

Safety Engineering Tables

all other parts, including structural steel, a factor not less than 5. On hot metal cranes, however, all these safety factors should be higher, even as high as 10 throughout.

For general hoisting purposes, it is not advisable for the working load of a wire to exceed $\frac{1}{5}$ of its breaking strength. This means a safety factor of 5, but factors in excess of this, and varying up to 8 or more, are often required for safe and economical operation.

Cast iron flywheels should have a safety factor of 10, but those made of wood should have the factor of safety raised to 20.

Other data

In addition to data on construction materials, information is supplied on lighting and ventilation, chemicals and contaminants, mathematical functions and conversion factors, and abbreviations used in this Manual.

TABLE 47-B
BASIC STRESSES FOR LAMINATED STRUCTURAL MEMBERS

	<i>Extreme fiber in bending or tension parallel to grain (psi)</i>	<i>Maximum longi- tudinal shear (psi)</i>	<i>Compression perpen- dicular to grain (psi)</i>	<i>Compression parallel to grain (psi)</i>	<i>Modulus of elasticity in bending (1,000 psi)</i>
SOFTWOODS					
Baldcypress (southern cypress)	2,400	170	330	2,000	1,300
Cedars					
Redcedar, western	1,600	135	220	1,300	1,100
White-cedar Atlantic (southern white cedar) and northern	1,400	115	195	1,050	900
White-cedar Port-Orford	2,000	150	275	1,650	1,600
Yellow-cedar Alaska (Alaska-cedar)	2,000	150	275	1,450	1,300
Douglas-fir, coast type	2,750	150	350	2,000	1,800
Douglas-fir, coast type, close-grained	2,950	150	375	2,150	1,800
Douglas-fir, Rocky Mountain type	2,000	135	310	1,450	1,300
Douglas-fir, all regions, dense	3,200	150	410	2,350	1,800
Fir, balsam	1,600	115	165	1,300	1,100
Fir California red, grand, noble and white	2,000	115	330	1,300	1,200
Hemlock, eastern	2,000	115	330	1,300	1,200
Hemlock, western (west coast hemlock)	2,400	125	330	1,650	1,500
Larch, western	2,750	150	350	2,000	1,800
Pine eastern white (northern (white) ponderosa, sugar, and western white (Idaho white))	1,600	135	275	1,400	1,100
Pine jack	2,000	135	240	1,450	1,200
Pine lodgepole	1,600	100	240	1,300	1,100
Pine red (Norway pine)	2,000	135	240	1,450	1,300
Pine, southern yellow	2,750	180	350	2,000	1,800
Pine southern yellow, dense	3,200	180	410	2,350	1,800
Redwood	2,200	115	275	1,850	1,300
Redwood, close-grained	2,400	115	295	2,000	1,300
Spruce, Engelmann	1,400	115	195	1,100	1,100
Spruce, red, white, and Sitka	2,000	135	275	1,450	1,300
Tamarack	2,200	160	330	1,850	1,400