Hard Maple (Acer Saccharum)

Common Name:	Hard Maple
Botanical Name:	Acer saccharum
Other Common Names:	Hard maple, Rock maple, Sugar maple, Hard white maple
Common Uses:	Boat building, Boxes and crates, Cabinetmaking, Furniture , Instrument cases, Interior trim, Joinery, Millwork, Paneling , Woodenware, Bedroom suites, Building materials, Canoes, Casks, Chairs, Chests, Concealed parts (Furniture), Desks, Dining-room furniture, Dowell pins, Dowells, Drawer sides, Excelsior, Fine furniture, Floor lamps, Furniture components, Furniture squares or stock, Hatracks, Interior construction, Kitchen cabinets, Lifeboats, Living-room suites, Moldings, Office furniture, Packing cases, Radio, stereo, TV cabinets, Rustic furniture, Shipbuilding, Stools, Tables , Trimming, Utility furniture, Wainscotting, Wardrobes
Region:	North America
Country:	Canada, United States
Figure	In occasional trees of Acer saccharum localized small swirls of grain direction produce bird's eye figure, so called because each swirl looks like a tiny eye.
	Curly figure is usually found in the Soft Maple varieties Acer rubrum and Acer nigrum. However, curly figure may be found in Hard Maple as well. Curly figure occurs when the grain is distorted into a wavy pattern termed tiger maple or fiddleback.

Numerical Values for: Acer saccharum

Category	Green	Dry	Unit
Bending Strength	9400	15800	psi
Crushing Strength (Perp.)	640	1470	psi
Max. Crushing Strength	4020	7830	psi
Impact Strength	40	39	inches
Stiffness	1550	1830	1000 psi
Work to Maximum Load	13	16	in-lbs/in3
Hardness		1450	lbs
Shearing Strength		2330	psi
Toughness		365	in-lbs
Specific Gravity	0.56	0.68	
Weight	56	44	lbs/cu.ft.
Radial Shrinkage (G->OD)		5	%
Tangential Shrink. (G->OD		10	%
Volumetric Shrink. (G->OD		15	%

Tree & Wood Descriptions for: Acer saccharum

Product Sources	Some material from this species is reported to be available from environmentally responsible sources. Plain maple is reported to be readily available in both lumber and veneer forms, but figured maple veneers are limited in availability and are considerably more expensive. Sugar maple is reported to derive its name from one of its by-products, maple sugar. A single Sugar maple tree is reported to be capable of producing twelve gallons of maple sap a year. About forty gallons of maple sap is required to produce one gallon of pure maple syrup.
Tree Data	The official tree of several states including Vermont, Wisconsin, West Virginia, and New York, Sugar maple grows to a height of 70 to 120 feet (21 to 37 m), with a diameter of about 24 to 36 inches (60 to 9o cm).
Sapwood Color	The sapwood is white in color, with a reddish tinge.
Heartwood Color	The heartwood is uniformly pale reddish brown or light tan. Bird's-eye maple, a form of white or sugar maple, usually exhibits two colors, a whitish background with brownish dots at irregular intervals. The dots, which are rarely solid, usually have a circular rim that is of a different color than the center, rather like an eye. The dots are believed to be the starting-points of new side branches that may or may not have actually grown out from the trunk of the tree.
Grain	Sugar maple grain is typically straight, but it can also be curly or wavy. The wood is described as close-grained and subdued, sometimes with decorative figuring including, bird's eye, maple burl, blistered, leaf, and fiddleback.
Texture	The wood has a very fine and even texture.
Odor	There is no distinct odor or taste.
Natural Growth Features	A characteristic feature in the hard maples is bird's-eye figure which usually appears as attractive patterns on veneer manufactured from the species. Flecks caused by insects may also be present in the wood. Figured boards are reported to be often culled during grading and sold at a premium.
Natural Durability	The wood is reported to have very little natural resistance to attack by decay causing fungi and insects, but hard maple is rated as more durable than some of the other maples. Its fire resistant properties are reported to be higher than the average timber.

	Resistance to Impregnation The heartwood is reported to be fairly difficult to treat with chemical preservatives.
Veneering Qualities	Figured Sugar maple is used for decorative veneers, one of the most exotic of which is maple burl veneers, which display colors that have been compared to fall leaves. Bird's-eye is veneers are also common in sugar maple, but they are also found in other species such as, soft maples, yellow birch, and white ash.

Working Properties for: Acer saccharum

Cutting Resistance	The wood is reported to be fairly difficult to saw.
Blunting Effect	Wood with irregular grain tends to exert fairly high blunting effect on cutting tools.
Planing	The wood is reported to be fairly difficult to plane. (Expected number of planed pieces out of one hundred without any machining defects = 54).
Turning	Turning properties are reported to be good. (Expected number out of one hundred with fair to excellent results in turning = 82).
Boring	Boring characteristics are reported to be exceptionally good. (Percent of bored species that can be expected to yield good to excellent results = 99).
Moulding	The timber is reported to be relatively easy to shape without chipping and splintering. (Number of shaped pieces out of one hundred producing good to excellent results = 72).
Mortising	The material is reported to have very good mortising properties. (Expected number of pieces out of one hundred producing fair to excellent mortising results = 95).
Carving	Hard maple is reported to respond well to carving, and works without tear-outs or chipping.
Gluing	The wood has satisfactory gluing properties.
Nailing	The wood is reported to have good nail-holding characteristics, but very poor nailing properties since it is apt to split. Pre-boring is recommended, especially in thin stock. (Percent of nailed pieces expected to be free from complete splits = 27).
Screwing	Pre-boring is recommended in screwing operations. (Expected number out of one hundred of screwed pieces free from complete splits = 52).
Sanding	The wood is fairly difficult to sand. Extra care is recommended since sanding marks are reported to be rather difficult to cover because of the wood's density and light color. (Expected number of sanded pieces out of one hundred producing

	good to excellent surfaces = 38).
Polishing	The material is reported to polish satisfactorily.

Drying for: Acer saccharum

Ease of Drying	The wood dries slowly, but is reported to be fairly easy to season. Some level of care is needed during drying in order to minimize defects. Shrinkage is reported to be high.
Drying Defects	Sapwood discoloration may develop because of extractives, and collapse and honeycombing may also occur due to mineral streaks and wetwood. There is moderate tendency for the timber to warp.
Kiln Schedules	T8 - C3 (4/4); T5 - C2 (8/4) US
T/R Ratio	2.06 This ratio is more meaningful if it is used together with actual shrinkage data in the tangential and radial directions. (Refer to the Numerical Values window).

Credits for information:
Woodworkersource.com