Specification Writer's Style Guide

Wyoming
Department of Transportation

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Specification Writer's Style Guide

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1 Overview

This manual provides instructions for specification writers contributing to the State of Wyoming's 2010 edition of the Department of Transportation's *Standard Specifications for Road and Bridge Construction* and supplemental specifications. The information included here constitutes the department's approved guidelines for matters of writing style, word and number usage, and formatting.

Questions not addressed here should be answered by consulting *The Chicago Manual of Style, 16th Edition*, the *United States Government Printing Office Style Manual, 2008*, any specialized sources cited within, or a recent standard dictionary of American English.

All examples cited in this *Guide* are simply models for style, usage, formatting, etc. They are not actual specifications or portions thereof, so ***do not*** consider them to be or use them as such.

Word processing instructions in this *Guide* are written for Microsoft Office Word 2007. Users of other versions of Word should see their respective user's manuals.

Purpose of the Revision

The department revises its *Standard Specifications* periodically, having done so most recently in 2010. This revision includes special provisions and supplemental specifications that have been written or revised since the book's 2003 edition. The 2010 *Standard Specifications* also continues to employ changes made starting with the 2003 book, which included providing specifications 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). All dimensions are given in inch-pound units first, followed by SI counterparts in brackets. The provision of dual units is intended to help ensure that *Standard Specifications* are kept current for metric, as well as U.S. customary, should the need arise to produce a metric job.

The 2010 book also continues to use a writing style meant to improve clarity and promote consistency as well as clearly identify the roles and responsibilities of all the parties involved in a contract.

Benefits of the Active Voice and Imperative Mood

Among the writing tools used to enhance clarity in the *Standard Specifications* is the use of both the *active voice* and the *imperative mood.*

These grammatical terms will be explained fully in section 9, Wording of Specifications, of this *Guide*. But in brief, the active voice forces a writer to identify within a sentence who is responsible for what. A sentence in the passive voice that might have said (as it did in the 1996 edition):

> *If invoices for transportation charges are not furnished, payment will be delayed until the invoices are submitted.*

In the active voice, it might instead say:

> *The department will withhold payment for transportation charges until the contractor submits the invoices.*

Not only does the second sentence have 18 percent fewer words than the first, but it also adds two pieces of information: *who* is responsible for the delay in payment (the department) and *who* is responsible for submitting the invoices (the contractor). Used well, the active voice adds clarity, identifies responsibility, and lessens a reader's burden by simplifying sentence structure and eliminating words.

The imperative mood offers similar benefits. It is the most efficient way to give a command, direction, or instruction. The imperative allows brevity because the person to whom the instruction is addressed is understood grammatically to be included in the sentence but is left out of the wording. Because the imperative is the language of efficient direction, it is often found in cookbooks, where it is understood but unstated that the instructions in the book are directed to the cook:

> *Heat the pan. Add some oil. Crack two eggs. Flip once. Make some coffee. Enjoy your breakfast.*

Unless otherwise indicated, such statements in *Standard Specifications* are directed to the bidder or the contractor. Increased use of the imperative gives specification writers a tool to make this direction more efficient.

To demonstrate and take advantage of the benefits of using the imperative mood, this *Guide* uses this style with specification writers as the audience.

2 Organization of Specifications

Hierarchy of Organization

Use the following hierarchy when writing the elements of a specification; use only as many sublevels as are needed:

000 Three-digit section number
000.0 Subsection-1, one or two digits, as necessary

Except in Division 100, General Provisions, and Division 800, Materials, these digits are reserved for designating parts 1 through 5 of the department's five-part format; i.e., for the subsection titles "Description," "Materials," etc.

000.0.0 Subsection-2, one or two digits, as necessary
000.0.0.0 Subsection-3, one or two digits, as necessary

Basic Elements

Except for sections in Division 100, General Provisions, and Division 800, Materials, the basic elements of a specification (with **000** representing the section number) are:

000.1 Description
000.2 Materials
000.3 Equipment
000.4 Construction
000.5 Measurement and Payment

Format

1 For section numbers and titles, use **bolded Arial type** and all capitals. Type subsection numbers and titles in **bolded Arial type** but with only the first letter of all significant words capitalized. Place section and subsection titles on separate lines above their following text. *Do not* put a period after the last digit of a section or subsection number or after the title.

2 Number each paragraph within a subsection, starting with the numeral 1; begin renumbering with each new subsection. Paragraph numbers will be placed in the left-hand margin, as

shown in the *examples* at the beginning of this and the previous paragraph, during final formatting for *Standard Specifications* book revisions.

When referencing paragraph numbers for revision or replacement, follow the example below:

SS-400A
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WYOMING DEPARTMENT OF TRANSPORTATION

SUPPLEMENTARY SPECIFICATION
FOR
AMENDMENTS TO THE DIVISION 400 OF THE
2010 STANDARD SPECIFICATIONS
FOR ROAD AND BRIDGE CONSTRUCTION

This supplementary specification supplements, amends, and where in conflict therewith, supersedes various sections of the 2010 Edition of the Wyoming Department of Transportation's *Standard Specifications for Road and Bridge Construction*.

SECTION 401 Plant Mix Pavements and Recycled Plant Mix Pavements

Subsection 401.5.1 General

Replace Item number 1 of paragraph 1 with the following:

1. Asphalt Binder (PG __-__) by the short ton [metric ton]in accordance with Subsection 109.1.3(8), Asphalt Materials, except :

   1.1 If an available aggregate source for plant mix is provided, and the aggregate is 100 percent crushed, or filler is allowed but not required:

   No payment will be made for the asphalt binder used daily in excess of the approved contractor mix design value plus 0.25 percent.

   When the department allows a change from an available material source in accordance with Subsection 106.3.2.2, Available Material Sources, no payment will be made for the asphalt binder percentage shown in the Material and Rates summary plus 0.25 percent, or the approved contractor mix design plus 0.25 percent, whichever is less.

   1.2 If an available aggregate source for plant mix aggregate is provided, and filler is required, and the department provides a filler source:

   No payment will be made for asphalt binder used daily in excess of the asphalt binder percentage shown in the Material and Rates summary plus 0.25 percent.

3 Abbreviations, Acronyms, and Symbols

Definitions

Abbreviations, acronyms, and symbols are shortened forms of longer words, names, or expressions. Each differs from the others in formation and usage.

Abbreviations in the strictest sense are shortened forms of a single word or phrase, usually followed by a period and often including lower case letters. *Examples* are Dr., etc., and chap. With the exception of *a.m.*, *p.m.*, and *No.* (for number), do not use abbreviations of this form.

Initialisms are formed from the first letters of a string of words or an organizational name. The letters in an initialism are read or pronounced separately rather than together as a single word. *Examples* are PVC, IEEE, and FHWA. Do not use periods in an initialism.

Acronyms are shortened forms, often initialisms, that can be pronounced as a word. *Examples* are WYDOT and OSHA. Do not use periods in an acronym.

Symbols are free-standing signs, letters, or characters with unique agreed-on meanings. Symbols are not abbreviations and should not be punctuated or treated as such. Use a space before and after a symbol; symbols are not preceded by a hyphen or followed by a period. *Examples*: lb (for pound), kg (kilogram), m^3 (cubic meter).

Rules for Acronyms and Abbreviations

Be consistent. The shortened forms used most often in WYDOT's *Standard Specifications* are listed in Section 101, Definitions and Terms. Additional forms are listed in this *Guide*. For the proper form of abbreviations not listed in these sources, consult chapter 10, "Abbreviations," of *The Chicago Manual of Style* or chapters 9 and 10, "Abbreviations and Letter Symbols" and "Signs and Symbols," in the *United States Government Printing Office Style Manual, 2008*. Do not invent or use forms that vary from these sources.

Before introducing a shortened form not listed in Section 101, Definitions and Terms, write out the complete name or meaning at the first usage, followed immediately with the shortened form in parentheses. When introducing a word-string of common nouns and adjectives set in lower-case letters that will later be used in a shortened form, maintain the lower-case letters in the full words and type the short form in capital letters. *Example*: When horizontal elliptical reinforced concrete pipe (HERCP) is specified . . . Install the HERCP so that . . . .

Do not introduce a shortened form that will not be reused in the same named and numbered section of *Standard Specifications* (e.g., Section 610, Curb Drains). When a previously introduced short form is reused in a new named and numbered section, write out the complete name or meaning at the first usage in the new section, then follow with the short form in parentheses.

The list of acronyms shown here in Table 101.4-1, Acronyms and Abbreviations Used, was accurate at the time the *Standard Specifications* was printed. Writers who plan on frequent use of an acronym or other shortened form not in the table should contact Field Operations, Construction Section to suggest its inclusion.

Use the indefinite article "an" before initialisms, acronyms, and abbreviations that are pronounced as if they begin with a vowel. If the short form begins as if it were pronounced with a consonant, use "a." *Examples*: *an* AASHTO requirement, *an* SAE specification (because the letter *s* is pronounced *es*), *a* PSC document.

Form plural acronyms by adding the lowercase letter "s." Do not use an apostrophe. *Examples:* multiple disadvantaged business enterprise are written DBEs, not DBE's, and multiple changeable message signs are CMSs, not CMS's.

Acronyms and Abbreviations Used in *Standard Specifications*

(Shown as Table 101.4-1)

Acronym or Short Form	Full Name or Meaning
AADT	annual average daily traffic
ac	alternating current
a.m.	*ante meridiem* (before noon)
AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ADA	Americans with Disabilities Act
AGC	Associated General Contractors of America
AIA	American Institute of Architects
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysis
AREMA	American Railway Engineering and Maintenance-of-Way Association

Acronym or Short Form	Full Name or Meaning
ARTBA	American Road and Transportation Builders Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATSSA	American Traffic Safety Services Association
AWG	American Wire Gauge
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CMP	corrugated metal pipe
CMS	changeable message sign
CPM	critical path method
CRSI	Concrete Reinforcing Steel Institute
CR	corrosion resistance
CSP	corrugated steel pipe
DBE	disadvantaged business enterprise
DMS	dynamic message sign
DSR	dynamic shear rheometer
EBL	eastbound lane
EBS	electronic bidding system
EEI	Edison Electric Institute
EIA	Electronic Industries Alliance
EPA	Environmental Protection Agency
ESAL	equivalent single axle load
f Nc	specified compressive strength of concrete
FCC	Federal Communications Commission
FE	flared end
FHWA	Federal Highway Administration
FTMS	Federal Test Method Standard
HERCP	horizontal elliptical reinforced concrete pipe
HID	high intensity discharge
ICEA	Insulated Cable Engineers Association
ID	inside diameter
IEEE	Institute of Electrical and Electronics Engineers
IESNA	Illuminating Engineering Society of North America

Acronym or Short Form	Full Name or Meaning
IMSA	International Municipal Signal Association
ISSA	International Slurry Surfacing Association
ITE	Institute of Transportation Engineers
ITS	intelligent transportation system
JMF	job mix formula
LAR	Los Angeles abrasion resistance or LA abrasion
LED	light emitting diode
LL	liquid limit
MIL	Military Specification
MS	Military Standard
MUTCD	*Manual on Uniform Traffic Control Devices*
NBL	northbound lane
NCHRP	National Cooperative Highway Research Project
NEC	National Electrical Code as approved by ANSI and NFPA
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
No.	number
Nos.	numbers
NOAA	National Oceanic and Atmospheric Administration
NP	nonplastic
NPDES	National Pollution Discharge Elimination System
OD	outside diameter
OHW	ordinary high water
OSHA	Occupational Safety and Health Administration
p.m.	*post meridiem* (after noon)
PAMS	poly-alpha-methyl styrene
PAV	pressure aging vessel
PCI	Precast/Prestressed Concrete Institute
PE	polyethylene
PGAB	performance graded asphalt binder
PLS	pure live seed
PTC	positive temperature coefficient
PVC	polyvinyl chloride
RAP	reclaimed asphalt pavement
RC	reinforced concrete
RCP	reinforced concrete pipe
RPCCP	reclaimed portland cement concrete pavement
RSC	rigid galvanized steel conduit

Acronym or Short Form	Full Name or Meaning
RTFO	rolling thin film oven
SAE	Society of Automotive Engineers
SBL	southbound lane
SE	service entrance
SI	International System of Units (metric system)
SME	steel mitered end
SSPC	Society for Protective Coatings
TAPPI	Technical Association of the Pulp and Paper Industry
TBC	time-based coordination
TCD	traffic control device
U.S.	United States
UBC	Uniform Building Code
UF	wire insulation—underground feeder
UL	Underwriters Laboratories, Inc.
USE	wire insulation—underground service entrance
UV	ultraviolet
V:H	vertical units to horizontal units, ratio
VAC	voltage—alternating current
VECP	Value Engineering Contractor Proposal
VMA	voids in mineral aggregate
VOC	volatile organic compounds
WBL	westbound lane
WCA	Wyoming Contractors Association
WCLIB	West Coast Lumber Inspection Bureau
WDA	Wyoming Department of Agriculture
WDEQ	Wyoming Department of Environmental Quality
WPSC	Wyoming Public Service Commission
WPWC	Wyoming Public Works Council
W.S.	Wyoming Statute
WSHPO	Wyoming State Historic Preservation Office
WWPA	Western Wood Products Association
WYBET	Wyoming box beam end terminal
WYDOT	Wyoming Department of Transportation
XHHW	wire insulation—moisture and heat resistant; wet and dry locations; cross-linked polyethylene

Style for Use of Bid and Pay Unit Symbols in *Standard Specifications*

For bid and pay units, in "Measurement and Payment" subsections only, use the symbols shown in Table 109.1.2-1, Unit Symbols for Bid and Pay Items. Give the inch-pound symbol first, followed by the symbol for the SI counterpart in brackets.

In "Measurement and Payment" subsections, use the same names (including abbreviated forms) for pay items in the "measure" paragraph as are list in the "pay" paragraph. *Example:*

415.5.1 MEASUREMENT and PAYMENT

1 The engineer will measure:

1. Conc Pvmt Spall Repair by the square foot [square meter] or the cubic foot [cubic meter] measured in the plane of the existing concrete pavement surface.

2. Conc Slab Replacement by the square yard [square meter], measured parallel to the paved surface.

2 The department will pay as follows:

Pay Item	Pay Unit	Measure to the Nearest	Pay to the Nearest
Conc Slab Replacement	SY [m²]	0.1 ft [0.05 m]	SY [m²]
Conc Pvmt Spall Repair	SF, CF [m², m³]	0.1 ft, 0.1 ft [0.05 m, 0.05 m]	SF, CF [0.1 m², 0.1 m³]

Unit Symbols for Bid and Pay Items

(*Standard Specifications* Table 109.1.2-1)

Inch-Pound		SI (Metric)	
Bid or Pay Unit	**Symbol**	**Bid or Pay Unit**	**Symbol**
acre	ACRE	hectare	ha
cubic foot	CF	cubic meter	m^3
cubic yard	CY	cubic meter	m^3
cubic yard hour	CYHR	cubic meter hour	m^3h
cubic yard mile	CYMI	cubic meter kilometer	m^3km
each	EA	each	Ea
force account	$$	force account	$$
gallon	GAL	liter	L
thousand gallons	MG	cubic meter	m^3
hour	HR	hour	h
crew hour	CRWH	crew hour	Crwh
pound	LB	kilogram	kg
foot	FT	meter	m
lump sum	LS	lump sum	LS
mile	MI	kilometer	km
mile-day	MIDY	kilometer-day	kmd
square foot	SF	square meter	m^2
shift	SHFT	shift	Shft
station	STA	station	Sta
square yard	SY	square meter	m^2
short ton (2000 lb)	TON	metric ton	t
short ton mile	TMI	metric ton kilometer	tkm

Style for Measurements in *Standard Specifications*

Measurements involve descriptions of quantities and are composed of a *numeric value* and a *unit of measure*. Use numerals for the numeric value of a measurement; use symbols to indicate the unit of measure. *Do not* use words or abbreviations for the number or units in a measurement. *Exceptions* are discussed in section 4, Numerals vs. Words, of this *Guide*.

Provide measurements (and sizes) in both inch-pound and SI (metric) units; give the inch-pound measurement first, followed by the SI counterpart in brackets. *Examples:*

round to a radius of ⅛ in [3 mm]
steel with a thickness greater than ½ in [13 mm]
excavate to a depth no less than 15 ft [4.5 m]
add water heated to a temperature of from 70 °F to 150 °F [21 °C to 66 °C]

Measurement Symbols

(*Standard Specifications* Table 101.4-2)

Inch-Pound Units (U.S. Customary System)		Kind of Quantity or 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			
fl oz	fluid ounce	**Volume**	milliliter	mL
pt	pint			
qt	quart			
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
ton	ton, short (2000 lb)		metric ton	t
°F	degree Fahrenheit	**Temperature**	degree Celsius	°C

Inch-Pound Units (U.S. Customary System)		Kind of Quantity or Measurement	SI (International System) Units—Metric	
Symbol	**Unit Name**		**Unit name**	**Symbol**
s	second	**Time**	second	s
min	minute		minute	min
h	hour		hour	h
d	day		day	d
mph	miles per hour	**Speed**	kilometers per hour	km/h
psi	pounds per square inch	**Pressure**	pascal	Pa
			kilopascal	kPa
			megapascal	MPa
W	watt	**Power, Energy, and Electrical**	watt	W
kW	kilowatt		kilowatt	kW
A	ampere		ampere	A
V	volt		volt	V
VA	voltampere		voltampere	VA
Ω	ohm		ohm	Ω
Hz	hertz		hertz	Hz
J	joule		joule	J
lm	lumen		lumen	lm
fc	footcandle		lux	lx
			candela	cd
hp	horsepower			
lbf	pound-force	**Force**	newton	N
kip	1000-pounds force		kilonewton	kN
		Viscosity, Dynamic	pascal second	Pa•s
KU	Krebs unit		centipoise	cP
			poise	P
cSt	centistokes	**Viscosity, Kinematic**	meter squared per second	m^2/s
St	stokes			
gpm	gallons per minute	**Flow**	liters per second	L/s

Standards for the use of SI (metric) symbols in the United States are provided in *NIST Special Publication 811, 2008 Edition: Guide for the Use of the International System of Units (SI)*, published by the National Institute of Standards and Technology, United States Department of Commerce, and in IEEE/ASTM SI 10 - 10 (*American National Standard for Metric Practice*). Symbols for units of U.S. customary measure appear in paragraph 9.62, "Standard Letter Symbols for Units of Measure," the *United States Government Printing Office Style Manual, 2008*.

To use measurement symbols properly:

1. Do not follow a symbol with a period unless dictated by placement at the end of a sentence. Measurement symbols are not abbreviations.

2. Do not add an *s* to form a plural. The symbol remains the same whether the quantity is one or many. *Examples*: 1 kg, 2 kg (*not* 2 kgs); 1 ft, 2 ft; 24 h (*not* 24 hrs).

3. Type a space between the quantity and the symbol. *Examples*: 1 kg, 2 ft, 25 °C.

4. Precede only with numerals, never words. *Example*: 2 ft; *not* two ft.

5. Do not use symbols without accompanying numerals. That is, never leave a symbol "naked." *Example*: Measurement is by the cubic yard; *not* the yd^3.

6. Do not mix symbols and names in the same expression. *Example*: m/s *or* meters per second; *not* meters/second or meters/s.

7. Print symbols and quantities in normal, upright (Roman) type regardless of surrounding text. *Example:* 2 ft, *not 2 ft.*

8. Do not use unit abbreviations, short forms, or symbolic representations not shown in Table 101.4-2. *Examples*: 2 ft, *not* 2'; 6 in, *not* 6"; 5 g, *not* 5 gm (for grams).

9. When the word "in" needs to follow the symbol "in," write out the word "inches" instead of using the symbol. *Example:* greater than 0.3 inches in 25 ft [8 mm in 7.5 m], *not* 0.3 in in 25 ft.

Mathematical and Other Symbols Used

(*Standard Specifications* Table 101.4-3)

Symbol	Meaning	Word Character	Use symbol in … Tables only	Use symbol in … Text and tables
+	plus	from keyboard	✓	
−	minus	*02D7, Alt + x (*not* the keyboard hyphen)	✓	
±	plus or minus	Alt + 0177		✓
=	equal to	from keyboard	✓	
<	less than	from keyboard	✓	
≤	less than or equal to	Alt + 2264	✓	
>	greater than	from keyboard	✓	
≥	greater than or equal to	Alt + 2265	✓	
×	multiplied by; dimensional indicator	Alt + 0215 (*not* the keyboard letter x)		✓
$\bar{x}$	arithmetic mean (or “average”)	**See note	statistical formulas	
/	per	from keyboard	✓	
%	percent	from keyboard	✓	
μ	10^{-6} (“micro”)	Alt + 0181		✓
°	degree (angular measurement and temperature)	Alt + 0176	✓	
Ω	ohm	Alt + 2126		✓
:	ratio; proportionality	from keyboard		✓
$	U.S. dollar	from keyboard		✓
•	bullet	Alt + 0149		✓

**To use the shortcut key for the minus sign in Word, type in the number shown in this table where the symbol is to appear and then hold down the Alt key while typing x. The symbol will replace the numbers typed.*

***Word 2007 does not, at the time of publication, have a symbol for arithmetic mean. However, if the specification writer uses a computer that has WordPerfect installed on it, the symbol can be found in Word under the Insert tab, Symbol icon. Click on More Symbols to open the Symbol dialog box. Click*

on the Font drop down arrow and choose the WP MathB font. Scroll through the font options to locate the ⨯ symbol, click on it, and click the Insert button to add it to the document at the cursor location. Close the dialog box by clicking on Cancel.

To add the other Word characters from Table 101.4-3 to a document, hold down the Alt key while typing in the number shown. The character will be inserted at the cursor location once the Alt key is released.

When using mathematical and other signs and symbols:

1. Type a space before and after. *Example*: 2 in × 2 in × 1 in [50 mm × 50 mm × 25 mm]. *Exceptions*: no space follows μ (a 75 μm sieve); no space precedes the angular degree symbol (180º); no space follows the minus sign when used in a temperature that is below zero degrees (−5 °F [−20 °C]); and no space follows the numeral when the percent symbol is used in a table (0.4%).

2. In text, use words for those quantitative relationships indicated in the preceding table. *Example*: Fasten reinforcing bars securely except where the spacing is *less than* 1 ft [300 mm].

Ranges

Do not use a dash (-) to indicate a range.

Use the words "from" and "to" in text to indicate a range of values in which the endpoints are included (in tables use only "to"). Provide the unit symbol after each numeric value. *Examples*: from 1 in to 3 in [25 mm to 75 mm]; from 77 °F to 86 °F [25 °C to 30 °C]. *Exceptions*: When a range is described with the word "percent," or when an unambiguous span of time is described using "second," "minute," or "day," use the word only once, at the end of the range. *Examples*: 15 to 25 percent; from 24 to 48 hours.

To indicate a range from which the endpoints are excluded, use the words "between" and "and."

When indicating a range in an electrical reference, use "to." *Example*: 0 V to 5 V.

Additional Rules and Examples

Write:

… so that it is completely clear to which unit symbols the numerical values of the quantities belong.

— National Institute of Standards and Technology
NIST Special Publication 811

Measurement symbols *always* require a preceding numerical value and are *never* preceded or followed by a hyphen. The spelled-out unit name *may* be preceded by a number expressed as a word and *must* be preceded by a hyphen when the number and name are used together as an adjective, but no hyphen is used in the metric equivalent. *Examples*: a 1-inch [25 mm] pipe; a ½-inch [13 mm] diameter mandrel.

Use the multiplication cross symbol (×) to indicate dimensionality, *not* the word "by." Provide the unit symbol after each numeric value. *Example*: 2 in × 4 in; *not* 2 in by 4 in.

Additional *examples:*

6 ft × 6 ft [2 m × 2 m]
6 ft × 6 ft × 6 in [2 m × 2 m × 150 mm]
9:00 a.m.; 2:00 p.m.
1 in ± $^{1}/_{32}$ in [25 mm ± 1 mm]
a slope greater than 1:20
−10 °F [−23 °C]

tolerance should be minus 0 degrees; plus 45 degrees
heated to 200 °F [90 °C] for a length of 1 in [25 mm]
nitrogen per 100 yd^2 [80 m^2]
make posts from No. 1 structural steel
90 percent finer than a No. 4 [4.75 mm] sieve
after storage for 30 days at 75 °F ± 5 °F [24 °C ± 3 °C]

4 Numerals vs. Words

General

Use numerals for measurements, sizes, and critical or precise quantities. *Examples*: Maintain a surface temperature of 70 °F [20 °C] for 72 hours; gouges not more than ¼ in [6 mm] deep; mark the weight [mass] on members heavier than 3 ton [2.7 t].

Use numerals when cross-referencing sections, subsections, and other parts of *Standard Specifications* or similar sources. *Example*: … materials required by AASHTO section 5.

Use numerals for numerical values greater than ten; i.e., use numerals for the number 11 and higher.

Use words for numbers at the beginning of a sentence; if a number greater than ten appears at the beginning of a sentence, reorder the sentence if possible. *Example*: Thirty minutes before installation, begin preparing the material. *Or*: Begin preparing the material 30 minutes before installation.

Use words for quantities or values of ten and below that are not critical, precise, or of paramount importance in the context. *Examples*: Fabricate from not more than two pieces of sheet steel. Furnish six sets of drawings.

When quantity and size are expressed together, use numerals for the size and words for the quantity. *Examples*: three ½-inch [13 mm] holes; twenty-two 50-pound [25 kg] weights.

Be consistent. Within the same context, treat similarly all numbers that refer to the same category of things. *Examples*: Ensure a moisture content of 7 to 12 percent. Thirty minutes before starting, and again sixty minutes later, …

Decimals

Express decimals in numerals, *not* words. *Example*: 0.1, *not* one-tenth.

Never leave a decimal point "naked"—that is, without numerals on both sides. *Examples*: 1.5, 6.125, 0.5, 0.125.

Use decimals in all SI (metric) expressions with numeric values other than a whole number. *Examples*: 1.5 m; 0.5 kg.

Time and Date

Use numerals for clock times. Keep zeros when describing times "on the hour." Use the standard 12-hour system, with all numerals accompanied by the appropriate a.m. or p.m. designation (using lower-case letters, followed by periods); leave a space between the numeral and abbreviation but no spaces inside the abbreviation. *Examples*: 9:00 a.m., 10:30 p.m.

Exception: Use the words "noon" and "midnight" to indicate twelve o'clock. *Do not* use the numeral 12 followed by a word or abbreviation. *Example*: Do not work from noon to midnight. (*Not* 12 noon or 12 p.m.; *not* 12 midnight or 12 a.m.)

Use words (written in full) for the names of months and numerals for days of the month and years. Do not use ordinal designators (e.g., th and rd) in dates. *Examples*: June 15, 2001; from May 1 to September 30.

Money

Use numerals for monetary amounts. Do not include the decimal and zeros for the cents when amounts are in whole dollars. Do not leave a space between the dollar sign ($) and numeric value. *Example*: Bill at the rate of $1,500 per mix.

Fractions

Determine whether it is technically correct to use fractions or decimals. In most cases, use numeric fractions when expressing inch-pound measures and sizes. *Examples*: Leave the cut end at least ⅛ in [3 mm] above the base; drill to a depth of ¼ in [6 mm]. However: Construct from aluminum alloy sheet at least 0.0051 in [300 μm] thick.

Use numerals for mixed fractions; do not leave a space between the whole number and simple fraction. *Examples*: Join the top to the bottom with an arc of not more than 87½ degrees; leave a distance of no more than 1¾ times the diameter of the bolt.

Use numeric fractions when forming a unit-modifier or compound adjective; follow the fraction with a hyphen, and use the full unit name. *Examples*: a 1½-inch [40 mm] pipe; a ¼-mile [0.4 km] open space.

Use Microsoft Word's built-in typographic symbols to enter common numeric fractions. To do this with a mouse, under the Insert tab, click the Symbol button in the Symbols group. If the fraction you need is shown, double-click on it to insert it into your text at the insertion point. If the fraction you need is not there, click on More Symbols. In the Font drop down

menu, choose either "(normal text)" or another font—usually Times New Roman or Arial, and in the Subset drop down menu choose Number Forms. Scroll through the characters to find the fraction needed, and either double-click on it or select it and click the Insert button. The fraction will appear at the insertion point in the text once the Alt key is released.

Shortcuts for some common fractions are shown in the following table. To use them, and depending on the shortcut key shown, either hold down the Alt key and type in the number shown or type in the number or number-letter combination shown, hold down the Alt key, and press the x key. The fraction will then appear at the cursor's location.

Typographic Fraction Characters in Word 2007

Fraction	Word Shortcut Key
½	Alt + 0189
¼	Alt + 0188
¾	Alt + 0190
⅓	2153, Alt + x
⅔	2154, Alt + x
⅛	215b, Alt + x
⅜	215c, Alt + x
⅝	215d, Alt + x
⅞	215e, Alt + x

Fractions other than those that come with Word can be created by making the numerator superscript and the denominator subscript. The following is one way to create fractions:

1. Type in the fraction with regular numbers separated by a slash. *Examples:* 3/32, 7/16, 13/5.
2. To create the numerator, select it with the mouse, and either click on the superscript button under the Home tab and in the Font group [x^2] or use the shortcut for creating a superscript by holding down the Alt and Shift keys and pressing the + key. *Examples:* ^{3}/32, ^{7}/16, 1^3/5. Note that there is no space between the whole number and the numerator of the fraction.
3. To create the denominator, select it with the mouse, and either click on the subscript button [x_2], which is next to the superscript button, or use the shortcut for creating a subscript by holding down the Ctrl key and pressing the = key. *Examples:* $^3/_{32}$, $^7/_{16}$, $1^3/_5$.

Use words for simple fractions that do not describe a measurement or a precise quantity, that stand alone, or that come before the words "of a" or "of an." Use a hyphen to connect the numerator and denominator. *Examples:* Add mulch when the tank is at least one-third full of water. Use a spray bar three-fourths the length of the mixer or greater. Payment will be one-half the unit price. Use straw, hay, or sawdust to fill the lower one-fourth to one-third of the trench.

Percent

Use the word "percent" in text and precede with a numeral. *Examples:* If the average density is less than 95 percent, but no one sample is less than 92 percent, divide the samples into two, five-sample lots. Changes greater than 5 percent will …. A minimum of 4 percent moisture …. Provided the quantity does not exceed 0.1 percent of the total contract cost, or $2,500, whichever is greater (*not* one-tenth of one percent).

Hyphens and Unit Modifiers

When a number and word (usually a unit name) work together to describe something else (usually an object or material, like a pipe, bolt, or board), they are acting as a single word, or adjective, called a *unit modifier*.

Use a hyphen between the number and word in unit modifiers; *do not* use hyphens with unit symbols. *Examples:* Cut two, 4½-foot [1.5 m] long test samples of any size 400-grade bar. Install a 400-watt, 120-volt, bar-type electric heating unit in all controller cabinets. Construct the cabinet from 0.125-inch [3 mm] thick aluminum.

When the context requires both inch-pound and SI (metric) measures, use the full name of the inch-pound unit, placing a hyphen between the numerical value and the unit name, then write the SI counterpart in parentheses immediately afterward (using numerals and SI symbols only) before any additional adjectives are used. *Examples:*

a ½-inch [13 mm] pipe	a ¾-inch [19 mm] diameter shank
three 2½-inch [63 mm] pipes	an 8-pin, jones-type socket
a ten-day notice	a 2-inch [50 mm] hose
a 6-inch [150 mm] layer, *but*	a 1-pound [454 g] sample, *but*
a layer 6 in [150 mm] deep	a sample of 1 lb [454 g]

Commas vs. Spaces

In dollar figures, use commas in expressions of four digits or more (i.e., amounts greater than $999). *Examples:* $800; $1,000; $10,000; $2,000,000.

In inch-pound expressions, use commas in numeric values with five or more digits. *Examples:* 1000 ft; 2500 psi; 10,000 psi; 1,000,000 gal.

In SI (metric) expressions, use spaces in numeric values with five or more digits. *Examples:* 900 MPa; 1000 MPa; 1300 μm; 10 000 km.

5 Punctuation

Serial Commas

In a series of three or more elements, separate the elements with a comma. Use a comma before the conjunction ("and" or "or") joining the last two elements. *Examples:*

Provide a minimum of eight individually selectable outputs, each selectable by time-of-day, day-of-week, *and* week-of-year.

Do not use mortar blocks, bricks, wood, *or* aluminum framework in supporting deck slab reinforcement.

Protect trees, shrubs, *and* other landscape features designated by the engineer for preservation from abuse, marring, *or* damage during construction.

With Closing Quotation Marks

Place periods and commas required by a sentence *inside* closing quotation marks, regardless of whether the period or comma is part of the quoted matter. *Examples:*

Lay the downstream end of each blanket on top, creating a "shingle effect."

The contact pressure is "the average ground contact pressure," expressed in pounds per square inch (pascals).

Quotation Marks When Referencing Signs and Labels

When referring to specific words that appear elsewhere on signs, labels, drawings, and the like, use quotation marks. *Do not* use all-capitals, bold typefaces, or similar typographic features for added emphasis. *Examples:*

Mark each drawing "final."

Submittals will be marked "approved," "approved as corrected," or "not approved."

Mark the pull box covers "WYDOT Traffic Signal" when the box contains traffic signal conductors.

Letters as Shapes

Type letters used as shapes in a sans serif font, such as Arial. Do not use quotes around the letter. Link the letter and following word with a hyphen if warranted. *Examples:*

U-shaped staples
an A-frame structure
I-connector
O-ring
a J-seam
Y-connector
U-bolts
an S curve
H-pile

To make letters used as shapes plural, add and "s" and no apostrophe. *Example:* Vs, not V's.

Parentheses

Use parentheses to insert and set off additional information relevant to the sentence. Do not use dashes for this purpose in *Standard Specifications* (because of the possibility of confusion with the minus sign or similar marks or symbols). *Example:* Nut rotation is relative to the bolt regardless of the element (nut or bolt) that is turned.

Parentheses are also used to insert and set off counterparts or equivalencies, such as chemical formulas. *Example:* Conform to the requirement for chrome oxide (Cr_2O_3) green.

Place commas, semicolons, periods, or other punctuation that the main sentence might need *after* the closing parenthesis mark.

6 Capitalization

General

Aim for consistency, especially within specifications. For situations not addressed in this *Guide*, consult chapter 8, "Names and Terms," of *The Chicago Manual of Style* or chapter 3, "Capitalization Rules," in the *United States Government Printing Office Style Manual, 2008*.

Avoid over-capitalization. Excessive capitalization slows reading and reduces the very emphasis capitalization is meant to achieve.

Specific

Capitalize the following words or categories of specific names and things:

ACRONYMS and INITIALISMS

Bid and pay item names in the "Measurement and Payment" subsections; *Examples:*

Liquid Asphalt
Structural Steel
Sign Posts, Wood

Document titles; *Examples:*

the Engineer's Weekly Report
Certificate of Compliance

Laws and legislative acts; *Examples:*

the Wyoming Seed Law
the Federal Seed Act
Clean Air Act
Wyoming Statute 11-14-101

Official titles; *Example:*

the State Bridge Engineer
Program (when referring to specific programs within WYDOT); *Examples:*

Field Operations Program
Highway Development Program
Materials Program
Traffic Program

Proper nouns

Titles of sections, subsections, tables, and figures in *Standard Specifications*; *Examples:*

Measure pipe in accordance with Section 603, Culverts and Storm Drains.
Apply at the rate specified in Subsection 513.4.13, Curing Concrete.
Remove forms and supports in accordance with Table 513.4.14-1, Minimum Times for Forms and Support Removal.

Do not capitalize:

bidder
class (when referring to a designated class of material; *e.g.*, class A concrete)
commission (when referring to the Wyoming Transportation Commission)
contractor
department (when referring to WYDOT)
district (when referring to the districts of WYDOT)
district engineer
engineer
fabricator
federal
federal-aid
grade (when referring to a designated grade of material; *e.g.*, grade No. 1 timbers)
inspector
plans
portland cement
professional engineer
special provisions
specification
subcontractor
type (when referring to a designated type of material; *e.g.*, mulch tack, type M)
work (even when referring to the defined term)

7 Lists

General

Lists may be used at any subsection level, when logically appropriate. Number each item in a list, starting with the numeral 1, followed by a period.

For each numbered item within a list, one secondary level of sublists may be used. Number each item within a sublist, indicating first the number of the parent item in the primary list, followed by a period, and then starting with the numeral 1, followed by a period. *Example:*

SECTION 507
Reinforced Bridge Approach Fills . . .

507.1 DESCRIPTION

507.2 MATERIALS

507.3 EQUIPMENT

507.4 CONSTRUCTION

507.4.1 Reinforced Bridge Approach Fills

1 Submit a sample of the embankment-and-retaining-wall-reinforcement geotextile to the engineer at least two weeks before intended use . . .

2 Place perforated and nonperforated pipe along the base of the abutment backwall and sloped to drain. If necessary to ensure proper drainage, extend the pipe through the abutment wing-wall . . .

1. First item in a hypothetical primary list, if needed.
2. Second item in primary list, if needed.
    2.1. First item in secondary list, if needed.
    2.2. Second item in secondary list, if needed.
3. Third item in primary list, if needed.

507.4.2 Concrete Approach Slabs

507.4.3 Foundations

507.5 MEASUREMENT and PAYMENT

Punctuation

1. When the items in an enumerated list are made up of single items or groups of items, end each list item with a semicolon. Many times these lists are preceded by a colon. Include either an "and" or an "or" following the last semicolon in the list. *Example:*

[2] At a minimum, address the following topics:

1. Testing personnel and their qualifications;
2. Equipment;
3. Time frames of correlation testing;
4. Test intervals;
5. Variables or options allowed by testing procedures (i.e., shaking time for sieve analysis, core drying, and soaking times, etc.); and
6. Where and how referee samples will be stored.

2. When the items in an enumerated list are incomplete sentences, use a semicolon at the end of the list item. These may also be preceded by a colon and should include either "and" or "or" after the last semicolon. *Example:*

[1] Install backer rod only when

1. AASHTO M 301 WY Modified sealant is specified;
2. Final width of crack or reservoir exceeds ⅜ in [10 mm]; and
3. Full depth of crack, including routed reservoir if applicable, exceeds 1½ in [38 mm].

3. If there are only two items in an enumerated list that would usually require a semicolon after the item, end the first item with only an "and" or an "or" with no punctuation before it. *Example:*

3 Provide luminaire mounting configurations that

1. Are predrilled for mast arm attachments and supplied with mast arms or
2. Have hot-dip galvanized tenons epoxy-bonded to the fiberglass shaft.

4. Use a period at the end of an enumerated list in which the list items are complete sentences. *Example:*

1 Mix mulch tack type MC in the following sequence:

1. Fill application equipment with one-third of the water required and start mechanical agitation.
2. Slowly pour the mucilage-gum powder into the tank agitating source. Add the remaining water.
3. Add wood fiber, seed, and fertilizer as specified. Continue agitation for approximately five minutes before application.

5. Use a period at the end of enumerated list items when the list includes long items that contain a complete sentence. When this applies to one item in the list, end all items in the list with a period. *Example:*

> [10] When specified, or approved by the State Bridge Engineer, use oversize, short-slotted, and long-slotted holes in accordance with the following:
>
> 1. With ⅝-inch [16 mm] diameter and larger high-strength bolts.
> 2. Oversize holes in any or all plies of friction-type connections.
> 3. Short-slotted holes in any or all plies of friction- or bearing-type connections. Align slots normal to the direction of loading in bearing-type connections.
> 4. Long-slotted holes in one of the connecting parts of a friction- or bearing-type connection at an individual faying surface.

6. End the items in an enumerated list with a period when the listed items contain a bolded introductory element, usually followed by a period. *Example:*

> [4] Seal cracks so that the finished, cured surface is to the configuration specified:
>
> 1. **Flush Configuration.** Flush with the pavement and is not recessed into the crack by shrinkage.
> 2. **Recessed Configuration.** Recess below the pavement ¼ in [6 mm]. Do not use squeegees or wands with a 2-inch [50 mm] inside diameter cup.

7. Use a period at the end of each enumerated item in all "Measurement and Payment" sections.

8. Do not create a list that consists of only one item. Instead, incorporate that item into the referencing sentence. *Example:*

> [4] Provide carpet material that will create an acceptable texture and is in accordance with the following:
>
> 1. The carpet does not roll or tear the surface.
>
> *Replace with:*
>
> [4] Provide carpet material that will create an acceptable texture and does not roll or tear the surface.

Structure

Use parallel structure when creating lists by beginning each item in a list with the same part of speech—noun, verb, adjective, etc. *Example—each enumerated item begins with a verb:*

3 The use of alternative methods or equipment resulting in work that fails to meet contract requirements may lead the engineer to, in writing:

1. Direct a stop to their use;
2. Order the completion of remaining work using the original specified methods or equipment; or
3. Require the removal of the unsatisfactory work.

Example—each enumerated item begins with a preposition:

5 During suspensions, at no additional cost to the department, store materials and equipment:

1. Outside the clear zone;
2. As far from the travel way as possible; and
3. At a location that will not cause maintenance or safety problems for the roadway.

8 Tables, Figures, and Forms

General

Keep tables and figures as simple as possible, both in layout and content. Display information so that it can be grasped quickly and without confusion. For additional guidance on the format and design of tables, consult chapter 3, "Illustrations and Tables," of *The Chicago Manual of Style* and chapter 13, "Tabular Work," in the *United States Government Printing Office Style Manual, 2008*.

Tables

Number all tables, with the number itself preceded by the word "Table." Use the subsection number, followed by a hyphen and the number of the table within the subsection, starting with numeral 1. Begin renumbering with each new subsection. Number tables only out to the third set of digits. *Example:* Table 000.0.0-0, not Table 000.0.0.0-0.

Give every table a title; capitalize the first letter only of all significant words. Do not place a period at the end.

Center table, number, and title horizontally on the page. Place the table number and title each on its own line, and set both in bold-faced, 12-point Arial type. Set the table number above the title, and place both *above* the table.

Use 11-point Times New Roman type for table text, and make column headers bold.

Use internal vertical grid lines on tables with more than two columns, and use horizontal grid lines for all tables. Use a single, 1-point line for the very top and bottom grid lines, as well as the grind line under the column headers. Make internal horizontal lines of a ¼-point thickness. Leave the left and right sides of the entire table without grid lines. *Examples:*

Table 210.5.1-1
Backhoe Pay Factor

Backhoe Type	Pay Factor
I	1.0
II	1.15
III	1.0
IV	1.15

Table 607.4.2-1
Length of Wire Gates

Location	Length ft [m]	Gate Sticks (equally spaced)
Approaches	16.5 [5.0]	4
Gates used by large farm and ranch machinery	20 or 24 [6.0 or 7.2] (as specified)	5
Separation structures and wing fences	12.0 [3.6]	3
Pedestrian access	4.5 [1.4]	2

In text, refer to tables by number and title. *Example:* See Table 607.4.2-1, Length of Wire Gates.

Figures

Number all figures, with the number itself preceded by the word "Figure." Use the subsection number, followed by a hyphen and the number of the figure within the subsection, starting with numeral 1. Begin renumbering with each new subsection.

Give every figure a title; capitalize the first letter only of all significant words. Do not place a period at the end.

In text, refer to figures by number and title. *Example:* See Figure 513.4.2-2, Evaporation Nomograph.

Center figure, number, and title horizontally on the page. Place the figure number and title each on its own line, and set both in bolded, 12-point Arial type. Set the figure number above the title, and place both *below* the figure.

Example:

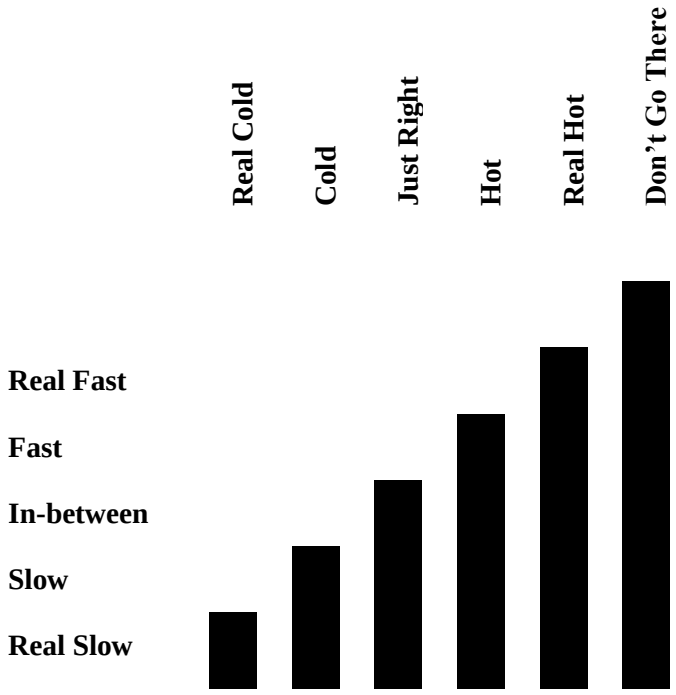

Figure 513.4.2-2
Evaporation Nomograph (Adapted)

Forms

When referencing specific forms, give both the full form title and number. Place quotation marks around the title of the form, and follow it with the word "Form" and the appropriate number in parentheses. *Example:* The engineer and the contractor may negotiate new unit or lump sum prices by using a "Contract Amendment" (Form E-61) before the work is performed.

The word "Form" and the number may be used alone *only* upon second reference within the same paragraph as the initial full form title and form number.

9 Wording of Specifications

General

Use the simplest language that says clearly and accurately what needs to be said. Write as if you were speaking or giving directions aloud. Avoid jargon, contorted wording, and pseudo-legalisms. Use terms with legal meanings only on advice from counsel.

Active Voice

Voice is a property of verbs that indicates whether the subject of the sentence acts or is acted upon–either *active* or *passive*. In the active voice, the subject is the doer of the act, and the verb makes clear within the sentence who is doing what. That is, the active voice leaves no doubt who is responsible for the action described. When feasible, keep sentences as simple as possible by using one-word verbs. *Example:*

The department specifies the dimensions.

The department did the deed, and the verb *specifies* says in one word what the department did. However, occasionally the verb in the active voice requires a helping verb to complete the action or intention. *Example:*

The engineer may test for consistency of individual loads.

In this case, using the one-word verb *tests* would not completely convey the intended meaning of the sentence. *May* here indicates that it is at the engineer's discretion if he or she will test the loads. Remember, this sentence is still in the active voice because the doer of the action is conducting the action and appears in the sentence .

In contrast, sentences in the passive voice needn't say anything about the doer of the action. Responsibility does not have be to assigned. In addition, verbs in the passive voice always need help, and even at their simplest, they always must be accompanied by a form of the verb *to be* (which includes *is*, *was*, *will be*, *shall be*, etc.). *Example:*

The concrete was ordered.

The contractor may have done it, but we don't know; the sentence doesn't say. Furthermore, the passive *ordered* must be helped by *was*. These are the traits of a sentence in the passive voice: the verb is packaged in a phrase with a form of *to be*, and the doer of the action does not have to

be identified. (If the doer is identified, the identification comes after the verb in a phrase that begins with *by*. For example: *The concrete was ordered by the contractor*.)

The active and passive voice each have their uses. The active voice is best used when it is important to identify the party responsible for the action in a sentence. *Example:*

Weigh masters will determine tonnage.

The passive voice is appropriate when the action is more important than the doer. *Example:*

Tonnage will be determined.

As a general rule for writing in *Standard Specifications*, and except as noted elsewhere in this *Guide*, use the active voice rather than the passive.

Imperative Mood

Mood is a property of verbs that conveys the writer or speaker's belief about the truth or nature of the sentence—whether it is meant to be a command, a fact, or conjecture. There are three verb moods in English: imperative, indicative, and subjunctive.

The *imperative mood* is used to give a command or instruction. A distinctive feature of statements in the imperative mood is that they leave out the subject of the sentence—that is, the subject is understood but never stated. *Example:*

Order the concrete.

This sentence is written in both the active voice and the imperative mood. Because the *Standard Specifications* (Subsection 101.1, Active Voice and Imperative Mood) already makes clear who the direction is addressed to, the party responsible for carrying out the directive—the contractor—does not need to be stated. The complete sentence is understood to be:

[Contractor,] order the concrete.

The second type of verb mood is the *indicative mood*, which is used to indicate statements of fact and description. The indicative mood is used frequently in the *Standard Specifications*. In the following example, the statement is intended as a simple description of what is, or is meant to be, and the verb *will establish* is in the indicative. (Because most verbs have voice and mood at the same time, the sentence is in both the indicative mood and the active voice.) *Example:*

The engineer will establish right-of-way and constructions lines.

The final mood type is the *subjunctive mood*. Because it is used to convey doubt or conjecture or to pose a "what if" situation, the subjunctive mood is rarely used in the *Standard Specifications*. *Example:*

If slotted or oversize holes were specified, the contractor would use hardened flat washers.

Voice and Mood in *Standard Specifications*

When giving instructions to the contractor, use the *active voice* and *imperative mood*. *Examples:*

Furnish and install high strength fasteners for structural connections.
Meet the requirements of Section 413, Hydrated Lime.
Give two copies of the completed form to the engineer.
When using mineral filler, provide an additional bin.

To provide information, use the indicative mood. In most situations, use the combination of *active voice* and *indicative mood. Examples:*

The state retains ownership of salvaged materials.
The department will not accept computer printouts for design calculations.

When the emphasis is on a condition or situation, the *passive voice* and *indicative mood* may be most appropriate. *Example:* Approximate areas are shown in the contract.

Description Subsection

The purpose of this subsection is to describe the work identified in the section title and addressed by the remainder of the section. Use the active voice and indicative mood. *Example:*

000.1 DESCRIPTION
1 This section describes the requirements for constructing or modifying bridge, pedestrian, or approach railings.

Do not use phrases such as "… in accordance with these specifications and as shown on the plans." This point is covered in Division 100, General Provisions, and need not be repeated.

Material Subsection

This subsection provides the requirements for the materials that must be used to accomplish the work addressed in the section. Use the active voice and imperative mood. Arrange material items alphabetically. *Example:*

000.2 MATERIALS

1 Provide materials in accordance with the following:

Materials	Subsection
Aggregates	000.0
Emulsified Asphalt	000.0

2 Stockpile aggregates in accordance with Section 000, Stockpile Maintenance.

Equipment Subsection

This subsection provides equipment requirements needed to accomplish the work addressed in the section. Use the active voice and imperative mood. *Example:*

000.3 EQUIPMENT

1 Support pile hammers in leads when driving piles. Construct leads to permit free movement of the hammer and rig to hold the pile and hammer in alignment during driving. Use steam, air, or diesel hammers capable of delivering enough energy to drive the piles to the required bearing capacity. Do not use gravity pile hammers.

Construction Subsection

This subsection provides information on how to accomplish the work addressed in the section. Use the active voice and imperative mood. *Example:*

000.4 CONSTRUCTION

1 Apply paint on clean, dry surfaces. Do not apply when the temperature of the steel or paint, or the air temperature is below 40 °F [4 °C]. Do not apply to wet, damp, frosted, or ice-coated surfaces.

Measurement and Payment Subsection

This subsection provides information on how WYDOT measures items for payment and pays for measured items.

For the measurement portion of the subsection, use the active voice and indicative mood to introduce the engineer as the party responsible for measurements; extended discussion of measurement may then be continued in the passive voice. Number each group of items that are measured using the same unit of measurement. Use full, spelled-out names for measurement units. Capitalize the names of bid and pay items.

For the payment portion of the subsection, use the active voice and indicative mood. List pay items alphabetically. Use the symbols shown in Table 109.1.2-1, Unit Symbols for Bid and Pay Items, giving the inch-pound symbol first, followed by the SI counterpart in brackets. *Example:*

219.5 MEASUREMENT and PAYMENT

1 The engineer will measure:

1. Driven Anchors and Grouted Anchors by the each.
2. Rockfall Mesh by the square yard [square meter] complete in place.

2 The department will pay as follows:

Pay Item	Pay Unit	Measure to the Nearest	Pay to the Nearest
Driven Anchors	EA [Ea]	EA [Ea]	EA [Ea]
Grouted Anchors	EA [Ea]	EA [Ea]	EA [Ea]
Rockfall Mesh	SY [m^2]	0.1 ft [0.05 m]	SY [m^2]

Do not list what work is included in the payment for the item in this subsection because the work is already described in the construction subsection of the section.

If the work is described in the construction subsection, but it is not intended to be paid for under the listed pay item, use Subsection 000.5.2, referenced sections for direct payment to indicate where in the *Standard Specifications* this particular work is to be paid.

10 Other Wording and Usage

General

Choose the wording that says most clearly and efficiently what needs to be said. Say no more than that, but say exactly that.

Needless Words and Jargon

Many words serve only as filler. Their use adds clutter and can hinder a reader's ability to grasp what's important. Omit words that do not add meaning. Favor a single word over a phrase. Avoid jargon.

Alternatives to Common Wordy Phrases

Instead of . . .	Use or Consider . . .
a minimum of	at least
absolutely essential	essential
ambient, atmospheric	air
as may be necessary	as necessary
at a later date	later
commence	begin (or start)
cost thereof	cost of
dispose of at a contractor-furnished site	becomes the contractor's property
enclosed herewith	enclosed
fails to	does not
give due and sufficient written notice	give written notice
impracticable	impractical
in order to	to
in lieu of	instead of
in the event of	if
in advance of	before
job site	project
practicable	practical
prior to	before
through the use of	by
until such time as	until
utilize	use
worksite	project

Words and Phrases Not to Use

Many of the words or phrases in the following list add no meaning, add confusion, or introduce passages that are unnecessary because the same information is covered elsewhere in *Standard Specifications*, usually in Division 100, General Provisions.

Do Not Use
"as shown on the plans" or similar wording
"as approved by the engineer" or similar wording
"at the contractor's expense"
"care shall be taken"
"conformance"
"contract item"
"in the plans"
"in the specifications"
"neither … nor"
"permit" when used to mean "allow"
"pertinent"
"special attention of the contractor"
"subsidiary"
"the attention of the contractor is directed to …"

Usage of Specific Words or Phrases

And/Or. This construction is awkward and confusing. Write "red, blue, or both" *not* "red and/or blue." *Example*, "Fabrication includes . . . other inserts, sleeves, or both"; *not* "Fabrication includes . . . other inserts and/or sleeves."

Appropriate. Use instead of "pertinent" for stating or attaching relevant information. *Example:* "Include material thicknesses and other *appropriate* data needed for fabrication."

As shown on the plans. This phrase is generally unnecessary because the contractor's obligation regarding plans is specified in Subsection 105.3, Conformity with Contract.

As specified in. Use instead of "as described in," "as designated in," "as indicated in," "pursuant to," or similar phrases that reference provisions of a specification.

At no additional cost to the department. Use instead of "at the contractor's expense."

Bid item. As defined in Section 101, Definitions and Terms, for use *before* a contract is signed; use instead of "contract item," "contract bid item," or similar phrases. *After* a contract is signed, use "pay item."

Conform, Conforming, and Conformance. Use "accordance" or "in accordance with" instead of "conformance." *Example:* "Provide magnesium sulfate in accordance with AASHTO T 104." The word "to" always follows "conform"; "conforming" is followed by "to" or "with."

Ensure vs. Insure vs. Assure. These are three different verbs with three different meanings. In *Standard Specifications*, the correct word will almost always be "ensure," which means "to make sure of" (*Example:* Extend the pipe to ensure proper drainage). Use "insure" only when speaking of the sort of financial protection offered by insurance companies. "Assure" is only used when giving reassurance to another person, as in "Let me assure you that . . ."

In the contract. Use instead of "in the specifications" or "on the plans."

Incidental. Use instead of "subsidiary." *Example:* "When the contract does not contain pay items for the removal of structures and obstructions, including culverts and storm drains, that work is incidental to the contract work."

May. Use as appropriate instead of "exercise its option to," "reserve the right to," or similar phrases that describe a party's prerogatives.

Pay item. As defined in Section 101, Definitions and Terms, for use *after* a contract is signed; use instead of "contract item," "contract pay item," or similar phrases. *Before* a contract is signed, use "bid item."

Shall. The use of the imperative mood should eliminate the need for "shall." Use "will" to indicate something the department will execute.

Shop drawings. Use instead of "working drawings" or "shop or working drawings." Shop and working drawings are the same thing, and the department calls them "shop drawings."

Quantity vs. Amount. Use "quantity" for materials. Use "amount" for money.

That vs. Which. "That" and "which" are often used as if they are interchangeable. They are not. "That" is properly used to introduce information or a phrase that is essential to the meaning of a sentence. "Which" introduces information that is *not* essential to the meaning of a sentence. If, without changing the meaning of the sentence, a comma can be placed before

the word you want to use ("that" or "which") the correct word is "which." If a comma would change the meaning, the correct word is "that."

Hyphenation, Word Separation, and Standard Phrasing

English changes over time and words that are commonly used together tend to migrate, first staying paired but separate, then finding frequent use with a linking hyphen, then joining eventually into a single word.

It can be hard to know where in this progression a word pair or phrase may be. Some common combinations are shown below in the form they should be used in *Standard Specifications.* For further guidance, consult chapter 7, "Spelling, Distinctive Treatment of Words, and Compounds," in *The Chicago Manual of Style* or chapters 6 and 7, "Compounding Rules" and "Compounding Examples," in the *United States Government Printing Office Style Manual, 2008*.

Hyphenated Words, Compound Words, Word Separation, and Standard Phrasing for use in *Standard Specifications*

Instead of . . .	Use . . .
&	and
air entraining	air-entraining
attaining	obtaining
center line	centerline
cross section	cross-section
edge line	edgeline
guard rail	guardrail
high-early-strength	high early strength
pre-construction	preconstruction
right of way	right-of-way
steel wheel	steel-wheel
straight edge (the tool)	straightedge
sub-base	subbase
water reducing	water-reducing
work force	workforce
work site	worksite

Cross-References

Refer to sections or subsections of *Standard Specifications* by number and title. Capitalize the words "section" and "subsection" when making such a reference. Follow the number with a comma, and enclose the title between commas if reference is in the middle of the sentence. *Example:* The engineer will evaluate the gradation for chip seal aggregate in accordance with Subsection 113.1, Acceptance of Aggregate, and adjust payment accordingly. Follow title with a period if it ends the sentence. *Example:* Cure precast concrete members in accordance with Subsection 513.4.13, Curing Concrete.

Be as specific as necessary in making cross-references but no more so.

Mailing Address for WYDOT

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Cheyenne, WY 82009-3340

11 Microsoft Office Word "Comments"

General

Writers and reviewers working on *Standard Specifications* may have comments or questions they would like addressed by others, or they may want to insert documentation for archival purposes. The easiest way to do this is by using Word's "comment" feature. All computer instructions in this *Guide* apply to Word 2007.

Depending on a user's needs, comments can be hidden completely or displayed in full in the right or left margin or below the text. Comments can be read and addressed directly on the screen, and they can be printed.

Preparing the "Comments" Feature

Comments are made and viewed under the Review tab, but the file must be in the Print Layout view to work with comments. In the View tab, ensure the Print Layout button is activated in the Document Views group. Do the following to see the comments in a file:

1. Click the Review tab. In the Tracking box, click on the top down arrow, and choose either Final Showing Markup or Original Showing Markup. To hide the comments, choose either Final or Original.
2. Click the Show Markup down arrow to choose the items that will be shown in the comments. Ensure the Comments box is checked.
3. Also under the Show Markup arrow, Reviewers allows the user to choose any or all reviewers whose comments may be seen. Reviewers are each given a different color comment balloon and are shown by their names or initials.
4. All comments are given a number and appear in numerical order. As new comments are added, comment numbers adjust so that they remain in numerical order.

To change comment balloon color:

1. In the Review tab, click on Track Changes, Change Tracking Options.
2. Under Markup, click on the Comments dropdown arrow, and choose a new color from the color palette.

To see a reviewer's name and the date and time a comment was made or last updated, point the cursor to either the comment balloon or the commented text.

Using “Comments”

To add a comment:

1. Place the cursor in the text or highlight the text to be commented upon.
2. In the Review tab, click on New Comment in the Comments group. Type comment in the bubble that appears. Comments can be endless, but it’s best to keep them short and to the point.
3. Click outside the comment bubble to end that comment.

To edit an existing comment:

1. Click in a comment bubble to edit that comment.
2. Edit the comment as you would any Word text. Right-clicking on a comment bubble will allow the reviewer to change the comment font, font size, font color, and many other formatting attributes.
3. Click outside the comment bubble once the editing is done.

To reply to a comment:

1. Click in or highlight the comment you want to reply to, and click on the New Comment button in the Comments group.
2. A new comment bubble will appear. Type in reply.

To delete a comment:

1. Right-click on the comment bubble and choose Delete from the dropdown menu to delete that comment bubble.
2. Or, click on the comment bubble and then click on the Delete button in the Comments group. This gives the reviewer the option to delete this comment or all comments in the document.

To print a document with or without comments:

1. Click on the Windows button and go down to Print and then over to Print.
2. In the Print dialog box, go down to the “Print what” dropdown menu. To print the document *without* the comments, choose “Document.” To print the document *with* the comments, choose “Document showing markup.”
3. Continue printing as usual.

12 Conversion Chart

Use this chart to convert U.S. customary measurements to their SI (metric) equivalents.

U.S. Customary	SI
1/16 in	2 mm
⅛ in	3 mm
¼ in	6 mm
5/16 in	8 mm
⅜ in	10 mm
½ in	12 mm
⅝ in	16 mm
11/16 in	17 mm
⅞ in	22 mm
1 in	25 mm
1½ in	38 mm
2 in	50 mm
1 ft^2	0.093 m^2
1 gal	3.8 L
1 HP	0.8 Kw
1000 BTU	1.06 MJ
1 lb	0.45 kg
(t °F - 32)/1.8	t °C

13 Specification Writer's Checklist

Use this checklist to verify that the many common problems in specification writing are addressed and corrected. Page numbers pertaining to the specific portions of this *Guide* are provided in parentheses.

☐ Verify that references to numbers and titles of sections, subsections, forms, and figures from *Standard Specifications* are correct and are correctly capitalized and punctuated (pp. 3, 25-26, 34-35).

☐ Ensure that abbreviations and acronyms are accurate and current and are used only when appropriate (pp. 5-9).

☐ Use correct symbols for measurement (pp. 12-13).

☐ Use correct symbols for bid and pay units (p. 11).

☐ Use correct mathematical signs and symbols (p. 15).

☐ Do not use a period after a symbol, except at the end of a sentence (p. 14).

☐ Punctuate lists consistently (pp. 28-30).

☐ Avoid overcapitalization (pp. 25-26).

☐ Format tables consistently (pp. 32-33).

☐ Phrase sentences in the active voice (state the doer of the action) and imperative mood (give direct instruction to the contractor) (pp. 36-38).

☐ Avoid unnecessary words and jargon (pp. 41-42).

☐ Ensure materials and pay item lists are in alphabetical order (p. 40).

☐ Ensure all decimal points in numbers are not "naked" —have numerals on both sides (p. 18).

☐ Ensure U.S. customary measurements are followed by SI (metric) conversions in brackets (pp 11-13, 40), and ensure conversions are accurate (p. 48).

☐ Ensure references to document titles are italicized (*Standard Specifications*, *Materials Testing Manual*, *Survey Manual*, etc.).

☐ Use Word's spell check feature to check for spelling errors.