

Memorandum

ARUP

To Rajwant Sandhu (Liverpool Biennial)

Date

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Copies

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From Rick Lee (Arup Liverpool)

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Subject Korean House Site Condition Survey

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The purpose of this memorandum is to provide a recorded condition survey of the existing Duke Street site where Liverpool Biennial's Korean House art installation is to be in place for 12 weeks, prior to any site installations being undertaken.

The condition survey was undertaken by Arup structural engineers on Thursday the 19th August 2010 (Chris Lydon and Rick Lee). This report provides a factual account of the condition of the existing site only. Guidance as to remediation works, if relevant, is not within the scope of this document. The condition survey consisted only a visual survey of safely accessible areas, no intrusive investigations were made.

The site is defined as plot of land between Frensons Building and the EP Building off Duke Street, Liverpool. This is shown in figure 1 below, where the art work will be installed. The photographs in this report relate directly to any specific points of interest being discussed, a further full achieve set of photographs from the same site survey are available on request and will be retained by Arup for the duration of the artwork installation should they be required.

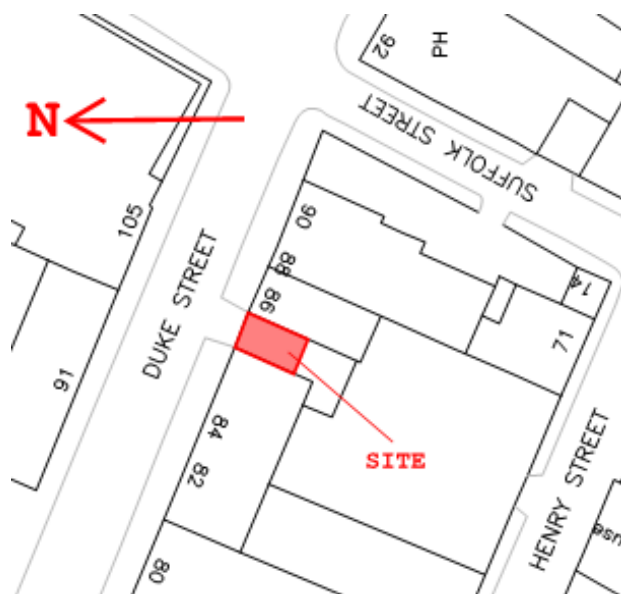


Figure 1 – DoHo Korean House Site

The conditional report is split into six section, as follows:

1. Frendsons Building East Façade.
2. The EP Building West Façade.
3. The Fire Escape.
4. Floor.
5. Yard Rear Wall.
6. Front Entrance Gate.

- 1. Frendsons Building East Façade** – The east façade of the Frendsons building is an external masonry wall with a central recess housing the windows. The wall supports a steel fire escape providing a means of escape from the building.

Generally the east façade masonry wall is in fair condition with no visible signs of movement from subsidence nor bowing. Generally the brickwork and joints are in good condition with minimal loss of mortar. A number of defects were identified and these are shown in figure 2 below and in more detail on photographs 1 to 4.

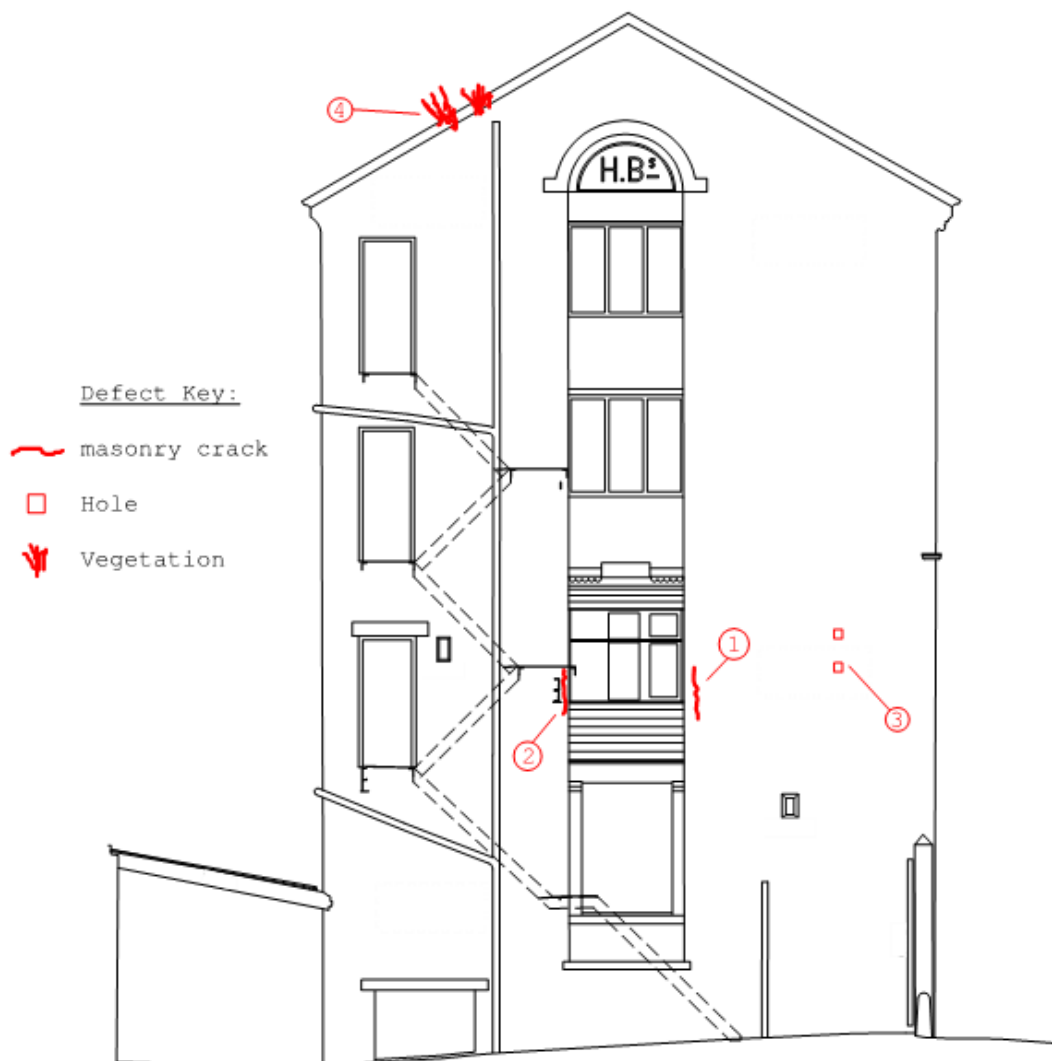


Figure 2 – Frendsons Building East Façade Elevation Defects



Photograph 1 – Defect 1, crack in the masonry external wall



Photograph 2 – Defect 2, crack in the masonry external wall



Photograph 3 – Defect 3, two holes in the masonry wall



Photograph 4 – Defect 4, Vegetation Growth

2. **EP Building West Façade** - The west façade of the EP building is an external masonry wall. Towards the rear, (furthest away from Duke Street) top portion of the façade a newer section of masonry wall is evident. The wall supports a steel fire escape providing a means of escape from the building. The majority of the windows on the west façade are either blocked or boarded up. There is a roller shutter garage door towards the rear of the site.

Generally the east façade masonry wall is in poor condition with loss of mortar in the joints identified. In the areas adjacent to the rain water pipes vegetation growth on the brickwork was noted. No visible signs of movement from subsidence nor bowing was noted in the wall. A number of defects were identified and these are shown in figure 3 below and in more detail on photographs 5 and 6.



Figure 3 – EP building West Façade Elevation Defects



Photograph 5 – Defect 1, masonry cracks from window frame to concrete lintel

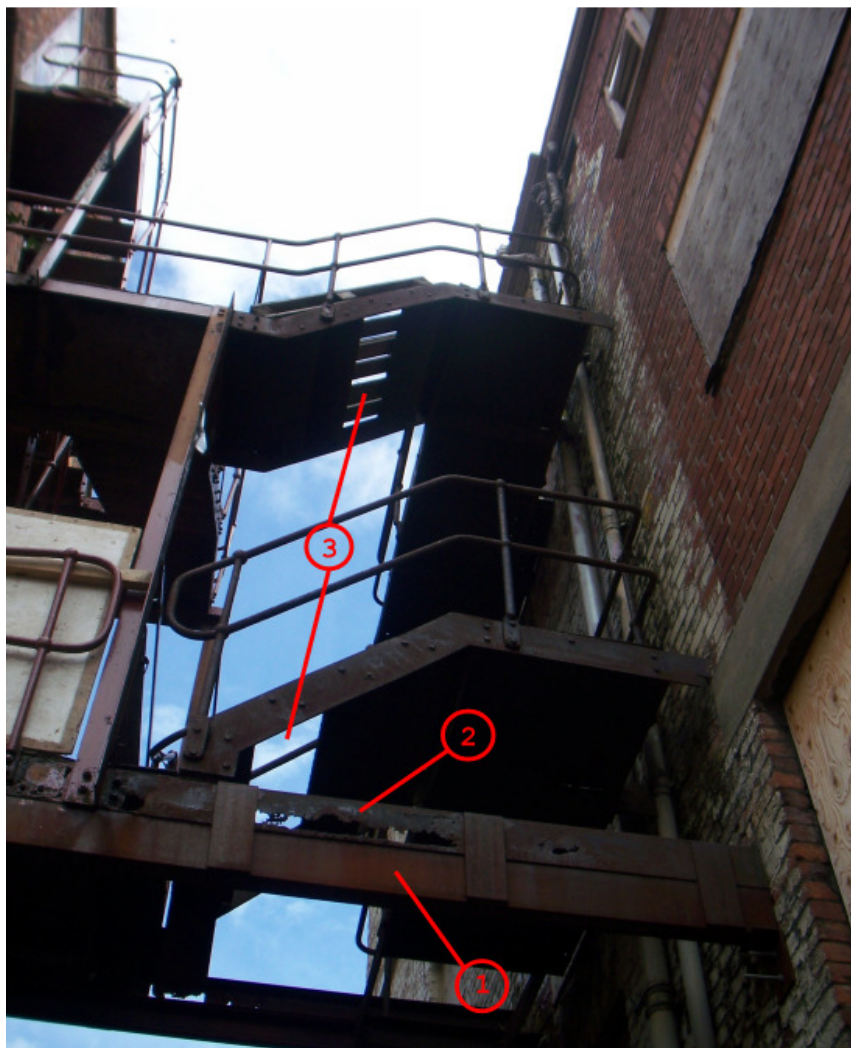


Photograph 6 – Defect 2, Loss of mortar in joints and vegetation growth

3. **Fire Escape** - The steel stair structure provides means of fire escape to both the Frendsons Building and the EP Building. The steel stairs and landings are supported by a steel beam spanning between the buildings. Evidence of structural strengthening to the support beams was noted and indicated by a Number 1 on Photograph 7 below.

The steel beams, stairs and steel plates forming the landing are in poor condition with the following defects noted:

- Visible signs of loss of sections in the support beams and steel landing plates. Indicated by a Number 2 on Photograph 7 below.
- Corrosion of all steel elements except those painted on the ground to first floor flight.
- Missing steel plates forming the landings and stairs. Indicated by a Number 3 on Photograph 7 below.



Photograph 7 – Steel Fire Escape

It should be noted that Arup has instructed all Contractors undertaking work for the Korean House that the fire escape is an unsafe structure and it is not to be used.

4. **Floor** – The floor of the site is a concrete slab. There was a large amount of debris on site at the time of the site visit, therefore the full extent of the floor area could not be assessed. The floor is generally in fair condition with no significant signs of cracking, spalling or movement. Photograph 8 below shows the site floor and debris.



Photograph 8 – Site floor and debris

5. **Yard Rear Wall** – The rear wall of the site is in poor condition with areas of loose brickwork and substantial mortar loss in the joints. There is a hole in the wall that has been in filled with timber. Photograph 9 below shows the in filled hole and loose brickwork (top right of Photograph 9).



Photograph 9 – Masonry wall at the rear of the site.

6. **Site Front Entrance Gate** – The front entrance gate is constructed from timber supported off timber posts via steel hinges. The timber gate has been painted with a hatch opening for human access. The top half of the gate appeared to be in acceptable condition with no major defects noticed. The bottom half of the gate is in poorer condition with rotten timber boards which have become loose from the main frame. The timber frame around the bottom hinge is also rotten. Photograph 10 below shows the gate and the loose rotten timber around the bottom.



Photograph 10 – Site Front Entrance Timber Gate