

Reference — Material Properties,

Material Allow

Material	Standard	Allowable F
Carbon steel CS Type B	ASTM A1011	18 ksi / 124 MPa
Structural steel SS GR36/250	A1011/A36	20 ksi / 138 MPa
Stainless steel 304/316	ASTM A666	20 ksi / 138 MPa
Stainless steel	ASTM A666	16.5 ksi / 114 MPa
Aluminum alloy 6061-T6	ASTM B221	12 ksi / 83 MPa
Carbon steel (China standard)	YB/T 4001.1	170,000 kN/m ²
Grade 250 Mild Steel	BS EN 10025	171 MPa

Unit Conv

From Unit	× Factor	To Unit
lbs/ft ² (psf)	0.04788	kPa
kPa	20.885	lbs/ft ² (psf)
inches	25.4	mm
mm	0.03937	inches
lbs/ft (plf)	0.01459	kN/m
kN/m	68.52	lbs/ft (plf)
lbs/ft ²	4.882	kg/m ²
kg/m ²	0.2048	lbs/ft ²
kN/m ²	1000	N/m ² (Pa)

Deflection

Application	Deflection Limit	Code Reference
Pedestrian Walkway (comfort)	L/240 ≤ ¼" (6.4mm)	NAAMM MBG 531/534
General platform / walkway (Euro)	L/200 or 10mm	BS4592 / Safegrid
Stair treads	L/300 or 6mm	YB/T 4001.3-2020
Road trench grating	L/500	YB/T 4001.1 Appendix B
Heavy rolling / vehicular	L/400 or 0.125"	AASHTO
FRP molded grating (design ref)	L/200	McNichols

Unit Conversions & Deflection Limits

able Design Stress

Yield Fy	Elastic Mod E	Notes
30 ksi / 205 MPa	29,000 ksi / 200,000 MPa	
36 ksi / 250 MPa	29,000 ksi / 200,000 MPa	
30 ksi / 207 MPa	28,000 ksi / 193,000 MPa	
25 ksi / 172 MPa	28,000 ksi / 193,000 MPa	
35 ksi / 241 MPa	10,000 ksi / 69,000 MPa	
—	206,000,000 kN/m ²	YB/T load table basis
250 MPa	200,000 MPa	

ersion Factors

Example
100 psf = 4.79 kPa
4.8 kPa ≈ 100 psf
1" = 25.4 mm
25 mm = 0.984"
100 plf = 1.46 kN/m
1 kN/m = 68.52 plf
1 psf = 4.88 kg/m ²
1 kg/m ² = 0.205 psf
1 kPa = 1000 Pa

Limit Reference

Notes
May Exceed at Engineer discretion
Panel joining clips required
4.4 kN ultimate — no damage
Confirm with project engineer