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Co. Galway.
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31st January 2024

Our Ref: Job No. # 12.2024
Clients Project Address: Niall Douglas,
Banteer
Co. Cork

Dear Niall,

Thank you for giving us the opportunity to quote for your new home in Banteer, Co. Cork.

Just a few points of what we have included and omitted in our quotation below:

We have included for all the necessary shot blasted & primed structural steel and Glulam for the timber frame structure. Estimated value €30K ex vat.

- Our quote includes for all the complete thermal envelope, to include external timber frame walls, internal partitions, pitched roof, felt and battens and flat roof structures & tilting fillets to falls and 18mm OSB to all Flat roof areas left ready for vapour check by Flat roofers.
- Our insulation and airtightness quotation includes for taping all windows and doors internally for an airtight seal.
- We have included for a blower door test on completion to achieve 0.6ach @ 50pa or better
- Our quote excludes the Greenhouse area

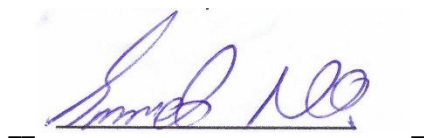
Please read through the quotation and if you have any questions or require further clarity, please don't hesitate to contact me.

Project Description: 2 story with house with mono pitch roof kitchen

Drawing – Drawing : 051-100 Architects RD Studios

In the meantime, if you have any questions, please do not hesitate to contact us.

Yours Sincerely,



Managing Director

TIMBER FRAME SUPPLY – ITEMISED QUOTATION

WALL OPTIONS:			
		ECO 220	Eco 220 80mm Gutex
<u>DESIGN & MANUFACTURE.</u>			
Design Package to include Engineered structural shell & Fabrication drawings including Ancillary certification on completion.		✓	✓
Certification of the design by an Independent Engineer Prior to Manufacture.		✓	✓
Quality controlled manufacture in our factory		✓	✓
Delivery to site by an Articulated Lorry with 45 ft Flatbed Trailer.		✓	✓
Erecting of frame on site using our own hoist and/or Crane hire as required.		✓	✓
<u>ECO 220 STRUCTURE</u>			
220 x 44 mm VAC Pressure treated Sole Plate		✓	✓
220 x 44 mm VAC Pressure treated Studs.		✓	✓
80mm External Gutex Multitherm To walls			✓
<u>PASSIVE 360 STRUCTURE</u>			
89 x 38 mm CLS VAC Pressure treated Sole Plate			
89 x 38 mm CLS VAC Pressure treated Studs.			
140 x 38 mm CLS VAC Pressure treated Sole Plate			
140 x 38 mm CLS VAC Pressure treated Studs (Inner leaf of the external twin wall structure)			
External wall centres 600mm spacings, 400 where required. (to be specified by our engineer)		✓	✓
9mm OSB 3 Smart Play Racking boards to external.		✓	✓
Breathable Membrane (Pro Clima membranes, high quality membrane)		✓	✓
Shot blasted and primed structural steel where required. Steel floor beams will have 75mm holes where possible for services (where Required)		✓	✓
<u>Internal Walls.</u>			

89x38 mm CLS Studs with DPC fitted to ground floor walls.	✓	✓
Double noggins to Load Bearing Walls / 9mm OSB3 (where specified by engineer)	✓	✓
Air Leakage Membrane at junctions. (Pro Clima membrane) to conjoin at internal	✓	✓
<u>Intermediate Floor.</u>		
225 x 44 mm Traditional Solid Floor Joists.		
304mm Open Web Joists @ 400 centres for Bedroom Level 220 Structural timbers to Attic area	✓	✓
22mm Grade OSB tongue and groove decking, glued and mechanically fixed	✓	✓
Air Leakage Membrane at junctions. (Pro Clima membrane) to conjoin at internal floor junction.	✓	✓
Engineered to take structural screed (available on request)		
<u>ROOF STRUCTURE.</u>	ECO220	Eco Gutex
trusses throughout		
300mm rafter cut roof throughout	✓	✓
220 mm Flat roof Timbers with tilting fillets to falls and 18mm OSB left ready for vapour check by others	✓	✓
Rafters At 600 centres unless otherwise specified by Engineer	✓	✓
Breather membrane to external walls and roof supplied and fitted.	✓	✓
50x 35 treated slating battens @ 250c/c	✓	✓
Velux/ Roof Openings (excluding glazing units)	✓	✓
Roof Overhangs Gable Ladder Units (where required)	Nor req	✓
<u>External Components:</u>		
Stainless steel wall ties and perpend vents supplied for blockwork with instructions for contractor (where Required). Stainless steel straps. (where required)	✓	✓
Cavity Barriers throughout for block façade only, Supplied and fitted. (polyethylene- sleeved Rockwool strip providing fire safety for cavities)	✓	✓
50mm treated batten, vertical and horizontal DPC supplied and fitted to windows/doors (excluded for ventilated façade)	✓	✓
Ancillary certificate in compliance with building regulations. Including a specification manual on completion.	✓	✓

<u>TOTAL: (ticked boxes)</u>	ECO 220	220 Eco Gutex
Timber Frame, Roof, supply & Erecting of structure.	€	€201,883.15
VAT at 13.5 %	€	€229,137.38

Airtightness and Insulation Package:

Airtightness & Insulation	ECO 220	220 Eco Gutex
Internal Battens to form service void	Included	Included
IAB Certified airtightness membrane throughout to specified air changes	Included	Included
Seal from wall to plastered thermal blockwork (excluded by competitors)	Included	Included
IAB Certified Airtightness membranes to all walls and ceilings (usually supply only to ceilings/ sloped rafters by competitors)	Included	Included
Full fill cellulose insulation to studwork	Included	Included
Airtightness taping to window and door surrounds (excluded by competitors)	Included	Included
Open blown cellulose to attic (Insulation to roofs/ attics usually supply only by competitors)	Where required	Where required
Dense pack cellulose to flat roof 300mm minimum	Where required	Where required
Dense pack cellulose to rafter slopes	Where required	Where required
50mm Sheeps wool Service cavity Insulation (supply Only)	Included	Not Required
1 no. Independent Airtightness test (first fix only on completion of membrane). (excluded by Competitors)	Included	Included
Exclusive of VAT at the application rate of 13.5%	€	€55,508.67
Total Airtightness & insulation Including VAT	€	€63,002.34

ECO 220

Total Payment (Supply & Erect on site)	Excl. vat 13.5 €	Total €
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Eco 220 Gutex

Total Payment (Supply & Erect on site)	Excl. vat 13.5 €257,391.82	Total €292,139.71
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Upon Payment of Deposit, Engineers Calculations and Design Drawings will commence. Please allow up to 6 weeks for completion of drawings. Upon Completion, Design Drawings will be forwarded to the client for approval by Architect or any other relevant party.

No production drawings will be produced until written acceptance of drawings is received. Allow 6 weeks for production of panel drawings. All or any variations in costs due to Alteration or Compliance with Building Regulations will be advised to the client for authorization at Manufacturing Approval Stage and all such costs, if any, once approved, will form part of the contract, and may result in an adjustment to monies due.

	ECO 220	220 ECO Gutex
Cost to Supply & Erect Timber Frame Kit with ext. membrane.	€	€201,883.15
Insulation & Airtightness membrane.	€	€55,508.67
Vat (@ 13.5 %).	€	€34,747.90
Total price including Vat.	€	€292,139.71

Exclusive of VAT at the applicable rate of 13.5% (Supply only 23% VAT). Above prices are applicable to orders placed within 20 days of the above date. Sum to include design, manufacture, delivery, and site erecting of the timber frame system of your choosing on your prepared foundation base. Prices are including delivery, subject to site access. Please note, all prices are subject to review of final engineering and calculations, specifications, and structural design. Should you have any queries regarding this quotation we would be pleased to provide any clarification or assistance you may require.

The following comprehensive specification should be read in conjunction with the above summaries. Please contact us for assistance with the details or variations for comparisons with other systems you may be considering for your build, so you are comparing like for like. We will work with you as best we can to discuss and analyse wall, roof, or floor build ups you may be considering.

For external finishes, we will provide fixings for blockwork & weep vents. We do not supply blockwork, external masonry, cladding, or cement board. This quotation excludes structural screed, Structural steel for the External leaf.

Foundation & Rising blockwork are excluded (note: rising blockwork must be rendered internally prior to airtight testing). Windows, doors & Rooflights area not included, D.P.C supplied to the underside of timber frame. Connecting to radon barrier by others.

External - Masonry, wall finishes, slating & flat roofing membranes all excluded. Stairs by others.

Scaffolding to be supplied & erected by others. If there is a flat roof, additional weights for sedum green roof has been excluded. It is important to note, that no allowances have been made for HRV ductwork, each HRV system is different and difficult for LLS to make allowance for ducting runs without further information. If we are pricing from Planning drawings an increase may occur when converting to Timber Frame construction drawings – this is through no fault of LLS as we can only quote the drawings that we have received.



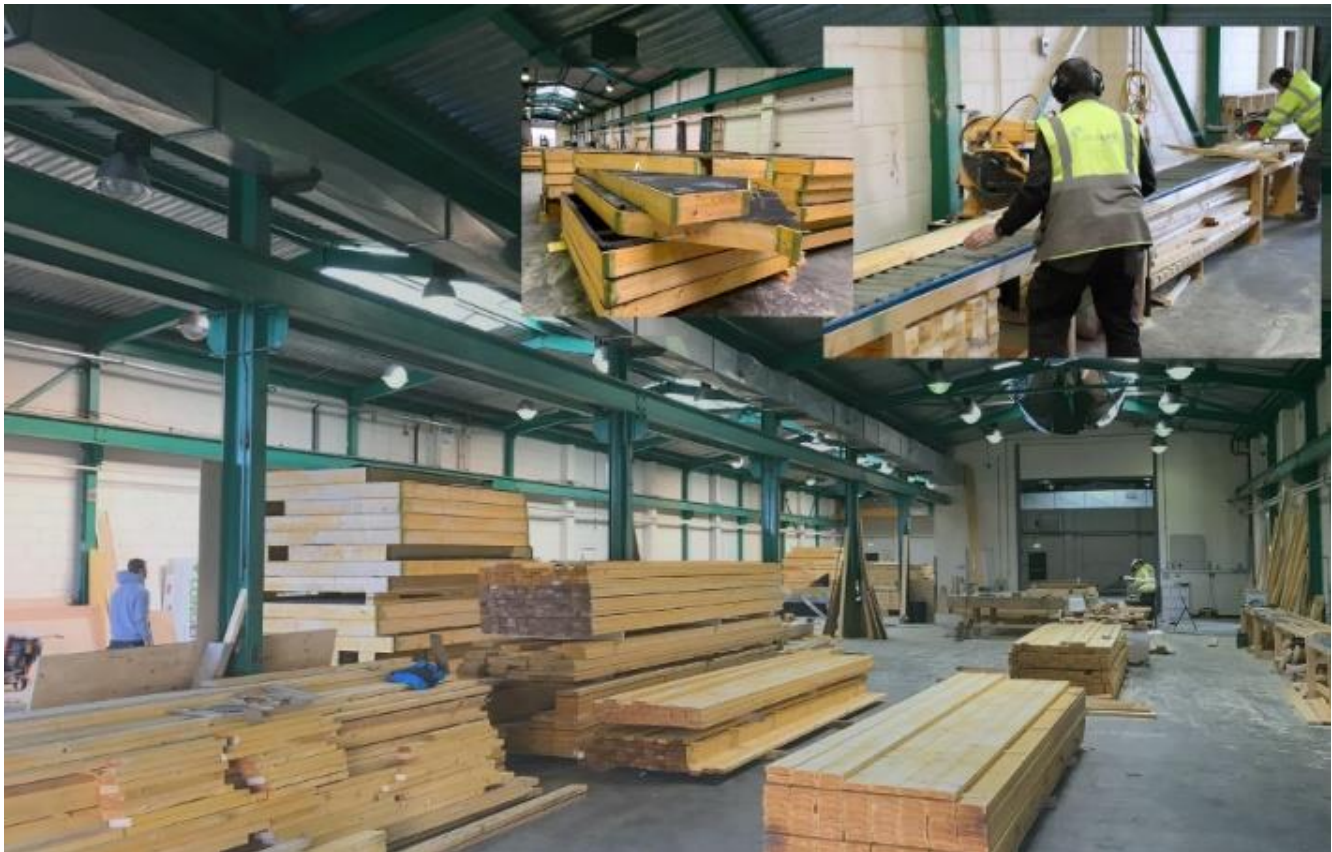
What makes us different from our competitors:

We do all our own work and I, Emmet Nee, am onsite erecting the houses with my team. This ensures we maintain our high standards throughout, from design to completion.

We don't over stretch our workload as we like to give each project the time and attention they deserve, after all its one of the biggest investments a family will make and we want to ensure you get good value for your investment.

We do the airtightness and insulation on site after the windows have been installed as it yields much better air change results. We only use natural insulations which really help in promoting good indoor air quality and help in regulating humidity due to its thermal mass and heat storage capacity, and as cellulose is recycled paper it is also a much more appropriate to use with timber frame as the whole building is thoroughly breathable, making this a future proof structure. The last thing we do before we finish is the blower door test.

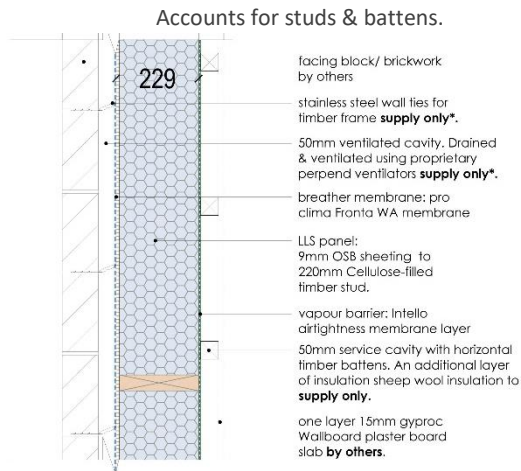
To date we have built over 80 houses, some extraordinarily complex, and have achieved below 0.6ach on all our projects. No other timber frame company can say the same.



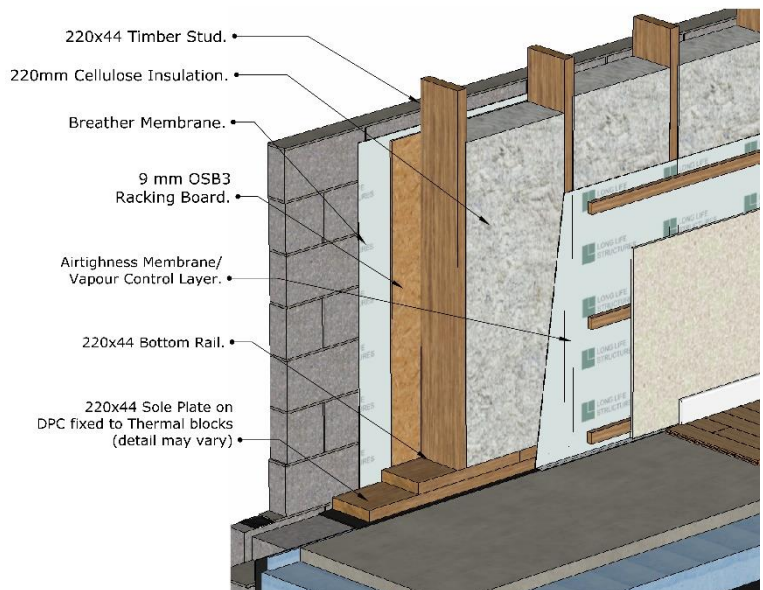
Timber Frame Supply & Fit for ECO220 External Wall

U-Value 0.16 W/m²K

(Calculated with standard blockwork & Timber Frame Element)



Wall Section
With Masonry Cladding.
U- Value 0.164 W/m²K
(accounts for studs & battens)



Factory-built timber frame panel to include:

- 9mm OSB/3 external sheeting (covered with Pro Clima Fronta WA Membrane – Taping & Sealing making walls externally windproof. Strapped to highlight studs for wall ties/battens if applicable).
- The external timber frame wall panels constructed with 220 x 44mm stud at 600 centres. Panels positioned and mounted on a 220x44 sole plate to Thermal blockwork/ Insulated Raft, depending on architect's design & detailed requirements.
- 220mm cellulose insulation, blown and pressure tested on site by fully qualified and certified installers, testing carried out on day of installation. Cellulose insulation is a sustainable and energy efficient product because it uses locally sourced recycled paper and inorganic salts. The salts make the cellulose safe in a fire and acts as a natural pesticide).
- Airtightness membrane – Intello membrane.
- 35 x 50 mm timber battens to form service cavity – insulated with 50mm of sheep wool (Thermafleece Eco Roll Thermal Conductivity 0.039 W/mK) fitted across internal face of walls eliminating cold bridging
- Internal lining 15mm Gypsum Gyproc plasterboard (Non Supply) – unless otherwise agreed with Architect.
- Internal walls are 89mm CLS timber frame studs, generally at 400 ctrs. Load bearing/ Sheer walls to have an OSB/ plywood sheeting – to be specified by engineer at design stage of Timber Frame panels.

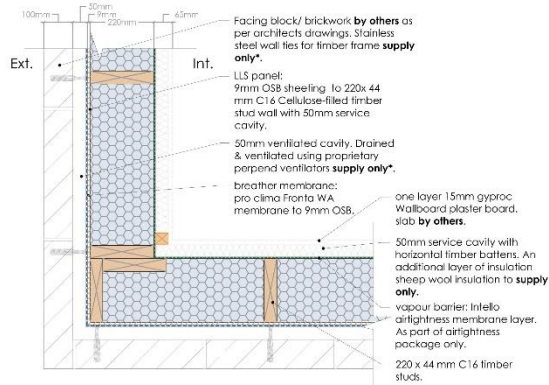
Note: All Load bearing walls have been tested to conform to Fire resistant tests in accordance with the European suite of Standards EN1365-1:2012.

Structural Steelwork to large windows & Steel surround to all large glazing openings (for timber frame only). To include floor brackets, fixings and anchoring.

- Excluding provisions to reduce thermal bridge to all steel areas (windows, floor connections). This usually incurs an extra €200 per connection.
- OSB Racking board & wind-tight membrane to exterior. 12mm Diffusion board (P5 racking board) on request at additional cost.
- External Battens & Cement Board area excluded from this quotation.

- Roof Structure throughout with breathable membrane. Supply and fit Felt & Battens to all sloped roofs.
- Fire Stops throughout (Rockwool TCB Fire Barrier) – supply and fit.

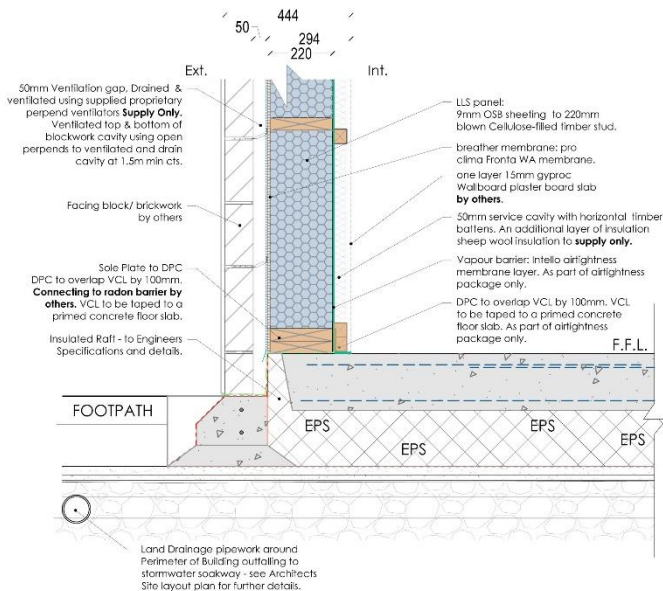
Wall Panel.



LLS Wall With Masonry Cladding
External Corner Plan View.
U- Value 0.164 W/m²K
(accounts for studs & battens)

ECO 220

Foundations & Wall Panels

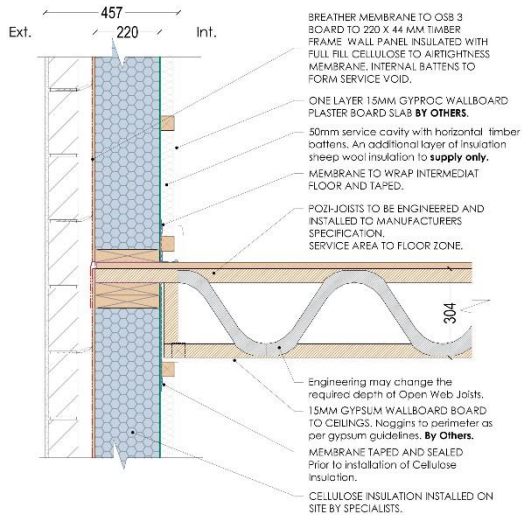


Foundation - Insulated Raft Example.
With Masonry Cladding to external.
(to typically achieve U-values of 0.1 W/m²K and lower)

ECO 220

Note: The drawings illustrated above are indicative only. Once a decision has been made as to which option you are going with, will need to engineer a system to suit your house, site conditions, loadings etc.

Floor Components



ECO 220 Intermediate Floor - Pozi Joists shown above.
(easy install of services and wiring)

Metal web open joists 253mm / 302mm deep positioned at 400 centres designed to Engineers calculations with a 22mm OSB decking to first floor.



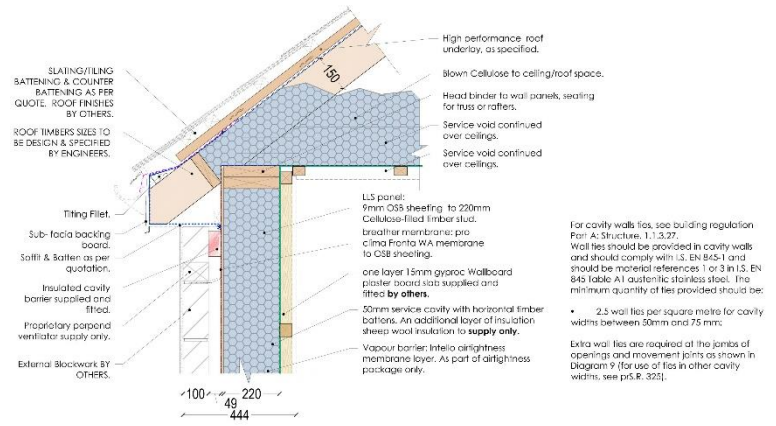
Image 1. Ceiling showing taped membrane & open web truss as illustrated on the left.

Roof Structure

A roof structure, either full cut or truss, will be erected on site, with the aid of our crane, supply and fit roofing membrane and fit roof battens to required slating/tiling centres.

- Cut Roof or Fabricated roof trusses are designed to accommodate finishes (slate/tiles) to span and pitch as per plans/elevations.
- Structural designed and calculated, supplied with binding and wind bracing to meet building codes and regulations BS 6399: Loading for buildings.
- Supply and fit breathable roofing membrane.
- 50x35mm roof battens, all roofing battens are graded to SR82.

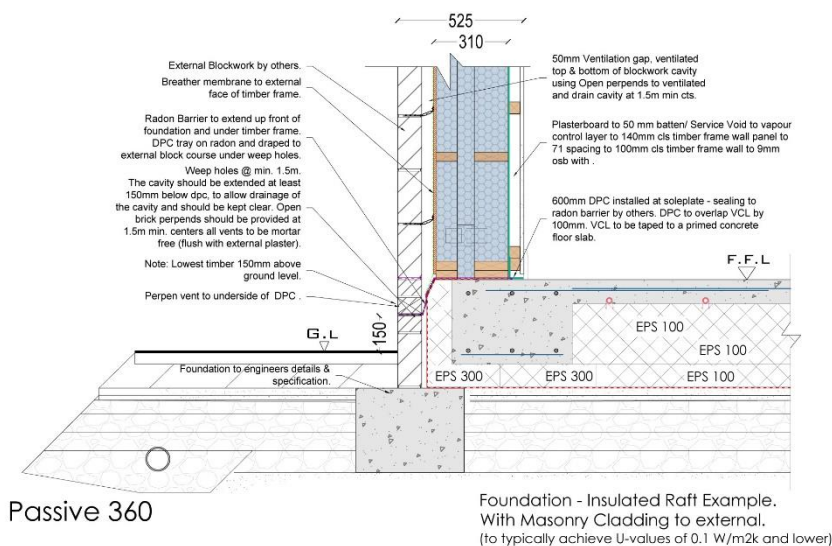
- Supply & fit fascia backing board. Grounds for soffits & fitting soffit boxes are not included.
- Any external canopies are not included.



Note: All Load bearing walls have been tested to conform to Fire resistant tests in accordance with the European suite of Standards EN1365-1:2012.

- Structural Steelwork to large windows & Steel surround to all large glazing openings (for timber frame only). To include floor brackets, fixings and anchoring.
 - Excluding provisions to reduce thermal bridge to all steel areas (windows, floor connections). This usually incurs an extra €200 per connection.
 - OSB Racking board & wind-tight membrane to exterior. 12mm Diffusion board (P5 racking board) on request at additional cost.
 - External Battens & Cement Board area excluded from this quotation.
- Roof Structure throughout with breathable membrane. Supply and fit Felt & Battens to all sloped roofs.
- Fire Stops throughout – supply and fit.

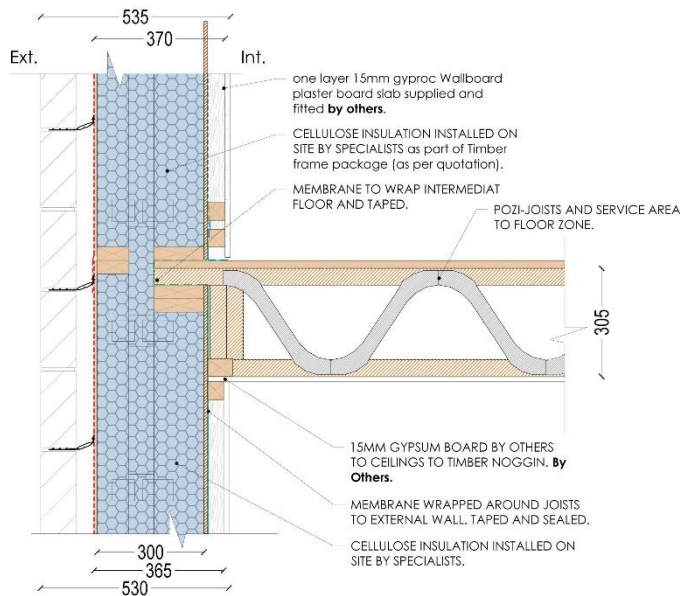
Typical details:



Foundations will vary, and insulated foundation is shown in example.

Note: The drawings illustrated above are indicative only. Once a decision has been made as to which option you are going with, will need to engineer a system to suit your house, site conditions, loadings etc.

Floor Components



Passive 360

Intermediate floor detail - Pozi Joist First Floor.
Ceilings insulated for sound insulation as per architects details.

Roof Structure

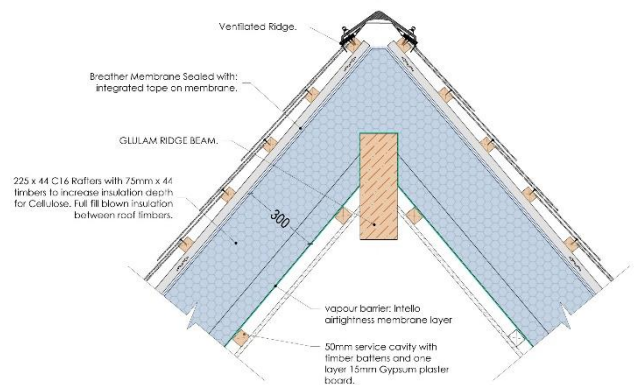
A roof structure, either full cut or truss, will be erected on site, with the aid of our crane, supply and fit roofing membrane and fit roof battens to required slating/tiling centres.

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- Supply and fit breathable roofing membrane.
- 50x35mm roof battens, all roofing battens are graded to SR82.
- Supply & fit fascia backing board.
- Grounds for soffits & fitting soffit boxes are not included.
- Any external canopies are not included.

Metal web open joists 253mm / 302mm deep positioned at 400 centres designed to engineers calculations with a 22mm OSB decking to first floor.

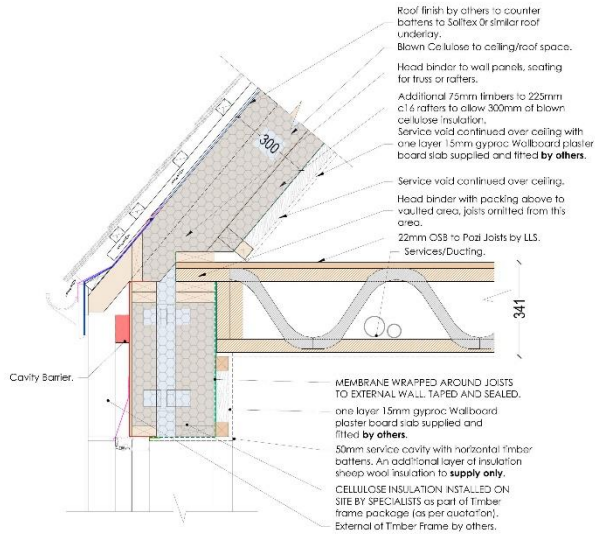


Image 1. Ceiling showing taped membrane & open web truss as illustrated on the left.



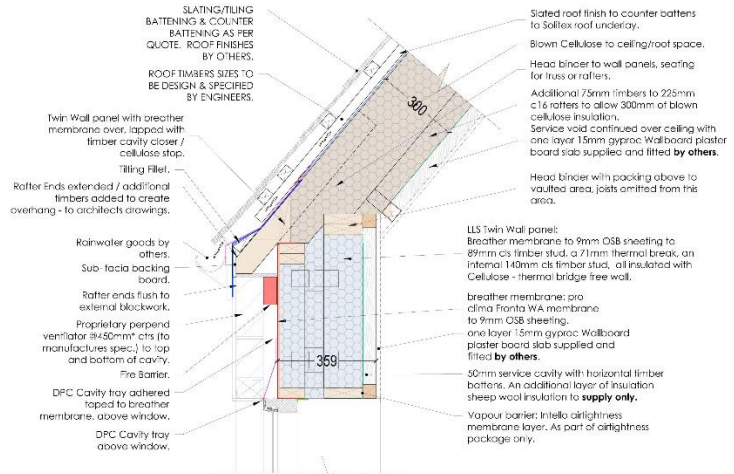
LLS- Passive 360

Roof - Ridge detail.
(Warm roof - ceilings insulated with 300 mm densely packed cellulose to typically achieve U-values of 0.12 W/m²k).



Passive 360

Eaves detail - Pozi Joist First Floor.
Ceilings insulated with 300 mm cellulose



Passive 360

Eaves detail - Vaulted ceiling
(ceilings insulated with 300 mm cellulose)

At Long Life Structures one of our main driving factors is occupational health. For this reason we only use natural insulations on all of our builds such as wood-fibre, cellulose, sheep's wool and hemp. Not only do they help to reduce our carbon footprint, but they also contribute to a superior indoor air quality as they don't contain any Volatile Organic Compounds (VOC's). Another benefit of these types of insulations is that they have a remarkably high Heat Storage Capacity (HSC) which helps to regulate heat and humidity in the building, leading to a greater thermal comfort for the occupant. Most importantly, because these materials are diffusion open they eliminate any risk of interstitial condensation and mould growth in the building fabric.





At Long Life Structures, we provide a service that we believe makes us unique in the timber frame building here in Ireland. Delivering not just low energy buildings but energy efficiency, achieving airtightness levels of less than the passive house institutes requirements of 0.6 air changes at 50 pascals pressure (ACH50).

We are based in the west of Ireland and have provided a range of building services across the country, specialising in low energy timber frame and passive house construction. Achieving a good air tightness result in a building is not only an indicator of its energy efficiency but more so its build quality. We have over 60 homes complete in the last few years, exceeding this target of 0.6 air changes per hour, as verified with the on-site pressure test in both the pressurized and depressurized states. We strive to build quality buildings that minimize space heating demand, air leakage and cold bridging using timber frame construction. We co-ordinate our timber frame design package with you the architect, engineer, or builder/homeowner.

Why Chose Timber Frame

Timber framing is becoming a popular choice for builders in the bespoke and one off self builds. With faster build times, cheaper than traditional masonry construction methods as a result of reduced labour costs, hire costs and insurance overruns as a result of delay from weather and schedules.

A range of framing options available to help you reach the desired target for your build, compliance with Part L and NZEB.

Timber framing in recent years has increased in popularity mainly due to the following reasons:

- A structure that is designed specifically which eliminates over specified engineering
- Pre-empt design issues prior to site through meticulous detailing
- Improved control over health and safety
- An environmentally responsible house which leads to a healthier home and occupants
- Speed on site is significantly reduced, but with a higher control over workmanship.

When choosing your timber frame manufacturer Long Life Structures can offer you:

- Ecological and low energy passive homes with precision accuracy throughout
- More cost effective solution on sustainable energy efficient buildings
- Can reduce building by up to 3 months compared to traditional masonry builds
- Healthy homes with attention to indoor air quality & thermal comfort
- All Natural insulations throughout with higher heat capacity and better sound proofing
- Flexibility in design with shorter lead times – Ideal for self builds
- Bespoke homes built to suit your design and needs
- Reduced labour on site with an increased quality control for the structure



Materials in constructing your timber frame homes.

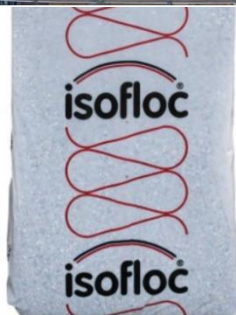
- Cellulose

What is Cellulose and why choose it above other materials?

Cellulose is a sustainable and energy efficient eco-friendly insulation product made from locally sourced recycled newspapers and inorganic salts. The salts make the cellulose

safe in a fire and acts as a natural pesticide.

- It compares favourably with other imported alternatives available in Ireland. The thermal conductivity of loose fill cellulose insulation is approx. 0.040 W/mk (similar, when compared to glass wool and rock wool insulation).
- Advantages of blown cellulose, when installed properly, is the close fitting around framing and wall panels, any internal pipework, or conduits. Eliminating air pockets in the wall improving the thermal performance and overall efficiency of



the wall or roof. With densely packed cellulose the wall performs much better than fibreglass, 20 – 30 % better as many surveys worldwide report it to perform better, reducing the energy requirement for heating.

- Cellulose is suitable for the insulation of Timber Framed walls, ceilings, and attic spaces. The application involves blowing the material through ducting into opening made through the internal membrane, which is taped and sealed as the installer progress through the house. A compaction test is carried out in areas to make sure the correct density of cellulose has been installed between the studs. It is suitable in new builds, retrofitting old houses, apartments, and commercial buildings.

Why Cellulose?

- Insulation saves you money and energy. Cellulose costs less than fibreglass and performs better thermally, acoustically and environmentally.
- It is a natural product that keeps the building warmer and healthier while reducing the heat loss and CO2 emissions. Quality approved with NSAI and the Irish Agreement Board approved.

• Thermafleece EcoRoll



- Note: Supply only, unless otherwise quoted.
- Naturally, affordable low density wool based insulation that is quick and easy to install.
- It contains 75% Sheep's wool, 15% Recycled polyester and 10% polyester binder with a high recycled content. Its available in 50mm, 75mm and 100mm. Additional size ranges 100 – 280mm. Thermal Conductivity: 0.039 W/mK.
- By using natural fibre insulation in walls & roofs, the thermal mass of the structure can be increased helping reduce over-heating and maintaining a more stable indoor temperature all year round. The highly breathable properties of sheep's wool help insure a more stable moisture balance within the wall structure helping reduce the build-up of harmful moisture.
- Thermafleece sheep's wool insulation acts as excellent acoustic insulation helping absorb sound and reducing the passage of noise, in both external and internal wall applications. The acoustic performance of Thermafleece is on a par with the best rock based insulation quilts.
- Thermafleece will not contribute towards the developmental stages of fire as it complies with British Standard BS 5803-4 for flammability and resistance to smouldering.

CLS Canadian Lumber Standard, CE Approved Timber.



All our timber is machine stress graded and tested in compliance with structural building regulations. Treatment, where used is water based proitin and conforms to regulations. We can offer a wide range of construction timber from CLS to floor joists, manufactured from both Irish and imported timber in lengths up to 8.4 metres. Construction timber is kiln dried, planed, and graded in accordance with to EN 14081-1:2005 + A1:2011. All these operations are CE Certified and are carried out under the regulation of third party.

Steel work



The addition of steel in our framing is included to support the timber frame structure. The timber frame engineering will involve calculating all the loadings - from Lateral loads, shear, tension, compression, snow, wind, gravity & floor loads. The engineering is vital in the designing process for your building relative to your site location, in accordance with Eurocode 3.

Timber is designed as much as possible to be accommodated into the build but where spans and loading do not allow for timber to work steel works out a cost effective and structural solution. All supports are calculated and certified for the structure, fabricated, and supplied in accordance with ISO EN 1090. Steel Grade S275 or S355, may vary.

Note: All steels for the timber structure are shot blasted and primed from suppliers.

Steels for external masonry, corner supports, and lintels are not included with this quotation. Masonry lintels for esb/phone box, doors & window openings etc. by others. All external works outside of timber frame to be engineered by others.

Gutex Wood Fibre / P5 Particle Board/ Cement board





Within **Long Life Structure**, we have a range of experienced professionals from qualified carpenters, passive house consultancy, architectural and technical professionals to assist you with your project.

We like to offer the opportunity to visit the factory and see how the units are assembled, the quality control methods in place and the degree of flexibility available in the construction of units (physical layout and choice of materials).

Emmet Nee, is company director and carpenter with a vast experience in timber frame working in North America, Europe, and Ireland.

He is a certified International Passive House consultant and tradesman, whose experience in the low energy building industry has earned him a training position in Sustainable Building Practices. Emmet has a proven track record in the construction of timber frame buildings and has received certification in passive housing and sustainable energy technology using timber frame construction from the Komzet Centre of Excellence for carpentry in Bieberach, Germany. This extensive experience enables Emmet to deliver both on site and classroom training in cutting edge building methods such as timber frame construction, airtightness, wood fibre and calcium silicate insulations.



Being involved from start to finish throughout your build, you can be confident your project will be in good hands. Emmets hands on approach to every job gives his clients the confidence and reassurance that the project will be a success and all targets will be met. With design co-ordination from the office right through to completion on site, progress updates on site and through the office we can guarantee delivering a high quality product.



Within the factory, based in Connemara, the assemblies are manufactured by highly skilled carpenters. Local to the area, this team of carpenters also have extensive boat building and framing as part of their skillsets. The houses are manufactured with accuracy and precision in a dry, controlled environment.

We are looking to take a fresh approach to timber frame construction, the ethos is to construct healthy timber frame building with low U-values and low air changes, all with the use of ecological materials. We believe that this approach and our experience will offer our clients a service that is both personal and professional, with the guarantee of a high quality and a low energy build.



LONG LIFE STRUCTURES

