



UdiPRODUCT
INFORMATION

DAS ORIGINAL
UNGER
DIFFUTHERM[®]
Innovative Thermal Insulation Systems

UdiRECO[®] SYSTEM

INNOVATION

The wood-fibre, external thermal insulation composite system – with integrated levelling compensation



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Dear Reader,

With the ever increasing demands made on insulation to meet the targets imposed by energy-saving regulations, the demands made on products and product systems also increase.



Dipl.-Ing. Bernd Unger

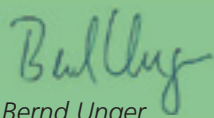
As a creative system provider, **UNGER-DIFFUTHERM** took up this challenge many years ago and developed wood-fibre insulation systems for new buildings, the existing stock of buildings and modernisations. Our innovative and highly efficient insulation system **UdiRECO® SYSTEM** for façade areas is available in thicknesses from 80 to 200 mm.

In this system, a specially treated, flexible insulation board is combined with a pressure-resistant, render-bearing insulation board, which is affixed to the wall using specially developed adjustable fixings. The great advantage: **UdiRECO® SYSTEM** automatically adapts to the surface of the wall without leaving any voids. The normal compensation work involved, of up to 4 cm, is no longer required. This saves time, money and headaches!

We are always happy to provide you with individual advice for any of your building or renovation projects. Our team of specialists will be able to help you find the most advantageous solution from our wide range of products and systems.

Thank you very much for your interest in our products!

Yours



Bernd Unger

UdiRECO® SYSTEM

*Combined, wood-fibre,
thermal insulation*

The **UdiRECO® SYSTEM** is the result of innovative research work in dealing with the problems presented when insulating partially crooked and uneven substrates.

The vapour-permeable characteristics of the **UdiRECO® SYSTEM** ensure that the walls can 'breathe' by storing and dispersing water vapour naturally. It absorbs and relieves stresses in the building's structure; it retains the warmth and provides all-over protection from the cold; acts as a heat shield in hot weather and has excellent sound-proofing properties. The result is a comfortable and healthy room climate.

In addition to the environmentally-friendly aspects, **UdiRECO® SYSTEM** insulation solutions offer ecological and building physics benefits for new buildings and for the modernisation of all types of existing buildings. The result is a tried and tested wall insulation system that means you don't have to make compromises.



UdiRECO® SYSTEM

A 'world first' wood-fibre solution for all types of new and existing buildings



Ecological and health promoting

- Kind to the skin – with no itching or irritations when handling or installing
- Environmentally neutral manufacture from softwood derived from renewable sources
- Bio-degradable and recyclable
- An intelligently designed vapour permeable second skin for your building



Cost savings

- Complicated sub-constructions and bearer frameworks are not required
- The labour charges for these preparation works are avoided
- Save up to 89 % on your current heating costs
- Improved insulation results due to optimised u-values
- A typical amortisation (return on investment) period of 10 years
- Take advantage of possible grants and subsidies available



Universal spectrum

- For all types of masonry buildings e.g. built using limestone, fired-clay bricks, concrete or natural stone
- For older timber and timber-framed buildings or new solid timber built buildings i.e. STEKO, HOMOGEN etc
- For older half-timbered buildings under preservation orders
- For bare brick walls
- For sound but dilapidated and/or cracked masonry walls
- Also for new buildings made from modern vertically-perforated bricks and blocks



Simply ingenious

- Perfect installation thanks to the newly developed adjustable fixing
- **UdiASSEMBLY SDM**® for masonry structures or **SDH** for timber structures – with the patented extraction seal
- Simply screw into the foundation substrate with our specially developed adjustable fixings
- Compensates for uneven surfaces and prevents back-draughts – providing excellent, long-lasting insulation results
- A perfect room climate without restrictions
- Its optimised u-values and heat retention properties reduce energy consumption dramatically



Top class moisture diffusion

- The **UdiRECO**® SYSTEM deliberately does not employ water vapour barriers thereby ensuring that the natural moisture exchange between the interior and exterior airflows are not inhibited, creating a healthy room climate
- Any moisture that develops is stored temporarily and then dispersed again
- The perceptible effects of the capillary and vapour-permeable characteristics ensure the efficient transport of moisture



Acoustic insulation

- A high level of sound absorption without resonance effects
- The special sandwich layer construction of two different densities provides outstanding sound-proofing values in all frequency ranges



UdiRECO® SYSTEM

In detail



Drill a hole in the substrate to position the fixing



The insulation boards can be cut to size using an electric saw



The adjustable fixing both secures and levels the insulation board



The insulation board can be brought into plumb using a spirit level or laser



UdiFOUNDATION COAT® with a crack-bridging layer of UdiREINFORCEMENT® Strengthening mesh is applied as the first coat



Specially matched structured fine renders from the Unger range are used as a finishing coat

Installation – with the benefit of integrated levelling compensation

The **UdiRECO® SYSTEM** boards are installed offset to one another from the bottom to the top of the substrate using our newly developed, finely-adjustable, **UdiASSEMBLY® Adjustable Fixings**. This provides a permanently wind-tight and storm-proof façade. Our system ensures a level surface even on crooked and uneven walls. The lower edge is then finished using our **UdiREINFORCEMENT®** rain-proof, thermally-decoupled, end cap profile. The insulated façade is then adjusted, wall for wall, using a rotating laser or spirit level to give a perfectly level surface.

Foundation strengthening mesh

The foundation coating provides the sandwich insulation boards with extra stability and weather-proofing properties. The specially designed **UdiFOUNDATION COAT®** is applied to the required level using a 20mm toothed trowel. A crack-bridging layer of **UdiREINFORCEMENT®** Strengthening mesh is bedded into the upper third of the layer. All corners and connecting areas are protected using special corner protection profiles and render edging strips. This is the basis for a lasting, crack-free finishing coat.

Surface finishing

Finally, after the foundation coat has dried, the installation is completed with the application of your specially selected structured render in the colour of your choice. The render surface is then artistically finished by the licensed installer. You will feel the benefits of the **UdiRECO® SYSTEM** although you will only see the beautiful, new structured render.

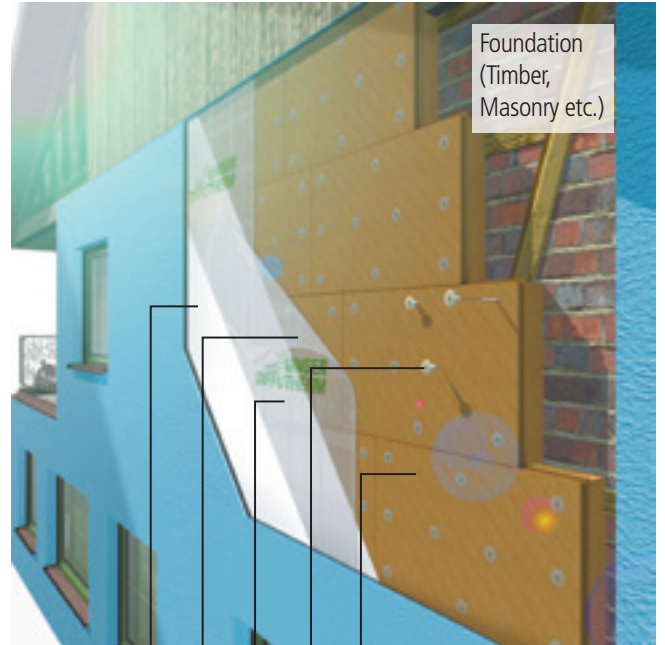
UdiRECO® SYSTEM

Keeps working a lifetime long

Decisive for the continuing functionality and quality of the **UdiRECO® SYSTEM** is attention to detail – especially in difficult areas. UNGER-DIFFUTHERM provides optimal solutions for all areas from the cellar to the roof with a comprehensive selection of appropriate accessories.

The newly developed **UdiASSEMBLY SD RECO®** adjustable fixing has been designed to provide the best installation solution possible. These serve not only as a fixing but also provide the ability to adjust the level of the boards on uneven surfaces to ensure a wind-tight installation.

Ingenious installation technologies – by professionals, for professionals and modern developers. Don't take any risks with your planned insulation project. Insist upon the new external insulation composite system **UdiRECO® SYSTEM**. Don't delay! Contact our experienced and professionally trained **UdiSpecialist Installers**.



- Foundation (Timber, Masonry etc.)
- UdiRECO® Insulation boards
- UdiSD RECO® Adjustable fixing
- UdiFOUNDATION COAT®
- UdiREINFORCEMENT® Strengthening mesh
- UdiPERL® Fine structured render
- UdiPERL plus® Fine quality façade paint (on request)

*The number of older buildings requiring renovation is enormous – the **UdiRECO® SYSTEM** is the solution.*



UdiRECO® SYSTEM

Helping you to save money

Energy Performance Certificates are now compulsory


With the introduction of Energy Performance Certificates (EPC), it is now possible for potential buyers or tenants to more accurately estimate the expected energy and heating costs of a property. By insulating your property with the UdiRECO® SYSTEM you can not only improve the energy rating on your EPC and make your property more attractive to interested parties but also provide your tenants with an excellent room climate and superb sound proofing.


Laws and standards change over time

New regulations relating to energy efficiency are always coming into force. Make sure you are one step ahead by taking action now. We recommend that when renovating the façade of your building that you take the right measures to increase the building's energy efficiency and thereby increase the value of your property, make it a more attractive place to live in and reduce your energy bills – all at the same time.

Does your house or flat meet the current energy efficiency standards? Do you know how much heating energy your house uses and how much is wasted?

Save money on your heating bills NOW! – install UdiRECO® SYSTEM.

Energy Efficiency Rating		
	Current	Potential
Very energy efficient - lower running costs		
(92-100) A		
(81-91) B		
(69-80) C		
(55-68) D		
(39-54) E		
(21-38) F		
(1-20) G		
Not energy efficient - higher running costs		
England & Wales	EU Directive 2002/91/EC	

Environmental (CO ₂) Impact Rating		
	Current	Potential
Very environmentally friendly - lower CO ₂ emissions		
(92-100) A		
(81-91) B		
(69-80) C		
(55-68) D		
(39-54) E		
(21-38) F		
(1-20) G		
Not environmentally friendly - higher CO ₂ emissions		
England & Wales	EU Directive 2002/91/EC	



UdiRECO[®] SYSTEM

Immediately reduces your heating bills considerably

U-values and why they are important

A **U-value** is a measure of heat loss. It is expressed in W/m²k, and shows the amount of heat lost in watts (W) per square metre of material (for example wall, roof, floor etc.) when the temperature (k) outside is at least one degree lower. The lower the **U-value**, the better the insulation provided by the material.

The energy efficiency requirements of the currently applicable (2014) Building Regulations, as set out in Part L of Schedule 1 to the Building Regulations, recommend a **minimum U-value of 0.30 or better**, i.e. lower, for the external walls of new dwellings or when installing additional wall insulation to existing dwellings.

The following tables give some examples of the typical U-values of common building materials and how you can achieve the recommended U-value for your building by installing **UdiRECO[®] SYSTEM** insulation.

Solid bricks. Rendered both sides					Interior	Exterior	Installation	Prior substrate survey required	Avoid use of hammer drill
Wall depth cm	17.5	24.0	36.5	Insulation depth					
80 mm	0.44	0.43	0.40						
100 mm	0.36	0.35	0.33						
120 mm	0.30	0.30	0.28	X	X	EASY	NO	NO	
140 mm	0.26	0.26	0.25				(Correct fixing lengths are listed in our Data sheet)		
160 mm	0.23	0.23	0.22						
180 mm	0.21	0.20	0.20						
200 mm	0.19	0.18	0.18						



Solid bricks

Solid timber wall					Interior	Exterior	Installation	Prior substrate survey required	Avoid use of hammer drill
Wall depth cm	10.0	14.0	18.0	Insulation depth					
80 mm	0.35	0.32	0.29						
100 mm	0.30	0.27	0.25						
120 mm	0.26	0.24	0.22	X	X	EASY	NO	N/A	
140 mm	0.23	0.21	0.20				(Correct fixing lengths are listed in our Data sheet)		
160 mm	0.20	0.19	0.18						
180 mm	0.18	0.17	0.17						
200 mm	0.17	0.16	0.15						



Solid timber walls

Hollow concrete blocks. Rendered both sides					Interior	Exterior	Installation	Prior substrate survey required	Avoid use of hammer drill
Wall depth cm	17.5	24.0	36.5	Insulation depth					
80 mm	0.43	0.41	0.38						
100 mm	0.35	0.34	0.32						
120 mm	0.30	0.29	0.27	X	X	MEDIUM	YES	YES	
140 mm	0.26	0.25	0.24						
160 mm	0.23	0.22	0.21						
180 mm	0.20	0.20	0.19						
200 mm	0.18	0.18	0.17						



Hollow concrete blocks

Sand-lime blocks. Rendered both sides					Interior	Exterior	Installation	Prior substrate survey required	Avoid use of hammer drill
Wall depth cm	17.5	24.0	36.5	Insulation depth					
80 mm	0.45	0.44	0.42						
100 mm	0.37	0.36	0.34						
120 mm	0.31	0.30	0.29	X	X	MEDIUM	YES	YES	
140 mm	0.27	0.26	0.25						
160 mm	0.23	0.23	0.22						
180 mm	0.21	0.21	0.20						
200 mm	0.19	0.19	0.18						



Sand-lime blocks

U-Values according to standard/requirement Part L

Not achieved
Achieved



Insulate naturally.
The Original.

UdiRECO® SYSTEM

Protects your house and your health



Think about your future health – even when building and renovating

Many contented customers have chosen our insulation systems without any health-related complaints. This has been possible due to the intelligent design of our systems and the careful selection of raw materials and product components which harmonise perfectly.

The UdiRECO® SYSTEM has been designed using our many years of experience in the modernisation of old buildings and has been scientifically tested to ensure its quality and functionality.

UdiRECO® SYSTEM is an active insulation system. It protects your property from the effects of the weather and provides continuous moisture diffusion for a comfortable room climate – just as all our insulation systems do!

The UdiRECO® SYSTEM provides complete protection for your house and keeps it looking good the whole year round.



The proven health promoting effects of the UdiRECO® SYSTEM

- Kind to the skin – with no itching or irritations when handling or installing
- Environmentally neutral manufacture from softwood derived from renewable sources
- The room moisture level is kept in balance – the moisture is stored and dispersed naturally using the natural capillary effect
- No moisture damage due to back-draughts behind the external insulation
- No mould development on the walls



The UdiRECO® SYSTEM retains the heat longer on cold days

- Through its excellent heat storage capacity of 2100 J/kgK
- Impressive insulation values with an insulating layer of only 12 cm provide warmer walls
- Radiates the stored warmth reducing the need to heat continuously



UdiRECO® SYSTEM – In Summer refreshingly cool

- The density of the insulation boards – with a weight of 220 kg/m³ – functions as an excellent heat-shield against the effects of the sun
- The exterior walls remain comfortably cool for longer
- Energy saving – as additional air conditioning is no longer required

UdiRECO® SYSTEM

The ingenious UdiRECO-Principle

Save you time and money during the installation phase by doing away with the need for extensive preparation and levelling of the substrate surface of older buildings i.e. half-timbered buildings, bare brick walls or sound but dilapidated and/or cracked masonry walls.

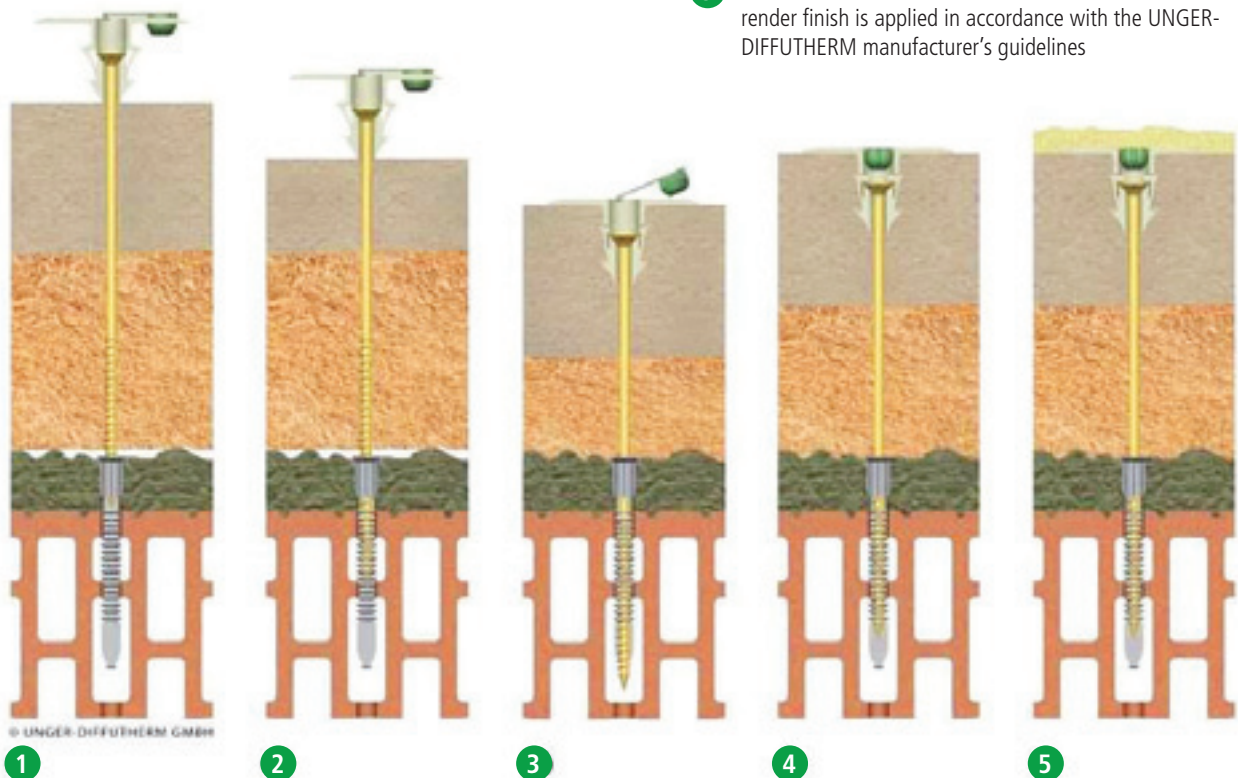
The knowledge gained through our many years of experience in the design of façade insulation systems has flowed into the design of our new UdiRECO® SYSTEM to provide the following benefits:

- Reduced installation times when modernising/renovating
- No need for underlying bearer frameworks
- No additional moisture build-up from filling/levelling renders
- The additional insulating layer improves sound-proofing
- The vapour permeable, open diffusion insulation system ensures that walls remain dry

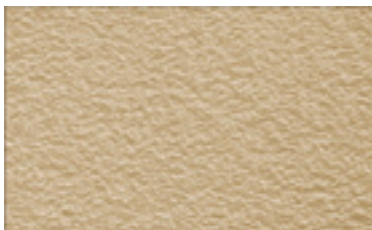
The UdiRECO® SYSTEM is also the ideal solution for solid timber constructions. The system provides a windtight seal by adapting to the shape of the surface of the foundation substrate. It can compensate for differences in the level of this surface of +/- 2 cm. In doing so it eliminates problems caused by backdraughts behind the insulation layer which reduce the efficiency of the insulation and may lead to the hidden build-up of condensation.



- 1 Position the fixing in the pre-bored hole
- 2 Screw in the fixing until the cap engages the board
- 3 Screw the fixing in until the extraction seal engages and the fixing head meshes with the upper insulation layer
- 4 Adjust the fixings using a spirit level or laser
- 5 After all the insulation boards have been installed the render finish is applied in accordance with the UNGER-DIFFUTHERM manufacturer's guidelines



Insulate naturally.
The Original.



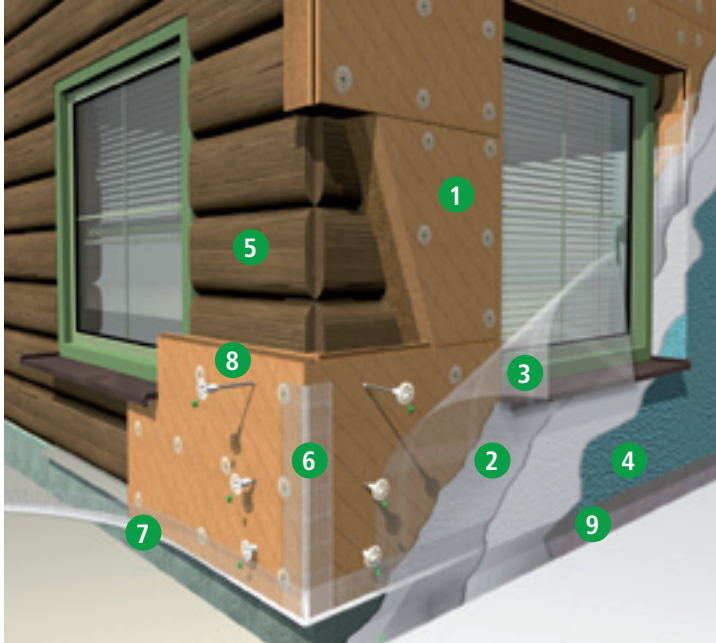
Technical data for UdiRECO® SYSTEM wood-fibre insulation boards

Applications	According to DIN V 4108-10 DAD, aDZ, DI, DEO, WAB, WAP, WH, WI, WTR ai sensi d. DIN EN 13171 T4-CS(10\Y)70-TR7,5-WS1,0
Building Inspectorate approvals (DiBt-approvals)	Z-33.47-1026 Z-23.15-1625
Components	Coniferous wood max. 0.5 % Paraffin 1.5 % PVAC (For bonding the insulation layers) < 6 % Binding fibres in the sandwich construction
Technical data	
Thermal conductivity	
Declared value	0.039 W/mK (Flexible layer) 0.049 W/mK (Solid layer)
Vapour diffusion resistance μ	5
Condensation retention capacity	ca. 20 Gew. %
Specific enthalpy capacity c	2100 J/kg/K
Longitudinal flow-resistance as a complete system	> 5 kNs/m ⁴
Apparent density	ca. 45 kg/m ³ (Flexible layer) 240 kg/m ³ (Solid layer)
Fire classification	DIN 4102-1 B2
Euro class	DIN EN 13501-1 E
Dimensions	
Format	1.300 x 790 mm Tongue and groove around the whole circumference
Insulation thicknesses	80, 100, 120, 140, 160, 180 and 200 mm (other insulation thicknesses available upon request)

UdiRECO® Insulation Board in detail

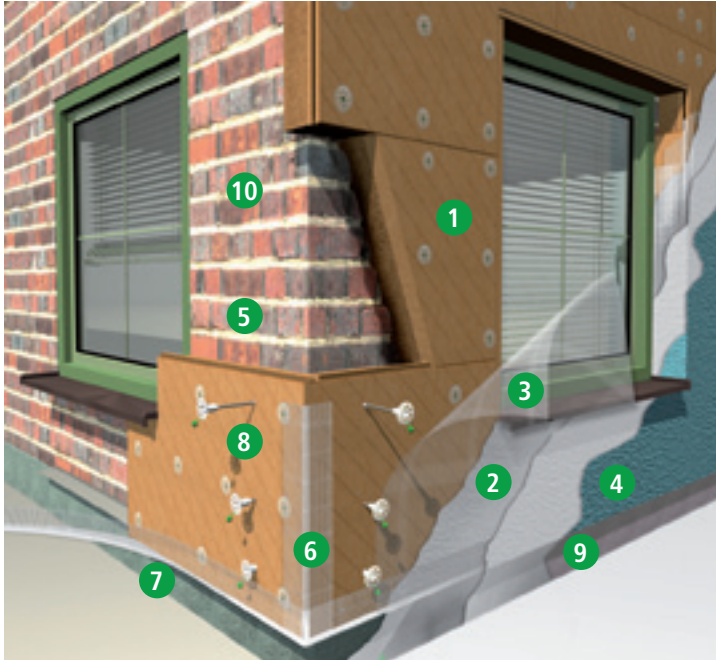
- 40 mm render-bearer insulation board in combination with a flexible wood-fibre insulation board (wall-facing);
- Newly developed fixings with an extraction sealing mechanism for attaching the insulation boards to the foundation substrate. Available for timber and masonry substrates.
- The insulation boards are coated with Unger-Diffutherm's specially developed **UdiFOUNDATION COAT®** and **UdiFOUNDATION COAT® Strengthening mesh** and
- Then the boards are coated with one of the weather-proof and vapour permeable fine render systems. Depending on requirements you can choose **Udi-MIRALO®**, **UdiSIKATO®** or **UdiPERL®** finished in a wide range of structures and colours from the **UdiCOLOR® SYSTEM** pallet or another colour collection.

UdiRECO® SYSTEM
 Universal Application



UdiRECO® SYSTEM for timber buildings

- 1 UdiRECO® Wood-fibre insulation element
- 2 UdiFOUNDATION COAT®
- 3 UdiREINFORCEMENT® Strengthening mesh
- 4 UdiPERL® Fine structured render
- 5 Foundation: Composite timber, Blocktimber, LIGNOT-REND- or STEKO external walls to ensure the fixing of the insulation boards across the whole surface
- 6 UdiREINFORCEMENT® Corner Protection Profile
- 7 UdiBASE® Plinth-End Cap Profile variable
- 8 UdiASSEMBLY® SDH RECO (Adjustable fixing – Timber)
- 9 Perimeter insulation with plaster coating



UdiRECO® SYSTEM for masonry buildings

- 1 UdiRECO® Wood-fibre insulation element
- 2 UdiFOUNDATION COAT®
- 3 UdiREINFORCEMENT® Strengthening mesh
- 4 UdiPERL® Fine structured render
- 5 UdiFOUNDATION COAT®
- 6 UdiREINFORCEMENT® Corner Protection Profile
- 7 UdiBASE® Plinth-End Cap Profile variable
- 8 UdiASSEMBLY® SDM RECO (Adjustable fixing – Masonry)
- 9 Perimeter insulation with UdiPlinth sealing slurry® and plaster coating
- 10 Masonry substrate plastered / unplastered



Insulate naturally.
The Original.



OUR SYSTEM RANGE:

For roof and interior construction:

UdiCLIMATE[®] SYSTEM
The interior insulation system with integrated climate chambers

UdiSTONE[®] SYSTEM
Ecological insulation blocks for partition wall construction

UdiFLEX[®] SYSTEM
Flexible planning with a flexible insulation to meet the highest of demands

UdiTOP[®] SYSTEM
The complete program for your roof

UdiSTEP[®] SYSTEM
Wood-fibre, floor insulation

For external walls:

UdiRECO[®] SYSTEM
External thermal insulation composite system with intelligent levelling compensation

UdiFRONT[®] SYSTEM
External thermal insulation composite system with a 15 year guarantee

UdiSPEED[®] SYSTEM
The efficient insulation system for pre-fabricated, timber-frame buildings

For interior insulation:

UdiIN[®] SYSTEM
Interior insulation system with a 15 year guarantee

UdiIN RECO[®] SYSTEM
The interior insulation system – specially designed for uneven surfaces

UdiIN 2CM[®] SYSTEM
The quick and slim internal insulation system

Our specialist merchants are always happy to advise you:

BACKTOEARTH
 Building Performance Specialists
 chris@backtoearth.co.uk 01392 861763
 backtoearth.co.uk
 7 Tuns Lane, Silverton, Exeter. EX5 4HY



Architect's private house LUEBECK



Somerset house LONDON



Solarhouse TAIPEH



Montalto NORTHERN IRELAND

Unger-Diffutherm GmbH
 Environmentally-friendly, innovative,
 insulation systems
 Blankenburgstraße 81
 09114 Chemnitz, Germany
 Telephone: +49 (0) 371 - 81 56 40
 Telefax: +49 (0) 371 - 81 56 4 64



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