



**CONSTGLASS**



Data sheet for pilot objects



**Object:** CAN NXVII C2, North East Transept

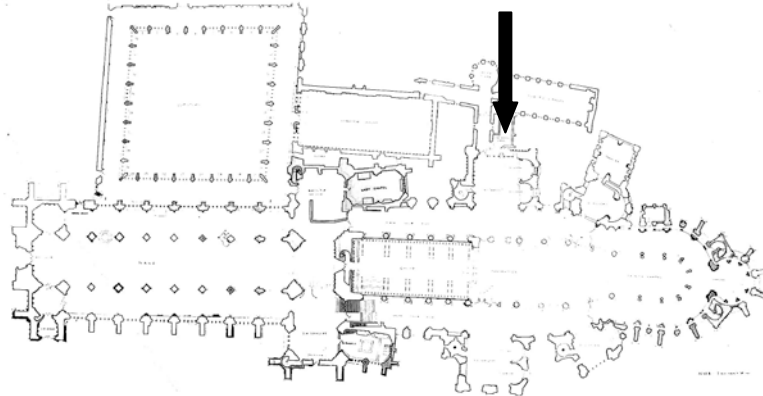
**Date:** 23/12/08

### 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)






North Oculus  
Diameter: 4.47m

Test panel




**Date**

Circa 1180

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<b>Short description of the window (identification of subject, artist, workshop)</b>	<p>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.</p> <p>The panel C2 depicts the seated figure of Ezechiel. The panel is made up of 12<sup>th</sup> century glass with some 19<sup>th</sup> century replacements.</p> <p>Text taken from: Caviness, M.H. (1981) <i>The Windows of Christ Church Cathedral Canterbury</i>, pp.25-26, CVMA Great Britain vol.II, Oxford University Press, London UK</p>
<b>Owner</b>	Canterbury Cathedral
<b>Person(s) in charge</b>	The Cathedral Studios
<b>Investigated panel (inventory number CVMA number, size)</b>	N XVII C2 820mm (h) x 430mm (w)




<b>Manufacturing technique</b>	unpainted glazing	<input type="checkbox"/>	
	painting 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"/>

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	.....	<input type="checkbox"/>
	<i>Further information:</i>	

### ENVIRONMENT IN SITU / IN STORAGE

<b>Protective glazing</b>	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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<b>Material protective glazing</b>	3mm kiln-distorted, unpainted float glass, leaded to follow a simplified version of the original design.
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<b>Surround materials and construction related materials</b>	<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, <a href="http://www.filcris.co.uk">www.filcris.co.uk</a>) 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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<b>Museal exposition / Storage</b>	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>	

<b>Objects exposed to</b>	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

Information for the North Oculus

	Minimum	Maximum	Average
Relative Humidity (%)	32.4	73.9	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 [%])

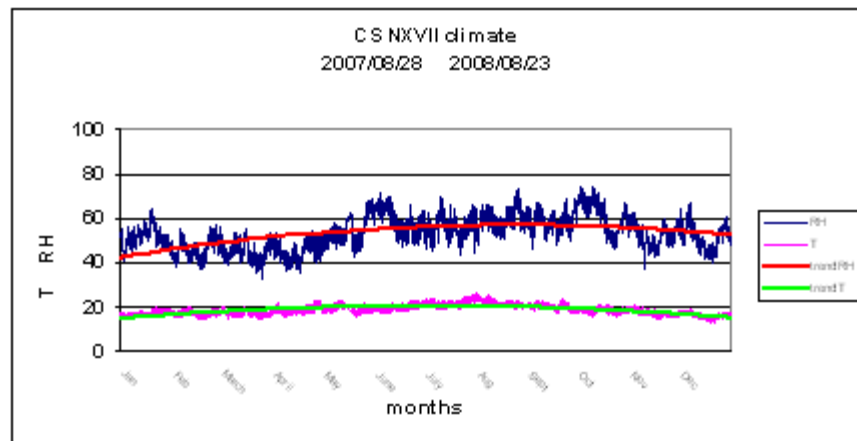


fig.1 CS NXVII climate

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.

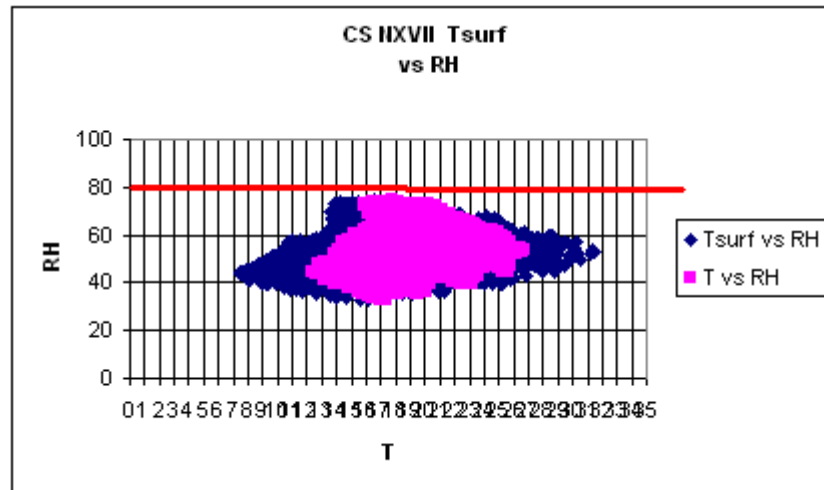


fig 2 CS NXVII climate: T vs. RH and Tsurf vs. RH

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  $^{\circ}\text{C}$ .

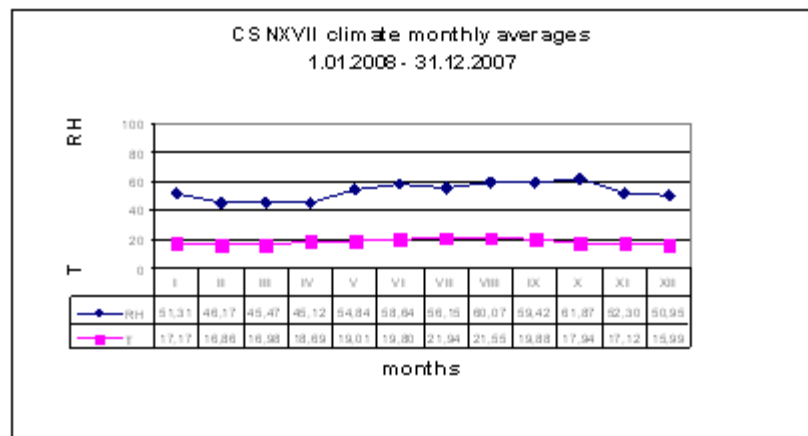






fig. 3. CS NXVII climate : monthly averages




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)	
<b>Requirements for a safe removal in respect of minimal intervention</b>	Handling with gloves, the panel was kept upright at all times.
<b>Environmental causes for damage</b>	Since the protective glazing was installed in 1994 there has been no condensation on the historic glass, though dust has accumulated on the surface.
<b>Short report of removal</b>	Handling with gloves, the panel was carefully removed from the frame. The putty seal had to be removed with a knife.  In situ.



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<b>Short report of transport</b>	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.
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<b>CONSERVATION MATERIAL</b>
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<b>Conservation material (producer, product name, characterization, data, etc.)</b>	Microcrystalline wax mixed with polythene 'A' wax diluted with white spirit.
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<b>Purpose of use</b>	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"/>

<b>Application technique</b>	application with brush	<input checked="" type="checkbox"/>
	application with spray	<input type="checkbox"/>
	single application	<input type="checkbox"/>
	repeated application	Unknown
	concentration	%
	mixing ratio	Unknown
	.....	
	.....	

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	<i>Further information :</i>		
<b>Date of application</b>	1994		
<b>Documentation of this treatment</b>	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"/>	
<b>Previous restorations (data, treatments, material)</b>	Please see attached Cathedral Studios Report for panel NXVII C2.		
	Do you think the information is	exact	<input type="checkbox"/>
		more or less reliable	<input checked="" type="checkbox"/>
	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**

Light box





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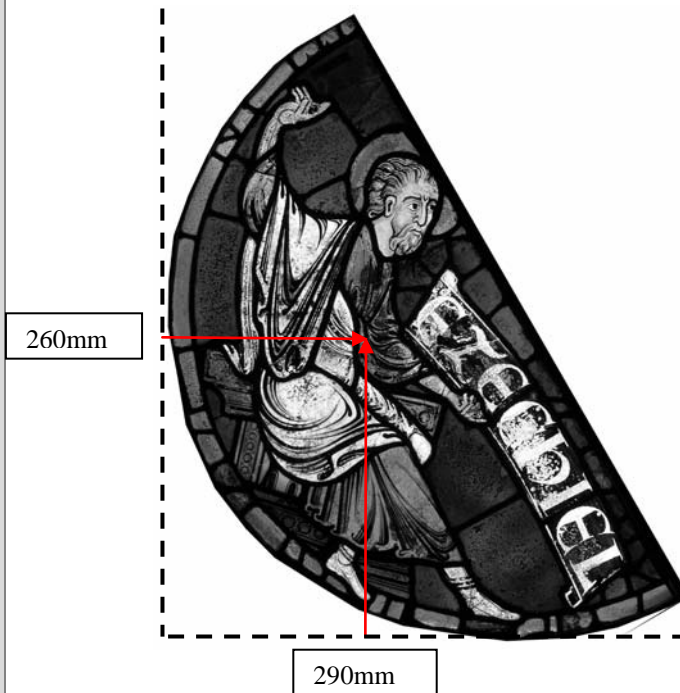


**Examination of the object  
(if possible with  
microscope)**




Please see attached conservation record.

**Selected damages**

**Selection and  
documentation of samples  
to be analysed**  
**Questions to the scientists**



Sample was taken from the area show by the arrows.  
Can this wax be identified?

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