



Stonyhurst College

Arundel, Bay and Square Libraries

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Job No: 7553

Date: August 2009



CONDITION SURVEY

CONTENTS

- 1.0 Brief and confirmation of instructions**
- 2.0 Executive Summary** - summary and recommendations
- 3.0 Date of survey and record of weather conditions**
- 4.0 Limitations**
- 5.0 Property Address**
- 6.0 Listed Building Control**
- 7.0 Description of Property**
- 8.0 External Survey**
 - Roof
 - External stone walls and window surrounds
 - Metal Windows
- 9.0 Internal Survey**
 - Ceiling
 - Walls
 - Internal Joinery
 - Internal Decoration
 - Internal Environment

Brief and confirmation of instructions

- 1.1 This report has been compiled in response to a request from Stonyhurst College for Cassidy + Ashton to carry out a full internal and external survey of the Arundel, Bay and Square Libraries to establish the current condition and determine the building defects.
- 1.2 Following the survey, a report of the findings, the diagnosis and the recommended remedial work is to be submitted to the College. It is intended that the information supplied in the report will be used as a basis for a proposed forthcoming refurbishment scheme of the Arundel Bay and Square Library.

2.0 Executive Summary - summary and recommendations

- 2.1 The Arundel Bay and Square Library has suffered over the years from water ingress and rain penetration caused by defective steel windows and poor mortar pointing to walls.
- 2.2 The internal plasterwork is hollow in localised areas and various patches of efflorescence and flaking paint are evident internally.
- 2.3 There are signs of condensation and mould growth around window openings.
- 2.4 Generally the decorative finishes and internal environment such as lighting and heating are tired looking and are in need of restoration/improvement.
- 2.5 Dehumidification units are recommended to reduce humidity levels. The lighting levels are poor and the provision of new lighting is recommended.
- 2.6 The main body of the report highlights these problems in more detail and identifies each defect, the damage that has occurred, and what is needed to put it right. The table below summarises the remedial measures recommended in the report along with budget costings:

3.0 Date of survey and record of weather conditions

- 3.1 The survey was carried out on Tuesday 8th of July 2009. The weather was a mixture of partly cloudy and sunny.

4.0 Limitations

4.1 General

This report is for the private and confidential use of the client for whom the report is undertaken and should not be reproduced in whole or in part or relied upon by third parties for any use without the express written authority of Cassidy + Ashton.

Although costs for the recommended remedial works are supplied in the executive summary of this report, it should be noted that these costs are estimates, and are presented to the client as a guide only to be used as reference when assessing the future maintenance and refurbishment requirements for the Libraries.

In accordance with the parameters of the instruction no exposure works have been carried to the substructure or superstructure or tests carried out on any materials.

Where appropriate, further investigations or consultations with other bodies and specialists have been recommended.

With regard to service installation, incoming mains etc, we have reported on matters, appropriate to the subject of the report, which come to light during our inspection as requiring further investigation by specialists, but we have not arranged for tests to be carried out ourselves.

4.2 Access restrictions

Where relevant, the inspection limitations and access issues are discussed within each element in the main body of the report. However, the following gives a summary of these limitations:

1. No access was gained into any part of the roof.
2. Close inspections of any areas above 3m was not possible. These areas were inspected with the aid of binoculars.
3. Inspection of timber, plaster and walls behind paneling and benches and any other fixed items was not possible.
4. Access to inspect the floor structure was not possible.

5.0 Property Address

Stonyhurst College
Stonyhurst
Clitheroe
Lancashire
BB7 9PZ

6.0 Listed Building Control

- 6.1 We have been informed by Ribble Valley Borough Council's conservation officer that the Arundel, Bay and Square Libraries are Grade 1 listed.
- 6.2 This means that controls apply to all works, both external and internal, that would affect the buildings special interest whether or not the particular feature concerned is specifically mentioned in the list description. Listed building consent is not normally required for repairs, but where repairs involve alterations which would affect the character of the listed building, consent is required.

7.0 Description of Property

- 7.1 The property is built in ashlar stone under slate roofs. The Libraries are situated on the first floor and are accessed from the staircase landing. Directly above the Libraries on the second floor is bedroom accommodation.

8.0 EXTERNAL SURVEY

8.1 Roof

Based on the evidence obtained from the internal inspection of the Arundel Library it is evident that rain penetration and water ingress has occurred via the bay roof structure. It is recommended that the defective lead roll roof above the bay window is replaced.

8.1.1 Access

Access was not available to the roof on the day of the inspection. However as the pitched and flat roof coverings were replaced relatively recently we recommend that the lead gutters to the back of the parapets are checked and cleared of any debris.

8.1.2 Rain Water goods

The rain water pipe on the North East elevation appears to be cast iron and is in relatively good condition. Some sections are showing signs of localised rust, in particular the hopper heads.

It is recommended that the pipes and hoppers be cleaned down and de-rusted, then re-painted with an appropriate paint specification. It is preferred that the hoppers are re-fixed away from the face of the wall to reduce the rusting effect on the back face of the hopper as the hoppers are susceptible to accelerated rusting due to them abutting the stone surface. If this is not practical, a suitable moisture resisting barrier should be sandwiched between the back face of the hopper and the wall surface. During the course of the down pipe remedial work, it is recommended that all brackets and fixings be closer inspected for decay and replaced or repaired as applicable if required. The lead spitters from the gutter should discharge into the hopper.

8.2 External stone walls and window surrounds

The external walls are built in Ashlar stone and are approximately 750mm thick. The Ashlar stone is an exterior skin against what would appear to be random stone all of solid construction. The stone projecting string course at high level runs around the building above which is a roof parapet built in Ashlar stone capped with a moulded stone coping. Dirt deposits and mould have built up over the years but generally the walls surfaces are in good condition with no signs of decay or spalling.

The elevations are punctured with windows with stone flat arches. The windows consist of splayed moulded stone jambs with stone cills and head, divided by stone mullions and transoms into separate lights.

The ashlar stone walls are generally well preserved with no evidence of movement.

There appears to be some disintegration of the lime mortar in various locations. It is likely that the open joints have led to some water penetration which will have contributed to the deterioration of the internal plaster and paint finishes.

The defective areas of pointing should be cut out to a minimum depth of 25mm. Any areas where the mortar has disintegrated to such a large extent that the joints are largely empty should be deep tamped and if necessary grouted to fill the joint to the required depth ready for re-pointing. Raking out of the friable mortar should be achieved using a knife blade or bent spike. The prepared face should be thoroughly cleaned and flushed out with clean water prior to filling the joint.

While still damp the joint is to be filled with a suitable lime mortar (mix to be agreed) thoroughly compacted and ironed in with a pointing iron keeping the mortar face back within the original joint width.

Windows W1 to W4

The windows consist of splayed moulded stone jambs with stone cills and head, divided by stone mullions and transoms into six separate lights.

The steel window lights have corroded and as the steel rusts it expands and exerts considerable pressure on the stone jambs, mullions and transoms causing them to spall. These should be repaired by carefully cutting the defective stone back to the window line and indenting a new section to the face.

Full stones would normally be bedded in a sand, lime cement mortar and will incorporate suitable non ferrous metal fixings where required. Small indents could be placed in polyester grout/resin.

Window W5

The large window to the Bay Library projects beyond the face of the stone wall and is separated into 2 large panels and comprises of splayed moulded stone jambs with stone cills and head, divided by stone mullions and transoms into sixteen separate lights. There is a parapet and small flat roof area above the bay.

From visual inspection at ground level and internally it would appear that the steel windows have recently been replaced and stone repairs have been undertaken to a number of stone transoms and mullions.

However, there is evidence of distortion/movement to the stone jambs transoms and mullions which could be due to the lack of lateral restraint.

We recommend the following: undertake a dimensional survey of the existing structure and produce numbered drawings of the existing together with sections to facilitate the subsequent re-building work.

Initially compile a schedule of condition which identifies existing visible defects in the masonry. Progressively dismantle existing masonry by firstly cutting out existing joints and beds and carefully separating the stone units using hand tools assisted by the use

of appropriate lifting equipment. Existing steel windows should be stored for reuse. Clean joints and beds of residual mortar and number stones in accordance with working drawings. Existing cramps and other masonry fixings are to be removed as work proceeds. Uplift from the store and return masonry units to work area for rebuilding in proper sequence. At 450 centres drill holes through the full thickness of the masonry 150mm from back of mullion (preferably at a bed joint) and into back of mullion, clean out all dust from the prepared hole. Hand pump a suitable grout to fill the hole and prior to set insert a stainless steel dowel. Remove expelled material and on final set, make good hole in restoration mortar.

Incorporate 7mm stainless steel dowels secured with cementitious grout or polyester resin. At junction between bottom and top of stone mullion and cill and transom to depth of 30mm.

Lateral Restraint

Consideration should be given to providing a lateral restraint tie at the mid point of the window.

8.3 Windows

8.3.1 W1-W4

The steel window lights are showing signs of corrosion and should be replaced to prevent further deterioration to the stonework surrounds. We would recommend that all windows on this elevation be checked and replaced as necessary.

9.0 INTERNAL SURVEY

9.1 Ceiling

The ornate plaster ceilings are generally in good condition. There is evidence of localised cracking however the movement is only minor.

9.2 Walls

The perimeter stone walls to the libraries plastered with a paint finish. The perimeter is fitted with fixed timber book shelving.

9.2.1 Plaster Finish

The plaster finish around the windows W1–W5 and the bay to the Arundel Library is suffering from water penetration to the window heads and reveals. A tap test (hollow when tapped) revealed that areas of plaster have become detached from the wall. We were unable to carry out the test above 3m without use of a scaffold tower. It is likely that this loss of adhesion has been caused by rain penetration through the external walls, window surrounds and roof described earlier.

9.2.2 Structural Movement

There is evidence of slight structural movement – diagonal/vertical cracking was noted in the plaster work to internal elevations above windows W1-W4. This movement is not thought to be progressive.

9.2.3 Other significant defects

Other significant defects were noted as follows to Internal Elevations:

- Water staining at high level at the junction of the ceiling and wall in the Bay/Square library. Caused by water ingress
- Localised areas of loose and flaking paint work. Causes – efflorescence (salt contamination from backing) and penetrating dampness.
- Undulations in plasterwork.

Given the condition of the wall plaster we would recommend whole sale replacement to the worse effected areas around the windows. However this should only be undertaken once all external defects causing water ingress have been rectified. The replacement of plaster behind the book shelving will necessitate their removal and re-fixing on completion.

Following removal of wall plaster it is important that the wall be left to dry out for as long as possible. All dust, efflorescence, and any organic growth should be thoroughly removed by bristle brushing and treatment with a biocide. Hollows and depressions should be dubbed out. Before plastering the background must be dampened to reduce and control suction and joints should be raked out to form a key.

For re-plastering three coat work is recommended using lime plaster in a suitable mix. Hair was often incorporated into the mix as a reinforcing material.

9.3 Internal Joinery

The joinery items in the libraries include:

- Doors
- Architraves
- Linings
- Skirting
- Book shelving
- Wall paneling

There are currently no significant or major defects present. However, due to the position of the book shelving against the wall, it was not possible to inspect behind to ascertain the condition of the timbers in contact with the outside wall.

It is recommended that the fixed book shelving be re fixed to the wall using suitable fixings at the correct depth into the wall. Also, additional fixings should be incorporated along the length to give additional anchorage.

Prior to re-fixing the book shelving following re-plastering work to the wall, provision for adequate ventilation at the back should be employed to reduce any risk of damp contamination or rot from contact with the outside wall. The newly plastered wall should be treated with a fungicidal solution prior to re fixing the book shelving.

9.4 Internal Decoration

9.4.1 Ceiling

The ornate ceiling appears to be good condition and would benefit from redecoration scheme. This may require consultation with English Heritage with regards to the best course of action.

9.4.2 Walls

As stated previously, it is recommended some walls be re-plastered. With this in mind, the walls should then be re-painted using an appropriate paint specification. All painted window reveals, jambs mullions, and mouldings should be stripped of all paint finishes and treated with an anti mould solution prior to repainting.

9.5 Internal Environment (The following M&E information was provided by J B ENVIRONMENTAL)

9.5.1 Mechanical

Having discussed the environmental conditions required within these spaces it was apparent that whilst the existing feature heating within the spaces is generally adequate to provide / maintain satisfactory temperatures, other than perhaps in the Archive / Strong Room, where the existing heat emitter needs to be taken out and 'flushed-thro' to allow heating circulation to perform in the area.

The main problem within the Library areas relates to high humidification levels. This can only be dealt with by the provision of wall / high-level mounted dehumidification units which will need to be strategically placed to ensure satisfactory movement of air thro' the spaces. It should also be pointed out that during the dehumidification process taking place small amounts of heat will be introduced into the space thereby topping-up any heating requirement at particular times.

9.5.2 Electrical

Lighting – the illumination levels throughout the various Library spaces are quite poor and a completely new lighting installation throughout will be necessary. The types of lighting to be utilized in the various areas can be identified as follows;

Arundel Library – a new up lighting scheme will be provided but because of the drop-off in efficiency from reflected light from the uneven ceiling this will need to be supplemented with both Table and Stand lamps as previously utilized within the Moor Library.

Square Library – the luminaries will be replaced on a point for point basis throughout including those under the walkway and on the balcony bookcases.

Bay Library – the existing luminaries within the main area will be replaced with a combined up & down lighting fitting. Lighting within the cubicle areas will be replaced with a more efficient type of fitting.

Archive / Strong Room – new lighting will be provided within this room.

Power – throughout the entire Library areas there is a deficiency in the provision of socket outlets for Student / Occupier usage with laptops and the like, and also for cleaning purpose and the provision of supplies required for the proposed dehumidifier units. A new distribution arrangement will have to be provided and new socket outlets provided throughout the various spaces to provide flexibility of use.