

Internal Report & Comparison

about Timber Frame Companies in Ireland

Project Oecotop Homes of Health

Compared with:

- **Griffner Homes** / <http://www.griffnerhaus.com/EN/page.asp?id=961>
- **Century Homes** / please look by www.google.ie
- **Scandinavian Homes** / please look by www.google.ie
- **Viking Homes** / <http://www.viking-house.ie/viking-timber-frame>
<http://www.viking-house.ie/breathable-construction.html>
- **Okohaus** / <http://www.okohaus.ie/okobuildingsystem5.htm>

Statements, Details & DIFFERENCES!

S o l u t i o n i n s t e a d o f c o n f u s i o n !

Griffner Homes

GRIFFNER-Homes

Sketch of construction:



Energy-Plus Wall:

$U = 0.18 \text{ W/m}^2\text{K}$



For what? (a “breathable” membrane)

If there is a OSB board inside, than there can no damp go in to the wall.

By law, this wall with OSB can be called “diffusion-open”, but in reality it is blocking all damp, moisture and so on. So at least it is NEVER BREATHABLE.

With this wall system the clients need a GOOD ventilation system and there will be always the danger that materials of glue will be damage human health.

GRIFFNER-Homes

Roof Construction
Description of components from outside to inside:

- Roof covering in fibre cement slate or agreed roof finish.
- 30x50mm battens spaced for specification of roof cover.
- 50x70mm counter battens to create ventilated cavity.
- Waterproof, breathable membrane.
- 20mm fibre board.
- 80x200mm structural timber rafters with full rigid mineral wool thermal insulation.
- 15mm OSB board (SmartPly).
- 33mm services cavity layer.
- 12.5mm fibre gypsum board.

External wall with timber cladding
Cavity timber frame wall system. Description of components from the outside:

- 20mm horizontal larch timber cladding.
- Two layers of 20x60mm pressure treated battens for the ventilated wall cavity.
- Waterproof, breathable, UV membrane.
- 30mm fibreboard.
- 160mm timber studs with full rigid mineral wool thermal insulation.
- 15mm OSB board (SmartPly).
- 33mm services cavity battens.
- 12.5mm fibre gypsum board (Fermacell).

Mineral Wool Insulation

External wall with render finish
Cavity timber frame wall system. Description of components from the outside:

- Acrylic render system with reinforced fibre mesh.
- 10mm substrate board.
- Two layers of 20x60mm pressure treated battens for the ventilated wall cavity.
- Waterproof, breathable membrane.
- 30mm fibreboard.
- 160mm timber studs with full rigid mineral wool thermal insulation.
- 15mm OSB board (SmartPly).
- 33mm services cavity battens.
- 12.5mm fibre gypsum board (Fermacell).

Griffner Coillte's unique breathable wall construction ensures an all year round healthy living environment.

Breathable ?

Maybe person who is writing this has **NO** touch of idea of building or is **fooling** people with intention!

- If there is a OSB board inside, this wall *in theory* maybe can be called "diffusion open" but **NEVER breathable!** This is **NOT** truth!
- With this wall system the clients need a **GOOD** ventilation system and there will be always the danger that materials of glue will be damage human health.
- The 2 arrows at the wall shall mean damp is coming out! BUT not from inside (at least in case of a good job)!
Where in this case is the damp coming from?
- from a leak?
Are they not qualified or fooling people?

More details and more "Stories" about **GRIFFNER** are available at:
<http://www.griffnerhaus.com/EN/page.asp?id=961>

Technical Specifications

GRIFFNER-Homes

All wall, roof and floor elements are precision engineered and fully manufactured within the GriffnerHaus manufacturing facility in Griffen, Austria.

SCOPE 1 - Structure

The house enclosure is complete, insulated, weather tight and lockable.

1.1 External wall with render finish

Cavity timber frame wall system. Description of components from the outside:

- Acrylic render system with reinforced fibre mesh.
- 10 mm substrate board.
- One layer of 40x60 mm pressure treated battens for the ventilated wall cavity.
- Waterproof, breathable membrane.
- 13 mm medium density fibreboard.
- 200 mm timber studs with full rigid cellulose thermal insulation.
- **15 mm OSB board.**
- 50 mm services cavity battens.
- 12.5 mm fibre gypsum board.

1.2 External wall with horizontal timber cladding finish

Cavity timber frame wall system. Description of components from the outside:

- 20 mm horizontal larch timber cladding.
- One layer of 40x60 mm pressure treated battens for the ventilated wall cavity.
- Waterproof, breathable, UV resistant membrane.
- 13 mm medium density fibreboard.
- 200 mm timber studs with full rigid cellulose thermal insulation.
- **15 mm OSB board.**
- 50 mm services cavity battens.
- 12.5 mm fibre gypsum board.

1.3 External wall with vertical timber cladding finish

Cavity timber frame wall system. Description of components from the outside:

- 20 mm vertical larch timber cladding.
- One layer of 15x60mm pressure treated battens for the ventilated wall cavity.
- One layer of 25x60 mm pressure treated counter battens for the ventilated wall cavity.
- Waterproof, breathable, UV resistant membrane.
- 13 mm medium density fibreboard.
- 200 mm timber studs with full cellulose thermal insulation.
- **15 mm OSB board.**
- 50 mm services cavity battens.
- 12.5 mm fibre gypsum board.

2 Internal walls

Internal walls are faced with fibre gypsum board on both sides.

- 12.5 mm fibre gypsum board.
- 100 mm timber studs with full cellulose insulation.

3 Structural first floor construction

Structural first floor construction comprises of:

- 100x200 mm exposed spruce timber beams. Centres to structural requirements.
- 30 mm T&G boards fixed on top of ceiling beams.
- **15 mm OSB board.**

4 Roof elements

Description of components from outside to inside:

- Roof covering in fibre cement slate or agreed roof finish*.
- 33x50 mm battens spaced for specification of roof cover.
- 50x70 mm counter battens to create ventilated cavity.
- Waterproof, breathable membrane.
- 20 mm fibre board.
- 80x200 mm structural timber rafters with full rigid cellulose thermal insulation.
- **15 mm OSB board.**
- 50 mm services cavity layer.
- 12.5 mm fibre gypsum board.

5 External windows and patio door specification

External windows and patio doors are fitted in the factory. The windows are argon filled double glazing in laminated spruce frames. The mechanism is inward tilt and turn with triple sealing. All windows have a ventilation setting. The windows and patio doors have an a in a range of col

6 External door

External doors are complete with built-in thermal in

7 Roof windows

Roof windows are They include a co in coated alumin

8 Guttering and

Gutters include d series in aluminium shings and seam

SCOPE 2 - Mechanical Installation

Comprises first fix of n installation.

1 Electrical Installation

First fix of electrical installation from distribution/fuse box to sockets, switches and appliances.

2 Mechanical Installation

- First fix of central heating system based on a wall mounted gas boiler and a heat distribution system.
- First fix of hot and cold water system and sanitary devices.

3 Subfloor Options

- Screed floor build-up on top of EPS insulation (with or without underfloor heating)*.
- or - Acoustic sub floor build-up with mineral wool thermal insulation.

SCOPE 3 - Fit-Out

1 Final fix of electrical Installation

2 Final fix of heating and plumbing including the supply and fix of all sanitary ware.

3 Filling/ Painting

- Filling and finishing of fibre gypsum boards to a choice of colours with two coats of paint.

4 Interior Doors

- Supply and fit of European designer doors finished with a contemporary maple veneer, including frames/architraves and ironmongery.

5 Staircase and Gallery Balustrade

- Contemporary design spruce staircase with open risers, maple treads and spruce stringers, banisters and gallery rails.

OSB ?

- *If there is a OSB board inside, this wall in theory maybe can be called "diffusion open" but **NEVER breathable!** This is **NOT** truth!*
- *With this wall system the clients need a GOOD ventilation system and there will be always the danger that materials of glue will be damage human health.*

Note to Scope 1, 2 & 3:

All works from top of the foundation (slab with radon barrier) upwards are completed by GriffnerHaus or their selected subcontractors. We reserve the right to continue the development of its products and to amend the specification. GriffnerHaus will supply and fix the aforementioned services. Transport and crane services are included in the quoted price. No responsibility will be accepted for errors and omissions in this brochure.

Turnkey

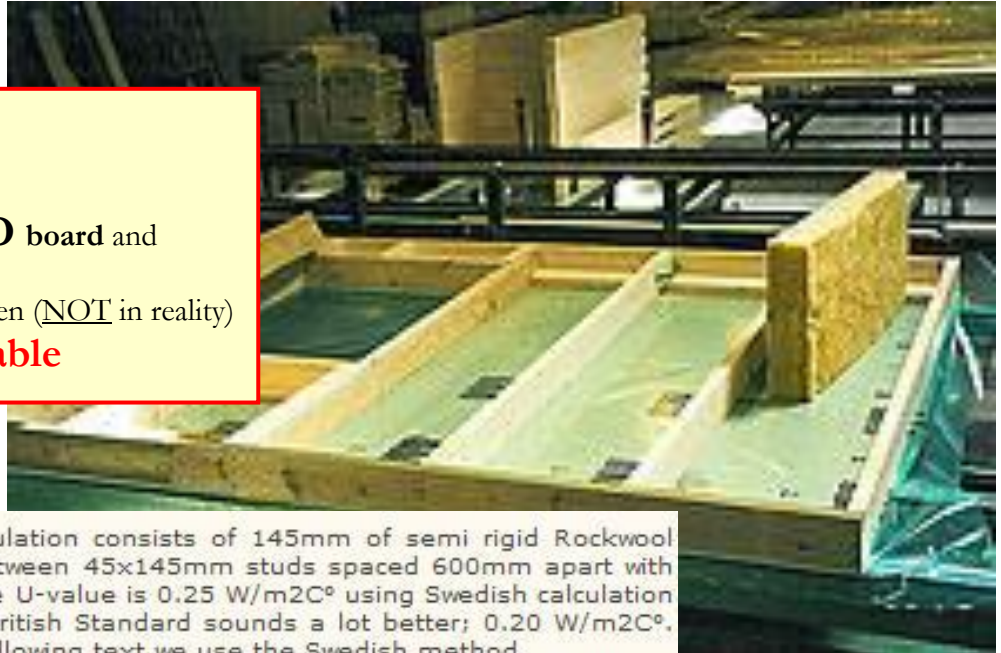
Includes Scope 1, 2 & 3 as outlined above.

* Additional cost applies

Scandinavian Homes

Walls

with Rockwool & **AERO** board and chipboard for solidity.
= in “theory” diffusion open (NOT in reality)
= **never BREATHable**



Wall: The standard wall insulation consists of 145mm of semi rigid Rockwool insulation carefully fitted between 45x145mm studs spaced 600mm apart with minimized cold bridging. The U-value is 0.25 W/m²C° using Swedish calculation methods. The value using British Standard sounds a lot better; 0.20 W/m²C°. Please observe that in the following text we use the Swedish method

Upgrade A; For most houses that are designed with passive performance in mind it is sufficient with a minor upgrade. Simple composite studs made up with 45x45mm studs and 25mm aero board and regular 45x70mm studs are added to the inside of the completed shell. 70mm of additional Rockwool gives a total insulation thickness of 215mm The vapour barrier is already installed in the factory. The U-value of this optimised wall is 0.16 W/m²C° (Swedish calculation method)

Upgrade B; For large and demanding houses. An additional layer of 120mm Rock wool is added between the standard wall and the 70mm upgrade. This gives a total insulation thickness of 335mm The vapour barrier has to be installed on-site. The U-value of this super-wall is 0.10 W/m²C° (Swedish calculation method) This is how our Tooreeny Hibernia 164 was built. In retrospect it was overdone. According to the Passive Haus Institute calculation program, the house requires a constant heat load of 4 W/m² when the requirement is only less than 10 W/m².

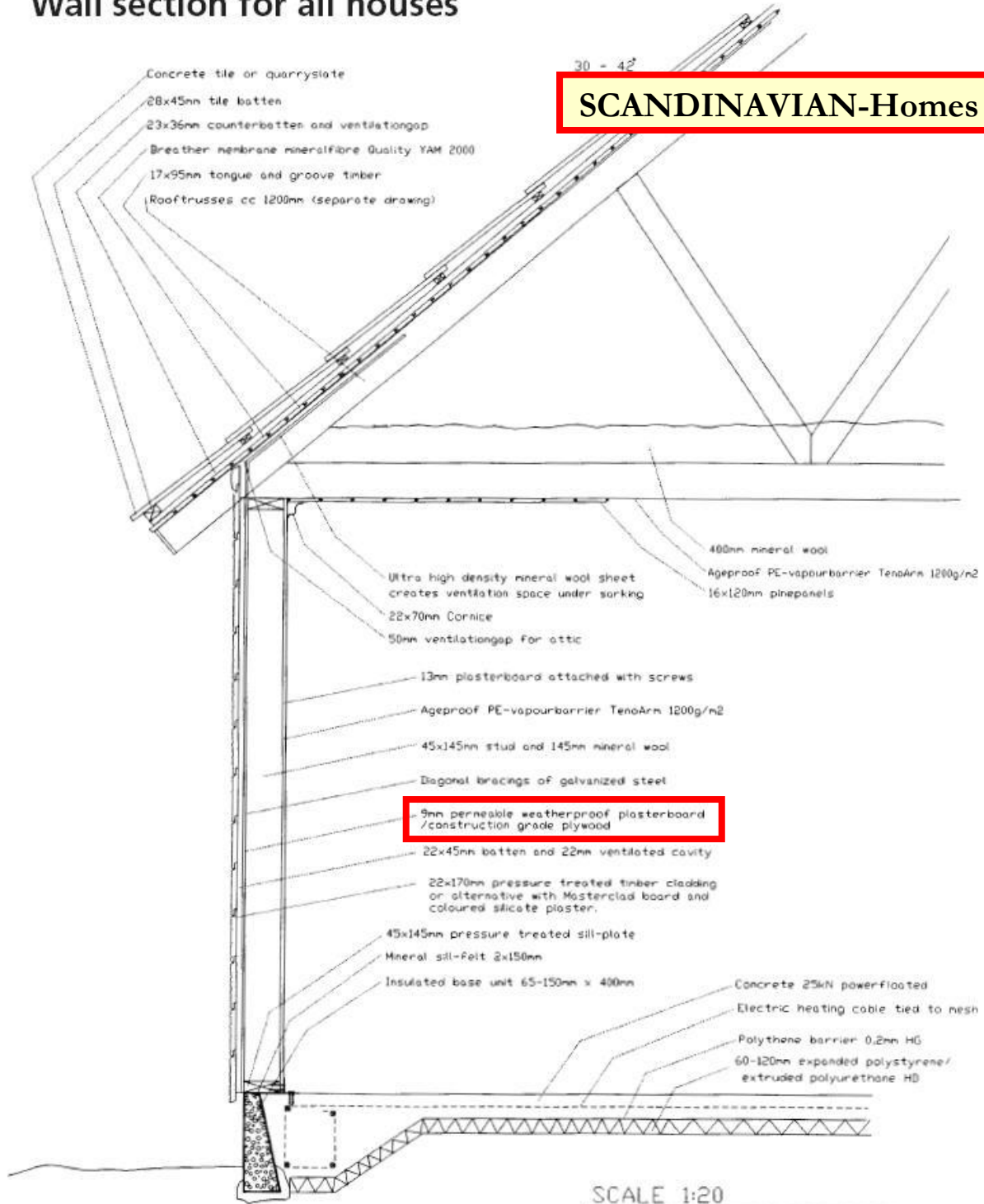


SCANDINAVIAN-Homes

Roof Timber-Construction:
„2by4/6 Fast-Food-Roof“ with BIG waste of space in attic!



Wall section for all houses



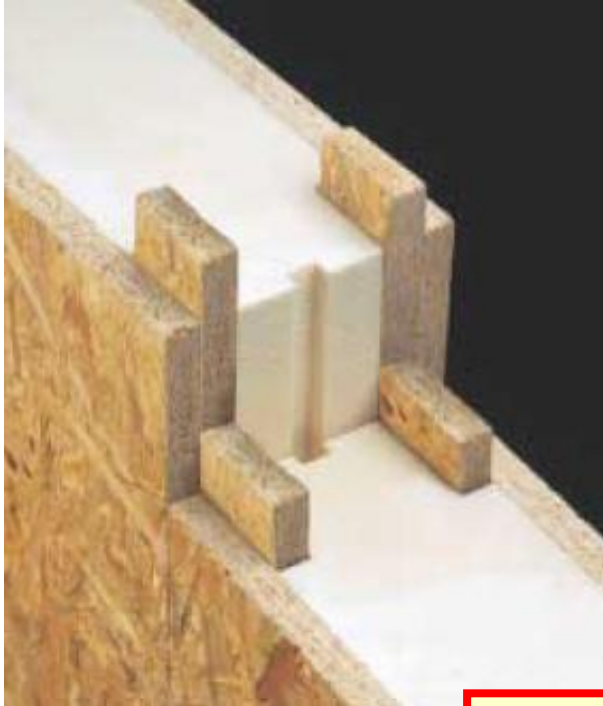
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 The specification can be changed without notice

SCANDINAVIAN HOMES LTD MOYCULLEN GALWAY IRELAND Tel 091-555 808 Fax 091-556 808	SCANDINAVIAN HOMES LTD Skottegatan 15 LYSEKIL SWEDEN Tel 0523-10820 Fax 0523-611161
WALLSECTION ALL HOUSES	19940216 LARS PETTERSSON
DRAWING # WALLSEC	REV #





Century Homes



CENTURY-Homes

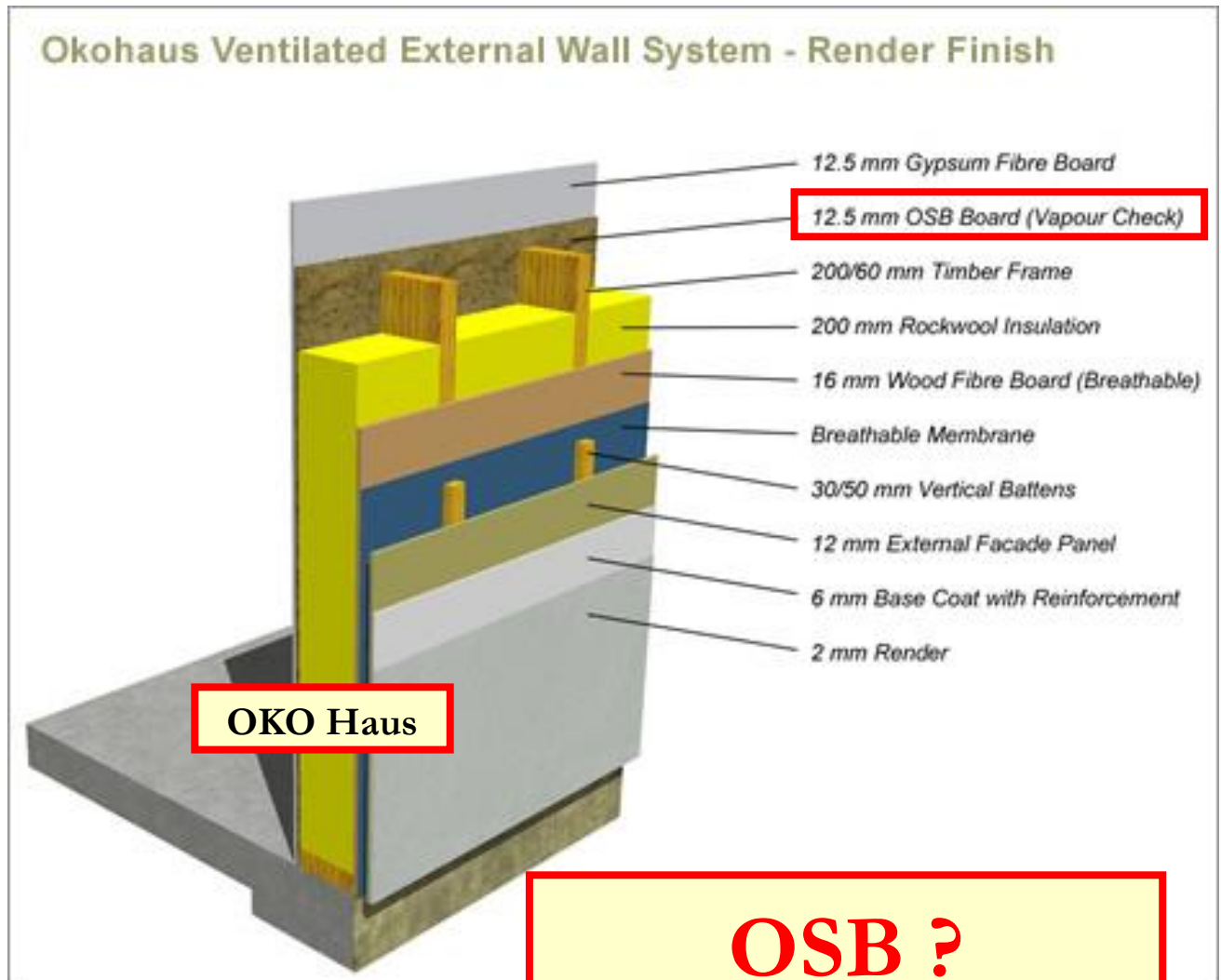


CHEAP & short life-time
(“Fast-Food”)

= **Neither diffusion-open
nor BREATHable!**

- *With this wall system the clients need a GOOD ventilation system and there will be always the danger that materials of glue will be damage human health.*

OKO Haus



OSB ?

- *If there is a OSB board inside, this wall in theory maybe can be called “diffusion open” but **NEVER breathable!***
- *With this wall system the clients need a GOOD ventilation system and there will be always the danger that materials of glue will be damage human health.*

OKOHAUS TECHNICAL SPECIFICATION

The construction elements listed are all engineered and manufactured in our European partner production facility

Each project is priced on the assumption that a level uniform concrete raft foundation has been installed complete with service positions and that access for delivery and crane can be gained.

Level 1 Standard specification OkoTek closed wall superstructure

- 18mm OSB board (or 60mm screed with underfloor)
- 18mm OSB board
- 50mm impact sound insulation

Outer Walls – (From inside to outside)

- 12.5mm Fibre Board
- 12.5mm OSB
- 200x60mm Treated Timber studs @ 625mm Centres
- 200mm Rockwool Insulation Quilt
- 16mm wool fibre boards (breathable)
- Breather Membrane
- 30/50mm vertical battens

Plus:

With OkoTek external façade system

- 12mm external façade panel
- 6mm base coat with reinforcement
- 2mm Self coloured silicone render

Or

With OkoTek external timber cladding

- 20mm timber cladding in treated European larch

Inner Walls

- 12mm Fibre Board
- 12mm OSB
- 120x60mm Timber Studs
- 60mm Insulation Quilt
- 12mm OSB
- 12mm Fibre Board

Party Walls (where applicable)

- 2 Layers 12mm Fibre Board
- 12mm OSB
- 120x60mm Timber Studs
- 120mm Insulation Quilt
- 16mm DVD boards
- Breather Membrane
- 40mm Cavity
- Breather Membrane
- 16mm DVD boards
- 120mm Insulation Quilt
- 120x60mm Timber Studs
- 12mm OSB
- 2 Layers 12mm Fibre Board

Mid Floor Ceilings (From Top side downwards)

- 18mm OSB
- 200x60mm Timber Joists
- 100mm Insulation Quilt (300mm At Flooring To Attic)
- Pe Foil Vapour Check
- 20x100mm Soft Wood Timber Laths
- 15mm Gypsum fibreboard

Mid Floor Construction

- 18mm parquet or client specified floor finish
- 3mm separation layer

Roofs (From inside to outside)

- Tiled/slatted roof
- 30/50mm timber battens
- 50/60mm Counter Battens
- Breathable Membrane
- 16mm wool fibre board
- 200x60mm Timber Rafter
- 200mm Insulation Quilt
- Pe Foil Vapour Check (12mm OSB board)
- 50mm rockwool insulation
- 22x100mm Soft Wood Timber Laths
- 30mm service cavity
- 15mm gypsum board

Additional Elements Included In Level-1

- All Windows And External Doors Pre-Installed In The Factory
- External Window Sill

NB Enhanced Sustainable performance packages are available according to your specification

Level 2

As level 1 with all following exterior finishes

- Roof Coverings (Concrete tiles, Slate or Metal)
- Fascias & Soffits
- Rain Water Goods
- Drainage And Service Connections
- Chimneys
- Balconies

OKO Haus

Level 3 – Turn Key Finish

As Per Level 2 with the following additional elements supplied and installed

- Full Electrical Installation
- Plumbing And Sanitary Installation
- Heating Installation
- Skirting
- Sanitary Ware
- Dry Floor Installation
- Staircase
- Skimming And Plastering
- Interior Painting & Decoration
- Ceramic Tiling
- Internal Window Sills
- Kitchen Installation
- Internal Doors And Ironmongery
- External Paving And Pathways

Technical specification – January 2007. NB. Changes may be made to the specification according to architectural plans and supplier changes. This should be clarified with the project manager

Viking Homes

BUILDINGS AND THE BREATH OF LIFE

**Very good
description
about building physic**

How to prevent water damaging buildings and health

The term 'breathability' is becoming ever more widespread and, although a useful concept, it's often misunderstood. It sounds as if it is about air but in the context of building performance it's about water. Breathability describes how a structure reacts to water as a liquid or vapour, primarily through:

- Vapour permeability (how materials allow water vapour to pass through)
- Hygroscopicity (how materials absorb/release water vapour)
- Capillarity (the transmission of liquid water)

Breathability should be central to the design and renovation processes. It affects the health of the building and the occupants, especially as we try to improve the thermal performance of our homes. It also affects the environment, as the materials that provide the best breathability are often the natural, more traditional ones, although only recently have we begun to understand why.

An estimated 75% of building failures are due to water - either rainwater penetration, interstitial condensation or inner surface condensation. This starts with the outside of the building where vapour closed finishes (such as hard cement renders or high resin paints) can cause considerable damage by trapping moisture. It's possible, often desirable, to have a capillary closed external finish but it should usually be vapour open. Research into modern timber frame constructions shows that drying is more effective through vapour open materials than through "vented" cavities, which often have no air movement.

Moisture effects performance. If the moisture in mineral wool increases by 1 or 2% its thermal resistance halves. Water molecules effectively form a cold 'bridge' and fill up the insulating air voids. Insulation gets wet in a number of ways and with non-breathing materials it takes a significant period to dry out, resulting in longterm loss of thermal resistance and allowing moulds the opportunity to develop. Completely water impermeable materials are not effective either, as the moisture content of walls can increase or remain damp, lowering thermal resistance.

It is Irish practice to use non-breathable materials and vapour closed designs in standard timber frame constructions. While this works in theory, if the timber or insulation gets wet while building or if vapour barriers are 'punctured' by alterations, water will be trapped, the timber can start to decay and moulds can develop. In breathable structures the moisture is drawn harmlessly outwards. As German regulations make clear, no timber treatment is necessary in timber frames with breathable construction. Only vapour closed constructions require preservative chemicals. Similarly in roofs, rot can result with vapour closed constructions or vapour resistant insulation. If the roof gets wet in construction or the vapour barrier is breached, as it usually is, the timber will collect water as it is the only vapour permeable and hygroscopic material present (it may retain it for a significant time).

The standard methods of internal wall insulation (battening out plus a vapour barrier behind plasterboard) can also lead to problems. Joists and floor junctions are in the most danger as moisture can collect here, so rising damp and even structural failure can occur. If a vapour permeable hygroscopic woodfibre board is used, these problems are usually avoided.

Breathable paints and plasters can be used internally to halt surface condensation as they absorb and disperse water droplets. This is especially helpful in renovated buildings, where installing ventilation is difficult.

Consequently, a knowledge and use of breathable materials will ensure that buildings have a good thermal performance, and are safe from moulds and rot.

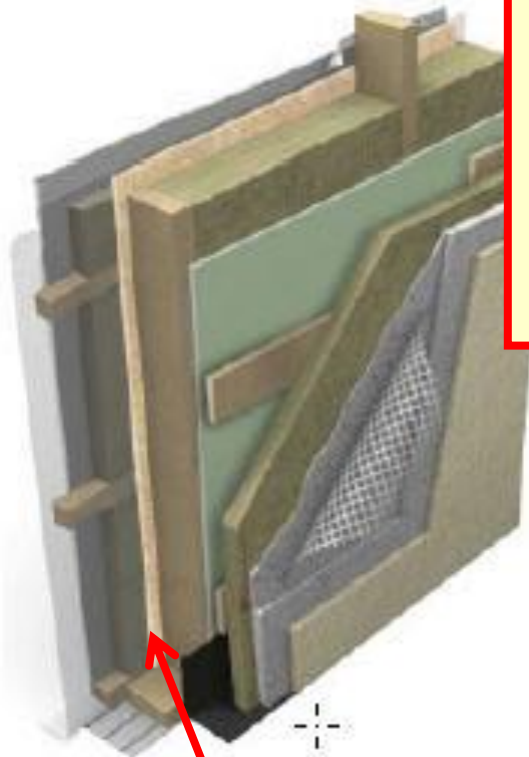
In improving energy efficiency, we strive to make buildings more airtight. This affects indoor air quality, which affects human health. Large amounts of trapped moisture have been directly linked to allergic reactions (particularly asthma) and other autoimmune diseases, as both moulds and dust mites thrive in high humidity conditions. We should pay particular attention to this in the UK and Ireland, which has the largest incidence of asthma worldwide. Low humidities also have an adverse effect, as certain bacteria can flourish and mucous membranes become dried and vulnerable to dust and toxins. A healthy environment has a relative humidity of between 40 and 60%. This is also the most comfortable.

Current solutions use mechanical ventilation to maintain humidity. Many people feel that this is not enough and that we need the design and materials of the building to control moisture as well. This would stop us relying on 'external' systems, which need maintenance, repair and have a limited life. Achieving a healthy, robust and breathable building is not difficult. It involves simple safe designs and fully breathable materials which are already in common use across much of the continent and in historic buildings world-wide. Natural materials and systems have a proven track record and are also best from an embodied energy and resource view point.

For the health of both our buildings and ourselves, a proper understanding of breathability is essential. Only in this way can we improve energy efficiency, reduce building failure, and attack the root causes of many health problems. And, as an added bonus, it's good for the environment too!



Exterior Wall:

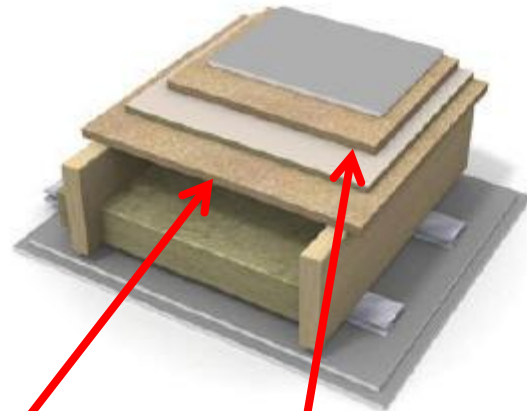


B U T, what do we see here?

Viking Homes

FOOLING people?

See page before! **Best** description **BUT** now **HERE** we **SEE** the opposite with **OSB!**



Breathable ?

This is **fooling** people with intention!

- If there is a OSB board inside, this wall *in theory* maybe can be called “diffusion open” but **NEVER breathable!** – See page before!
- With this wall system the clients need a GOOD ventilation system and there will be always the danger that materials of glue will be damage human health.

Executive Summary

about the Differences (basic construction only):

Griffner, Scandinavian Homes, OKO Haus, Century Homes & Viking	Project Oecotop Homes of Health
ALL systems are NOT breathable.	Walls & Roof = 100% breathable
ALL systems need a heat-recovery/ventilation system.	NO Need!
GRIFFNER & VIKING are calling there walls BREATHABLE . This is NOT TRUTH with intention or they are very NON-qualified!	Everything we say is truth! We are/have best qualified specialist & teams only!
ALL systems descriptions are very poor and without any details about components and details (<i>cheap no-name components?</i>).	Best description & image docus! EACH detail is shown! Qualified building consulting!
ALL systems solidity are based on glue -bounded boards (OSB) and staples .	Super solid PHOENIX (Copyright) Timber Construction with solid timber dove-tail connections
ALL companies gives NO warranties beside Homebond (<i>10 years for construction only</i>).	5 years for EVERYTHING 30 years for CONSTRUCTION 50 years for pipes and more!
ALL companies use toxic and a lot of un-known chemicals.	INWRITTEN Health-Care-Warranty
NO Health-Care-Warranty	

In case of more detailed comparison, (for example by our Checklist), of **Griffner, Scandinavian Homes, OKO Haus, Century Homes & Viking** quality, standards, information and service, etc. are **far behind** **Project Oecotop Homes of Health!**
– Because, **ALL** these companies practice the **SAME** spirit (= *maximum profit!*)

In case of cost and result, **Griffner, OKO Haus, but especial Scandinavian Homes, Century Homes & Viking** are **TOO** expensive. **Project Oecotop Homes of Health** offer best result for very **fair** total cost. *“To build a house needs confidence in honesty & result!”*

Detailed information about **Project Oecotop Homes of Health** are presented in our brochure **“FEATURES”**, which is available at our webpage www.project-oecotop.com/home.htm at **“Download”**. **Image** documentation are at **“References”**.