

ANSI/AWI SMA 0643-2021 - Wood Stair, Handrail, and Guard Systems Standard

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3.2 Material

- a) Materials used for construction of Product covered within the scope of this standard shall adhere to the requirements set forth in the AWI 300 - Materials Standard (latest edition).
- b) Materials used for the same purpose, within the scope of this standard, shall be consistent throughout a project.
- c) Sapwood and other characteristics are permitted where specified.
- d) For all materials selected for the manufacture of Product at transparent finishes:

Premium	Custom	Economy
	Wormholes not exceeding 1.6 mm [.063"] in diameter are permitted at a maximum of one per linear 305 mm [12"]	Wormholes not exceeding 1.6 mm [.063"] in diameter are permitted at a maximum of two per linear 305 mm [12"]
Sapwood, wormholes, and knots are not permitted	Permitted natural characteristics shall be filled and sanded prior to finishing	Permitted natural characteristics shall be filled and sanded prior to finishing
	Streaks and sapwood are permitted	Slightly chipped grain, streaks, and sapwood are permitted
A maximum of two streaks are permitted in any tread provided they do not exceed 4.8 mm [.188"] in width by 152.4 mm [6"] in total combined length	A maximum of one sound-tight knot not exceeding 6.4 mm [.250"] in diameter is permitted per linear 914 mm [36"]	A maximum of one sound-tight knot not exceeding 6.4 mm [.250"] in diameter is permitted per linear 305 mm [12"]

Lumber (including block segments or veneer of laminated material) are to be well matched for color and grain; sheet products shall be compatible for color with solid stock, and adjacent sheet products shall be well matched for color and grain

Material shall be compatible for color and grain

Material shall be at the option of the manufacturer/supplier

e) Materials selected for the manufacture of Product at opaque finishes shall meet requirements set forth in AWI 300 Materials (latest edition).

f) Concealed surfaces shall permit aesthetic defects.

g) Blocking, fillers, and shim stock shall be of sound material.

h) Sealants and/or adhesives shall be compatible for color to adjacent surfaces. Sealants and/or adhesives shall be used in accordance with manufacturer/supplier's documented instructions.

i) All glue seams shall be tight and surface residue shall be completely removed.

j) Where matching of "rustic" styles or finishes and/ or reclaimed materials is specified, number of permitted natural characteristics shall be as agreed to between owner/design professional and manufacturer/supplier.

3.2.1 Stairs, Components

3.2.1.1 Exposed Stringers and Skirt Boards

a) Stringers shall be a minimum of 19.1 mm [.750"] thick.

b) At stringers exceeding 4267 mm [168" long, joining for length is permitted. For exceptions, see Exceptions to Material Requirements herein.

c) Wood selected to make up stringers shall be laid up, joined, and glued. Joinery shall be inconspicuous.

d) Individual staves shall have a maximum of one end joint per 7315 mm [288"] and, at edge-glued stock (For exceptions, see Exceptions to Material Requirements herein):

Premium

Custom

Economy

There shall be no more than three staves per 305 mm [12"] in width	There shall be no more than five staves per 305 mm [12"] in width	Stringers shall be made up of staves no less than 50.8 mm [2"] in width
Individual staves shall be well-matched for color and grain	Individual staves shall be compatible for color and grain	Individual staves shall be at the option of the manufacturer/supplier

e) At edge-glued stock, individual staves shall be lap jointed, finger jointed, doweled, or splined to achieve desired length. End joints in staves shall be staggered.

f) At face laminated stringers, exposed plys at the edges shall be of same species. Face butt joints in exposed plys are permitted.

g) At transparent finish, all visible staves shall be of same species or covered with matching veneer.

h) Stringers shall be structurally sound, without splits or checks, and without knots within 50.8 mm [2"] of the edges. This requirement does not apply to non-structural skirt boards.

i) For edge gluing requirements see Exceptions to Material Requirements, Exposed Stringers and Skirt Boards.

3.2.1.2 Stringers, Concealed

a) The following materials are permitted:

Premium	Custom	Economy
Engineered Material – glued laminated timber (Glulam), laminated veneer lumber (LVL), parallel strand lumber (PSL)	Engineered Material – glued laminated timber (Glulam), laminated veneer lumber (LVL), parallel strand lumber (PSL)	#1 common structural, fir, hemfir, southern yellow pine (SYP) with no knots within 152.4 mm [6"] of bottom edge

3.2.1.3 Treads, Wood

a) Shall be a minimum of 19.1 mm [.750"] thick.

b) At glued-up stock:

Premium	Custom	Economy
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Each tread shall consist of no more than three staves per 305 mm [12"] in width	Each tread shall consist of no more than five staves per 305 mm [12"] in width	Number and length of staves shall be at the option of the manufacturer/supplier
Stave end joinery not permitted	Stave end joinery not permitted	Stave end joinery permitted
Individual staves shall be well-matched for color and grain	Individual staves shall be compatible for color and grain	Individual staves shall be compatible for color

c) Joinery shall be inconspicuous.

3.2.1.4 Treads, Hybrid

a) Typically made of a solid wood of an economical species, joined by finger joints to a specified exposed wood end and return (See Figure 89).

b) Use of hybrid treads at stairs with a runner or similar detail is permitted.

c) Finger joints in hybrid treads are permitted only in that portion designed to be concealed (See Figure 89).

d) Exposed tread material shall adhere to a minimum of Custom Grade material guidelines.



3.2.1.5 Treads, Engineered (Veneered)

a) Shall have balanced veneer faces with a structurally sound substrate a minimum of 25.4 mm [1"] thick.

b) Nosing edge shall be solid material a minimum of 31.75 mm [1.250"] wide and of the same species as veneer.

c) Exposed ends shall be returned with the same species as veneer in order to completely conceal the substrate.

3.2.1.6 Treads, Plank (Slab)

a) Defined as any tread 38.1 mm [1.500"] thick or greater.

b) Exposed staves used to make plank treads shall be a minimum of 19.1 mm [.750"] thick and consist of full length staves joined and edge-glued. Joinery shall be inconspicuous.

c) Order and thickness of staves shall be consistent throughout treads, platforms, and landings.

d) Vertical staves or horizontal staves are permitted at manufacturer/supplier's option.

3.2.1.7 Treads, Carpet Grade

a) All treads that do not meet the requirements under any other subheading of this standard are considered carpet grade.

b) Shall be a minimum of 19.1 mm [.750"] thick.

c) Shall be solid wood or a minimum of sub-floor grade material that is structurally sound and designed specifically for carpeted applications.

d) OSB treads are permitted, however, their use shall adhere to their intended manufacturing specification (e.g. indoor or outdoor applications).

e) Up to four sound knots, not exceeding 38.1 mm [1.500"] in diameter are permitted at solid wood treads, provided they are not within 50.8 mm [2"] of the nosing edge.

f) Finger joints are permitted.

3.2.1.8 Treads, Landing

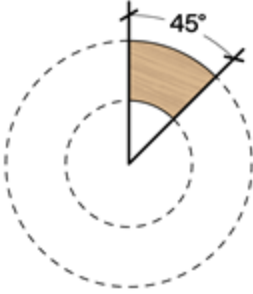
a) Shall be fabricated of the same species as the adjacent treads and shall be:

Premium	Custom	Economy
Well-matched for color and grain to adjacent treads and landing flooring	Compatible for color and grain to adjacent treads and landing flooring	At the option of manufacturer/supplier

b) At the exit of a flight, nosing of the landing tread shall be fabricated to match the thickness, profile, and projection of the nosing of the treads and landings throughout the stairway.

c) At the exit of a flight, shall be set so the top surface is flush with flooring and is securely attached.

d) Curved landing tread (See Figure 90) shall curve no greater than 45 degrees in a single section.



3.2.1.9 Treads, Ends

a) At treads, ends shall:

Premium	Custom	Economy
Be returned to match the leading edge of the tread and conceal all exposed end grain, including end grain of the return	Be returned to match the leading edge of the tread and conceal end grain of the tread	Have profiled ends to match the leading edge of the tread

b) At winders in curved stairways shall have:

Premium	Custom	Economy
Both edges concentric with curve of stair	Both edges concentric with curve of stair	Returns at the option of the manufacturer/supplier

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