

Specification Writers' Style Guide



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1: Overview

1.1 General

This *Guide* provides instructions for writers contributing to the Idaho Transportation Department's *Standard Specifications*, standard special provisions, and special provisions. The information included here constitutes the Department's approved guidelines for matters of writing style, word and number usage, and formatting.

For questions not addressed here, consult *The Chicago Manual of Style, 15th Edition* (or more recent); the *United States Government Printing Office Style Manual, 2000* (or more recent); the various specialized sources cited throughout this *Guide*; or a recent standard dictionary of American English. Chapter 14 of this *Guide* gives additional information about these and other supplementary sources.

1.2 Purpose of the Style Guide

The Department republishes its *Standard Specifications* periodically and reviews proposed changes twice a year.

The Department has eliminated the use of dual units (i.e. metric units are not included). This *Guide* gives dimensions in U.S. Customary units known commonly as “the English System.”

The *Guide's* goal is to help writers achieve consistency and to clearly identify the roles and responsibilities of the parties involved in a contract. The *Guide* encourages the increased use of the active voice in the Department's specifications and points out opportunities to reduce repetition.

1.3 The Active Voice

The *active voice* is a powerful tool for enhancing clarity. Later chapters of this *Guide* explain this grammatical term more fully. But in brief, the active voice forces a writer to identify within a sentence who is responsible for what. For example, a sentence in the passive voice that says:

Stockpiling of material on the finished pavement and drifting of material across the pavement will not be permitted. The finished pavement shall be cleaned of all dirt and foreign material.

in the active voice might instead say:

The Department will not permit stockpiling or drifting of material on or across finished pavement. The Contractor shall clean dirt and foreign material from the finished pavement.

While making the passage 10 percent shorter, the version in the active voice also adds two pieces of information: *Who* will not permit stockpiling (the Department), and *who* will clean the pavement (the Contractor). Used well, the active voice adds clarity, fixes responsibility, and lessens a reader's burden by simplifying sentence structure and eliminating words.

1.4 Consistency

Ideally, standard specifications should be expressed in a *standard* fashion. Standard specifications use different schemes for numbering sections; multiple forms of reference for the same reference; and multiple citation styles. The following examples are among the varying expressions of allowable tolerances around a specified percentage:

reducing voltage to 50 percent, ± 5 percent, for nighttime use
reduce to 15 ± 2 percent of maximum intensity
shall not change in viscosity by more than ± 15 percent when stored
the spreading rate shall not vary by more than 10 percent of the rate designated
the zero tolerance for scales shall be 0.05 percent of the total batch weight
scales shall have a zero tolerance of ± 0.5 percent of the designated total batch weight

Greater consistency will result in better specifications, improved communication, and less likelihood of disputes.

1.5 Reduced Repetition

Section 100 of the ITD *Standard Specifications* constitutes the "General Provisions." Unlike the *Standard Specification's* many remaining sections, which describe the technical requirements for various aspects of construction and may or may not pertain to a particular project, the general provisions apply to and set the rules for the rest of the contract. They act as an umbrella, setting forth the means and procedures by which the details elsewhere stated in the contract will be implemented. As a result, what is stated in the general provisions need not be repeated elsewhere in the specifications.

For example, three related passages in the general provisions (using citations to the 2004 Edition of the *ITD Standard Specifications*) are as follows:

101.02 Contract

The written agreement between the state and the Contractor covering the performance of the work

104.01 Intent of Contract

The intent of the contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the plans, specifications and terms of the contract.

109.02 Scope of Payment

The Contractor shall accept the compensation as herein provided in full payment for furnishing all necessary materials, labor, tools, equipment and incidentals to complete the work, and for performing all work under the Contract; also for all loss or damage arising from the nature of the work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the work until its final acceptance by the Engineer.

Together, these clauses clearly say that the contract means the contractor is obligated to do and provide everything needed to get the work done and that the Department's payment constitutes payment in full for that completed work. Nonetheless, the first sentence in Section 109.02 is repeated multiple times in the technical sections of the *2004 ITD Standard Specifications*. For example, Section 640.05 includes the following:

640.05 Basis of Payment

Payment for the above items will comprise full compensation for all materials, labor, equipment, tools, and incidentals, necessary to complete the work specified under this section.

This repetition is both unnecessary and counterproductive. It hinders comprehension because of the added mass of verbiage it creates. A person standing alone on an empty field is easily spotted and, if the person has something to say, heard. But the same person with the same message will be lost and never heard if standing in the midst of a noisy crowd on that same field.

More importantly, the pervasive repetition in the previous *Standard Specifications* can create as many, or more, opportunities for misunderstanding — and dispute — as it is likely to prevent. For example, the repetition of the first sentence in Section 109.02, in Section 104.01, and elsewhere invites the question of whether Section 109.02 actually means anything with respect to the countless clauses and instances of prescribed work for which it is not repeated. Does the sentence apply only when expressly stated in a narrowly circumscribed technical provision? — in which case it needn't be said in the general provisions' Section 109.02. Does it apply only when repeated? Or does it apply even without repetition?

To eliminate such questions, to strengthen the basic message ("the contractor is obligated to do and provide everything needed to get the work done ..."), and because the general provisions do apply to the rest of the contract, this *Guide* provides instruction on the elimination of repetition in the technical sections of statements already made in the general provisions.

2: Organization of *Standard Specifications*

2.1 General

The *Standard Specifications* contain 102 sections. The first nine are the "General Provisions." The remaining sections (201–720) describe the technical specifications for construction. Sections contain varying numbers and levels of subordinate sections. Use only as many subordinate numbers and levels of sections as needed.

2.2 Numbering Sections

Type section numbers and titles in **bold typeface**. Use all capitals in first-level sections. In second- and lower-level sections, capitalize the first letter of all significant words. Place section titles on separate lines above their following text. Do *not* put a period after the last digit of a section number, or after the title. Use and combine the numbering and headings as follows:

Table 2.2-1
Section Numbering

Numbering	Digits/Characters	Section level	Typography
###	3	1 st -level	BOLD, ALL CAPITALIZED
###.##	2	2 nd -level	Bold, Initial Letters Capitalized
A.	1	3 rd -level	Bold, Initial Letters Capitalized
1.	1	4 th -level	Bold, Initial Letters Capitalized
a.	1	5 th -level	Bold, Initial Letters Capitalized

Do not introduce a "General" heading unless two or more associated same-level headings exist.

2.3 Technical Sections (201–720)

Use content-specific headings. Five 2nd-level sections compose the basic elements of a technical section:

- ###.01 Description**
- ###.02 Materials**
- ###.03 Construction Requirements**
- ###.04 Method of Measurement**
- ###.05 Basis of Payment**

As needed, the 2nd-level sections may contain varying levels of subordinate sections with titles, as in an outline.

Example:

<p style="text-align: center;">SECTION 203: REMOVAL OF OBSTRUCTIONS</p> <p>203.01 Description</p> <p>203.02 Materials</p> <p>203.03 Construction Requirements</p> <p style="padding-left: 2em;">A. General</p> <p style="padding-left: 2em;">B. Removal of Bridges, Culverts, and other Drainage Structures</p> <p>203.04 Method of Measurement</p> <p>203.05 Basis of Payment</p>
--

2.4 Formatting Definitions

Define key terms before they are used. Type the term to be defined; capitalize the first letter of significant words, and set the defined term in **Bold type**. Place a period after the defined term, then turn off the **Bold** option (by clicking the boldface capital **B** on the font toolbar) and enter an em space after the period. Write out the definition for the term in ordinary (roman) text and, using appropriate punctuation, then press "enter".

 In Microsoft Word, to create an em space:

1. Open the *Insert* menu, and in the *Symbols* section select *Symbol*, and *More Symbols*.
2. Click the *Special Characters* tab.
3. Highlight *em space* to select, then click *Insert*. Click Cancel to exit the *Symbol* window.

Example:

101.04 Definitions

Where the following terms are used in the contract documents, they imply the following meanings:

Acceptance testing. Samples and tests that are conducted to determine whether the **Department** will accept a product or service for payment.

In definitions, put the first usage of another defined term in **Bold Typeface**. Use normal text for repeated occurrences of the same term.

Example:

Change order. A written order to the **Contractor**, detailing changes to the specified **work** quantities or modifications within the scope of the **contract**, and establishing the basis of payment and time adjustments for the work affected by the changes.

3: Citing Laws and Regulations

3.1 General

The specifications may refer to laws, regulations, and similar sources of enforcement authority. Using an accurate, properly formatted citation at the outset can help substantially reduce the later chances of misinterpretation or avoidable disputes. Accuracy can be ensured by checking the proposed citation against current, authoritative sources.

Idaho state statutes comprise 73 Titles, the tables of contents and full text for which can be found at <http://legislature.idaho.gov/idstat/TOC/IDStatutesTOC.htm>. State agency rules are officially compiled in the Idaho Administrative Codes, which can be accessed in full-text at <http://adm.idaho.gov/adminrules/agyindex.htm>.

Codified federal law is contained in the United States Code (U.S.C.), which can be accessed in full at <http://uscode.house.gov/usc.htm>. The rules and regulations of federal agencies are available at <http://www.gpo.gov/nara/cfr>, which provides access to the 50 "titles" in the Code of Federal Regulations (C.F.R.).

Assume that your principal reader is a contractor, not a lawyer, and provide references that are maximally useful and minimally cumbersome. Guidance on proper style of legal citations can be found in *The Bluebook: A Uniform System of Citation, 17th Edition* (or more recent), published by the Harvard Law Review Association, Cambridge, MA; or the *ALWD Citation Manual: A Professional System of Citation, 2nd Edition* (or more recent), by the Association of Legal Writing Directors and Darby Dickerson, published by Aspen Publishers, New York, NY.

3.2 Federal Laws

After enactment, federal laws are generally incorporated into the United States Code. Except in parentheses, cite federal laws by using and spelling out the words *title*, *section*, and *United States Code*; do not capitalize the words *title* or *section* unless otherwise required by the sentence's structure. Use arabic numerals for the title and section numbers.

Examples:

prosecution under section 1001 of title 18 of the United States Code
Title 31 United States Code section 1352 requires submission of this certificate.

In parenthetical citations give the number of the title first, followed by the abbreviation *U.S.C.*, the section symbol (§) and the section number or numbers.

Examples:

(40 U.S.C. § 333)
(15 U.S.C. § 15)
(40 U.S.C. § 267a)

Use parenthetical citations when first introducing a reference to a federal law with a popular name. Before using a popular name, verify its correct wording as authorized by Congress; the correct popular name may then be reused in the text without repeating the parenthetical citation.

Examples:

Contributions made under provisions of the federal Davis-Bacon Act (40 U.S.C. § 267a) ... This contract incorporates by reference all rulings and interpretations of the Davis-Bacon Act.
under section 4 of the federal Clayton Act (15 U.S.C. § 15)

To avoid confusion, precede the first use of popular names with the lowercase word *federal* unless the national scope of the law is obvious from the name itself. Capitalize the word *Federal* only if it is part of the law's name.

Examples:

the Americans with Disabilities Act (42 U.S.C. § 12111 et seq.)
the Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.)

But:

the federal Clean Air Act (42 U.S.C. § 7401 et seq.)

3.3 Federal Regulations

Include the name of the federal agency responsible for regulatory enforcement; otherwise cite federal agency regulations in the manner used to cite federal laws. The 50 titles of the Code of Federal Regulations are divided into *parts*, which are further divided into *sections*. Except in parentheses, use and spell out the words *title*, *part*, and *Code of Federal Regulations*; do not capitalize the words *title* or *part* unless otherwise required by the sentence's structure. Use arabic numerals for the title and part numbers; the section number, if used, appears to the right of a decimal placed after the part number. In parenthetical citations give the number of the title, followed by the abbreviation *C.F.R.*, the section symbol (§ — which is used in this circumstance even though the enumerated items referred to are parts, and not sections) and the part number or numbers; do not separate the elements with commas.

Example:

The Contractor shall provide and install circuitry in accordance with FCC regulations concerning the emission of electronic noise (47 C.F.R. § 15.101 et seq.).

Or:

The Contractor shall provide and install circuitry in accordance with FCC regulations concerning the emission of electronic noise in title 47 Code of Federal Regulations part 15.

Or:

The Contractor shall provide and install circuitry in accordance with title 47 Code of Federal Regulations part 15.101 et seq. (Federal Communications Commission).

Not:

The circuitry shall meet Federal Communications Commission Title 47, SubPart B, Section 15 regulations concerning the emission of electronic noise.

Example:

deductions as set forth in title 29 Code of Federal Regulations part 3

Not:

deductions as set forth in the Regulations, 29 CFR 3

Use the online Code of Federal Regulations maintained by the U.S. National Archives and Records Administration <http://www.gpo.gov/nara/cfr> to verify the currency and accuracy of citations to federal regulations. Use this same source to verify the correct name of responsible regulatory agency. For example, the "Hazardous Materials Regulations Board" referred to in Section 90-7.01B of the July 1999 *Standard Specifications* was merged into and superseded by the U.S. Department of Transportation's Research and Special Programs Administration (RSPA) in the mid-1970s. The Office of Hazardous Materials Safety oversees and enforces hazardous material regulations and is part of the RSPA.

Example:

The Contractor shall use containers in accordance with federal Office of Hazardous Materials Safety regulations (49 C.F.R. § 100–185).

Not:

The containers shall comply with Department of Transportation Code of Federal Regulations, Hazardous Materials Regulations Board, Reference 49CFR.

4: Wording of Specifications

4.1 General

Use the simplest language that says clearly and accurately what needs to be said. Avoid jargon, contorted wording, and pseudo-legalisms.

4.2 Voice

Verbs have a property called *voice*, which may be *active* or *passive*. Each has its uses. Each can be misused — and improper use can lead to misunderstanding, imprecision, omissions, and disputes.

In the active voice, a verb makes clear *within the sentence* who does what. The active voice leaves no doubt who is responsible for the action described, prescribed, or proscribed. When reduced to their simplest form, another characteristic of verbs in the active voice is their self-sufficiency; one word says it all.

Example (Active Voice):

The Department reserves the right to make changes.

In one word, the verb *reserves* says what the Department does.

In contrast, sentences in the passive voice needn't say anything about the doer. Responsibility does not have to be assigned, because no one performs the action. However, verbs in the passive voice always need help and must be accompanied by a form of the verb *to be* (which includes *is*, *was*, *will be*, *shall be*, etc.).

Example (Passive Voice):

The right to make changes is reserved.

The Department may be doing the reserving, but we don't know; the sentence doesn't say. Furthermore, the passive *reserved* must be helped by *is*. These are the traits of a sentence in the passive voice: the verb is packaged in a phrase with at least two words, and the doer of the action does not have to be identified.

If a sentence in the passive voice does identify the doer, the identification comes after the verb in a phrase that begins with *by*.

Example (Passive Voice):

The right to make changes is reserved by the Department.

4.3 Active Voice

A specification's goal is to be *specific*. Because the active voice clearly identifies the responsible party *and* uses fewer words, it ensures greater specificity than the passive. Therefore, as a general rule for writing in the *Standard Specifications*, use the active voice.

In particular, use the active voice when it is important to identify the party responsible for the action in a sentence.

Examples:

The Engineer will evaluate the request.

The Department will provide sign panels, as specified in the "Materials" section of the special provisions.

Use the active voice to provide information, including definitions.

Examples:

This work *consists* of lining ditches and channels with shotcrete.

This work *consists* of providing and installing corrugated plastic pipe.

The provisions of this section *do not relieve* the Contractor of responsibility for making defective work or materials good.

Ineligible firms *include* the design contractors or affiliates. The Department *defines* an affiliate as a firm subject to control by the same people, through joint ownership or otherwise.

4.4 Passive Voice

After the responsible party has been established within a sentence or paragraph, the passive voice can be effectively used within the same sentence or paragraph to avoid repetition. Situations allowing for application of this technique will most typically occur in lists and in the "Method of Measurement" and "Basis of Payment" sections.

Example:

###.04 Method of Measurement

The Engineer will measure acceptably completed work as follows:

Lime stabilization by the square yard, determined from horizontal measurements of the planned surface of the stabilized material. Lime by the ton in accordance with 109.01.

4.5 Misusing the Passive Voice

A specification's failure to explicitly assign responsibility for a required action can lead to disputes. In a specification, the passive voice is misused when it leaves the responsible party's identity unsaid, implied, or subject to interpretation.

- "shall be considered" (Considered *by whom?*)

Example:

The Department considers the prices paid for contract items to which working drawings relate as full compensation for furnishing the drawings.

Not:

Full compensation for furnishing all working drawings shall be considered as included in the prices paid for the contract items of work to which the drawings relate.

Example:

When daily rates are listed, the Department will consider operation for less than 4 hours as 0.5 day.

Not:

When daily rates are listed, less than 4 hours of operation shall be considered to be 0.5-day of operation.

- "it is understood" (Understood *by whom?*)

Example:

Approval of the working drawings does not relieve the Contractor of the contractual responsibility to successfully complete the work.

Not:

It is expressly understood that approval of the Contractor's working drawings shall not relieve the Contractor of any responsibility under the contract for the successful completion of the work.

Example:

The Department encourages the development and use of new or improved equipment.

Not:

It is to be understood that the development and use of new or improved equipment is to be encouraged.

- materials "shall be" in accordance with ... (This phrasing leaves unsaid *how* the material will come to be in such accordance with the requirement and what relevance that has to the project at hand. What most such statements mean is that *The Contractor shall provide and use materials in accordance with ...*)

Example:

The Contractor shall provide and use true-to-line, twist-free finished members.

Not:

Finished members shall be true to line and free from twists.

Example:

The Contractor shall ensure that bolt holes are:

1. Punched full size,
2. Drilled full size,
3. Subpunched and reamed, or
4. Subdrilled and reamed.

Not:

Bolt holes shall be either punched full size, drilled full size, sub-punched and reamed, or sub-drilled and reamed.

4.6 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 fact, conjecture, or command. There are three verb moods in English.

The *indicative mood* is the most common, and is used to indicate statements of fact and description. In the following example, the statement is intended as a simple description of what is, or is meant to be, and the verb *ordered* 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 Contractor ordered the concrete.

The *subjunctive mood* is little used in works like *Standard Specifications*. It is used to convey doubt or conjecture, or to pose a "what if" situation.

Example:

If the Contractor were to order the concrete now, it would be here after lunch.

The *imperative mood* is used to give a command, direction, or instruction and is the most efficient way to do this in English. The imperative's efficiency is achieved because the person to whom the instruction is addressed is grammatically included in the sentence but is left out of the wording — that is, the subject is understood, but never explicitly stated.

Example:

Order the concrete.

This sentence is written in both the active voice and the imperative mood. It is understood to be a shortened form of a longer sentence that is directed to the Contractor and would read:

[Contractor,] order the concrete.

The Department has adopted this approach.

Example:

Take the following specific actions to implement the nondiscrimination program:

1. Ensure and maintain a working environment free of harassment ...
2. Provide written notification within seven days to the director ...
3. Disseminate the Contractor's equal employment opportunity policy by providing notice ... to unions and training, recruitment, and outreach programs ...
4. Ensure all personnel making management and employment decisions ... are aware of the Contractor's equal employment opportunity policy and obligations, and discharge their responsibilities accordingly.
5. Ensure that ... personnel practices do not have a discriminatory effect ... and that the equal employment opportunity policy and the Contractor's obligations under these specifications are being carried out.

Example:

Form a flat pad with a diameter of 1 in using No. 3 coarse steel wool in accordance with Federal Specification FF-W-1825, *Wool and Gauze, Metallic*. Place the pad on the reflector lens. Apply a load of 50 lb and rub the entire lens surface 100 times.

4.7 Positive Phrasing

Usually, the most accurate, direct way to state a requirement is affirmatively. This is because the exclusion of one possibility may still leave open an infinite number of unmentioned, other possibilities, and because the affirmative statement requires the writer to consider and state exactly what is meant. Say what you want, not what you don't want.

Example:

Retain materials for salvage intact and functioning until the Engineer determines they may be removed.

Not:

Do not remove materials to be salvaged until their use is no longer required as determined by the Engineer.

4.8 Sections in *Standard Specifications*

4.8.1 Description Sections

This section specifically describes the work referred to in the section's title and to which the rest of the section's requirements pertain. Use the active voice and imperative mood.

Example:

XXX.01 Description

Apply a dust palliative to prevent dust nuisances.

Do not use phrases such as:

- in accordance with these specifications and as shown on the plans
- and in accordance with the requirements specified in these specifications
- to the dimensions shown on the plans and in accordance with these specifications and the special provisions

Example:

After removal, dispose of, salvage, relay, reset, relocate, or reconstruct facilities as specified.

Not:

After removal, dispose of, salvage, relay, reset, relocate, or reconstruct facilities as specified in these specifications and in the special provisions.

4.8.2 Material Sections

This section tells what materials the Department requires the Contractor to provide and use for the work described in the section. Use the active voice and imperative mood. Use lists as appropriate.

Example:

###.02 Materials

Provide and use binder for dust palliation that is miscible in water or binder that is not miscible and directly applied.

If water miscible is used, ensure one of the following:

1. A resin emulsion composed of water plus 60 percent \pm 3 percent semi-liquid petroleum resin;
2. An SS1-type asphaltic emulsion in accordance with 714;
3. Materials composed essentially of lignin sulfonate;
4. An effective, noncorrosive binder miscible in the proportions specified in 208.3.

If nonmiscible, provide and use a crude petroleum product effective as a dust palliative when applied directly to the surface.

4.8.3 Construction Requirements Sections

This section states how the Department requires the Contractor to accomplish the work in the section. Use the active voice and imperative mood.

Example:

###.03 Construction Requirements

Drill holes through the pavement and underlying base to a depth of 16 in \pm 1 ½ in below the surface and to a diameter that accommodates the equipment used for injecting the grout. Protect the pavement surrounding each hole from damage.

4.8.4 Measurement Sections

This section states how the Idaho Transportation Department will measure contract pay items. Use the active voice to introduce the Engineer as the party responsible for measurements; extended discussion of measurement may then continue in the passive voice.

Do not use the phrases "complete in place" or "the accepted quantities," or include statements that belong logically in "Payment" sections. Use full, spelled-out names for measurement units. As necessary, state the method by which the Engineer will calculate or arrive at the measurement. Specify potentially related items or quantities that will be excluded from measurement. Use lists (see chapter 9) where effective.

Example:

###.04 Method of Measurement

The Engineer will measure acceptably completed work as follows:

1. Pavements, leveling courses, and asphalts by the ton. The Engineer will not permit batch weights as a method of measurement. The Superpave HMA quantity will be the weight used in the accepted pavement and will include the weight of the aggregate, asphalt, and any additives in the mixture.
2. Anti-stripping additive by the percentage of additive per ton of asphalt.
3. Miscellaneous pavement by the square yard. Final measurement will be based on plan quantities unless these quantities are significantly altered by Engineer authorized changes. Such measurement is in addition to the cost of asphalt and Superpave HMA material.
4. Approaches per each regardless of width or length. Separate mailbox turnouts will be measured as an approach. Mailbox turnouts adjacent to an approach will be considered as part of the approach and no separate measurement will be made. Approach measurements will be in addition to the measurement of asphalt and Superpave HMA material.
5. Wedge milling for the transition section by the square yard.

4.8.5 Payment Sections

This section tells how the Idaho Transportation Department will pay for measured items. Use the active voice. Use the symbols shown in chapter 6, "Symbols." As appropriate, use the formats described in chapter 9, "Lists."

Example:

###.05 Basis of Payment

The Department will pay for accepted quantities at the contract unit price as follows:

Pay Item	Pay Unit
Superpave HMA Pavement Class SP-_____	Ton
Superpave HMA Pavement (including asphalt and additives) Class SP-_____	Ton
Leveling Course Class SP-_____	Ton
Leveling Course (including asphalt and additives) Class SP- _____	Ton
_____ Asphalt Cement for Superpave HMA Pavement	Ton
_____ Percent Anti-stripping Additive for Superpave HMA Pavement	TOA
Miscellaneous Pavement	SY
Approaches	Each
Wedge Milling	SY

The Department considers the cost to produce the required aggregate in each stockpile to accommodate blends incidental and included in the contract unit price for the Superpave HMA contract pay item.

When Superpave HMA includes RAP in any proportion, the Department will not include the asphalt binder contributed by the RAP in the quantity for asphalt and additives when asphalt and additives are paid for separately.

5: Other Wording and Usage

5.1 General

Choose the wording that says most clearly and efficiently what needs to be said. A well-written specification has no more words than it needs. More often than not, added words muddle rather than clarify — they tend to add opportunities for misinterpretation.

5.2 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. Size of vocabulary is less important than skill in manipulating words you already know. Consider the following:

Omit any and all needless words that do not add substantive meaning. Whenever possible, choose a single word instead of a phrase. Avoid jargon.

Omit words that do not add meaning. Favor a single word over a phrase. Avoid jargon.

The passages say the same thing, but the first commits the very sin it preaches against.

Instead of the following wordy phrases, use the more direct words or phrases shown.

Table 5.2-1
Alternatives to Common Wordy Phrases

Instead of ...	Use or consider ...	Instead of ...	Use or consider ...
a minimum of	at least	consequently	so
a number of	some	contract requirement	contract
absolutely essential	essential	cost thereof	cost of
aforementioned	the, that, those	demonstrate	show
appreciable	many	due to the fact that	because
as concerned with	concerns	enclosed herewith	enclosed
as may be necessary	as needed	endeavor	try
as stated in	states	equitable	fair
assist	help	expedite	hurry, speed up
assistance	help	fails to	does not
at a later date	later	for a period of	for
at the present time	now	for the purpose of	for, to
capability	can	forward	send

Table 5.2-1
Alternatives to Common Wordy Phrases

Instead of ...	Use or consider ...	Instead of ...	Use or consider ...
cease and desist	stop	free from	without
commence	start	give consideration to	consider
compensation for	pay	give recognition to	recognize
give due and sufficient written notice	give written notice	nevertheless	still
heretofore	until now	not less than	at least
however	but	notwithstanding	in spite of
impracticable	impractical	on a quarterly basis	quarterly
in a manner such that	so that	on a regular basis	regularly
in a timely manner	promptly, on time	optimum	best, largest
in advance of	before	practicable	practical
in an effort to	to	preclude	prevent
in lieu of	instead of	prior to	before
in many cases	often	remainder	rest
in many instances	sometimes	retain	keep
in order to	to	substantial portion	large part
in the amount of	for	successfully complete	complete
in the event of	if	terminate	end
in the near future	soon	the month of June	June
in such a manner as to	so as to	the question as to whether	whether
indicate	show	therefore	so
initiate	start	through the use of	by
is applicable to	applies to	throughout the construction period	during construction
is indicative of	shows	timely	prompt
magnitude	size	undertake an analysis	analyze
make payment	pay	until such time as	until
make preparations for	prepare for	utilize	use
make use of	use	when totally free	when free
methodology	method, way		

5.3 Words and Phrases Not to Use

Many of the words or phrases in the following list confuse readers, do not add meaning, or introduce passages that are unnecessary because the same information is covered elsewhere in the specifications, usually in "General Provisions."

Table 5.3-1
Words and Phrases to Avoid

any and all*
as approved by the Engineer* (or similar wording)
as shown on the plans* (or similar wording)
attention is directed to*
at the Contractor's expense
authorize and direct
care shall be taken
conformance*
contract item
each* and every
full and complete
herein
hereinafter
hereinbefore
in the plans
in the specifications
means and includes
necessary and desirable
neither ... nor
order and direct
pertinent
special attention of the Contractor
subsection, sub-subsection*
subsidiary
the attention of the Contractor is directed to ...
unless otherwise specified*

NOTE: asterisks (*) indicate words or phrases discussed in chapter 5.5, "Using Specific Words and Phrases," of this *Style Guide*.

5.4 Gender Neutral Language

Use language that includes both men and women. Instead of wording that limits a role or activity to one gender, consider the following or similar wording.

Table 5.4.1
Gender Neutral Alternatives

Instead of ...	Consider ...
crewman	crewmember
draftsman	drafter
flagman	flagger
foreman	supervisor
manhours	hours worked
manpower	personnel, workforce
workman	employee, worker
workmanlike	skilled, skillful, well-made
workmanship	work, quality of work

5.5 Using Specific Words or Phrases

Accept vs. Approve. In a document with legal consequences, such as *Standard Specifications* and special provisions, *accept* and *approve* have a difference in meaning that is important to recognize and preserve.

To *accept* is to recognize an obligation to pay, and is used in the context of or in reference to contracts. To avoid misunderstanding, *accept*, or versions of accept (such as *acceptance* and *acceptable*), should be reserved for use in reference to the contract between the State and the Contractor.

Example:

The Engineer will decide questions concerning the quality or *acceptability* of materials.

In contrast, to *approve* is to confirm agreement with, or to indicate satisfaction with, a situation or circumstance. Use *approve* and related forms, such as *approval*, to indicate official sanction or endorsement of designs, documents, plans, or processes.

Example:

Before erecting, obtain the Engineer's *approval* for the size, wording, and location of signs furnished by the Contractor.

Accordance, in accordance with. Though similar in meaning, dictionaries tend to attach a stronger degree of required compliance or agreement to *accordance* than to "conformance."

Indeed, dictionaries often define "conformance" as being *in accordance with*. Use *accordance* or *in accordance with* instead of "conformance" or its variants.

Examples:

Provide magnesium sulfate *in accordance with* AASHTO T 104.

Spread and compact asphalt treated permeable base in one layer. Compact the base *in accordance with* one of the following methods: ...

Do not use phrases such as "the provisions in" or "the requirements of" after *in accordance with*. These phrases add no meaning and are not necessary.

Example:

Provide and use iron sulfate as ferrous sulfate in pellet or granular form containing at least 18.5 percent iron expressed as metallic iron and *in accordance with*....

Not:

Iron sulfate shall be ferrous sulfate in pelleted or granular form containing not less than 18.5 percent iron expressed as metallic iron. Iron sulfate shall conform to the requirements of

According to. Properly used, this phrase is an attributional statement that is almost always interchangeable with the word *said*. In a specification, the right (or best) choice of wording will almost always be *in accordance with*; rarely will it be *according to*. Do not use.

See also: **Accordance, in accordance with**

All. By its nature, an instruction or directive is inclusive. Because of this, it is only exceptions that warrant special attention. In the command "Go to the store," for example, there is no chance of interpreting this as "Go *part of the way* to the store."

There is, therefore, no need to say, "Go *all the way* to the store." In specifications, using *all* creates more problems than it solves because it tends to be used inconsistently and its erratic use raises the question of whether a "missing" *all* should be interpreted as meaning *some* or *part*. Avoid the use of *all*.

Example:

When hauling over highways or city streets, or when directed by the Engineer, trim loads and remove material from the shelf areas of vehicles to prevent spillage.

Not:

When hauling is done over highways or city streets and when directed by the Engineer, trim loads and remove all material from shelf areas of vehicles in order to eliminate spilling of material.

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

Examples:

The sum of the *amounts* for the units of work included in the cost breakdown for electrical work shall equal the contract lump sum price bid for the work.

Deposit the mixture on the roadbed at a specified *quantity* per linear foot ...

And/Or. This construction is both awkward and confusing. Write "A, B, or both," *not* "A and/or B."

Example:

The fabricator shall include inserts, sleeves, or both.

Not:

Fabrication includes inserts and/or sleeves.

Any. Restrict the use of *any* to those logical situations where the meeting of one criterion among several is enough to satisfy a condition.

Example:

Perform the action if *any* of the following occur:

1. Event A,
2. Event B, or
3. Event C.

The same logic applies when listing exclusions to an inclusive general statement:

Example:

The Department defines a working day as *any* day, except:

1. Saturdays, Sundays, and legal holidays;
2. Days inclement weather prevents the Contractor from working;
3. Days when the Contractor is prevented from working for reasons other than weather.

Any can also be used to offer a selection of choices.

Example:

Unless otherwise specified, the Contractor may use *any* of the compounds listed.

Do not use *any* to reinforce a point already made. If something is not allowed, it is not allowed — *any* time, *any* place, *any* way, *any* how. Period. Adding *any* does nothing to strengthen the point or the exclusion. Rather, as with *all*, the erratic use of *any* creates more problems than it solves because it raises the question of whether a "missing" *any* should be interpreted as suggesting an exception might be possible.

Example:

A curfew from 10 p.m. to 6 a.m.

Not:

At any time during a curfew from 10 p.m. to 6 a.m.

Example:

Do not extend falsework or supports for protective covers below the vertical clearance level or to the ground line within the roadbed.

Not:

Do not extend falsework or supports for protective covers below the vertical clearance level nor to the ground line at any location within the roadbed.

Appropriate. Use *appropriate* (instead of "pertinent") for stating or attaching relevant information.

Example:

Include material thicknesses and other *appropriate* data needed for fabrication.

Approve vs. Accept. See **Accept vs. Approve.**

As approved by the Engineer. Do not use this phrase. *Standard Specifications* Section 105, "Control of Work" (and particularly Subsection 105.01, "Authority of the Engineer and Suspension of Work") clearly establishes the Engineer's authority over the job. However, a variant of the phrase — *Obtain the Engineer's approval before* — can be useful for ensuring that the Contractor consults with the Engineer at a critical decision point or before proceeding from one stage to another in a multistep process.

Example:

Obtain the Engineer's approval of proposed modifications *before* using a post-tensioning system.

As shown on the plans. This phrase is not necessary. The Contractor's obligation regarding plans is stated in Subsection 105.03, "Conformity with Plans and Specifications."

As specified in ... Use instead of "as described in," "as designated in," "as indicated in," "pursuant to," or similar phrases that refer to, and require the Contractor's adherence to, a specification.

Assure Ensure.

At no additional cost to the Department. Use *at no additional cost to the Department* instead of "at the Contractor's expense." The Department cannot insist that the Contractor pay for something (because the Contractor might well turn to another source to cover a cost), but it can indicate that *the Department will not pay*.

Attention is directed to. This phrase exemplifies many shortcomings of specifications in the passive voice. The words do not say 1) Who is ordering that attention be directed, 2) Whose attention is supposed to be directed, or 3) Why the attention is supposed to be directed, and missing words that might or might not be understood by various readers to be part of the phrase do not, cannot, "automatically" supply this information.

While it is possible to incorporate words within a specification that do explicitly state the Department's meaning when it uses this phrase (e.g., "The Department directs the Contractor's attention to, and requires that the Contractor perform in accordance with, ..."), such phrasing is convoluted and awkward. And there are better alternatives.

The best alternative is to review the need to refer the Contractor elsewhere in the first place. Evaluation of an "attention is directed to" clause will often reveal that the best strategy is to provide the information and associated requirement within the original specification and to eliminate the referral.

The phrase "attention is directed to" can also be eliminated by making a simple factual statement when the authority of an associated specification, law, or standard is invoked.

Example:

In accordance with 108.08, "Failure to Complete on Time," the Contractor is not entitled to an extension of time for acts or events occurring outside of the United States.

Not:

Attention is directed to the provisions in 108.08, "Failure to Complete on Time." The Contractor shall not be entitled to an extension of time for acts or events occurring outside of the United States.

Before. Use *before* instead of "prior to." The two expressions mean the same thing, but *before* is shorter. It's also easier to grasp (and therefore more effective) because it's part of everyday language. Place *before* statements where they chronologically belong with respect to the

events or requirements described. Usually, this means *before* statements should come at the beginning of a sentence and at the beginning of a series of required steps in a process.

Example:

Before use, thoroughly coat forms that will be removed with form oil.

Not:

Thoroughly coat forms, which will later be removed, with form oil prior to use.

Conform, conforming. The principal meaning of "conform" is *to be similar in form, shape, or character*. To indicate the Contractor's required adherence to a standard, specification, or other authority, use *in accordance with*. To direct the contractor to produce or recreate one shape or profile similar to another, use *conform* or *conforming*. The preposition *to* always comes after *conform*; *conforming* and *conforms* are followed by *to* or *with*.

Example:

Shape culvert bedding by use of a template *conforming to* the outside shape of the culvert and guided by headers set parallel to the established grade.

See also: **Accordance, in accordance with.**

Conformance, in conformance with not use. See: **Accordance, in accordance with.**

Consist vs. Include. Use *consists of* or its variants to refer to a complete set or to all the possible items in a collection. Using *consists of* before a list of items or choices means there are no possibilities other than those listed. Use this phrasing to avoid ambiguity when a listing is meant to be exhaustive.

Example:

Asphalt membrane waterproofing *consists of* a coating of primer and a firmly bonded membrane composed of 2 layers of saturated glass fabric and 3 moppings of waterproofing asphalt. Dampproofing *consists of* a coating of primer and 2 moppings of waterproofing asphalt.

Include has two principle uses in a document such as *Standard Specifications*. In contrast to *consists of*, the first use of *include* is to introduce a partial list of items or possibilities from among a larger set or collection. Because *include* introduces a partial list only, it is not necessary to add a further qualification such as *but not limited to* or *as a minimum*.

Example:

"Occurrence" shall *include* tsunamis, earthquakes in excess of a magnitude of 3.5 on the Richter Scale, storms, and floods ... [regarding] which the Governor has proclaimed a state of emergency.

The second use of *include* is to command that one or more items be made part of a larger set or collection of items. Used this way, *include* will generally follow the word *shall*.

Examples:

Shop plans *shall include* the wall thickness; type, size, location, and configuration of the reinforcement; and a list of station locations for the pipes, including the size, wall type, maximum height of cover, and method of excavation, bedding, and backfill for each location.

The request *shall include* a description of the structure or structures involved and a detailed description of the overloads to be carried, the date the revised plans would be required and a statement that the Contractor agrees to pay all costs involved in the strengthening ...

Contract vs. Project. A *contract* is an enforceable agreement between two parties. It is also the written document or collection of documents stating the terms of such an agreement. In contrast, *project*, in its most fundamental sense, refers to a physical object with physical dimensions, such as a road or bridge. More broadly, the word *project* describes the object and the activities (planning, coordination, and work) involved in bringing the object into existence. This distinction is both important and useful to maintain because doing so enables a clear and consistent specification of how the Department wants one thing done to achieve another — that is, how the Department expects the Contractor to undertake a *project* so as to satisfactorily fulfill a *contract*.

Example:

The Department will consider engineering or architectural firms that have provided design services for a *project* ineligible to submit a proposal for the *contract* to construct the *project*.

Department vs. State. These words both have defined meanings in 101.04, "Definitions," of the *Standard Specifications*. They are not interchangeable. Use *State* when referring broadly to the entire government or body politic of the State of Idaho. Use *Department* when referring to the activities, obligations, personnel, and organizational units of the Idaho Department of Transportation. The Contractor's contract is signed by representatives of the Department, and in specifications the correct term will almost always be *Department*.

Example:

Employees of the *State* are not eligible to submit a proposal for, or to subcontract or supply materials for, a contract administered by the *Department*.

Example:

When flaggers are required to ensure the safe passage of public traffic through the work, the *Department* and Contractor shall bear the costs equally.

Not:

When required to ensure the safe passage of public traffic through the work, the cost of providing flaggers shall be borne equally by the State and the Contractor.

Each. Use *each* to require differing treatment for one element in a series.

Example:

The Contractor shall provide blue, cube-shaped boxes 10 ft³ in volume and shall mark *each* box with a unique serial number.

Similarly, use *each* to specify treatment that might be considered special or unique. Because mass-produced items are often tested by random sampling, the requirement that the Contractor test every box supplied should be phrased as: "Test each box for [an ANSI-specified] minimum strength."

Do not use "each" simply to require ordinary treatment of multiple elements.

Example:

Place backfill layers not thicker than 8 in before compaction.

Not:

The thickness of each layer of backfill shall not exceed 8 in before compaction.

E.g. and i.e. *E.g.* is the abbreviation for the Latin expression meaning "for example." *I.e.* is the abbreviation for the Latin expression meaning "that is." In specifications, these abbreviations appear most often within parentheses (where they generally introduce additional, explanatory information) and are followed by a comma.

Example:

The current controlling operation is that feature of the work (*e.g.*, an operation or activity, or a settlement or curing period) that, in the joint opinion of the Engineer and the Contractor, will delay the time of completion if delayed or prolonged.

Ensure vs. Insure vs. Assure. These are three different verbs with three different meanings. The correct word in specifications will almost always be *ensure*, which means "to make sure."

Example:

Ensure that the surface of the lens is free of defects.

Only use *insure* when speaking of financial protection of the sort offered by insurance companies. Misusing *insure* can create or suggest an obligation vastly different from that which is intended.

Example:

The Department of Transportation will affirmatively *ensure* that disadvantaged business enterprises are given full opportunity to submit bids in response to this invitation.

Not:

The Department of Transportation will affirmatively insure that disadvantaged business enterprises are given full opportunity to submit bids in response to this invitation.

Use *assure* only when giving reassurance to another person. *Assure* will rarely be the right word in a specification.

Example:

Ensure that the Engineer or the Engineer's representative has access to the material.

Not:

Assure that the Engineer or the Engineer's authorized representative has free access at all times to the material.

However:

The Engineer may inspect, sample, or test materials at the source of supply or elsewhere, but will not do so until the Contractor has *assured* the Engineer of the cooperation and assistance of both the Contractor and the supplier.

Furnish vs. Provide. See **Provide vs. Furnish.**

If vs. When vs. Where. See **When vs. Where vs. If.**

Include vs. Consist. See **Consist vs. Include.**

Insure. See **Ensure.**

In this Section. Make simple, direct statements. Terms such as "specified herein," "hereinafter," and "hereinafter" are round-about ways of saying things that can be clearly said in simple English. Use *in this Section*. Do not add "above" or "below"; doing so simply raises the question of *how far* above or below? Do not add the section number, which is redundant.

Example:

Compose mortar of portland cement, sand, and water proportioned and mixed as specified *in this Section*.

Not:

Compose mortar of portland cement, sand, and water proportioned and mixed as specified in 501.03.A.

May *may* when allowing a choice. Do not use "exercise its option to," "reserve the right to," or similar phrases that simply describe a party's choice or prerogatives.

Non. When using the prefix *non*, do not use a hyphen for most words, whether nouns, verbs, adjectives, or adverbs.

Examples:

nondestructive testing
nondiscrimination
a liquidtight, *nonmetallic* sunlight-resistant jacket
nonworking days

Not:

non-highway facilities
non-mandatory source
a liquidtight, non-metallic sunlight-resistant jacket
non-minority
non-yielding supports

Hyphenate words with the prefix *non* when the second element consists of

- a capitalized word or numeral:

Example:

non-PCC material

- a hyphenated compound word:

Examples:

non-commercially-operated sites
non-uniform-appearing fence.

On the plans. Use *on the plans* instead of "in the plans."

Per. Use *per* when describing a rate or ratio.

Examples:

5 miles *per* hour
6 threads *per* 1 in
\$4.60 *per* cubic yard

To avoid confusion, do not use *per* in the sense of "according to" or "in accordance with."

Provide vs. Furnish. Though similar, these words are not identical in meaning. *Provide* has a broader meaning, which is "to supply or make available." In contrast, *furnish* means "to equip." The words don't always overlap, as would be the case if a contractor were required to "*Provide* a field laboratory and *furnish* it with desk, chairs, and cabinets." Use *provide* when requiring a contractor to supply an item; because this is usually the intention in a

specification, *provide* is usually the better choice of the two words. When the intention is to additionally require that a contractor not only provide an item but also do something with it, couple *provide* with such additional verbs as *use*, *place*, or *install*.

Examples:

Provide and install pumping plant equipment as specified.

Sprinkler control crossover work consists of *providing and installing* electrical conduit, pull boxes and appurtenances as specified.

Quantity vs. Amount. See Amount vs. Quantity.

Section vs. subsection vs. sub-subsection. The Idaho Transportation Department has elected to not use these terms. Rather, the Department has chosen to just use the numerical reference. When “section” is used do not capitalize.

Examples:

... device specified for Class 1 plants in 207.02.B, "Batch Mixing."

The Department directs the Contractor's attention to 109.06, "Partial Payments," and in particular to the retention provisions of that *section*.

When referring to the numbered portions of *Standard Specifications*, do not use "subsection," "sub-subsection," or similar terms. For more information on section levels and numbering, see chapter 2, "Organization of *Standard Specifications*," in this *Guide*.

State vs. Department. See Department vs. State.

Subsection. See Section.

Sub-subsection. See Section.

Such. Because it's improper use or overuse can lead to stilted, imprecise, or pseudo-legal language that can be hard to unravel, *such* should be used with care and attention. In many cases, *such* is unnecessary, can be replaced with a better (more precise) word, or is part of a longer phrase that has a shorter, plain-English equivalent.

Such is an adjective that means "of that kind" or "of a degree or quality indicated." It does not mean — and is no more precise than — *this*, *that*, *these*, or *those*. When used properly, *such* points clearly and without question to a thing, collection, or idea that has just been mentioned. When used in this way, *such* is often (though not always) a part of the phrase *such as* and serves to introduce a series of representative examples belonging to a larger set.

In the first of the following two sentences, *such* introduces examples of "working titles with a masculine gender." In the second, it introduces the allowable kinds of "bedding material" the

Contractor may use. *Such* is used appropriately in these sentences because there is no mistaking what it refers to.

Examples:

For brevity, the Department may use working titles with a masculine gender, *such* as "workman" and "journeyman" and the pronoun "he" to refer to persons of either gender.

If the Engineer determines that soil from the trench is unsuitable for use as bedding material, the Contractor shall provide and place a suitable material, *such* as sand or topsoil, as a bedding for the pipe before backfilling with the original soil.

Such is misused or is unnecessary when the thing it points to has not already appeared in the sentence. When this happens, it is often a sign that a sentence should be rewritten — usually with the triply beneficial result that *such* is eliminated, the sentence is shorter, and the relationship between items in the sentence is more straightforward.

Example:

The Department reserves the right to alter, deviate from, add to, or delete from the plans and specifications as the Engineer deems necessary or advisable.

Not:

The Department reserves the right to make such alterations, deviations, additions to or deletions from the plans and specifications as the Engineer deems necessary or advisable.

Example:

The contract will be awarded within 30 days after the opening of the proposals; this period may be extended if agreed to in writing by the Department and relevant bidder.

Not:

The contract will be awarded within 30 days after the opening of the proposals. This period will be subject to extension for such further period as may be agreed upon in writing between the Department and the bidder concerned.

Example:

As deemed suitable by the Engineer, the Contractor may use in the proposed construction stone, gravel, sand or other material found in excavation.

Not:

The Contractor may use in the proposed construction such stone, gravel, sand or other material suitable in the opinion of the Engineer as may be found in excavation.

Such is often part of a larger phrase — usually "in such manner that" or "in such a manner as to" — that can be replaced with a shorter, more straightforward expression.

Example:

The Contractor may dispose of removed concrete where and so that it will not appear unsightly from the highway.

Not:

The Contractor may dispose of removed concrete at such locations and in such manner that it will not present an unsightly appearance from the highway.

That vs. Which. Do not use *that* and *which* interchangeably. *That* is properly used to introduce information essential to the meaning of a sentence. *Which* introduces nonessential information. *That* will be the right word choice in a specification more often than *which*, for the simple reason that specifications express essential requirements.

To test for the right word: If, without changing the meaning of the sentence, a comma can be placed before the word you want to use (*that* or *which*), the right word is *which*. If a comma would change the meaning, the right word is *that*.

Examples:

The lawn mower *that* is in the garage is broken.

The lawn mower, *which* is broken, is in the garage.

Example (that):

Provide complete, trailer-mounted units assembled to form a self-contained portable changeable message sign *that* can be delivered to the site and placed in immediate operation.

Not:

Provide complete, trailer-mounted units assembled to form a self-contained portable changeable message sign *which* can be delivered to the site and placed in immediate operation.

Example (that):

The Contractor may bury removed concrete in adjacent embankments, provided the concrete is broken into pieces *that* can be readily handled and is placed at least 3 ft below finished grade and slope lines.

Not:

Removed concrete may be buried in adjacent embankments, provided the removed concrete is broken into pieces *which* can be readily handled and is placed at a depth of not less than one meter below finished grade and slope lines.

Example (which):

In cases of suspension, work shall not be resumed until permitted by written order from the Engineer, *which* will stipulate the date when contract time shall again be charged.

This, These, That, Those, and The. Grammatically, *this* and *that*, often serve as what are called "demonstrative pronouns." In this role they point to, and take the place of, an object or idea that has already been named or described; used this way they help avoid repetition.

The plural of *this* is *these*. Use *these* when the object or idea referred to consists of two or more items. *This* and *these* refer to things that are near in time or place or have just been mentioned. In contrast, the demonstrative pronoun *that*, and its plural *those*, are used to refer to things at a distance.

In the following example, *these* in the second sentence points to and takes the place of a phrase from the first sentence that would otherwise have to be repeated.

Example (these):

As directed by the Engineer, remove and dispose of pavement, sidewalk, and similar surfaces not shown on the plans and obstructing sites for planting. The Department will pay for excavating through *these* areas, providing and placing topsoil to fill the resulting holes, and removing and disposing of the associated pavement in accordance with 109.03.

Not:

As directed by the Engineer, remove and dispose of pavement, sidewalk, and similar surfaces not shown on the plans and obstructing sites for planting. The Department will pay for excavating through the pavement, sidewalk, and similar surfaces not shown on the plans and obstructing sites for planting, providing and placing topsoil to fill the resulting holes, and removing and disposing of the associated pavement in accordance with 109.03.

When using a demonstrative pronoun, make certain the object or idea to which the pronoun refers (the "antecedent") is unmistakable. If the risk of confusion exists, rearrange the sentence or use the object's full name or description. If there is no risk of confusion, it is possible that a demonstrative pronoun isn't needed — in which case it may be that the definite article *the* is sufficient.

Example (using the definite article "the"):

Before performing tensile tests the Contractor's laboratory shall test one of the four sample splices for total slip. If *the* sample fails to meet the slip requirements, the laboratory may perform one retest of the three remaining samples combined. If any one of the three fails to meet the requirements, the Department will reject the entire lot represented by the test.

Not:

Prior to performing any tensile tests on production test sample splices, one of the four samples shall be tested for, and shall conform to, the provisions for total slip. Should this sample not meet the slip requirements, one retest, in which the three remaining samples are tested for total slip, will be allowed. Should any of the three remaining samples not conform to the slip requirements, all splices in the lot represented by this production test will be rejected.

Unless otherwise shown on the plans as necessary for flexibility.

Example:

Do not install supply lines through plant holes *unless otherwise shown on the plans*.

When vs. Where vs. If. These words are not interchangeable; a writer's precision will be improved by reserving each for its most appropriate use. *When* refers to time. *Where* refers to place. *If*, among its many uses, introduces a conditional clause or sentence.

Use *when* in discussions about time or chronology. The presence of words about time, periods of time, dates, or duration are clues that point to *when* as the appropriate choice. Another clue is that *before* or *after* can replace *when* without changing the meaning of the sentence.

Examples (when):

When work is not in progress and during periods *when* work is suspended, make acceptable arrangements with the Engineer to ensure the availability of a representative authorized to act for the Contractor in case emergency work is needed.

When {i.e., *after*} the work has been completed, the Engineer will make the final inspection.

Use *where* to discuss or refer to a physical place, location, or area.

Example (where):

Where the medians are so wide as to include areas of undisturbed land, the Department defines a divided highway as two separate roadbeds.

Example (when and where):

When temporary railings (Type K) are removed, restore to its previous condition, or construct to its planned condition, areas *where* temporary excavation or embankment was used to accommodate the railing.

Use *if* to introduce or as part of an *If A, then B* sentence. Do not use "when" or "where" for this purpose.

Example (if):

New and unforeseen work will be classed as extra work *if* the Engineer determines that the work is not covered by one or more of the items for which there is a bid price.

Not:

New and unforeseen work will be classed as extra work when determined by the Engineer that the work is not covered by any of the various items for which there is a bid price or by a combination of those items.

Example (if):

If it deems such action appropriate, the Department reserves the right to require the Contractor to share in the Department's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering the proposal.

Not:

The Department reserves the right where it deems such action appropriate, to require the Contractor to share in the Department's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering the proposal.

Where vs. When vs. If. See When vs. Where vs. If.

Which vs. That. See That vs. Which.

5.6 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, and then joining eventually into a single word.

It can be hard to know where a word pair or phrase is in this progression. Table 5.6.1 shows some common combinations as they should be used in *Standard Specifications*. For further guidance, see chapter 7.90 of *Chicago*, or chapter 6 and 7, "Compounding Rules" and "Compounding Examples," in the *Government Printing Office Manual*.

Examples:

the cost breakdown submitted	<i>not:</i> the cost break-down submitted
28,000 lb for single-axle trucks	<i>not:</i> 28,000 lb for single axles
48,000 lb for tandem-axle trucks	<i>not:</i> 48,000 lb for tandem axles
truck-and-trailer combinations	<i>not:</i> truck and trailer combinations

**Table 5.6-1
Compound Words, Hyphenated Words,
Word Separation, and Standard Phrasing**

Instead of ...	Use ...
air entraining	air-entraining
center line	centerline
cross section	cross-section
edge line	Edgeline
guard rail	Guardrail
high pressure sodium lights	high-pressure sodium lights

Table 5.6-1
Compound Words, Hyphenated Words,
Word Separation, and Standard Phrasing

Instead of ...	Use ...
low pressure sodium lights	low-pressure sodium lights
one piece polycarbonate	one-piece polycarbonate
pre-construction	Preconstruction
right of way	right-of-way
straight edge (the tool)	Straightedge
sub-base	Subbase
water reducing	water-reducing
work force	Workforce

5.7 Cross-References

5.7.1 To *Standard Specifications* from *Standard Specifications*

From within *Standard Specifications*, refer to specific sections of the *Standard Specifications* by the number. Do not add phrases such as: "of these *Standard Specifications*."

Example:

Cure concrete barriers in accordance with 803.02.A.

If referring to the *Standard Specifications* overall, or as a whole, refer to "these *Standard Specifications*."

Example:

Obtain clarification from the Engineer if the project work is not sufficiently detailed or explained in these *Standard Specifications*, the special provisions, or the plans.

5.7.2 To *Standard Specifications* from the Special Provisions

From the special provisions, refer to sections of the *Standard Specifications* by number. Follow the number with the phrase "of the *Standard Specifications*."

Example:

Install roadside signs in accordance with 506.02.B of the *Standard Specifications*.

5.7.3 To the Special Provisions from *Standard Specifications*

From within *Standard Specifications*, refer to a project's special provisions simply as "the special provisions." Because they vary by project, do not include section number. Do not capitalize or italicize "special provisions."

Example:

If practicable, haul materials to be salvaged directly to the location specified in the special provisions.

5.7.4 To the Special Provisions from the Special Provisions

From within a project's special provisions, be as specific as possible when cross-referencing that same project's special provisions. However, because the special provisions for any given project are compiled from a unique subset of standard special provisions, because changes occur often during a project's design phase, and because some section numbers in a project's special provisions are more likely to change than others, the degree of specificity desirable in a cross-reference varies.

In general, include the section number in a cross-reference only to the extent that it is unlikely to change.

Examples:

The Department directs the Contractor's attention to 108.3 and the special provisions.

The Department directs the Contractor's attention to "Force Account Payment" and "Progress Schedule (Critical Path)" of these special provisions.

Modifications the Contractor may propose to the minimum prestressing force provided by full-length draped tendons are subject to the "Prestressing Concrete" section of these special provisions.

5.7.5 To Forms

Use the full title and number when referencing forms. Place the title in *italics*, followed by the form number in parentheses.

Example:

The Engineer will issue an *Elapsed Time and Work Status Statement* (Form ITD-2242) to the Contractor ...

Another way to reference forms is to place the form number before the form name, with the name in *italics* and offset by commas. Keep the form number in standard, upright type and capitalize the word *Form*.

Example:

"The Engineer will issue Form ITD-2242, *Statement of Elapsed Time*, to the Contractor ..."

6: Abbreviations, Acronyms, and Symbols

6.1 Definitions

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

Abbreviations. Shortened forms of a single word or phrase, usually followed by a period and often including lowercase letters.

Examples:

Dr., etc., and chap.

Acronyms. Shortened forms, often initialisms, that can be pronounced as a word. *Do not use periods in an acronym.*

Examples:

AASHTO and OSHA

Initialisms. Formed from the first letters of a string of words or organization name. The letters in an initialism are read or pronounced separately rather than together as a single word. Do not use periods in an initialism.

Examples:

PVC, IEEE, and FHWA

Symbols. Free-standing characters, letters, or signs with unique agreed-on meanings. Do not treat or punctuate symbols as if they were abbreviations. Use a space before and after a symbol; do not precede a symbol with a hyphen or follow with a period.

Examples:

lb (pound)

ft³ (cubic feet)

6.2 Rules for Acronyms and Abbreviations

Be consistent. Distinct short forms that are used repeatedly in Idaho specifications are listed in Section 101.03 of the *Standard Specifications*. The accepted forms of more widely used abbreviations can be found in the *Chicago Manual of Style*; "Abbreviations and Letter Symbols" and "Signs and Symbols," can be found in the *Government Printing Office Style Manual*. Do not invent or use forms that vary from these sources.

Before introducing a shortened form not listed in 101.03, write out the complete name or phrase at the first usage in lower case, followed immediately with the shortened form in parentheses

Example:

Use horizontal elliptical reinforced concrete pipe (HERCP) ... Install the HERCP so that ...

In general, the prefix *non* is not hyphenated (see chapter 5.5); however, use a hyphen when *non* precedes an acronym or initialism.

Examples:

non-PCC
non-UL

Do not introduce a shortened form that will not be reused in the same section; instead, simply write the words out. When reintroducing a short form in another section, write out the complete name or meaning, followed by the short form in parentheses, at the first usage.

Writers who plan to make frequent use of an acronym or other short forms not listed in 101.03 should contact Design/Materials/Construction to discuss its inclusion.

Use the indefinite article *an* before abbreviations, acronyms, and initialisms that are pronounced as if they begin with a vowel. If the short form begins as though pronounced with a consonant, use *a*.

Examples:

an AASHTO requirement
an SAE specification (because the letter *s* is pronounced *es*)
a PSC document
a U.S. Code (because the letter *u* is pronounced *yoo*)

Form plural acronyms by adding the lowercase letter *s*. Do not use an apostrophe.

Examples:

multiple light-emitting diodes are LEDs	<i>not:</i> LED's
the plural for the abbreviation for number, <i>No.</i> , is <i>Nos.</i>	<i>not:</i> No's

6.3 Measurement Style

Measurements describe quantities and comprise a *numeric value* and a *unit of measure*. Use numerals for the value of a measurement; use the symbols shown below in table 6.4:1, "U.S. Customary Measurement Symbols," to indicate the unit of measure. Do *not* use words for the number or abbreviations for the units in a measurement.

Examples:

approximately 3 ft long
round to a radius of $\frac{1}{8}$ in
steel with a thickness greater than $\frac{1}{2}$ in
excavate to a depth no less than 3 ft
add water heated to a temperature of from 60 °F to 75 °F
1 lb of inoculant per 50 lb of seed

Exceptions are discussed in chapter 7 of this *Guide*, "Numerals vs. Words."

6.4 Measurement Symbols

Table 6.4-1
U.S. Customary Measurement Symbols

Physical characteristic	Unit name	Symbol
Length	microinch	—
	mil (0.001 inch)	mil
	inch	in
	foot	ft
	yard	yd
	mile	mi
Area	square inch	in ²
	square foot	ft ²
	square yard	yd ²
	square mile	mi ²
	acre	acre
Volume	pint	pt
	quart	qt
	gallon	gal
	cubic inch	in ³
	cubic foot	ft ³
	cubic yard	yd ³
Mass (weight)	ounce	oz
	pound	lb
	ton, short (2,000 lb)	ton
Temperature	degree Fahrenheit	°F
Time	millisecond	ms
	second	s
	minute	min
	hour	h
Speed	miles per hour	mph
Pressure	pound-force per square inch	psi
Power, energy and electrical	watt	W
	kilowatt	kW
	milliampere	mA
	ampere	A
	volt	V
	voltampere	VA
	ohm	Ω
	hertz	Hz
	joule	J
	lumen	lm
	footcandle	fc
	horsepower	hp
	Force	pound-force
1,000 pound-force		kip
Torque	pound-force foot	lbf•ft
Viscosity, dynamic	centipoises	cP
	poise	P
Viscosity, kinematic	centistokes	cSt
Flow	gallons per minute	gpm
Sound	decibel	db

To use measurement symbols properly:

1. Do not follow with a period unless the symbol falls 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:

2 lb	<i>not:</i> 2 lbs
24 h	<i>not:</i> 24 hs
7.2 ton	<i>not:</i> 7.2 tons

3. Type a hard (nonbreaking) space between the numeric value and the symbol.

 Insert a hard space by opening the *Insert* menu and select *Symbol, More Symbols*, and the *Special Characters* tabs or by holding down Ctrl and Shift and pressing the space bar.

Examples:

1 lb
60 °F

A hard space prevents the number and symbol from becoming separated across lines of text, which can create confusion when it occurs. (Examples of this occurring in the 2004 edition of *Standard Specifications* can be found on page 182 [19.0 — line break — mm], page 187 [1.0 — line break — lane mile], page 368 [6,961 — line break — psi], and page 440 [1800 — line break — candlepower/footcandle/SF].)

4. Use symbols for measurements and technical expressions. Precede symbols with numerals, never with words.

Examples:

2 in	<i>not:</i> two in
a distance of 1 ft	<i>not:</i> a distance of one foot

But:

There are three feet in one yard.

5. Do not use symbols without accompanying numerals. Never leave a symbol "naked."

Example:

Measurement is by the cubic yard. *not:* the yd³

6. Do not mix symbols and names in the same expression.

Examples:

ft/s
feet per second

not: feet/second (because the solidus — / — is a symbol)
not: feet/s

7. Do not use unit abbreviations, short forms, or symbolic representations not shown in table 6.4:1 of this *Guide*.

Examples:

5 mi
50 psi, minimum
80 psi, maximum

not: 5 m
not: 50 psi, min.
not: 80 psi, max.

6.5 Mathematical and Other Signs and Symbols

Microsoft Word contains symbols and special characters for mathematical and other purposes. Access symbols by pressing Alt + s, or by opening the *Insert* menu and selecting *Symbols*.

 To insert a symbol using the built-in Microsoft Word characters:

1. Open the *Insert* menu.
2. Select *Symbol* and *More Symbols*.
3. Choose the *Special Characters* tab; or ...
Choose the *Symbols* tab; in the *Font* box, pull down and select *Symbol*.
4. Select signs and symbols by double-clicking or by choosing a symbol and clicking *Insert*.

Table 6.5-1
Signs and Symbols

Sign or symbol	Meaning	Insertion method	Use in ...	
			Tables only	Text and tables
+	plus (<i>not</i> the keyboard plus)	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab	✓	
–	minus (<i>not</i> the keyboard hyphen)	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab	✓	
±	plus or minus	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab		✓
=	equal to (<i>not</i> the keyboard equal sign)	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab	✓	
<	less than	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab	✓	
≤	less than or equal to	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab	✓	
>	greater than	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab	✓	
≥	greater than or equal to	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab	✓	

Table 6.5-1
Signs and Symbols

Sign or symbol	Meaning	Insertion method	Use in ...	
			Tables only	Text and tables
×	multiplied by; dimensional indicator (<i>not</i> the keyboard letter <i>x</i>)	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab		✓
μ	10 ⁻⁶ ("micro")	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab		✓
°	degree	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab	✓	
Ω	ohm	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Symbols</i> tab		✓
§	section	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Special Characters</i> tab		✓
—	em dash	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Special Characters</i> tab		✓
–	en dash	<i>Insert</i> menu, <i>Symbol</i> , <i>More Symbols</i> , <i>Special Characters</i> tab		✓
:	ratio; proportionality	from keyboard		✓
\$	U.S. dollar	from keyboard		✓
/	per	from keyboard	✓	
%	percent	from keyboard	✓	

When using mathematical and other signs and symbols:

1. Type a hard space before and regular (soft) space after.

Examples:

50 in × 50 in × 25 in
a minimum section modulus of 4.1 × 10² in³
60 Hz ± 3 Hz

Exception: no space precedes the angular degree symbol (180°). [Because the angular degree symbol serves simultaneously to designate the unit for angular measurement and to help punctuate and show the numeric quantification and precision of the measurement, as in: 30°22'8" (read: *thirty degrees, twenty-two minutes, eight seconds*).]

2. In text, use words for those quantitative relationships indicated in table 6.5:1.

Examples:

in containers with a capacity *no greater than* 5 gal.
Fasten reinforcing bars securely except where the spacing is *less than* 12 in.

6.6 Ranges

A range is defined by two endpoints. The endpoints may be inside and part of the range, or outside and excluded from the range.

Whether in text or in tables, when defining a series of related ranges that together describe a complete set of possibilities, ensure that no number or measurement can fall in more than one range. That is, make the ranges mutually exclusive. In the following example, one large range (from 0 in to 72 in) is divided into three mutually exclusive ranges by two internal endpoints (24 in and 48 in) that fall into the first and second ranges, respectively, and cannot fall elsewhere.

Example:

from 0 in to 24 in; over 24 in to 48 in; over 48 in to 72 in

Not:

from 0 in to 24 in, 24 in to 48 in, 48 in to 72 in

6.6.1 Ranges in Text

In text, indicate a range that includes the endpoints by using the words *from* and *to*. The word *inclusive* may be added as appropriate to increase clarity. Provide the unit symbol after each numeric value. Do not use a dash (–), which can too easily be confused with a minus sign.

Examples:

from 10 ft to 15 ft

not: from 10 to 15 ft

from 60 °F to 70 °F

not: from 60 to 70 °F

from 32 lb/ft³ to 40 lb/ft³

not: from 32 to 40 lb/ft³

Exceptions: When a range is described with the word *percent*, or when a specific span of time is described using *second*, *minute*, *hour*, or *day*, use the word only once, at the end of the range.

Examples:

from 15 to 25 percent

from 24 to 48 hours

Indicate a range from which the endpoints are excluded by using the words *between* and *and*. Most such ranges will be defined by discrete physical objects or boundaries, rather than by numeric measurements.

Examples:

The distance between the outside of the pipe and the side of the excavation ...

Fill the space between the duct and the tendon with grout.

Do not use "between" and "and" with measurements because the wording leads to uncertainty over how close the range should approach the endpoints. "Between 70 °F and 75 °F," for

example, could mean from 71 °F to 74 °F, or it could mean from 70.1 °F to 74.9 °F — the wording is uncertain.

6.6.2 Ranges in Tables

As best warranted to ensure clarity, ranges may be described in tables using symbols only, words only, or with both words and symbols. However defined, do not create adjoining ranges with shared endpoints. Table 6.6.2:1, "Ranges," shows the use of these three methods to divide a range from 0 to 100, inclusive, into four contiguous smaller ranges.

Example:

Ranges		
Symbols only	Symbols and words combined	Words only
≤ 25	≤ 25	25 or less
>25–50	>25 to 50	over 25 to 50
>50–75	>50 to 75	over 50 to 75
>75–100	>75 to 100	over 75 to 100

When using symbols, use an en dash (–) to show inclusive ranges. Use an em dash (—) to show blank cells. Do not use the keyboard hyphen, which should only be used to hyphenate words. Use the *greater than* (>) and *less than* (<) symbols for a range from which the endpoints are excluded. Use the symbols for *greater than or equal to* (≥) or *less than or equal to* (≤) to indicate the inclusion of an endpoint or endpoints in a range; do not abbreviate "minimum" or "maximum" so as to avoid potential confusion between the abbreviation for minimum ("min.") and the symbol for minute (*min*). See table 6.55-1, "Signs and Symbols," for keyboard shortcuts.

Examples:

Length of Piles, ft	Butt Diameter, in	Tip diameter, in
< 40	12–18	≥ 8
40–60	13–18	≥ 7
> 60	14–20	≥ 6

Or:

Length of Piles, ft	Butt Diameter, in	Tip diameter, in
Below 40	12 to 18	8 and above
40 to 60	13 to 18	7 and above
Above 60	14 to 20	6 and above

Or: If all the data are oriented in the same direction (that is, if all the values are minimum values, or if all the values are maximum values), place the information in the column header rather than repeating it in each individual cell.

Example:

Length of Piles, ft	Butt Diameter, in	Tip diameter, in minimum
< 40	12–18	8
40–60	13–18	7
> 60	14–20	6

6.7 Minimum, Maximum, Minutes

The U.S. Customary symbol *min* represents the unit of time called a minute (i.e., 60 seconds, or $\frac{1}{60}$ of an hour). To avoid potential confusion, do not use the similar-looking abbreviation for the word *minimum* (i.e., "min.").

In text, spell out the words *minimum* and *maximum* in full or use alternatives such as *at least* or *no more than*.

In tables, indicate a minimum value by using the symbol for *greater than or equal to* (\geq). Indicate a maximum value by using the symbol for *less than or equal to* (\leq).

Example:

Table 6.7-1
Selected Sealant Requirements for Installing Vehicle Detectors

Performance characteristic	ASTM specification	Requirement
Tensile strength: pulled at 20 in/min	D 412 Die C	\geq 2,545 psi
Cone penetration, 84 °F, 10 oz, 5 s	D 3407, § 5	\leq 0.5 in
Resilience, 84 °F	D 3407, § 8	\geq 25%
Softening point	D 36	\geq 215 °F
Ductility, 84 °F, 2 in/min	D 113	\geq 12 in

6.8 Tolerances

Tolerance is defined as the allowable variation from a specified standard. If tolerances are provided, give the measurement unit with both the numeric value of the standard and the allowed variation around the standard.

Examples:

8 in ± ¼ in

not: 8 ± ¼ in

not: 8 in ± ¼

in water for 24 hours at 72 °F ± 2 °F

Dimensions can have separate positive and negative tolerances. Such dimensioning calls attention to the specified standard, but permits as much positive and negative variation as possible up and down, although the values are not the same. Give the measurement unit with the numeric value of the standard and with the numeric values for both the allowed positive and negative variation. Use the plus sign before the positive value and the minus sign before the negative; separate the two tolerances with a comma.

Examples:

10 ft + 3 ft, -1 ft

6 in +3 in, -2 in

Place the ± symbol directly before the numeric value (i.e., without separation by a space) when the specified standard is expressed in words, rather than quantitatively.

Examples:

Distribute at the specified application rate ±10 percent.

Within a length of 10 ft, the surface shall be flat ±¼ in.

6.9 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

Always precede a measurement symbol with a numerical value. Never precede or follow a measurement symbol with a hyphen.

Examples:

a minimum thickness of 6 in	<i>not:</i> a minimum thickness of 6-in
a sieve size of 1 in	<i>not:</i> a 1-in sieve
barrels with a capacity of 55 gal	<i>not:</i> 55-gal barrels

The use of hyphenated, adjectival expressions with measurement symbols can be avoided in two ways. One is to spell out the unit name in full and precede with a hyphen connecting the numeric value and unit name.

Examples:

a ½-inch pipe	<i>not:</i> a ½-in pipe
a screen with ¼-inch cells	<i>not:</i> a screen with ¼-in cells
a 2-inch-diameter mandrel	<i>not:</i> a 2-in-diameter mandrel
	<i>not:</i> a 2-in diameter mandrel

The second way to avoid hyphenating measurement symbols is to rearrange the sentence. The name of the measured object or a dimensional expression comes after the symbol. The problem can be solved by moving the object name or the dimensional adjective in front of the combined numerical value and unit symbol.

Examples:

a mandrel diameter of 1 in	<i>not:</i> a mandrel of 1-in diameter
	<i>not:</i> a mandrel of 1-in-diameter
samples in vials with a volume of 1 pt	<i>not:</i> samples in 1-pt vials
composed of four steel plates 1.5 in thick	<i>not:</i> composed of four 1.5-in thickness steel plates
a steel plate ½ in thick × 3 in	<i>not:</i> a ½-in × 3-in × 6-in steel plate
wide × 6 in long	

Rearrange words as necessary to avoid ambiguity. For example, replace "Place the samples in 3 qt vials" (which can be read as requiring the placement of 3 separate samples in one-quart vials) with "Place samples in vials with a volume of 3 qt."

Use the multiplication cross symbol (×), *not* the word *by*, to indicate dimensionality. Provide the unit symbol after each numeric value.

Example:

2 in × 4 in	<i>not:</i> 2 in by 4 in
	<i>not:</i> 2 × 4 in

Additional examples:

2 ft × 2 ft	an angle of 15° ± 2°
-------------	----------------------

nitrogen per 180 yd²
9:00 a.m.
2:00 p.m.
25 ft ± 1 in
a slope greater than 1V:20H

heated to 125 °F for a length of 25 in
from 10 to 15 minutes at 60 °F
make posts from No. 1 structural steel
90 percent finer than a No. 8 sieve
after storage for 30 days at 60 °F ± 5 °F

7: Numerals vs. Words

7.1 General

Use numerals for measurements, sizes, and critical or precise quantities.

Examples:

a depth of 5 ft
wrapped 1½ turns
a minimum depth of 2.5 ft below
grade for the width of the traveled
way plus 2 ft on each side
a surface temperature of 50 °F for 72 hr
a compressive strength less than 2500 psi

not: a depth of five feet
not: wrapped one and one-half turns
not: a minimum depth of 2.5 ft for the
width of the traveled way plus two
feet on each side

Use numerals when cross-referencing sections and other parts of the specifications or similar sources.

Example:

materials required by AASHTO section 5

Use numerals for values greater than ten.

Example:

The Department will not close traffic lanes for routine maintenance on roadways with posted speed limits greater than 25 miles per hour.

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.

Examples:

Eight hours of labor constitutes a full day of work.
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.
The Engineer will furnish six sets of drawings.

for a period of up to three years

Add *s* to form the plural of numbers used as nouns.

Example:

twos and threes

When quantity and size are expressed together, use words for the quantity and numerals for the size.

Examples:

two 12-penny nails

three ½ in holes

twenty-two 10 lb weights

Be consistent. Within the same context, treat similarly all numbers that refer to the same category of things.

Examples:

Hold the vibrator from 5 to 15 seconds.

Thirty minutes before starting, and again sixty minutes later ...

7.2 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

7.3 Time and Date

Use numerals for clock times. Keep zeros when describing times "on the hour." Use the 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. Do not use the contraction "o'clock" after the numeral.

Examples:

9:00 a.m.	<i>not:</i> 9 o'clock a.m.
10:30 p.m.	<i>not:</i> 10:30 o'clock p.m.
during the hours from 10:00 a.m. to 4:30 p.m. on the day	

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.	<i>not:</i> 12 noon or 12 p.m.
	<i>not:</i> 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	<i>not:</i> June 15 th , 2001
from May 1 to September 30	

Use numerals with an ordinal designator to specify a fixed number of days from an event or starting point.

Examples:

by the 15th day of receipt
the 21st day of the month

Not:

by the fifteenth day of receipt
the twenty-first day of the month

7.4 Money

Use numerals for monetary amounts. Use commas to separate groups of thousands when expressing dollar amounts greater than \$999. Do not include the decimal and zeros for cents

when amounts are in whole dollars; do not leave a space between the dollar sign (\$) and the numeric value.

Examples:

\$10,000

a subcontract of \$5,000 or more

pay the State at the rate of \$2.75 per cubic yard computed at \$0.044 per pound

the sum of \$10 for each calendar day

contracts exceeding \$2,000

Do not express dollar values with repetitive word phrases.

Example:

more than \$50 for each day

not: more than fifty dollars (\$50) for each day

To encourage reader comprehension, when expressing large, round sums, use the word *million* (or *billion*) plus a numeral and dollar sign.

Examples:

\$1 million for each accident

not: \$1,000,000 for each accident

\$15 million aggregate

not: \$15,000,000 aggregate

But:

\$1,550,000

not: \$1 million, five-hundred-fifty thousand

\$20,100,000

not: \$20 million, one-hundred thousand

Examples:

payable amount less than \$5 million

payable amount greater than \$10 million

Not:

payable amount less than five million dollars (\$5,000,000)

payable amount greater than ten million dollars (\$10,000,000)

7.5 Equations

 Use Microsoft Equation Editor to write equations. Open the *Insert* menu, in the *Text* section select *Object*. Scroll down and select Microsoft Equation to insert an equation into text.

 Set quantity symbols (including symbols for physical constants), subscripts or superscripts representing symbols for quantities, mathematical variables, and indexes in *italic* text. Set numerals, measurement unit symbols, mathematical constants, mathematical functions, and abbreviations in roman text.

 To italicize a word or passage: hold Ctrl and the letter I; or open the Home menu, select Font, and choose Italic under Font Style.

Number each equation uniquely. Place the number in parentheses and flush with the right-hand margin. Begin renumbering with each new section. In the equation below, W , C , V , D , M , and the subscript c are symbols for quantities and appear in *italics*.

Example:

MEASUREMENT

The Engineer will determine the theoretical quantity of cement by use of the following formula:

$$W_c = \frac{C \times V(D - M)}{100 + C} \quad (1)$$

where

- W_c is the theoretical quantity of cement in pounds
- C is the percentage of cement in the mix
- V is the pay volume of CTB in cubic yards
- D is the average in-place wet density in lb/yd³
- M is the average in-place moisture in lb/yd³

Not:

BEARING VALUE AND PENETRATION

The bearing values for driven piles shall be determined from the following formulas in which "P" is the safe load in 1,000 pounds-force, "E_r" is the manufacturer's rating for joules of energy developed by the hammer, and "s" is the penetration per blow in inches, averaged over the last few blows:

$$P = \frac{E_r}{6(s + 2.54)}$$

7.6 Fractions

Use numerals for mixed numbers; do not leave a space between the whole number and fraction.

Examples:

Join the top to the bottom with an arc of not more than $87\frac{1}{2}$ degrees.
Leave a distance of no more than $1\frac{3}{4}$ times the diameter of the bolt.

Express U.S. Customary values in consistent units; use decimals instead of fractions:

Examples:

a pipe length of 5.5 ft *not:* a pipe length of 5 ft, 6 in
4.5 lb *not:* $4\frac{1}{2}$ lb

 Microsoft Word can insert the following fractions for each increment of halves, thirds, quarters, fifths, sixths, and eighths:

1. Open the *Insert* menu and select *Symbol* and *More Symbols*.
2. Click the *Symbols* tab and ensure that the Font window reads "(normal text)".
3. Find the desired symbols slide the vertical scroll bar up or down. Fractions appear in two different clusters.
4. Highlight the desired fraction and insert by clicking the Insert button. Click Cancel to exit the *Symbol* window.

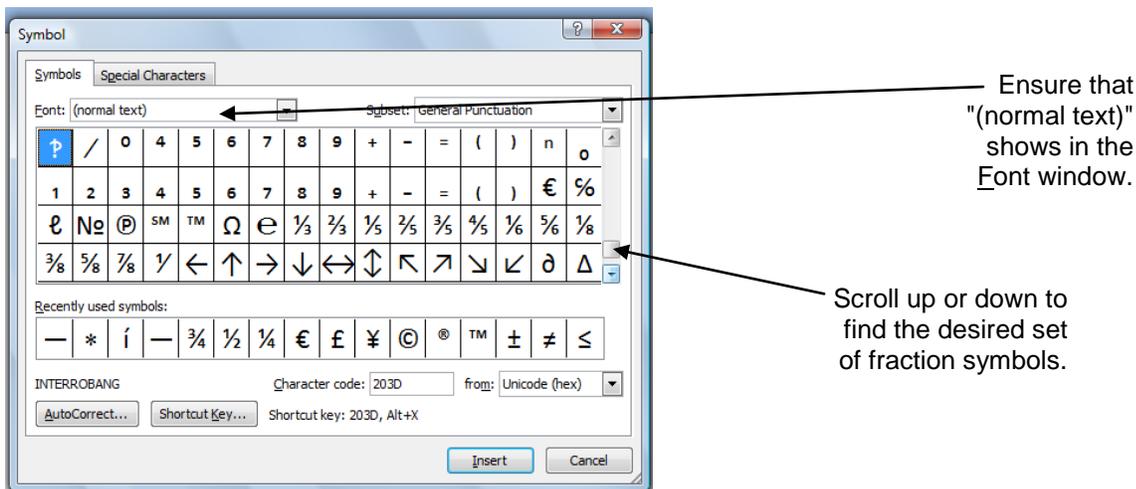


Figure 7.6:1
Symbol Window

 Format other fractions by using the superscript and subscript commands.

1. Press **Ctrl + Equal Sign (=)** for subscript formatting.
2. Press **Ctrl + Shift + Plus Sign (+)** for superscript. The subscript and superscript commands can also be found under the *Home* menu, *Font*, and *Font Effects*.
3. Insert a keyboard solidus (/) between numbers in a fraction.

4. Set the entire fraction in 9-point font.

Examples:

$\frac{7}{11}$, $\frac{13}{22}$, $\frac{11}{33}$

Use words for simple fractions that do not describe a measurement or a precise quantity, for fractions that stand alone, and for fractions that come before the words *of a* or *of an*. Connect the numerator and denominator with a hyphen.

Examples:

Add mulch when the tank is at least one-third full of water.

Use a spray bar at least three-fourths the length of the mixer.

The Department will pay one-half the unit price.

Use straw, hay, or sawdust to fill the lower one-fourth to one-third of the trench.
a sum equal to at least one-half of the contract price

7.7 Percent

Use the word *percent* in text and precede with a numeral.

Examples:

average density less than 95 percent

changes greater than 5 percent

a minimum of 4 percent moisture

provided the quantity does not exceed 0.1 percent

greater than 0.5 percent of the total

not: one-tenth of one percent

not: greater than one-half of
one percent of the total

7.8 Hyphens and Unit Modifiers

When a numeral and measurement unit expressed as a word (see chapter 6.4) 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*. Hyphenate unit modifiers and spell out the name of the measurement unit. Use a hard hyphen [Press Ctrl + Shift + (-)] to keep the numeral and word together across line breaks.

Examples:

a 0.5-inch screen

a 135-degree hook

a 28-day compressive strength test

a 1,000-hour salt spray test

a 3-inch sieve

two 12-volt automotive batteries

due to 2- and 3-axle pneumatic tired earthmovers

not: a 3 in sieve

not: two 12-V automotive batteries

not: 2 and 3 axle pneumatic ...

Use the same structure in more complex unit modifiers (that is, in phrasings with multiple adjectives working together to describe a single object).

Examples:

1-inch-diameter rod
10-foot-long plank

The preferred method of constructing a unit modifier is with the unit name spelled out in full and hyphenated. However, if a unit symbol is used in place of the spelled-out name, use a hard space between the numeric value and symbol — do not hyphenate. Do not hyphenate a compound modifier that involves money.

Examples:

a 1.5 in screen
a 3 in sieve
a 1 in diameter rod
a 10 ft long plank
a \$20 million airfield

The best solution to constructing a unit modifier with symbols, however, is to rearrange the phrase so that the object or dimension described comes before the measurement.

Examples:

a rod diameter of 1 in
a plank length of 10 ft
a steel ball with a diameter of 3 in and a mass of 5 lb

7.9 Commas

In dollar figures, use commas in expressions of four digits or more (i.e., for amounts greater than \$999).

Examples:

\$800
\$1,000
\$10,000
\$2,150,000

In measurements, use commas in numeric values with four or more digits.

Examples:

750 psi
1,000 psi
1,300 yd
10,000 mi

rated for 100,000 hours of ...
25,000 lb total gross load
sample an area greater than 800 ft × 1,200 ft
a vertical force of 2,500 lbf
luminous intensity of 1,500 lm on the optical axis
intensity of 1,000 fc

Do not separate digits with commas when the practice runs counter to established convention. For instance, do not separate the digits in numbers used in dates, street addresses, or as part of a document title or standard designation.

Examples:

Contract No. 12-083804
September 2004
3311 West State Street

8: Punctuation

8.1 Serial Commas

Within a sentence, use a comma to separate each element in a series of three or more elements; use a comma before the conjunction ("and" or "or") joining the last two elements in the series.

Examples:

Provide at least 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 to support deck slab reinforcement.

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

If a vertical list, see chapter 9, "Lists".

8.2 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 on top, creating a "shingle effect."

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

8.3 Quotation Marks Around Words as Words

Use quotation marks when referring to specific words that appear elsewhere on signs, labels, drawings, and the like. Use the same capitalization and typography as the quoted sign or words; do *not* otherwise use all-capitals, bold typefaces, or similar typographic features for added emphasis.

Examples:

The Engineer will mark each drawing "final."

Install pull box covers marked "Traffic Signal" when the box contains traffic signal conductors.

Do not place quotation marks around words that describe the content of a sign or label, but are not the actual wording on the sign or label.

Example:

Equip the upraised-hand portion of the pedestrian signal face with an LED module.

Not:

Equip the "Upraised Hand" portion of the pedestrian face with an LED module.

Not:

Equip the "UPRAISED HAND" portion of the pedestrian face with an LED module.

8.4 Letters as Shapes

Type letters used as shapes in **BOLD CAPITALS**. Do not use quotes around the letter. Link the letter and following word with a hard hyphen if warranted.

Examples:

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

8.5 Parentheses

Use parentheses to insert and set off additional information relevant to the sentence.

Examples:

at least 60 percent of the time (to the nearest full hour) spent on the activity

Provide the diagrams printed on U.S. engineering E-sized sheets (36 in × 48 in).

Parentheses can be particularly useful to show related information in long or complicated sentences, or in sentences with many commas or other punctuation.

Example:

The Contractor waives the right to indemnity against the Department, its directors, officers, employees, or agents (excluding design professionals).

Do not use parentheses to add unnecessary information or in an attempt to clarify a confusing sentence. Instead, clarify the sentence or passage by rethinking or rephrasing it.

Example:

Provide and apply a fog seal coat consisting of a slow-setting type asphalt emulsion mixed with water in a ratio of one part emulsion to one part or less added water.

Not:

Fog emulsion and additional water. Add and mix the water with the asphaltic emulsion (which contains up to 43 percent water) so that the resulting mixture will contain one part asphaltic emulsion and not more than one part added water. Seal coat shall consist of an application of a mixture of slow-setting type asphalt.

Use parentheses to insert and set off counterparts or equivalencies, such as chemical formulas or form numbers.

Examples:

in accordance with the requirement for chrome oxide (Cr₂O₃) green

The Engineer will document the first working day on the *Elapsed Time and Work Status Statement* (Form ITD-2242).

Provide and place speed advisory signs on multilane roadways (freeways, expressways, and multilane conventional highways) on the outside edge of the traveled way nearest to the lane being worked on.

Place commas, semicolons, periods, or other punctuation that the main sentence might need *after* the closing parenthesis mark. Do not use brackets — [] — or french brackets — { } — in place of parentheses; reserve brackets for mathematical formulas and equations.

8.6 Hyphens and Dashes

There are four distinct typographic characters, each with distinct uses:

hyphen: - en dash: – em dash: — minus sign: −

 Table 6.5:1, "Signs and symbols," provides shortcuts for a number of symbols. To make these four symbols in Word, type:

for a hyphen: the keyboard hyphen

for an en dash: *Insert* menu, *Symbol*, *More Symbols*, *Special Characters* tab

for an em dash: *Insert* menu, *Symbol*, *More Symbols*, *Special Characters* tab

for a minus sign: *Insert* menu, *Symbol*, *More Symbols*, *Symbols* tab (*not* the keyboard hyphen)

The shortest of the four is the hyphen, which is produced directly from the keyboard. Use the hyphen to hyphenate two words in a compound adjective or words with a hyphenated prefix:

Examples:

two-way

pneumatic-tired rollers

Do not use a hyphen to indicate a numeric range, to connect a measurement symbol with a numeral, or as a minus sign.

Use the en dash in tables to indicate a numeric range.

Use the em dash to amplify or set off a clause within a sentence:

Example:

At the request of the Engineer, immediately remove — and not again use on the project — a subcontractor who fails to satisfactorily prosecute the work.

Use the minus sign in mathematical formulas and with numerals to show negative values.

Example:

a temperature range of from -40 °F to 120 °F

8.7 Hard Spaces

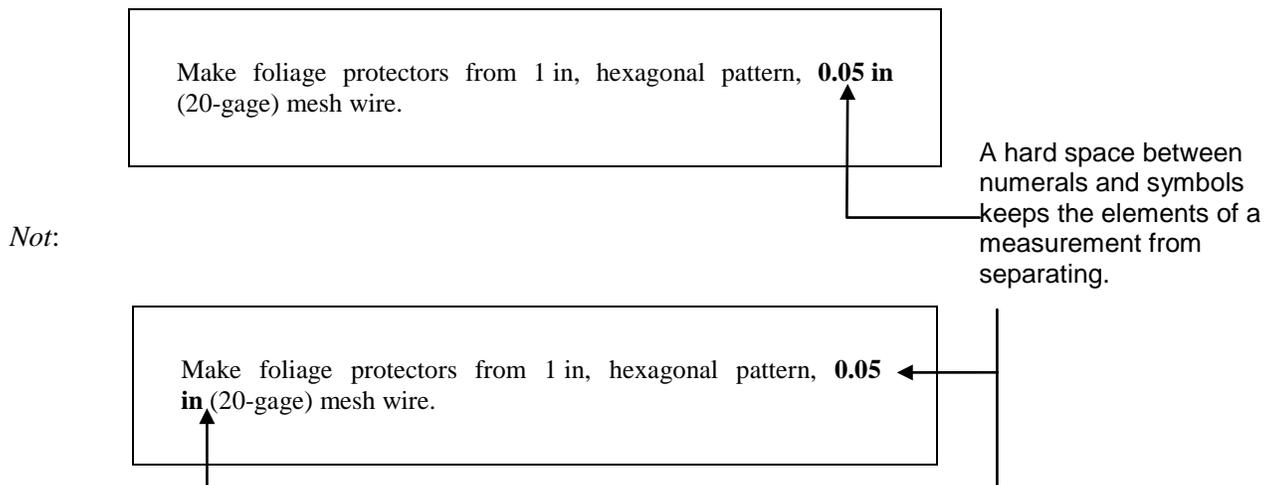
Use a nonbreaking (hard) space to hold together parts of a measurement, dimension, or phrase that could cause confusion if allowed to separate at a line break.

 To insert a hard space, open the *Insert*, *Symbol*, *More Symbols*, and *Special Characters* menus and select "nonbreaking space," or hold down the Ctrl and Shift keys and press the space bar.

Use the hard space:

- between a numeral and an accompanying word (July 4);
- between numerals and units (1.5 in);
- between numerals and the word *percent* (90 percent)
- between the words *section*, *item*, and *article* and an accompanying number; and
- between the letter and the number of ASTM and similar specifications (ASTM C 595).

Example:



Example:

On projects for which the amount of the Contractor's bid for bid comparison purposes is \$2 million or less, the state will pay **90 percent**.

Not:

On projects for which the amount of the Contractor's bid for bid comparison purposes is \$2 million or less, the state will pay **90** percent.

A hard space between numerals and words keeps the elements of a phrase from separating.

Exception: Do not use a space of any kind (hard or otherwise) between the numeric value and the unit symbol for plane angle (°).

Examples:

Rotate the handle 180°.

Equip the nozzle with a fan tip angle no greater than 30°.

9: Lists

9.1 General

Use lists when logically appropriate. Display vertically, and number each item, starting with the numeral 1, followed by a period.

9.2 Capitalization

Capitalize the first word of each numbered item.

9.3 Punctuation

Do not use punctuation at the end of the items of a list, except for the last item, use a period. If introducing the start of a sublist, use a colon.

Example:

The Contractor shall furnish the following information for each shipment of splice material:

1. The type or series identification of the splice material and, for sleeve-threaded type sleeves, the heat treatment lot number
2. The bar grade and size number to be spliced by the material
3. A copy of the manufacturer's catalog giving complete data on the splice material and procedures
4. A statement that the splicing systems and materials used in accordance with the manufacturer's procedures will develop not less than the minimum required tensile strengths.

9.4 Sublists

If necessary, a list may contain a list or lists one (but no more than one) sublevel lower. Enumerate each item using the number of the parent item in the primary list, followed by a period, and then a numeric sequence beginning with the numeral 1 (see also chapter 8, "Punctuation").

Example:

Coat pretreated metal target plates an opaque white on both sides in accordance with one of the following paint systems:

1. **One-Coat System**
2. **Two-Coat System.** Test dry film in conformance with ITD Test 671, conforming to the following thicknesses:
 - 2.1. Primer coat from 2.0 mils to 4.0 mils
 - 2.2. Prime coat plus top coat \geq 5.0 mils

For added clarity, as in the example above, the items in the primary list can be identified by means of a running side head, which is the same format used for definitions. To create the running side head, place the listed terms in boldface, then insert a period and an em space before starting the sentence or definition that follows. See chapter 2.4, "Formatting Definitions."

9.5 Structure

Phrase each item similarly; begin items in the same way (with a noun, verb, preposition, etc.). Express parallel ideas in parallel form. Adjectives should be paralleled by adjectives, nouns by nouns, prepositions by prepositions, and so on.

Example:

The Contractor may use reclaimed materials for aggregate from any (including combinations) of the following:

1. Asphalt concrete
2. Portland cement concrete
3. Lean concrete base
4. Cement-treated base.

Grammatically, each of the four items in the list is composed of a noun (*concrete* or *base*) modified by an adjective or adjectives (*asphalt*, *portland cement*, *lean*, *concrete*, *cement-treated*), and without change each item would yield a grammatically complete ending to the root of the introductory clause. For example:

The Contractor may use reclaimed materials for aggregate from *asphalt concrete*.

The Contractor may use reclaimed materials for aggregate from *portland cement concrete*.

The Contractor may use reclaimed materials for aggregate from *lean concrete base*.

The Contractor may use reclaimed materials for aggregate from *cement-treated base*.

Install pull boxes in accordance with the following:

1. At conductor splices, except splices made in valve boxes
2. At intervals of no more than 500 ft along any low voltage, neutral, or control conductor run
3. Within 5 ft of irrigation controllers or within 5 ft of cabinets housing one or more controllers
4. At the ends of electrical conduits
5. At other locations shown in the plans.

10: Publication, Standard, and Document Titles

10.1 Complete Publications

When referring to or using the title of a complete or separately issued manual, publication, or document, place the publication *Title in Italics*; do not use quotation marks. Do not italicize information about the title (e.g., bulletin # or publication #, Bulletin # or Publication #).

Examples:

these *Standard Specifications*
the *Standard Plans*
the *Notice to Contractors*
the *Manual of Steel Construction*, published by AISC
requirements in Institute of Traffic Engineers Publication ST-008B: *Vehicle Traffic Control Signal Heads*
the *Manual on Uniform Traffic Control Devices*
in accordance with *Specifications for Structural Joints Using ASTM A 325 or A 490 Bolts*, approved by the Research Council on Structural Connections

Use additional punctuation only as otherwise required by the sentence's structure.

Example:

Prune in accordance with ANSI A 300-1995, *Tree, Shrub and Other Woody Plant Maintenance: Standard Practices*, and with *Tree Pruning Guidelines*, published by the International Society of Arboriculture (ISBN: 1-881-95607-5).

10.2 Forms, Certifications, and Standards

Treat the titles of separately issued and handled forms, certificates, standards, and similar documents as complete publications: Italicize the title. Do not use quotation marks. Use the appropriate punctuation required by the sentence overall. (If, for example, the word *Form* and the form's number accurately identify a document, the title is providing supplementary information and is set off by commas.)

Examples:

Post a *United States Department of Transportation Notice* (Form FHWA-1022) on federal-aid contracts.
The Department will only accept shipments of nursery stock conforming to the applicable requirements of *USA Standard for Nursery Stock*.

Do not italicize or put quotation marks around information that is *about* a title, but that is not itself a title.

Examples:

galvanize in accordance with Federal Specification RR-W-410D
surge protection specified in section 2.1.6 of NEMA Standard TS2-1992
in accordance with ASTM D 2241 or D 2672
in accordance with the requirements in ANSI Standard B1.1

10.3 Chapters, Sections, and Parts

When referring to the name of a chapter, section, or other part of a larger publication, place quotation marks around the name of the chapter or section. If a chapter or section number alone is sufficient to enable a reader to find the intended reference, the chapter or section title is providing supplementary information and is set off by commas.

Examples:

in 620, "Planting," of the *Standard Specifications*
by way of requirements included under "Maintaining Traffic" in the special provisions

10.4 Citation Accuracy

Using an accurate citation at the outset can substantially reduce the later chances of misinterpretation or dispute. Verify the correctness of a citation to a standard or publication before including it in a specification; refer to the issuing organization's website or to a *current* printed copy of the cited standard or publication for this purpose.

It is imperative to check that a cited standard is current, along with its designation and title. Failure to do so can result in reliance on obsolete or canceled standards.

Example:

Immediately before setting bearing assemblies or masonry plates on ground concrete surfaces, clean the surfaces of the concrete and the metal to be in contact. Provide full bedding by applying a coating of non-sag polysulfide or polyurethane caulking to contact areas, in accordance with the requirements in ASTM C 920.

Not:

Immediately before setting bearing assemblies or masonry plates directly on ground concrete surfaces, thoroughly clean the surfaces of the concrete and the metal to be in contact and apply a coating of non-sag polysulfide or polyurethane caulking conforming to the requirements in Federal Specification TT-S-230, Type II, to contact areas to provide full bedding.

The following table provides a list of organizations that issue standards cited in *Standard Specifications*. The right-hand column gives the Internet address at which the current designation and titles of the organizations' standards can be verified.

Table 10.4:1
Current Standards

Organization (acronym)	Website
American Association of State Highway and Transportation Officials (AASHTO)	http://www.transportation1.org/aashtonew/
American National Standards Institute (ANSI)	http://www.ansi.org/
American Society for Testing and Materials (ASTM)	http://www.astm.org
American Welding Society (AWS)	http://www.aws.org/catalogs/
National Electrical Manufacturers Association (NEMA)	http://www.nema.org/index_nema.cfm/1427/
Underwriters Laboratories	http://ulstandardsinfontel.ul.com
U.S. Code	http://uscode.house.gov/usc.htm
U.S. General Services Administration (Federal Specifications)	http://apps.fss.gsa.gov/pub/fedspecs/index.cfm

Cite the title or publication name exactly as it is given by the issuing organization. Do not substitute words such as *Publication* if an organization refers to its standards with the word *Standard*. Do not capitalize, quote, or italicize words that paraphrase the title or simply describe a publication's contents or subject.

Examples:

For Type 5 conduit and fittings, provide intermediate steel conduit in accordance with the requirements in UL Standard 1242, *Electrical Intermediate Metal Conduit — Steel*.

Or:

For Type 5 conduit and fittings, provide intermediate steel conduit in accordance with the requirements in UL Standard 1242 for intermediate metallic conduit.

Not:

For Type 5 conduit and fittings, provide intermediate steel conduit in accordance with the requirements in UL Publication 1242 for Intermediate Metallic Conduit.

Do not add words within a reference that are not part of the reference. The American Society for Testing and Materials, for example, does not use the word *Designation* within the designation of its standards. Logically, doing so would be analogous to including the word *Name* in a person's name. The same is true of standards issued by ANSI, AASHTO, IEEE, and similar organizations.

Example:

Provide and use nuts in accordance with ASTM A 563 or A 563M.

Not:

Provide and use nuts in accordance with ASTM Designation: A 563 or A 563M.

Words such as *called*, *titled*, or *entitled*, are not necessary when referring to a publication, standard, or other document. Do not use or add them.

Example:

Prepare diagrams, plans, and drawings using graphic symbols in accordance with ANSI Y32.2, *Graphic Symbols for Electrical and Electronic Diagrams*.

Not:

Prepare all diagrams, plans and drawings using graphic symbols shown in ANSI publication Y32.2, entitled "IEEE Standard and American National Standard Graphic Symbols for Electrical and Electronic Diagrams."

10.5 Electronic Citations

To refer to a website or electronic source in text, type the web address (i.e., the URL). Do not put the address inside brackets. Do not insert an internal hyphen or other punctuation if breaking a URL across lines of text. Place punctuation marks needed by the sentence (commas, semicolons, etc.) after the URL.

Examples:

<http://itd.idaho.gov/>
<http://physics.nist.gov/Document/sp811.pdf>

To properly cite an electronic document in a list of sources or references, include the author's name (if appropriate), document title, issuing agency (if appropriate), and Internet address.

Example:

Fletcher, Gordon, and Anita Greenhill. Academic Referencing of Internet-based Resources. *Australian Library Journal*.
<http://www.spaceless.com/WWWVL/refs.html>.

11: Capitalization

11.1 General

Be consistent. For situations not addressed in this *Guide*, consult chapter 8, "Names and Terms," of *Chicago* (chapter 7 in *Chicago, 14th Edition*); chapter 3, "Capitalization," in *The Gregg Reference Manual*; or chapter 3, "Capitalization Rules," in the *Government Printing Office Manual*.

Avoid overcapitalization. Excessive capitalization slows reading and reduces the very emphasis capitalization aims to achieve.

11.2 Specific Categories

Capitalize the names of companies, unions, associations, independent committees and boards, and other specific organizations. Follow the style established by the organization itself.

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

- ACRONYMS and INITIALISMS
- proper nouns
- titles of sections and titles of tables in *Standard Specifications*
- document titles (see chapter 10):

Examples:

the *Engineer's Weekly Report*
Certificate of Compliance
Notice of Termination

- Laws and legislative acts (do not add capitalization to descriptive words — such as *federal* — that are not themselves part of the law's name).

Examples:

the federal Clean Air Act
the federal Resource Conservation and Recovery Act
the Idaho Vehicle Code

- ITD programs (when referring to specific, established programs within ITD or a related agency).

Examples:

Statewide Transportation Improvement Program
Rest Area Activities Program
Idaho Driver's License Program
Idaho Byways Program

- State and federal department and agency names, when used in full.

Examples:

the Idaho Department of Agriculture
the Occupational Safety and Health Administration, U.S. Department of Labor

- Official titles used immediately before a person's name; this circumstance is uncommon in specifications.

Examples:

Governor C. L. "Butch" Otter
Attorney General Lawrence Wasden
Director Brian W. Ness

Do not capitalize:

- Descriptive job titles:

Examples:

the disbursing officer
the attorney general
the state treasurer
the district director
the county agricultural commissioner
the county sealer of weights and measures
a certified backflow preventer tester

11.3 Common Nouns, Common Usage

Overcapitalization creates confusion, particularly when common nouns that might refer to any one of several people, places, or things are capitalized; the capitalization suggests there is only one such thing, when in fact there are many. Similarly, capitalizing a descriptive phrase can incorrectly suggest a reference to a specific, named standard, manual, or agency.

Check an authoritative source before capitalizing. For instance, the Aluminum Association, Inc., which is recognized by the American National Standards Institute, does not capitalize *alloy*.

Example:

If the Contractor chooses to furnish plates made of aluminum sheet, ensure the use of aluminum:

1. With a nominal thickness of at least 0.5 in.
2. Made of *alloy* 3003-H14. The Engineer may approve the use of other alloys having equivalent properties.

Not:

Aluminum target plates shall be fabricated of Alloy 3003-H14.

Do not capitalize:

- appendix
- bidder
- certified public accountant
- district
- federal
- federal-aid
- payment bond
- performance bond
- plans
- portland cement
- professional engineer
- section (when not specifying a section number and title in *Standard Specifications*)
- special provisions
- specification
- subcontractor
- table (except when specifying a table number and title in *Standard Specifications*)
- utility company
- web
- website

11.4 Specific Words in a Specific Context

Capitalize the following common nouns only in the context indicated:

- Contractor (when used in reference to *the* contracting firm that executed the contract, and as defined in Subsection 101.03, "Definitions," of the *Standard Specifications*)

Example:

The *Contractor* may provide for the passage of public traffic ...

But:

Upon written request, the Department will allow bidders or *contractors* to examine its records of investigations pertaining to site conditions.

- Department (when used in reference to the Idaho Transportation Department, and as defined in Subsection 101.03, "Definitions," of the *Standard Specifications*)

Example:

The *Department* may deduct these amounts from monies due ...

- Director (when used in reference to the executive officer of the Idaho Transportation Department, and as defined in Subsection 101.03, "Definitions," of the *Standard Specifications*)

Example:

The *Director* may relieve the Contractor of the duty of maintaining and protecting certain portions of the work.

But:

The district *engineer* of the district administering the contract will make the final determination of claims that remain in dispute after completion of claim review by the Engineer.

- Engineer (when used in reference to the *engineer* responsible for a project, and as defined in Section 101.03, "Definitions," of the *Standard Specifications*)

Example:

Submit drawings showing the proposed method of cofferdam construction to the *Engineer* for approval.

But:

Working drawings shall include all design calculations and shall be signed by a *professional engineer* licensed in the State of Idaho.

- Internet (when used to describe the system that links existing computer networks into a worldwide network.)

Example:

The Idaho Department of Health and Welfare provides several health related resources on the *Internet* at <http://www.healthandwelfare.idaho.gov>.

- State (when used as a noun referring to the governmental entity known as the State of Idaho, and as defined in Section 101.03, "Definitions," of the *Standard Specifications*)

Example:

Handle and apply paints in accordance with applicable occupational safety and health standards, rules, regulations and orders established by the State.

But:

A *state* agency may determine a person's eligibility to enter into a contract under this article.

- Table (when referring to a numbered and titled table within *Standard Specifications*)

Example:

Use *Table* 108.1, to determine the number of anticipated weather days per month for each district.

But:

Provide and use loop detector lead-in cable with a cross sectional area calculated in accordance with *table* 1 of ASTM B 286.

12: Tables

12.1 General

Keep tables as simple as possible, both in layout and content. Display information so it can be grasped quickly and without confusion. For additional guidance on the format and design of tables, consult "Tables," in the *Chicago Manual of Style* and "Tabular Work," in the *Government Printing Office (GPO) Style Manual*.

For table headings, content, notes, and labels use the symbols shown in table 6.4:1, "U.S. Customary Measurement Symbols," and table 6.5:1, "Signs and Symbols."

12.2 Tables

Give every table a title. Capitalize the first letter of significant words in the title. Do not place a period at the end of the title.

Number tables uniquely. Precede the number with the word *Table*. Begin the number with the first-level *Standard Specification* section number in which the table appears, followed by a period and the sequential number of the table within the section, starting with the numeral 1. Do not use Roman numerals (e.g., I, II, III). Begin renumbering with each new section.

Examples:

Table 108.1
Table 108.2
Table 109.1
Table 109.2

Make table titles self-contained. The title should convey the information needed to correctly interpret the data in the table. Use a title to provide information about the substance of a table when cross-referencing a table in *Standard Specifications*.

Example:

The mass of the individual pieces of rock is indicated in Tables 712.1, "Grading of Rock Slope Protection, Method A Placement," and 712.2, "Grading of Rock Slope Protection, Method B Placement," ...

Not:

The mass of the individual pieces of rock in each class shall be as indicated in the table in 604.02, "Materials," ...

In text, refer to tables by number and complete title. Introductory phrases such as "the following table" or similar terms are not necessary; do not use.

Example:

Provide and use materials in accordance with the ASTM requirements listed in Table 525.2, "Structural Steel Materials."

Not:

Provide and use materials in accordance with the ASTM requirements listed in the table entitled "Structural Steel Materials" at the end of this 525.04.

12.3 Table Layout

Adjust the layout of a table by using the *Table Properties* option, which you can reach through the *Table* menu or by right-clicking inside the table.

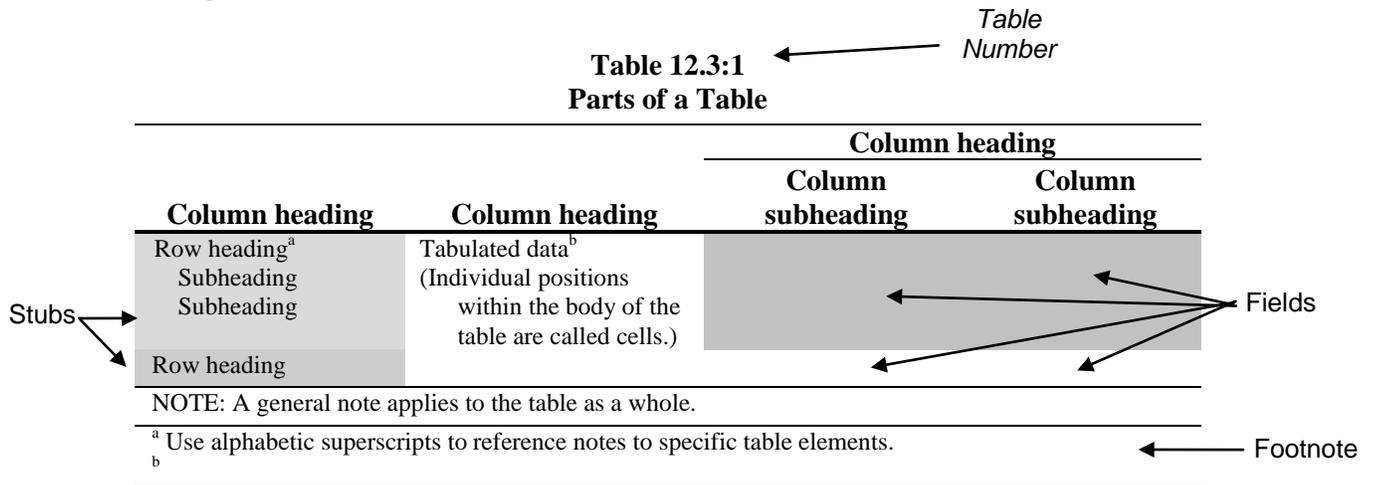
Center the table, number, and title horizontally on the page. Do not allow tables to exceed the margins of the paper. Make tables no more than 6.5 inches wide on standard 8.5-inch-wide paper. Set the table number and title each on their own line, and each **in 12-point bold**. Set the number above the title, and place both in the top cell *above* the table.

Use the *Borders and Shading* menu to place a single 0.5-point-thick line below the table title and a double line between the column headings and the table's content. Place a 1-point-thick line at the bottom of the table.

Use no more gridlines than are needed for clarity. *Chicago* and the *GPO Style Manual* both recommend tables without vertical lines.

Align column headings in the center of a cell horizontally and at the bottom vertically. Set column headings in **11-point bold**. Align row headings to the left side in the stub. Capitalize the first letter of the first word of the heading. Do not capitalize subsequent words in the heading. Format rows with a 0.2-inch hanging indent. Align table text as applies in the table and in 9.5–point roman text.

Example:



12.4 Table Notes

Place notes to a table immediately after the table to which they belong. Place mandatory text in the table or in a footnote. Align notes flush with the table's left edge.

1. *General notes:* apply notes to the table as a whole and introduce with the word *NOTE(S)* set in capital letters and followed by a colon (:). General notes can apply to the table number or title.
2. *Notes on specific parts of the table:* refer to notes using alphabetic superscripts. Place letters next to column headings or in the body of the table, but not on the table number or title. Do not use asterisks.

12.5 Dates in Tables

Use abbreviations in tables where space is limited. Express all dates in the same format. Use the following system:

To specify a month without a year, write:

Jan.	May	Sep.
Feb.	Jun.	Oct.
Mar.	Jul.	Nov.
Apr.	Aug.	Dec.

13: Using the Computer

13.1 General

Good writing — whether it be literature, a letter, or specifications — takes skill, time, and thought. It takes practice and a determination always to make the work better. A computer is no substitute for a writer's judgment. But it can help.

Good specification writing is *consistent, clear, correct, and current*. A writer can use a computer to help ensure consistency by making routine use of tools such as the *Find and Replace* feature (by checking the "Match case" option, for instance, to verify that the word *Internet* is always capitalized) and the *Cut* and *Paste* functions (to use edited text in one place as a template for similar text elsewhere).

By enabling ready access to the Internet and websites such as those listed in chapters 3, "Citing Laws and Regulations," and 10.4, "Citation Accuracy," a computer can help a writer ensure that cited laws, standards, and publications are correct and current. And appropriate use of the grammar and spell-checking features built into Word can help enhance clarity.

13.2 Find and Replace

The *Find and Replace* feature helps find words without making you read through an entire document. Once you find a word, you can make changes manually or automatically. For example, using table 5.2:1, "Alternatives to Common Wordy Phrases," you can find words or phrases from the "Instead of ..." column and replace them wholesale with the words or phrases from the "Use or consider ..." column.

Examples:

Find what: prior to
Replace with: before

Find what: utilize
Replace with: use

 To use the search option in Microsoft Word, go to the Home tab and select the binoculars icon *Find*. This opens *Find, Replace, Go To, or Find Next*.

The *Find and Replace* search options allow you to search for groups of words, single words, parts of words, or even a single character (for instance, the mathematical sign μ).

Examples:

sufficient
give due and sufficient notice
suff

Note that the *Find and Replace* technique is sensitive to spaces and that Word's search engine reads spaces just as it does other characters; type spaces before or after a word only if you are looking for a specific combination of spaces and words.

The *Find and Replace* window offers three options: *Find*, *Replace*, and *Go To*. There are three buttons at the bottom of the *Find* window: *More*, *Find Next*, and *Cancel*. Clicking *More* allows you to narrow your search by specifying the case of a word.

Examples:

Before
before

In the above example, searching for the lowercase *before* avoids finding words that begin sentences or are otherwise capitalized, while searching for the uppercase *Before* will find only the capitalized words.

The *More* option also allows you to search for whole words. For example, if you are trying to locate the word *man*, click the "Find whole words only" box. Otherwise, a search will locate words like *crewman* and *foreman*.

Use *Find and Replace* to quickly find and correct punctuation or typographical errors, misspelled words, or other similar mistakes.

13.3 Word Count

It is almost always true that shorter writing is better writing. Almost all writing can be shortened. And almost all writing that starts long and has been shortened is clearer. This is because the only way to make a passage shorter and still retain its meaning is to choose the best words for the purpose and to arrange those words as economically as possible.

The most effective tool in a computer for encouraging brevity is the *Word Count* feature. You can — and should — use *Word Count* repeatedly in the course of drafting or editing a passage to assess your progress toward a clearly written specification. To do this, write the passage as concisely as you can, then count the words. Then edit the passage, looking for opportunities to trim unnecessary words. Take out as much as you can without changing the meaning, then count the words. Then edit the passage, looking for opportunities to trim unnecessary words.

Using the active voice instead of the passive can generally reduce a specification's word count by 20 percent. Changing phrases such as *on a regular basis* to *regularly* can cut wordiness by 75 percent. Both kinds of reduction give added clarity to those words that remain.

 To count the words in an entire document, look in the lower left corner and you will see page and pages and a word count. To count the words in an isolated passage, use the mouse or cursor to select the text, then look in the lower left corner and the count of the passage will appear in front of a slash mark that is in front of the word count for the whole document, such as **66/274**.

13.4 Spell Checking

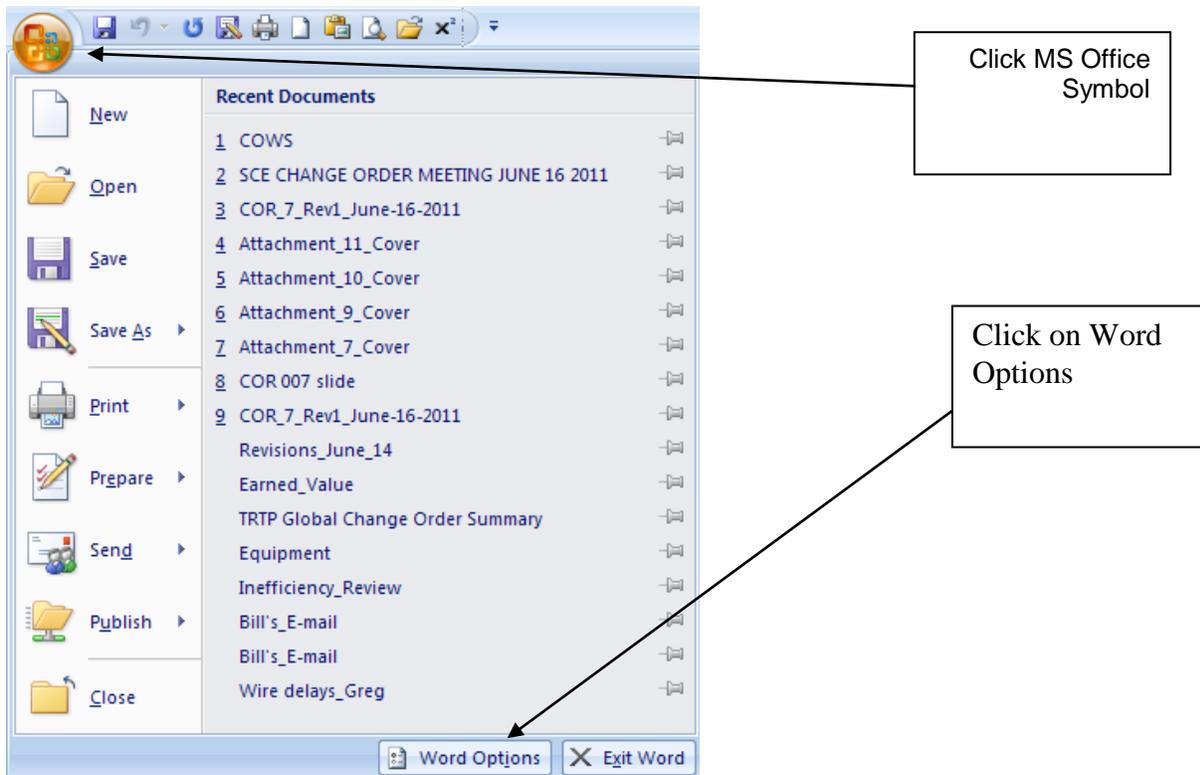
The *Spelling and Grammar* option on the Tools menu provides access to a variety of useful features. Use the spell-checker whenever writing or editing a text — no matter how short the passage, how small the change, or how many times the document has been spell-checked before. Do this because typos creep in inevitably, because spelling is easy to check, and because errors undermine a writer's authority.

To make the process faster when checking a document with lots of acronyms and unusual words, use the Ignore All button to skip subsequent occurrences of correct terms like *U.S.C.* Use the Add button to place into Word's built-in dictionary words — like *bituminous* — that will be used repeatedly in related documents.

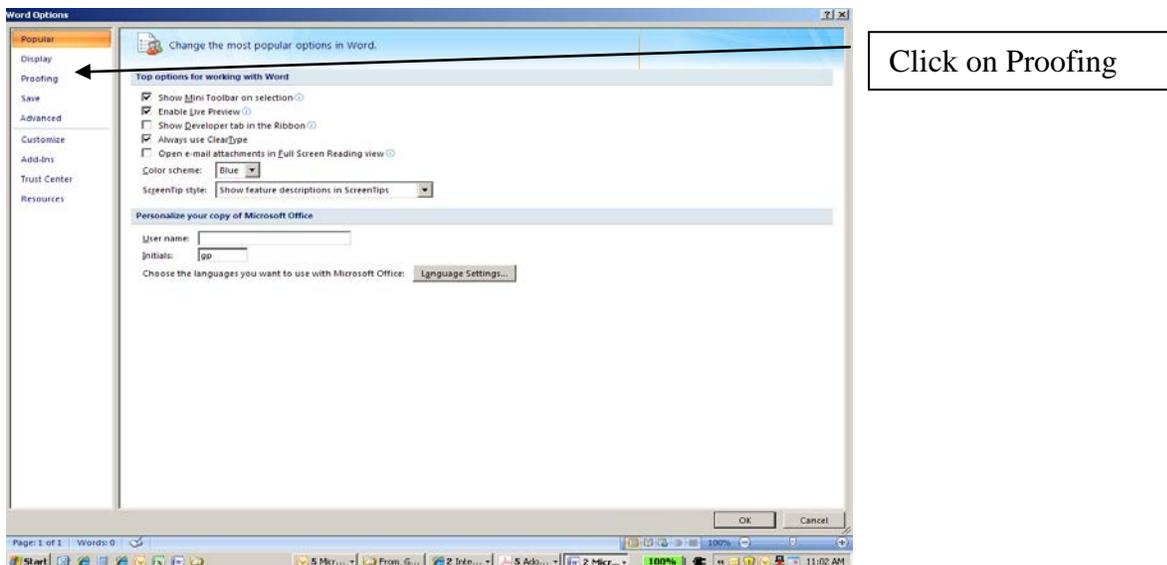
13.5 Grammar Checking

Word includes several tools to help assess the grammar and style of a written document. In some cases the program will recommend a way to improve a passage. In other cases it provides statistics that can be used diagnostically to address a range of problems. To use the grammar and style tools in conjunction with this *Style Guide*, change Word's default settings as shown:

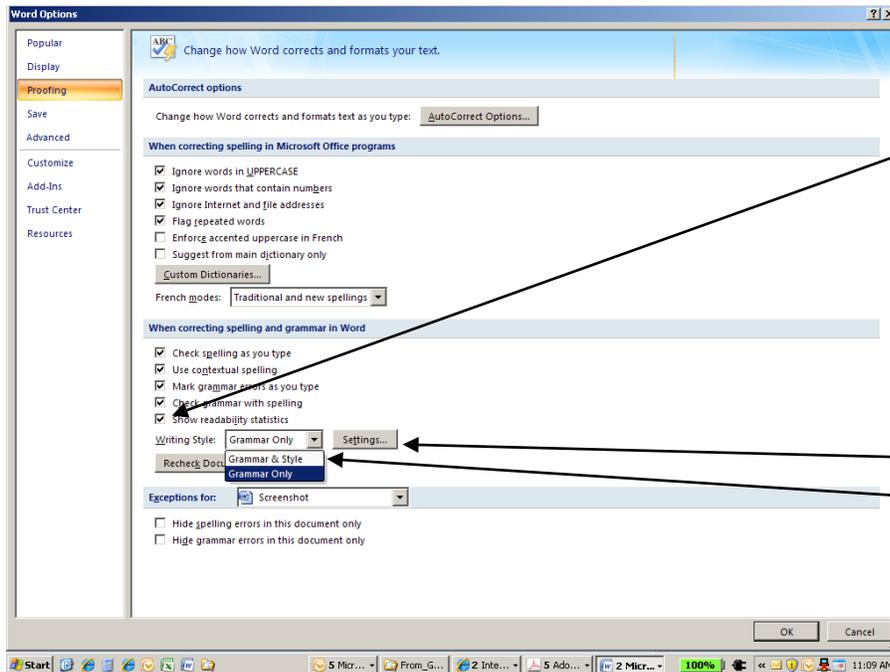
Click on the MS Office Symbol in the upper left corner above the tool bars. Then click *Word Options* in the bottom right corner of the pop up.



Select *Proofing*



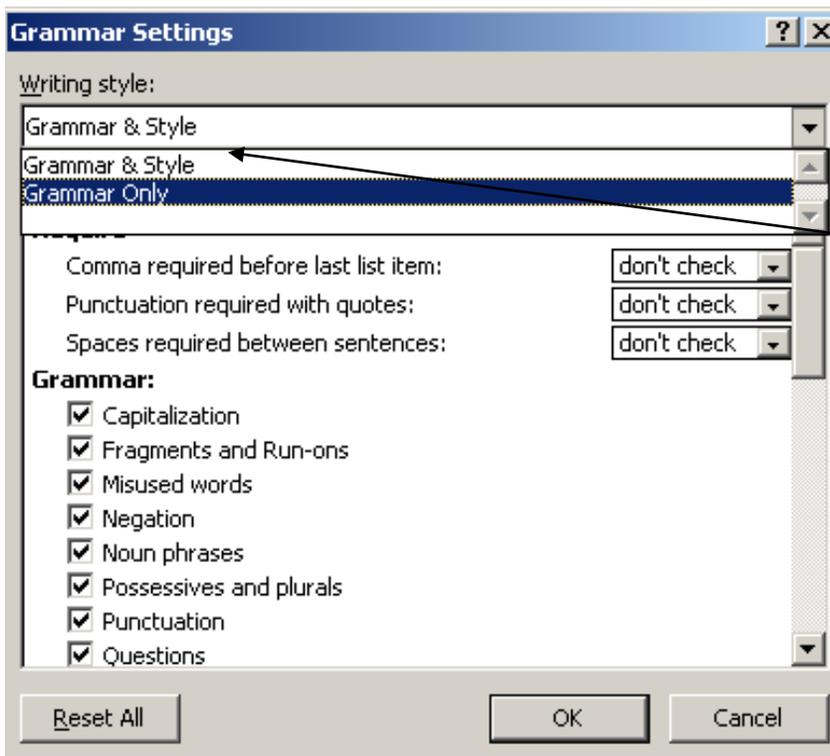
Select *Grammar & Style* and check the boxes below



Make sure *Show Readability Statistics* is checked

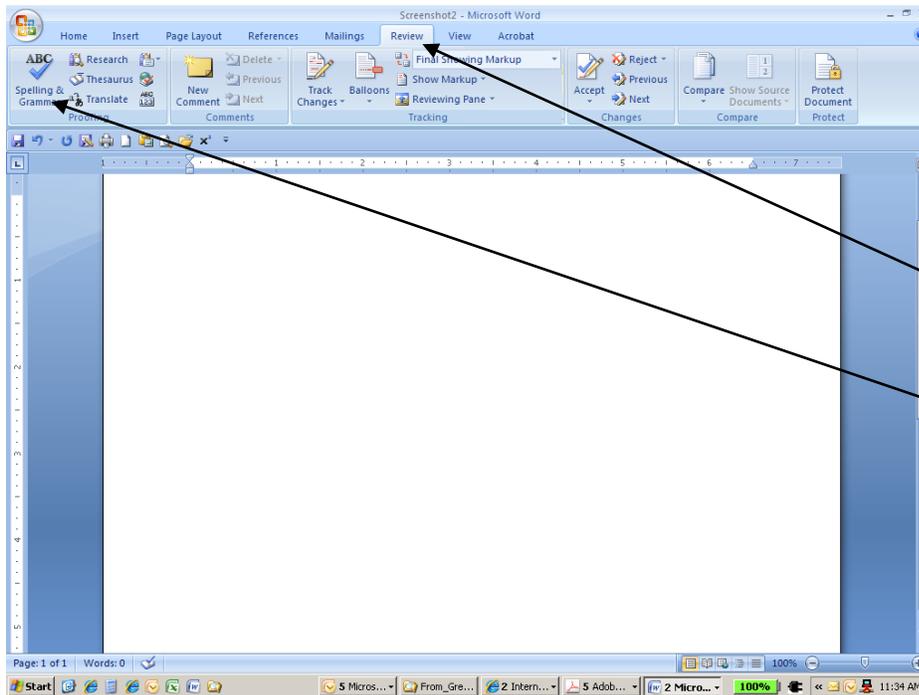
Select *Grammar and Style* and then select *Settings*

Select dropdown menu and select *Grammar & Style*. Scroll down and review the boxes and check or uncheck what you want to use. Make sure the *Passive Sentences* box is checked under the **Styles** group.



Select dropdown menu and select *Grammar & Style*

 To check the grammar and obtain diagnostic statistics in an entire document or a selected passage of text, select the *Review* tab and then select the *Spelling & Grammar* button at the left end of the toolbar. The spelling and grammar check will start automatically. In addition to marking possible spelling errors (which Word indicates in red, and which you should change as appropriate), the checker will mark possible grammatical errors in green, state the nature of the potential problem, and suggest one or more corrected alternatives.



Select the *Review* tab.

Select the *Spelling & Grammar* button.

In some cases, Word will suggest recommendations that you can accept as is:

any per occurrence or aggregate deductible under the policy.

The Contractor shall not commence any portion of work under the contract prior to obtaining the appropriate insurance required for the activity under this provision, and a certificate or other proof of current coverage has been furnished to and accepted by the state. All insurance policies

Spelling and Grammar: English (U.S.)

Passive Voice

Appropriate insurance required for the activity under this provision, and a certificate or other proof of current coverage **has been furnished to and accepted by the state.**

Suggestions:

Passive Voice (consider revising)

Change Explain...

Check grammar

Options... Undo Cancel

Original Text

Nature of the Problem

Location of the Problem

States the problem and usually offers suggested rewording.

Accept Word's Suggested Correction

Other times, Word will offer a choice of suggestions requiring you to make a decision based on your intended meaning:

Spelling and Grammar: English (U.S.)

Subject-Verb Agreement:

The requirements of this specification **is an essential part of the contract.**

Suggestions:

requirements of this specification are

OR

requirement of this specification is

Change Explain...

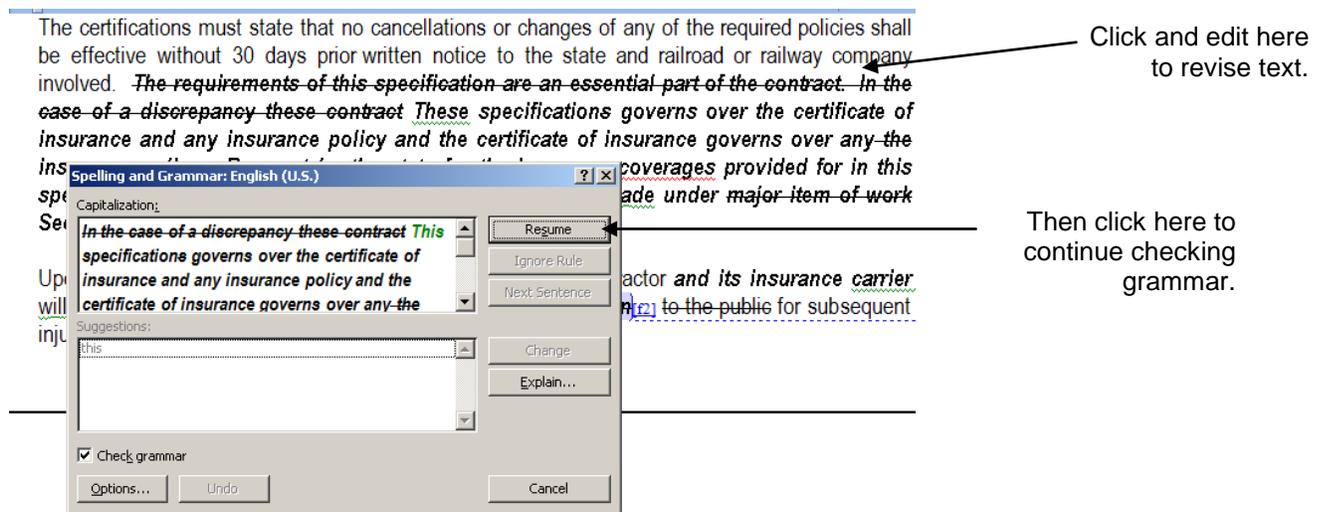
Check grammar

Options... Undo Close

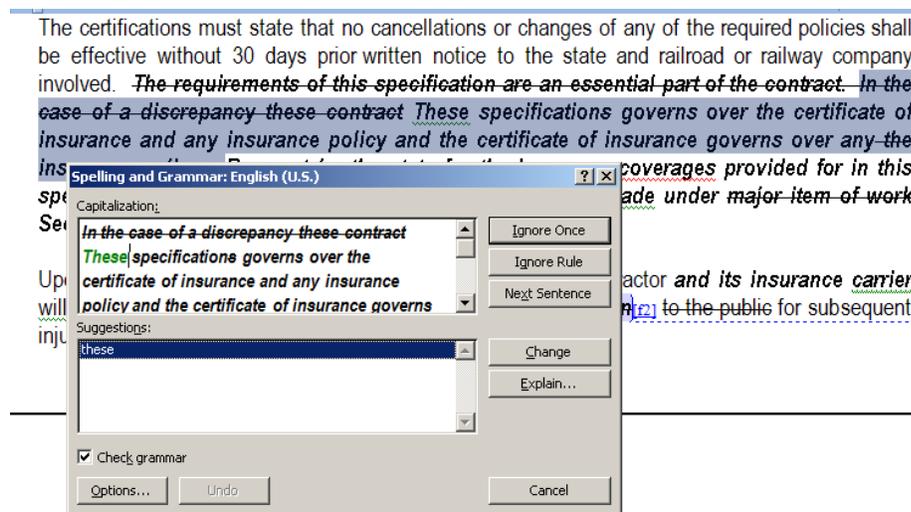
Click to accept recommended change.

Highlight and double-click to choose and make this selection.

Word may identify a potential problem without recommending a solution. When this happens, place your cursor in the original text, edit the sentence, and when you are done click the Resume button in the *Spelling and Grammar* box to continue checking the grammar.

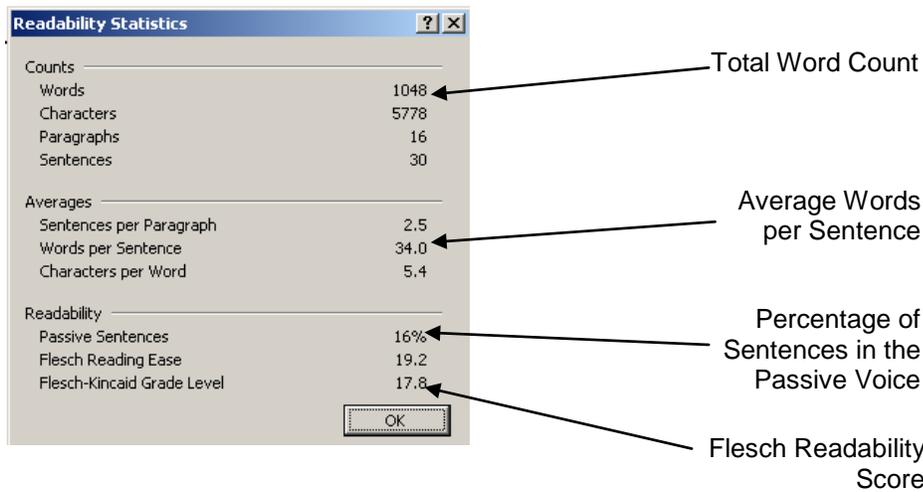


Sometimes Word's recommended solutions may not make sense. Analyze the potential problem and revise or ignore as appropriate.



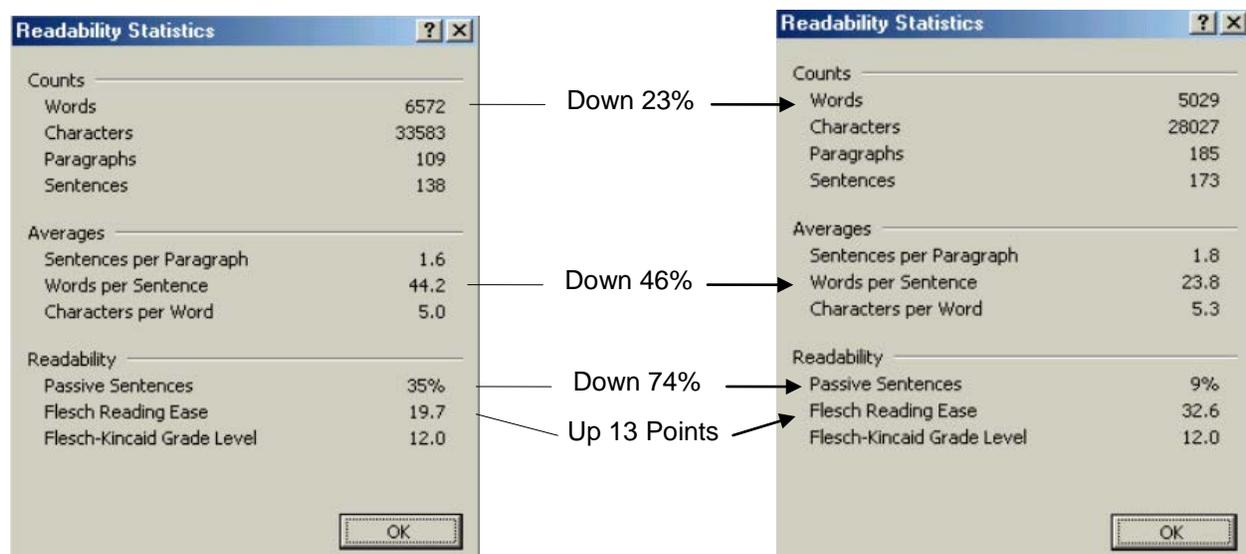
13.6 Readability

After Word has finished identifying possible grammar errors, a window appears with "Readability Statistics." Among the most useful of these are the total word count, the average number of words per sentence, percentage of sentences in the passive voice, and the Flesch reading score.



Overall, specifications that are shorter tend to be clearer and less prone to misunderstanding. The same is true of sentences: long ones provide the opportunity to get lost and confused. Short ones demand clear expression — which results from clear thought. The drawbacks of the passive have been discussed throughout this *Guide*. The readability score is the result of work done in the 1940s by Rudolph Flesch; it takes account of such factors as word length and complexity of punctuation and awards a higher score to text that is easier to read and easier to understand.

After drafting or revising a specification, run the grammar checker, and review the readability statistics provided by Word. As you edit the specification, assess and reassess yourself as you work: seek to reduce the overall word count, shorten sentences, reduce the use of the passive voice, and increase the Flesch reading score. The following data show the results of applying these principles to a generic rewrite.



14: Additional Sources of Information

14.1 Style Guides

Chapter 1, "Overview," indicates the two principal sources that writers should consult preferentially for authoritative general information on issues not addressed in this *Guide*, including format, style, and word and number usage:

The Chicago Manual of Style, 15th Edition (2003); or *14th Edition* (1993). Chicago: University of Chicago Press.
<http://www.press.uchicago.edu/Misc/Chicago/cmosfaq/>.

United States Government Printing Office Style Manual. Washington: Government Printing Office (GPO), 2000.
http://www.access.gpo.gov/su_docs.

At <http://www.press.uchicago.edu/Misc/Chicago/cmosfaq/cmosfaq.html>, the University of Chicago provides an electronic list of answers to questions not covered in the print edition of *The Chicago Manual of Style*. The GPO website includes the Code of Federal Regulations and the U.S. Code. The GPO offers an electronic version of its manual at <http://www.access.gpo.gov/styleman/2000/style001.html>.

In addition to *Chicago* and the *GPO*, specification and technical writers should be aware of — and consult — the many specialized sources of authoritative guidance on style and usage.

14.1.1 Style Guides for Technical Standards

IEEE Standards Style Manual. New York: The Institute of Electrical and Electronics Engineers, Inc., 2001 (Revised April 2002).
<http://standards.ieee.org/guides/style/index.html>

Form and Style for ASTM Standards. West Conshohocken, PA: ASTM International, 2003 (Revised March 2003).
<http://astmforums20.micronexx.com/>

Style Manual for Preparation of Proposed American National Standards. New York: American National Standards Institute, 1991.

14.1.2 Style Guides for Business and Technical Writing

The Gregg Reference Manual, 9th Edition. Edited by William A. Sabin. New York: Glencoe McGraw-Hill, 2001.

Science and Technical Writing, A Manual of Style, 2nd Edition. Edited by Philip Rubens. New York: Routledge, 2001.

Scientific and Technical Reports — Elements, Organization, and Design (ANSI/NISO Z 39.18-1995). National Information Standards Organization. Bethesda, MD: NISO Press, 1995.

Style Guide for Business and Technical Communication. Salt Lake City: Franklin Covey Co., 1999.

14.1.3 Style Guides for Legal Citations

ALWD Citation Manual: A Professional System of Citation, 2nd Edition. Association of Legal Writing Directors and Darby Dickerson. New York, NY: Aspen Publishers, 2003.

The Bluebook: A Uniform System of Citation, 17th Edition. Cambridge, MA: the Harvard Law Review Association, 2001.

14.2 Dictionaries

Consult the following dictionaries for vocabulary, usage, and legal and scientific terms:

Merriam-Webster's Collegiate Dictionary, 11th Edition. (2003)

Random House Webster's Unabridged Dictionary (2001)

Random House Webster's College Dictionary (2000)

The American Heritage Dictionary, 4th Edition (2000)

Black's Law Dictionary, 7th Edition. Edited by Bryan A. Garner. St. Paul: West Group, 1999.

Garner, Bryan A. *A Dictionary of Modern American Usage.* New York: Oxford University Press, 1998.

The Wiley Dictionary of Civil Engineering and Construction. New York: John Wiley & Sons, Inc., 1997.

14.3 Specification Writing

Consult the following guides for information on writing specifications.

Hinze, Jimmy. *Construction Contracts*. McGraw-Hill Science/Engineering/Math, 1993.

Rosen, Harold J. *Construction Specifications Writing: Principles and Procedures*, 4th Edition. New York: John Wiley and Sons, Inc, 1998.

14.4 Contacting ITD

ITD provides lists of office locations, postal addresses, and links to email and phone directories at <http://www.itd.idaho.gov>. For current information on the organization of Departmental units within ITD contact the Office of Communication at (208) 334-8005.

Appendix I: Specification Style Checklist

- Organize and number sections consistently (chapter 2).
- Format definitions correctly and consistently (chapter 2.4).
- Check capitalization and punctuation of organizational units and titles, laws and regulations, and publications (chapters 3 and 10.4).
 - Verify that the names of organizational units, laws, and cited sources are current.
 - Verify that addresses and phone numbers for ITD organizational units are current.
- When referring to laws and regulations, use the words *Idaho* and *federal* and distinguish between:
 - Idaho codes (chapter 3.1),
 - Idaho regulations (chapter 3.1),
 - Federal laws (chapter 3.2), and
 - Federal regulations (chapter 3.3).
- Ensure that abbreviations (chapter 6.1), symbols (chapters 6.1 and 6.4–6.5), and acronyms (chapter 6.1) are accurate, current, and used only when appropriate.
- Use correct signs and symbols for measurement (chapters 6.3–6.4).
 - Do *not* use a period after a symbol, except at the end of a sentence.
 - Do *not* hyphenate the symbol and number in a measurement
 - Put a hard space between numeral and symbol, except in the case of a plane angle.
 - Be consistent when spelling out versus abbreviating.
 - Do not mistake symbols for abbreviations.
- Use the available Microsoft Word menus for inserting signs and symbols for mathematical and other purposes (chapter 6.5).
- Use numerals or words depending on context (chapter 7):
 - Express decimals in numerals (chapter 7.2).
 - Use numerals for mixed numbers (chapter 7.6).
 - Use the word *percent* in text and precede with a numeral (chapter 7.7).
 - Use commas to separate groups of thousands in numerals with four digits or more (chapter 7.9).

- Use hyphens between the numeral and a spelled out unit name in a unit modifier; do not use hyphens with unit symbols (chapter 7.8).
- Place periods and commas required by a sentence *inside* closing quotation marks (chapter 8.2)
- Distinguish between hyphens, dashes, and the minus sign (chapter 8.6):
 - Use hyphens (-) for compound words or words with a hyphenated prefix.
 - Use an en dash (–) in tables to indicate numeric range.
 - Use an em dash (—) to set off clauses within a sentence.
 - Use the minus sign (−) in mathematical formulas and to show negative values.
- Use hard spaces to hold together parts of measurement (i.e., numbers and symbols), ranges, titles and numbers, or parts of sentences (chapter 8.7).
- Punctuate lists consistently (chapter 9). End items with:
 - Commas, when the list contains three or more simple items (chapter 8.1);
 - Semicolons, when the list has long, complex items, or items with internal punctuation, of which none is a complete sentence (chapter 9.3); or
 - Periods, if one or more of the items is a complete sentence (chapter 9.3).
- Verify that the numbers and titles of cited forms, certifications, and standards are current and correctly named (chapter 10).
- Refer to standards or designations in the manner specified by the organization that provides them (chapter 10.4).
- Avoid overcapitalization (chapter 11):
 - Capitalize specific organizations, laws, Caltrans programs, agencies, and titles (chapter 11.2).
 - Do not capitalize common nouns (chapter 11.3).
 - Capitalize specific words *only* in certain contexts (chapter 11.4).
- Format tables consistently. Use no more lines than are needed for clarity (chapter 12.3).
- Identify the doer of an action: phrase sentences in the active voice when possible (chapter 4.3); use imperatives when issuing commands (chapter 4.6).

- Use the proper language when describing work in specific sections of *Standard Specifications* (chapter 4.8).
- Use correct and consistent terminology for words and phrases. Avoid needless words (chapter 5).
- Use gender neutral language (chapter 5.4).
- Use correct phrasing and punctuation when referring to *Standard Specifications*, special provisions, and forms (chapter 5.7).
- Use Microsoft Word's built-in tools to enhance clarity and consistency (chapter 13):
 - Use Find and Replace to manually or automatically find, replace, or go to words, pages, sections, styles, and other Word features (chapter 13.2).
 - Use Word Count to find the number of words in a passage or document (chapter 13.3).
 - Use Spelling and Grammar to check for spelling and grammar errors and to access the "Readability Statistics" (chapters 13.4–13.6).
- Use dictionaries, style guides, the Internet, and other sources of information as resources (chapter 14)

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