

TABLE 2.4
STRUCTURAL DESIGN PROPERTIES FOR F-GRADES

Stress-grade	Characteristic strength, MPa					Characteristic short duration average modulus of elasticity* parallel to the grain, MPa (E)	Characteristic short duration average modulus of rigidity for beams, MPa (G)
	Bending (f'_b)	Tension parallel to grain (f'_t)		Shear in beam (f'_s)	Compression parallel to grain (f'_c)		
		Hardwood	Softwood				
F34	100	603	50	7.2	75	21 500	1 430
F27	80	50	40	6.1	60	18 500	1 230
F22	65	50	40	6.1	60	16 000	1 070
F17	50	30	26	4.3	40	14 000	930
F14	40	25	21	3.7	30	12 000	800
F11	35	20	17	3.1	25	10 500	700
F8	25	15	13	2.5	20	9 100	610
F7	20	12	10	2.1	15	7 900	530
F5	16	9.7	8.2	1.8	12	6 900	460
F4	13	7.7	6.5	1.5	9.7	6 100	410

* The average modulus of elasticity, (\bar{E}), includes an allowance of about 5 percent for shear deformation (see Clause 2.1.3 and Appendix B).

TABLE H2.1
CHARACTERISTIC PROPERTIES FOR MGP GRADES*

MGP grade	Characteristic strength, MPa				Short duration average modulus of elasticity† parallel to the grain	Short duration average modulus of rigidity for beams
	Bending	Tension parallel to grain	Shear in beams	Compression parallel to grain		
	f'_b	f'_t	f'_s	f'_c	E	G
MGP 15	41	23	9.1	35	15 200	1 010
MGP 12	28	15	6.5	29	12 700	850
MGP 10	16†	8.0	5.0	24	10 000	670

* Properties apply only for 35 mm and 45 mm thicknesses.

† For 45 mm thickness, f'_b for MGP 10 may be taken as 19 MPa.

‡ The modulus of elasticity given has been obtained from bending tests and contains the effects of shear.