TIMBER INVESTIGATION

VALE OF HEALTH

PUBLIC TOILETS

HAMPSTEAD HEATH

LONDON

APRIL 2014

DEMAUS BUILDING DIAGNOSTICS Ltd
STAGBATCH FARM, LEOMINSTER, HEREFORDSHIRE HR6 9DA
Tel. 01568 615668

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SUMMARY

- The timber framing of the toilet block is structural, rather than applied decoration.

- Most of the framing is in reasonably good condition. There is no indication of significant deformation or dislocation.

- There is an area of the timber frame on the East elevation that has suffered severe degradation, and which will require significant interventions. These should be straightforward.

- The roof structure appears to be in good condition. Only a limited area is accessible for inspection and testing, but there is no evidence to suggest significant degradation in the inaccessible areas.

- By visual inspection, the clay tiles covering the roof are in reasonably sound order, and may require no more than cleaning down and localised minor repairs.

1.0 BRIEF:

1.1 Instructions were received from Andrew Coke, Assistant Corporate Property Facilities Manager, City Surveyors Dept., City of London, to undertake a non-destructive timber survey of the external timbers of the Vale of Health public toilets. The brief was subsequently expanded to include the roof timbers.

2.0 NOTES

2.1 The on-site assessment was carried out on 16 April 2014. The weather was generally bright and dry.

2.2 For identification purposes, it is assumed that the 'front' elevation with bay window faces due south

2.3 Site Address: Public Toilets, Vale of Health, Hampstead Heath, London.

2.4 Generally elements are identified in accordance with the recommendations of *Recording Timber-Framed Buildings: an illustrated glossary* published by the Council for British Archaeology.

2.5 *% l.e.s. at loss of effective cross-section* (l.e.s.) is a figure that combines quantitative data (e.g. size of cavities, variations in density etc) with qualitative judgements (e.g. quality of timber, growth rate, structural role etc).

2.6 All measurements are in millimetres. Where an area of degradation is dimensioned, the dimension defines the limit of the degradation's significance, unless otherwise defined.

2.7 The drawings used in this report are derived from those supplied by City of London, and are used for identification purposes only.

3.0 SPECIALIST EQUIPMENT USED

3.1 **Sibert DDD200 microdrill**

The microdrill works by recording the rate of penetration of a 1mm diameter probe as it penetrates into the timber being tested, up to a depth of 200mm. The better the condition and quality of the wood tested, the slower the rate of penetration. The results can be recorded to a paper chart, from which the quality and condition of the timber can be assessed, and the presence and extent of any degradation can be measured and located within the cross-section.

3.2 **Protimeter MS moisture meter**

The Protimeter measures the electrical resistance of a material between two pins and correlates this to the moisture content of the material. In practice, there are many factors that affect the accuracy of the moisture content readings obtained. The results are indicative only, and should be treated with caution, but can be useful in establishing a pattern of moisture distribution.

External Walls

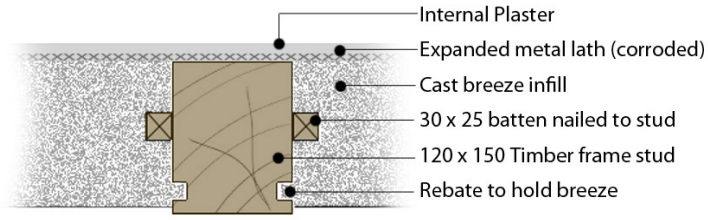
4.0 East Elevation

4.1 The areas of structurally significant degradation are shown in red in the sketch of the east elevation (above). The degradation is severe but very localised.

4.2 The actual degradation is caused by a brown rot, probably *Coniophora puteana*, commonly known as Cellar Rot. No fruiting bodies or mycelium were present, so positive identification could not be made.

4.3 The severely decayed zone has been colonised by ants, probably the common black garden ant *Lasius niger.* It is quite possible that the decayed timber had been previously colonised by a number of different insects, but it is undoubtedly the fungal attack that caused the initial damage, and which allowed subsequent colonisation by one or more species of insect.

4.4 The framing comprises of 150d x 120-150w softwood elements, the basic configuration of which is shown below



4.5 The curved braces are approximately 50mm deep. It seems likely that the breeze was cast with the braces *in situ*.

5.0 Other Elevations

5.1 Sibert micro-drill testing was carried out on representative samples of timbers in the other elevations. There is some minor fungal degradation in many areas, mainly in the cills and bases of the posts immediately above the brick plinth.

5.2 No structurally significant degradation was located and there is no indication of any insect attack.

5.3 No evidence of active fungal attack could be identified, but the moisture content in the timbers is typically 19-25%, which is just about the lower limit for wood decaying fungi to survive.

5.4 The paint finishes on the timbers and the cast breeze infill panels are non-breathable, and therefore tending to trap moisture that will unavoidably enter the fabric through junctions/joints and cracks in the impermeable 'skin'.

5.5 The cast breeze is a dense material with poor thermal performance that will also tend to trap moisture within the fabric.

5.6 Since construction, the timber frame has been finished with a variety of paint types and colours. Given the date of construction, most of these have probably been oil bound (i.e. non breathable to a great extent) number of

6.0 Roof Structure

6.1 The roof structure is mostly concealed by softwood v, t & g boarding, which appears to be fitted directly to the underside of the rafters and collars etc.

6.2 The boxed in area concealing the water tanks over the cubicles of the Ladies' toilets was accessed through the removable hatch, but the boarding continues within this space.

6.3 The equivalent area of the Men's toilets could not be inspected because the hatch access was sealed shut with paint.

6.4 The softwood v, t & g boarding forming the ceiling appears to be in good condition and there is no indication of any deformation or water penetration through the boarding.

6.4 The relatively small roof space over the south elevation gable was inspected via an access hatch. The west pitch is fitted with a roofing felt probably dating from the 1970s-1980s. The east pitch is not fitted with roofing felt. The rafters in both pitches and the tiling battens on the east pitch are in good condition, with no indication of any water penetration.

6.5 By external visual inspection, the tiles appear to be in reasonably good condition. There is clearly an issue with moss growth and the consequent accumulation of leaves and other debris.

7.0 Conclusions

7.1 The significant degradation is localised and confined to an area of the east elevation. There is no obvious reason why this part of one relatively sheltered elevation should have degraded so severely when the rest of the building is generally sound.

7.2 One possible cause is a failure/blockage in the adjacent rainwater goods (gutter and/or downpipe).

7.3 A second possible cause might be long term saturation from the W.C. overflow pipes that discharge directly above the degraded area.

7.3 Typical moisture content of the timbers varies between 15% under the protection of the eaves, and 23-26% immediately above the brick cill.

7.7 The building has many of the faults, including oil-based impermeable paints on the timber, impermeable masonry paints, and dense cementitious infill material, that often lead to significant degradation, but which in this case, generally have not. This is mostly due to the relatively large overhangs, high cill levels and sheltered position.

8.0 Recommendations

8.1 In spite of the impermeability of the materials and finishes used, most of the building remains in reasonably good condition, and there is no need to radically change finishes etc. If a decision is made to remove the many layers of paint from the timberwork, a breathable opaque stain would probably be a better choice. The infill panels are cast breeze, and little or no benefit would be gained from replacing the masonry paint with limewash or other breathable finish.

8.2 The degraded elements on the east elevation will need to be repaired or replaced.

- The lowest 300 of the south east corner post will need to be cut out and a new section inserted. It should be possible to do this without cutting complex scarf joints etc.
- The south half of the cill will need to be cut out and a new section inserted
- The 3no. intermediate studs should be replaced.
- The lowest 150mm of the central stud could probably be consolidated with a proprietary timber consolidant/filler.
- The lower half of the south-most curved brace could be cut out and a new section jointed in, or the whole element replaced.

8.3 With care, it should be possible to carry out the necessary timber repairs with minimal disturbance to the cast breeze infill panels and internal finishes, which could be retained. If this is not considered desirable, it would probably be better to use the same materials in the replacement work, rather than introduce new, and theoretically better, materials that might cause problems due to their differing performance.

8.4 The roof structure should not require any significant interventions. It may be possible to retain the tiles with thorough brushing down and minor re-setting.

8.5 Many of the trees surrounding the toilets overhang the building, and planting is quite dense in the immediately adjacent area. This will tend to produce a lot of debris that will tend to block gutters and downpipes, and greatly reduces airflow, and therefore ventilation and evaporation. Some judicious pruning and thinning would be beneficial.

8.6 The weather was dry during the inspection, and the performance of the rainwater discharge system could not be assessed. In many areas, the gutters appear to be somewhat misaligned, and no adequate debris traps are fitted. Irrespective of whether works to the roof are carried out, the gutters should be overhauled and adequate debris traps fitted.

Report prepared by Robert Demaus B.Eng M.Sc (Timber Conservation)
Demaus Building Diagnostics Ltd.
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