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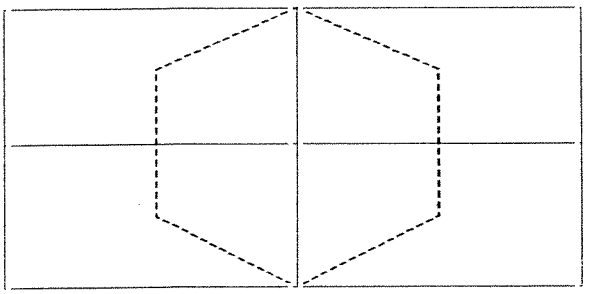
FORMULA SHEET FOR MULLION LOAD CALCULATIONS



I = MOMENT OF INERTIA OF WINDOW AND MULL ASSEMBLY EXTRUSIONS
C = CENTROID OF WINDOW AND MULL ASSEMBLY EXTRUSIONS

MAX. DEFLECTION = SPAN/175

TRAPEZOIDAL LOAD PATTERN VERTICAL

CALCULATE MULLION MAXIMUM LOAD

$$W = \frac{I * 76.8 * \text{MAX. DEFLECTION} * 10000000}{(\text{SPAN})^{3}}$$

CALCULATE MOMENT REQUIRED

$$M_{req} = \frac{(W * \text{SPAN})}{8000}$$

CALCULATE MOMENT DUE TO FIBER STESS

Fy = 16.0 FOR ALUMINUM

$$M_f = 0.9 * (Fy) * (S)$$

S = I / C

COMPARE MOMENTS

M req MUST BE > Mf , IF NOT THEN LOAD MUST BE REDUCED:

$$W = \frac{M_f * 8000}{\text{SPAN}}$$

CALCULATE MAX. LOAD IN PSF

$$PSF = \frac{W}{\text{LOAD AREA}}$$

= 1.5 X DESIGN PRESSURE

CALCULATE ALLOWABLE DESIGN PRESSURE

D. P. = MAX. LOAD X.6666667 (REDUCE BY 1/3)

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FORMULA SHEET FOR MULLION LOAD CALCULATIONS - CONTINUED

CHECK FASTENER LOADING FOR REACTION TO DESIGN PRESSURE

USED FASTENER VALUES: TAPCON = 255 LB
#8 SCREWS = 130 LB

CALCULATE DESIGN PRESSURE DUE TO FASTENERS

$$\text{ALLOWABLE D.P.} = \frac{\text{CALCULATED MAX. FASTENER LOAD}}{\text{LOAD AREA}}$$

COMPARED THE TWO DESIGN PRESSURES AND USED LOWEST VALUE FOR TOTAL DESIGN PRESSURE.

NOTES: 1) FASTENER STRENGTH WAS REDUCED FOR TAPCONS WHEN THEY WERE LESS THAN 1 7/8" APART.
2) THE HORIZONTAL AND FIN MULLION CALCULATIONS WERE DONE IN A SIMILAR MANNER.