



How to Specify Treated Wood with the AWWPA Use Category System

The purpose of the Use Category System (UCS) is to provide a simple way of meeting user needs by relating the end-use of the treated wood product directly to the appropriate AWWPA Standard. The UCS defines a series of different exposures for treated wood products. Each exposure has a different degree of biodegradation hazard and/or product service life expectation. The system helps specifiers and product users to locate the appropriate AWWPA Standards that provide recommendations for a specific combination of product and use environment.

The advantage of the UCS is simplicity. All treated wood commodities can be placed into one of the Use Categories. The system consists of five Use Categories, based on exposures and expected product performance, ranging from weather protected to salt water marine. A separate Use Category is provided for fire retardant applications.

The user of this system should first find the appropriate Use Category for the expected service conditions and a definite application in the Specification Guide to Treated Wood End Uses.

The smaller the Use Category number, a lesser amount of protection is required to provide the necessary level of protection from decay or insect attack. Likewise, the largest Use Category number provides the highest degree of protection to wood used in the most severe service conditions. In general, as the Use Category number rises, there is a consequential increase in the required preservative retention. The required depth of penetration may also increase. The dimensions of the treated product may also influence the penetration requirement.

USE CATEGORY SELECTION GUIDE

UC1 — 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.

SERVICE CONDITIONS:

Interior construction, dry, above ground

USE ENVIRONMENT:

Continuously protected from weather or other sources of moisture

COMMON AGENTS OF DETERIORATION:

Insects only

TYPICAL APPLICATIONS:

Interior construction

UC2 — 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.

SERVICE CONDITIONS:

Interior construction, damp above ground

USE ENVIRONMENT:

Protected from weather, but subject to sources of moisture

COMMON AGENTS OF DETERIORATION:

Decay fungi and insects

(continued)

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UC2 continued

TYPICAL APPLICATIONS:

Interior construction — beams, timbers, flooring, framing, millwork, sill plate

UC3A — Wood and wood based materials used in exterior construction that are coated and not in contact with the ground. Such products may be exposed to the full effects of weather, but are in vertical exterior walls or other types of construction that allows water to quickly drain from the surface.

SERVICE CONDITIONS:

Exterior construction, coated, rapid water runoff, above ground

USE ENVIRONMENT:

Coated. Exposed to all weather cycles, but not exposed to prolonged wetting.

COMMON AGENTS OF DETERIORATION:

Decay fungi and insects

TYPICAL APPLICATIONS:

Coated millwork, siding and trim

UC3B — 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.

SERVICE CONDITIONS:

Exterior construction, above ground, uncoated or poor water runoff

USE ENVIRONMENT:

Exposed to all weather cycles and prolonged wetting

COMMON AGENTS OF DETERIORATION:

Decay fungi and insects

TYPICAL APPLICATIONS:

Decking, deck joists, sills, walkways, railings, fence pickets

UC4A — Wood and wood based materials used in contact with the ground, fresh water, or other situations favorable to deterioration.

SERVICE CONDITIONS:

Ground contact or fresh water, non-critical components

USE ENVIRONMENT:

For normal ground or fresh water contact. Exposed to all weather cycles.

COMMON AGENTS OF DETERIORATION:

Decay fungi and insects

TYPICAL APPLICATIONS:

Fence posts, deck posts, structural lumber and timbers, guardrail posts, utility poles in regions of low decay potential

UC4B — Wood and wood based materials 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.

SERVICE CONDITIONS:

Ground contact, fresh water, important construction components, or in salt water splash zones

USE ENVIRONMENT:

Severe ground contact or salt water splash. Difficult replacement. Exposed to all weather cycles.

COMMON AGENTS OF DETERIORATION:

Decay fungi and insects with increased potential for biodeterioration

TYPICAL APPLICATIONS:

Permanent wood foundations, building poles, horticultural posts, utility poles, decking or above tidal zone structural components in piers or docks. In regions of high potential for decay.

UC4C — 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 and in critical structural components.

SERVICE CONDITIONS:

Ground contact, fresh water, critical structural components

USE ENVIRONMENT:

Very severe ground contact. Exposed to all weather cycles. Extreme decay potential.

(continued)

UC4C continued

COMMON AGENTS OF DETERIORATION:

Decay fungi and insects with extreme potential for biodeterioration

TYPICAL APPLICATIONS:

Land or fresh water piling, foundation piling, utility poles with a severe potential for decay.

UC5A — Wood and wood based materials exposed to salt and brackish water generally from New Jersey and north on the east coast and north of San Francisco on the west coast to the extent that the marine borers can attack them.

SERVICE CONDITIONS:

Salt or brackish water and adjacent mud zone

USE ENVIRONMENT:

Continuous marine (salt water) exposure

COMMON AGENTS OF DETERIORATION:

Salt water organisms; Teredo, Limnoria quadripunctata

TYPICAL APPLICATIONS:

Piling, bulkheads, bracing

UC5B — Wood and wood based materials exposed to salt and brackish water between New Jersey and Georgia on the east coast and south of San Francisco on the west coast to the extent that the marine borers can attack them.

SERVICE CONDITIONS:

Salt or brackish water and adjacent mud zone

USE ENVIRONMENT:

Continuous marine (salt water) exposure

COMMON AGENTS OF DETERIORATION:

Salt water organisms; Teredo, Limnoria tripunctata

TYPICAL APPLICATIONS:

Piling, bulkheads, bracing

UC5C — Wood and wood based materials exposed to salt and brackish water south of Georgia and along the Gulf coasts in the eastern U.S. to the extent that the marine borers can attack them.

SERVICE CONDITIONS:

Salt or brackish water and adjacent mud zone

USE ENVIRONMENT:

Continuous marine (salt water) exposure

COMMON AGENTS OF DETERIORATION:

Salt water organisms; Teredo, Martesia, Sphaeroma

TYPICAL APPLICATIONS:

Piling, bulkheads, bracing

UCFA — 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.

SERVICE CONDITIONS:

Fire protection as required by codes. Above ground interior construction.

USE ENVIRONMENT:

Continuously protect from weather or other sources of moisture

COMMON AGENTS OF DETERIORATION:

Fire

TYPICAL APPLICATIONS:

Roof sheathing, roof trusses, studs, joists, paneling

UCFB — 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.

SERVICE CONDITIONS:

Fire protection as required by codes. Above ground exterior construction.

USE ENVIRONMENT:

Wetting

COMMON AGENTS OF DETERIORATION:

Fire

TYPICAL APPLICATIONS:

Vertical exterior walls, inclined roof surfaces or other types of construction that allow water to quickly drain from surface

**SPECIFICATION GUIDE TO
TREATED WOOD END USES**

AWPA STANDARDS

OILBORNE PRESERVATIVES

Use Category System

COPPER NAP¹

CREO²

PENTA³

AGRICULTURE, FARM USE

Round poles and posts as structural members	4B	0.075	7.5 – 16.0	0.38 – 0.60
Sawn poles and posts as structural members	4B	0.075	12.0	0.60
Posts, fence				
• Round, half and quarter round	4A	0.055	8.0	0.40
• Sawn four sides	4A	0.060	10.0	0.50
Grape stakes, sawn	4A	0.060	10.0	0.30

BEAMS & TIMBERS, glue laminated before or after treatment

Interior, dry	1	0.04	8.0	0.30
Interior, damp	2	0.04	8.0	0.30
Exterior, above ground	3B	0.04	8.0	0.30
Exterior, ground contact	4A	0.60	10.0	0.60
Highway construction	4B, 4C	0.080 – 0.15 ¹³	9.0 – 12.0	0.45 – 0.60

BUILDING CONSTRUCTION MATERIAL

Decks, Residential				
• Decking	3B	NL	NR	NR
• Joists, above ground	3B	NL	NR	NR
• Joists, ground contact	4A	NL	NR	NR
• Posts	4A	NL	NR	NR
• Railing	3B	NL	NR	NR
Floor plate	2	NL	NR	NR
Flooring, above ground, interior	1, 2	NL	NR	NR
Framing, interior	1, 2	NL	NR	NR
Lumber				
• Above ground	3B	0.04	8.0	0.40
• Ground contact	4A	0.06	10.0	0.50
• Out of contact with ground and continuously protected from liquid water	2	NL	NL	NL
Permanent Wood Foundation				
• Lumber	4B	NL	NL	NL
• Plywood	4B	NL	NL	NL
Plywood				
• Sub-floor, damp, above ground	2	NL	8.0	0.40
• Exterior, above ground	3B	NL	8.0	0.40
• Ground contact	4A	NL	8.0	0.40
• Out of contact with ground and continuously protected from liquid water	2	NL	NL	NL
Poles, building				
• Round	4A, 4B	NL	7.5 – 16.0	0.38 – 0.60
• Sawn	3B	0.075	12.0	0.60
Studs	2	NL	NR	NR

FENCING

Pickets, slats, trim	3A, 3B	0.055	8.0	0.50
Posts, sawn	4A	NL	10.0	0.50
Posts, round	4A	0.055	8.0	0.40
Rail	3A, 3B	0.055	8.0	0.50

HIGHWAY MATERIAL

Lumber and timbers for bridges, structural members, decking, cribbing, and culverts	4B	0.075	10.0	0.50
Structural lumber and timbers:				
• In saltwater use and subject to marine borer attack	5A, 5B, 5C	NL	25.0	NL
• Piles, foundation, land and fresh water use	4C	0.10 – 0.14	12.0 – 17.0	0.60 – 0.85
• Piling in saltwater use and subject to marine borer attack	5A, 5B, 5C	NL	16.0 – 20.0	NL
• Posts: Round, half-round, quarter round (General construction — fence posts, sign posts, handrails)	4A	0.055	6.0 – 8.0	0.40
• Posts: Round, half-round, quarter round (Guardrails, spacer blocks, critical structural members)	4B	0.069	10.0	0.50
• Posts: Sawn (General construction — fence posts, sign posts, handrails)	4A	0.06	10.0	0.40
• Posts: Sawn (Guardrails, spacer blocks, critical structural members)	4B	0.075	10.0	0.50

LUMBER

Above ground	3B	0.04	8.0	0.40
Ground contact and fresh water use	4A	0.06	10.0	0.50

MARINE LUMBER & TIMBERS

Members above ground and out of water but subject to saltwater splash	4B, 4C	0.06 – 0.75	10.0 – 12.0	0.50 – 0.60
In brackish or saltwater use and subject to marine borer attack	5A, 5B, 5C	NL	25.0	NL

PILES

Foundation, land and freshwater use (round)	4C	0.10 – 0.14	12.0 – 17.0	0.65 – 0.85
Marine (round) in salt or brackish and subject to marine borer attack	5A, 5B, 5C	NL	16.0 – 20.0	NL
Marine, dual treatment (round) for maximum protection	5B, 5C	NL	20.0	NL
Sawn timber piles	4B, 4C	0.075	10.0 – 12.0	0.50

PLYWOOD

Sub-floor, damp, above ground	2	0.04	8.0	0.40
Exterior, above ground	3B	NL	8.0	0.40
Ground contact	4A	NL	10.0	0.50
Out of contact with ground and continuously protected from liquid water	2	NL	NL	NL
Marine	5A, 5B, 5C	NL	25.0	NL

FOOTNOTES

NL – Not listed in the AWPA Standards.
 NR – Not recommended. Not within the scope of permitted uses based on the AWPA Standards.
 NP – Not permitted. Not within the scope of permitted uses based on the preservative label.

(1) Copper Naphthenate.

(2) Creosote-Coal Tar Creosote.

(3) Pentachlorophenol may be dissolved with several solvents. The solvents specified in AWPA P-9 are: Type A—Oil; Type C—Light Hydrocarbon solvent with auxiliary solvent; Use Type C where conditions require cleanliness and ability for staining.

**SPECIFICATION GUIDE TO
TREATED WOOD END USES**

AWPA STANDARDS

WATERBORNE PRESERVATIVES

Use Category System

ACQ⁴

ACZA⁵

CA-B⁶

CCA⁷

DOT⁸

AGRICULTURE, FARM USE

Round poles and posts as structural members	4B	0.60	0.60	0.31	0.60	NL
Sawn poles and posts as structural members	4B	0.60	0.60	0.31	0.60	NL
Posts, fence						
• Round, half and quarter round	4A	0.40	0.40	0.21	0.40	NL
• Sawn four sides	4A	0.40	0.40	0.21	NP	NL
Grape stakes, sawn	4A	0.40	0.40	0.21	NP	NL

BEAMS & TIMBERS, glue laminated before or after treatment

Interior, dry	1	0.25	0.25 – 0.30 ⁹	NL	0.25	NL
Interior, damp	2	0.25	0.25 – 0.30 ⁹	NL	0.25	NL
Exterior, above ground	3B	0.25	0.25 – 0.30 ⁹	NL	0.25	NL
Exterior, ground contact	4A	0.40	0.40 – 0.60 ⁹	NL	0.40	NL
Highway construction	4B, 4C	NL	0.40 – 0.60 ^{9, 14}	NL	0.40 ¹⁴	NL

BUILDING CONSTRUCTION MATERIAL

Decks, Residential						
• Decking	3B	0.25	0.25	0.10	NP	NL
• Joists, above ground	3B	0.25	0.25	0.10	NP	NL
• Joists, ground contact	4A	0.40	0.40	0.21	NP	NL
• Posts	4A	0.40	0.40	0.21	NP	NL
• Railing	3B	0.25	0.25	0.10	NP	NL
Floor plate	2	0.25	0.25	0.10	NP	NL
Flooring, above ground, interior	1, 2	0.25	0.25	0.10	NP	0.25
Framing, interior	1, 2	0.25	0.25	0.10	NP	0.25
Lumber						
• Above ground	3B	0.25	0.25	0.10	NP	NL
• Ground contact	4A	0.40	0.40	0.21	NP	NL
• Out of contact with ground and continuously protected from liquid water	2	NL	NL	NL	NP	0.25
Permanent Wood Foundation						
• Lumber	4B	0.60	0.60	0.31	0.60	NL
• Plywood	4B	0.60	0.60	0.31	0.60	NL
Plywood						
• Sub-floor, damp, above ground	2	0.25	0.25	0.10	0.25	0.25
• Exterior, above ground	3B	0.25	0.25	0.10	0.25	NL
• Ground contact	4A	0.40	0.40	0.21	0.40	NL
• Out of contact with ground and continuously protected from liquid water	2	NL	NL	NL	NL	0.25
Poles, building						
• Round	4A, 4B	0.60	0.60	0.31 ¹⁰	0.60	NL
• Sawn	3B	0.60	0.60	0.31	0.60	NL
Studs	2	0.25	0.25	0.10	NP	0.25

FENCING

Pickets, slats, trim	3A, 3B	0.25	0.25	0.10	NP	NL
Posts, sawn	4A	0.40	0.40	0.21	NP	NL
Posts, round	4A	0.40	0.40	0.21 ¹²	NP	NL
Rail	3A, 3B	0.25	0.25	0.10	NP	NL

HIGHWAY MATERIAL

Lumber and timbers for bridges, structural members, decking, cribbing, and culverts	4B	0.60	0.60	0.31 ¹¹	0.60	NL
Structural lumber and timbers:						
• In saltwater use and subject to marine borer attack	5A, 5B, 5C	NL	2.50	NL	2.50	NL
• Piles, foundation, land and fresh water use	4C	NL	0.80 – 1.0	NL	0.80 – 1.0	NL
• Piling in saltwater use and subject to marine borer attack	5A, 5B, 5C	NL	1.50 – 2.50	NL	1.50 – 2.50	NL
• Posts: Round, half-round, quarter round (General construction — fence posts, sign posts, handrails)	4A	0.40	0.40	0.21	0.40	NL
• Posts: Round, half-round, quarter round (Guardrails, spacer blocks, critical structural members)	4B	0.50	0.50	0.31	0.50	NL
• Posts: Sawn (General construction — fence posts, sign posts, handrails)	4A	0.40	0.40	0.21	0.40	NL
• Posts: Sawn (Guardrails, spacer blocks, critical structural members)	4B	0.50	0.50	0.31	0.50	NL

LUMBER

Above ground	3B	0.25	0.25	0.10	NP	NL
Ground contact and fresh water use	4A	0.40	0.40	0.21	NP	NL

MARINE LUMBER & TIMBERS

Members above ground and out of water but subject to saltwater splash	4B, 4C	0.60	0.60	0.31	0.60	NL
In brackish or saltwater use and subject to marine borer attack	5A, 5B, 5C	NL	2.50	NL	2.50	NL

PILES

Foundation, land and freshwater use (round)	4C	0.80	0.80 – 1.0	NL	0.80 – 1.0	NL
Marine (round) in salt or brackish and subject to marine borer attack	5A, 5B, 5C	NL	1.50 – 2.50	NL	1.50 – 2.50	NL
Marine, dual treatment (round) for maximum protection	5B, 5C	NL	1.0	NL	1.0	NL
Sawn timber piles	4B, 4C	0.60	0.60 – 0.80	NL	0.60 – 0.80	NL

PLYWOOD

Sub-floor, damp, above ground	2	0.25	0.25	0.10	0.25	0.25
Exterior, above ground	3B	0.25	0.25	0.10	0.25	NL
Ground contact	4A	0.40	0.40	0.21	0.40	NL
Out of contact with ground and continuously protected from liquid water	2	NL	NL	NL	NL	0.25
Marine	5A, 5B, 5C	NL	2.50	NL	2.50	NL

(4) Alkaline Copper Quat.
(5) Ammoniacal Copper Zinc Arsenate.
(6) Copper Azole.
(7) Chromated Copper Arsenate.

(8) DOT (Disodium Octaborate Tetrathrydrate):
a retention of 0.25 pcf DOT is equivalent to 0.17 pcf B₂O₃.
(9) Douglas Fir Only.
(10) Western Red Cedar, Southern Pine Only.

(11) Douglas Fir, Western Hemlock, Southern Pine Only.
(12) Lodgepole Pine, Southern Pine Only.
(13) After gluing.
(14) Before gluing.

SERVICE CONDITIONS FOR USE CATEGORY SELECTION GUIDE

(Source: AWPA 2006 Book of Standards)

USE CATEGORY	SERVICE CONDITIONS	USE ENVIRONMENT	COMMON AGENTS OF DETERIORATION	TYPICAL APPLICATIONS
UC1	Interior construction Above Ground Dry	Continuously protected from weather or other sources of moisture	Insects only	Interior construction and furnishings
UC2	Interior construction Above Ground Damp	Protected from weather, but may be subject to sources of moisture	Decay fungi and insects	Interior construction
UC3A	Exterior construction Above Ground Coated & rapid water runoff	Exposed to all weather cycles, not exposed to prolonged wetting	Decay fungi and insects	Coated millwork, siding and trim
UC3B	Exterior construction Above Ground Uncoated or poor water runoff	Exposed to all weather cycles including prolonged wetting	Decay fungi and insects	Decking, deck joists, railings, fence pickets, uncoated millwork
UC4A	Ground contact or fresh water Non-critical components	Exposed to all weather cycles, normal exposure conditions	Decay fungi and insects	Fence, deck, and guardrail posts, crossties & utility poles (low decay areas)
UC4B	Ground contact or fresh water Critical components or difficult replacement	Exposed to all weather cycles, high decay potential including salt water splash	Decay fungi and insects with increased potential for biodeterioration	Permanent wood foundations, building poles, horticultural posts, crossties & utility poles (high decay areas)
UC4C	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	Salt or brackish water and adjacent mud zone Northern waters	Continuous marine exposure (salt water)	Salt water organisms	Piling, bulkheads, bracing
UC5B	Salt or brackish water and adjacent mud zone NJ to GA, south of SanFran	Continuous marine exposure (salt water)	Salt water organisms including creosote tolerant <i>Limnoria tripunctata</i>	Piling, bulkheads, bracing
UC5C	Salt or brackish water and adjacent mud zone South of GA & Gulf Coast	Continuous marine exposure (salt water)	Salt water organisms including <i>Martesia</i> , <i>Sphaeroma</i>	Piling, bulkheads, bracing
UCFA	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 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

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