

CONSTRUCTION TECHNOLOGY

A) Prepare a detailed technical report for the contractor that describes how the present condition of the existing property can be remediated to make it viable for occupation.

Question answered: Construction Technology – Question A

Technical report: Description of how property can be remediated to make it viable for occupation.

Prepared by:

Project and location: 1 Englemere Road, Mansfield, Nottinghamshire NG19 7EF

Client: Mansfield Medical Practice

Contents

Executive summary

Introduction

Main body of report

Conclusion

References

Executive Summary

Remedial work is vital to prevent further damage to the property and make it viable for habitation. Therefore it is essential that water penetration is prevented, the damp problems are resolved, poor ventilation is corrected and windows are repaired. Services (water, electricity) require urgent repair as the electric supply is dangerous and any leaks from the water supply will further damage the property. Also, Japanese knot weed is present which requires treatment and removal. Means of doing these are detailed in the main body of the report. There is also need for further investigation at various locations to determine the extent of damage where this is not known.

Introduction

This report describes how the property at 1 Englemere Road can be remediated to make it viable for occupation.

The report is based upon the information contained in K Slade's survey report of 23rd August 2014. The issues noted by K Slade are considered in the main body of this report which are then accompanied with a description of the remedial action that is required. Other points considered are based on my site visit.

A major influence on the remedial actions proposed is that the property is classified as a building of historic value and proposed actions are in light of need for compliance with this and Part L.

Main body of report

Gutter and down pipe replacement

Many cast iron gutters and down pipes are in poor condition and this has led to saturation of the solid walls in various locations. It is advised that these be replaced with new cast iron ones to match and that those not replaced are painted for protection against rust. This should allow the saturated areas to dry out over time by evaporation although this depends upon the extent of the wall's exposure to rain (BRE⁶ page 84).

It is advised that as a precautionary measure at these saturated points, any joist ends that bare on the solid external walls should be inspected for rot and if found, remedial action must be taken by their replacement/support by the insertion of a joist alongside which is bolted (including the use of timber connectors) to the damaged joist and supported on inserted steel shoes). (BRE³ page 26).

Lead cloaks and flashings

Lead cloaks and flashings are missing in various places. These need to be replaced with Code 4 lead (BRE⁵ page 99). Any pointing required where the lead tucks into a bed joint should be of a similar type – for a property of this age it is likely to be lime mortar (BRE⁶ page 84).

Slates to roof

Various roof slates are missing. These need to be replaced to prevent ingress of rain. Replacement should be with matching slate.

Roof timbers may have suffered damage due to rot if the roof slates have been missing for a long period of time. The survey did not access the roof area. It is advised that access is gained so that an assessment can be made of its condition and from observations made it should be determined whether a structural engineer is required to make a more detailed assessment (i.e. in accordance with the framework in *Appraisal of existing structures*) (BRE⁵ page 53).

Asphalt surface

The asphalt surface is cracking. The cause of this is likely to be due to shrinkage of the underlying ground due to the presence of trees which take the moisture. This can be a particular problem where asphalt surfaces overlay shrinkable clay. This can be confirmed through measurement and monitoring of the desiccation. The practical solution here is to replace the asphalt with pressed concrete slabs with open joints which allows water to drain through to the tree roots (BRE⁴ page 73).

The asphalt surface is above the internal floors in places. If unresolved, this situation is likely to cause damp penetrating to the internal side of the external wall as moisture is drawn across the solid wall by capillary action. The damp proof course, if present, has been bridged. Also, this situation may have

covered up any ventilation holes for the suspended timber floor. It is advised that to prevent this the asphalt needs to be cut back from the external wall enough to then be able to insert an edging and then have 150mm clearance up to the wall. The space created also needs to extend 150mm below the damp proof course (DPC) or floor level if there is no DPC (BRE⁶ page 201).

DPC

The property requires further inspection to ascertain whether a DPC is present and if it is, whether it's effective. If there is not a DPC then a new DPC needs to be installed. The system which would cause least disturbance to the building's walls is that of chemical injection. It is recommended that this would be installed only by members of the British Wood Preserving and Damp Proofing Association by methods for injection covered in BS 6576 for which a BBA certificate should be supplied (BRE³ page 159). If the DPC is damaged then it needs repair by the same technique as the existing DPC.

The survey does not indicate the presence of rising damp but it does state that skirting boards at various locations on the ground floor have unexpectedly high moisture content. A lack of a DPC could result in this as could the asphalt butting to the external walls. Proposed remediation would correct this.

Mould growth

On the first floor mould growth was found on some plastered walls in the corner of some rooms. This is likely to be due to surface condensation which has three possible causes: excessive moisture in the air, inadequate ventilation, thermal bridging.

Methods to be chosen to enable compliance with Part L should partly eliminate this problem. For example, it is likely that to upgrade the external walls to lower their U-value, internal insulation will be installed, such as PIR, which will prevent thermal bridging and give vapour resistance (BRE²). This will reduce the incidence of condensation as will occupation of the property and the increased internal temperature which this brings. Internal insulation will negate any issue relating to conservation of external appearance.

Glazing/Glazed dining room

The existing glazed dining room is the location of the proposed extension, therefore its demolition is required.

Glazing generally needs to be inspected to assess its condition. To aid compliance with Part L it is likely that it will need upgrading to lower U-values. Windows cannot be replaced for modern windows since this will not be acceptable with regard to conservation of the properties original features. BRE show that existing windows can be refurbished with the use of the Pilkington product Spacia which replaces the existing glass (BRE¹ page 6).

Electricity

The survey found that the electricity installation to the property was in poor condition and had been vandalised. This requires inspection by a competent electrician who can assess it for repairs needed and compliance with the IET (Institution of Engineering and Technology) 17th Edition of the wiring regulations BS 7671 (Hall and Greeno page 496). Remedial work will need to be done to make it safe

Water service

The survey found that the existing water services are in poor condition and have been vandalised. This requires the inspection by a competent plumber to see what remedial work is required which needs to be in compliance with Part G for cold water supply and 17K for targets of consumption (Hall and Greeno pages 26, 31).

Utility and garden store

These are described as being in a dilapidated condition. The drawing for the proposed ground floor layout of the property does not show what is proposed in this area i.e. demolition/refurbishment? Therefore clarification is required on this to know the extent of remedial work required

Japanese Knotweed

On inspection of the property Japanese knotweed was discovered. This is a very invasive plant and not natural to this country and environmental legislation requires that its presence be managed. Therefore it is recommended that a specialist is contacted to treat it. The best form of treatment is by herbicide but its use is dependent on the proximity of water courses (Website¹).

Conclusion

The property requires urgent remedial work to prevent further damage and make it viable for habitation. Stopping water penetration by repair to the structure is essential as is dealing with the damp issue. Services (water, electric) need repair and Japanese knotweed needs treating. Further investigation work is required where the extent of damage has not been ascertained so far. This report details what actions should be taken.

References

(BRE¹) BRE Alan Ferguson, Richard Hartless, Information Paper IP 12/11 Part 3 *Sustainable Refurbishment of the BRE Victorian Terrace* BRE Publications 2013

(BRE²) BRE Paul Cartwright, Jack Brayshaw, Peter Hadwin, Information Paper IP 12/11 Part 2 *Sustainable Refurbishment of the BRE Victorian Terrace* BRE Publications 2011

(BRE³) BRE Peter Trotman, Chris Sanders, Harry Harrison *Understanding Dampness* BRE Bookshop 2004

(BRE⁴) BRE HW Harrison, PM Trotman *Building Elements Foundations, basements and external works* Construction Research Communications Ltd 2002

(BRE⁵) BRE HW Harrison *Building Elements Roofs and Roofing* Construction Research Communications Ltd Revised 2000 Edition

(BRE⁶) BRE HW Harrison, RC de Vekey *Building Elements Walls, Windows and Doors* Construction Research Communications Ltd 1998 (Hall and Greeno) Fred Hall and Roger Greeno, *Building Services Handbook* Seventh Edition Routledge 2013

(Website¹)

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296930/LIT_2695_df1209.pdf accessed 15.2.15

-

MARKERS COMMENTS

Very good response overall. presented and structured well. Clear and concise. Some minor spelling errors. Problems covered and assessed well and remedial actions put forward.

Could have been some more coverage of the timber issues and plaster but overall good response