

SHELL ERECTION SCHEDULE

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SCHEDULE RELATING TO THE ERECTION AND COMPLETION OF A SCANDIA-HUS TIMBER FRAME

INTRODUCTION

This Schedule outlines the work carried out by the entire building team, comprising the customer, the main contractor and the timber-frame erectors. It is intended to provide both valuable and essential guidance to the whole team. Each member of the unit has a vital role to play although, in order to ensure that the project runs smoothly, they must unite to form one team. The complete team may be together only during the “main” timber-frame erection period but, as this constitutes singularly the largest and arguably the most important aspect of the build, it is vital that each member of the team fully understands his or her respective role. It is this understanding that forms the basic requirement for the overall success of the project.

The level of information relating to the main timber frame erection provided in this Schedule assumes a basic understanding on the part of the builder, an in depth knowledge by the shell erection team and more limited knowledge by the customer. This format ensures that the most important member of the team (the customer) is not disadvantaged by his or her lack of knowledge.

REQUIREMENTS PRIOR TO THE DELIVERY OF THE TIMBER FRAME

Preparation for the arrival of the timber frame is essential and these areas are set out in separate ‘Fact Sheets’ that should be read in conjunction with this document :-

- Fact Sheet no. 14 – Delivery Day and Shell Erection – Programme & Arrangements
- Fact Sheet no. 15 – Site Welfare
- Fact Sheet no. 16 – Materials – Delivery, Storage, Protection & Quantities
- Fact Sheet no. 17 – Scaffolding
- Fact Sheet no. 18 – Pre-Delivery Arrangements
- Fact Sheet no. 19 – Site Security

Additional information relating to the construction of the building is given in more detail within this document as well as in the Builder’s Guide, which will be issued together with the final working drawings.

TIMBER FRAME ERECTION**Substructure – Accuracy and Certification**

When all materials have been successfully unloaded, the shell erection team will begin erecting the timber frame. As the accuracy of the timber frame is reliant upon the accuracy of the substructure, it is vital that the precision of the slab is determined prior to any timber-frame components being placed upon it. The dimensions and levels must be checked and assessed by the builder / customer, and information recorded on the 'Slab Certificate', which will have been forwarded to the customer prior to delivery. This Certificate records dimensional and level information, which has to be signed and returned to Scandia-Hus Limited at Felcourt no later than 5 days prior to delivery of the building set to site.

The maximum acceptable tolerances of the slab are set out in NHBC Standards 6.2.

Substructure and Soleplate Interface

Prior to the sole plates being fitted, the shell team foreman will check the accuracy of the substructure. If the structure is badly out of level or square, remedial work will be required to be undertaken by the builder / customer before work on the shell erection can commence. However, provided the tolerances do not exceed acceptable tolerances and the Slab Certificate has been duly signed and returned to the Company, the shell erection foreman will usually decide to proceed with the timber frame erection, inserting minimum packing as required to enable the team to proceed. However, it remains the builder's / customer's responsibility to ensure that solid packers are subsequently fitted beneath every stud for the full width of the sole plate, i.e. 147mm. All voids are to be filled with non-shrinkable mortar.

Should dimensions and levels fall outside acceptable tolerances and the shell erection team be forced to abandon the shell erection and leave site, additional costs incurred in rescheduling a return visit to site will be charged to the customer.

SHELL ERECTION SCHEDULE OF WORKS**Soleplates - Solid Ground Floor Construction**

- Position DPC in continuous lengths below all external walls and internal load-bearing walls, as shown on the final working drawings.
- Position treated sole plates (supplied in random lengths) below all external wall panels and internal load-bearing walls (placed directly on the previously laid DPC), as applicable.
- 'Square up' sole plates and place temporary packing below any 'low spots' prior to the panels being placed upon them. Additional 'dry-packing' required below sole plates is the responsibility of the builder / customer and should be carried out in accordance with NHBC standards.
- Provide lateral restraint to soleplates by securing plates with fixings at maximum 1200mm centres, ensuring that strips of DPC have been placed under the fixing clips.

Note: Additional wind-restraint straps are required to be fitted in Scotland, see Builder's Guide.

Wall Panels - All Construction Types

- Locate, plumb and fix all external wall panels to sole plates.
- Locate, plumb and fix all internal load-bearing wall panels to sole plates.
- Fix each panel to the adjoining panel using the factory-positioned screw fixings.
- Fit all 'head-binders' to tops of external and internal wall panels, ensuring that all corners and intersections of internal/external wall panels have head-binders crossing over the joints and fixings into the adjacent panel.
- Ensure that each internal and external corner panel is assembled correctly in accordance with the Shell Erection Manual.

First Floor Joist-Frame - Two-Storey Structures Only

- Assemble and fix joist-frame components in accordance with the final working drawings.
- Lay temporary safety platform. (Material provided by Scandia-Hus to be recovered or left on site at the discretion of the Company).
- Fit all solid blocking and strutting, as defined on the final working drawings.
- Fit all internal load-bearing wall support timbers, as defined on the final working drawings.

- Fit factory prepared external cover-strip to perimeter of joist frame.

First Floor Zone - Chalet Designs with Rooms in the Roof Only

- Refer to the section 'Truss Installation' below for this element of the construction.
- Fit intermediate joists accurately in the positions shown on the final working drawings.
- Lay temporary safety platform. (Material provided by Scandia-Hus to be recovered or left on site at the discretion of the Company).
- Fix intermediate joists to all external and internal wall plates using the truss clips supplied, and fix with correct number and type of fixings as specified in the Builder's Guide.
- 'Trim out' any openings (such as stair wells, etc.) and fit any joist hangers, as shown on the final working drawings, ensuring that the correct number and types of fixings are used.
- Fit all solid blocking and strutting as shown on the final working drawings.
- Fit all internal load-bearing wall support timbers – where applicable - as shown on final working drawings.

Roof Trusses

Attic trusses are often used for creating rooms in the roof space and are usually constructed from 47 x 220mm structurally graded timber. These trusses are usually provided with a 45° pitch to facilitate standard room heights.

Depending upon their size, attic trusses will arrive on site either in one piece, or more often than not, in two pieces for ease of transportation. Once on site, they will be assembled.

Fink trusses for bungalow, two-storey and other designs which do not incorporate 'liveable' areas are generally not as large (or as heavy) as attic trusses. Therefore, they will usually arrive on site in one piece. However, if the span is particularly large, the trusses may have to be delivered in two or more sections for off-loading and assembly on site.

Trusses will arrive on site as sequenced during the shell erection period. Depending upon the truss type, size and configuration, they will be off-loaded either for erection or for assembly. If the supporting structure has been completed, they will be lifted direct into position. Usually a mobile crane is used to lift trusses.

Roof Truss Installation

- The trusses are positioned on the wall plates and fixed to the plates using truss clips provided, and secured with the correct number and type of fixings.
- Where the trusses bear on internal load-bearing walls, the trusses have to be fixed to the internal load-bearing wall plate using truss clips provided, and secured with the correct number and type of fixings. However, at the time of the shell erection completion, before the roof trusses have been 'loaded out' with roof tiles, the bottom chord of the truss will not necessarily be bearing directly onto the wall plate. If this is the case, the truss chord must not be fixed or 'spiked' to the wall plate. It should be left unfixed in this location to allow the bottom chord to 'pull out' as the roof is loaded and the truss chord to settle onto the internal load-bearing wall plate, prior to fixing the truss clips. This then, becomes the responsibility of the builder/customer, as the roof will not become loaded until the roof tiling has been completed, which may be several weeks after the shell erection team has left site.

Sarked Roof Structure

- When all the trusses have been erected, squared, plumbed and fixed, OSB sarking is fixed to the top face of the truss rafters.
- If the building has roof lights, these will be fitted by the builder/customer. The shell erection team will not make any provision for their installation, as customers' requirements with regard to the position of roof lights vary from site to site.
- Upon completion of the sarking, a breathable roofing membrane is applied over the complete surface of the roof boarding. This is held in place by counter-battens, which are fixed at each rafter position.

Eaves Fascia Rail & Boards/ Gable Barge Boards and Soffit Boarding

- The fascia rail and fascia boards are fitted to the ends of the rafters by the shell erection team.
- The shell erection team will leave the fascia boards 'over length' to be trimmed on site to suit the eaves box detail completed by the builder/customer.

- The gable fascia boards/barge boards should be fitted by the builder/customer.
- Eaves and gable soffit-boards should be fitted by the builder/customer, as shown on issued details.

OSB Tilting Fillet and Gutter Drip

- The shell erection team will fit an OSB tilt board and 150mm DPC gutter drip at the fascia position. Breathable roofing membrane to be dressed over the DPC to enable any water to shed into the gutter.
- Install over-fascia vents in accordance with details. Vents are required only for 'cold roofs'.

Dormers and Roof Lights

- Dormers are delivered to site partially assembled. All the panels (cheeks, gables and front panels) are supplied to site as 'open cell' panels, which means that some insulation, vapour control layer (VCL) and plasterboard are site-fitted by the builder / customer.
- The lower OSB sheet on the front panel has been stopped short of the base of the panel to allow easy access for follow-on trades and for fitting the insulation and VCL behind the panels.
- Dormer roofs and associated fascias and soffits to be constructed per the main roof detail.
- All work associated with installation of roof lights is to be carried out by builder/customer, including the supply and fixing of 25mm expanded polystyrene and 12.5mm plasterboard linings around the roof light reveals.
- Any additional supports required at junctions/board ends to be formed by builder/customer.

ADDITIONAL ITEMS COMPLETED BY THE SHELL ERECTION TEAM

*Upon completion of the main frame, the **shell erection team** will also undertake the following :-*

- Overlap breather paper on all external panel joints.
- Where necessary, fit cavity-battens and cover front face of battens with DPC.
- If window installation has been specified, off-load and install windows and patio doors.
See separate Window Fitting Schedule.
- Construct structural elements of the balcony. (If applicable).
- Construct bay window structures. (If applicable).
- Fit vertical 9mm OSB upstand to soffit box zone.
- Clean site, making use of skip provided by builder/customer.

Shell-Erection Hand-Over Inspection

On completion of the shell erection, work undertaken by the shell erection team will be inspected by Scandia-Hus Manufacturing's Contracts Manager. The purpose of this inspection is to ensure that the erection has been undertaken correctly to the drawings and details supplied, and that standards are being maintained.

At the end of the inspection any further work found to be required to be undertaken by the shell erection team will be discussed and agreed with the foreman who will then arrange to complete any outstanding work or carry out any amendments / recifications, as necessary.

Product Data Sheets

In line with current safety regulations and EU directives, as well as Section 6 of the Health & Safety at Work Act, 1974, Data Sheets on all products incorporated within Scandia-Hus' building sets are available from our office. For further information with regard to the composition or properties of any materials or components incorporated within our building sets and their toxicological or ecological effects (if any), or in respect of the handling, storing, disposal, first aid, etc. of materials supplied by us, please contact our Technical Department who will be pleased to provide copies for your reference.