



**KNX Association**

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## Energy Efficient Office Building in Huesca

KNX Building automation for a construction expert



**Picture 1.** The new building from Marino López XXI in Huesca.

The building project developer Marino López XXI was founded in 1950 as a family operated business and has branches in Zaragoza, Huesca and Cambril today. The company has developed more than 5000 residential buildings in the regions of Aragon, Madrid and Catalonia. They are renowned for their innovated ideas, understanding the advantages of good automation systems and equipping their buildings with modern building system technology. The basis are experiences from own buildings.

After the branch office in Zaragoza was successfully installed with KNX, the modern building system was also introduced into the new four-level building with 1600 m<sup>2</sup> gross area in Huesca. Initially only the shading system, partly the lighting system and the ventilation system were interconnected with KNX. Thanks to the high flexibility of KNX, all of the lights, the heating and cooling system, the access control and alarm system, as well as other systems were added to the KNX network with minimal wiring in a short amount of time.

### Benefit of KNX for this Project

- Maximum convenience with minimal energy consumption with dedicated metering of current demand. Energy consumption can be reduced by 40%.
- Simple and intuitive operation – without the need to study a manual – of all building systems via user-friendly interfaces from different locations like permanent or portable touch panels, any PC or Internet browser.

**Project-Nr.: P1-08-D**

**Country: Spain**

### Type of Building

- RESIDENTIAL
  - Single Family Home
  - Apartment Building
  - Senior citizen home
  - Assisted living
- COMMERCIAL
  - Office / Public Administration Building
  - Business
  - Entertainment (Cinema, Theater, Museum, etc.)
  - Health Care
  - Educational (School, University, etc.)
  - Recreational (Sport, Wellness, etc.)
  - Industrial
  - OTHER

### Trade / Systems

- Lighting
- Shading / Daylighting Control
- Heating, Ventilation, Air-Conditioning
- Household appliances
- Alarm Systems
- Monitoring
- Energy Management System
- Smart Metering
- Audio/Video
- Visualization
- Interface to other Systems
- RemoteControl and Administration
- Other Application

### Size

- Number of Areas / Lines: 1/4
- Number of KNX Devices: approx. 146



**Picture 2.**  
Thanks to the interface of the access control system (finger print) to the KNX system, a customized control of all systems is possible.



**Picture 3.**  
Start page Visualization: Simple monitoring and control of all systems.

## Energy Efficiency and Simple Operation

It was obvious that the focus would be on the integral building automation for this new building that would include all the sub systems for maximum energy efficiency in operation. Another important factor was a simple and location independent operation and monitoring of the systems including remotely, e.g. via Internet. The KNX system controls all lights – partly dependent on the available daylight – inside and outside of the building, the sun shading systems, the heating and cooling system in 42 zones as well as fire, water and intrusion detection. The access control system is integrated, as well as some household appliances like the coffee maker and microwave. All these systems communicate through a single bus network – the KNX system – and through a single interface to the intranet and Internet. Its expansion is possible at any time. The building automation system, including some of the audio/video systems, can be operated from fixed or mobile touch panels, local multifunctional switches or via web browser from any PC in the

network. The optimization of the heating and cooling system can reduce the energy consumption by 40%. The temperature is kept at a standby-mode and is only switched to comfort mode if a person actually enters the room.

### Programming Possibilities for Individual Comfort

The system can be easily operated and allows scene programming that is customized to specific people. For example: The identification of an employee through the finger print scanner can increase the lighting level of the corridor to this office, open the sun shades in his office and turn on the air-conditioning system if necessary. The visualization allows a simple monitoring of the systems, tracking value changes and integrates 24 IP cameras in and around the building.

## Sophisticated features

- The KNX system knows if people are still in the building or not because of the integration of the access control system (finger print). Additional interfaces to the intrusion alarm system, fire / gas alarm system and central heating and cooling system allow more safety, energy management and convenience.
- Automatic activation and deactivation of the alarm system via finger print scanner and start of absence scenes like presence simulation.

## Involved Parties

**Owner:**  
Marino López XXI S.L.,  
E-22004 Huesca

**Architect:**  
Conchita Ruiz Monserrat /  
Francisco Lacruz Abad,  
E-22001 Huesca

**Electrical Engineer:**  
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**KNX system integrator:**  
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## Awards



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