Atlantic Cypress

Versatile, Distinctive, Code-Approved

A Technical Guide for Building and Design Professionals

Source:

SOUTHERN CYPRESS MANUFACTURERS ASSOCIATION

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About Cypress

CYPRESS

Taxodium distichum

Other Names: *Bald cypress, Red cypress, Yellow cypress, Southern cypress*

Noted for its color consistency, density, hardness and relative lack of knots, cypress is superbly workable, easily machined and installed, and readily finished. This versatile, distinctive wood lends elegance to any home's interior. With its legendary hardiness and durability, cypress also serves myriad applications outside the home, including fence posts, clapboards, shingles, exterior trim, shutters, window boxes and landscape design elements.

When milled, cypress typically displays a predominantly yellow tone, with reddish, chocolate or olive hues. While cypress has always been an architectural fixture in its main growth regions, many builders and trade professionals throughout the U.S. are using cypress in what had traditionally been cedar, redwood and treated pine applications.

Cypress trees are conifers, but unlike most American softwoods, these are deciduous trees that shed foliage in the fall like hardwoods.

Although cypress is a softwood, it grows alongside hardwoods and traditionally has been grouped and manufactured with hardwoods.

The oils in cypress' heartwood make it one of the most durable woods when exposed to moisture conditions causing decay.

Cypress sawmills generally produce about 100-120 million board feet of cypress annually (though wet weather makes it more difficult to harvest cypress). The wood is typically available through eastern sawmill and lumber- yards, but is not usually found in the western U.S.

General dimensions are:

Thicknesses:	from 4/4 to 8/4
Widths:	4 to 12 inches
Lengths:	6 to 16 feet

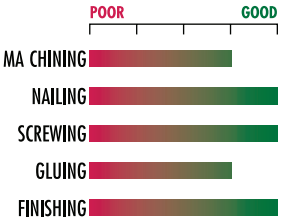
WHERE CYPRESS GROWS

Most cypress trees are natives of the South. They are found primarily in wet, swampy areas along the Atlantic Coastal Plain from Delaware to Florida, and west along the Gulf of Mexico to the border of Texas and Mexico. Cypress also thrives along the Mississippi Valley from the Louisiana delta to southern Indiana.

Cypress roots love water. Some trees growing on wet sites develop what are called cypress "knees" or pneumatophores. The knee-like upright growths come from the roots, helping to support the tree and also to aerate the waterlogged root system. The wood from the knees is soft and light and can be used to make vases and novelty items.

MAIN USES

EXTERIOR: siding, decks, clapboards, shutters, shingles, trim, fence posts, window boxes and landscape design elements.
INTERIOR: paneling, moulding, millwork, cabinetry, flooring, furniture and decorative accessories.



WORKING PROPERTIES

Cypress machines well, planes easily and resists warping. Pre-boring at board edges will help prevent splitting. It nails and screws very well. It glues well, sands easily and readily accepts finishes.

CYPRESS LUMBER GRADES

Grading rules for cypress lumber are governed by the National Hardwood Lumber Association (NHLA) and outlined in the Rules for the Measurement and Inspection of Hardwood & Cypress available from the NHLA (www.natlhardwood.org).

They include: Select and Better
#2 Common and Better (#1 and #2 Common Combined)
Pecky (#1 and #2 Peck Combined)
Timbers (Sound Square Edged)

PHYSICAL PROPERTIES OF CYPRESS AND WESTERN RED CEDAR

	Cypress	Western Red Cedar
Specific Gravity *(>12% Moisture Content)*	**.46**	**.32**
Density *(lbs/ft³)*	**31.4**	**22.4**
Static Bending – 12% MC		
Modulus of Rupture (lbf/in²)	**10,600**	**7,500**
Modulus of Elasticity	**1.44**	**1.11**
Work to Maximum Load (in-lbf/ft³)	**8.2**	**5.8**
Impact Bending – 12% MC		
Height of drop causing complete failure (in)	**24**	**17**
Compression Parallel to Grain – 12% MC		
Maximum crushing strength (lbf/in²)	**6,360**	**4,560**
Compression Perpendicular to Grain – 12% MC		
Fiber stress at proportional limit (lbf/in²)	**730**	**460**
Tension Perpendicular to Grain – 12% MC		
Maximum tensile strength (lbf/in²)	**270**	**220**
Shear Parallel to Grain – 12% MC		
Maximum shearing strength (lbf/in²)	**1000**	**990**
Side Hardness *(lbs)* *(Load required to embed a 0.444 ball to half its diameter)*	**510**	**350**
Flame Spread Rating	**145-150**	**70**

Source: Wood Handbook, USDA Agriculture Handbook 72

NOTE: These are clear, defect-free properties not to be used for design properties.

CYPRESS ENGINEERING DESIGN VALUES

CYPRESS IS EASIER TO SPECIFY THAN EVER, THANKS TO THE CERTIFICATION OF THE first-ever engineering design values for this popular wood.

Long a favorite for exterior siding and interior paneling and millwork applications, cypress can now be specified for structural applications, such as exposed beams, timbers, posts, columns, headers and other large structural components or decorative accents.

The engineering design values for cypress have been certified by the American Lumber Standards Committee (ALSC), which means they are recognized in all model building codes across the United States. These values also have been added to the *National Design Specification for Wood Construction* at www.awc.org/standards/nds. Grading rules for structural cypress are set by the Southern Pine Inspection Bureau (SPIB) (www.spib.org).

Summary of Allowable Base Design Values for Baldcypress Dimension Lumber

Grade	Extreme Fiber in Bending, Fb	Tension Parallel-to-Grain, Ft	Compression Parallel-to-Grain, Fc	Horizontal Shear, Fv	Compression Perpendicular-to-Grain	Modulus of Elasticity, E
Select Structural	1200	650	1200	160	615	1,400,000
No. 1	1000	550	1050	160	615	1,400,000
No. 2	825	450	900	160	615	1,300,000
No. 3	475	250	525	160	615	1,200,000
Construction	925	500	1100	160	615	1,200,000
Standard	525	275	925	160	615	1,100,000
Utility	250	125	600	160	615	1,000,000
Stud	650	350	575	160	615	1,200,000

Design Values in Pounds Per Square Inch (psi)

Summary of Allowable Design Values for Cypress Timbers

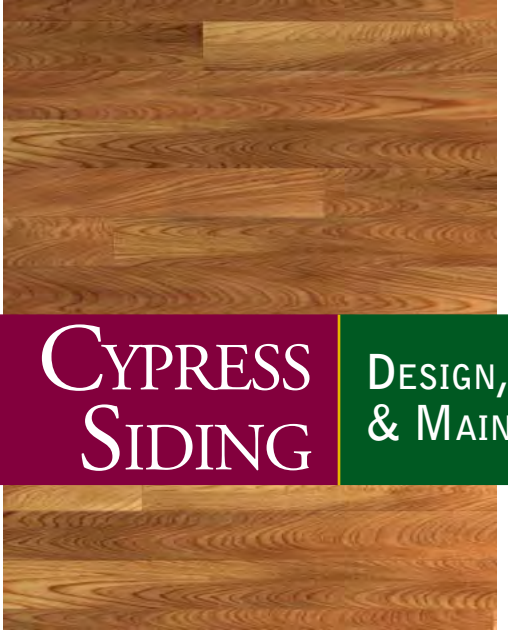
Grade	Extreme Fiber in Bending, Fb	Tension Parallel-to-Grain, Ft	Compression Parallel-to-Grain, Fc	Horizontal Shear, Fv	Compression Perpendicular-to-Grain	Modulus of Elasticity, E
Select Structural	1150	750	1050	200	615	1,300,000
No. 1	1000	675	925	200	615	1,300,000
No. 2	625	425	600	175	615	1,000,000

Design Values in Pounds Per Square Inch (psi)

Comparisons Between Base Design Values for Baldcypress, Northern White Cedar, Western Cedars & Redwood Dimension Lumber Species & Commercial

Grade	Size Classification	Bending, Fb	Tension Parallel-to-Grain, Ft	Compression Perpendicular-to-Grain	Compression Parallel-to-Grain, Ft	Modulus of Elasticity, E	Grading Rules Agency
Baldcypress							
Select Structural	2" - 4" thick	1200	650	615	1200	1,400,000	SPIB
No. 1	2" and wider	1000	550	615	1050	1,400,000	
No. 2		825	450	615	900	1,300,000	
No. 3		475	250	615	525	1,200,000	
Stud		650	350	615	575	1,200,000	
Construction	2" - 4" thick	925	500	615	1100	1,200,000	
Standard	2" - 4" wide	525	275	615	925	1,100,000	
Utility		250	125	615	600	1,000,000	
Northern White Cedar							
Select Structural	2" - 4" thick	775	450	370	750	800,000	NeLMA
No. 1	2" and wider	575	325	370	600	700,000	
No. 2		550	325	370	475	700,000	
No. 3		325	175	370	275	600,000	
Stud		425	250	370	300	600,000	
Construction	2" - 4" thick	625	375	370	625	700,000	
Standard	2" - 4" wide	350	200	370	475	600,000	
Utility		175	100	370	325	600,000	
Western Cedars							
Select Structural	2" - 4" thick	1000	600	425	1000	1,100,000	WCLIB
No. 1	2" and wider	725	425	425	825	1,000,000	WWPA
No. 2		700	425	425	650	1,000,000	
No. 3		400	250	425	375	900,000	
Stud		550	325	425	400	900,000	
Construction	2" - 4" thick	800	475	425	850	900,000	
Standard	2" - 4" wide	450	275	425	650	800,000	
Utility		225	125	425	425	800,000	
Redwood							
Clear Heart Structural	2" - 4" thick	1750	1000	650	1850	1,400,000	RIS
Select Structural	2" and wider	1350	800	650	1500	1,400,000	
Select Structural, open grain		1100	625	425	1100	1,100,000	
No. 1		975	575	650	1200	1,300,000	
No. 1, open grain		775	450	425	900	1,100,000	
No. 2		925	525	650	950	1,200,000	
No. 2, open grain		725	425	425	700	1,000,000	
No. 3		525	300	650	550	1,100,000	
No. 3, open grain		425	250	425	400	900,000	
Stud		575	325	425	450	900,000	
Construction	2" - 4" thick	875	475	425	925	900,000	
Standard	2" - 4" wide	450	275	425	725	900,000	
Utility		225	125	425	475	800,000	

Design Values in Pounds Per Square Inch (psi)



Cypress Siding

Design, Installation & Maintenance

Cypress is treasured for its legendary beauty and durability. Cypress siding is a familiar sight on thousands of beach houses along the Atlantic seaboard, particularly in areas such as Kiawah Island, Hilton Head and Nag's Head. Now, because of its good looks and weatherability, cypress siding is gaining popularity from Southern California to Maine.

The following pages include a number of suggestions for designing with, storing, applying, finishing and maintaining cypress siding.

These instructions may be more restrictive than some local building codes, but local building codes must be followed when they are more stringent. Cypress is manufactured to perform under ordinary service conditions when stored properly, installed on structures with proper vapor retarders and ventilation, and finished and maintained in accordance with the following instructions.

SIDING DESIGN CONSIDERATIONS

Vapor Retarders. It is necessary to design walls so that moisture vapor does not enter and condense within the exterior wall cavity. Proper design will ensure the insulation's thermal efficiency and the overall structure's performance. Design must provide continuous vapor retarding equivalent to a rating of 1 perm installed on the living space side of the insulation. Vapor retarders are also required on the ground in all crawl spaces and under concrete slabs.

Acceptable products include: 6 mil polyethylene, asphalt impregnated kraft or foil-backed insulation (tabs must be stapled to the narrow face of the studs, not to the wide face), vinyl-faced or foil-backed gypsum, sandwich-type kraft with an asphalt or polyethylene core, or equivalent. Vapor retarding paints are also available for interior walls.

Site Drainage. Slope ground away from structure for a minimum of three feet.

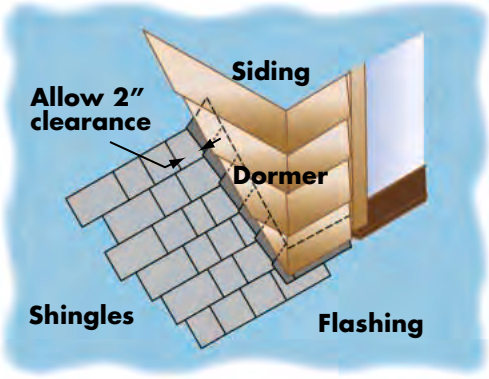
Roof Drainage. Incorporate an overhang or drainage system into the structure design to prevent water from running down the sidewalls.

Ventilation. Both attics and crawl spaces require adequate ventilation. Clothes dryers must be vented outside; kitchen and bathroom fans are recommended to vent localized moisture outside.

Attics. Attic vents should provide a minimum of one square foot of net free vent area for every 150 square feet of attic space. Unrestricted air circulation is best achieved by a combination of soffit vents and ridge or roof vents.

Crawl Spaces. Crawl space vents should provide a minimum of one square foot of net free vent area for every 25 lineal feet of exterior wall. They should be placed to allow for cross-ventilation.

Siding Return at Roof (Dormers). Use flashing, allowing at least a two-inch clearance between siding and roof line (see illustration at right). Cut edges of siding must be finished in accordance with finishing guidelines described in this guide.



SIDING APPLICATION

It is recommended to apply cypress siding over standard sheathing material with maximum stud spacing of 16 inches o.c. Where building codes permit, siding may be applied over unsheathed walls. A suitable building or felt paper wind barrier is recommended and must be used where building codes require.

Foam and Foil-Faced Sheathings. Both rigid foam and foil-faced sheathings can be vapor barriers. Rigid foam sheathings, however, offer no resistance to sag caused by the weight of the siding on the nails. For application of cypress over rigid foam sheathing, use angular threaded ring shank nails long enough to penetrate at least one inch into framing members. For instance, siding over one-inch foam requires a three-inch nail (10d).
Note: *Cypress siding applied over foam sheathing may take on a wavy appearance if the siding is compressed by nailing with too much force.*

SIDING STORAGE & MOISTURE CONTROL

Southern cypress siding is a quality wood product dried in accordance with the NHLA *Rules for the Measurement and Inspection of Hardwood & Cypress.*

Finish Grades – 15 percent maximum moisture content

Common Grades – 18 percent maximum moisture content

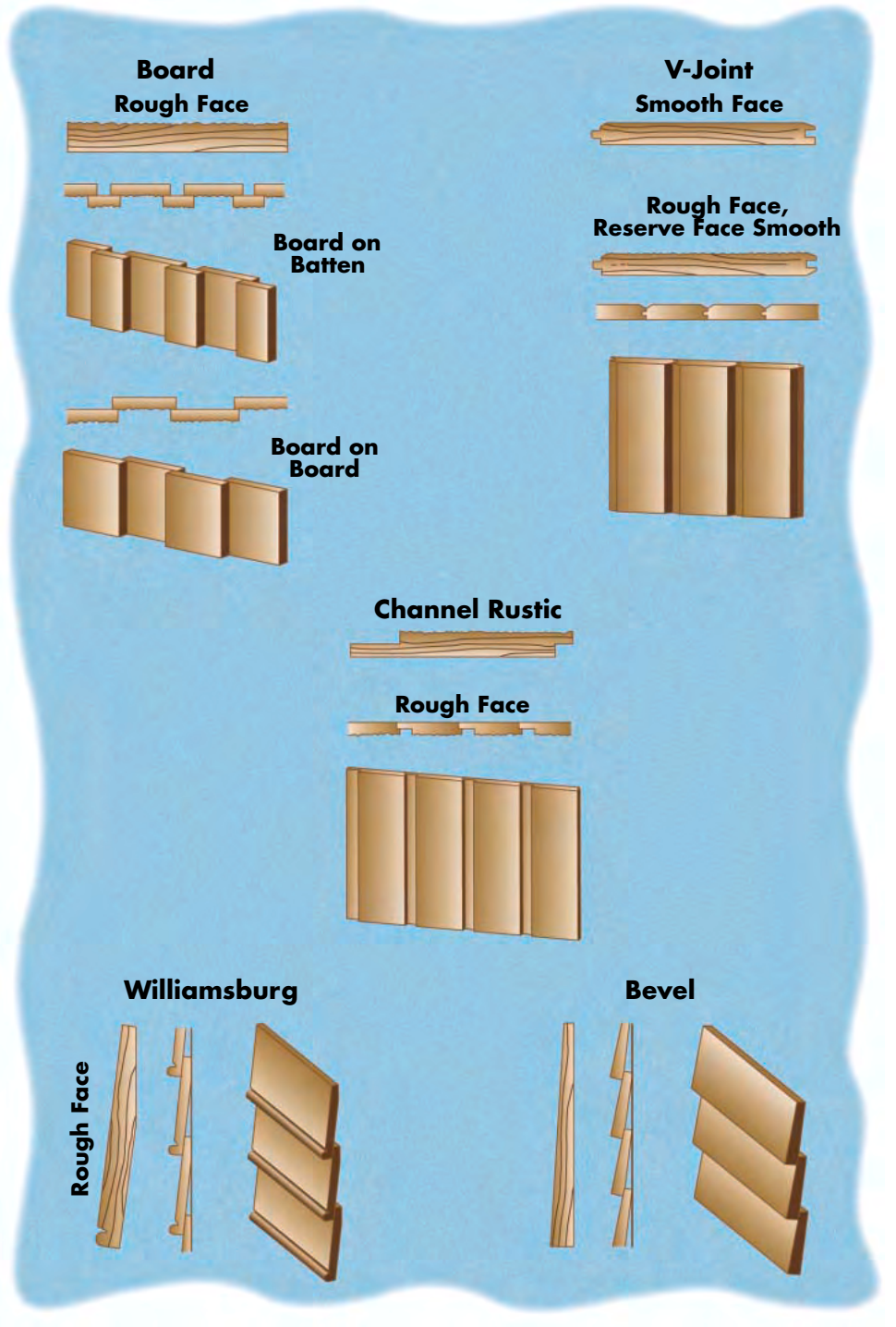
Siding material must be conditioned to the local average in-service moisture content before installation, usually between 8 and 16 percent. Store in an unheated structure or under cover until application.

Southern cypress siding may be temporarily stored outside if at least 4 inches off the ground and on a flat, well-drained surface protected from moisture with a shed pack or waterproof cover.

Do not seal the unit because ventilation is necessary to prevent condensation and ground moisture absorption, which may cause mildew or mold. Special care should be given to material that has become wet during storage because it may shrink and open gaps at the joints after application.

CYPRESS SIDING PATTERNS

The Bevel and Williamsburg patterns are installed horizontally. For siding purposes, other patterns should be installed vertically. Some patterns also lend themselves to diagonal installation. Most patterns can be installed vertically or horizontally for interior use.



INSTALLING SIDING: MATERIAL CHECKLIST

Nails. Hot dipped galvanized or stainless steel with ¼ inch head; nails must be long enough to penetrate 1½ inches in studs; ring shank or thread shank nails provide increased holding power and must penetrate studs at least 1 inch; siding nails should have blunt points to reduce splitting of the siding.

Nail Sizes for Wood Siding Over Sheathing

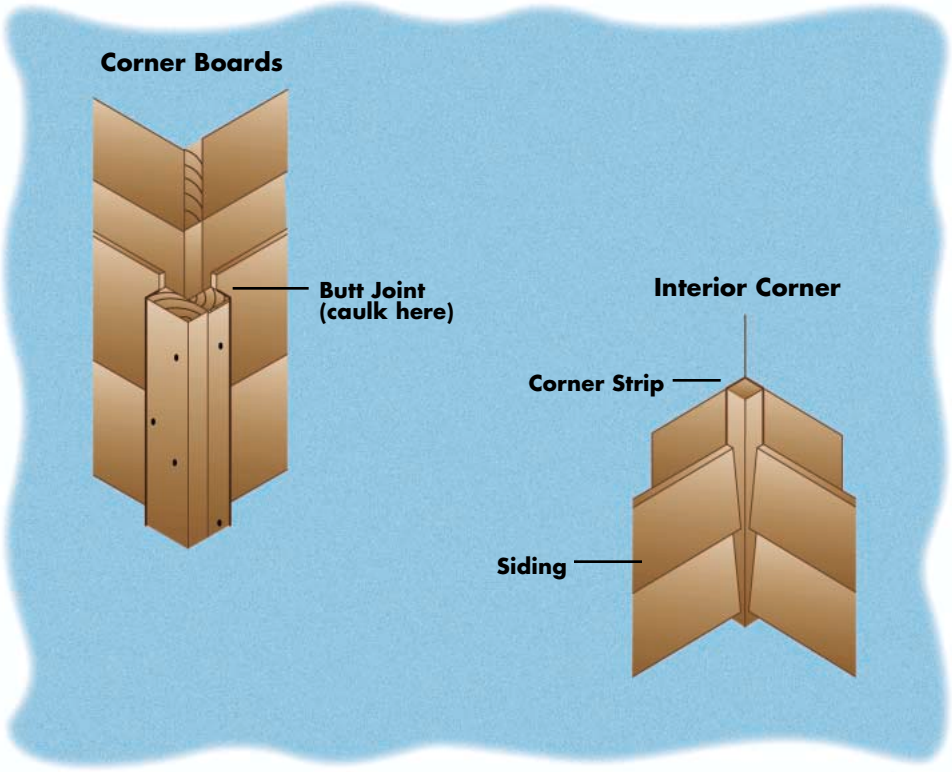
Siding/Sheathing Combinations *(Use wood siding nails)*	Recommended Nail Length *Smooth Shank*	*Ring Shank*
¾" siding plus ½" sheathing	10d (3")	8d (2½")
¾" siding plus ¾" sheathing	13d (3¼")	9d (2¾")
¾" siding plus 1" sheathing	16d (3½")	10d (3")

Caulking. Use high-grade, non-hardening acrylic or equal.

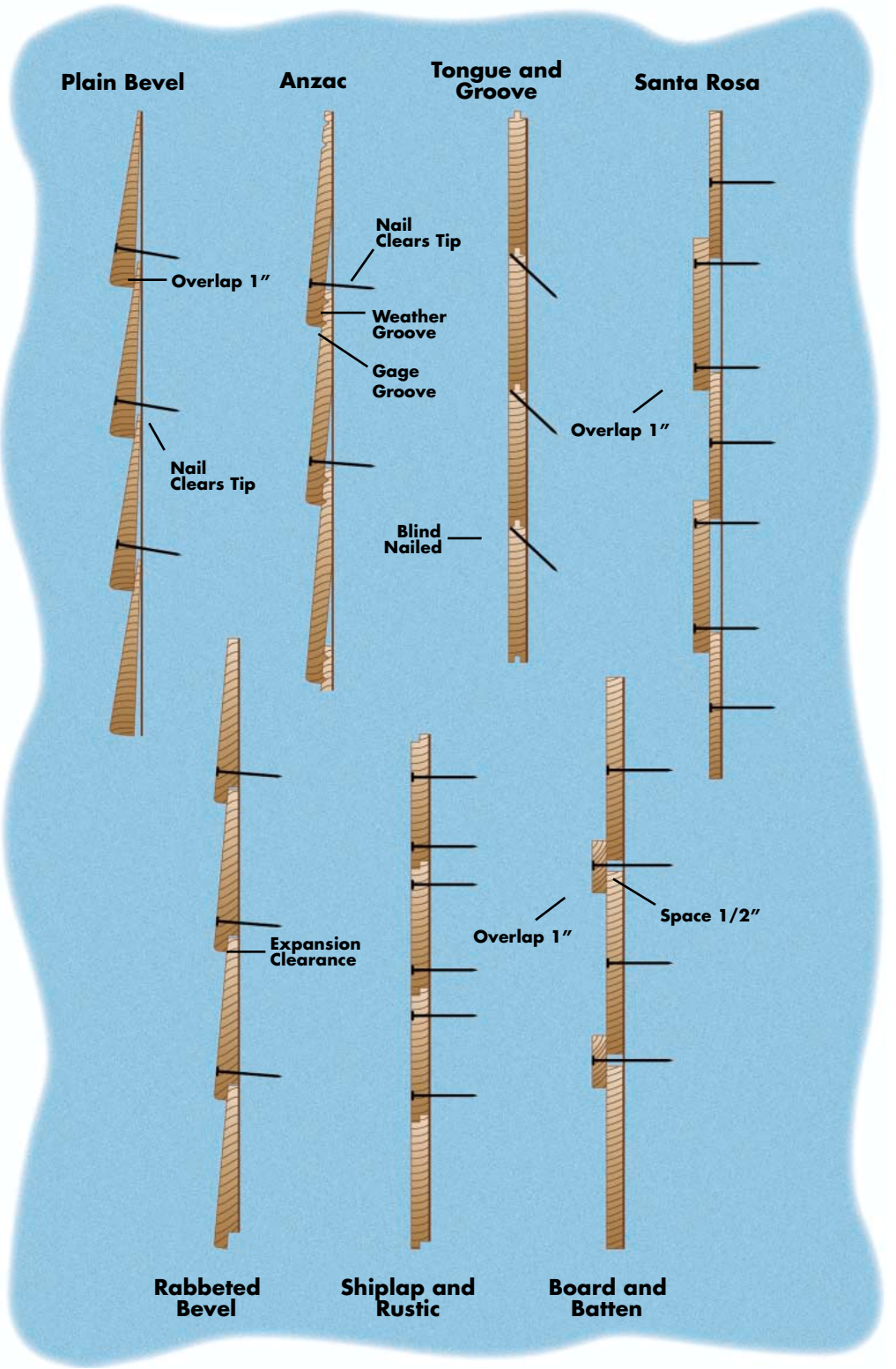
Paint and Stain. See *Finishing* instructions.

Drip Caps and Flashing must be used over doors, windows, masonry, other types of siding, and siding returns at dormers.

Corner Boards must be used at inside and outside corners.



SIDING NAILING METHODS



FINISHING CYPRESS SIDING

Preparation. Before finishing, repair all nail holes and surface irregularities. All surfaces should be clean and caulking should be in good condition. Seasoned southern cypress siding should be finished promptly at the time of installation to protect against moisture absorption, discoloration from rain, and mildew. However, under no circumstances should siding be finished when it is wet.

Selecting Primer and Paint. Use a high-quality primer compatible with the paint being used - most paints will require an oil-based alkyd primer. High-quality acrylic latex or oil-based paints are recommended. Certain paints contain water-sensitive polymers and/or surfactants that might absorb moisture, causing the siding to swell or creating an environment suitable for biological degradation.

Applying Paint. Always follow the primer and paint manufacturer's recommendations. Priming all sides and edges of wood siding provides superior performance with all types of sheathing. After the prime coat has dried, apply two coats of paint to all exposed surfaces and edges. (Dark, flat colors are not recommended for cypress siding.)

Applying Stain. Cypress siding takes stains very well, however, semi-transparent stains do not last as long as paint systems. Most semi-transparent stains will provide adequate protection for 18 to 24 months depending on weather conditions. Reapply stains and quality, clear, water-repellent preservatives at regular intervals.

A few finishing tips

To avoid a "splotchy" look on cypress siding, always use a brush when applying stain. Do not use a sprayer, especially on rough-faced siding surfaces.

If the goal is to leave the cypress in its natural state, brush the wood on all sides and edges with a quality, clear water-repellent preservative. Always follow manufacturers' recommendations.

Cypress

Other Outdoor and Indoor Uses

In addition to siding, cypress also serves many other applications outside the home, including decks, fence posts, clapboards, shingles, exterior trim, shutters, window boxes and landscape design elements.

Although cypress is well regarded for its strength and durability, the wood is generally not recommended for ground contact applications. However, cypress is a great choice for covered porches and verandas, and can be painted, stained and sealed to deliver both good looks and performance. For more information, see "Finishing Cypress Siding" on page 9.

Inside, cypress makes a bright, contemporary statement in mouldings, paneling, mantels, shutters and cabinetry.

No special precautions are required for painting cypress paneling, mouldings, millwork or any other indoor applications.

Photos on this page courtesy of Plath & Company, Inc. Michael Bruk, Photographer

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