

TABLE 4. SIZES OF DRESSED WESTERN RED CEDAR LUMBER

Item	Thickness (in.)				Width (in.)			
	Nominal	Actual		Nominal	Actual		Green	
		Dry	Green		Dry	Green		
Boards	1	1 1/16	3/4	2	1 1/2	1 9/16	1 9/16	
	1 1/4	1	1 1/32	3	2 1/2	2 9/16	2 9/16	
Garden Lumber				4	3 1/2	3 9/16	3 9/16	
				6	5 1/2	5 9/16	5 9/16	
				8	7 1/4	7 3/8	7 3/8	
				10	9 1/4	9 3/8	9 3/8	
Timbers				12	11 1/4	11 3/8	11 3/8	
	2	1 1/2	1 9/16	2	1 1/2	1 9/16	1 9/16	
	3	2 1/2	2 9/16	3	2 1/2	2 9/16	2 9/16	
	4	3 1/2	3 9/16	4	3 1/2	3 9/16	3 9/16	
Timbers				8	7 1/4	7 3/8	7 3/8	
				10	9 1/4	9 3/8	9 3/8	
				12	11 1/4	11 3/8	11 3/8	
Timbers	5	4 1/2	4 1/2	5	4 1/2	4 1/2	4 1/2	
	6	5 1/2	5 1/2	6	5 1/2	5 1/2	5 1/2	
	8	7 1/2	7 1/2	8	7 1/2	7 1/2	7 1/2	

* Surfaced timbers 10" and larger available only on special order. Confirm before specifying.

REFERENCE LITERATURE

The Western Red Cedar Lumber Association publishes reference material about the specification and use of members' products. The following publications are available:

- Specifying Cedar Siding
- Specifying Cedar Decking
- Specifying Fencing
- Designers' Handbook
- Guide to Finishing
- Installing Cedar Siding
- Decking
- Specifying Timbers and Landscape Lumber
- Specifying Trim Boards

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- Lazy S Lumber Inc.
- L.P. Engineered Wood Products Ltd.
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- Mr. Spindle, Inc.
- North Enderby Timber Ltd.
- Northwest Forest Products
- Oregon Canadian Forest Products Ltd.
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- Pacific Western Wood Works
- Pope & Talbot, Inc.
- Premier Forest Products Inc.
- Sawarne Lumber Company Ltd.
- Skana Forest Products Ltd.
- Teal Cedar Products Ltd.
- Salmon Arm Division
- TRI-PRO™ Cedar Products
- Twin Rivers Cedar Products Ltd.
- Tyee Timber Products Ltd.
- Welco USA/Skookum Lumber Co.
- Weyerhaeuser Company

WESTERN RED CEDAR QUICK FACTS

WESTERN RED CEDAR

Western Red Cedar (*Thuja plicata*) is one of North America's great renewable resources. Slow growing and naturally durable, Western Red Cedar has one of the longest life spans of any North American softwood. It produces long lengths of timber with true, straight grain. It is free from pitch and its heartwood has natural decay resistance. Its low density gives it an insulation value superior to most other species. Light weight, easy to work, easy to finish, possessing outstanding dimensional stability, Western Red Cedar is a preferred wood for nearly all purposes where attractive appearance or resistance to weather is important.

FEATURES OF WESTERN RED CEDAR

Acoustic properties:	Cedar tends to dampen sound transmission
Density (12% mc):	23 lb/ft ³
Specific gravity (12% mc):	0.32
Durability:	Durable species
Fasteners:	Corrosion resistant only (aluminum, hot-dipped galvanized, stainless steel)
Finishing:	Paints, stains, varnishes, oils and waxes all work well
Flame spread rating:	69 (Class II)
Smoke developed classification:	98
k value (12% mc):	0.74 BTU in./ft ² h°F
R value:	1.35/in. of thickness
Stability:	Cedar is the most stable softwood species
Workability:	Easy to cut, saw, nail and glue.

PHYSICAL PROPERTIES

DENSITY

One of the lightest commercial softwoods, the density of Western Red Cedar at 12% moisture content is approximately 23 pounds per cubic foot with a relative density (specific gravity) of 0.32. The density of oven-dry material is 21 pounds per cubic foot.

Cedar's low density enhances its insulation value and makes it an easy wood to transport and handle.

DIMENSIONAL STABILITY

Like all woods, Western Red Cedar is hygroscopic and will absorb or discharge moisture to attain equilibrium with the surrounding atmosphere. However, it has a very low shrinkage factor and is superior to all other coniferous woods in its resistance to warping, twisting and checking. Shrinkage in both the radial and tangential directions is given in Table 1.

DECAY RESISTANCE

One of Western Red Cedar's most valuable characteristics is its well-known high resistance to decay. It is one of the most durable coniferous species and can be counted on to give long and trouble free service under most conditions.

Cedar's decay resistance comes from the presence of naturally occurring fungicidal compounds in the wood called thujaplicins. Another extractive present in the wood, thujic acid, helps make the wood resistant to insect attack.

Properly finished and maintained, cedar will deliver decades of trouble-free service. If exposed for prolonged periods to conditions where decay could be a factor, such as where the wood is in contact with the ground, cedar should be treated with suitable wood preservatives.

THERMAL CONDUCTIVITY

Wood is an excellent thermal insulator. This is an important characteristic since good thermal insulators help keep buildings cool in the summer and reduce heating costs in winter.

The conduction of heat in wood is directly related to its density. Woods with low density have the highest thermal insulating value because such woods contain a high proportion of cell cavities. In dry wood, these cavities are filled with air which is one of the best known thermal insulators.

With its low density and high proportion of air spaces, Western Red Cedar is the best thermal insulator among the commonly available softwood species and is far superior to brick, concrete and steel. It has a coefficient of thermal conductivity (k value) at 12% mc of 0.74 BTU in./ft²h°F.

ACOUSTICAL PROPERTIES

An important acoustical property of wood is its ability to damp vibrations. Wood has a cellular network of minute interlocking pores which converts sound energy into heat by frictional and viscoelastic resistance.

Because of the high internal friction created by the cellular pore network, wood has more sound damping capacity than most structural materials. Floor, ceiling and wall assemblies of wood can provide effective economical sound insulation and absorption when properly utilized. Western Red Cedar is particularly effective in this regard and can be used to help reduce noise or to confine it to certain areas.

FASTENING

Western Red Cedar has good fastening properties but its natural preservatives have a corrosive effect on some unprotected metals in close contact, causing a black stain on the wood. Fasteners should be corrosion resistant such as aluminum, hot-dipped galvanized or stainless steel.

Nails and screws used to fasten Western Red Cedar should be about one-third longer than those used to fasten hardwood species.

TABLE 2. SIZES OF ROUGH WESTERN RED CEDAR

Thickness (in.)	Width (in.)
1	2
1 3/4	4
2	6
3	8
4	10
6	12
10	14
12	
14	

TABLE 1. SHRINKAGE OF WESTERN RED CEDAR

Direction of Shrinkage	Shrinkage in Percentage		
	From green (25% or greater moisture content) to	From kiln dried (15% average moisture content) to	
Radial	15%	12%	6%
Tangential	0.96	1.2	1.8
	2.0	2.6	3.8

Notes to Table

1. Radial shrinkage applies to the width of vertical grain lumber; tangential to the width of flat grain lumber.
2. Shrinkage does not begin until the fiber saturation point is reached.
3. 15% is the average equilibrium moisture content of wood during the summer in the Pacific Northwest.
4. 12% is the average equilibrium moisture content in most areas of the U.S.
5. 6% is the average equilibrium moisture content for interiors of heated buildings.



TABLE 3. WESTERN RED CEDAR PRODUCTS

Product	Thickness in. (nominal)	Width in. (nominal)	Grade	Grading Rule Paragraph		
				NLGA	WWPA	WCLIB
Bevel Siding Clear	1/2, 3/4	4, 6, 8, 10	Clear V.G. Heart A	201a	21.11	106-aa
			Rustic B	201b	21.12	106-a
			C	201d	N/A	N/A
			Proprietary	201c	21.13	106-b
				201e	21.14	106-c
Knotty	5/8, 1 1/16, 3/4, 7/8	6, 8, 10, 12	Select Knotty Quality Knotty Proprietary	205a	30.22	111-e
				205b	30.23	111-f
				N/A	N/A	N/A
Knotty-Rabbetted	3/4, 5/4	6, 8, 10	Select Knotty Quality Knotty	205a	30.22	111-e
				205b	30.23	111-f
Knotty-Wavy Edged	7/8	10, 12	Select Knotty Quality Knotty	205a	30.22	111-e
				205b	30.23	111-f
Pattern Siding Clear	1	4, 6, 8	Clear Heart A	200a	20.11	102-b
			B	200b	20.12	102-c
				200c	20.13	102-d
Knotty	1	4, 6, 8	Select Knotty Quality Knotty Standard and Better Proprietary	204a	30.22	111-e
				204b	30.33	111-f
				114a, b, c	N/A	118-a, b, c
				N/A	N/A	N/A
Clear Finish	1/2, 1, 5/4, 2	2, 3, 4, 6, 8, 10, 12	Clear Heart A	200a	20.11	102-b
			B	200b	20.12	102-c
				200c	20.13	102-d
Boards	1	2, 3, 4, 6, 8, 10, 12	Select Knotty Quality Knotty Standard and Better	204a	N/A	111-e
				204b	N/A	111-f
				114a, b, c	30.50 (118a, b, c)	118-a, b, c
Fence Boards	1	6, 8, 10	Select Knotty Quality Knotty Rustic	210a	N/A	117-a
				210b	N/A	117-b
				N/A	N/A	117-c
Roof Decking	2, 3, 4	6, 8	Select Commercial	127b	55.11	127-b
				127c	55.12	127-c
Outdoor Decking Clear	5/4, 2	4, 6, 8, 10, 12	Architect Clear Custom Clear	N/A	N/A	N/A
				N/A	N/A	N/A
Knotty	5/4, 2	4, 6, 8, 10, 12	Architect Knotty Custom Knotty	N/A	N/A	N/A
				N/A	N/A	N/A
Paneling Clear	1/2, 1	4, 6, 8	Clear Heart A	200a	20.11	102-b
			B	200b	20.12	102-c
Knotty	1/2, 1	4, 6, 8	Select Knotty Quality Knotty	204a	N/A	111-e
				204b	N/A	111-f
Garden Lumber	2, 3, 4 2, 3, 4	2, 3, 4 6, 8, 10, 12	Appearance Standard and Better Appearance No. 2 and Better	N/A	N/A	N/A
				122b, c	40.11, 12	122-b, c
				N/A	N/A	N/A
Timbers	5, 6, 8, 10, 12	5, 6, 8, 10, 12 and wider	Appearance Standard and Better	N/A	N/A	N/A
				131a, b, c	80.10, 11, 12	131-a, b, c
Structural Timbers	5, 6, 8, 10, 12	5, 6, 8, 10, 12 * Width more than 2" greater than thickness	*No. 2 and Better	130a, b, cc	70.10, 11, 12	130-a, b, cc

Notes to Table

1. Siding is available kiln-dried or air-dried with smooth or saw-textured surface. Factory primed siding is also available.
2. Paneling is available kiln-dried with smooth or saw-texture surface.
3. Grade descriptions are given in NLGA, WWPA and WCLIB grading rules. Grade descriptions of proprietary products are available from the manufacturer.