



Photo Andre Laaks



Photo Ralph Lueger



Photo Andre Laaks

VIPA International Case Study Plus energy house in Bottrop features VIPs

The renovation of this building took place as part of the to date one-time Project “Innovation City” under the patronage of RWE. The goal was to renovate an existing building, a one-family house from the 60’s into a “Plus-energy house”. A number of companies were able to bring in their products and experience to help achieve this goal. Vacuum insulation panels (VIPs) were one of the participating technologies as a competent partner with its highly innovative and high-performing properties.

The Problem

VIPs were used to solve three specific problems: insulating the cellar ceiling, the outer walls and the roller shutter casings. In the RWE house in Bottrop, as with many other renovations, a requirement for high-performance insulation materials arose on short notice. Since the cellar level had a smaller ceiling height, which was common for houses in the 60’s, conventional insulation could not be used for the renovation. Thanks to VIP, the cellar ceiling could be excellently insulated due to the very strong insulation performance of the panels, with a rated value of $0,007 \text{ W}/(\text{m}^2\text{K})$. The insulation thickness of 40mm (relating to the VIP) which was used therefore corresponds with a realized U-value through the insulation of $0,175 \text{ W}/(\text{m}^2\text{K})$.

While removing the outer wall layers, it was noticed that there was not enough space behind several roll shutter casings to be able to achieve the required insulation performance with conventional insulation materials. The insulation of and around roller shutters or venetian blind casings is often a thermal bridge problem which occurs in construction, as these are mostly integrated in the building envelope, thus leaving very little space for insulation. To solve this “short-notice” problem, the renovation team decided to use VIPs. These came in boxes of 10 panels from stock which is ready-to-use for construction sites and available in different formats (100x50, 50x50, 50x25 and 25x25 cm). The panels allow for an uncomplicated and easy delivery to the construction site within a very short time. They were supplemented with a highly insulating PU strip (100x12,5 cm).

The Result

The renovators were glad to have vacuum insulation available especially for smaller rooms in the “future house”. A considerable amount of space could be won with the same performance. In comparison to insulation with WLG035, this equates to a space savings of ca. 1m^2 per 7 meters wall width. The decision for the VIPs was made very quickly, due to the very easy workability with standard solvent free polystyrene adhesives and the very slim covering through the 3mm thin XPS. The VIPs used in this renovation project have all attained the General building Approval (AbZ), as well as the European Technical Approval (ETA). This entitles labeling with the CE-Mark.

Case study provided by Porextherm

VACUUM INSULATION PANEL



GLOBAL ASSOCIATION

142 Avenue Jules Bordet
1140 Brussels - Belgium
Phone: +32 2 761 16 81
Fax: + 32 2 761 16 99

About VIPA International:

The Vacuum Insulation Panel Association is a global trade association representing the interests of manufacturers of vacuum insulation panels as well as supply chain. The mission of the association is to act as the global voice of the vacuum insulation panel industry, promote quality and raise awareness of the potential to save space and energy costs and to reduce carbon dioxide emissions in a wide range of applications and industries. VIPA International is a 501 (c) (6) not-for-profit organisation incorporated under the law of the State of Delaware in the United States of America.

The association was created in August 2014 by ten founding members.

For more information visit the website: www.vipa-international.org or contact the global office at VIPA-international@kelleneurope.com