CORPORATION OF LONDON

Director of Housing and Sports Development

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Our Reference
HSD/PGH/GL/R(98/99)
Your Reference

Date
27 October 1998

To All Residents
Crescent House
Golden Lane Estate
London EC1

Dear Resident,

Crescent House - Windows Condition Survey (1998//99 Programme)

With reference to my letter of the 1 June 1998, I am pleased to inform you that the Corporation has appointed **Adrian Brooks Associates, Property & Construction Consultants**, to undertake the above survey.

Purpose of the Survey - The survey is being undertaken to assess whether or not the windows, which are over 35 years old, are at or near the end of their life expectancy/useful life. To look at whether or not with repairs their useful life can be economically extended in a working and weatherproof condition for the next 15-20 years, or, if replacement is a better economic option, what type of windows to use. Following listing of Golden Lane Estate, the advice of English Heritage will be necessary to inform the options.

Survey Period - The consultant will be undertaking the survey from late October and into November 1998, taking advantage of the scaffold at Crescent House, for external examination of the windows. A sample of about 25% of the flats to the various elevations and floors are to be inspected.

Access to Flats - Residents in the sample of flats to be inspected will receive a letter from the consultant, in advance, requesting access to be provided at a particular time. If this is not suitable, you will be able to contact the consultant direct to re-arrange an appointment. Your assistance with appointments is greatly appreciated.

Included in the sample of flats to be inspected are flats that have in the past reported water penetration problems to the estate office. *If your flat has had particularly bad water penetration problems, you may check direct with the repairs superintendent, John Todd, at the estate office, if it has been included on the consultant's list, and if not, should be included.*

I thank you in advance for your assistance with the survey. Please contact either myself, or your area housing manager, Richard Dunn, should you require further information.

Yours sincerely,

Phillip Hawes
Development Manager

adrian
BROOKS
associates

SURVEY/INVESTIGATION AND REPORT ON THE WINDOWS

AT

CRESCENT HOUSE
GOLDEN LANE ESTATE
LONDON EC1

Adrian Brooks Associates
Pippin Grove
628 London Rd.
Slough
Berks
SL3 8QA

Paul Brooks.

December 1998
Revision 1

Introduction

This survey has been commissioned by the Corporation of London, Director of Technical Services, to survey/investigate and report on the windows at Crescent House, Golden Lane Estate, London EC1 in accordance with the tender document dated July 1998. We understand that the building is listed Grade 2*.

Methodology

For each flat visited, all windows were internally examined as thoroughly as possible, including opening pivots where possible. As well as a visual inspection, a metal probe was used to determine the location and extent of timber decay. Where scaffold access was available during the period of inspection, windows were also examined externally.

General Description

Within the living room of each flat is a full-height hardwood glazed screen incorporating fixed window panes, horizontal timber pivot windows, vertical aluminium pivot windows and top-hung casements. In some cases obscure panels are fitted at low level in lieu of glazing panels. Incorporated in the design is a bookshelf projection externally, weathered with a sheet copper cover. Draught seals in the form of brushes have been incorporated around the edges of the pivot windows. The windows are generally glazed in clear or georgian-wired glass;

Some flats open onto the access deck which is open to the elements. In these locations a softwood window is fitted with top-hung casements. In some cases the softwood window is fitted with a metal sub-frame.

Top floor flats are built under a barrel arch roof, with softwood fixed-pane quadrant windows fitted to kitchens and/or bathrooms.

Generally flats face either west onto Goswell Rd, or east into the estate, although some flats at the end are south facing.

Condition Report

Hardwood Windows and Frames

The hardwood screens are of robust construction and generally in satisfactory condition. In our opinion, if properly maintained, they will last for in excess of 15-20 years. Their design is commensurate with the period, and given that they were designed for a district heating system at a time when little consideration was given to energy conservation, the design is considered to be satisfactory. However by modern standards they would be considered to have excessive glazing and heat loss, which in turn exacerbates condensation problems.

A number of residents have previously reported problems, which we were instructed to specifically visit. These are identified by an asterisk (*) in the survey data section. Of the flats visited where specific problems have been encountered, these are generally complaints relating to:

a) Rain penetration (around the window frame and glazing)
b) Draughty
c) Difficulty in cleaning
d) Condensation

A number of residents also reported water entering in the corner of the bay, and water penetration or condensation in the projecting bookshelf, causing dampness and mould.

Our investigation revealed that those flats where rain penetration is the worst where windows on the Goswell Rd elevation project over the street, possibly caused by the tunnel effect of the buildings along Goswell Rd. Consequently we are of the opinion that the wind patterns in that particular area have a part to play in the rain penetration. One particular flat (No.307) has experienced greater water penetration that any other visited, and this is causing extensive rot to the frame. It is particularly vulnerable to wind and driving rain, and would require substantial repair or renewal.

Stops around the pivot window are approximately 10-12mm wide. On the Goswell Rd elevation rainwater is being driven around the stops, past defective brush seals at the perimeter, and through ventilation grilles.

Some of the timber pivots were slightly mis-aligned within the frames.

The majority of the aluminium vertical pivots operated satisfactorily, although many were rather stiff. The majority were badly corroded on the surface and had inadequate or non-existent draught seals.

Many of the flats experienced water seeping around the glazing where the putties have deteriorated and the rebates are inadequate. Rainwater is penetrating around the glazing or the fixed panels, particularly on the Goswell Rd elevation.

Some glass panels are cracked, probably where residents have carried out internal painting on the glass. This is allowing heat to be retained within the glass causing it to crack.

Wherever water has been allowed to lay on the timber surfaces for a long time, either rainwater penetrating around the putties, or condensation internally, it has penetrated the surface of the timber, causing it to soften. In extreme cases rot is occurring.

On the top floor there is a flat roof over the projecting bay window. The outer edge of the copper roof covering has been splayed out to throw water away from the window. In some instances this has allowed rain to driven under the roof and into the void above the ceiling, which is causing deterioration of the finishes and decorations.

Softwood Windows and Frames

Softwood windows are fitted to kitchens and bathrooms, usually with pivot or bottom hung casements. In addition, on the top floor, quadrant fixed-pane windows and louvered windows are fitted into the barrel-arch roof to the kitchen, bathroom or living room, depending on the particular design. Many of the kitchen and bathroom windows incorporate a metal sub-frame. There are also a number of softwood in-fill panels around the windows.

Some windows are well protected under the access walkways, but some are in an exposed position open to the elements, and have suffered extensive rot, particularly the sill and bottom rails. At the time of inspection, paint had been burnt off for re-decoration, and it was apparent that extensive repairs have been carried out in the past. At these locations it is probable that lack of regular maintenance and redecoration has allowed water to penetrate the joints, causing loss of strength and decay internally.

The metal sub-frame has expanded within the physical restrictions of the timber frame, causing stress and deflection of the metal, in some cases quite severely. This has allowed water penetration at the junction of the metal with the timber and consequently decay of the timbers behind.

The quadrant windows on the top floor were generally considered by residents to be satisfactory, but we found evidence of inadequate decorations externally, spongy timbers and the beginning of rot, particularly around the sill.

In our opinion the design of these windows was acceptable, although could have been improved by minor detailing such as increasing the fall on external beads, aiding the shed of water. At the time of construction (1962) softwood was of fairly poor quality, and we consider that they have now reached the end of their useful life, but do not consider this to be premature.

To retain these windows for the next 15-20 years it would be necessary to regularly cut out and piece in where rot has occurred.

Window Fittings LIVING ROOM

Window fixings to the hardwood screen are pivot hinges and cockspur fasteners. The pivot hinges in themselves are in satisfactory condition and operated satisfactorily. The cockspur fasteners fitted to the hardwood screen were generally worn and some had already been replaced, but with an inferior replacement.

Fixings to the kitchen and bathroom windows are casement stays, pivot hinges and cockspur fasteners. They are generally satisfactory condition.

Frame Fixings

The windows are screw fixed to the structure at the top, bottom and sides. Where examined these were found to be adequate for securing the window in normal use, although should not be relied upon to provide adequate support for a person leaning out, for example to clean windows.

Secondary Glazing

The introduction of secondary glazing has been considered, either to improve the thermal insulation or to improve the sound insulation.

The optimum distance air-space width for thermal insulation is about 20mm, but this is too small to be of any practical advantage for sound insulation. One of the key benefits of installing secondary glazing is to improve sound insulation, for which a minimum of 150mm is required, preferably more.

Many residents complain that the windows are draughty. This may be real or perceived, since the large expanse of cold glazing will rapidly cool the adjacent air, creating a cold down-draught next to the window. This would be rectified by the installation of secondary glazing.

Secondary glazing may take two forms:

1) To achieve the minimum requirements for sound insulation (i.e. 150mm between panes) it would be necessary to construct a full height floor-to-ceiling construction, since there are no reveals into which secondary glazing could be fitted. This would be expensive, reduce floor area and hamper the operation of the existing windows.

2) Secondary glazing fixed to the existing timber window frame. This would be more practical and more economic, but does not offer the same level of sound insulation as 1).

Thermal insulation can be improved dramatically by improving draught seals, as recommended. However, subject to Listed Building consent, a

further option to improve thermal insulation may be to replace the fixed panes and panels with insulated panels.

Energy Saving

It is beyond the scope of this survey to assess thermal efficiency or energy rating of the block, since this requires a detailed analysis of the building as a whole, including wall construction, roof construction, etc.

In principal it is not economic from a purely energy saving standpoint, to replace single glazed windows with double glazed windows. Typically the pay-back period is a minimum of 50 years, often much more.

However, where window replacement is being considered for other reasons, it is worthwhile installing double-glazed units. Replacing windows with double-glazed units have other benefits such as improved sound insulation, improved draught sealing, and reduced maintenance where a pre-finished product is selected.

The conventionally assumed U-value of various types of glazing is:

Single glazing	5.5W/mSqK
Double-glazing with a 6mm air-gap	3.1W/mSqK
Double glazing with a 12mm	2.7W/mSqK
Double glazing with a low e coat	1.9W/mSqK
Double glazing with a low e coat, gas filled	1.6W/mSqK

Therefore double-glazing with a 12mm air-gap between the panes has approximately half the heat loss of single glazing.

Summary and Recommendations

Hardwood Screens

LIVING ROOM

In our opinion it is unnecessary to replace these windows, which are generally in satisfactory condition. We do however recommend a comprehensive overhaul of windows to include: renewing all brush seals; re-aligning opening sashes where necessary; re-glazing and renewal of putties; increasing the size and detailing of stops and beading to improve draught sealing and reduce water penetration; sealing up the existing ventilation grilles and substituting with trickle vents; renewal of cockspur fasteners. We also recommend the renewal of fixed glass panes & blank in-fill panels with insulated components, possibly in conjunction with secondary glazing. SOME BOXED IN & RADIATORS HUNG

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We also recommend that some insulation is provided to the bookshelf to eliminate condensation and mould growth.

Softwood Windows

There is substantial rot in many of the windows, notably those which are exposed to the elements. However, those that are protected from the elements are in satisfactory condition at present.

Whilst they could continue to be repaired, in our opinion the windows which have been extensively repaired already, which are mainly kitchen/bathroom windows and quadrant windows above a flat roof, have now reached the end of their useful life, and our recommendation is that they should be renewed, eliminating the metal sub-frame where fitted. However for a comprehensive solution which maintains a uniform appearance throughout the building, it would be necessary to replace all of the windows (perhaps including those windows on the enclosed corridors expressly excluded from the survey).

No quadrant or Kitchen/Bathroom

We have discussed this at length with the Listed Buildings Officer at the Corporation, and English Heritage. Given that the building is Grade II* listed, a radical change from the existing design would be resisted, as would changing only some of the windows. However, it was also recognised that this is a working building where people live, and some consideration has to be given to the practicalities of maintaining it as such. Therefore an application for renewing these windows with a longer-lasting material may be considered. Given current materials and window technology, aluminium offers the preferred alternative, but this may change as materials and technology advance.

On the basis of the cost projection below, which excludes any benefit in terms of reduced heating costs, it is not cost effective to replace all the windows solely on the basis of cost. However it may be necessary to do so to satisfy the requirements of its listed status.

Life expectancy for various materials is as follows:

Aluminium	50 years
Hardwood	40 years
PVCu	35 years
Softwood	30 years

We therefore recommend that an application is made to renew these windows with a more durable alternative, which is in keeping with the overall design concept and appearance of the building. We recommend that replacement windows should incorporate double-glazing.

Approximate Costs

Hardwood Screens:

Refurbishment of the existing as described elsewhere (per flat)	£2,500.00
Scaffolding element	£ 300.00
External Re-decorations (say £500 x 4 decoration periods)	£2,000.00
Estimated total cost of refurbishment (exc. decoration)	£406,000

Hardwood

Softwood Windows:

Entrance screen is side windows to some flats

Estimated total cost of replacing of all kitchen/bathroom/quadrant windows and entrance screens to 1st, 2nd and 3rd Floor access decks with aluminium double-glazed units	£295,000
Estimated total cost of replacement of rotten kitchen/bathroom/quadrant windows **only** to 1st, 2nd and 3rd Floor access decks with aluminium double-glazed units	£215,000
Estimated present day value of undertaking repairs and re-decorations to all existing windows every 5 years for a period of **20** years.	£176,000
Estimated present day value of undertaking repairs and re-decorations to all existing windows every 5 years for a period of **30** years.	£224,000

NB. Present day value of repairs have been determined on the assumption that extensive repairs have recently been carried out and therefore no works are required for 5 years. No scaffold is required.

Condensation

We consider that adequate provision for dealing with condensation, perhaps automatic extract fans, be installed as part of a refurbishment programme, to eliminate any possibility of continuing damage from condensation.

Flat Bay-Window Roof

Where water penetration is a problem (notably Flat 339), we recommend revising the detail of the roof to prevent further ingress. For consistency this would probably need to be adopted throughout the building.

Adrian Brooks Associates
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December 1998

Why delay?

CORPORATION OF LONDON

Director of Housing and Sports Development

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Our Reference
HSD/PGH/GL/R(98/99)
Your Reference

Date
25 January 2000

To All Residents
Crescent House
Golden Lane Estate
London EC1.

CRESCENT

WINDOW SURVEY

Dear Resident,

Crescent House - Windows Condition Survey

With reference to my letter dated 1 June 1999 (1999/2000 Repairs, Improvements Programme), I am writing to inform you of the findings of the condition survey undertaken by Adrian Brooks Associates in 1998/99. The findings of the report were discussed with representatives of the Golden Lane Owners Association and The Golden Lane Estate Tenants Association in May 1999.

Adrian Brooks summarised their findings as follows :-

1. the hardwood windows are of robust construction and generally in a satisfactory condition with a life expectancy in excess of 15-20 years.
2. some instances of rain penetration around window frames were noted mainly to the Goswell Road elevation, due to driving rain seeping around glazing through deteriorated putties.
3. the majority of the aluminium vertical pivots operated satisfactorily.
4. the softwood windows that are protected from the elements are generally satisfactory, but those windows exposed to the elements had areas of rotting timber particularly cills and bottom rails.
5. the softwood windows could continue to be repaired but in the medium to long term (after 5 to 10 years) consideration should be given to replacement as further repairs might become prohibitive. This applies particularly to the exposed kitchen/bathroom windows and quadrant windows above flat roof.
6. however for a comprehensive solution which maintains a uniform appearance externally it would be necessary to replace all the softwood windows.

7. as the building is grade II* listed, English Heritage have indicated that a radical change from the existing design (as would changing only some windows) be resisted, but changing the windows to powder coated double glazed steel or aluminium windows would be considered.
8. the estimated total cost (at present prices) of replacing all of the kitchen/bathroom/quadrant windows and entrance screens to the 1st, 2nd, and 3rd floor access decks with aluminium double glazed units is about £295,000 (but excludes fees and staff costs of about 20% to 25%). However, experience of window renewal projects on other Corporation estates point to this being a conservative estimate.

The 1998/99 painting cycle included a significant amount of pre-painting timber repairs prior to repainting, particularly to the exposed windows on the top floor. In the short to medium term the windows at Crescent House will continue to be repaired and redecorated with selective renewals where timber elements have rotted beyond repair.

In terms of priorities for major window repairs/replacement, Great Arthur House is presently being evaluated due to water penetration problems. Stanley Cohen House like Crescent House also has a large amount of softwood windows that will require consideration for major works. Consequently, Stanley Cohen House and Crescent House will form the second and third priorities for consideration for major woks to windows at Golden Lane in the medium to longer term (5 to 10 years), and will also be dependent on sufficient funds being made available by the Corporation.

Please contact me should you require information concerning the windows survey.

Yours sincerely,

Phillip Hawes
Development Manager

cc AHM/REO/CSM/TTOO/AM/SA/RA x 2/CC x 2/SDM/F/Y.