

Great Malvern's Creation Window The Conservation and Protection of a Medieval Treasure

Professor Sarah Brown FSA FRHistS

Director, The York Glaziers Trust



THE YORK GLAZIERS TRUST

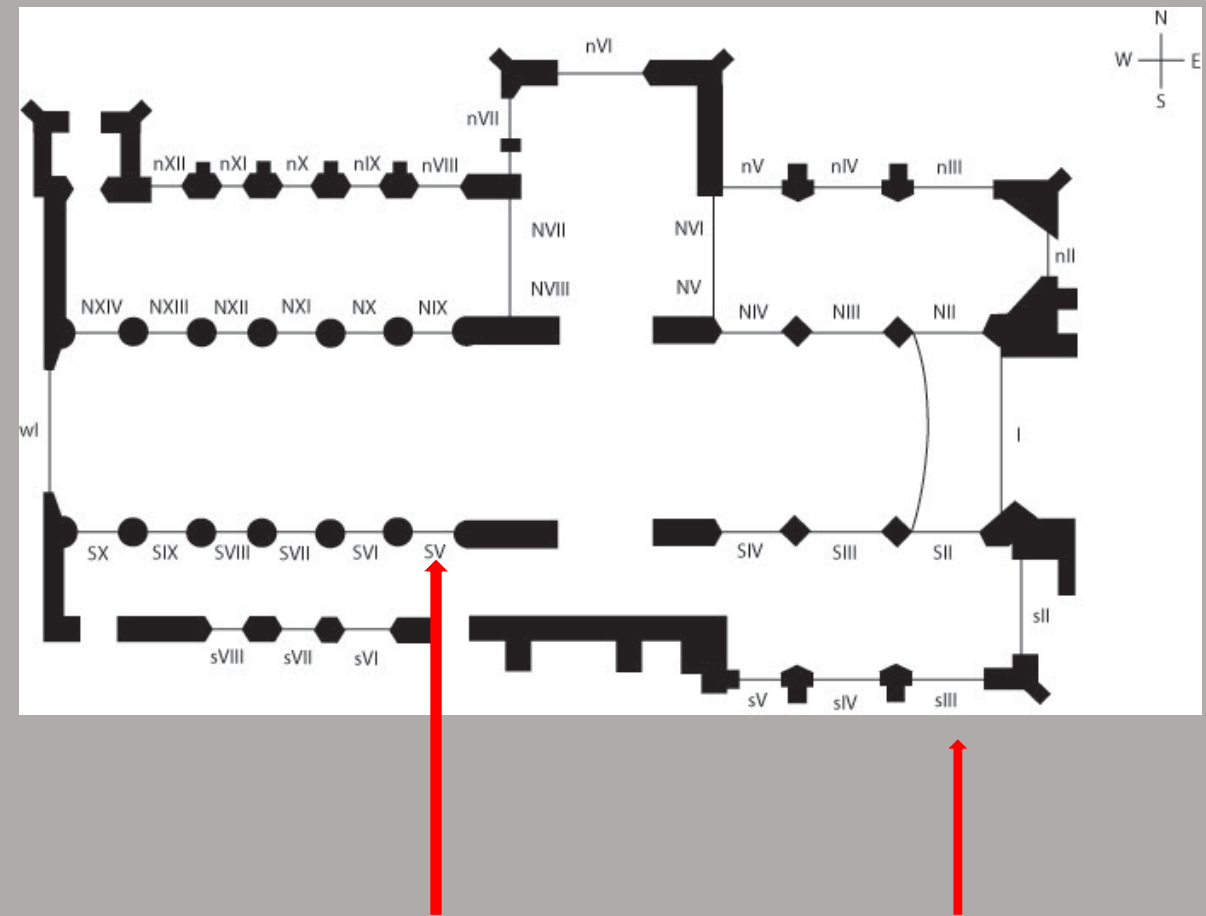
50 Years of Excellence in Stained Glass Craft and Conservation, 1967 - 2017



Stained Glass:
architectural
component
and work of
art

The most
significant
manifestation
of medieval
monumental
painting to
have survived
the
Reformation





The current location (slII) and original location (SV) of the Creation window

Key Dates Relevant to The Creation Window

- Priory Church rebuilt in the second half of the fifteenth century
- New altars consecrated 30 July 1460
- Church reglazed in the period c1430 and c1501
- Nave glazed in the 1480s with Old and New Testament subjects
- 1541 Parish buys the church of the dissolved priory from the Crown
- By 1780s: Glass damaged by stone-throwing and incursions of ivy
- 1812 - 'havoc' wrought by a local glazier, who moved glass around
- 1910 – 15 Major restoration by Kempe & Co. with input from scholar M.R. James
- 1936 Publication of landmark study by Gordon McNeil Rushforth
- 2008 Heather Gilderdale's Courtauld Institute PhD
- 2015 YGT undertakes a condition survey of the Priory windows
- November 2022 conservation/protection of the Creation Window to begin



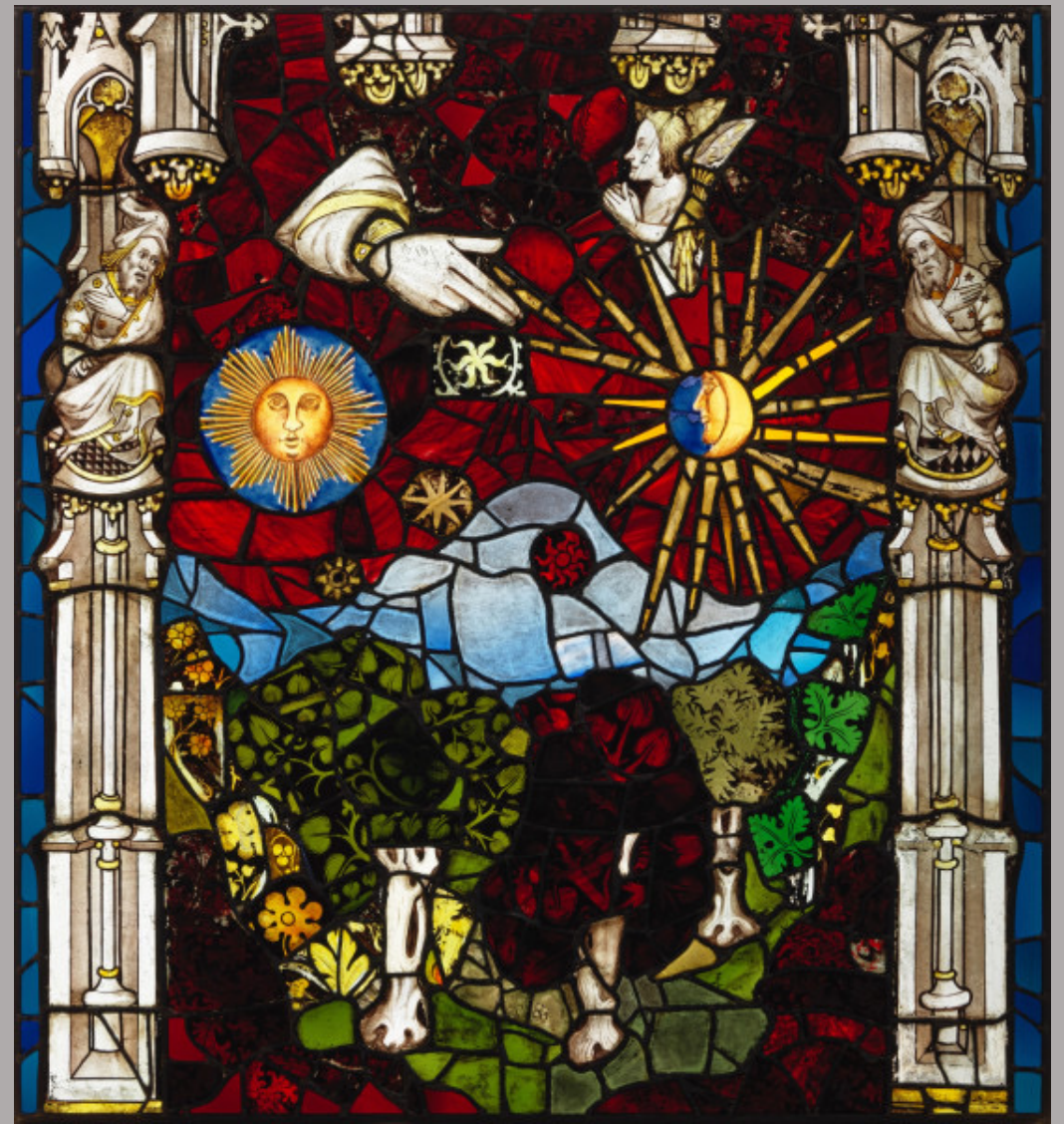
The First Day of Creation (Genesis 1)

In p(ri)ncipio ceravi[t
deus celum] &
terra(m)

(spelling error in the
Latin text!)

*(Great Malvern
compared to York
Minster)*





Fecit de(us) duo magna lumin[aria]

Creation of the sun, moon and stars



Drilled 'jewels' in surviving medieval leads

The impact of the Kempe restoration

Kempe approach to restoration: No new painted insertions to fill lacuna: plain glass infills allow new and old to be distinguished



St John the Baptist, Thaxted, Essex
Kempe restoration of 1900-1907





The influence of stained-glass scholar Charles Winston (1814-64).

It is permissible to replace missing medieval glass with a 'corresponding plain piece of coloured glass; or even perhaps to restore a portion of ornament, or other matter, where sufficient authority exists for the restoration; but in all other cases, it is safest to make up the deficiency with a piece of plain white glass, slightly dulled, or smeared over to subdue its brilliance' (*Archaeological Journal* 1844)

All Saints, North Moreton
(Oxfordshire), restored



Findings of the 2015 survey

Identifying problems and suggesting solutions



Serious glass corrosion on both
surfaces

Lichen growth on exterior





Lost and fragile paint surfaces





Cracked glass and
failure of past
repairs



Lost and oozing waterproofing





Visual evidence of widespread water ingress and settlement of moisture on the internal window surfaces – leaking and/or condensing moisture



Damp location despite southern prospect

Encroachment of hotel garden and its vegetation



COMMITTEE



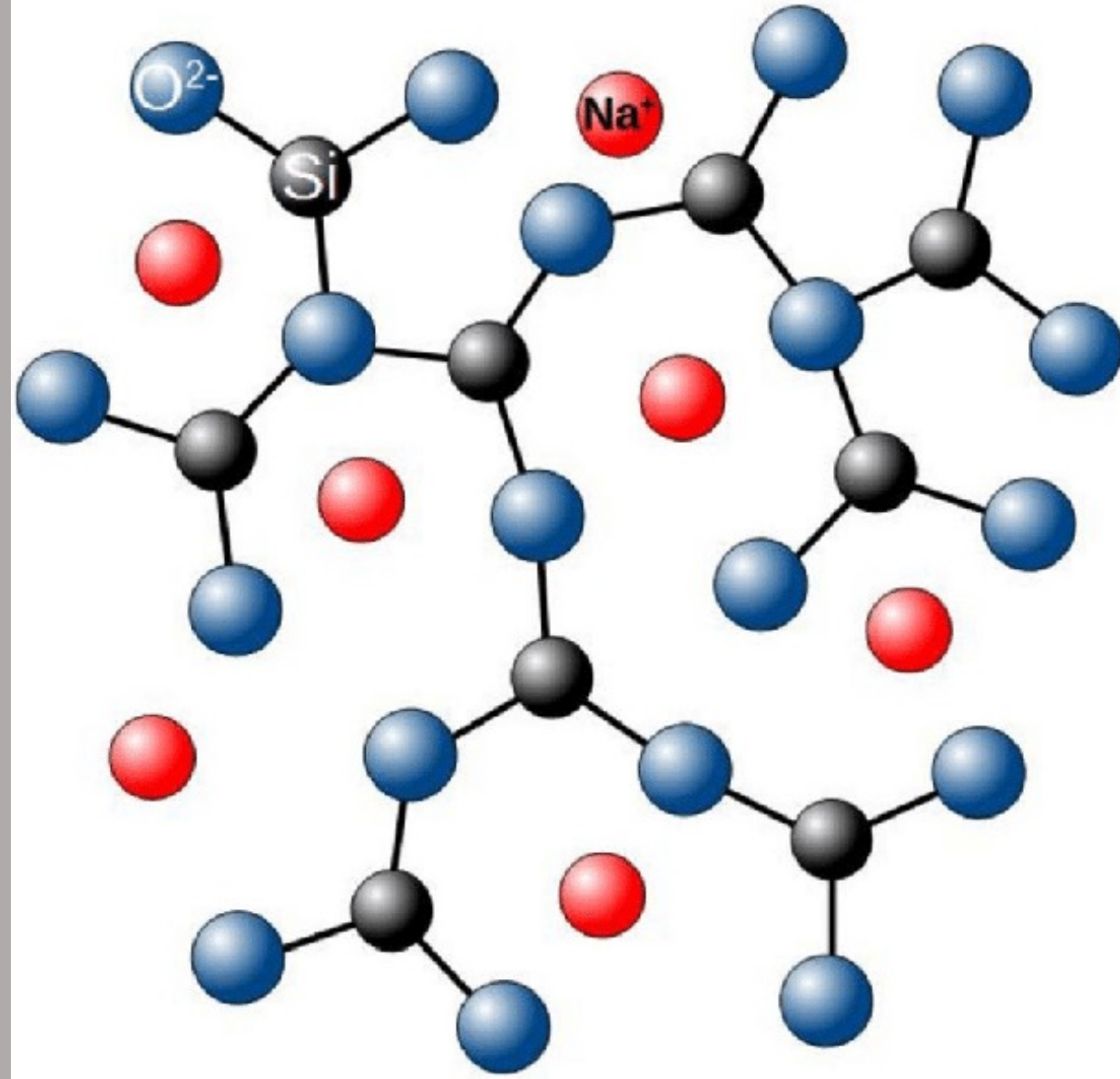
Condensing moisture on internal surfaces

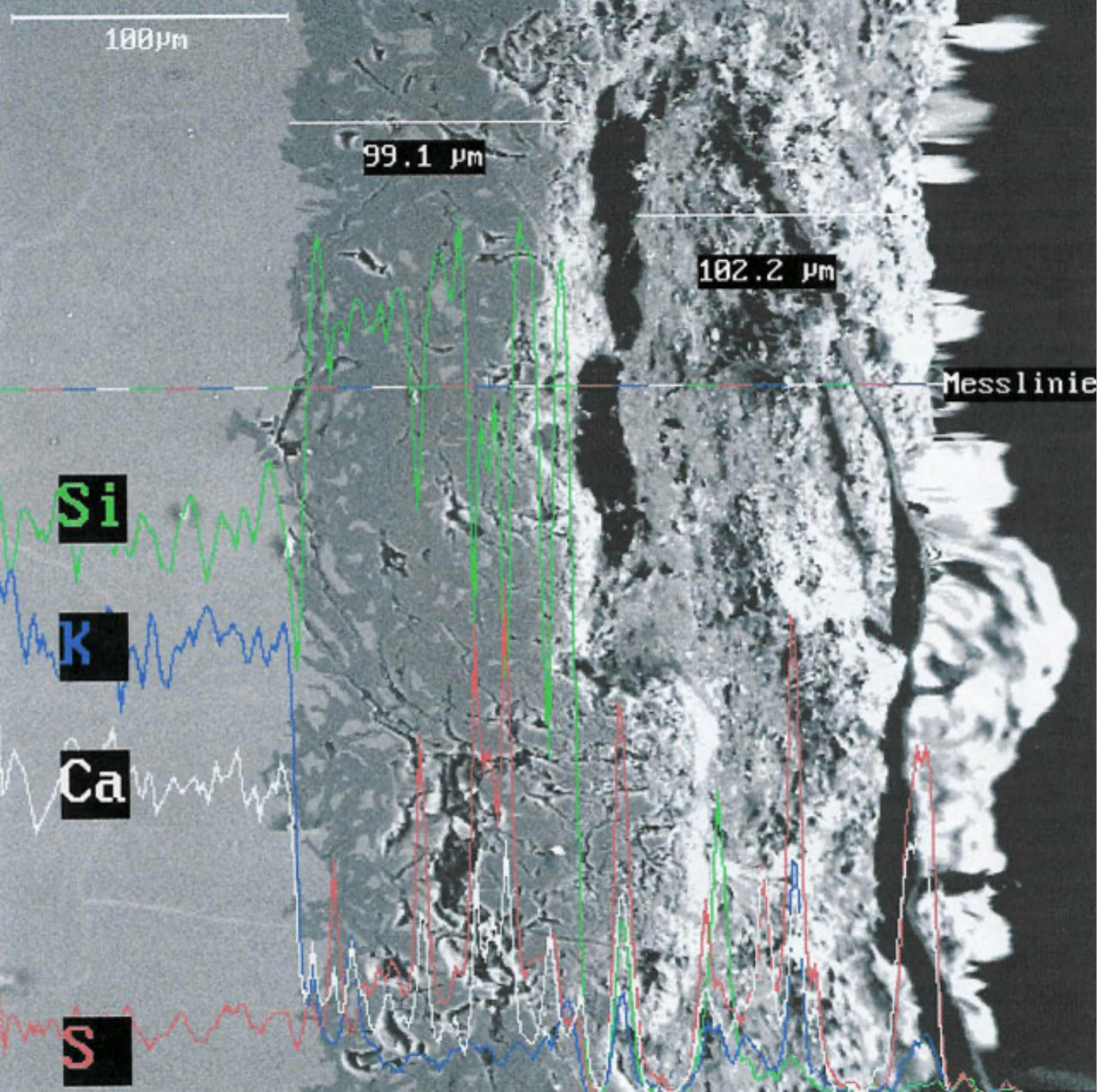
Left: Norbury, C14

Right: Skelton upon Ure, Yorks, 1870s

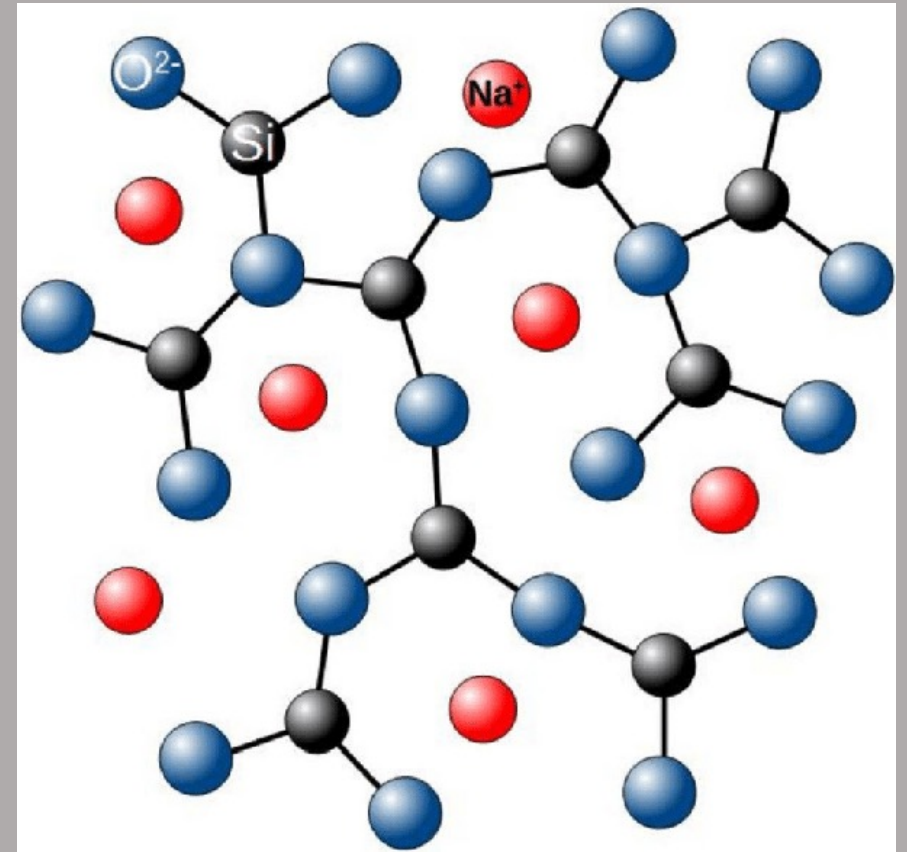


Silicate structures:
Quartz (left), Glass (right)





SEM Cross-section through glass surface showing harder silica-rich 'gel layer' riven with micro cracks that admit moisture

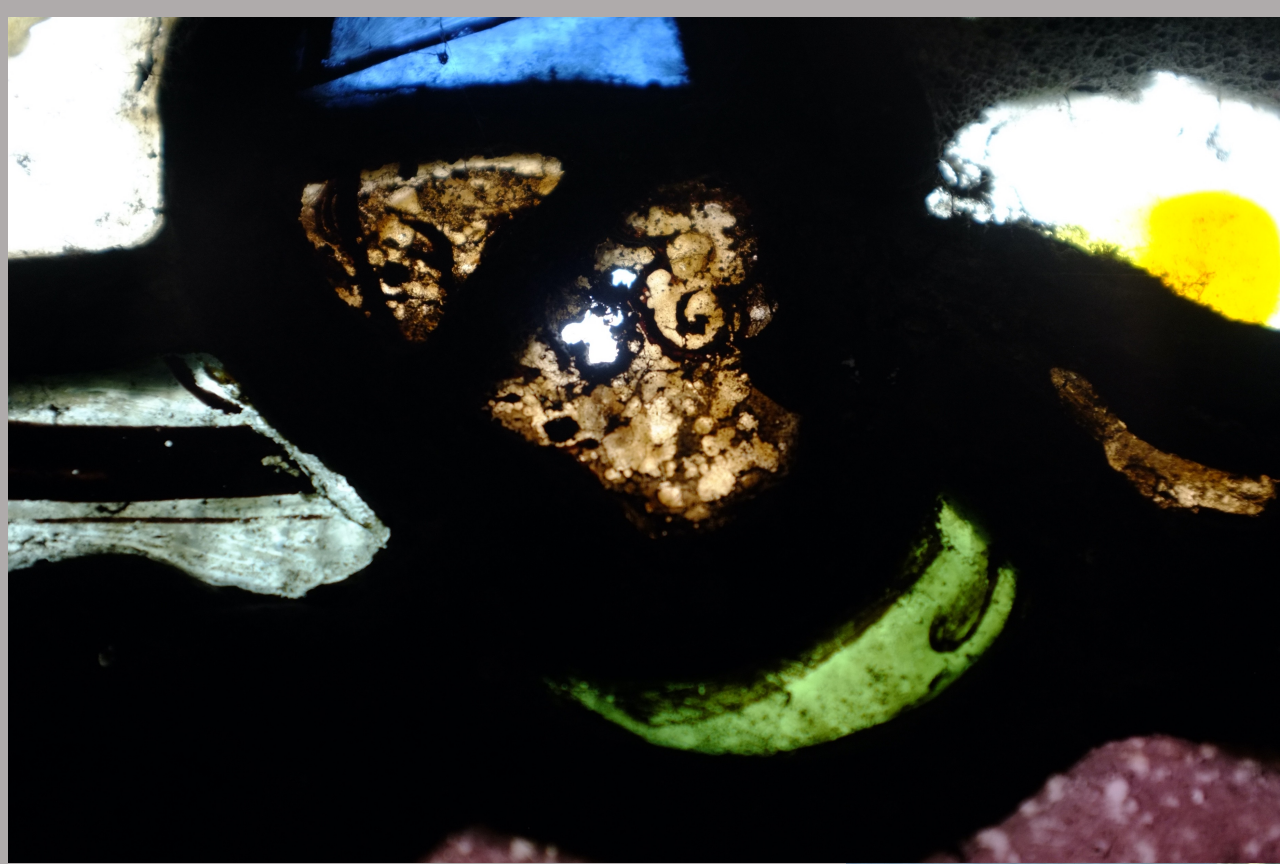




Glass Composition affects response to moisture attack:

Merton College, Old Library: LW ell exterior, showing heavy corrosion of early C14 red and blue glasses





Coalescing pits eventually
create holes (York Minster,
north nave aisle)



Corrosion of flashed ruby glass changes the colour palette

Paint loss reduces legibility and undermines historic, artistic and aesthetic value of the window

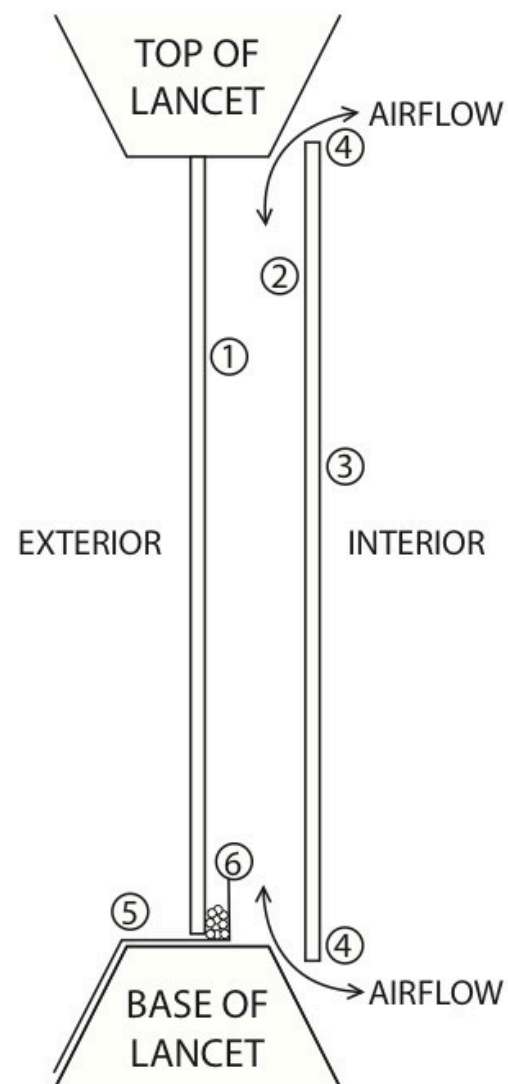
The installation of a protective glazing system is a crucial part of the preventive conservation of architectural stained glass, which is vulnerable to both mechanical and environmental damage. The principal aims of a protective glazing system are to relieve the stained glass of its function as a weather shield, to protect it against mechanical and atmospheric damage, and to prevent condensation on the surface of the stained glass.

Every window installation is unique, and therefore the design of its protective glazing must take into account the particular preservation needs of the stained glass and its architectural setting, as well as the physical and aesthetic impact on the building.

Corpus Vitrearum, International Guidelines for the Conservation and Restoration of Stained Glass, Article 3.2.1
(Nuremburg 2004)

PROTECTIVE GLAZING PRINCIPLES

INTERIOR VENTILATION SYSTEM



- ① Inner face of protective glazing.
Any condensation will form on this surface
- ② Outer face of stained glass.
This surface remains free of moisture due to constant airflow, maintaining an even temperature with the inner face of glass
- ③ Inner face of stained glass.
This surface remains free of moisture and at the temperature maintained within the building
- ④ The mounting of the stained glass with an equal space at the top and base of the lancet admits uninterrupted airflow from inside the building
- ⑤ A lead condensation tray at the sill will allow any condensation to run away to the exterior without damage to stone
- ⑥ Small-gauge gravel within the upstand of the lead tray allows moisture to run off but resists ingress of air from the exterior

NB: This illustration shows a common solution to an effective ventilated protective glazing system (often known as isothermal glazing). Variations in treatment and positioning of the glass and the technical details of fixing are possible, depending on the space available and the nature of the building. It is important to consider the need of each glazing scheme in context and on a case by case basis.



GREAT MALVERN PRIORY THE CREATION WINDOW sIII

PROPOSED ENVIRONMENTAL PROTECTIVE GLAZING POSITION

SEPTEMBER 2021



Not to scale

- ① Original stained glass set into a bronze frame with integral bronze support bars placed behind the stained glass
- ② Protective glazing panel made with lead and clear glass divided in line with pattern of support bars
- ③ Original glazing groove in a stone mullion. Protective glass is set here and weather-proofed with traditional lime mortar
- ④ Inner face of the mullion. Framed stained glass panels positioned here
- ⑤ Screw-fixing bracket to frame, providing a secure hold to the stone work
- ⑥ Bronze support bar (integral to frame)





Managing moisture – from interior to exterior





Merton College Old Library, exterior
ferramenta and introduction of protective
glazing



New College Chapel nV: outer glazing matched to patterns of the ferramenta – simple and cheap to make



Choice of glass – mouth- blown
or machine made?

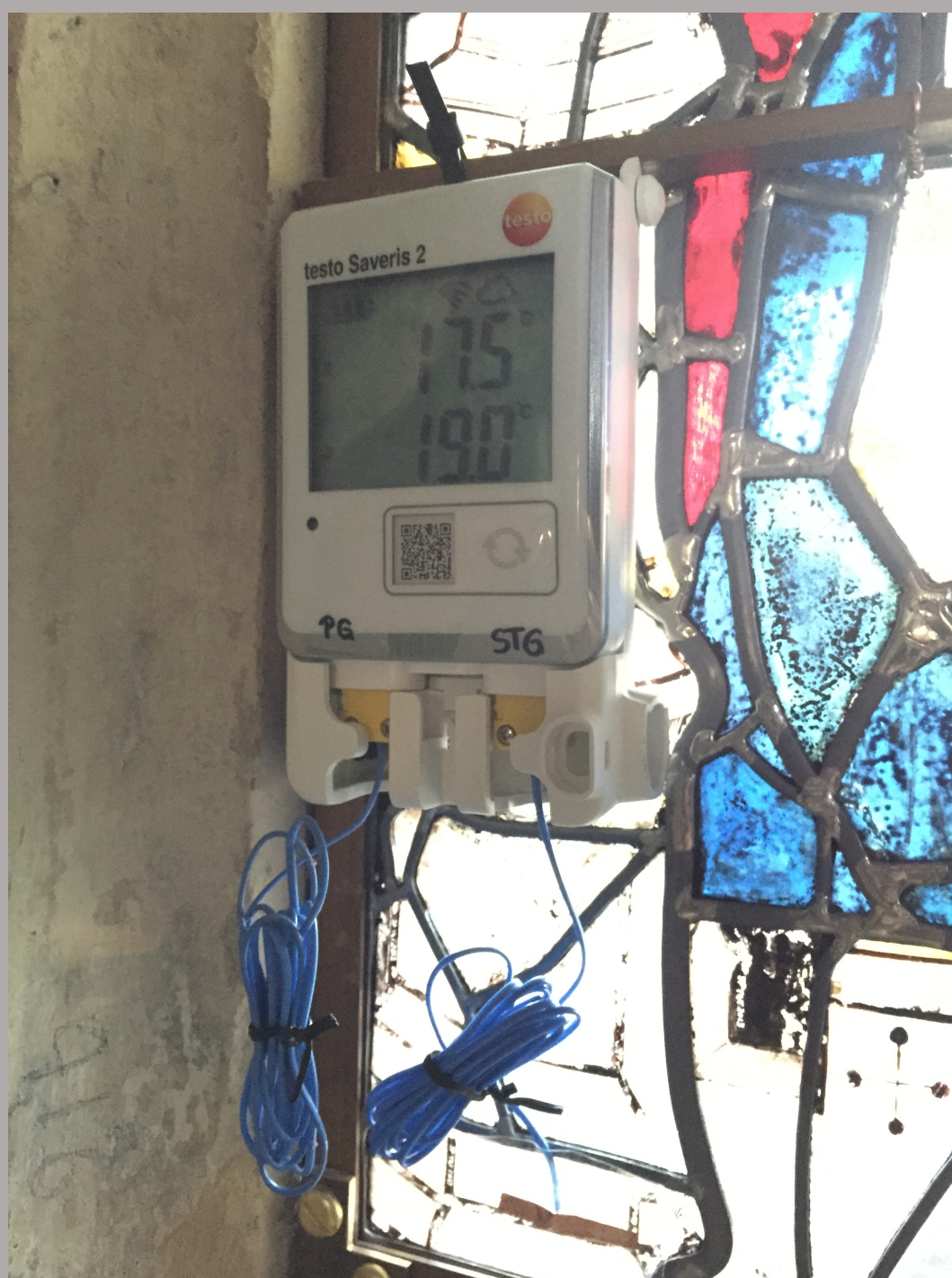


Production of Restauro glass at Lamberts Glasshouse, Waldsassen, Bavaria



A cheaper option:
kiln distorted
horticultural glass

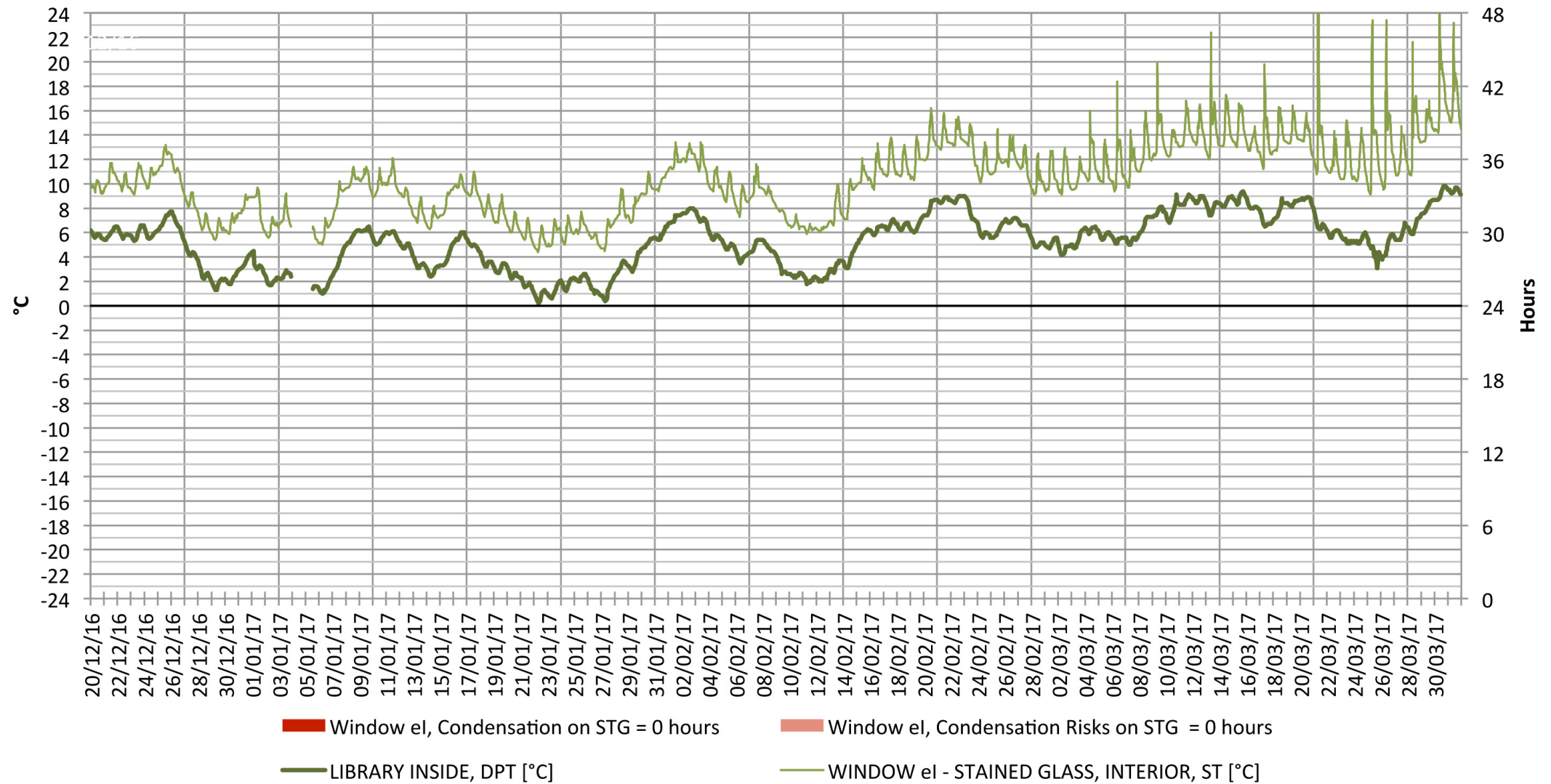
Recently installed
external glazing for
York Minster window
nII, 2013, with a
simplified leaded
pattern



The importance of monitoring the performance of a protective glazing system

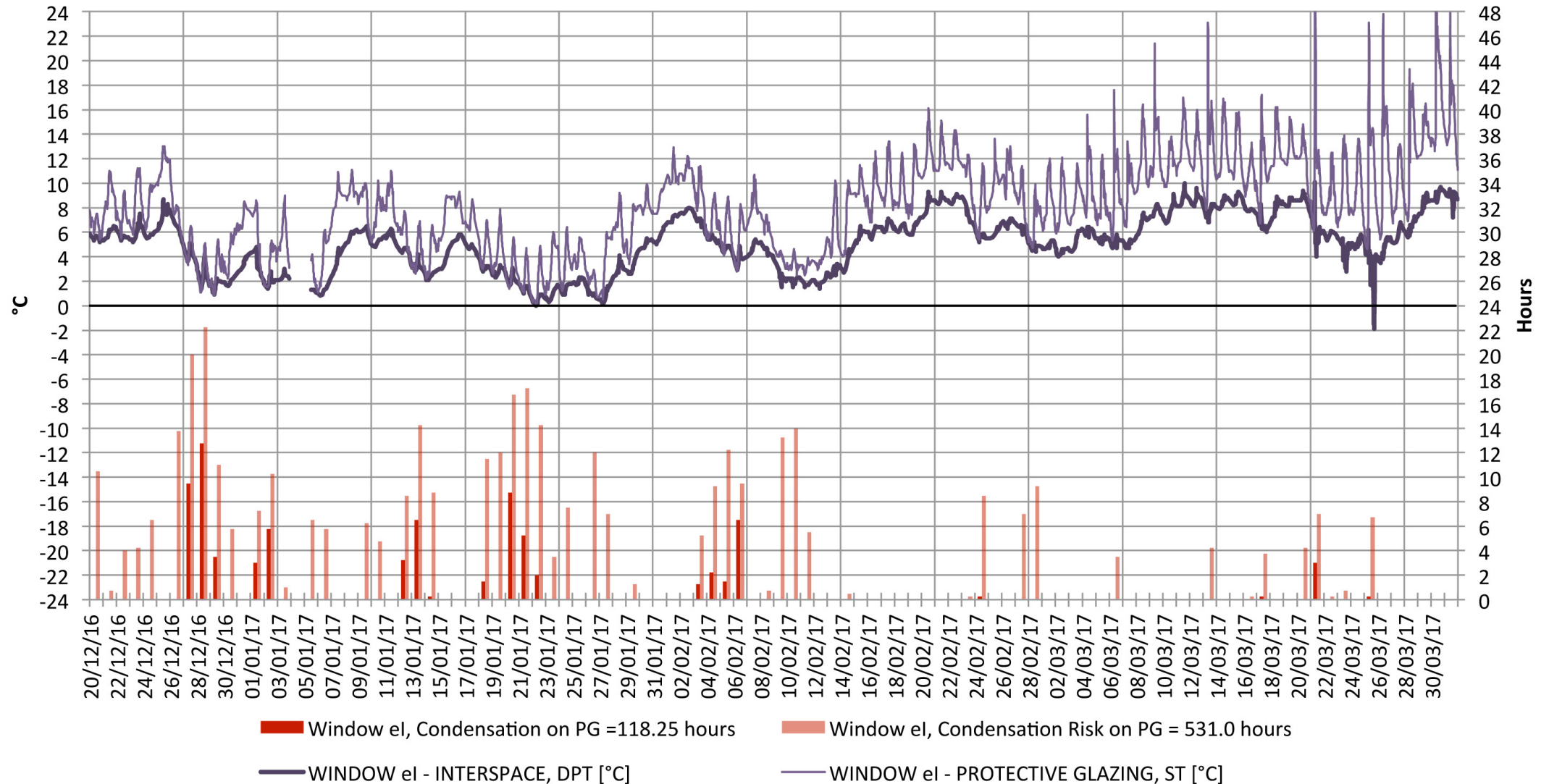
Oxford, Merton College, Old Library, Stained Glass - From 20/12/2016 To 31/03/2017

Window el, Stained Glass - Surface Temperature and Dew Point



Oxford, Merton College, Old Library, Stained Glass - From 20/12/2016 To 31/03/2017

Window el, Protective Glazing - Surface Temperature, Dew Point and Condensation



Acknowledgements:

Friends and Colleagues at the YGT, especially
Nick Teed and Nancy Georgi

Friends and Colleagues at Great Malvern,
especially Howard Wells, Katherine Little and
Anne Eglington

