RUE LUTHER [216]

CONVERSION OF A HOUSE INTO 4 PASSIVE FLATS IN BRUSSELS

Collective housing – Renovation

15/18

kWh/m² year
Brussels average 106

Rue Luther 17, 1000 Brussels
Client: **A. Weber & J. Kessler**
Architect: **J. Kessler**
Engineers: **MC²**

U between 0.3 and 0.697 W/m².K
n50=0.6/h

η 85%

8 photovoltaic panels

Night cooling and Bypass of the MCV Thermal inertia

Nearby public transport bike/pushchair shed

Vegetable garden, compost and nest box

Extensive green roofing (18m²)

Creation of permeable surfaces + RW tank of 3m³

Use of approved, recyclable eco-materials

Re-use / Selective sorting (building site + usage)

Acoustic comfort + natural materials for int. finishes

The client's wish is to transform a 1899 Brussels building into four passive flats. The ground floor and basement will be reserved for him, while the other floors will be let.

Located near the European Quarter, this building stands in a street featuring great consistency in terms of size and style. In order to preserve this balance, the owners have decided to leave the facade intact and insulate it from the inside. The back of the building, on the other hand, will be insulated from the outside. This has led to an in-depth reflection on construction nodes.

A communal condensing gas boiler (14 kW) will be fitted, allowing to maximise space within the flats and reduce both fitting and maintenance costs. Ventilation, on the other hand, will be managed individually, allowing controls in each flat and avoiding acoustic inconvenience between flats connected to the ventilation system.

Rainwater will be collected and fed into the toilet flushing system and the laundry room. It will also be used to water the garden.

IN FIGURES

Gross area	389 m²
Handover	March 2014
Construction costs, VAT and grants excl.	€1,054/m²
Exemplary Building Grant	€31,820

The description of this building is provisional as its construction is not yet complete.

RATIONAL USE OF MATERIALS IN RENOVATION

One of the client's priorities is to limit the impact of the works on the environment. Indeed, although passive design aims to minimise the building's energy requirements in the usage phase, it only makes sense if the building process too has been thought out with a view to reduce energy requirements. This mainly involves the following two measures:

MAXIMISE THE USE OF AVAILABLE MATERIALS

The project has been designed according to the following principles:

- Which features can be preserved?
- Among the dismantled features, are there any that can be reused on-site?
- If not, can they be reused via other channels? (e.g. resale in actual condition)
- If not, sorting via the usual channels, in accordance with current regulations.

The existing structure of the main building, i.e. the walls, floor boards and timber work, has been preserved. The same goes for the stairs, some tiles and mouldings, which will be repaired where need be. Joinery will be disassembled and either reused on-site (reuse of doors, tiles, etc.) or offered to various reclamation sectors. The remaining waste will then be sorted.

CHOOSING NEW MATERIALS WITH THE SMALLEST POSSIBLE ENVIRONMENTAL IMPACT

Special attention was paid to the eco-balance of the new materials used:

- Cellulose and wood fibre will be used for acoustic insulation of the floors and partition walls, as well as for thermal insulation of the facade;
- FSC-certified wood will be the first choice for the structure of partition walls, door and window frames, terrace surfacing and structural elements (purlins, joinery, etc.);
- Low emission materials will be recommended for the paintwork;
- More generally, certified and recyclable materials will be preferred.

However, it's worth noting that choosing such materials is not without consequences. In certain areas, the author of the project has had to resort to using insulating materials with a lesser eco-balance in order to ensure the partition wall's performance while limiting its thickness.

APPLICATION OF SPECIFICATIONS

It's not that hard to prescribe materials with low environmental impact, either by specifying the preferred product or by imposing criteria, for example through eco-labels. It is, however, less easy to impose waste sorting. This project addresses the issue by including various clauses such as the obligation to order the correct quantity and minimise the amount of offcuts, the obligation to comply with regulations and to provide proof of compliance, etc.

These measures are penalised/rewarded through two systems:

- Deduction from invoice (maximum 3%) in case of non-compliance
- Assessing the number of skips at the contractor's expense. If the final number is lower (thanks to proper sorting and/or limited consumption), 80% of the remaining sum will be left to the contractor.

ADDED EXTRA

While Man thinks of housing… Nature offers a garden!
Following the purchase of the building, the new owners decided to wait a whole year before tackling the old garden. In addition to the vegetation still visible in winter, they found it also had daffodils, hyacinths, grapevine, honeysuckle, mock orange, azalea, etc. Consequently, all these plants have been integrated into the plan for the future garden.

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