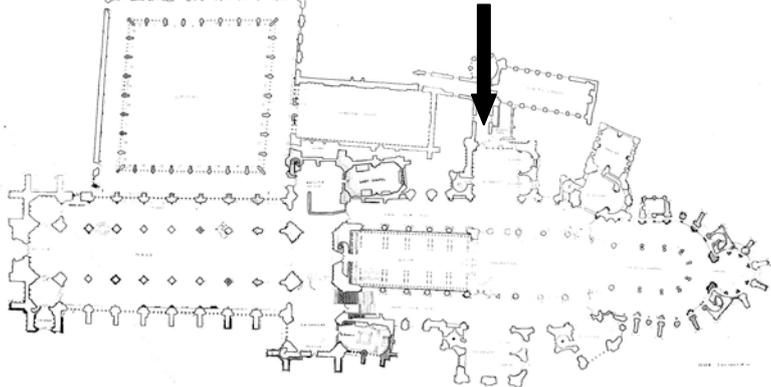
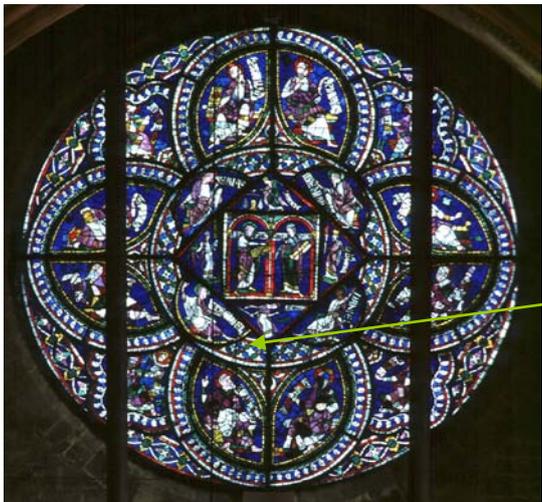


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Object: CAN NXVII C1	Date: 10/05/10
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OBJECT IDENTIFICATION	
Site	Canterbury, UK
Building	Canterbury Cathedral
Location and orientation of the window Plan of the building	
Description of the window opening (dimensions, number of lights; photo, test panel marked)	 <p>Oculus Diameter: 4.47m</p>

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Date	Probably before Easter 1180.
Short description of the window (identification of subject, artist, workshop)	The circular opening in the stonework is divided by an iron armature. The composition is controlled by a process of continuous halving, whereby all the circular forms are centred on fixed points in a system of squares within large circles. The iconography consists of Moses and Synagogue, the cardinal virtues and various prophets. The palette consists of purple, green and white on a blue background, with sparing use of red and yellow. The oculus had been conserved / restored at least three times in the past.
Owner	Canterbury Cathedral
Person(s) in charge	The Cathedral Studios, Canterbury
Investigated panel (inventory number CVMA number, size)	N XVII 3

Manufacturing technique	unpainted glazing	<input type="checkbox"/>	
	painted glazing	<input checked="" type="checkbox"/>	
		oxide paint / grisaille paint inside	<input checked="" type="checkbox"/>
		oxide paint / grisaille paint outside	<input checked="" type="checkbox"/>
		silver stain inside	<input type="checkbox"/>
		silver stain outside	<input type="checkbox"/>
		transparent enamel inside	<input type="checkbox"/>
		transparent enamel outside	<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

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	<i>Further information:</i>
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ENVIRONMENT IN SITU / IN STORAGE				
Protective glazing	no protective glazing		<input type="checkbox"/>	
	protective glazing		<input checked="" type="checkbox"/>	
		installed in the original position of the ancient panels		<input checked="" type="checkbox"/>
		mounted to the outside (ancient panels stay in their original position)		<input type="checkbox"/>
		no ventilation		<input type="checkbox"/>
		internal ventilation		<input type="checkbox"/>
		external ventilation		<input type="checkbox"/>
		size of interspace between ancient panel and protective glazing		10-20cm varying
		ventilation slot at the top (size)		Yes. Size unknown
		ventilation slot at the bottom (size)		Yes. Size unknown
		date of installation		1994

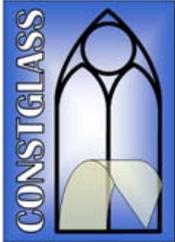
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Material protective glazing	3mm kiln-distorted, unpainted float glass, leaded to follow a simplified version of the original design.
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Surround materials and construction related materials	<p>Building material: stone and lime mortar. The protective glazing is fitted into the original iron ferramenta with iron saddle bars, using linseed oil putty. The stained glass panels are fitted in a steel sub-frame in front, cushioned by non-adhesive sealant tape (Filcris Ltd Norseal® single-sided sealant tape, Cambs, UK, www.filcris.co.uk) and held in by brass bars. The sub-frame has a wooden outer frame, wood unknown. This depth of the interspace between the protective glazing and the stained glass varies between 10 and 20cm because of the irregularity of the stonework and ferramenta.</p>
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Museal exposition / Storage	Room	<input type="checkbox"/>
	Cabinet	<input type="checkbox"/>
	Store	<input checked="" type="checkbox"/>
	<p>Since the panel was removed from the window it has been in storage in a glass tray protected with a sheet of Melinex® on top and has been stored in the Cathedral Studios strong room. This room has a relatively stable average RH of 60% with rare extremes of 45% up to 75%.</p>	

Objects exposed to	partial sunlight	<input type="checkbox"/>
	daylight, but no direct sunlight	<input checked="" type="checkbox"/>
	artificial warmlight	<input type="checkbox"/>
	artificial coldlight	<input type="checkbox"/>
	mixed warm-/coldlight	<input type="checkbox"/>

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	<i>Note: specify artificial light, if possible with product name.</i>
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Climate of the building

There is a radiator directly underneath this window which is on for approximately nine hours a day at 70°C. There is a condensation tray that is clear and in good working order, showing that condensed water can evacuate when necessary. No direct sunlight.

Information for whole of Trinity chapel:

	Minimum	Maximum	Average
Relative Humidity (%)	32.4	74	53.4
Air temperature (°C)	12.3	26.7	18.6

This data was collected over one year.

The climatic data are: air temperature (T [C°]) and relative humidity (RH [%])

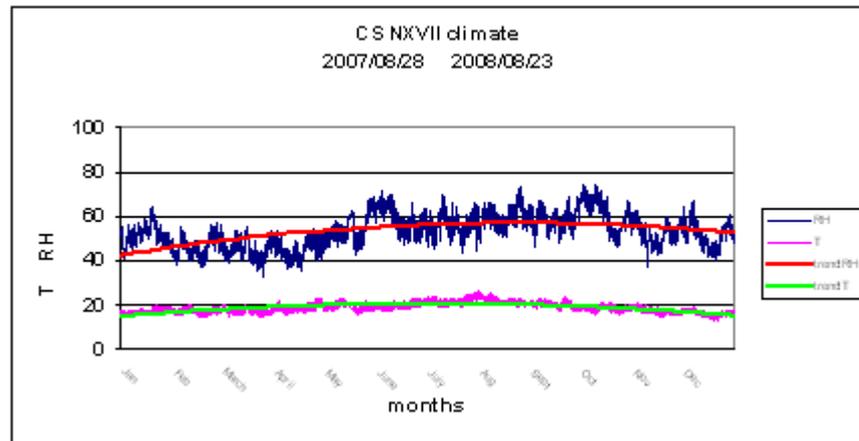


fig.1 CS NXVII climate

The plot shows that climatic conditions of the NXVII window are very stable through the whole year. Both T and RH levels are on the safe side and it seems that neither condensation nor wetness may occur.

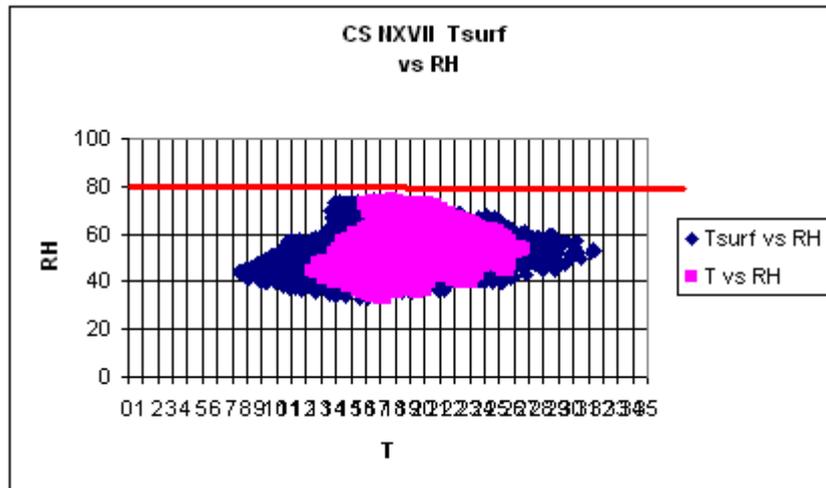


fig 2 CS NXVII climate: T vs. RH and Tsurf vs. RH

The graph depicted on fig. 2 visualizes the possibility of wetness of the glass occurring when $T > 0^{\circ}\text{C}$ and $\text{RH} > 80\%$. Two sets of data: T (air) vs. RH and T surf vs. RH were compared. The graph shows, that, although a range of temperatures is wider for surface a surface, RH never reaches 80%. Taking into account possible differences between RH of air and RH close to surface, the possible wetness may occur, when T lies within 13 - 21 $^{\circ}\text{C}$.

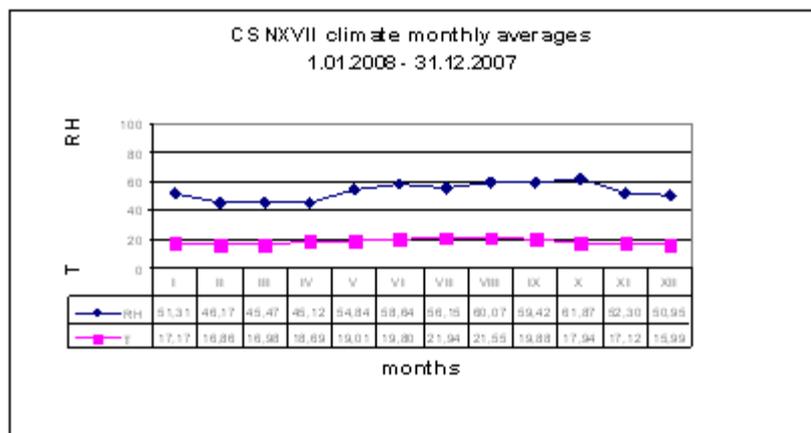


fig. 3. CS NXVII climate : monthly averages

The mean monthly values of T and RH confirm a good stability of NXVII window climate. The climate of window NXVII is quite stable and condition for stained glass windows are very good.

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	<i>Further information / observations: records of previously collected data, for example</i>
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INSPECTION OF THE SITE BEFORE REMOVAL (WITH PICTURES)

Requirements for a safe removal in respect of minimal intervention	Handling with gloves, the panel was kept upright at all times.
Environmental causes for damage	Since the protective glazing was installed in 1984 there has been no condensation on the historic glass, though dust has accumulated on the surface.
Short report of removal	Handling with gloves, the panel was carefully removed from the frame. The putty seal had to be removed with a knife.
Short report of transport	The panel was carried vertically back to the studio, where it was laid horizontally on a glass tray with Melinex® on top. It was stored in the Cathedral Studios' strong room. Handling with gloves, the panel was carefully removed from the frame. The putty seal had to be removed with a knife.

	CONSTGLASS 	
	Data sheet for pilot objects	

CONSERVATION MATERIAL

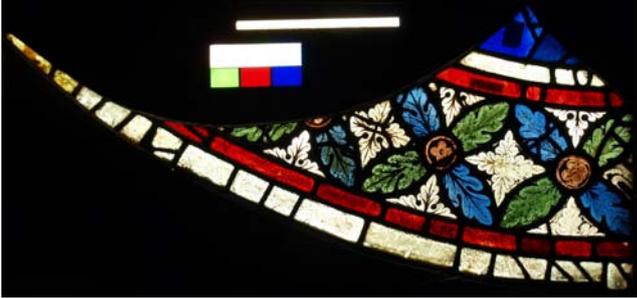
Conservation material (producer, product name, characterization, data, etc.)	SZA, Ormocer/Paraloid® B72 1/1 and Paraloid® B72.	
Purpose of use	consolidation of paint layer / paint pigments	<input checked="" type="checkbox"/>
	coating / lamination	<input type="checkbox"/>
	edge bonding	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
Application technique	application with brush	<input checked="" type="checkbox"/>
	application with spray	<input type="checkbox"/>
	single application of Paraloid® B72	yes
	repeated application SZA	X8
	repeated application Ormocer®	X2
	Concentration Paraloid® B72	7.5%
	mixing ratio Ormocer/Paraloid® B72	1/1
	
	
	<i>Further information :</i>	

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	Data sheet for pilot objects	

Date of application			
Documentation of this treatment	photographs (colour transparencies, b&w prints, colour prints, digital images)	<input checked="" type="checkbox"/>	
	written records	<input type="checkbox"/>	
	diagrams	<input checked="" type="checkbox"/>	
	data-files	<input type="checkbox"/>	
	<input type="checkbox"/>	
	<input type="checkbox"/>	
	<i>Further information:</i>		
Do you think this documentation is	exact	<input type="checkbox"/>	
	more or less reliable	<input checked="" type="checkbox"/>	
Previous restorations (data, treatments, material)	<ul style="list-style-type: none"> • Wax applied with a brush in dilution with white spirit. Application of wax early to mid-1980s in situ as temporary consolidant of severely flaking painted decoration. No cleaning was carried out prior to application of wax. The wax was not polished (unlike CAN nII 7). Window remained unprotected until 1992. • Re-treatment with SZA, Ormocer/Paraloid® B72 1/1 and Paraloid® B72. • Fractures bonded with Silicone Rhodia® CAF 3 in 1992 		
	Do you think the information is	exact	Yes
		more or less reliable	
		hearsay	<input type="checkbox"/>

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CONDITION REPORT / DOCUMENTATION IN THE WORKSHOP

Pictures of panel / glass in transmitted light	Light box 
Pictures of panel / glass in reflecting and raking light, internal and external surface	
Examination of the object (if possible with microscope)	Please see the attached conservation record.
Selected damages	Test applications of SZA, Ormocer/Paraloid® B72 1/1 and Paraloid® B72.

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	Data sheet for pilot objects	

<p>Selection and documentation of samples to be analysed</p> <p>Questions to the scientists</p>	
	<p>B1, G1, G4 and W2 consolidated with SZA B2, G2, and W1 consolidated with Ormorcer® and Paraloid® B72® B3 and G3 consolidated with Paraloid® B72</p>

RESPONSIBLE CONSERVATORS (name, phone, e-mail)	
Person 1	Grace Ayson 01227 865266 cathedralstudios@canterbury-cathedral.org
Person 2	Joy Bunclark 01227 865266 cathedralstudios@canterbury-cathedral.org
Person 3	Alison Eaton 01227 865266 cathedralstudios@canterbury-cathedral.org