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Guide Specifications for Highway Construction

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Preface

This is the ninth edition of the *AASHTO Guide Specifications for Highway Construction*. These specifications have been developed by the AASHTO Subcommittee on Construction and are intended to complement the specifications for major structures and bridges, which are covered by the *AASHTO LRFD Bridge Construction Specifications*.

This edition includes four significant changes to these guide specifications. First, in order to reinforce and clarify the meanings of terms for readers, uniform terminology is used consistently throughout the specifications. Secondly, elimination of redundant language results in the deletion of some sections and an increased number of cross-references among the remaining sections. Also, the AASHTO and ASTM references within the guide specifications have been updated. Finally, this edition of the guide specifications includes several new sections—Sections 312 through 315 address additional base course options; Sections 716 through 718 address materials requirements for aluminum, timber, and ground anchors; and Appendixes A and B provide sample technical provisions and considerations for use with innovative contracting methods and pavement ride quality measurement.

The many differences in climate, geology, geography, customs, statutes, and regulations make a national construction specification practically impossible. However, to provide for easier cross-referencing from state to state or with other agencies, this guide provides uniformity of nomenclature, format, methods of measurement, basis of payment, and method of tests. The guide specifications provide the specification writer with information and topics to be covered and expounded on in a detailed project construction specification.

The guide specifications divisions are subdivided into Description, Materials, Construction Requirements, Method of Measurement, and Basis of Payment. Items shown in brackets, such as [50], throughout the guide specifications are suggested values and should be changed, when necessary, to meet the requirements of the various agencies or project conditions.

Some sections of the guide specifications may be written in a manner to appear as absolute and definite. This is not intended to be the only approach to the content of the section, but to provide a detailed example of the topic.

AASHTO guide specifications are updated and republished periodically. The updated versions provide the user with products, systems, and specification topics that have been used since the last edition.

Division 100

General Provisions



SECTION 101

GENERAL INFORMATION, DEFINITIONS, AND TERMS

101.01 Voice/Mood

This guide specification book uses the active voice, imperative mood when describing the Contractor's responsibilities. For example,

Active Voice/Imperative Mood: Provide competent supervision.

The subject of a sentence written in the active voice/imperative mood is not explicitly stated. In these Specifications, the implied subject of such a sentence is typically the Contractor, although in certain situations, the subject may also be a vendor, fabricator, or manufacturer engaged by the Contractor to supply material, products, or equipment for use on the project. Prior to award of a contract, the imperative statements are directed to the bidder; it is only after the contract has been awarded that the imperatives are directed to the Contractor.

Sentences defining the actions or responsibility of the Agency or its representatives are generally written in active voice/*indicative* mood. For example,

Active Voice/Indicative Mood: The Engineer will provide results of acceptance tests within five days of the test.

101.02 References, Acronyms, Measurement Units, and Symbols

- A. *References.* Section and Subsection titles and headings provide reference only, not interpretation.

A cross-reference to a specific Subsection of these Specifications includes all general requirements of the Section of which the Subsection is a part.

Unless specified by year or date, cited publications refer to the most recent issue, including interim publications, in effect on the bid closing date.

- B. *Abbreviations and Acronyms.* Interpret abbreviations and acronyms used in the contract as follows:

Table 101.02-1. Acronyms and Abbreviations Used in Specifications

| Acronym or Abbreviation | Full Name or Meaning |
|-------------------------|---|
| AAR | Association of American Railroads |
| AASHTO | American Association of State Highway and Transportation Officials |
| ACI | American Concrete Institute |
| AGC | Associated General Contractors of America |
| AIA | American Institute of Architects |
| AISI | American Iron and Steel Institute |
| ANLA | American Nursery and Landscape Association |
| ANSI | American National Standards Institute |
| AREMA | American Railway Engineering and Maintenance-of-Way Association |
| ARTBA | American Road and Transportation Builders Association |
| API | American Petroleum Institute |
| ASCE | American Society of Civil Engineers |
| ASLA | American Society of Landscape Architects |
| ASTM | American Society for Testing and Materials |
| AWPA | American Wood-Preservers' Association |
| AWWA | American Water Works Association |
| AWS | American Welding Society |
| FHWA | Federal Highway Administration |
| FSS | Federal Specifications and Standards (General Service Administration) |
| ISO | International Organization for Standardization |
| LRFD | Load and Resistance Factor Design |
| MIL | Military Specifications |
| MUTCD | Manual on Uniform Traffic Control Devices (for Streets and Highways) |
| OSHA | Occupational Safety and Health Administration |
| PTI | Post-Tensioning Institute |
| SAE | Society of Automotive Engineers |
| SSPC | Society for Protective Coatings |
| UL | Underwriters Laboratories Inc. |

C. *Measurement Units.* These Specifications provide measurements in both the inch-pound units of U.S. customary measure and in the International System of Units (abbreviated as SI, and known commonly in the United States as the metric system). Inch-pound units appear first, followed by metric units inside parentheses.

The Agency will identify the system of measurements that will be used on a particular project. Do not mathematically convert units from one system of measure to another; the Agency does not intend for the values to be interchangeable.

D. *Measurement Symbols.* To specify sizes, dimensions, and similar properties, the Agency will use symbols for units of measure, as shown in Table 101.02-2.

Table 101.02-2. Measurement Symbols

| Inch-Pound Units (U.S. Customary System) | | Measurement | SI (International System) Units (Metric) | |
|---|------------------------|-------------------------|---|-----------------|
| Symbol | Unit Name | | Unit name | Symbol |
| mil | mil (0.001 inch) | Length | micrometer | µm |
| in. | inch | | millimeter | mm |
| ft | foot | | | |
| yd | yard | | meter | m |
| mi | mile | | kilometer | km |
| in. ² | square inch | Area | | |
| ft ² | square foot | | | |
| yd ² | square yard | | square meter | m ² |
| mi ² | square mile | | square kilometer | km ² |
| acre | acre | | | |
| | | Volume | milliliter | mL |
| gal | gallon | | liter | L |
| in. ³ | cubic inch | | cubic meter | m ³ |
| ft ³ | cubic foot | | | |
| yd ³ | cubic yard | | | |
| oz | ounce | Weight (Mass) | gram | g |
| lb | pound | | kilogram | kg |
| kip | 1,000 pounds | | | |
| ton | ton, short (2000 lb) | | Megagram | Mg |
| lb | pound | Force | newton | N |
| kip | 1000 pounds | | kilonewton | kN |
| psi | pounds per square inch | Pressure, Stress | pascal | Pa |
| ksi | kips per square inch | | kilopascal | kPa |
| | | | megapascal | MPa |
| ft-lb | foot-pound | Energy | joule | J |
| fc | foot candle | Illumination | lux | lx |
| s | second | Time | second | s |
| min | minute | | minute | min |
| h | hour | | hour | h |
| d | day | | day | d |
| °F | degree Fahrenheit | Temperature | degree Celsius | °C |

101.03 Definitions

Acts of God. Earthquake, tidal wave, tornado, hurricane, or any other cataclysmic phenomenon of nature beyond the control of the Agency and Contractor.

Actual Cost. Contractor's actual cost to provide labor, material, equipment owned or invoiced rental, and administrative overhead necessary for the work.

Addendum. Contract revision developed between advertising and opening proposals.

Advertisement. Public announcement requesting bids for specified work or materials.

Agency. The State Highway or Transportation Department, Commission, or other organization, constituted under State or Commonwealth laws, that administers highway or transportation work.

Award. Agency acceptance of proposal.

Bid Documentation. All writings, working papers, computer printouts, charts, and data compilation containing or reflecting bidder's information, data, or calculations used to determine the bid proposal. Bid documentation includes material used to decide and apply

- equipment rates,
- overhead rates and related time schedules,
- labor rates,
- efficiency or productivity factors,
- arithmetic extensions, and
- subcontractor and material supplier quotations.

Reference all manuals used to determine the bid proposal, including name, date, and publisher. Bid Documentation excludes any Agency documents provided to the Bidder for use in preparation of the bid proposal.

Bid Documentation Escrow. Preserving successful bid documents as specified in Subsection 103.08.

Bidder. An individual or legal entity submitting a proposal for advertised work.

Bridge. Structure and supports constructed over a depression or obstruction, such as water, highway, or railway, with a track or passageway to carry traffic or other moving loads and a length of at least 20 ft (6 m) measured along the center of the roadway or railroad between abutment undercopings or extreme ends of openings for multiple boxes.

Calendar Day. Every day shown on the calendar, beginning and ending at midnight.

Change Order. Written order to the Contractor detailing changes to the specified work quantities or modifications within the scope of the original contract.

Completion. Contractor completes all specified work satisfactorily and executes and delivers all required documents, certificates, and proofs of compliance.

Construction Limits. Established boundaries within the highway right-of-way or construction easements that define the construction area. Also referred to as the roadway.

Contract. Written agreement between the Agency and the Contractor detailing the obligations of each to perform the prescribed work. The contract includes the invitation for bids, addenda,

proposal, contract form, contract bonds, standard specifications, supplemental specifications, special provisions, standard plans, notice to proceed, and change orders and supplemental agreements that are required to complete the work.

Contract Bonds. Approved security, on the Agency's form, executed by the Contractor and its surety or sureties, guaranteeing completion of the specified work.

Contract Pay Item. Specific work unit for which the contract provides a price.

Contract Time. Date by which work is to be completed, or number of working days or calendar days allowed to complete the contract. Complete contract work on or before the specified calendar date even if that date is a Saturday, Sunday, or holiday specified in the definition for *Holidays*.

Contractor. Individual or legal entity contracting with the Agency to perform the work.

County. The largest State administrative division used to designate or identify the location of the proposed work.

Culvert. A structure not classified as a bridge providing an opening under the roadway.

Days. Calendar days.

Delay. An event, action, force, or factor causing the work to extend beyond the specified contract time.

- A. *Excusable Delay.* A critical delay that is beyond the Contractor's control, not the fault or responsibility of the Contractor, or could not reasonably have been foreseen by the Contractor for which a time extension may be granted.
- B. *Compensable Delay.* An excusable delay for which the Contractor may be entitled to additional compensation as specified in Subsection 108.06.
- C. *Noncompensable Delay.* An excusable delay for which the Contractor is not entitled to additional compensation.
- D. *Nonexcusable Delay.* A delay that was within the Contractor's control, was the fault or responsibility of the Contractor, or could have reasonably been foreseen by the Contractor and for which there is no monetary compensation or time extension.

Differing Site Conditions. Subsurface or latent physical conditions at the project site that

- A. Differ significantly from those indicated in the contract, or
- B. Present unknown physical conditions of an unusual nature that differ significantly from those normally encountered and generally recognized as inherent in the nature of the work required.

Engineer. The Chief Engineer of the Agency acting directly or through an authorized representative responsible for engineering and administrative supervision of the contract.

Equipment. All machinery, tools, and apparatus, and the fuels, lubricants, batteries, and other supplies and parts needed to use, operate, and maintain these items for use in constructing and completing the work.

Extra Work. Work within the intended scope of the contract but beyond or varying from that originally provided for, and that the Agency later finds essential for the satisfactory completion of the project.

Force Account. A method of payment for work performed by the Contractor at the Engineer's direction, calculated as specified in Subsection 109.04.

Geotextile. Any permeable knitted, woven, or nonwoven textile material integral to a project, structure, or system.

Highway, Street, or Road. General term indicating a public way used by vehicles and pedestrians. Includes entire area within the right-of-way.

Holidays. The following are official holidays used to determine working days: [include Holidays]

Incentive/Disincentive Provisions. Predetermined additions to or subtractions from the contract price for each day work is completed ahead of or behind specific milestone, phase, or contract completion date.

Inspector. The Engineer's authorized representative assigned to inspect work and materials.

Invitation for Bids. Advertisement requesting proposals for work or materials. The invitation for bids estimates quantities and location of the work specified or the character and quantity of materials to be furnished and the time and place of proposal opening.

Laboratory. Agency testing laboratory or other designated testing laboratory.

Major and Minor Contract Items. Major individual bid items having an original value equal to or more than [10] percent of the original contract amount; all others are minor.

Materials. Substances specified for use in project construction.

Notice to Proceed. Written direction to the Contractor to begin work, including the date from which project time will be charged.

Pavement Structure. Combination of surface course, base course, and when specified, subbase, placed on a subgrade to support the traffic load and distribute it to the roadbed.

- A. *Surface Course.* Pavement structure layer(s) designed to accommodate the traffic load. The top layer resists skidding, traffic abrasion, and the disintegrating effects of climate and is sometimes called the Wearing Course.
- B. *Base Course.* One or more layers of specified material of designed thickness placed on a subbase or subgrade to support a surface course.
- C. *Subbase.* One or more layers of specified material of designed thickness placed on a subgrade to support a base course.