

# PART 1—STANDARD SPECIFICATIONS AND STANDARD PRACTICES

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None

# PART 1—STANDARD SPECIFICATIONS AND STANDARD PRACTICES

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M 167M/M 167-17 (2021)	Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches
M 170-22	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
M 170M-22	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe [Metric]
M 175M/M 175-05 (2020)	Perforated Concrete Pipe
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M 218-03 (2020)	Steel Sheet, Zinc-Coated (Galvanized), for Corrugated Steel Pipe
M 219-92 (2021)	Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe-Arches, and Arches
M 242M/M 242-20	Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe
M 243-22	Field-Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches
M 245-20	Corrugated Steel Pipe, Polymer-Precoated, for Sewers and Drains
M 246-22	Steel Sheet, Metallic-Coated and Polymer-Precoated, for Corrugated Steel Pipe
M 252-21	Corrugated Polyethylene Drainage Pipe
M 259-22	Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD
M 262-11 (2020)	Concrete Pipe and Related Products
M 273-22	Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers with Less Than 2 ft of Cover Subjected to Highway Loadings
M 274-87 (2021)	Steel Sheet, Aluminum-Coated (Type 2), for Corrugated Steel Pipe
M 278-22	Class PS46 Poly(Vinyl Chloride) (PVC) Pipe
M 289-91 (2021)	Aluminum-Zinc Alloy Coated Sheet Steel for Corrugated Steel Pipe
M 294-21	Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter
M 304-11 (2019)	Poly(Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter
M 306-10 (2019)	Drainage, Sewer, Utility, and Related Castings
M 326-18 (2022)	Polyethylene (PE) Liner Pipe, 300- to 1600-mm Diameter, Based on Controlled Outside Diameter
M 330-20	Polypropylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter
M 335-19	Steel-Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 1500-mm (12- to 60-in.) Diameter
M 337-21	Fiber-Reinforced Polymer Composite Materials for Highway and Bridge Structures
R 63-13 (2021)	Solid Wall High-Density Polyethylene (HDPE) Conduit for Non-Pressure Applications Used for the Protection of Power and Telecommunications Cables
R 73-16 (2020)	Evaluation of Precast Concrete Drainage Products
R 82-17 (2021)	Pipe Joint Selection for Highway Culvert and Storm Drains
R 93-19	Service Life Determination of Corrugated HDPE Pipes Manufactured with Recycled Content

STD. NO.	TITLE
BRIDGE AND PAVEMENT PRESERVATION	
M 345-22	<i>Adopted</i> —Materials for Emulsified Asphalt Scrub Seal
M 346-22	<i>Adopted</i> —Materials for Ultrathin Bonded Wearing Course
M 347-22	<i>Adopted</i> —Materials for Full-Depth Reclamation Mixtures with Emulsified Asphalt
R 108-22	<i>Adopted</i> —Ultrathin Bonded Wearing Course Design
R 109-22	<i>Adopted</i> —Emulsified Asphalt Content of Full-Depth Reclamation Mixture Design

STD. NO.	TITLE
<b>CONCRETE, CURING MATERIALS, AND ADMIXTURES</b>	
M 154M/M 154-12 (2020)	Air-Entraining Admixtures for Concrete
M 157-13 (2021)	Ready-Mixed Concrete
M 182-05 (2021)	Burlap Cloth Made from Jute or Kenaf and Cotton Mats
M 194M/M 194-13 (2021)	Chemical Admixtures for Concrete
M 205M/M 205-11 (2019)	Molds for Forming Concrete Test Cylinders Vertically
M 224-22	Use of Protective Sealers for Portland Cement Concrete
M 233-86 (2019)	Boiled Linseed Oil Mixture for Treatment of Portland Cement Concrete
M 241M/M 241-13 (2021)	Concrete Made by Volumetric Batching and Continuous Mixing
M 295-21	Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
M 302-22	Slag Cement for Use in Concrete and Mortars
R 39-19	Making and Curing Concrete Test Specimens in the Laboratory
R 60-12 (2020)	Sampling Freshly Mixed Concrete
R 64-22	Sampling and Fabrication of 50-mm (2-in.) Cube Specimens Using Grout (Non-Shrink) or Mortar
R 70M/R 70-22	Use of Apparatus for the Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete
R 72-22	Match Curing of Concrete Test Specimens
R 80-17 (2021)	Determining the Reactivity of Concrete Aggregates and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction
R 81-17 (2021)	Static Segregation of Hardened Self-Consolidating Concrete (SCC) Cylinders
R 89-18 (2022)	Accreditation Bodies Operating in the Fields of Construction Materials Testing and Inspection
R 100-22	Making and Curing Concrete Test Specimens in the Field
R 101-22	<i>Adopted</i> —Performance Engineered Concrete Pavement Mixtures

STD. NO.	TITLE
<b>ENVIRONMENTAL TESTS</b>	
R 23-99 (2022)	Chemical, Biological, and Physical Analysis of Water
R 24-99 (2022)	Collection and Preservation of Water Samples

STD. NO.	TITLE
<b>GUARDRAIL AND FENCING</b>	
M 180-12 (2021)	Corrugated Sheet Steel Beams for Highway Guardrail
M 181-10 (2019)	Chain-Link Fence
M 269-96 (2022)	Turnbuckles and Shackles
M 279-14 (2022)	Metallic-Coated, Steel Woven Wire Fence Fabric
M 280-22	Metallic-Coated (Carbon) Steel Barbed Wire
M 281-22	Steel Fence Posts and Assemblies, Hot-Wrought

STD. NO.	TITLE
<b>HYDRAULIC CEMENT</b>	
M 85-22	Portland Cement

STD. NO.	TITLE
<b>HYDRAULIC CEMENT</b>	
M 240M/M 240-21	Blended Hydraulic Cement
M 307-22	Silica Fume Used in Cementitious Mixtures
M 321-04 (2021)	High-Reactivity Pozzolans for Use in Hydraulic-Cement Concrete, Mortar, and Grout
M 327-22	Processing Additions for Use in the Manufacture of Hydraulic Cements
R 71-22	Sampling and Amount of Testing of Hydraulic Cement

STD. NO.	TITLE
<b>JOINT FILLER AND ASPHALT PLANK</b>	
M 33M/M 33-22	Preformed Expansion Joint Filler for Concrete (Bituminous Type)
M 153-20	Preformed Sponge Rubber, Cork, and Recycled Rubber Expansion Joint Fillers for Concrete Paving and Structural Construction
M 213-22	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
M 251M/M 251-22	Plain and Laminated Elastomeric Bridge Bearings
M 297-10 (2021)	Preformed Polychloroprene Elastomeric Joint Seals for Bridges
R 95-22	Accelerated Aging of Hot-Poured Asphalt Crack Sealant Using a Vacuum Oven

STD. NO.	TITLE
<b>METALLIC MATERIALS FOR BRIDGES</b>	
M 102M/M 102-22	Steel Forgings, Carbon and Alloy, for General Industrial Use
M 103M/M 103-19	Steel Castings, Carbon, for General Application
M 105-09 (2022)	Gray Iron Castings
M 111M/M 111-19	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
M 163M/M 163-22	Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application
M 169-20	Steel Bars, Carbon and Alloy, Cold-Finished
M 202M/M 202-19	Steel Sheet Piling
M 227M/M 227-19	Steel Bars, Carbon, Merchant Quality, Mechanical Properties
M 232M/M 232-19	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
M 255M/M 255-19	Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties
M 270M/M 270-20	Structural Steel for Bridges
M 277-06 (2019)	Wire Rope and Sockets for Movable Bridges
M 285M/M 285-22	Castings, Iron-Chromium-Nickel, Corrosion Resistant, for Severe Service
M 292M/M 292-22	Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both
M 314-90 (2022)	Steel Anchor Bolts
M 334M/M 334-17 (2021)	Uncoated, Corrosion-Resistant, Deformed and Plain Chromium Alloyed, Billet-Steel Bars for Concrete Reinforcement and Dowels
M 336M/M 336-20	Steel Wire and Welded Wire, Plain and Deformed, for Concrete Reinforcement

STD. NO.	TITLE
MISCELLANEOUS	
M 143-14 (2022)	Sodium Chloride
M 144-14 (2022)	Calcium Chloride
M 230-07 (2020)	Expanded and Extruded Foam Board (Polystyrene)
M 235M/M 235-22	Epoxy Resin Adhesives
M 333-16 (2020)	Detectable Warning Surfaces
R 8-96 (2019)	Evaluation of Transportation-Related Earthborne Vibrations
R 10-22	Definition of Terms Related to Quality and Statistics as Used in Highway Construction
R 25-22	Technician Training and Certification Programs
R 34-03 (2022)	Evaluating Deicing Chemicals
R 44-07 (2022)	Independent Assurance (IA) Programs
R 110-22	<i>Adopted</i> —Continuous Thermal Profile of Asphalt Mixture Construction
R 111-22	<i>Adopted</i> —Intelligent Compaction Technology for Embankment and Asphalt Pavement Applications

STD. NO.	TITLE
PAINTING AND TRAFFIC MARKING AND SIGNING	
M 237-96 (2019)	Epoxy Resin Adhesives for Bonding Traffic Markers to Hardened Portland Cement and Asphalt Concrete
M 247-13 (2022)	Glass Beads Used in Pavement Markings
M 249-12 (2020)	White and Yellow Reflective Thermoplastic Striping Material (Solid Form)
M 268-22	Retroreflective Sheeting for Flat and Vertical Traffic Control Applications
M 300-22	Inorganic Zinc-Rich Primer
M 348-22	<i>Adopted</i> —Waterborne White and Yellow Traffic Paints
R 31-09 (2019)	Evaluation of Protective Coating Systems for Structural Steel
R 98-20	Determination of Size and Shape of Glass Beads Used in Traffic Markings by Means of Computerized Optical Method

STD. NO.	TITLE
PAVEMENT SURFACE AND STRUCTURE CHARACTERISTICS	
M 328-14 (2022)	Inertial Profiler
M 331-17 (2021)	Smoothness of Pavement in Weigh-in-Motion (WIM) Systems
M 344-22	<i>Adopted</i> —Materials for Sand Seals
R 36-21	Evaluating Faulting of Concrete Pavements
R 37-04 (2022)	Application of Ground Penetrating Radar (GPR) to Highways
R 40-10 (2022)	Measuring Pavement Profile Using a Rod and Level
R 43-13 (2021)	Quantifying Roughness of Pavements
R 54-14 (2022)	Accepting Pavement Ride Quality When Measured Using Inertial Profiling Systems
R 56-14 (2022)	Certification of Inertial Profiling Systems
R 57-14 (2022)	Operating Inertial Profiling Systems
R 85-18 (2022)	Quantifying Cracks in Asphalt Pavement Surfaces from Collected Pavement Images Utilizing Automated Methods
R 86-18 (2022)	Collecting Images of Pavement Surfaces for Distress Detection

STD. NO.	TITLE
<b>PAVEMENT SURFACE AND STRUCTURE CHARACTERISTICS</b>	
R 87-18 (2022)	Determining Pavement Deformation Parameters and Cross Slope from Collected Transverse Profiles
R 88-18 (2022)	Collecting the Transverse Pavement Profile
R 106-22	<i>Adopted</i> —Sand Seal Design
R 107-22	<i>Adopted</i> —Emulsified Asphalt Scrub Seal Design

STD. NO.	TITLE
<b>QUALITY ASSURANCE</b>	
M 339M/M 339-22	<i>New</i> —Thermometers Used in the Testing of Construction Materials
R 9-05 (2022)	Acceptance Sampling Plans for Highway Construction
R 18-18 (2022)	Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
R 20-99 (2021)	Procedures for Measuring Highway Noise
R 38-10 (2022)	Quality Assurance of Standard Manufactured Materials
R 42-06 (2020)	Developing a Quality Assurance Plan for Hot Mix Asphalt (HMA)
R 61-12 (2020)	Establishing Requirements for Equipment Calibrations, Standardizations, and Checks
R 65-14 (2022)	Evaluating the Engineering and Environmental Suitability of Recycled Materials
R 94-19	Quality Assurance, Job Site Quality Control, and Reapplication of Protective Sealers for Portland Cement Concrete

STD. NO.	TITLE
<b>REINFORCING STEEL AND WIRE ROPE</b>	
M 30-15 (2019)	Metallic-Coated Steel Wire Rope and Fittings for Highway Guardrail
M 31M/M 31-22	Deformed and Plain Carbon and Low-Alloy Steel Bars for Concrete Reinforcement
M 54M/M 54-22	Welded Deformed Steel Bar Mats for Concrete Reinforcement
M 203M/M 203-20	Steel Strand, Low-Relaxation Uncoated Seven-Wire for Concrete Reinforcement
M 204M/M 204-19	Uncoated Stress-Relieved Steel Wire for Prestressed Concrete
M 254-06 (2019)	Corrosion-Resistant Coated Dowel Bars
M 275M/M 275-20	High-Strength Steel Bars for Prestressed Concrete
M 322M/M 322-22	Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
M 329M/M 329-11 (2019)	Stainless Clad Deformed and Plain Round Steel Bars for Concrete Reinforcement

STD. NO.	TITLE
<b>SOILS AND STABILIZATION</b>	
M 57-80 (2021)	Materials for Embankments and Subgrades
M 145-91 (2021)	Classification of Soils and Soil–Aggregate Mixtures for Highway Construction Purposes
M 146-91 (2021)	Terms Relating to Subgrade, Soil–Aggregate, and Fill Materials
M 147-17 (2021)	Materials for Aggregate and Soil–Aggregate Subbase, Base, and Surface Courses
M 216-22	Quicklime and Hydrated Lime for Soil Stabilization
M 288-22	Geosynthetic Specification for Highway Applications

STD. NO.	TITLE
SOILS AND STABILIZATION	
M 318-02 (2019)	Glass Cullet Use for Soil–Aggregate Base Course
M 319-02 (2019)	Reclaimed Concrete Aggregate for Unbound Soil–Aggregate Base Course
R 13-22	Conducting Geotechnical Subsurface Investigations
R 21-96 (2019)	Drilling for Subsurface Investigations—Unexpectedly Encountering Suspected Hazardous Material
R 22-97 (2019)	Decommissioning Geotechnical Exploratory Boreholes
R 27-01 (2019)	Assessment of Corrosion of Steel Piling for Non-Marine Applications
R 50-09 (2022)	Geosynthetic Reinforcement of the Aggregate Base Course of Flexible Pavement Structures
R 51-22	Compost for Erosion/Sediment Control (Filter Berms and Filter Socks)
R 52-22	Compost for Erosion/Sediment Control (Compost Blankets)
R 58-22	Dry Preparation of Disturbed Soil and Soil–Aggregate Samples for Test
R 69-20	Determination of Long-Term Strength for Geosynthetic Reinforcement
R 74-22	Dry Preparation of Disturbed Soil and Soil–Aggregate Samples for Test
R 75-16 (2020)	Developing a Family of Curves

STD. NO.	TITLE
TESTING EQUIPMENT	
M 152M/M 152-22	Flow Table for Use in Tests of Hydraulic Cement
M 201-21	Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
M 231-95 (2019)	Weighing Devices Used in the Testing of Materials
M 261-22	Rib-Tread Standard Tire for Special-Purpose Pavement Frictional-Property Tests
M 286-22	Smooth-Tread Standard Tire for Special-Purpose Pavement Frictional-Property Tests
R 32-20	Calibrating the Load Cell and Deflection Sensors for a Falling Weight Deflectometer
R 33-20	Calibrating the Reference Load Cell Used for Reference Calibrations for a Falling Weight Deflectometer
R 45-13 (2021)	Installing, Monitoring, and Processing Data of the Traveling Type Slope Inclinometer

STD. NO.	TITLE
TIMBER AND PRESERVATIVES	
M 133-12 (2020)	Preservatives and Pressure Treatment Processes for Timber
M 168-07 (2020)	Wood Products

STD. NO.	TITLE
DELETED STANDARDS	
None	

## 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 2022

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 6-13 (2022)	Fine Aggregate for Hydraulic Cement Concrete	1c	Reconfirmed for 2022 publication.
M 31M/M 31-22	Deformed and Plain Carbon and Low-Alloy Steel Bars for Concrete Reinforcement	4f	Revised as follows: <ul style="list-style-type: none"> <li>Updated for equivalency with ASTM A625/A615M-20.</li> <li>Corrected editorial error in Table 1.</li> </ul>
M 33M/M 33-22	Preformed Expansion Joint Filler for Concrete (Bituminous Type)	4e	Revised to update temperature-measuring devices.
M 43-05 (2022)	Sizes of Aggregate for Road and Bridge Construction	1c	Reconfirmed for 2022 publication.
M 54M/M 54-22	Welded Deformed Steel Bar Mats for Concrete Reinforcement	4f	Revised for equivalency with ASTM A184/A184M-19.
M 85-22	Portland Cement	3a	Revised to remove T 107 reference <u>for harmonization with ASTM C150/C150M-22.</u>
M 86M/M 86-22	Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe	4a	Revised to update temperature-measuring devices.
M 102M/M 102-22	Steel Forgings, Carbon and Alloy, for General Industrial Use	4f	Revised for equivalency with ASTM A668/A668M-20a.
M 103M/M 103-19	Steel Castings, Carbon, for General Application	4f	Editorial revisions to Tables 1 and 2.
M 105-09 (2022)	Gray Iron Castings	4f	Reconfirmed for 2022 publication.
M 143-14 (2022)	Sodium Chloride	4c	Reconfirmed for 2022 publication.
M 144-14 (2022)	Calcium Chloride	4c	Reconfirmed for 2022 publication.
M 152M/M 152-22	Flow Table for Use in Tests of Hydraulic Cement	3a	Revised for equivalency with ASTM C230/C230M-21.
M 163M/M 163-22	Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application	4f	Revised for equivalency with ASTM A743/A743M-21.



Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 170-22	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe	4a	Revised to update temperature-measuring devices.
M 170M-22	Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe [Metric]	4a	Revised to update temperature-measuring devices.
M 190-22	Asphalt-Coated Corrugated Metal Culvert Pipe and Pipe-Arches	4b	Revised to update temperature-measuring devices.
M 195-22	Lightweight Aggregates for Structural Concrete	1c	Revised to update temperature-measuring devices.
M 199M/M 199-22	Precast Reinforced Concrete Manhole Sections	4a	Revised as follows: <ul style="list-style-type: none"> <li>Updated for equivalency with ASTM C478M-19a and C478-20a.</li> <li>Updated temperature-measuring devices.</li> </ul>
M 206M/M 206-22	Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe	4a	Revised to update temperature-measuring devices.
M 207M/M 207-22	Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe	4a	Revised to update temperature-measuring devices.
M 208-18 (2022)	Cationic Emulsified Asphalt	2a	Reconfirmed for 2022 publication.
M 213-22	Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)	4e	Revised to update temperature-measuring devices.
M 216-22	Quicklime and Hydrated Lime for Soil Stabilization	3a	Revised to update temperature-measuring devices.
M 224-22	Use of Protective Sealers for Portland Cement Concrete	4c	Revised to update temperature-measuring devices.
M 235M/M 235-22	Epoxy Resin Adhesives	4c	Revised for equivalency with ASTM C881/C881M-20a.
M 243-22	Field-Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches	4b	Revised to update temperature-measuring devices.
M 246-22	Steel Sheet, Metallic-Coated and Polymer-Precoated, for Corrugated Steel Pipe	4b	Revised to update temperature-measuring devices.
M 247-13 (2022)	Glass Beads Used in Pavement Markings	4c	Reconfirmed for 2022 publication.
M 251M/M 251-22	Plain and Laminated Elastomeric Bridge Bearings	4e	Revised as follows: <ul style="list-style-type: none"> <li>Revised to harmonize with relevant provisions in the AASHTO LRFD Bridge Design Specifications.</li> <li>Updated temperature-measuring devices.</li> </ul>

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 259-22	Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD	4a	Revised as follows: <ul style="list-style-type: none"> <li>Title change.</li> <li>Incorporated LRFD changes from 2019.</li> <li>Updated temperature-measuring devices.</li> </ul>
M 261-22	Rib-Tread Standard Tire for Special-Purpose Pavement Frictional-Property Tests	5a	Revised to update temperature-measuring devices.
M 268-22	Retroreflective Sheeting for Flat and Vertical Traffic Control Applications	4d	Revised to update temperature-measuring devices.
M 269-96 (2022)	Turnbuckles and Shackles	4d	Reconfirmed for 2022 publication.
M 273-22	Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers with Less Than 2 ft of Cover Subjected to Highway Loadings	4a	Revised to update temperature-measuring devices.
M 278-22	Class PS46 Poly(Vinyl Chloride) (PVC) Pipe	4b	Revised to update temperature-measuring devices.
M 279-14 (2022)	Metallic-Coated, Steel Woven Wire Fence Fabric		Reconfirmed for 2022 publication.
M 280-22	Metallic-Coated (Carbon) Steel Barbed Wire	4d	Revised for equivalency with ASTM A121-19.
M 281-22	Steel Fence Posts and Assemblies, Hot-Wrought	4d	Revised for equivalency with ASTM A702-13(2018).
M 285M/M 285-22	Castings, Iron-Chromium-Nickel, Corrosion Resistant, for Severe Service	4f	Revised for equivalency with ASTM A744/A744M-21.
M 286-22	Smooth-Tread Standard Tire for Special-Purpose Pavement Frictional-Property Tests	5a	Revised to update temperature-measuring devices.
M 288-22	Geosynthetic Specification for Highway Applications	4g	Revised to update temperature-measuring devices.
M 292M/M 292-22	Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both	4f	Revised for equivalency with ASTM A194/A194M-20a.
M 300-22	Inorganic Zinc-Rich Primer	4c	Revised to update temperature-measuring devices.

AUGUST 2022b ERRATA

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 302-22	Slag Cement for Use in Concrete and Mortars	3a	Revised as follows <u>for harmonization with ASTM C989/C989M-22</u> : <ul style="list-style-type: none"> <li>Updated for equivalency with ASTM C989/C989M-18a.</li> <li>Changed “slag” to “slag cement” in several places.</li> <li>Rewrote Appendix X2.</li> </ul>
M 307-22	Silica Fume Used in Cementitious Mixtures	3a	Revised as follows: <ul style="list-style-type: none"> <li>Updated for equivalency with ASTM C1240-20.</li> <li>Updated temperature-measuring devices.</li> </ul>
M 314-90 (2022)	Steel Anchor Bolts	4f	Reconfirmed for 2022 publication.
M 316-18 (2022)	Polymer-Modified Emulsified Asphalt	2a	Reconfirmed for 2022 publication.
M 320-22	Performance-Graded Asphalt Binder	2b	Revised as follows: <ul style="list-style-type: none"> <li>Minor language updates throughout.</li> <li>Updated Tables 1 and 2.</li> <li>New Note 4.</li> </ul>
M 322M/M 322-22	Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement	4f	Revised for equivalency with ASTM A996/A996-16.
M 323-22	Superpave Volumetric Mix Design	2d	Revised extensively across multiple Sections.
M 326-18 (2022)	Polyethylene (PE) Liner Pipe, 300- to 1600-mm Diameter, Based on Controlled Outside Diameter	4b	Reconfirmed for 2022 publication.
M 327-22	Processing Additions for Use in the Manufacture of Hydraulic Cements	3a	Revised to remove flexural strength requirement <u>for harmonization with ASTM C465-22</u> .
M 328-14 (2022)	Inertial Profiler	5a	Reconfirmed for 2022 publication.
M 332-22	Performance-Graded Asphalt Binder Using Multiple Stress Creep Recovery (MSCR) Test	2b	Revised as follows: <ul style="list-style-type: none"> <li>Minor language updates regarding LTPPBind throughout.</li> <li>Updated Tables 1 and 2.</li> <li>New Section 4.2.5.</li> </ul>
M 339M/M 339-22	Thermometers Used in the Testing of Construction Materials	5c	New standard specification.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 340-22	Materials for Emulsified Asphalt Chip Seals	5b	Adopted standard practice, formerly MP 27.
M 341-22	Materials for Microsurfacing	5b	Adopted standard practice, formerly MP 28.
M 342-22	Materials for Slurry Seal	5b	Adopted standard practice, formerly MP 32.
M 343-22	Materials for Emulsified Asphalt Fog Seal	5b	Adopted standard practice, formerly MP 33.
M 344-22	Materials for Sand Seals	5b	Adopted standard practice, formerly MP 34.
M 345-22	Materials for Emulsified Asphalt Scrub Seal	5b	Adopted standard practice, formerly MP 43. Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> </ul>
M 346-22	Materials for Ultrathin Bonded Wearing Course	5b	Adopted standard practice, formerly MP 44.
M 347-22	Materials for Full-Depth Reclamation Mixtures with Emulsified Asphalt	5b	Adopted standard practice, formerly MP 45.
M 348-22	Waterborne White and Yellow Traffic Paints	5b	Adopted standard practice, formerly MP 24. Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> </ul>
M 349-22	Materials for Asphalt Tack Coat	2a	Adopted standard practice, formerly MP 36.
M 350-22	Reclaimed Asphalt Shingles for Use in Asphalt Mixtures	2d	Adopted standard practice, formerly MP 23.
R 9-05 (2022)	Acceptance Sampling Plans for Highway Construction	5c	Reconfirmed for 2022 publication.
R 10-22	Definition of Terms Related to Quality and Statistics as Used in Highway Construction	5c	Revised extensively throughout Section 4.
R 13-22	Conducting Geotechnical Subsurface Investigations	1b	Revised for equivalency with ASTM D420-18.
R 15-18 (2022)	Asphalt Additives and Modifiers	2b	Reconfirmed for 2022 publication.
R 18-18 (2022)	Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories	5c	Reconfirmed for 2022 publication.
R 23-99 (2022)	Chemical, Biological, and Physical Analysis of Water	5c	Reconfirmed for 2022 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
R 24-99 (2022)	Collection and Preservation of Water Samples	5c	Reconfirmed for 2022 publication.
R 25-22	Technician Training and Certification Programs	5c	Revised as follows: <ul style="list-style-type: none"> <li>Updated language in Section 7.2.</li> <li>Added references for Appendixes.</li> </ul>
R 26-01 (2022)	Certifying Suppliers of Performance-Graded Asphalt Binders	2b	Reconfirmed for 2022 publication.
R 28-22	Accelerated Aging of Asphalt Binder Using a Pressurized Aging Vessel (PAV)	2b	Revised to update temperature-measuring devices.
R 30-22	Mixture Conditioning of Hot Mix Asphalt (HMA)	2c	Revised as follows: <ul style="list-style-type: none"> <li>Updated procedure and information regarding short-term aging.</li> <li>Updated temperature-measuring devices.</li> </ul>
R 34-03 (2022)	Evaluating Deicing Chemicals	5c	Reconfirmed for 2022 publication.
R 35-22	Superpave Volumetric Design for Asphalt Mixtures	2d	Revised extensively across multiple Sections.
R 37-04 (2022)	Application of Ground Penetrating Radar (GPR) to Highways	5a	Reconfirmed for 2022 publication.
R 38-10 (2022)	Quality Assurance of Standard Manufactured Materials	5c	Reconfirmed for 2022 publication.
R 40-10 (2022)	Measuring Pavement Profile Using a Rod and Level	5a	Reconfirmed for 2022 publication.
R 44-07 (2022)	Independent Assurance (IA) Programs	5c	Reconfirmed for 2022 publication.
R 46-22	Designing Stone Matrix Asphalt (SMA)	2d	Revised to update temperature-measuring devices.
R 47-22	Reducing Samples of Asphalt Mixtures to Testing Size	2c	Revised to update temperature-measuring devices.
R 49-09 (2022)	Determination of Low-Temperature Performance Grade (PG) of Asphalt Binders	2b	Reconfirmed for 2022 publication.
R 50-09 (2022)	Geosynthetic Reinforcement of the Aggregate Base Course of Flexible Pavement Structures	4g	Reconfirmed for 2022 publication.
R 51-22	Compost for Erosion/Sediment Control (Filter Berms and Filter Socks)	4g	Revised as follows: <ul style="list-style-type: none"> <li>Updated Table 1.</li> <li>Updated test methods.</li> </ul>

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R 52-22	Compost for Erosion/Sediment Control (Compost Blankets)	4g	Revised as follows: <ul style="list-style-type: none"> <li>Updated Table 1.</li> <li>Updated test methods.</li> </ul>
R 54-14 (2022)	Accepting Pavement Ride Quality When Measured Using Inertial Profiling Systems	5a	Reconfirmed for 2022 publication.
R 56-14 (2022)	Certification of Inertial Profiling Systems	5a	Reconfirmed for 2022 publication.
R 57-14 (2022)	Operating Inertial Profiling Systems	5a	Reconfirmed for 2022 publication.
R 58-22	Dry Preparation of Disturbed Soil and Soil–Aggregate Samples for Test	1a	Revised to update temperature-measuring devices.
R 59-22	Recovery of Asphalt Binder from Solution by Abson Method	2c	Revised to update temperature-measuring devices.
R 64-22	Sampling and Fabrication of 50-mm (2-in.) Cube Specimens Using Grout (Non-Shrink) or Mortar	3b	Revised to update temperature-measuring devices.
R 65-14 (2022)	Evaluating the Engineering and Environmental Suitability of Recycled Materials	5c	Reconfirmed for 2022 publication.
R 68-22	Preparation of Asphalt Mixtures by Means of the Marshall Apparatus	2d	Revised to update temperature-measuring devices.
R 70M/R 70-22	Use of Apparatus for the Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete	3a	Revised to update temperature-measuring devices.
R 71-22	Sampling and Amount of Testing of Hydraulic Cement	3a	Revised for equivalency with ASTM C183/C183M-16.
R 72-22	Match Curing of Concrete Test Specimens	3c	Revised to update temperature-measuring devices.
R 74-22	Wet Preparation of Disturbed Soil Samples for Test	1a	Revised to update temperature-measuring devices.
R 78-22	Recovering Residue from Emulsified Asphalt Using Low-Temperature Evaporative Techniques	2a	Revised to update temperature-measuring devices.
R 79-22	Vacuum Drying Compacted Asphalt Specimens	2c	Revised to update temperature-measuring devices.
R 83-22	Preparation of Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC)	2d	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
R 85-18 (2022)	Preparation of Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC)	5a	Reconfirmed for 2022 publication.
R 86-18 (2022)	Collecting Images of Pavement Surfaces for Distress Detection	5a	Reconfirmed for 2022 publication.
R 87-18 (2022)	Determining Pavement Deformation Parameters and Cross Slope from Collected Transverse Profiles	5a	Reconfirmed for 2022 publication.
R 88-18 (2022)	Collecting the Transverse Pavement Profile	5a	Reconfirmed for 2022 publication.
R 89-18 (2022)	Accreditation Bodies Operating in the Fields of Construction Materials Testing and Inspection	5c	Reconfirmed for 2022 publication.
R 90-18 (2022)	Sampling Aggregate Products	1c	Reconfirmed for 2022 publication.
R 91-18 (2022)	Determining Aggregate Source Shape Values from Digital Image Analysis Shape Properties	1c	Reconfirmed for 2022 publication.
R 92-18 (2022)	Evaluating the Elastic Behavior of Asphalt Binders Using the Multiple Stress Creep Recovery (MSCR) Test	2b	Reconfirmed for 2022 publication.
R 95-22	Accelerated Aging of Hot-Poured Asphalt Crack Sealant Using a Vacuum Oven	4e	Revised to update temperature-measuring devices.
R 100-22	Making and Curing Concrete Test Specimens in the Field	3b	Revised to update temperature-measuring devices.
R 101-22	Developing Performance Engineered Concrete Pavement Mixtures	3c	Adopted standard practice, formerly PP 84.
R 102-22	Emulsified Asphalt Chip Seal Design	5b	Adopted standard practice, formerly PP 82.
R 103-22	Microsurfacing Design	5b	Adopted standard practice, formerly PP 83.
R 104-22	Slurry Seal Design	5b	Adopted standard practice, formerly PP 87.
R 105-22	Emulsified Asphalt Fog Seal Design	5b	Adopted standard practice, formerly PP 88.
R 106-22	Sand Seal Design	5b	Adopted standard practice, formerly PP 90.
R 107-22	Emulsified Asphalt Scrub Seal Design	5b	Adopted standard practice, formerly PP 91.
R 108-22	Ultrathin Bonded Wearing Course Design	5b	Adopted standard practice, formerly PP 100.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
R 109-22	Emulsified Asphalt Content of Full-Depth Reclamation Mixture Design	5b	Adopted standard practice, formerly PP 101. Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> </ul>
R 110-22	Continuous Thermal Profile of Asphalt Mixture Construction	5c	Adopted standard practice, formerly PP 80. Revised as follows: <ul style="list-style-type: none"> <li>Extensively revised to reorganize standard.</li> </ul>
R 111-22	Intelligent Compaction Technology for Embankment and Asphalt Pavement Applications	5c	Adopted standard practice, formerly PP 81. Revised as follows: <ul style="list-style-type: none"> <li>Extensively revised to reorganize standard.</li> </ul>
R 112-22	Asphalt Tack Coat Design	2a	Adopted standard practice, formerly PP 93.
R 113-22	Materials Selection and Mixture Design of Permeable Friction Courses (PFCs)	2d	Adopted standard practice, formerly PP 77. Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> </ul>
R 114-22	Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in Asphalt Mixtures	2d	Adopted standard practice, formerly PP 78.



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<sup>1</sup> For the disposition of provisional standards not listed above, see the Provisionals History.



## 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 2022

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 11-22	Materials Finer Than 75- $\mu$ m (No. 200) Sieve in Mineral Aggregates by Washing	1c	Revised to update temperature-measuring devices.
T 19M/T 19-22	Bulk Density ("Unit Weight") and Voids in Aggregate	1c	Revised to update temperature-measuring devices.
T 22M/T 22-22	Compressive Strength of Cylindrical Concrete Specimens	3c	Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> <li>Sections 6.1.1.1, 8.1, 8.3.1, 9.1.1, 12.1.</li> <li>New terminology Section.</li> </ul>
T 24M/T 24-22	Obtaining and Testing Drilled Cores and Sawed Beams of Concrete	3c	Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> <li>Additional information on measurements of cores.</li> </ul>
T 27-22	Sieve Analysis of Fine and Coarse Aggregates	1c	Revised to update temperature-measuring devices.
T 44-22	Solubility of Bituminous Materials	2b	Revised to update temperature-measuring devices.
T 48-22	Flash Point of Asphalt Binder by Cleveland Open Cup	2b	Revised to update temperature-measuring devices.
T 49-22	Penetration of Bituminous Materials	2b	Revised to update temperature-measuring devices.
T 50-22	Float Test for Bituminous Materials	2a	Revised to update temperature-measuring devices.
T 51-22	Ductility of Asphalt Materials	2b	Revised to update temperature-measuring devices.
T 53-22	Softening Point of Bitumen (Ring-and-Ball Apparatus)	2b	Revised to update temperature-measuring devices.
T 59-22	Emulsified Asphalts	2a	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 71-22	Effect of Organic Impurities in Fine Aggregate on Strength of Mortar	1c	Revised to update temperature-measuring devices.
T 72-22	Saybolt Viscosity	2a	Revised as follows: <ul style="list-style-type: none"> <li>• Updated temperature-measuring devices.</li> <li>• Updated apparatus.</li> <li>• Updated procedure, precision, and bias for emulsified asphalt.</li> </ul>
T 78-22	Distillation of Cutback Asphalt Products	2a	Revised to update temperature-measuring devices.
T 79-22	Flash Point with Tag Open-Cup Apparatus for Use with Material Having a Flash Point Less Than 93°C (200°F)	2a	Revised to update temperature-measuring devices.
T 84-22	Specific Gravity and Absorption of Fine Aggregate	1c	Revised to update temperature-measuring devices.
T 85-22	Specific Gravity and Absorption of Coarse Aggregate	1c	Revised to update temperature-measuring devices.
T 88-22	Particle Size Analysis of Soils	1a	Revised as follows: <ul style="list-style-type: none"> <li>• Updated temperature-measuring devices.</li> <li>• Added isopropyl alcohol to apparatus.</li> <li>• Added clarifications for hydrometer test.</li> </ul>
T 89-22	Determining the Liquid Limit of Soils	1a	Revised to update temperature-measuring devices.
T 90-22	Determining the Plastic Limit and Plasticity Index of Soils	1a	Revised to update temperature-measuring devices.
T 96-22	Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	1c	Revised to update temperature-measuring devices.
T 97-22	Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)	3c	Revised as follows: <ul style="list-style-type: none"> <li>• Additional information on verifying the accuracy of testing machines.</li> <li>• New terminology Section.</li> </ul>
T 99-22	Moisture–Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop	1b	Revised to update temperature-measuring devices.
T 100-22	Specific Gravity of Soils	1a	Revised to update temperature-measuring devices.
T 102-22	Spot Test of Asphaltic Materials	2b	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 103-22	Soundness of Aggregates by Freezing and Thawing	1c	Revised to update temperature-measuring devices.
T 104-22	Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate	1c	Revised to update temperature-measuring devices.
T 105-22	Chemical Analysis of Hydraulic Cement	3a	Revised as follows: <ul style="list-style-type: none"> <li>Added and revised information on porcelain crucibles.</li> <li>Updated temperature-measuring devices.</li> </ul>
T 106M/T 106-22	Compressive Strength of Hydraulic Cement Mortar (Using 50-mm or 2-in. Cube Specimens)	3a	Revised to update temperature-measuring devices.
T 107M/T 107-22	Autoclave Expansion of Hydraulic Cement	3a	Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> <li>Updated for equivalency with ASTM C151/C151M-18.</li> </ul>
T 111-22	Mineral Matter or Ash in Asphalt Materials	2b	Revised to update temperature-measuring devices.
T 112-22	Clay Lumps and Friable Particles in Aggregate	1c	Revised to update temperature-measuring devices.
T 113-22	Lightweight Particles in Aggregate	1c	Revised to update temperature-measuring devices.
T 119M/T 119-18 (2022)	Slump of Hydraulic Cement Concrete	3b	Reconfirmed for 2022 publication.
T 129-22	Amount of Water Required for Normal Consistency of Hydraulic Cement Paste	3a	Revised specifications for the Vicat apparatus.
T 131-22	Time of Setting of Hydraulic Cement by Vicat Needle	3a	Revised for equivalency with ASTM C191-19.
T 132-22	Tensile Strength of Hydraulic Cement Mortars	3a	Revised to update temperature-measuring devices.
T 133-22	Density of Hydraulic Cement	3a	Revised to update temperature-measuring devices.
T 134-22	Moisture–Density Relations of Soil–Cement Mixtures	1b	Revised as follows: <ul style="list-style-type: none"> <li>Added Appendix X1 and relevant references and notes.</li> <li>Revised Table 1 and Section 6.4 regarding oversize particles.</li> </ul>
T 135-22	Wetting-and-Drying Test of Compacted Soil–Cement Mixtures	1b	Revised to update temperature-measuring devices.
T 136-22	Freezing-and-Thawing Tests of Compacted Soil–Cement Mixtures	1b	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 137-22	Air Content of Hydraulic Cement Mortar	3a	Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> <li>Updated measure standardization instructions.</li> </ul>
T 148-22	Measuring Length of Drilled Concrete Cores	3c	Revised as follows: <ul style="list-style-type: none"> <li>Added precision information.</li> <li>Updated core specifications.</li> <li>New terminology Section.</li> </ul>
T 153-22	Fineness of Hydraulic Cement by Air Permeability Apparatus	3a	Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> <li>Updated for equivalency with ASTM C204-18.</li> </ul>
T 154-22	Time of Setting of Hydraulic Cement Paste by Gillmore Needles	3a	Revised for equivalency with ASTM C266-20.
T 155-22	Water Retention by Liquid Membrane-Forming Curing Compounds for Concrete	3b	Revised to update temperature-measuring devices.
T 157-22	Air-Entraining Admixtures for Concrete	3b	Revised to update temperature-measuring devices.
T 158-22	Bleeding of Concrete	3b	Revised to update temperature-measuring devices.
T 160-22	Length Change of Hardened Hydraulic Cement Mortar and Concrete	3c	Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> <li>Updated instructions for molding and curing of specimens.</li> </ul>
T 161-22	Resistance of Concrete to Rapid Freezing and Thawing	3c	Revised to update temperature-measuring devices.
T 162-22	Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency	3a	Revised for equivalency with ASTM C305-20.
T 164-22	Quantitative Extraction of Asphalt Binder from Hot Mix Asphalt (HMA)	2c	Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> <li>Added requirement to report asphalt binder content to the nearest 0.01 percent.</li> </ul>
T 166-22	Bulk Specific Gravity ( $G_{mb}$ ) of Compacted Asphalt Mixtures Using Saturated Surface-Dry Specimens	2c	Revised to update temperature-measuring devices.
T 167-22	Compressive Strength of Hot Mix Asphalt	2d	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 176-22	Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test	1a	Revised as follows: <ul style="list-style-type: none"> <li>Increased sample size for adequate testing and address discrepancies.</li> <li>Updated temperature-measuring devices.</li> </ul>
T 178-22	Portland Cement Content of Hardened Hydraulic-Cement Concrete	3c	Revised to update temperature-measuring devices.
T 179-22	Effect of Heat and Air on Asphalt Materials (Thin-Film Oven Test)	2b	Revised to update temperature-measuring devices.
T 180-22	Moisture–Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop	1b	Revised to update temperature-measuring devices.
T 185-22	Early Stiffening of Hydraulic Cement (Mortar Method)	3a	Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> <li>Updated for equivalency with ASTM C359-20.</li> </ul>
T 186-22	Early Stiffening of Hydraulic Cement (Paste Method)	3a	Revised for equivalency with ASTM C451-19.
T 190-22	Resistance R-Value and Expansion Pressure of Compacted Soils	1a	Revised for equivalency with ASTM D2844/D2844M-18.
T 191-14 (2022)	Density of Soil In-Place by the Sand-Cone Method	1b	Reconfirmed for 2022 publication.
T 193-22	The California Bearing Ratio	1a	Revised to update temperature-measuring devices.
T 194-22	Determination of Organic Matter in Soils by Wet Combustion	1a	Revised to update temperature-measuring devices.
T 195-22	Determining Degree of Particle Coating of Asphalt Mixtures	2c	Revised to update temperature-measuring devices.
T 196M/T 196-22	Air Content of Freshly Mixed Concrete by the Volumetric Method	3b	Revised to update temperature-measuring devices.
T 197M/T 197-22	Time of Setting of Concrete Mixtures by Penetration Resistance	3b	Revised to update temperature-measuring devices.
T 198-22	Splitting Tensile Strength of Cylindrical Concrete Specimens	3c	Revised to add terminology references.
T 201-22	Kinematic Viscosity of Asphalts (Bitumens)	2b	Revised to update temperature-measuring devices.
T 202-22	Viscosity of Asphalts by Vacuum Capillary Viscometer	2b	Revised to update temperature-measuring devices.
T 206-22	Penetration Test and Split-Barrel Sampling of Soils	1b	Revised for equivalency with ASTM D1568-18.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 207-22	Thin-Walled Tube Sampling of Soils	1b	Revised for equivalency with ASTM D1587/D1587M-15.
T 209-22	Theoretical Maximum Specific Gravity ( $G_{mm}$ ) and Density of Asphalt Mixtures	2c	Revised as follows: <ul style="list-style-type: none"> <li>• Updated temperature-measuring devices.</li> <li>• Improved precision estimates.</li> <li>• Changes to plant-produced sample drying in Section 7.2.1.</li> <li>• Minor edits for precision in Sections 5.4.5, 5.5., 9.1, and 10.1.</li> <li>• Updated Annex 1.</li> </ul>
T 210-22	Aggregate Durability Index	1c	Revised to update temperature-measuring devices.
T 215-22	Permeability of Granular Soils (Constant Head)	1a	Revised as follows: <ul style="list-style-type: none"> <li>• Updated temperature-measuring devices.</li> <li>• Updated significance and use.</li> <li>• Clarifications to apparatus.</li> <li>• Language updates to Method A and Method B.</li> </ul>
T 216-22	One-Dimensional Consolidation Properties of Soils	1a	Revised to update temperature-measuring devices.
T 217-14 (2022)	Determination of Moisture in Soils by Means of a Calcium Carbide Gas Pressure Moisture Tester	1a	Reconfirmed for 2022 publication.
T 218-86 (2022)	Sampling Hydrated Lime	3a	Reconfirmed for 2022 publication.
T 219-22	Testing Lime for Chemical Constituents and Particle Sizes	3a	Revised to update temperature-measuring devices.
T 220-22	Determination of the Strength of Soil–Lime Mixtures	1a	Revised to update temperature-measuring devices.
T 226-22	Triaxial Compressive Strength of Undrained Rock Core Specimens without Pore Pressure Measurements	1a	Revised as follows: <ul style="list-style-type: none"> <li>• Removed ASTM equivalency.</li> <li>• Extensive revisions across most Sections.</li> </ul>
T 228-22	Specific Gravity of Semi-Solid Asphalt Materials	2b	Revised as follows: <ul style="list-style-type: none"> <li>• Title change.</li> <li>• Updated for equivalency with ASTM D70/D70M-21.</li> <li>• Updated temperature-measuring devices.</li> </ul>
T 232-90 (2022)	Determination of Lime Content in Lime-Treated Soils by Titration	3a	Reconfirmed for 2022 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 233-22	Density of Soil In-Place by Block, Chunk, or Core Sampling	1a	Revised to update temperature-measuring devices.
T 236-22	Direct Shear Test of Soils under Consolidated Drained Conditions	1a	Revised to update temperature-measuring devices.
T 237-22	Testing Epoxy Resin Adhesive	4c	Revised to update temperature-measuring devices.
T 240-22	Effect of Heat and Air on a Moving Film of Asphalt Binder (Rolling Thin-Film Oven Test)	2b	Revised to update temperature-measuring devices.
T 242-18 (2022)	Frictional Properties of Paved Surfaces Using a Full-Scale Tire	5a	Reconfirmed for 2022 publication.
T 244-22	Mechanical Testing of Steel Products	4f	Revised for equivalency with ASTM A370-20.
T 245-22	Resistance to Plastic Flow of Asphalt Mixtures Using Marshall Apparatus	2d	Revised to update temperature-measuring devices.
T 246-22	Resistance to Deformation and Cohesion of Hot Mix Asphalt (HMA) by Means of Hveem Apparatus	2d	Revised to update temperature-measuring devices.
T 247-22	Preparation of Test Specimens of Hot Mix Asphalt (HMA) by Means of California Kneading Compactor	2d	Revised to update temperature-measuring devices.
T 250-22	Thermoplastic Traffic Line Material	4c	Revised to update temperature-measuring devices.
T 255-22	Total Evaporable Moisture Content of Aggregate by Drying	1c	Revised to update temperature-measuring devices.
T 258-81 (2022)	Determining Expansive Soils	1a	Reconfirmed for 2022 publication.
T 265-22	Laboratory Determination of Moisture Content of Soils	1a	Revised to update temperature-measuring devices.
T 267-22	Determination of Organic Content in Soils by Loss on Ignition	1a	Revised to update temperature-measuring devices.
T 269-14 (2022)	Percent Air Voids in Compacted Dense and Open Asphalt Mixtures	2c	Reconfirmed for 2022 publication.
T 272-18 (2022)	One-Point Method for Determining Maximum Dry Density and Optimum Moisture	1b	Reconfirmed for 2022 publication.
T 273-86 (2022)	Soil Suction	1a	Reconfirmed for 2022 publication.
T 275-22	Bulk Specific Gravity ( $G_{mb}$ ) of Compacted Asphalt Mixtures Using Paraffin-Coated Specimens	2c	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 276-22	Measuring Early-Age Compression Strength and Projecting Later-Age Strength	3c	Revised as follows: <ul style="list-style-type: none"> <li>• Updated terminology.</li> <li>• Updated precision measurements.</li> <li>• Included additional references to curing methods.</li> <li>• Updated temperature-measuring devices.</li> </ul>
T 277-22	Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration	3c	Revised as follows: <ul style="list-style-type: none"> <li>• Updated vacuum pump specifications.</li> <li>• Updated language regarding precision.</li> <li>• Updated temperature-measuring devices.</li> </ul>
T 279-18 (2022)	Accelerated Polishing of Aggregates Using the British Wheel	5a	Reconfirmed for 2022 publication.
T 280-22	Concrete Pipe, Manhole Sections, or Tile	4a	Revised to update temperature-measuring devices.
T 281-22	Vitrified Clay Pipe	4a	Revised as follows: <ul style="list-style-type: none"> <li>• Updated for equivalency with ASTM C301-18.</li> <li>• Updated temperature-measuring devices.</li> </ul>
T 283-22	Resistance of Compacted Asphalt Mixtures to Moisture-Induced Damage	2d	Revised to update temperature-measuring devices.
T 287-22	Asphalt Binder Content of Asphalt Mixtures by the Nuclear Method	2c	Revised as follows: <ul style="list-style-type: none"> <li>• Updated temperature-measuring devices.</li> <li>• Added requirement to report asphalt binder content to the nearest 0.01 percent.</li> </ul>
T 289-22	Determining pH of Soil for Use in Corrosion Testing	1a	Revised to update temperature-measuring devices.
T 291-22	Determining Water-Soluble Chloride Ion Content in Soil	1a	Revised to update temperature-measuring devices.
T 295-22	Specific Gravity or API Gravity of Liquid Asphalts by Hydrometer Method	2a	Revised to update temperature-measuring devices.
T 296-22	Unconsolidated, Undrained Compressive Strength of Cohesive Soils in Triaxial Compression	1a	Revised to update temperature-measuring devices.
T 300-22	Force Ductility Test of Asphalt Materials	2a	Revised to update temperature-measuring devices.



Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 301-22	Elastic Recovery Test of Asphalt Materials by Means of a Ductilometer	2b	Revised to update temperature-measuring devices.
T 302-22	Polymer Content of Polymer-Modified Emulsified Asphalt Residue and Asphalt Binders	2a	Revised to update temperature-measuring devices.
T 303-22	Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali–Silica Reaction	1c	Revised to update temperature-measuring devices.
T 304-22	Uncompacted Void Content of Fine Aggregate	1c	Revised to update temperature-measuring devices.
T 305-22	Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures	2c	Revised to update temperature-measuring devices.
T 308-22	Determining the Asphalt Binder Content of Asphalt Mixtures by the Ignition Method	2c	Revised to update temperature-measuring devices.
T 309-22	Temperature of Freshly Mixed Portland Cement Concrete	3b	Revised to update temperature-measuring devices.
T 310-22	In-Place Density and Moisture Content of Soil and Soil–Aggregate by Nuclear Methods (Shallow Depth)	1b	Revised as follows: <ul style="list-style-type: none"> <li>Replaced all instances of “probe” with “source rod”.</li> <li>Updated language throughout to consistent active voice.</li> </ul>
T 312-22	Preparing and Determining the Density of Asphalt Mixture Specimens by Means of the Superpave Gyratory Compactor	2d	Revised to update temperature-measuring devices.
T 313-22	Determining the Flexural Creep Stiffness of Asphalt Binder Using the Bending Beam Rheometer (BBR)	2b	Revised to update temperature-measuring devices.
T 314-22	Determining the Fracture Properties of Asphalt Binder in Direct Tension (DT)	2b	Revised to update temperature-measuring devices.
T 315-22	Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)	2b	Revised to update temperature-measuring devices.
T 316-22	Viscosity Determination of Asphalt Binder Using Rotational Viscometer	2b	Revised to update temperature-measuring devices.
T 317-04 (2022)	Prediction of Asphalt-Bound Pavement Layer Temperatures	5a	Reconfirmed for 2022 publication.
T 319-22	Quantitative Extraction and Recovery of Asphalt Binder from Asphalt Mixtures	2c	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 320-22	Determining the Permanent Shear Strain and Stiffness of Asphalt Mixtures Using the Superpave Shear Tester (SST)	2d	Revised to update temperature-measuring devices.
T 321-22	Determining the Fatigue Life of Compacted Asphalt Mixtures Subjected to Repeated Flexural Bending	2d	Revised to update temperature-measuring devices.
T 324-22	Hamburg Wheel-Track Testing of Compacted Asphalt Mixtures	2d	Revised to update temperature-measuring devices.
T 325-22	Estimating the Strength of Concrete in Transportation Construction by Maturity Tests	3b	Revised to update temperature-measuring devices.
T 326-22	Uncompacted Void Content of Coarse Aggregate (As Influenced by Particle Shape, Surface Texture, and Grading)	1c	Revised to update temperature-measuring devices.
T 327-22	Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus	1c	Revised to update temperature-measuring devices.
T 329-22	Moisture Content of Asphalt Mixtures by Oven Method	2c	Revised to update temperature-measuring devices.
T 330-22	The Qualitative Detection of Harmful Clays of the Smectite Group in Aggregates Using Methylene Blue	1c	Revised to update temperature-measuring devices.
T 331-22	Bulk Specific Gravity ( $G_{mb}$ ) and Density of Compacted Asphalt Mixtures Using Automatic Vacuum Sealing Method	2c	Revised to update temperature-measuring devices.
T 332-22	Determining Chloride Ions in Concrete and Concrete Materials by Specific Ion Probe	3c	Revised to update temperature-measuring devices.
T 333-22	Linear Coefficient of Shrinkage on Cure of Adhesive Systems	4c	Revised to update temperature-measuring devices.
T 336-22	Coefficient of Thermal Expansion of Hydraulic Cement Concrete	3c	Revised to update temperature-measuring devices.
T 339-22	Analysis of Structural Steel Coatings for Isocyanate Content	4c	Revised to update temperature-measuring devices.
T 341-22	Determination of Compression Capacity for Profile Wall Plastic Pipe by Stub Compression Loading	4b	Revised to update temperature-measuring devices.
T 342-22	Determining Dynamic Modulus of Hot Mix Asphalt (HMA)	2d	Revised to update temperature-measuring devices.
T 344-22	Evaluation of Superpave Gyratory Compactor (SGC) Internal Angle of Gyration Using Simulated Loading	2d	Revised to update temperature-measuring devices.
T 346-22	Glass Beads Used in Pavement Markings	4c	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 348-22	Air-Void Characteristics of Freshly Mixed Concrete by Buoyancy Change	3b	Revised to update temperature-measuring devices.
T 351-14 (2022)	Visual Stability Index (VSI) of Self-Consolidating Concrete (SCC)	3b	Reconfirmed for 2022 publication.
T 352-14 (2022)	Determining Formwork Pressure of Fresh Self-Consolidating Concrete (SCC) Using Pressure Transducers	3b	Reconfirmed for 2022 publication.
T 353-14 (2022)	Particle Size Analysis of Hydraulic Cement and Related Materials by Light Scattering	3a	Reconfirmed for 2022 publication.
T 354-22	Specific Gravity and Absorption of Aggregate by Volumetric Immersion Method	1c	Revised to update temperature-measuring devices.
T 355-22	In-Place Density of Asphalt Mixtures by Nuclear Methods	2c	Revised as follows: <ul style="list-style-type: none"> <li>Replaced all instances of “probe” with “source rod”.</li> <li>Updated language throughout to consistent active voice.</li> </ul>
T 356-22	Determining Air Content of Hardened Portland Cement Concrete by High-Pressure Air Meter	3c	Revised to update temperature-measuring devices.
T 357-22	Predicting Chloride Penetration of Hydraulic Cement Concrete by the Rapid Migration Procedure	3c	Revised to update temperature-measuring devices.
T 358-22	Surface Resistivity Indication of Concrete's Ability to Resist Chloride Ion Penetration	3c	Revised as follows: <ul style="list-style-type: none"> <li>Updated temperature-measuring devices.</li> <li>Extensive revisions across most Sections.</li> </ul>
T 359M/T 359-18 (2022)	Pavement Thickness by Magnetic Pulse Induction	3c	Reconfirmed for 2022 publication.
T 361-22	Determining Asphalt Binder Bond Strength by Means of the Binder Bond Strength (BBS) Test	2a	Revised to update temperature-measuring devices.
T 363-22	Evaluating Stress Development and Cracking Potential due to Restrained Volume Change Using a Dual Ring Test	3c	Revised to update temperature-measuring devices.
T 364-22	Determination of Composite Activation Energy of Aggregates due to Alkali–Silica Reaction (Chemical Method)	3c	Revised to update temperature-measuring devices.
T 366-22	Apparent Viscosity of Hot-Poured Asphalt Crack Sealant Using Rotational Viscometer	4e	Revised to update temperature-measuring devices.
T 368-22	Measuring Low-Temperature Flexural Creep Stiffness of Hot-Poured Asphalt Crack Sealant by Bending Beam Rheometer (BBR)	4e	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 369-22	Evaluation of the Low-Temperature Tensile Property of Hot-Poured Asphalt Crack Sealant by Direct Tension Test	4e	Revised to update temperature-measuring devices.
T 370-22	Measuring Adhesion of Hot-Poured Asphalt Crack Sealant Using Direct Adhesion Tester	4e	Revised to update temperature-measuring devices.
T 371-22	Measuring Interfacial Fracture Energy of Hot-Poured Asphalt Crack Sealant Using a Blister Test	4e	Revised to update temperature-measuring devices.
T 377-22	Detecting the Presence of Phosphorous in Asphalt Binder	2b	Revised to update temperature-measuring devices.
T 378-22	Determining the Dynamic Modulus and Flow Number for Asphalt Mixtures Using the Asphalt Mixture Performance Tester (AMPT)	2d	Revised to update temperature-measuring devices.
T 379-18 (2022)	Nonlinear Impact Resonance Acoustic Spectroscopy (NIRAS) for Concrete Specimens with Damage from Alkali-Silica Reaction (ASR)	3c	Reconfirmed for 2022 publication.
T 380-22	Potential Alkali Reactivity of Aggregates and Effectiveness of ASR Mitigation Measures (Miniature Concrete Prism Test, MCPT)	3c	Revised to update temperature-measuring devices.
T 381-22	Determining Aggregate Shape Properties by Means of Digital Image Analysis	1c	Revised to update temperature-measuring devices.
T 382-22	Determining the Viscosity of Emulsified Asphalt by a Rotational Paddle Viscometer	2a	Revised to update temperature-measuring devices.
T 383-22	Evaluation of Asphalt Release Agents (ARAs)	2b	Revised as follows: <ul style="list-style-type: none"> <li>• Updated temperature-measuring devices.</li> <li>• Updated procedure.</li> <li>• Updated product formulation parameters.</li> <li>• Added Appendix.</li> </ul>
T 384-22	Protective Sealers for Portland Cement Concrete	4c	Revised to update temperature-measuring devices.
T 388-22	Detectable Warning Systems	4d	Revised to update temperature-measuring devices.
T 389-22	Determining the Influence of Road Surfaces on Vehicle Noise Using the Statistical Isolated Pass-By (SIP) Method	5a	Revised to update temperature-measuring devices.
T 390-22	Determining the Influence of Road Surfaces on Traffic Noise Using the Continuous-Flow Traffic Time-Integrated Method (CTIM)	5a	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 393-22	Determining the Fracture Potential of Asphalt Mixtures Using the Illinois Flexibility Index Test (I-FIT)	2d	Revised to update temperature-measuring devices.
T 394-22	Determining the Fracture Energy of Asphalt Mixtures Using the Semicircular Bend Geometry (SCB)	2d	Revised to update temperature-measuring devices.
T 395-22	Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method	3b	Adopted standard method of test, previously TP 118.
T 396-22	Box Test in Slip Form Paving of Fresh Portland Cement Concrete	3b	Adopted standard method of test, previously TP 137.
T 397-22	Uniaxial Response of Ultra-High Performance Concrete	3c	New standard method of test.
T 398-22	Measuring Retroreflectivity of Pavement Marking Materials Using a Mobile Retroreflectivity Unit	4c	Adopted standard method of test, previously TP 111.
T 399-22	Determining In-Place Density and Moisture Content of Soil and Soil-Aggregate Using Complex Impedance Methodology	1b	Adopted standard method of test, previously TP 112.
T 400-22	Determining the Damage Characteristic Curve and Failure Criterion Using the Asphalt Mixture Performance Tester (AMPT) Cyclic Fatigue Test	2d	Adopted standard method of test, previously TP 107. Revised as follows: <ul style="list-style-type: none"> <li>Significant rewrite of standard.</li> <li>Revised to update temperature-measuring devices.</li> </ul>
T 401-22	Cantabro Abrasion Loss of Asphalt Mixture Specimens	2d	Adopted standard method of test, previously TP 108. Revised as follows: <ul style="list-style-type: none"> <li>Title change.</li> <li>Added more exact measurements to rounding and margins of error.</li> <li>Updated significance and use.</li> <li>New Appendix A.</li> <li>Revised to update temperature-measuring devices.</li> </ul>

## PART 3—AASHTO PROVISIONAL STANDARDS

### Numerical Sequence Table of Contents

STD. NO.	TITLE
SPECIFICATIONS	
MP 23-15 (2021)	<i>Adopted</i> —Reclaimed Asphalt Shingles for Use in Asphalt Mixtures
MP 24-15 (2021)	<i>Adopted</i> —Waterborne White and Yellow Traffic Paints
MP 26-15 (2022)	Cotton Duck Fabric Bridge Bearings
MP 27-16 (2020)	<i>Adopted</i> —Materials for Emulsified Asphalt Chip Seals
MP 28-17 (2020)	<i>Adopted</i> —Materials for Microsurfacing
MP 31-22	Materials for Cold Recycled Mixtures with Emulsified Asphalt
MP 32-17 (2021)	<i>Adopted</i> —Materials for Slurry Seal
MP 33-17 (2021)	<i>Adopted</i> —Materials for Emulsified Asphalt Fog Seal
MP 34-18 (2020)	<i>Adopted</i> —Materials for Sand Seals
MP 35-22	Thin Overlay Treatments Using a Binder Resin System and Aggregate for Concrete Surfaces
MP 36-18 (2020)	<i>Adopted</i> —Materials for Asphalt Tack Coat
MP 37-18 (2022)	Performance-Graded Asphalt Binder for Surface Treatments
MP 38-22	Materials used in Cold Recycled Mixture with Foamed Asphalt
MP 39-22	File Format of Intelligent Compaction Data
MP 40-19 (2021)	Steel-Reinforced Polyethylene (PE) Ribbed Pipe 1650- to 3000-mm (66- to 120-in.) Diameter
MP 41-22	High Friction Surface Treatment for Asphalt and Concrete Pavements Using Calcined Bauxite
<u>MP 42-22</u>	Steel-Reinforced Polyethylene (SRPE) Corrugated Pipe
MP 43-20	<i>Adopted</i> —Materials for Emulsified Asphalt Scrub Seal
MP 44-20	<i>Adopted</i> —Materials for Ultrathin Bonded Wearing Course
MP 45-20	<i>Adopted</i> —Materials for Full-Depth Reclamation Mixtures with Emulsified Asphalt
MP 46-22	Balanced Mix Design
MP 47-22	File Format of Two-Dimensional and Three-Dimensional (2D/3D) Pavement Image Data

STD. NO.	TITLE
PRACTICES	
PP 77-14 (2021)	<i>Adopted</i> —Materials Selection and Mixture Design of Permeable Friction Courses (PFCs)
PP 78-17 (2021)	<i>Adopted</i> —Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in Asphalt Mixtures
PP 80-20 (2021)	<i>Adopted</i> —Continuous Thermal Profile of Asphalt Mixture Construction
PP 81-18 (2020)	<i>Adopted</i> —Intelligent Compaction Technology for Embankment and Asphalt Pavement Applications
PP 82-16 (2020)	<i>Adopted</i> —Emulsified Asphalt Chip Seal Design
PP 83-16 (2020)	<i>Adopted</i> —Microsurfacing Design
PP 84-20 (2021)	<i>Adopted</i> —Performance Engineered Concrete Pavement Mixtures
PP 85-18 (2021)	Grading or Verifying the Sealant Grade (SG) of a Hot-Poured Asphalt Crack Sealant
PP 86-20 (2021)	Emulsified Asphalt Content of Cold Recycled Mixture Designs
PP 87-20 (2021)	<i>Adopted</i> —Slurry Seal Design
PP 88-17 (2021)	<i>Adopted</i> —Emulsified Asphalt Fog Seal Design

STD. NO.	TITLE
PRACTICES	
PP 89-19 (2022)	Grinding the Ends of Cylindrical Concrete Specimens
PP 90-18 (2020)	<i>Adopted</i> —Sand Seal Design
PP 91-21	<i>Adopted</i> —Emulsified Asphalt Scrub Seal Design
PP 92-19 (2022)	Preparation of Test Specimens Using the Plastic Mold Compaction Device
PP 93-18 (2020)	<i>Adopted</i> —Asphalt Tack Coat Design
PP 94-22	Determination of Optimum Asphalt Content of Cold Recycled Mixture with Foamed Asphalt
PP 95-22	Preparation of Indirect Tension Performance Test Specimens
PP 96-18 (2022)	Developing Dynamic Modulus Master Curves for Asphalt Mixtures Using the Indirect Tension Testing Method
PP 97-19 (2021)	Determination of Constant Mass
PP 98-20 (2021)	Asphalt Surface Dielectric Profiling System Using Ground Penetrating Radar
PP 99-19 (2021)	Preparation of Small Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC) or Field Cores
PP 100-20	<i>Adopted</i> —Ultrathin Bonded Wearing Course Design
PP 101-20	<i>Adopted</i> —Emulsified Asphalt Content of Full-Depth Reclamation Mixture Design
PP 102-20 (2022)	Digital Interchange of Geotechnical Data
PP 103-21 (2022)	Sample Preparation and Polishing of Unbound Aggregates for Dynamic Friction Testing
PP 104-21 (2022)	Sample Preparation and Polishing of Asphalt Mixture Specimens for Dynamic Friction Testing
PP 105-20 (2022)	Balanced Design of Asphalt Mixtures
PP 106-21	Assessment of Static Performance in Transverse Pavement Profiling Systems
PP 107-21	Assessment of Body Motion Cancellation in Transverse Pavement Profiling Systems
PP 108-21	Assessment of Navigation Drift Mitigation in Transverse Pavement Profiling Systems
PP 109-21	Assessment of Highway Performance in Transverse Pavement Profiling Systems
PP 110-21	Assessment of Ground Reference Data for Transverse Pavement Profiling System Assessment
PP 111-21	Definition of Terms Related to Transverse Pavement Profiling Systems and Ground Reference Equipment
PP 112-21	Recognizing Surrogate Test Methods
PP 113-21	Characterizing the Relaxation Behavior of Asphalt Binders Using the Delta $T_c$ ( $\Delta T_c$ ) Parameter
PP 114-22	<i>New</i> —Data Lot Names for use with Intelligent Construction Technologies

STD. NO.	TITLE
TESTS	
TP 107-18 (2021)	<i>Adopted</i> —Determining the Damage Characteristic Curve of Asphalt Mixtures from Direct Tension Cyclic Fatigue Tests
TP 108-14 (2021)	<i>Adopted</i> —Abrasion Loss of Asphalt Mixture Specimens
TP 111-14 (2021)	<i>Adopted</i> —Measuring Retroreflectivity of Pavement Marking Materials Using a Mobile Retroreflectivity Unit
TP 112-21	<i>Adopted</i> —Determining In-Place Density and Moisture Content of Soil and Soil–Aggregate Using Complex Impedance Methodology
TP 113-22	Determination of Asphalt Binder Resistance to Ductile Failure Using Double-Edge-Notched Tension (DENT) Test
TP 114-18 (2022)	Determining the Interlayer Shear Strength (ISS) of Asphalt Pavement Layers

STD. NO.	TITLE
TESTS	
TP 115-16 (2022)	Determining the Quality of Tack Coat Adhesion to the Surface of an Asphalt Pavement in the Field or Laboratory
TP 116-22	Rutting and Fatigue Resistance of Asphalt Mixtures Using Incremental Repeated Load Permanent Deformation (iRLPD)
TP 117-22	Determination of the Voids of Dry Compacted Filler
TP 118-17 (2021)	<i>Adopted</i> —Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method
TP 119-22	Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test
TP 120-22	Pore Index for Carbonate Coarse Aggregate
TP 122-22	Determination of Performance Grade of Physically Aged Asphalt Binder Using Extended Bending Beam Rheometer (BBR) Method
TP 123-16 (2022)	Measuring Asphalt Binder Yield Energy and Elastic Recovery Using the Dynamic Shear Rheometer
TP 125-22	Determining the Flexural Creep Stiffness of Asphalt Mixtures Using the Bending Beam Rheometer (BBR)
TP 126-22	Evaluation of the Tracking Resistance of Hot-Poured Asphalt Crack Sealant by Dynamic Shear Rheometer (DSR)
TP 127-22	Determining the Fracture Energy Density of Asphalt Binder Using the Binder Fracture Energy (BFE) Test
TP 128-22	Evaluation of Oxidation Level of Asphalt Mixtures by a Portable Infrared Spectrometer
TP 129-21 (2022)	Vibrating Kelly Ball (VKelly) Penetration in Fresh Portland Cement Concrete
TP 130-18 (2022)	Producing Drawdown Panels and Measuring the Coefficient of Retroreflected Luminance (RL) of Pavement Markings in a Laboratory Panel
TP 131-18 (2022)	Determining the Dynamic Modulus of Asphalt Mixtures Using the Indirect Tension Test
TP 132-19 (2021)	Determining the Dynamic Modulus for Asphalt Mixtures Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT)
TP 133-22	Determining the Damage Characteristic Curve and Failure Criterion Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT) Cyclic Fatigue Test
TP 134-22	Stress Sweep Rutting (SSR) Test Using Asphalt Mixture Performance Tester (AMPT)
TP 135-22	Determining the Total Pore Volume in Hardened Concrete Using Vacuum Saturation
TP 136-22	Determining the Degree of Saturation of Hydraulic-Cement Concrete
TP 137-20	<i>Adopted</i> —Box Test in Slip Form Paving of Fresh Portland Cement Concrete
TP 138-22	Weight and Diameter for Carbon-Steel for Steel Wire and Welded Wire Reinforcement for Concrete
TP 139-22	Determining the Relative Density (Specific Gravity) and Absorption of Lightweight Aggregate for Internally Cured Concrete Mixtures
TP 140-22	Moisture Sensitivity Using Hydrostatic Pore Pressure to Determine Cohesion and Adhesion Strength of Compacted Asphalt Mixture Specimens
TP 141-22	Determining the Indirect Tensile Nflex Factor to Assess the Cracking Resistance of Asphalt Mixtures
TP 142-21	Accelerated Determination of Potentially Deleterious Expansion of Concrete Cylinder due to Alkali-Silica Reactivity
TP 143-21	Continuous Measurement of Sideway-Force Friction Number for Highway Pavements
TP 144-21	Determining the Potential Alkali-Silica Reactivity of Coarse Aggregates (TFHRC-TFAST)
STD. NO.	TITLE
DELETED STANDARDS <sup>1</sup>	
MP 22-13 (2020)	Fiber-Reinforced Polymer Composite Materials for Highway and Bridge Structures
MP 25-18 (2019)	Performance-Graded Hot-Poured Asphalt Crack Sealant



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
TP 105-20	Determining the Fracture Energy of Asphalt Mixtures Using the Semicircular Bend Geometry (SCB)
TP 106-20	Determination of Heavy Metal Content of Glass Beads Using X-Ray Fluorescence (XRF)
TP 124-20	Determining the Fracture Potential of Asphalt Mixtures Using Semicircular Bend Geometry (SCB) at Intermediate Temperature

## PART 3—AASHTO PROVISIONAL STANDARDS

### Subject Sequence Table of Contents

STD. NO.	TITLE
AGGREGATES	

PP 103-21 (2022)	Sample Preparation and Polishing of Unbound Aggregates for Dynamic Friction Testing
PP 104-21 (2022)	Sample Preparation and Polishing of Asphalt Mixture Specimens for Dynamic Friction Testing
TP 120-22	Pore Index for Carbonate Coarse Aggregate
TP 139-22	Determining the Relative Density (Specific Gravity) and Absorption of Lightweight Aggregate for Internally Cured Concrete Mixtures
TP 144-21	Determining the Potential Alkali–Silica Reactivity of Coarse Aggregates (TFHRC-TFAST)

STD. NO.	TITLE
BITUMINOUS MATERIALS	

MP 23-15 (2021)	<i>Adopted</i> —Reclaimed Asphalt Shingles for Use in Asphalt Mixtures
MP 27-16 (2020)	<i>Adopted</i> —Materials for Emulsified Asphalt Chip Seals
MP 28-17 (2020)	<i>Adopted</i> —Materials for Microsurfacing
MP 31-22	Materials for Cold Recycled Mixtures with Emulsified Asphalt
MP 32-17 (2021)	<i>Adopted</i> —Materials for Slurry Seal
MP 33-17 (2021)	<i>Adopted</i> —Materials for Emulsified Asphalt Fog Seal
MP 36-18 (2020)	<i>Adopted</i> —Materials for Asphalt Tack Coat
MP 37-18 (2022)	Performance-Graded Asphalt Binder for Surface Treatments
MP 38-22	Materials Used in Cold Recycled Mixture with Foamed Asphalt
MP 46-22	Balanced Mix Design
PP 77-14 (2021)	<i>Adopted</i> —Materials Selection and Mixture Design of Permeable Friction Courses (PFCs)
PP 78-17 (2021)	<i>Adopted</i> —Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in Asphalt Mixtures
PP 82-16 (2020)	<i>Adopted</i> —Emulsified Asphalt Chip Seal Design
PP 83-16 (2020)	<i>Adopted</i> —Microsurfacing Design
PP 85-18 (2021)	Grading or Verifying the Sealant Grade (SG) of a Hot-Poured Asphalt Crack Sealant
PP 86-20 (2021)	Emulsified Asphalt Content of Cold Recycled Mixture Designs
PP 87-20 (2021)	<i>Adopted</i> —Slurry Seal Design
PP 88-17 (2021)	<i>Adopted</i> —Emulsified Asphalt Fog Seal Design
PP 93-18 (2020)	<i>Adopted</i> —Asphalt Tack Coat Design
PP 94-22	Determination of Optimum Asphalt Content of Cold Recycled Mixture with Foamed Asphalt
PP 95-22	Preparation of Indirect Tension Performance Test Specimens

STD. NO.	TITLE
BITUMINOUS MATERIALS	
PP 96-18 (2022)	Developing Dynamic Modulus Master Curves for Asphalt Mixtures Using the Indirect Tension Testing Method
PP 99-19 (2021)	Preparation of Small Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC) or Field Cores
PP 105-20 (2022)	Balanced Design of Asphalt Mixtures
PP 113-21	Characterizing the Relaxation Behavior of Asphalt Binders Using the Delta $T_c$ ( $\Delta T_c$ ) Parameter
TP 107-18 (2021)	<i>Adopted</i> —Determining the Damage Characteristic Curve of Asphalt Mixtures from Direct Tension Cyclic Fatigue Tests
TP 108-14 (2021)	<i>Adopted</i> —Abrasion Loss of Asphalt Mixture Specimens
TP 113-22	Determination of Asphalt Binder Resistance to Ductile Failure Using Double-Edge-Notched Tension (DENT) Test
TP 114-18 (2022)	Determining the Interlayer Shear Strength (ISS) of Asphalt Pavement Layers
TP 115-16 (2022)	Determining the Quality of Tack Coat Adhesion to the Surface of an Asphalt Pavement in the Field or Laboratory
TP 116-22	Rutting and Fatigue Resistance of Asphalt Mixtures Using Incremental Repeated Load Permanent Deformation (IRLPD)
TP 117-22	Determination of the Voids of Dry Compacted Filler
TP 122-22	Determination of Performance Grade of Physically Aged Asphalt Binder Using Extended Bending Beam Rheometer (BBR) Method
TP 123-16 (2022)	Measuring Asphalt Binder Yield Energy and Elastic Recovery Using the Dynamic Shear Rheometer
TP 125-22	Determining the Flexural Creep Stiffness of Asphalt Mixtures Using the Bending Beam Rheometer (BBR)
TP 126-22	Evaluation of the Tracking Resistance of Hot-Poured Asphalt Crack Sealant by Dynamic Shear Rheometer (DSR)
TP 127-22	Determining the Fracture Energy Density of Asphalt Binder Using the Binder Fracture Energy (BFE) Test
TP 128-22	Evaluation of Oxidation Level of Asphalt Mixtures by a Portable Infrared Spectrometer
TP 131-18 (2022)	Determining the Dynamic Modulus of Asphalt Mixtures Using the Indirect Tension Test
TP 132-19 (2021)	Determining the Dynamic Modulus for Asphalt Mixtures Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT)
TP 133-22	Determining the Damage Characteristic Curve and Failure Criterion Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT) Cyclic Fatigue Test
TP 134-22	Stress Sweep Rutting (SSR) Test Using Asphalt Mixture Performance Tester (AMPT)
TP 140-22	Moisture Sensitivity Using Hydrostatic Pore Pressure to Determine Cohesion and Adhesion Strength of Compacted Asphalt Mixture Specimens
TP 141-22	Determining the Indirect Tensile Nflex Factor to Assess the Cracking Resistance of Asphalt Mixtures

STD. NO.	TITLE
BOX CULVERT, CULVERT PIPE, AND DRAIN TILE	
MP 40-19 (2021)	Steel-Reinforced Polyethylene (PE) Ribbed Pipe 1650- to 3000-mm (66- to 120-in.) Diameter
<u>MP 42-22</u>	Steel-Reinforced Polyethylene (SRPE) Corrugated Pipe

STD. NO.	TITLE
BRIDGE AND PAVEMENT PRESERVATION	
MP 43-20	<i>Adopted</i> —Materials for Emulsified Asphalt Scrub Seal
MP 44-20	<i>Adopted</i> —Materials for Ultrathin Bonded Wearing Course

STD. NO.	TITLE
<b>BRIDGE AND PAVEMENT PRESERVATION</b>	
MP 45-20	<i>Adopted</i> —Materials for Full-Depth Reclamation Mixtures with Emulsified Asphalt
PP 100-20	<i>Adopted</i> —Ultrathin Bonded Wearing Course Design
PP 101-20	<i>Adopted</i> —Emulsified Asphalt Content of Full-Depth Reclamation Mixture Design

STD. NO.	TITLE
<b>CONCRETE, CURING MATERIALS, AND ADMIXTURES</b>	
PP 84-20 (2021)	<i>Adopted</i> —Performance Engineered Concrete Pavement Mixtures
PP 89-19 (2022)	Grinding the Ends of Cylindrical Concrete Specimens
TP 118-17 (2021)	<i>Adopted</i> —Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method
TP 119-22	Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test
TP 129-21 (2022)	Vibrating Kelly Ball (VKelly) Penetration in Fresh Portland Cement Concrete
TP 135-22	Determining the Total Pore Volume in Hardened Concrete Using Vacuum Saturation
TP 136-22	Determining the Degree of Saturation of Hydraulic-Cement Concrete
TP 137-20	<i>Adopted</i> —Box Test in Slip Form Paving of Fresh Portland Cement Concrete
TP 142-21	Accelerated Determination of Potentially Deleterious Expansion of Concrete Cylinder due to Alkali–Silica Reactivity

STD. NO.	TITLE
<b>METALLIC MATERIALS FOR BRIDGES</b>	
TP 138-22	Weight and Diameter for Carbon-Steel for Steel Wire and Welded Wire Reinforcement for Concrete

STD. NO.	TITLE
<b>MISCELLANEOUS</b>	
MP 26-15 (2022)	Cotton Duck Fabric Bridge Bearings
PP 80-20 (2021)	<i>Adopted</i> —Continuous Thermal Profile of Asphalt Mixture Construction
PP 81-18 (2020)	<i>Adopted</i> —Intelligent Compaction Technology for Embankment and Asphalt Pavement Applications
PP 114-22	<i>New</i> —Data Lot Names for use with Intelligent Construction Technologies

STD. NO.	TITLE
<b>PAINTING AND TRAFFIC MARKING AND SIGNING</b>	
MP 24-15 (2021)	<i>Adopted</i> —Waterborne White and Yellow Traffic Paints
TP 111-14 (2021)	<i>Adopted</i> —Measuring Retroreflectivity of Pavement Marking Materials Using a Mobile Retroreflectivity Unit
TP 130-18 (2022)	Producing Drawdown Panels and Measuring the Coefficient of Retroreflected Luminance (RL) of Pavement Markings in a Laboratory Panel

STD. NO.	TITLE
<b>PAVEMENT SURFACE AND STRUCTURE CHARACTERISTICS</b>	
MP 34-18 (2020)	<i>Adopted</i> —Materials for Sand Seals
MP 35-22	Thin Overlay Treatments Using a Binder Resin System and Aggregate for Concrete Surfaces
MP 41-22	High Friction Surface Treatment for Asphalt and Concrete Pavements Using Calcined Bauxite
MP 47-22	File Format of Two-Dimensional and Three-Dimensional (2D/3D) Pavement Image Data
PP 90-18 (2020)	<i>Adopted</i> —Sand Seal Design
PP 91-21	<i>Adopted</i> —Emulsified Asphalt Scrub Seal Design
PP 106-21	Assessment of Static Performance in Transverse Pavement Profiling Systems
PP 107-21	Assessment of Body Motion Cancellation in Transverse Pavement Profiling Systems
PP 108-21	Assessment of Navigation Drift Mitigation in Transverse Pavement Profiling Systems
PP 109-21	Assessment of Highway Performance in Transverse Pavement Profiling Systems
PP 110-21	Assessment of Ground Reference Data for Transverse Pavement Profiling System Assessment
PP 111-21	Definition of Terms Related to Transverse Pavement Profiling Systems and Ground Reference Equipment
TP 143-21	Continuous Measurement of Sideway-Force Friction Number for Highway Pavements

STD. NO.	TITLE
<b>QUALITY ASSURANCE</b>	
MP 39-22	File Format of Intelligent Compaction Data
PP 97-19 (2021)	Determination of Constant Mass
PP 98-20 (2021)	Asphalt Surface Dielectric Profiling System Using Ground Penetrating Radar
PP 112-21	Recognizing Surrogate Test Methods

STD. NO.	TITLE
<b>SOILS AND STABILIZATION</b>	
PP 92-19 (2022)	Preparation of Test Specimens Using the Plastic Mold Compaction Device
PP 102-20 (2022)	Digital Interchange of Geotechnical Data
TP 112-21	<i>Adopted</i> —Determining In-Place Density and Moisture Content of Soil and Soil–Aggregate Using Complex Impedance Methodology

STD. NO.	TITLE
DELETED STANDARDS <sup>1</sup>	
MP 22-13 (2020)	Fiber-Reinforced Polymer Composite Materials for Highway and Bridge Structures
MP 25-18 (2019)	Performance-Graded Hot-Poured Asphalt Crack Sealant
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
TP 105-20	Determining the Fracture Energy of Asphalt Mixtures Using the Semicircular Bend Geometry (SCB)
TP 106-20	Determination of Heavy Metal Content of Glass Beads Using X-Ray Fluorescence (XRF)
TP 124-20	Determining the Fracture Potential of Asphalt Mixtures Using Semicircular Bend Geometry (SCB) at Intermediate Temperature

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<sup>1</sup> For the disposition of provisional standards not listed above, see the Provisionals History.

## 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 2022

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
MP 23-15 (2021)	Reclaimed Asphalt Shingles for Use in Asphalt Mixtures	2d	Adopted as M 350.
MP 24-15 (2021)	Waterborne White and Yellow Traffic Paints	4c	Adopted with revisions as M 348.
MP 26-15 (2022)	Cotton Duck Fabric Bridge Bearings	4e	Extended one year for 2022 publication; Year 7 of 8 in Provisional life cycle.
MP 27-16 (2020)	Materials for Emulsified Asphalt Chip Seals	5b	Adopted as M 340.
MP 28-17 (2020)	Materials for Microsurfacing	5b	Adopted as M 341.
MP 31-22	Materials Used in Cold Recycled Mixtures with Emulsified Asphalt	2a	Title change.
MP 32-17 (2021)	Materials for Slurry Seal	5b	Adopted as M 342.
MP 33-17 (2021)	Materials for Emulsified Asphalt Fog Seal	5b	Adopted as M 343.
MP 34-18 (2020)	Materials for Sand Seals	5b	Adopted as M 344.
MP 35-22	Thin Overlay Treatments Using a Binder Resin System and Aggregate for Concrete Surfaces	4c	Revised as follows: <ul style="list-style-type: none"> <li>• Extensive revisions across most Sections.</li> <li>• Updated temperature-measuring devices.</li> </ul>
MP 36-18 (2020)	Materials for Asphalt Tack Coat	2a	Adopted as M 349.
MP 37-18 (2022)	Performance-Graded Asphalt Binder for Surface Treatments	2b	Extended two years for 2022 publication; Year 4 of 8 in Provisional life cycle.
MP 38-22	Materials Used in Cold Recycled Mixture with Foamed Asphalt	2d	Title change.
MP 39-22	File Format of Intelligent Compaction Data	5c	Revised to add data requirements for Density Profiling System.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
MP 41-22	High Friction Surface Treatment for Asphalt and Concrete Pavements Using Calcined Bauxite	4c	Revised extensively across most Sections.
MP 42-22	Steel-Reinforced Polyethylene (SRPE) Corrugated Pipe	4b	Revised to update temperature-measuring devices.
MP 43-20	Materials for Emulsified Asphalt Scrub Seal	5b	Adopted with revisions as M 345.
MP 44-20	Materials for Ultrathin Bonded Wearing Course	5b	Adopted as M 346.
MP 45-20	Materials for Full-Depth Reclamation Mixtures with Emulsified Asphalt	5b	Adopted as M 347.
MP 46-22	Balanced Mix Design	2d	Revisions updating State Practices to Sections 5, 6, 7, and all tables in Appendix X1.
MP 47-22	File Format of Two-Dimensional and Three-Dimensional (2D/3D) Pavement Image Data	5a	Revised as follows: <ul style="list-style-type: none"> <li>• Updated definition for registration.</li> <li>• Minor language updates for more precise instructions.</li> <li>• Updated Figure 1.</li> <li>• Updated Table 1.</li> </ul>
PP 77-14 (2021)	Materials Selection and Mixture Design of Permeable Friction Courses	2d	Adopted with revisions as R 113.
PP 78-17 (2021)	Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in Asphalt Mixtures	2d	Adopted as R 114.
PP 80-20 (2021)	Continuous Thermal Profile of Asphalt Mixture Construction	5c	Adopted with revisions as R 110.
PP 81-18 (2020)	Intelligent Compaction Technology for Embankment and Asphalt Pavement Applications	5c	Adopted with revisions as R 111.
PP 82-16 (2020)	Emulsified Asphalt Chip Seal Design	5b	Adopted as R 102.
PP 83-16 (2020)	Microsurfacing Design	5b	Adopted as R 103.
PP 84-20 (2021)	Developing Performance Engineered Concrete Pavement Mixtures	3c	Adopted as R 101.
PP 87-20 (2021)	Slurry Seal Design	5b	Adopted as R 104.
PP 88-17 (2021)	Emulsified Asphalt Fog Seal Design	5b	Adopted as R 105.

**AUGUST 2022 ERRATA**

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
PP 89-19 (2022)	Grinding the Ends of Cylindrical Concrete Specimens	3c	Extended two years for 2022 publication; Year 4 of 8 in Provisional life cycle.
PP 90-18 (2020)	Sand Seal Design	5b	Adopted as R 106.
PP 91-21	Emulsified Asphalt Scrub Seal Design	5b	Adopted as R 107.
PP 92-19 (2022)	Preparation of Test Specimens Using the Plastic Mold Compaction Device	1b	Extended two years for 2022 publication; Year 4 of 8 in Provisional life cycle.
PP 93-18 (2020)	Asphalt Tack Coat Design	2a	Adopted as R 112.
PP 94-22	Determination of Optimum Asphalt Content of Cold Recycled Mixture with Foamed Asphalt	2d	Revised to update temperature-measuring devices.
PP 95-22	Preparation of Indirect Tension Performance Test Specimens	2d	Revised to update temperature-measuring devices.
PP 96-18 (2022)	Developing Dynamic Modulus Master Curves for Asphalt Mixtures Using the Indirect Tension Testing Method	2d	Extended two years for 2022 publication; Year 4 of 8 in Provisional life cycle.
PP 100-20	Ultrathin Bonded Wearing Course Design	5b	Adopted as R 108.
PP 101-20	Emulsified Asphalt Content of Full-Depth Reclamation Mixture Design	5b	Adopted with revisions as R 109.
PP 102-20 (2022)	Digital Interchange of Geotechnical Data	1b	Extended two years for 2022 publication; Year 2 of 8 in Provisional life cycle.
PP 103-21 (2022)	Sample Preparation and Polishing of Unbound Aggregates for Dynamic Friction Testing	1c	Extended two years for 2022 publication; Year 2 of 8 in Provisional life cycle.
PP 104-21 (2022)	Sample Preparation and Polishing of Asphalt Mixture Specimens for Dynamic Friction Testing	1c	Extended two years for 2022 publication; Year 2 of 8 in Provisional life cycle.
PP 105-20 (2022)	Balanced Design of Asphalt Mixtures	2d	Extended two years for 2022 publication; Year 2 of 8 in Provisional life cycle.
PP 114-22	Data Lot Names for Intelligent Construction Technologies	5c	New provisional <b>standard</b> practice.
TP 107-18 (2021)	Determining the Damage Characteristic Curve of Asphalt Mixtures from Direct Tension Cyclic Fatigue Tests	2d	Adopted with revisions as T 400.
TP 108-14 (2021)	Abrasion Loss of Asphalt Mixture Specimens	2d	Adopted with revisions as T 401.



Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
TP 111-14 (2021)	Measuring Retroreflectivity of Pavement Marking Materials Using a Mobile Retroreflectivity Unit	4c	Adopted as T 398.
TP 112-21	Determining In-Place Density and Moisture Content of Soil and Soil-Aggregate Using Complex Impedance Methodology	1b	Adopted as T 399.
TP 113-22	Determination of Asphalt Binder Resistance to Ductile Failure Using Double-Edge-Notched Tension (DENT) Test	2b	Revised to update temperature-measuring devices.
TP 114-18 (2022)	Determining the Interlayer Shear Strength (ISS) of Asphalt Pavement Layers	2c	Extended one year for 2022 publication; Year 7 of 8 in Provisional life cycle.
TP 115-16 (2022)	Determining the Quality of Tack Coat Adhesion to the Surface of an Asphalt Pavement in the Field or Laboratory	2c	Extended one year for 2022 publication; Year 7 of 8 in Provisional life cycle.
TP 116-22	Rutting and Fatigue Resistance of Asphalt Mixtures Using Incremental Repeated Load Permanent Deformation (iRLPD)	2d	Revised to update temperature-measuring devices.
TP 117-22	Determination of the Voids of Dry Compacted Filler	2c	Revised to update temperature-measuring devices.
TP 118-17 (2021)	Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method	3b	Adopted with editorial revisions as T 395.
TP 119-22	Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test	3c	Revised extensively across all Sections.
TP 120-22	Pore Index for Carbonate Coarse Aggregate	1c	Revised to update temperature-measuring devices.
TP 122-22	Determination of Performance Grade of Physically Aged Asphalt Binder Using Extended Bending Beam Rheometer (BBR) Method	2b	Revised to update temperature-measuring devices.
TP 123-16 (2022)	Measuring Asphalt Binder Yield Energy and Elastic Recovery Using the Dynamic Shear Rheometer	2b	Extended one year for 2022 publication; Year 7 of 8 in Provisional life cycle.
TP 125-22	Determining the Flexural Creep Stiffness of Asphalt Mixtures Using the Bending Beam Rheometer (BBR)	2d	Revised to update temperature-measuring devices.
TP 126-22	Evaluation of the Tracking Resistance of Hot-Poured Asphalt Crack Sealant by Dynamic Shear Rheometer (DSR)	4e	Revised to update temperature-measuring devices.
TP 127-22	Determining the Fracture Energy Density of Asphalt Binder Using the Binder Fracture Energy (BFE) Test	2b	Revised to update temperature-measuring devices.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
TP 128-22	Evaluation of Oxidation Level of Asphalt Mixtures by a Portable Infrared Spectrometer	2c	Revised as follows: <ul style="list-style-type: none"> <li>• Updates to terminology.</li> <li>• Updates to specimen sampling and sampling equipment.</li> </ul>
TP 129-21 (2022)	Vibrating Kelly Ball (VKelly) Penetration in Fresh Portland Cement Concrete	3c	Editorially revised to remove specific brands.
TP 130-18 (2022)	Producing Draw Down Panels and Measuring the Coefficient of Retroreflected Luminance (RL) of Pavement Markings in a Laboratory Panel	4c	Extended two years for 2022 publication; Year 4 of 8 in Provisional life cycle.
TP 131-18 (2022)	Determining the Dynamic Modulus of Asphalt Mixtures Using the Indirect Tension Test	2d	Extended two years for 2022 publication; Year 4 of 8 in Provisional life cycle.
TP 133-22	Determining the Damage Characteristic Curve and Failure Criterion Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT) Cyclic Fatigue Test	2d	Minor revisions to language in Sections 13.3 and 13.6.9 and Note 5.
TP 134-22	Stress Sweep Rutting (SSR) Test Using Asphalt Mixture Performance Tester (AMPT)	2d	Revised to add language and procedure for determining Rutting Strain Index (RSI).
TP 135-22	Total Pore Volume in Hardened Concrete Using Vacuum Saturation	3c	Revised to update temperature-measuring devices.
TP 136-22	Degree of Saturation of Hydraulic-Cement Concrete	3c	Revised to update temperature-measuring devices.
TP 137-20	Box Test in Slip Form Paving of Fresh Portland Cement Concrete	3b	Adopted as T 396.
TP 138-20 (2022)	Weight and Diameter for Carbon-Steel for Steel Wire and Welded Wire Reinforcement for Concrete	4f	Extended two years for 2022 publication; Year 2 of 8 in Provisional life cycle.
TP 139-22	Determining the Relative Density (Specific Gravity) and Absorption of Lightweight Aggregate for Internally Cured Concrete Mixtures	1c	Revised to update temperature-measuring devices.
TP 140-22	Moisture Sensitivity Using Hydrostatic Pore Pressure to Determine Cohesion and Adhesion Strength of Compacted Asphalt Mixture Specimens	2d	Revised to update temperature-measuring devices.
TP 141-22	Determining the Indirect Tensile Nflex Factor to Assess the Cracking Resistance of Asphalt Mixtures	2d	Revised to update temperature-measuring devices.

# HISTORY OF CURRENT AND FORMER AASHTO PROVISIONAL MATERIALS STANDARDS

**JULY 2022**

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
Specifications					
MP 1	Performance Graded Asphalt Binder	1994	Adopted	2002	M 320
MP 1a	Performance Graded Asphalt Binder	1996	Adopted	2005	
MP 2	Superpave Volumetric Mix Design	1996	Adopted	2004	M 323
MP 5	Bridge Deck Cathodic Protection	1996	Deleted	1999	—
MP 6	Corrugated Polyethylene Pipe, 1050 and 1200 mm Diameter	1996	Adopted	1999	M 294
MP 7	Corrugated Polyethylene Pipe, 1350 and 1500 mm Diameter	1998	Adopted	2003	
MP 8	Designing Stone Matrix Asphalt (SMA)	2000	Adopted	2008	M 325
MP 9	Compost for Erosion/Sediment Control (Filter Berms)	2003	Adopted	2010	R 51
MP 10	Compost for Erosion/Sediment Control (Compost Blankets)	2003	Adopted	2010	R 52
MP 11	Inertial Profiler	2003	Adopted	2010	M 328
MP 12	Detectable Warning Surfaces	2004	Adopted	2015	M 333
MP 13	Stainless Clad Deformed and Plain Round Steel Bars for Concrete Reinforcement	2004	Adopted	2011	M 329
MP 14	Smoothness of Pavement at the Approaches to Weight-in-Motion (WIM) Scales	2005	Adopted	2013	M 331
MP 15	Use of Reclaimed Asphalt Shingles as an Additive in Hot-Mix Asphalt	2006	Deleted	2014	—
MP 16	Reclaimed Concrete Aggregate for Use as Coarse Aggregate in Hydraulic Cement	2007	Adopted	2016 (August)	R 77
MP 17	Pavement Ride Quality When Measured Using Inertial Profiling Systems	2004	Adopted	2010	R 54
MP 18	Uncoated, Corrosion-Resistant, Deformed and Plain Chromium Alloyed, Billet-Steel Bars for Concrete Reinforcement and Dowels	2009	Adopted	2017 (June)	M 334M/M 334 and T 372M/T 372 through T 376M/T 376
MP 19	Performance-Graded Asphalt Binder Using Multiple Stress Creep Recovery (MSCR) Test	2010	Adopted	2014	M 332

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
MP 20	Steel-Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 1500-mm (12- to 60-in.) Diameter	2010	Adopted	2018 (June)	M 335
MP 21	Polypropylene Pipe, 300- to 500-mm (12- to 60-in.)	2011	Adopted	2013	M 330
MP 22	Fiber-Reinforced Polymer Composite Materials for Highway and Bridge Structures	2013	Adopted	2021	M 337
MP 23	Reclaimed Asphalt Shingles for Use in Asphalt Mixtures	2014	Adopted	2022	M 350
MP 24	Waterborne White and Yellow Traffic Paints	2014	Adopted	2022	M 348
MP 25	Performance-Graded Hot-Poured Asphalt Crack Sealant	2015	Adopted	2021	M 338
MP 26	Cotton Duck Fabric Bridge Bearings	2015			
MP 27	Materials for Emulsified Asphalt Chip Seals	2016	Adopted	2022	M 340
MP 28	Materials for Microsurfacing	2016	Adopted	2022	M 341
MP 29	<i>This standard number was inadvertently skipped.</i>				
MP 30	Steel Wire and Welded Wire, Plain and Deformed, for Concrete Reinforcement	2017	Adopted	2018 (June)	M 336M/M 336
MP 31	Materials for Cold Recycled Mixtures with Emulsified Asphalt	2017			
MP 32	Materials for Slurry Seal	2017	Adopted	2022	M 342
MP 33	Materials for Emulsified Asphalt Fog Seal	2017	Adopted	2022	M 343
MP 34	Materials for Sand Seals	2018	Adopted	2022	M 344
MP 35	Thin Overlay Treatments Using a Binder Resin System and Aggregate for Concrete Surfaces	2018			
MP 36	Materials for Asphalt Tack Coat	2018	Adopted	2022	M 349
MP 37	Performance-Graded Asphalt Binder for Surface Treatments	2018			
MP 38	Mix Design of Cold Recycled Mixture with Foamed Asphalt	2018			
MP 39	File Format of Intelligent Construction Data	2019			
MP 40	Steel-Reinforced Polyethylene (PE) Ribbed Pipe 1650- to 3000-mm (66- to 120-in.) Diameter	2019			
MP 41	High Friction Surface Treatment for Asphalt and Concrete Pavements Using Calcined Bauxite	2019			
MP 42	Steel-Reinforced Polyethylene (SRPE) Corrugated Pipe	2020			

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
MP 43	Materials for Emulsified Asphalt Scrub Seal	2020	Adopted	2022	M 345
MP 44	Materials for Ultrathin Bonded Wearing Course	2020	Adopted	2022	M 346
MP 45	Materials for Full-Depth Reclamation Mixtures with Emulsified Asphalt	2020	Adopted	2022	M 347
MP 46	Balanced Mix Design	2020			
MP 47	File Format of Two-Dimensional and Three-Dimensional (2D/3D) Pavement Image Data	2021			
Practices					
PP 1	Accelerated Aging of Asphalt Binder Using a Pressurized Aging Vessel (PAV)	1994	Adopted	2002	R 28
PP 2	Mixture Conditioning of Hot-Mix Asphalt (HMA)	1995	Adopted	2002	R 30
PP 3	Preparing Hot Mix Asphalt (HMA) Specimens by Means of the Rolling Wheel Compactor	1995	Deleted	2003	—
PP 5	Laboratory Evaluation of Modified Asphalt Systems	1994	Deleted	1998	—
PP 6	Grading or Verifying the Performance Grade of an Asphalt Binder	1994	Adopted	2002	R 29
PP 7	Calibrating the Load Cell and Deflection Sensors for a Falling Weight Deflectometer	1995	Adopted	2003	R 32
PP 8	Calibrating the Reference Load Cell Used for reference Calibrations for Falling Weight Deflectometer	1995	Adopted	2003	R 33
PP 10	Operational Guidelines on Test Pits for Evaluating Pavement Performance	1994	Deleted	1995	— <sup>b</sup>
PP 19	Volumetric Analysis of Compacted Hot Mix Asphalt (HMA)	1994	Deleted	2002	—
PP 20	Evaluating the Performance of Crack Sealing Treatments on Asphalt Surfaced Pavement	1995	Deleted	2004	—
PP 21	Testing and Evaluating Cold Mix Patching Materials	1995	Deleted	2002	—
PP 22	Selecting and Specifying Crack Sealants for Asphalt Surfaced Pavement	1996	Deleted	2002	—
PP 23	Evaluating the Condition of Portland Cement Concrete Bridge Components	1996	Deleted	2003	—
PP 25	Evaluating the Performance of Joint Seals in Portland Cement Concrete Pavement	1996	Deleted	2002	—

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
PP 26	Certifying Suppliers of Performance Graded Asphalt Binders	1997	Adopted	2001	R 26
PP 28	Superpave Volumetric Design for Hot-Mix Asphalt (HMA)	1996	Adopted	2004	R 35
PP 29	Evaluating Deicing Chemicals	1996	Adopted	2003	R 34
PP 30	Evaluation of Coating Systems with Zinc Rich Primers	1996	Adopted	2002	R 31
PP 31	Measuring Pavement Profile Using a Rod and Level	1997	Adopted	2005	R 40
PP 32	Measuring Pavement Profile Using a Dipstick®	1997	Adopted	2005	R 41
PP 33	Decommissioning Geotechnical Exploratory Boreholes	1997	Adopted	1998	R 22
PP 34	Estimating the Cracking Tendency of Concrete	1998	Adopted	2008	T 334
PP 35	Evaluation of Superpave™ Gyratory Compactors (SGCs)	1998	Deleted	2007	—
PP 36	Assessment of Corrosion of Steel Piling for Non-Marine Applications	1998	Adopted	2002	R 27
PP 37	Determination of International Roughness Index (IRI) to Quantify Roughness of Pavements	1999	Combined and Adopted	2007	R 43M/ R 43
PP 37M	Quantifying Roughness of Pavements	1999			
PP 38	Determining Maximum Rut Depth in Asphalt Pavements	1999	Adopted	2008	R 48
PP 39	Estimating Faulting of Concrete Pavements	1999	Adopted	2004	R 36
PP 40	Application of Ground Penetrating Radar (GPR) to Highways	2000	Adopted	2004	R 37
PP 41	Designing Stone Matrix Asphalt (SMA)	2000	Adopted	2008	R 46
PP 42	Determination of Low-Temperature Performance Grade (PG) of Asphalt Binders	2001	Adopted	2009	R 49
PP 44	Quantifying Cracks in Asphalt Pavement Surface	2001	Adopted	2010	R 55
PP 45	Qualification of Deformed and Plain Steel Bar Producing Mills	2001	Adopted	2010	R 53
PP 46	Geosynthetic Reinforcement of the Aggregate Base Course of Flexible Pavement Structures	2001	Adopted	2009	R 50
PP 47	Evaluation of Different Superpave™ Gyratory Compactors (SGCs) Used in the Design and the Field Management of Superpave™ Mixtures	2002	Deleted	2009	—
PP 48	Evaluation of the Superpave™ Gyratory Compactor (SGC) Internal Angle of Gyration	2003	Deleted	2010	—

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
PP 49	Certification of Inertial Profiling Systems	2003	Adopted	2010	R 56
PP 50	Operating Inertial Profilers and Evaluating Pavement Profiles	2003	Adopted	2010	R 57
PP 51	Pavement Ride Quality When Measured Using Inertial Profiling Systems	2003	Adopted	2010	R 54 <sup>c</sup>
PP 52	Developing a Quality Assurance Plan for Hot-Mix Asphalt (HMA)	2005	Adopted	2006	R 42
PP 53	Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in New Hot Mix Asphalt (HMA)	2006	Deleted	2014	—
PP 54	Match Curing of Concrete Test Specimens	2006	Adopted	2016 (April)	R 72
PP 55	Overcoating Field Test Program for Evaluating Protective Coatings on Existing Bridges or Salvaged Beams	2006	Deleted	2012	—
PP 56	Evaluating the Engineering and Environmental Suitability of Recycled Materials	2006	Adopted	2014	R 65
PP 57	Establishing Requirements for and Performing Equipment Calibrations, Standardizations, and Checks	2006	Adopted	2012	R 61
PP 58	Static Segregation of Hardened Self-Consolidating Concrete (SCC) Cylinders	2008	Adopted	2017 (April)	R 81 <sup>d</sup>
PP 59	Coal Combustion Fly Ash for Embankments	2009	Deleted	2016 (August)	—
PP 60	Preparation of Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC)	2009	Adopted	2017 (August)	R 83
PP 61	Developing Dynamic Modulus Master Curves for Asphalt Mixtures Using the Asphalt Mixture Performance Tester (AMPT)	2009	Adopted	2017 (August)	R 84
PP 62	Developing Dynamic Modulus Master Curves for Hot Mix Asphalt (HMA)	2009	Adopted	2013	R 62
PP 63	Pipe Joint Selection for Highway Culvert and Storm Drains	2009	Adopted	2017 (June)	R 82
PP 64	Determining Aggregate Source Shape Values from Digital Image Analysis Shape Properties	2010	Adopted	2018 (August)	R 91
PP 65	Determining the Reactivity of Concrete Aggregates and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction	2010	Adopted	2016 (April)	R 80
PP 66	Determination of Long-Term Strength for Geosynthetic Reinforcement	2010	Adopted	2015	R 69

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
PP 67	Quantifying Cracks in Asphalt Pavement Surfaces from Collected Images Utilizing Automated Methods	2010	Adopted	2018 (April)	R 85
PP 68	Collecting Images of Pavement Surfaces for Distress Detection	2010	Adopted	2018 (April)	R 86
PP 69	Determining Pavement Deformation Parameters and Cross Slope from Collected Transverse Profiles	2010	Adopted	2018 (April)	R 87
PP 70	Collecting the Transverse Pavement Profile	2010	Adopted	2018 (April)	R 88
PP 71	Certifying Suppliers of Emulsified Asphalt	2011	Adopted	2016 (August)	R 77
PP 72	Recovering Residue from Emulsified Asphalt Using Low-Temperature Evaporative Techniques	2011	Adopted	2016 (August)	R 78
PP 73	Quality Assurance, Job Site Quality Control, and Reapplication of Protective Sealers for Portland Cement Concrete	2011	Adopted	2019 (June)	R 94
PP 74	Determination of Size and Shape of Glass Beads Used in Traffic Markings by Means of Computerized Optical Method	2011	Adopted	2020 (June)	R 98
PP 75	Vacuum Drying Compacted Asphalt Specimens	2013	Adopted	2016 (August)	R 79
PP 76	Troubleshooting Asphalt Specimen Volumetric Differences between Superpave Gyrotory Compactors (SGCs) Used in the Design and the Field Management of Superpave Mixtures	2013	Adopted	2021	R 99
PP 77	Materials Selection and Mixture Design of Permeable Friction Courses (PFCs)	2014	Adopted	2022	R 113
PP 78	Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in Asphalt Mixtures	2014	Adopted	2022	R 114
PP 79	High Friction Surface Treatment for Asphalt and Concrete Pavements	2014	Reclassified	2019 (June)	MP 41
PP 80	Continuous Thermal Profile of Asphalt Mixture Construction	2014	Adopted	2022	R 110
PP 81	Intelligent Compaction Technology for Embankment and Asphalt Pavement Applications	2014	Adopted	2022	R 111
PP 82	Emulsified Asphalt Chip Seal Design	2016	Adopted	2022	R 102
PP 83	Microsurfacing Design	2016	Adopted	2022	R 103
PP 84	Performance Engineered Concrete Pavement Mixtures	2017	Adopted	2022	R 101



Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
PP 85	Grading or Verifying the Sealant Grade (SG) of a Hot-Poured Asphalt Crack Sealant	2017			
PP 86	Emulsified Asphalt Content of Cold Recycled Mixture Designs	2017			
PP 87	Slurry Seal Design	2017	Adopted	2022	R 104
PP 88	Emulsified Asphalt Fog Seal Design	2017	Adopted	2022	R 105
PP 89	Grinding the Ends of Cylindrical Concrete Specimens	2018			
PP 90	Sand Seal Design	2018	Adopted	2022	R 106
PP 91	Emulsified Asphalt Scrub Seal Design	2018	Adopted	2022	R 107
PP 92	Preparation of Test Specimens Using the Plastic Mold Compaction Device	2018			
PP 93	Asphalt Tack Coat Design	2018	Adopted	2022	R 112
PP 94	Determining Optimum Asphalt Content of Cold Recycled Mixture with Foamed Asphalt	2018			
PP 95	Preparation of Indirect Tension Performance Test Specimens	2018			
PP 96	Developing Dynamic Modulus Master Curves for Hot Mix Asphalt (HMA) Using the Indirect Tension Testing Method	2018			
PP 97	Determination of Constant Mass	2019			
PP 98	Asphalt Surface Dielectric Profiling System Using Ground Penetrating Radar	2019			
PP 99	Preparation of Small Cylindrical Performance Test Specimens Using the Superpave Gyratory Compactor (SGC) or Field Cores	2019			
PP 100	Ultrathin Bonded Wearing Course Design	2020	Adopted	2022	R 108
PP 101	Emulsified Asphalt Content of Full-Depth Reclamation Mixture Design	2020	Adopted	2022	R 109
PP 102	Digital Interchange of Geotechnical Data	2020			
PP 103	Sample Preparation and Polishing of Unbound Aggregates for Dynamic Friction Testing	2020			
PP 104	Sample Preparation and Polishing of Asphalt Mixture Specimens for Dynamic Friction Testing	2020			
PP 105	Balanced Design of Asphalt Mixtures	2020			

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
PP 106	Assessment of Static Performance in Transverse Pavement Profiling Systems	2021			
PP 107	Assessment of Body Motion Cancellation in Transverse Pavement Profiling Systems	2021			
PP 108	Assessment of Navigation Drift Mitigation in Transverse Pavement Profiling Systems	2021			
PP 109	Assessment of Highway Performance in Transverse Pavement Profiling Systems	2021			
PP 110	Assessment of Ground Reference Data for Transverse Pavement Profiling System Assessment	2021			
PP 111	Definition of Terms Related to Transverse Pavement Profiling Systems and Ground Reference Equipment	2021			
PP 112	Recognizing Surrogate Test Methods	2021			
PP 113	Characterizing the Relaxation Behavior of Asphalt Binders Using the Delta $T_c$ ( $\Delta T_c$ ) Parameter	2021			
PP 114	Data Lot Names for Use with Intelligent Construction Technologies	2022			
Tests					
TP 1	Determining the Flexural Creep Stiffness of Asphalt Binder Using the Bending Beam Rheometer (BBR)	1994	Adopted	2002	T 313
TP 2	Quantitative Extraction and Recovery of Asphalt Binder from Hot Mix Asphalt (HMA)	1995	Adopted	2003	T 319
TP 3	Determining the Fracture Properties of Asphalt Binder in Direct Tension (DT)	1994	Adopted	2002	T 314
TP 4	Preparing and Determining the Density of Hot-Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor	1994	Adopted	2001	T 312
TP 5	Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)	1995	Adopted	2002	T 315
TP 6	Measurement of Initial Asphalt Adsorption and Desorption in the Presence of Moisture	1994	Deleted	1999	—
TP 7	Determining the Permanent Deformation and Fatigue Cracking Characteristics of Hot Mix Asphalt (HMA) Using the Simple Shear Test (SST) Device	1995	Adopted	2003	T 320
TP 8	Determining the Fatigue Life of Compacted Hot Mix Asphalt (HMA) Subjected to Repeated Flexural Bending	1995	Adopted	2003	T 321

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
TP 9	Determining the Creep Compliance and Strength of Hot Mix Asphalt (HMA) Using the Indirect Tensile Test Device	1995	Adopted	2003	T 322
TP 10	Thermal Stress Restrained Specimen Tensile Strength	1994	Deleted	2002	—
TP 11	Rapid Determination of Corrosion Rate of Uncoated Steel in Reinforced Concrete	1996	Deleted	2004	—
TP 12	Determining the Hydraulic Fracture of Coarse Aggregate	1994	Deleted	2001	—
TP 14	Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction	1994	Adopted	1996	T 303
TP 17	Resistance of Concrete to Rapid Freezing and Thawing	1994	Deleted	2002	—
TP 18	Method for Determining the Fundamental Transverse Frequency and Quality Factor of Concrete Prism Specimens	1995	Deleted	2003	—
TP 19	Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)	1994	Deleted	2002	—
TP 20	Compressive Strength of Cylindrical Concrete Specimens	1994	Adopted	1997	T 22
TP 22	Rapid Determination of the Chloride Penetrability of Concrete Using AC Impedance	1995	Deleted	2003	—
TP 23	Water Content of Freshly Mixed Concrete Using Microwave Oven Drying	1994	Adopted	2002	T 318
TP 24	Determining the Density of Freshly Mixed Concrete in Place Using a Twin-Probe Nuclear Density Gauge	1995	Deleted	2003	—
TP 26	Determining the Relative Permeability of Concrete by Surface Air Flow	1995	Deleted	2003	—
TP 28	Detection of Voids under Rigid Pavement	1995	Deleted	2003	—
TP 29	Determining the Shear Strength at the Interface of Bonded Layers of Portland Cement Concrete	1995	Adopted	2003	T 323
TP 31	Determining the Resilient Modulus of Bituminous Mixtures by Indirect Tension	1995	Deleted	2003	—
TP 33	Uncompacted Void Content of Fine Aggregate (As Influenced by Particle Shape, Surface Texture, and Grading)	1994	Adopted	1996	T 304
TP 34	Determining Moisture Sensitivity Characteristics of Compacted Bituminous Mixtures Subjected to Hot and Cold Climate Conditions	1994	Deleted	1999	—
TP 35	Determining the Relative Effectiveness of Penetrating Concrete Sealers by Electrical Resistance	1994	Deleted	2002	—

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
TP 36	Evaluating Asphalt-Covered Concrete Bridge Decks Using Pulsed Radar	1994	Deleted	2002	—
TP 37	Determining the Condition Rating of Preformed Membranes on Concrete Bridge Decks Using Pulse Velocity	1994	Deleted	2002	—
TP 39	Determining the Maximum Specific Gravity of Bituminous Paving Mixtures	1995	Adopted	1999	T 209
TP 40	Determining the Percent Asphalt Required for Coating Aggregates Used in Cold Mix Patching Materials	1995	Deleted	2002	—
TP 41	Determining the Percent Asphalt Required Based on Stripping of Aggregates Used in Cold Mix Patching Materials	1995	Deleted	2002	—
TP 42	Percent Asphalt Based on Drainability of Aggregates Used in Cold Mix Patching Materials	1995	Deleted	2002	—
TP 43	Workability of Cold Mix Patching Materials	1995	Deleted	2002	—
TP 44	Cohesion of Cold Mix Patching Materials	1995	Deleted	2002	—
TP 46	Determining the Resilient Modulus of Soils and Aggregate Materials	1995	Adopted	1999	T 307
TP 47	Determining the Ecological Effects of Deicing Chemicals	1995	Deleted	2002	—
TP 48	Viscosity Determination of Asphalt Binder Using Rotational Viscometer	1995	Adopted	2002	T 316
TP 50	Determining the Relative Effectiveness of Penetrating Concrete Sealers by Water Absorption	1996	Deleted	2004	—
TP 51	Testing Cathodic Protection Materials and Systems for Bridge Decks	1996	Deleted	2004	—
TP 52	Estimating the Strength of Concrete in Transportation Construction by Maturity Tests	1996	Adopted	2004	T 325
TP 53	Determining the Asphalt Content of Hot Mix Asphalt (HMA) by the Ignition Method	1996	Adopted	1999	T 308
TP 54	Determining Early Stiffening Characteristics of Portland Cement Paste (Mini Slump Cone Method)	1997	Deleted	2004	—
TP 55	Determining Chloride Ions in Concrete and Concrete Materials by Specific Ion Probe	1998	Adopted	2007	T 332
TP 56	Uncompacted Void Content of Coarse Aggregate (As Influenced by Particle Shape, Surface Texture, and Grading)	1998	Adopted	2005	T 326
TP 57	Methylene Blue Value of Clays, Mineral Fillers, and Fines	1998	Adopted	2007	T 330

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
TP 58	Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus	1999	Adopted	2005	T 327
TP 59	Determining Air Content of Hardened Portland Cement Concrete by High-Pressure Air Meter	1999	Adopted	2015	T 356
TP 60	Coefficient of Thermal Expansion of Hydraulic Cement Concrete	2000	Adopted	2009	T 336
TP 61	Determining the Percentage of Fracture in Coarse Aggregate	2002	Adopted	2009	T 335
TP 62	Determining Dynamic Modulus of Hot-Mix Asphalt Concrete Mixtures	2003	Adopted	2011	T 342
TP 63	Determining Rutting Susceptibility of Asphalt Paving Mixtures Using the Asphalt Pavement Analyzer (APA)	2003	Adopted	2010	T 340
TP 64	Predicting Chloride Penetration of Hydraulic Cement Concrete by the Rapid Migration Procedure	2003	Adopted	2015	T 357
TP 65	Non-Instrumental Determination of Metallic Zinc in Zinc-Rich Primers	2003	Adopted	2009	T 337
TP 66	Analysis of Structural Steel Coatings for Hindered Amine Light Stabilizer (HALS)	2003	Adopted	2009	T 338
TP 67	Analysis of Structural Steel Coatings for Isocyanate Content	2003	Adopted	2009	T 339
TP 68	Density of In-Place Hot-Mix Asphalt (HMA) Pavement by Electronic Surface Contact Devices	2004	Adopted	2012	T 343
TP 69	Bulk Specific Gravity and Density of Compacted Asphalt Mixtures Using Automatic Vacuum Sealing Method	2004	Adopted	2007	T 331
TP 70	Multiple Stress Creep Recovery (MSCR) Test of Asphalt Binder Using a Dynamic Shear Rheometer (DSR)	2007	Adopted	2014	T 350
TP 71	Evaluation of Superpave Gyratory Compactor (SGC) Internal Angle of Gyration Using Simulated Loading	2007	Adopted	2012	T 344
TP 72	Quantitative Determination of the Percentage of Lime in Hot Mix Asphalt (HMA)	2008	Adopted	2016 (August)	T 362
TP 73	Slump Flow of Self-Consolidating Concrete (SCC)	2008	Adopted	2013	T 347
TP 74	Passing Ability of Self-Consolidating Concrete (SCC) by J-Ring	2008	Adopted	2012	T 345
TP 75	Air-Void Characteristics of Freshly Mixed Concrete by Buoyancy Change	2008	Adopted	2013	T 348
TP 76	Measurement of Tire/Pavement Noise Using the On-Board Sound Intensity (OBSI) Method	2008	Adopted	2016 (April)	T 360

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
TP 77	Specific Gravity and Absorption of Aggregate by Volumetric Immersion Method	2009	Adopted	2015	T 354
TP 78	Detecting the Presence of Phosphorous in Asphalt Binder	2009	Adopted	2017 (August)	T 377 <sup>c</sup>
TP 79	Determining the Dynamic Modulus and Flow Number for Asphalt Mixtures Using the Asphalt Mixture Performance Tester (AMPT)	2009	Adopted	2017 (August)	T 378
TP 80	Visual Stability Index (VSI) of Self-Consolidating Concrete (SCC)	2009	Adopted	2014	T 351
TP 81	Determining Aggregate Shape Properties by Means of Digital Image Analysis	2010	Adopted	2018 (August)	T 381
TP 82	Bulk Specific Gravity ( $G_{mb}$ ) of Compacted Bituminous Mixtures Using Water Displacement Measured by Pressure Sensor	2010	Deleted	2018 (August)	—
TP 83	Sampling and Fabrication of 50-mm (2-in.) Cube Specimens Using Grout (Non-Shrink) or Mortar	2010	Adopted	2014	R 64
TP 84	Evaluation of Adhesive Anchors in Concrete Under Sustained Loading Conditions	2010	Deleted	2018 (June)	—
TP 85	Apparent Viscosity of Hot-Poured Bituminous Crack Sealant Using Brookfield Rotational Viscometer RV Series Instrument	2010	Adopted	2017 (June)	T 366
TP 86	Accelerated Aging of Bituminous Sealants and Fillers with a Vacuum Oven	2010	Adopted	2017 (June)	T 367
TP 87	Measure Low Temperature Flexural Creep Stiffness of Bituminous Sealants and Fillers by Bending Beam Rheometer (BBR)	2010	Adopted	2017 (June)	T 368
TP 88	Evaluation of the Low-Temperature Tensile Property of Bituminous Sealants by Direct Tension Test	2010	Adopted	2017 (June)	T 369
TP 89	Measuring Adhesion of Hot-Poured Crack Sealant Using Direct Adhesion Tester	2010	Adopted	2017 (June)	T 370
TP 90	Measuring Interfacial Fracture Energy of Hot-Poured Crack Sealant Using a Blister Test	2010	Adopted	2017 (June)	T 371
TP 91	Determining Asphalt Binder Bond Strength by Means of the Asphalt Bond Strength (ABS) Test	2011	Adopted	2016 (August)	T 361
TP 92	Determining the Cracking Temperature of Asphalt Binder Using the Asphalt Binder Cracking Device (ABCD)	2011	Adopted	2019 (July)	T 387

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
TP 93	Determining Formwork Pressure of Fresh Self-Consolidating Concrete Using Pressure Transducers	2011	Adopted	2014	T 352
TP 94	Filling Capacity of Self-Consolidating Concrete Using the Caisson Test	2011	Adopted	2013	T 349
TP 95	Surface Resistivity Indication of Concrete's Ability to Resist Chloride Ion Penetration	2011	Adopted	2015	T 358
TP 96	Protective Sealers for Portland Cement Concrete	2011	Adopted	2019 (June)	T 384
TP 97	Glass Beads Used in Pavement Markings	2011	Adopted	2012	T 346
TP 98	Determining the Influence of Road Surfaces on Vehicle Noise Using the Statistical Isolated Pass-By (SIP) Method	2011	Adopted	2020 (April)	T 389
TP 99	Determining the Influence of Road Surfaces on Traffic Noise Using the Continuous-Flow Traffic Time-Integrated Method (CTIM)	2011	Adopted	2020 (April)	T 390
TP 100	Deep Foundation Elements under Bidirectional Static Axial Compressive Load	2012	Adopted	2019 (July)	T 385
TP 101	Estimating Fatigue Resistance of Asphalt Binders Using the Linear Amplitude Sweep	2012	Adopted	2020 (July)	T 391
TP 102	Evaluation of Asphalt Release Agents	2012	Adopted	2018 (August)	T 383
TP 103	Detectable Warning Systems	2012	Adopted	2020 (June)	T 388
TP 104	Rapid Axial Compressive Load Testing of Deep Foundation Units	2013	Adopted	2019 (July)	T 386
TP 105	Determining the Fracture Energy of Asphalt Mixtures Using the Semicircular Bend Geometry (SCB)	2013	Adopted	2021	T 394
TP 106	Determination of Heavy Metal Content of Glass Beads Using X-Ray Fluorescence (XRF)	2013	Adopted	2021	T 392
TP 107	Determining the Damage Characteristic Curve of Asphalt Mixtures from Direct Tension Cyclic Fatigue Tests	2014	Adopted	2022	T 400
TP 108	Determining the Abrasion Loss of Asphalt Mixture Specimens	2014	Adopted	2022	T 401
TP 109	Nonlinear Impact Resonance Acoustic Spectroscopy (NIRAS) for Concrete Specimens with Damage from the Alkali-Silica Reaction (ASR)	2014	Adopted	2018 (April)	T 379

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
TP 110	Potential Alkali Reactivity of Aggregates and Effectiveness of ASR Mitigation Measures (Miniature Concrete Prism Test, MCPT)	2014	Adopted	2018 (April)	T 380
TP 111	Measuring Retroreflectivity of Pavement Marking Materials Using a Mobile Retroreflectivity Unit	2014	Adopted	2022	T 398
TP 112	Determining In-Place Density and Moisture Content of Soil and Soil-Aggregate Using Complex Impedance Methodology	2014	Adopted	2022	T 399
TP 113	Determination of Asphalt Binder Resistance to Ductile Failure Using Double-Edge-Notched Tension (DENT) Test	2015			
TP 114	Determining the Interlayer Shear Strength (ISS) of Asphalt Pavement Layers	2015			
TP 115	Determining the Quality of Tack Coat Adhesion to the Surface of an Asphalt Pavement in the Field or Laboratory	2015			
TP 116	Rutting and Fatigue Resistance of Asphalt Mixtures Using Incremental Repeated Load Permanent Deformation (iRLPD)	2015			
TP 117	Determination of the Voids of Dry Compacted Filler	2015			
TP 118	Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method	2015	Adopted	2022	T 395
TP 119	Electrical Resistivity of a Concrete Cylinder Tested in a Uniaxial Resistance Test	2015			
TP 120	Pore Index for Carbonate Coarse Aggregate	2016			
TP 121	Determining the Viscosity of Emulsified Asphalt by a Rotational Paddle Viscometer	2016	Adopted	2018 (August)	T 382
TP 122	Determination of Performance Grade of Physically Aged Asphalt Binder Using Extended Bending Beam Rheometer (BBR) Method	2016			
TP 123	Measuring Asphalt Binder Yield Energy and Elastic Recovery Using the Dynamic Shear Rheometer	2016			
TP 124	Determining the Fracture Potential of Asphalt Mixtures Using the Illinois Flexibility Index Test (I-FIT)	2016	Adopted	2021	T 393
TP 125	Determining the Flexural Creep Stiffness of Asphalt Mixtures Using the Bending Beam Rheometer (BBR)	2016			
TP 126	Evaluation of the Tracking Resistance of Hot-Poured Asphalt Crack Sealant by Dynamic Shear Rheometer (DSR)	2017			
TP 127	Determining the Fracture Energy Density of Asphalt Binder Using the Binder Fracture Energy (BFE) Test	2017			



Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
TP 128	Evaluation of Oxidation Level of Asphalt Mixtures by a Portable Infrared Spectrometer	2017			
TP 129	Vibrating Kelly Ball (VKelly) Penetration in Fresh Portland Cement Concrete	2018			
TP 130	Producing Drawdown Panels and Measuring the Coefficient of Retroreflected Luminance (RL) of Pavement Markings in a Laboratory Panel	2018			
TP 131	Determining Dynamic Modulus of Asphalt Concrete Using the Indirect Tension Test	2018			
TP 132	Determining the Dynamic Modulus for Asphalt Mixtures Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT)	2019			
TP 133	Determining the Damage Characteristic Curve and Failure Criterion Using Small Specimens in the Asphalt Mixture Performance Tester (AMPT)	2019			
TP 134	Stress Sweep Rutting (SSR) Test Using Asphalt Mixture Performance Tester (AMPT)	2019			
TP 135	Determining the Total Pore Volume in Hardened Concrete Using Vacuum Saturation	2020			
TP 136	Determining the Degree of Saturation of Hydraulic-Cement Concrete	2020			
TP 137	Box Test in Slip Form Paving of Fresh Portland Cement Concrete	2020	Adopted	2022	T 396
TP 138	Weight and Diameter for Carbon-Steel for Steel Wire and Welded Wire Reinforcement for Concrete	2020			
TP 139	Determining the Specific Gravity and Absorption of Lightweight Aggregate for Internally Cured Concrete Mixtures	2020			
TP 140	Moisture Sensitivity Using Hydrostatic Pore Pressure to Determine Cohesion and Adhesion Strength of Compacted Asphalt Mixture Specimens	2020			
TP 141	Determining the Indirect Tensile Nflex Factor to Assess the Cracking Resistance of Asphalt Mixtures	2020			
TP 142	Accelerated Determination of Potentially Deleterious Expansion of Concrete Cylinder due to Alkali-Silica Reactivity	2021			

Provisional Standard Number	Title	First Publ. Year	Final Disposition	Disposit. Year <sup>a</sup>	Full Std. No.
TP 143	Continuous Measurement of Sideway-Force Friction Number for Highway Pavements	2021			
TP 144	Determining the Potential Alkali–Silica Reactivity of Coarse Aggregates (TFHRC-TFAST)	2021			

<sup>a</sup> Disposition month is listed only for 2016–2020, in which standards were released in April, June, or July.

<sup>b</sup> Adopted in 1995 as R 19. R 19 was discontinued in 2004.

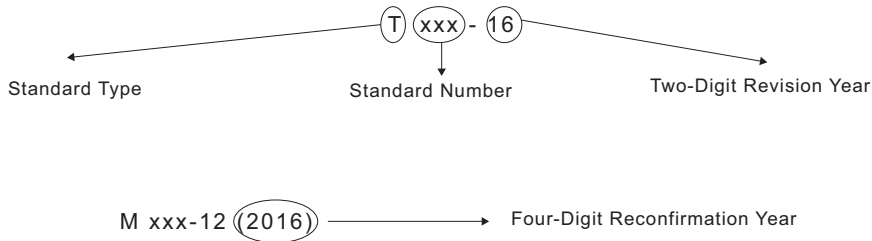
<sup>c</sup> Reclassified as a provisional specification MP 17 in 2007 then reclassified again as a practice when adopted as a full standard.

<sup>d</sup> Discontinued in 2016 then adopted in 2017.

## 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.