

USE CATEGORY SYSTEM: USER SPECIFICATION FOR TREATED WOOD

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SECTION 1: INTRODUCTION TO THE USE CATEGORY SYSTEM (INFORMATIVE)

Jurisdiction: AWPAs Technical Committee T-1

The Use Category System (UCS) of the American Wood Protection Association (AWPA) designates what preservative systems and retentions have been determined to be effective in protecting wood products under specified exposure conditions. The strength of the UCS and its focus is that all wood uses can be placed into one of five major Use Categories that clearly describe the exposure conditions that specific wood products can be subjected to in service. The major Use Categories are further broken down into sub-categories to define the associated degree of biodegradation hazard and product service life expectations for specific products and exposure conditions. In addition to the five Use Categories for biodeterioration, there is a sixth and separate Use Category for fire retardant applications. The Use Category designations are described in detail in Section 2 below. The Use Category system is designed to help specifiers and product users locate the appropriate AWPAs Standards that specifies preservatives deemed acceptable for specific products and end-use environments. The user of the AWPAs Standard U1 should first become familiar with the major differences between the Use Categories and the expected service conditions as described in Section 2. This information is then used in conjunction with Section 3: Guide to Treated Wood End Uses to determine the specific commodity specification of the standard that lists the appropriate preservative requirements for that use. When purchasing under the Use Category System, material orders should include the specific commodity, Use Category

designation, Standard U1 Commodity Specification, wood species, preservative and any special requirements such as pre- or post-treatment preparations (including conditioning and drying). Wherever practicable, material should be manufactured in its final form prior to treatment to eliminate the necessity for subsequent cutting or boring of the treated wood. Risk assessment documents and models (e.g., Best Management Practices) have been developed by the Western Wood Preservers Institute (www.wwpinstitute.org) for the use of CCA, ACZA, Creosote, Pentachlorophenol and ACQ treated wood in aquatic environments. Projects calling for large volumes of treated wood immersed in (i.e., below the splash zone) poorly circulating bodies of water should be evaluated on an individual basis using risk assessment procedures. There are a number of other AWPAs Standards that complement Standard U1 for wood treated with preservative systems. These include:

Standard T1: Use Category System: Processing and Treatment Standard, that governs the preservative retention and penetration requirements, processing limitations, quality control and inspection requirements for treated wood.

Miscellaneous (M) Standards for quality control and inspection items

Analytical (A) Standards to determine conformance of preservative systems, penetration, and retention. Refer to the Introduction to this *Book of Standards* at the front of this edition for additional information.

SECTION 2: SERVICE CONDITIONS FOR USE CATEGORY DESIGNATIONS (NORMATIVE/MANDATORY)

Jurisdiction: AWPA Technical Committees T-2, T-3, T-4, and T-8

The following is a breakdown of the Use Categories used by AWPA to describe the exposure conditions that wood may be subject to in service. This is also given in table form to summarize the major differences between Use Category groupings.

UC1 INTERIOR/DRY

Wood and wood based materials used in interior construction not in contact with the ground or foundations. Such products are protected from weather and interior sources of water such as leaking plumbing, condensate, pools and spas. Examples are interior furniture, construction furnishings, and millwork.

UC2 INTERIOR/DAMP

Wood and wood based materials used for interior construction that are not in contact with ground, but may be subject to dampness. These products are continuously protected from the weather but may be exposed to occasional sources of moisture. Examples are interior beams, timbers, flooring, framing, millwork and sill plates.

UC3 ABOVE GROUND (Exterior)

UC3A ABOVE GROUND Protected -- Wood and wood-based materials used in above ground exterior construction that are either (a) exposed to the full effects of weather, but protected by a coating and constructed such that water will quickly drain from the surface or (b) fully and continuously protected by design, construction and maintenance from precipitation, including wind-driven rain and splash-back from horizontal surfaces. Examples of (a) are coated millwork, siding & trim. Examples of (b) are framing and sheathing, not covered by a weather-resistive barrier, but protected from exposure to liquid water.

UC3B ABOVE GROUND Exposed -- Wood and wood based materials used in exterior construction and not in contact with the ground. Materials do not require an exterior coating, but may be finished to achieve a desired aesthetic appearance. Materials are used for a variety of applications in either horizontal or vertical positions such as decking, sills, walkways, railings and fence pickets. **Note:** Retentions above the minimum specified for materials in this use category may be required for products such as crossarms where the individual components are difficult to maintain, repair or replace and are critical to the performance and safety of the entire system.

For Commodity Specification A only: See Note 1 under UC4A GROUND CONTACT for sawn components that may be physically above ground but that are required to be treated for ground contact. This includes sawn components that are difficult to replace and critical to the structure, or that may be exposed to ground contact type hazards due to climate, artificial or natural processes or construction.

UC4 GROUND CONTACT

UC4A GROUND CONTACT General Use (for Commodity Specification A only) -- Wood and wood-based materials (1) used in contact with the ground, fresh water, or other situations favorable to deterioration; (2) used above ground but are difficult to maintain, repair or replace and are critical to the performance and safety of the entire system /construction; or (3) used above ground but may end up in ground contact or are subject to hazards comparable to ground contact due to climate, artificial or natural processes or construction. Examples are sawn fence posts, sawn deck posts, sawn guardrail posts, structural lumber, joists and beams for decks and freshwater docks, and timbers located in regions of low natural potential for wood decay and insect attack.

Note 1 (for Commodity Specification A only): The following sawn components for exterior above ground use shall be treated to Ground Contact UC4A or higher requirements:

- a) When there is a reasonable expectation that soil, vegetation, leaf litter or other debris may build up and remain in contact with the component.
- b) When the construction itself, other structures or anticipated vegetation growth will not allow air to circulate underneath the construction and between decking boards.
- c) When components are installed less than six inches above ground (final grade after landscaping) and supported on permeable building materials (e.g. treated wood or concrete) without a moisture break/barrier separation.
- d) When components are in direct contact with non-durable untreated wood, or any older construction with any evidence of decay.
- e) When components are wetted on a frequent or recurrent basis (e.g., on a freshwater floating dock or by a watering system that is fixed and not adjustable).
- f) When components are used in tropical climates

UC4A GROUND CONTACT General Use (for all other Commodity Specifications) -- Wood and wood-based materials used in contact with the ground, fresh water, or other situations favorable to deterioration. Examples are round, half-round, and quarter-round fence posts, round deck posts, round guardrail posts, and utility poles located in regions of low natural potential for wood decay and insect attack.

UC4B GROUND CONTACT Heavy Duty -- Wood and wood-based material used in contact with the ground either in severe environments, such as horticultural sites, in climates with a high potential for deterioration, in critically important components such as utility poles, building poles and permanent wood foundations, and wood used in salt water splash zones. This category includes utility poles used in moist temperate climates.

UC4C GROUND CONTACT Extreme Duty -- Wood and wood based materials used in contact with the ground either in very severe environments or climates demonstrated to have extremely high potential for deterioration, in critical structural components such as land and fresh water piling and foundation piling, and utility poles located in semi-tropical or tropical environments.

UC5 MARINE USE

UC5A MARINE USE Northern Waters -- Wood and wood based materials exposed to salt and brackish water which includes Long Island, NY and northward on the east coast and north of San Francisco on the west coast to the extent that the marine borers can attack them. This includes areas where *Limnoria quadripunctata* is present, but lacks those borers listed under UC5B and UC5C. This includes piling and bracing, bulk-heading or other construction that is actually exposed at some time during the year to salt water.

UC5B MARINE USE Central Waters -- Wood and wood based materials exposed to salt and brackish water south of Long Island, NY to the southern border of Georgia on the

east coast and south of San Francisco on the west coast to the extent that the marine borers can attack them. This includes areas where creosote tolerant *Limnoria tripunctata* is present, but lacks those borers listed under UC5C. This includes piling and bracing, bulk-heading or other construction that is actually exposed at some time during the year to salt water.

UC5C MARINE USE Southern Waters -- Wood and wood based materials exposed to salt and brackish water south of Georgia and along the gulf coasts in the eastern U.S., as well as Hawaii and Puerto Rico, to the extent that the marine borers can attack them. This includes areas where *Martesia* and *Sphaeroma* are present. This includes piling and bracing, bulk-heading or other construction that is actually exposed at some time during the year to salt water.

UCF FIRE RETARDANT

UCFA FIRE RETARDANT Interior -- Wood and wood based materials intended for fire protection and used in interior construction where wood material is not in contact with the ground and is protected from exterior weather.

UCFB FIRE RETARDANT Exterior -- Wood and wood based materials intended for fire protection and used in exterior construction that is not in contact with the ground or with foundations, but may be exposed to full effects of weather such as intermittent rain, dew, sunlight and wind. Materials are applied to vertical, exterior walls, inclined roof surfaces or other types of construction that allow water to quickly drain from the surface.

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TABLE 2-1 SERVICE CONDITIONS FOR USE CATEGORY DESIGNATIONS

USE CATEGORY	SERVICE CONDITIONS	USE ENVIRONMENT	COMMON AGENTS OF DETERIORATION	TYPICAL APPLICATIONS
UC1 INTERIOR/ DRY	Interior construction Above Ground Dry	Continuously protected from weather or other sources of moisture	Insects only	Interior construction and furnishings
UC2 INTERIOR/ DAMP	Interior construction Above Ground Damp	Protected from weather, but may be subject to sources of moisture	Decay fungi and insects	Interior construction
UC3A ABOVE GROUND Protected (Commodity Specification A only)	Exterior construction Above Ground Coated & rapid water runoff	Exposed to all weather cycles, including intermittent wetting	Decay fungi and insects	Coated millwork, siding and trim
UC3A ABOVE GROUND Protected (all other Commodity Specifications)	Exterior construction Above Ground Coated & rapid water runoff; Protected by design from liquid water	Exposed to all weather cycles, but either coated and installed in a manner that prevents prolonged wetting or fully protected from liquid water by building design & construction	Decay fungi and insects	Coated millwork, siding and trim. Exterior framing & sheathing fully protected from exposure to liquid water
UC3B ABOVE GROUND Exposed (Commodity Specification A only)	Exterior construction Above Ground Uncoated or poor water run-off Excludes above ground applications with ground contact type hazards (see Section 2 UC4 Note1)	Exposed to all weather cycles including intermittent wetting but with sufficient air circulation so wood can readily dry	Decay fungi and insects	Decking, railings, joists and beams for decks and freshwater docks ¹ , fence pickets, uncoated millwork
UC3B ABOVE GROUND Exposed (all other Commodity Specifications)	Exterior construction Above Ground Uncoated or poor water run-off	Exposed to all weather cycles including prolonged wetting	Decay fungi and insects	Uncoated nonpressure treated millwork
UC4A GROUND CONTACT General Use (Commodity Specification A only)	Ground Contact or Fresh Water Non-critical components (Includes above ground applications with ground contact type hazards or that are critical or hard to replace)	Exposed to all weather cycles, including continuous or prolonged wetting	Decay fungi and insects	Sawn fence, deck, and guardrail posts, cantilevered members extending beyond the building envelope, joists and beams for decks and freshwater docks ¹
UC4A GROUND CONTACT General Use (all other Commodity Specifications)	Ground Contact or Fresh Water Non-critical components	Exposed to all weather cycles, normal exposure conditions	Decay fungi and insects	Round, half-round, and quarter-round fence posts, round deck posts, and round guardrail posts, crossties & utility poles (low decay areas)
UC4B GROUND CONTACT Heavy Duty (Commodity Specification A only)	Ground Contact or Fresh Water Critical components or difficult replacement	Exposed to all weather cycles, including continuous or prolonged wetting, high decay potential includes salt water splash	Decay fungi and insects with increased potential for biodeterioration	Permanent wood foundations, sawn building structural support posts and poles, sawn agricultural posts and poles
UC4B GROUND CONTACT Heavy Duty (all other Commodity Specifications)	Ground Contact or Fresh Water Critical components or difficult replacement	Exposed to all weather cycles, high decay potential includes salt water splash	Decay fungi and insects with increased potential for biodeterioration	Building poles, round, half-round, and quarter-round agricultural posts, crossties & utility poles (high decay areas)

USE CATEGORY	SERVICE CONDITIONS	USE ENVIRONMENT	COMMON AGENTS OF DETERIORATION	TYPICAL APPLICATIONS
UC4C GROUND CONTACT Extreme Duty (Commodity Specification A only)	Ground Contact or Fresh Water Critical structural components	Exposed to all weather cycles, including continuous or prolonged wetting, severe environments extreme decay potential	Decay fungi and insects with extreme potential for biodeterioration	Sawn foundation piling
UC4C GROUND CONTACT Extreme Duty (all other Commodity Specifications)	Ground Contact or Fresh Water Critical structural components	Exposed to all weather cycles, severe environments extreme decay potential	Decay fungi and insects with extreme potential for biodeterioration	Land & Freshwater piling, foundation piling, crossties & utility poles (severe decay areas)
UC5A MARINE USE Northern Waters	Salt or brackish water and adjacent mud zone which includes Long Island, NY and northward, north of San Francisco	Continuous marine exposure (salt water)	Salt water organisms	Piling, bulkheads, bracing
UC5B MARINE USE Central Waters	Salt or brackish water and adjacent mud zone south of Long Island, NY to the southern border of GA, south of San Francisco	Continuous marine exposure (salt water)	Salt water organisms Including creosote tolerant <i>Limnoria tripunctata</i>	Piling, bulkheads, bracing
UC5C MARINE USE Southern Waters	Salt or brackish water and adjacent mud zone South of GA, Gulf Coast, Hawaii, and Puerto Rico	Continuous marine exposure (salt water)	Salt water organisms Including <i>Martesia</i> , <i>Sphaeroma</i>	Piling, bulkheads, bracing
UCFA FIRE RETARDANT Interior	Fire protection as required by codes Above Ground Interior construction	Continuously protected from weather or other sources of moisture	Fire	Roof sheathing, roof trusses, studs, joists, paneling
UCFB FIRE RETARDANT Exterior	Fire protection as required by codes Above Ground Exterior construction	Subject to wetting	Fire	Vertical exterior walls, inclined roof surfaces or other construction which allows water to quickly drain

¹ Joists and beams shall be treated to requirements for UC4A when they are difficult to maintain, repair or replace and are critical to the performance and safety of the entire system/construction.

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SECTION 3: GUIDE TO COMMODITY SPECIFICATIONS FOR TREATED WOOD END USES (INFORMATIVE)

Jurisdiction: AWPA Technical Committee T-1

The Commodity Specifications identify all AWPA standardized preservative systems and required retentions for specific commodities and end-uses. This section is designed to help direct users and specifiers to the governing commodity specification for the treated wood application, and to help identify the appropriate Use Category for the intended use. Some commodities may require a retention for a specific application beyond that suggested by Section 2 of this Standard due to the critical nature of their use. Note that this section is only intended to be a guide. The designer should use their best judgment to determine the appropriate specifications for a particular use.

Table 3-1 Guide to commodity specifications for treated wood end uses, arranged by use

Commodity	Use	Exposure	Use Category	Commodity Specification	
				Section	Special Reqs.
Balconies, Cantilevered	Decking	Above Ground, Exterior	3B	A	
	Joists and beams extending beyond the building envelope	Above Ground, Exterior	4A	A	
Bender Board	General	Ground Contact or Fresh Water	4A	A	
Bulkhead Sheathing	Non-Marine	Ground Contact or Fresh Water	4A	A	
	Marine	Brackish or Salt Water	5A-5B-5C	G	6.1-6.4
Cant Strips	Building Construction	Above Ground	3B	A	4.1
Composite Lumber (PSL & LVL)	Structural	Above Ground, Exterior	3B	F	
	Highway Structural, General	Ground Contact or Fresh Water	4A	F	
	Highway Structural, Important or High Decay	Ground Contact or Fresh Water	4B	F	
	Highway Structural, Critical or Severe Decay	Ground Contact or Fresh Water	4C	F	
Cribbing	Highway	Ground Contact or Fresh Water	4C	A	
Crossarms, Sawn	General Use	Above Ground, Exterior	3B	A	4.5
	Critical or Hard to Replace	Above Ground, Exterior	4A		
Crossties, Switchties	General	Ground Contact or Fresh Water	4A	C	
	Important and/or High Decay	Ground Contact or Fresh Water	4B	C	
	Critical and/or Severe Decay	Ground Contact or Fresh Water	4C	C	
Decking	Painted/Unpainted	Above Ground, Exterior	3B	A	
	Building Construction, General	Ground Contact or Fresh Water	4A	A	
	Highway Bridge Structural, Critical/Severe Decay	Above Ground	4B, 4C	A	4.3
Decks, Residential	Decking (Painted/Unpainted)	Above Ground, Exterior	3B	A	
	Joists and Beams ¹				
	Railing Components				
	Joists and Beams ¹	Above Ground, Exterior	4A	A	
	Joists and Beams	Ground Contact or Fresh Water			
	Support Posts (Sawn)				
Expansion Boards	General	Ground Contact or Fresh Water	4A	A	
Fascia Boards	Painted/Coated	Above Ground, Exterior	3A	A	
	Unpainted	Above Ground, Exterior	3B	A	
Fence Pickets	Painted/Coated	Above Ground, Exterior	3A	A	
	Unpainted	Above Ground, Exterior	3B	A	
Fence Rail	Painted/Coated	Above Ground, Exterior	3A	A	
	Unpainted	Above Ground, Exterior	3B	A	
	Stockyard, Agricultural	Above Ground, Exterior	4A	A	
Floor Plate	Building Construction	Above Ground, Potentially Wet	3B	A	
Flooring	Above Ground, Interior	Protected, Insect Only	1	A	4.1
	Above Ground, Interior	Protected, Damp	2	A	4.1
	Residential/Commercial, Veranda	Above Ground, Exterior	3B	A	4.1
Flooring, block	Above Ground	Low Humidity	2	A	
	Above Ground	High Humidity	3A	A	

Table 3-1 Guide to commodity specifications for treated wood end uses, arranged by use (cont.)

Commodity	Use	Exposure	Use Category	Commodity Specification	
				Section	Special Reqs.
Furniture	Indoor	Protected, Insect Only	1	A	
	Outdoor	Above Ground, Exterior	3B	A	
	Outdoor	Ground Contact	4A	A	
Furring Strips	Indoor	Above Ground, Damp	2	A	
	Outdoor	Above Ground	3B	A	
Gazebo Material	Painted/Coated	Above Ground, Exterior	3A	A	
	Unpainted	Above Ground, Exterior	3B	A	
Glued Laminated and Mechanically Fastened Timber	Above Ground, Interior	Protected, Insect Only	1	F	
	Above Ground, Interior	Protected, Damp	2	F	
	Above Ground Structural (Painted/Unpainted)	Exterior	3B	F	
	General Structural, Highway Structural Non-Critical	Ground Contact or Fresh Water, Low Decay	4A	F	
	Important Structural, Highway Important Structural or Saltwater Splash	Ground Contact or Fresh Water, High Decay	4B	F	
	Critical Structural or Highway Critical Structural	Ground Contact or Fresh Water, Severe Decay	4C	F	
Handrails/Guardrails	Highway Construction	Above Ground, Exterior	3B	A	4.3
Joists	Above Ground, Interior	Insect Only	1	A	4.1
	Above Ground, Interior	Above Ground, Damp	2	A	4.1
	Building Construction ¹	Above Ground, Exterior	3B, 4A	A	
	Building Construction	Ground Contact/Fresh Water	4A	A	
	Joists and beams extending beyond the building envelope	Above Ground, Exterior			
Laminated Veneer Lumber (LVL)	See Composite Lumber				
Landscape Ties	General	Ground Contact or Fresh Water	4A	A	
Lattice	Painted/Unpainted	Above Ground, Exterior	3B	A	
Lumber/Timbers	Above Ground, Interior	Insect Only	1	A	4.1
	Above Ground, Interior	Wood Exposed to Dampness	2	A	4.1
	Above Ground, Exterior, Coated/Painted	All Applications	3A		
	Above Ground, Exterior Joists and Beams ¹	Above Ground, Exterior	3B, 4A	A	
	General, Including Agriculture/Farms	Above Ground, Exterior, Uncoated	3B	A	
	Docks, freshwater, joists and beams ¹	Above Ground, Exterior		A	
	Food Harvest and Storage	Above Ground, Exterior		A	
	Roof Decking, Flooring/Subflooring	Above Ground, Exterior		A	4.1
	Food Contact	Above Ground, Exterior		A	
	General, Including Retaining Walls, Edging, Agri-/Mariculture, Boats, Furniture, Gazebos, Compost/ Plant/Mushroom Boxes, Flumes	Ground Contact or Fresh Water	4A	A	
	Fire Escapes, Exterior Exposed	Above Ground and Ground Contact		A	
	Wet Industrial Processing Areas	Above Ground and Ground Contact		A	
	Docks, freshwater, joists and beams ¹	Above Ground or Fresh Water		A	
	Cooling Towers	Fresh Water Contact		A	4.4
	Joists and beams extending beyond the building envelope	Above Ground, Exterior		A	
Brine Storage, Highway Construction Materials	Ground Contact or Fresh Water		B	4.1	
Playground Equipment	Ground Contact or Fresh Water		B	4.3	

Table 3-1 Guide to commodity specifications for treated wood end uses, arranged by use (cont.)

Commodity	Use	Exposure	Use Category	Commodity Specification	
				Section	Special Reqs.
Lumber/Timbers, cont.	Permanent Wood Foundation	Ground Contact and Above Ground	4B	A	4.2
	Highway Construction, Building Structural Support	Ground Contact or Fresh Water		A	4.3
	Crib Walls, Retaining Walls, Important Structural, Greenhouse	Ground Contact or Fresh Water		A	
	Marine Out of Water and Above Ground	Salt Water Splash		A	G-2.9
	Marine Out of Water and Ground Contact	Salt Water Splash	4C	A	G-2.9
	Aquaculture	Fresh Water		A	
	Marine, Aqua/Mariculture, Highway, Boats	Brackish or Salt Water	5A-5B-5C	G	6.1-6.4
	Fire Retardant, Fire Protection	Interior		FA	H
	Fire Retardant, Fire Protection	Exterior		FB	H
Millwork, Trim	Above Ground, Interior	Insect Only	1	A	4.1
	Above Ground, Interior	Above Ground, Damp	2	A	4.1
	Painted/Coated	Above Ground, Exterior	3A	A	4.1
	Unpainted	Above Ground, Exterior	3B	A	
Oriented Strand Board (OSB)	Sheathing, Above Ground, Interior	Insect Only	1	J	
	Sheathing, Above Ground, Interior	Damp	2	J	
	Sheathing, Above Ground, Protected Exterior	Protected	3A	J	
Parallel Strand Lumber (PSL)	See Composite Lumber				
Pergola	Pergola	Ground Contact or Fresh Water	4A	A	
Piles, Foundation	Building Construction, Completely Embedded in Soil	Ground Contact	4C	E	
Piles, Round	Highway Construction	Ground Contact or Fresh Water	4C	E	
	Marine/Highway Construction	Brackish or Salt Water	5A-5B-5C	G	6.1-6.4
Piles, Sawn	Residential/Business Structural Support	Ground Contact or Fresh Water	4B	A	
	Residential/Business Structural Support, Critical	Ground Contact or Fresh Water	4C	A	
Plywood	Above Ground, Interior, Subfloor	Above Ground, Damp	2	F	
	General, Including Agriculture/Farms	Above Ground, Exterior	3B	F	
	Food Harvest-Storage-Contact	Above Ground, Exterior		F	2.6
	Roof Decking, Flooring/Subflooring	Above Ground, Exterior		F	
	General: Including Edging, Agriculture, Mariculture, Boats, Furniture, Gazebos,	Ground Contact or Fresh Water	4A	F	
	Compost/Plant/Mushroom Boxes, Flumes				
	Brine Storage, Highway Construction Materials	Ground Contact or Fresh Water		F	B-4.1
	Wet Industrial Processing Areas	Ground Contact or Fresh Water		F	
	Fire Escapes, Exterior Exposed	Above Ground and Ground Contact		F	
	Marine	Salt Water Splash	4B	F	
	Permanent Wood Foundation	Ground Contact and Above Ground		A	4.2
	Marine/Highway Construction, Boat Building	Brackish or Salt Water	5A-5B-5C	G	
	Fire Retardant, Fire Protection	Interior	FA	H	
Fire Retardant, Fire Protection	Exterior	FB	H		

Table 3-1 Guide to commodity specifications for treated wood end uses, arranged by use (cont.)

Commodity	Use	Exposure	Use Category	Commodity Specification	
				Section	Special Reqs.
Poles (Round)	Agricultural Use, Utility	Ground Contact or Fresh Water, Low Decay	4A	D	
	Agriculture, Utility, Highway Construction, Lighting	Ground Contact or Fresh Water, Moderate Decay	4B	D	
	Building Structural Utility, Lighting	Ground Contact or Fresh Water, High Decay	4C	B D	4.4
Poles (Sawn)	Agricultural/Farm Building Structural Support	Ground Contact or Fresh Water	4B	A	
Poles (Glued Laminated)	Utility Poles	Ground Contact or Fresh Water, Low or Moderate Decay	4A/4B	D	6
	Utility Poles	Ground Contact or Fresh Water, High Decay	4C	D	6
Posts Round, 1/2 & 1/4 Round	General, Fence, Highway Construction Including Guide, Sign, Sight and Guardrail Posts, Spacer Blocks	Ground Contact or Fresh Water	4A	B	
	Playground Equipment	Ground Contact or Fresh Water		B	
	Building Construction	Ground Contact or Fresh Water	4B	B	4.4
	Agricultural Used as Round Structural Members	Ground Contact or Fresh Water,		B	4.2.1
	Brine Storage, Highway	Ground Contact or Fresh Water,		B	4.1.2
Posts (Sawn 4 Sides)	General, Fence, Deck Support	Ground Contact or Fresh Water	4A	A	
	Highway Construction, General Including Guardrail Posts, Spacer Blocks	Ground Contact or Fresh Water			
	Playground Equipment	Ground Contact or Fresh Water		B	4.3
	Agricultural Uses	Ground Contact or Fresh Water	4B	A	
	Building Structural Support	Ground Contact or Fresh Water		A	
Purlins	Above Ground, Interior	Insect Only	1	A	
	Above Ground, Interior	Above Ground, Damp	2	A	
	Painted/Coated	Above Ground, Exterior	3A	A	
	Unpainted	Above Ground, Exterior	3B	A	
Shakes and Shingles	Painted or Unpainted	Above Ground, Exterior	3B	A	4.6
Siding (Beveled or Not)	Painted/Coated	Above Ground, Exterior	3A	A	4.1
	Unpainted	Above Ground, Exterior	3B	A	
Siding, Engineered Wood (EWS)	Wall Paneling, Interior	Insect Only	1	J	
	Wall Paneling, Interior	Damp	2	J	
	Siding & Trim, Exterior	Above Ground, Protected	3A	J	
Sill Plates	Interior	Above Ground, Damp	2	A	4.1
Skirtboard	Post Frame Construction	Ground Contact	4A	A	
Stakes (Sawn 4 Sides)	Grape, Agriculture	Ground Contact/Fresh Water	4A	A	
Structural Composite Lumber	See Composite Lumber				
Studs	Building Construction, Interior	Insect Only	1	A	4.1
	Building Construction, Interior	Wood Exposed to Dampness	2	A	4.1
Ties	Mine and Bridge	Ground Contact or Fresh Water	4A	B	
	Mine and Bridge	Brackish or Salt Water	5A-5B-5C	G	6.1-6.4
Trusses	Roof	Insect Only	1	A	4.1
	Roof	Wood Exposed to Dampness	2	A	4.1
	Floor	Above Ground	3B	A	4.1

Table 3-1 Guide to commodity specifications for treated wood end uses, arranged by use (cont.)

Commodity	Use	Exposure	Use Category	Commodity Specification	
				Section	Special Reqs.
Utility Poles	Distribution, Transmission, Laminated, General	Ground Contact or Fresh Water	4A	D	
	Distribution, Transmission, Laminated, Important	Ground Contact or Fresh Water, High Decay	4B	D	
	Distribution, Transmission, Laminated, Critical	Ground Contact or Fresh Water, Severe Decay	4C	D	
Veranda supports	Veranda Supports	Ground Contact or Fresh Water	4A	A	

¹ Joists and beam shall be treated to requirements for UC4A when they are difficult to maintain, repair or replace and are critical to the performance and safety of the entire system/construction. Refer to the Section 2 description of UC4 Ground Contact for any provisions that may also be applicable to joists and beams.

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SECTION 4: STANDARDIZED PRESERVATIVES (INFORMATIVE)

Jurisdiction: AWWA Technical Committee T-1

Table 1. Preservatives for Pressure Treatment Processes

Preservatives listed in this table are limited to those referenced in U1 Commodity Specifications A-G and the corresponding T1 sections.

Preservative Abbreviation	P Standard Reference	Preservative	Retention Basis, as	Preservative Carrier
Oilborne and Creosote-Based				
CR	P1/P13	Creosote	Creosote	Not applicable
CR-S	P2	Creosote Solution	Creosote Solution	Not applicable
CR-PS	P3	Creosote-Petroleum Solution	Creosote plus Petroleum	Petroleum Oil
Cu8	P37	Oxine Copper	Oxine Copper	Hydrocarbon Solvent Type A or C
CuN	P36	Copper Naphthenate	Copper	Hydrocarbon Solvent Type A
DCOI-A	P39	DCOI Solvent A	DCOI	Hydrocarbon Solvent Type A
IPBC/PER	P58	IPBC/Permethrin	IPBC + PER	Hydrocarbon Solvent Type C
PCP-A	P35	Pentachlorophenol (Penta) Solvent A	PCP	Hydrocarbon Solvent Type A
PCP-C	P35	Pentachlorophenol (Penta) Solvent C	PCP	Hydrocarbon Solvent Type C
PCP-G	P35	Pentachlorophenol (Penta) Solvent G	PCP	Hydrocarbon Solvent Type G
SBX-O	P60	Inorganic Boron, Oilborne	B ₂ O ₃	Creosote, Creosote Solution
Waterborne, Acid-based				
CCA	P23	Chromated Copper Arsenate Type C	Metal Oxides	Water
Waterborne, Alkali-based (amine/ammonia)				
ACQ-A	P26	Alkaline Copper Quat Type A	CuO + Quat	Water
ACQ-B	P27	Alkaline Copper Quat Type B	CuO + Quat	Water
ACQ-C	P28	Alkaline Copper Quat Type C	CuO + Quat	Water
ACQ-D	P29	Alkaline Copper Quat Type D	CuO + Quat	Water
ACZA	P22	Ammoniacal Copper Zinc Arsenate	Metal Oxides	Water
CA-B	P32	Copper Azole Type B	Cu + azole	Water
CA-C	P48	Copper Azole Type C	Cu + azoles	Water
CX-A	P33	Copper HDO Type A	CuO + H ₃ BO ₃ + HDO	Water
KDS	P55	Alkaline Copper Betaine	CuO + DPAB + H ₃ BO ₃	Water
KDS-B	P56	Alkaline Copper Betaine Type B	CuO + DPAB	Water
Waterborne, Other				
CuN-W	P34	Waterborne Copper Naphthenate	Copper	Water
EL2	P47	4,5-dichloro-2-n-octyl-4-isothiazolin-3-one (DCOI) and 2-Imidazolidinimine, 1-((6-chloro-3-pyridinyl)methyl)-nitro (Imidacloprid)	DCOI + Imidacloprid	Water
MCA	P61	Micronized Copper Azole	Cu + Tebuconazole	Water
MCA-C	P62	Micronized Copper Azole Type C	Cu + azoles	Water
PTI	P45	Propiconazole Tebuconazole Imidacloprid	Propiconazole Tebuconazole Imidacloprid	Water
SBX	P25	Inorganic Boron (SBX)	B ₂ O ₃	Water

Table 2. Protectants for Fire-Retardant Treatment Processes

Applies to Commodity Specification H.

Protectant Abbreviation	P Standard Reference	Protectant	Retention Basis	Preservative Carrier
FR-1	P49	FR-1	Not Available	Water
FR-2	P50	FR-2	Not Available	Water

Table 3. Preservatives for Non-Pressure Treatment Processes

Applies to Commodity Specifications I through J.

Preservative Abbreviation	P Standard Reference	Preservative	Retention Basis	Preservative Carrier
Oilborne and Creosote-based				
Cu8	P37	Oxine Copper	Oxine Copper	Hydrocarbon Solvent Type C or F
CuN	P36	Copper Naphthenate	Copper	Hydrocarbon Solvent Type C or F
Waterborne, Other				
AAC-W	P24	Alkyl Ammonium Compound, Waterborne	Not Available	Water
SBX	P25	Inorganic Boron	Boron as B ₂ O ₃	Water
Light Organic Solvent Systems				
AAC	P38	Alkyl Ammonium Compound, Oilborne	Not Available	Hydrocarbon Solvent Type C
DCOI	P39	4,5-dichlor-2-N-octyl-4-Isothiazolin-3-one (Isothiazolin) (Note b)	Not Available	Hydrocarbon Solvent Type C
IPBC	P40	3-iodo-2 propynyl butyl carbamate (Note b)	Not Available	Hydrocarbon Solvent Type C
PPZ	P42	1-[2-(4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl L-methyl]-1H-1,2,4-triazole (Propiconazole) (Note b)	Not Available	Hydrocarbon Solvent Type C
TEB	P41	Γ-(2(4(chlorophenyl)ethyl-γ-(1,1-dimethylethyl)-1H-1,2,4-Triazole-1 Ethanol (Tebuconazole) (Note b)	Not Available	Hydrocarbon Solvent Type C
Preservative Added During Manufacture				
KDS	P57	Alkaline Copper Betaine	CuO + DPAB + H ₃ BO ₃	Water
ZB	P51	Zinc Borate	2ZnO•3B ₂ O ₃ •3.5H ₂ O	Not Applicable

Table 4. Preservatives for Thermal Treatment Processes

Applies to Commodity Specification D.

Preservative Abbreviation	P Standard Reference	Preservative	Retention Basis	Preservative Carrier
CuN	P36	Copper Naphthenate	Copper	Hydrocarbon Solvent Type A
PCP-A	P35	Pentachlorophenol (Penta) Solvent A	PCP	Hydrocarbon Solvent Type A

Table 5. Protectants for Nonbiocidal Treatment Processes

Protectant Abbreviation	P Standard Reference	Protectant	Retention Basis	Protectant Carrier
CM-A	P59	Chemical Modification by Acetylation	% Bound Acetyl	Not Applicable

SECTION 5: SPECIES AND SPECIES GROUPINGS REFERENCED IN AWWA STANDARDS (INFORMATIVE)

Jurisdiction: AWWA Technical Committee T-1

The individual species and species groupings herein have been included in AWWA Standards because experience has shown that it is possible to treat them successfully, with at least some preservative systems. The specification of a species in these tables does not imply that they are suitable for all preservative systems, or that a preservative system appropriate to specific applications is listed or available.

Most species are treated either as sawn or round commodities. Other species groupings, such as those listed in the grade books of various ALSC-accredited grading agencies may contain a mix of species which cannot be readily separated, or properly treated as a whole. Grade marks are an acceptable means of species identification, but only sawn material is grade-marked. To predict treatability, species should be positively identified. The following list includes species groupings that are commonly treated under AWWA Standards, which are described under Notes 1-9 below. Treating of other species groupings should be avoided unless individual species identification can be made

by a means acceptable to both buyer and seller. However, acceptance under AWWA Standards is ultimately governed by preservative penetration and retention. The specification of a preservative with a species or species group does not necessarily imply the species or the species group is treated regularly with any specific preservative. Prior to specifying a species for a given application, it should be cross-referenced with the specific commodity specification, and information should be obtained on the availability of a species preservative combination.

Species Treatability and Variability. Some species are difficult to treat to the requirements of the AWWA Standards even when incised. Individual pieces or lots within a species or species grouping may vary, sometimes significantly in their treatability. Prior to specifying a species or species group for any commodity and preservative, accurate information should be obtained about the treatability and the variability of the species or species group. The recognized common and scientific names of wood species used in AWWA Standards are as follows.

Notes and Footnotes for Species Names and Listings in Section 5 Tables UCS-UI – Use Category System: User Specification for Treated Wood Products

¹ Coastal = West of Summit of Cascade Mountains; Intermountain = East of Cascade Summit.

² Usually, but not always.

³ For sawn products treated with CCA, Western larch was removed from AWWA Standards with prejudice. For ammoniacal copper preservatives and pentachlorophenol, Western larch was removed from AWWA Standards without prejudice.

Note 1: Southern Pine includes *Pinus echinata* (shortleaf), *P. elliotii* (slash), *P. palustris* (longleaf), *P. taeda* (loblolly)

Note 2: Mixed Southern pine includes all Southern Pine species plus *Pinus serotina* (pond) and *P. virginiana* (Virginia)

Note 3: Hem-fir includes *Tsuga heterophylla*, *Abies amabilis* (pacific silver), *A. concolor* (white), *A. grandis* (grand), *A. magnifica* (Cal. red), *A. procera* (nobel)

Note 4: Hem-fir North includes *Tsuga heterophylla*, *Abies amabilis*

Note 5: Spruce-Pine-Fir includes *Abies balsamea*, *A. lasiocarpa*, *Picea engelmannii*, *P. glauca*, *P. mariana*, *P. rubrens*, *Pinus banksiana*, *P. contorta*

Note 6: Spruce-Pine-Fir West (NLGA Grade Rules) is a Western Canadian subset of Spruce-Pine-Fir that is graded Northern Lumber Grading Association (NLGA) rules, but only by the following Western Canadian agencies: Alberta Forest Products Association (AFPA), Caribou Lumber Manufacturers Association (CLMA), Canadian Mill Services Association (COFI), Interior Lumber Manufacturers Association (ILMA), Northern Forest Products Association (NFPA). It includes *Abies lasiocarpa*, *Picea engelmannii*, *P. mariana*, *P. plauca*, *Pinus contorta*

Note 7: Red Oak includes *Quercus coccinea*, *Q. ellipsoidalis*, *Q. falcata*, *Q. kelloggii*, *Q. laevis*, *Q. laurifolia*, *Q. marilandica*, *Q. nigra*, *Q. nuttallii*, *Q. palustris*, *Q. phellos*, *Q. rubra*, *Q. shumardii* and *Q. velutina*

Note 8: White Oak includes *Quercus alba*, *Q. prinus*, *Q. stellata*, *Q. lyrata*, *Q. michauxii*, *Q. macrocarpa*, *Q. muehlenbergii*, *Q. bicolor*, and *Q. virginiana*.

Note 9: Scots Pine-Ger is *Pinus sylvestris* from Germany as certified by a qualified third-party agency.

Note 10: Scots pine-Swe is *Pinus sylvestris* from Sweden as certified by a qualified third-party agency.

Note 11: Patula Pine is *Pinus patula* from South Africa and a component of African Montane Pine as certified by a qualified third-party agency.

Species Names and Listings in U1 – Use Category System: User Specification for Treated Wood Products

Common Name(s)	Scientific Name(s)	Posts		Structural Poles/Posts		Crossties	Utility Poles						
		General		Farm	Building	Switchties	General			Glue-lam	Thermal		
		UC4A	UC4B	UC4Bmod	UC4B	UC4	UC4A	UC4B	UC4C	UC4A-C	UC4A&B	UC4C	
Douglas-fir													
Coastal (Oregon Pine/Red Fir) ¹	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i> ²	X	X	X	X	X	X	X	X	X			
Interior (Mountain or Intermountain) ¹	<i>Pseudotsuga menziesii</i> var. <i>glauca</i> ²			X		X							
Pines													
Southern	Note 1	X	X	X	X	X	X	X	X	X			
Mixed Southern	Note 2												
Ponderosa	<i>P. ponderosa</i>	X	X	X	X	X	X	X	X				
Jack	<i>P. banksiana</i>	X	X	X		X	X	X	X				
Lodgepole	<i>P. contorta</i>	X	X	X		X	X	X	X				
Eastern White (Northern White)	<i>P. strobus</i>												
Radiata	<i>P. radata</i>	X	X	X	X		X	X	X				
Caribbean (Ocote, Honduras)	<i>P. caribaea</i> , <i>P. oocarpa</i>												
Red (Norway)	<i>P. resinosa</i>	X	X	X	X	X	X	X	X				
Spruce	<i>Pinus glabra</i>												
Redwood	<i>Sequoia sempervirens</i>												
Hemlocks, Spruces, True Firs													
Hem-fir	Note 3												
Hem-fir North	Note 4												
Western Hemlock	<i>Tsuga heterophylla</i>	X	X			X							
Eastern Hemlock	<i>Tsuga canadensis</i>												
Subalpine (alpine) Fir	<i>Abies lasiocarpa</i>												
Spruce-Pine-Fir	Note 5												
Spruce-Pine-Fir West	Note 6												
Sitka Spruce	<i>Picea sitchensis</i>												
Western White Spruce	<i>Picea glauca</i>												
Englemann Spruce	<i>Picea engelmannii</i>												
Western Larch³	<i>Larix occidentalis</i>	X	X	X		X	X	X	X		X	X	
Cedars													
Western Red Cedar	<i>Thuja plicata</i>			X			X	X	X		X	X	
Alaska Yellow Cedar	<i>Chamaecyparis nootkatensis</i>						X	X	X		X	X	
Northern White Cedar	<i>Thuja occidentalis</i>										X	X	
Incense Cedar	<i>Libocedrus decurrens</i>												
Baldcypress (cypress)	<i>Taxodium distichum</i>												
Hardwoods													
Oak	all <i>Quercus</i> sp.					X							
Red Oak	Note 7												
Maple	<i>Acer</i> sp.												
Red Maple	<i>Acer rubrum</i>												
Black Gum	<i>Nyssa</i> spp.												
Red (sweet) Gum	<i>Liquidambar</i> spp.												
Hickory	<i>Carya</i> spp.					X							
Yellow Poplar	<i>Liriodendron tulipifera</i>												
Mixed Hardwoods	All other N.A. hardwood species					X							

Species Names and Listings in U1 – Use Category System: User Specification for Treated Wood Products

Common Name(s)		Scientific Name(s)	Non-pressure Treated Wood Composites		
			Note: wood composites may be manufactured from a single species or a blend of species. Detailed species descriptions for the commodities standardized are found in Standard T1, Section J.		
			Laminated Strand Lumber (LSL)	Oriented Strand Board (OSB)	Engineered Wood Siding (EWS)
			UCI-3A	UCI-3A	UCI-3A
Softwoods					
Pine	<i>Pinus spp.</i>		X		
Spruce	<i>Picea spp.</i>		X		
Fir	<i>Abies spp.</i>		X		X
Mixed Softwoods	Other softwood species (see note)				
Hardwoods					
Aspen	<i>Populus spp.</i>	X	X		X
Yellow-poplar	<i>Liriodendron tulipifera</i>	X			
Mixed Hardwoods	Other hardwood species (see notes)	X	X		X

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COMMODITY SPECIFICATIONS

The Commodity Specifications identify all AWPAs specifications for treated wood products. It is organized into a series of major commodity classifications and provides information on the preservative systems and species/species groupings that can be treated under AWPAs Standards for each Use Category (use exposure condition). Use category descriptions are given in Section 2. If a user/specifier is unsure where to look up a specific commodity and end-use within these tables, they should consult Section 3 of this standard for specific commodity references. In all cases, treated material should be clean of preservative deposits and suitable for its intended end use. Material treated with creosote, creosote solutions, or oil-borne preservatives in Use Categories UC1 through UC5 shall be supplied reasonably free of exudate and surface deposits. Material treated with waterborne preservatives shall be supplied free of visible surface deposits. Drying after treatment of material treated with waterborne preservatives is sometimes required or desirable for dimensional stability and should be specified. When drying after treatment is required, the moisture content in each piece of lumber shall not exceed 19% or that allowed by National Grading Rules for the species and size specified to be dried. The moisture content in each piece of plywood shall not exceed 18%.

COMMODITY SPECIFICATIONS

- A. Sawn Products
- B. Posts
- C. Crossties and Switchties
- D. Poles
- E. Round Timber Piling
- F. Pressure-Treated Wood Composites
- G. Marine (Salt Water) Applications
- H. Fire Retardants
- I. Nonpressure Applications
- J. Non-Pressure Treated Wood Composites
- K. Barrier Protection Systems

Location of Some Specialized Commodities, not otherwise obvious:

Permanent Wood Foundation (PWF)

Both Lumber and Plywood: Commodity Specification A, Section 4.2

Playground Material

Lumber, rounds (Posts/poles): Commodity Specification B, Section 4.3

Round Building Poles and Posts

Both poles and posts: Commodity Specification B, Section 4.4