GS-23004

General Supplemental Specifications for Highway and Bridge Construction

Effective Date
April 15, 2025

THE STANDARD SPECIFICATIONS, SERIES 2023, ARE AMENDED BY THE FOLLOWING MODIFICATIONS, ADDITIONS, AND DELETIONS. THESE ARE GENERAL SUPPLEMENTAL SPECIFICATIONS AND SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS. REVISIONS INCLUDED IN PREVIOUS SERIES 2023 GENERAL SUPPLEMENTAL SPECIFICATIONS ARE NOT INCLUDED IN THIS EDITION.

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Division 11. General Requirements and Covenants.

Section 1102

1102.17, D, 2, g.

Replace Articles 1 through 3:

1) The DBE shall be responsible for the management and supervision of the entire trucking operation, and there cannot be a contrived arrangement for the purpose of meeting the DBE commitment. The DBE shall maintain strict records to verify the amount of hauling done by each trucker for the duration of the contract. These records shall be made available to the Engineer if requested.

2) The Civil Rights Bureau will maintain a truck roster for each DBE that performs trucking. Each truck on the ~~truck~~ roster shall be either owned by the DBE or controlled by the DBE under a lease. Trucks that are leased shall be from a firm that is in the commercial leasing business; the owner of the commercial leasing business cannot be a heavy-highway contractor. The DBE firm shall make the lease agreement available to the Department ~~the lease agreement~~ if requested.

3) ~~To meet the DBE commitment, the following conditions shall be used:~~

~~**a)**~~ At least one fully licensed, insured, and operational DBE-owned and operated truck, listed on the truck roster under the DBE trucking company shown on the Form 102115, shall be hauling on the project at all times. The Contractor will receive credit for the ~~fee~~ total value of the transportation services provided by and paid to the DBE for these trucks.

~~**b**~~ **4)** The DBE trucker may use trucks from another DBE firm, including a DBE owner-operator. Any truck on the truck roster of another DBE may be used. There is no limitation to the number of these trucks that can be used. The Contractor will receive credit for the ~~fee~~ total value of the transportation services provided by and paid to the DBE for these trucks.

5) The DBE trucker may use trucks from a non-DBE truck leasing company and use its own employees as drivers. The Contractor will receive credit for the total value of the transportation services provided by and paid to the DBE for these trucks.

~~**c**~~ **6)** ~~A~~ The DBE trucker may ~~also~~ use trucks from a non-DBE firm, including from an owner-operator. ~~The Contractor will receive credit toward the DBE commitment only for the fee or commission retained by the DBE trucker. The Contractor will not receive credit for the total amount paid for the truck because the DBE was a lessee rather than the actual provider of transportation services.~~ The Contractor will receive credit for the total value of the transportation services provided by and paid to the DBE for these trucks, not to exceed the value of transportation services provided by the DBE trucker using DBE-owned, leased and operated trucks. For additional participation by non-DBE owned and operated trucks, the Contractor will receive credit only for the fee or commission paid to the DBE trucker for the truck lease or cost component of the transportation services provided.

7) The Contractor shall submit DBE truck tracking sheets to the Engineer on a daily basis using Form 650041 detailing all DBE-managed trucks hauling on the project each day, and their status as per Articles 3 thru 6 above. Additionally, when a DBE trucker elects to use a non-DBE owner-operator, the Contractor shall provide documentation of the value of all such transportation services upon contract completion, and verification that they do not exceed the value of transportation services provided by the DBE trucker using DBE-owned, leased and operated trucks as per Article 6 above.

8) For purposes of these requirements, a lease must indicate that the DBE trucker has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. All leased trucks must display the name and identification number of the DBE trucker.

1102.17, E, 2, b.

Replace Article 7, add the Article, and **renumber** subsequent Article:

7) If the DBE firm is being used as a supplier (in which case, only 60% of the dollars paid to the DBE firm will count toward the DBE commitment), ~~and~~

8) If the DBE firm is being used as a distributor (in which case, only 40% of the dollars paid to the DBE firm will count toward the DBE commitment), and

~~**8**~~ **9)** The "DBE Commitment" of each DBE firm which will be counted towards the total DBE commitment for the contract.

1102.17, E, 2, d.

Replace the first sentence:

On contracts let through the Department, the form shall be submitted with the electronic bidding software authorized by the Department. On other contracts, ~~T~~the completed form shall be computer generated and submitted with the bidding documents.

Section 1105

1105.03, A.

Replace the Article:

The plans shall be supplemented by such working drawings as are necessary to adequately control the work. Working drawings shall be furnished by the Contractor, as required by the contract documents. When required, the working drawings shall be accompanied by engineering calculations furnished by the Contractor, that substantiate the details of the working drawings. When certification by a Professional Engineer licensed in the State of Iowa is required, the certification shall be in the appropriate branch of engineering, for the work specified in the contract documents. Working drawings may include shop drawings of fabricated materials, erection plans, falsework plans, cofferdam plans, or other supplemental plans or data. The Contracting Authority's review of working drawings shall not constitute validation or endorsement of the Contractor's means or methods of construction. The Contracting Authority's review of shop drawings covers only requirements for strength and arrangement of component parts as relevant to the permanent works. Any deviation from the plans or specifications not clearly noted by the Contractor has not been reviewed. Review by the Contracting Authority shall not serve to relieve the Contractor of the contractual responsibility or any error, omission, or deviation from the contract requirements. The Contracting Authority ~~assumes no responsibility for errors or omissions in the Contractor's working drawings and~~ assumes the Contractor will use material complying with requirements of the contract documents or, where not specified, those of sound and reasonable quality, and will construct the subjects of such working drawings in accordance with recognized standards of first quality work or, when specified, in accordance with standards of the contract documents. If unanticipated and either unusual or complex construction procedures or site conditions occur, the Engineer may require the Contractor to submit such working drawings as, in the judgment of the Engineer, are necessary to satisfactorily control or complete the proposed construction. Prior to the Engineer's written acceptance of required working drawings, any work done or material ordered shall be at the Contractor's risk.

Section 1107

1107.08, Public Convenience and Safety.

Replace Article D and **renumber** the following Articles:

D. When it is not practical for the Contracting Authority to close the road for construction, the Contractor will be expected to perform the work under traffic. The contract documents will provide instructions for handling traffic through the work area.

E. Unless otherwise stated in the contract documents or allowed by the Engineer, all work shall be performed by the Contractor between the hours of 30 minutes after sunrise to 30 minutes before sunset.

~~E~~ F.
~~F~~ G.
~~G~~ H.
~~H~~ I.
~~I~~ J.
~~J~~ K.
~~K~~ L.
~~L~~ M.
~~M~~ N.
~~N~~ O.

Section 1108

1108.02, K, 3.

Replace the Article:

The proposal form may specify a completion bonus or incentive for early completion. An accelerated work schedule, as provided in this article, is allowed for work necessary to earn the bonus or incentive.

Section 1111

1111.05, A, Incentive Payment.

Replace the third sentence:

Incentive payments will be made in accordance with Article 1109.0~~9~~8.

Division 20. Equipment Requirements

Section 2001

2001.07, A, 2.

Replace the first bullet:

Accurate to ~~2 pounds per 1000 pounds~~ 0.2% of weight, and

Division 22. Base Courses

Section 2214

2214.01, A.

Replace the Article:

Scarify asphalt or PCC pavement to improve surface profile and/or cross section in preparation for resurfacing~~.~~ using the following methods:

1. Scarify Nominal Thickness – scarify to remove a nominal uniform thickness at the same cross slope as the existing pavement.

2. Scarify Cross Slope – scarify at the specified slope. Refer to project plans to determine if a nominal thickness at a specific location within the area to be scarified is also required.

3. Scarify Profile - scarify to a profile at the specified cross slope.

2214.03, B, 6.

Add the Article and **renumber** existing Article c:

c. When a proposed profile is provided in the contract documents or a profile is to be developed by the contractor for construction, scarify the surface using a machine with automatic horizontal and vertical control that is capable of milling to the approved profile and cross slope with a tolerance of +0 inches to -1/4 inch. Control scarifying operations to provide a surface that is true to line and grade with the specified cross slope.

~~c~~ **d.** When asphalt material is salvaged for recycling, comply with the following additional requirements:

Division 23. Surface Courses.

Section 2301

2301.03, H, 4, a, 1.

Replace the Article:

Periodically check the pavement longitudinally with a ~~10 foot~~ straightedge. ~~The surface is not to deviate from a straight line by more than 1/8 inch in 10 feet.~~

a. The Engineer may determine and identify irregularities of 1/2 inch or more in 25 feet longitudinally.

b. Correct the irregularities identified by the Engineer.

Section 2303

2303.03, D, 3, b, 1.

Replace the Article:

After the JMF is established, the combined aggregate gradation furnished for the project, asphalt binder content, asphalt film thickness, and lab~~oratory air~~ voids should consistently comply with the JMF target values and design criteria in Materials I.M. 510 Appendix A. Control them within the production tolerances given in Table 2303.03-4.

Table 2303.03-4: Production Tolerances

Measured Characteristic	Target Value (%)	Specification Tolerance (%) [a]
Cold feed gradation No. 4 and larger sieves	by JMF	± 7.0
Cold feed gradation No. 8	by JMF	± 5.0
Cold feed gradation No. 30	by JMF	± 4.0
Cold feed gradation No. 200	by JMF	± 2.0
~~Field laboratory air~~ Lab voids absolute deviation from target [b]	0.0	≤ 1.0
Daily asphalt binder content	by JMF	± 0.3

(a) Based on single test unless noted otherwise.

(b) When lab voids acceptance is not based on PWL.

2303.03, D, 6, b, 1, e.

Replace the first sentence:

When the PWL falls below ~~80.0~~ 90.0, use the procedure outlined in Materials I.M. 501 to identify outliers with 1.80 as the quality index criterion.

2303.03, D, 6, e, Smoothness.

Replace the Article:

1) Apply Section 2317 to HMA surface mixture bid items of a Primary project or when specifically required for other projects.

2) On all projects, the Engineer may determine and identify irregularities of 1/2 inch or more in 25 feet longitudinally. Correct the irregularities identified by the Engineer in accordance with Section 2317.

2303.03, E, 4, b, Lab Voids.

Replace the Article:

1) Material sampling and testing is for production quality control. Acceptance of mixture is based on Contractor certification. Sampling and testing of uncompacted mixture is only required for mechanically

placed mixture. Sample and test a minimum of one uncompacted mixture sample according to the Standard Specifications and Materials I.M.s using certified technicians and qualified testing equipment.

2) The Engineer may approve alternative sampling procedures or may waive sampling of uncompacted mix and gradation if Contractor can provide plant reports from other recent project(s) demonstrating the JMF has been produced within specification. Take the sample between the first 100 to 200 tons of production. No split samples for agency verification testing are required.

3) PWL for lab voids will not apply to small quantities.

Section 2317

2317.03, B, 1.

Replace Articles h and i:

h. Single lift flexible pavement overlays 2 inches thick or less, unless the existing surface has been corrected by milling or scarification.

i. Single lift flexible pavement overlays 2 inches thick or less placed directly on PCC pavement.

Division 24. Structures.

Section 2405

2405.03, H, 2, a, Anchor Bolts Set in Drilled Holes.

Replace Articles 2 and 3 and **add** the Article:

2) When hydraulic cement grout is used, use one that meets the requirements of Materials I.M. 491.13. ~~Make the diameter of the hole 1/2 inch larger than the bolt diameter. Slightly overfill the annular space with grout.~~

3) When polymer grout is used, use one meeting the requirements of Materials I.M. 491.11. ~~Make the diameter of the hole 1/8 inch larger than the bolt diameter. Fill the annular space with the grout according to the manufacturer's recommendations and limitations, as approved by the Engineer.~~

4) Use a concrete hole diameter and hole filling procedure according to the grout manufacturer's recommendations.

Section 2426

2426.02, B, 2, Regular Repair.

Replace the Article:

~~Furnish Class O concrete. Materials I.M. 447 provides for use of packaged, dry, combined materials for Class O PC concrete. Use 3 inches as the target slump, with a variation not to exceed ± 1 inch. For placements requiring higher slump, a mid range water reducer may be used with a target slump of 5 inches or a high range water reducer may be used with a target slump of 7 inches.~~ Use Class O PCC meeting the requirements of Materials I.M. 529 and the following. Class O PCC batched in accordance with these requirements need not classify as low slump concrete.

a. Limit maximum water-to-cement ratio to 0.400.

b. Use 3 inches as the target slump, with a variation not to exceed ± 1 inch. For placements requiring higher slump, a mid range water reducer may be used with a target slump of 5 inches, or a high range water reducer may be used with a target slump of 7 inches.

c. Desired air entrainment of the finished concrete is typically 6%. Unless noted otherwise, ensure the air content of fresh, unvibrated concrete at the time of placement, as determined by Materials I.M. 318, is 6.5% with a maximum variation of plus 2.0% and minus 1.0%. Air entrainment and air testing are waived for the following applications:

- Repairs to precast and prestressed concrete bridge beams.
- Repairs which are proportioned and batched on site with individual batch volumes not exceeding 0.75 cubic yard.
- Repairs which use pre-packaged, dry, combined materials for Class O PCC in accordance with Materials I.M. 447.

Section 2428

2428.04, A, 2.

Replace the Article:

Corrected bumps will be considered satisfactory when profilograph measurement shows that the bumps were ~~0.3~~ 0.5 inch or less in a 25 foot span.

2428.04, B, 3.

Replace the Article:

Corrected dips will be considered satisfactory when the profilogram shows the dips are less than ~~0.3~~ 0.5 inch in a 25 foot span.

Division 25. Miscellaneous Construction.

Section 2528

2528.01, C, 1.

Replace the second sentence:

The trained Traffic Control Technician is required to have attended and passed the exam in an ATSSA Traffic Control Technician, IMSA Work Zone Traffic Control, Iowa AGC Traffic Control Technician, Minnesota DOT Traffic Control Supervisor, ~~or~~ Texas Engineering Extension Service Work Zone Traffic Control, or LIUNA Training & Education Fund Traffic Control Supervisor training class.

Section 2547

2547.03, A.

Replace the first sentence:

The type of structure used, if any, is at the Contractors discretion provided it complies with Article ~~1105.14~~ 1107.18, A.

Division 41. Construction Materials.

Section 4111

4111, Class L Fine Aggregate for Portland Cement Concrete.

Delete the Section:

~~**Section 4111. Class L Fine Aggregate for Portland Cement Concrete**~~

~~**4111.01 DESCRIPTION.**~~

~~Natural sands resulting from disintegration of rock through erosional processes. Acquire mineral aggregate from an approved source as described in Materials I.M. 409. Use Class L fine aggregate in Class L concrete mixtures as specified in Materials I.M. 529.~~

~~**4111.02 GRADATION.**~~

~~Meet the requirements for Gradation No. 1 of the Aggregate Gradation Table, Article 4109.02. No more than 45% is to pass one sieve and be retained on the sieve with the next higher number when the fine aggregate is sieved through the following sieves: No. 4, No. 8, No. 16, No. 30, No. 50, and No. 100.~~

~~**4111.03 QUALITY.**~~

~~Meet the requirements of Table 4111.03-1:~~

~~**Table 4111.03-1: Test Limits and Methods**~~

~~Fine Aggregate Quality~~	~~Test Limits~~	~~Test Method~~
~~Shale and Coal~~	~~2.0% (maximum)~~	~~Materials I.M. 344~~
~~Mortar Strength~~	~~5200 psi (minimum)~~	~~Iowa DOT Materials Laboratory Test Method No. 212~~

Section 4112

4112.03, B, Pea Gravel.

Replace Table 4112.03-2:

Table 4112.03-2: Maximum Permissible Amounts of Objectionable Materials

Objectionable Materials.	Maximum Percent Allowed	Test Method
~~Coal and carbonaceous shale~~	~~0.5~~	~~AASHTO T 113~~
Total of all shale, similar objectionable materials, coal and iron combined	1.0	AASHTO T 113
Organic Materials, except coal	0.01	Iowa DOT Materials Laboratory Test Method No. 215
Unsound chert particles retained on 3/8 inch sieve (Nonstructural concrete)	3.0	Materials I.M. 372
Unsound chert particles retained on 3/8 inch sieve (Structural concrete)	2.0	Materials I.M. 372
Note: Chert particle which break into three or more pieces when subjected to the freezing and thawing test will be considered unsound. Chert in aggregate produced from limestone sources is defined as unsound when any of the fractions of the crushed or uncrushed chert do not meet the soundness requirements.		

Section 4115

4115.02, Quality.

Replace Table 4115.02-2:

Table 4115.02-2: Maximum Permissible Amounts of Objectionable Materials

Objectionable Materials	Maximum Percent Allowed	Test Method
~~Coal and carbonaceous shale~~	~~0.5~~	~~Materials I.M. 372~~
Total of all shale, similar objectionable materials, and coal combined	1.0	Materials I.M. 372
Organic Materials, except coal	0.01	Iowa DOT Materials Laboratory Test Method No. 215
Unsound chert particles retained on 3/8 inch sieve (Nonstructural concrete)	3.0	Materials I.M. 372
Unsound chert particles retained on 3/8 inch sieve (Structural concrete)	2.0	Materials I.M. 372

Note: Chert particle which break into three or more pieces when subjected to the freezing and thawing test will be considered unsound.

Chert in aggregate produced from limestone sources is defined as unsound when any of the fractions of the crushed or uncrushed chert do not meet the soundness requirements.

Section 4116

4116.03, B.

Replace Table 4116.03-2:

Table 4116.03-2: Fine Aggregate Quality

Fine Aggregate Quality	Test Limits	Test Method
Shale and Coal	2.0 % (maximum)	Materials I.M. 344
~~Mortar Strength~~	~~6000 psi (minimum)~~	~~Office of Materials Test Method No. Iowa 212~~

Section 4127

4127.02, Coarse Aggregate.

Replace the title of Table 4127.02-1:
Coarse Aggregate Quality (Flexible Paving Mixtures)

4127.03, A.

Replace Table 4127.03-1:

Table 4127.03-1: Fine Aggregate Quality (Flexible Paving Mixtures)

Fine Aggregate Quality	Type A Maximum %	Type B Maximum %	Test Method
Organic Matter	0.01	0.01	Iowa DOT Materials Laboratory Test Method No. 215
Clay Lumps/Friable Particles	1.5	3.0	Materials I.M. 368~~(a)~~
Shale	2.0	5.0	Materials I.M. 344

~~(a) Use Method A for initial test. If Method A fails, Method B may be used.~~

Section 4131

4131.03, Quality.

Replace the Article:
~~No visible clay lumps, friable particles, and clay coatings.~~ Meet the requirements of Table 4131.03-1:

Table 4131.03-1: Aggregate Quality (Porous Backfill Material)

Aggregate Quality	Maximum Percent Allowed	Test Method
Abrasion	50	AASHTO T 96
Alumina[a, b]	0.7	Iowa DOT Materials Laboratory Test Method No. 222

A Freeze	10	Iowa DOT Materials Laboratory Test Method No. 211, Method A
Shale	5	Materials I.M. 345
Clay Lumps and Friable Particles	2.0	Materials I.M. 368
(a) If the Alumina value passes, the A-Freeze is not needed for specification compliance. If the Alumina value fails, determine the A Freeze value for specification compliance. (b) Alumina does not apply to gravel.		

Section 4132

4132.03, Quality.

Delete the Article:

~~**4132.03 QUALITY.**~~

~~For gravel mixture, comply with the following:~~

~~**A. Plasticity Index.**~~

~~Not to exceed 10%. Test according to Iowa DOT Materials Laboratory Test Method No. 109.~~

~~**B. Carbon Content.**~~

~~Not to exceed 1.0%. Test according to Iowa DOT Materials Laboratory Test Method No. 111.~~

Section 4160

4160, Wood Preservatives.

Delete the Section:

~~**Section 4160. Wood Preservatives**~~

~~**4160.01 GENERAL REQUIREMENTS.**~~

~~Meet the requirements for the material specified. Meet the requirements of all Federal, State, and local regulations.~~

~~**A. Creosote.**~~

~~Meet the requirements of AASHTO M 133 (AWPA P1).~~

~~**B. Pentachlorophenol (PCP-A).**~~

~~Meet the requirements of AASHTO M 133 (AWPA P35). Ensure petroleum solvent meets the requirements of AWPA HSA for Hydrocarbon Solvent Type A.~~

~~**C. Copper Naphthenate (CuN).**~~

~~Meet the requirements of AASHTO M 133 (AWPA P36). Ensure petroleum solvent meets the requirements of AWPA HSA for Hydrocarbon Solvent Type A.~~

~~**D. Ammoniacal Copper Zinc Arsenate (ACZA).**~~

~~Meet the requirements of AASHTO M 133 (AWPA P22).~~

~~**E. Chromated Copper Arsenate (CCA).**~~

~~Meet the requirements of AASHTO M 133 (AWPA P23).~~

~~**F. Micronized Copper Azole (MCA).**~~

~~Meet the requirements of AASHTO M 133 (AWPA P61).~~

Section 4161

4161, Preservative Treatment.

Replace the Section:

4161.01 GENERAL REQUIREMENTS.

Meet the requirements of applicable sections within these specifications for preservative treatment of timber, lumber, piling and posts. Unless specified otherwise, meet the requirements of this section for treatment process and results.

4161.02 PRESERVATIVES.

Meet the requirements ~~of Section 4160~~ for the material specified and all Federal, State, and local regulations. Unless specified otherwise, treatment may be with any of the preservatives listed.

A. Creosote.
Meet the requirements of AASHTO M 133 (AWPA P1/P13, P2, and P3).

B. Pentachlorophenol (PCP-A).
Meet the requirements of AASHTO M 133 (AWPA P35). Ensure petroleum solvent meets the requirements of AWPA HSA for Hydrocarbon Solvent Type A.

C. Copper Naphthenate (CuN).
Meet the requirements of AASHTO M 133 (AWPA P34 and P36). Ensure petroleum solvent meets the requirements of AWPA HSA for Hydrocarbon Solvent Type A.

D. Ammoniacal Copper Zinc Arsenate (ACZA).
Meet the requirements of AASHTO M 133 (AWPA P22).

E. Chromated Copper Arsenate (CCA).
Meet the requirements of AASHTO M 133 (AWPA P23).

F. Micronized Copper Azole (MCA).
Meet the requirements of AASHTO M 133 (AWPA P61 and P62).

G. Other EPA-Registered and AWPA-Standardized Wood Preservative Pesticides.
Meet the requirements of AASHTO M 133. Including but not limited to: inorganic boron/borates (AWPA P25, P51 and P60), alkaline copper quat (AWPA P26, P27, P28 and P29), copper azole (AWPA P32 and P48), copper HDO (AWPA P33), oxine copper (AWPA P37), 4,5-dichloro-2-N-octyl-4-isothiazolin-3-one (DCOI) (AWPA P39), tebuconazole (AWPA P41), propiconazole (AWPA P42) and propiconazole tebuconazole imidacloprid (AWPA P45 and P47).

4161.03 TREATMENT.

A. Except as provided herein, follow the requirements and recommendations of AWPA Standards U1 and T1 and the applicable AWPA Commodity Specifications listed in Tables 4161.03-1 and 4161.03-2 for various materials and usages~~:~~. All preservatives covered in Article 4161.02, G, but not specifically listed in Table 4161.03-1 or 4161.03-2, shall be treated according to the Minimum Preservative Retention Requirements in AWPA U1.

Table 4161.03-1: Minimum Preservative Retention Requirements (lb./cu. ft. of wood)

	Retention						
Material and Usage	**Creosote[a]**	**PCP-A[a]**	**CuN[a,b]**	**ACZA[b]**	**CCA[b,c]**	**MCA[b,c]**	**AWPA UC-Section-Special Req.**
Lumber and Timber for Structures[d]	AWPA U1	AWPA U1	AWPA U1	AWPA U1	AWPA U1	AWPA U1	AWPA U1
Piles for Foundation, Round							
Douglas Fir	17	0.85	0.14	1.0	-	-	UC4C-E

Southern Pine	12	0.60	0.10	0.80	0.80	0.41	
Guardrail Posts, and Spacer Blocks							
Sawed Four Sides	10	0.5	0.06	0.4	0.4	0.15	UC4A-A-4.3
Fence, Guide, and Sign Posts							
Round	8	0.4	0.055	0.4	0.4	0.15	UC4A-B
Sawed Four Sides	10	0.5	0.060	0.4	0.4	0.15	UC4A-A-4.3

(a) Oil type preservatives.
(b) Waterborne preservatives.
(c) Do not use for the treatment of Douglas Fir.
(d) Retentions based on AWPA Use Category and Commodity Specifications for different applications.

Table 4161.03-2: Minimum Preservative Retention Requirements
~~**inches of wood and/or % of sapwood penetration**~~

	Penetration[4](inches of wood and/or % of sapwood penetration)		
Material and Usage	**Southern Pine**	**Douglas Fir**	**AWPA Material Standard Section**
Lumber and Timber for Structures[a]	AWPA U1, T1	AWPA U1, T1	AWPA U1, T1
Piles for Foundation:	3.0 in. or 90%	0.75 in. and 85% up to 1.6 in. and 85%	T1-8.5
Guardrail Posts and Spacer Blocks:			
Sawed Four Sides	2.5 in. or 85%	**Under 5 in. thick:** 0.4 in. and 90% **5 in. and thicker:** 0.5 in. and 90%	T1-8.1
Fence, Guide, and Sign Posts:			
Round	2.0 in. or 85%	3/8 in. and 100% up to 1 in. or 85%	T1-8.2
Sawed Four Sides	2.5 in. or 85%	**Under 5 in. thick:** 0.4 in. and 90% **5 in. and thicker:** 0.5 in. and 90%	T1-8.1

(a) Penetrations based on AWPA Use Category and Commodity Specifications for different applications.

B. Meet the following requirements for other aspects of the treatment process:

1. Incising.
Incise Coastal Douglas Fir lumber.

2. Seasoning.
~~**a.** When sawed material is treated with waterborne preservatives (ACZA, CCA), ensure the moisture content prior to treatment, as determined by resistance type moisture meter, is no more than 20% if kiln dried or no more than 23% if air dried.~~
~~**b.** Measure moisture content at a depth equivalent to the required penetration up to a maximum of 1.5 inches.~~
~~**c.**~~ After treatment, unless specified otherwise, dry all lumber that is 2 inches or less in nominal thickness and is treated with a waterborne preservative. Dry the lumber to a moisture content of no more than 20% if kiln dried or no more than 23% if air dried.

~~**3. Special Treatment for Guardrail and Sign Posts Treated With Oil Type Preservative.**~~
~~Before removing sign and guardrail posts from the treatment cylinder, further subject them to live steam at a maximum pressure of 13 psi. Following that, subject the posts to an additional period of vacuum to ensure that the surface of the wood is free from accumulation of oil type preservative.~~

~~4~~ 3. Method of Treatment.

~~a.~~ Use same preservative for all of the product furnished for each contract item or order.

~~b. Unless specified otherwise, use the empty cell process with initial air pressure for creosote, pentachlorophenol, or copper naphthenate treatments.~~

~~c. Use the full cell process for ACZA and CCA treatments.~~

~~5~~ 4. Results of Treatment.

a. Ensure retention and penetration of preservatives complies with Tables 4161.03-1 and 4161.03-2, unless specified otherwise.

b. Use the assay method to determine preservative retentions.

c. Ensure other treatment requirements are in accordance with AWPA Standards U1 and T1 and the applicable AWPA Specifications listed in Tables 4161.03-1 and 4161.03-2.

~~6~~ 5. Handling Treated Products.

Follow AWPA Standard M4 regarding care and handling of preservative treated wood products. End cuts, drilled holes, other fabrication after treatment, and damage/injuries require field treatment and shall be treated with preservatives as specified in AWPA M4.

~~7~~ 6. Product Marking.

a. Ensure individual pieces of inspected, treated material bear a legible identification mark that is either hammer or heat branded, die stamped, or metal tagged. For material treated with waterborne preservatives, the identification mark may be ink stamped provided the information is clearly visible and legible. Ensure the identification mark, as a minimum, indicates the treater, the species of wood, the preservative treatment type, and the retention level. Acceptable brands or marks are to be similar to the general guidelines for brands listed in AWPA M1 and M6.

b. Ensure all treated wood material that requires a grade, with the exception of 45 inch Terminal Posts[1], displays a quality grade mark of an accredited grade monitoring and inspection agency approved under the American Lumber Standards Committee (ALSC).

[1] In the event that Terminal Posts 45 inches in length to be used for Guardrails cannot be stamped with a quality grade mark due to sizing of material, ensure Terminal Posts are instead stamped "MFG No. 1" to indicate that the Terminal Posts were cut from an original piece graded as a No. 1. Wane requirements will be waived.

c. Material less than 3 feet in length does not require a grade mark; however, ensure a statement from the mill/processor certifying the grade of the material is provided. See Documentation Section of Materials I.M. 462. Round wood posts, round wood piles, and round wood poles do not require a grade, since the grading rules apply only to sawn material.

d. Ensure each bundle of treated wood products has at least one plastic tag identifying the charge number for the bundle.

~~8~~ 7. Inspection.

Furnish white and treatment inspections, certifications, and test reports for each shipment according to Materials I.M. 462.

Section 4163

4163.02, A.

Replace the Article:

Unless specified otherwise, treat only Douglas Fir (coast region)**~~, Northern Pine,~~** and Southern Pine.

Section 4165

4165.04, D, Preservative Treatment.

Replace the first sentence:

~~Creosote, pentachlorophenol, or copper naphthenate t~~Treatment complying with Section 4161.

Section 4185

4185.02, B, 3.

Replace the Article:

If slip bases are furnished, furnish 1 inch by 4 1/2 inch bolts that are high-strength bolts meeting the requirements of ASTM F 3125 Grade A 325.