

**Internal Joinery Repairs**  
**Outline Schedule of Works and Repair Methodology**  
Not for construction

ITEM	Description	Cost
<b>1.00</b>	<b>Introduction</b>	
1.01	<p>The Schedule of Works includes:</p> <p>Section 2.00 Preliminaries Section 3.00 Joinery Repairs: Ante-chapel and Organ Screen Section 4.00 Joinery Repairs: Quire Stalls, North Side Section 5.00 Joinery Repairs: Quire Stalls, South Side Section 6.00 Joinery Repairs: Side Chapel K Section 7.00 Cost Summary Section 8.00 The Rates Section 9.00 Outline Repair Methodology</p> <p>To be read in conjunction with:</p> <ul style="list-style-type: none"> <li>The QIR by Oliver Caroe (Oct 2018): pp 93-105.</li> <li>Drawings: <ul style="list-style-type: none"> <li>099 GA100 Organ Screen and Quire Joinery Repairs - Plan mark-up extracted from QIR</li> <li>099 903 Organ Screen and Quire Joinery Repairs - Quire Stalls Reference Diagram</li> </ul> </li> </ul>	
1.02	<p><u>Very</u> concise history and description.</p> <p>The Chapel is of <b>exceptional</b> significance. It was the major building of the College founded by King Henry VI who laid the first stone in 1446. Its building history, which was marked by long periods of inactivity, reflects a politically turbulent era around the War of the Roses. For this reason, the Chapel went through three phases of construction under four separate master masons, and was not completed until 1515. Subsequently the college Front Court developed to the South. The ensemble now comprises the C18th classical Gibbs building, the C19th Wilkins building and later C19 screen to Kings Parade, both in a gothic revival stylistic idiom.</p> <p>The quire stall joinery of Kings College Chapel is arguably one of the most significant assemblages of Jacobean craftsmanship anywhere in Europe and certainly within the UK. The joinery therefore is of the very highest significance. Although every inch of embellished carving is worthy of breath-taking admiration, this carved assemblage seems to form a backdrop to divine worship in the chapel and perhaps does not get the fullest attention that it deserves. The Chapel is a working space and inevitably it is subject to the rigours of such continued use.</p>	
<b>2.00</b>	<b>Preliminaries</b>	
2.01	The works will need to be co-ordinated with the College Calendar. The Contractor should stipulate their lead-in time with the tender return.	
2.02	The Contractor is to provide a programme of works with the tender return.	
2.03	<p>Working Hours: Monday to Friday: 8.30am to 4pm No noisy working audible at the site boundary is permitted on Sundays or bank holidays. Working hours may vary according to services and the Chapel diary. Standing time to be agreed.</p>	
2.04	Works are to pause for services and special events. Allow for a discussion with the Dean's Verger each Friday to understand the Chapel calendar for the coming week.	
2.05	Public Liability Insurance £5 million. All Risks Contract Insurance: min £ 500,000	
2.06	In accordance with the JCT Minor Works Building Contract 2016 (MW)	
2.07	Pre-construction information: To be provided by the CotW.	
2.08	It is expected the contract team will comply with the CDM Regulations 2015. Works commencement is subject to approval of the Construction Phase Plan and RAMS. These must acknowledge and incorporate the latest Site Operating Procedures issued by the Construction Leadership Council in relation to covid-19 and should be reviewed with the CA and CotW to ensure the current College protocols are not disrupted.	
2.09	Subject to COVID 19 safety measures and confirmation of associated COVID 19 RAMS, the Contractor may be allowed use of the on site WC and break-out facilities. These must be kept clean and tidy throughout.	
2.10	<p>Site Diary: Photographically record the works as they progress and submit records to the CA at the end of each week. Report on: Works undertaken Progress against programme Any queries arising. Works to be undertaken in the forthcoming week</p>	
	<b>Site Setup and Access</b>	
2.11	Allow for making a full digital photographic Record of the working area and adjacent fabric, to identify any existing damage or defects; to be taken and shared with the Contract Administrator prior to commencement of the Works	
2.12	Allow for a full digital photographic Record of the same areas at completion of the Works and shared with the Contract Administrator. See below in relation to preparing a conservation report at the project close.	
2.13	Manage the site safely throughout. Vehicular access through the site is restricted; deliveries must be through the Porter's Lodge. Note the traffic restrictions on King's Parade which will require all deliveries to be completed before 09.30. The Contractor must plan for deliveries, general access to the works, security and storage in consultation with the College. There is no contractor parking on site for this project.	
2.14	The Conservator will be allowed to use the existing water and electrical supplies so long as they are not overloaded. Check the position and capacity of the service supplies. Welfare facilities in the chapel can be used by contractor and there are adjacent WCs.	
2.15	The Chapel will be open to the public. Enclose the working areas locally with barrier protection as required to prevent entry of unauthorised persons. Materials and equipment to be stored within the barrier.	

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	<b>Protections</b>	
2.16	Allow for temporary protections to adjacent fabric where there is risk of damage by works, or access provision, to complete the repairs. Remove all on completion.	
2.17	Dust management is paramount. Containment measures must be employed around any works which may contribute the production of dust or its spread through the Chapel building.	
	<b>Access</b>	
2.18	Access requirements are to be allowed for within the relevant item costs.	
	<b>Conservation approach to tendering</b>	
2.19	The following schedule identifies a range of prioritised works. There is a long term need for a major conservation programme to the historic joinery - but there are also some urgent tasks to be addressed now AND we want to use this initial phase of work to inform thinking and methods for the longer term. Not all the activities listed here will be instructed; but tenderers are asked to price for each and then we will review with the preferred specialist and agree the initial scope.	
	<b>Consents</b>	
2.20	A 'list B' or Faculty approval will be required for these works. The method statement from the preferred bidder will be included in the consent submission. There will be time in the programme for this consent once bids are received.	
	<b>Conservation in Action and Reporting.</b>	
2.21	The Chapel will be open to the public during the work. The contractor will prepare some simple explanatory information to inform the public of the activity underway with some illustrations. Responding to reasonable queries from the public is expected.	
2.22	At the close of the project a completion report will be prepared in accordance with CBC conservation report guidelines. This report will document all the treatments, materials and methods used. The report will also include recommendations for further works, estimated costs and recommendations for further investigations.	

			<b>Total Preliminaries</b>
<b>QIR Page</b>	<b>QIR Priority</b>	<b>3.00</b>	<b>Joinery Repairs: Ante-chapel and Organ Screen</b>
93	B	3.01	west elevation - Bay 3 (edge numbered sequentially north to south): Re-fix loose wainscot capping to north of side of the bay.
93	E	3.02	Ante-chapel and organ screen, west elevation - central Portal, north side: Remove redundant fixing hook at head of frieze above capital in central portal, north side.
95	A	3.03	Screen central doors: Secure iron strap and loose door handle to south side door. Repair split in the upper pierced panel on the meeting stile side on the rear of this door.
95	C	3.04	Screen Passage: Investigate movement of central panel to the east of screen passage to ascertain if whether there is a structural issue. Provide report and recommendations.
		3.05	Collect 2no salvaged fragments which have previously fallen from the screen and re-fix to original locations.
		3.06	Conduct careful review of the screens and joinery to identify any further components which might be loose and need to be re-secured.
		3.07	Include a provisional sum of £1,000 for the re-fixing loose components following the above review.
			<b>£1,000</b>
			<b>Total Joinery Repairs: Ante-Chapel and Organ Screen</b>
		<b>4.00</b>	<b>Joinery Repairs: Quire Stalls, North Side</b>
			<b>High Stalls</b>
99		4.01	Bay NC, stall 3: Repair split running through the centre of the cartouche and urn, zone A.
99		4.02	Bay NC, stall 5: Repair break in the arch head. Include provisional sum for replacement of the lost finial.
100		4.03	Bay ND, stall 3: Repair split on the west side of the cartouche.
100		4.04	Bay ND, stall 4: Reinstate lost section at the apex of the arch at the head which appears to have been repaired before and fallen off again.
100		4.05	Bay ND, Cartouche 6: Repair break on the east side, just beneath the flourish under the Angel's tail.
100		4.06	Bay ND, stall 8: Repair break in the stile on the east side.
100	B	4.07	Bay ND, Quire Stalls: Investigate movement in the column shaft between bays six and seven. Remove string/tape from this column shaft to the column in Quire stalls sector NC.
100	B	4.08	Bay ND, Quire Stalls: Check unfixd canopy above quire stall 10 and re-secure. Investigate slipped panel above stall 9 and secure if required.
100		4.09	The great armorial panels, north side: Panel D which has a crack about 300mm up, which runs through, just beneath the armorial surround. Around this, there is worm damage and there appear to be some crystals on the face which may be some past treatment method coming to the surface. Review and provide recommendations.
100		4.10	Bay ND, Lower zone of the stalls and misericords, stall 2: Polish in where sign has been removed from the back panel.
100		4.11	Bay ND, Lower zone of the quire stalls and misericords: Remove chewing gum from beneath the misericord of stall 10.
100		4.12	Bay ND, Lower zone of the quire stalls and misericords: Inspect and re-secure floorboards as required.
101		4.13	Bay NE, Quire Stalls: Repair the central split in the cartouche above stall 6.
101	B	4.14	Capitals of the support in the arcade, zone D: Investigate loose/unfixd armorial panels which bridge between two stall bays, to determine whether they are adequately secure. Provide report/recommendations.

			<b>Low Stalls and Choir Benches</b>	
102	C	4.15	Bay NE, Lower Quire Stalls: There is a large and wide split in the floor of the easternmost of the north side lower stalls underneath the misericords. Make assessment on whether split can be stabilised or repaired; submit recommendations.	
		4.16	Bay NE, Lower Quire Stalls: Repair damaged veneer behind easternmost seat.	
102	D	4.17	Bays NC and ND, Choir 1, north side: Repair deep radial splits in the book board of Choir 1 at its easternmost end, and the further splitting along the length of this section. Locations as shown on the drawing.	
		4.18	Bay NE, Choir 2: Repair split in baluster. Location shown on the drawing.	
102	C	4.19	Generally, Lower Quire Stalls and Choir 1: Re-fix loose balusters.	
102	D	4.20	Generally, Lower Quire Stalls: Remedy less severe instances of stiff, stuck or noisy misericords by lubricating hinges. Repair more severe instances where sticking of the hinged elements are due to deformation of the shape of the stalls themselves.	
102	C	4.21	Generally, Choir 2 front stalls: Inspect fixings to choir 2 front stalls; identify those which are loose and tighten to improve rigidity.	
		4.22	Conduct careful review of the north side Quire Stalls to identify any further components which might be loose and need to be re-secured.	
		4.23	Include a provisional sum of £1,000 for the re-fixing loose components following the above review.	£1,000
			<b>Total Joinery Repairs: Quire Stalls, North Side</b>	
		<b>5.00</b>	<b>Joinery Repairs: Quire Stalls, South Side</b>	
			<b>High Stalls</b>	
103	E	5.01	Bay WO, Stall 4, Provost Stall: Consider re-carving missing angel on northern post.	
103	B	5.02	Bay WO, Stall 4, Provost Stall: Secure handrail, possibly at bottom newel.	
103	E	5.03	Bay WO: Record damage to crown surmounting armorial cartouche over Provost stall and consider repair	
103	E	5.04	Bay WO: Consider reinstating the missing elements from the spandrel carving behind the Provost stall.	
103	B	5.05	Bay WO: Carefully ease or lubricate stiff misericords in two of the stalls in this bay.	
103		5.06	Bay WO: Repair break in the seat of stall 1.	
104	D	5.07	Bay WO: Reinstating loss to cornice in the corner.	
104	D	5.08	Bay SN: Replace or reinstate missing section from stall divider at column 5 which currently allows the column to rotate.	
104	C	5.09	Bay SN: Repair split in plain panel below and to the west of Panel B.	
104	C	5.10	Bay SN: Stabilise splits in plinth panels beneath panel D.	
104		5.11	Bay SN: Repair large wide split in the plain panel beneath carved Panel E in stall 9.	
104	E	5.12	Bay SN: Improve fixing of 'King's College Only' sign.	
104	B	5.13	Bay SM: Re-secure raised riser in the President's stall and repair and secure supporting colonette behind female sculpture.	
104		5.14	Bay SM: Repair split through the cartouche of stall 9.	
105		5.15	Bay SM: the great armorial panels, south side: Repair large split to the left side of stall 2.	
105	B	5.16	Bay SM: Remove electrical fixture if redundant and Screw down loose floorboards in stall 2	
105	B	5.17	Bay SM: Repair loose male sculpture on priest's stall.	
105	B	5.18	Bay SL: Re-secure columns between bays 7 and 8.	
105	D	5.19	Bay SL: Attend to jammed misericord in stall 6.	
105	E	5.20	Bay SL: Affix sign currently attached with blue tac.	
			<b>Low Stalls and Choir Benches</b>	
		5.21	Bay SM, Lower Quire Stalls: Secure lip to low stall console which has warped and is pulling away.	
		5.22	Bay SM, Lower Quire Stalls: Repair damage to decorative panel behind western stall; location shown on the drawing.	
		5.23	Bay SL, Lower Quire Stalls: Repair broken hinge on stall. Location shown on the drawing.	
		5.24	Bay SL, Lower Quire Stalls: Repair damaged balustrade. Location shown on the drawing.	
102	C	5.25	Generally, Lower Quire Stalls and Choir 1: Re-fix loose balusters.	
102	D	5.26	Generally, Lower Quire Stalls and Choir 1: Remedy less severe instances of stiff, stuck or noisy misericords by lubricating hinges. Repair more severe instances where sticking of the hinged elements are due to deformation of the shape of the stalls themselves.	
102	C	5.27	Generally, Choir 2 front stalls: Inspect fixings to choir 2 front stalls; identify those which are loose and tighten to improve rigidity.	
		5.28	Conduct careful review of the south side Quire Stalls to identify any further components which might be loose and need to be re-secured.	
		5.29	Include a provisional sum of £1,000 for the re-fixing loose components following the above review.	£1,000
			<b>Total Joinery Repairs: Quire Stalls, South Side</b>	
		<b>6.00</b>	<b>Side Chapel K</b>	
117	B	6.01	Stabilise head of spandrel by securing fixings at side, memorial chapel K	
			<b>Total Side Chapel K</b>	

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<b>7.00</b>	<b>COST SUMMARY</b>	
Section 2.00	Preliminaries	
Section 3.00	Joinery Repairs: Ante-chapel and Organ Screen	
Section 4.00	Joinery Repairs: Quire Stalls, North Side	
Section 5.00	Joinery Repairs: Quire Stalls, South Side	
Section 6.00	Side Chapel K	
	Contingency @20%	
<b>7.01</b>		<b>TOTAL</b>
<b>7.02</b>		<b>State here assumed contract duration</b>
<b>7.03</b>		<b>State here anticipated lead-in time</b>

<b>8.00</b>	<b>The Rates</b>	
8.01	OHP % on provisional sums/instructions.	%
8.02	OHP % on materials and plant.	%
	<b>Labour (fully absorbed cost rates/hr).</b>	<b>rates/hr</b>
8.03	Senior Conservator	
8.04	Conservator	
8.05	Assistant	
8.06	Other (please specify):	

<b>9.00</b>	<b>Outline Repair Methodology based on information provided by Bainbridge Conservation Ltd.</b>	
9.01	All would be subject to site samples and trials.	
9.02	<p>Examples of proposed treatments</p> <p>The treatments for consolidation and stabilisation would be standard and current conservation practice. Friable areas would be consolidated using thermoplastic resins in appropriate polar solvents, chosen to ensure appropriate penetration and mitigation of reverse migration of consolidant on the surface. The most likely candidates would be Paraloid B-72 and Polyvinyl Butyral 30,000 molecular weight, in repeated applications in slowly increasing concentrations. Blends of denatured ethanol, acetone or slower evaporating butanol would be used as the solvent to achieve the optimal working properties. Timber to timber repairs would be achieved using a high bloomgram hide glue.</p>	
9.03	<p>Loss replacements</p> <p>It is understood that the goal for these treatments, after essential stabilisation, is to reduce the visual impact of losses and to achieve a good visual solution to the shrinkage cracks. For replacement of (mostly carved) losses, the main principle would be to carve the replacement to fit the loss, to preserve as much of the original material and surface as possible: Unsightly 'cutting' in of new timber would not be appropriate. In all cases a good stock of slow grown, well-seasoned quarter-sawn oak would be used. There may be circumstances where a barrier layer / bulked epoxy may be required to achieve an effective adhesion between the original surface and the replacement, but in all cases the bulk of the replacement would be timber.</p> <p>There is nuance to the treatment of the gaps in panels. In the best case scenario, we would be able to re-join panels where the gap is along a glue line, and allowing the panel to move freely in the frame. As we know that putting a hardwood fill in a frame and panel shrinkage crack is liable to 'reload' the compression set, we would look at options of introducing a soft wood fill. We've had success in the past using balsa wood fills for non-structural loss replacement in panels. This is not to say that a hardwood fill would never be appropriate, but we would take each loss on its own merit to provide an aesthetically and structurally acceptable solution.</p>	
9.04	<p>Lubrication of the stiff hinges</p> <p>This will require some testing and further investigation. There may be some movement in the structure that we can take advantage of, and we can see if the introduction of a lubricant (wax or something else), may resolve the issues. We would want to avoid major structural intervention, but we acknowledge that the stiffness is an issue and that excessive force used to move them will inevitably cause damage in the future.</p>	