

**Technical Note No. 27**  
**STRUCTURAL DESIGN OF STICK CURTAIN**  
**WALLING - Sample calculations**

**Introduction**

Technical Note 26 describes the procedures that may be used to design stick curtain walling. This Technical Note gives examples of calculations for the design of aluminium stick curtain wall sections in accordance with BS 8118.

**Example 1**

*Design a transom for a curtain wall with mullions spaced at 1.2m centre to centre (transom length of, say, 1.15m) and transoms spaced at 1.6m. The wall is glazed with 6/12/6 double glazed units.*

**Vertical loading**

The transom must be designed to carry the dead load of the glass. The dimensioned assembly, together with the resulting bending moment and shear stress distribution in the transom due to dead loads, is illustrated in Figure 1.

The dead load of the glass unit is:

$$W_{\text{glass unit}} = \rho gXYt$$

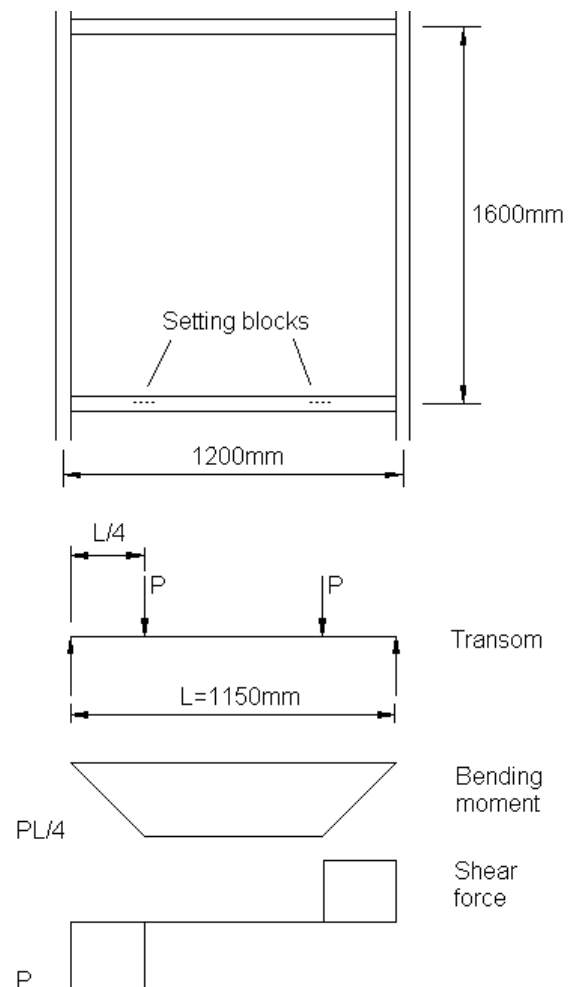
where:

- $\rho$  is the density of glass, 2500 kg/m<sup>3</sup>,
- $g$  is the acceleration due to gravity, 9.81 m/s<sup>2</sup>,
- $t$  is the total thickness of glass, in m,
- $X$  &  $Y$  are the length and height dimensions of the glass, in m,

Substituting the known values into the above equation:

$$W_{\text{glass unit}} = 2500 \times 9.81 \times 1.2 \times 1.6 \times 0.012$$

$$= 565\text{N}$$



**Figure 1** Dead loading on curtain wall transom and resulting stresses