

A prefabricated temporary building at Cranford Primary School, Kettering, Northamptonshire

by

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SUMMARY

The implementation of the 1944 Education Act raised the school leaving age from 14 to 15 in 1947. As a result a rapid expansion of space was required to accommodate the additional pupils. One response was the provision of temporary accommodation in prefabricated buildings, utilising the designs for standard huts issued by the Ministry of Works during World War II. A prefabricated building was erected in the grounds of Cranford school in 1946 but, far from being temporary, this was still in use some six decades later. Once common, these buildings are becoming increasingly scarce, and this example was recorded before demolition. The basic structure remained largely as built although the windows had been replaced and few original internal fixtures or fittings survived. The construction method was as described in the Ministry of Works construction manual, although the dimensions of the building and some use of materials suggest that it was a modified form of a standard type 24 hut.

INTRODUCTION

An application was made by Northamptonshire County Council (Buildings and Capital Development Section) for Conservation Area Consent to demolish a 1940s prefabricated 'HORSA' building (Hutting Operation for the Raising of the School-leaving Age) at Cranford Church of England Primary School, Church Lane, Cranford, Kettering, Northamptonshire (Fig 1, NGR SP92589, 76976). A condition to provide a photographic, drawn and written record of the building prior to demolition was provided by Myk Flitcroft, as Senior Environmental Planner, Northamptonshire County Council (NCC).

Northamptonshire Archaeology was commissioned to carry out this work. A site visit was made on 27th July 2006, and scale drawings provided by NCC were checked and annotated. A photographic record was made using 35mm film, both black and white negative and colour transparency and by digital SLR. Written descriptions were made using Northamptonshire Archaeology pro forma record sheets.

ACKNOWLEDGEMENTS

The project manager was William Boismier and the fieldwork and photography was by Antony Walsh. The client report was prepared by Antony Walsh with assistance from Joe Prentice, and this report has been

edited for publication by Andy Chapman. The illustrations are by Jacqueline Harding.

BACKGROUND

The 1944 Education Act formed an important part of the programme of post-war social reconstruction. Amongst its many provisions was the intention to establish a nationwide system of free, compulsory schooling from age 5 to 15, with a further rise to 16 as soon as was practicable. As a consequence, the school leaving age was raised from 14 to 15 in 1947. In this post-war period this placed a considerable burden on school facilities, with an evident need for more space to accommodate the additional pupils at a time of austerity and shortages.

As with housing, a quick, cheap and 'temporary' solution was found in the use of prefabricated buildings. These were allocated by the Hutting Section of the Ministry of Works during the 1940s to provide temporary accommodation until such a time as permanent buildings could be constructed. The name 'HORSA' that has been attached to these buildings stands for 'Hutting Operation for the Raising of the School-leaving Age'.

The Standard 24 Hut was a sectional structure which allowed buildings of different sizes to be built by the addition of extra 6-foot sections (or bays) as required. The 24 denotes the span of the building at 24feet (7.32m). The construction manual, issued by the Ministry of Works, Hutting Section, Cleland House, Page Street, London SW1 in August 1943 issue, describes the form of these huts in some detail (MoW 1943). Copies of two pages showing the plan form and a method for erection of the framework are illustrated (Figs 2 & 3). These huts were to be erected on a prepared base of the most minimal specification-'strip turf and remove vegetable soil, excavate additional depth if directed for hardcore (to be kept to a minimum). Excavate for post foundations. Establish carefully the post positions'. The posts were to be set in sockets 'which must not exceed 10" by 9" and be 9" deep exactly', with the posts grouted in using a mortar comprising a ratio of 1:2 of cement and sand. A framework of reinforced concrete ribs was bolted to the bracketed posts and held at the ridge by a continuous tie. The description of the framework erection allowed for a minimum of four workmen to manhandle the posts and beams using A-frames and a light portable gantry (Fig 3).

The posts forming the ends were flat-topped, without ribs, and concrete floor sills and lintels spanned the walls between the posts to form standard sized panels

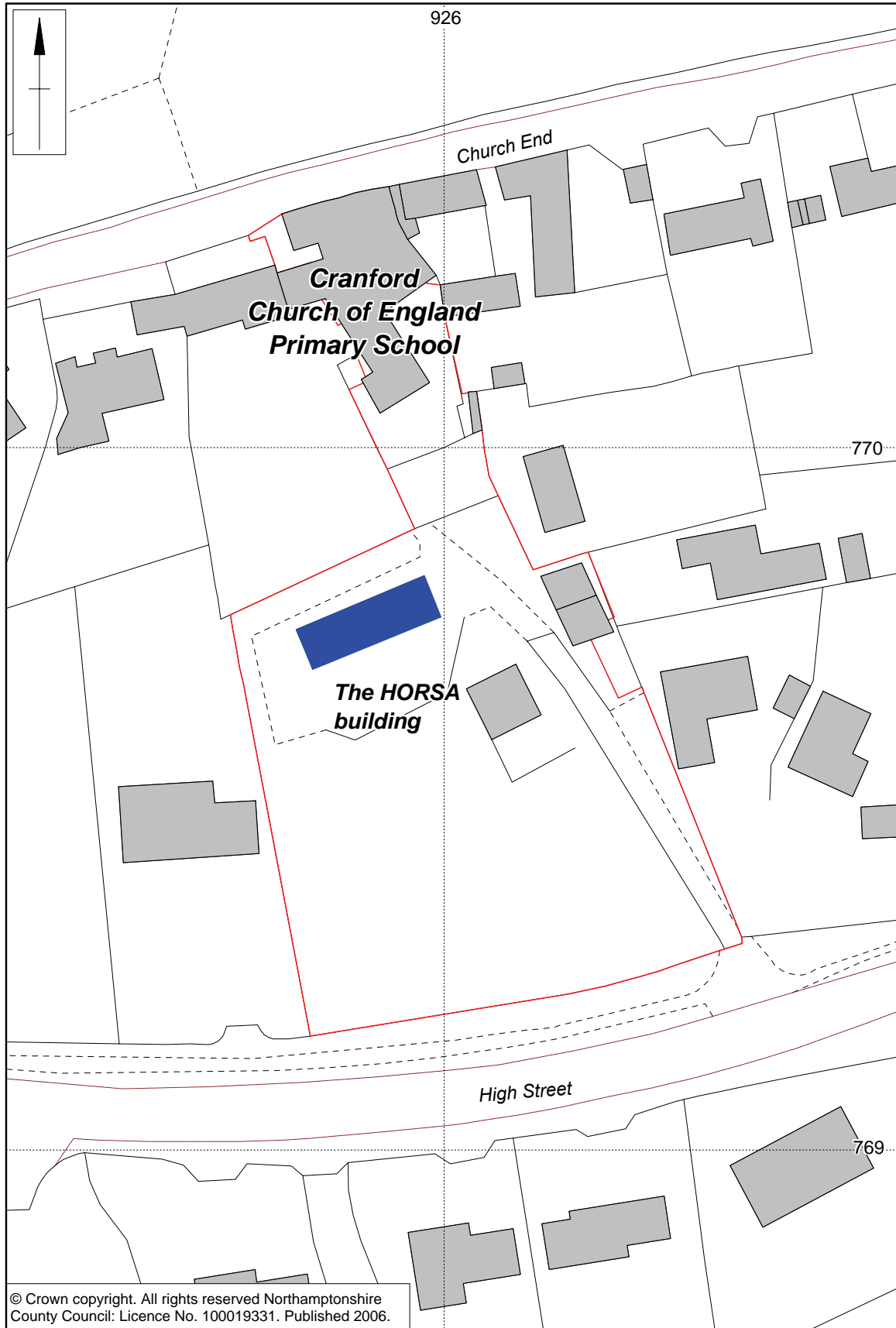


Fig 1 The location of the HORSA building at Cranford School

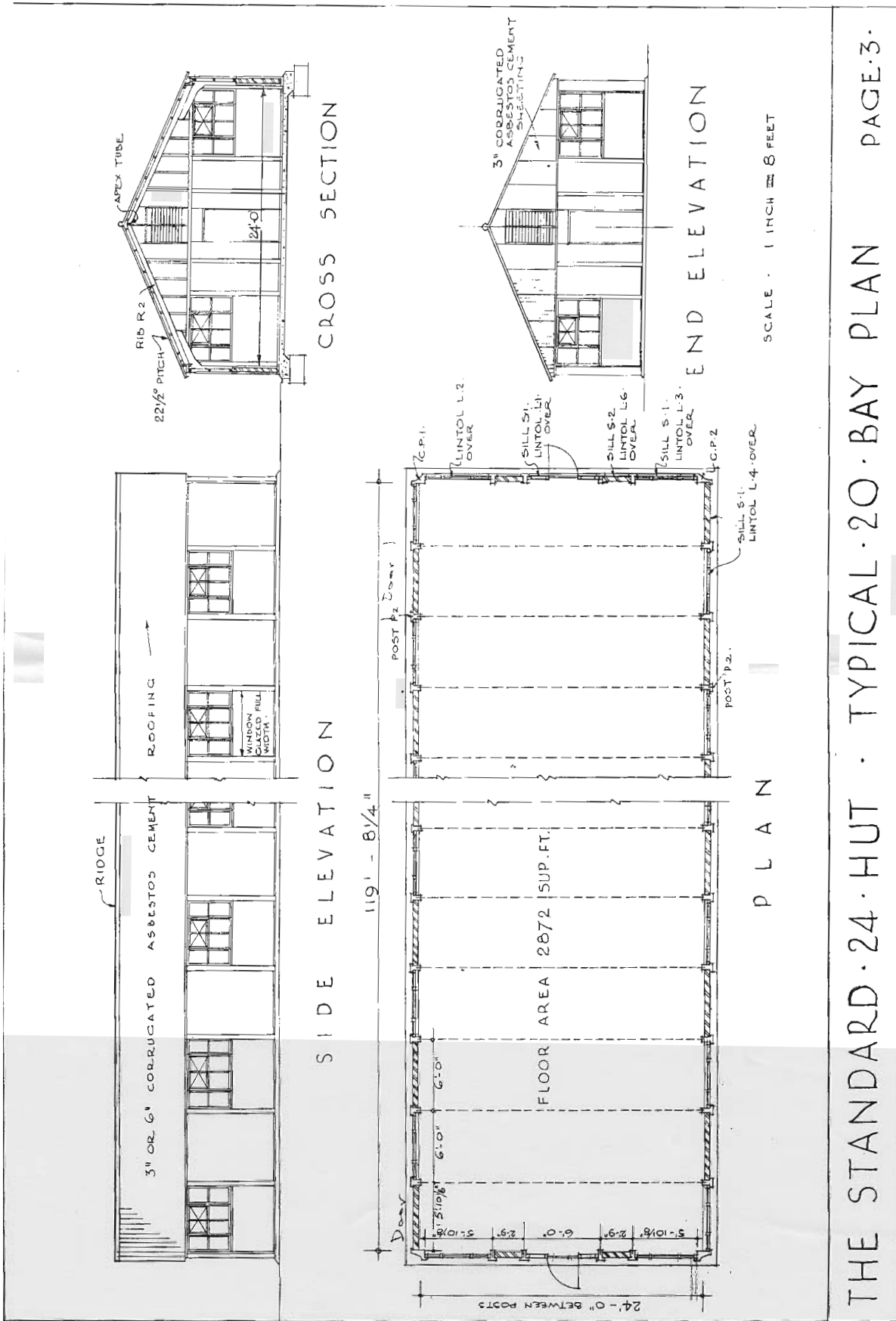
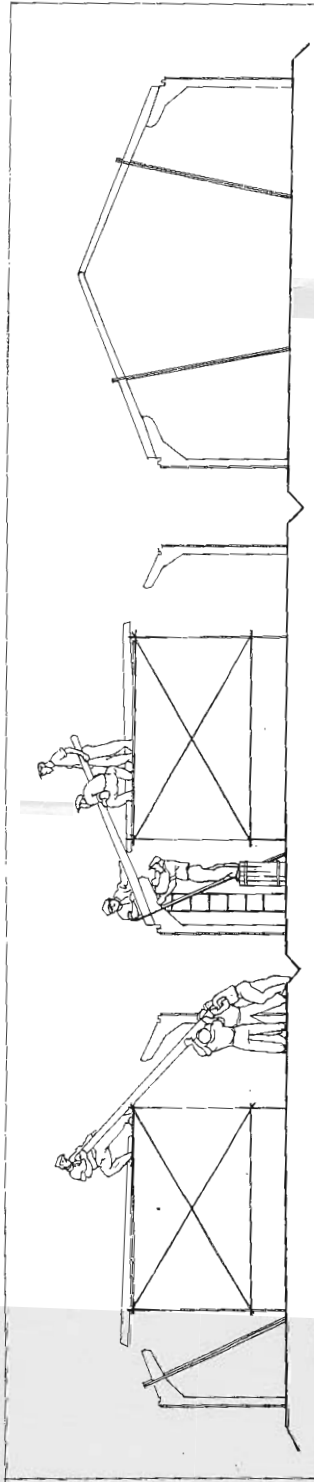
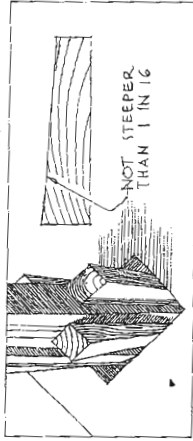


Fig. 2 Plan and elevations of a typical type-24 hut, from the *Ministry of Works* construction manual, 1943

● A COMPLETE BASE WITH CORRECTLY SET OUT & LEVELLED POST HOLES IS ASSUMED.
SEE PAGES 6 & 7

1. SET UP, ALIGN, PLUMB, & SECURE WITH WEDGES AS SHOWN, THE WHOLE OF THE POSTS GROUT THE POSTS IN, EACH ONE BEING SUPPORTED BY AN 'A' FRAME - AND NO FURTHER OPERATIONS BEING PERFORMED - UNTIL THE CONCRETE HAS HARDENED
2. SET UP A LIGHT PORTABLE GANTRY ABOUT 10'-0" HIGH, BY 13'-0" BY 4'-0" IN LINE BETWEEN A PAIR OF OPPOSITE POSTS. HOIST ONTO IT A PAIR OF RIBS
A PORTABLE CRANE OR SHEAR-LEGS, WITH NON-OVERHAULING BLOCK & TACKLE MAY BE USED, THE LOAD BEING SUSTAINED BY THE TACKLE, WHILE THE RIBS ARE BEING OFFERED TO THE POSTS. BOTH RIBS MAY BE ERECTED SIMULTANEOUSLY BY THE USE OF TWO HOISTING APPLIANCES. ● IF LIFTING TACKLE IS USED THE RIBS MUST BE PROTECTED FROM DAMAGE BY THE SLING
3. TWO MEN ON THE GANTRY NOW OFFER A RIB TO ITS POST, WHILE TWO MEN MAKE THE BOLTED CONNECTION. REPEAT WITH THE OPPOSITE POST, THE CONNECTIONS BEING HANDTIGHT ONLY. MAKE NECESSARY ADJUSTMENTS & THEN FIX APEX PIN



ON REMOVAL OF THE GANTRY TO THE NEXT BAY AN 'A' FRAME SHOULD BE PLACED BENEATH EACH RIB OF THE COMPLETED FRAME, AND THESE 'A' FRAMES MUST REMAIN IN POSITION UNTIL CONNECTIONS ARE FINALLY TIGHTENED

4. CONTINUE SIMILARLY WITH THE ERECTION OF THE SUCCEEDING RIBS
- RIDGE TIES BEING FIXED AND LINTOLS GROUTED IN AS THE WORK PROCEEDS
- ON EXPOSED SITES AN 'A' FRAME SHOULD BE LEFT UNDER EVERY FOURTH FRAME UNTIL THE PUPLINS HAVE BEEN FIXED
- POST-TO-RIB BOLTS ARE TO BE PLACED WITH NUTS UPPERMOST

This method involves the erection & grouting-in of all posts preceding the erection of the ribs.

Fig 3 Instructions for hut erection, from the Ministry of Works construction manual, 1943

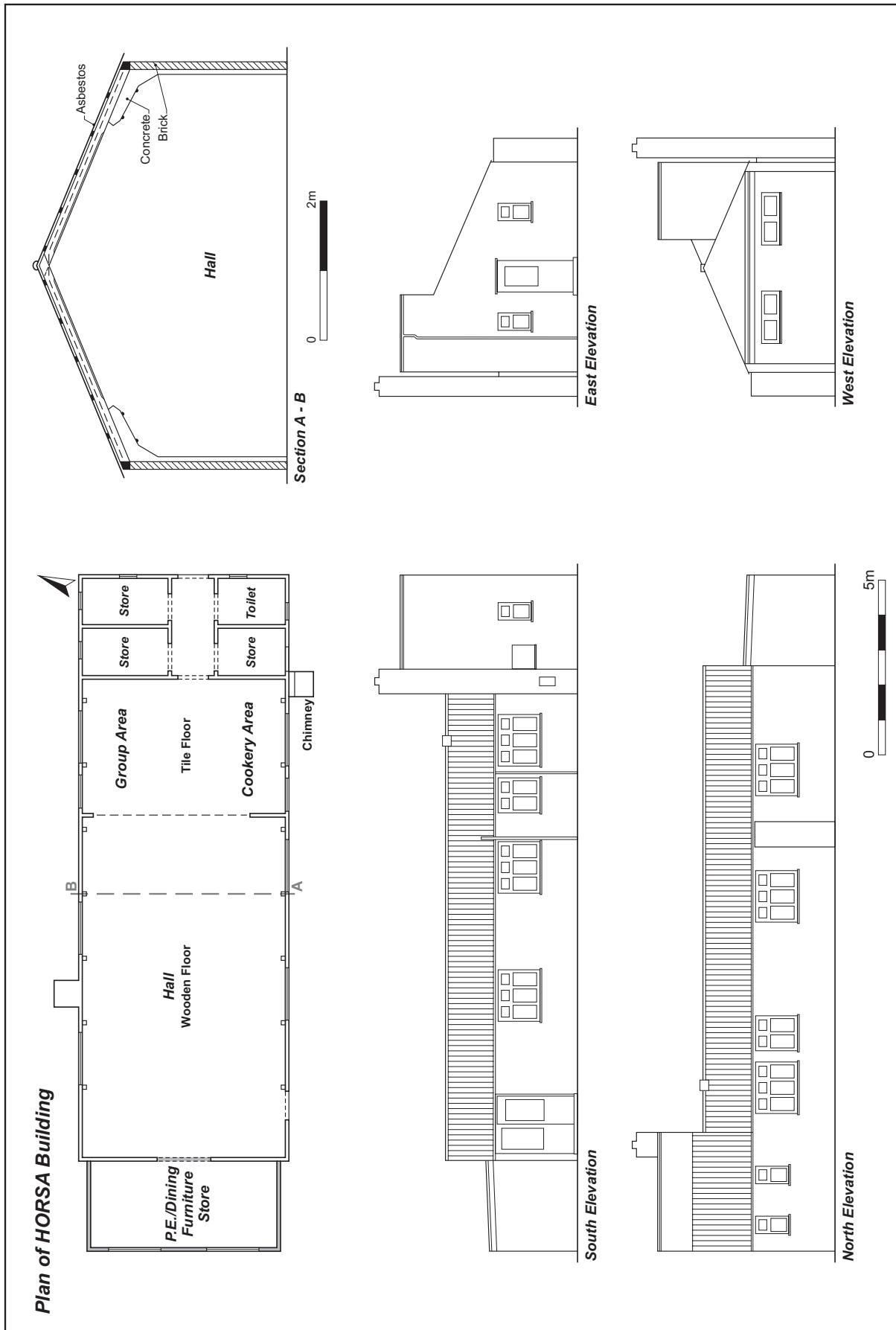


Fig 4 Plan and elevations of the Horsa Building

throughout for the wall cladding. The cladding between the posts could be of any material but the following were standardized; bricks, clay blocks, mineralised siding board, plasterboard or wood cement. Windows were also prefabricated and it was suggested that they should be top hung sashes opening outwards as these could be incorporated in mineralised siding boards, if this method of infill was chosen. Roofs appear to have always been standard three or six-inch corrugated asbestos sheeting screwed to timber purlins fixed to the ribs, and building-board lining.

The buildings were clearly relatively quick and cheap to erect and required minimal foundations. The manual provides full and clear instructions from the arrival of the separate parts at the site and the recommended method of storage to the finishing and decorating, and even the fitting of blackout screens.

THE SCHOOL PLOT

The HORSIA building at Cranford primary school stood centrally within the school plot (Fig 1). To the south was the school field; which is contained by a fence and accessed by a gated footpath onto the High Street. Two buildings to the south, an office and a temporary classroom, had recently been replaced by an extension to the main school and a 'new' temporary classroom. A new playground had been constructed south of the HORSIA building, which involved levelling the natural slope, which rises towards the High Street. It is likely that the site of the HORSIA building also required levelling. The main school buildings lie to the north, facing onto

Church End. The surrounding properties are residential, with gardens.

Following the demolition of the prefabricated building, the school now has a new hall on this site.

THE CRANFORD PREFABRICATED BUILDING

The building was aligned east to west and the original structure was 17m long (55' 9"), with a 2.5m long modern extension on the western end (Figs 4 & 5). The internal width of the building was 5.7m (c19 feet), 5-feet less than the 24-feet specified for the Type 24 Hut. The maximum internal height was 3.4m.

The construction method was clearly visible within the open room that comprised most of the interior. Seven concrete posts and brackets formed seven and a half bays bounded by end walls of brick (Figs 4 & 6). The ceiling ribs were simply bolted to the brackets (Fig 7). The ribs were halved at the apex and had a chamfer on their underside, which was repeated on the brackets (Fig 8). Between the posts there was brick infill to the wall plate and the apex of the gables. The external finish was of pebble-dashed render (Figs 5 & 9). Originally the windows would have contained metal frames, but these had been replaced with UPVC units. The roof was of corrugated asbestos sheeting. The northern elevation of the building was fenced off and very overgrown, and could not be photographed due to the close proximity of trees and bushes. The northern wall of the building was clearly the least stable, and had recently been reinforced with timber shoring. A possible disused chimney was noted between the western and central windows.



Fig 5 The southern elevation, with the service rooms (right) and the modern extension (left)



Fig 6 Interior of hall looking east, showing the partial partition between the main room and the cookery and group area (background)



Fig 7 Detail of single bracket, showing bolts retaining rib

Fig 8 Detail of apex of ribs, showing halved joint and chamfering



The main part of the building was an open hall (Fig 6). At the east end, two and a half 'bays' were a cookery area, containing a sink and kitchen units, and on the north side was a 'Group Area' for teaching. These bays were partially separated from the hall space to the west by a brick wall extending *c* 2m from the southern wall and a projecting brick post on the northern wall. The division was also reflected in the flooring, with the cookery area having a red tile floor while the hall had wooden parquet flooring.

Originally the space was probably more formally divided, by a full wall or partition, with a stove or fireplace serving each. The chimney serving the eastern area still stood against the southern elevation (Figs 4, 5 & 10). The capped remnant of a chimney serving the larger western room stood against the northern elevation at the centre of the five-bay hall (Fig 4). The position of a former fireplace or stove base was indicated by a rectangular area of different flooring. Recently, the wooden-floored end of the building had been used for PE, as well as a dining area, with swing-out climbing bars on the south wall and brass fixing points in the floor.

The internal decoration and finishing was very simple, with painted brickwork and a hardboard ceiling. Lighting consisted of suspended striplights hung on chains. The electric wiring was surface mounted in pipes or pinned to the wall with plastic clips, and passing through spaces in the concrete brackets. The headteacher remarked that there was minimal insulation in the building, and that it was very cold in winter.

Although now occupied by new UPVC units, the

arrangement of window openings on the southern elevation was probably original, and was mirrored on the northern side. Four windows were present in each elevation, in an asymmetrical arrangement; with two widely-spaced three-light windows in either elevation of the larger western room and closely spaced three- and two-light windows serving the cookery and group area.

A door at the western end of the southern wall contained a UPVC door and window, but the former presence of a simpler door here was suggested by a surviving outside step.

At the western end of the building there was a more recent flat-roofed extension, built of breeze blocks. This was used to store PE and dining furniture, and was accessed by double doors. The extension had a clear straight joint with the original west wall of the building and the pebble dash render on the original external wall still survived within the extension. It may be conjectured that the double doors had replaced an earlier main entrance at the western end of the hall.

The eastern end of the building was occupied by four small service rooms flanking a short lobby/corridor that led to a door in the east elevation, slightly south of the central axis. All the rooms had similar design panel doors and concrete floors.

Over the southern storeroom and toilet, the building was of double height with a flat roof, with a separate sloped roof to the north (Figs 9 and 10). On the southern elevation, at the junction of the single and double storeys there was a slender chimney, with a metal flue access panel. The chimney was held together by a series of



Fig 9 The eastern elevation, showing the raised water tank storage over the service rooms



Fig 10 The service rooms, showing the chimney, with supporting metal bands, and hatch opening into the possible coal store



Fig 11 Store room, with stone slab shelf on brick piers, and wooden-slatted shelving

metal brackets. Immediately east of the chimney was a square hatch, presumably allowing access to the adjacent storeroom (Fig 10). This and the absence of a window, suggest that it once served as a coal store. The only fittings in this room were more recent, comprising the remains of veneered (MDF/chipboard) shelves. This room also contained a high-level access door into the double height roof space, through which a water tank could be seen.

The toilet/washroom to the east was lit by two small windows.

On the northern side of the corridor, the western store-room had stone-slab shelves upon brick bases (Fig 11), suggesting that it was used as a pantry, while the eastern storeroom contained the service controls, electricity meter etc, and also remnants of wooden slatted shelving. They were each lit by a single small window.

CONCLUSION

It is understood that the expected life of such prefabricated buildings was approximately ten years. That at Cranford had stood for sixty years, although it was showing signs of subsidence, presumably a result of the shallow foundations. Following increasing cracking of the walls

and floors, timber raking supports had been erected against the northern elevation in an attempt to restrict further movement.

The Cranford building appears to have been a slightly later model than that described in the Ministry of Works manual for 1943, as it had certain improvements to the specification, such as brick walls to the apex of the gables rather than corrugated asbestos sheets above eaves level, and a pebble-dashed external finish and metal window frames (recently replaced with UPVC units).

The original asbestos roof had become brittle and the chimney was held together by a series of metal brackets. At the opposite end of the building a small flat-roofed extension, built of breeze blocks, was also suffering from the movement of the HORSAs building and was showing cracks to its walls.

In consequence of its condition, a decision was made to demolish the old 'prefab' and it has now been replaced by a new hall.

REFERENCES

MoW 1943 *Standard 24 Hut (24' 0" span): Description and Method of Erection*, Ministry of Works, August 1943

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