EXPERIMENTAL TECHNIQUES FOR THE MEASUREMENT OF DEFLECTION IN GLASS DURING BLAST TESTING

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It is well known that there are significant problems in taking displacement measurements in relation to the blast testing of glazing. Techniques to record the reaction of a material in a blast test include strain gauges, Linear Variable Differential Transformers (LVDTs), laser gauges, digital image correlation (DIC) and high speed photography. Using these techniques when testing glass panels can have significant flaws. For example, although DIC can provide excellent stress and strain readings of how a whole glass panel reacts, it requires the back face of the glass to be painted or covered with a pattern, adding weight, along with the required costly high speed video equipment. LVDTs, laser gauges and string pot gauges also have limitations in their use due to attachment issues. This presentation considers pros and cons of different measurement techniques of glass deflection during a blast trial as well as possible future solutions.