

PRESS RELEASE

Investments in Sustainability: The city of Rheinbach (Germany) relies on Trocal window profile systems for renovation of schools

The municipal investment scheme amounting to 10 billion Euros which the German Federal Government decided in the framework of the second economic stimulus package in the crisis winter 2008/2009, shows effects, among others in the education infrastructure. A lot of cities and municipalities have modernized nursery schools, schools and universities with the 6.5 billion Euros granted for this sector. Also smaller municipalities have benefitted from the scheme, such as the city of Rheinbach in North Rhine-Westphalia (27,000 inhabitants) which has invested 1.9 million from about 3.5 million Euros in energetic refurbishment. Besides roofs, façades and heating installations, the modernization of windows plays a prominent role.

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This is proved by the example of modernization measures carried out in three schools in the city located 50 km south of Cologne. The typical two storeys functional buildings erected in the 1960s and 1970s with platform roofs and extensively glazed façades were in urgent need of rehabilitation. In the tender, not only energy efficiency was particularly emphasized, but also function, equipment and aspect. The choice was made in favour of the proven profile system "InnoNova_70.M5" from Trocal, a brand of profine Group. Manufacture and installation of the windows were made by the regional window company Klaus Pfeil GmbH, Ripsdorf, which had been selected in the tendering.

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The "InnoNova_70.M5" profile system enables the manufacture of PVC windows with narrow visible sight lines and, at the same time, large glazing surfaces. With ideal heat insulation values, Trocal windows adapt the surface temperature of the glazing to the brickwork. "The Trocal profile system was the one which suited our requirements and the cost limit to the largest extent", states Matthias Swoboda, head of the civil engineering department at the Rheinbach municipal building office.

The 586 pupils Tomburg intermediate secondary school was built in 1967 according to plans obtained by the way of an architecture competition. It is characterized by a patio with circumferential façade where an additional challenge was set with the specific static fixing of the windows due to the lintel section without load-bearing capacities. However, "InnoNova 70" system presents a solution for this problem: The honeycombed profile chambers enhance the window inherent stability and preserve the lean sight lines.

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In the primary school Sürster Weg (425 pupils), most of the about 100 existing frames of the ancient steel windows could not be removed. Here, a possibility had to be found to carry out suitable heat insulation measures by covering the remaining steel frames with a facing.

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Furthermore, the Trocal profile system was also used in the first construction stage of the secondary general school "Dederichsgraben" (389 pupils) when replacing at first 50 windows.

"Plastic windows made of Trocal profile systems represent a sustainable investment as they have high thermal insulation properties, are extremely resistant to weathering and the smooth surfaces can be easily cleaned and require only few maintenance," says Peter Jansig from the profine competence centre who advised Rheinbach city during the planning of the renovation projects. Based on modern materials the excellent heat insulation values can also be achieved with profile depths of only 70 mm. Rounded sashes and frames accentuate the slim appearance. With its easy care material the whole window can be easily cleaned inside and outside. All fittings are located behind the centre gasket and so are protected against corrosion.

All these features contribute to a reduction of operation costs. Compared to the original steel elements (U_w value of $4.3 \text{ W/m}^2\text{K}$) the three schools will, on a pure calculation basis, consume about 126,100 l less of domestic fuel oil at the current state of renovation works by using the Trocal centre gasket system with a U_w value of $1.3 \text{ W/m}^2\text{K}$. This corresponds to a reduction of CO_2 emissions by more than 392 tonnes p.a. The "greenline" window profiles of profine group which are exclusively stabilized on calcium/zinc basis, are additionally eco-friendly: In the three Rheinbach schools alone, 814 kg of lead have been economized compared to traditional systems.

The optional "Airmatic" ventilation system offered by Trocal is particularly interesting for an application in school buildings as it is integrated in the window profile. "So, the rooms are optimally ventilated, even when the windows are closed", explains Peter Jansig. Thus, bad air which might not only have a negative influence on learning behaviour but which is also unhealthy at a long term, is a thing of the past just as humidity damages caused by irregular or too few ventilation.

And another advantage: "InnoNova_70.M5" windows achieve acoustic insulation class 3 with standard insulation glazing and guarantee protection against noise. In addition, a security glazing is recommended and used in the three Rheinbach projects.

The project management of the profine competence centre had supported the city already in the tendering phase. Among others, the team dealt with the technical consultancy for all requirements specific to the buildings – starting with the energetic building renovation by replacement of windows via sound protection measures, security and burglar resistance, calculation of isotherm course and air requirements up to the presentation of reference solutions and support given to the customer during the tendering stage.

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„We are very happy with the project management offered by profine competence centre and the execution by Pfeil company“, emphasizes Matthias Swoboda from the Rheinbach municipal building office.

That is why he would like to stay in touch for further projects, e.g. the rehabilitation of a primary school listed as monument of historic interest. There, the advantageous properties of a plastic window can be combined with the demanding requirements for surface finish with regard to colour and wood grain patterns.



Tomburg intermediate secondary school, front view: The 354 new windows manufactured from the Trocal profile system "InnoNova_70.M5" impress by their slim aspect and excellent heat insulation values.

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Tomburg intermediate secondary school, interior view: The circumferential façade in the patio of Tomburg intermediate secondary school was particularly challenging due to the lintel section without load-bearing capacities. "InnoNova 70" system offered a suitable solution.



Primary school Sürster Weg: The existing steel windows could not be removed so that the remaining steel frames had to be superstructured. Thus, the slim aspect of the Trocal profile system was preserved just as its excellent thermal insulation properties.

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Secondary general school "Dederichsgraben: In the first construction stage, about 50 windows were replaced by the Trocal profile system "InnoNova_70.M5".

About profine:

profine GmbH - International Profile Group - is the world-wide leading manufacturer of plastic profiles for windows and doors as well as a notable supplier of shutter solutions and PVC sheets. The company was established in 2003, when HT TROPLAST consolidated its profile business activities (KBE, KÖMMERLING, TROCAL) under one roof.

profine has a total of 3,350 employees at 28 locations in 21 countries. Around 2,000 of these employees work in Germany.

The production sites are located in Germany, France, Italy, Spain, Russia, Ukraine, the United States and China. The company headquarters is in Troisdorf (North Rhine-Westphalia, Germany).

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