

Dear Jane,

Enclosed are the SECO documents I described to you in my email. I hope you find them a useful addition to your collection.

We were amused by the photographs showing several work-men smoking and also showing a general disregard for Health and Safety!

My father had a life long interest in aviation, which might explain why he kept these plans.

Best Wishes.

Carolyn Bryan.

MARK II "SECO" UNIT SYSTEM OF CONSTRUCTION

Patent Applications Nos:

1821/41, 5595/41, and 745/42

BRIEF SPECIFICATION FOR THE ERECTION OF CLEAR SPAN
BUILDINGS, INCORPORATING "SECO" 'AERO' BEAMS AND
COLUMNS, WITH PARTICULAR REFERENCE TO THE MINISTRY
OF WORKS STANDARD BUILDING, 59'7 $\frac{5}{8}$ " x 19'7".

Reference should be made to the following Drawings,
copies of which are obtainable from the Senior Purchasing
Officer, Ministry of Works, Directorate of Works, Purchasing
of Material Division, 64, Horseferry Road, Westminster, S.W.1

(Telephone: ABBey 8020, Ext. 350).

Drawing No: 673	Plan of Building
Drawing No: 900	Foundation Plan
Drawing No: 903)	Erection Plans
Drawing No: 904)	
Drawing No: 1128	Blackout Surround Fitments

UNI-SECO STRUCTURES LIMITED,

6, WOOD'S NEWS,

PARK LANE,

LONDON, W.1.

Telephone: ...

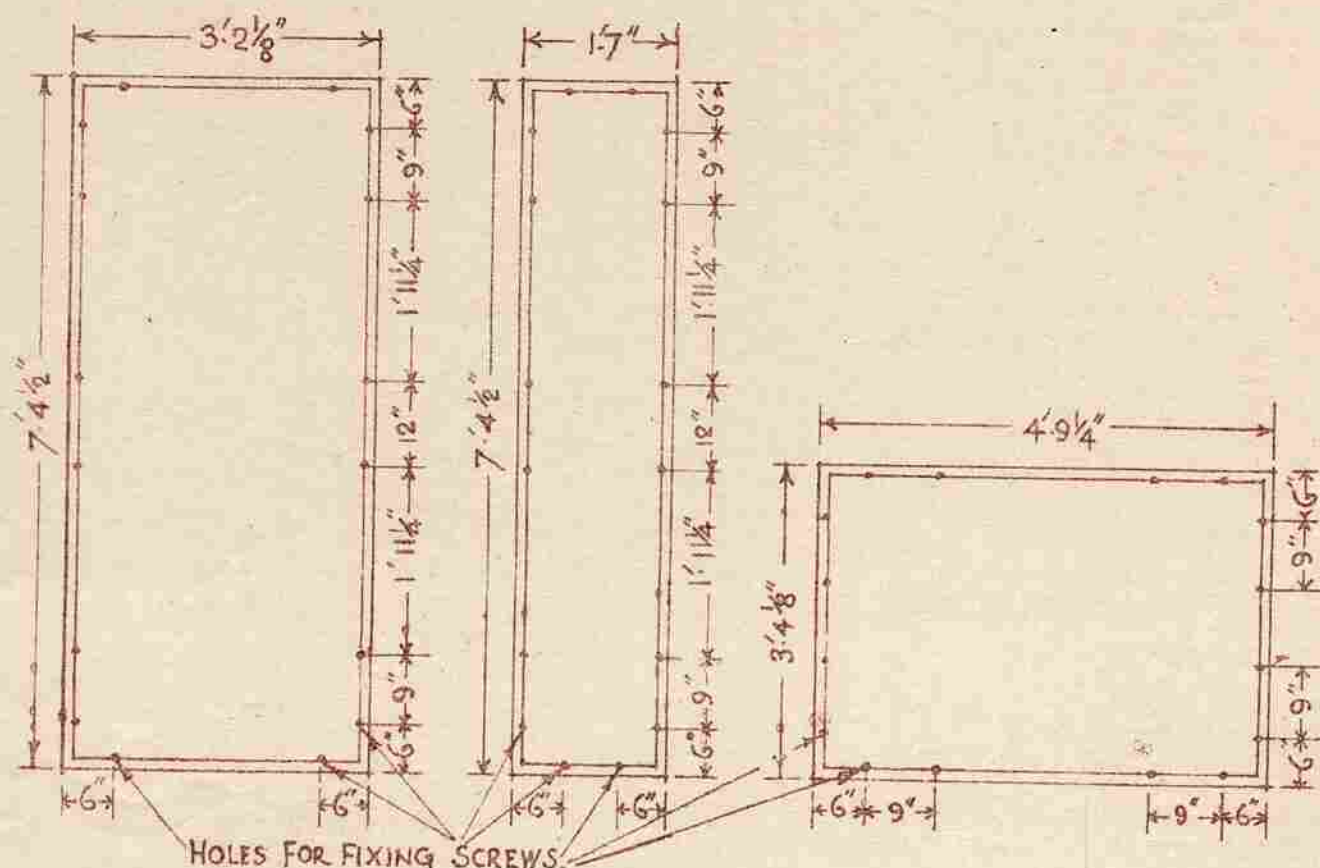
...

Telegrams: ...

...

Mayfair 6661
(5 lines)UNISECO, Audley,
London.

THE MARK 2 SECO-UNIT SYSTEM OF CONSTRUCTION. UNITS & SLABS USED FOR THE 59'-7 $\frac{3}{8}$ " x 19'-7" SECO STANDARD BUILDING FOR M.O.W.P.

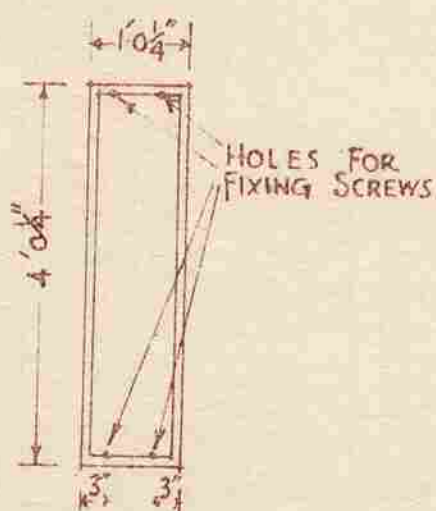


No 1. UNIT.
28 OFF.

No 2 UNIT.
4 OFF.

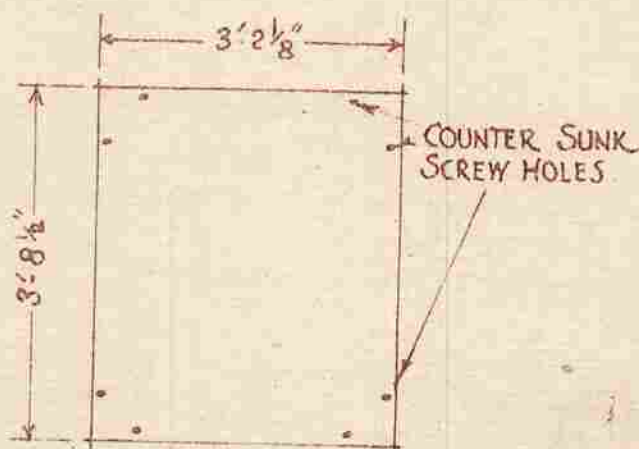
No 6B. UNIT.
10 OFF.

WALL UNITS.



A-PANEL.
10 OFF.

WINDOW PANEL.



X-SLAB.
90 OFF.

ROOF SLAB.

DRAWING NO 1134
 SCALE - 3/4" = 1'-0"
 DRAWN BY - AJS
 CHECKED BY -
 DATE - 25-8-42.

UNI-SECO STRUCTURES LTD
 6 WOODS MEWS.
 PARK LANE.
 LONDON. W1.
 MAYFAIR 3728-9.

A. The following is a Schedule of Units and Components in a Clear

Span Building, 59' 7 $\frac{3}{8}$ " x 19' 7" :-

COMPLETE SET OF UNITS

28	No: 1 Wall Units)	
4	No: 2 Wall Units)	
10	No: 6 (b) Wall Units)	As Drawing
10	Type 'A' Window Panels)	No. 1134
90	Type 'X' Roof Panels)	attached

COMPLETE SET OF COMPONENTS

4	"SECO" 'AERO' Beams , 20' 7 $\frac{1}{2}$ " long		
8	"SECO" 'AERO' Columns, 7' 5" high		
1	Set of Eaves, approximately 160' run		
10	Type 'A'		
2	Type 'B'		
25	Roof Spars, ex 7" x 2", 11' 1 $\frac{3}{4}$ " long		in 5 bundles
20	Tie Bars, ex 2" x 2", 9' 7" long		in 1 bundle
Keelplates			
4	Type 'a')	
10	Type 'b')	in 1 bundle
Baseboard			
4	Type 'g')	
10	Type 'h')	in 1 bundle
4	Corner Posts, 7' 6 $\frac{1}{2}$ " long, triangular		
20	Packing Posts as Lintols, 1' 10 $\frac{1}{2}$ " long		in 1 bundle
Loose Tongues:			
36	Type 'c', 7' 3 $\frac{1}{2}$ " long)	
26	Type 'd', 5' 6 $\frac{7}{8}$ " long)	
20	Type 'e', 3' 3 $\frac{1}{2}$ " long)	in 1 bundle
10	Type 'f')	
2	Door Frames, Type 8B, with Ventilating Panels		
10	Double Blackout Surround Frames)	in 2 bundles) As Drawing
	with Curtain Rods)) No. 1128
3	Gallons "SECOMASTIC" 'S'		
1	Bag Screws, containing:		
10	gross	2 $\frac{1}{8}$ ", or 2 $\frac{3}{4}$ ", No: 9, 10 or 11	
2	"	1 $\frac{5}{8}$ ", No. 11	
3	"	1 $\frac{1}{4}$ ", No. 9	
1	"	4", No. 14	
1	Bag of Bolts for Keelplates, comprising		
	65 Bolts with Washers and Nuts.		

Doors, Door Furniture, Windows, and Window Mastie will normally be supplied by the Ministry concerned.

B. HANDLING AND STACKING OF "SECO" UNITS (See Correction before Page 1, Part II.)

"SECO" Units and Components should be handled, stacked and stored with care. The exact requirements for complete buildings are despatched, and obviously a broken or missing part will hold up progress of erection. Units should be stacked on a level base, and built up one over the other in such manner as to ensure that no undue strains are imposed on the frames and that the asbestos sheet faces are not damaged. It is preferable to arrange stacks on the foundation rafts on which Units are to be erected.

If it is necessary to transport Units by lorry, they should be loaded on edge across the body of the vehicle, frames abutting closely together and strapped with timber battens.

C. The erection of "SECO" Buildings may be conveniently divided into the following progressive stages:-

1. Preparation of Foundation Raft
 2. Laying of the Keelplate
 3. Positioning of 'Aero' Columns
 4. Positioning of 'Aero' Beams
 5. Erection of Wall Units
 6. Fitting of Eavespieces
 7. Positioning of Roof Spars and Ties
 8. Fixing Roof Units
 9. Fixing Windows
 10. General tightening up of screws and grouting of Rag Bolts
 11. Fixing of Exterior Baseboard
 12. Felting of Eaves and Roof
 13. Application of "SECOMASTIC" to all Exterior Joints
 14. Glazing of Windows
 15. Hanging of Doors and fitting of Blackout Surround Frames.
 16. Decoration and Camouflage.
-

D. LABOUR REQUIREMENTS

Providing that Units and Components have been stacked convenient to or actually on the concrete raft on which they are to be erected, it will be found most economical to employ two labourers to every carpenter, and to arrange labour in gangs, who may either erect the building complete or undertake specific operations on a number of buildings on a given Site. If material has to be stacked some distance away from the Concrete Raft, then the labour should be increased in the proportion of three labourers to one carpenter.

E. EQUIPMENT AND MATERIALS REQUIRED

1. Pairs of Trestles
 2. Deals
 3. Screwdrivers (Brace and Bit type preferable).
-

ERECTION PROCEDURE

1. Preparation of Foundation Raft

For the purpose of this Specification, it will be assumed that the Foundation Raft, with the necessary Mortices for Rag Bolts, has been correctly laid in accordance with Drawing No: 900, and to the requirements of the Ministry concerned. Before commencing erection, all raft measurements should be carefully checked.

2. Laying of the Keelplate

Rag Bolts, Nuts and Washers are supplied in a bag; these should be threaded through the holes in the Keelplate with the Washer and Nut in the counter sinking. The Keelplates are of two types, 'a' and 'b'. There are four type 'a', 7' 11 $\frac{5}{8}$ " , which should be positioned at the ends of the Raft, leaving a space in the centre for the Door Frame; there are ten type 'b', 11' 1 $\frac{3}{4}$ " , which are positioned along the sides between the Column bases. Keelplates should be packed up, if necessary, so that the tops are level. Rag Bolts should NOT be grouted at this stage.

3. Positioning of 'Aero' Columns

The remaining Rag Bolts are threaded through the holes in the base of the 'Aero' Columns, which should be positioned accurately, packing where necessary. The top of the base of the Column must be on a level with the top of the Keelplate. It will be noted that in this type of building, the Columns project to the exterior of the walls.

To obtain stability a No: 1 Wall Unit is placed on each side of the Column, having first inserted Loose Tongue, type 'c', 7' 3 $\frac{1}{4}$ " long in the vertical grooves provided, and Loose Tongue, type 'd', 5' 6 $\frac{7}{8}$ " , in the groove of the Keelplate. These Units are temporarily stayed by two or three 2 $\frac{1}{2}$ " screws to the Column and Keelplate.

4. Positioning of 'Aero' Beams

It will be found that the Beam can be easily lifted into position by two men at each end, standing on planks and trestles from the interior of the building. The 'Aero' Column is supplied with a tenon which fits into the mortice at each end of the Beam. Once in position, the Beam will give stability to the Column and adjoining Units.

To obtain further stability, as soon as two or more Portals have been erected, some Roof Spars, 7" x 2" x 11' $1\frac{3}{4}$ " should be dropped into central position from Beam to Beam, and temporarily screwed with 4" Screws.

5. Erection of Wall Units

There are three Units in each bay between Columns, two No: 1's and a No: 6 (b) between them. The No: 6 (b) Unit forms the Under Window Panel. Loose Tongue Type 'e', 3' $3\frac{1}{2}$ ", should be used between the Nos: 1 and 6 (b) Units, and should be inserted from above, after the No: 6 (b) Unit has been placed in position, taking care not to omit Loose Tongue type 'd' in the Keelplate groove. The No: 1 Unit at the end of each side of the building is erected last, and work on the ends may now commence.

The first No, 1 Unit of the end wall is positioned by the triangular Corner Post. It will be noted that this Corner Post is 7' $6\frac{1}{2}$ " to allow it to rest direct on the Raft. The No: 2 Unit is inserted, followed by a No: 1, thus bringing the Door Frame to the centre of the end wall of the building. Care should be taken, when positioning the Door Frame, to pack, if necessary, so that the top rail of the frame is level with the top of the adjoining Units.

SPECIAL NOTE:

During the erection of the Wall Units, it is not necessary to screw up tight, so that final lining up may be carried out at a

later stage. It will be noted that frame members of Units have pairs of screw holes bored on both sides, corresponding to each other. When screwing up, it is not intended that all these holes should be used. It is sufficient to use alternate ones on the outside and the inside of the building.

Care should be exercised in the handling of all types of Units. When being erected, they should be placed on the Keel-plate as near as possible to the Unit to which it is to be fixed. Hammering to bring them home should be avoided. They can be levered into position with a screwdriver at the Keel-plate.

As Walls are erected, it may be found necessary, particularly during windy weather, to strut the Units to avoid any risk of their being blown over. and operation No: 6, of fitting of Eavespieces, should commence as soon as a bay of Wall Units between Columns has been erected. Before Eaves are fitted, screw up the Joint between Beams and Columns with 4" Screws.

6. Fitting of Eavespieces

Eavespieces are of two types 'a' and 'b'. The 'a' types are fitted between the Columns, the 'b' type arrive as a gable and in one length. Care should be taken to ensure that the Eavespieces rest with the internal bracketing firmly on the top frame member of the Units. The top of the Eaves should be level with the top of the Beam where it abuts. The Eaves should be screwed to the top frame member of the Wall Units through the prepared screw holes on the internal fascia and externally inside the weather moulding, using the $1\frac{1}{4}$ " Screws supplied.

The four corner weather moulds of the Eaves are now screwed home, making sure that they line up with the adjoining weather mould.

7. Positioning of Roof Spars and Ties

The 7" x 2" Roof Spars are dropped into position in the prepared guides on the Beam and gable end faces. These Spars are bored to receive 4" screws at each end, both top and bottom. It is essential that all these should be used and screws driven well home. The 2" x 2" Roof Ties, 9' 7" long, are now fixed into the slots of the Eaves and checks of the Spars, and screwed home with $1\frac{3}{4}$ " screws.

WARNING

Contractors should warn their labour to stand ONLY on the main Spars and not on the 2" x 2" Ties, which are not designed to carry loads, but only to provide lateral stability.

8. Fixing Roof Units

It will be noted that the Roof Units, in the interests of economy of material, have been manufactured with one side comprising off-cuts. The off-cut side should be uppermost when the Units are erected, as ultimately they will be covered with Roofing Felt. The underside forming the ceiling will, therefore, be of one piece. Erection of Roof Units should commence from the ends of the building and labour should use planks on which to walk as the Roofing proceeds. To prevent damaging or loosening the off-cuts workmen should NOT be permitted to walk on the Units themselves.

Each Unit is bored 6" from the corners, and should be screwed down to the Spars and Tie Bars with the $2\frac{1}{2}$ " (or $2\frac{3}{4}$ ") Screws supplied. Care should be taken to screw home to avoid projecting screw heads from damaging the Roofing Felt later to be applied.

Roof Units are purposely manufactured with reasonable tolerance and care must be taken to position these centrally on the Spars and Tie Bars, so that from the interior of the building the joints and nail heads are concealed by the Roof members.

9. Fixing Windows

The small Packing Posts, of which twenty are supplied, $1' 10\frac{1}{2}"$ long, act as Lintols, and should be placed in the exposed cavity of the Eaves over the No: 6 (b) Panels. These should be placed abutting the No: 1 Units and screwed in position through the Eavespiece fascias. The Window Panel type 'a' should now be inserted in the space remaining in the centre, and fixed by screwing at the top through the Eavespieces and at the bottom in the normal manner after sliding in the loose tongue type 'f' from that side. The Sashes are now applied with Window Mastic, and screwed to the surrounding Unit Frames and Lintol.

10. General Tightening-up of Screws and Grouting of Rag Bolts.

The building is now erected and only requires a final tightening up. At this stage, any slight adjustment in alignment may be taken up with a crowbar on the Keelplates, so that all walls are plumb and square.

The Keelplates should now be firmly fixed by wedging, and Units screwed up tight before the grouting of the Rag Bolts is carried out.

11. Fixing of Exterior Baseboard

The exterior Baseboards are of two types, 'g', of which there are four, for the ends, and 'h', of which there are ten for the sides. The object of the Baseboard is to give weather protection to the junction of Unit, Keelplate and Raft, and should be fixed as shown on Drawing No: 903, and screwed home to the Unit Frame and to the Keelplate, using $1\frac{1}{2}"$ and $1\frac{3}{4}"$ Screws respectively.

These Baseboards fit between side faces of Columns, and, therefore, at the ends of the buildings, they will project slightly. A saw run down the splayed faces of the Corner Post will provide a flush clean finish.

12. Felting of Eaves and Roof

The felting operations will doubtless be a matter for Felting Sub-Contractors, but care should be exercised to ensure that the vertical faces of the Eavespieces and the Weather Drip should be carried out in two-ply bitumen felt, bedded in bitumen, with welt at the base, and secret nailing. The roof area itself will be carried out to the Specification required by the Ministry concerned. It is recommended, however, that any open Joints between Roof Units should first be filled with cement grout to minimise the risk of leakage of bitumen or fluxed pitch. The notice of Roofing Felt Contractors should be drawn to the importance of avoiding an excessive use of these materials, which may percolate through these joints.

Contractors erecting "SECO" buildings should insist on Roofing Sub-Contractors using planks laid across the span of the roof spars, to minimise the risk of damaging Roof Units and Roof Tie Bars.

13. Application of "SECOMASTIC" to all Exterior Wall Joints

Three gallons of "SECOMASTIC" 'S', supplied with each building, is an adequate quantity for the exterior joints. This material should be applied with Hand Pressure Guns, if available, or alternatively, with a Putty Knife, to all exterior wall joints between Units and to all joints between Asbestos and timber frame of the Wall Units themselves. When treating the angle formed by the Asbestos Sheet and the Unit frame, it will be found convenient to follow the chamfer as a guide for the thickness of application. An application should also be given to the angle formed by the Baseboard and Wall Unit face. This application should be thick enough to give a continuous mastic fillet as on Drawing No. 903.

"SECOMASTIC" 'S' has special plastic properties. After a few hours it will obtain a skin over which normal decoration or camouflage

may be applied. It should not be applied during or directly after rain.

14. Glazing

Proceed in normal manner as and when convenient.

15. Hanging of Doors and Fitting of Blackout Surround Frames

- (i) The hanging of Doors should now proceed.
- (ii) The Blackout Surround Fitments, which arrive in sections, should be assembled and fixed in position in the window openings with $1\frac{1}{4}$ " Screws supplied.

16. Decoration and Camouflage

The building is now ready for Decoration and Camouflage.

NOTE:

Although this Specification has been detailed in convenient progressive sections, it will be obvious that certain of the later operations can proceed simultaneously, e.g., fitting metal sashes with fixing of Roof Units, and exterior jointing with felting of Roof.

A D D E N D A TO "SECO" ERECTING SPECIFICATION.

APPLICATION OF "SECOMASTIC" 'S'

The following hints may prove useful to Contractors:-

1. By arrangement with the Ministry of Works, special Hand Pressure Caulking Guns are stocked by Uni-Seco Structures Limited for issue to Contractors, at a nominal hire charge of 7s. 6d. per week, per gun, nett.

It is absolutely essential that these Guns should be kept thoroughly clean, especially at the end of the day's work, otherwise they become glued up and the trigger mechanism, if forced, becomes distorted or broken. Having been imported, they are difficult to replace and the co-operation of all Contractors is earnestly requested in maintaining them in good condition.

Method of Cleaning

Thoroughly soak in paraffin until all "SECOMASTIC" has been dissolved and working parts are free. Oil working mechanism with thin engine oil of good quality.

2.

Filling the Gun

Remove Nozzle, release ratchet mechanism by twisting Plunger and push Plunger forward to full extent. Dip the end of the Gun in a bowl of paraffin; insert end of Gun into the "SECOMASTIC" and draw Plunger back slowly to fullest extent, when the Gun will be found to be charged. Cut off "SECOMASTIC" clean by drawing finger across opening of barrel. Wipe off any surplus "SECOMASTIC" on outside of barrel with rag, damped in paraffin, replace nozzle, twist Plunger to engage Ratchet mechanism and the Gun is ready for use.

(NOTE: If Paraffin is not available, use thin engine oil. It will be appreciated that the object of this is to prevent the "SECOMASTIC" from sticking to the outside of the Barrel and clogging up the threads, (or bayonet clip) of the nozzle cap.)

3. In cold weather, the "SECOMASTIC" may tend to become somewhat dense; it may be warmed slightly without detriment to its quality, by placing near

There are three types of Joints requiring "SECOMASTIC" treatment:-

- (a) The Vertical 'V' Joint formed by the junction between Units.
- (b) The Vertical Joint formed where the Asbestos Cement Sheets fit into the wood frame of the Unit.
- (c) The horizontal joint formed at the base of the Building when the Baseboard is applied.

Application

Avoid working in wet weather or when timber is saturated after heavy rain. If care is used, a blow lamp, applied quickly, will be found useful for drying off any surface moisture which might tend to prevent proper adhesion, but, if used, care should be taken to avoid cracking of the Asbestos Cement Sheets.

A pull or two on the trigger will force the Plunger forward and produce a ribbon of "SECOMASTIC" of the required thickness.

Commence working from the top of the Unit, drawing the Gun gradually downwards in order to leave an even thickness of "SECOMASTIC" in the groove being treated. It is not necessary to press the trigger more times than is sufficient to maintain even pressure in the barrel. Excessive trigger action will produce an uneven finish and waste material.

It is not necessary to force the "SECOMASTIC" deep into the 'V' Joint between Units, but only to fill the 'V' evenly throughout its length.

To obtain a clean finish, the Operator should wipe the "SECOMASTIC" with a damp rag wound round the forefinger of his left hand, following the nozzle of the Gun downwards. (See photograph in erecting Specification).

The thickness of the Joint on the inner edge of the Unit should be regulated by the line of the chamfer of the frame.

It is advisable to treat the top Horizontal Joint on the inner edge of the Panel Frame.

Baseboard Joint - It is important that this Joint should be carefully made, using a liberal quantity of "SECOMASTIC". A double thickness

will usually be found adequate, finished off as a Putty Joint on the splay from the Asbestos Cement Sheet to the outer edge of the Baseboard. A Putty Knife will be found convenient for obtaining a clean finish. To avoid "SECOMASTIC" sticking to knife, dip this in paraffin, thin oil or water.

Bolt Holes at Column Base - It is advisable to fill the counter-sinking of the Bolt Holes with "SECOMASTIC" to prevent the lodging of water and to protect the nuts from rust.

Additional and Useful Applications of "SECOMASTIC" 'S'.

Where outlet pipes from Wash Basins, Baths and Showers, etc., pass through the Units, "SECOMASTIC" should be used for making good round the pipes internally and externally, and also for filling the vertical and horizontal joints of Units in washrooms or bathrooms. This is particularly important where shower baths are installed.

For the filling of any knot holes or minor defects in the woodwork on the exterior of Buildings.

(NOTE: "SECOMASTIC" should not be used as a Window Mastic for bedding Metal Sashes. This is not because it is not suitable, but because it is too good a material to use for this purpose. The usual types of Window Mastics should normally be supplied with Standard Metal Window frames.)

Where "SECO" Wooden Windows are supplied, the joint formed by the Window and the surrounding Units should be treated with "SECOMASTIC" on the exterior. Bed the Wooden Windows with ordinary Window Mastic or Putty.

For the guidance of Contractors, our own "SECOMASTIC" Operators normally take 8 man hours per Building to complete a Standard 60' x 19' Hut, using between two-thirds to three-quarters of the standard three-gallon Drum supplied per Building.

Contractors should satisfy themselves that the necessary number of Drums for the total number of Buildings on the Site have been received and are in good condition. (One 3-gallon drum per Standard 60' x 19' Hut is issued).

"SECOMASTIC" 'S' will soon form a surface skin over which normal decoration may be applied.

B O N U S I N G O F "SECO" B U I L D I N G S

The Ministry of Works Payment by Results Advisory Panel have scheduled the erection of "SECO" Buildings for purposes of Bonusing as follows:-

"SECO" Standard 59'7" x 19'7" Hut.

Specification	Scheduled Production Hours.	Bonus.
-----	-----	-----
"SECO" Wall Units, Window Panels, Roof Panels, Beams, Columns, Corner Posts, Eaves, Roof Spars, Tie Bars, Keelplates, Baseboard, Lintols, Loose Tongues, Door Frames, Double Blackout Surround Frames, Metal Windows and Sealing External Joints	100	1/100 of £5. 11. 0d. for each hour saved on scheduled produc- tion time.

	Basis	Bonus
	-----	-----
Internal Partitioning, Blackout Lobbies and other extensions to "SECO" Standard Buildings, built up in "SECO" Units	2½ super yards per man per hour	5½d. per super yard over basis.

During the last few weeks, some Contractors have had difficulty in showing a reasonable Bonus Return to their labour. In every case investigated, it has been found that the cause has been entirely due to local or weather conditions. It is evident that Contractors concerned are not conversant with the conditions as laid down in the Memorandum issued by the Ministry of Works on "Essential Work (Building and Civil Engineering) Order, 1941", Second Edition, 1943, of which Paragraph 9, Page 4, reads as follows:

9. "The rates are intended to apply in reasonably favourable conditions; an upward adjustment must be made on the Site when less favourable conditions require it. Appendix B indicates the appropriate action to be taken on all cases where Site adjustment may arise."

Appendix B - Site Adjustment of Scheduled Rates

1. "In the following cases site adjustments can be made without reference to the Joint Advisory Panel . . .

under such conditions as Rafts not being concreted, (some Contractors erect with brick retaining walls and hardcore, following with concreting later), built-up Rafts due to excessive falls of ground, some agreement should be reached with the Authorities on the Site in order to adjust the Bonusing Rate in an equitable manner.

It should also be noted that the Rates are exclusive of unloading and transporting material, and only refer to the erection of Structures from the Foundation Raft.

For the purpose of interpreting this, we ourselves, where our Erecting Teams are operating on Sites, have required material to be placed immediately adjoining the Raft.

Under these conditions and with favourable weather, most Contractors have had no difficulty in erecting Standard 60' x 19' "SECO" Buildings in times ranging from 55 to 65 man hours, complete with hanging of Doors, fixing Windows and "SECOMASTIC" Jointing.

Copies of M.O.W. "Payment by Results" Memorandum above referred to may be obtained from H.M. Stationery Office, York House, Kingsway, London, W.C.2. Price ... 6d. net.

B R E A K A G E S

The procedure to be adopted for the replacement of lost or broken Units or Components does not appear to be correctly understood by all concerned. We would like to make the following observations with a view to assisting and avoiding delays:-

1. The majority of breakages or losses appear to occur on rail. It is important, therefore, that a careful check should be made on taking over from the Railway Company. Any breakages or losses should be immediately reported in writing to the Railway Company, with a view to subsequent claim and the Consignment Note should be marked appropriately.
2. It has been found that subsequent damage can be caused by careless handling and loading on to transport from Rail Siding to Site, and further increased by bad stacking methods.

Units on road transport should be laid on edge across the body of the lorry, which should be of the flat platform type. They should be carefully battened together to avoid sliding or sudden shocks. The normally bad conditions of roads leading to Sites should be taken into consideration and Lorry Drivers should be required to exercise every care.

Component parts and especially Eavespieces should not be stacked with heavy weights over to cause distortion or breakages. Eavespieces and Beams should be stacked with openings and mortice holes on the underside to avoid becoming filled with water, and it is highly desirable that all wooden Components at least should be put under cover or protected by tarpaulins.

Roof Unit corners should receive special attention to avoid breakage and unsightly subsequent appearance on erection.

Units should be stacked to the appropriate number of each type adjoining each Foundation Raft on which they are to be erected to minimise the number of subsequent handlings on arrival at Site.

On the assumption that Contractors, on taking over material, become responsible therefor, any breakages in handling on Site can only be replaced on an official order issued by the Clerk of Works or Resident Engineer, Air Ministry Works Directorate. An official order is also required for replacement of breakages or losses on rail, or road transport, if this has been employed.

Most Sites have a standard form for claims and replacements on which the necessary questions are set out. This form should be received by us as soon as possible, so that replacements may be made without holding up erection. In no circumstances are we permitted by the Ministry of Works to issue replacements without their authority, which will only be given on the production of the Official Site Order. It is regretted, therefore, that it is impossible to comply with telephoned or ordinary written instructions.

Minor Repairs to Damaged Units, etc. In the interest of the need to conserve material, it is hoped that Contractors will use discretion and repair, wherever possible, Units, etc., which are only slightly damaged.

Any damaged Beams should, however, not be used but should be reported for replacement.

SCREWS.

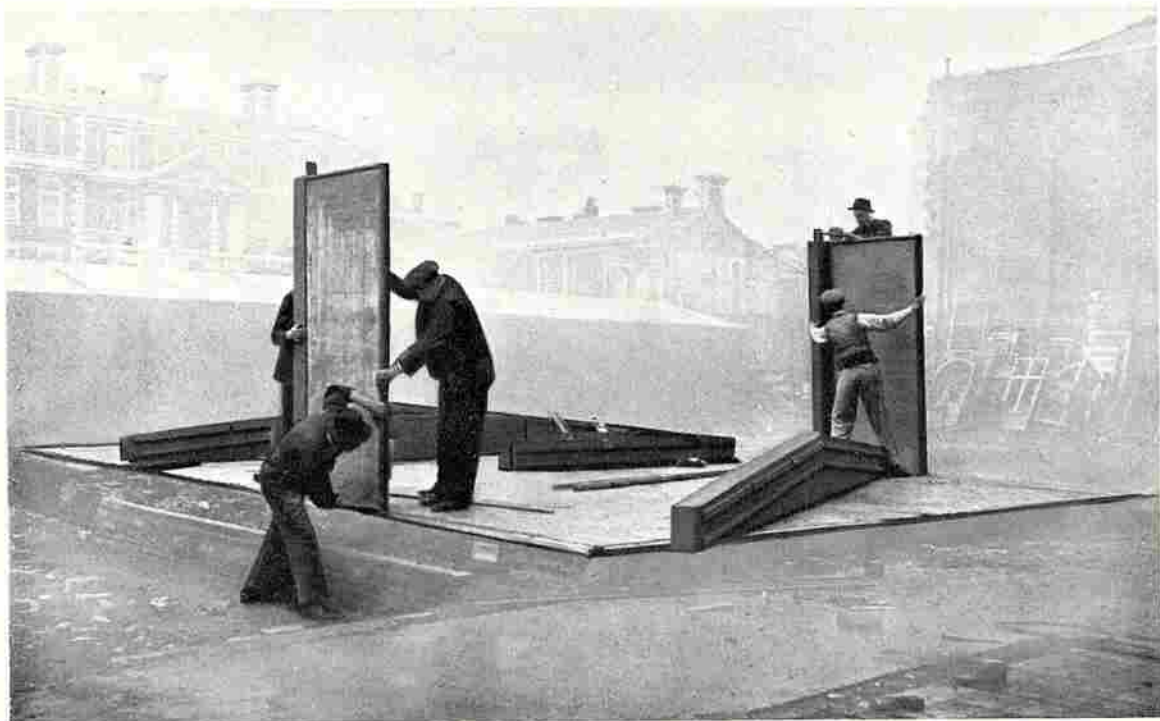
The correct number of Screws for each Site are sent with each Building delivered. The losses of Screws on Sites have been abnormal. Contractors are particularly requested to place Screws in safe keeping, as it is impossible to replace these, in view of the importance of conserving steel. Any losses will, therefore, have to be made up by Contractors themselves, unless such loss can be proved to have taken place in transit.

C O R R E C T I O N
-----HANDLING AND STACKING OF "SECO" UNITS

See Page 3, Paragraph B, Part I, Erecting Specification.

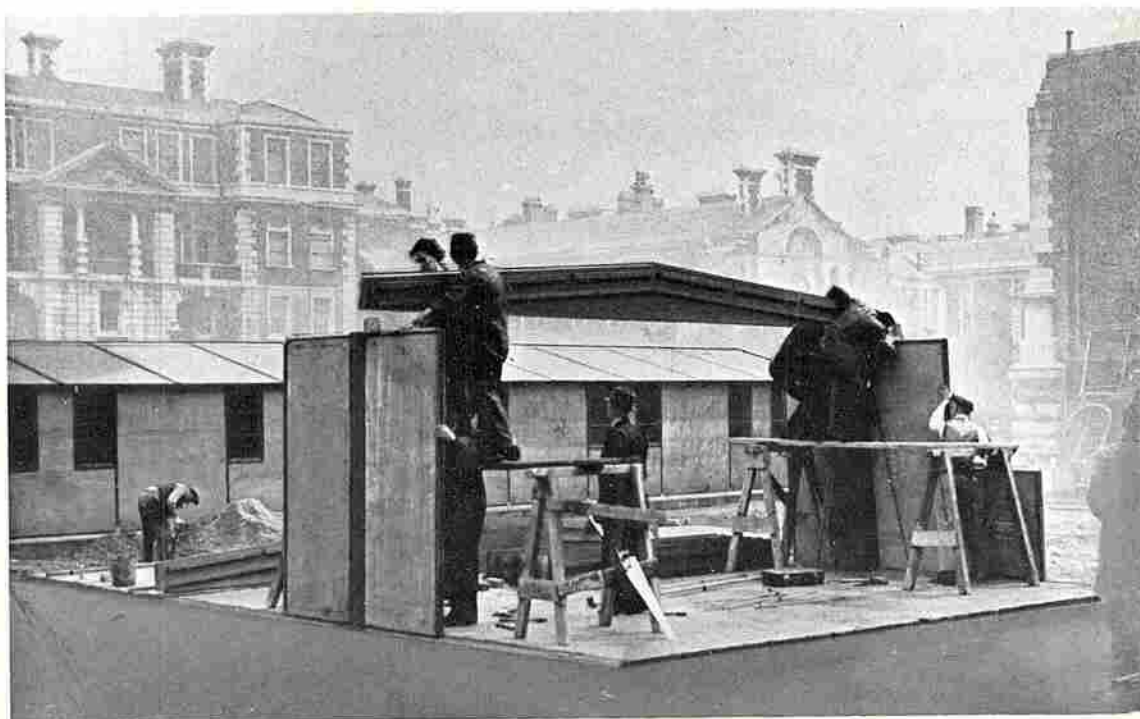
Experience has proved that, with the uneven ground conditions usually encountered in the vicinity of Rafts, it is preferable to stack Wall Units on edge and not flat. Sleepers or Timber Runners should be laid on the ground, and a stack of Roof Units built up flat to give support to the Wall Units - see Photographs at end of Specification - also illustrating correct stacking of Beams, Columns and Eaves. Cover should be supplied to these latter items.

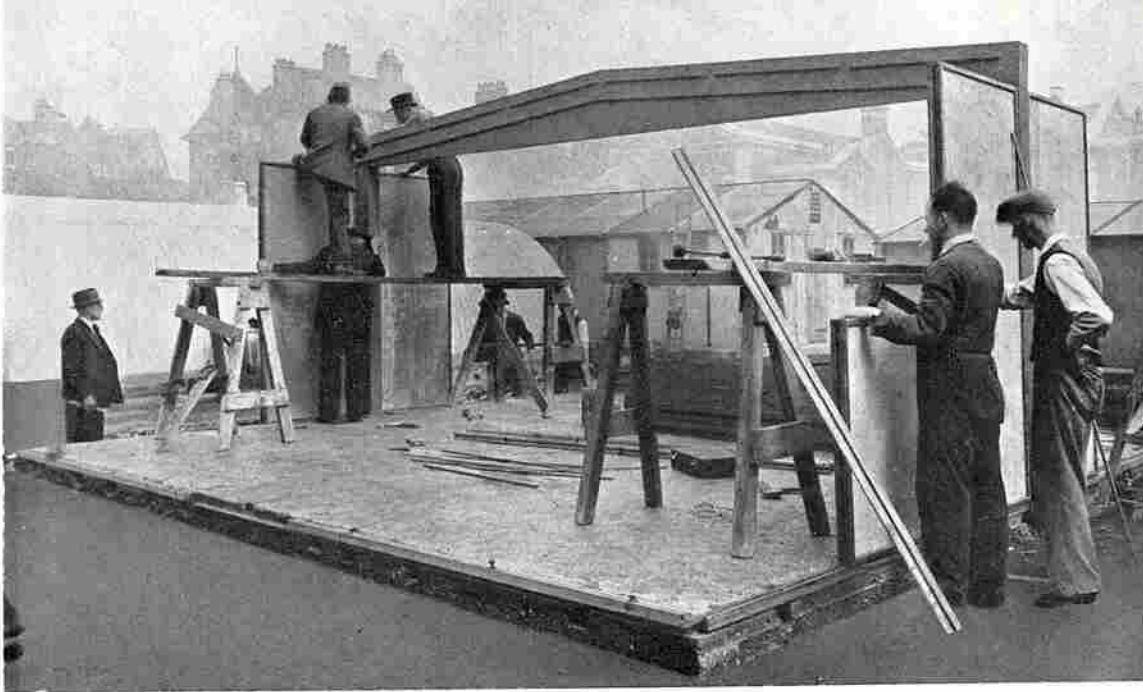
Whenever possible, Units and Components should be laid on the foundation rafts on which they are to be erected.



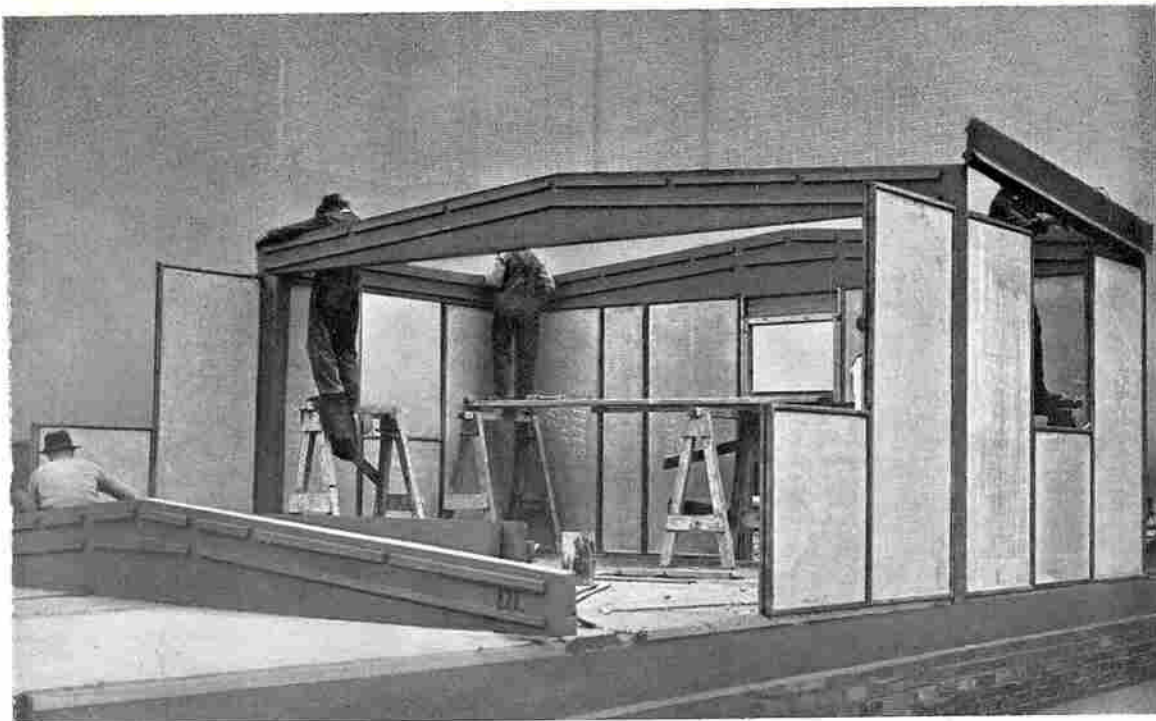
The "Aero" Columns have been placed in position, with a No. 1 Unit on each side, temporarily screwed to give stability.

NOTE,—On this particular building the Columns project to the inside. In the M.O.W.P. Standard Building, they are designed to project on the outside.





Erection proceeds with a No. 6 Unit, which forms the Under Window Panel.



As soon as the Wall Units of a bay are erected, the 4" fixing Screws are inserted through the Beam Mortices, and the Eavespieces are placed in position.



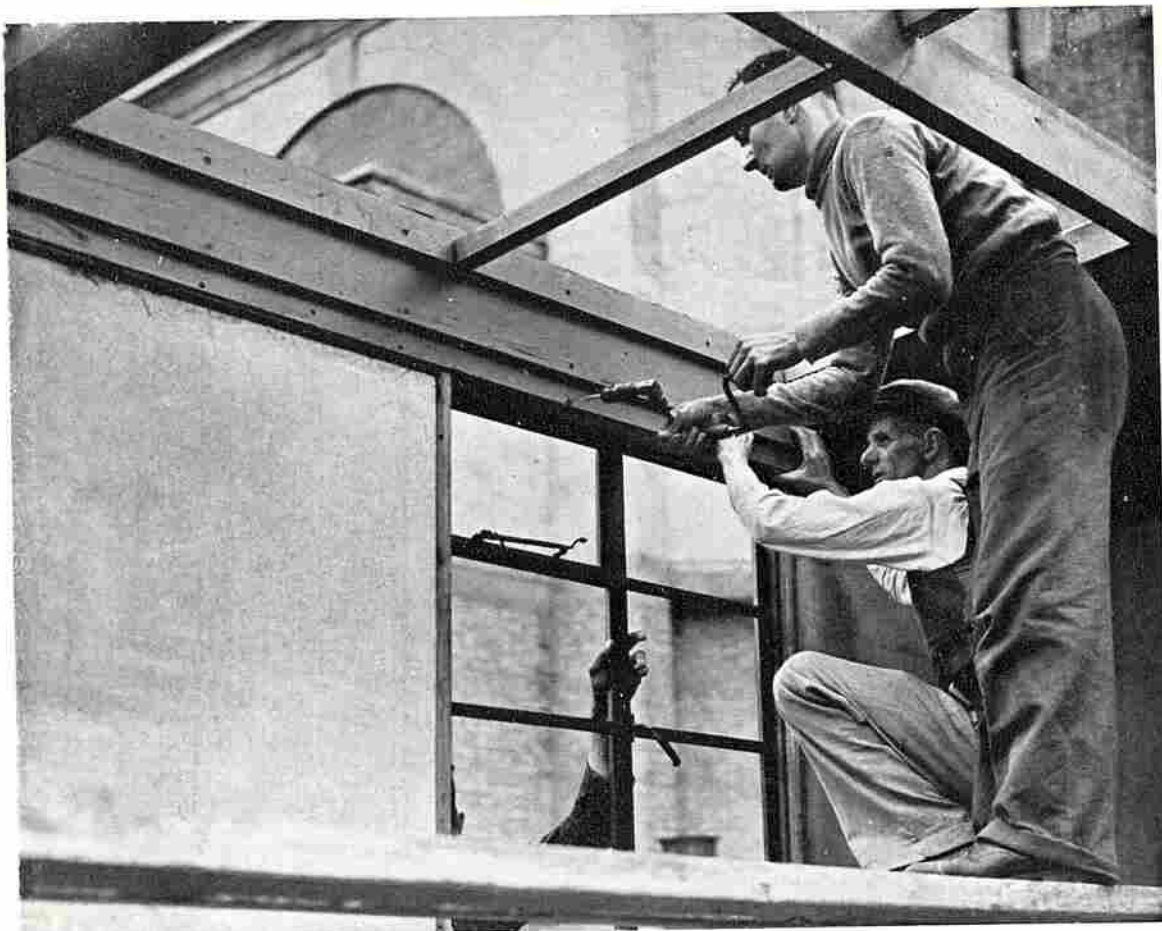
The correct way of carrying a "SECO" Unit from the stack.



The roof structure ready to receive the Roof Units. Roof Spars are in position in the slots on beam faces and roof ties act as cross bracing.



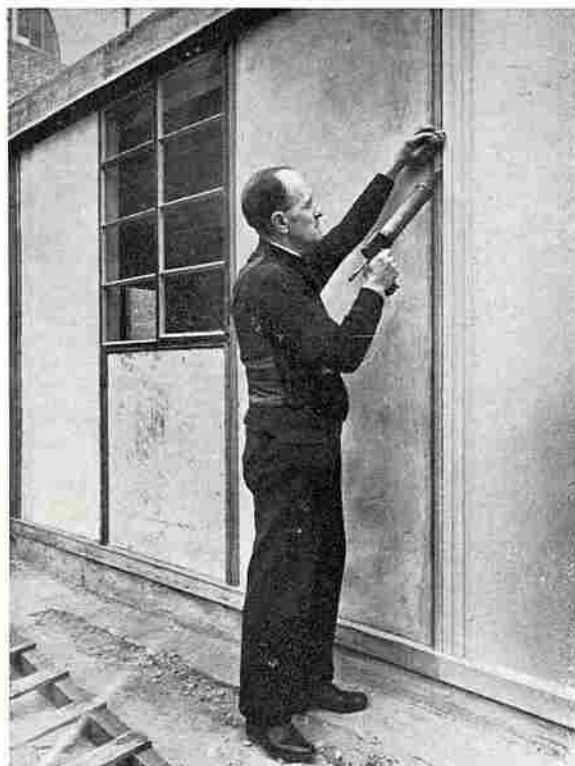
A Roof Unit being lowered into position.
 WARNING.—The Operator is disobeying instructions by standing on the 2" x 2" Roof Tie. He is risking a serious accident.



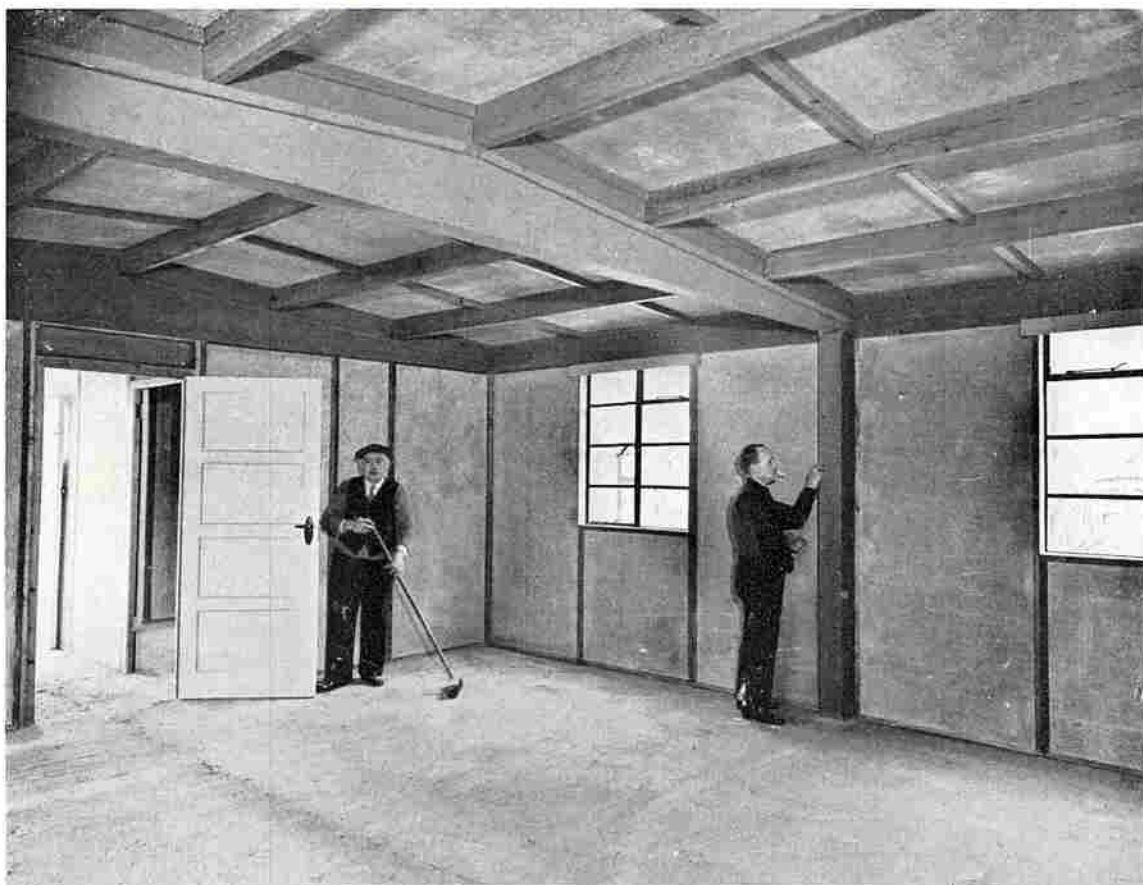
Screwing the Eaves to the Lintol which has been inserted in the cavity. From the exterior the Standard Metal Sash is being applied to the Window opening.



Screwing a Door Frame to the adjoining Unit.



Filling the groove at the junction between Units with "SECOMASTIC" "S," using a Hand Pressure Gun. A damp cloth following behind the gun gives a smooth and even finish to the mastic.



The structure is erected and tightened up. The Rag Bolt Holes have been grouted in and the Blackout Window Surround Frames have been fixed. A final cleaning up



The building is complete, with the Roofing Felt applied.
Note the clean finish of the Felt at Eaves and Weather Drip.



A room in the building decorated in a simple two-colour scheme. Note the pleasing panel effect obtained, and the "finish" to the window given by the blackout surround fitment.

BB/JVB

MAY, 1943.

MARK II "SECO" UNIT SYSTEM OF CONSTRUCTION

PART II OF ERECTING SPECIFICATION

NOTES ON THE ERECTION OF SPECIAL "SECO" BUILDINGS.

Reference should be made to the relative Drawings, copies
of which are issued by:-

UNI-SECO STRUCTURES LIMITED,

6, Wood's Mews,

Park Lane,

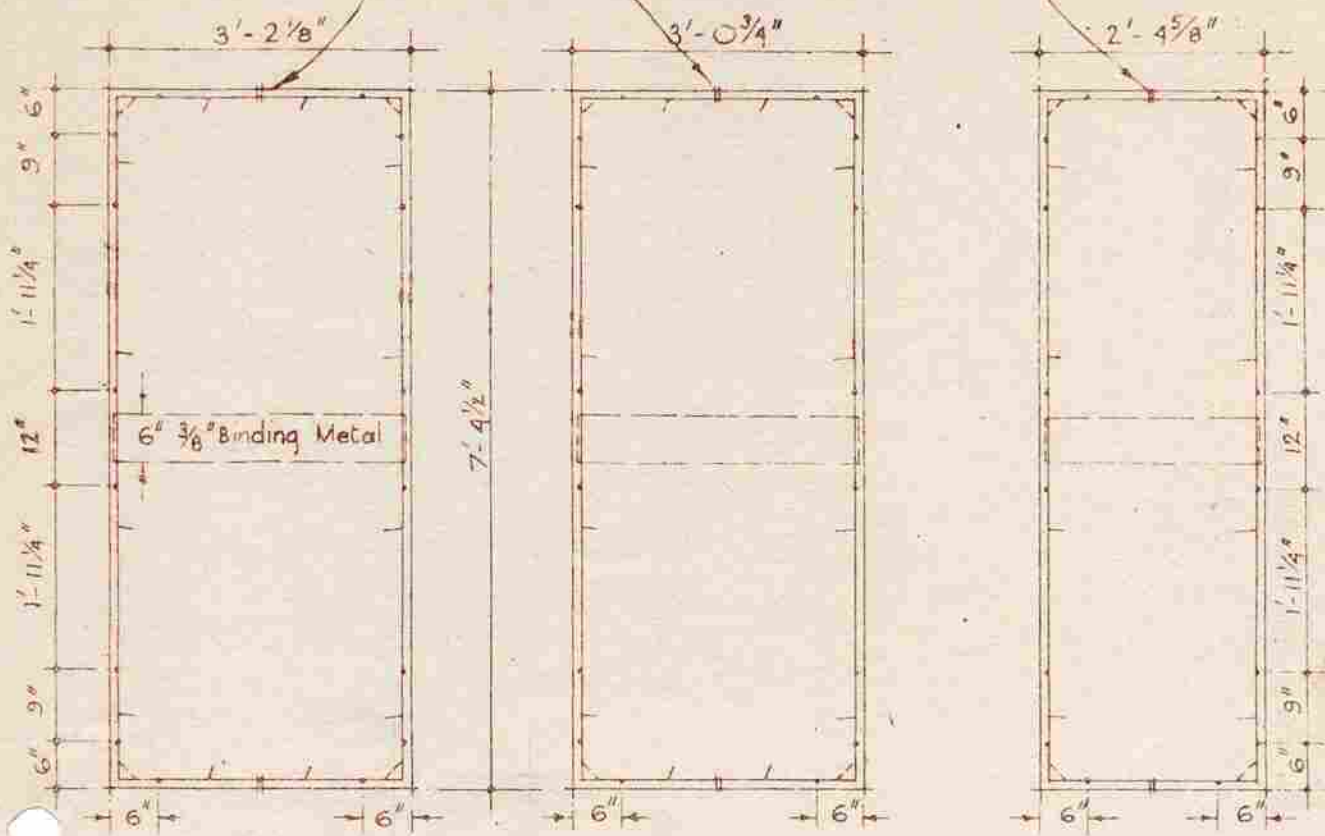
LONDON, W.1.

Telephone: MAYfair 6661 (5 lines).

Telegrams: UNISECO, AUDLEY, LONDON.

THE MARK 2. SECO-UNIT SYSTEM OF CONSTRUCTION.

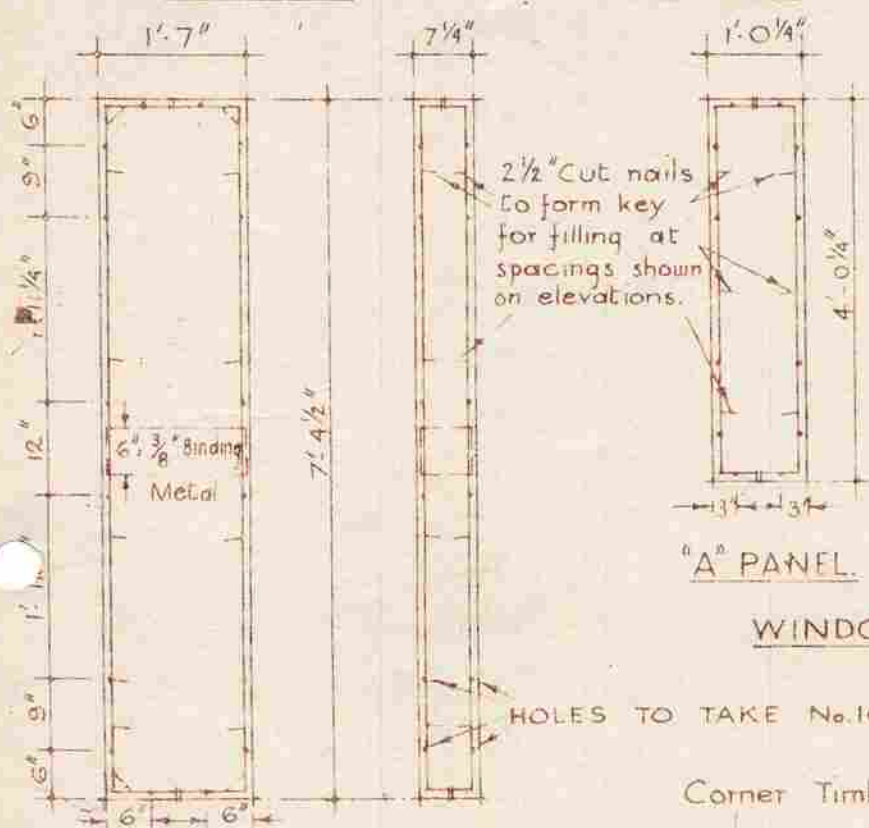
$\frac{3}{8}$ " Holes to ventilate Wood Wool Block Core



No. 1 UNIT.

No. 5.2 UNIT.

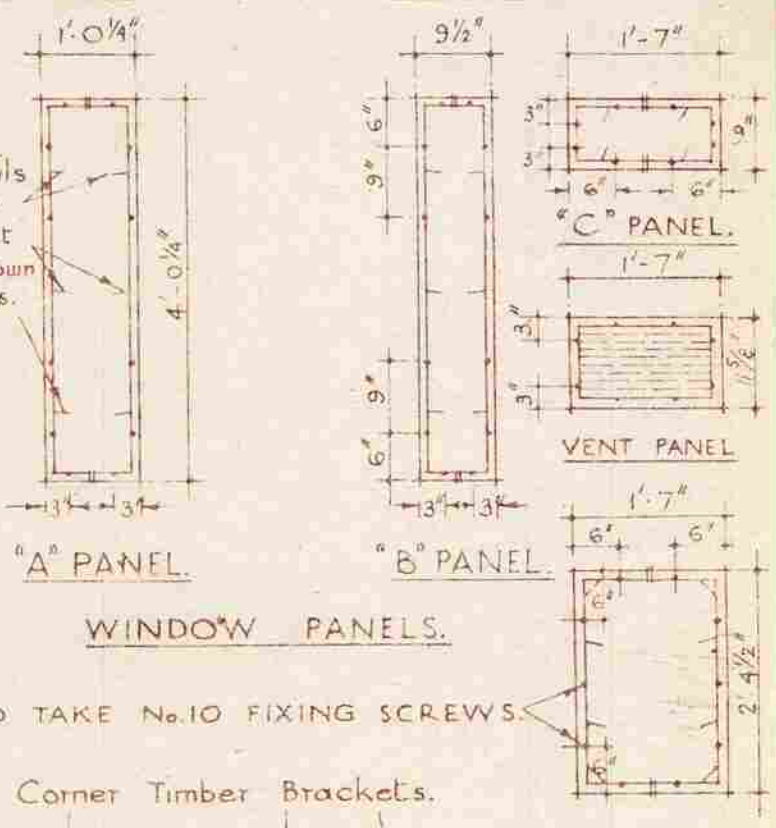
No. 5.3 UNIT.



No. 2 UNIT.

No. 5.1 UNIT.

No. 6 B. UNIT.



"A" PANEL.

"B" PANEL.

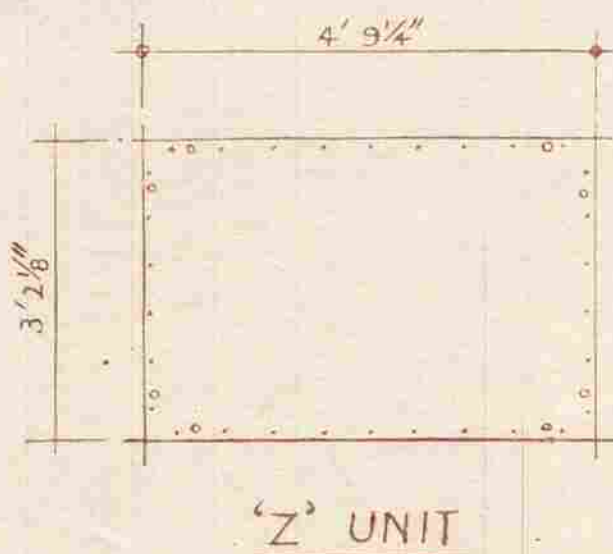
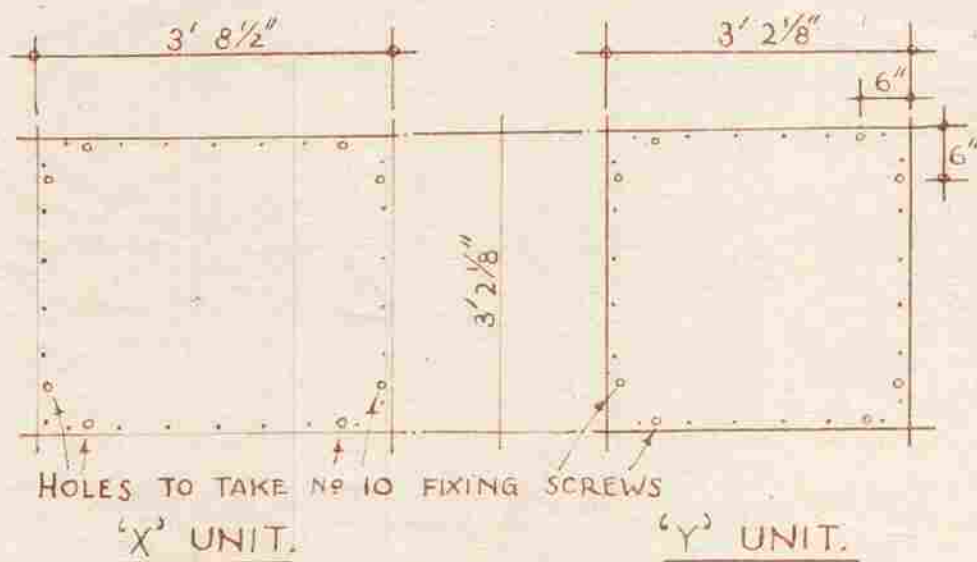
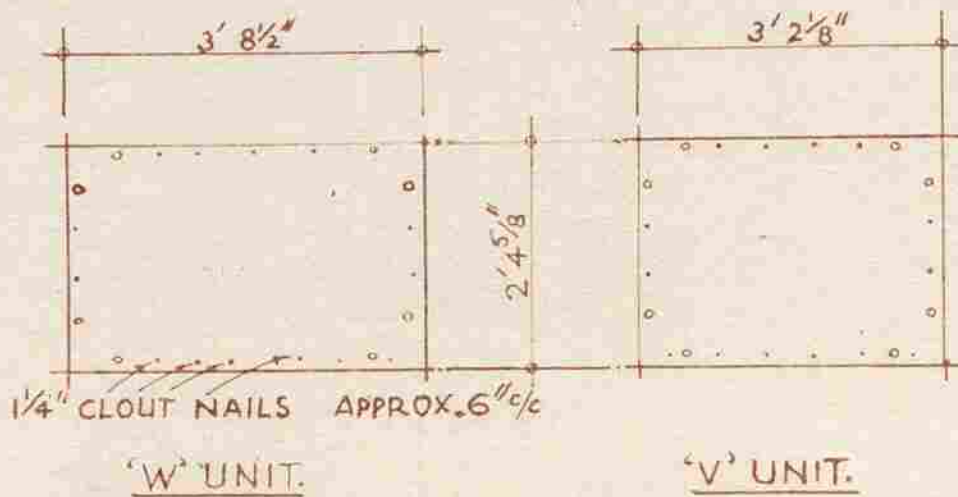
"C" PANEL.

VENT PANEL.

WINDOW PANELS.

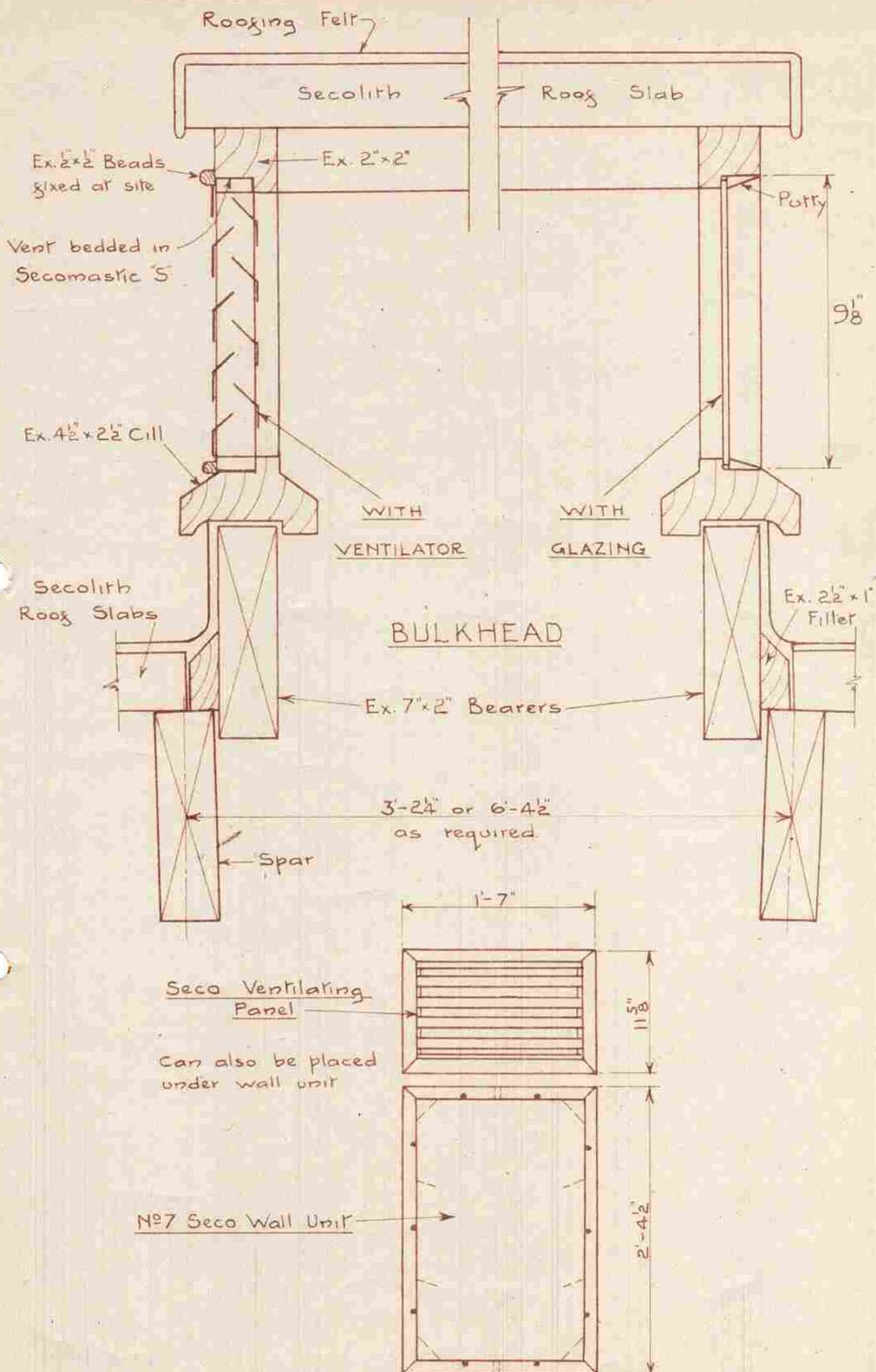
Corner Timber Brackets.

THE MARK 2 SECO-UNIT SYSTEM OF CONSTRUCTION.



SECOLITH ROOF SLABS.

SECO VENTILATOR UNITS

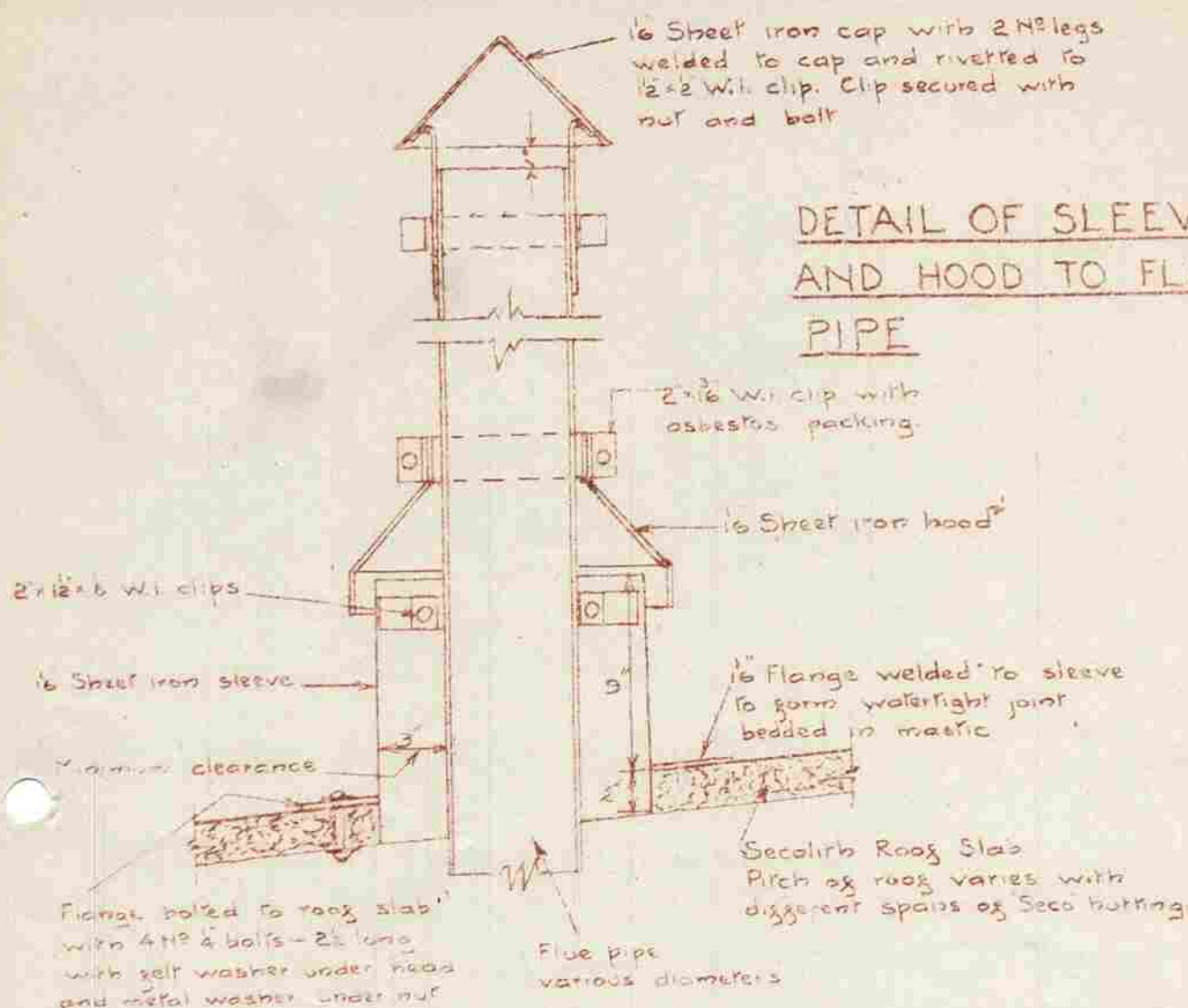


INCORPORATING COLT BLACKOUT VENTS TO SECO UNIT SIZES

WHERE BULKHEAD VENTS ARE USED THERE SHOULD BE A SIMILAR AREA OF VENT IN WALLS DWG. NO 1180

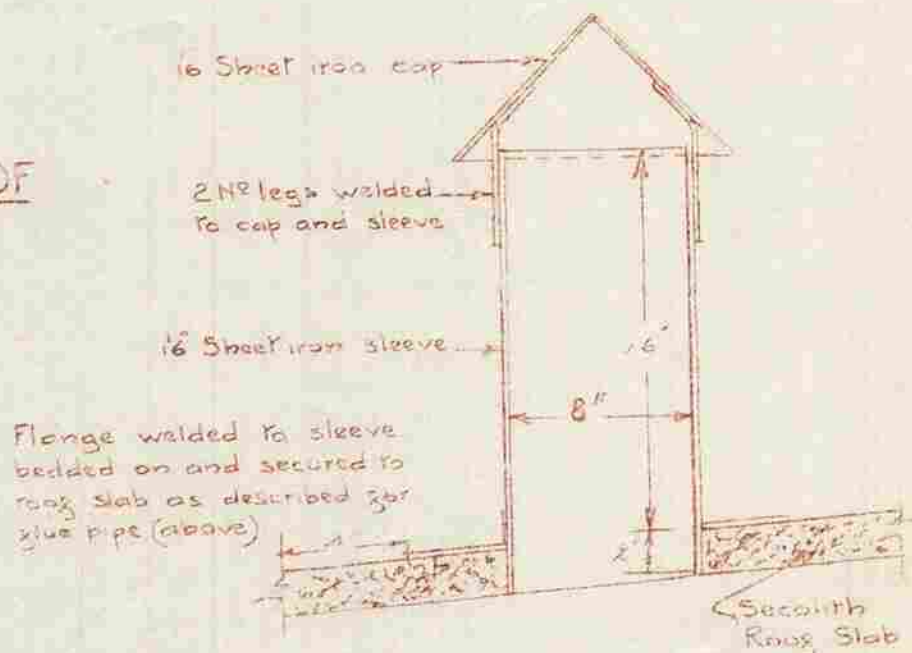
SLEEVES & VENTS FOR SECO BUILDINGS

DETAIL OF SLEEVE AND HOOD TO FLUE PIPE



SECTION

DETAIL OF ROOF VENTILATOR



SECTION

All metal-work finished to Air Ministry specification

MANUFACTURED AND SUPPLIED BY

MESSRS. ROWNSON DREW & CLYDESDALE LTD

225, UPPER THAMES STREET, LONDON, E.C.4

SCALE - 1/2" TO 1'-0"

" S E C O " E R E C T I O N S P E C I F I C A T I O NP A R T I ISPECIAL BUILDINGS

To:-

Resident Engineers, Clerks of Works,
Air Ministry Works Directorate, and
Contractors erecting Special "SECO" Buildings

In view of the ever increasing allocations of Special "SECO" Buildings to Air Ministry Sites, we have deemed it advisable to issue a Supplement to the Erecting Specification prepared by us in September, 1942, which dealt specifically with the erection of the Standard 60' x 19' Open Floor Structure.

Although the principle of erection is similar, and in many cases Contractors have had no difficulty in carrying it out, there are a few features which require special attention and we should be glad if the accompanying notes are carefully read and put into practice.

If any point should still not be clear, we should be glad to give further detailed explanation, on request.

Our extensive inspection of Sites during the last few months has indicated that insufficient care and attention are being devoted to the preparation of Foundation Rafts. It is of the greatest importance that these should be laid to the exact measurements shown on our Drawings, and that they should be absolutely level, with the Mortice Holes for the Keelplates and Column Rag Bolts in the exact positions shown.

It should be obvious that the "SECO" System calls for precision and that any departures from the requirements in measurements, or variations of levels will cause complications in erection, retard progress and dislocate bonusing arrangements.

When the sides of the Rafts are formed of brick, it is important that the overall measurements should be taken to the outside face of the brickwork to allow the Baseboard, when applied, to overhang and form the all essential weather drip.

To form Mortices for Keel Plate rag bolts in such a brick shutter walling, all that is necessary is to omit a brick at the appropriate positions.

If a final screed is to be given as a finished floor surface after the erection of the Building, an adjustment should first be made to the sills and doors to compensate for this, or, alternatively, allowance must be made in laying the rough concrete of the raft, in which case extra packing should be provided under the blocks of the partition Units.

IMPORTANT NOTE:

MANY OF THE SECO DRAWINGS ARE BASED ON NISSEN OR OTHER AIR MINISTRY APPROVED LAY-OUTS. IN THE PROCESS OF TRANSLATION SOME SLIGHT VARIATIONS IN DIMENSIONS MAY HAVE BEEN NECESSARY. IT IS THEREFORE ESSENTIAL TO PREPARE FOUNDATIONS AND TAKE OFF ALL MEASUREMENTS FOR INTERNAL SERVICES, etc., FROM THE APPROVED SECO DRAWING and NOT FROM ANY OTHER.

BONUSING OF SECO SPECIAL BUILDINGS.

The Bonusing of erection of Special "SECO" Buildings is under the consideration of the Ministry of Works. As soon as a basic rate has been fixed, you will doubtless be officially notified. In the meantime, we can only suggest that Bonusing Rates are agreed locally using the basic rate of 100 man hours for the 59'7" x 19'7" Building (See Memorandum issued by the Ministry of Works on the 17th January, 1943, Addendum No: 2/1943, Schedule No: 19), converted into yards super, with local adjustments to compensate for increased height and complexity of the particular Building in question.

PLANT REQUIRED FOR THE ERECTION OF SPECIAL
"SECO" BUILDINGS.

In view of the extra height involved on high ceiling type buildings, it will be found most convenient to have available an adequate supply of high painters' trestles and builders' planks.

By arranging these to form suitable stagings, the lifting of Beams into position will be greatly facilitated, as well as the lifting of Roof Units, Spars and Ties from the ground to the roof of the building.

"Seco" Buildings, planned as Officers' Messes, Institutes, offices, dining-rooms, hospitals, etc., are now being supplied. Such buildings may combine Open Floor and Cellular Construction, and be of either high ceiling or standard height, or a combination of both. Erection of these should proceed on the following lines:-

Where the building is of the high ceiling type, the extra height is obtained by the use of Plinth Units - Nos: 6(a), 6(b) and 7(a) - over which are erected the standard types of Nos: 1 or 2 Units, (or Windows).

The Columns for these Buildings are manufactured to the total overall height. It is important that the Plinth Unit be erected below the Standard No: 1 or No: 2 Units, and not above, and that all screw fixing should be most carefully carried out, especially at the horizontal junction between lower and upper Units, both on the upper and lower sides of the abutting frames and on the interior and exterior of the Building.

LOOSE TONGUES.

It is important to use the 7'3 $\frac{3}{4}$ " long Loose Tongue in the Plinth Unit to extend vertically into the groove of the Standard Unit above. This ensures a continuity of Loose Tongue at the horizontal joint between Units, and increases the stability of the Walls after erection.

In other respects, the erection of Special Buildings should follow the procedure for Standard open Floor Designs - See Specification of September, 1942.

INTERNAL PARTITIONS.

Keeplates are supplied for all external walls of Special Buildings, but with a view to economy in timber, ex 3" x 2" x 2" Blocks are supplied on which to base the internal partitions. These Blocks should be positioned two under each Unit, corresponding with the pre-drilled screw holes. Any slight unevenness in raft surface should be taken up by wedging below these Blocks.

The fitting of Eavespieces should follow the general principles laid down, but it is most important that the Eaves Plan should be

strictly followed in regard to the disposition of any Special Eaves peculiar to the type of Building being erected. All Eaves are marked in accordance with the numbers shown on Eaves Plans.

Special Buildings may combine Open Floor Construction with Cellular Construction, in which the Roof Members are carried by the Eaves on the Partition Walls. The location of Spars and Ties will be readily observed from the details on drawings.

STRUTTING AND PACKING POSTS.

The majority of Special Buildings are supplied in 24', or greater, spans, and require, in the positions marked on the Plans, and invariably at the Gable-end Walls, a Strutting and Packing Post (S.P.P.O.) The positioning and correct fixing of this is of the GREATEST IMPORTANCE, and the following instructions must be observed, where this Post is used for Strutting purposes.

The Post must be well bedded in the mortice in the raft, having been previously scribed or checked on the Site to fit accurately against the Eaves, Spar or Tie at which it is located. It must be thoroughly well screwed through the prepared screw holes to the frames of the abutting Units, and to the Eaves, Spars or Ties above, using sufficiently long screws to ensure strong fixing. On no account should these posts be spiked.

SPECIAL WALL UNITS

Special "SECO" Buildings incorporate a number of compensating Wall Units, such as Nos. S.1, S.2. and S.3. The correct positioning of these is important and the details of Drawings should be carefully followed.

SEE THAT ALL SCREWS HAVE BEEN PUT IN, PARTICULARLY IN THE ROOF UNITS AND ROOF SPARS.

On completion of erection and lining up, a cement and sand fillet should be run under the Partition Units, forming an adequate depth of cove and sealing the Blocks. At the same time, the base of the Strutting and Packing Posts should be well grouted, and

also the Rag Bolts in the exterior Keelplates and Column Bases.

AIR MINISTRY ADDITIONAL HEIGHT REQUIREMENTS FOR CINEMA PURPOSES.

Certain Buildings may be erected on a Plinth concrete or brick wall, normally 9" high to provide additional headroom for Cinema Projection purposes. Contractors should take particular care to set out this wall accurately. Erection on this wall should proceed as above described, with the exception that the Door Frames are inserted at normal floor level. This will leave a 9" high opening above the Door Frames, as well as at Corridor connections. To provide for this, a Special Infilling Panel, Type 'C', 9" x 1'7", has been manufactured and is supplied. These Units should be inserted and well screwed up over the Door Frames and other Components affected. The Panels should connect accurately with the Eaves Pieces over. Loose tongues should be inserted between all Units.

A number of Special Buildings combine both High and Standard level ceilings. Details of the method of waterproofing the connecting vertical areas will be observed on the relevant "SECO" Drawings.

WINDOWS FOR SPECIAL BUILDINGS

All Buildings termed "Special" as distinct from the Standard Open Floor "Hut" types are supplied with "SECO" Wooden Windows. These should be fixed from the outside of the Building, following the practice of Metal Window fixing.

The use of "SECOMASTIC" 'S' for bedding Windows is considered extravagant. Adequate bedding may be obtained with putty, using "SECOMASTIC" 'S' at the exterior junction of Window Frame and Units. Wooden Windows should be well screwed to the adjacent Units at all screw holes provided.

Window Catches, of the Ministry of Works Standard Design, are supplied fixed to the "SECO" Wooden Windows.

STANDARD METAL WINDOWS.

By arrangement with the Ministry of Works, a stock of Standard Metal Windows, Screws and Mastic is held at "SECO" Regional Stores.

These will be issued only with the Open Floor Standard "Hut" Type Buildings.

SUPPLIES OF DOORS AND FURNITURE

Doors

By arrangement with the Ministry of Works, a stock of Standard Ministry of Works External and Internal Doors, 6' 6" x 2' 8", (2" external, 1 $\frac{1}{2}$ " internal), is now held at "SECO" Regional Stores for issue with all "SECO" Buildings.

Double Doors and Special-size Doors will be manufactured, and sent with "SECO" Components.

Door Furniture

Furniture, Butts and Screws will be issued ONLY FOR EXTERNAL DOORS: therefore, Contractors must make their own arrangements for the supply of Furniture, Butts and Screws for all Internal, all Double and all Special Doors supplied.

VENTILATION OF "SECO" BUILDINGS

Sleeve Pipes or Ventilators

Arrangements for the supply of metal flue sleeves or ventilators are made direct by the Ministry concerned with the supply of buildings. Contractors should, therefore, refer their requirements to the appropriate Ministry, and not to Uni-Seco Structures Limited.

It is understood that these items have been ordered in bulk by the Ministry of Works to enable demands to be quickly satisfied.

Method of Fitting Roof Ventilators and Sleeve Pipes in "SECO" Units

The practice of inserting Sleeves in the walls of the Building is not recommended. Wherever possible, they should be placed in the Roof, the position being selected to avoid interference with Beams, Roof Spars and Roof Ties.

The "SECO" Roof Units should be cut in the following manner:-

Mark the diameter of the hole on the surface of the Asbestos Sheet. Drill a hole on the inner edge of the diameter, and, using a rat tail saw, cut carefully round the marking. It is recommended that the exposed

surfaces of the interior of the Unit should be given a cement slurry to seal the core. The Sleeve should then be inserted in the normal manner, with the Flange well bedded in mastic.

BULKHEAD AND WALL VENTILATION

For Kitchens, etc., where a large volume of ventilation is desirable, a special Bulkhead Ventilating Unit has been designed, which should be used in conjunction with Ventilating Wall Panels.

To obtain efficient ventilation, it is desirable that at least the same area of air inlet should be provided in the walls, as of outlet in the Bulkhead. The inlet areas may be distributed at convenient points under the windows, either at floor level or below the window sill level.

The Drawing included in this Specification gives details of the Units required, which are as follows:-

Bulkhead Ventilator - and/or Roof Light - Unit

There are two standard widths, either $3'2\frac{1}{4}"$ or $6'4\frac{1}{2}"$, to correspond with the centres of Roof Spars. These Units are supplied in varying lengths, as required, conforming to the standard "SECO" Measurements. The Unit consists of a Bulkhead Frame, over which the Standard "SECO" Roof Units, which it replaces, are fixed. If desired to give top light, glass may be fitted in place of the Ventilator Sections. It should be noted, however, that there is no provision for blackout.

Wall Panel Ventilator Unit

The Wall Panel Ventilator Unit measures $1'7" \times 11\frac{5}{8}"$, and should be used in conjunction with a No. 7 Standard Unit, which measures $1'7" \times 2'4\frac{1}{2}"$. It will be appreciated that a combination of a Ventilator Unit over, or under, a No. 7 Unit, replaces a No. 7(a) Unit. Two of this combination side by side will replace a No. 6(a) Unit, and three of this combination will replace a No. 6(b) Unit.

The Wall and Bulkhead Ventilating Units have been based on the use of the Colt Blackout Ventilating System. In the case of the Wall Ventilator, this arrives complete as a Unit already framed to "SECO" standards. For the Bulkhead Unit, the Colt Ventilator Sections will be sent separately for insertion at the Site after erection. This should be done by well bedding with "SECOMASTIC" 'S' and pinning to prevent movement, or they may be retained by applying a small timber cove strip.

FIXING OF INTERNAL SERVICES

The runs of Timber in the Eavespieces, Beams and Roof Spars of "SECO" Buildings make the fixing of Service Pipes and Electric Wiring an easy matter, Contractors are requested, however, to avoid drilling through Beams. In special circumstances, this may be permitted, but in such cases the advice of our Technical Department should first be obtained. It will be appreciated that Beams may suffer structural damage, if holes are bored coincident with internal diaphragms, or main frame members.

Shelving Radiators, Basins, etc., should be supported from the frames of the Units, and not from the Unit faces. Where Kitchen Ranges or other Apparatus giving off excessive heat are to be located immediately under a Beam, it is desirable that the sides and soffit of the Beam should be protected by casing in Asbestos Wood - ordinary Asbestos Cement Sheets are liable to crack. It is, of course, preferable to fit a canopy hood over such apparatus.

FUEL STORES

In Buildings where Fuel Stores are provided in "SECO" Units, it is requested that the Unit faces are protected to the necessary height with Sheet Metal, Corrugated Iron, or $4\frac{1}{2}$ " Brick.

DECORATION

All Timber Components and Unit Frames are treated with Wood Preservative on which normal decoration can be applied. Before painting the faces of the Units, it is desirable to give a preliminary priming treatment to "kill" the alkalinity of the Asbestos Cement sheets.

ROOF FELTING SPECIFICATION

The following alternative Specifications for the Roof treatment of "SECO" Buildings have been approved by the Ministry of Works and the Air Ministry.

It should be noted that where fluxed pitch is to be used on the Roof Surfaces, the vertical faces of the Eavespieces, as well as the weather drip, should still be treated with Bitumen Felt.

1. The whole of the surfaces which are to be waterproofed are to be treated thoroughly with spirit primer.

Immediately after the application of the spirit primer, tape all joints between "SECO" Roof Units to avoid penetration of the bitumen bedding.

Provide and lay separate strip of No. 1 layer of two-ply self-faced bitumen felt (weighing 80 lbs. per 24 yard roll), in hot Bitumen to the Fascias or Eavespieces, the bottom edge of which is to be secret nailed to the weather drip and turned over so as to provide a double layer at the weather drip. The top edge of this felt is finished 6" on the main roof surface, all as shown on our Drawing No. 903.

Provide and lay to the general roof surfaces No. 1 layer of two-ply Bitumen self-faced Felt, all as before described and bed in hot Bitumen. Care should be taken to ensure that the Felt sticks rigidly to the Roof surfaces, and is lapped and sealed at joints in the proper manner.

The felt to the general roof surfaces will finish flush with the edge of the fascias.

It is understood that Bitumen Felt as before described in this Specification is a controlled material, and permission must be obtained from the Ministry for its release. If this release cannot be obtained, the Specification should be as follows:

2. The Eaves and Weatherdrip to be waterproofed in self-faced two-ply Bitumen Felt, all as before described.

Supply and lay on the general roof surfaces, No. 2 layers of sanded fluxed pitch Felt, each layer weighing 53 lbs. per 15 yard roll, bedded to roof surfaces as before, and finished on top with a coat of mastic and grit.

The preliminary work in priming the roof and taping the joints of Roof Units preparatory to laying the Felt, etc., still apply and the above Specification is to be regarded solely as an alternative for a substituted material.

NOTE: Contractor should insist on Roof Felting labour using care when working on the roofs.

Rolls of felt, loaded buckets, etc., should not be allowed to drop heavily on the roof units. When walking, follow the run of Roof Spars.

NOTES FOR HEATING ENGINEERS

RE: THERMAL INSULATING PROPERTIES OF "SECO" UNITS

Heat Transmission Tests on "SECO" Units have been carried out by the Building Research Station, with the following result:-

	<u>Wall Units</u>	<u>Roof Units</u>
1. Thermal Conductance (C) B.Th.U./Sq.Ft./Hr./°F difference in temperature between faces	0.55	0.55
2. Equivalent Thermal Conductivity (k) B.Th.U./Sq.Ft./Hr./In./°F, difference in temperature between faces (calculated)	1.0	1.0
3. Thermal Transmittance (U) B.Th.U./Sq.Ft./Hr./°F. difference in air temperatures (calculated)	0.36	0.37

(The Thermal Transmittance figures are based on accepted surface resistance figures. See Fuel Efficiency Bulletin No. 12, Ministry of Fuel and Power.)

The Beams, Columns and Eavespieces are of hollow Plywood construction, having low thermal transmission figures comparable with those of the Wall and Roof Units.

Heating Plant Design

Heating systems for "SECO" Buildings should be designed on the assumption that the construction is uniformly and effectively insulated against heat losses.

The accompanying tables giving heat transmission coefficients for various building material are compiled from authoritative sources, published by the Institution of Heating and Ventilating Engineers in "The Computation of Heat Requirements for Buildings", 1942.

Thermal Conductivities

<u>Material</u>	<u>Conductivity (k)</u> B. Th. U./Sq.Ft./Hr./°F/In.
Common Bricks (conditioned)	8.4
Ballast Concrete, 1: 2: 4	7.0
Gypsum Plaster	3.2
Lightweight Concrete	1.3 - 2.8
Wood	1.0
"SECO" WALL UNIT	1.0
Fibre Boards	0.38

Thermal Transmittance Coefficients

<u>Walls</u>	<u>Thermal Transmittance (U)</u> B. Th. U/Sq.Ft./Hr./°F.
Corrugated Iron	1.20
Corrugated Asbestos	1.15
$\frac{1}{2}$ inch Asbestos Sheeting	0.89
Brickwork:-	
4 $\frac{1}{2}$ inch solid, unplastered	0.64
9 inch " "	0.47
4 $\frac{1}{2}$ inch " plastered	0.57
9 inch " "	0.43
Concrete:-	
4 inch	0.64
6 inch	0.54
"SECO" WALL UNIT	0.36
Brickwork, 11 inch cavity, plastered	0.30
<u>Roofs</u>	
Corrugated Iron	1.50
Corrugated Asbestos	1.40
Concrete:-	
4 inch	0.68
6 inch	0.57
"SECO" ROOF UNIT	0.37

ERECTING DEMONSTRATOR SERVICE

We have appointed a number of Demonstrators, skilled in all details of "SECO" erection. This Service is offered to Contractors free of any cost or other obligation, but without any responsibility attaching to Uni-Seco Structures Ltd.

It is intended that the Service shall be confined to initial instructing in erecting and not to superintending the total erection of Buildings. It will be appreciated that with a large number of Sites to be covered, it is impossible for our Staff to spend longer than is absolutely essential on any one Site.

Our Demonstrators are furnished with blank Certificates of Attendance, and in order to maintain an accurate record of their visits, it is requested that these Certificates be duly signed and dated by Clerks of Works or other Government Authority.

So far as facilities permit, Demonstrators will visit Contractors at times coinciding with the arrival of material at the Site. This, however, may not always be possible, nor even necessary, where Contractors have already had experience of erecting Special "SECO" Buildings.

If the services of a Demonstrator are specifically required, Contractors are requested to communicate in advance with Uni-Seco Head Office.

The following abbreviations are used on our Drawings:-

C.P.	Corner Posts
P.Po.	Packing Posts.
P.Pe.	Packing Pieces
S.P.PO.	Strutting Packing Posts.

The following numbers and letters refer to:-

Wall Units

1, 2, S.1, S.2 and S.3.

Window Units

3.B.
F.1 (Perspex Window for R.D.F. Workshops.)

Under Window Panels, also used as Plinth Units
on 11' 6" high ceiling Buildings

7, used in conjunction with Ventilator Panel
7(a), 6(a) and 6(b)

Infilling Panels

A and B, for infilling Window Opening
C, used over Doors and over openings to
Corridors in high ceiling Buildings erected on 9"
plinth foundations.

Roof Units

V, W, X, Y and Z.

For measurements of all the above, see Drawings included
in the Specification.

Door Frame Units

	For Door Sizes:-	
	Exterior	Interior
D.1	-	2' 8" x 6' 6" x 1½"
D.2.	2' 8" x 6' 6" x 2"	-
8.A.	-	2' 8" x 6' 6" x 1½"
8.B.	2' 8" x 6' 6" x 2"	-
9	-	2' 0" x 6' 6" x 1½"

Keelplates

These are numbered (a) to (j) according to size.

1890

1891

1892

1893

1894

1895

1896

1897

1898

1899

1900

1901

1902

1903

1904

1905

1906

1907

1908

1909

1910

1911

1912

1913

1914

1915

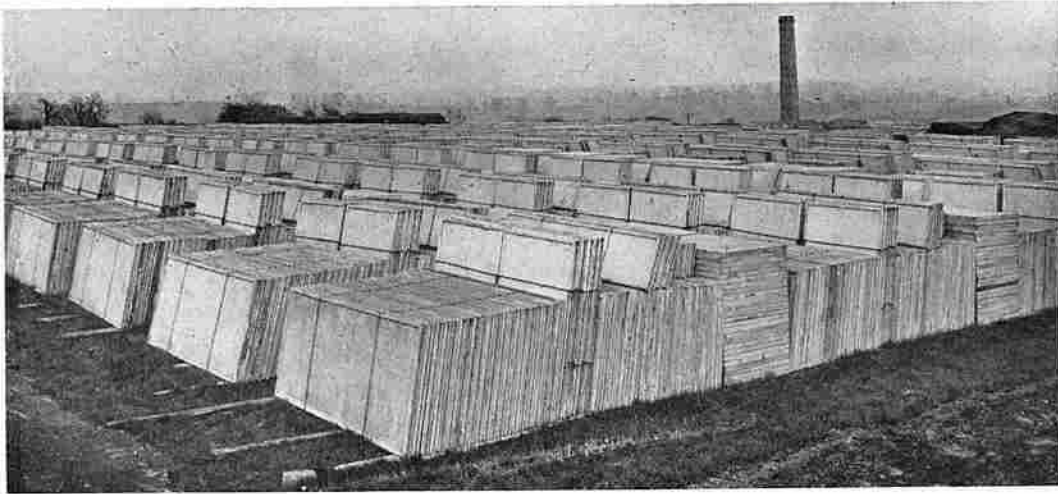
1916

1917

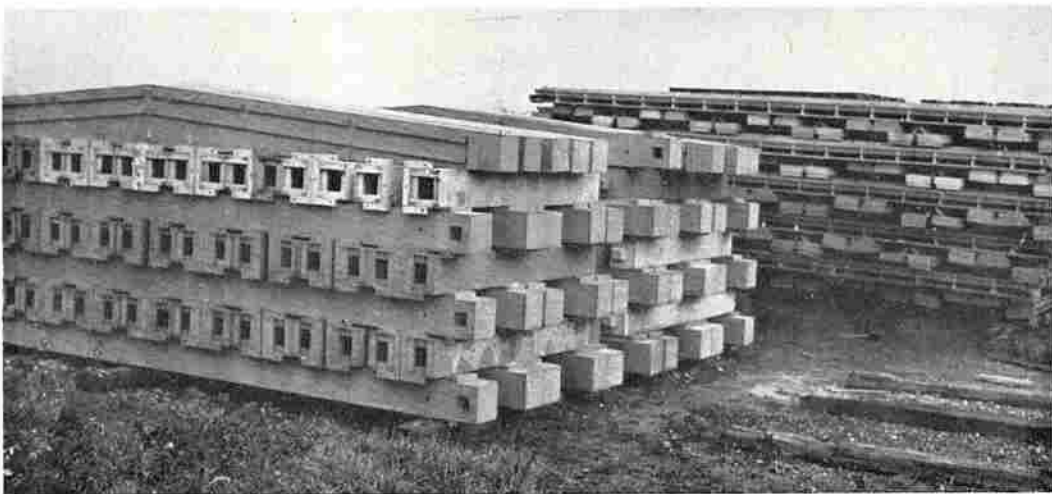
1918

THE FOLLOWING PHOTOGRAPHS
ILLUSTRATE THE MORE IMPORTANT
FEATURES OF
SPECIAL "SECO"
BUILDINGS.

CARE IN STACKING IS IMPORTANT.



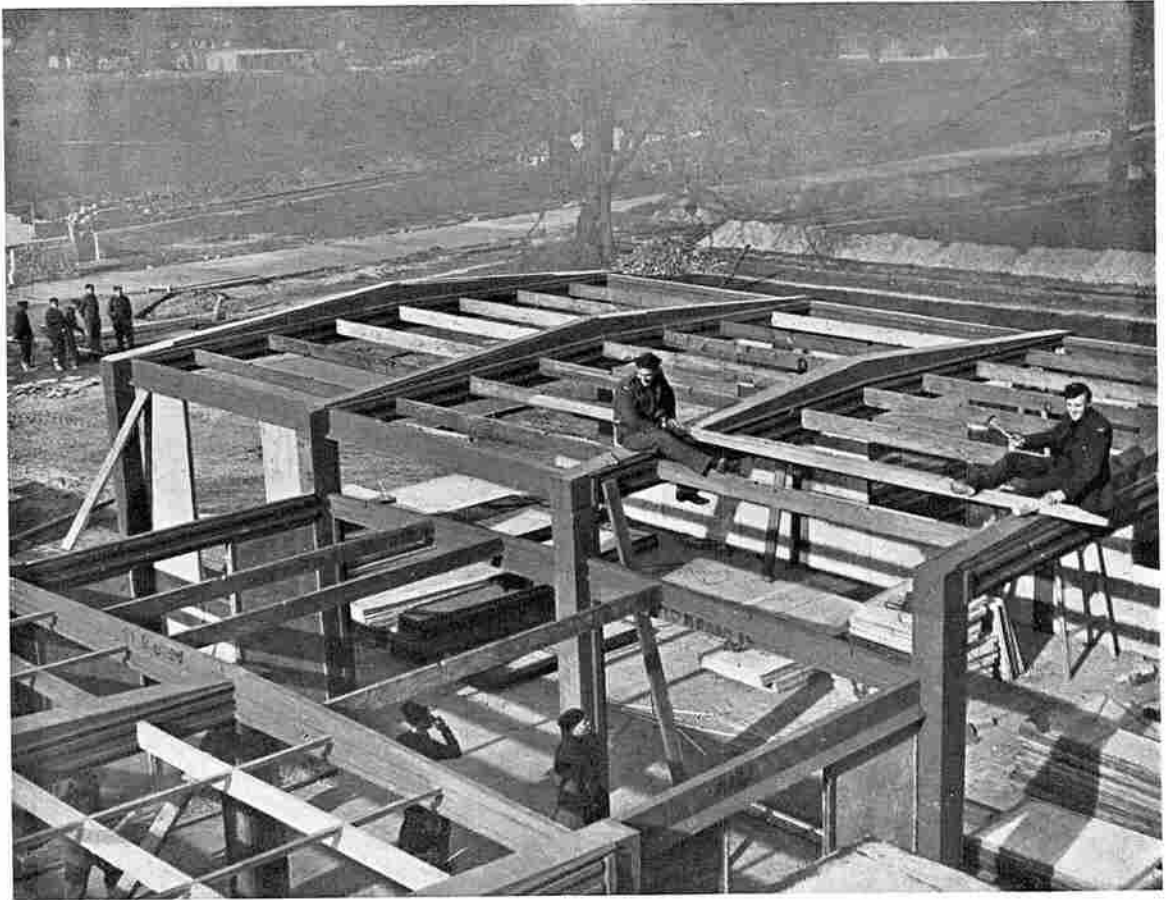
Wall Units should be stacked on edge with supporting piles of Roof Units laid flat at intervals. Whenever possible, they should be raised from the ground on scaffold planks.



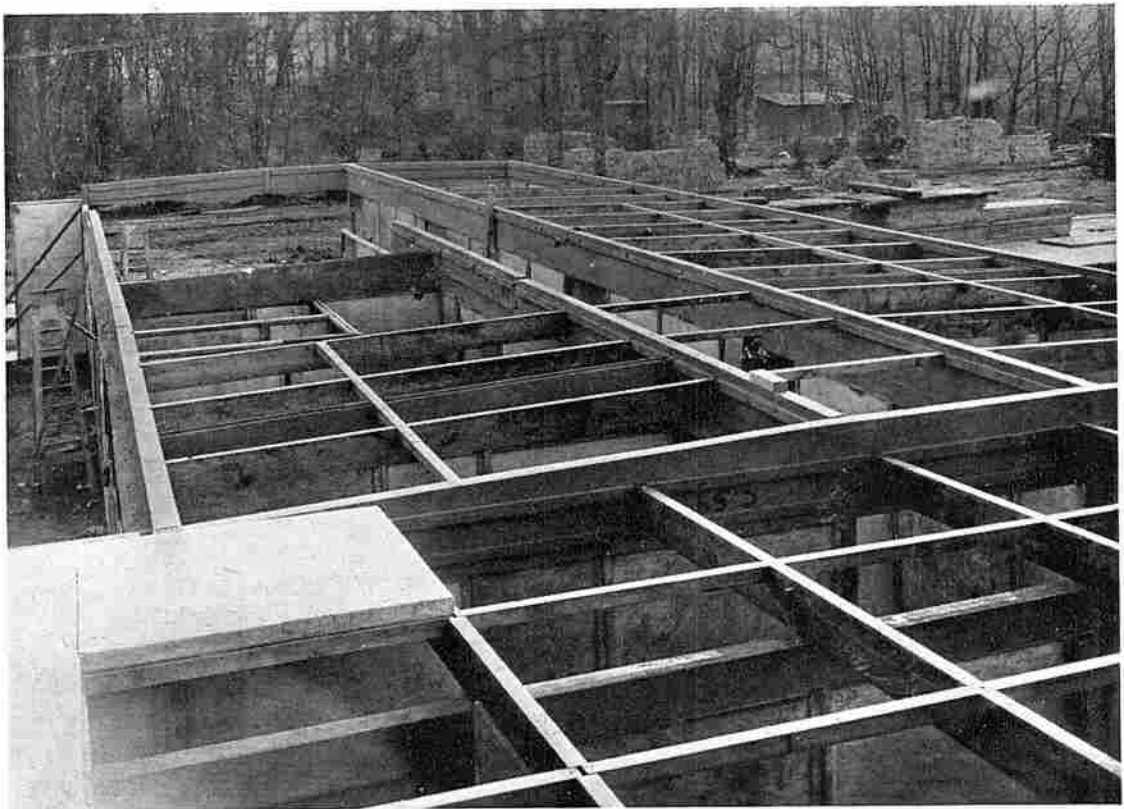
Beams and Columns in alternative layers, at right angles to each other. Top layer of Beams resting on their soffits. Cover with Tarpaulins to protect from wet and sun.



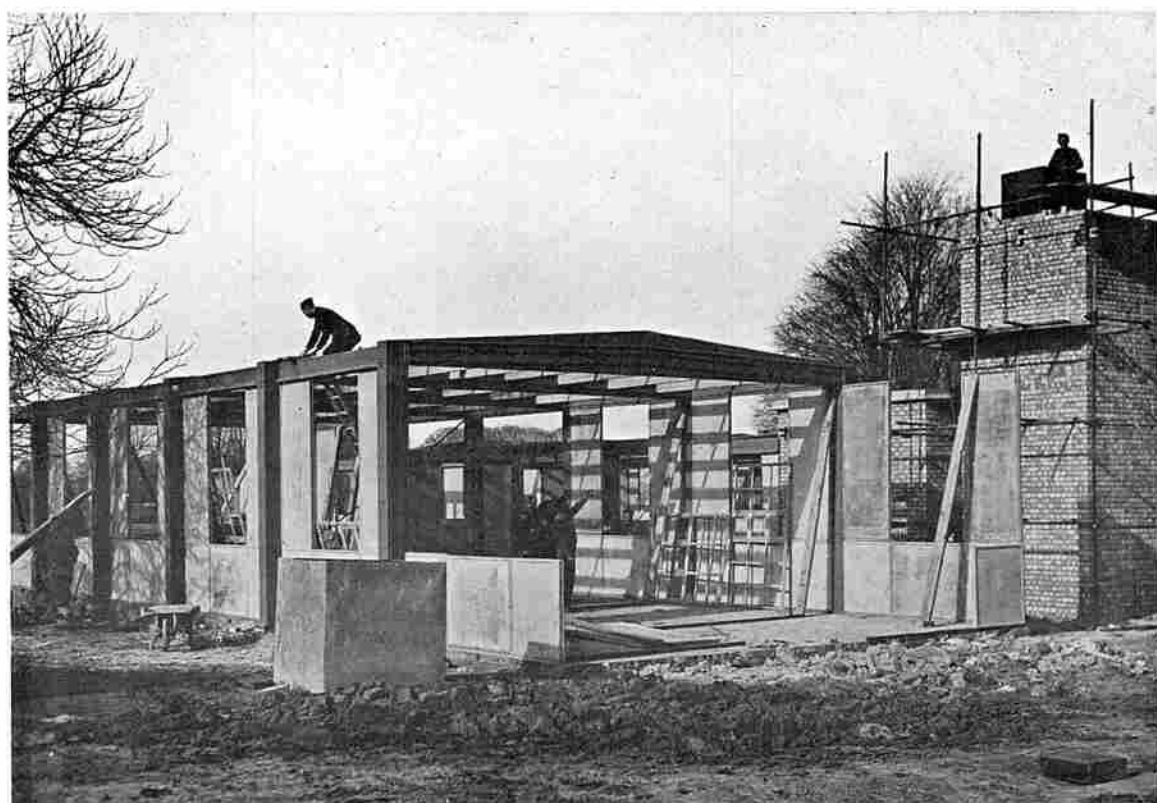
A neat pile of Type "A" Eavespieces — weather mouldings carefully protected by alternate stacking. Cover with Tarpaulins to protect from wet and sun.



Illustrating the framework connecting a standard height building with one of high ceiling type
For positioning of Special Eaves, follow lettering on drawings.



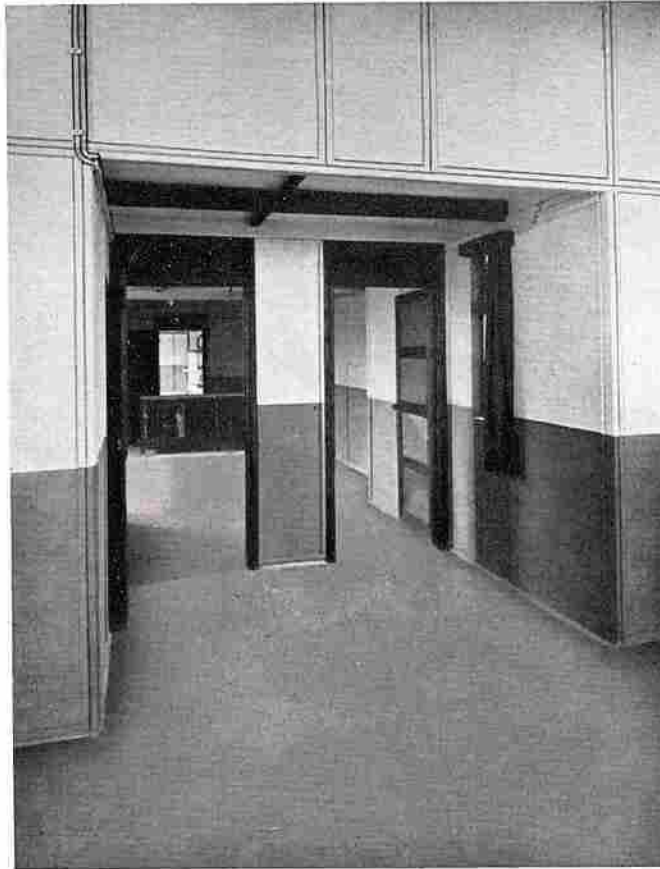
Cellular Construction—A building designed for offices of varying sizes with connecting corridors.
No "Aero" Beams are needed in this planning as the Roof is carried on Eaves supported on the
partition walling which is formed of "SECO" Standard Wall Units.



High Ceiling 24' Span Dining Room—Note short Units below, Standard Units above.

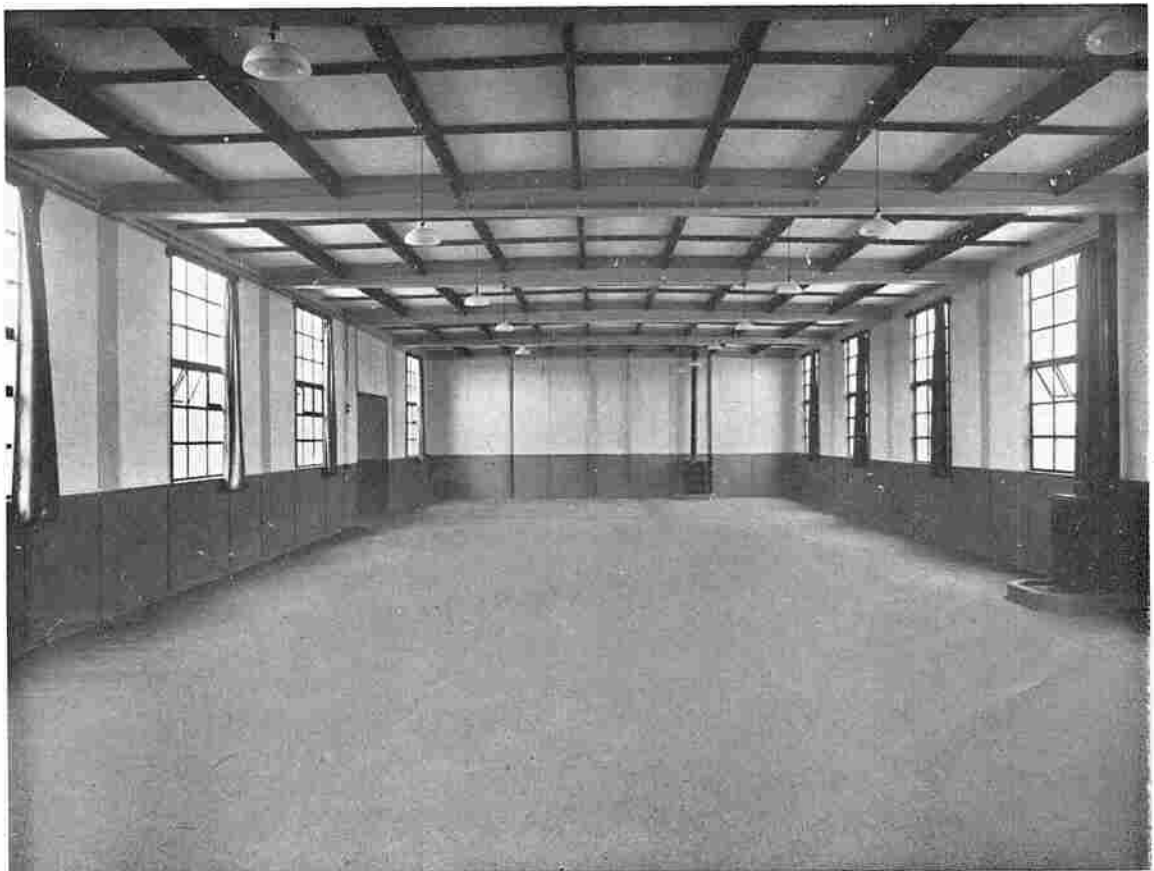


If guttering is required, it should be fixed above the Weather Mould of Eavespieces, and the top layer of felt dressed into the gutter.

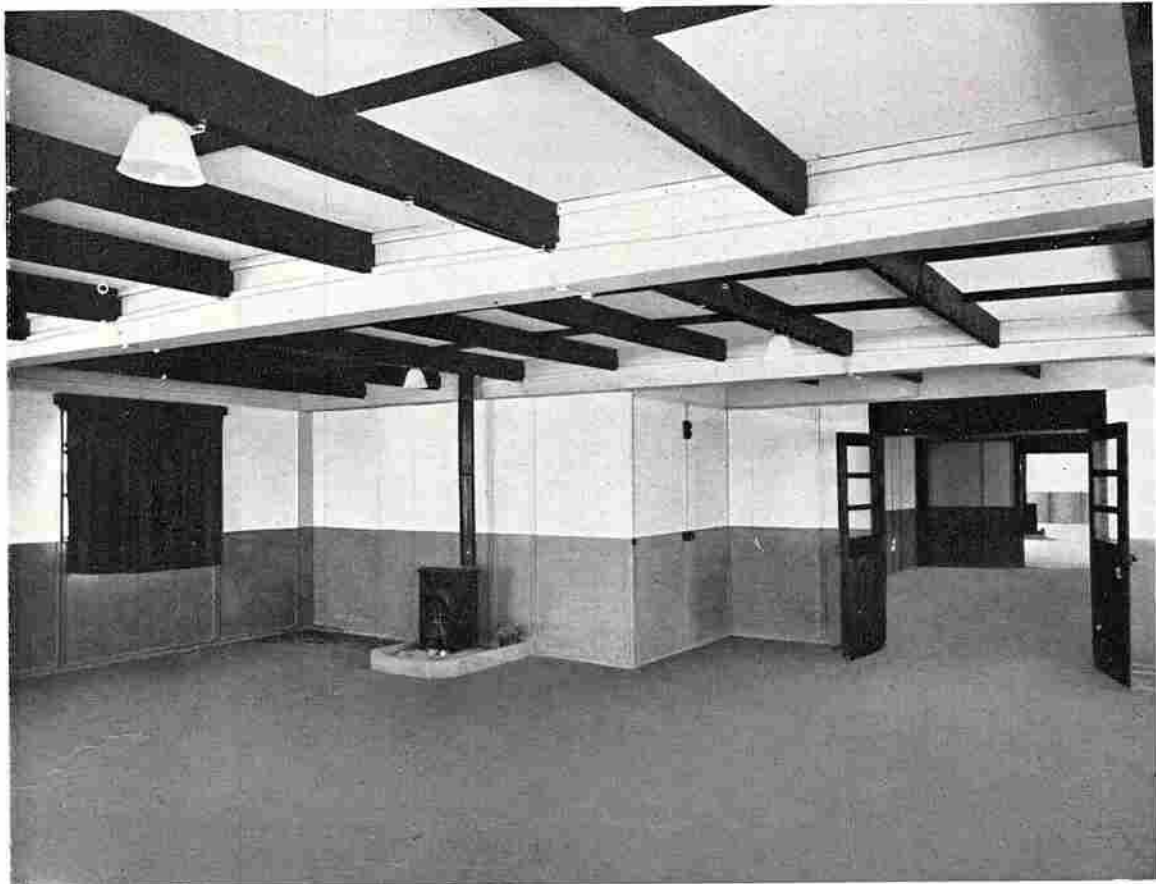


A No. 2 type Unit and two 8 "A" type Door Frames form this IN and OUT Service Passage from Kitchen in standard height building to high ceiling Dining Room illustrated below.

Note arrangement of Units above passage and the use of standard packing posts at each corner and over entrance as a lintol.



Dining Room, 11' 6" high, 28' span in 12' Bays between Column Centres.
Note the Strutting Packing Posts on end Wall.

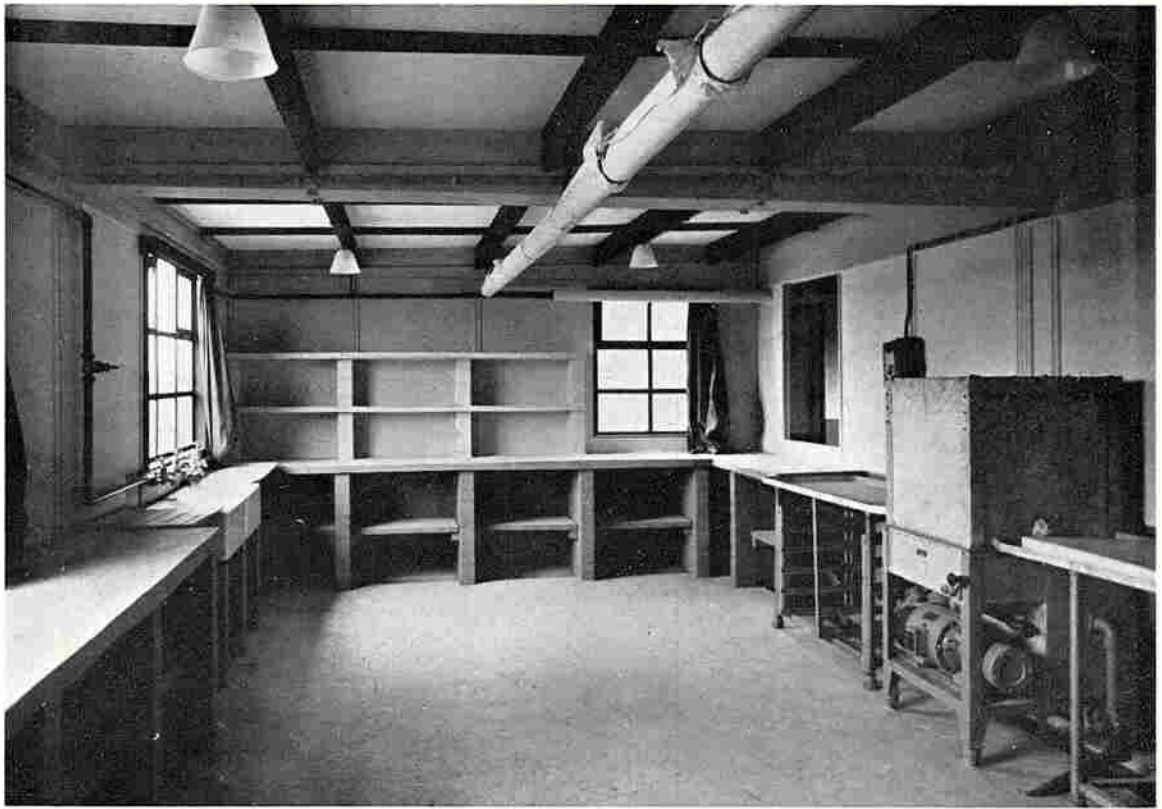


Standard height Recreation Room in a Sergeants' Mess, with 6' 4½" wide Double Door Unit.

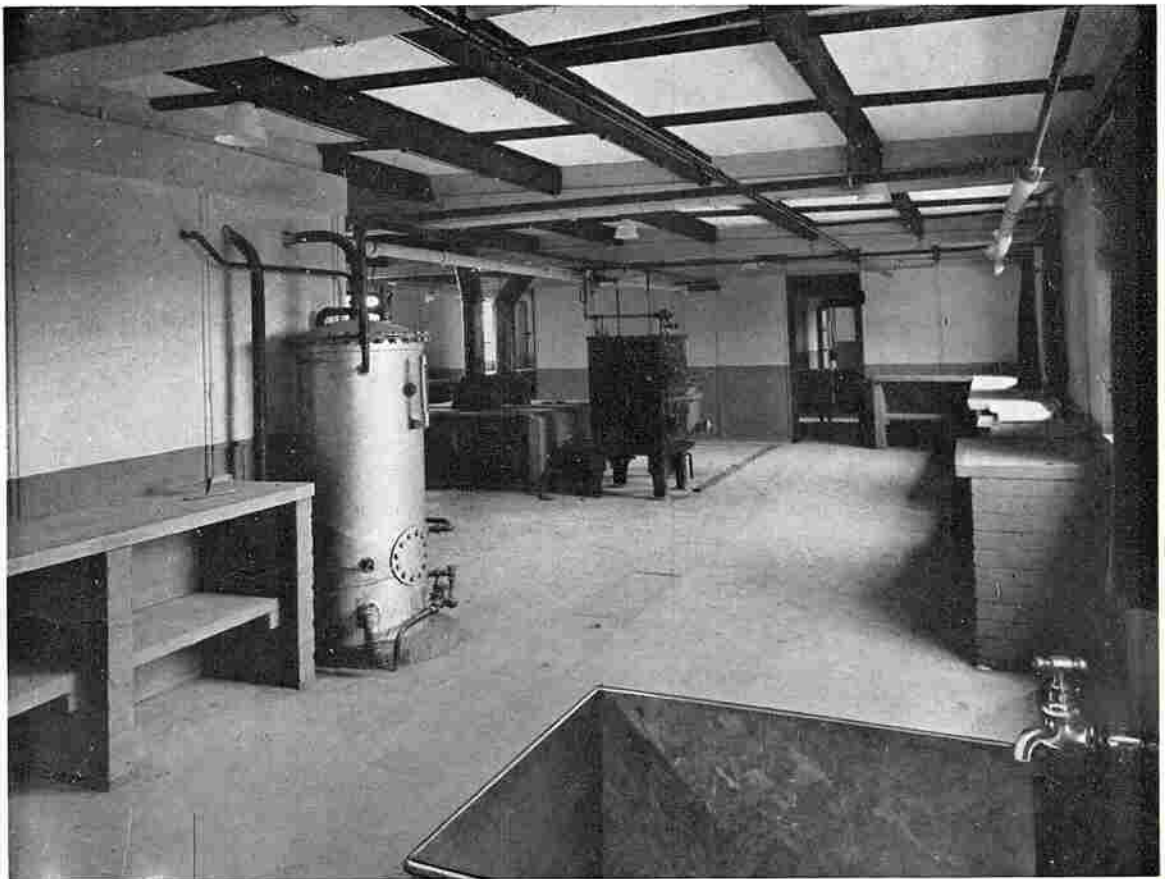


A 35' span high ceiling Workshop fitted with Standard "SECO" Top Lights, one Unit wide extending the whole length of the 12' bays.

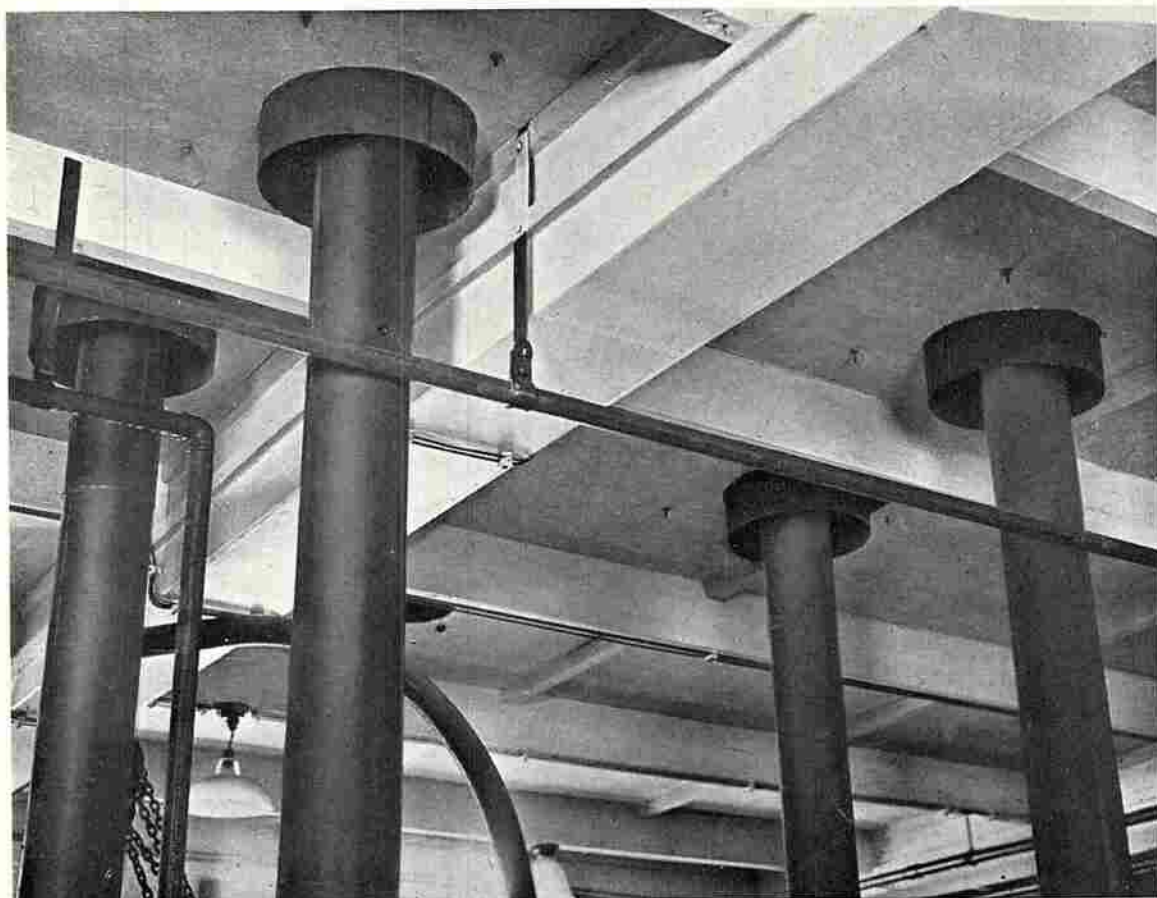
In this particular Building, the Columns are on the inside and the Roof has been raised to the maximum height to meet special requirements.



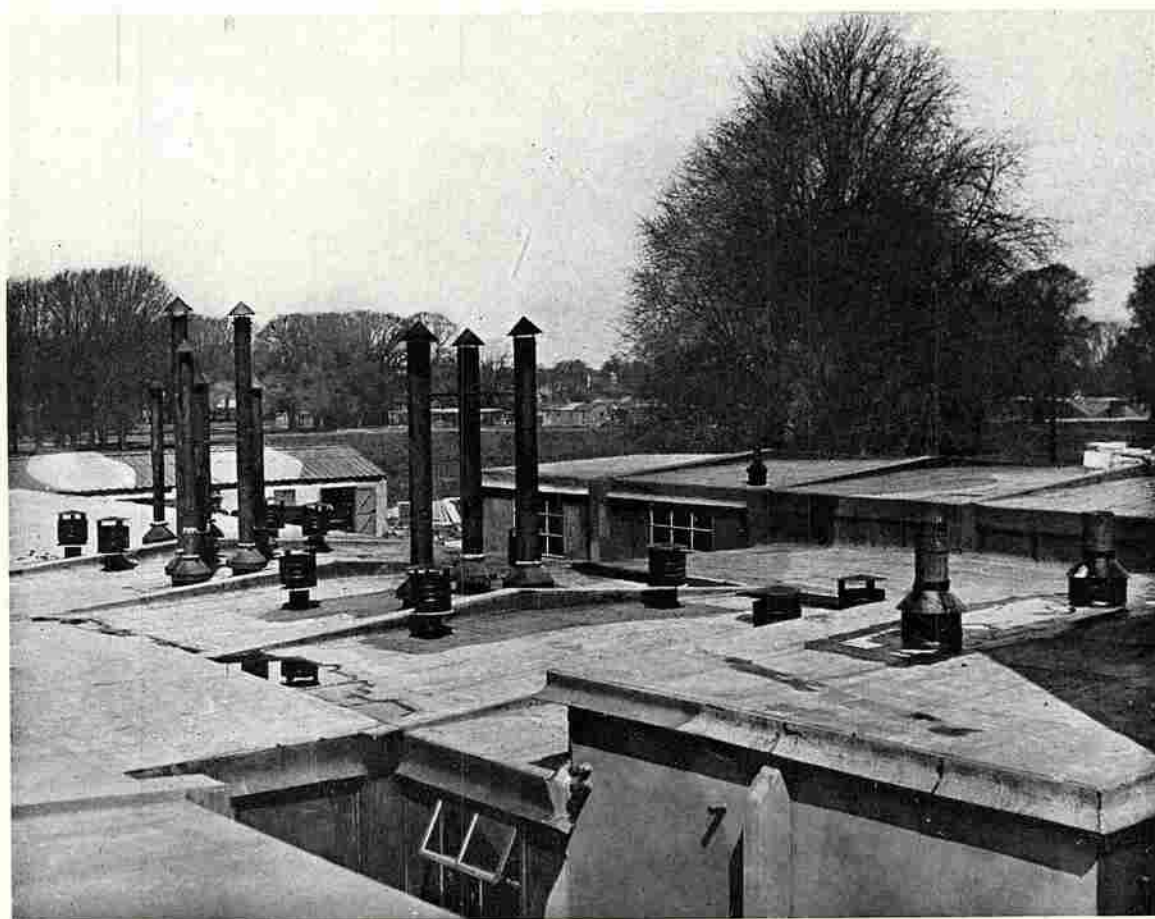
Heating and other Service pipes are readily fixed to Roof Spars, Beams and Unit Frames.
Suspended loads should be well distributed.



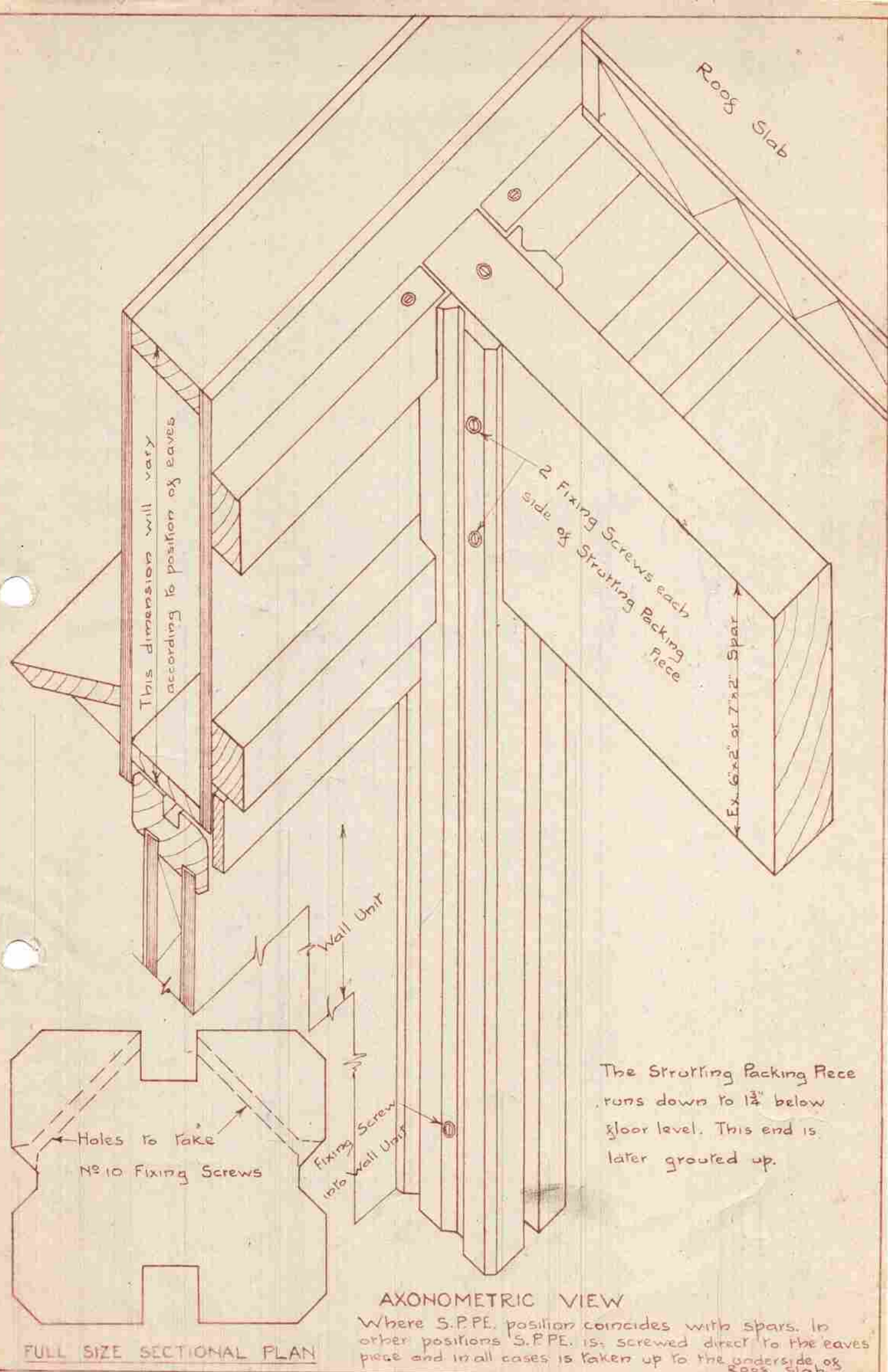
Units can be bored for pipes, etc.



The fixing of Sleeves for Flue Pipes and Ventilators presents no problem beyond some care in cutting a neat and accurate hole in the "SECO" Roof Units.



A grouping of Flue Pipes and Ventilators over a "SECO" Kitchen. The Building in the right foreground is a brick Boiler House with "SECO" Roofing and "SECO" Eaves. "SECO" Buildings can be easily joined to existing or new Buildings of other construction.



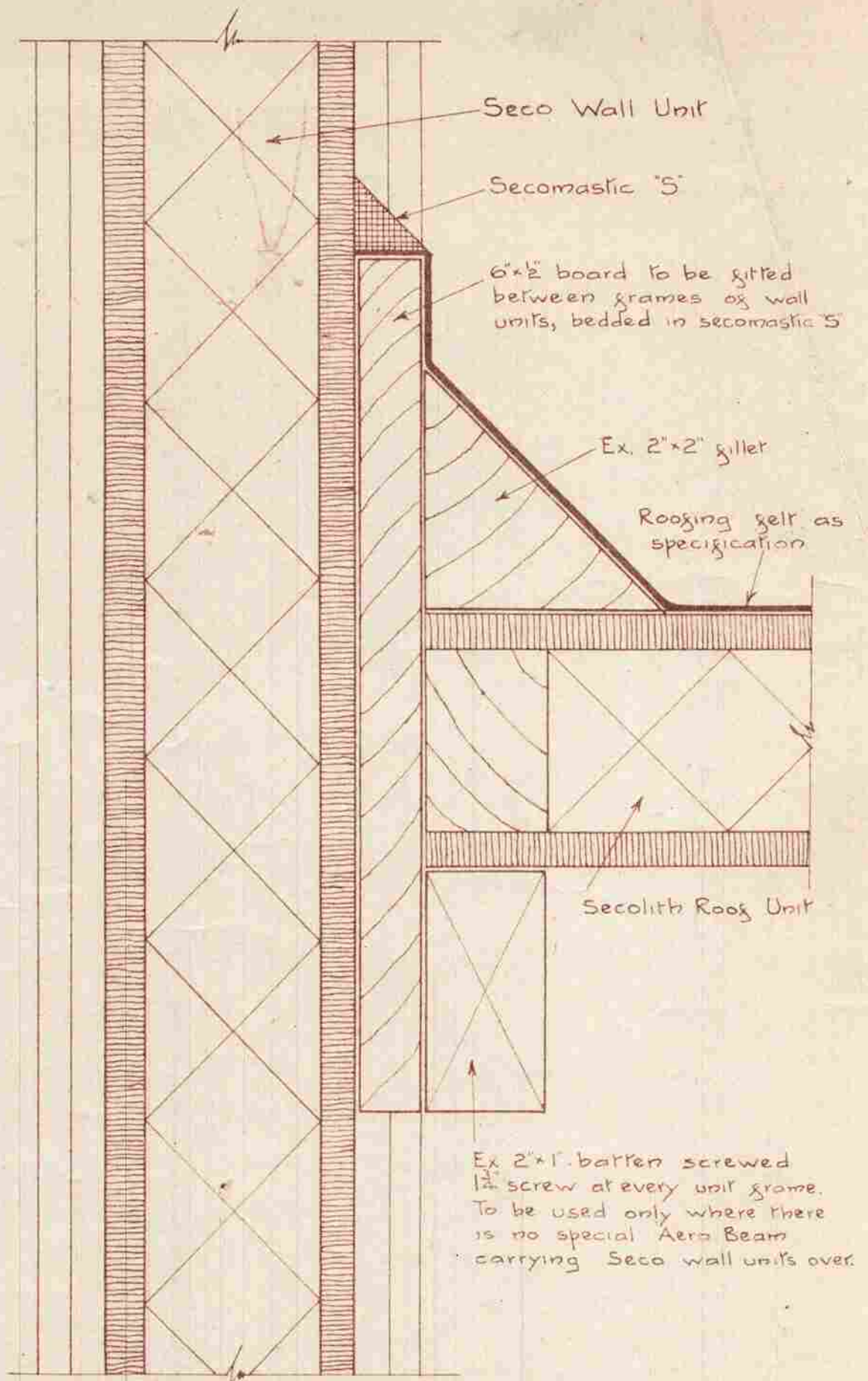
AXONOMETRIC VIEW

Where S.P.P.E. position coincides with spars. In other positions S.P.P.E. is screwed direct to the eaves piece and in all cases is taken up to the underside of Roof Slab.

FULL SIZE SECTIONAL PLAN

DWG. N° 1120/R
DATE. 21-V-43.

STRUTTING PACKING PIECE USED WITH THE MARK 2 SECO-UNIT SYSTEM OF CONSTRUCTION SHOWING SCRIBING AND FIXING DONE ON SITE.

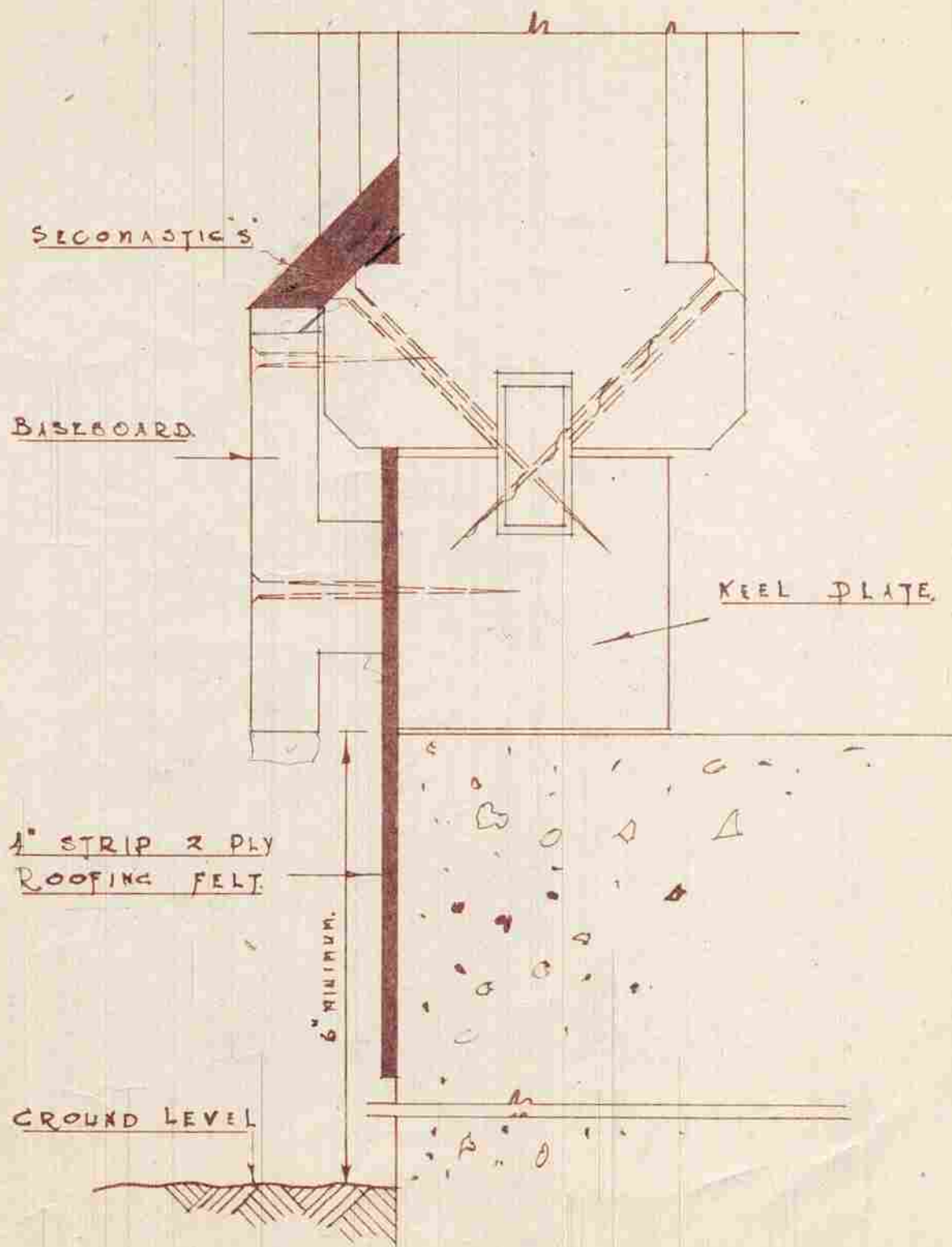


FULL SIZE DETAIL OF THE JUNCTION
BETWEEN A HIGH AND A LOW BUILDING

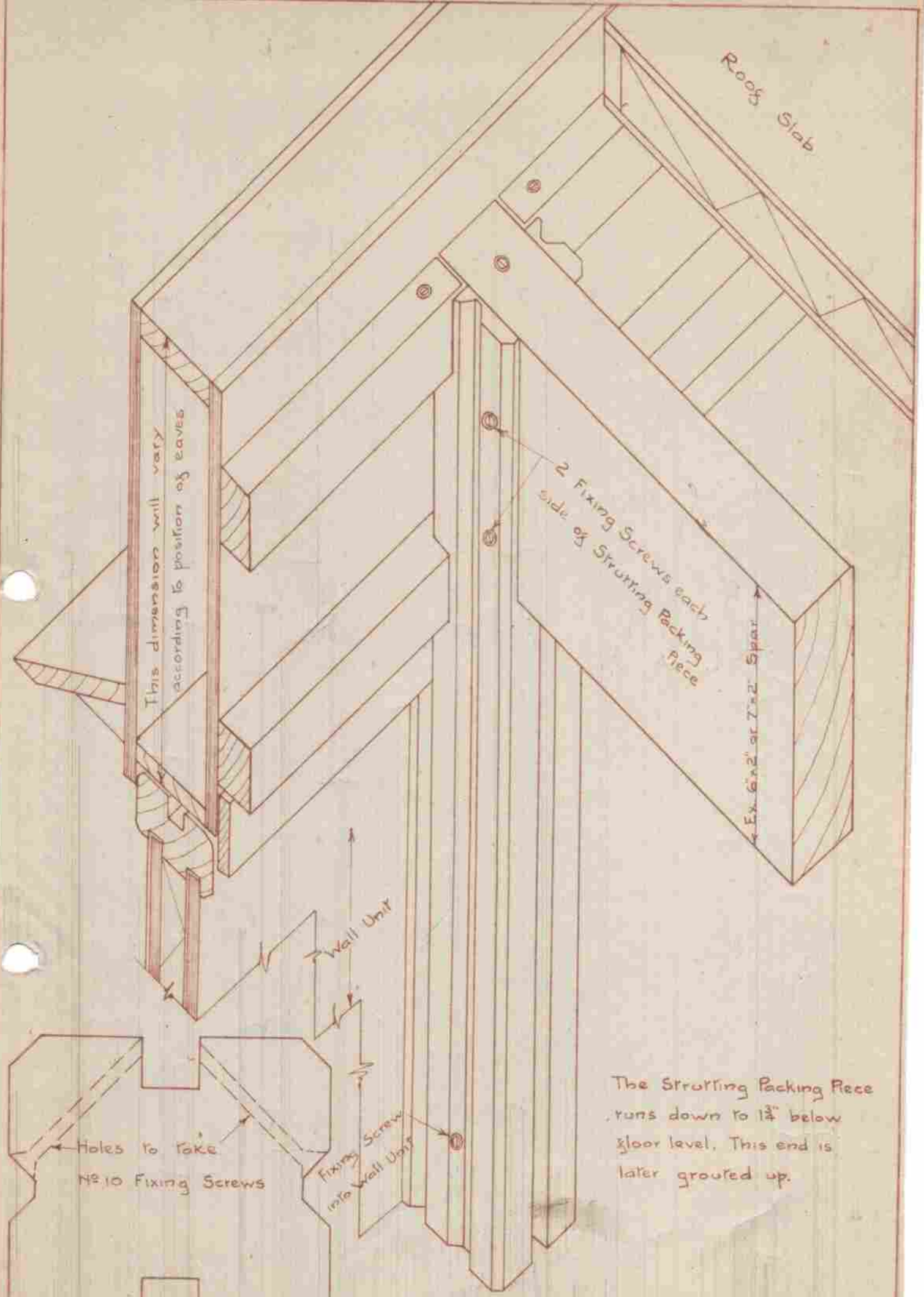
DRAWING NO 1171
DRAWN BY G.E.T.
SCALE - FULL SIZE
DATE - 4-VI-43.

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DETAIL OF JUNCTION BETWEEN
KEEL PLATE AND RAFT, SHOWING
METHOD OF ENSURING
WATER PROOF JOINT.



DRWG NO 1170



Roof Slab

This dimension will vary according to position of eaves

2 Fixing Screws each side of Strutting Packing Piece

Ex. 6x2" or 7x2" Spar

Wall Unit

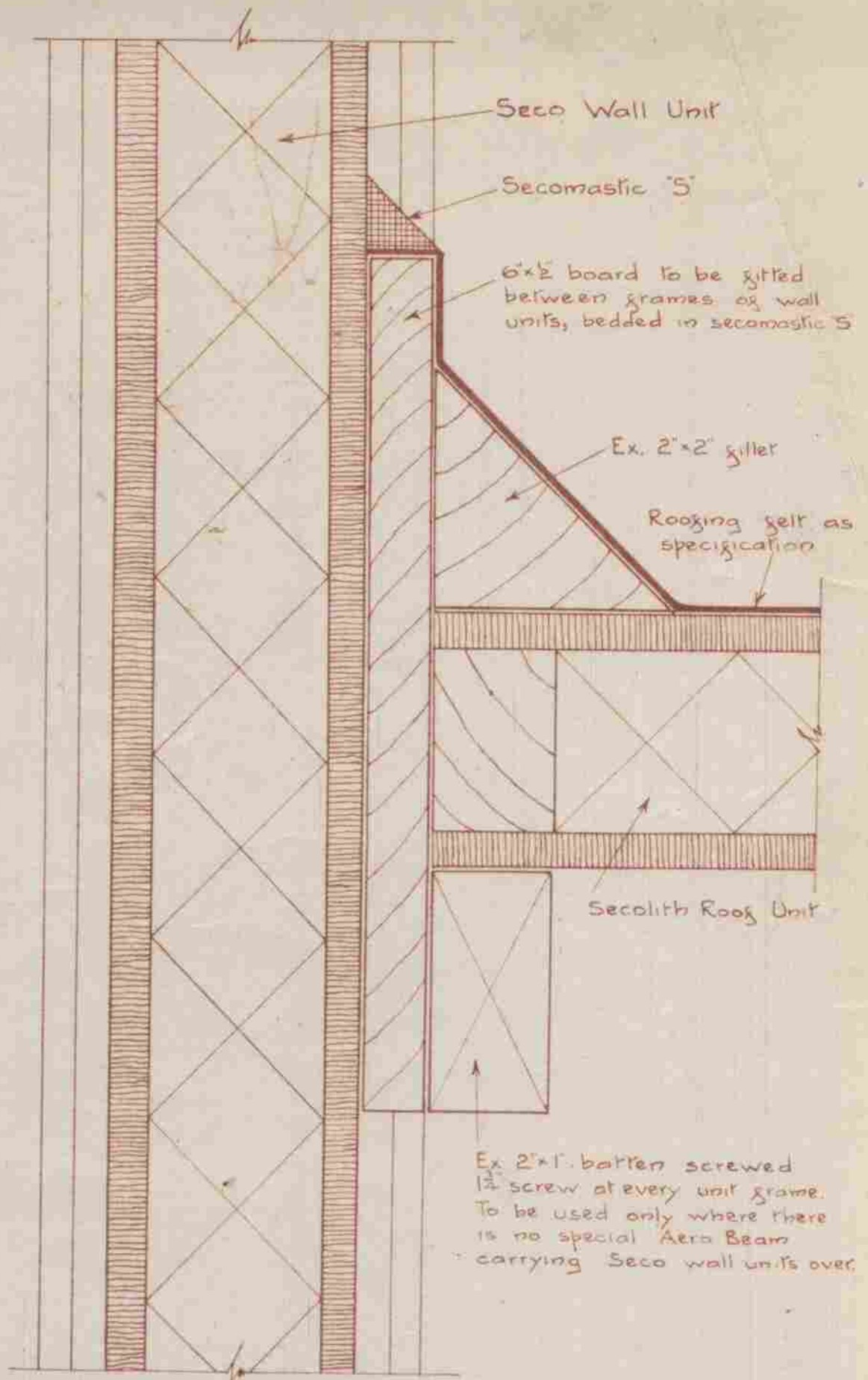
Fixing Screw into Wall Unit

Holes to Take No. 10 Fixing Screws

The Strutting Packing Piece runs down to 1 1/2" below floor level. This end is later grouted up.

AXONOMETRIC VIEW

Where S.P.P.E. position coincides with spars. In other positions S.P.P.E. is not coincident with spars.



FULL SIZE DETAIL OF THE JUNCTION
BETWEEN A HIGH AND A LOW BUILDING