

# Towards Nearly Zero Energy Hotels

## Lighthouse Examples

### Hotel Vall de Núria - Sant Josep Building Girona - Spain



## RESPECTING THE ENVIRONMENT

"We have always taken great care in the upkeep and respect for our surroundings: air, water, land, natural resources, flora and fauna.

This heritage belongs to all, which is why all services and activities in the hotel, buildings and facilities have always been implemented with the criteria of respect for and conservation of the environment.

For us, achieving the balance between human activities in the ecosystem is a top priority. Our commitment towards the environment is dynamic, pro-active and engaged, with all those involved feeling part of it and dedicated to it".

# The story of the Sant Josep building at Vall de Núria hotel

Sant Josep Building is one of the five interconnected buildings of the Vall de Núria mountain complex. It is located at 2.000m above the sea level and it was built from 1923 to 1935. It is a natural refuge among the surrounding peaks.

Sant Josep is a six-story building comprising of the east wing of the Vall de Núria mountain station, and it is located between the church and the railway station. The building went through a major refurbishment in 2011, during which hotel owners decided to make major interventions in terms of energy use reduction and efficiency.

Vall de Núria's environmental policy is based on preserving, conserving, improving and respecting the environment and constitutes one of the central values and strategies of the business. This is enhanced by the fact that motorized access is banned in Núria Valley, meaning that the only way to get to the complex is through a rack railway train.

## Facts

### Location

In a mountain area

### Year of construction

1932

### Last major refurbishment

2008 - 2011

### Number of guest rooms

20

### No of beds

94

### Type of package offered

B&B, full board, half board and self-catering

### Hotel official rating [stars]

3\*\*\*

### Occupancy rate

Approximately 50%

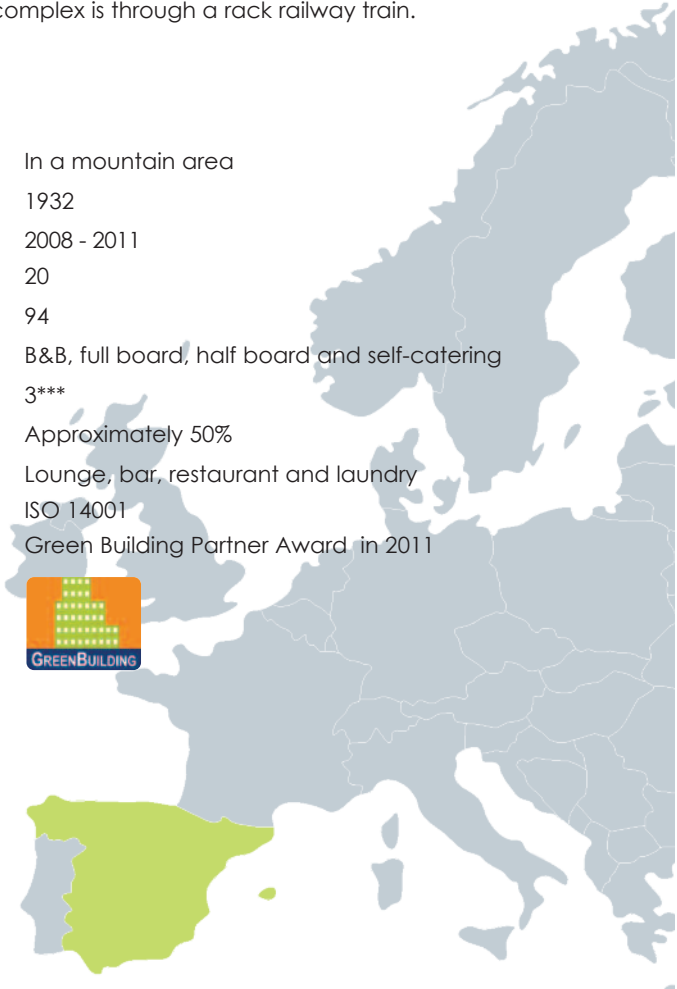
### Offered facilities

Lounge, bar, restaurant and laundry

### Environmental labels - awards

ISO 14001

Green Building Partner Award in 2011



# Becoming a neZEH

## ENERGY EFFICIENCY & ENVIRONMENTAL MEASURES

- **Electricity efficiency:** High efficiency electric appliances and energy efficient motors in heating, ventilation, air-conditioning applications
- **RES Heating:** Geothermal heat pump; insulation of boilers, tanks & pipes
- **Efficient Lighting:** 67% of low energy lights; automatic lighting controls in public spaces
- **Efficient controls:** Programming HVAC controls to match occupancy patterns and/or temperature; energy saving key cards for hotel guestrooms.

### Additional measures:

- Double glazed windows with thermal bridge breakage
- Occupancy detectors in bathrooms, corridors and common rooms
- Electric motor lifts with frequency drives and key-card system
- Façade/ Roof insulation
- Night cooling through ventilation; efficient solutions for active space cooling and efficient ventilation
- Personnel training to run services based on defined environmental, safety and quality procedures
- Waste sorting.

## Lessons learned from Sant Josep

### REVOLUTIONARY GEOTHERMAL SYSTEM

Sant Josep exploits geothermal power to generate domestic hot water and heat for radiant floor heating and for the ventilation system: • 36 drillings of 90m deep each, in four groups of nine boreholes • 4 heat pumps of 65kW each with actual performance of 3,49 during 2013 • 2 electric boilers of 42 kW for backup. The system provides 100% of the total consumed energy for heating; 60,5% is considered renewable.

### SMART GREEN SYSTEMS

Sant Josep exploits every kWh in a very smart way by applying intelligent HVAC controls to match occupancy patterns, lighting control and high tech isolation system with natural ventilation. HVAC is automatically activated in a room when a booking is done; there are power analyzers in every line recording how much is consumed and how much is generated by the geothermal pumps. An HVAC control system can reach the set point temperature. It is remarkable how this hotel, situated in the most severe climate zone in Spain, has reached this level of efficiency.

### REDUCE FOOTPRINT

The hotel has voluntarily adopted an environmental management system based on ISO 14001. All staff members are fully engaged to continuous improvements and pollution prevention, as well as to obtaining visitors' involvement. *"We are taking advantage of the environment so we have the responsibility to affect with the smallest footprint possible".*

# WHY BECOME A neZEH?



## ENERGY

- Reduce your operational & maintenance costs.
- Increase independence from energy suppliers.
- Improve your energy efficiency; take advantage of funding opportunities.



## BRANDING

- Attach the green concept to your brand image.
- Gain visibility in a new market segment: the "sustainability market".
- Increase your competitive advantage.



## ADD VALUE

- Reduce your carbon footprint.
- Meet your corporate and social responsibility targets.
- Increase living comfort and innovate in guests' experience.
- Increase your customers' loyalty.

## WHAT IS A NEARLY ZERO ENERGY BUILDING

A nearly Zero-Energy Building (nZEB) is a building that has a very high energy performance. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby.

EPBD recast, Article 2

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*you will have access to the latest information on technology solutions, financing and legislation and to experts' advice.*

## The neZEH Consortium



*Project Coordinator*

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SCHOOL OF ENVIRONMENTAL ENGINEERING  
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