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Project Title: Condition Survey University Academy Long Sutton
Project No./ Ref.: 2563
Date of report: 27th November 2019

Condition Survey of External Curtain Walling University Academy Long Sutton

Introduction

This report has been prepared for the University Academy Long Sutton, following an inspection of the external curtain walling on the 20th November 2019. This report relates solely to the current condition (at the time of survey) of the external curtain walling (excluding the three storey block). The report is a visual inspection only and no elements of the fabric or structure have been exposed for the completion of the report.

Report Information

Property address:	University Academy Long Sutton 84 Little London Long Sutton Spalding Lincs. PE12 9LF
Client name:	University Academy Long Sutton
Date of inspection:	20th November 2019
Surveyor's name:	Leon M Delegate (Architect RIBA) on behalf of DT Architects
Other person present:	Site Agent on behalf of University Academy Long Sutton
Weather conditions:	Overcast, but fine.

Building Information

Occupancy status:	Occupied by school.
Type of property:	Educational
Year of construction:	1957 Extended 1966, 1972 & 2006

Type of construction:	Steel framed construction with brick/ curtain walling infill and a flat roof (believed to be felt finish).
Approx. floor area:	8248 m/sq. (permanent) 369 m/sq. (temporary)
Asbestos:	Present on site. Areas of external boarding on inspected areas marked as asbestos.

Existing External Curtain Walling Build-up

The existing external curtain walling makes up a large proportion of the external wall envelope.

A large proportion of the curtain walling is the original framing and glazing when the building was constructed. This type of curtain walling extends down to the finished floor/ DPC level. Above the window head is an exposed asbestos fascia board. The full height of the asbestos board is unknown, but the exposed height is approximately 100 – 125mm. A uPVC T&G fascia board is then provided above the asbestos boarding finishing with the guttering and roof edge detail. The curtain walling forms part of the structure of the envelope and has structural members incorporated into the mullions of the curtain walling framing:



Some of the existing curtain walling (mainly the areas which form part of the school frontage) have been renovated and redecorated, with infill aluminium panels provided to the low level panes:



Some areas of the original curtain walling have been replaced with uPVC frames with double glazed units:



A minimal amount of the original curtain walling has been replaced with PPC aluminium curtain walling:



Condition grades & Priority rating definitions

Condition grade	Definition
A Good	Performing as intended and operating efficiently
B Satisfactory	Performing as intended exhibiting minor deterioration
C Poor	Exhibiting major defects and/ or not operating as intended
D Bad	Life-expired and/ or at serious risk of imminent failure

Priority rating	Definition
Priority 1	Immediate or year 1 remedial action required
Priority 2	Year 1-2 remedial action required
Priority 3	Year 3-5 remedial action required

Original Timber Framed Curtain Walling

General condition:

The condition of the original timber framed curtain walling is extremely poor. The frames (particularly at cill level) are suffering with timber decay /rot. Some areas of the cill have completely broken away, leaving edges of the panes of glass exposed and some of the timber frames disconnected. The exposed timber is wet and has a soft, spongy feel, it can be easily pulled away (with fingers) from the main frame. The problem is common place in areas of all of the curtain walling, but especially affecting those areas of the more exposed elevations. Some lower glazed panes have an obscure film applied, which has deteriorated, discoloured and is flaking away.













Safety:

The lowest transom levels are at 800mm with the lower panes of glass being Georgian wire glass.



Thermal performance:

The original curtain walling is timber framed with single glazed window panes. The thermal quality of this outdated build up results in a very poor performance. The high U-Value will not be containing the heat during the heating season. Likewise, the expanse of glazing and no form of solar control provides heat gain in the summer months.

Air leakage: In a similar respect to the thermal performance, the outdated system performs poorly in terms of creating a well-sealed air tight form of construction. The decaying timber frame will be creating further areas of air gaps.

Condition & priority grading: *D1*

Renovated Original Timber Framed Curtain Walling

General condition: Some of the original timber framed curtain walling has been refurbished to some of the front facing elevation. In summary, the frame has been made good, filled and decorated. The lower panes of glazing have been infilled with insulation and faced in white PPC aluminium. Currently the system is in reasonable condition as a result of the renovation works.





Safety:

Transom levels are at 800mm with the lower openings being infilled with aluminium panels. Visually will appear to provide sufficient safety, but unable to confirm without knowing the full detail and fixing methods for these areas.

Thermal performance:

The original curtain walling is timber framed with single glazed window panes. The thermal quality of this outdated build up results in a very poor performance. The high U-Value will not be containing the heat during the heating season. Likewise, the expanse of glazing and no form of solar control provides heat gain in the summer months.
The lower opening are replaced with insulation and aluminium panels, which will have improved the thermal qualities to these lower areas only.

Air leakage: In a similar respect to the thermal performance, the outdated system performs poorly in terms of creating a well-sealed air tight form of construction. The refurbishment will have helped to seal/ close gaps.

Condition & priority grading: *C2*

Replacement uPVC Frames

General condition: Some of the original curtain walling has been replaced with uPVC (white) frames with double glazed units. Visually, the frames and units appear to be in reasonable condition. However, upon closer inspection, some of these units are bending in places and with an applied (reasonable) amount of force, the units suffer from a degree of movement.





Safety:	Transom levels are at 800mm with the lower openings being infilled with uPVC flat sandwich panels. The original frames had integrated structural members (assumed to take loadings of the area of external walling above the system). The loading ability of these replacement frames is unknown, but the movement and bending of the system requires for this to be further investigated by a suitably qualified person to confirm the safety of the installed system.
Thermal performance:	The replacement uPVC system will be higher performing than the original system, as a result of the newer uPVC frames but more importantly the double glazed sealed units. However, the age of the replacement system is unknown, so it is difficult to comment how well is compares to current Building Regulations U-Value requirements.
Air leakage:	In a similar respect to the thermal performance, the replacement system will perform better that the original system in terms of creating a well-sealed air tight form of construction.
	Condition & priority grading: *C1*

Replacement PPC Aluminium Curtain Walling

General condition:	Modern PPC aluminium curtain walling system has been used to replace some areas of the original system. It is in good condition. Noted that the curtain walling system only has been replaced in some areas, with the asbestos boarding remaining in situ.





Safety:	It is understood that toughened outer and inner glass has been used to the double glazed units.
Thermal performance:	Replacement glazing is understood to be a recent installation and therefore should comply with current Building Regulations requirements.
Air leakage:	In a similar respect to the thermal performance, the replacement system will perform better that the original system in terms of creating a well-sealed air tight form of construction.

Condition & priority grading: ***A3***

Conclusion & Summary

The original buildings at the University Academy Long Sutton are now over 60 years old and it is therefore inevitable that the envelope has significant signs of deterioration. This report relates solely to the visual inspection of the external curtain walling to the single storey areas (3 storey building not surveyed). Following the visual inspection, the following should be noted:

1. The original timber frame curtain walling is in very poor condition and is failing, while offering minimal thermal performance. It is recommended that these areas of glazing are surveyed and drawn, with a view to obtaining Planning and Building Regulations approvals for full replacement. It is suggested that the units are replaced with PPC aluminium curtain walling (grey to match the existing PPC aluminium), to meet current Building Regulations requirements.

2. The current replaced areas of PPC aluminium curtain walling, retained the asbestos boarding in situ. However, with replacing the original timber curtain walling, it is recommended that an area of the wall construction is exposed above the curtain walling in order to ascertain the extent of works required to remove all of the asbestos boarding. It is preferable to have the asbestos removed from the building and this would be a good opportunity to remove the boarding, together with replacing the cladding, guttering, etc.

3. It is less critical, but the area of refurbished curtain walling should also be replaced with a PPC aluminium system. The framing is much improved, compared to the condition of the original, but it will eventually deteriorate. The main problem currently with this however, is the poor performance in terms of thermal quality and air leakage. Again, consideration should be taken for the removal of the asbestos boarding.

4. It is recommended that the areas of uPVC are also replaced with an appropriate PPC aluminium system. There are serious concerns over the loadings currently being exerted onto the framing, together with the vulnerability in terms of movement.

5. All new curtain walling should be fit for purpose and comply with the current Building Regulations.

6. A structural review of the original system together with the applied loadings must be undertaken to provide an understanding as to how this has been reinforced to take any additional external wall loading.