# ecomerchant

ETHICAL · HEALTHY · SUSTAINABLE

## Sustainable building materials from foundation to ridge

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**healthy materials**

**sustainable solutions**

**ethical trading**

# Who are Ecomerchant?

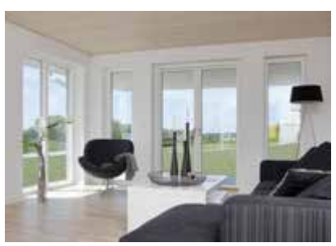
**Established in 1998 Ecomerchant is a leading UK provider of sustainable building materials, renewable energy products, landscaping and groundwork materials that will create healthier and more energy efficient homes, schools and workplaces. The company has been instrumental in driving an increase in the demand for natural alternatives to many synthetic building materials and has developed a range of solutions and products that offer higher energy performance and building efficiency with minimal impact on the environment.**

**We consider the whole product supply chain from raw material production to end use to ensure not only the lowest possible environmental impact, but also that there are no negative impacts on human health. Issues such as potential to pollute, toxicity and indoor air quality are high on our agenda.**

**Key to any design are building durability, carbon reduction, cost and quality. Ecomerchant has developed solutions with combinations of products which give best performance with least impact on our planet at the most affordable rates.**

**Ecomerchant promote a fabric first approach to building looking to reduce the operational energy required, the more efficient the building is the more the importance of material choice increases as it becomes the main source of embodied energy or potential to pollute. Our product ranges are targeted at this basic approach to construction: get the fabric right first. All Ecomerchant's products are chosen for their ability to eliminate, reduce or significantly improve environmental performance.**

**"We believe in community and personal well being. We challenge current practices and support those who want to make positive change."**

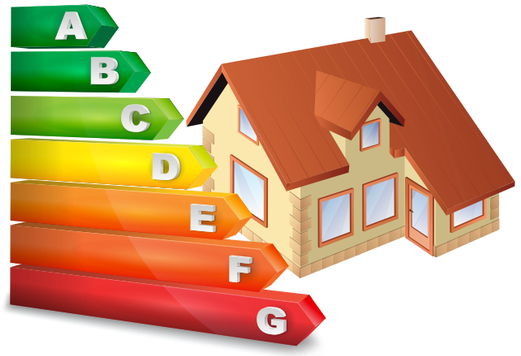






# Fabric First

## A whole house approach for thermal performance & healthy buildings

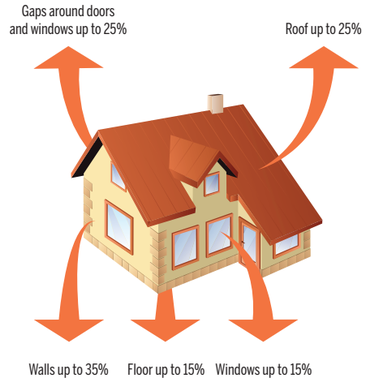



What and how your new house, extension or major refurbishment is constructed from can have lasting effects on the long term performance, operating costs and health of the building and its occupants.

For many the choice of materials may be influenced by planning, budget, location, or personal preference but the issues surrounding how to create a healthy efficient home remain more or less the same: Ecomerchant promotes the use of natural and sustainable materials to achieve your target performance, whichever way this is achieved the most sustainable long term approach is to let the building fabric do most of the work for you.

The areas of a building that are responsible for most of the heat loss are well known. Construction should aim to eliminate heat loss through leakage and poor insulation, areas that require focus are walls, ceilings, roofs and floors and includes windows and doors. Attention should also be given to eliminating gaps and controlling ventilation.

Many modern natural building materials will match or better synthetic materials without any of the harmful ingredients that exists in petroleum and synthetically derived products. Most are completely safe to handle, do not give off noxious gasses and are usually easy to dispose of, reuse or recycle.




## Product ranges at a glance

***Windows and Doors:*** windows, doors, roof lights, sunpipes. Full design and fitting service.

***Insulation:*** wood fibre, cellulose, wool, plant fibre, acoustic, thermal, rigid boards, external wall insulation, internal wall insulation, insulating render.

***Building Products:*** blocks, bricks and ancillaries, lime plasters and mortars, roofing materials, membranes and tapes, sheet materials.

***Airtightness:*** membranes, vapour barriers, tapes, grommets, ancillaries, MVHR–mechanical ventilation with heat recovery.

***Drainage and Water:*** guttering/steel/cast iron/aluminium, grey water harvesting, rain water harvesting, off grid sewage systems, stormwater management, process and storage tanks.

***Landscaping:*** grass reinforcement, biodegradable matting, geotechnical membranes, weed/root barriers, gabions, ground stabilisation systems.

***Maintenance and Cleaning:*** cleaning and disinfecting, paints and finishes, timber preservatives, septic tank treatments, degreasing systems .

**“We believe in ethical trading and recognise the need to change to a more environmentally friendly way of living by reducing our environmental impact through long term thinking which help us to understand the consequences of our actions.”**

## In Ground

Many experienced self builders will tell you that you don’t really have a good idea of the true cost of a building until you get out of the ground. There is an element of truth in this. At the early stages of the build and whilst the ground works are in hand, this is the time to plan to install any in ground products or systems. Plan to incorporate rainwater harvesting, septic tanks or treatment plants at this stage. For the building this is where insulation starts, the floor is part of the building envelope and this is the only practical opportunity to fit insulation into the sub floor. Ensure that the sub floor junctions between floor and walls are thermally sealed. This is also a key area to prevent damp ingress. Talk to us about sustainable options for in ground insulation, damp proofing and services.

## Building Shell Systems

There are a huge range of construction methods to choose from and most can be designed to achieve high levels of thermal efficiency, sustainable options include timber frame, clay, recycled wood or recycled aggregate blocks, insulated formwork or traditional brick systems. The overriding design requirement for the building shell is thermal efficiency. The design stage of your project will set out the target U values and determine other factors such as boiler size and heating and ventilation systems.

Every building shell needs doors and windows so installed performance for the joinery is a fundamental part of the thermal calculations. Whatever system is chosen as the principle structural element this will be integrated with insulation, vapour control and ventilation additionally the concept of thermal mass may be included ‘Thermal mass’ describes a material’s capacity to absorb, store and release heat. For example water and concrete have a high capacity to store heat and are referred to as ‘high thermal mass’ insulation foam (PIR, EPS) or mineral wool by contrast, has very little heat storage capacity and is referred to as having ‘low thermal mass’. Buildings can be designed to make good use of the thermal capacity of structural elements. Out of all the items budgeted on the project this is the one area where a no compromise approach to delivering the specification must be applied.

## Airtightness

Uncontrolled air leakage from buildings is a major cause of energy loss and increasing CO2 emissions. It has long been established that airtightness is an essential part of creating a healthy, comfortable, energy efficient living environment. Air leakage is one of the most significant contributors to inefficiently heated buildings. While controlled ventilation is desirable and a requirement for healthy construction, studies confirm that air leakage can account for up to a third of all heat losses in modern buildings. A continuous airtightness barrier system is the combination of interconnected materials, flexible sealed joints and components of the building envelope that provides the airtightness of the building envelope and the separateness of heated and unheated spaces. The airtightness barrier needs to be designed into the building envelope during the initial concept design stage. Talk to us about our Ecomerchant airtightness “Toolkit” we can help plan a complete system from design to installation.





## Wood Fibre Insulation

All insulation is part of the functionality of the building shell, this is a no compromise performance element that if done right will continue to deliver for years and provide long term savings and a healthy and comfortable living space. Natural wood fibre insulation is a versatile product with an attractive environmental profile. There are a whole raft of applications including rigid insulation, sheathing and sarking for timber frames, roofs and flooring as well as flexible insulation for studs and rafters and even in ground uses.

Wood of course is renewable, it sequesters carbon during its growth and manufacturing processes are relatively free from pollution and it can be recycled, reused or composted at the end of its life. Modern wood fibre insulation manages to compete favourably (sometimes better ) with petrochemical products but without the noxious elements that are inherent in manufacture that can be released in use or through disposal. Wood fibre also provides improved acoustic insulation, high levels of fire resistance and an element of thermal mass. There are many examples of very high levels of insulation being achieved with natural insulation including up to Passiv Haus standards. Other features of wood fibre insulation include ‘breathability’ that helps moisture to be regulated as well as a material density providing improved decrement delay, the time it takes the peak temperature on the outside of a material, such as a wall or a roof, to make its way to a peak temperature on the inside face. Remember that insulation not only keeps cold out but heat in so the performance works both ways.

## Windows, Doors, Skylights & Sunpipes

For us to use a building we need to go in and out, let light in and ventilate naturally. Poorly made and ill fitting windows (and doors) can lose up to 20% of all the building’s heat so replacing or upgrading windows and doors is a good way to prevent this loss. The use and importance of performance joinery for doors and windows, is somewhat surprisingly, often overlooked by self builders. The term performance is specific. The installed performance needs to match that of the building shell; joinery performance can be calculated as components such as the glazing unit and the frame but it is installed U Value that is critical. If building from new either a full house or extension, performance windows and doors must be designed in as part of the building shell.

Timber provides the lowest levels of conductivity for window frames which it is why it is the default performance choice. Windows come in a range of styles and finishes from composite construction to softwood. We offer highly durable wood species or paint finishes, and factory painted windows with 10 year guarantees. For ultimate performance our range of aluminium-clad timber frames are expected to have lifetimes of in excess of 40 years. PVC by comparison is around 25 years.

Very obviously windows let in light which is important for our health and wellbeing best of all sunlight is free. Where light enters so does heat, so making best use of all natural light options, especially if utilising thermal mass is a good way to reduce operational costs. Skylights and Sunpipes are convenient ways to make use of ambient light and larger glazed areas can be designed to work with the fabric to control and moderate the internal environment.

**“We help our customers make sustainable choices through easily accessible information and advice, and strive to create a business that enables those who share our convictions, our ambitions, and our values to deliver change.”**

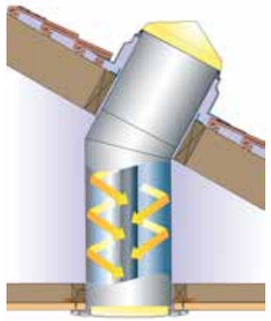
# Sustainable building materials from foundation to ridge

## Fabric First: the Ecomerchant approach

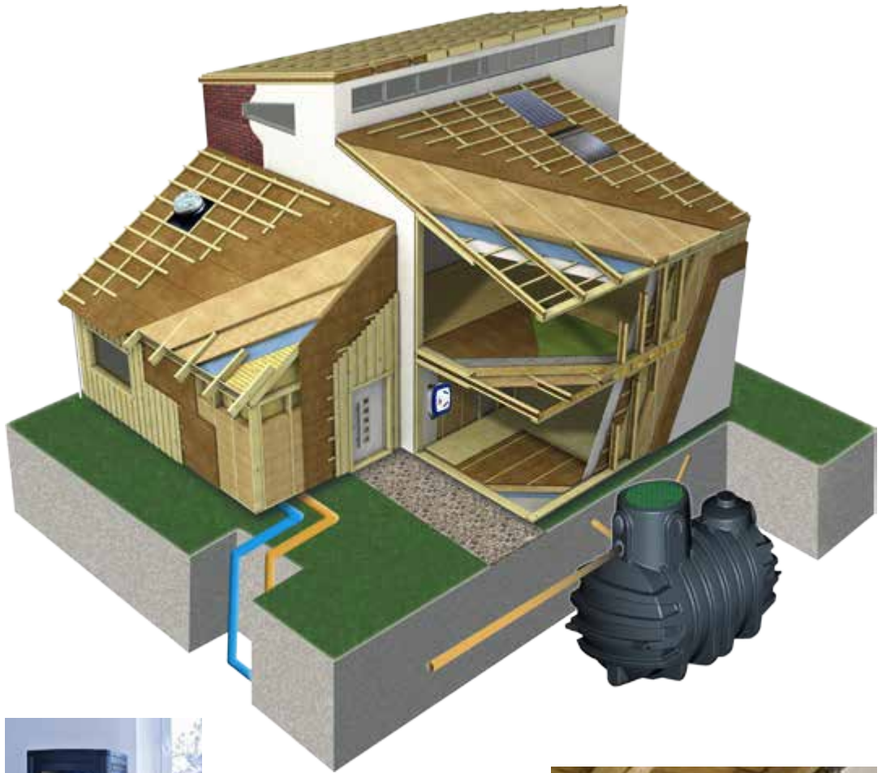
Ecomerchant promote a fabric first approach to building looking to reduce the operational energy required, the more efficient the building is the more the importance of material choice increases as it becomes the main source of embodied energy or potential to pollute. Our product ranges are targeted at this basic approach to construction, get the fabric right first.

Key to any design is durability, carbon reduction, cost and quality. Ecomerchant has developed solutions with combinations of products which give best performance with least impact on our planet at the most affordable rates. Please contact us to find out about our ranges of sustainable building materials and solutions

- Steel gutters systems
- Cast iron guttering
- Rainwater harvesting



- Sunpipes
- Conservation sunpipes



- Septic tanks
- Off grid sewage treatment

- Roof lights
- Conservation roof lights


- Paints and finishes
- Tints, colours and treatments
- Natural plant based chemical free

- Wood fibre sarking and sheathing boards
- Roofs, walls and floors
- Internal and external

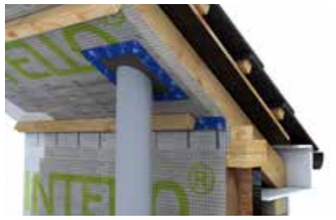
- Domestic biomass systems
- All wood fuels

- Folding doors
- Sliding doors

- High performance timber windows
- External and internal doors

- Walling systems
- Recycled wood blocks
- Clay blocks
- ICF (insulated concrete formwork)

- MVHR – ventilation with heat recovery
- Exhaust ventilation



- Airtightness membranes and tapes
- Grommets
- Ancillaries

- External insulation systems
- Lime renders
- Backing boards
- Ancillaries

- Natural insulation
- Cellulose
- Wool and wood fibre

- Wood fibre insulation
- Walls and floors
- Lofts and ceilings

- Insulated floor slab
- Lightweight modular system
- Exceptional insulating qualities

## Lime Renders, Mortars & Plasters

Lime is a traditional building material that is strong, flexible and permeable. Buildings built using lime mortar can move and absorb moisture. In comparison cement mortar is rigid and inflexible. When Using lime mortar expansion joints can be avoided. Likewise the imperviousness of cement mortar prevents it from absorbing water from the structure whereas lime mortar acts as a kind of 'wick', absorbing the moisture and allowing it to evaporate. By absorbing moisture, lime mortar is keeping the masonry dryer and lessening the risk of spalling. Lime is most often used in traditional buildings but modern lime renders and putty's are now emerging as viable performance options over cement based products. This is especially true of construction methods that require the building to breathe.

By being produced at lower temperatures than cement, lime mortar requires less energy, resulting in 20% less CO2 output. Lime putty absorbs CO2 in the curing process. Non-hydraulic lime absorbs nearly its own weight in CO2, hydraulic lime, around 75%. Lime mortar can be re-cycled, unlike cement. Bricks using lime mortar can be recycled unlike the cement bonded equivalent which can only be used for hardcore.

There are two basic types of lime: hydrated lime where an exact amount of water is added, creating a dry powder sold in bags and generally known as hydrated lime or lime hydrate. If more water is added (slaking ) the end product is a colloidal gel, commonly sold in plastic tubs and known as lime putty.

Limestone's which contain clay produce building limes known as hydraulic because they can set under water. The clay impurities contain silica and alumina which forms a more chemically complex and different product . The more clay impurity the faster the set and the harder the mortar.

Modern lime products include spray applied renders and insulating renders for example the Ecomerchant Protect System and a wide range of products to meet most construction applications both new and retrofit. Ecomerchant can offer guidance and suitability for all applications. Needless to say all necessary ancillaries are available for you to ensure a complete service.

## Paint & Finishes

Most paint is made from three basic ingredients: **pigment** – provides colour, opacity and the ability to cover; **binder** – which acts like a glue in holding the pigment to the surface; and **solvent** – which maintains the pigment and binder in liquid form. The majority of issues surrounding the sustainability of paint are to do with the use of the pigment Titanium Oxide which is near universal in its use and secondly, labelling. Paint labelling is confusing and sometimes misleading. To make choosing a paint finish easier we suggest the following as the best place to start.

- Specify water-based paint with low Titanium Oxide content together with low quantities of binder.
- Avoid paints with high levels of organic solvents – this has been made easier thanks to the effect of recent legislation.
- Research the list of ingredients comparing chemical content with databases of toxins, this can be easily done on the internet.
- If the paint ingredients are not published, it is fair to assume that there is a reluctance by the manufacturer to disclose the real contents in which case it might be wise to avoid that product altogether.

For specific advice or help call one of our team who can provide all the necessary information to give you peace of mind.





## Landscaping

Many self builders don't pay much attention to how they will use the surrounding land on which the house sits until some way into the build. The obvious function is providing a pleasant garden and space for relaxation and amenity. On many sites by the time the build is near complete and thoughts turn to the garden and grounds the site will be almost brownfield; it will have been driven over used for storing materials, mixing, cutting and a host of general construction jobs which will have compacted the ground and may have incorporated waste and rubble. In-ground items such as rainwater harvesting, package sewage plants or soakaways need to be planned in from the start, where possible costs can be saved by avoiding carting spoil off site if this can be used for landscaping later. Within the building regulations (Part H3) each site will have to accommodate surface water run off (part of SUDS) on larger, or new, sites this may require attenuation systems and/or porous surfaces to prevent excessive run off; there are a host of ways to meet the need to contain and control water from green roof systems, rainwater harvesting , soakaways, grass reinforcement, gravel retention, and permeable paving meaning that water captured on site can be used for other purposes. Contact us to learn more about how to manage water on site.

Attractive landscaping really makes a difference to a property , one of the most common (ubiquitous and unattractive) landscaping products are synthetic (non degradable) membranes which often end up being visible soon after being installed, they are also extremely difficult to remove. Ecomerchant have a range of alternative highly effective natural biodegradable products for moisture retention, erosion control, slope stabilisation, weed suppression and mulching including pre-seeded mats for short term establishment. These are designed to create a natural looking landscape from the start, and once their main function is complete they naturally degrade and disappear.

## Maintenance Cleaning

When most of us clean or use products for maintenance or preservation (timber for example) they are typically chemically based and when done most will end up down the drain. At Ecomerchant we have created a range of products for a surprisingly large number of applications where chemical constituents have been entirely replaced with natural ingredients such as plant oils, enzymes and bacteria (friendly of course) all of which are safe and harmless to plant and animal life. We also have a range of concentrated wood preservers including dry rot treatment and woodworm killer and a host of cleaning products that will not disrupt or kill off septic tank bacteria. Many of the products have industrial applications and a proven track record, Ecomerchant Grease Buster is a good example, a bacterial agent used in commercial applications to actively deodorise and 'eat' fat in drains keeping them open and running: septic tank treatments have a similar industrial pedigree.

Whichever of our products you choose, from all purpose cleaner to compost accelerator, they are all...

- Highly effective • Have proven biological action
- Are harmless to humans, animals and marine life
- Are eco friendly and non-toxic
- Highly cost effective – dilutions up to 125:1
- Concentrated where possible, to reduce packaging, transport and manufacturing costs, so reducing carbon emissions.

## Case Study

# Four Bedroom Rural Bungalow

When Ecomerchant customer Jim purchased a small plot of land next to his existing house in a small village in Wiltshire, he did so with one thought in mind, to build a new house to his own designs for him to live in for his retirement. The plot was narrow but long sandwiched between his old house and some small farm outbuildings. Jim and his brother had been impressed by the performance of insulated concrete formwork (ICF) which they had seen on their travels in Europe, after much research Jim decided to create a thermally efficient building envelope incorporating high thermal mass by using ICF. A large part of the appeal to Jim was that the system was simple, easy to use and quick.

Jim recognized immediately that using ICF would achieve high levels of airtightness, and that he was really applying many of the principles of passive house construction "we then had to think about what else we would need or should design in to make the building work to its optimum level and further reduce running costs" says Jim. This began with an insulated concrete slab foundation, the use of performance argon filled double glazed units and a highly insulated vaulted roof under which Jim has space for two double en-suite bedrooms. Further savings were made by using natural light through Sunpipes. One product Jim is very pleased with are the roof slates. Jim opted for eco slates made from recycled rubber. Jim is quick to point out "we only needed one tile for the roof and the ridges they were so easy to fit, not only that but they are guaranteed for 50 years and provide an extra layer of insulation"

With the building shell airtightness and insulation sorted Jim had always planned to fit a mechanical ventilation and heat recovery system (MVHR). "The plot and orientation were not really suitable for solar or ground source says" Jim "so the best option was MVHR. The system is really efficient and keeps the whole house at a consistent temperature." Jim has kept up the off grid thinking with a rainwater harvesting system and on site sewage treatment plant. Not only is Jim looking forward to moving into his new home, which he designed, but he is particularly looking forward to opening some very small bills for heating and utilities, "that gives me more money to spend on what I want, it is nice to think my house is helping me pay for a meal out or a weekend away!"

**"Ecomerchant helped me through the sourcing process, much of which was new to me, they offered impartial advice, but best of all they consistently found the best rates for many of the products I needed and that really helped when the budget was tight."**

**Jim used the following products on this project**

Insulated concrete formwork • argon filled performance double glazing units • Ecoslate recycled rubber roof tiles • MVHR (mechanical ventilation and heat recovery) • Sunpipes • Rainwater harvesting • Off grid sewage treatment plant.

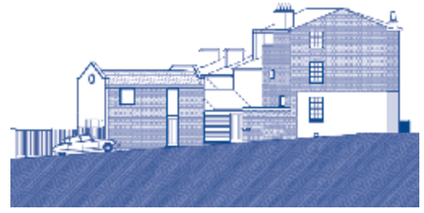
**All available from Ecomerchant**





## Case Study

# Town House in a Conservation Area



Ecomerchant customer Roger Nelson wanted to convert an outbuilding at his house in the center of Greenwich built around 1830 into a living space and studio. The buildings are of soft London brick, and lime mortar with solid 9 inch walls. Although not listed it is in a conservation area, which meant all changes required planning approval and the external appearance would have to be largely unchanged.

Roger points out "we wanted to work with the traditional construction of the building rather than fighting against it with damp-proof-membranes, foam insulation, cement and concrete" importantly Roger worked with established companies who understood what he wanted, Roger continues "We worked with Briggs Architecture and Design and an amazingly helpful planning advisor, Alan Ward, who helped steer the designs through to planning approval. We had worked with the main contractor, Geo Contracts, on our previous home, and they were keen to build in this way"

Roger soon discovered that traditional builder's merchants were not going to understand his needs or even be able to source the products. Through his researches he soon came across Ecomerchant "They could provide the products we wanted and were more than willing to give expert advice and technical support, which has been terrifically helpful. For example, they provided a free on-site 'tool box talk' on working with their intelligent membranes to achieve a good airtight construction. The project will be complete by late autumn and then the same principles will be applied to developing and renovating the main house."

Whether you are building a new house or renovating an existing property, whether you are building on a large plot, building an extension or converting a town house like Roger contact Ecomerchant to see how we can help you improve building efficiency and reduce your impact as a consumer.

**"We are so grateful for the practical support and encouragement given by Ecomerchant they have made such a difference to us on our build project, we would happily recommend them to others."**

**Roger used the following products on this project**

Flexible wood fibre insulation • wood fibre sarking and sheathing boards • NHL 5 lime mortar • vapour permeable and airtightness membranes, tapes & accessories • high performance timber windows & doors • Natural paints • Expanded glass aggregate sub floor insulation.

**All available from Ecomerchant**

# A sustainable approach to fabric first

## Target

**Optimal thermal performance – near zero running costs, healthy indoor air quality and exceptional comfort.**

## Principle

**Fabric first: let the building do the work to create a healthy efficient home.**

## Method

**Ensure that all elements are planned and delivered as specified.**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*EcoMerchant is a trading name of Eco Design and Installation Ltd. Registered in England No 8069517*

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