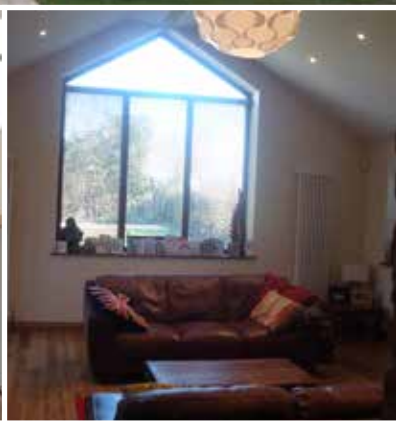
SipsEcoPanels

SELF INSTALLATION MANUAL






www.SipsEco.co.uk

INTRODUCTION TO SIPS ECO PANELS

CONTENTS

IMPORTANT INFORMATION

- Sips Eco Panels are pre-engineered, insulated, load bearing panels, which form the exterior envelope of the building.
- Sips Eco Panels replace traditional construction methods by combining structure, insulation, air and vapour barriers into one component.
- Air leakage associated with traditional construction and timber frame is virtually eliminated when using Sips Eco Panels. The insulation is continuous eliminating thermal bridges and providing the end user with comfort and low energy costs.
- Sips Eco Panels are stronger than conventional timber frame construction. They are recognised for resistance to lateral loads caused by high winds and even earthquakes.
- Sips Eco Panels are lightweight and easy to install, but they sound solid. This means a solid andconsistent quality.
- The speed of assembly combined with energy savings benefits and eco friendly construction makes them the logical choice.
- Sips Eco Panels are composed of expanded polystyrene insulation laminated between 2 sheets of OSB (oriented strand board).
- The strength of all connection details and components that tie Sips Eco Panels to all other structural elements must be selected to ensure adequate vertical and horizontal load paths within the structure.
- The specification and design of these items must be determined by the building engineer responsible for the stability of the building. Guidance on the design of connection details must be sought from Sips Eco Panels
- In general Sips Eco Panels do not incorporate lintels. Spanning over openings is achieved through the use of rim beams at floor or roof level. The sizing and bearing of the spanning rim beam shall be determined in the design process. In some cases lintels will be required below high point loads.
- Sips Eco Panels are packaged for weather protection. When they arrive on site, they should be stored on level blocking. They must be protected from rain, snow or morning dew. By taking these measures, the panels will be easier to install.
- Panels are joined together using splines. The panel joints must be structurally fastened to ensure the integrity of the panel system
- Panel annotations (where relevant) on drawings show a reference number and this number must face to the outside of the building when panels are being installed.
- Screws are used to fasten panels.
- Please read the manual and consult the manufacturer for instructions.
- Read the manual in numerical order.

INSTALLATION AND REFERENCE MANUAL

RESIDENTIAL WALLS, ROOFS, FLOORS, EXTENSIONS & GARDEN BUILDINGS

DO

- Comply with the current Building Regulations subject to use.
- Follow the instructions provided by the manufacturer.
- Handle the panels with care.
- Provide solid level platform for storage of panels.
- Cover the panels from moisture when not in use.
- Remove debris from panel connection areas prior to panel placement.
- Keep timber studs indoors or protected to prevent swelling.
- Fit vapour control layer VCL to inside face of **Sips Eco Panels**.
- Fit breather membrane to external face of **Sips Eco Panels**.

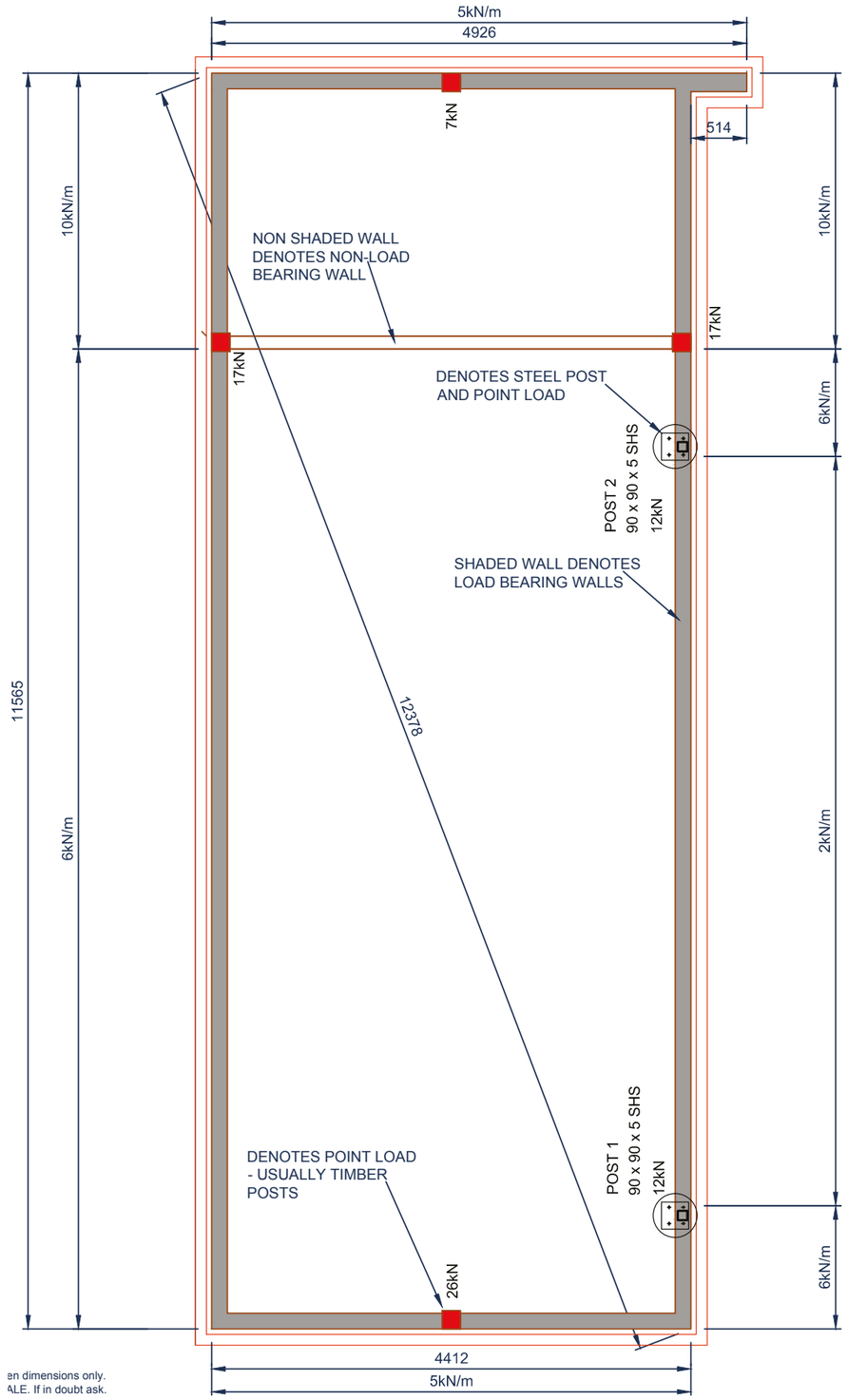
DON'T

- Cut into the skin of the panels without approval from the manufacturer.
- Insert wiring without adequate protection and approval from the manufacturer.
- Cut out openings for windows and doors without approval from manufacturer.

TOOLS NEEDED

- To build with **Sips Eco Panels** all you need are regular carpentry tools plus a FEIN MULTIMASTER or similar or hot knife and expanding foam.
- A FEIN MULTIMASTER or similar or hot knife are tools for routing out grooves in the EPS and are needed whenever **Sips Eco Panels** need to be cut to size.
- Heavy duty foam gun ensures easy application and long term use.
- Expanding foam is used to seal all connections between individual panels and top and bottom plates ensuring the structural integrity of the system.

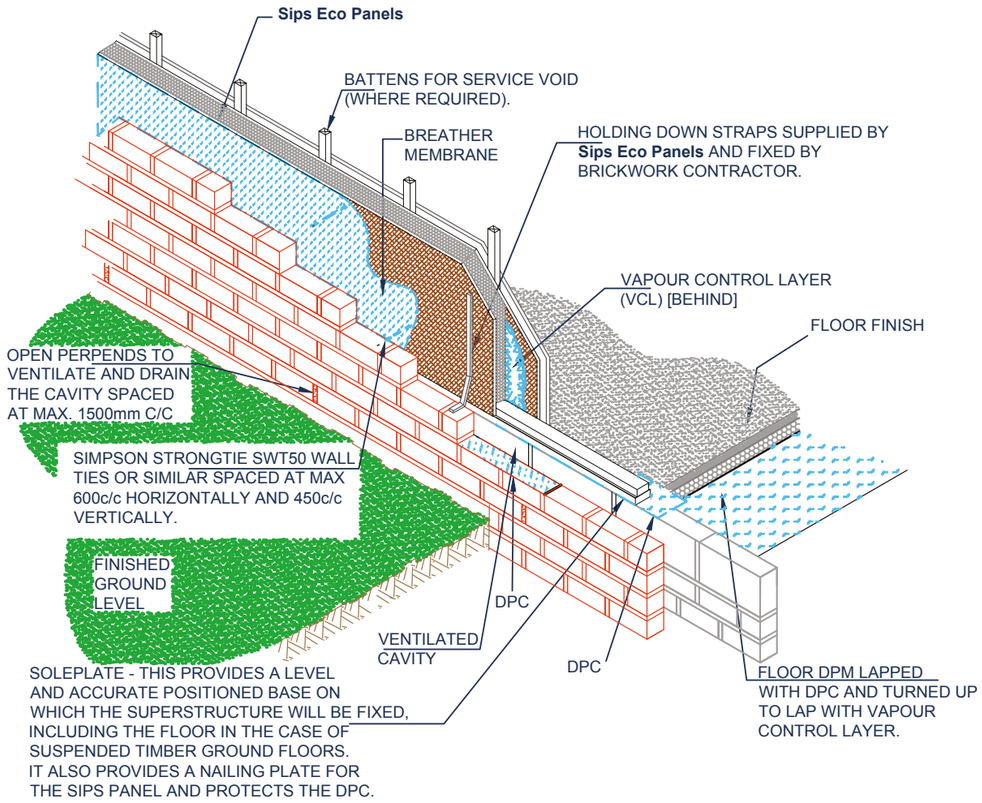
GENERIC FOUNDATION LOCATION PLAN (FLP)



Work to written dimensions only. DO NOT SCALE. If in doubt ask.

GENERIC TYPICAL EXTERNAL WALL BUILD UP

THE EXTERNAL WALL CONSISTS OF TWO PARTS;
THE LOADBEARING **Sips Eco Panels** & THE OUTER CLADDING - THIS MAY BE A HEAVYWEIGHT CLADDING SUCH AS BRICKWORK SUPPORTED INDEPENDENTLY OFF OF FOUNDATIONS, OR A LIGHTWEIGHT CLADDING ATTACHED TO THE TIMBER FRAME SUCH AS; RENDER, HANGING TILES OR TIMBER BOARDING.



THE CONSTRUCTION OF EXTERNAL WALLS MUST COMPLY WITH APPROVED DOCUMENT B OF THE BUILDING REGULATIONS IN MANY CASES. PARTICULARLY IF THE CLADDING IS COMBUSTIBLE AND WITHIN 1M OF THE BOUNDARY, WITH PARTICULAR ATTENTION TO PART B4 HIGHLIGHTING THE SPECIFIC MINIMUM REQUIREMENTS OF FIRE RESISTANCE.THIS INCLUDES OPENABLE AREAS.

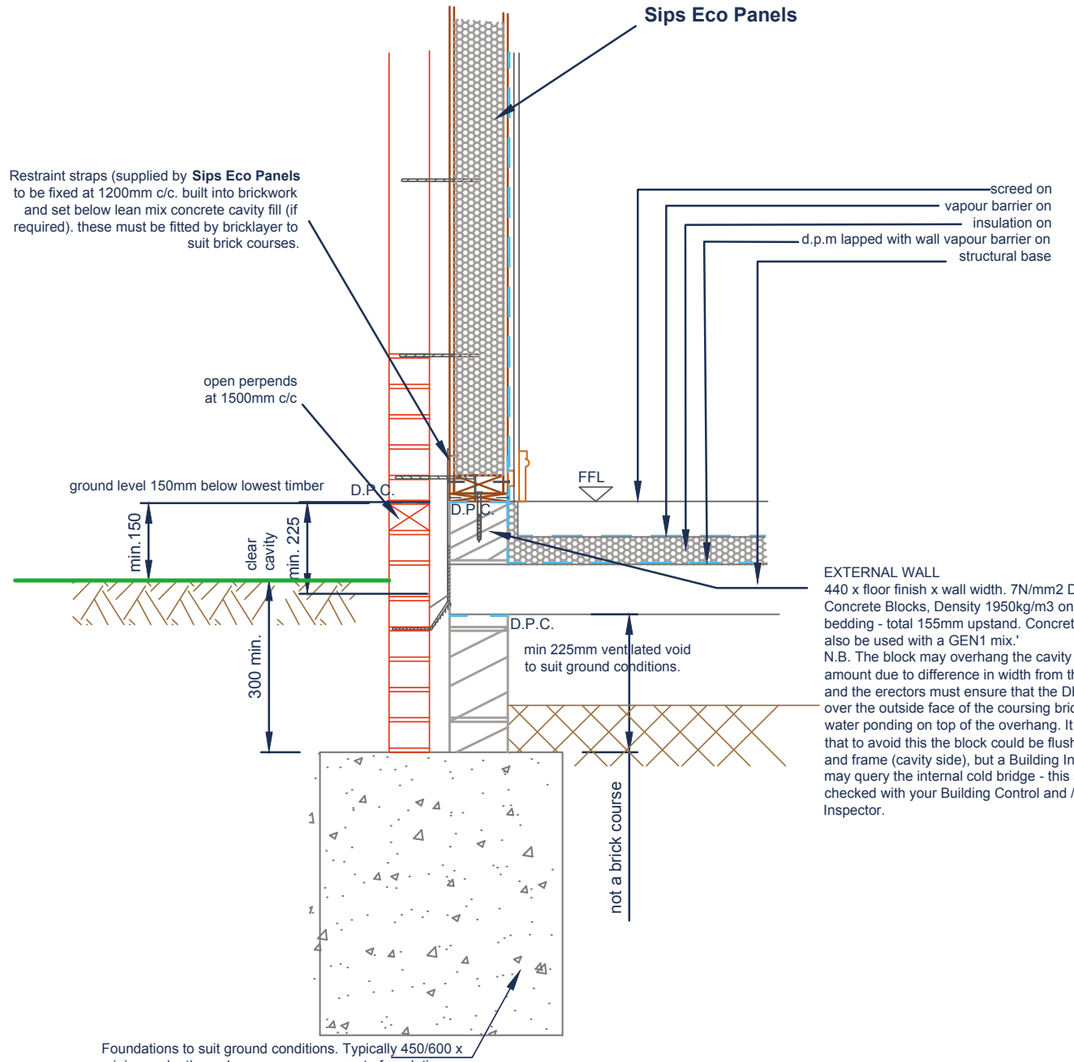
Work to written dimensions only. DO NOT SCALE. If in doubt ask.

SOLEPLATE UPSTAND IMAGES

Upstands must be dense concrete blocks or concrete. These are built to the same height as the finished floor for external and internal walls.

GROUND FLOOR EXTERNAL SOLEPLATE DETAIL

Sips Eco Panels recommends the brickwork should not be started before the sips frame has been erected.



EXTERNAL WALL
440 x floor finish x wall width. 7N/mm2 Dense Concrete Blocks, Density 1950kg/m3 on 15mm Mortar bedding - total 155mm upstand. Concrete upstand can also be used with a GEN1 mix.'
N.B. The block may overhang the cavity by a small amount due to difference in width from the SIP panel and the erectors must ensure that the DPC is lapped over the outside face of the coursing bricks to stop water ponding on top of the overhang. It is possible that to avoid this the block could be flush with the floor and frame (cavity side), but a Building Inspector may query the internal cold bridge - this should be checked with your Building Control and / or Insurance Inspector.

Foundations to suit ground conditions. Typically 450/600 x minimum depth as shown on mass concrete foundations taken down to bear into virgin suitable stratum. Foundations also to be taken down min. 300 below any root presence.

For foundation setting out refer to foundation location plan (FLP).
This drawing shows traditional trench fill foundations and is not site specific.Floor and foundation depths/design to be approved by the building inspector and to suit local ground conditions.
This drawing is to be read in conjunction with the Building Regulations notes and drawings.
House setting out relies on (FFL) Finished Floor Level = external DPC level.
Top of soleplate may require cutting out at internal and external door positions.
No brickwork is to be constructedbelow DPC level (to external cavity skin) until after the SIP frame has been erected (to ensure that a nominal 50mm cavity is maintained between sip frame and outer skin).

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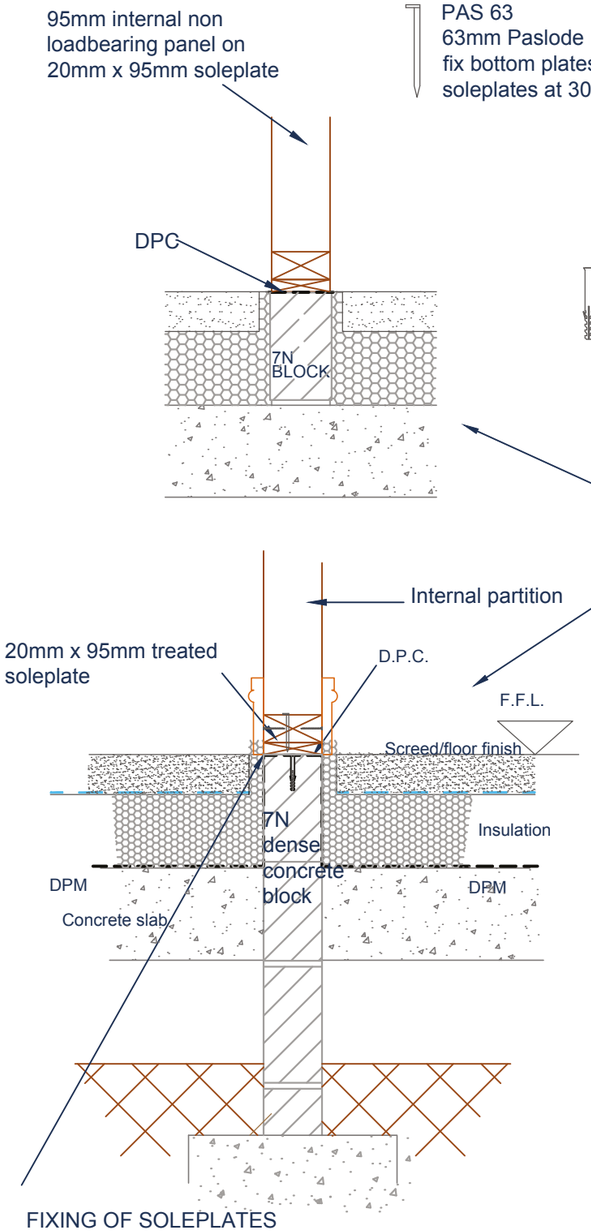
GROUND FLOOR INTERNAL SOLEPLATE DETAIL

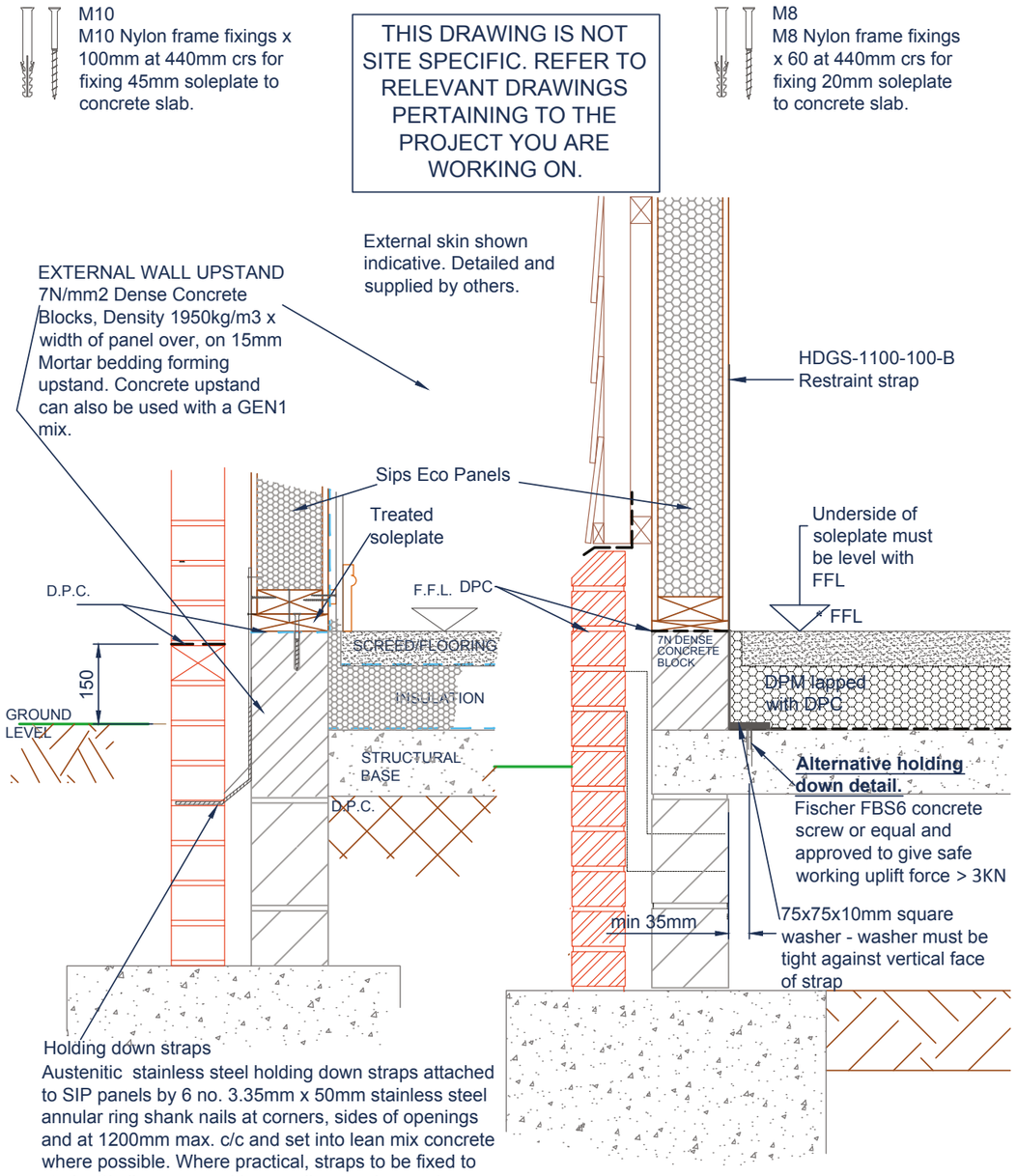


FIXING OF SOLEPLATES
20mm x Sips panel width fixed with nylon frame fixings M8 x 60mm at 440mm crs. 45mm x Sips panel width fixed with nylon frame fixings M10 x 100mm at 440mm crs.
45mm x 95mm base rail from panel is then located centrally on soleplates and over 45mm x 95mm and screwed through OSB from both faces horizontally into 45 with 3.5mm x 35mm screws at 200mm crs.

INNOVATIVE DESIGNS FROM Sips Eco Panels

Work to written dimensions only. DO NOT SCALE. If in doubt ask.

HOLDING DOWN STRAP DETAILS



Holding down straps
Austenitic stainless steel holding down straps attached to SIP panels by 6 no. 3.35mm x 50mm stainless steel annular ring shank nails at corners, sides of openings and at 1200mm max. c/c and set into lean mix concrete where possible. Where practical, straps to be fixed to studs. Similar approved by supplier may be used.

PAS 90
90mm Paslode nails used to fix internal studs to internal studs and 45mm baserail to soleplates at 600mm c/c.

SCREW 41
3.5 x 35mm grey phosphate at 200mm c/c and 50mm in from end.

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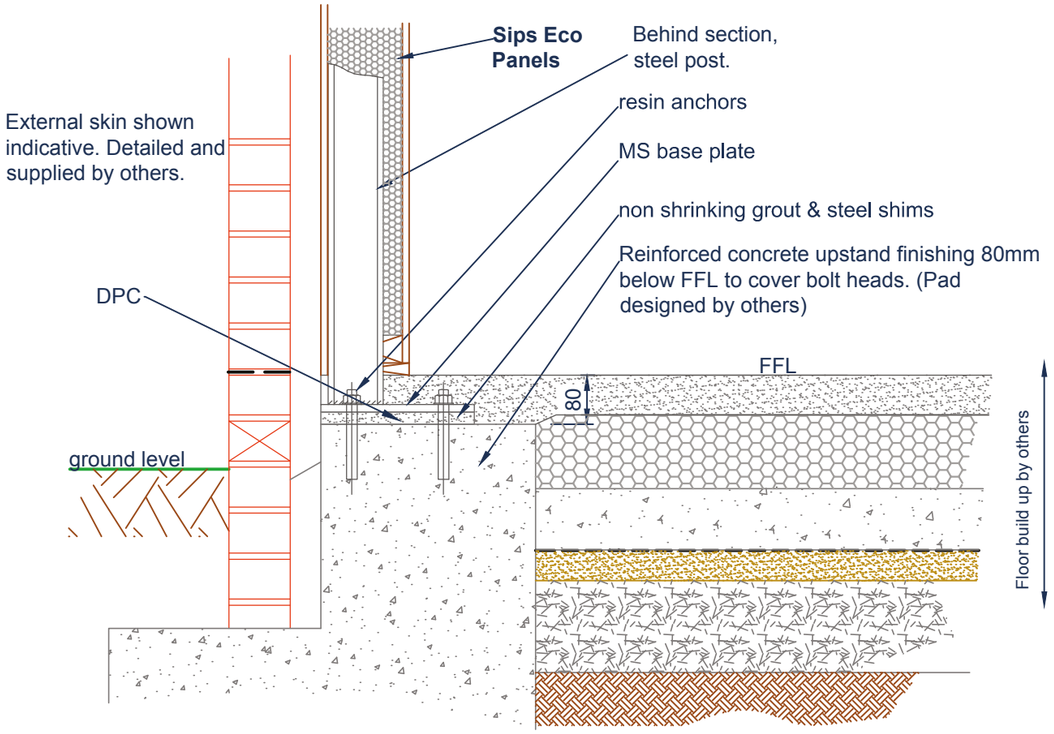
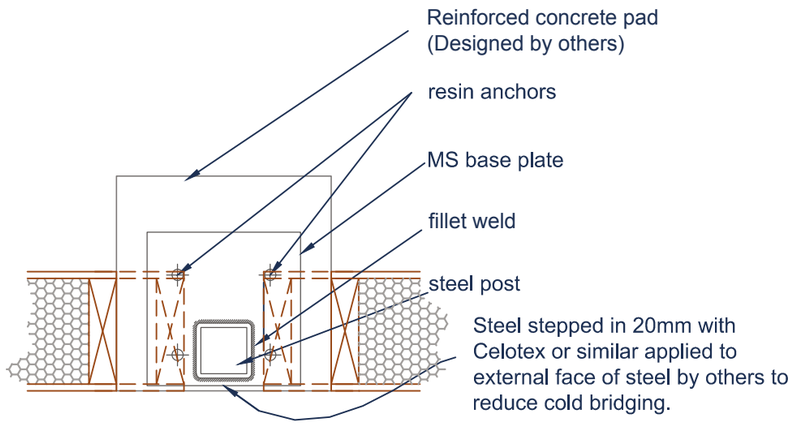
STEEL POST UPSTAND DETAIL



STEEL COLUMN DETAIL-SECTION



BASE PLATE ON R.C. UPSTAND-PLAN

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STEEL POST FIXING PROCEDURE

A concrete padstone is cast and set 80mm lower than the finished floor level. A DPC is fitted and then the steel post base plate is positioned.

The steel is located in accordance with the FLP. It can be positioned vertically plumb by using steel shims.

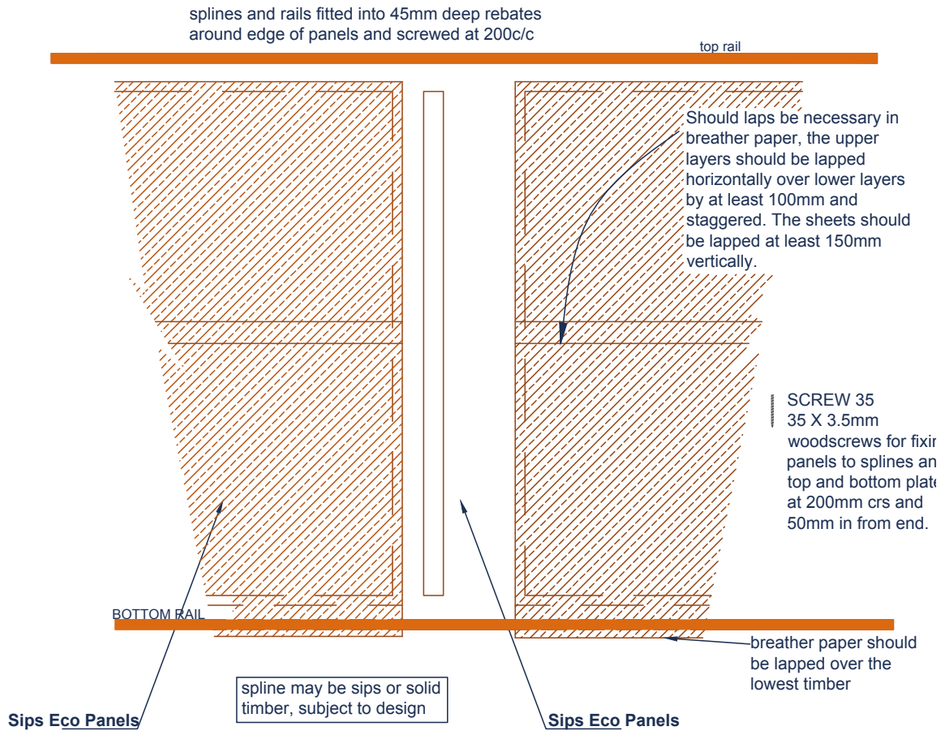
With the steel base plate in position, holes are drilled into the padstone and then filled with resin.

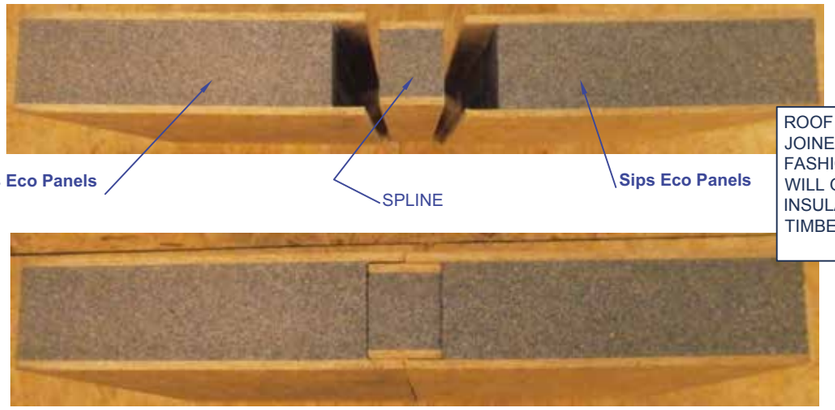
Bolts are slotted into the holes and left to set in position in the resin.

Nuts are screwed tightly with a wrench onto the bolts.

A timber plate is fixed in the web of the steel and the sip panel can then be screwed to it.

PANEL TO PANEL CONNECTION





FIXING PROCEDURE

GLIDEVALE PROTECT TF200 thermal or similar reflective breather membrane is to be fitted to all walls and to roofs on completion of the frame erection. It should be fitted strictly in accordance with manufacturer's instructions. Below is a brief installation guide.

The breather membrane should be fitted with the silver side facing out and in such a way as to shed water away from the sheathing and below the lowest timber. Upper layers should be lapped horizontally over lower layers by at least 100mm and staggered. The sheets should be lapped at least 150mm vertically. Membrane should be nailed or stapled at regular intervals to prevent damage by wind. Nails should be galvanised, sheradizes or austenitic stainless steel, phosphor bronze or silicon bronze and staples should be of austenitic stainless steel. To prevent damage by wind, fixings should be at regular intervals of not more than 500mm c/c. It is essential that the lowest timbers in the wall are protected by the breathable membrane.

If gaps are evident in roof panels these should be filled with expanding foam.

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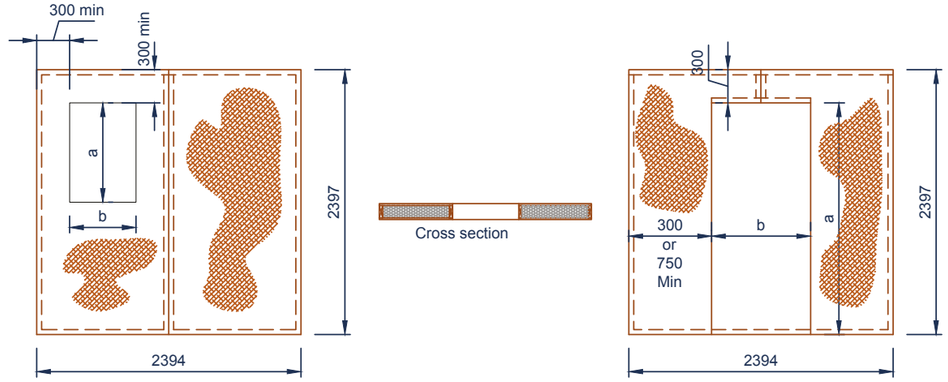
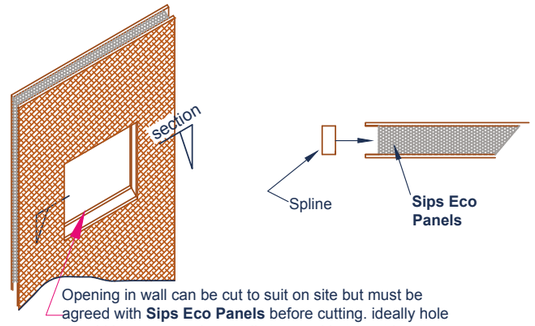
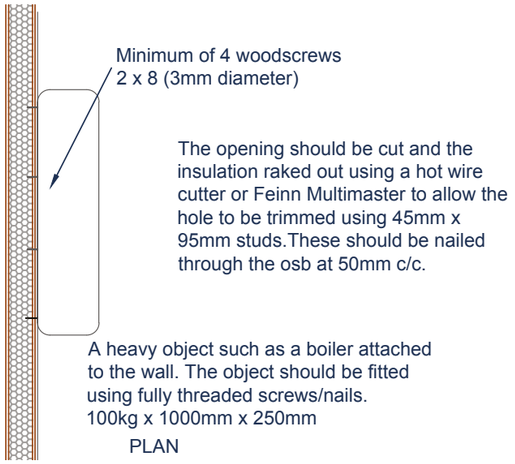
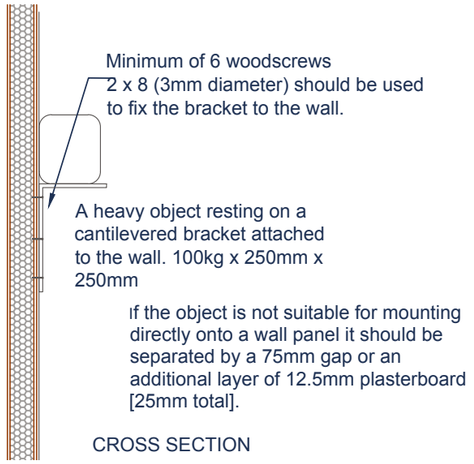
OPENINGS AND FIXINGS





Opening in wall can be cut to suit on site but must be agreed with **Sips Eco Panels** before cutting. ideally hole should be positioned centrally to panel but must be at least 300mm from top of panel





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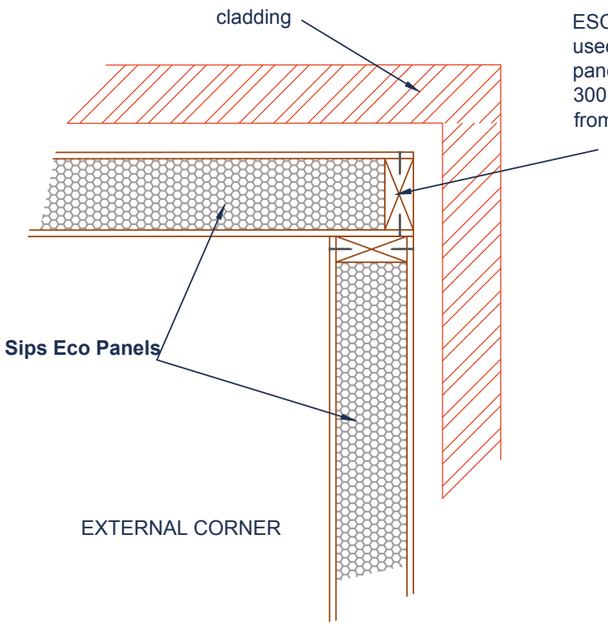
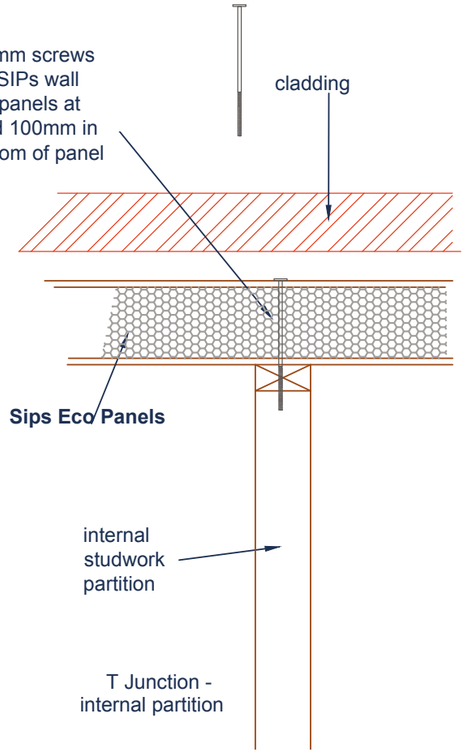
JUNCTIONS DETAILS



EXTERNAL CORNER



T Junction - internal partition

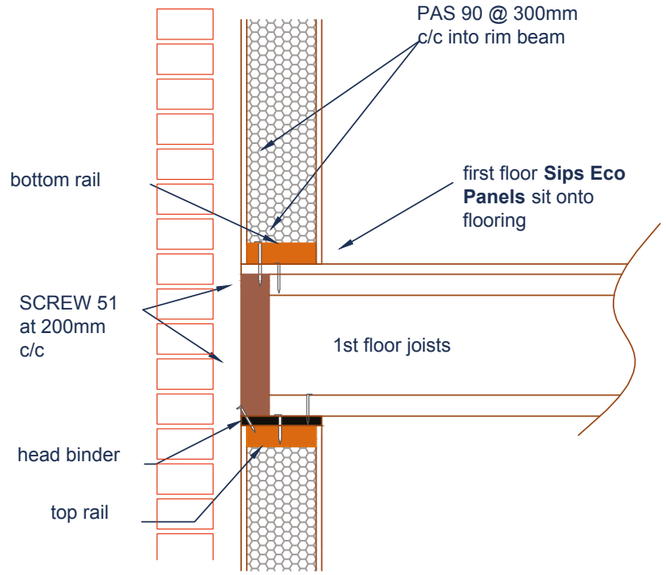
Work to written dimensions only. DO NOT SCALE. If in doubt ask.

BENEFITS OF METAL WEB JOISTS

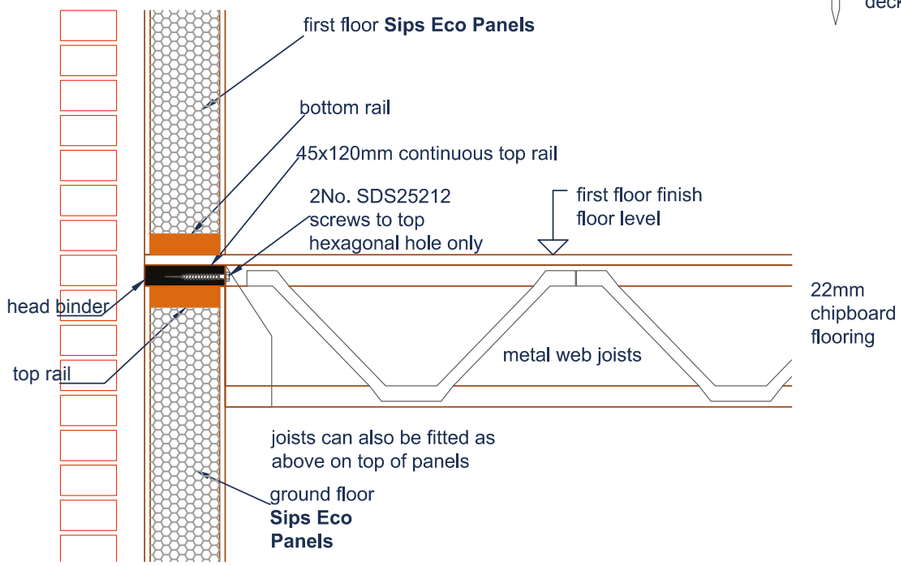
Plumbing is more easily fitted and manoeuvered in all directions

MVHR (Mechanical Ventilation Heat Recovery) ducting can easily thread through joists.

FLOOR JOIST DETAILS



PLY WEB JOIST OR I JOIST



METAL WEB JOIST

SCREW 51
3.9 x 65mm grey phosphate at 300mm c/c for fixing flooring to joists all around the perimeter.

SCREW 41
3.5 x 35mm grey phosphate at 200mm c/c and 50mm in from end

PAS 90
90mm Paslode nails used to SIPs panel base rail to floor deck at 600mm c/c

PAS 51
51mm Paslode nails used to fix internal soleplates to floor deck at 600mm c/c

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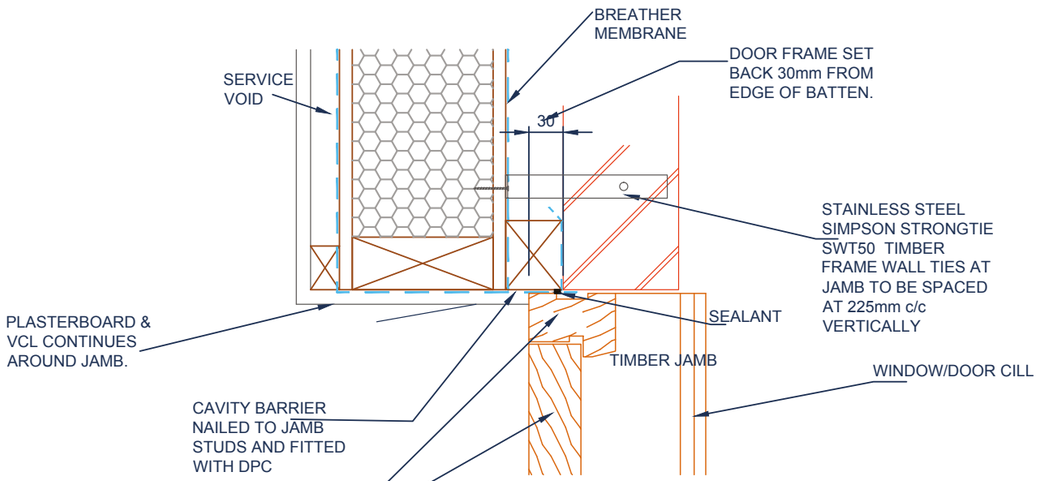
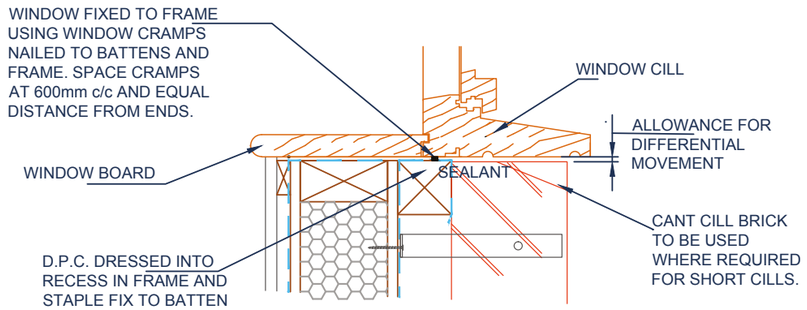
WINDOW FIXING DETAILS



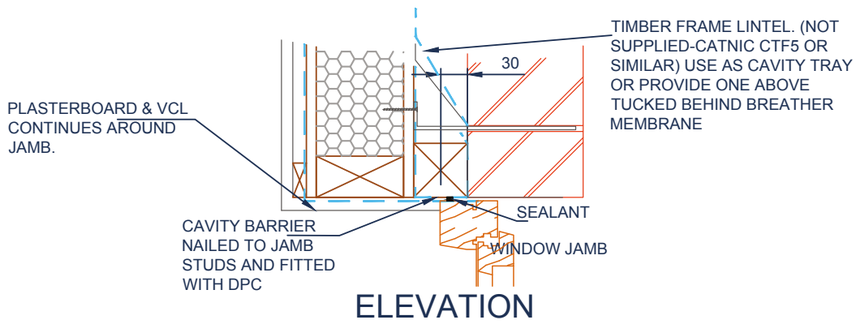
PLAN VIEW

PAS 90
90mm Paslode nails

PAS 51
51mm Paslode nails used to fix top plates to top rails at 600mm c/c.



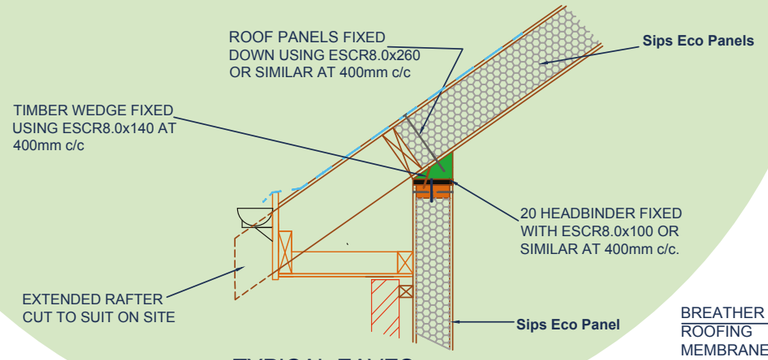
SECTION THROUGH WINDOW CILL



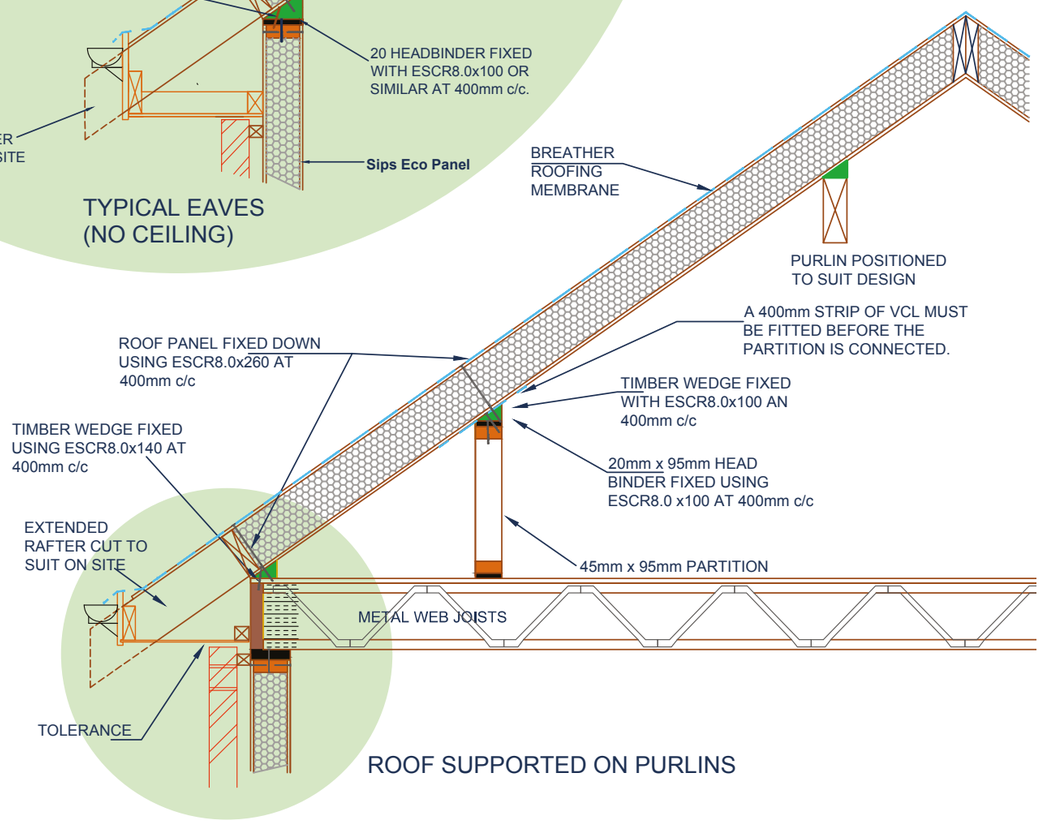
ELEVATION

Work to written dimensions only. DO NOT SCALE. If in doubt ask.

ROOF DETAILS



TYPICAL EAVES
(NO CEILING)



ROOF SUPPORTED ON PURLINS

Work to written dimensions only. DO NOT SCALE. If in doubt ask.

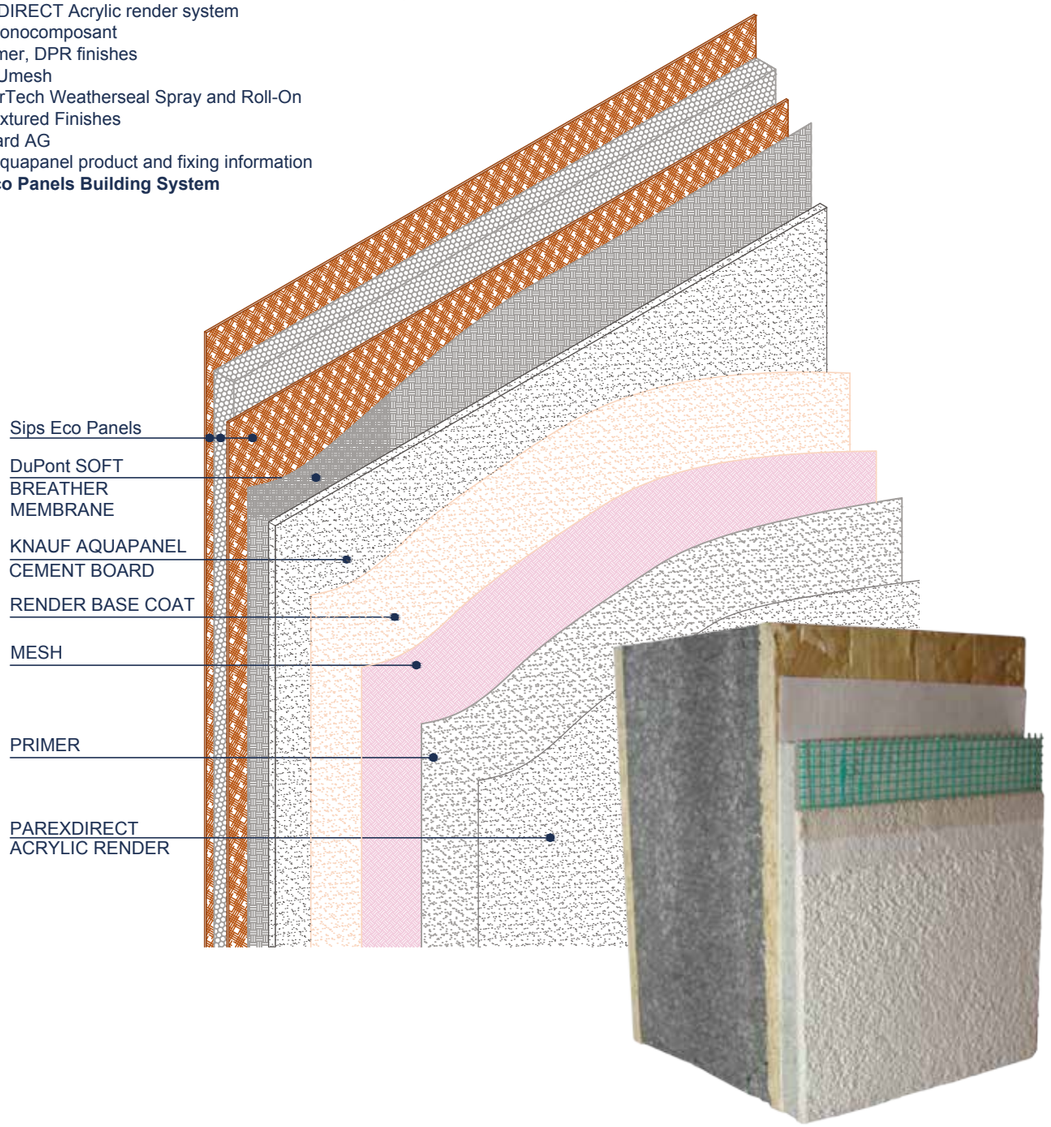
PURLINS SUPPORTING ROOF PANELS

RENDER SYSTEM WITH NO CAVITY

Sips Eco Render System

1.	**Sips Eco Panel**	
2.	Breather Membrane	Tyvek Soft supplied and fitted by **Sips Eco Panels** on request.
3.	Render Board	12.5mm Knauf Aquapanel render board
4.	Weather seal to openings	WeatherTech Weatherseal spray and roll-on
5.	Board joints throughout	Maite Monocomposant embedded with 100mm wide bands of 355AVU mesh
6.	Weather seal to openings	WeatherTech Weatherseal spray and roll-on
7.	Base coat	Maite Monocomposant -approx 4-5mm thick
8.	Mesh	355AVU Standard mesh-fully embedded into the base coat
9.	Primer	310 Primer
10.	Top coat Finsh to suit	DPR top coat-Sand Smooth, Sand Fine, Sand Coarse,Swirl Fine, Multi-textured,
	Sealer coat	Paraguard AG-ideal for providing lotus leaf dispersing effect and additional weatherprotection.

GENERAL APPICATION GUIDANCE - To be read in conjunction with the following data sheets;
PAREXDIRECT Acrylic render system
Maite Monocomposant
310 Primer, DPR finishes
355 AVUmesh
WeatherTech Weatherseal Spray and Roll-On
DPR Textured Finishes
Paraguard AG
Knauf Aquapanel product and fixing information
Sips Eco Panels Building System



CONSTRUCTION METHODS FOR SIPS ECO PANELS

95mm x 45mm timber studwork is used to construct internal Walls

Sips Eco panels can easily be used to create curved walls

VERSATILITY OF SIPS ECO PANELS

Sips Eco panels are so easy to handle they can be used to build in the tightest situations.

4 houses were built at other end of this arch. Panels were carried through and then erected.

SIPS ECO panels can be used for house boats floating on the water and supported on a steel hull

PLEASE CONTACT OUR TECHNICAL DEPARTMENT WITH ANY QUERIES OR VISIT OUR WEBSITE WWW.SIPSECO.CO.UK

Sips Eco Panels, easi-wall system and easi-roof system, are an advanced yet affordable form of construction that arrive on site pre-insulated and replace timber frame, blockwork or trusses for houses, extensions, garden rooms and other forms of construction.

Panels are manufactured in our own factories and can be supplied as blank panels or pre-cut to suit.

Our panels have full third party accreditation and technical information is available on our web site

Sips Eco Panels offer air-tightness that is far superior to current Building Regulations, with U-values down to 0.12 in one layer through the whole wall structure, making homes super insulated - ensuring low running costs.

It is important all fixings are used properly to maintain the air-tightness benefits the system offers.

The details and information in this manual are for guidance of the erection of panels and flooring only. They are not site specific. Refer to the relevant panel drawings for the site, which should be read in conjunction with the approved Building Regulation drawings and must be adhered to and take priority over standard details. For sundry items refer to Sips Eco Panels Construction Manual.

Foundations poured

Ground floor being laid

Ground floor walls being erected

First floor joists fitted

Roof on

Dream Home

SipsEcoPanels

is the trading name of SIPs Frames UK Ltd

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