	Testing Lime for Chemical Constituents and Particle Sizes
T 220-66 (2018)	Determination of the Strength of Soil–Lime Mixtures
T 221-90 (2021)	Repetitive Static Plate Load Tests of Soils and Flexible Pavement Components for Use in Evaluation and Design of Airport and Highway Pavements
T 222-81 (2021)	Nonrepetitive Static Plate Load Test of Soils and Flexible Pavement Components for Use in Evaluation and Design of Airport and Highway Pavements
T 223-96 (2021)	Field Vane Shear Test in Cohesive Soil
T 225-16 (2020)	Diamond Core Drilling for Site Investigation
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T 232-90 (2018)	Determination of Lime Content in Lime-Treated Soils by Titration

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T 236-08 (2018)	Direct Shear Test of Soils under Consolidated Drained Conditions
T 252-19	Measurements of Pore Pressures in Soils
T 258-81 (2018)	Determining Expansive Soils
T 265-15 (2019)	Laboratory Determination of Moisture Content of Soils
T 267-86 (2018)	Determination of Organic Content in Soils by Loss on Ignition
T 272-18	One-Point Method for Determining Maximum Dry Density and Optimum Moisture
T 273-86 (2018)	Soil Suction
T 288-12 (2021)	Determining Minimum Laboratory Soil Resistivity
T 289-91 (2018)	Determining pH of Soil for Use in Corrosion Testing
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T 291-94 (2018)	Determining Water-Soluble Chloride Ion Content in Soil
T 296-10 (2020)	Unconsolidated, Undrained Compressive Strength of Cohesive Soils in Triaxial Compression
T 298-15 (2019)	High-Strain Dynamic Testing of Piles
T 306-11 (2019)	Progressing Auger Borings for Geotechnical Explorations
T 307-99 (2021)	Determining the Resilient Modulus of Soils and Aggregate Materials
T 310-19	In-Place Density and Moisture Content of Soil and Soil–Aggregate by Nuclear Methods (Shallow Depth)
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T 386-19	Rapid Axial Compressive Load Testing of Deep Foundation Units

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MP 24-15 (2021)	Waterborne White and Yellow Traffic Paints
MP 25-18 (2019)	<i>Adopted</i> —Performance-Graded Hot-Poured Asphalt Crack Sealant
MP 26-15 (2021)	Cotton Duck Fabric Bridge Bearings
MP 27-16 (2020)	Materials for Emulsified Asphalt Chip Seals
MP 28-17 (2020)	Materials for Microsurfacing
MP 31-17 (2021)	Materials for Cold Recycled Mixtures with Emulsified Asphalt
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MP 37-18 (2020)	Performance-Graded Asphalt Binder for Surface Treatments
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MP 46-20	Balanced Mix Design
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PP 98-20 (2021)	Asphalt Surface Dielectric Profiling System Using Ground Penetrating Radar
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TP 107-18 (2021)	Determining the Damage Characteristic Curve of Asphalt Mixtures from Direct Tension Cyclic Fatigue Tests
TP 108-14 (2021)	Abrasion Loss of Asphalt Mixture Specimens
TP 111-14 (2021)	Measuring Retroreflectivity of Pavement Marking Materials Using a Mobile Retroreflectivity Unit
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STD. NO.	TITLE
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TP 120-16 (2021)	Pore Index for Carbonate Coarse Aggregate
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TP 123-16 (2020)	Measuring Asphalt Binder Yield Energy and Elastic Recovery Using the Dynamic Shear Rheometer
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TP 130-18 (2020)	Producing Drawdown Panels and Measuring the Coefficient of Retroreflected Luminance (RL) of Pavement Markings in a Laboratory Panel
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MP 36-18 (2020)	Materials for Asphalt Tack Coat
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PP 80-20 (2021)	Continuous Thermal Profile of Asphalt Mixture Construction
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PP 90-18 (2020)	Sand Seal Design
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PP 106-21	Assessment of Static Performance in Transverse Pavement Profiling Systems
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PP 108-21	Assessment of Navigation Drift Mitigation in Transverse Pavement Profiling Systems
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LIST OF TECHNICAL CHANGES—PART 1

The balloted technical changes listed below are also indicated in the specifications by a change bar in the left margin. Unballoted editorial changes do not receive the change bar; however, the subheader line below the designation number will indicate if the standard has been editorially revised.

Release: July 2021

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 31M/M 31-21	Deformed and Plain Carbon and Low-Alloy Steel Bars for Concrete Reinforcement	4f	Revised to harmonize with ASTM A615-20 as follows: <ul style="list-style-type: none"> 1.2, 1.3, 20.3.4, 20.3.5; Table 4: Removed Grade 520 [75] Table 3: Changed tensile strength for Grades 420 [60] and 550 [80]; removed Grade 520 [75] 9.2.2: Replaced Grade 520 [75] with Grade 550 [80] 19.2: Added “Type SW” bars 20.3.3: Removed Grade 520 [75]; added explanation of “SW” Endnote: Removed equivalency exception for 9.2.2
M 33M/M 33-21	Preformed Expansion Joint Filler for Concrete (Bituminous Type)	4e	Revised as follows: <ul style="list-style-type: none"> 6.1: Changed thickness tolerance from ± 1 mm to 0 mm [$1/16$ in. to 0 in.]
M 57-80 (2021)	Materials for Embankments and Subgrades	1b	Reconfirmed for 2021 publication.
M 80-13 (2021)	Coarse Aggregate for Hydraulic Cement Concrete	1c	Reconfirmed for 2021 publication.
M 81-92 (2021)	Cutback Asphalt (Rapid-Curing Type)	2a	Reconfirmed for 2021 publication.
M 82-17 (2021)	Cutback Asphalt (Medium-Curing Type)	2a	Reconfirmed for 2021 publication.
M 85-21	Portland Cement	3a	Revised as follows: <ul style="list-style-type: none"> 1.1.1: Added “general” and comma A1.6.1: Deleted sentence A1.6.3: Added sentence
M 145-91 (2021)	Classification of Soils and Soil–Aggregate Mixtures for Highway Construction Purposes	1b	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 146-91 (2021)	Terms Relating to Subgrade, Soil–Aggregate, and Fill Materials	1b	Reconfirmed for 2021 publication.
M 147-17 (2021)	Materials for Aggregate and Soil–Aggregate Subbase, Base, and Surface Courses	1b	Reconfirmed for 2021 publication.
M 156-13 (2021)	Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures	2c	Reconfirmed for 2021 publication.
M 157-13 (2021)	Ready-Mixed Concrete	3b	Reconfirmed for 2021 publication.
M 167M/M 167-17 (2021)	Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches	4b	Reconfirmed for 2021 publication.
M 180-12 (2021)	Corrugated Sheet Steel Beams for Highway Guardrail	4d	Reconfirmed for 2021 publication.
M 182-05 (2021)	Burlap Cloth Made from Jute or Kenaf and Cotton Mats	3b	Reconfirmed for 2021 publication.
M 190-04 (2021)	Asphalt-Coated Corrugated Metal Culvert Pipe and Pipe-Arches	4b	Reconfirmed for 2021 publication.
M 194M/M 194-13 (2021)	Chemical Admixtures for Concrete	3b	Reconfirmed for 2021 publication.
M 199M/M 199-21	Precast Reinforced Concrete Manhole Sections	4a	Revised as follows: <ul style="list-style-type: none"> 4.1.2.1 and 4.1.3.5: Added portland-limestone cement
M 201-21	Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes	3a	Revised as follows: <ul style="list-style-type: none"> 2.1, 3.1.1: Added references to ASTM C125 and C219 3.2.4: Added definition of “water tank” 5: Extensively revised and expanded section on temperature measuring devices 6: Revised 6.1 and 6.3.1; deleted 6.1.2 7.2.1: Revised from “may be used” to “is permitted”
M 213-21	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)	4e	Revised as follows: <ul style="list-style-type: none"> 5.7: Added tenths place for asphalt content, for equivalency with ASTM D1751-18 3.1, 5.6, and 6.1: Minor editorial revisions Endnote: Added for exceptions to ASTM D1751-18

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 216-21	Quicklime and Hydrated Lime for Soil Stabilization	3a	Revised as follows: <ul style="list-style-type: none"> 4.2.2: Added “54°F” and placed metric value in parentheses X1.6: Added “(21°C)” in two places
M 219-92 (2021)	Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe-Arches, and Arches	4b	Reconfirmed for 2021 publication.
M 226-80 (2021)	Viscosity-Graded Asphalt Cement	2b	Reconfirmed for 2021 publication.
M 240M/M 240-21	Blended Hydraulic Cement	3a	Revised as follows: <ul style="list-style-type: none"> 4.3.6, 5.1.3.5: Added new sections Table 2: Added C1891 to “Applicable Test Method” column; revised footnote a Table 3: Added HE and HE(A) columns and associated data; revised footnotes a and c Table 4: Revised fineness in column 1; added C1891 to “Applicable Test Method” column 11.1.2: Added “Either” and “or C1891” 15.4: Added new Note 14 X1: Added new appendix and example mill test report
M 241M/M 241-13 (2021)	Concrete Made by Volumetric Batching and Continuous Mixing	3b	Reconfirmed for 2021 publication.
M 243-96 (2021)	Field-Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches	4b	Reconfirmed for 2021 publication.
M 252-21	Corrugated Polyethylene Drainage Pipe	4b	Revised as follows: <ul style="list-style-type: none"> Changed ASTM reference from F405 to F667 3.7: Added “polyethylene (PE) plastics” definition 9.1.1: Clarified size of specimen 9.4: Condensed section and removed Figure 3 12.1: Updated requirements for manufacturer’s certificate 12.2: Added subsection for “Manufacturer’s Record” requirements
M 274-87 (2021)	Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe	4b	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 288-21	Geosynthetic Specification for Highway Applications	4e	Revised as follows: <ul style="list-style-type: none"> 3.2, 8, 8.5; Tables 1, 4, 6: Removed definitions and requirements for “enhancement” and “Class 1A” geotextiles 3.3, 3.5: Added definitions for geogrid and geotextile 6.2, 7.1 (Note 3): Added references to AASHTO NTPEP Subgrade Stabilization Work Plan; 4.2, 8, 8.4; Tables 1, 5: Added text for “soil” stabilization 12, Table 12: Added new to include geotextile and geogrid requirements for subgrade stabilization and to replace previous “enhancement” requirements 10.1, X1.1.3.1, X1.6: Editorial revisions
M 289-91 (2021)	Aluminum-Zinc Alloy Coated Sheet Steel for Corrugated Steel Pipe	4b	Reconfirmed for 2021 publication.
M 294-21	Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter	4d	Revised to remove mention of the flat plate holder to allow the use of either the v-holder or flat plate.
M 295-21	Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete	3b	Revised as follows: <ul style="list-style-type: none"> 2.1: Added R 80 reference for guidance on mitigation of alkali–silica reaction (ASR) Table 2: Deleted Table 3 (was 4): Deleted “Effectiveness in controlling alkali silica reaction” testing 12, A1: Added supplier’s certification section and certification report annex X1: Added new appendix, Effectiveness of Fly Ash or Natural Pozzolan in Preventing Excess Expansion of Concrete due to Alkali–Silica Reaction
M 297-10 (2021)	Preformed Polychloroprene Elastomeric Joint Seals for Bridges	4e	Reconfirmed for 2021 publication and editorially revised to show the ASTM designation as “D3542-08(2019)”.
M 300-21	Inorganic Zinc-Rich Primer	4c	Extensively revised as follows: <ul style="list-style-type: none"> 1.1: Removed “iron and” 2.1.2: Deleted “(withdrawn 2019)” from ASTM D2371 listing 2.1.4: Deleted section

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
			<ul style="list-style-type: none"> 3.1.1 and 3.1.2: Deleted inorganic zinc rich primer and revised definition 4.1.2: Revised to state “post- cured or self- cured inorganic waterborne alkali silicate, such as sodium, potassium, ammonium or lithium silicate, or a self-cured hydrolyzed solvent silicate, such as ethyl silicate, with additives such as agents, hardeners, or activators that can impact the viscosity, pot life, stoichiometric mix ratio and cure time.” 4.1.4: Revised from “basically” to “primarily” 5.2.1: Revised to state: “The x-ray diffraction (XRD) pattern analysis of the zinc dust in the extracted pigment, which can differentiate Metallic Zinc content and Zinc Oxide content within Total Zinc content, shall be obtained for the initially approved primer. X-ray fluorescence (XRF) can be used to determine Total Zinc content. Determine Metallic Zinc content according to ASTM D521 as mentioned in Table 1.” 5.5.4: Deleted “and 1541” 5.5.5.1: Changed micromhos to “microohms” and changed upper limit from 65 to 90 5.5.5.4: Changed single x to “parallel lines”, added “having a 60 degree included angle”, and added Figures 1 and 2; deleted ANSI reference 5.5.7: Increased pull-off adhesion from “2.4” to “3.5” 5.5.8: Changed from “hardened” to “cured” 5.8.6: Added “The total zinc content of the pigment can be determined by X-ray fluorescence (XRF).” 7.1.1: Increased pull-off adhesion from “2.4” to “3.5” 8.1.1: Increased pull-off adhesion from “2.4” to “3.5”
M 307-13 (2021)	Silica Fume Used in Cementitious Mixtures	3b	Reconfirmed for 2021 publication.
M 320-21	Performance-Graded Asphalt Binder	2b	Revised Tables 1 and 2
M 321-04 (2021)	High-Reactivity Pozzolans for Use in Hydraulic-Cement Concrete, Mortar, and Grout	3b	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 323-17 (2021)	Superpave Volumetric Mix Design	2d	Reconfirmed for 2021 publication.
M 325-08 (2021)	Stone Matrix Asphalt (SMA)	2d	Reconfirmed for 2021 publication.
M 331-17 (2021)	Smoothness of Pavement in Weigh-in-Motion (WIM) Systems	4f	Reconfirmed for 2021 publication.
M 332-21	Performance-Graded Asphalt Binder Using Multiple Stress Creep Recovery (MSCR) Test	2b	Revised as follows: <ul style="list-style-type: none"> Increased the DSR $G^* \sin(d)$ maximum to 6000 kPa with minimum phase angle. Phase angle requirement would only be applicable for samples with a $G^* \sin(d)$ greater than 5000 kPa
M 334M/M 334-17 (2021)	Uncoated, Corrosion-Resistant, Deformed and Plain Chromium Alloyed, Billet-Steel Bars for Concrete Reinforcement and Dowels	4f	Reconfirmed for 2021 publication.
M 337-21	Fiber-Reinforced Polymer Composite Materials for Highway and Bridge Structures	5b	Adopted AASHTO Provisional standard MP 22 as a full standard specification, M 337; no revisions made.
M 338-21	Performance-Graded Hot-Poured Asphalt Crack Sealant	4e	Adopted AASHTO Provisional standard MP 25 as a full standard specification, M 338; revised to change all instances of T 367 to R 95.
R 5-17 (2021)	Selection and Use of Emulsified Asphalts	2a	Reconfirmed for 2021 publication.
R 20-99 (2021)	Procedures for Measuring Highway Noise	5a	Reconfirmed for 2021 publication.
R 28-21	Accelerated Aging of Asphalt Binder Using a Pressurized Aging Vessel (PAV)	2b	Revised as follows: <ul style="list-style-type: none"> 1.1, 4.2.2 through 4.2.4: Changed “high” to “heavy” Table 1: Gauge readings corrected for elevation
R 35-17 (2021)	Superpave Volumetric Design for Asphalt Mixtures	5c	Reconfirmed for 2021 publication.
R 36-21	Evaluating Faulting of Concrete Pavements	5a	Revised to add Method C—Process of Automated Measurements.
R 43-13 (2021)	Quantifying Roughness of Pavements	5a	Reconfirmed for 2021 publication.
R 45-13 (2021)	Installing, Monitoring, and Processing Data of the Traveling Type Slope Inclinator	1b	Reconfirmed for 2021 publication.
R 46-08 (2021)	Designing Stone Matrix Asphalt (SMA)	2d	Reconfirmed for 2021 publication.
R 51-13 (2021)	Compost for Erosion/Sediment Control (Filter Berms and Filter Socks)	1a	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
R 62-13 (2021)	Developing Dynamic Modulus Master Curves for Asphalt Mixtures	2d	Reconfirmed for 2021 publication.
R 63-13 (2021)	Solid Wall High-Density Polyethylene (HDPE) Conduit for Non-Pressure Applications Used for the Protection of Power and Telecommunications Cables	4b	Reconfirmed for 2021 publication.
R 64-17 (2021)	Sampling and Fabrication of 50-mm (2-in.) Cube Specimens Using Grout (Non-Shrink) or Mortar	3b	Reconfirmed for 2021 publication.
R 80-17 (2021)	Determining the Reactivity of Concrete Aggregates and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction	3c	Reconfirmed for 2021 publication.
R 81-17 (2021)	Static Segregation of Hardened	3c	Reconfirmed for 2021 publication.
R 82-17 (2021)	Pipe Joint Selection for Highway Culvert and Storm Drains	4b	Reconfirmed for 2021 publication.
R 83-17 (2021)	Preparation of Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC)	2d	Reconfirmed for 2021 publication.
R 84-17 (2021)	Developing Dynamic Modulus Master Curves for Asphalt Mixtures Using the Asphalt Mixture Performance Tester (AMPT)	2d	Reconfirmed for 2021 publication.
R 99-21	Troubleshooting Asphalt Specimen Volumetric Differences between Superpave Gyratory Compactors (SCGs) Used in the Design and the Field Management of Superpave Mixtures	2d	Adopted AASHTO Provisional practice PP 76 as a full standard practice, R 99; no revisions made.
R 100-21	Making and Curing Concrete Test Specimens in the Field	3b	Reclassified T 23 as a practice, R 100; revised rod dimensions in Table 1.

LIST OF TECHNICAL CHANGES—PART 2

The balloted technical changes listed below are also indicated in the specifications by a change bar in the left. Unballoted editorial changes do not receive the change bar; however, the subheader line below the designation number will indicate if the standard has been editorially revised.

Release: July 2021

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
All tests and provisional tests			Editorially revised to include the following statement in Section 1: “The quality of the results produced by this standard are dependent on the competence of the personnel performing the procedure and the capability, calibration, and maintenance of the equipment used. Agencies that meet the criteria of R 18 are generally considered capable of competent and objective testing/sampling/inspection/etc. Users of this standard are cautioned that compliance with R 18 alone does not completely assure reliable results. Reliable results depend on many factors; following the suggestions of R 18 or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.”
T 23-18	Making and Curing Concrete Test Specimens in the Field	3b	Reclassified as a practice, R 99; revised rod dimensions in Table 1.
T 30-21	Mechanical Analysis of Extracted Aggregate	2c	Revised Table A2.1 as follows: <ul style="list-style-type: none"> Removed sieves with opening sizes larger than 2 in. and related rows Removed 350 by 350 mm and 372 x 580 mm sieves and related columns Added U.S. customary equivalencies for remaining sieve sizes and sieving area
T 59-16 (2021)	Emulsified Asphalts	2a	Reconfirmed for 2021 publication.
T 71-08 (2021)	Effect of Organic Impurities in Fine Aggregate on Strength of Mortar	1c	Reconfirmed for 2021 publication.
T 84-13 (2021)	Specific Gravity and Absorption of Fine Aggregate	1c	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 85-21	Specific Gravity and Absorption of Coarse Aggregate	1c	Revised the following sections: <ul style="list-style-type: none"> 3.1.1: Added a Fahrenheit conversion value ($230 \pm 9^{\circ}\text{F}$) 8.1: Cited T 255 and added a Fahrenheit conversion value for the cooled temperature (122°F) 8.5: Cited T 255, added a drying temperature of $110 \pm 5^{\circ}\text{C}$ ($230 \pm 9^{\circ}\text{F}$), and added a Fahrenheit conversion value for the cooled temperature
T 89-13 (2021)	Determining the Liquid Limit of Soils	1a	Reconfirmed for 2021 publication.
T 99-21	Moisture–Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop	1b	Revised Section 3 as follows: <ul style="list-style-type: none"> Moved language in Note 2 into body of standard and revised language for split molds Deleted Note 2 Added Section 3.1.3
T 103-08 (2021)	Soundness of Aggregates by Freezing and Thawing	1c	Reconfirmed for 2021 publication.
T 105-21	Chemical Analysis of Hydraulic Cement	3a	Revised the procedure in 7.3.1.
T 106M/T 106-21	Compressive Strength of Hydraulic Cement Mortar (Using 50-mm or 2-in. Cube Specimens)	3a	Revised the following sections: <ul style="list-style-type: none"> 1.1: Replaced parentheses with brackets 3.1: Revised to include portland-limestone 10.1: Revised 10.1.1, deleted 10.1.2, and added Note 8 Table 2: Revised to add “portland-limestone”, “air-entrained portland limestone”, and “cements” 10.3.3, 10.3.4: Revised to add “portland-limestone” and “air-entrained portland limestone” Table 4: Revised column 1
T 111-21	Mineral Matter or Ash in Asphalt Materials	2b	Revised the following sections: <ul style="list-style-type: none"> 1.1: Updated the list of materials in which mineral matter is determined 2.1: Added new referenced AASHTO standards 2.2: Deleted ASTM D95 listing and citation

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
			<ul style="list-style-type: none"> 3.1: Deleted R 59 citation and changed second paragraph to a note 5 through 7: Preparation of sample, procedure, and calculation sections rewritten
T 112-21	Clay Lumps and Friable Particles in Aggregate	1c	Revised the following sections: <ul style="list-style-type: none"> 1.1: Specified evaluation of aggregates that are nominally smaller than 2 in. Added new Note 1 2.1: Added new referenced AASHTO standards 4.2: Changed “thin” to “single” 5 and 6: Sample and procedure section rewritten 8: Added report section 9: Precision and bias no longer included
T 135-13 (2021)	Wetting-and-Drying Test of Compacted Soil–Cement Mixtures	1b	Reconfirmed for 2021 publication.
T 136-13 (2021)	Freezing-and-Thawing Tests of Compacted Soil–Cement Mixtures	1b	Reconfirmed for 2021 publication.
T 137-21	Air Content of Hydraulic Cement Mortar	3a	Revised the following sections: <ul style="list-style-type: none"> 2.2: Added references to ASTM C219 and C511 3: Added terminology section 6.4, 6.5: Revised apparatus 7: Revised temperature and humidity; deleted two subsections 10.3: Revised flow determination
T 143-13 (2021)	Sampling and Testing Calcium Chloride for Roads and Structural Applications	4c	Reconfirmed for 2021 publication with the following editorial revisions: <ul style="list-style-type: none"> 4.1.2: Deleted “liquid” and added “and brine” at the end of section 4.1.3: Added “shipment” 6.1: Revised “container” to “shipment container” and “containers” to “shipment containers” 6.2: Revised “container” to “shipment container” and “plastic container” to “plastic sampling container”

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
			<ul style="list-style-type: none"> 6.3: Revised “container” to “storage tank or truck” for consistency 7.1.1: Revised “1 min (± 5 s)” to “1 min ± 5 s” X1.1.1: Revised to include “brine”
T 155-13 (2021)	Water Retention by Liquid Membrane-Forming Curing Compounds for Concrete	3b	Reconfirmed for 2021 publication.
T 160-17 (2021)	Length Change of Hardened Hydraulic Cement Mortar and Concrete	3c	Reconfirmed for 2021 publication.
T 161-21	Resistance of Concrete to Rapid Freezing and Thawing	3c	Revised to clarify Sections 4.3 and 4.4.
T 166-21	Bulk Specific Gravity (G_{mb}) of Compacted Asphalt Mixtures Using Saturated Surface-Dry Specimens	2c	Revised as follows: <ul style="list-style-type: none"> 1.2, 5.1, 5.2, 6.1, 8.1, 8.4, and 9.1: Changed “samples” to “specimens” 6.2, 9.2, 9.3, and 10.1: Changed water bath temperature from $25 \pm 1^\circ\text{C}$ ($77 \pm 1.8^\circ\text{F}$) to $25 \pm 1^\circ\text{C}$ ($77 \pm 2^\circ\text{F}$) to agree with T 209
T 176-17 (2021)	Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test	1a	Reconfirmed for 2021 publication.
T 177-17 (2021)	Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading)	3c	Reconfirmed for 2021 publication.
T 180-21	Moisture–Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop	1b	Revised Section 3 as follows: <ul style="list-style-type: none"> Moved language in Note 2 into body of standard and revised language for split molds Deleted Note 2 Added Section 3.1.3
T 185-21	Early Stiffening of Hydraulic Cement (Mortar Method)	3a	Revised 6.5 apparatus.
T 188-05 (2021)	Evaluation by Freezing and Thawing of Air-Entraining Additions to Hydraulic Cement	3b	Reconfirmed for 2021 publication.
T 193-13 (2021)	The California Bearing Ratio	1a	Reconfirmed for 2021 publication.
T 211-90 (2021)	Determination of Cement Content in Cement-Treated Aggregate by the Method of Titration	1c	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 221-90 (2021)	Repetitive Static Plate Load Tests of Soils and Flexible Pavement Components for Use in Evaluation and Design of Airport and Highway Pavements	1b	Reconfirmed for 2021 publication.
T 222-81 (2021)	Nonrepetitive Static Plate Load Test of Soils and Flexible Pavement Components for Use in Evaluation and Design of Airport and Highway Pavements	1b	Reconfirmed for 2021 publication.
T 223-96 (2021)	Field Vane Shear Test in Cohesive Soil	1b	Reconfirmed for 2021 publication.
T 231-17 (2021)	Capping Cylindrical Concrete Specimens	3c	Reconfirmed for 2021 publication.
T 240-21	Effect of Heat and Air on a Moving Film of Asphalt Binder (Rolling Thin-Film Oven Test)	2b	Revised as follows: <ul style="list-style-type: none"> Applied a conditioning time correction and a mass change correction for every 1,000 ft of elevation
T 241-95 (2021)	Helical Continuously Welded Seam Corrugated Steel Pipe	4b	Reconfirmed for 2021 publication.
T 255-00 (2021)	Total Evaporable Moisture Content of Aggregate by Drying	1c	Reconfirmed for 2021 publication.
T 259-02 (2021)	Resistance of Concrete to Chloride Ion Penetration	3c	Reconfirmed for 2021 publication.
T 260-21	Sampling and Testing for Chloride Ion in Concrete and Concrete Raw Materials	3c	Revised as follows: <ul style="list-style-type: none"> 3.2.8: Deleted “100-mL” 5.2.3: Replaced “Sand” with “Fine aggregate” 6.2.1: Specified “250-mL” beaker 6.3.2: Changed “150-mL” to “250-mL” 8.2.11: Added “150-mL beaker”
T 272-18	One-Point Method for Determining Maximum Dry Density and Optimum Moisture	1b	Editorially revised to delete an extra “or” in Section 6.1.1.
T 275-17 (2021)	Bulk Specific Gravity (Gmb) of Compacted Asphalt Mixtures Using Paraffin-Coated Specimens	2c	Reconfirmed for 2021 publication.
T 276-17 (2021)	Measuring Early-Age Compression Strength and Projecting Later-Age Strength	3c	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 277-21	Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration	3c	Revised as follows: <ul style="list-style-type: none"> 1.5: Added background on standard development 4.5 and X1: Moved Table 1 to Appendix X1 4.6, 4.9, 11.3: Deleted 6.1.3: Revised size requirement 6.1.4: Added Note 4 7.2, 7.3: Added chemical formulas 7.3: Added 7.3.1 and Note 5 8: Minor editorial revisions 9.1: Reworded for clarity 9.3: Clarified vacuum absolute pressure Note 10: Deleted "(See Section 12.1.9.)" Equation 2: Added SI 13.1.1: Changed "42" to "34" percent Note 13: Added citation of ASTM C802 Appendix X1: Added guidance on interpretation of results
T 278-90 (2021)	Surface Frictional Properties Using the British Pendulum Tester	5a	Reconfirmed for 2021 publication.
T 283-21	Resistance of Compacted Asphalt Mixtures to Moisture-Induced Damage	2d	Revised as follows: <ul style="list-style-type: none"> Reorganized to flow better from a technician standpoint Added guidance on curing/braking times
T 288-12 (2021)	Determining Minimum Laboratory Soil Resistivity	1a	Reconfirmed for 2021 publication.
T 295-13 (2021)	Specific Gravity or API Gravity of Liquid Asphalts by Hydrometer Method	2a	Reconfirmed for 2021 publication.
T 301-13 (2021)	Elastic Recovery Test of Asphalt Materials by Means of a Ductilometer	2a	Reconfirmed for 2021 publication.
T 303-00 (2021)	Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali–Silica Reaction	1c	Reconfirmed for 2021 publication.
T 307-99 (2021)	Determining the Resilient Modulus of Soils and Aggregate Materials	1a	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 308-21			Revised as follows: <ul style="list-style-type: none"> 7.2 and 8.2: Removed temperature requirement 7.8: Added “Reset the internal balance to zero.” 9.1: Changed “flat pan” to “container”
T 314-12 (2021)	Determining the Fracture Properties of Asphalt Binder in Direct Tension (DT)	2b	Reconfirmed for 2021 publication.
T 321-17 (2021)	Determining the Fatigue Life of Compacted Asphalt Mixtures Subjected to Repeated Flexural Bending	2d	Reconfirmed for 2021 publication.
T 331-21	Bulk Specific Gravity (Gmb) and Density of Compacted Asphalt Mixtures Using Automatic Vacuum Sealing Method	2c	Revised as follows: <ul style="list-style-type: none"> 6.1: Removed the final two sentences about wet specimens 6.2.2: Added “Designate this mass as <i>B</i>.” 6.3, 6.6, and 6.7: Deleted 6.5: Removed secondary check condition Equation 1: Revised equation and definition of <i>B</i>
T 333-07 (2021)	Linear Coefficient of Shrinkage on Cure of Adhesive Systems	4c	Reconfirmed for 2021 publication.
T 346-13 (2021)	Glass Beads Used in Pavement Markings	4c	Reconfirmed for 2021 publication.
T 347-13 (2021)	Slump Flow of Self-Consolidating Concrete (SCC)	3b	Reconfirmed for 2021 publication.
T 349-13 (2021)	Filling Capacity of Self-Consolidating Concrete Using the Caisson Test	3b	Reconfirmed for 2021 publication.
T 354-17 (2021)	Specific Gravity and Absorption of Aggregate by Volumetric Immersion Method	1c	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 358-21	Surface Resistivity Indication of Concrete's Ability to Resist Chloride Ion Penetration	3c	Revised as follows: 4.2: Added “quality control and acceptance” 6.1: Revised surface resistivity apparatus 6.2: Specified “Non-electrically conductive” 6.3: Added moist rooms and curing tanks Note 2: Deleted Note 3: Moved part to new 8.1.1 9.1: Added “or lime water tank” 9.2: Added regarding formation factor 10.2: Changed “should” to “shall” be saturated 11.1: Added Note 5 regarding conversion of resistance measurements
T 362-17 (2021)	Quantitative Determination of the Percentage of Lime in Asphalt Mixtures	2c	Reconfirmed for 2021 publication.
T 363-17 (2021)	Evaluating Stress Development and Cracking Potential due to Restrained Volume Change Using a Dual Ring Test	3c	Reconfirmed for 2021 publication.
T 364-17 (2021)	Determination of Composite Activation Energy of Aggregates due to Alkali–Silica Reaction (Chemical Method)	3c	Reconfirmed for 2021 publication.
T 368-17 (2021)	Measuring Low-Temperature Flexural Creep Stiffness of Hot-Poured Asphalt Crack Sealant by Bending Beam Rheometer (BBR)	4e	Reconfirmed for 2021 publication.
T 369-17 (2021)	Evaluation of the Low-Temperature Tensile Property of Hot-Poured Asphalt Crack Sealant by Direct Tension Test	4e	Reconfirmed for 2021 publication.
T 371-17 (2021)	Measuring Interfacial Fracture Energy of Hot-Poured Asphalt Crack Sealant Using a Blister Test	4e	Reconfirmed for 2021 publication.
T 372M/T 372-17 (2021)	Sensitivity of Stainless Steel to Intergranular Attack	4f	Reconfirmed for 2021 publication.
T 373M/T 373-17 (2021)	Comparative Qualitative Corrosion Characterization of Steel Bars Used for Concrete Reinforcement (Linear Polarization Resistance and Potentiodynamic Polarization Tests)	4f	Reconfirmed for 2021 publication.
T 374M/T 374-17 (2021)	Comparative Qualitative Corrosion Characterization of Uncoated Chromium-Alloyed Steel Bars Used for Concrete Reinforcement (Tombstone Test)	4f	Reconfirmed for 2021 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 375M/T 375-17 (2021)	Identification of Iron-Based Alloy Steel Bars for Concrete Reinforcement or Dowels by Handheld X-Ray Fluorescence (XRF) Spectrometer	4f	Reconfirmed for 2021 publication.
T 376M/T 376-17 (2021)	Macrocell Slab Chloride Threshold	4f	Reconfirmed for 2021 publication.
T 377-17 (2021)	Detecting the Presence of Phosphorous in Asphalt Binder	2b	Reconfirmed for 2021 publication.
T 378-17 (2021)	Determining the Dynamic Modulus and Flow Number for Asphalt Mixtures Using the Asphalt Mixture Performance Tester (AMPT)	2d	Reconfirmed for 2021 publication.
T 383-21	Evaluation of Asphalt Release Agents (ARAs)	2b	Revised as follows: <ul style="list-style-type: none"> • Changed “HMA” to “asphalt mixture” throughout • 1.2: Added SI units statement • 3.1: Changes to all three key performance measures • 3.2: Temperature added as data point to be measured and recorded • 5.1: Graduated glass cylinder added to apparatus and sieve more clearly specified • 5.2.1.2: Added M 332 citation • 5.3: Added more detail in 5.3.1; changed “180 mL” to 220 ± 10 mL” 5.3.3 and 5.3.6 • 5.3.9: Cited Section 5.3.14 • 5.3.14: Simplified rating description • 6.1.3: Changed to three plates and changed size • 6.2.1.5: Added new requirement that materials pass Tex-530-C • 6.3.3: Specified a plate spray matrix • Added new Figure 9 • 6.3.11 and 6.3.12: Added repeat of the steps in Sections 6.3.6 through 6.3.11 • 6.3.13: Added repeat of all steps for other plates • 6.3.1.4: Changed calculation to average of three plates • 7.1.2: Added tolerances of ±2 mm (0.08 in.) • 7.3.1: Specified heating sample to 143°C (290°F) • 7.3.2: Specified a plate spray matrix

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
			<ul style="list-style-type: none"> 7.3.3: Added a tolerance of ± 1 min 7.3.6: Specified heating sample to 143°C (290°F) 7.3.11: Added “or releases seven times” 8.1: Deleted ASTM E502 citation 8.5: Temperature added as data point to be measured 9.1.4: Reworded for clarity 9.1.8: Temperature added as data point to be reported
T 392-21	Determination of Heavy Metal Content of Glass Beads Using X-Ray Fluorescence (XRF)	4c	<p>Adopted AASHTO Provisional test TP 106 as a full standard test, T 392; revised as follows:</p> <ul style="list-style-type: none"> 1.1: Expanded and more clearly defined scope 8.1: Minor editorial revision 9.1 through 9.3: Added “heavy metals to include but not limited to”
T 393-21	Determining the Fracture Potential of Asphalt Mixtures Using the Illinois Flexibility Index Test (I-FIT)	2d	<p>Adopted AASHTO Provisional test TP 124 as a full standard test, T 393; revised as follows:</p> <ul style="list-style-type: none"> Clarified and expanded Section 9.1 Added new Section 10 and Appendix X2 dealing with long-term aging Minor editorial revisions
T 394-21	Determining the Fracture Energy of Asphalt Mixtures Using the Semicircular Bend Geometry (SCB)	2d	<p>Adopted AASHTO Provisional test TP 105 as a full standard test, T 394; no revisions made.</p>

LIST OF TECHNICAL CHANGES—PART 3

The balloted technical changes listed below are also indicated in the specifications by a change bar in the left. Unballoted editorial changes do not receive the change bar; however, the subheader line below the designation number will indicate if the standard has been editorially revised.

Release: July 2021

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
MP 22-13 (2020)	Fiber-Reinforced Polymer Composite Materials for Highway and Bridge Structures	5b	Adopted as full standard specification, M 337; no revisions made.
MP 23-15 (2021)	Reclaimed Asphalt Shingles for Use in Asphalt Mixtures	2d	Extended one year for 2021 publication; Year 8 of 8 in Provisional life cycle.
MP 24-15 (2021)	Waterborne White and Yellow Traffic Paints	4c	Extended one year for 2021 publication; Year 7 of 8 in Provisional life cycle.
MP 25-18 (2019)	Performance-Graded Hot-Poured Asphalt Crack Sealant	4e	Adopted as full standard specification, M 338; revised to change all instances of T 367 to R 95.
MP 26-15 (2021)	Cotton Duck Fabric Bridge Bearings	4e	Reconfirmed for 2021 publication.
MP 31-17 (2021)	Materials for Cold Recycled Mixtures with Emulsified Asphalt	2a	Reconfirmed for 2021 publication.
MP 32-17 (2021)	Materials for Slurry Seal	5b	Reconfirmed for 2021 publication.
MP 33-17 (2021)	Materials for Emulsified Asphalt Fog Seal	5b	Reconfirmed for 2021 publication.
MP 39-19 (2021)	File Format of Intelligent Compaction Data	5c	Reconfirmed for 2021 publication.
MP 40-19 (2021)	Steel-Reinforced Polyethylene (SRPE) Corrugated Pipe 300- to 1800-mm (12- to 72-in.) Diameter	4b	Reconfirmed for 2021 publication.
MP 41-19 (2021)	High Friction Surface Treatment for Asphalt and Concrete Pavements Using Calcined Bauxite	4c	Reconfirmed for 2021 publication.
MP 47-21	File Format of Two-Dimensional and Three-Dimensional (2D/3D) Pavement Image Data	5a	New Provisional standard specification.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
PP 76-13 (2020)	Troubleshooting Asphalt Specimen Volumetric Differences between Superpave Gyratory Compactors (SCGs) Used in the Design and the Field Management of Superpave Mixtures	2d	Adopted as full standard practice, R 99; no revisions made.
PP 77-14 (2021)	Materials Selection and Mixture Design of Permeable Friction Courses	2d	Extended one year for 2021 publication; Year 8 of 8 in Provisional life cycle.
PP 78-17 (2021)	Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in Asphalt Mixtures	2d	Extended one year for 2021 publication; Year 8 of 8 in Provisional life cycle.
PP 80-20 (2021)	Continuous Thermal Profile of Asphalt Mixture Construction	5c	Extended one year for 2021 publication; Year 8 of 8 in Provisional life cycle.
PP 84-20 (2021)	Developing Performance Engineered Concrete Pavement Mixtures	3c	Reconfirmed for 2021 publication.
PP 85-18 (2021)	Grading or Verifying the Sealant Grade (SG) of a Hot-Poured Asphalt Crack Sealant	4e	Reconfirmed for 2021 publication.
PP 86-20 (2021)	Emulsified Asphalt Content of Cold Recycled Mixture Designs	2a	Reconfirmed for 2021 publication.
PP 87-20 (2021)	Slurry Seal Design	5b	Reconfirmed for 2021 publication.
PP 88-17 (2021)	Emulsified Asphalt Fog Seal Design	5b	Reconfirmed for 2021 publication.
PP 91-21	Emulsified Asphalt Scrub Seal Design	5b	Revised as follows: <ul style="list-style-type: none"> 2.2: Removed to <i>Minnesota Pavement Distress Manual</i> (2003) 5.1.2: Clarified use of materials available for fog seal and dilution rates Equation 1: Correct the value “6.24 to “62.4”
PP 97-19 (2021)	Determination of Constant Mass	5c	Reconfirmed for 2021 publication.
PP 98-20 (2021)	Asphalt Surface Dielectric Profiling System Using Ground Penetrating Radar	5c	Reconfirmed for 2021 publication.
PP 99-19 (2021)	Preparation of Small Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC) or Field Cores	2d	Reconfirmed for 2021 publication.
PP 103-21	Sample Preparation and Polishing of Unbound Aggregates for Dynamic Friction Testing	1c	Revised Section 5 as follows: <ul style="list-style-type: none"> 5.1.1: Specified a ribbed pattern for tire tread Added new Note 1

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
PP 104-21	Sample Preparation and Polishing of Asphalt Mixture Specimens for Dynamic Friction Testing	1c	Revised Section 5 as follows: <ul style="list-style-type: none"> 5.9.1: Deleted replacement tire tread pattern specification Added new Note 1
PP 106-21	Assessment of Static Performance in Transverse Pavement Profiling Systems	5a	New Provisional standard practice.
PP 107-21	Assessment of Body Motion Cancellation in Transverse Pavement Profiling Systems	5a	New Provisional standard practice.
PP 108-21	Assessment of Navigation Drift Mitigation in Transverse Pavement Profiling Systems	5a	New Provisional standard practice.
PP 109-21	Assessment of Highway Performance in Transverse Pavement Profiling Systems	5a	New Provisional standard practice.
PP 110-21	Assessment of Ground Reference Data for Transverse Pavement Profiling System Assessment	5a	New Provisional standard practice.
PP 111-21	Definition of Terms Related to Transverse Pavement Profiling Systems and Ground Reference Equipment	5a	New Provisional standard practice.
PP 112-21	Recognizing Surrogate Test Methods	5c	New Provisional standard practice.
PP 113-21	Characterizing the Relaxation Behavior of Asphalt Binders Using the Delta T_c (ΔT_c) Parameter	2b	New Provisional standard practice.
TP 105-20	Determining the Fracture Energy of Asphalt Mixtures Using the Semicircular Bend Geometry (SCB)	2d	Adopted as full standard test, T 394; no revisions made.
TP 106-20	Determination of Heavy Metal Content of Glass Beads Using X-Ray Fluorescence (XRF)	4c	Adopted as a full standard test, T 392; revised Sections 1.1, 8.1, and 9.1 through 9.3.
TP 107-18 (2021)	Determining the Damage Characteristic Curve of Asphalt Mixtures from Direct Tension Cyclic Fatigue Tests	2d	Extended one year for 2021 publication; Year 8 of 8 in Provisional life cycle.
TP 108-14 (2021)	Abrasion Loss of Asphalt Mixture Specimens	2d	Extended one year for 2021 publication; Year 8 of 8 in Provisional life cycle.
TP 111-14 (2021)	Measuring Retroreflectivity of Pavement Marking Materials Using a Mobile Retroreflectivity Unit	4c	Extended one year for 2021 publication; Year 8 of 8 in Provisional life cycle.
TP 112-21	Determining In-Place Density and Moisture Content of Soil and Soil-Aggregate Using Complex Impedance Methodology	1b	Added a lab-based soil model.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
TP 113-15 (2021)	Determination of Asphalt Binder Resistance to Ductile Failure Using Double-Edge-Notched Tension (DENT) Test	2b	Extended one year for 2021 publication; Year 7 of 8 in Provisional life cycle.
TP 114-18 (2021)	Determining the Interlayer Shear Strength (ISS) of Asphalt Pavement Layers	2c	Extended one year for 2021 publication; Year 7 of 8 in Provisional life cycle.
TP 115-16 (2021)	Determining the Quality of Tack Coat Adhesion to the Surface of an Asphalt Pavement in the Field or Laboratory	2c	Extended one year for 2021 publication; Year 7 of 8 in Provisional life cycle.
TP 116-20 (2021)	Rutting and Fatigue Resistance of Asphalt Mixtures Using Incremental Repeated Load Permanent Deformation (iRLPD)	2d	Extended one year for 2021 publication; Year 7 of 8 in Provisional life cycle.
TP 117-15 (2021)	Determination of the Voids of Dry Compacted Filler	2d	Extended one year for 2021 publication; Year 7 of 8 in Provisional life cycle.
TP 118-17 (2021)	Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method	3b	Extended one year for 2021 publication; Year 7 of 8 in Provisional life cycle.
TP 119-21	Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test	3c	Revised as follows: <ul style="list-style-type: none"> 1.1: Changed the scope of the test method to reference “ionic transport” and “durability performance”; deleted reference to ASTM C1556 3: Added terminology section with definition of “electrical resistivity 4 through 14: Rewritten
TP 120-16 (2021)	Pore Index for Carbonate Coarse Aggregate	1c	Reconfirmed for 2021 publication.
TP 124-20	Determining the Fracture Potential of Asphalt Mixtures Using the Illinois Flexibility Index Test (I-FIT)	2d	Adopted as full standard test, T 393; revised as follows: <ul style="list-style-type: none"> Added an appendix dealing with long-term aging Minor editorial revisions
TP 126-18 (2021)	Evaluation of the Tracking Resistance of Hot-Poured Asphalt Crack Sealant by Dynamic Shear Rheometer (DSR)	4e	Reconfirmed for 2021 publication.
TP 127-17 (2021)	Determining the Fracture Energy Density of Asphalt Binder Using the Binder Fracture Energy (BFE) Test	2b	Reconfirmed for 2021 publication.
TP 128-17 (2021)	Evaluation of Oxidation Level of Asphalt Mixtures by a Portable Infrared Spectrometer	2c	Reconfirmed for 2021 publication.
TP 129-21	Vibrating Kelly Ball (VKelly) Penetration in Fresh Portland Cement Concrete	3c	Revised to correct VKelly ball weight and vibrator requirements.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
TP 132-19 (2021)	Determining the Dynamic Modulus for Asphalt Mixtures Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT)	2d	Reconfirmed for 2021 publication.
TP 133-21	Determining the Damage Characteristic Curve and Failure Criterion Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT) Cyclic Fatigue Test	2d	Significantly revised throughout from the results of a ruggedness study: <ul style="list-style-type: none"> • Only the Hazards section is unchanged • Added new appendix
TP 134-19 (2021)	Stress Sweep Rutting (SSR) Test Using Asphalt Mixture Performance Tester (AMPT)	2d	Reconfirmed for 2021 publication.
TP 142-21	Accelerated Determination of Potentially Deleterious Expansion of Concrete Cylinder due to Alkali–Silica Reactivity	3c	New Provisional standard test.
TP 143-21	Continuous Measurement of Sideway-Force Friction Number for Highway Pavements	5a	New Provisional standard test.
TP 144-21	Determining the Potential Alkali–Silica Reactivity of Coarse Aggregates (TFHRC-TFAST)	1c	New Provisional standard test.