3.1.2 Windows

Replacing glass in existing frames

At a glance

Energy Impact: Medium-high

Cost: Medium

Disruption: Medium-low

DIY: No

Planning permission: Not required

Listed Building Consent: is required

This will be acceptable in Listed Buildings:

- where no surviving historic glass is present (see Replacing glass in existing frames in historic windows p182); and/or
- when the existing window frames and glazing bars can accommodate the thickness and weight of the new glazing units; and
- if using vacuum glazing, the product should avoid evacuation ports and where possible, minimise the density of micropillars.

Usually acceptable in Conservation Areas	**Yes**
Usually acceptable in Listed Buildings	**Yes**

How does it work?

Replacing glazing units within existing frames can be a good option to upgrade a window's performance without carrying out a full window replacement. Thermal or low-emissivity ("Low E") single glazing, slimline double or vacuum glazed units can often be fitted into windows (including historic) frames to replace the existing panes of glass.

Considerations

Existing casement and sash frames and glazing bars will need to be in good condition for this option.

You will need to check compatibility of new glazing units with existing frames and glazing bars. This will depend on the width and strength of the channel that holds the glass in the frame (the rebate) and glazing bars. See Table 18 for a guide on width, weight, U values and lifespan of options.

Replacing single panes of glass with double glazed units will add additional weight. The counterweights in sash windows may need to be adjusted accordingly. If the rebate is large and strong enough to accommodate vacuum glazing this can be the most energy efficient option.

Ventilation

This measure will reduce air flow, ensure rooms are adequately ventilated. See 3.2 Ventilation.

Embodied carbon

Historic window frames were made of long-lasting materials. Retaining rather than replacing frames will make embodied carbon savings. Different glazing types have different lifespans and differing embodied carbon impacts. For example, double and triple glazed units use argon, krypton or xenon gases within voids, the extraction of which increases their embodied carbon, whereas vacuum glazing does not require gas.

Type of glazing	Approx. width (mm)	Approx weight (kg/m²)	U-Value of glass (W/m²K) Lower is better	Approx. lifespan (years)
Low-E single glazing	4- 6	10	4.8-5.8	100
Vacuum glazing	7.7 - 11	20	0.6- 1.5	25+
Slimline double glazing	10- 14	20	1.2-1.9	15-20
A++ rated double glazing	28	20	0.8	15-20
Triple glazing	28 – 44	30	0.6- 1	25+

Table 18. Comparison of glazing types