Llangau
Access Road to Cyrchynan Ucha
Llanarmon D C
LL20 7LL

Planning & Listed Building Consent – Cottage Works

Schedule of Proposed Materials and Finishes
with Product Information

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Llangau Cottage Repair and Alteration Works
Schedule of Proposed Materials and Finishes

Internal

ELEMENT	MATERIAL	DETAIL INCLUDED
Existing walls	Diathonite Thermactive 0.37 insulating plaster – 35mm – onto existing stone walls (existing degraded plaster having been removed)	√ in 1:20 section LL08 Product info attached
New bathroom walls	Timber stud partition lined with 15mm woodwool board finished with paint Ceramic tiles around shower area	√ on plan LL03 √ 1:10 detail LL09 Woodwool board product details attached
New first floor services cupboard	Painted softwood	√ On plan LL04
Ceilings	Wood fibre bats between existing rafters with wood fibre boards fixed under rafters (existing lath and plaster having been removed)	√ in 1:20 section LL08 Wood fibre product info attached
Kitchen floor	New Terracotta tiles (broken existing floor tiles having been removed) on Diathonite Thermostep 0.47 insulated screed overlaid with electric heating mats	√ in 1:20 section LL08
Bathroom floor	Clean existing slate floor	x
Existing windows	Removable Secondary glazing to existing windows on east (front) elevations	Detachable proprietary system example attached
Existing front door	Retain existing Front Door and reverse direction of opening. Add new internal glazed leaf to existing door frame	√ on plan LL03 √ on elevationLL06
Hot & Cold Water system and pipework	Existing cold water tank and hot water cylinder relocated. Surface mounted copper pipes for hot and cold water fixed in unobtrustive locations	√ on plans LLo3-04 √ in 1:20 cross section LL08
Internal Decorations	Existing internal joinery to be cleaned and painted	x

External

ELEMENT	MATERIAL	DETAIL INCLUDED
New windows	Double glazed painted Rationel Aura (or similar) timber windows with lime benched cills in stone wall to match existing and metal cill to match existing on first floor in south wall with corrugated cladding	√ on plans 03 -04 √ on elevations LL 06 √ 1:10 Details LL09 Rationel window product detail attached
Roof repairs	Existing slates	x
New servicing	New anti downdraught, bird protected chimney liner cowls in the existing chimney pots	x
Barn ruin walls	Stabilised using lime mortar preserving as much of the remaining walls as feasible white avoiding new building	x

Construction panels

TECHNICAL SPECIFICATIONS

CEWOOD construction panels are a natural, nature and human health friendly, easy handiness, excellent sound absorption, good thremal insulation and much better thermal inertia material produced in Latvia. Construction panels are made from high quality wood wool and grey cement and thanks to the natural materials, the panels perfectly provide the pleasant microclimate characteristic of wooden constructions in the premises.

Application

CEWOOD construction panels are materials that do not change their properties during lifetime, they have the widest application in different building constructions:

- In demarcated constructions of buildings – walls, partitions, coverings, roof construction, etc.
- In building insulation – especially in wooden frame buildings, renovation of old buildings, increasing of building thermal inertia.
- Sound insulation solutions and permanent shuttering in monolith building.

CEWOOD construction panels





CEWOOD construction panels - 3,0 mm wood wool, grey cement

Thickness	mm	25	50	75	100
Size	mm	2400x600			
Dimensional tolerance (EN 13168)		L3; W1; T2; S2; P2			
Weight	kg/m^2	11,5	19,5	28,0	36,0
Density	kg/m^3	460	390	370	360

Thermal resistance (Ro)	m^2·K/W	0,35	0,75	1,10	1,50
Thermal conductivity (λD)	W/m·K	0,066			
Specific heat (c)	J/(kg·K)	1300			
Bend (EN 12089)	kPa	≥ 1300	≥ 700	≥ 500	≥ 300
Compression (EN 826)	kPa	≥ 300	≥ 200	≥ 150	≥ 100
Chloride content (EN 13168)	%	≤ 0,15			
Reaction to fire (EN 13501-1:2007)		B-s1, d0			

CEWOOD panels are placed on 2400x600 mm wooden pallets, with cardboard on top and corners, plastic film around pallets.

PAVAFLEX *Flexible insulation board*



- Adaptable to complex shapes
- Easy processing
- Outstanding insulating against thermal losses in winter and heat transmittance in the summer

Packaging

Thickness [mm]	Boards/ pallet	Boards/ package	Dimensions [mm]	m^2/pallet [m^2]	Thermal resistance (R_d) [m^2.K/W]
40	120	10	1220 x 575	84,2	1,05
50	90	9	1220 x 575	63,1	1,30
60	80	8	1220 x 575	56,1	1,55
80	60	6	1220 x 575	42,1	2,10
100	48	4	1220 x 575	33,7	2,60
120	40	4	1220 x 575	28,1	3,15
140	32	4	1220 x 575	22,4	3,65
160	30	3	1220 x 575	21,0	4,20
180	24	3	1220 x 575	16,8	4,70
200	24	2	1220 x 575	16,8	5,25
220	20	2	1220 x 575	14,0	5,75
240	20	2	1220 x 575	14,0	6,30

Packaging (only available in UK)

Thickness [mm]	Boards/ pallet	Boards/ package	Dimensions [mm]	m^2/pallet [m^2]	Thermal resistance (R_d) [m^2.K/W]
40	180	10	1220 x 375	82,4	1,05
50	135	9	1220 x 375	61,8	1,30
60	120	8	1220 x 375	54,9	1,55
80	90	6	1220 x 375	41,2	2,10
100	72	4	1220 x 375	33,0	2,60
140	48	4	1220 x 375	22,0	3,65

Characteristics

Density [kg/m^3]	50
Thermal conductivity (λ_d) (EN 13171) [W/(m.K)]	0,038
Specific heat capacity (c) [J/(kg.K)]	2100
Water vapour diffusion resistance coefficient (μ) [-]	2
Reaction to fire (EN 13501–1)	E
Waste code according to The European Waste Catalogue (EWC)	030105; 170201; 170604
Edge profile	straight

CE

Product description

PAVAFLEX is a flexible, natural and ecological thermal insulation board based on wood fiber.
PAVAFLEX is placed between rafters, girders and beams of floors, walls and roofs.
The high thermal performance and heat accumulating capacity together with the convenient size, makes the board the ideal solution.
The boards must be protected against weather after installation.
Always consult the local regulations and installation guidelines of the manufacturer.

Health, Environment and Safety

This product does not contain any substance which is likely to be detrimental to your health or to the environment and complies with generally admitted Health and Safety Requirements.

Storage

Store on a flat surface, keep dry and protected from sunlight.

TDS-NE-INSEU0029.d1/EN

SOPREMA reserves the right to amend the composition of its material and consequently their prices, without prior notice. For this reason, all orders will be accepted only in accordance with the conditions and technical specifications in force at the date of order.

Contact: **www.soprema.com**

Tŷ-Mawr sublime®

Tŷ-Mawr

Caring for the future, respecting the past...

Manufacturer and supplier of traditional and environmentally-friendly building materials.

Our breathable, insulated floor system.

LABC registered detail streamlines Building Regulations applications saving time and money. From the birth of our innovative Limecrete flooring system, launched in 1998 as a breathable, lightweight alternative to cement-based concrete, we at Tŷ-Mawr have been selecting and testing various materials and combinations of materials to both simplify the installation process and improve the 'green' credentials of our floors.

Following developments in the manufacturing process of the GLAPOR® foamed glass gravel and extensive testing of our recycled lime slab product we are proud to announce the launch of our first breathable, insulated floor system which can be used with or without underfloor heating - sub**lime**®.

The sub**lime**® floor breathability makes it ideal for use within existing solid wall properties and its excellent environmental credentials along with its simplicity and ease of installation makes sub**lime**® and equally appropriate choice for new builds and extensions!

GLAPOR® foamed glass gravel is the most structurally and thermally superior product we have ever supplied for floor applications. By using GLAPOR® foamed glass gravel within the insulation layer of your floor savings can also be made on installation costs due to its ability to compact to a weight bearing surface. GLAPOR® foamed glass gravel is manufactured using 100% recycled glass.



Please call to discuss if a radon barrier is required.

The external land drain is your first defence against moisture flowing towards the building. An internal land drain is optional and only required if there has been evidence of moisture in the past that might require management.

Sales & Distribution - Tŷ-Mawr Lime Ltd, Unit 12, Brecon Enterprise Park, Brecon, Powys. LD3 8BT. - **Tel** : 01874 611 350
Manufacturing & Courses - Tŷ-Mawr Lime Ltd, Ty-Mawr, Llangasty, Brecon, Powys, LD3 7PJ. - **Email**: tymawr@lime.org.uk

The sublime system can be designed for use with or without underfloor heating.

Installing the underfloor heating pipes within a higher density thermally conductive layer eliminates the need for two layers (slab and a screed). As a result, the sublime floor offers many benefits and savings:

Advantages of the sublime® floor system

- **Reduced overall excavation depths:** When compared to a conventional Limecrete systems using a lightweight insulating slab layer plus higher density screed layer to contain the underfloor.
- **Reduced wet trades and processes:** As only one wet mixed layer is required over the **GLAPOR®** glass gravel, it saves on labour and the cost of the materials when compared to previous systems.
- **Reduced curing times:** By eliminating the need for two layers curing times are reduced by approximately 3 weeks.
- **Improved energy efficiency and response times of underfloor heating systems:** As the insulation material is now directly beneath the heat source the heat drift associated with other systems is significantly reduced.
- **Reduced material quantities and therefore reduced delivery costs.**
- **Winner of the Wales Regional LABC Building Excellence Award 2013 'Best Technical Innovation'.**

N.B Sub**lime®** screed requires 20 mins mix time after the addition of all of the water. Please plan accordingly prior to materials being delivered on site.

Customer confidence in our systems is vital which is why at Tŷ-Mawr we invest heavily in product testing and certification.

Our team are able to design your floor to meet the needs of your specific building, ensuring that you get the best performance for your building and as well as meeting building regulations if required. For more information, visit www.lime.org.uk and complete our simple online form to get a free calculation of components for your floor.



Compressive and Flexural Strength

Research carried out by the university of Glamorgan.

Age	Compressive Strength (N/mm2)	Flexural Strength (N/mm2)	Density
28	4.2	-	2140
56	6.1	3.8	2020
90	7.2	4.7	1990

Our research has suggested that the considerations applicable to cementitious concretes with regard to expansion joints are not applicable to lime based concretes. Hydraulic Lime generates little heat during the initial chemical hydraulic set and limecrete has a good flexural strength to compressive strength ratio. These properties mean that huge savings can be made in terms of the labour and ratio. These properties mean that huge savings can be made in terms of the labour and equipment usually required to fabricate dowelled and induced contraction joints in cement concrete ground bearing slab. For further information contact limecrete@lime.org.uk.

Version 10/22

DIATHONITE THERMACTIVE.037

Cork-based thermal plaster, applicable by spraying

Diathonite Thermactive.037 **is an eco-friendly *Exterior Insulation Finishing System - EIFS*, whose main ingredients are granulated recycled cork, expanded amorphous silica, perlite and pumice combined in a balanced particle size distribution curve (0 - 3 mm / 0 - 0.12 in). Natural hydraulic lime NHL 5 is also present in the compound; therefore, the product is antibacterial and prevents the formation of moulds and fungi. *Diathonite Thermactive.037* is a highly porous, light-weight, breathable, thermal insulation plaster; it has an excellent fire reaction performance (non-combustible); it is not damaged by dampness and it is recyclable as an inert at the end of its life cycle. This thermo-plaster offers a versatile, monolithic and highly resistant solution to protect buildings from cold and hot weather. It contributes to the thermo-hygrometric comfort of indoor spaces and it maintains its characteristics over its lifespan. The product is ready to use by plastering machine or by trowel.**

BENEFITS

- Insulates from cold and heat, ensuring good thermal lag, up to 12 hours depending on the characteristics of the wall.
- Lightweight.
- High breathability and high porosity.
- Avoids mould and condensation.
- Absorbs and releases the excess humidity.
- Ideal for historic restoration.
- Protects masonry over time.
- Eco-friendly.
- Fast construction system (thermal brick + thermal plaster), and quick application (plastering machine).
- Made of natural hydraulic lime NHL 5 (EN 459-1).
- It can be applied on top of old plasters.
- Reaction to fire: class A1.
- External insulation with no need for joints.
- Product with double CE (EN 998-1, EN 998-2) and UKCA certification (BS EN 998-1, BS EN 998-2).

YIELD

2.60 kg/m^2 (±20%) per cm of thickness.
1.35 lb/ft^2 (±20%) per inch of thickness.

COLOUR

Light grey.

PACKAGING

15 kg (33.07 lb) paper bag.
Pallet: n° 60 paper bags (900 kg – 1984 lb).

APPLICATION FIELDS

Lightweight eco-friendly thermo-plaster for indoor and outdoor applications, suitable for thermal insulation and dehumidification.

Whereas all indications and recommendations supplied herein are stated to the best of our experience and knowledge, they should be considered as indicative only and should be confirmed by exhaustive practical applications. Diasen doesn't know the peculiarity of the processing, or the characteristics of the support. Therefore, the applicator should carry out preliminary tests, to verify the suitability to the foreseen application, and in any case, he will take the responsibility of the intended use. In case of uncertainties or doubts, please contact the company's technical department, provided that this is only a simple assistance for the applicator: he should have the appropriate capabilities and experience to determine the more suitable solution. Always respect the latest update of the technical sheet available on www.diasen.com website.

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It solves the problems related to thermal bridges and moulds induced by humidity, ensuring a healthy environment and a high living comfort. In addition, *Diathonite Thermactive.037* is a natural compound and it is suitable where environmentally friendly materials are required.

STORAGE

Store the product in its original packaging, tightly closed, away from sun, water and frost and kept at temperature between +5°C / +41°F and + 35°C / +95°F. Storage time: 12 months.

PREPARATION OF THE SUPPORT

The support must be completely hardened and solid. The surface must be thoroughly cleaned, dry, well-bonded, without crumbly and inconsistent parts, perfectly levelled, and free of dust and dirt. Before applying the product, it is recommended to cover each element that should not be coated.

Bricks/Blocks

In case of bricks, the primer is not needed, and *Diathonite Thermactive.037* can be applied directly to the substrate.

Concrete

In case of distressed and crumbly concrete, restoration with suitable cement mortar should be planned. For the treatment of reinforcing steel bars apply suitable anti-corrosion products.

Smooth: apply the *Aquabond* primer (see technical data sheet).

Rough: primer is not needed, apply the plaster directly to the substrate.

Cellular Concrete

Diathonite Thermactive.037 can be applied over cellular concrete panels without primer.

Masonry

If necessary, clean the surface with water jet cleaner or brush the surface. Check the masonry, restore damaged or not fixed bricks or stones. If there is salt efflorescence, apply *Diathonite Regularization* (see technical data sheet). To uniform the substrate, use a lime-based mortar to preserve breathability.

Old plaster

Ensure that the plaster is consistent and well attached to the support, otherwise provide for partial or total removal. In presence of salts, foresee the removal of the deteriorated plaster and the application of *Diathonite Regularization* (see technical data sheet). With painted plasters, given the wide variety of paints on the market, it is recommended to make an adhesion test to verify the suitability for the application or the need to use the primer *Aquabond*. On **smooth** plasters, perform a staking of the support and then apply the *Aquabond* primer. On **rough** plasters proceed with the direct application of *Diathonite Thermactive.037.* Before the application, it is always necessary to verify that the existing plaster is compatible with the characteristics and composition of *Diathonite Thermactive.037*; in case of gypsum-based plasters, it is recommended the complete removal before the application of cork based thermal plaster, in order to avoid compromising the stability of the system due to material incompatibility.

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Cork-based thermal plaster, applicable by spraying

Panels

Diathonite Thermactive.037 can be applied on untreated cork panels without using a primer. Due to the wide variety of panels available on the market, it is recommended to carry out an adhesion test to verify the suitability for the direct application of *Diathonite Thermactive.037* or the need to first use the primer *Aquabond*. To ensure best results, make sure that the panels are installed tightly.

Wood

On non-treated wooden supports, proceed with the direct application of *Diathonite Thermactive.037* plaster. With smooth or treated wood, first proceed with priming the surface with *Aquabond.*

MIXING

Depending on the degree of water absorption of the support, and also taking into account the environmental conditions, it is recommended to dose the right amount of water needed for achieving the correct adhesion.

Therefore, the amount of water specified is indicative.

- If mixed with a **concrete mixer** or a **mixing drill**, add 12 - 15 L of clean water for each bag of *Diathonite Thermactive.037* (15 kg). **Do not mix for more than 3-4 minutes**. Load the contents of the bags inside the hopper and adjust the flow meter of the machine: firstly, set it to **400-600 L/h** to moisten the tube, and then adjust the flow to **200-250 L/h** to proceed with the application.
- The blend must present a foamy consistency.
- Do not add external compounds to the mixture.

APPLICATION

Application by hand

1. It is **essential** to wet the support, especially in summer and in case of walls directly exposed to the sun. In case the surfaces were primed beforehand, it is not necessary to wet the support.
2. Create reference points or bands to obtain the required thicknesses. Points or bands can be made with *Diathonite Thermactive.037* plaster or with aluminium or wood profiles. In the latter case, bands must be removed immediately after the application of the last layer.
3. Corner sections can be placed together with reference bands, in any case always before the application of the last coat.
4. To secure corners and edges provide for the use of aluminium corner guards. These aluminium guards must be fixed with *Diathonite Thermactive.037* to avoid thermal bridges.
5. It is essential to wet the plaster before applying each layer.
6. With a masonry trowel apply a layer of *Diathonite Thermactive.037*, taking care to create a thickness that can reach up to 4 cm (1.6 inches).
7. If the desired thickness can't be reached with the first coat, when the underlying layer is consistent to the touch and visually lighter (after about 12/24 hours) proceed with the application of one or more layers of *Diathonite Thermactive.037* until the specified thickness is reached. In any case make sure to maintain for each

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Cork-based thermal plaster, applicable by spraying

applied coat a thickness ≤ 4 cm (1.6 inches).

8. At 60 mm thickness or more, a mesh such as *Polites 140* (see technical data sheet) must be included in the middle of the total thickness. *Polites 140* must be used independently of the thickness for applications on panels, wood, plasterboard or on supports subject to movement.
9. In those areas nearby beams and pillars, the mesh shall lean on both sides of the concrete element by at least 15 cm (5.9 inches).
10. While smoothing the plaster, do not compress *Diathonite Thermactive.037* to preserve the porosity of the product. Use an H-shape or a knife to obtain a smooth surface, with fluid horizontal and vertical movements.

Application by plastering machine

Diathonite Thermactive.037 can be applied with plastering machines for lightened premixed products. The setting can change depending on the machine chosen.

It is possible to use three-phase plastering machines (similar to PFT G4) equipped with a rotor stator D6-3, a semi-closed mixing shaft, and a conical spraying gun with a diameter of 35/25 mm, a nozzle of 14 or 16 mm.

1. It is **essential** to wet the support, especially in summer and in case of walls directly exposed to the sun. In case the surfaces were primed beforehand, it is not necessary to wet the support.
2. Create reference points or bands to obtain the required thicknesses. Points or bands can be made with *Diathonite Thermactive.037* plaster or with aluminium or wood profiles. In the latter case, bands must be removed immediately after the application of the last layer.
3. Corner sections can be placed together with the reference guidelines, in any case always before the application of the last coat.
4. To secure corners and edges provide for the use of aluminium corner guards. These aluminium guards must be fixed with *Diathonite Thermactive.037* to avoid thermal bridges.
5. Wet the plaster before applying each layer. Load the contents of the bags inside the hopper and adjust the flow meter of the machine. Regulate the water pressure through the flow meter, starting from a high dosage and decreasing the flow of water until the consistency is suitable for the perfect adhesion of the material.
6. Spray the product downside up, thus applying a first coat of *Diathonite Thermactive.037*, and always making sure to create a thickness that can reach up to 4 cm (1.6 inches).
7. If the desired thickness can't be reached with the first coat, when the underlying layer is consistent to the touch and visually lighter (after about 12/24 hours) proceed with the application of one or more layers of *Diathonite Thermactive.037* until the specified thickness is reached. In any case make sure to maintain for each applied coat a thickness ≤ 4 cm (1.6 inches).
8. Spray *Diathonite Thermactive.037* with as few interruptions as possible. If the interruptions require long waiting times, soak the nozzle in clean water to prevent the formation of a hard plug in the gun.
9. At 60 mm thickness or more, a mesh such as *Polites 140* (see technical data sheet) must be included in the middle

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Cork-based thermal plaster, applicable by spraying

of the total thickness. *Polites 140* must be used independently of the thickness for applications on panels, wood, plasterboard or on supports subject to movement.

10. Alongside beams and pillars, the mesh shall overlap on both sides of the concrete element by at least 15 cm (5.9 inches).
11. While smoothing the plaster, do not compress *Diathonite Thermactive.037* to preserve the porosity of the product. Use an H-section featheredge to obtain a smooth surface, with fluid horizontal and vertical movements.

Application for ventilated façade systems

1. After preparing the substrate, install and fasten the elements that make up the substructure of the ventilated façade to the wall according to the project specifications.
2. Successively, depending on the type of substrate, assess the possible need to apply *Aquabond* primer.
3. Apply *Diathonite Thermactive.037* according to the above-mentioned application specifications until the project thickness is reached;
4. After the necessary drying time, apply the water-repellent *BKK Eco*;
5. It is recommended to pay particular attention to the points where *Diathonite Thermactive.037* is more subject to hygrometric stresses, such as at the base of the wall near the ground or in the joints between the flat roof slab and the external walls. At these points, the use of suitable flashings and/or localised waterproofing is highly recommended;
6. Conclude with the installation of the superstructure and all other elements necessary for the completion of the ventilated façade according to the project specifications.

Application to ceiling

For ceiling applications, *Diathonite Thermactive.037* must be put in place with plastering machines for pre mixed. The setting can be changed according to the selected plastering machine. Hand application is not recommended. It is recommended to start with a semi-fluid plaster mixture and, if necessary, adjust the flow meter to the most suitable consistency for application.

1. If the surface has not be primed with *Aquabond*, proceed by thoroughly wetting the substrate.
2. Load the contents of the bags inside the hopper and adjust the machine's flow meter.
3. Create the reference bands for obtaining the desired thickness.
4. Apply *Diathonite Thermactive.037* in layers with a maximum thickness of 2 cm (0.78 in).
5. On still fresh product, drown the *Polites 140* mesh (see technical data sheet) at half the thickness, taking care to maintain an overlap of 3 cm on the joints. Avoid the formation of curls or bubbles. The use of the *Polites 140* is necessary on panels, plasterboard slabs, wooden slabs and in all cases where the support is subject to movement or is deteriorated. On mixed or concrete slabs, the use of *Polites 140* is not necessary below a thickness of 3,0 cm (1.18 in).
6. Apply a second layer of *Diathonite Thermactive.037* when the underlying coat is hardened, making sure to perfectly drown the net into the plaster and avoid leaving holes on the surface. On particularly unstable

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Cork-based thermal plaster, applicable by spraying

supports it is advisable to fix the net with dowels or nails.

7. *Polites 140* shall be cut off at the reference bands, taking care to maintain an overlap of 3 cm (1.18 in).
8. The reference bands should be removed when the surface of the plaster is compact and not wet to the touch. The voids left by the bands should be filled with *Diathonite Thermactive.037.*
9. While smoothing the plaster, do not compress *Diathonite Thermactive.037* to preserve the porosity of the product. Use an H-shape or a knife to obtain a smooth surface, with fluid horizontal and vertical movements

APPLICATION OF COVERINGS

Diathonite Thermactive.037, like all other plasters in the Diathonite range, must be reinforced with the *Polites 140* glass fibre mesh whenever the installation of coverings such as tiles, stone, porcelain stoneware or similar materials is foreseen, following the same application procedures described in the previous sections.
Diathonite Thermactive.037 must then be finished with *Argatherm* skim coat, in accordance with the corresponding technical data sheet.
Furthermore, to enhance the durability of the system, *Argatherm* must be applied in combination with the *Polites 80* reinforcing mesh (see technical data sheet), using the sandwich system (*Argatherm* + *Polites 80* + *Argatherm*). In wet areas, *WATstop* must be applied over *Argatherm* [1)] before the installation of tiles, following the instructions provided in the relevant technical data sheet. A maximum interval of 24 hours between consecutive coats must be respected, and the final layer must be applied within 48 hours.
The maximum permissible tile weight is 45 kg/m².

[1)] Argatherm helps to control absorption and ensures more efficient coverage of WATstop.

DRYING TIME

At a temperature of 23 ° C and relative humidity of 50% the product dries in 10-15 days.

- Drying times are affected by relative humidity and temperature of the environment, and can also vary significantly.
- If *Diathonite Thermactive.037* is applied in high thicknesses, the drying time is considerably longer.
- Protect *Diathonite Thermactive.037* from frost, direct insolation and wind while it is still curing.
- In case of high temperatures, hot sun or strong ventilation it is necessary to wet the plaster even 2/3 times a day for the first 2/3 days after application.
- At temperatures above +28 °C (+83 °F) wet the plaster every 2 hours to avoid cracks.
- If applied indoors, aerate as much as possible the environment during application and during drying of the product.
- As soon as *Diathonite Thermactive.037* has dried, it is recommended to cover the plaster using the chosen finishing system.

For smoothing the plaster, both indoors and outdoors, it is possible to use *Argatherm* (to obtain medium rough surfaces with particle size 0-0,6 mm or 0–0,02 inches) and *Argatherm Ultrafine* for perfectly smooth surfaces.

For finishing these skim coats, use products such as *Decork Façade, Acrilid Protect*

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DIATHONITE THERMACTIVE.037

Cork-based thermal plaster, applicable by spraying

Coating, and be sure to use only breathable and water-repellent finishes for **exterior** applications.

For **indoor** applications, use instead finishes such as *Decork Design, C.W.C. Stop Condense, Limepaint*, or in any case breathable finishes. It is always recommended to prefer Diasen finishes.

SUGGESTIONS

- Do not apply at environmental temperature or at support temperature lower than +5°C (34°F) and higher than +35°C (95°F).
- During summer season, apply the product in the cooler hours of the day, away from sunlight.
- Do not apply with imminent threat of rain or frost, in conditions of strong fog or with relative humidity higher than 70%.
- Where it is considered necessary, and only after contacting the technical office of the Diasen, it is possible to proceed with the application, by hand or by machine, of a first layer of *Diathonite Thermactive.037* as a rough coat.
- *Diathonite Thermactive.037* can be used with plastering machines for ceiling applications. Hand application is not recommended.
- If applied indoors, it is **essential** that the external surface does not absorb water. Otherwise, treat the surface with *BKK Eco*.
- In case of exposed walls, apply a water-repellent and breathable transparent siloxane product, such as *BKK Eco*.
- It is strictly recommended to waterproof and protect the areas which are mostly subject to hygrometric stress, such as at the bottom/base of the façades where it meets the ground, the joints between the flat roof slab and the façades and any part around windows and doors which may be subject to water infiltrations.
- Whenever there are doubts about the consistency of the substrate, it is recommended to make an adhesion test area.
- The test area should allow to verify any chemical, mechanical and physical incompatibilities between *Diathonite Thermactive.037* and the support.

CLEANING

The equipment used can be washed with water before hardening of the product.

SAFETY

While handling, always use personal protective equipment (PPE) and respect the instructions described in product safety data sheet.

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DIATHONITE THERMACTIVE.037

Cork-based thermal plaster, applicable by spraying

* These data, even if carried out according to regulated tests, are indicative and they may change when specific site conditions vary.

Technical Data*

Features		Unit
Yield	2.60 (± 20%) for each cm of thickness	kg/m²
	1.35 (± 20%) per inch of thickness	lb/ft²
Aspect	powder	-
Colour	light grey	-
Density	250 ± 15 %	kg/m³
	15.67 ± 15 %	lb/ft³
Grain size	0 – 3	mm
	0 - 0.12	in
Water to add to the mixture	0.80 – 1.00 L/kg 12 - 15 L for each 15 kg bag	L/kg
	0.096 – 0.120 gal (US) per paper bag (33.07 lb)	gal (US) / lb
Application temperature	+5 / +30	°C
	+41 / +95	°F
Workability time (UNI EN 1015-9 – method B)	40	min
Minimum thickness for application	1.5 / 0.6	cm / inches
Maximum thickness for each layer	4 / 1.6	cm / inches
Maximum thickness for each layer *for ceiling applications*	2 / 0.8	cm / inches
Maximum thickness *for ceiling applications*	4 / 1.6	cm / inches
Drying time (T=23°C; U.R. 50%)	10-15	days
Storage	12	months
Packaging	18 kg (39.68 lb) paper bag	kg

Final performances		Unit	Regulation	Results
Reaction to fire	class A1	-	UNI EN 13501-1	-
Compressive strength	2.8	N/mm²	EN 998-1	category CS II
	406.1	lbf/in² (psi)	EN 998-2	M 2.5
Flexural strength	1.0	N/mm²	UNI EN 1015-11	-
	145.0	lbf/in² (psi)		

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Reg. Imp. Ancona 01553210426 | Cap. Soc. €400.000,00 i.v.

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Cork-based thermal plaster, applicable by spraying

Dried mortar porosity	71%	-	-	-
Vapour permeability coefficient (μ)	3	-	UNI EN ISO 12572	highly breathable
Thermal conductivity (λ)	0.035	W/mK	UNI EN 1745	category T1
Thermal resistance (R) *for 1 cm/ 0.4 in thickness*	0.270	m^2 K/W	UNI 10355	-
Specific heat capacity (c)	1000	J/kgK	UNI EN 1745 UNI EN 10456	-
	0.239	kcal/kg °C	-	-
Thermal diffusivity (*a*)	0.148 x 10^{-6}	m^2/s	UNI TS 11300-1	-
Water absorption by capillarity	1.00	kg/m^2 $min^{0,5}$	UNI EN 1015-18	category W1
Total pores volume	1372	mm^3/g	-	-

Indoor Air Quality (AIQ) Certification

Evaluation of the results

Regulation or protocol	Version of regulation or protocol	Conclusion
French VOC Regulation	Decree of March 2011 (DEVL1101903D) and Arrêté of April 2011 (DEVL1104875A) modified in February 2012 DEVL1133129A)	
French CMR components	Regulation of April and May 2009 (DEVP0908633A and DEVP0910046A)	Pass
Italian CAM Edilizia	Decree 11 October 2017 (GU n.259 del 6-11-2017)	Pass
AgBB/ABG	Anforderungen an bauliche Anlagen bezüglich des Gesundheitsschutzes, ABG May 2019, AgBB August 2018	Pass
Belgian Regulation	Royal decree of May 2014 (C-2014/24239)	Pass
Indoor Air Comfort®	Indoor Air Comfort 7.0 of May 2020	Pass
Blue Angel (DE-UZ 113)	DE-UZ 113 for "Low-Emission Floor Covering Adhesives and other Installation Materials" (Version January 2019)	Pass
BREEAM International	BREEAM International New Construction v2.0 (2016)	Exemplary Level
BREEAM® NOR	BREEAM-NOR New Construction v1.2 (2019)	Pass
LEED®	"Low-Emitting Material" according to the requirements of LEED v4.1	Pass
CDPH: Classroom scenario	CDPH/EHLB/Standard Method V1.2. (January 2017)	Pass

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rationel®

Windows and doors

Beautiful design for sustainable living



Rationel windows and doors

Our story

From a small workshop in Denmark in 1954, a lone carpenter worked dilgently to create his first order of 31 barn windows. He invested the profits in modern machinery and Rationel was born. More than 60 years later we're still here, shipping 600,000 state-of-the-art windows and doors around the world each year. All of them bespoke, all of them beautiful. We may have grown, but we've maintained our firm focus on quality craftsmanship and service.

Rationel today is part of DOVISTA, itself part of the VKR Group, whose mission is to establish model companies that create products useful to society and treat customers, suppliers, employees and shareholders better than most other companies.

At the heart of the organisation is a set of Charitable Foundations created to assist employees and their local communities, as well as fund a wide range of environmental, cultural and social programmes.



1954

The first factory



1954

The first windows leave the factory

Our contemporary style

Rationel AURA and AURAPLUS









Top

Topguided window

Bottom

Reversable windows

This development used fully reversible windows with coloured opaque glass on the first floor.

Top

Side opening with fixed lights

Bottom

Casement door

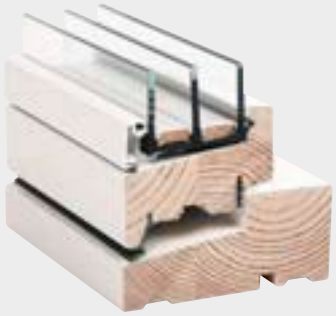
Key features

Rationel AURA and AURAPLUS

AURA and AURAPLUS come with security hardware as standard to meet Secured by Design requirements. The majority of timber originates from FSC®-certified forests. Read more at **rationel.co.uk**

Triple glazed

- 0.78 W/m2 K U-value
- 42 dB Rw sound reduction



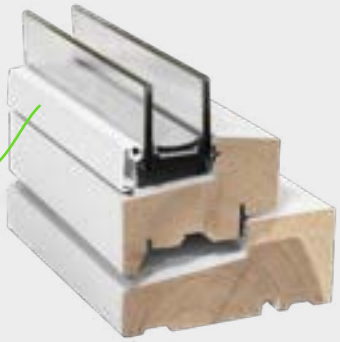
Triple glazed

- 0.79 W/m2 K U-value
- 42 dB Rw sound reduction



Double glazed

- 1.29 W/m2 K U-value
- 41 dB Rw sound reduction



Double glazed

- 1.29 W/m2 K U-value
- 40 dB Rw sound reduction



Top and bottom

Rationel AURA

- Timber frame
- Minimum 40-year life expectancy
- Available in more than 200 colours

Top and bottom

Rationel AURAPLUS

- Aluminium-clad timber frame
- Low-maintenance
- Minimum 40-year life expectancy
- Available in more than 200 colours
- Dual colour no extra charge

Types and openings

Windows

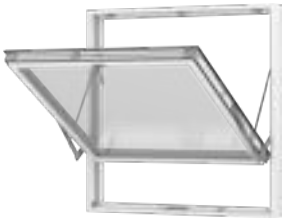
Hung, swung or guided: the drawings below show the range of styles available.
Contact Rationel for information on different style combinations.



Topguided window

Elegant style that is suitable for all rooms. Simple, seamless opening function allows for effective ventilation when open, both above and below the sash. Clean look with no visible external hinges.

Min. width	Min. height	Max. width	Max. height
358mm	383mm	1,798mm	1,598mm



Fully reversible window

Multi-functional style suitable for multi-storey buildings. Sash can be turned to clean the glass from the inside. Comes with a child-proof opening limiter.

Min. width	Min. height	Max. width	Max. height
553mm	548mm	1,598mm	1,598mm



Fixed light

Simple style that allows for optimal views. Ideal when you need maximum internal light and solar heat. Can be fitted with trickle-vents for ventilation.

Min. width	Min. height	Max. width	Max. height
253mm	253mm	2,998mm	2,998mm

All maximum width and height measurements are subject to glass weight and specification.



Side hung window

Simple, stylish design with a seamless opening function. On larger windows, the friction brake allows the window to be fixed in any open position. Suitable as escape windows.

Min. width	Min. height	Max. width	Max. height
353mm	353mm	948mm	1,798mm



Side guided window

Minimalist design that moves seamlessly, with no visible external hinges. When fully open the glass can be cleaned from the inside..

Min. width	Min. height	Max. width	Max. height
453mm	438mm	998mm	1,798mm

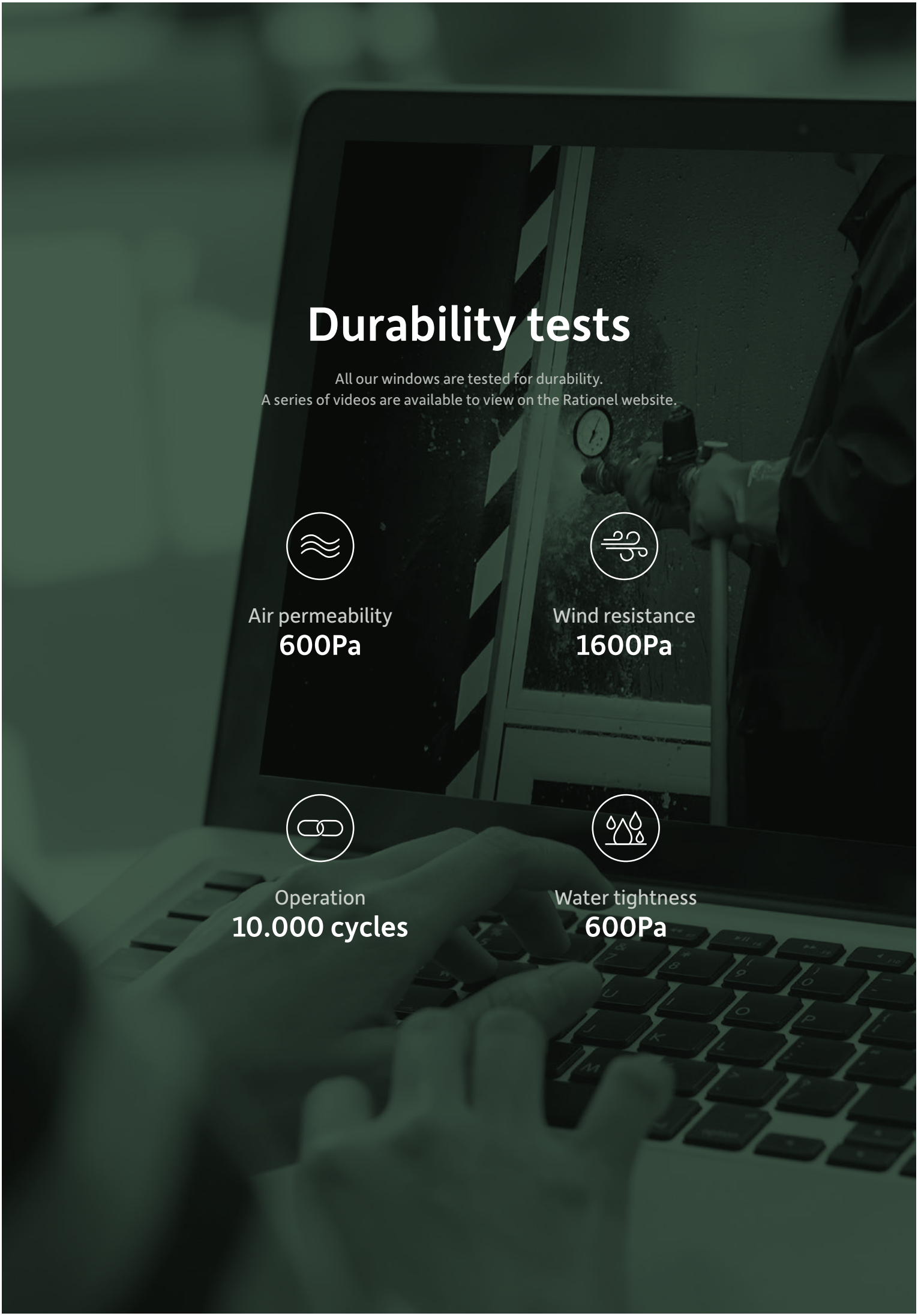


Tilt and turn

Multi-functional style suitable for multi-storey buildings. Tilt function opens the top of the sash inwards for ventilation. Can be cleaned from the inside, and are perfectly suited as “escape windows” or emergency exits. **Available in AURAPLUS triple glazed only.**

Min. width	Min. height	Max. width	Max. height
478mm	438mm	1,298mm	2,400mm

All maximum width and height measurements are subject to glass weight and specification.



Durability tests

All our windows are tested for durability.
A series of videos are available to view on the Rationel website.

Air permeability
600Pa

Wind resistance
1600Pa

Operation
10.000 cycles

Water tightness
600Pa

rationel®

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