


## Rollingergrund School

by [Mélanie De Lima](#) / 2016-07-18 22:42:47 / Luxembourg / 12315 / FR



Renovation

**Primary energy need :**  
**101.8 kWhep/m<sup>2</sup>.an**

(Calculation method : RGD du 31 août 2010 - bâtiment fonctionnel )

**ENERGY CONSUMPTION**

Consumption Range (kWh/m <sup>2</sup> .an)	Grade	Building Type
< 50	A	Economical building
51 à 90	B	Economical building
91 à 150	C	Building
151 à 230	D	Building
231 à 330	E	Building
331 à 450	F	Building
> 450	G	Energy-intensive building

**Building Type** : School, college, university  
**Construction Year** : 1975  
**Delivery year** : 1975  
**Address 1 - street** : 239, rue du Rollingergrund L-2441 LUXEMBOURG, Luxembourg  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 1 460 m<sup>2</sup> Autre type de surface nette  
**Construction/refurbishment cost** : 2 670 000 €  
**Cost/m<sup>2</sup>** : 1828.77 €/m<sup>2</sup>

### General information

See more details about this project

<http://www.arco.lu/>

### Data reliability

Assessor

### Stakeholders

#### Stakeholders

**Function** : Contractor representative  
 ARCO

Function : Contractor

Ville de Luxembourg

## Owner approach of sustainability

Goals:

- Energy performance comparable to that of a new construction
- maximum day light
- Optimal air quality
- Sustainable materials
- Short construction phase

The solutions :

- Removal of all damaged items and all thermal bridges
- Conservation of the basic structure as a support and mass storage for hot and cold
- Refurbishing of the thermal envelope
- Contemporary architecture combined with functional design
- Inside: bright ambience and natural materials

The existing building had a very poor energy performance. Strong reduction of the energy consumption and use of sustainable materials will enable the reduction of maintenance costs. The existing facade elements have been dismantled and immediately replaced by new insulating wooden elements partly prefabricated. This method allowed to conduct parallel work within the building and reduce construction time.

## Architectural description

A new facade has been implemented to improve the building's energy performance.

Front / Wood Elements: The unsealed and poorly insulated existing concrete structure was completely coated with a new thermal envelope made of prefabricated wooden elements with cellulose insulation. The reached U value is 0.15 W / m<sup>2</sup> K ca.

External joinery: To ensure optimal use of natural light, the classrooms were fit with glass in their entire length and height. The wood-aluminium window frames, with ventilation opening, are equipped with a triple glazing. They reach a U value of 0.9 W / m<sup>2</sup> K. The external automatic protection against the sun prevents overheating in summer.

Roof: The existing flat roof was insulated with mineral wool, sealed with vegetated EPDM strips. It reaches a U value of 0.11 W / m<sup>2</sup> K.

Ventilation: To ensure a high air quality in rooms, a central ventilation system with high heat recovery was installed. The system is concealed in the false ceiling area above the existing furniture.

Lighting: The lighting of classrooms was completely dismantled in favour of extremely efficient lights. Presence detectors and automatic response to natural light is the guarantee for an economic use.

## Energy

### Energy consumption

Primary energy need : 101,80 kWh/m<sup>2</sup>.an

Primary energy need for standard building : 132,00 kWh/m<sup>2</sup>.an

Calculation method : RGD du 31 août 2010 - bâtiment fonctionnel

### Envelope performance

Envelope U-Value : 0,38 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Rehabilitation and compliance of the school, in order to make it more attractive and get the energy label A. Installation of walls in timber frame with thermal insulation of 36 cm cellulose. Frame with triple-glazed windows. Thermal insulation of existing concrete walls with 20 cm thick rock wool. Cladding facades and canopy with Trespa panels. Realization of a green roof with 28 cm of thermal insulation and an Alwitra waterproofing membrane.

## Products

### Product

Trespa Météon

TRESPA

TRESPA

[http://www.trespa.com/sites/default/files/codef2405\\_trespa\\_meteon\\_product\\_brochure\\_version4\\_date01-2015.pdf](http://www.trespa.com/sites/default/files/codef2405_trespa_meteon_product_brochure_version4_date01-2015.pdf)

Product category : Gros œuvre / Structure, maçonnerie, façade

An efficient design cannot be done without efficient materials, finishing and systems. Trespa Meteor combines all these qualities.



## Costs

### Construction and exploitation costs

Total cost of the building : 3 200 000 €

## Urban environment

### Urban environment

Rollingergrund is located in the northwest part of the city of Luxembourg and is the second largest area after Cessange. Rollingergrund is a very green area. It has many parks because of its location in the valley. Many green areas are scattered through the hills. The Bambesch forest is a part of the natural heritage. It gives Rollingergrund an important place in the city of Luxembourg, because it is the central area of relaxation of the capital.

## Building Environmental Quality

### Building Environmental Quality

- energy efficiency

## Contest

### Building candidate in the category

  
  
**Energie & Climats Tempérés**  
  
**Bas Carbone**  
**Green Building Solutions Awards 2016**  
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