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PROFESSIONAL REFURBISHMENT

Stable installation on Pogusch mountain Hot and cold in Waldviertel Old walls – new heat in Bad Ischl e**vario**lution



Ladies and gentlemen, dear business partners,

This issue of the VarioTime partner magazine is all about refurbishment and the various possibilities Variotherm offers those who decide to modernise their homes, make them cosier and optimise their energy costs. In keeping with the refurbishment subject, we are also changing the appearance of the magazine. After all, this is a magazine made by professionals for professionals, which is why we are now packing in even more information. We have also tried to make this larger content more reader-friendly. If any additional information would take up too much room in the magazine, we provide the Internet address at which you can view or download further interesting facts. Our reference projects have also been given more space. Another important aspect: The VarioTime magazine is now offering you, our partners, a platform to present your businesses. Feel free to call us if you want to make use of this offer in one of the next VarioTime issues. We are always happy to carry reports on our partners! So, if you have any customers who are planning to carry out refurbishment work, take this opportunity and impress them with the many advantages offered by Variotherm. You will set yourself apart as a competent service provider.

Here is to successful cooperation!

Yours sincerely, Alexander Watzek

Professional renovation -3:0 for Variotherm

There comes a time when we no longer feel entirely comfortable in our homes. We start thinking why? How can we keep our home pleasantly warm and at the same time make it cosier? On top of this, our heating bills are far too high. This is the moment where we should consider refurbishing.

But where to start? Without doubt, all refurbishment starts with the building envelope. The character of the building must be taken into account in the refurbishment and energy concept. Your trusted installer can provide tailor-made advice.

1:0 No half measures!

Clearly, the trend is going towards low temperatures. There are many reasons for this, all of which are actually advantages: Lower heating water temperatures help save energy and provide larger radiation surfaces which, in turn, have the effect of increasing our comfort.

2:0 Surface heating systems get you there.

Those who are now deciding in favour of surface heating or cooling systems are taking a step in the right direction. They are independent in their choice of energy source. Cooling is actually included for free. Using this system, for example, with a low-temperature boiler allows you to change over to geothermal power or solar technology at a later stage.







3:0 The perfect solution for all requirements.

The Variotherm refurbishment trio offers the perfect solution for all requirements: The module plate for walls and ceilings can be used for heating and cooling purposes. At no more than 20 mm thickness, the compact floor heating system, which can be installed in dry construction, turns your refurbishment into a simple undertaking. The Variotherm skirting heating presents a particularly energy-saving method of creating a veil of warm air along cold walls. If you have any customers who are planning to refurbish their homes, recommend Variotherm. Your customers will be forever in your debt!

Red Card for classic radiators!

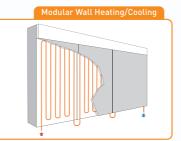
The days of traditional radiators are numbered. Although modern radiators and new boilers may be capable of saving a few percent in energy consumption, the day will come when energy will be simply too expensive to create high flow temperatures. That will be the day radiators have to go because their operation depends on traditional boilers. Even in 20 or 30 years, it will be impossible to operate these radiators efficiently with solar power systems or heat pumps.

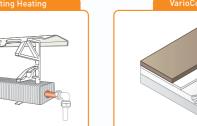
Variotherm's refurbishment trio

- 1 Modular Wall Heating/Cooling combines heating/cooling in one surface
 - Large-surface, high energy-saving low temperature system Ideal for timber-framed buildings, pre-fabricated houses, attics/renovation
 - Extremely energy-saving!
 - FERMACELL® gypsum fibreboards tested for health and safety.
 - 10-year guarantee
- 2 Skirting Heating hot water heating system that works in seconds
 - Totally customisable
 - Generates a veil of warm air along cold walls and
 - Shields against the cooling effects of glass surfaces
 - Combats damp and mould formation on walls
 - 10-year guarantee

3 VarioComp Floor Heating - superslim!

- Thickness just 20 mm!
- Energy-saving low temperature system
- Low weight! Ideal for gentle renovation of old houses
- Optimal heat transfer
- Excellent controls
- Easy and swift installation
- 10-year guarantee











Pogusch – gourmet cuisine in Styria



Dinner on Pogusch mountain accommodation in the stable

The second branch of the Vienna-based Steiereck, an oasis of Styrian sociability that consists of seven different houses, is located on Pogusch mountain. Celebrities even come by helicopter. Guests who enjoy the delicacies of the gourmet cuisine at Steirereck am Pogusch and do not have to take off right after dinner can now take a room beside the restaurant to rest after their unique culinary experience. They do, however, have to sleep in the stable.

In the stable? Yes, that's right. Converting the old stable from the year 1616 into luxury, top-level accommodation required a good deal of self-confidence and persistence from the owner.

Can you spot the skirting heating? A tip: It is hidden between the two chairs

Ing. Helmut Wiederer, the installer who was commissioned with the planning and implementation of the project, has known Heinz Reitbauer for 10 years and is familiar with his eccentric ideas. After all, it was him who installed all heating and sanitary facilities in the Pogusch buildings.



For three years now, the entire property has been heated by a biomass heating system. The system runs on wood chips and acts as a kind of mini district heating system. In addition, the water is heated by a 100 m² solar power system and is fed into the overall system.

Would you like to find out more? The complete picture gallery is available at: WWW.variotherm.at/pogusch



Executive Installer Ing. Helmut Wiederer



The heating system comes from excellent stock

The technical requirements that had to be fulfilled in the stable building were very high. The floor heating in the sanitary rooms consists of the super-slim VarioComp system. As the building is entirely made from wood, Heinz Reitbauer did not want to incur the long drying times associated with screed.

A hay room, a straw room, a bedroom and a goat room invite Mr. Reitbauer's guests to enjoy an overnight stay close to nature. The bedrooms have been equipped with skirting heating. Depending on the setting and outside temperature, the heating water enters the floors at 25 to 40 degrees.

If requested, an old cast oven, which Heinz Reitbauer rescued from a disused school building, provides additional heat in the bedroom while an open fire can be enjoyed in the goat room.

The beds are the highest of the high – literally! Tired guests put their heads down at a height of 75 cm - protection for allergy sufferers. There is no danger of falling out with beds measuring an impressive 2.2 m x 1.1 m - enough space to stretch out in all directions.

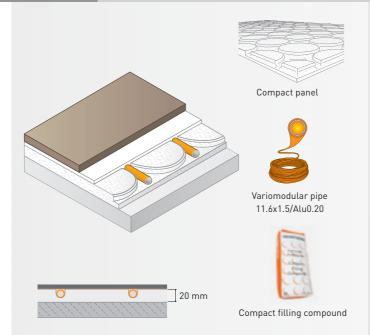
You will, however, need a bit of patience if our mouth-watering description has made you want to spend a night on Pogusch mountain. The rooms, which have only been ready for business for three months now, are already booked for the entire next year.

While sleeping in the stable may sound old-fashioned and frugal, this particular stable complies with the latest standards. Thanks to their sheep's wool heat insulation and windows with triple insulated glazing, the facilities fulfil all the requirements of a low energy house - not least because Mr. Wiederer, the installer, put all this personal energy into this project which he realised in conjunction with Variotherm.



TECHNICS

VarioComp Floor Heating



Skirting Heating Classic

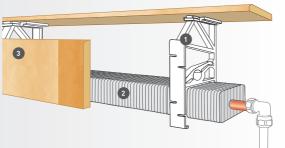
System Wall Heating/Cooling

- 1 VarioBar 16/100 2 Nail anchors
- 21 mm 10 mm

3 Wooden cladding

2 Heating element

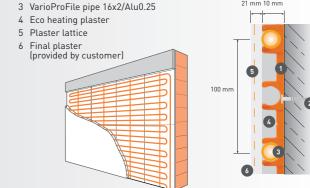
1 Bracket



Pogusch - sleeping in the stable and the deer hut

Building owner, planning/design: Heinz Reitbauer, AT-8625 steirereck.at/pogusch

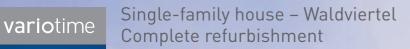
Construction management and installation: Ing. Helmut Wiederer, AT-8641 St. Marein www.wiederer.at



Variotherm systems: 16 m² SYSTEM WALL HEATING/COOLING 25 m SKIRTING HEATING CLASSIC 240 m² VARIOCOMP FLOOR HEATING

More technology at www.variotherm.at

Reference $_4/5$



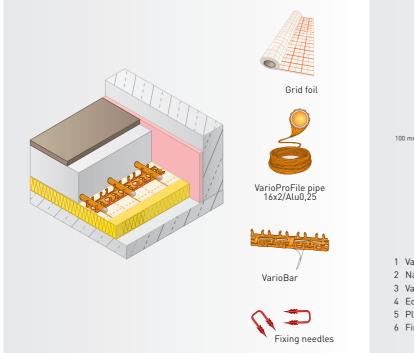
Heat and cold in Waldviertel





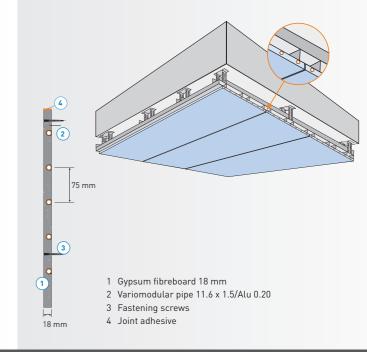
TECHNICS

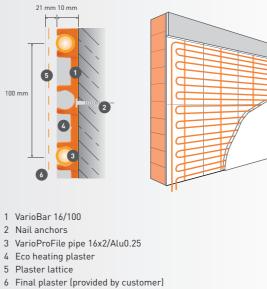
VarioRast Floor Heating



System Wall Heating/Cooling

Modular Ceiling Cooling/Heating





More technology at www.variotherm.at

We have been driving through snow flurries for two hours, further and further into the deepest corner of Waldviertel. Snowflakes don't dance here, they dash. The streets are covered in ice, dense fog alternates with bright sunshine. The villages are getting smaller, houses more infrequent. This is where the Waldviertel's Kaltviertel area is located, not far from the Thaya headwaters. This area is also home to a newly refurbished house equipped with Variotherm systems.

In a region where woodcutters still have names such as Fichtinger (Oakman) or Baumschlager (Treecutter) and every second hamlet ends in '-schlag' (comparable to '-wood'), the warming properties of wood, a renewable raw material, are well-known. Nevertheless, increasingly, the advantages of heat pumps are being discovered.

The Waldviertel family in question, at any rate, was not to be sweet-talked into choosing their heating system – they relied on solid arguments to be convinced. Why did they choose Variotherm? Firstly, they already had a heating pump installed in the house. Even in this rough climate, the earth still produces sufficient geothermal heat to run an efficient low-temperature system.

Secondly, the Variotherm wall, ceiling and floor systems immediately caught the family's enthusiasm. As it turned out, the conversion almost changed the house into a new building: All intermediate walls as well as the entire upper floor were removed and the living room area on the lower floor was extended in a southerly direction. Now almost every wall, floor and ceiling in the house is heated or cooled by Variotherm pipes.

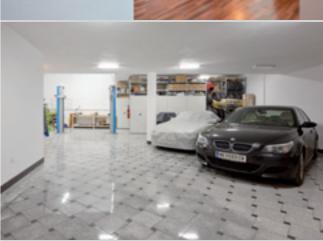
Mouth-watering: The cooling chamber is chock full of delicious Waldviertel specialities in both liquid and solid form. People know how to live well in this region, which is why the family has paid particular attention to the pantry. It is cooled by a heat exchanger using almost zero energy. Just a few watts are needed to keep the room at a temperature of 10 degrees.

Even the cars have a cosy home. They are parked on a 140 $\ensuremath{\mathsf{m}}^2$ Variotherm floor heating in the garage that also doubles as hobby workshop. Cars and tinkers both stay nice and warm. On first glance, the adjacent heating room looks like the Enterprise's commando bridge, but the owner knows every valve, switch and pipe.



Would you like to find out more? The complete picture gallery is available at: www.variotherm.at/waldviertel

Self-regulating pumps control the heat balance and draw only as much electricity as is needed to generate the required temperatures. One heating circuit is exclusively responsible for the floors while three further circuits can be used either for heating or cooling purposes. The first heating season is not yet over and the exact savings are not yet known. It is, however, clear that the costs will be lower than for oil or gas heating. This is a fact many Waldviertel residents may warm to over time.





Single-family house - Waldviertel Planning/design and





construction management: Zauner, Baumeister & Zimmerermeister AT-3920 Gross Gerungs Peter Wielander www.zauner-bau.at

Installation:

Lux Installationen, Wasser- und Wärmetechnik AT-3910 Zwettl www.lux.co.at

Variotherm systems: 80 m² SYSTEM WALL HEATING/COOLING 255 m² VARIORAST FLOOR HEATING 120 m² MODULECEILING for COOLING/HEATING

Reference -6/7

Villa in Bad Ischl variotime Salzburg



Renovation in royal yellow

Dr. Herward Zitterl is different from other doctors. His main work is in cardiovascular rehabilitation at Bad Ischl hospital. The remainder of his time he spends at his complementary medicine surgery which offers treatments as diverse as acupuncture, homeopathy, systemic therapy and family constellation therapy.

Variotherm's prescription

Having bought an over 170-year old house in Bad Ischl that was in need of substantial renovation, Dr. Herward Zitterl launched into its refurbishment. The former farm building, which consists of 3 floors of 135 m² each, was previously heated by electric heating, presenting the owner with heating bills of royal proportions. Dr. Herward Zitterl acted swiftly and decisively: He cut off the electricity. As someone who had always been open for unconventional solutions, he had heard about Variotherm solutions at a 1987 conference on health and safety in construction.

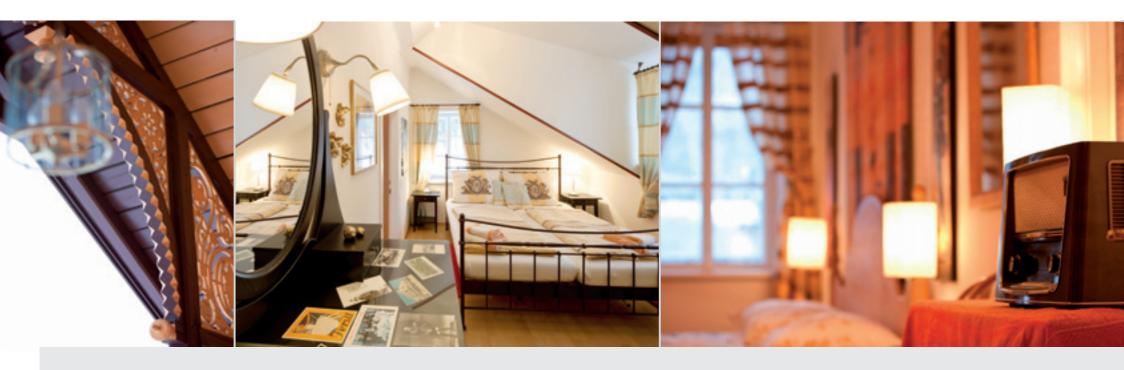
After due consideration, he decided to have Variotherm installed in walls and some of the floors. He had been impressed by the modular system which is easily adaptable to old structures. The local installer welcomed Dr. Zitterl's choice and confirmed that any decision in favour of Variotherm was a decision in favour of quality. Variotherm's excellent consulting services were a further plus.

According to Dr. Zitterl, insulation between the heating surfaces and the outer walls was out of the question as the walls behind the insulation cannot store heat and the heating surfaces would cool down too quickly.

Nor would he hear of insulating the outside of the 170-year old façade since the old window frames would have had to be removed and exchanged for frames that fit the thicker outside wall.

Furthermore, heat insulation on the outside of the old walls would have blocked the solar radiation that heats walls up even on cold days. We had the opportunity to experience the cosy ambient atmosphere and pleasant humidity level created by the heating system. On normal winter days, a flow temperature of 25 degrees is sufficient to heat the house. On extremely cold days, the maximum flow temperature required is 45 degrees. As yet, the heating runs on gas, but Dr. Zitterl is already warming to his next project: With hot springs suspected in the area around his house, he is planning to drill several deep holes to access geothermal heat that could be fed into the system via a heat exchanger.

Here in Dr. Zitterl's house, which is almost 200 years old, we found a perfect reflection of Variotherm's self-image and technology: provide a decisive contribution to increased comfort that cannot be measured in heat transmission coefficients, kilowatt hours and wall thicknesses, but instead can be experienced exclusively as a distinct feeling of comfort and well-being.

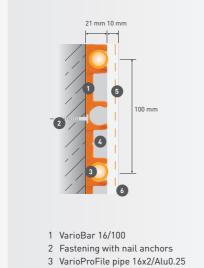


VarioRast Floor Heating

System Wall Heating/Cooling



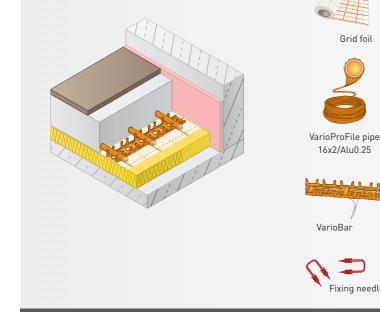
Grid foil

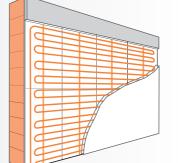


4 Eco heating plaster 5 Plaster lattice

6 Final plaster (provided by customer))

Villa refurbishment in Bad Ischl





Building owner, planning/design and construction management: Dr. Herward Zitterl, AT-4820 Bad Ischl

Installation:

Gas-Wasser-Heizung Firma Plasser AT-4820 Bad Ischl, www.plasser.co.at

Variotherm systeme: 176 m² SYSTEM WALL HEATING/COOLING 80 m² VARIORAST FLOOR HEATING

More technology at www.variotherm.at







Villa in Stockholm



Heating shouldn't be this expensive!

It may be hard to believe, but many houses in Stockholm are heated with heating pumps. Although one has to drill down as far as 200 m, geothermal heat at this level is sufficient to provide homes with a cosy ambient atmosphere. Specialising in alternative heating systems, the company EcoEnergi could not fail to take notice of the solutions offered by the Austrian company Variotherm.

Eventually, a 1971 Villa built entirely from wood was up for renovation. The villa is located in the suburbs of Stockholm with huge window areas providing a wonderful view of the nearby lake. The heating was rather old school – an outdated electric heating system that consumed no less than 30,000 expensive kilowatt hours of electricity per year.

New heating from Austria – 75 % less heating costs!

Before high electricity bills caused the family of four to blow their fuses, it was decided to install a geothermal heating system with Variotherm skirting heating, implemented by Variotherm's new partner EcoEnergi. The system was installed below the large windows and blends in harmoniously with its environment. Variotherm's skirting heating builds up a veil of warm air, deflecting the cold air from the glass surfaces.

This was the first time EcoEnergi used Variotherm products in one of their projects. The installer was impressed by our coherent concept. In fact, the technicians at EcoEnergi enjoyed our collaboration so much that they have already carried out two further projects in conjunction with Variotherm. Asked why, the staff mention three aspects they particularly appreciate when they work with Variotherm: exceptional documentation, fully developed project plans and excellent communication between Austria and Sweden.

New Austrian heating delights the family in Stockholm, cutting the heating bill down to a quarter with as little as 8,000 kWh needed to heat the entire 250 m². EcoEnergi has no doubt that this particular Swedish-Austrian cooperation is going to expand!

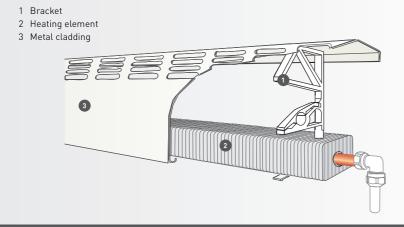




A veil of hot air is generated along cold walls and shields against the cooling effects of glass surfaces

TECHNICS

Skirting Heating Delta





Villa in Stockholm

Planning/design, construction management and installation: Svensk EcoEnergi AB, 18714 Sweden www.ecoenergi.se

Variotherm system: 70 m SKIRTING HEATING DELTA

More technology at www.variotherm.at

Reference $_10$

Variotherm Partner

20x Variotherm in 3 years

The company Pinetz has three mainstays, located in Neusiedl am See and Frauenkirchen. They consist of an expert electronics store, an electrical installation business and a gas-water-heating installation business.

What the Pinetz staff like most about Variotherm is product quality and smooth collaboration. There have never been any quality problems. The staff also appreciate Variotherm's planning support.

Staff members requiring assistance with planning issues or products are regularly impressed with the speedy reaction they get from Variotherm, well knowing how long it may take other companies to come up with useful answers.

In the last 3 years, Pinetz has installed Variotherm systems in as many as 20 different buildings. One of the most recent examples is the Karall family's house which Pinetz equipped with a ceiling heating/cooling system, Vario-Roll floor heating and EasyFlex wall heating. You will find more on this subject in the next VarioTime issue.





ING.ERICH PINETZ GmbH Heizung-Klima-Lüftung-Sanitär

Tadtnerweg 1 AT-7132 Frauenkirchen www.pinetz.at



Variotherm Key Account Manager Ing. Peter Unterrainer and Pinetz Expert Heinrich Rittsteuer

Regional installer remains down to earth

Josef Hajny is different from other installers. Having founded his company in 2007, he decided to keep his fixed costs low,



thus ensuring that his business remained streamlined and he would never lose personal contact with his customers. In terms of staff he needs no more than one apprentice and one assistant. His product and service portfolio is also rather down to earth. He concentrates on planning and installing floor heating systems – exclusively in the vicinity of his premises.

Josef Hajny knew that he did not need to drive 50 km to do a job on a building site when he held all the aces in his region. His biggest ace, of course, is Variotherm. Wanting to offer better products than his competition, he chose our system and products, appreciating in particular the excellent processability of the Variotherm pipes. Having worked for other companies before establishing his own business, Josef Hajny had been aware of Variotherm for a while. The installer knows that a cutthroat price war based on exchangeable services makes absolutely no sense. The area around Staatz-Kautendorf, where his business is located, is large enough for him to offer his specialised services focusing on the installation of Variotherm floor heating systems on the refurbishment market.



JOSEF HAJNY

Am Hufeisen 31 AT-2134 Staatz-Kautendorf Phone +43 (0)2524/2591

Partner _ 11

variotime

Variotherm Partner Service

Reap the benefits of becoming a Variotherm professional!



Realistically speaking, in 3 to 5 years, craftsmen who don't manage to set themselves apart from the competition will no longer generate a reasonable profit margin due to increasing price pressure.

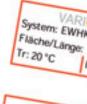
Competition is getting harder. Variotherm products give a leading edge to installers.

The future fortune of installers will depend on their profiling and positioning. Obviously, installers with average products and interchangeable services have no chance of standing out on the market. Those who are content with average products and services will not survive the price war. In times of home improvement stores crowding the market with DIY construction sets, installers must focus on expertise, quality and clear positioning to set themselves apart from the competition.

Stay ahead with Variotherm

Partnership with Variotherm gives you the essential advantage. We at Variotherm would like to give you the opportunity to contact customers you would not normally reach with standard products. Our strong point is our unique and interesting product mix. Send us your plans if you want to impress your customers with an elaborate Variotherm solution. Having worked out the details of the planning documents with our assistance, you'll be able to explain to your customers where the heat comes from, which elements will heat up and how the whole system works.





VARI® System: FBHF - I Fläche/Lange: 3,6 Tr: 20 °C HK

Full steam ahead into the future!

Our partners know that the service we deliver is of a quality not often found in our field. Variotherm also delivers product quality with added value that really stands out: for example, the optimum heat transmission offered by the profiled surface of the VarioProFile pipe from our fitted pipe range. On top of that, this pipe is also flexible, easily bendable and dimensionally stable.

No matter how the market develops in the future, with us as your partner, you can rest assured that we will leave no stone unturned to remain one pipe ahead of the competition. And you will be right there with us!

Order now! The Variotherm professional package

System: FBHF - RA10

HW.

Tr: 24 °C

Advice

n: FBHF - RA10 /Lange: 10,4 m² HK Nr.: 7C

TERM (115 5 m²

HK Nr.: 6C

ERM

A10

m2 Nr.: zu 6C

Planning

Just give us a call. Or send us the key data. We assist you in designing and planning the perfect system.

Project development

each stage of your project and answer any questions you

Installation training

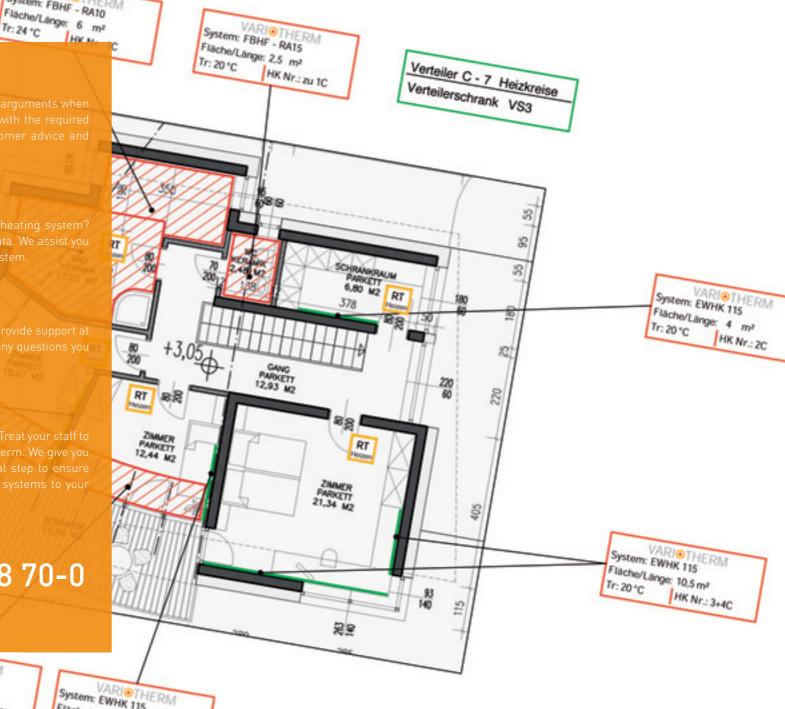
extensive information on each individual step to ensure that you hand over perfect Variotherm systems to your

Don't hesitate to call us:

+43 (0)2256 648 70-0

System: FBHF - RA10 Flache/Lange: 4 m² Tr: 20 °C HK Nr.: zu SC

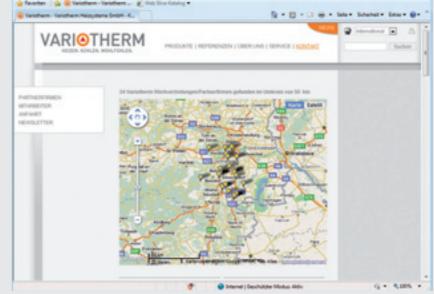
System: EWHK 115 Fläche/Länge: 4 m² Tr: 20 °C HK Nr.: 5C





You will be listed here!

Convenient: We have made it even easier for prospective Variotherm buyers or new customers in Austria to find a suitable installer. At www.variotherm.at/partnerfirma they simply enter their post code and are provided with the name of the closest partner installation company. Would you like to be listed on our website as a trusted Variotherm partner? Don't hesitate to contact us.



Service _ **12/13**

Variotherm braves the fire for its customers!

Although Variotherm installers know that Variotherm ModuleWall and ModuleCeiling help them create outstanding solutions, they may wonder whether this is also true for fire protection. How much fire protection does an 18 mm Fermacell panel with integrated Variotherm heating pipes provide? After all, FERMACELL gypsum fibreboards are known for their exceptional fire protection properties.

According to ÖNORM, we already passed this test in the year 2000. However new standards have been introduced in Europe. Do our plates still pass the test according to the new EN 1364 and EN1365 standards? With the aim of proving that the Variotherm module plate provides standard-conforming fire protection, we commissioned the Institute for Fire Protection Technology and Safety Research in Linz to carry out two fire protection tests. One involved a fire test with a non-load bearing wall.

The result, REI 45, showed that, at 45 minutes, the Variotherm module wall provides substantially longer fire protection than, for example, a conventional 12.5 mm FERMACELL panel.

The module ceiling was next in line to brave the fire. The second test involved a load-bearing ceiling element consisting of a roof structure with with cross battens and heat insulation. Impressively, the Variotherm plate even registered a value of REI 90, indicating that the ceiling can withstand fire for as much as 90 minutes.

This is proof that the installation of a Variotherm module wall or ceiling does not entail any disadvantages and may, instead, even represent an improvement in fire protection terms. Variotherm won't burn out!

Have you caught the spark? Impress your customers with a veritable firework of Variotherm heating and cooling solutions!

Welcome to Variotherm

Mario BAUMGARTNER joined Variotherm on 17 January 2011. The 21-year old recently graduated from the HTL Mödling with a degree in environmental technology. After thorough on-the-job training, he will be responsible for calculations and planning in our technology department. The mountain bike and skiing aficionado will give his all to deliver perfect installation concepts and plans to Variotherm's partner installers. **Michael DITTMANN** is 30 years old and has been with Variotherm since 12 January 2011. He has assumed full responsibility for the fields of delivery, manufacture, warehouse logistics and dispatch. The qualified machine fitter started off in the automotive industry and has now gained the title of Ing. Bachelor. The multiple sports enthusiast is married with 2 children and spends all his free time rescue diving, wind surfing, motor biking, teaching snowboard and sport climbing. His motto: Pity is free, but envy must be earned. **Emanuel PAYER** is 20 years old and has been responsible for consignment and warehousing at Variotherm since November 2010. He joined Variotherm directly after his bricklayer apprenticeship and subsequent military service. "I love the working environment at Variotherm", says Emmanuel, "we are all there for each other. In addition, nobody is above helping others when they need it!" In his free time, he likes jogging and going out with his girlfriend.



variotime Variolnside

Prince of plates: Tibor Horvath

Variotherm is proud to be Austrian and nothing will ever change that. We take our regional responsibility very seriously and the products we manufacture are "Made in Leobersdorf/Austria".

All credit for this must go to Tibor Horvath whose specially-designed machines have been credited with an innovation award.

Tibor Horvath is our prince of plates who guarantees the correct placing of each plate. In this case, we are of course talking about Variotherm wall and ceiling modular panels and the Variotherm Compact panels for the 20 mm VarioComp floor heating system. Tibor Horvath is responsible for the entire process starting with the programming of the machines and ending with the quality control inspection of the finished products.

The making of Variotherm modular panel

The fully-automated production process for Variotherm modular panels is supervised by our "prince of plates", Tibor Horvath. The pallets carrying Fermacell gypsum fibreboards are placed in the machine, requiring precision down to the millimetre. The panels are lifted one at a time, centered on the milling machine table and processed automatically. Again, precision is key. The machine makes a cut for the pipe canal, down to the correct tenth of a millimetre, allowing the pipe to be inserted into the intermediate spaces.

During this whole process, no dust develops as 100% of the waste material is sucked off. Following their fully-automated positioning on the finished stack, the pallets are transported to the finished-product warehouse. This process



guarantees swift delivery dates for our customers as well as top quality made in Leobersdorf/Austria.



Iolution

Heating and cooling throughout the millennia.

cold for millennia until The climate remained man discovered fire.

burnt fingers. It was a hard and stony There were setbacks, rash reactions, path that led to the discovery of fire, but ultimately, it was warming.

temperatures in human habitations. step forward. Their first cooling and heating systems created balanced The ancient civilisations took a big

privileged enough to crowd 'One for all' used to be the motto of those who were around the one and only household oven.

in the form of heating, burning, brought us apparent progress developments that still evoke heated discussions today. The industrial revolution and the resulting smell –



AND NOW:

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B A

first ceiling cooling system, technological development After the discovery of the hundred-thousand years.. stalled for a few

> In the beginning there was fire? Perhaps, but the first primates were more often hot than cold. This problem was not solved until a few genetic quantum leaps later ...







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