TREATED WOOD

RESIDENTIAL DECK CONSTRUCTION

ICC PP Course # 8943  Credit Hours: 0.1 Hour CEU

Presented by:

Viance – Wood Treatment Solutions

Proud member of the ICC and a Preferred Education Provider: PPP ID # 1531
CODE COMPLIANT

TREATED WOOD

- WOOD PROTECTION
- TREATMENT STANDARDS
- USE APPLICATIONS
- DECK BUILDING CODE
WOOD PROTECTION

Treating wood has been practiced for almost as long as the use of wood itself

• The Greeks and Romans soaked bridges in olive oil and protected ship hulls with tar.
• Railroad crossties have been treated with creosote since the 1800’s.
• Over the past 100 years treated wood has been used for industrial, agricultural, and utility applications.
• In more recent times, treated wood use has expanded into residential decks and backyard projects.

Innovation in treated timber products continues to this day.
WOOD PROTECTION

Preserving & Protecting Wood from Environmental Hazards

Extending the Service Life of Wood Products

• **Sustainable Long Service Life** – Pressure treatment extends the life of wood products in service, helping balance overall demand on forest resources.

• **Resources** – Wood products are produced from trees, a naturally renewable resource. More wood is grown each year in the U.S. than is harvested.

• **Quality Construction** – As a building material, wood offers a unique combination of benefits, including strength, affordability, ease-of-use and environmental superiority.

Learn more about the benefits of wood at: [http://southernpinedecks.com/the-green-choice/](http://southernpinedecks.com/the-green-choice/)
How are Preservatives Classified?

- By the type of **carrier** or **solvent**:  
  *Creosote* vs. *oilborne* vs. *waterborne* solutions

- By the **preservative’s chemistry**:  
  *Organic* vs. *inorganic* metallic compounds

- By the **application process**:  
  *Pressure* vs. *non-pressure*
The level of chemical preservatives retained in the wood after treatments is referred to as “Retention”.

- Retention levels are expressed in pounds of preservative per cubic foot of wood; (pcf). Specific retentions are established for each preservative to protect the wood in various use applications.

Treated wood used in Residential Deck Projects is end tagged with the proper Use category name and abbreviation code, pcf., and chemical.

**WOOD PROTECTION: PRESERVATIVES**

**Typical Preservatives for residential use**

- **UC3B** - Above Ground Exposed Use
  - Retention (pcf) examples: 0.019, 0.06, 0.15, 0.25

- **UC4A** - Ground Contact General Use
  - Retention (pcf) examples: 0.40, 0.60
RESIDENTIAL DECK CONSTRUCTION:

▶ TREATMENT STANDARDS
Codes and Standards

Building Codes: Dictate the conditions under which treated wood must be used: e.g. IBC/IRC

Standards: Detail how wood should be treated with preservatives. e.g. AWPA Standards

Both codes and standards are necessary and work in tandem to ensure treated wood users, select and use the appropriate material for the given application and conditions.
The AWPA is the Standards writing organization for the wood preserving industry in U.S.

- Technical forum for industry, research and users.
- Protects consumers by ensuring uniform product performance.
- Referenced in all building codes.
- AWPA Book of Standards

AWPA Standards are developed by its technical committees in an open, consensus-based ANSI accredited process.
AWPA Standards are listed directly in the major model building codes (IRC/IBC) where treated wood is required.

_Treated wood products produced under the AWPA U1 Standards are code compliant._

_Alternative acceptance criteria and evaluation reports are available from other evaluation services; such as the ICC-ES_
Every preservative standardized is supported by rigorous laboratory and field test data.

- extensive scientific peer review by industry-leading wood scientists, academics and independent industry experts.
- performance data is scrutinized every five years
## AMERICAN WOOD PROTECTION ASSOCIATION

### AWPA U1 Standardized Preservatives

<table>
<thead>
<tr>
<th>Code</th>
<th>Preservative Name</th>
<th>UC3B</th>
<th>UC4A</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACQ</td>
<td>Alkaline Copper Quaternary (Type B or C)</td>
<td>0.25</td>
<td>0.40</td>
</tr>
<tr>
<td>ACQ</td>
<td>Alkaline Copper Quaternary (Type A or D)</td>
<td>0.15</td>
<td>0.40</td>
</tr>
<tr>
<td>CA-B</td>
<td>Copper Azole, Type B</td>
<td>0.10</td>
<td>0.21</td>
</tr>
<tr>
<td>CA-C</td>
<td>Copper Azole, Type C</td>
<td>0.06</td>
<td>0.15</td>
</tr>
<tr>
<td>CuN-W</td>
<td>Waterborne Copper Naphthenate</td>
<td>0.07</td>
<td>0.11</td>
</tr>
<tr>
<td>EL2</td>
<td>DCOI-Imidacloprid-Stabilizer</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td>PTI</td>
<td>Propiconazole-Tebuconazole-Imidacloprid</td>
<td>0.018</td>
<td></td>
</tr>
<tr>
<td>PTI</td>
<td>PTI plus Stabilizer</td>
<td>0.013</td>
<td></td>
</tr>
</tbody>
</table>
3rd party inspections are completed routinely and randomly by American Lumber Standards Committee; (ALSC) accredited inspection agencies.

Inspections test each plant and recently treated stock for conformance to the AWPA Standards.

Core Sample Analysis:
- **Retention**: PCF of Preservative
- **Penetration**: Depth of treatment

Compliance with AWPA U1 and ALSC Inspection will be noted by the "CheckMark" of Quality on the product end tags.

Not all wood preservative systems are produced under the AWPA U1 standards. Some wood preservative products in the market that are not listed in the AWPA U1 Use Standards (UCS) and are not subject to the AWPA’s inspection protocol.
Products that are compliant with AWPA standards will be have a clearly legible tag that states it is an AWPA Standardized product, and contain the following elements:

- **AWPA U1** - this shows the applicable AWPA Standard

- **AWPA Use Category** – Description and Use category abbreviation describing the proper application for the product

Examples:
- ABOVE GROUND EXPOSED USE (UC3B)
- GROUND CONTACT GENERAL USE (UC4A)
Preservative name and/or code

Examples of the most common AWPA U1 standardized preservatives:
- Alkaline Copper Quaternary (ACQ)
- Copper Azole (CA-C)
- Ecolife (EL2)
- Inorganic Boron (SBX)

Preservative retention - the amount of preservative retained in the wood, such as 0.17, 0.21, or 0.40, which varies by the type of preservative used.
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AWPA Use Category System (UCS)

• **Inspection agency logo** – under the AWPA standards, treating plants must subscribe to third-party quality control inspection program. Products treated under the AWPA U1 standards will display the logo of an agency accredited by the American Lumber Standard Committee (ALSC) and a "CheckMark" logo.

• **Manufacturer and Location** - in the event you need a consumer information sheet or additional information on the product itself, this should help you locate the treating company.
AMERICAN WOOD PROTECTION ASSOCIATION
AWPA End Tags Requirements

- Use Category System (UCS) Description
- AWPA U1 Standardized Preservative
- ALSC accredited inspection agency Trademark logo
- CheckMark Of Quality
- Use Category System (UCS) Code
- Preservative name and/or AWPA (Code)

Manufacturer and Plant location
Use Category System (UCS) Retention Level (PCF)
Year of Treatment
Recent updates to the AWPA Use Standards

Modifications were recently made to the treated wood (U1) Use Standards in the American Wood Protection Association’s (AWPA) 2016 Book of Standards.
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AWPA Use Category System (UCS): UC3B and UC4A

COMMON AGENTS OF DETERIORATION: Decay fungi and insects

<table>
<thead>
<tr>
<th>USE CATEGORY</th>
<th>SERVICE CONDITIONS</th>
<th>USE ENVIRONMENT</th>
<th>TYPICAL APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UC3B Above Ground Exposed</td>
<td>Exterior construction Above Ground Uncoated or poor water run-off Excludes above ground applications with ground contact type hazards (see Section 2 UC4 Note1)</td>
<td>Exposed to all weather cycles including intermittent wetting but with sufficient air circulation so wood can readily dry</td>
<td>Decking, railings, joists and beams for decks and freshwater docks(1), fence pickets, uncoated millwork</td>
</tr>
<tr>
<td>UC4A Ground Contact General Use</td>
<td>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)</td>
<td>Exposed to all weather cycles, including continuous or prolonged wetting</td>
<td>Fence, deck, and guardrail posts, joists and beams for decks and freshwater docks(1), crossties &amp; utility poles (low decay areas)</td>
</tr>
</tbody>
</table>

Note 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.
The AWPA standards **DO NOT REQUIRE** Ground Contact (UC4A) treated lumber for **ALL** structural framing and decking components.

For common deck applications, **ABOVE GROUND** (UC3B) treated lumber is still one of the best options when used appropriately.
Product treated under the AWPA standards

ABOVE GROUND (UC3B) treated lumber has a history of proven performance while using less preservative chemical.

Above Ground treatments are more cost-effective compared to using material treated with higher levels of the same preservative.
RESIDENTIAL DECK CONSTRUCTION:

- USE APPLICATIONS

HERE’S WHAT YOU NEED TO KNOW
USE APPLICATIONS:

What do the language changes in the AWPA-UCS mean?

It’s important to select wood that has the appropriate level of preservative for its intended use.

The language changes to the AWPA Use Category System and supporting guideline tables are intended to help clarify the scenarios where a higher level of protection should be considered or used.
USE APPLICATIONS:

UC3B Above Ground Exposed Use:

Wood and wood based materials used in exterior construction and not in contact with the ground.

Applications include: joists and beams for decking, walkways, railings and fence pickets.

For components that may be physically above ground but that are considered to be 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, ground contact treated materials should be used.
USE APPLICATIONS:

Under certain circumstances wood should be treated to ground contact retentions when at least one or more of the following conditions occurs:

- When there is a reasonable expectation that soil, vegetation, leaf litter or other debris may build up and remain in contact with the component
USE APPLICATIONS:

- When the construction itself, other structures or anticipated vegetation growth will not allow air flow to circulate underneath the construction and between decking boards.

- 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).
USE APPLICATIONS:

- When components are in direct contact with non-durable untreated wood, or any older construction with any evidence of decay.

- When components are wetted on a frequent or reoccurring basis (e.g. on a freshwater floating dock or by a watering system)

- When components are used in tropical climates
The AWPA Use Category System (UCS) continues to allow Above Ground (UC3B) treated wood for the most commonly built decks and outdoor projects.

- Decking
- Porch Flooring
- Railings
- Fence Boards
- Deck Joists
- Support Beams
- Rim Boards
- Structural Framing
Minimum Treatment Level Recommendations

USE APPLICATIONS: RESIDENTIAL DECKS

There is **NO** requirement to use GROUND CONTACT (UC4A) materials for **ALL** Above Ground framing and components.

**ABOVE GROUND** (UC3B) remains **CODE COMPLIANT** for the most common applications.

- **ABOVE GROUND EXPOSED USE**
  - JOISTS & BEAMS
  - DECKING
  - RAILINGS

- **GROUND CONTACT GENERAL USE**
  - JOISTS & BEAMS
  - LEDGER
  - POSTS
  - STRINGERS
  - RAILINGS
  - DECKING
  - SUPPORT POSTS
  - STAIR STRINGERS
Collaborative effort by the treated wood industry to simplify the proper selection and usage of treated wood in residential applications.

Supporting Organizations: SLB, AWPA, ICC-ES, WWPI, and SFPA
SELECT THE RIGHT PRESERVED WOOD FOR YOUR PROJECT

- **Shakes & Shingles Above Ground**
  - Use Category 3A or higher

- **Fascia & Trim Above Ground**
  - Use Category 3A or higher

- **Landscape Wall Ground Contact**
  - Use Category 4B or higher

- **Deck Railing Above Ground**
  - Use Category 3B or higher

- **Deck Boards Above Ground**
  - Use Category 3B or higher

- **Structural Posts Ground Contact**
  - Use Category 4A or higher

- **Fence Boards Above Ground**
  - Use Category 3B or higher

- **Porch Flooring Above Ground**
  - Use Category 3B or higher

- **Stairs Ground Contact**
  - Use Category 4B or higher

- **Porch Joists Above Ground**
  - Use Category 3D or higher

- **Ground Contact**
  - Use Category 4A or higher

- **Sill Plate Above Ground**
  - Use Category 2 or higher

- **Deck Posts Ground Contact**
  - Use Category 4A or higher

- **Deck Joists Above Ground**
  - Use Category 3B or higher

- **Permanent Wood Foundation**
  - Use Category 4A or higher

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

NOTE: The uses depicted here represent applications where preserved wood may be used in residential construction. The Use Categories for the products shown are intended as the minimum select a higher Use Category for instances where conditions may require additional protection. Check with your local building department, a qualified architect or an engineer to confirm treated wood requirements for specific applications.

AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) PRESERVED WOOD USE CATEGORIES:

- **UC2**: Above Ground, protected
- **UC3**: Above Ground, exterior construction
  - UC3A: Rapid Water Runoff
  - UC3B: Poor Water Runoff
- **UC4**: Ground Contact, fresh water
  - UC4A: Non-critical components
  - UC4B: Critical components

To ensure quality, check the end tag for the third-party inspection mark next to the CheckMark or ICC-ES Mark.
RESIDENTIAL DECK CONSTRUCTION:

- DECK BUILDING CODE
American Wood Council
Design for Code Acceptance

DCA 6

Prescriptive Residential Wood Deck Construction Guide

Foundation for almost every state’s deck building code across the US.
Includes guidance on provisions of the 2012 International Residential Code (IRC) pertaining to single level residential wood deck construction.

Provisions contained in this document that are not included in the IRC are considered good practice recommendations. Includes Commentary and Appendices.
In most states, the code official is empowered to accept alternative materials and methods as equivalent to code-prescribed requirements as long as there is a basis for the approval of the alternative.

Evaluation Reports, such as those that are issued by ICC Evaluation Services (www.icc-es.org), may be acceptable alternatives to the code-prescribed requirements.

The basis can be an evaluation report (ER) issued by a nationally recognized evaluation service, or it could be a report issued by a registered design professional wherein equivalency is established.
RESIDENTIAL DECK CONSTRUCTION:

- Understand the AWPA U1 Treated Wood Preservative and Use Standards (UCS) and CODE COMPLIANT Treatments

- Know your Deck Building Code
  - Review DCA 6 and jurisdiction requirements with code development and inspection teams
RESIDENTIAL DECK CONSTRUCTION:

- There is **no requirement** to use Ground Contact (UC4A) treated lumber for **ALL** structural framing and decking components.

  ✓ For the most common deck applications, **ABOVE GROUND (UC3B)** treated lumber is still one of the best options when used appropriately.
Thank You

For more information on Code Compliant treated wood and applications visit

treatedwood.com

Email questions to us at

codequestions@viance.net.

Proud member of the ICC and a Preferred Educational Provider

PPP ID # 1531
ICC PP Course #: 8943
Credit Hours: .1 Hour CEU