



RUE LOCQUENGHIEEN [102]

SUSTAINABLE REORGANIZATION OF A MULTI-PURPOSE URBAN BLOCK (OFFICES, DAY CARE CENTRE, RESIDENTIAL UNITS)

Collective Units – New / Renovation

16

kWh/m² year
Brussels average
106

$U_{\text{floors}} = 0.105 \text{ W/m}^2\text{K}$
 $U_{\text{walls}} = 0.22 \text{ W/m}^2\text{K}$
 $U_{\text{roof}} = 0.145 \text{ W/m}^2\text{K}$



Efficiency = 92 %, $n50 = 0.6 \text{ vol/h}$



59.5 m² of thermal panels



Exterior sun screens (West side)



Bike parking



Extensive green roof, 75 m²



Rainwater tank 2.5 m³



Cellulose, polyethylene piping, wood fibre, Belgian blue stone



Acoustic glazing, dispersion paint, sun screens



This project consists in a new passive mixed building, combining offices for the Hygiene Department of the City of Brussels with 12 apartments, and in the construction and renovation of a passive building (and low-energy for the existing part) with a day care centre for children, plus 5 apartments. The project is located 20/28 rue Locquenghien. At the moment, the site is completely built up; therefore, the aim of this project is to "open up" the interior of the urban block by setting up the Hygiene Department of the City of Brussels at the ground and basement levels. In order to create sufficient space for 11 apartments (all passive), half the surface area working from the back of the site, at intermediate or first-floor level, will be cleared away. The Hygiene Department services will be rationalized on the ground floor. The front building volume will be similar to the current building (to be demolished). To ensure harmonious meshing with the two neighbouring buildings, an elevation is planned on the left-hand side, and the drop on the right (smaller building volume).

IN FIGURES

Gross area	2564 m ²
Handover	Sept. 2012
Construction costs VAT/ grants excl.	1,712 €/m ²
Exemplary building grants	88 €/m ²



CONTEMPORARY INTEGRATION

The usual elements to be found in urban buildings will be reinterpreted. For example, at the foot of the building, the ground floor will receive a grey coating, and the body of the building itself (white coating) will be colored through the unpredictable configuration of its windows. The attic, slightly recessed, will have a grey coating. This combination of coding suggests simultaneously permanency and change. For example, the feeling of movement imparted by the sunscreens can be considered a type of "active photo", permanently mutating according to the time of the day and occupancy. The overall tone and feeling is pleasant, making contacts between neighbours easier.

COMBINATION OF ENERGY TYPES ACCORDING TO PROGRAM

The building will be designed (budget, layout, exterior obligations) to satisfy the energy-performance standards specific to the initial situation (new build or renovation). Particularly, passive standards will be used for the new part, and low-energy standards for the renovation work. A number of factors combine (highly effective envelope; high level of airtightness; high-performance heat exchanger; thermal bridges minimized through design] to reduce the building's heating requirements to practically zero. Cooling strategies (such as reduced external loads, and sunscreens on all facades facing West) will guarantee summer comfort. Likewise, energy-efficient equipment will be chosen, which will reduce internal loads, whilst remaining loads are dissipated (amongst other means) by a manually opening the windows at night. In this way, energy requirements will be lower. Remaining requirements will be satisfied, to the greatest extent possible, by renewable energy (solar thermal panels).



ADDED EXTRA

Insofar as possible, construction materials will be green as well as healthy for future occupants, so as to reduce issues of indoor pollution.

On a similar note, waste products could be easily recycled, whilst building waste could be minimized.

