

# Circular IGUs – Strategies for the Technical Evaluation of Reclaimed Window Glazing

Sebastian Wernli <sup>a</sup>, Miriam Schuster <sup>b</sup>, Hans I. Scholz <sup>b</sup>, Martien Teich <sup>a</sup>

- a. Hochschule München University of Applied Sciences, Germany,  
[sebastian.wernli@hm.edu](mailto:sebastian.wernli@hm.edu), [martien.teich@hm.edu](mailto:martien.teich@hm.edu)
- b. Technical University of Darmstadt, Institute of Structural Mechanics and Design, Glass Competence Center, Germany  
[schuster@ismd.tu-darmstadt.de](mailto:schuster@ismd.tu-darmstadt.de), [scholz@ismd.tu-darmstadt.de](mailto:scholz@ismd.tu-darmstadt.de)

## Abstract

The glass industry is increasingly exploring remanufacturing as an alternative to the recycling of reclaimed glass cullet. Remanufacturing insulated glass units (IGUs) offers the potential to preserve valuable materials and their embodied carbon, accelerating the shift towards a circular and climate-neutral economy. However, technical uncertainties continue to impede the large-scale adoption of remanufactured IGUs. This study addresses these barriers by developing strategies for a comprehensive technical assessment of 30-year-old IGUs extracted from two office buildings. A range of standardized tests are conducted to evaluate critical factors influencing IGU reusability, including the overall visual surface quality, sealant and desiccant integrity, and surface flaws that may compromise glass strength. Additionally, the assessment considers the type of installation as well as relevant external factors that occur during the IGUs' service life and could potentially affect their performance and viability for future applications. By establishing a technical evaluation framework aligned with European product standards, the findings aim to support best practices in IGU reuse and remanufacturing.

The full paper will be published in the [Glass Performance](#) collection of the [Glass Structures & Engineering](#) journal (Springer).

## Keywords

Circularity, Remanufacturing, Reuse, IGU, Sustainability

## Article Information

- Published by [Glass Performance Days](#), on behalf of the author(s)
- Published as part of the peer-reviewed Glass Performance Days Conference Proceedings, June 2025
- Editors: Jan Belis, Christian Louter & Marko Mökkönen
- This work is licensed under a [Creative Commons Attribution 4.0 International](#) (CC BY 4.0) license.
- Copyright © 2025 with the author(s)