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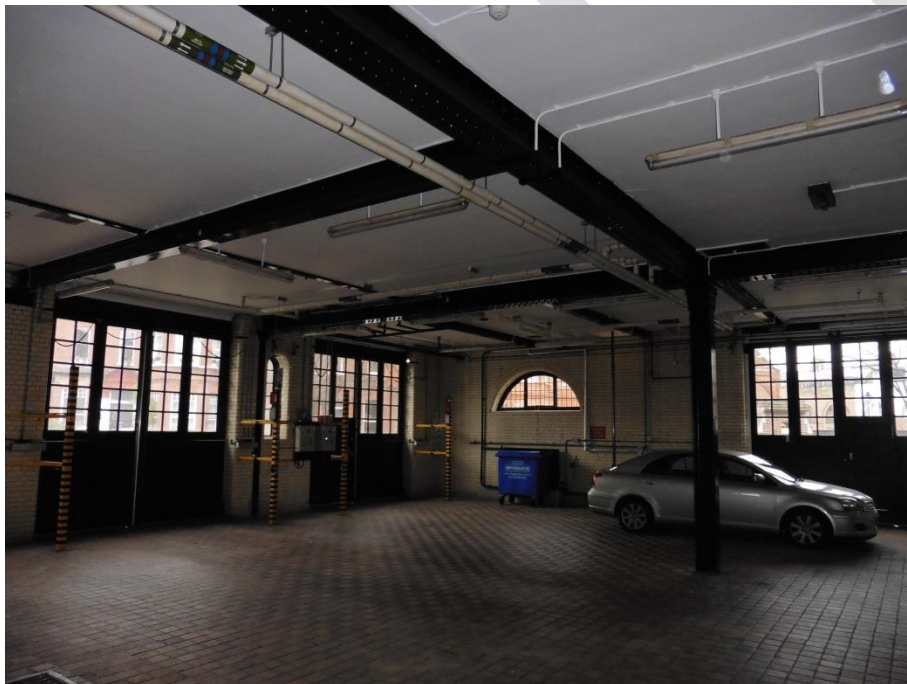
Belsize Park Fire Station.

Visual Structural Assessment.

Description.

The building is constructed with thick masonry walls supporting concrete floors and a timber cut tiled roof.

The concrete first floor over the garage is supported on a grillage of rolled section and built-up steel beams. The beams, in addition to the floor, also support a number of masonry walls.



First floor slab and steelwork over garage.

A brick tower rises up from the centre of the complex with concrete floors and a steel or iron stair, giving access to the roof voids.

The rear elevation has a number of vernacular features and overhanging eaves.



Rear elevation with overhanging eaves.

The roof is formed with jack rafters and collars bearing on propped purlins which in turn bear on stub walls. The upper floor ceilings are timber joists and plaster.



Stub walls supporting propped purlins.

The roof incorporates a raised wall plate supporting the rafters with the ceiling joists appearing to pass through the wall to form the overhanging eaves.



Ceiling joists and jack rafters passing through masonry to form overhanging eaves.

Condition.

The building is in good structural condition with minimal significant structural defects. The structure bears evidence of robust use through its life and a similarly robust attitude to maintenance but the essentials have been attended too with little evidence of significant water ingress or structural distress.

Whilst the nature of the form of construction will make a non-invasive assessment of the floors difficult an assessment can be made with reference to historic LLC documentation and Building Acts. A more definitive assessment of the floors can be made with a Ferroskan survey and some discrete drilled cores tested for concrete strength if required.

An assessment of the walls and steel structure can be made by calculation and with reference to historic section data.

Proposed alterations.

The form of the roof can be discreetly altered internally, without alteration to the external profile of the roof, to provide a more flexible space by replacing the brick stub walls with cranked steel beams supporting new steel purlins and ridge beams to allow the braces and collars to be removed.

Subject to an assessment of the strength of the floors, which are unlikely to be a governing factor, the building is sufficiently robust, and by current standards, over engineered, to accept localised alterations and reordering without structural detriment to the historic fabric.

Conclusions.

The masonry structure is sufficiently robust to accept localised reordering without detrimental effect to the stability of the historic fabric.

If loadings and load paths are to be altered some investigation may be required to the concrete floor structure and supporting steel beams.

The structure supporting the roof can be altered without altering the external profile of the historic fabric to allow the roof voids to be opened up and used by the insertion of subtly designed cranked steel beams and purlins and ridge.



Central Tower.



Garage elevation with tower behind.