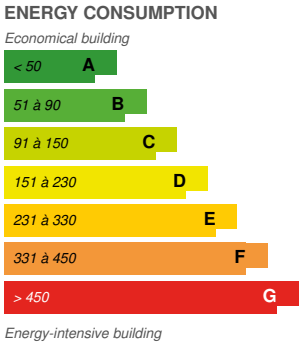
Alzingen School and Kindergarten / Luxembourg

by Patricia Streber / 2016-07-08 11:17:42 / Luxembourg / 16092 / FR

Primary energy need :

126.6 kWhep/m².an

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



Building Type : Preschool, kindergarten, nursery
Construction Year : 2013
Delivery year : 2013
Address 1 - street : rue de l'école 5870 ALZINGEN, Luxembourg
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 1 666 m²
Construction/refurbishment cost : 4 304 000 €
Number of Children : 88 Children
Cost/m2 : 2583.43 €/m²

General information

The building of Alzingen school, built in 1968, needed to be renovated and compliant to current standards, particularly in terms of accessibility and energy performance. Following exchanges with all stakeholders, we have reached the following program:

• Renovate and clean up the building from an energy and environmental point of view

• Assign Alzingen School in the early teaching and cycle. 1.

• Add a kindergarten with food production.

• Make schools accessible to people with reduced mobility.

• Renovate the gym / multipurpose hall

• Adapt the hall additional rooms to the needs of the clubs that use it.

• Add a music studio, a library, a conference room and a DIY studio.

Data reliability

Assessor

Stakeholders

Stakeholders

Function : Designer

XXA Architecture

STREBER Patricia

http://www.xxa.lu/

Owner approach of sustainability

Willingness to bathe the children in a natural and inspiring environment to show them the way to face their future responsibilities.

Architectural description

Innovative ecological concepts have been applied in the renovation of an existing school by integrating plant facades and a photo-voltaic glass roof.

Energy

Energy consumption

Primary energy need : 126,60 kWhep/m^2.an

Primary energy need for standard building : 194,20 kWhep/m^2.an

Calculation method : RGD du 31 août 2010 - bâtiment fonctionnel

Final Energy : -45 196,00 kWhef/m^2.an

Breakdown for energy consumption :
Thermal final energy demand: 11549
Electrical final energy demand: -20,266
Whole final energy demand: -8717

Envelope performance

Envelope U-Value : 0,29 $W.m^{-2}.K^{-1}$

Building Compactness Coefficient : 0,45

Indicator : EN 13829 - q50 » (en m3/h.m3)

Air Tightness Value : 1,50

Renewables & systems

Systems

Heating system :
- Condensing gas boiler

Hot water system :
- Solar Thermal

Cooling system :
- No cooling system

Ventilation system :
- Double flow

Renewable systems :
- Solar photovoltaic
- Solar Thermal
- Heat pump

Products

Product

Vegetated facade

Plant Design

Aurélie Mertens ; 15, rue Fernand Bernier B-1060Bruxelles

http://www.plantdesign.be

Product category : Table 'c21_italy.innov_category' doesn't exist SELECT one.innov_category AS current,two.innov_category AS parentFROM innov_category AS oneINNER JOIN innov_category AS two ON one.parent_id = two.idWHERE one.state=1AND one.id = '29'

Vegetated facade

Vegetated facade

Costs

Construction and exploitation costs

Total cost of the building : 6 250 000 €

Urban environment

The building is located in Alzingen, in the town of Hesperange, which established the link between the nature with agricultural fields on one side, and on the other side the south of the capital, Luxembourg city, with some constructions of the old fortress.

Building Environnemental Quality

Building Environmental Quality

- indoor air quality and health
- biodiversity
- acoustics
- comfort (visual, olfactive, thermal)
- energy efficiency
- renewable energies
- products and materials

Contest

Building candidate in the category

Bas Carbone

Green Building Solutions Awards 2016
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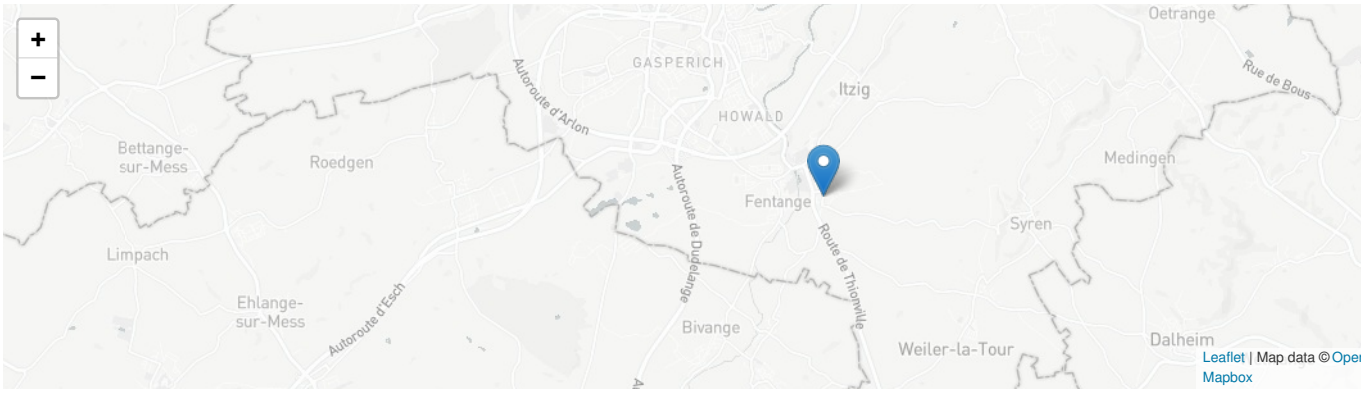
Grand Prix Rénovation Durable

Coup de Coeur des Internautes



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