

Integration of ETFE foil cushions into conventional glass facade systems by means of adapted, space-saving joining methods

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ABSTRACT

The current technology for producing a translucent facade is dominated by glazing, facade construction kits and a high degree of prefabrication. New technologies are discussed that allow the integration of ETFE foil cushions into conventional, customary, modular in the market glass facade systems. A new facade element is presented, which consist of a rigid profile frame with integrated thermic separation, covered on both sides with ETFE foil. New edge formations have been developed and tested with regard to the industrial prefabrication of rectangular ETFE facade cushion elements. In particular three space-saving joining methods for joining ETFE foils with aluminum profiles are presented and discussed: gluing with cyanoacrylate adhesive, welding to an ETFE coating and clamping in a mini keder, as well as the associated, necessary pretreatment methods. An assessment of the joints is made through tensile tests and longtime outdoor weathering tests. All methods were tried in demonstrators and represent technical solutions.