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Window Attachments as Envelope Measures

(Addressing question 2) Several envelope retrofit technologies that are not addressed in this concept that should be considered include window attachments such as secondary window systems (i.e., secondary glazing, storm windows, insulating window panels) and automated shading for both residential and commercial applications. Secondary window systems provide a lower-cost option for window retrofits and, with high-performance technologies such as low-emissivity and vacuum insulated glass, can achieve substantial improvements in performance. In addition, some secondary window attachments can provide substantial air-sealing benefits, which is a primary focus of Group 4 value proposition. Secondary window attachments can also be coupled with automated shades to provide a solution that not only improves insulation but can also modulate solar heat gains according to the season and time of day, thus further improving energy performance.