


	<b>Project sheet</b>
Research project :	<b>Stabilization of Building Envelopes with the use of the Glazing</b>
Images :	
Keywords :	Glass, Plate, Buckling, Shear, Stabilization, Building Envelope
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Time span :	2001 - 2006
Description :	<p>Many of today's façades consist of rectangular meshes built by the mullions and transoms of the windows. In modern grid-shells with any curvature the meshes are built by linear bars of equal length. In both cases the meshes have one degree of freedom, if hinges are assumed in the nodes. Diagonal rods are usually used to stabilize these systems. If the glazing could be activated to stabilize the system, the diagonal elements could be replaced and the filigree appearance of the building envelope could be increased.</p> <p>An idea to achieve this is to transmit loads from the bars to the glass panes by circumferentially glued connections. In this cases buckling of glass panes must be considered as a possible failure mode. The in plane loads are mainly shear forces from the adhesive connections. Typical out of plane loads (wind, snow) must also be considered.</p> <p>The stability of glass panes under shear (in plane) loading and out of plane loading and also the effects of possible load combinations have been investigated and corresponding design rules are presented.</p>
Most important publications :	<ul style="list-style-type: none"> <li>- Wellershoff, F.; Sedlacek, G.: Stabilisation of building envelopes with the use of the glazing; Proceedings of Glass Processing Days 2005, page 281-283</li> <li>- Wellershoff, F.; Sedlacek, G.: Employing the glazing for the stabilisation of building envelopes; Proceedings of Glass in Buildings 2; 7-8.05.2005, Bath, UK, page 343</li> <li>- Wellershoff, F.: Aussteifung von Gebäudehüllen durch randverklebte Glasscheiben, Stahlbau 77 (2008), Heft 1, Seite 5 - 16</li> <li>- Wellershoff, F.: Aussteifung von Gebäudehüllen durch eckgeklotzte Glasscheiben, Stahlbau 77 (2008), Heft 8 Seite 555 - 565</li> </ul>
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