CARNELL WARREN ASSOCIATES

Improved Window Performance Energy Assessment.

14 Templewood

CWA Author

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1. *Introduction*

Carnell Warren have been appointed to carry out a detailed thermal heat loss calculation on the listed property at 14 Templewood Avenue.

The model is required to compare the energy efficiency, Heat loss and Carbon Emissions when retaining and replacing the existing windows.

The proposal is to replace the existing single glazed sash windows with Histoglass HD10;

	Ug (W/m2K)
Histoglass HD10	1.9
Single glazing	5.8

Table 1 Histoglass HD10 comparison

Histoglass mono has been selected to be sympathetic to the listed nature of the property whilst drastically reducing the carbon emissions and heat loss from the property.

Table 1 demonstrates the improvements that can be made by employing this glazing solution.

The Property was modelled as a dynamic thermal model (DTS) in IES.

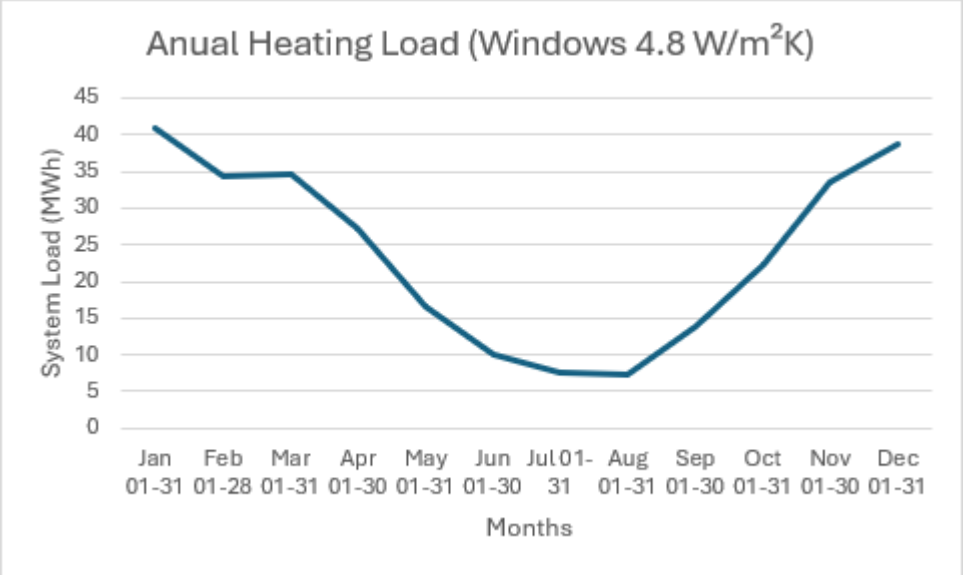
The calculations CWA have carried out have been based on a best case U Value of the retained windows, whereby the seals and frame are refurbished to achieve a U value of 4.8 W/m2.K. This demonstrates a best case carbon emission.

2. *Results*

Existing/Baseline assessment

Date	***2342 - Templewood - 4.8 W/m²K***
Jan 01-31	40.9215
Feb 01-28	34.4662
Mar 01-31	34.5153
Apr 01-30	27.3476
May 01-31	16.7087
Jun 01-30	10.1157
Jul 01-31	7.51
Aug 01-31	7.4039
Sep 01-30	13.8947
Oct 01-31	22.3955
Nov 01-30	33.542
Dec 01-31	38.6201
Summed total	287.4415

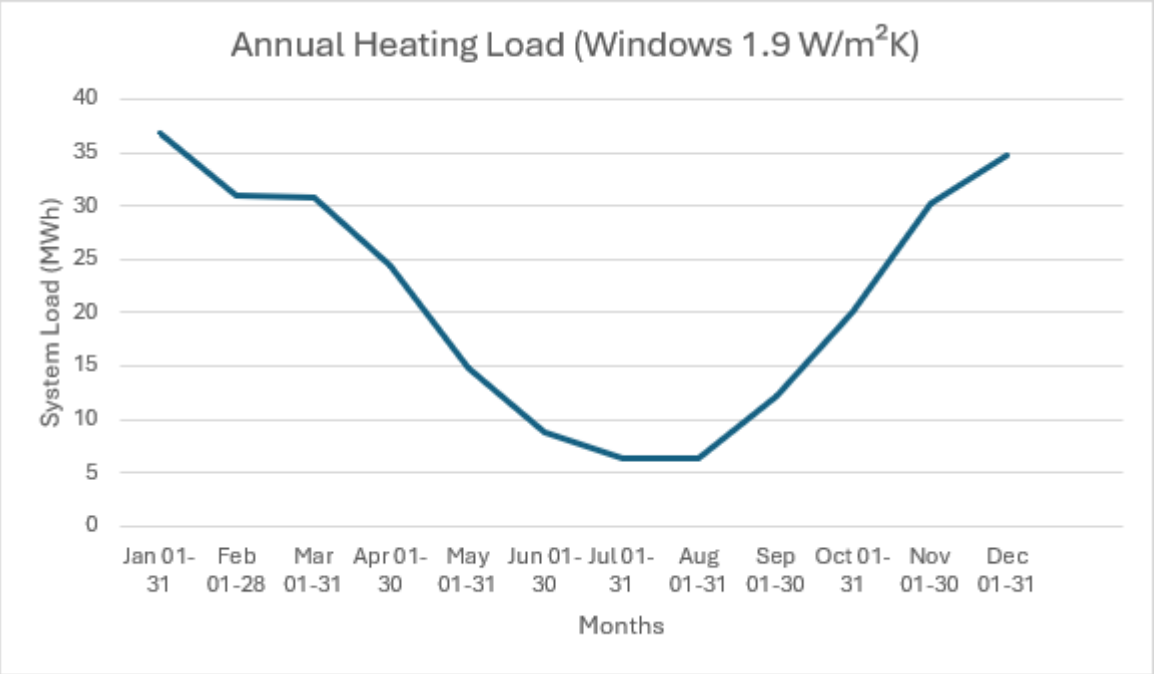
Table 2 -Existing Windows retained and refurbished with existing glazing Annual Load



Graph 1 – Showing Heat Load across the year for existing window glazing

Date	2342 - Templewood – 1.9 W/m²K
Jan 01-31	36.7783
Feb 01-28	30.9909
Mar 01-31	30.827
Apr 01-30	24.3103
May 01-31	14.7337
Jun 01-30	8.7954
Jul 01-31	6.4138
Aug 01-31	6.4105
Sep 01-30	12.2395
Oct 01-31	19.9978
Nov 01-30	30.1779
Dec 01-31	34.7002
Summed total	256.3754

Table 3 – Improved Heat loss and resulting Annual Load with glazing replaced with Histoglass



Graph 1 – Showing Heat Load across the year for replacement glazing

Using the Cabon Emission factor for Gas as a heat source, Table 4 shows the reduction is heating load and the corresponding reduction in Carbon emissions when replacing the glazing. Over a 15 year period close to 98kg of Carbon can be saved.

15 year heating load single glazed (kw.hr)	4305
16 year heating load histoglass (kw.hr)	3840
Reduction in Heating Lod (kw.hr)	465
Savings in CO2 (kg)	97.65

Table 4 – Showing saving of CO2 emissions over a 15 year period

The purpose of this report is to highlight the savings associated with heating the property if a Histoglass installation is approved. However there will also be a reduction in the overheating requirement and associated active cooling which should be a material consideration to the decision.

3. Conclusion

- The proposals include sensitive Histoglass to be installed.
- If approved the property will benefit from a reduction in energy loads and associated carbon emissions.
- Approximately 38kg of CO2 could be saved if the glazing is improved.
- The active cooling requirement would be reduced.