# ALUMINUM DESIGN CRITERIA

The tables of safe loads which follow have been computed using the following design parameters:

U = Uniform Load - lbs/ft²

C = Concentrated Load - lbs/ft of grating width

S = Section Modulus - in³/ft of grating width

I = Moment of Inertia - in⁴/ft of grating width

L = Simple Clear Span - feet

D = Deflection - inches

E = Modulus of Elasticity (10,000,000 psi)

F = Allowable Bending Stress (12,000 psi)
See note below

M = Bending Moment

Design Service

Available at no charge to the specifying architect/ engineer or fabricator, is access to a computer program which provides uniform load and deflection (actual or fraction of span) analysis of grating products. Just call, write or fax your design criteria – loading, span, allowable deflection, or grating size desired – and we will provide you with the information you require.
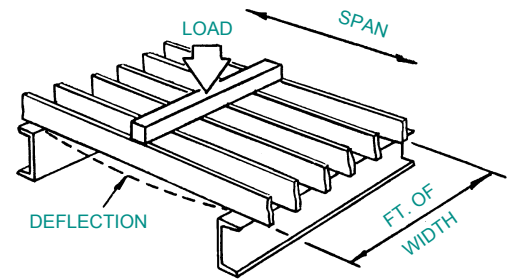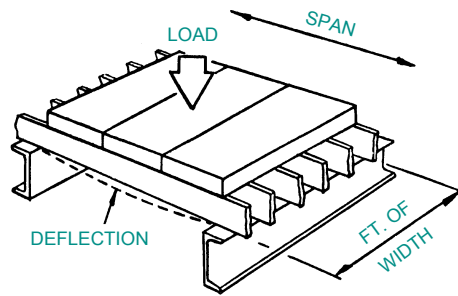
	Uniform Load	Concentrated Load
Step 1. Determine M:	$M = \dfrac{FS}{12}$	$M = \dfrac{FS}{12}$
Step 2. Determine U or C:	$U = \dfrac{8M}{L^2}$	$C = \dfrac{4M}{L}$
Step 3. Check D*:	$D = \dfrac{5UL\,(L \times 12)^3}{384\ EI}$	$D = \dfrac{C\,(L \times 12)^3}{48\ EI}$

Deflection should be limited to 1/4" under 100# uniform load to afford pedestrian comfort.

Aluminum Grating is best suited for use in conjunction with pedestrian traffic, and for very light, rubber pneumatic tired rolling traffic (carts, dollies and hand trucks). For other rolling loads (forklifts, cars, trucks, etc.) see the Heavy Duty Steel Grating section.