va-Q-tec

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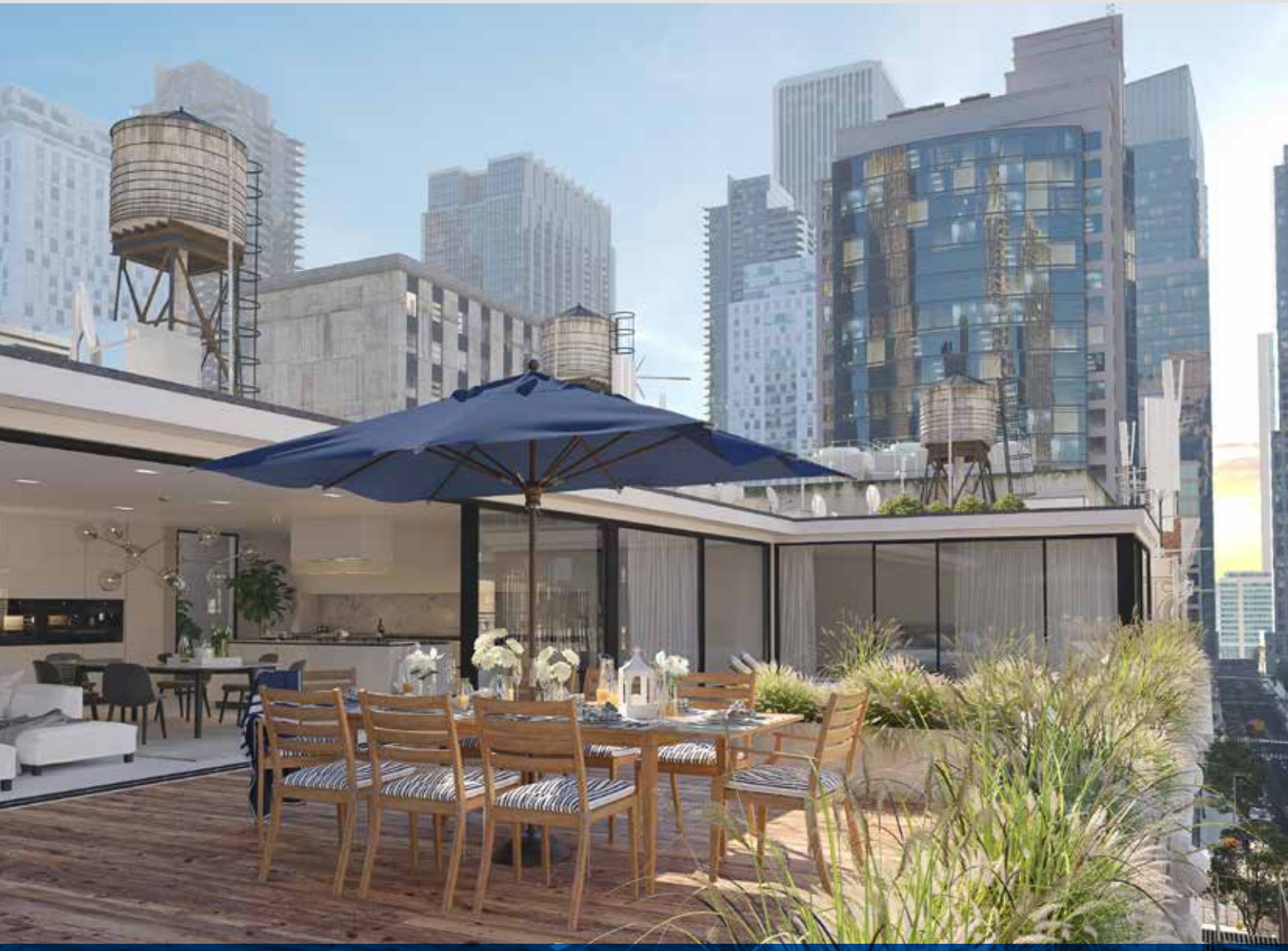


va-Q-vip Floor

Vacuum insulation panels – the modern insulation for balconies, terraces and flat roofs

Problem description

Nowadays having additional living space in the summer is important for many people. Therefore terraces and balconies, which are often built with a canopy and attractive floor coverings, are becoming more and more important.

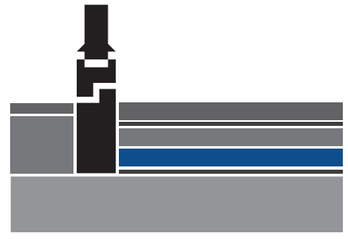
A smooth transition from the inside of the living space to the outside is required. However, a barrier-free passage often poses great problems for architects and fabricators.

On the one hand, efficient insulation and compliance with all regulations is required and on the other hand no height differences should occur in the transition area. Vacuum Insulation Panels (VIPs) are a very thin yet very efficient insulation solution. They allow fulfilling all necessary requirements without creating tripping hazards for children and senior citizens as well as users of rollators or wheelchairs.

Solution: va-Q-vip Floor

va-Q-vip Floor elements enable simple and highly efficient insulation of balconies and terraces by reducing heat losses and energy costs. In contrast to conventional insulation materials the installation height is significantly lower. Even a 40 mm thickness of insulation with va-Q-vip Floor can be enough to achieve sufficient insulation performance.

va-Q-vip floor is a microporous insulation material based on fumed silica. In addition it is equipped with a 17 mm polyurethane board on the upper side and a 3 mm rubber sheet on the bottom. This layer structure enables optimal protection of the vacuum core in construction applications. The va-Q-vip Floor elements are characterized by their special film folding technique „va-Q-seam“ with smooth edges and corners. This technique makes it possible to put individual elements together with minimized joint areas. Rectangular panels are produced in general, but special shapes (trapezoid, triangular, corner sections) are available on request.



The va-Q-vip Floor was specially developed for usage in floors, flat roofs, balconies and terraces.

va-Q-vip Floor

- **Barrier-free traffic areas**
- **Smooth edges and no foil overlaps because of patented va-Q-seam technology**
- **Additional protection through mechanical damage**
- **Various standard sizes on stock**
- **Long lifetime due to optimized panel design**
- **100 % quality control with the patented gas pressure measurement system (va-Q-check)**
- **- Sustainable product (recyclable core material)**

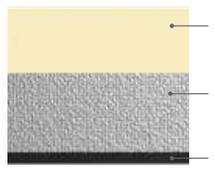
va-Q-vip Floor is a microporous insulation material based on fumed silica. Additionally it is laminated by a 17 mm thick PIR layer on top and a 3 mm rubber granulate layer at the bottom. This composition enables an optimized protection of the vacuum core for construction applications. Our va-Q-vip Floor elements are unique because of their smooth edges and corners (va-Q-seam) wherefore individual elements can be joined together almost seamlessly. In general rectangular panels are produced but various shapes (trapeze, triangle, corner section) are possible on request. The va-Q-vip Floor was specially developed for the use in floors, flat roofs, balconies and terraces.

Properties

Thermal conductivity (VIP) - initial value @ 10 °C*	≤ 0.0043 W/(m·K) (thickness ≥ 20 mm, at delivery) according to DIN EN 12667
Thermal conductivity (VIP) - design value incl. aging and edge effects	0.007 W/(m·K) (thickness ≥ 20 mm)
Thermal conductivity (VIP) ventilated - design value incl. aging and edge effects	0.020 mW/(m·K)
U-Value (VIP) - initial value @ 10 °C*	0.22 W/(m^2·K) (thickness = 20 mm)
U-Value (VIP) - design value incl. aging and edge effects	0.18 W/(m^2·K) (thickness = 40 mm) 0.35 W/(m^2·K) (thickness = 20 mm)
Internal gas pressure @ 20 °C	≤ 5 mbar (at delivery)
Density	180 – 210 kg/m^3 according to DIN EN 1602
Area density	3.5 – 5 kg/m^2 (thickness = 20 mm)
Temperature resistance (VIP)	-70 – 80 °C (temporary up to 120 °C)
Moisture resistance	0 – 70 % rel. humidity (until 50 °C)
Specific heat capacity	0.8 – 1.0 kJ/(kg·K) (at room temperature)
Compressive strength at 10 % compression	≥ 150 kPa according to DIN EN 826
Tensile strength perpendicular to faces	≥ 30 kPa according to DIN EN 1607
Lifetime	Depending on usage, up to 60 years
Fire class (VIP)	B2 according to DIN 4102
Standard sizes (l x w)	1000 mm x 600 mm 1000 mm x 400 mm 1000 mm x 300 mm 600 mm x 600 mm 600 mm x 400 mm 400 mm x 300 mm
Available thickness (overall construction)	40 mm, 50 mm, 60 mm

* Please note terms of service § 6 "Deviation range of the insulation value" in "Special Terms and Conditions of Sale and Delivery, Product: Vacuum Insulation Panels (VIPs)" corresponding to the valid version respectively.

Layer structure va-Q-vip Floor:

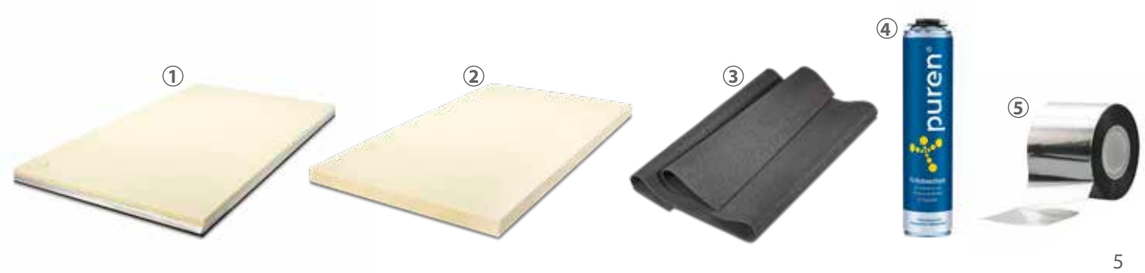


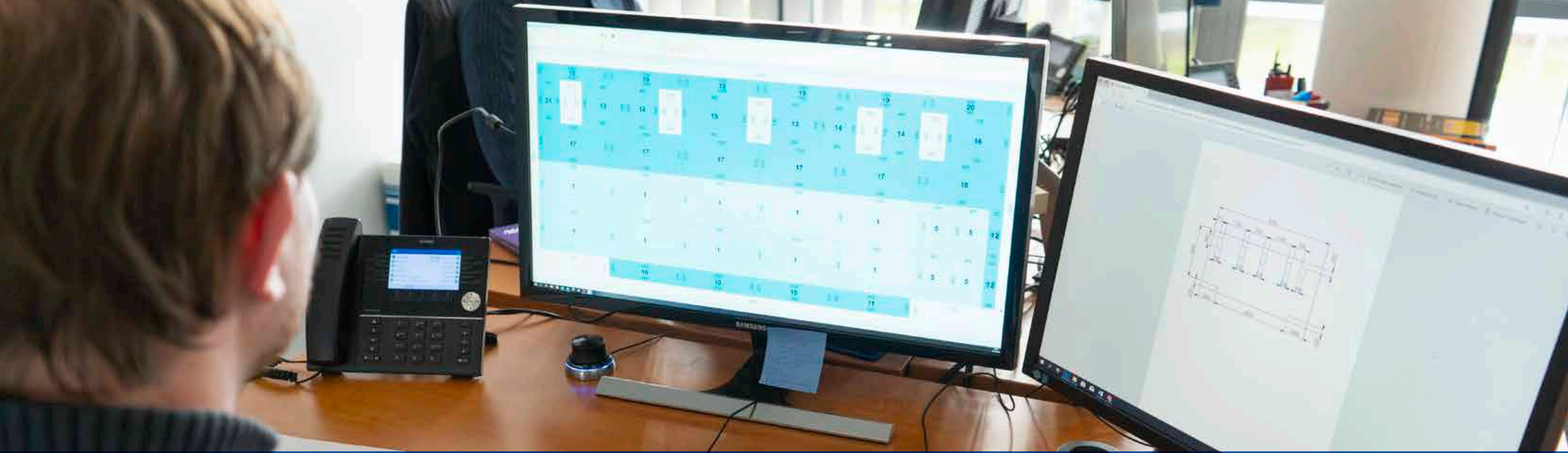
The complete va-Q-vip Floor System:**

① va-Q-vip Floor Element
② Insulation board puren PIR NE50
③ Rubber sheet
④ Single component PU adhesive
⑤ Aluminium tape

In addition to the coated vacuum insulation panel, va-Q-vip Floor is supplemented by a cuttable, high-pressure-resistant PIR insulation board which is used for connection and edge areas. The delivery time of all components of the system to the construction site only takes a few days. Rectangular panels are produced in general, but special shapes (trapezoid, triangle, corner sections) are possible on request.

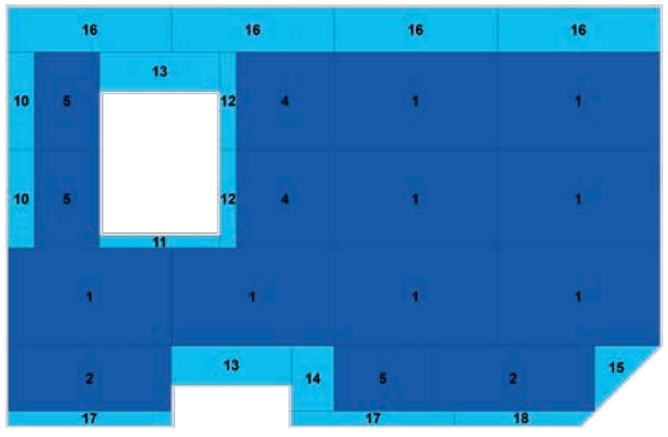
** All products are also available separately.





va-Q-plan System

va-Q-tec has many years of experience planning individual construction projects. After placing the order, our specialized va-Q-plan software creates a laying plan with va-Q-vip Floor elements for the area to be insulated. In order to keeping costs and delivery times as short as possible the seven standard VIP sizes are preferably used. For areas that cannot be covered with standard formats the PIR insulation panel is used. A very high insulation value is achieved by combining the two insulation materials. The panels are equipped with position numbers, so that installation can be carried out quickly and easily using the installation plan.



U-Value Calculator

The heat transfer number “U-value” represents the heat transfer through a material as a function of the temperature gradient between the warm and the cold side. The U-value calculator can be used to evaluate the heat loss with one or several insulating materials. The unit of the U-value is $W/(m^2 \cdot K)$ (watts per square meter and per Kelvin) and indicates the heat flow through an area of one square meter with a temperature difference of one Kelvin (= 1 °C). The higher the U-value, the worse the insulation effect, the lower the U-value, the better the insulation effect.

The U-value calculator is for guidance. Heat transfer resistances of the air are not considered.

To learn more about U-value or to calculate your required performance visit:
www.va-Q-tec.com/en/u-value-calculator/

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