


## Lombard Hotel, 29 social housings refurbishment

by Rodolphe Deborre / 2015-06-24 15:24:18 / Francia / 13837 / FR



**Renovation**

**Primary energy need :**

**57** kWhep/m<sup>2</sup>.an

(Calculation method : )

**ENERGY CONSUMPTION**

*Economical building*

< 50	<b>A</b>
51 à 90	<b>B</b>
91 à 150	<b>C</b>
151 à 230	<b>D</b>
231 à 330	<b>E</b>
331 à 450	<b>F</b>
> 450	<b>G</b>

*Energy-intensive building*

*Building* **A**

**Building Type** : Collective housing < 50m  
**Construction Year** : 1621  
**Delivery year** : 2015  
**Address 1 - street** : 4 Rue du Lombard 59000 LILLE, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

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**Net Floor Area** : 1 700 m<sup>2</sup>  
**Construction/refurbishment cost** : 2 650 000 €  
**Number of Dwelling** : 29 Dwelling  
**Cost/m2** : 1558.82 €/m<sup>2</sup>

**Certifications :**



### General information

Completion of 29 low consumption (BBC certification) social housing renovation in a XVII century building in Lille: Hotel du Lombard.

"We will achieve 29 units, from one to five rooms, 30% of low-cost social housing (PLAI), said Alain MONTAGU, director of the company's assets. The energy component is as well a strong point of the project ; a wood pellet boiler that will cover 100% of needs with renewable energy, the energy performance of Lombard Hotel will be less than 58kWh / m2 / year; and the renovation will be certified Low Energy Consumption Building (BBC renovation).

### Sustainable development approach of the project owner

The criteria for contributions and free natural light was insufficient on the Lombard site given the orientation of the building, the positioning of windows and thick walls which greatly reduce the possibilities of solar production. Envelope performance criteria and renewable energy were thus privileged, notably through the

adoption of a collective wood boiler. Thermally, the main challenge will be to ensure good air seal to prevent heat loss.

-The external woodwork must have a good performance while maintaining their original appearance. Some will be lined with new joinery inside.

## Architectural description

The facades and roofs have been restored by "DRAC, ICF NORTHEAST HABITAT" and seeks to completely transform the building, currently composed of several large trays. The building has typical floors very open based on repetitive frame which allows the installation of large typologies in the early levels.

The 29 units are divided into 11 (1room), 2 (2room), 8 (3room), 7 (4room), 1(5room). Large areas are provided on the first three levels, while the type 1 units will be grouped on third floor.

## Building users opinion

During the inauguration, representatives of the municipality of Lille - Audrey Linkenheld, MP - delegated municipal councilor in Lille plan habitat, Estelle Rodes, deputy mayor in charge of the relationship with social landlords, Franck Hanoh, Deputy Mayor in charge of security, Chairman of the Centre neighborhood council, Bernard Charles, deputy mayor in charge of employment and inclusion and Julien Dubois, deputy mayor in charge of heritage - were able to visit a 5room apartment. On this occasion, Audrey Linkenheld said he was "very pleased with the confidence shown in Northeast ICF Housing and generational and social diversity of the new program in the heart of Lille"; She recalled "the importance of keeping families in the city center"; After this short ceremony, elected officials and representatives of the landlord went to visit the residents. Among them: Sonia Rainaud. Since she moved into one of the apartments of the residence, she is in heaven! Her new home is much more spacious than the one she occupied until 20 February. "Today, my family has four rooms for a living, she says. Before, I only had two rooms for me and my five children"; Additionally, her salon is crossed by a brick wall, a remnant of the former hotel of Lombard. (source, The Northern Voice, 24.4.2015).

## If you had to do it again?

Renovation, particularly in "energy efficiency" is a central strategic concern of the group Rabot Dutilleul. Other projects, not exactly in patrimony, are already achieved this level of performance.

## See more details about this project

<http://www.icfhabitat.fr/groupe/visite-future-residence-3d>

## Stakeholders

### Stakeholders

Function : Thermal consultancy agency

Symoé

Victor Jumez

<http://www.symoe.fr/>

Function : Contractor

ICF Habitat Nord Est

<http://www.icfhabitat.fr/groupe/transformation-hotel-lombard-logements-sociaux>

Function : Company

Rabot Dutilleul Construction

Romain Ryckebush

<http://www.rabotdutilleulconstruction.com/>

Function : Designer

GO Architectes

Olivier LAHOTE

<http://www.goarchitectes.com/about.aspx>

<http://www.avenirethabitat.fr/?p=2027>

## Contracting method

Other methods

## Energy

## Energy consumption

Primary energy need : 57,00 kWhep/m<sup>2</sup>.an

Primary energy need for standard building : 84,00 kWhep/m<sup>2</sup>.an

Calculation method :

Breakdown for energy consumption : Heating: 26ECS: 17Eclairage: 8Auxiliaires: 6

Initial consumption : 400,00 kWhep/m<sup>2</sup>.an

## Real final energy consumption

Final Energy : 57,00 kWh/m<sup>2</sup>.an

## Envelope performance

Envelope U-Value : 0,55 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

The superstructure is solid brick (thickness varying from 45-65 cm). The existing wooden floors have been treated and 25 cm concrete floors included in the facade walls (wood system / concrete) were created. Le central partition wall bricks, made of arches, gives a strong materiality to all. It is preserved and valued in the home and in public areas. The exposed girders are visible in all units and at all levels. The original windows are also aware conservées. The original woodwork are also kept. Current wall: 33cm brick with full complement within TH38 interior 16cm. Internal wall unheated premises: 33cm full brick with interior complement of TH38 14cm. Low floor: on-ground floor; Reinforced concrete slab 20 cm with insulation in mineral wool 17cm floor. Roof: isolated wood Framing 24cm Th38. Joineries: Double window compound reinforced insulation PVC joinery incorporating a double glazing (4/16/4 Argon) and a simple wooden glazing.  $U_w = 1.3$  [W / m<sup>2</sup>K] (calculation made with TH-U rule). Laying bare inside with insulation inside.

Indicator : I4

Air Tightness Value : 0,83

## Renewables & systems

### Systems

Heating system :

- Water radiator
- Wood boiler

Hot water system :

- Other hot water system

Cooling system :

- No cooling system

Ventilation system :

- humidity sensitive Air Handling Unit (hygro A)

Renewable systems :

- Wood boiler

Renewable energy production : 100,00 %

Other information on HVAC :

A Wood pellet boiler (type Hoval BioLyt) of 70kW with efficiency > 90%.The network of low temperature hot water distribution will ensure the distribution of heating via radiateurs. The domestic hot water production will be provided by the boiler; water will be stocked in a 2000L flask with a cooling constant  $\leq 0.2$  [Wh / LKJday].

Wood pellet boiler (type Hoval BioLyt) of 70kW with efficiency >90%: for heating and domestic hot water.

## Environment

### Urban environment

Land plot area : 940,00 m<sup>2</sup>

Built-up area : 95,00 %

Green space : 234,00

Hyper center Vieux Lille, behind Lille Flandres station. Cobble shopping streets

## Products

### Product

" Third North Pas de Calais Industrial Revolution"

Région Nord Pas de Calais et CCI Nord de France

Claude Lenglet

<http://www.latroisiemerevolutionindustrielleennordpasdecals.fr/>

**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'

Land transformation initiative to engage towards the third industrial revolution

Formidable collective momentum for the revival of the territory



Membrane Vario Duplex

ISOVER

Resp commercial

<http://www.isover.fr/>

**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 = '7'

Sealing membrane hygro-regulation with a Sd between 0.2 m and 4 m

Problem of airtightness by working only on the outer vertical walls. Must be sealed housing to housing and therefore also deal with each other. With the configuration of the existing floor (wood flooring + insulation + concrete slab) it is difficult to ensure a complete seal. Leaving the beams is also a great source of leakage and thus to treat. DESCRIPTION OF SOLUTION: to connect the vertical membranes plasterboard ceiling by playing the role of tight barrier plasterboard ceiling. It must be scrupulously rigorous on its application and on the junction of these positions. Ask waterproof electrical boxes. The shear walls are also great sources of leaks and thus treated by the projection of a aéroblue. To the junction with exposed beams, again you have to be very careful about applying a seal between the support rail and the beam and rail and also placo. Attention to all sanitary and electrical penetrations.



## Costs

### Construction and exploitation costs

Renewable energy systems cost : 40 000,00 €

Cost of studies : 210 000 €

Total cost of the building : 2 900 000 €

Subsidies : 377 000 €

## Health and comfort

### Comfort

**Health & comfort :** "Before writing a new project, you have to read the old. Appropriating space, absorb it. Think that one writes a new page in the history of the buildings, but there will be others. Our intervention should not obliterate the future."

Olivier Lahote, GO Architects

## Carbon

### GHG emissions

GHG in use : 1,00 KgCO<sub>2</sub>/m<sup>2</sup>/an

Methodology used :

DPE

GHG before use : 28,00 KgCO<sub>2</sub> /m<sup>2</sup>

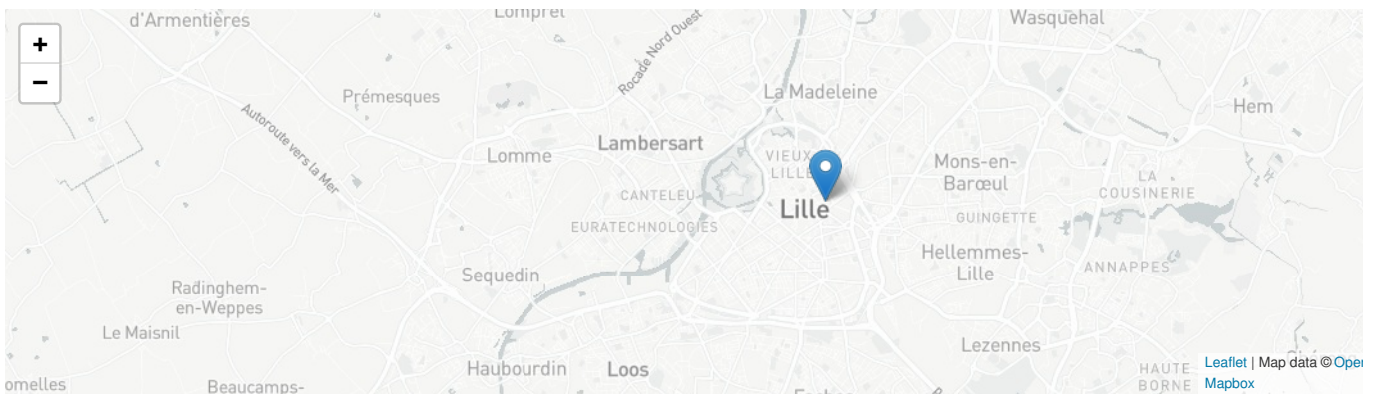
, ie xx in use years : 28

Lethal Weapon: major renovation, downtown, free parking, heating and 100% renewable energies 100%: it is possible.

## Contest

### Reasons for participating in the competition(s)

Energy refurbishment: Low consumption building certification (BBC) - renewable energy: Wood pellet boiler heating and domestic hot water. Third Industrial Revolution: Energy efficiency - Building energy producer (in this case, consumer of renewable energy)



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