

DIATHONITE[®] SCREED

ECO-FRIENDLY THERMAL
MORTAR FOR LOW
THICKNESS SCREEDS



DIASEN[®]
GREEN BUILDING FUTURE

A photograph of a cork oak tree in a field during autumn. The tree's thick, textured bark is prominent on the right side. The ground is covered in fallen, brown and orange leaves. In the background, there are more trees and a soft, hazy sky, suggesting a sunset or sunrise. The overall mood is serene and natural.

**CORK,
THE ESSENCE OF
PERFORMANCE**



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THE MEDITERRANEAN BLEND OF COMFORT

IN **DIATHONITE SCREED**,
CORK PLAYS AN ESSENTIAL
ROLE IN THE PERFORMANCE
OF **THERMAL AND ACOUSTIC
INSULATION** .

ITS UNIQUE PROPERTIES -
LIGHTNESS, MECHANICAL
STRENGTH AND POROSITY-
ARE WHAT UNDERPIN THE
EXCELLENCE OF DIATHONITE
SCREED





Cork has always been the trademark and distinguishing feature of the Diathonite line. Our Screed is no exception, offering outstanding protective and insulating properties.

Cork **limits heat loss**, by **improving** thermal comfort when used in a product that serves as a screed.

Thanks to its natural resilience it guarantees **acoustic insulation and fire protection**, even when applied with minimal thicknesses; this property, combined with its inherent lightness, creates a performant product unmatched by any other solution available on the market.



THE MAGIC OF MATERIALS

**THE DIATHONITE SCREED
FORMULATION COMBINES
ALL THAT NATURE HAS
TO OFFER IN ORDER TO
PRODUCE A MATERIAL WITH
THERMAL AND ACOUSTIC
INSULATION PROPERTIES
COUPLED WITH MINIMUM
THICKNESSES AND A LOW
ENVIRONMENTAL IMPACT.**

All the raw materials
used in the formula
are of natural origin,
**allowing the product to
meet the most stringent
requirements of
environmental and eco-
friendly certification.**



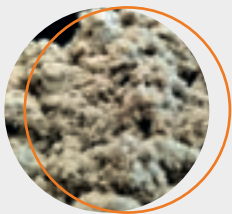
NHL5 HYDRAULIC LIME: THE AGE-OLD WISDOM OF MEDITERRANEAN BUILDING

Produced by heating (calcining) limestone that naturally contains clay and other impurities, it hardens even in presence of water. In this way, the product uses **a single binder which absorbs and releases moisture**, performing a regulating action that responds to modern ideas of living comfort. The “traditional” characteristics of lime make it **biocompatible and suitable for the restoration of historical buildings** which benefit from its mechanical strength, antibacterial properties, breathability and fire resistance.



DIATOMACEOUS EARTH: TREASURE FROM THE OCEANS

It is the result of the accumulation of the fossilized remains of marine creatures, deposited on the sea bed over many millions of years. The shrinking of the oceans uncovered vast deposits of this material which has invaluable usage possibilities. Diatomaceous earth **has a high level of porosity which allows it to absorb up to 1.5 times its weight in liquids**, remaining completely dry and maintaining its inert form. It is therefore lightweight, absorbent, porous and eco-friendly.



NATURAL FIBRES: A WEALTH OF RENEWABLE RESOURCES

Natural cellulose fibre, obtained from recycled newspapers treated with boron salts, provides resistance to fire and parasites. The quality that makes natural fibres the optimal choice is **their ability to disperse through the matrix**, forming a homogeneous material with excellent **resistance to shrinkage and micro-cracking**. This ensures long-lasting stability, the possibility of recycling, elasticity and a total absence of toxic residues.



CLAY: HYDROPHILIC REGULATION

It is a **light, porous, natural aggregate** which helps maintain a constant moisture level, making the microclimate of living spaces more pleasant and healthy. Indeed, clay **absorbs and disperses moisture** quickly and as required, maintaining the relative ambient humidity at ideal levels for living comfort. Suffice to say that clay can absorb up to 10 times more water compared to other similar materials.



DIATHONITE SCREED: THE ECO-FRIENDLY MULTI-PURPOSE MORTAR

DIATHONITE SCREED OFFERS A SMART, INNOVATIVE RESPONSE TO A TWO-FOLD NEED: **TO IMPROVE THE THERMAL AND ACOUSTIC COMFORT** OF LIVING SPACES.

Thanks to the natural materials from which it is made and its smart formulation, the product ensures excellent levels of protection coupled with minimum thicknesses, without overloading the floor or causing technical problems with measurements.

Diathonite Screed is a mortar providing strength that makes **the surface walkable**, meaning it can be applied as a finish screed, even with minimum thicknesses and without overloading the floor.

THE MATERIAL'S THERMAL CONDUCTIVITY VALUE CHARACTERISES DIATHONITE SCREED AS **A MORTAR WITH EXCELLENT THERMAL PERFORMANCE** WHICH GREATLY OUTPERFORMS TRADITIONAL SCREED SOLUTIONS.



DIATHONITE SCREED: APPLICATION FIELDS

FOOTFALL SOUND INSULATION

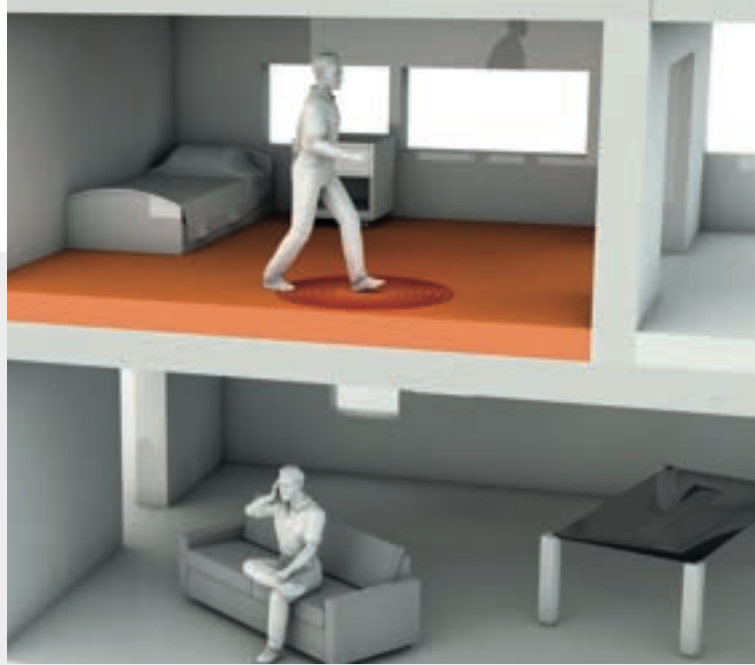
FOOTFALL SOUND TRANSMISSION IS CAUSED BY VIBRATIONS THAT PASS THROUGH THE SLAB, TRANSMITTING THE SOUND TO ROOMS BELOW. TO ELIMINATE FOOTFALL SOUND, A MAT IS LAID BETWEEN THE SLAB AND THE SCREED: MADE OF RESILIENT MATERIAL, THE MAT SEPARATES THE LOADBEARING STRUCTURE FROM THE FLOOR, PREVENTING THE TRANSMISSION OF VIBRATIONS.

1. Slabs on grade
2. Slabs above unheated rooms
3. Inter-floor slabs
4. Terraces and balconies
5. Attics
6. Flat or pitched roofs

Diafon is a soundproofing mat which is used in conjunction with **Diathonite Screed** to effectively insulate against the sound of footfall by creating a “floating floor”.



SINCE 1ST AUGUST 2004, EUROPEAN STANDARD EN 13813 DEFINES THE MINIMUM PERFORMANCE STANDARDS FOR SCREED MATERIALS AND FLOOR SCREEDS.



This standard establishes that:

- Compressive strength must be equal to or higher than 5 N/mm^2
- Flexural strength must be equal to or greater than 2 N/mm^2
- the thermal conductivity coefficient (λ) must be declared whenever the screed is used for thermal insulation.

In addition, the regulation requires labelling of every bag, stating the product's minimum performance levels in relation to EN 13813.





THE NUMBERS BEHIND COMFORT



INSULATING, THERMAL AND ACOUSTIC PROPERTIES



THERMAL CONDUCTIVITY

$\lambda = 0.060 \text{ W/mK}$

Thanks to the right mix of carefully selected natural raw materials, the product achieves impressive levels of acoustic insulation.



ACOUSTIC INSULATION

$\Delta Lw = 22 \text{ dB}$

$L'_{nw} = 58 \text{ dB}$

Cork and its porous structure allow the achievement of excellent levels of footfall sound insulation.



REACTION TO FIRE

CLASS A1

Classified as class A1 according to European standard EN ISO 13501-1. No production of flaming and no emission of smoke.





STRUCTURAL VALUES



MECHANICAL PROPERTIES



DENSITY

$$\rho = 600 \pm 15\% \text{ kg/m}^3$$

The aggregates contained in the matrix make the product extremely light, facilitating applicability.



COMPRESSIVE STRENGTH

$$> 10 \text{ N/mm}^2$$

Given the presence of natural hydraulic binders, the product is classified as class CS5 that is declared to be a suitable mechanical strength for finish screeds, in accordance with the CE marking and EN 13813.



FLEXURAL STRENGTH

$$> 2 \text{ N/mm}^2$$

Highly flexible, the product can be applied to supports or slabs which may produce movement.



PERFORMANCE WITH SUSTAINABILITY

Diathonite Screed performances are guaranteed by the product certification, issued by certified bodies, which are universally renowned for their reliability and rigour.

DIATHONITE SCREED HAS OBTAINED IMPORTANT ENVIRONMENTAL

AND PERFORMANCE CERTIFICATIONS THAT ANALYTICALLY VALIDATE BOTH THE PRODUCTION PROCESS AND THE RAW MATERIALS CONTAINED IN THE FORMULATION. THESE CERTIFICATIONS CONTRIBUTE TO THE PRODUCT'S INNOVATION AND ENVIRONMENTAL COMPATIBILITY.



SUSTAINABILITY CERTIFICATIONS



The product complies with the procedures, properties and values of EPD certification, which **identifies products with a low environmental impact, facilitating a responsible choice** and representing a key distinguishing feature. Stringent testing, inspection and control procedures enable measurement and verification of **product sustainability at every stage of the product's life cycle**.



This is an American green building rating standard which recognises the ability of Diathonite Screed to contribute to healthier environments, **better indoor air quality, energy savings** and higher property value.

PERFORMANCE CERTIFICATIONS



The properties and specifications of the product comply with European regulations and meet all **European building standards**. The CE mark granted to Diathonite Thermactive testifies to the product's safety, **quality and uniqueness, key elements** for ensuring customer satisfaction.



The product has a low emission of volatile organic compounds, and it is designed to protect the **indoor well-being** of people and the **quality of the external environment**.

INSULATING SCREED ON UNDERFLOOR PIPEWORK SUBSTRATE

THE SYSTEM ENSURES THERMAL AND ACOUSTIC INSULATION

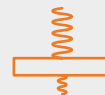
WITH MINIMUM THICKNESSES, **WITHOUT OVERLOADING THE FLOOR** OR CAUSING TECHNICAL PROBLEMS WITH MEASUREMENTS OF DOORS AND WINDOWS.

Unlike traditional solutions, the **Diathonite Screed** system **guarantees excellent thermal performance** even with very low thicknesses (5 cm), and highlighting a thermal transmittance of $U=0.60 \text{ W/m}^2\text{K}$, footfall sound insulation of $L'_{nw}=58\text{dB}$ and a **low density** of just 30 kg/m^2 .



THERMAL INSULATION

$U=0.590$
 $\text{W/m}^2\text{K}$



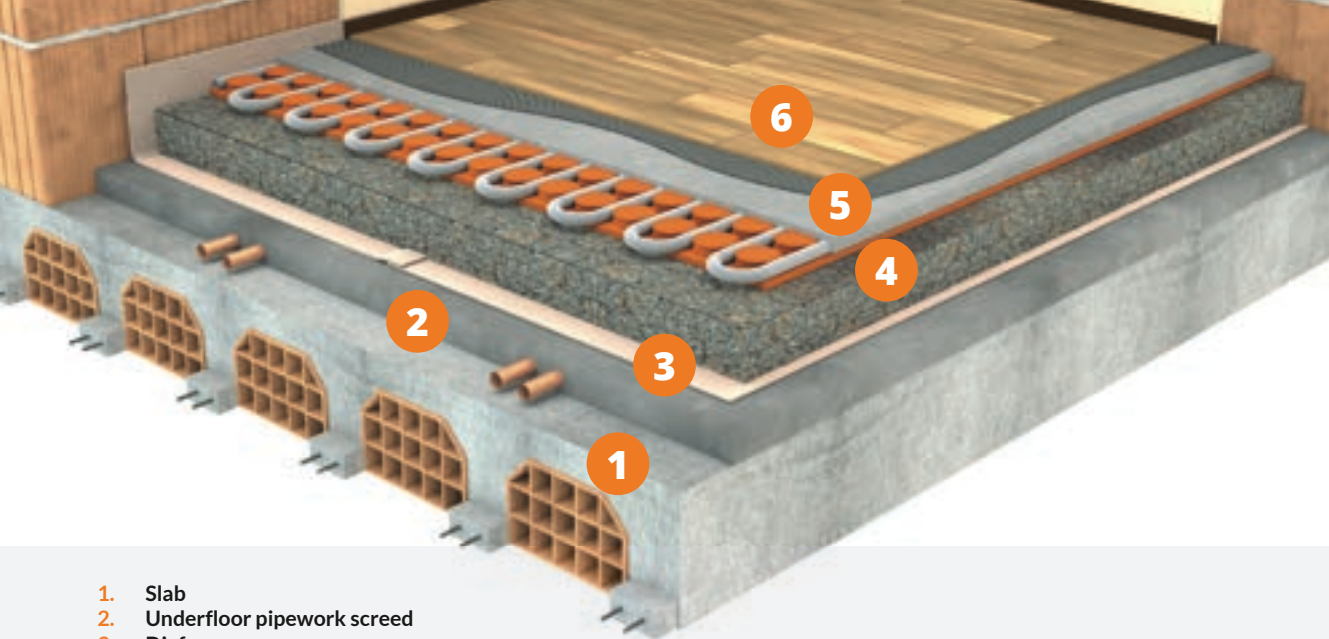
FOOTFALL SOUNDPROOFING

$L'_{nw}=58 \text{ dB}$
On site



LIGHTNESS

30 kg/m^2



1. Slab
2. Underfloor pipework screed
3. Diafon
4. Diathonite Screed
5. Underfloor heating
6. Flooring material

STRATIGRAPHY

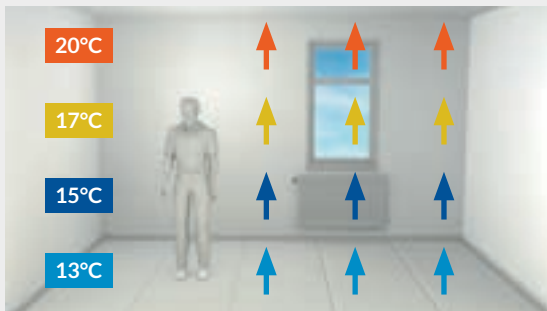
LAYER	MATERIAL	THICKNESS cm	THERMAL RESISTANCE m ² K/W
1	Concrete and masonry slab	30	0.4100
2	Underfloor pipework screed	5	0.0556
3	Diafon	0.38	0.1288
4	Diathonite Screed	5	0.8333
5	Underfloor heating	5	0.0556
6	Flooring material	1	0.0100

UNDERFLOOR PIPEWORK WITH INSULATING SCREED

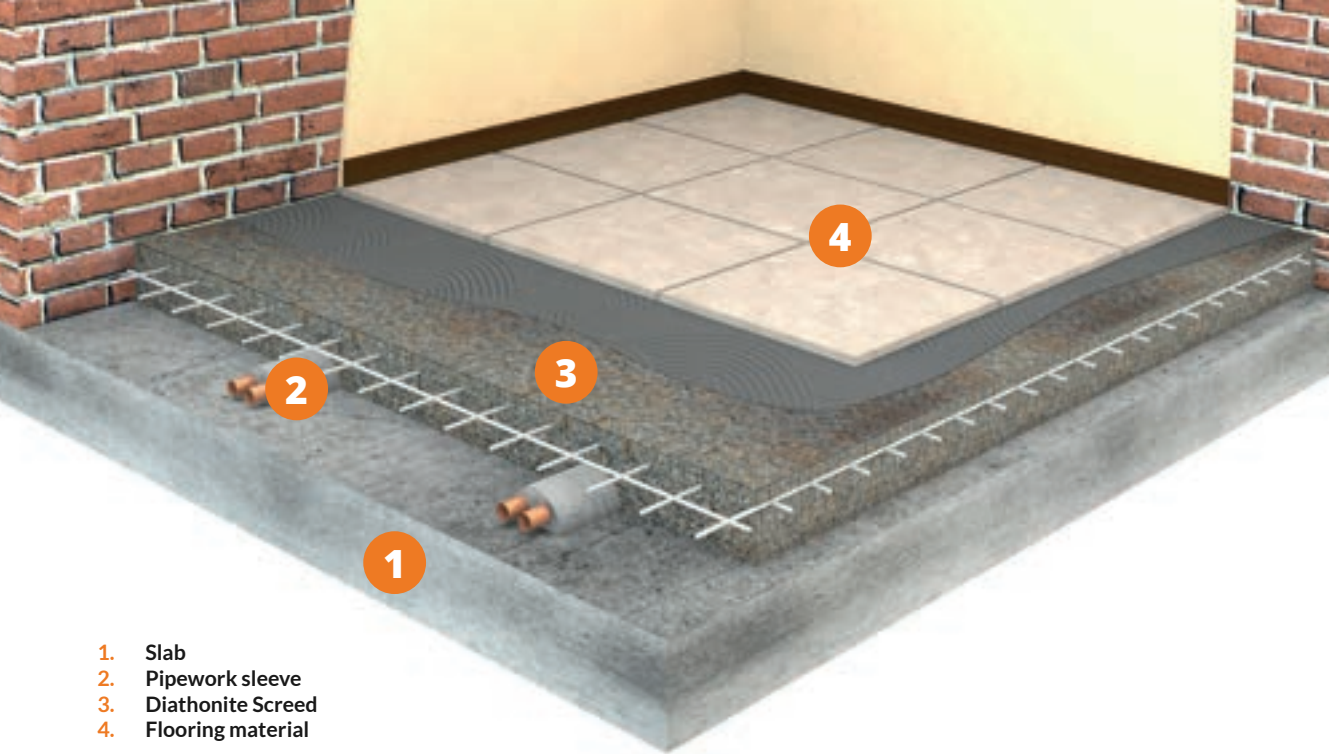
WITH UNDERFLOOR PIPEWORK, THE BEAUTY OF THE DIATHONITE SCREED SOLUTION IS THAT IT OFFERS EXCELLENT THERMAL INSULATION WITH MINIMUM THICKNESS, A MERE 3CM.

IN THE CASE OF UNDERFLOOR PIPEWORK, DIATHONITE SCREED CAN BE APPLIED ON TOP OF THE PIPE SLEEVES WITH A THICKNESS OF JUST 3 CM, WITHOUT ANY RISK OF CRACKING.

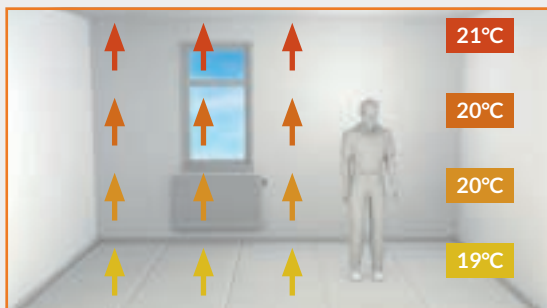
Traditional Screed



No matter how well heated a room is, in case of traditional screed the indoor ambient will always have **temperature differences** between high and low areas in the room, creating the feeling of a **cold floor** and, thus a **thermal imbalance**.



Diathonite Screed

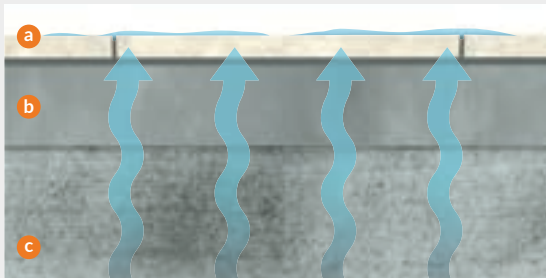


A room with **Diathonite Screed** will have a **constant temperature** even when the heating is **turned down low**. The uniform temperature throughout the room increases the feeling of **thermal wellbeing**.

INSULATING SCREED ON SLAB ON GRADE OR ON EXISTING FLOOR

THANKS TO COMPLETE FUNCTIONAL COMPATIBILITY, THE **DIATHONITE SCREED - WATSTOP** SYSTEM IS A **SMART AND FUNCTIONAL SOLUTION** FOR APPLICATION OF AN INSULATING SCREED WITH MINIMUM THICKNESS DIRECTLY ON A SLAB ON GRADE OR ON AN EXISTING FLOOR, AVOIDING COSTLY REMOVAL OPERATIONS.

Traditional Screed



a. Flooring b. Traditional screed c. Slab

If not suitably protected, a slab on grade can present **problems of rising damp**, leading to the appearance of **damp spots, heat loss**, a cold floor and the **formation of condensation** on the floor surface.



1. Slab/Existing floor
2. WATstop
3. Diathonite Screed
4. Flooring material

WATstop + Diathonite Screed



a. Flooring b. Diathonite Screed c. WATstop d. Slab

WATstop is formulated to **stop rising damp**, effectively protecting the insulating layer created with Diathonite Screed. A floor with **no thermal imbalance** will also be protected against the **formation of condensation** on the surface.



INSULATING SCREED ON BALCONIES, TERRACES OR FLAT ROOFS

GIVEN IT BEING VERY LIGHTWEIGHT COUPLED
WITH EXCELLENT THERMAL PERFORMANCE,
**DIATHONITE SCREED IS THE IDEAL SOLUTION
FOR BALCONIES, TERRACES OR FLAT ROOFS.**

**The Diathonite Screed solution
is ideal thanks to:**

- low application thickness
- thermal insulation levels
- mechanical performance

**In addition, it can be covered
directly with:**

- Tiles
- Parquet
- Low-thickness coatings (Floorgum Paint, Decork Design, Decorkrete)
- Waterproofing products (Oriplast Reflex, Acriflex Rapido, Acriflex X-Pro, Ultragum)



1. Slab
2. Diathonite Screed
3. Diasen waterproofing system
4. Flooring / Diasen covering



WATSTOP

WATstop is a three-component epoxy resin formulated to encapsulate rising damp and create a vapour barrier on damp substrates. It is effective for both positive-side and negative-side waterproofing, as it is resistant up to 9.5 bar of pressure and acts as an osmotic treatment on retaining walls.

In addition to its waterproofing ability, which can be obtained even at low temperatures, WATstop has excellent consolidating and filling properties; the product is easy to plaster, paint and tile over, confirming its outstanding versatility and adaptability to applications of countless different types.



FIELDS OF USE

- Rising damp
- Cellars and garages
- Damp retaining walls
- Lift shafts

TECHNICAL DATA

Colours:  

Yield:

1 kg/m² as vapour barrier and osmotic
2 kg/m² as negative-side waterproofing

Application:



PERFORMANCE



**POSITIVE-SIDE
WATERPROOFING**

9.5 atm



**NEGATIVE-SIDE
WATERPROOFING**

9.5 atm



**VAPOUR
BARRIER**

$\mu = 13361$



**ADHESION TO CEMENT
SUPPORTS**

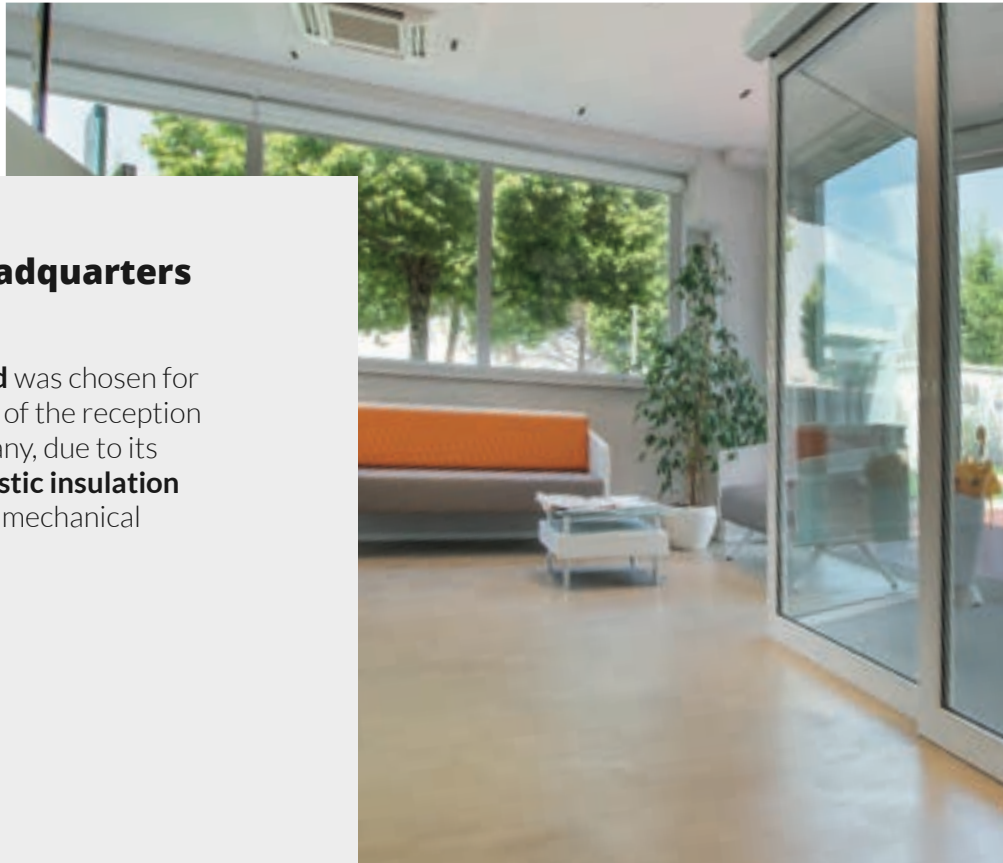
2.5 N/mm²

SUCCESSFUL STORIES

Company headquarters

Ancona, Italy

Diathonite Screed was chosen for the refurbishment of the reception of an Italian company, due to its **thermal and acoustic insulation properties** and its mechanical strength.



PRIVATE HOME

Canton of Jura, Switzerland

The **Diathonite Screed** solution was chosen by an architect for a new-build home in the French-speaking Switzerland as the preferred **lightweight solution with minimum thickness, so to meet the structural load requirements** established by current building regulations.



DIATHONITE® SCREED

ECO-FRIENDLY THERMAL
MORTAR FOR LOW
THICKNESS SCREEDS



EUROCLASS A1





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