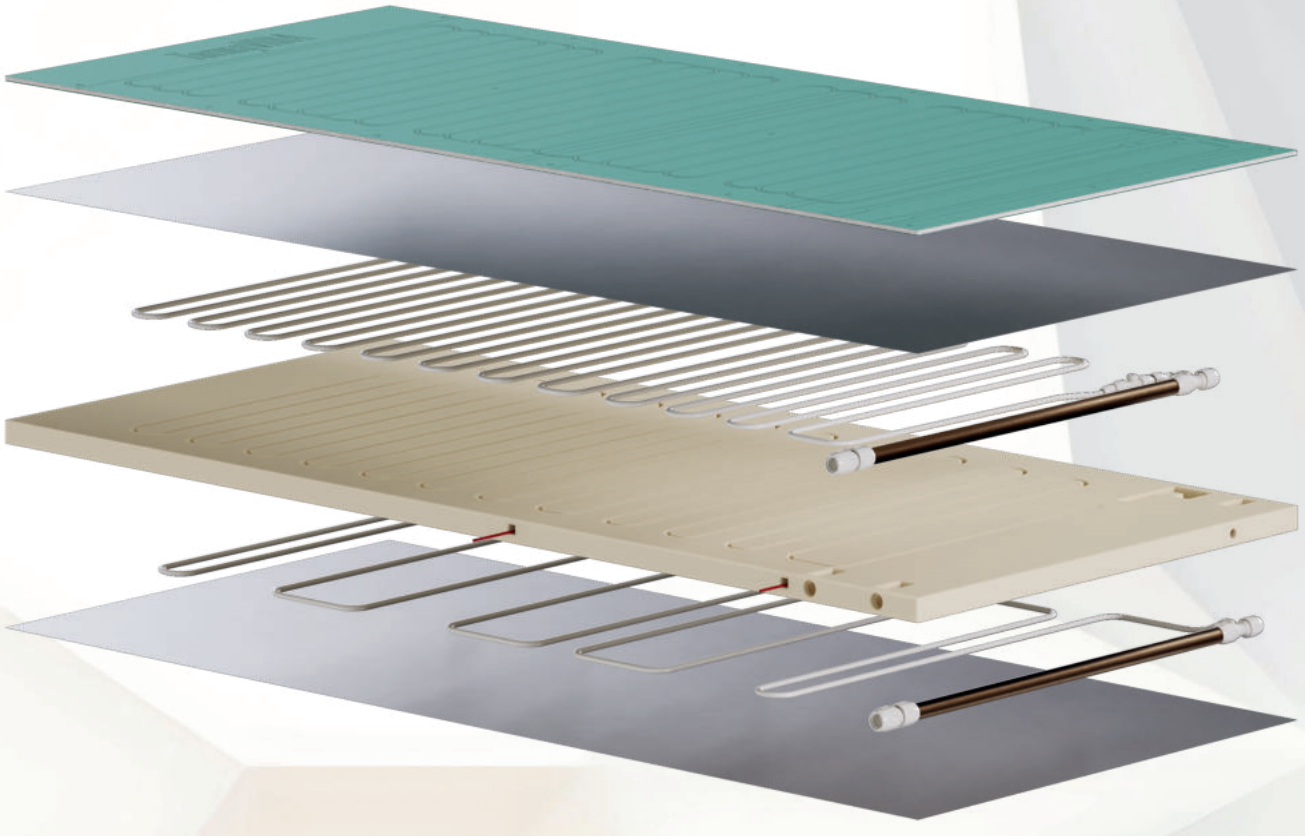
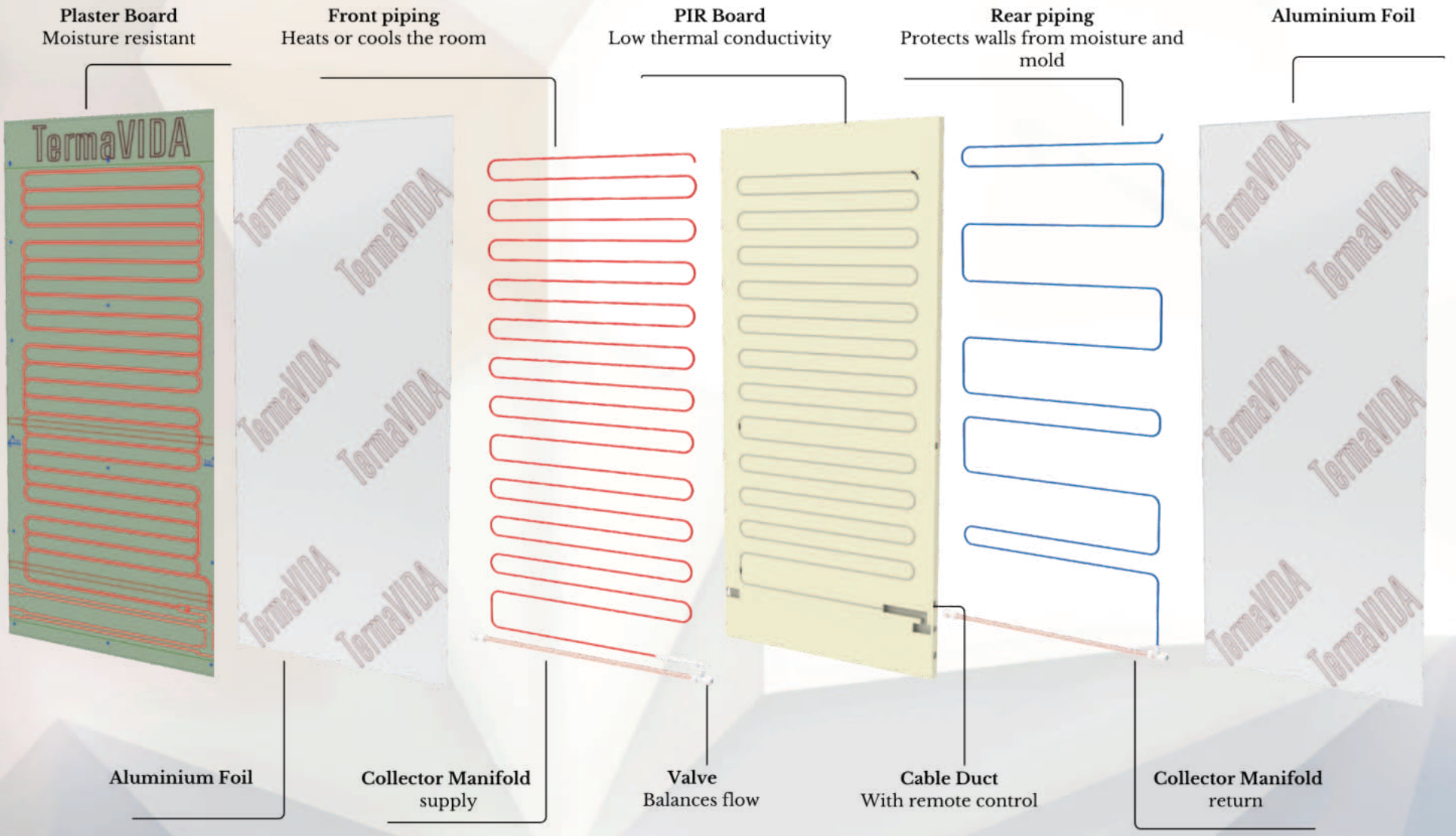
TermaVIDA®



Technical guide

Smart Termo
Internal Warmth

Construction of the TermaVIDA® heating panel



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1. Introduction

The TermaVIDA® heating panel system is designed for comprehensive thermal modernization inside buildings.

It combines five functions:

- **active thermal insulation,**
- **radiant heating,**
- **cooling (excess heat absorption),**
- **aesthetic finishing of building partitions,**
- **distribution of electrical installations.**

The modularity of the components allows for quick, professional, and aesthetically pleasing adjustments to fit any room dimensions.

The versatility of the solution makes it suitable for both newly constructed and existing buildings. It is particularly recommended in cases where, for various reasons, modifications to the facade appearance are not possible, nor can energy efficiency be improved through traditional external insulation of the building.

The most significant advantage of using TermaVIDA® heating panels is radiant heating.
Infrared waves heat rooms, people, and objects evenly and directly. This type of heating allows heat to be absorbed by everything within the reach of the infrared waves, even when the air is cool.
It operates similarly to **sunlight, enabling the installation** of panels on both walls and ceilings.

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We breathe air that does not cause a sore throat or discomfort upon waking up in the heating season!

This type of heating does not circulate dust or mites, making it safer for allergy sufferers and individuals with respiratory difficulties.

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2. Scope of system application

The TermaVIDA® active insulation system is designed for indoor use in buildings. It integrates an innovative, patented solution for building thermal modernization in the following areas:

Thermal insulation of buildings – The core of the TermaVIDA® "**active insulation**" system is a panel made from PIR insulation board, into which a heating/cooling coil is embedded, covered on both sides with a vapor barrier layer, and finished on one side with a standard gypsum board. The panel's disk mounting system on the wall creates a small air gap between them, serving as an additional thermal insulation layer. The coil is placed near both external surfaces of the PIR board. When heating, the part of the coil facing the room ensures the panel's temperature is higher than the indoor air temperature. This design entirely eliminates the possibility of heat loss to the surroundings, while the panel itself acts as an additional radiant heater (during the winter season).

During cooling, the water in the coil absorbs excess heat from the room air, and the panel blocks heat from entering from the outside (during the summer season). The main task of the second part of the heating coil (embedded in the PIR board on the side of the air gap) is to shift the dew point of the outdoor air closer to the exterior surface of the wall. This allows partial drying of the wall (water evaporation), reducing the formation of mold and fungi and protecting against the degradation of the building material. It should be noted that the presence of two vapor barrier layers within the panel eliminates the possibility of moisture diffusion from inside the room, which is particularly important during the winter season. Moreover, the use of an air gap across the entire surface allows for an even temperature distribution between the panels and the building partitions – walls/ceilings.

Heating rooms – Heat distribution within the panel is based on the professional Hep2O system, using press-fit pipes and a wide range of fittings. To connect to an existing central heating system, transition fittings from the aforementioned system should be used to avoid connection leaks.

Cooling rooms – By absorbing excess heat (e.g., from a reversible heat pump), the panels help maintain thermal comfort in the building, even during the summer, by maintaining a constant temperature and preventing room overheating.

Wall and ceiling finishing – The finishing surface consists of an impregnated gypsum board, which defines the final dimensions of the TermaVIDA® panel. Moisture-resistant boards are used, allowing installation in bathrooms and rooms with high humidity. The panel joints require only standard finishing of seams and surfaces, as with any gypsum board!

Thermal modernization of buildings under historical preservation – This often means that there is no possibility of altering the facade. In the case of TermaVIDA® panels, wall insulation is applied inside the building.

The highest user comfort and lowest heating costs are achieved when the distance between opposing walls does not exceed 5 meters, and the height from floor to ceiling is 2.7 meters.

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CEILING HEATING

Input data :

Measured values :		
Atmospheric air pressure	kPa	96,15
Water mass flow	kg/h	66,97
Reference temperature	[°C]	20,13
Supply heating medium temperature	[°C]	31,20
Return heating medium temperature	[°C]	29,27
Temperature differential	K	1,94

HEATING

Height from the floor	Temperature at various heights
[m]	[°C]
Average floor temperature	19,5
0,25	20,0
0,75	20,1
1,70	20,2
2,70	23,4

3. Features of TermaVIDA® panels

PATENTED

Uniqueness of the solution, confirmed by patents.

Fire behavior class B.

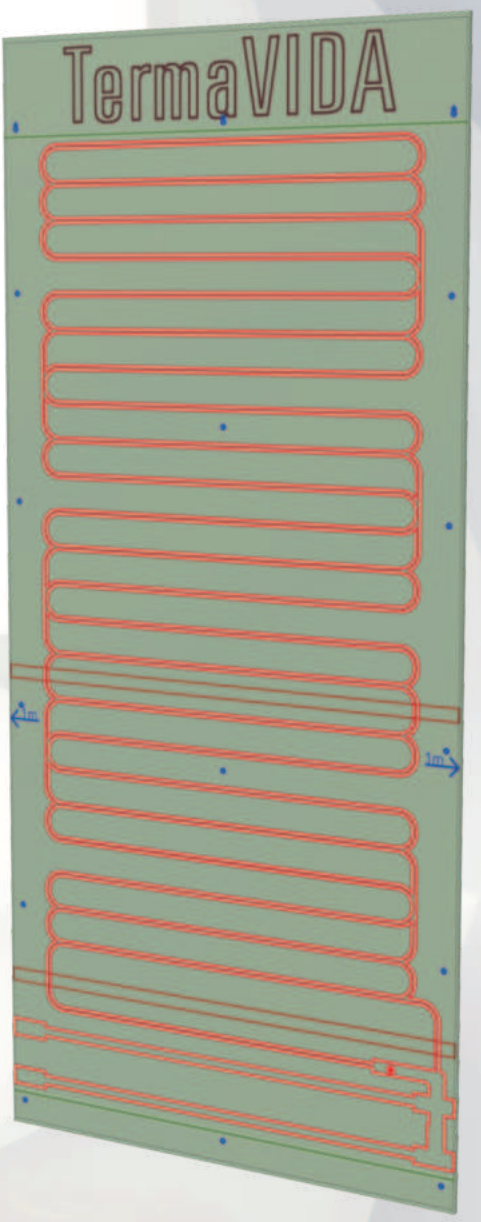
Heat transfer coefficient
λ=0,022W/mK

Prevention of dew point formation on building partition surfaces.

Elimination of mold and fungal growth

Versatility of installation and aesthetics.

CE European CE Conformity



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4. Benefits of using TermaVIDA® panels

Investor Benefits

Are you planning to replace your boiler with a heat pump? Or perhaps your current heating system is too expensive, and you're considering insulating your building? Before making your decision, take a look at the advantages of TermaVIDA® heating panels.

By using TermaVIDA® heating panels, you:

Increase the heating surface in the room by replacing traditional radiators with radiant heating, allowing you to lower the temperature on your boiler or heat pump. This results in REAL savings on heating costs, and ultimately on your energy bills,

Insulate external walls with "ACTIVE" internal insulation,

Preserve the external walls, maintaining the aesthetic appeal of natural brick or even a historic facade,

Modernize only the external walls, without needing to repaint the other walls,

Utilize existing central heating pipes that previously supplied the radiator,

Gain the option to implement low-parameter heating in areas where it was previously not possible.

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Installer Benefits

By using TermaVIDA® heating panels:

You will stay ahead of the competition and stand out in the market by offering your clients a modern solution,

After completing the training, you will become our accredited installer, and we will recommend you to interested investors, allowing you to increase your income.

Environmental Benefits

By using TermaVIDA® heating panels:

We will consume less energy to heat buildings,

Less heat will escape into the atmosphere, actively contributing to the reduction of the greenhouse effect,

Increased energy efficiency reduces the consumption of fossil fuels, primarily coal and natural gas.

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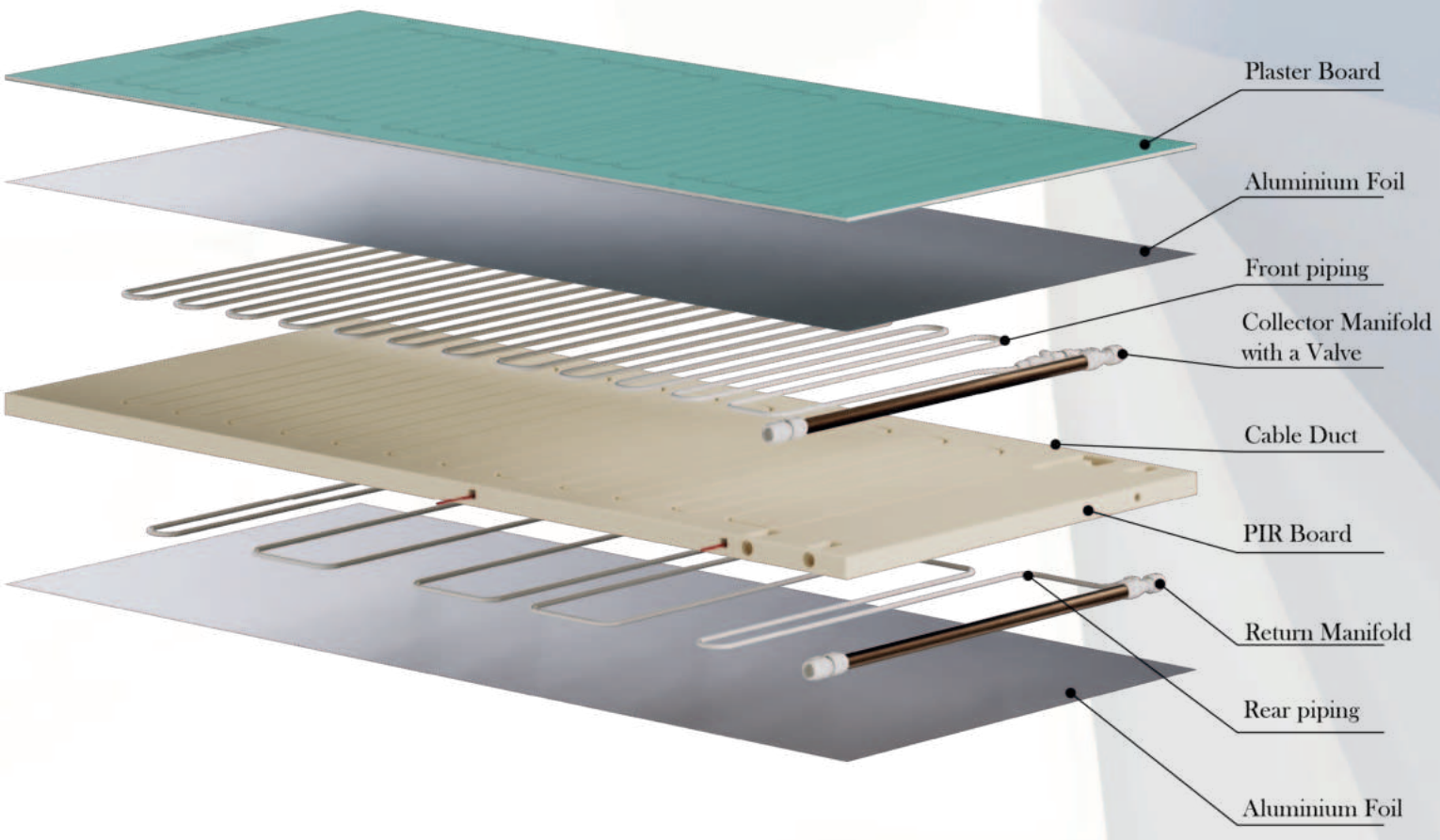
5. Structure of the TermaVIDA® panel

The basic TermaVIDA® heating panel is a multilayer board consisting of:

1. **Plasterboard** – Green, moisture- and fire-resistant,
2. **PIR insulation board** – High-quality polyisocyanurate (PIR) with a low thermal conductivity coefficient of λ=0.022 W/(m·K), reducing heat loss,
3. **Vapor-tight aluminum foil layers** – Enhancing the insulation properties of the PIR board,
4. **Embedded heating and cooling piping in the PIR board**:
   - **Front piping** – Responsible for wall or ceiling heating/cooling,
   - **Rear piping** – Responsible for protecting the building wall from moisture penetration,
5. **Collector manifold** – Used to connect additional system panels. The manifold is made of thin-walled copper pipes with a diameter of 22 mm,
6. **Regulating valve** – Balances thermal regulation between individual panels,
7. **Cable duct** – Equipped with a puller for threading electrical wires,
8. **Technical gap** – Formed between the heating panel and the existing building partition, ensuring even heat distribution across the entire insulated surface.



In addition to production markings, the surface of the board features prints indicating the exact placement of the piping, cable ducts, and mounting points for attaching the panel to the existing wall. The panels also highlight pipe-free zones that can be freely cut – at the bottom to adjust the panel for floor irregularities, and at the top to match the room height. Special panels allow for cutting out sections for window and door areas.

The maximum operating temperature for the panels is +50°C. If the heat source operates at higher parameters, mixing and safety fittings must be installed in front of the TermaVIDA® panels.
For further guidelines, refer to the Hep2O system documentation.

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6. Properties of TermaVIDA® Panel Components

PIR Insulation Boards

For the production of TermaVIDA® heating panels, the highest quality PIR (polyisocyanurate) insulation boards are used. The board offers high resistance to mechanical damage and excellent compressive strength. With a thermal conductivity coefficient of λ=0.022 W/(m·K), the PIR boards, with their vapor-tight aluminum cladding, are energy-efficient.
In practice, this means minimal energy loss, which translates into tangible savings on home heating costs. This material provides thermal insulation up to 70% more effective than polystyrene or mineral wool. Additionally, it offers strong resistance to moisture, rodents, insects, mold, fungi, and chemicals, which is crucial when dealing with the variable conditions in building partitions.

Technical specifications of the PIR board

Thermal conductivity (λD)	0,022 [W/(m·K)]
Thermal resistance (RD)	2,30 [m² ·K/W]
Declared compressive stress at 10% relative deformation	150 kPa

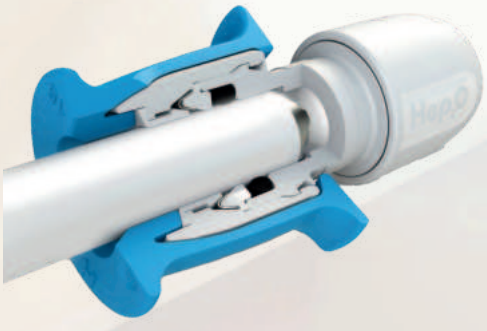
Pipes and Fittings Used in TermaVIDA® Panels

Here's the technical translation:

Pipes and Fittings Used in TermaVIDA® Panels
The Hep2O system is a reliable and versatile installation system that has been used worldwide for years. It was chosen for its benefits in terms of working parameters, easier and faster installation without compromising on quality and durability of the connections:
Safety – press-fit connections.
This results in shorter panel installation times,
Pipe flexibility – makes profiling easier.

These installation features reduce the number of fittings required. Fewer connections mean a lower risk of leaks.

Using the Hep2O system also provides long-term benefits in terms of working parameters compared to traditional systems.
The use of plastic pipes offers:
No corrosion,
Quieter operation,
Lower heat losses,
No scale build-up.



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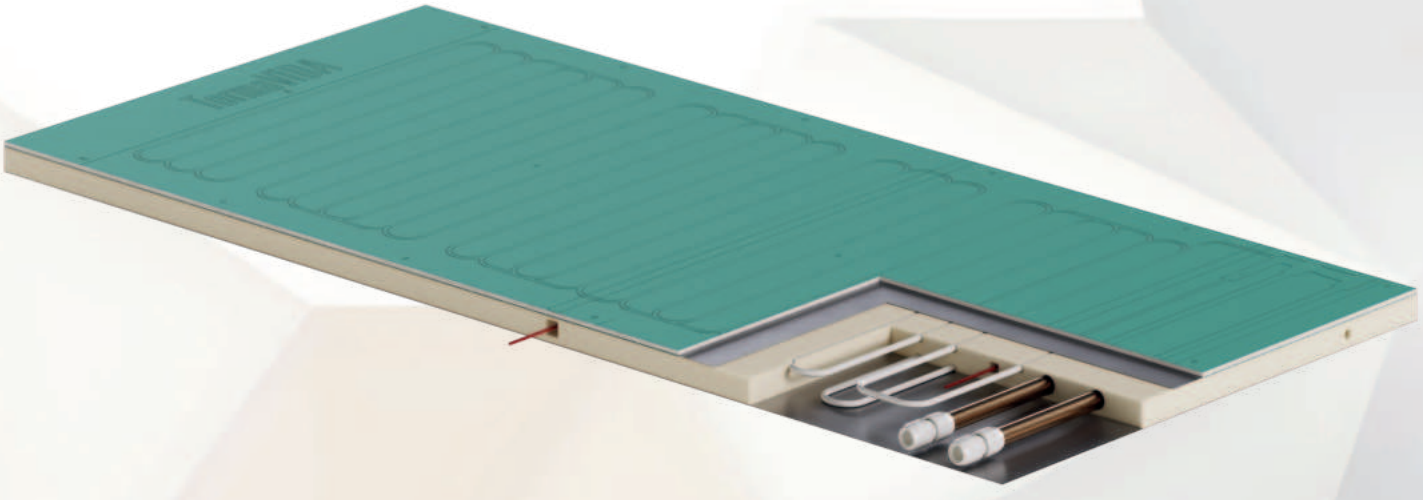
7. Before installation

Before starting the installation, make sure to:

Ensure proper ventilation of the building,
Dry the walls,
Prevent moisture rising from the ground,
Ensure the walls are sealed,
Flush/clean the central heating system (C.O.),
Install a filter,
Install an air separator.



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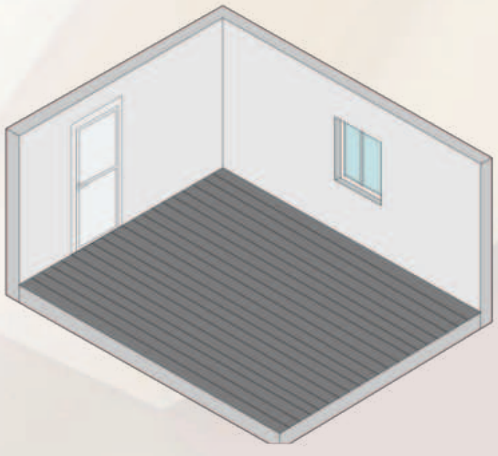
8. TermaVIDA® Panel Installation Technique

1. Delivery and unloading of panels

Unloading is performed using a forklift or by two people, placing the panels on a level, dry, and flat surface, using panel carrying handles.

2. Surface preparation

The walls/ceilings of the rooms being renovated should be prepared to allow the use of the mounting system. The rooms should be clean and free of any obstructions.



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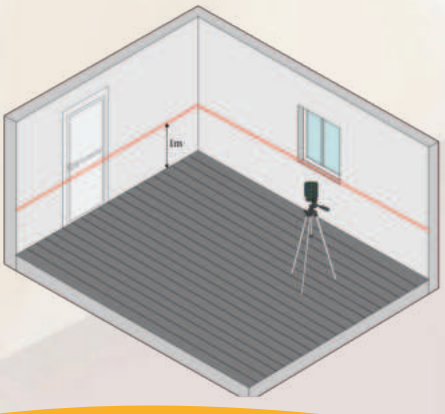
3. Leveling/Measuring

To adjust the panel's size, identify the lowest point of the floor along the walls being renovated and, using a laser level, mark 1 meter of height on the wall from that point. Then, measure the ceiling height (including any ceiling unevenness). Use the provided spacers to create a 1 cm gap above the floor. Each panel has a 1-meter marking, which helps adjust the panel to floor unevenness and ceiling height. Before installing each panel, measure and cut the edges so that the 1-meter marking on the panel aligns with the marked level on the wall, accounting for gaps near the floor and ceiling.

When cutting/installing, pay close attention to the drawings on the panel to avoid damaging the piping.

Each panel has a **70 mm** zone at the bottom, free from piping, designed to accommodate floor unevenness and allow for safe installation of baseboards

For larger floor irregularities, the floor should be leveled. The upper safe cutting height is marked on each panel and varies depending on the panel's height. These marked zones can be cut to the required dimensions without issues. When installing cabinets, pictures, or other items, care should be taken to avoid damaging the heating coil. It is best to use a cover or thermal imaging camera for precise coil location.



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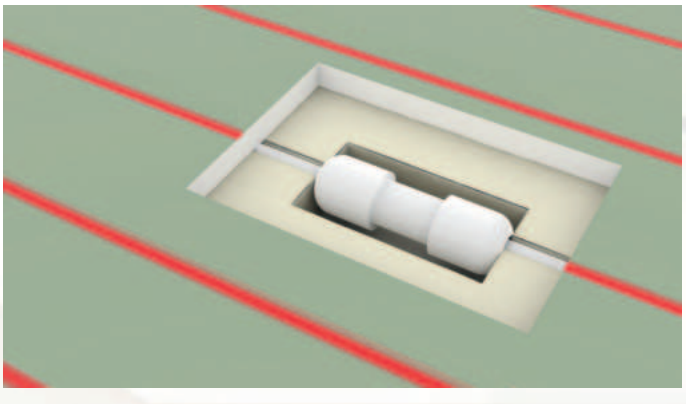
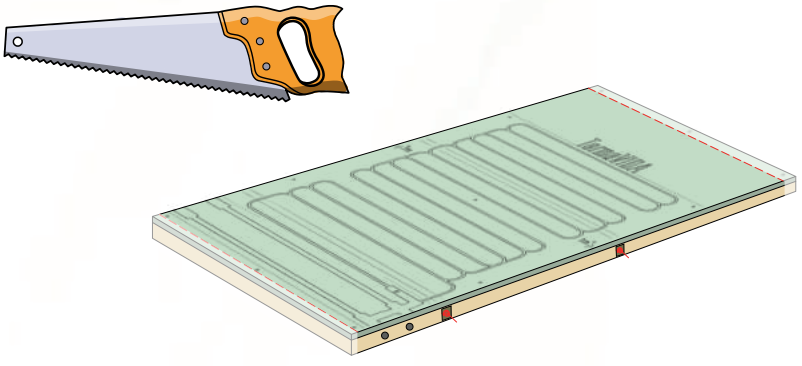
The advantage of TermaVIDA® heating panels is that the pipes forming the heating coil are not bonded to the PIR foam or the gypsum board. **During drilling, the heating pipe can bend, reducing the risk of damage. In the event of pipe damage, repair is quick and simple: expose the damaged area, use a standard Hep2O fitting of the appropriate pipe diameter, and restore the wall surface using the standard gypsum board technology.**

Furniture or items can be hung on the heating panel using mounting elements dedicated to gypsum board technology. The weight of the item depends on the type of mounting used, as specified by the manufacturer.



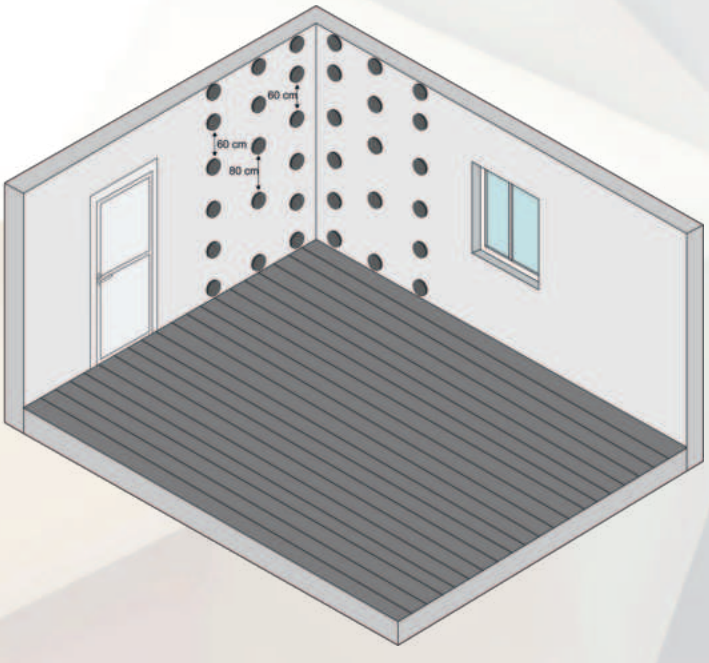
4. Window, Complementary, and Door Panels

These panels have additional zones for cutting (see the diagram on the panel).



5. Pipe connections must remain at the same height to maintain proper hydraulic connectivity.

Panels should be measured and cut according to the calculated dimensions and within the marked cutting zones before beginning installation.



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6. Wall preparation

Drill and attach mounting discs according to the diagrams on the panel surface. The discs should be leveled to create a uniform surface. Ensure a minimum gap of 15 mm between the existing wall/ceiling and the TermaVIDA® panel.

Tools required for installation:

- **Handles for safe panel transportation,**
- **Drill/driver,**
- **Torx T25 bit,**
- **Phillips bit,**
- **Drill bits ø 5 mm and ø 10 mm,**
- **Cross laser/level/building square,**
- **Compass/tape measure for marking,**
- **Hand saw/sabre saw/paper knife,**
- **Copper pipe cutter,**
- **Deburring tool.**

Installation kit includes:

- **Mounting discs,**
- **Universal M8 ø 6.5 screws, class 8.8*,**
- **L 50 ø 10 BX sleeves (with an external diameter of 10 mm and a length of L = 50 mm), quantity: 21 pieces,**
- **84 screws for panels,**
- **Complete set.**

A detailed instruction manual for mounting discs is included in the package.

***Suitable for both concrete and wood substrates.**

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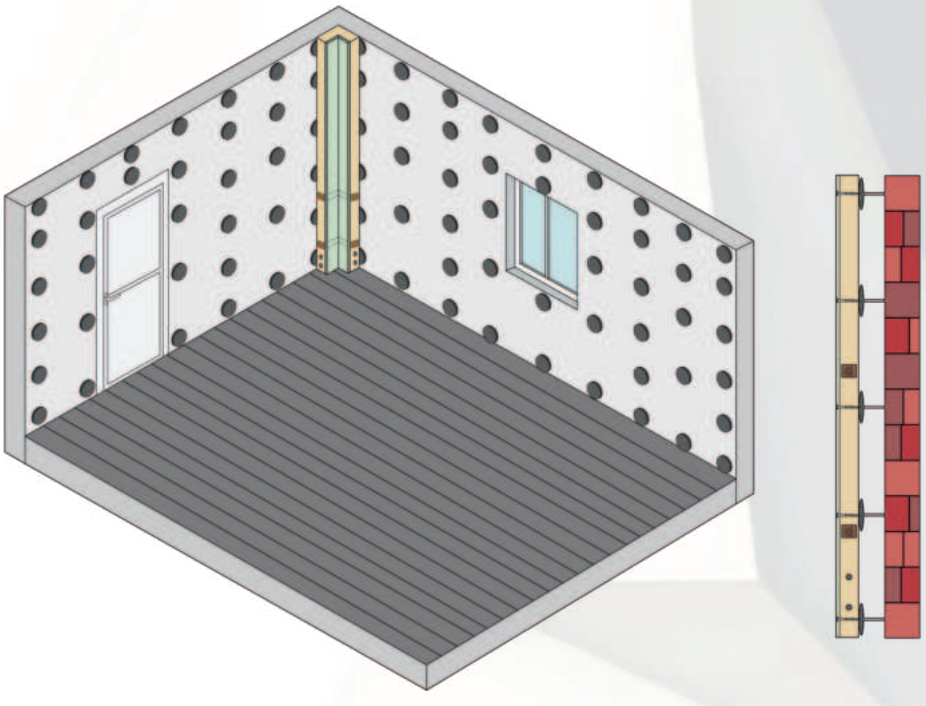
7. Starting the installation

Begin at the corner. The leveled corner panel, placed on spacers, is screwed into the mounting discs at the marked points.



8. Hydraulic connections

You can use the existing radiator connection or install a new central heating system to connect the panel zones.
If using the existing central heating system, it must be properly prepared (e.g., cleaning, flushing).

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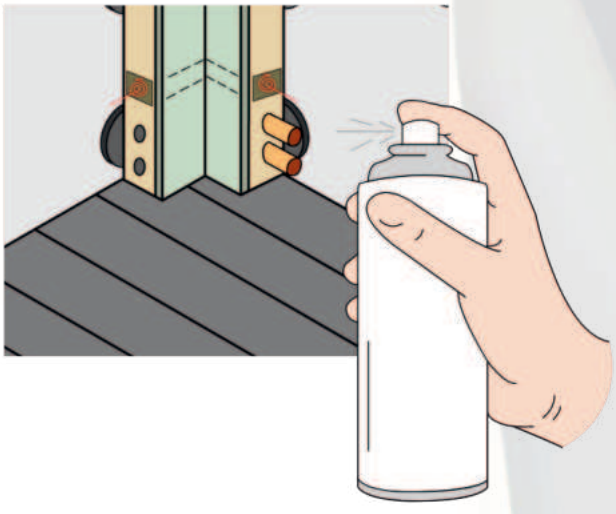
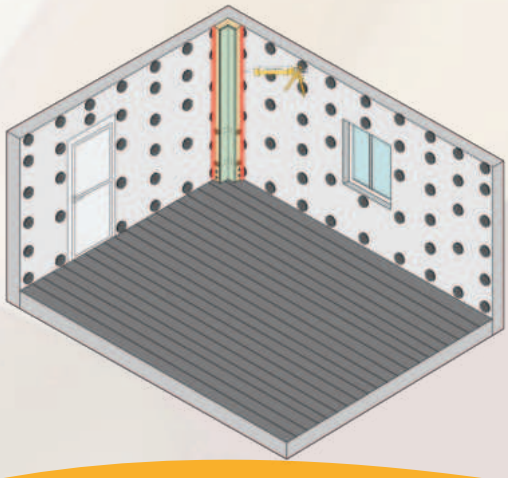
At each connection, it is required to use aerosol lubricant for Hep2O fittings.
This ensures the tightness of the connections. No other lubricants from different manufacturers or alternative products should be used.



9. Panel Connection

Before connecting the panels, apply a layer of sanitary silicone along the entire length of the connecting surfaces of the PIR boards —on the side edge of the panel as shown in the diagram.
Tie the ends of the wires in the cable ducts to easily guide the electrical wiring. For hydraulic connections between the panels at central heating connection points, insert the provided 22 mm diameter pipe sections between the panels, as shown in the diagram.



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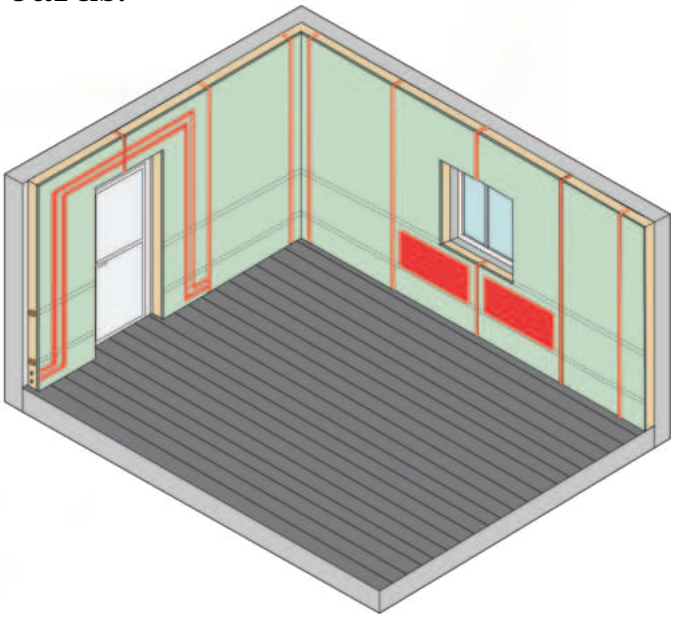
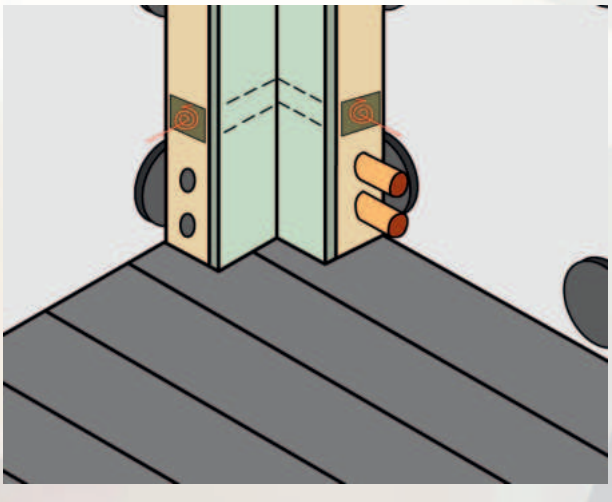
Press the panel into place, leaving a gap of 3-4 mm between the boards.



Insert threaded fittings into the first panel for connection to the central heating system, and insert end caps into the last panel. There is also the option of a cross-connection, where the supply pipe is connected to the first panel and the return pipe to the last panel. This method allows for easier balancing of flow between individual panels.

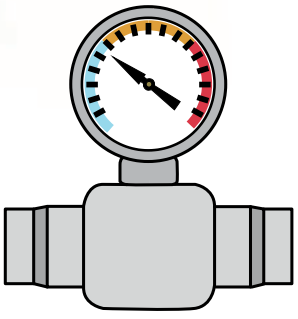


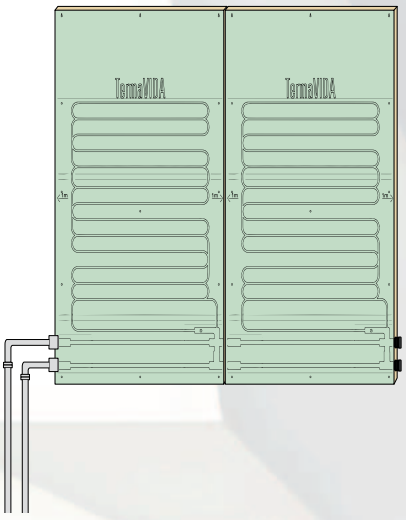
10. Panel fastening

Screw the panel into the mounting discs at the marked points.

11. Leak test

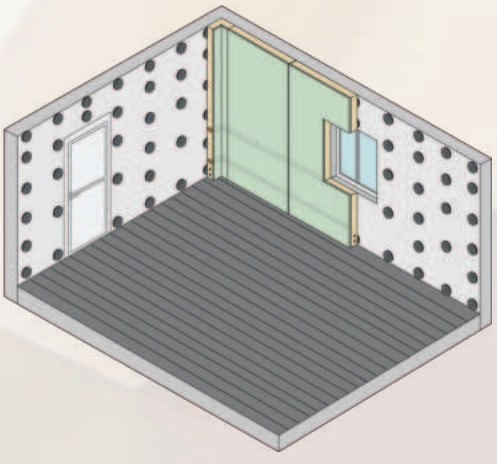
During testing of the Hep2O installation, it is recommended to use pressure 1.5 times higher than the operating pressure.
The recommended duration of the main test should be 120 minutes.





12. Window area

For installation in the window area, special window panels with coils in the sub-window zone should be used (refer to installation diagrams). The remaining part of the panel should be cut to the window dimensions, in accordance with the requirements of dry construction technology. The pieces left after cutting can be used to finish the recess of the window opening.



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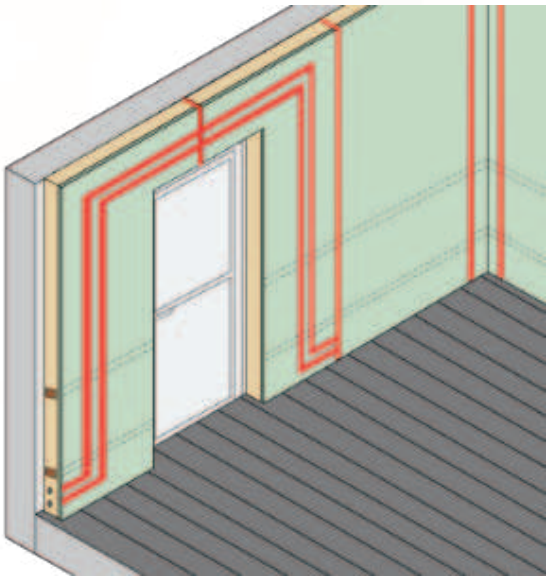
13. Door area

If it is necessary to bypass a door opening with the central heating installation, door panels should be used.



14. Wall completion

To finish the entire installation, insert a complementary panel that seals the wall completely. This panel can be cut to any height and width as needed.

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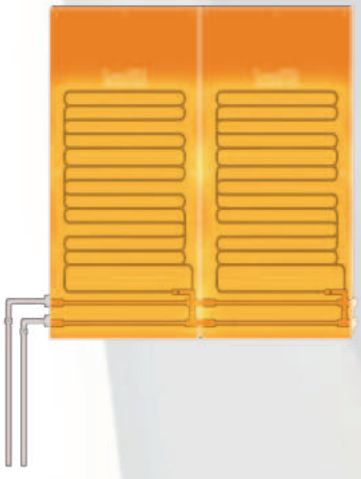
15. Commissioning and hydraulic adjustment of the central heating system with heating panels

Keeping in mind the maximum operating temperature of +50°C, the panels should be protected by using mixing valves, such as thermostatic mixing valves, in the central heating system.
After performing the leak tests, proceed with filling and bleeding the system.

Special control channels running vertically between the manifolds and the bottom of the PIR board in TermaVIDA® panels allow for easy detection of potential leaks during water pressure tests or system filling. Water will appear on the floor at the outlet point of the channel.
This solution was developed for additional connection control, enabling quick leak detection and correction directly on-site.



Filling the system should be done using a filling and flushing unit (vacuum-based). If a filling station is not available, you can adjust the valves installed in each panel. To check the operation of the system, you can also use a thermal imaging camera aimed at the surface of the operating panels. Adjustment can also be carried out using an infrared thermometer, measuring the panel temperatures.

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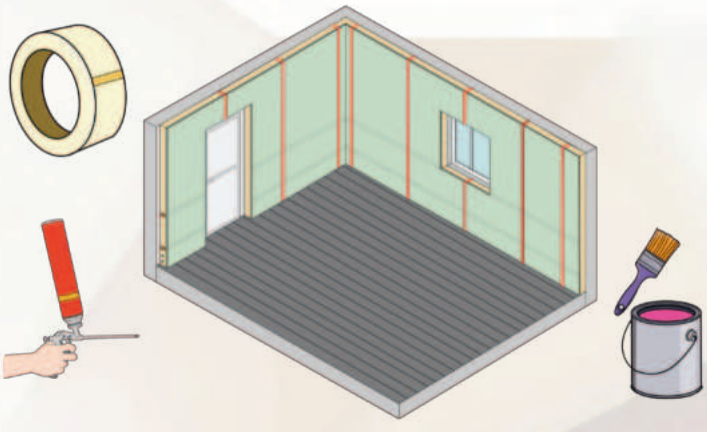
The purpose of the adjustment is to balance the temperature of the heating surfaces. To prevent air locking and contamination of the system, it is recommended to use air separators on the supply line and dirt separators on the return line of the central heating system. Depending on the building being modernized, it is advisable to consider and install flow balancing valves in the system.

16. Finishing panel connections

The 3-4 mm gap left between the panels should be filled with low-expansion mounting foam.

Once the foam has hardened at the joints, standard finishing of seams and surfaces can be applied, just as with regular gypsum board. The TermaVIDA® heating panel system operates at low temperatures, so there is no need for special paints or gypsum compounds.



9. Safety Instructions

- **Before starting the installation,** carefully review the safety instructions and installation guidelines.
- **The installation and product usage instructions must be retained.**
- **If in doubt,** contact the technical and sales department of the TermaVIDA® system – Smart Termo.
- **Failure to follow** the manufacturer's recommendations may lead to material damage and pose a risk to the health and life of both the installers and the occupants of the renovated spaces.
- **During work**, protective glasses, gloves, safety shoes, helmets, and appropriate workwear must be used.
- **Keep the workplace clean.**
- Unauthorized people, especially children, **must not be allowed near the work areas**, particularly in cases of thermal modernization of occupied buildings.
- **Only system materials** provided by the manufacturer should be used.
- **When installing heating panels**, follow all applicable regulations regarding installation, connection, and accident prevention, in accordance with health and safety (HSE) regulations. **Fire safety and environmental protection** regulations must also be followed.
- **The installation must be carried out** only by personnel trained by the manufacturer of TermaVIDA® heating panels.
- All construction, central heating, electrical, and finishing work **should be entrusted only to individuals** with the appropriate education and valid certifications in the relevant fields.

10. Standards and Guidelines

The TermaVIDA® heating panel system is manufactured in accordance with the DIN EN 442-1, 2 2015 standard.

Additionally, specially developed tests were conducted by:
HLK Stuttgart (01.2024)
The Faculty of Mechanical Engineering, Opole University of Technology (03.2024).

Documentation is available for review from the manufacturer.
The manufacturer of the TermaVIDA® system assumes no responsibility for installations that do not comply with the usage and installation guidelines, or for any resulting damage caused by such non-compliance.

For your safety and to ensure the proper use of our products, we recommend regularly checking for updated versions of information and guidelines related to the system.

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11. Guidelines for Submitting a Request for Quotation

Below is a list of the necessary information we need to prepare the selection and quotation for the TermaVIDA® active insulation system:

1. **Current project or sketch of the rooms with dimensions, as well as the minimum and maximum height,**
2. **Distance from corners to window and door reveals, and vertical installations,**
3. **Height of the window sills (to the bottom of the sill),**
4. **Height of the top of the door reveal,**
5. **Dimensions of door and window openings,**
6. **Measurements and location of ventilation or other openings,**
7. **If there are pipe risers, indicate the distance from the wall to the pipes,**
8. **If utilizing the existing piping system, mark on the drawing the location, type, and diameter of the supply and return pipes,**
9. **Description of materials and wall construction thickness,**
10. **Information on what is above the insulated room (e.g., heated or unheated attic, or roof deck). For unheated attics and roof decks, provide the type and specifications of the existing insulation,**
11. **Results of the energy audit (if one has been conducted).**

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