

Improvements and Limitations in Fabrication of Structural Glass

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Abstract

Applications for structural glass are more affordable and popular amongst architects and developers seeking to distinguish their projects from their competitors than ever before. Structural engineers are asked to work on inspirational schemes where engineering knowledge, fabrication techniques and installation conventions are challenged. Engineers writing specifications for structural glass components tend to, in good will, over define tolerances or pre stress, in the belief that such actions will provide them with extra security against their own uncertainties arising from the structural design.

In this paper we will discuss our findings taken from factory site inspections and audits gathered over past few years. This paper will introduce and discuss in detail the various typical glass component defects including, dimensional tolerances, interlayer overflow or delamination, scratches, blemishes and non-uniform glass pre stress from quenching. The paper will go on to highlight the possible implications of the above defects in the reliability and durability of glass components and subsequently the structural design implications. Finally, current state of art techniques in fabrication and quality control procedures will be described with potential improvements noted.