

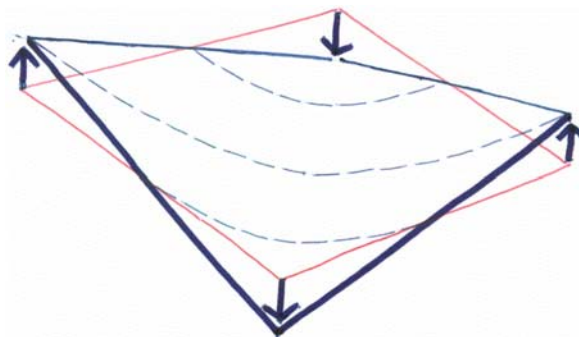
Buckling of Glass Panels Loaded in Torsion

Transparent facades and canopies are an often-occurring theme in architecture. The glass panels in such structural glazing are loaded in multiple ways. Recently it was discovered that these panels can buckle due to torsion loading. Clearly this affects the safety of structural glazing. It also affects serviceability because the reflection of a buckled panel disturbs the smooth appearance of a façade.



Structural glazing in the Heinz Building
Stockley Park, West London, Architect T.P. Bennett

The objective of this project is to derive critical buckling loads for linear-elastic panels of quadrilateral shape loaded in torsion. The work involves experimental investigation of the phenomenon; analytical formulation of the differential equation of plate bending including large deflections; finite element analysis of a range of panel forms. The results will be used to develop formulas, tables or graphs for designing structural glazing.



Buckling mode of a square glass panel

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