

FOREWORD

The Southern Pine Council (SPC) is a joint promotional body coordinated and supported by members of the Southern Forest Products Association (SFPA) and the Southeastern Lumber Manufacturers Association (SLMA). One of its primary missions is to acquaint those interested in using the industry's products with the technical information available. This publication is a compilation of information gathered from industry sources by the SPC to acquaint bridge builders, contractors and those who design and use pedestrian timber bridges and walkways, etc. with the availability and superior characteristics of Southern Pine products in these applications.

The data included in this publication was not developed by the SPC. Rather it is a summary of data taken from other industry sources, including: the *SPIB Standard Grading Rules for Southern Pine Lumber, 2002 Edition*, published by the Southern Pine Inspection Bureau, the *Book of Standards of the American Wood-Preservers' Association*, the *2001 National Design Specification® (NDS®) for Wood Construction* published by the American Forest & Paper Association. The design concepts contained herein are illustrative of the engineering and other factors involved in building pedestrian timber bridges and walkways with treated Southern Pine and are not intended to be used as substitute for plans and specifications prepared by qualified professionals for each individual installation.

Neither SFPA nor SLMA design, construct or provide labor and materials for pedestrian timber bridge installations and do not, and cannot, have any knowledge of the adequacy of the design, the engineering, the quality of the workmanship and the materials incorporated in completed structures. Therefore, neither they nor their members warrant, expressly or impliedly, the performance of completed structures in use and disclaim all responsibility therefor.

CONTENTS

Preservative Treatments	1
Site Planning, Design Factors & Guidelines	3
Walkway Elevation Drawings	4
Walkway Framing Details	5
Walkway Handrail Alternatives	6
Glued Laminated Walkway Applications.	7
Golf Cart and Small Vehicular Applications	8
Hardware Components	9
Industry References, More Information	Back Cover

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The Southern Pine Council is a joint promotional body coordinated and supported by members of the Southern Forest Products Association and Southeastern Lumber Manufacturers Association. For more information, contact either association.

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Timber Products Inspection, Inc. (TP)

AITC — American Institute of Timber
Construction

APA — American Wood Systems

Southern Pine Lumber – A Proven Construction Material

Southern Pine lumber has been used for bridges, walkways, and boardwalks for hundreds of years. The Great Atlantic City Boardwalk was built with preservative treated Southern Pine lumber in 1867. To meet today's environmental requirements, designers are following a trend to span wetland areas with timber bridges and elevated wood boardwalks.

Industry guidelines have been developed to insure its long-term performance. New advances in preservative treatments, design and construction techniques have made lumber a cost effective construction material. This booklet has been developed to inform specifiers, buyers and builders about the proper use of treated Southern Pine lumber, timbers and piling for pedestrian timber bridges and walkways.

Golf courses around the country are experiencing genuine success by expanding and incorporating elevated

cart paths and bridges made of preservative treated Southern Pine lumber. Club developers like timber cart paths because their natural look blends in with the environment, eliminating the need for fill and making environmental permitting an easier process.

Elevated walkways can also provide an environmentally benign alternative to visitor paths paved with asphalt or concrete at zoos and nature centers, blending with the landscape and protecting natural terrain. Projects in Kansas and Nebraska involved walkways constructed of Southern Pine lumber. One particular zoo project featured 600 feet of elevated walkways which were built ten feet high to provide views into enclosures with prairie wolves, bald eagles, bison, deer, grizzly bears and other wildlife.

The project coordinator noted the rustic look and natural feel of wood, and the fact that it is a renewable resource as reasons for choosing the raised walkways rather than conventional paths or paved sidewalks. He also pointed out that the timber walks gave his design group an economical way to change elevations and hide barriers between animals and visitors. He added that the Southern Pine framing is a natural mate-



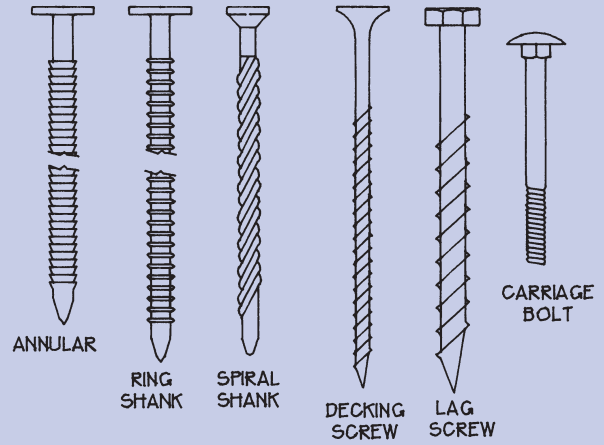
Hardware Must Be Corrosion Resistant

Metal products in contact with pressure-treated wood must be corrosion resistant. This is vitally important in harsh marine environments. Examples include flashing, termite shields, fasteners (e.g. nails, screws, and bolts), and all connecting hardware (e.g. joist hangers, straps, hinges, post anchors, and truss plates).

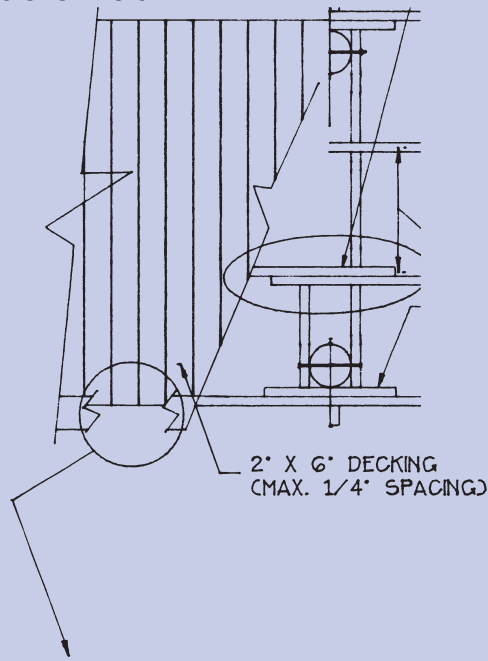
Traditionally, the treated wood industry has recommended hot-dip galvanized or stainless steel fasteners and connectors for wood products treated with Chromated Copper Arsenate (CCA). Hot-dip galvanized or stainless steel fasteners and connectors continue to be recommended for use with the new generation of wood preservatives (e.g. Alkaline Copper Quat – ACQ – and Copper Azole), but additional clarification is needed to ensure adequate corrosion protection.

Stainless steel is recommended for maximum corrosion resistance in severe exterior environments, such as saltwater exposure and swimming pools. Commercial fasteners and connectors should be of type 304 or 316 alloy stainless steel or have an equivalent protective coating such as bitumastic. Hot-dip galvanized fasteners should meet ASTM A153, with 2 ounces of zinc coating per square-foot minimum for marine use. Hot-dip galvanized connectors should meet ASTM A653, Class G185 sheet with 1.85 ounces of zinc coating per square foot minimum. Fasteners and connectors used together should be of the same type (e.g. only stainless steel nails with stainless steel joist hangers).

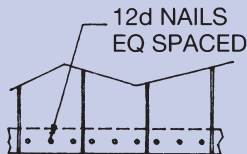
Do not use standard carbon-steel or aluminum products in direct contact with pressure-treated wood. In addition, electroplated galvanized metal products generally have a thinner layer of protection compared to hot-dip galvanized and are not recommended. Refer to preservative or hardware manufacturers for specific corrosion-resistant recommendations for treated wood in marine service.



Fastener Detail



NAILING NOTES:



DECKING SHALL BE INSTALLED USING THE FOLLOWING SCHEDULE:

- 2 X 4 2 - 12d (3-1/4")
- 2 X 6 3 - 12d (3-1/4")
- 2 X 8 4 - 12d (3-1/4")

NAILS SHALL BE RING OR SPIRAL SHANK STAINLESS STEEL OR HOT-DIP GALVANIZED.

Based upon limited test data and investigated deck performance, deck boards of 1-1/4" — 1-1/2" thickness should be fastened to the joists with at least a 3-1/4" ringshanked or spirally wound nail, or a multipurpose (dry wall type) screw. All fasteners should be hot-dip galvanized or stainless steel. These decking boards are put under very severe stresses caused by the cyclic wetting and redrying of the material. Restraining the natural tendency to crook, bow or twist with good nail penetration in the joist is very important in assuring the lumber remains flat.

TABLE 1 – SPECIFICATIONS FOR SOUTHERN PINE LUMBER, TIMBER & PILING IN PEDESTRIAN BRIDGE, WALKWAY & MARINE CONSTRUCTION

Component	SPECIFICATIONS FOR FRESH & SALTWATER/BRACKISH AREAS						
	Dimension	Grade ⁹	Surface Texture	Moisture Content	Preservative Retention ¹ – Freshwater	Preservative Retention ¹ – Saltwater	
BELOW WATER	Piling (round timber)	Specify min. tip circum. and length	ASTM D25	N/A	KD 25% or less	.80 ACQ, .80 CCA or 12.0 Creosote AWPA UC4C & C3	2.5 CCA, 20.0 Creosote ² or dual treatment of 1.0 CCA & 20.0 Creosote AWPA UC5A, 5B, 5C & C3, C18 <i>(not required for deadman or drag piles)</i>
	Piling (sawn timber)	6 x 6, 6 x 8, 8 x 8	Saltwater: Marine Grades No. 1 Freshwater: No. 2	S4S, Rough	Dry 23% or KD 20% or less	.40 ACQ, .21 CA, or 9.0 Creosote AWPA UC4A & C2 <i>(Higher retentions available for increased protection)</i>	2.5 CCA or 20.0 Creosote ² AWPA UC5A, 5B, 5C & C2, C18 Marine Grades
	Walers⁵	3 x 6 & greater	Saltwater: Marine Grades No. 1 Freshwater: No. 2	S4S (S2S – optional, but not normally used)	S-Dry 19% or less (Lumber, 2'-4" thick) KD 20% or less or Dry 23% or less (Timbers, 5x5 & larger)	.40 ACQ, .21 CA, AWPA UC4A & C2 <i>(Higher retentions available for increased protection)</i>	2.5 CCA AWPA UC5A, 5B, 5C & C18 Marine Grades
	Sheet Piles⁶	2" to 4" thick	Saltwater: Marine Grades No. 1 Freshwater: No. 2	S4S (S2S – optional, but not normally used)	S-Dry 19% or less (Lumber, 2'-4" thick) KD 20% or less or Dry 23% or less (Timbers, 5x5 & larger)	.40 ACQ, .21 CA, or 10.0 Creosote AWPA UC4C & C2 <i>(Higher retentions available for increased protection)</i>	2.5 CCA or 20.0 Creosote ² AWPA UC5A, 5B, 5C & C2 & C18 Marine Grades or Seawall Grades
SPLASH ZONE	Cross Bracing	2" to 4" thick	Saltwater: Marine Grades No. 1 Freshwater: No. 2	S4S, Rough	S-Dry 19% or less	.40 ACQ, .21 CA, or 10.0 Creosote AWPA UC4C & C2 <i>(Higher retentions available for increased protection)</i>	.60 ACQ, .31 CA, .60 CCA or 12.0 Creosote AWPA UC5A, 5B, 5C & C18 Marine Grades <i>(Higher retentions available for increased protection. CCA allowed for only 2x8 and/or 3x6 and larger members³)</i>
	Split Pile Caps	2" to 4" thick	No. 1 Dense	S4S, Rough	S-Dry 19% or less	.40 ACQ, .21 CA, or 10 Creosote AWPA UC4C & C2 <i>(.60 retention available for increased protection)</i>	.60 ACQ, .31 CA, .60 CCA or 12.0 Creosote AWPA UC5A, 5B, 5C & C18 Saltwater Splash ⁴ <i>(Higher retentions available for increased protection. CCA allowed for only 2x8 and/or 3x6 and larger members³)</i>
	Stringers	2 x 8, 2 x 10, 2 x 12	No. 1	S4S/S2E	S-Dry 19% or less	.40 ACQ, .21 CA, or 10 Creosote AWPA UC4A & C2 <i>(.60 retention available for increased protection)</i>	.60 ACQ, .31 CA, .60 CCA or 12.0 Creosote AWPA UC5A, 5B, 5C & C18 Saltwater Splash ⁴ <i>(Higher retentions available for increased protection. CCA allowed for only 2x8 and/or 3x6 and larger members³)</i>
ABOVE WATER	Decking^{7, 8}	5/4 x 6 2 x 6	Premium No. 1	RED S4S	S-Dry 19% or less	.25 ACQ, .10 CA, AWPA UC3B & C2 <i>(Higher retentions available for increased protection)</i>	.40 ACQ, .21 CA, .40 CCA AWPA UC3B & C18 <i>(CCA treatment allowed until December 31, 2004.³)</i>
	Handrails	2 x 4, 2 x 6	No. 1, No. 1 Dense or, Select Structural	S4S	S-Dry 19% or less	.25 ACQ, .10 CA, AWPA UC3B & C2 <i>(Higher retentions available for increased protection)</i>	.40 ACQ, .21 CA, .40 CCA AWPA UC3B & C18 <i>(CCA treatment allowed until December 31, 2004.³)</i>
	Wallcaps	2 x 6, 2 x 8, 2 x 10	No. 1	S4S	S-Dry 19% or less	.25 ACQ, .10 CA, AWPA UC3B & C2 <i>(Higher retentions available for increased protection)</i>	.40 ACQ, .21 CA, .40 CCA AWPA UC3B & C18 <i>(CCA treatment allowed until December 31, 2004.³)</i>

1 Minimum retention assay (e.g. retention .80) expressed as pounds of preservative per cubic foot (pcf) of wood.
 2 Lower preservative retention levels for creosote (16.0) and CCA (1.50) are used for Southern Pine marine piling in areas from the New Jersey-Delaware state line northward on the East Coast of the United States.
 3 Until December 31, 2004, CCA treatment will be allowed for all wood components used in saltwater marine construction labeled under AWPA Commodity Standard C18, "Wood for Marine Construction". Furthermore, existing inventories of all CCA-treated components may be used in saltwater marine construction after December 31, 2004, until supplies are exhausted. As of 2005, labeling for AWPA Commodity Standard C18 will be revised as "Wood for Marine Construction, Except Members Out of Water and Not Subject to Splash and Not in Soil Use" and therefore CCA treatment will not be allowed for decking, railings, boardwalks, wall caps and related applications where wood components may be in public contact, or for other members less than 2x8 and/or 3x6.
 4 "Subject to Saltwater Splash" is defined as any member of a marine structure which is positioned above mean high tide, but is subject to frequent wetting from wave action or wind, which supports intermittent degradation by marine organisms.
 5 Large walers, such as 8x10, could use bolted 2x8's "Marine Grade" material. This bolt lamination technique could apply to any size combination up to 11.25".
 6 Sheeting T&G profile must be run prior to CCA treatment.
 7 Where appearance is important, specify No. 1 decking (2" dimension) or premium grade 5/4 decking.
 8 Some treating plants offer treatments which include water repellent additives. When specified, these formulations are mixed with the preservative and become part of the actual treatment process. Increased service life, durability and aesthetics are reasons for using water repellent additives. Topical treatments such as brush-on sealers are also recommended on a periodic basis. Contact a supplier in your area for further details, or search the product locator at www.southernpine.com.
 9 All sawn lumber grades relate to 2002 SPIB Grading Rules for Southern Pine Lumber.

Abbreviations: ACQ – Alkaline Copper Quat; ASTM D25 – Standard for Round Timber Piles; AWPA – American Wood-Preservers' Association; C – AWPA Commodity Standard; CA – Copper Azole; CCA – Chromated Copper Arsenate; KD – Kiln Dried; RED – Radius Edge Decking; S2E – Surfaced on Two Edges; S4S – Surfaced on Four Sides; S-Dry – Dried Prior to Surfacing; UC – AWPA Use Category Standard

Glued Laminated Pedestrian Walkway Applications

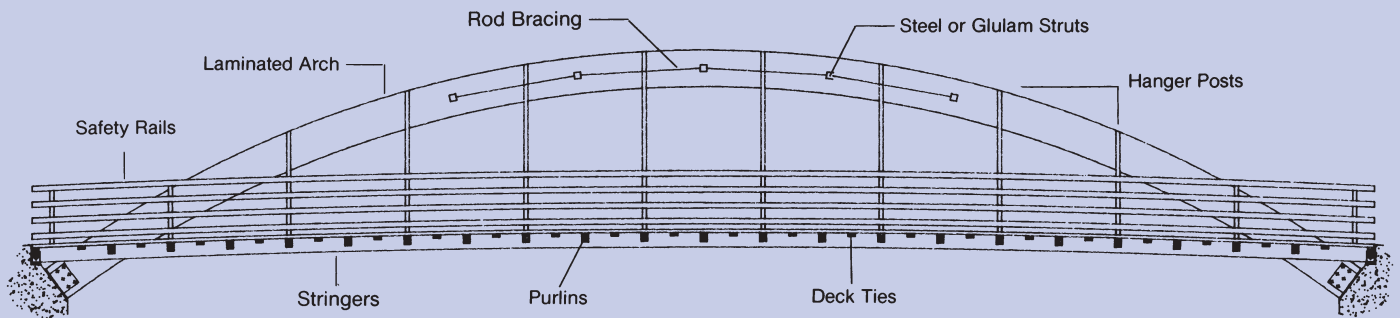
Structural glued laminated timber (glulam) is a popular construction material that is frequently used for pedestrian bridges and walkways. North American architects, engineers, designers and contractors have been specifying glulam for more than half a century. The demand for Southern Pine glued laminated timber continues to increase because of its high strength, natural beauty, competitive cost, dimensional stability, and its wide availability in a large range of sizes and shapes.

Glued laminated timber can be easily preservative-treated for wet service conditions and can satisfy virtually any design while providing fast erection

and competitive in-place costs, hence its growing acceptance and use in pedestrian bridges and walkways. Complete information regarding pressure preservative treatments is available in the *American Institute of Timber Construction (AITC) 109-91 Standard for Preservative Treatment of Structural Glued Laminated Timber*, and the SPC booklet *Pressure Treated Southern Pine*. For site-specific designs and specifications, contact the manufacturers of glued laminated timbers listed in the online Product Locator at www.southernpine.com.



Arch Suspension Bridge



Courtesy of Enwood Structures, Inc. Morrisville, NC

Longitudinal Section

FOR FURTHER INFORMATION ON STRUCTURAL GLUED LAMINATED TIMBER, CONTACT:

American Institute of Timber Construction (AITC)

7012 S. Revere Pkwy., Suite 140
 Englewood, CO 80112
 303/792-9559 Fax 303/792-0669
 email: info@aitc-glulam.org
www.aitc-glulam.org

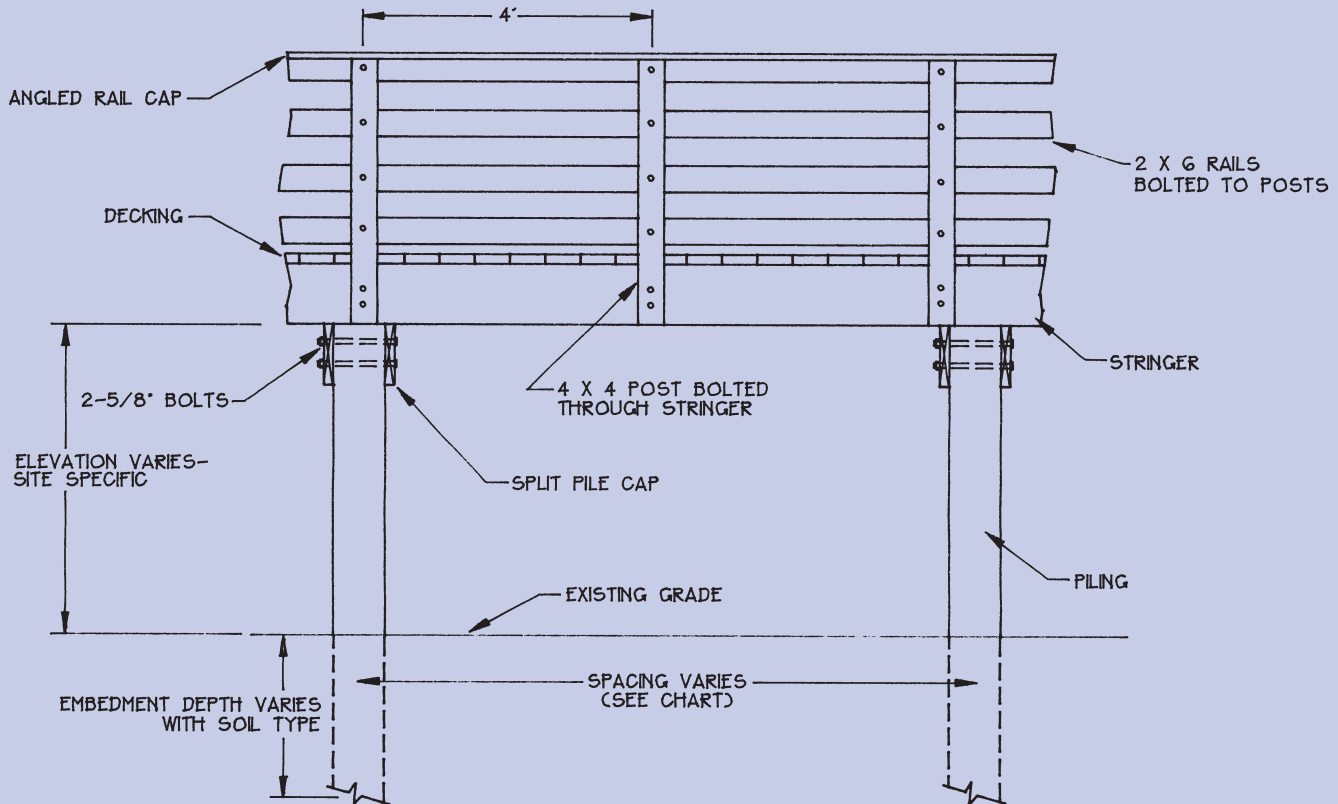
APA - The Engineered Wood Association Engineered Wood Systems (EWS)

P.O. Box 11700
 Tacoma, WA 98411-0700
 APA/SPC Help Desk 253/620-7400
 253/565-6600 Fax 253/565-7265
 e-mail: help@apawood.org
www.apawood.org

Walkway Elevation Drawings

Elevated walkways are an excellent alternative for wetland filling and the associated negative environmental impacts. Meandering elevated walkways through forests, wildlife sanctuaries and nature preserves offer pedestrians and cyclists with opportunities to view environmentally sensitive areas from a new perspective, while allowing minimal impact on the natural activity of such an area. The use of timber allows the walkway to adapt and blend into the surroundings because of its versatility, flexibility and relative ease of construction.

Pedestrian bridges and walkways also lend themselves to an aesthetically pleasing park or recreation area when used over retention ponds, drainage ditches or naturally occurring wetlands. In downtown development projects, timber walkways and bridges provide excellent pathways for sightseeing and walking through historical areas, especially when situated near the waterfront. The following drawings and charts show typical sections and design criteria for the design and construction of pedestrian walkways, including various notes and specifications.



NOTES:

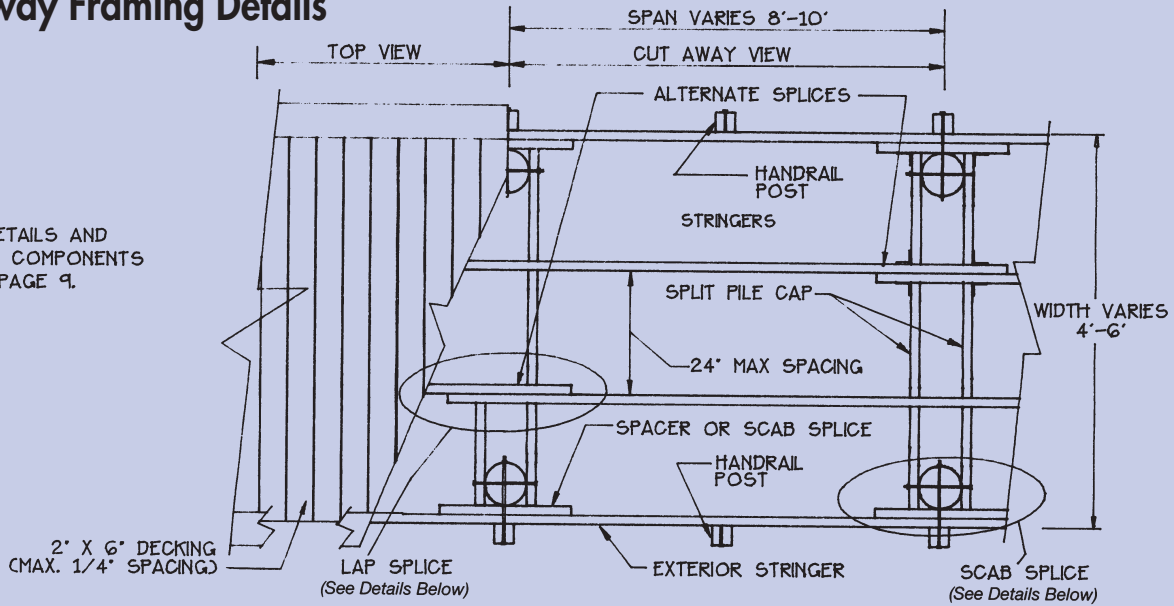
1. See chart for general guidance on spacing and sizing information.
2. For optimum appearance all lumber shall be No.1 or better grade Southern Pine. See *SPC Southern Pine Use Guide* for further grade and size descriptions.
3. See following pages for typical section and plan views.
4. Use ogee washers on bolt head with 4x4-1/8" cut or ogee washer on nut end.
5. Toe-nail interior stringers to pile caps with 2-30D ring shank nails — use hurricane straps in hurricane or heavy tornado areas.
6. Refer to the *SPIB Standard Grading Rules for Southern Pine Lumber, 2002 Edition* for more details on surfacing designations, provisions and net product sizes.



PILE SPAN (FT)	STRINGER SIZE PILE CAP SIZE			
	50 PSF		100 PSF	
	8	10	8	10
4	2 X 6	2 X 8	2 X 8	2 X 10
	2 X 6	2 X 8	2 X 8	2 X 10
5	2 X 6	2 X 8	2 X 8	2 X 10
	2 X 8	2 X 8	2 X 8	2 X 10
6	2 X 6	2 X 8	2 X 8	2 X 10
	2 X 10	2 X 10	2 X 10	2 X 12

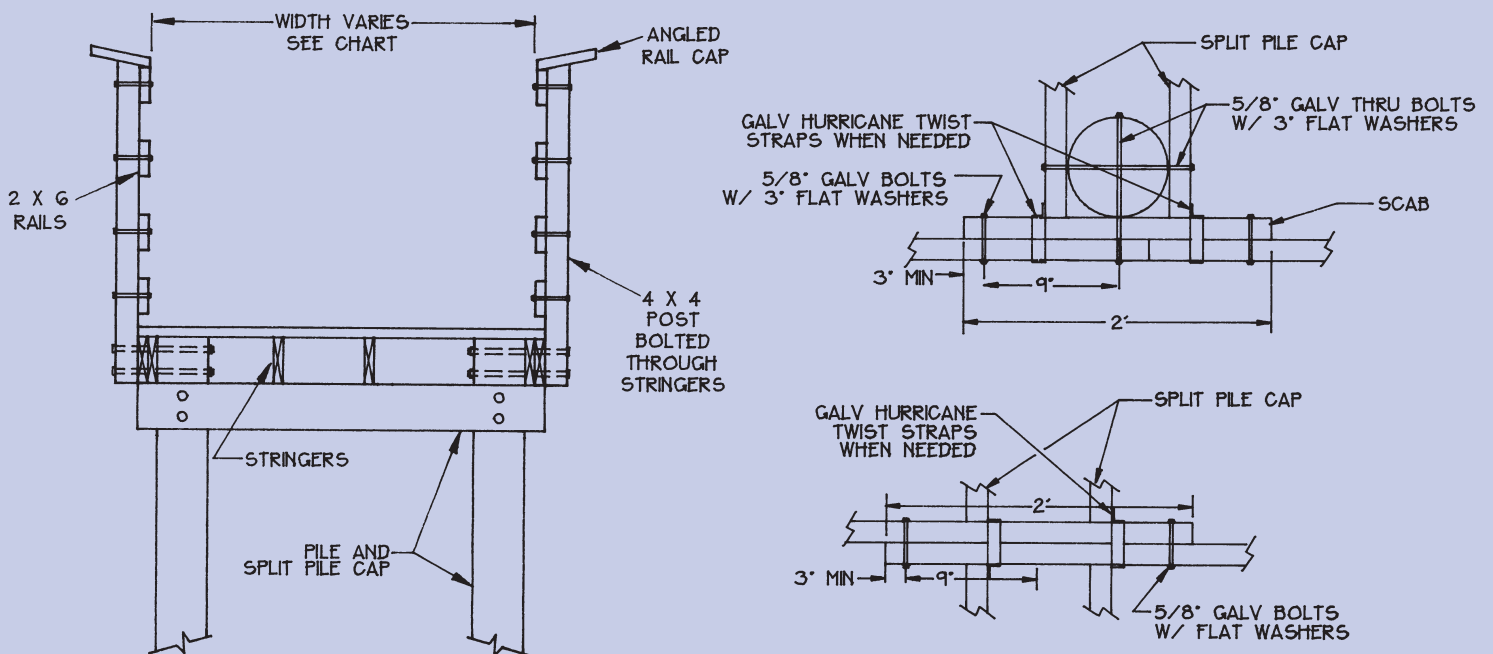
Walkway Framing Details

SEE DETAILS AND
HARDWARE COMPONENTS
ON PAGE 9.

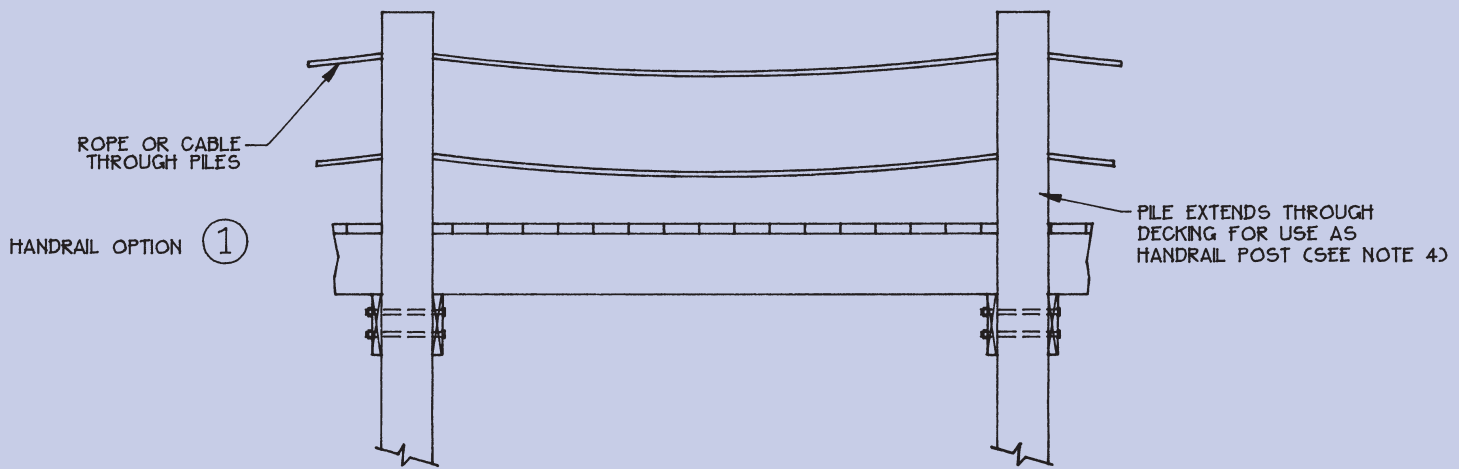


NOTES:

1. One of the most aesthetically important aspects of a walkway is the handrail system. The handrails provide necessary safety for children and the handicapped, and offer an eye-pleasing site when designed properly.
2. An installation practice is to use stainless steel screws (see hardware on page 9) to fasten deckboards. This allows for the removal of screws and turning over of deckboards after a fixed period of time, resulting in a fresh deck surface at low cost.
3. See previous page for dimensions of walkways and sizing of structural members.
4. Note angled rail cap, allowing for comfortable leaning or sightseeing.
5. Lumber sizes and often pile spacing is dictated by availability. It is usually more economical to use a ten foot pile span if the longer stringer material is available.
6. Scab splices must occur over pile caps. As far as practical, lap splices should be alternated so that two adjacent splices do not occur over the same pile cap.

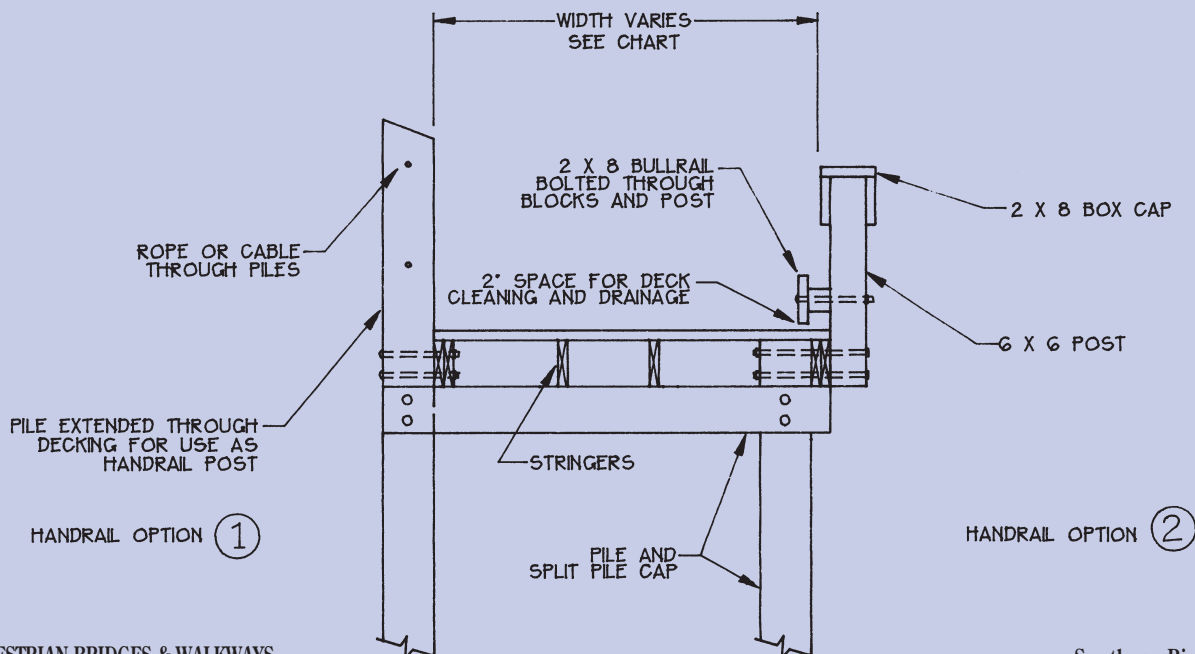
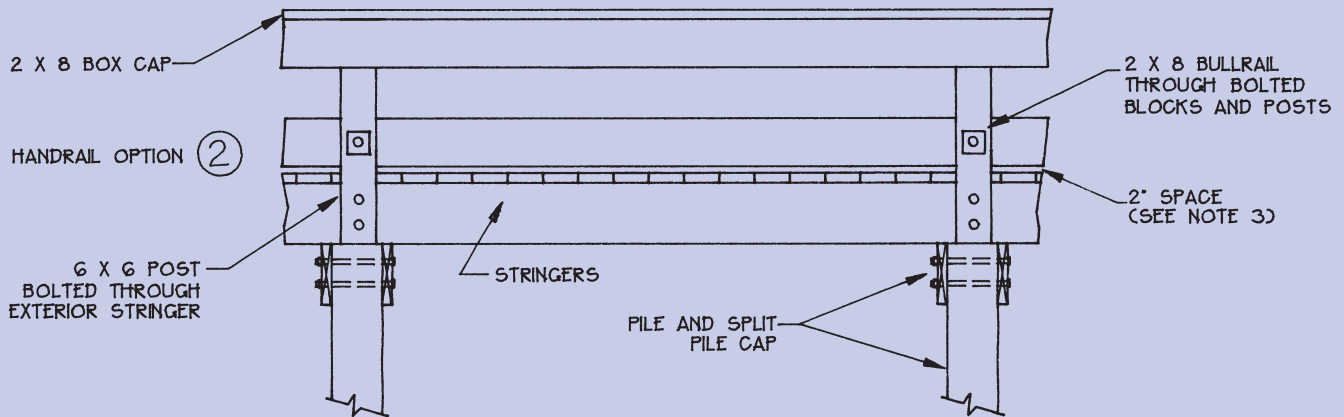


Walkway Handrail Alternatives



NOTES:

1. Other handrail options can include various forms of those shown here. In cases with low liability issues, rail posts may be desirable, or possibly no handrail at all — although the latter is usually not recommended. Non-wood materials such as vertical aluminum rods, steel, cable rope, etc. are popular when used in conjunction with timber posts, as shown in OPTION 1.
2. Rail OPTION 2 is especially useful in golf cart bridges.
3. Note common practice of leaving 1-2" space between decking and bottom rail to aid in draining and cleaning of deck.
4. As shown in rail OPTION 1, the piling may be used for a railing post. However, this is not recommended in many cases, as the straight and exact driving of the piles becomes very crucial.
5. Another obvious visual feature of a pedestrian walkway is the decking. Higher grades of Southern Pine lumber, — No. 1 and Premium — give excellent structural performance with minimal visual imperfections. Nails or deck screws that are carefully aligned and properly installed create a symmetrically pleasing pattern.



Pedestrian Walkways Using Treated Southern Pine

DESIGN CONCEPTS AND ENGINEERING FOR:

- Pedestrian Bridges and Walkways
- Golf Cart and Small Vehicle Bridges

FOR USE IN:

- Wildlife and nature preserves
- Wetland areas
- Recreational parks and playgrounds
- Residential developments
- Golf courses

SITE PLANNING AND DESIGN FACTORS:

- Natural Surroundings and Site Conditions
 - Desirable trees and flora*
 - Natural streams, ponds*
 - Wildlife sensitivity*
 - Flow with natural terrain*
- Structural Aspects
 - Expected loading and use*
 - Elevation above ground*
 - High winds or flood zone*
 - Soil conditions*
- Americans with Disabilities Act (ADA)
 - Proper width of deck*
 - Minimal slope*
 - Required rest areas*
 - Smooth transitions*



BASIC DESIGN GUIDELINES FOR WALKWAY CONSTRUCTION

- Walkway construction in wetlands and other environmentally sensitive areas is a complex process with many variables requiring extensive knowledge of local conditions. This should only be undertaken by qualified professionals.
- Considerations should be given to natural surroundings and aesthetics, loadings, codes and construction practices, materials and soil analysis. Do not hesitate to seek out experienced design professionals and look at examples of their work. Use only licensed, experienced contractors. Ask for pictures and references. Visit past projects and talk to recent customers.
- The proper evaluation of soils is critical to design and performance of

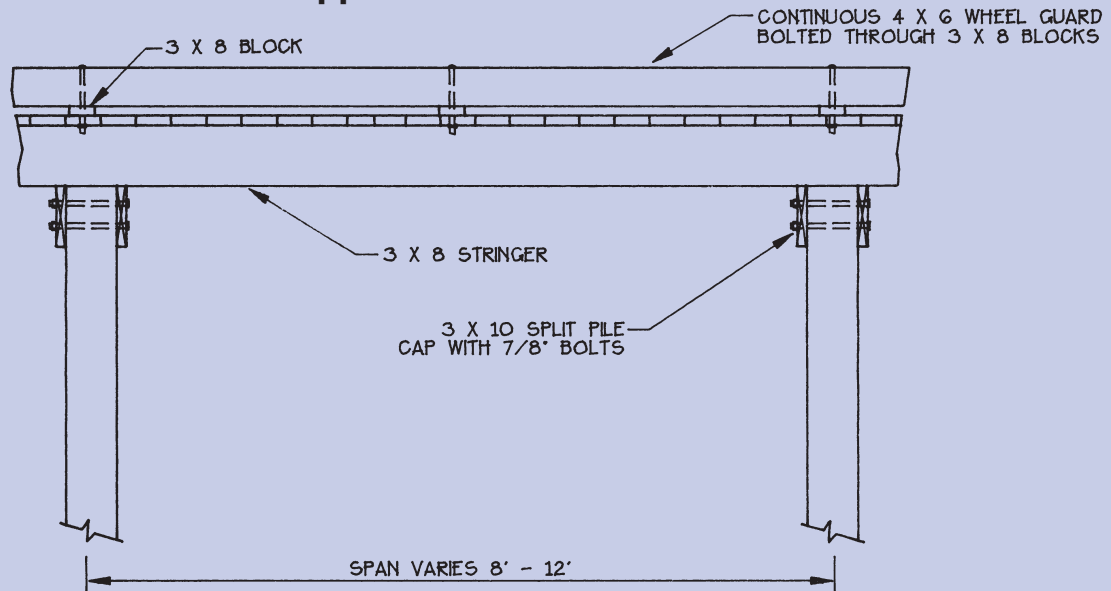
the walkway structure. Sandy (granular) soils are usually quite predictable and yet are subject to scour and erosion. Clays (cohesive soils) may not be consistent in a given area and may vary widely within a single project. Even when viewed by an experienced design professional, soil analysis without benefit of testing by a qualified soil testing laboratory is approximate at best. The relatively low cost of a local certified testing lab is easily offset by the advantages of accurate quality and strength data.

- Properly specified Southern Pine lumber should give long performance under all anticipated conditions. Materials that do not meet or exceed specifications should be

rejected. Substitute materials may appear to offer short-term benefits, but such savings may translate into higher maintenance and repair costs for the owner.

- Lumber is supplied in increments of two feet. To avoid unnecessary cutoff and waste, designs should be developed to utilize the full length. Remember that any field cuts damage the preservative effectiveness of treatment. Whenever possible, have cuts such as mortises or radius milling of edges completed prior to treatment or at least dip or brush these surfaces with copper naphthenate prior to installation.

Golf Cart and Small Vehicular Applications

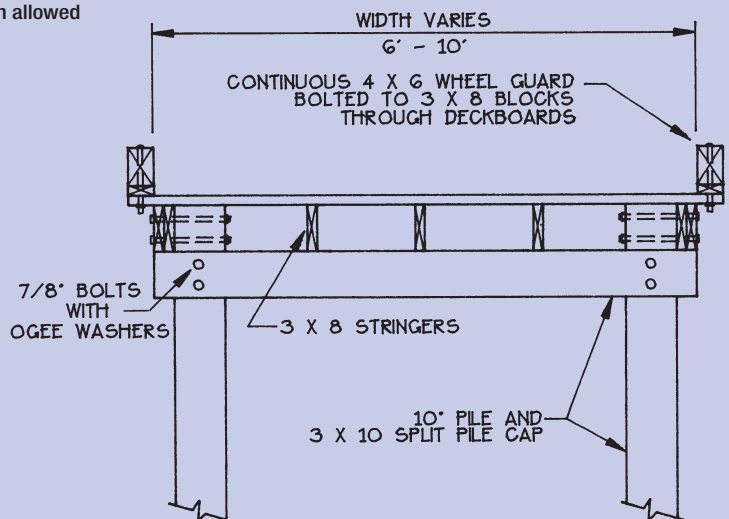


DESIGN NOTES:

1. The design shown in this section and elevation is for a 5-ton capacity timber bridge. However, the predicted loading for each bridge should be calculated and used as the basis for engineering design of each individual structure.
2. The rail shown is a standard for golf cart bridges, offering the safety of the wheel guard and uninterrupted views of the surroundings and water body being crossed. See page 6 for another good handrail option.
3. When heavy-use conditions are anticipated, 3" decking material is recommended.
4. If it is desirable to prevent vehicles of a certain size from using the bridge, place a 4x4 post in the center of the bridge entrance. This will restrict the maximum width allowed on the bridge.

SPECIFICATION NOTES:

1. All timber should be Southern Pine preservatively treated to American Wood-Preservers' Association (AWPA) Commodity Standard C-2 (Use Category UC4). If the bridge is built to vehicular standards, Southern Pine preservatively treated to AWPA Commodity Standard C-14 (Use Category UC4 or 5), Wood for Highway Construction, may be applicable.
2. All face and anchor piles used in construction should be specified using tip circumference in accordance with ASTM D25. Preservative treatment shall be to AWPA Standards C-3 and C-18 (UC4C, 5A, 5B, 5C).
3. All fasteners and tie rods should be hot-dip galvanized per ASTM A-153, or be corrosion resistant (bitumastic coated or 300 series stainless steel).
4. All cuts, holes and injuries to the surface of treated wood should be field protected by field treatment meeting AWPA Standard M4.
5. All treated wood products should be handled and field fabricated in accordance with AWPA Standard M4 for the care of preservative treated wood products.
6. For further information on fresh and saltwater specifications, consult the *AWPA Book of Standards* and sources listed on the back of this publication.



rial, which fits into the environment and it is adaptable to adjustments at the jobsite.

Nature trails also lend themselves to timber walkways, providing unrestricted access to rest/interpretation stations overlooking impressive venues. An Omaha, Nebraska firm designed a nature walkway while still meeting codes for disabled access and featuring 24 extended decks with benches and signs interpreting natural features of the forest. Because of



Old Salem Covered Bridge; Winston-Salem, North Carolina
(courtesy of Blue Ridge Timberwrights)

the flexibility provided by the winding walkways, no terrain was altered for the elevated path. The firm ruled out asphalt or concrete because of environ-

mental concerns involving the terrain and because wood walkways blend into the forest. The choice for Southern Pine was based in part on the fact that other woods such as redwood and cedar grow more slowly and are a less renewable resource.

These are but a few of the growing applications involving the use of preservative-treated Southern Pine lumber for pedestrian timber bridges and walkways. The following information in this booklet provides, in general terms, technical information with appropriate source references useful to professionals in the proper specification of Southern Pine products for these applications. Both solid-sawn lumber and glued laminated uses are profiled.

Preservative Treatments

PRESERVATIVE PROCESS AND SELECTION

Pressure treatment is a carefully controlled and monitored process involving a series of pressure and vacuum cycles within an enclosed cylinder. During the process, wood preservatives are forced deep into the cellular structure of the wood, forming a chemical barrier against termites and decay.

The choice of wood preservative treatment depends on how and where the wood will be used. There are three broad classes of wood preservatives used in the pressure-treating process:

- **Waterborne Preservatives** — for residential, commercial, marine, agricultural, recreational and industrial applications.
- **Creosote and Creosote/coal tar mixtures** — for railroad ties, timber bridge components, utility poles, piling, and other structures in marine environments.
- **Oilborne preservatives** — for utility poles, crossarms, and other industrial uses. (Not recommended for saltwater construction where contact with the water is imminent).

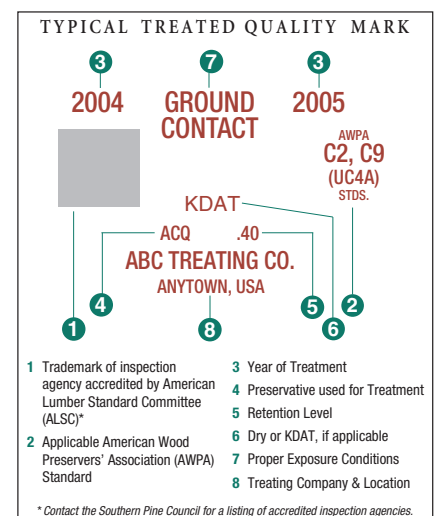
PRESSURE-TREATMENT STANDARDS & MATERIAL SPECIFICATION

The American Wood-Preservers' Association (AWPA) has established extensive treating standards for wood

products to be used in all types of construction applications, from lumber and timbers to poles and piling. These standards provide guidance to wood treaters with detailed information on treatment conditions and required results. The standards also assist purchasers in specifying adequately treated wood products. Table 1 highlights several standards established by AWPA that pertain to the specification of treated Southern Pine for pedestrian bridges and walkways. "Preservative Retentions" refers to the minimum amount of chemical preservative required in the wood cell structure after the pressure process has been completed. Chemical retentions are expressed in pounds of preservative per cubic foot of wood; the higher the retention level, the harsher the condition to which the wood can be exposed.

The proper specification of treated Southern Pine materials should include the material size, grade, end-use or exposure, preservative type and minimum retention, and applicable AWPA standard. With the exception of the grade and size requirements, the treatment specification information is generally incorporated within a quality mark placed on the treated lumber or timber.

This mark may be in the form of a plastic tag stapled on the end of the product, or as an ink stamp on the face of the wood product, separate from the grade stamp. In addition, the quality mark should contain the logo of a quality control inspection agency accredited by the American Lumber Standard Committee (ALSC). The presence of this logo indicates that the producer of the product subscribes to rigorous quality-control standards. An example of a typical quality mark for treated lumber and timbers is shown below.



An Environmental Asset

Wood products have so many cost and construction advantages over other building materials that it is easy to forget what an environmental asset it is to use wood.

We sometimes forget that wood is naturally reusable, recyclable and biodegradable. It is also the best insulator of all structural building materials, requiring less energy to heat and cool a home built with wood, conserving finite fossil fuels. Furthermore, it takes far less energy to transform trees into wood products than it does to manufacture steel, aluminum, masonry or plastic products. This means less pollution of the air and water, too.

Wood is also renewable. Ores and petroleum used for non-wood products, once used, are not renewable. They are gone forever.

Trees, however, *are* forever. Contrary to popular belief, America is *not* running out of trees. More trees are grown each year in the U.S. than are harvested or lost to disease, insects and fire. A third of America is covered with trees today, more than we had 75 years ago. And being planted at the rate of five million a day — six trees a year for every American.

Finally, remember that a growing forest removes the greenhouse gas carbon dioxide, while giving off life-sustaining oxygen. Can you think of a better environmental exchange than that?

MORE INFORMATION

The Southern Pine Council offers a variety of other helpful publications. A single copy is free upon request. Materials available and the cost per copy for quantities include:

Marine Construction Manual

(#322, \$2) 28 pages
design details, sample specifications

Pressure-Treated Southern Pine

(#300, \$2) 20 pages
treating process, preservative types and retention levels, product standards

Southern Pine Use Guide

(#200, \$2) 24 pages
grade descriptions, design values
standard sizes, specification guidelines

Answers to Questions About Treated Wood

(#302, Free) consumer safety booklet

Maximum Spans for Southern Pine Joists & Rafters

(#202, \$2) 36 pages
48 span tables for Southern Pine lumber

Your Decking Choice: Pressure-Treated Southern Pine

(#307, \$1) 6 pages
construction tips, product guidelines

For a listing of all publications and video programs, visit www.southernpine.com

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ASSOCIATIONS

American Forest & Paper Association (AFPA)

American Wood Council
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Washington, D.C. 20036
202/463-2766 FAX 202/463-2791
www.awc.org

American Wood-Preservers' Association (AWPA)

P.O. Box 388
Selma, AL 36702-0388
334/874-9800 FAX 334/874-9008
www.awpa.com

North American Wood Pole Council

7017 N.E. Highway 99
Suite 108
Vancouver, WA 98665
360/693-9958
FAX: 360/693-9967
www.woodpoles.org

Southern Pressure Treaters Association

206 Beverly Loop
Pineville, LA 71360
318/619-8589
FAX: 318/619-8588
e-mail: sptala@bellsouth.net
www.spta.org

Timber Piling Council

2405 61st Ave. S.E.
Mercer Island, WA 98040
800/410-2070
FAX: 206/275-4755
www.timberpilingcouncil.org

GRADING AGENCIES/INSPECTION SERVICES

Southern Pine Inspection Bureau (SPIB)

Lumber Division
4709 Scenic Highway
Pensacola, FL 32504-9094
850/434-2611 FAX 850/434-5388
www.spib.org

Timber Products Inspection, Inc. (TP)

P.O. Box 919
Conyers, GA 30207
404/922-8000 FAX 404/922-1290
www.tpinspection.com

MARINE INDUSTRY LITERATURE

Pile Buck

2801 Ocean Dr. Suite 101
Vero Beach, FL 32963
772/231-5200
FAX: 772/231-8400
www.pilebuck.com

OTHER RESOURCES

Forest Products Laboratory (FPL)

USDA Forest Service

One Gifford Pinchot Drive
Madison, WI 53705-2398
608/231-9200
www.fpl.fs.fed.us

National Wood in

Transportation Program

USDA Forest Service
180 Canfield St.
Morgantown, WV 26505
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