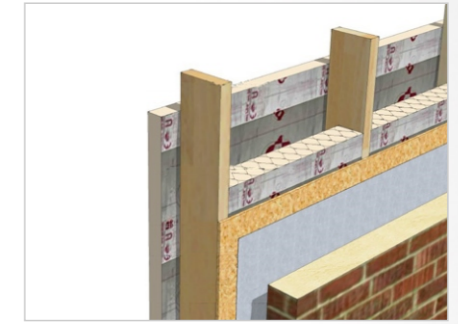
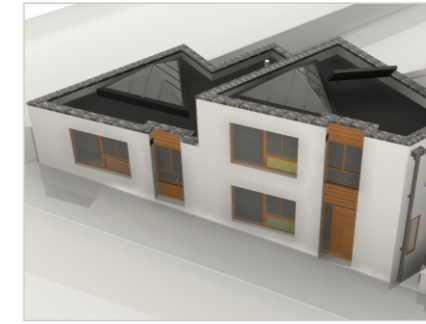
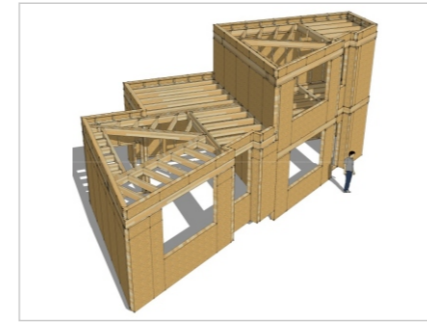


ECO-BUILD BRIGHTON.

- HIGHLY INSULATED, SUSTAINABLE TIMBER FRAME CONSTRUCTION.
- HEAT RECOVERY VENTILLATION & RENEWABLE HEATING SYSTEM.
- NATURALLY LIT WITH A 100% LED ENERGY EFFICIENT LIGHTING INSTALLATION.



OVERVIEW:

At Luminair, to keep our environmental impact down to a minimum we do a lot of our work from home. Governed by the higher than normal house prices we experience we've always been restricted with what we could do with rental properties or the older housing stock in Brighton in terms of providing a functional and affordable live/work space, not to mention a sustainable and energy efficient one. There was only one option - to build our own!

It took 4 years to find a plot - not much space left in Brighton - but finally a difficult, triangular parcel of an old paint store, on one of the steepest inclines in Brighton dangled itself in front of us like a carrot to a donkey. A bit of clever design and engineering later we managed to raise a superb, naturally lit, functional living and working space that is highly insulated, sustainable and energy efficient.

The highly insulated timber frame design fits into a difficult set of boundary conditions and transforms what would be a dull shaded site into one that captures the sun at every conceivable opportunity minimising lighting and heating requirement during the day. Heat recovery ventilation ensures a healthy, fresh-air environment while keeping 90% of the heat produced and also distributing warm air around the building. Solar thermal collectors and a super-efficient wood burning stove keeps the majority of our heat and hot water needs carbon neutral while the rest of our energy need is supplied on a sustainable energy tariff.



RAIN WATER COLLECTION AND STORAGE.
RAIN WATER STORAGE TANK INSTALLED BENEATH PATIO COLLECTS RAIN WATER RUN OFF FOR WC FLUSH.

EXTERIOR CLOTHES DRY RACK.
RAISABLE DRY RACK FITTED WITHIN EXTERIOR LIVING AREA TAKES FULL ADVANTAGE OF UPPER TIMBER CLADDED SUN TRAP.

LEAN BURN WOOD STOVE.
EFFICIENT, LEAN BURN WOOD STOVE PROVIDES SPACE HEATING FOR THE WHOLE HOUSE ON COLDER DAYS.

HEAT RECOVERY VENTILATION SYSTEM.
WARM, HUMID AIR IS EXTRACTED FROM THE HOUSE VIA A HIGHLY EFFICIENT HEAT EXCHANGER WHICH WARMS INCOMING FRESH AIR INTO THE BUILDING ENSURING A HEALTHY AIR ENVIRONMENT WITH MINIMAL HEAT LOSS.

THERMALLY EFFICIENT SKYLIGHTS.
OPTIMUM USE OF NATURAL LIGHT AND SOLAR HEAT GAIN. LIGHTWEIGHT, INSULATED FRAME AND PILKINGTON K, DOUBLE GLAZED ARGON FILLED GLAZING.

SOLAR THERMAL.
FLAT PLATE SOLAR THERMAL COLLECTORS PROVIDE SUBSTANTIAL HOT WATER REQUIREMENT THROUGHOUT THE YEAR.

ENGINEERED TIMBER WINDOWS.
FINGER JOINTED, MACHINED TIMBER FRAME ENSURES MAXIMUM DIMENSIONAL STABILITY AND WITH MINIMAL THEMAL BRIDGING AND OPTIMUM DRAFT SEALING.

LIGHTWEIGHT WARM-DECK FLAT ROOF.
FULLY RECYCLABLE, CFC & HCFC FREE, ZERO ODP INSULATION BOARDS COVERED IN ECO-FRIENDLY RUBBER MEMBRANE. POSSIBLE ADDITION OF GREEN ROOF SYSTEM AT A LATER DATE WHEN BUDGETS PERMIT.

TIMBER FRAME CONSTRUCTION.
HIGHLY INSULATED, AIRTIGHT TIMBER FRAME CONSTRUCTION OFFERS MAXIMUM FLOOR SPACE AND A SUSTAINABLE, CARBON NEUTRAL BUILD. **WALL U-VALUE 0.18W/m²K**

RENDERED BLOCK OUTER SKIN.
H+H Celcon Solar aerated concrete block outer skin with parex render where planning dictates.

SUSTAINABLE UK GROWN LARCH CLADDING.
FSC CERTIFIED LARCH CLADDING USED WHERE POSSIBLE.

SECURE CYCLE RACKS.
RECYCLED ALUMINIUM CYCLE STANDS.

INTERIOR SPECIFICATION:

INSULATED ECO-SCREED GROUND FLOOR.
RE-INFORCED CONCRETE RAFT FOUNDATION (SITE SPECIFIC) TOPPED WITH 120mm INSULATION, GROUND, RECYCLED GLASS BASED ECO-SCREED AND SUSTAINABLE, EUROPEAN OAK FLOORING.

INTIGRATED HOME OFFICE SUITE.
FULL, PROFESSIONAL LED LIGHTING SCHEME THROUGHOUT. LOW ENERGY LIGHTING WITHOUT THE SIDE EFFECTS ASSOCIATED WITH FLUORESCENT LIGHTING.

100% LOW ENERGY LED LIGHTING SCHEME.
FULL, PROFESSIONAL LED LIGHTING SCHEME THROUGHOUT. LOW ENERGY LIGHTING WITHOUT THE SIDE EFFECTS ASSOCIATED WITH FLOURESCENT LIGHTING.

A+ APPLIANCES, TAP AERATORS, LOW FLUSH WC'S.
ENERGY AND WATER SAVING APPLIANCES USED THROUGHOUT THE BUILD.

CERTIFIED RENEWABLE ENERGY SUPPLY BY GOOD ENERGY.

KEY SUPPLIER INFORMATION:

TIMBER FRAME:

With space, internally and externally, at a premium and insulation and eco credentials high on the agenda timber frame construction was the only way to go even considering the difficult boundary conditions. Limited space around the build site also favoured an off-site build not to mention the speed of erection.

Frame engineering, design, manufacture and assembly were all taken care of by an amazing local company Solo Timber Frame. Willing to work to whatever stage requirement from frame only to whole project management. We got them in just for the frame build and assembly.

The 140mm structural timber frame gets delivered in sections each with 90mm of rigid insulation and breather membrane in place. Services are run within the 50mm void then the frame is faced off internally with a further 50mm of insulation to minimise thermal bridging through the timbers. A vapour membrane for airtightness and minimal vapour flow into the structure is laid before plasterboard or woodwool boards clad the internal walls. Sustainable, scottish grown Larch or HH Celcon Solar, Pulverised Fuel Ash blocks and monocouche render clad external faces.

PRODUCTS USED:

TIMBER FRAME: Uk manufactured, factory built timber frame.
SUPPLIER: Solo Timber Frame, Hodore Farm, Hartfield, East Sussex, TN7 4AR | Tel: 01892 771354 | Email: info@solotimberframe.co.uk



LARCH CLADDING: FSC certified British grown larch cladding.

SUPPLIER: BSW Timber, Cargo, Carlisle, Cumbria, CA6 4BA | Tel: 01228 674221 | Email: sales@bsw.co.uk | www.bsw.co.uk



EXTERNAL RENDERING: PAREX Monorex, monocouche render

SUPPLIER: Eco-Rend South East Ltd.
143 Park View, Hastings, East Sussex, TN34 2PE | Tel: 01424 430403 | Email: enquiries@eco-rend.co.uk | www.eco-rend.co.uk



SECONDARY INSULATION (additional to that supplied with timber frame): Superb, budget insulation in the form of factory seconds; just as good though a little tatty.

SUPPLIER: Seconds & Co. Presteigne Ind Estate, Presteigne, Powys, LD8 2UF. | Phone: 0844 8584088 | Email: tim@secondsandco.co.uk



FLAT ROOF INSULATION: Collecta XPLYe plywood/thermal laminate, fully recyclable, cfc & hfc free, zero odp insulation Boards.

SUPPLIER: Collecta. Unit D Norman Close, Rochester, Kent. ME2 2JU | Tel: 08456 717 174 | Email: sales@collecta.co.uk | www.collecta.co.uk

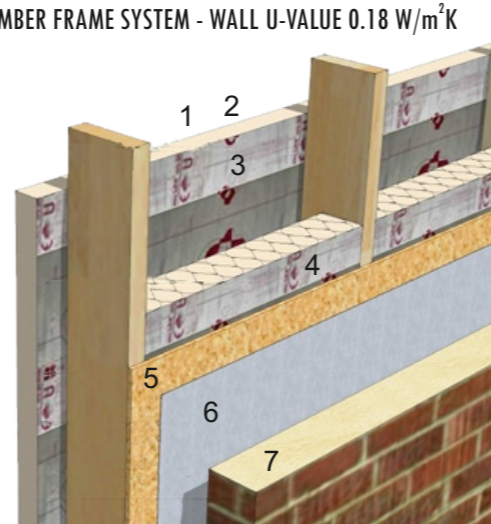


FLAT ROOF MEMBRANE: Firestone EPDM 100% cured single-ply roofing membrane.

SUPPLIER: DIY-EPDM | Ian Jackson Unit 2 Lanfair TH, Conwy, LL22 8SF. | Tel: 0800 0689982 | Email: Info@diy-epdm.co.uk



TIMBER FRAME SYSTEM - WALL U-VALUE 0.18 W/m²K



- (1) INTERIOR PLASTER BOARD.
- (2) VAPOUR BARRIER DETAILED SEALED TO ENSURE AIRTIGHTNESS.
- (3) 50mm RIGID INSULATION FITTED OVER STUDS TO MINIMISE THERMAL BRIDGING EFFECT.
- (4) 90mm RIGID INSULATION FITTED WITHIN PANEL LEAVING 50mm SERVICE CAVITY.
- (5) 9mm OSB SHEATHING.
- (6) FOIL BREATHER MEMBRANE.
- (7) 50mm CLEAR VENTED CAVITY.
- (8) PAREX MONOCOUCHE RENDER OVER HH CELCON SOLAR AERATED BLOCK OR UNTREATED SUSTAINABLE LARCH CLADDING (WHERE POSSIBLE) OUTER LEAF.

HEATING, HOT WATER & VENTILLATION:

With the budget and plot constraints we had we were never going to achieve passive house standard but we're going to see just how good you can get for the budget. The highly insulated and airtight house is designed to trap and hold as much solar and internally generated heat as possible. The windows and skylights are designed to optimise solar gain while the heat recovery ventilation unit distributes that generated heat around the house along with an internal layout conducive to good airflow. During the colder months extra heat input is available from a Defra approved, lean burn wood stove situated in the main living space. Soapstone cladding helps to store heat generated from the stove during the day and release it over night to keep the house at a comfortable temperature.

Hot water heating is achieved by a combination of solar thermal and electric - it was decided from the outset that mains gas would not be connected; although a combi boiler would have been an easy and efficient addition the cost of a new connection and boiler would be better spent on insulation and solar thermal input. With the additional electric input being minimal and with future scope to add photovoltaic panels or air-source heat pumps the decision to skip the gas was easy.

PRODUCTS USED:

WOODSTOVE: Hwam Ravel, defra approved convection stove with soapstone cladding. Room sealed fresh air system and automatic combustion control.

SUPPLIER: Euroheat (HBS) Ltd | Bishops Cleeve, Worcestershire, WR6 5AY, United Kingdom. | Tel: 01885 491100 | Email: Davenport@euroheat.co.uk | www.euroheat.co.uk



MHRV: EnviroVent energiVent FLOW Heat recovery ventilation unit. 90% efficiency, 0.70 W/l/s, SAP appendix Q eligible.

SUPPLIER: EnviroVent Ltd., EnviroVent House, Hornbeam Business Park, Harrogate, North Yorkshire, HG2 8PA. | Tel: 0845 27 27 807 | Email: enquiries@envirovent.com | www.envirovent.com



SOLAR THERMAL: INOX CPC 12 high performance Evacuated Tube solar collector integrated with a Gledhill stainless steel, unvented 210Lt Solar Cylinder.

SUPPLIER: PlumbNation Ltd. Unit 5 Woodway Court, Thursby Road, Bromborough, Wirral, CH62 3PR | Tel: 0844 800 3460 | Email: info@plumbnation.co.uk | www.plumbnation.co.uk

LOCAL TRADES:

ARK BUILDERS: Tom and his team were a great help in the final stages of the build and provided their support when it was truly needed. A thoroughly reliable and professional group of people.

CONTACT: Tom Pike | Tel: 01273 236 441 / 07966 256 882 | Email: info@arkbuilders.co.uk | www.arkbuilders.co.uk

SEAN AVIS / AVI LOFTS: Predominently a loft conversion specialist but Sean was taken on board for general building jobs during the foundation stage and for the blockwork erection following the timberframe erection. Good, honest and reliable - whatever the weather!

CONTACT: Sean Avis | Tel: 01273 301036 / 07966 257409 | Email: info@avilofts.co.uk | www.avilofts.co.uk

RYAN THE PLASTERER: A brilliant, hard working independent plasterer.

CONTACT: Ryan | Tel: 07766 762894

