

End-of-Life Considerations of Silicone Bonded Glazing

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Abstract

Global construction industry and regulations target circularity in buildings and lower embodied carbon. Following this trend, commercial buildings are more frequently considered for refurbishment for reuse as commercial or residential building. During the refurbishment, part of the constitutive elements, such as glass and aluminum frame, are reused in the renovated façade. Alternatively, the whole façade could be kept in place if sufficient remaining lifetime expectancy of the constitutive elements can be confirmed. Silicone bonded glazing façades are recognized as a durable, energy and material efficient façade system. However, uncertainty exists as how to refurbish, reuse and/or extend lifetime this type of façades. Recommendations on how to debond units, how to assess the quality of the old sealant and how to rebond are needed. This paper will review different disassembly and testing methods to evaluate the quality on different types of bonding silicone and the rebonding procedure. The refurbishment of the Citibank tower in London which was originally structurally glazed with DOWSIL™ 993 Structural Glazing Sealant is used as case study to illustrate the various steps.

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Keywords

Silicone, bonded glazing, Design for disassembly

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