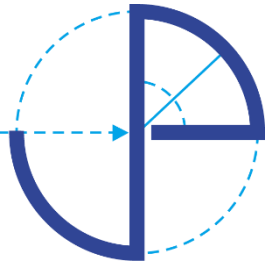


JP Chick & Partners Ltd
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Newtown Meadow Nissen Huts

Structural Inspection Report

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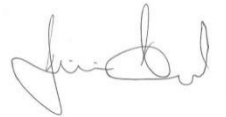
DOCUMENT CONTROL

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1.0 INTRODUCTION

- 1.1 We were instructed by Mr and Mrs Uff to undertake a structural engineer's appraisal of existing Nissen Hut buildings at Newtown Meadow, Worlingworth, to appraise their condition, structural form and potential for reuse to conversion to residential function. Our reporting and liability is therefore limited accordingly.

2.0 DETAILS OF SURVEY

- 2.1 The property was inspected on Thursday, 14th March 2024. Weather conditions at the time of the inspection were bright, but overcast, with temperature in the region of 10°C.
- 2.2 The inspection was undertaken from ground level externally and ground floor level internally.

3.0 GENERAL DESCRIPTION

- 3.1 The property comprises three single storey curved roof Nissen Hut style structures. The buildings are each approximately 5.9m in width x 10.5m in length. The height from ground level to apex is approximately 3.13m. The general format of each structure comprises corrugated fibre cement curved roofing sheets supported on a shallow blockwork plinth of two courses height (450mm), on each long elevation.
- 3.2 The gable ends of each structure are infilled with concrete blockwork, approximately 150mm in thickness, into which double doors are provided on the eastward facing elevations enabling vehicular access, with smaller single personnel doors and a pair of windows on the westward side.

4.0 EXTERNAL OBSERVATIONS

South Gable Ends

- 4.1 The south elevation presents the gable ends, which are infilled with blockwork. The blockwork presents in fair to good condition, with modest signs of weathering. The gable ends are in good alignment and good verticality.
- 4.2 The block walls appear to be constructed on a 450mm wide concrete foundation, the finished level of which is flush with the internal concrete floor slabs.
- 4.3 The window openings are abridged with a concrete lintel. The bearing length of the lintel is generally relatively short where it abuts the curved roof line, being approximately 50mm, however, this does not appear to have adversely affected the performance, as the loading is modest.
- 4.4 There is minor evidence of weathering to the top face of the brick gable to the south eastern corner of the southern unit, where the protective capping has becoming dislodged, however, this is relatively minor and easily remedied.

North Gable Ends

- 4.5 The north gable ends are of a similar construction to the south, although feature single personnel door openings with windows each side. The blockwork is again in fair to good condition with no significant signs of substantial weathering.
- 4.6 Concrete lintels traverse the window and door openings and appear to be performing generally satisfactory. There is evidence of minor settlement towards the western end, requiring a small degree of repointing of blockwork joints above, however, this is relatively minor. The alignment and verticality of gable ends are both good. As before, these appear to be constructed on 450mm wide concrete foundations cast flush with the floor slab within.
- 4.7 There is minor evidence of weathering to the exposed edges of the blockwork, particularly on the north western end, where either the protective capping or protective concrete haunching has weathered away. Repairs have been undertaken in the past, and this would no doubt be remedied as part of the conversion works.

Curved Corrugated Roof Sheeting

- 4.8 The roof line to each unit presents an even and level ridge and with the curved sheeting providing a uniform, approximately semi circular, curve to each unit. The roofing sheeting presents in fair to

good condition with no obvious signs of significant damage or significant leaking into the internal space. A split was noted in the apex roof sheet at the north end of the southern unit. A repair to this would be needed locally going forward. Other minor splits were noted toward the southern end of the same unit, however, to a lesser magnitude.

- 4.9 At springing point, the roof sheeting is supported on shallow plinth walls, approximately 150mm thick blockwork and with outward thrust of the sheeting appearing to be resisted by a cast concrete sill, supported on the blockwork itself. The sill also sheds surface water from the roof onto the adjacent ground.

Exterior

- 4.10 The external ground is generally level surrounding each units. The units are relatively close to one another, being spaced by 450mm, and this has enabled silt and soil to build up, permitting the growth of vegetation in the small gap between the two units.
- 4.11 It is recommended that this be cleared and cleaned to ensure that debris does not build up and further that surface water can be disposed of in a positive way.
- 4.12 Concrete hardstanding is generally provided to the north sides of the units, sloping away from the gable ends and with the same provided to the south side. Of note, the southern external concrete is a slightly higher level than the existing internal flooring. This will need alteration in the final detailing.
- 4.13 We have not exposed the foundations of the properties, however, there is no evidence during the inspection that these were under performing based on the current loading regime and site conditions.

5.0 INTERNAL INSPECTION

Ground Floor

- 5.1 A concrete ground floor is present within each unit. This appears to be a ground bearing concrete floor slab cast in individual bays of various sizes. The floor presents as reasonably level

longitudinally and transversely, although there is minor level variation between adjacent slabs in isolated areas. This is relatively modest.

- 5.2 There is evidence of slight damage to slab edges, where each panel abuts its neighbour, as a result of prolonged use, however, again, this is modest and easily remedied in any conversion works.
- 5.3 The current slab is currently flush with the external ground and therefore it is expected that it will either be removed to enable a new insulated floor construction to be provided, or alternatively, it could remain, if levels permit and be finished with insulation and screed above, according to final architectural details.
- 5.4 Intermediate structural support to the roofing is being provided by longitudinal timber purlins of which, 2 No. are present to each 'side walls' of the curved roof, with 3 No. being present being towards the 'crown' of the roof. The purlins are formed of pairs of 50mm wide x 25mm deep timber battens, which form a composite section. These gain support from the semi circular ribs, formed from 35mm diameter tubular steel sections. These sections are spaced at regular centres along the building varying from 1800mm to 2000mm.
- 5.5 There are 6 No. tubular steel ribs along the length of each structure. These are embedded into the concrete at the tops of the blockwork plinth walls.
- 5.6 At the time of the inspection, the structural timber purlins and tubular steel ribs appeared to be supporting the current loading regime satisfactorily, without obvious deflection or distortion.

6.0 LIMITATIONS

- 6.1 The structural inspection is a specialist survey, whose purpose is to enquire into the structural stability of the building.
- 6.2 The work of a structural inspection consists of a visual inspection of all accessible parts of the building, assisted by a check for abnormal distortions where practicable. Reference may be made to local geological conditions, and to records of structural damage to other houses in the vicinity.

- 6.3 The limitations of structural inspections are similar to those of most other domestic surveys. We are not permitted to dig trial holes, lift floor coverings or remove decorations. We will therefore remain unaware of hidden defects or unusual construction details. In most cases, these limitations are not important, because structural problems are usually evident on the surface (walls, ceilings, door openings) before they become severe. But it does mean that we cannot detect problems that are latent or concealed. We always recommend, regardless of the structural condition of the building, that the owners maintain cover for all insurable perils, as these are never 100% predictable.
- 6.4 Except where specifically noted otherwise, our advice is concerned solely with current structural performance, and we do not report on the condition of finishes, waterproofing, damp penetration or timbers.
- 6.5 We recommend carrying out structural maintenance as part of good housekeeping, the most important tasks being:
- Ensuring drains remain free flowing and watertight
 - Ensuring vegetation does not grow uncontrolled close to the building
 - Ensuring the building remains weatherproof
 - Repairing or replacing deteriorated materials
 - Taking professional advice on any proposed alterations or extensions
- 6.6 We can provide detailed advice on structural maintenance if requested. We are not able to detect the presence of asbestos materials. We can provide standard literature on the risks associated with asbestos, if requested. This report is for our client's personal use, and is confidential, non-assignable and carries no admission of liability to any third party.

7.0 CONCLUSIONS

- 7.1 We were instructed to undertake a structural engineer's visual appraisal of 3 No. Nissen Hut style buildings at Newtown Meadow, Worlingworth. The inspection confirmed 3 No. extant mid twentieth century buildings formed from corrugated sheeting supported on timber purlins and

steel ribs. These in turn were supported on concrete blockwork plinths along the long elevations, with concrete blockwork gable ends.

- 7.2 Generally, the buildings were found to be in fair to good condition. There were obvious signs of weathering and aging, manifested in the form of minor spalling to blockwork, slight sagging to lintels, occasional splits in the roof sheeting and the growth of vegetation in the valley lines.
- 7.3 Overall, the buildings were found to be in fair to good serviceable condition, with sufficient structure remaining to warrant consideration for a conversion.
- 7.4 We have not been supplied with architectural drawings of the desired layout, however, we would advise that lightweight materials be used to the existing roofing system to avoid adding significant further loading to the structure, which currently appears to be performing satisfactorily under the existing loading regime.
- 7.5 In summary, we consider the buildings capable of ongoing use and for re-use in a domestic conversion.
- 7.6 In any event, irrespective of whether the buildings are converted or not, the following is recommended for the ongoing health of the buildings:-
- 7.6.1 Ensure splits and cracks in the roof sheeting are repaired either by appropriate resin and glue repair or by adding new roof sheet sections.
 - 7.6.2 Address minor spalling of concrete blockwork wall edges.
 - 7.6.3 Undertake repointing to open joints in blockwork walling.
 - 7.6.4 Remove vegetation growing between the units, remove silt and ensure that drainage is provided and can discharge freely away from the units.
 - 7.6.5 Ensure mature trees in the vicinity of the units are maintained and that limbs are cropped back and do not overhang the units.

8.0 APPENDICES

Appendix A – Photographs



Photograph 1 – South gable ends



Photograph 2 – Lintel bearing



Photograph 3 – 'Springing point' concrete block plinth



Photograph 4 – North gable ends



Photograph 5 – Western elevations



Photograph 6 – Minor lintel movement



Photograph 7 – Vegetation in 'valley'



Photograph 8 – General interior



Photograph 9 – Steel rib and purlins



Photograph 10 – Foundation and slab details