

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

40TH EDITION

GROUP 1 (APRIL 2020)

PART 1: SPECIFICATIONS AND PRACTICES
PART 2: TEST METHODS
PART 3: PROVISIONALS

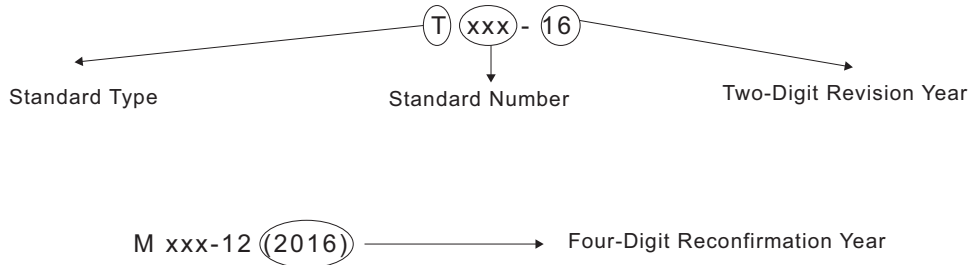
Adopted by the

AMERICAN ASSOCIATION
OF STATE HIGHWAY AND
TRANSPORTATION OFFICIALS
AASHTO

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 (Practice, provisional)

Standard Numbers

Standard numbers are sequential within standard type. Thus, a provisional that is subsequently adopted as a full standard will receive a new number.

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 In subsequent years, the standard will be *deleted* from the book, meaning that it is no longer maintained.

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, any standard that is neither revised nor reconfirmed but contains such changes does include an endnote stating that minor editorial revisions have been made.

Release: Group 1 (April 2020)

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
M 85-20	Portland Cement	3a	Changed Section 9.1.4 and a row heading in Table 4 from “false set” to “early stiffening” to more accurately reflect the results of T 186 testing.
M 152M/M 152-16 (2020)	Flow Table for Use in Tests of Hydraulic Cement	3a	Reconfirmed for 2020 publication.
M 154M/M 154-12 (2020)	Air-Entraining Admixtures for Concrete	3b	Reconfirmed for 2020 publication.
M 201-15 (2020)	Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes	3a	Reconfirmed for 2020 publication.
M 216-13 (2017)	Quicklime and Hydrated Lime for Soil Stabilization	3a	Editorially revised: ASTM equivalency designation number updated to C977-18.
M 224-91 (2019)	Use of Protective Sealers for Portland Cement Concrete	5b	Administratively moved from TS 5b to TS 4b and thus from Group 1 to Group 2; no technical changes.
M 240M/M 240-20	Blended Hydraulic Cement	3a	Added language in Section 15.6 to note that the chloride content of a cement is available upon request.
M 302-19	Slag Cement for Use in Concrete and Mortars	3b	Editorially revised: Note 4 added for clarification and ASTM harmonization.
R 10-16 (2020)	Definition of Terms Related to Quality and Statistics as Used in Highway Construction	5c	Reconfirmed for 2020 publication.
R 32-20	Calibrating the Load Cell and Deflection Sensors for a Falling Weight Deflectometer	5a	Revised extensively to reflect current industry practice, incorporate new calibration software requirements, and incorporate feedback and recommendations from users of the standards.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
R 33-20	Calibrating the Reference Load Cell Used for Reference Calibrations for a Falling Weight Deflectometer	5a	Revised extensively to reflect current industry practice, incorporate new calibration software requirements, and incorporate feedback and recommendations from users of the standards.
R 42-06 (2020)	Developing a Quality Assurance Plan for Hot Mix Asphalt (HMA)	5c	Reconfirmed for 2020 publication.
R 60-12 (2020)	Sampling Freshly Mixed Concrete	3b	Reconfirmed for 2020 publication.
R 61-12 (2020)	Establishing Requirements for Equipment Calibrations, Standardizations, and Checks	5c	Reconfirmed for 2020 publication.
R 71-16 (2020)	Sampling and Amount of Testing of Hydraulic Cement	3a	Reconfirmed for 2020 publication.
R 72-16 (2020)	Match Curing of Concrete Test Specimens	3c	Reconfirmed for 2020 publication.

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, any standard that is neither revised nor reconfirmed but contains such changes does include an endnote stating that minor editorial revisions have been made.

Release: Group 1 (April 2020)

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 22M/T 22-20	Compressive Strength of Cylindrical Concrete Specimens	3c	Revised extensively for equivalency with ASTM C39/C39M-18, including change to dual units.
T 98M/T 98-12 (2020)	Fineness of Portland Cement by the Turbidimeter	3a	Reconfirmed for 2020 publication.
T 105-20	Chemical Analysis of Hydraulic Cement	3a	Revised Sections 2.1, 3.1, 6.3.2, and 21.3.4 for equivalency with ASTM C114-18.
T 121M/T 121-19	Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete	3b	Editorially revised: Minor revisions to Section 8.
T 131-20	Time of Setting of Hydraulic Cement by Vicat Needle	3a	Revised Section 6.2 for equivalency with ASTM C191-18.
T 137-12 (2020)	Air Content of Hydraulic Cement Mortar	3a	Reconfirmed for 2020 publication.
T 140-20	Compressive Strength of Concrete Using Portions of Beams Broken in Flexure	3c	Revised Section 8.1.3 and Figure 1 for greater clarity.
T 153-20	Fineness of Hydraulic Cement by Air Permeability Apparatus	3a	Revised extensively for equivalency with ASTM C204-18.
T 157-12 (2020)	Air-Entraining Admixtures for Concrete	3b	Reconfirmed for 2020 publication.
T 162-16 (2020)	Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency	3a	Reconfirmed for 2020 publication.
T 185-15 (2020)	Early Stiffening of Hydraulic Cement (Mortar Method)	3a	Reconfirmed for 2020 publication.
T 186-20	Early Stiffening of Hydraulic Cement (Paste Method)	3a	Revised Subsections 6.5 and 6.8 for equivalency with ASTM C451-18.
T 256-01 (2020)	Pavement Deflection Measurements	5a	Reconfirmed for 2020 publication.

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
T 260-97 (2020)	Sampling and Testing for Chloride Ion in Concrete and Concrete Raw Materials	3c	Reconfirmed for 2020 publication.
T 309-20	Temperature of Freshly Mixed Portland Cement Concrete	3b	Revised to move include information about larger-aggregate concrete from Section 8.4.1 to Section 3.2.1.
T 323-03 (2020)	Determining the Shear Strength at the Interface of Bonded Layers of Portland Cement Concrete	3c	Reconfirmed for 2020 publication.
T 325-04 (2020)	Estimating the Strength of Concrete in Transportation Construction by Maturity Tests	3b	Reconfirmed for 2020 publication.
T 332-07 (2020)	Determining Chloride Ions in Concrete and Concrete Materials by Specific Ion Probe	3c	Reconfirmed for 2020 publication.
T 334-08 (2020)	Estimating the Cracking Tendency of Concrete	3c	Reconfirmed for 2020 publication.
T 345-12 (2020)	Passing Ability of Self-Consolidating Concrete (SCC) by J-Ring	3b	Reconfirmed for 2020 publication.
T 360-16 (2020)	Measurement of Tire/Pavement Noise Using the On-Board Sound Intensity (OBSI) Method	5a	Reconfirmed for 2020 publication.
T 365-20	Quantifying Calcium Oxychloride Amounts in Cement Pastes Exposed to Deicing Salts	3c	Revised extensively.
T 389-20	Determining the Influence of Road Surfaces on Vehicle Noise Using the Statistical Isolated Pass-By (SIP) Method	5a	Adopted AASHTO Provisional standard TP 98 as a full standard method of test, T 389.
T 390-20	Determining the Influence of Road Surfaces on Traffic Noise Using the Continuous-Flow Traffic Time-Integrated Method (CTIM)	5a	Adopted AASHTO Provisional standard TP 99 as a full standard method of test, T 390.

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, any standard that is neither revised nor reconfirmed but contains such changes does include an endnote stating that minor editorial revisions have been made.

Release: Group 1 (April 2020)

Designation Number	Title	Technical Subcommittee Number	Balloted Revisions
MP 22-13 (2020)	Fiber-Reinforced Polymer Composite Materials for Highway and Bridge Structures	5b	Extended for 2020 publication; Year 8 of 8 in Provisional life cycle.
MP 27-16 (2020)	Materials for Emulsified Asphalt Chip Seals	5b	Reconfirmed for 2020 publication.
MP 28-17 (2020)	Materials for Microsurfacing	5b	Reconfirmed for 2020 publication. Title editorially revised from “Micro Surfacing” to “Microsurfacing.”
MP 34-18 (2020)	Materials for Sand Seals	5b	Reconfirmed for 2020 publication.
MP 35-18 (2020)	Thin Overlay Treatments Using a Binder Resin System and Aggregate for Concrete Surfaces	5b	Administratively moved from TS 5b to TS 4b and thus from Group 1 to Group 2; no technical changes. Reconfirmed for June 2020 publication.
MP 43-20	Materials for Emulsified Asphalt Scrub Seal	5b	New Provisional standard.
MP 44-20	Materials for Ultrathin Bonded Wearing Course	5b	New Provisional standard.
MP 45-20	Materials for Full-Depth Reclamation Mixtures with Emulsified Asphalt	5b	New Provisional standard.
PP 80-20	Continuous Thermal Profile of Asphalt Mixture Construction	5c	Revised temperature range in Table 1 to read 60 to 250 C (140 F to 480 F).
PP 81-18 (2020)	Intelligent Compaction Technology for Embankment and Asphalt Pavement Applications	5c	Extended for 2020 publication; Year 7 of 8 in Provisional life cycle.
PP 82-16 (2020)	Emulsified Asphalt Chip Seal Design	5b	Reconfirmed for 2020 publication.
PP 83-16 (2020)	Microsurfacing Design	5b	Reconfirmed for 2020 publication.

PP 84-20	Developing Performance Engineered Concrete Pavement Mixtures	3c	Revised extensively, including removal of several appendixes: <ul style="list-style-type: none"> • Appendix X1 is addressed in Section 6.4.1.1. • Appendix X2 is addressed in Sections 6.6.1.2 and 6.6.2. • Appendix X3 has become a new Provisional method of test, TP 137. • Appendix X5 is included in Section 6.5.2.1. • Appendix X6 is now a PP 84 Guidance Document, which will be maintained until PP 84 is no longer a Provisional standard or it is no longer needed. • Section 6.5.2.1 references two new Provisional methods of test, TP 135 and TP 136.
PP 87-20	Slurry Seal Design	5b	Revisions to Sections 6.1, 9.1, and 11.2.
PP 89-19 (2020)	Grinding the Ends of Cylindrical Concrete Specimens	3c	Reconfirmed for 2020 publication.
PP 90-18 (2020)	Sand Seal Design	5b	Reconfirmed for 2020 publication.
PP 91-18 (2020)	Emulsified Asphalt Scrub Seal Design	5b	Reconfirmed for 2020 publication.
PP 98-20	Asphalt Surface Dielectric Profiling System Using Ground Penetrating Radar	5c	Revised in several sections to clarify equipment requirements.
PP 101-20	Emulsified Asphalt Content of Full-Depth Mixture Design	5b	New Provisional standard practice.
TP 98-18	Determining the Influence of Road Surfaces on Vehicle Noise Using the Statistical Isolated Pass-By (SIP) Method	5a	Adopted as full standard test T 389; no revisions made.
TP 99-18	Determining the Influence of Road Surfaces on Traffic Noise Using the Continuous-Flow Traffic Time-Integrated Method (CTIM)	5a	Adopted as full standard test T 390; no revisions made.
TP 129-18 (2020)	Vibrating Kelly Ball (VKelly) Penetration in Fresh Portland Cement Concrete	3c	Reconfirmed for 2020 publication.
TP 135-20	Total Pore Volume in Hardened Concrete Using Vacuum Saturation	3c	New Provisional standard method of test.
TP 136-20	Degree of Saturation of Hydraulic-Cement Concrete	3c	New Provisional standard method of test.
TP 137-20	Box Test in Slip Form Paving of Fresh Portland Cement Concrete	3b	New Provisional standard method of test.

PART 1—STANDARD SPECIFICATIONS AND STANDARD PRACTICES

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STD. NO.	TITLE
AGGREGATES	
M 327-19	Processing Additions for Use in the Manufacture of Hydraulic Cements
BITUMINOUS MATERIALS	
M 303-89 (2019)	Lime for Asphalt Mixtures
CONCRETE, CURING MATERIALS, AND ADMIXTURES	
M 154M/M 154-12 (2020)	Air-Entraining Admixtures for Concrete
M 157-13 (2017)	Ready-Mixed Concrete
M 182-05 (2017)	Burlap Cloth Made from Jute or Kenaf and Cotton Mats
M 194M/M 194-13 (2017)	Chemical Admixtures for Concrete
M 205M/M 205-11 (2019)	Molds for Forming Concrete Test Cylinders Vertically
M 224-91 (2019)	Use of Protective Sealers for Portland Cement Concrete
M 241M/M 241-13 (2017)	Concrete Made by Volumetric Batching and Continuous Mixing
M 295-19	Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
M 302-19	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 64-17	Sampling and Fabrication of 50-mm (2-in.) Cube Specimens Using Grout (Non-Shrink) or Mortar
R 70M/R 70-18	Use of Apparatus for the Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete
R 72-16 (2020)	Match Curing of Concrete Test Specimens
R 80-17	Determining the Reactivity of Concrete Aggregates and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction
R 81-17	Static Segregation of Hardened Self-Consolidating Concrete (SCC) Cylinders
ENVIRONMENTAL TESTS	
R 23-99 (2018)	Chemical, Biological, and Physical Analysis of Water
R 24-99 (2018)	Collection and Preservation of Water Samples
HYDRAULIC CEMENT	
M 85-20	Portland Cement
M 240M/M 240-20	Blended Hydraulic Cement
M 307-13 (2017)	Silica Fume Used in Cementitious Mixtures
M 321-04 (2017)	High-Reactivity Pozzolans for Use in Hydraulic-Cement Concrete, Mortar, and Grout
R 71-16 (2020)	Sampling and Amount of Testing of Hydraulic Cement

STD. NO.	TITLE
MISCELLANEOUS	
R 8-96 (2019)	Evaluation of Transportation-Related Earthborne Vibrations
R 10-06 (2020)	Definition of Terms Related to Quality and Statistics as Used in Highway Construction
R 25-19	Technician Training and Certification Programs
R 34-03 (2018)	Evaluating Deicing Chemicals
R 44-07 (2018)	Independent Assurance (IA) Programs
R 89-18	Accreditation Bodies Operating in the Fields of Construction Materials Testing and Inspection
PAVEMENT SURFACE AND STRUCTURE CHARACTERISTICS	
M 328-14 (2018)	Inertial Profiler
M 331-17	Smoothness of Pavement in Weigh-in-Motion (WIM) Systems
R 36-17	Evaluating Faulting of Concrete Pavements
R 37-04 (2018)	Measuring Pavement Profile Using a Rod and Level
R 40-10 (2018)	Measuring Pavement Profile Using a Rod and Level
R 43-13 (2017)	Quantifying Roughness of Pavements
R 54-14 (2018)	Accepting Pavement Ride Quality When Measured Using Inertial Profiling Systems
R 56-14 (2018)	Certification of Inertial Profiling Systems
R 57-14 (2018)	Operating Inertial Profiling Systems
R 85-18	Quantifying Cracks in Asphalt Pavement Surfaces from Collected Pavement Images Utilizing Automated Methods
R 86-18	Collecting Images of Pavement Surfaces for Distress Detection
R 87-18	Determining Pavement Deformation Parameters and Cross Slope from Collected Transverse Profiles
R 88-18	Collecting the Transverse Pavement Profile
QUALITY ASSURANCE	
R 9-05 (2018)	Acceptance Sampling Plans for Highway Construction
R 18-18 (2020)	Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
R 20-99 (2017)	Procedures for Measuring Highway Noise
R 38-10 (2018)	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 (2018)	Evaluating the Engineering and Environmental Suitability of Recycled Materials
SOILS AND STABILIZATION	
M 216-13 (2017)	Quicklime and Hydrated Lime for Soil Stabilization
R 21-96 (2019)	Drilling for Subsurface Investigations—Unexpectedly Encountering Suspected Hazardous Material
R 22-97 (2015)	Decommissioning Geotechnical Exploratory Boreholes
TESTING EQUIPMENT	
M 152M/M 152-16 (2020)	Flow Table for Use in Tests of Hydraulic Cement

STD. NO.	TITLE
M 201-15 (2020)	Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
M 261-18	Rib-Tread Standard Tire for Special-Purpose Pavement Frictional-Property Tests
M 286-18	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
DELETED STANDARD	
R 41-05 (2015)	Measuring Pavement Profile Using a Dipstick®

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SPECIFICATIONS	
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M 152M/M 152-16 (2020)	Flow Table for Use in Tests of Hydraulic Cement
M 154M/M 154-12 (2020)	Air-Entraining Admixtures for Concrete
M 157-13 (2017)	Ready-Mixed Concrete
M 182-05 (2017)	Burlap Cloth Made from Jute or Kenaf and Cotton Mats
M 194M/M 194-13 (2017)	Chemical Admixtures for Concrete
M 201-15 (2020)	Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
M 205M/M 205-11 (2019)	Molds for Forming Concrete Test Cylinders Vertically
M 216-13 (2017)	Quicklime and Hydrated Lime for Soil Stabilization
M 224-91 (2019)	Use of Protective Sealers for Portland Cement Concrete
M 240M/M 240-20	Blended Hydraulic Cement
M 241M/M 241-13 (2017)	Concrete Made by Volumetric Batching and Continuous Mixing
M 261-18	Rib-Tread Standard Tire for Special-Purpose Pavement Frictional-Property Tests
M 286-18	Smooth-Tread Standard Tire for Special-Purpose Pavement Frictional-Property Tests
M 295-19	Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
M 302-19	Slag Cement for Use in Concrete and Mortars
M 303-89 (2019)	Lime for Asphalt Mixtures
M 307-13 (2017)	Silica Fume Used in Cementitious Mixtures
M 321-04 (2017)	High-Reactivity Pozzolans for Use in Hydraulic-Cement Concrete, Mortar, and Grout
M 327-19	Processing Additions for Use in the Manufacture of Hydraulic Cements
M 328-14 (2018)	Inertial Profiler
M 331-17	Smoothness of Pavement in Weigh-in-Motion (WIM) Systems
PRACTICES	
R 8-96 (2019)	Evaluation of Transportation-Related Earthborne Vibrations
R 9-05 (2018)	Acceptance Sampling Plans for Highway Construction
R 10-06 (2020)	Definition of Terms Related to Quality and Statistics as Used in Highway Construction
R 18-18 (2020)	Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
R 20-99 (2017)	Procedures for Measuring Highway Noise
R 21-96 (2019)	Drilling for Subsurface Investigations—Unexpectedly Encountering Suspected Hazardous Material
R 22-97 (2015)	Decommissioning Geotechnical Exploratory Boreholes
R 23-99 (2018)	Chemical, Biological, and Physical Analysis of Water
R 24-99 (2018)	Collection and Preservation of Water Samples
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STD. NO.	TITLE
R 33-20	Calibrating the Reference Load Cell Used for Reference Calibrations for a Falling Weight Deflectometer
R 34-03 (2018)	Evaluating Deicing Chemicals
R 36-17	Evaluating Faulting of Concrete Pavements
R 37-04 (2018)	Application of Ground Penetrating Radar (GPR) to Highways
R 38-10 (2018)	Quality Assurance of Standard Manufactured Materials
R 39-19	Making and Curing Concrete Test Specimens in the Laboratory
R 40-10 (2018)	Measuring Pavement Profile Using a Rod and Level
R 42-06 (2020)	Developing a Quality Assurance Plan for Hot Mix Asphalt (HMA)
R 43-13 (2017)	Quantifying Roughness of Pavements
R 44-07 (2018)	Independent Assurance (IA) Programs
R 54-14 (2018)	Accepting Pavement Ride Quality When Measured Using Inertial Profiling Systems
R 56-14 (2018)	Certification of Inertial Profiling Systems
R 57-14 (2018)	Operating Inertial Profiling Systems
R 60-12 (2020)	Sampling Freshly Mixed Concrete
R 61-12 (2020)	Establishing Requirements for Equipment Calibrations, Standardizations, and Checks
R 64-17	Sampling and Fabrication of 50-mm (2-in.) Cube Specimens Using Grout (Non-Shrink) or Mortar
R 65-14 (2018)	Evaluating the Engineering and Environmental Suitability of Recycled Materials
R 70M/R 70-18	Use of Apparatus for the Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete
R 71-16 (2020)	Sampling and Amount of Testing of Hydraulic Cement
R 72-16 (2020)	Match Curing of Concrete Test Specimens
R 80-17	Determining the Reactivity of Concrete Aggregates and Selecting Appropriate Measures for Preventing Deleterious Expansion in New Concrete Construction
R 81-17	Static Segregation of Hardened Self-Consolidating Concrete (SCC) Cylinders
R 85-18	Quantifying Cracks in Asphalt Pavement Surfaces from Collected Pavement Images Utilizing Automated Methods
R 86-18	Collecting Images of Pavement Surfaces for Distress Detection
R 87-18	Determining Pavement Deformation Parameters and Cross Slope from Collected Transverse Profiles
R 88-18	Collecting the Transverse Pavement Profile
R 89-18	Accreditation Bodies Operating in the Fields of Construction Materials Testing and Inspection

DELETED STANDARD

R 41-05 (2015) Measuring Pavement Profile Using a Dipstick®

PART 2— STANDARD METHODS OF TEST

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Release: Group 1 (April 2020)

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T 279-18	Accelerated Polishing of Aggregates Using the British Wheel
T 380-19	Potential Alkali Reactivity of Aggregates and Effectiveness of ASR Mitigation Measures (Miniature Concrete Prism Test, MCPT)
CONCRETE, CURING MATERIALS, AND ADMIXTURES	
T 22M/T 22-20	Compressive Strength of Cylindrical Concrete Specimens
T 23-18	Making and Curing Concrete Test Specimens in the Field
T 24M/T 24-15 (2019)	Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
T 97-18	Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
T 119M/T 119-18	Slump of Hydraulic Cement Concrete
T 121M/T 121-19	Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
T 140-20	Compressive Strength of Concrete Using Portions of Beams Broken in Flexure
T 148-15 (2019)	Measuring Length of Drilled Concrete Cores
T 152-19	Air Content of Freshly Mixed Concrete by the Pressure Method
T 155-13 (2017)	Water Retention by Liquid Membrane-Forming Curing Compounds for Concrete
T 157-12 (2020)	Air-Entraining Admixtures for Concrete
T 158-11 (2019)	Bleeding of Concrete
T 160-17	Length Change of Hardened Hydraulic Cement Mortar and Concrete
T 161-17	Resistance of Concrete to Rapid Freezing and Thawing
T 177-17	Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading)
T 178-15 (2019)	Portland-Cement Content of Hardened Hydraulic-Cement Concrete
T 196M/T 196-11 (2019)	Air Content of Freshly Mixed Concrete by the Volumetric Method
T 197M/T 197-11 (2019)	Time of Setting of Concrete Mixtures by Penetration Resistance
T 198-15 (2019)	Splitting Tensile Strength of Cylindrical Concrete Specimens
T 231-17	Capping Cylindrical Concrete Specimens
T 259-02 (2017)	Resistance of Concrete to Chloride Ion Penetration
T 260-97 (2020)	Sampling and Testing for Chloride Ion in Concrete and Concrete Raw Materials
T 276-17	Measuring Early-Age Compression Strength and Projecting Later-Age Strength
T 277-15 (2019)	Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration
T 309-20	Temperature of Freshly Mixed Portland Cement Concrete
T 318-15 (2019)	Water Content of Freshly Mixed Concrete Using Microwave Oven Drying
T 325-04 (2020)	Estimating the Strength of Concrete in Transportation Construction by Maturity Tests
T 332-07 (2020)	Determining Chloride Ions in Concrete and Concrete Materials by Specific Ion Probe
T 334-08 (2020)	Estimating the Cracking Tendency of Concrete
T 336-15 (2019)	Coefficient of Thermal Expansion of Hydraulic Cement Concrete
T 345-12 (2020)	Passing Ability of Self-Consolidating Concrete (SCC) by J-Ring

STD. NO.	TITLE
T 347-13 (2017)	Slump Flow of Self-Consolidating Concrete (SCC)
T 348-13 (2018)	Air-Void Characteristics of Freshly Mixed Concrete by Buoyancy Change
T 349-13 (2017)	Filling Capacity of Self-Consolidating Concrete Using the Caisson Test
T 351-14 (2018)	Visual Stability Index (VSI) of Self-Consolidating Concrete (SCC)
T 352-14 (2018)	Determining Formwork Pressure of Fresh Self-Consolidating Concrete (SCC) Using Pressure Transducers
T 356-15 (2019)	Determining Air Content of Hardened Portland Cement Concrete by High-Pressure Air Meter
T 357-15 (2019)	Predicting Chloride Penetration of Hydraulic Cement Concrete by the Rapid Migration Procedure
T 358-19	Surface Resistivity Indication of Concrete's Ability to Resist Chloride Ion Penetration
T 359M/T 359-18	Pavement Thickness by Magnetic Pulse Induction
T 363-17	Evaluating Stress Development and Cracking Potential due to Restrained Volume Change Using a Dual Ring Test
T 364-17	Determination of Composite Activation Energy of Aggregates due to Alkali-Silica Reaction (Chemical Method)
T 365-20	Quantifying Calcium Oxychloride Amounts in Cement Pastes Exposed to Deicing Salts
T 379-18	Nonlinear Impact Resonance Acoustic Spectroscopy (NIRAS) for Concrete Specimens with Damage from Alkali-Silica Reaction (ASR)

HYDRAULIC CEMENT

T 98M/T 98-12 (2020)	Fineness of Portland Cement by the Turbidimeter
T 105-20	Chemical Analysis of Hydraulic Cement
T 106M/T 106-18	Compressive Strength of Hydraulic Cement Mortar (Using 50-mm or 2-in. Cube Specimens)
T 107M/T 107-18	Autoclave Expansion of Hydraulic Cement
T 129-14 (2018)	Amount of Water Required for Normal Consistency of Hydraulic Cement Paste
T 131-20	Time of Setting of Hydraulic Cement by Vicat Needle
T 132-87 (2018)	Tensile Strength of Hydraulic Cement Mortars
T 133-19	Density of Hydraulic Cement
T 137-12 (2020)	Air Content of Hydraulic Cement Mortar
T 153-20	Fineness of Hydraulic Cement by Air Permeability Apparatus
T 154-18	Time of Setting of Hydraulic Cement by Gillmore Needles
T 162-16 (2020)	Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency
T 185-15 (2020)	Early Stiffening of Hydraulic Cement (Mortar Method)
T 186-20	Early Stiffening of Hydraulic Cement (Paste Method)
T 188-05 (2017)	Evaluation by Freezing and Thawing of Air-Entraining Additions to Hydraulic Cement
T 192-19	Fineness of Hydraulic Cement by the 45- μ m (No. 325) Sieve
T 323-03 (2020)	Determining the Shear Strength at the Interface of Bonded Layers of Portland Cement Concrete
T 353-14 (2018)	Particle Size Analysis of Hydraulic Cement and Related Materials by Light Scattering

MISCELLANEOUS

T 256-01 (2020)	Pavement Deflection Measurements
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STD. NO.	TITLE
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T 242-18	Frictional Properties of Paved Surfaces Using a Full-Scale Tire
T 278-90 (2017)	Surface Frictional Properties Using the British Pendulum Tester
T 282-01 (2019)	Calibrating a Wheel Force or Torque Transducer Using a Calibration Platform (User Level)
T 317-04 (2018)	Prediction of Asphalt-Bound Pavement Layer Temperatures
T 360-16 (2020)	Measurement of Tire/Pavement Noise Using the On-Board Sound Intensity (OBSI) Method
T 389-20	Determining the Influence of Road Surfaces on Vehicle Noise Using the Statistical Isolated Pass-By (SIP) Method
T 390-20	Determining the Influence of Road Surfaces on Traffic Noise Using the Continuous-Flow Traffic Time-Integrated Method (CTIM)
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T 218-86 (2018)	Sampling Hydrated Lime
T 219-87 (2018)	Testing Lime for Chemical Constituents and Particle Sizes
T 232-90 (2018)	Determination of Lime Content in Lime-Treated Soils by Titration
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T 22M/T 22-20	Compressive Strength of Cylindrical Concrete Specimens
T 23-18	Making and Curing Concrete Test Specimens in the Field
T 24M/T 24-15 (2019)	Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
T 97-18	Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
T 98M/T 98-12 (2020)	Fineness of Portland Cement by the Turbidimeter
T 105-20	Chemical Analysis of Hydraulic Cement
T 106M/T 106-18	Compressive Strength of Hydraulic Cement Mortar (Using 50-mm or 2-in. Cube Specimens)
T 107M/T 107-18	Autoclave Expansion of Hydraulic Cement
T 119M/T 119-18	Slump of Hydraulic Cement Concrete
T 121M/T 121-19	Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
T 129-14 (2018)	Amount of Water Required for Normal Consistency of Hydraulic Cement Paste
T 131-20	Time of Setting of Hydraulic Cement by Vicat Needle
T 132-87 (2018)	Air Content of Hydraulic Cement Mortar
T 133-19	Density of Hydraulic Cement
T 137-12 (2020)	Air Content of Hydraulic Cement Mortar
T 140-20	Compressive Strength of Concrete Using Portions of Beams Broken in Flexure
T 148-15 (2019)	Measuring Length of Drilled Concrete Cores
T 152-19	Air Content of Freshly Mixed Concrete by the Pressure Method
T 153-20	Fineness of Hydraulic Cement by Air Permeability Apparatus
T 154-18	Time of Setting of Hydraulic Cement Paste by Gillmore Needles
T 155-13 (2017)	Water Retention by Liquid Membrane-Forming Curing Compounds for Concrete
T 157-12 (2020)	Air-Entraining Admixtures for Concrete
T 158-11 (2019)	Bleeding of Concrete
T 160-17	Length Change of Hardened Hydraulic Cement Mortar and Concrete
T 161-17	Resistance of Concrete to Rapid Freezing and Thawing
T 162-16 (2020)	Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency
T 177-17	Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading)
T 178-15 (2019)	Portland-Cement Content of Hardened Hydraulic-Cement Concrete
T 185-15 (2020)	Early Stiffening of Hydraulic Cement (Mortar Method)
T 186-20	Early Stiffening of Hydraulic Cement (Paste Method)
T 188-05 (2017)	Evaluation by Freezing and Thawing of Air-Entraining Additions to Hydraulic Cement
T 192-19	Fineness of Hydraulic Cement by the 45- μ m (No. 325) Sieve
T 196M/T 196-11 (2019)	Air Content of Freshly Mixed Concrete by the Volumetric Method
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T 198-15 (2019)	Splitting Tensile Strength of Cylindrical Concrete Specimens

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T 218-86 (2018)	Sampling Hydrated Lime
T 219-87 (2018)	Testing Lime for Chemical Constituents and Particle Sizes
T 231-17	Capping Cylindrical Concrete Specimens
T 232-90 (2018)	Determination of Lime Content in Lime-Treated Soils by Titration
T 242-18	Frictional Properties of Paved Surfaces Using a Full-Scale Tire
T 256-01 (2020)	Pavement Deflection Measurements
T 259-02 (2017)	Resistance of Concrete to Chloride Ion Penetration
T 260-97 (2020)	Sampling and Testing for Chloride Ion in Concrete and Concrete Raw Materials
T 276-17	Measuring Early-Age Compression Strength and Projecting Later-Age Strength
T 277-15 (2019)	Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration
T 278-90 (2017)	Surface Frictional Properties Using the British Pendulum Tester
T 279-18	Accelerated Polishing of Aggregates Using the British Wheel
T 282-01 (2019)	Calibrating a Wheel Force or Torque Transducer Using a Calibration Platform (User Level)
T 309-20	Temperature of Freshly Mixed Portland Cement Concrete
T 317-04 (2018)	Prediction of Asphalt-Bound Pavement Layer Temperatures
T 318-15 (2019)	Water Content of Freshly Mixed Concrete Using Microwave Oven Drying
T 323-03 (2020)	Determining the Shear Strength at the Interface of Bonded Layers of Portland Cement Concrete
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T 353-14 (2018)	Particle Size Analysis of Hydraulic Cement and Related Materials by Light Scattering
T 356-15 (2019)	Determining Air Content of Hardened Portland Cement Concrete by High-Pressure Air Meter
T 357-15 (2019)	Predicting Chloride Penetration of Hydraulic Cement Concrete by the Rapid Migration Procedure
T 358-19	Surface Resistivity Indication of Concrete's Ability to Resist Chloride Ion Penetration
T 359M/T 359-18	Pavement Thickness by Magnetic Pulse Induction
T 360-16 (2020)	Measurement of Tire/Pavement Noise Using the On-Board Sound Intensity (OBSI) Method
T 363-17	Evaluating Stress Development and Cracking Potential due to Restrained Volume Change Using a Dual Ring Test
T 364-17	Determination of Composite Activation Energy of Aggregates due to Alkali-Silica Reaction (Chemical Method)
T 365-20	Quantifying Calcium Oxychloride Amounts in Cement Pastes Exposed to Deicing Salts
T 379-18	Nonlinear Impact Resonance Acoustic Spectroscopy (NIRAS) for Concrete Specimens with Damage from Alkali-Silica Reaction (ASR)
T 380-19	Potential Alkali Reactivity of Aggregates and Effectiveness of ASR Mitigation Measures (Miniature Concrete Prism Test, MCPT)

STD. NO.	TITLE
T 389-20	Determining the Influence of Road Surfaces on Vehicle Noise Using the Statistical Isolated Pass-By (SIP) Method
T 390-20	Determining the Influence of Road Surfaces on Traffic Noise Using the Continuous-Flow Traffic Time-Integrated Method (CTIM)

DELETED STANDARD

None

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PP 98-20	Asphalt Surface Dielectric Profiling System Using Ground Penetrating Radar

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None	

Note: For the disposition of provisional standards not listed above, see the [Provisionals History](#).

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MP 32-17	Materials for Slurry Seal
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STD. NO.	TITLE
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PP 98-20	Asphalt Surface Dielectric Profiling System Using Ground Penetrating Radar
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TP 137-20	Box Test in Slip Form Paving of Fresh Portland Cement Concrete

DELETED STANDARDS
None

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