# 21 CHURCH ROW LONDON, NW3 6UP

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# DAMP PROOFING INVESTIGATIONS

PREPARED BY STEPHEN LEVRANT HERITAGE ARCHITECTURE LTD

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STEPHEN LEVRANT HERITAGE ARCHITECTURE LTD Architects & Historic Building Consultants

# 21 CHURCH ROW Damp Proofing Investigations

Discharge of condition number 3 attached to listed building consent dated 10 May 2007.

Condition requires investigation by Conservation Specialist Investigation was made by Stephen Levrant RIBA, AA dip, dip cons (AA), IHBC, FRSA.

All areas of damp ingress are located in the basement.

# 1. Rear lobby to rear area under garden entrance.

<u>Damp manifestation</u>: Severe rot decay to door frame (non-original) particularly at the head, and at the foot of the frame on one side. Indications of some damp ingress at high-level adjacent to the door but not widespread or virulent eruptions. High meter readings in the timber door frame; zero or very low at high-level on the surrounding rendered finish.

Small damp patch on the underside of arched soffit beneath steps. High meter reading in the immediate vicinity of the damp patch only.

# Analysis:

Internally:

The entire area of the lobby is rendered in a hard cementitious coating ("Sika" or similar). A small vertical duct in the corner adjacent to the entrance door to the basement area. A larger duct inside the WC lobby. The floor is a relatively new concrete slab on a DPM.

The area beneath the vaulted soffit is restricted to a small area of local dampness only. There is dry lining immediately below.

#### Externally:

The porch lobby has been formed from a previously open area underneath the overhanging outshot, which is supported on a cast iron column. It rests on some stone flags which are uneven and have open joints. A wrought iron balustrade is fixed to the outer flags. There is a rainwater downpipe immediately adjacent, which has its lower section and shoe detached. It is intended to discharge across the flags; but due to the defects is now discharging over the wall above the area of dampness indicated in the basement below. The immediate area adjacent to the downpipe, rendered, has signs of significant damp ingress and unevenness to the paint film, due to the broken rainwater pipe. There is a cold water supply pipe for the garden hose tap taken through the spandrel of the arch beneath the porch, and concealed from inside. There is considerable water stain run-off on the rear (rendered) elevations, there are no drips or mouldings around the windows to prevent this.

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## Remedial:

Internally:

Remove door and frame set aside door for refixing as per listed building consent. Examine the substrate fixing to the door frame to determine, or confirm, routes of water ingress.

Hack off damp patch under curving soffit to examine substrate; remove dry lining immediately adjacent to test and examine substrate.

Remove the areas of render carefully, to avoid unnecessary damage to brick substrate is or lintel.

Remove carpet, carefully remove areas of floor screed and finish adjacent to foot of door frame to examine substrate and continuity of DPM.

Remove duct covers and examine substrate to check for any leak on cold water garden supply pipe.

Allow for lifting of internal floorboards at ground floor level immediately above affected area, if required. Replace after inspection/spraying.

Pressure spray apply fungicide to substrate areas.

Leave exposed substrate to dry out as long as possible.

Supply and fix new hardwood door frame to match existing fixed to grounds by specialist to ensure dampproofing continuity.

Re-render in waterproof cementitious coating, to match existing, all affected areas, by specialist.

Redecorate and make good throughout.

Externally:

Carefully remove the wrought iron balustrade, by specialist.

Remove render at wall fixing to expose the fixing cleat for the ironwork, carefully cut out surrounding bricks, only if necessary.

Detach the balustrade at corner junction, utilise temporary supports for remaining iron work to prevent damage.

Heat and remove lead caulked fixings at the base feet and lift clear the ironwork balustrade section.

Carefully break out existing joints and lift the flags.

Clean off all surfaces and clean off substrate base.

Carefully cut off render plinth behind RWP and clean off.

Lay DPM "Bituthene " or similar, and turn up the wall plinth.

Apply proprietary damp proofing medium to wall surface and ensure compatibility with the over-render.

Details in accordance with architects drawings, and to be finally resolved on site dependent on opening-up findings.

Re-lay existing stone flags and seal at joint with porch base, using in elastomeric mastic.

Repoint joints flush with 1:2:4 cement/lime/ sand mix.

Refix balustrade, using lead caulk to match existing and make good brickwork at fixing cleat to the wall.

#### Optional:

Remove both sections of balustrade by specialist, return to workshop for stripping, overhaul and repair. Redecorate using proprietary paint system. Refix all on site.

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# 2. Front under-pavement vaults.

Vault No. 1: Access from basement area lobby, rendered and finished; Vault No 2: Access from external basement area, unfinished and exposed brickwork.

#### Vault No 1: Damp manifestation:

Signs of damp staining around door head internally. Reported general dampness elsewhere.

#### Analysis:

The vault is entirely rendered in a dense, hard cementitious material "Sika" or similar, and is suffering extensive movement cracking throughout. There are no obvious signs of damp ingress by the cracks although the vault appears to be permanently heated. The top I\*\*\* of render system may be exhibiting some differential movement cracks, but the substitute appears sound. The extent of the cracking indicates that there may be issues with dampness in the future. There may be problems with continuity of damp proofing render around the door frame and head. The door has ventilation grilles, but there is no through or cross ventilation to the

exterior.

#### Remedial:

Carefully remove door frame and expose extent of render and fixings. Allow for hacking off cementitious render around the door head and installation of new fixing grounds and patch repair to existing waterproof render all by specialist. Fix waterproof membrane system, by specialist throughout the entire vault, specialist fixings through the existing waterproof render.

Drill through the brickwork joints into the adjoining external vault to remove bricks to accommodate standard 225x 225 cast iron air brick; for through or cross ventilation. Form quoins in brick bond to match existing. Not cut bricks or power tools.

#### Vault No. 2: Damp manifestation:

Extensive water ingress through the arched vaulted brick roof and walls, damp through unfinished floor. Open joints in brickwork generally, eroded pointing, floor not entirely visible. Numerous items of joinery, marble and metal work stored.

#### Analysis:

Water percolates in through the made-up ground surrounding the vaults, from date of construction. Usually exacerbated by work to services installations in the roadway above over the last 200 years.

#### Remedial:

Remove and store where directed the material for preservation inside the vault; remove and dispose of material no longer required, as directed.

Clean off the floor and allow inspection of the substrate.

Send sample of existing brickwork mortar for analysis. Rake out and repoint brickwork joints throughout using matching lime mortar.

Prepare and install specialist waterproofing membrane system throughout. Allow for excavation of existing floor to a depth of 450 mm, hardcore, mass concrete slab, DPM, and over screed. All as detailed by the architects.

Allow for installation of external electricity sockets; supply and fix new purpose-made ledged and braced SW door, new hardwood frame and cill, fixed in accordance with specialist requirements for membrane; and to architects detail.

# 3. Front room (original kitchen).

# Damp manifestation:

Signs of damp break out around electrical socket outlet at low level on chimney breast. High damp meter readings in the vicinity, but locally. Damp proof lining or other medium existing on the wall surfaces throughout.

# Analysis:

Probable piercing of existing proprietary damp proofing medium due to fixing of socket outlet.

#### Remedial:

Remove area of wall finish to examine substrate.

Allow for local repairs to damp proofing medium to match existing and ensure continuity, including insertion of new fixing grounds as required. All by specialist.

Make good and redecorate throughout.

## 4. Rear room. (Original scullery).

## Damp manifestation:

Signs of damp ingress and possible staining and salt outbreak on the jamb to the door to the boiler room. Restricted to lower-mid- height. Damp meter reading readings high only in the vicinity of the damp patch. Elsewhere adjacent they are low or dry.

#### Analysis:

Area rendered throughout in hard cementitious, possibly proprietary waterproofing system. The adjacent boiler room has extensive pipe work and systems for the boiler and water distribution throughout the house. There is no indication of damp ingress from a higher level, nor any possible or obvious route from the exterior. There are signs in the boiler room of previous water ingress from pipe work or leakage. Probable cause; Pipework leakage possibly still active.

## Remedial:

Clean all previous signs of damp staining and run-off staining in the boiler room and pipework.

Remove plaster around the obvious damp patch and allow for examination of substrate.

If possible, leave to allow a period of drying out.

Monitor the area for a period of three months; and check all pipework. Re-render and make good in matching proprietary damp proofing system. Redecorate as required.

# **Photographic Appendix**



Area 1: RWP adjacent to enclosed rear porch, joints broken, open joints on paving flags.



Area 1: Open and damaged joints, vegetation. The corner contains a cast iron column rendered into the walling.

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Area 1: Water supply pipe protruding through basement masonry.



Area 1: Rear porch. Broken RWP shoe, and joints, damp behind paint film.

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Area 1: Internal advanced dry rot above door head, in vicinity of RWP outlet above.



Area 1: Vault under rear porch, rear wall. Damp patch above dry lining.



Area 1: Dry rot decay at base of door frame.



Area 1: Rot decay at base of door frame.

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Area 1: Garden hose supply pipe through masonry. Note previous repairs and damp.



Area 1: Broken flag immediately adjacent to RWP outlet.

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Area 2: Slight damp at door frame.



Area 2: Damp in rendered surface due to non-continuity.



Area 2: Minor surface eruptions and salts outbreak.



Area 3: Damp manifestation around socket outlet.



Area 4: Damp manifestation against door frame.



Area 4: Damp outbreak adjacent to door frame to boiler room.



Area 4: Boiler Room, damp behind pipes. Signs of leakage in the past from pipe joints above.

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Registered in England 3053944 • VAT GB656883581 Stephen Levrant RIBA, AA Dipl, Dipl Cons (AA), FRSA, IHBC

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