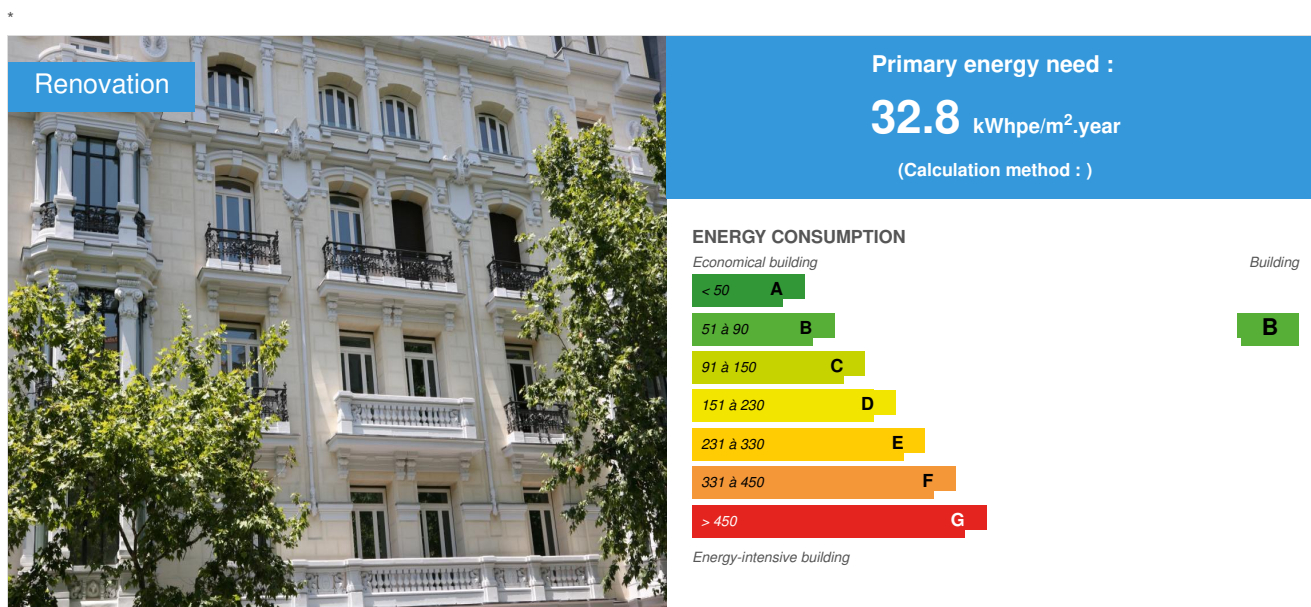


# Full Renovation of a residential building constructed in 1913 at 11 Principe de Vergara Street, Madrid

by [Santiago Bouzada Biurrun](#) / 2015-06-30 17:35:48 / Espagne / 18696 / ES



**Building Type** : Collective housing < 50m

**Construction Year** : 2015

**Delivery year** : 2015

**Address 1 - street** : PRÍNCIPE DE VERGARA 11 28016 MADRID, España

**Climate zone** :

**Net Floor Area** : 3 935 m<sup>2</sup>

**Construction/refurbishment cost** : 5 648 762 €

**Cost/m<sup>2</sup>** : 1435.52 €/m<sup>2</sup>

Proposed by :

**moli**or

## General information

The entire renovation project for the residential building at 11 Príncipe de Vergara street is based on three key issues:

- patrimonial and heritage respect, and special admiration for the original 1913 project designed by modernist architect Eugenio Fernández Quintanilla
- creation of unique and sophisticated spaces with all the features that a XXlth century home shall offer
- and special attention paid to people (both users and third parties), environment and energy efficiency

A proof of that is the recuperation of original materials and shapes, the combination of spatial and open rooms, the big and effective isolation systems applied to windows, façades, roofs and floors, the extraordinary gardened areas and the accessibility of all the ground floor spaces.

[See more details about this project](#)

<http://www.molior.es/proyectos/rehabilitacion/edificio-principe-de-vergara-11/>

## Data reliability

Assessor

### Stakeholders

#### Stakeholders

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#### Contracting method

Separate batches

#### Owner approach of sustainability

The developer was advised by the architects team in order to reach these three main goals: respect for the original building, creation of sophisticated and unique spaces, and sustainability of the whole intervention and life cycle.

#### Architectural description

Everyone who has dealt with the renovation of a listed building like this, has confronted a lot of difficulties in order to achieve the requirements and needs of a XXlth century familiiy. The're hard legal restrictions to prevent damages to the cultural values of this kind of buildings. Nevertheless the developer and the architects' team found this issues as an extra motivation to design a highly energy efficient building with great cuts of energy consumption values. For example at

the façades the intervention had to be based on a long search of the best insulation options for the interior layer, on the construction and design of new doors and windows based on the original design and with the original materials but with great insulation values; and on the inclusion of high performance glass types. The accessibility of all the ground floor spaces was also a goal to achieve so that everyone can enjoy the great tour through the green spaces that ends at the huge vertical garden of the rear court. This "presence of the green" makes the building a living organism.

## Energy

### Energy consumption

Primary energy need : 32,80 kWhpe/m<sup>2</sup>.year

Primary energy need for standard building : 81,80 kWhpe/m<sup>2</sup>.year

Calculation method :

Final Energy : 21,00 kWhfe/m<sup>2</sup>.year

Initial consumption : 139,20 kWhpe/m<sup>2</sup>.year

### Envelope performance

Envelope U-Value : 0,29 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Design, shapes, colours, materials, carpentry, quality and any other characteristic of the building façades (both interior and exterior) are law protected. Because of this all the envelope insulation efforts have been concentrated in the interior layers of the envelope:

- There's a new multilayered reflective material. It works with the dry wall profiles in order to create a very effective closed air chamber
- There are new timber carpentries with the original design in order to make them able to carry insulated glazing (with air or argon chamber depending on the cases)
- The roof has been designed with a XPS 12cm. thick layer
- And the ground floor has been constructed over a cavity system basis that creates a closed air chamber. In addition there is also a MDF board plus a rockwool layer.

As a result of this constructive systems we have reached the following remarkable data for this latitude:

U average Ground Floor 0.49

U average Façades 0.29

U average Roof 0.19

U average Windows 1.30

### Real final energy consumption

Real final energy consumption/m<sup>2</sup> : 109 401,00 kWhfe/m<sup>2</sup>.year

## Renewables & systems

### Systems

Heating system :

- Gas boiler

Hot water system :

- Condensing gas boiler

Cooling system :

- VRV Syst. (Variable refrigerant Volume)

Ventilation system :

- Free-cooling
- Double flow

Renewable systems :

- Solar Thermal

Renewable energy production : 60,00 %

## Environment

## GHG emissions

GHG in use : 7,80 KgCO<sub>2</sub>/m<sup>2</sup>/year

## Water management

Consumption from water network : 3 481,00 m<sup>3</sup>

Water Consumption/m<sup>2</sup> : 0.88

Water Consumption/Dwelling : 145.04

## Indoor Air quality

There's a whole plumbing system that recovers the vertical garden watering excess. In addition there is a 2500 l greywater recovery tank for watering purposes.

## Products

### Product

There is a double flow mechanical ventilation system that, after passing through a heat exchanger, throws out the interior air. It also has the free-cooling tool in order to reduce air conditioning use by chilling the house during the night.

ACTIS

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<http://www.aislamiento-actis.com/>

Product category :



There are 8 heliostats installed at the roof of the building in order to introduce solar light in the interior courts, specially in the little ones. These heliostats work with a static mirror each, so that the first follows the sun and the second is orien

Torinco Madera S.L.

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<http://www.torrero-torinco.com/>

Product category :

There are several systems introduced in the building in order to provide acoustic comfort to the stakeholders:

- A new floor layer for impact noise absorption.
- A new rockwool insulation layer over the continuous dropped ceilings
- And an acoustic and thermal insulating glazing, for doors and windows, with laminated interior and exterior layers (4+4/ 16 / 5+5 SILENCE)



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Product category :

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Product category :



IGuzzini

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<http://www.iguzzini.es/>

Product category :

## Costs

### Construction and exploitation costs

Renewable energy systems cost : 8,89 €

Total cost of the building : 8 133 653 €

### Urban environment

The building is placed in an urban consolidated prime area of Madrid: the Salamanca District. It's perfectly connected with the public transport network (three underground lines and several bus ones), surrounded by lots of stores and every kind of service, and real close to Madrid's green lung: the "El Retiro" park.

### Land plot area

Land plot area : 1 173,00 m<sup>2</sup>

### Built-up area

Built-up area : 77,00 %

### Green space

Green space : 290,00

## Building Environmental Quality

### Building Environmental Quality

- indoor air quality and health
- acoustics
- water management
- energy efficiency
- renewable energies
- integration in the land
- mobility

## Contest

### Building candidate in the category



Rehabilitaciones energéticas



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