

The HSB Turning Torso in Malmö, Sweden. Photo by Ole Jais.



Urban housing with a touch of chic

The HSB Turning Torso is an unusual high-rise building in Malmö, Sweden. The original idea is based on a sculpture called the Twisting Torso.

The HSB Turning Torso was designed by Architect Santiago Calatrava, and inspired by the human body in a twisting motion. Mr. Calatrava was commissioned by HSB Malmö, a housing cooperative set up in 1925. The building was completed in November 2005, and now stands 190 meters tall with its ten floors of offices, 147 apartments and meeting facilities on the two top floors.

Intelligent interiors from Honeywell

Honeywell International is a \$30 billion diversified technology and manufacturing company, serving customers worldwide with aerospace products and services; control technologies for buildings, homes and industry; automotive products; turbochargers; and specialty materials.

Honeywell Building Solutions is part of Honeywell's Automation and Control Solutions group and has more than 100 years of experience in making buildings safe, comfortable secure and efficient - be they commercial buildings, community schools, single office properties, or healthcare facilities.

In spring 2004, Per Wernersson of Honeywell Building Solutions was asked to find a solution for the fan coil units in the apartments. The building consists of nine cubes, which turn 90 degrees between floors 0 to 54. The basement and floors 13, 25, 37, 49 and 54 have technical areas. On each apartment floor, there is

an industrial PC which communicates with the apartments' IO-boards (both digital and analogue). Every room has a fan coil unit.

Per's first task was to find a sensor for the fan coil unit that matched both the technical and the architect's requirements. The sensor contains a temperature element, a control point for adjustment, and a fan speed switch. Because the space in the installation shafts was limited, Honeywell built its own Transmission Control Protocol (TCP) network for the

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building. A lot of multicast messages are sent in the network between controllers - like fire alarms, fire dampers' positions, pressures, temperatures, etc.

Reliable weather transmitter communicates outdoor conditions

The radiator-controlled temperature in the building is compensated for by the outdoor temperature and wind speed. This is why it was important to find a reliable weather transmitter to indicate outdoor weather conditions. Again, because of the limited installation space, Honeywell decided to find a company that could deliver a multi-sensor with a communications capability, instead of electrical signals.

Before the Turning Torso project, Honeywell had used Vaisala's humidity sensors in some industrial facilities. In 2000, it installed some Vaisala sensors at Arla Foods' facility in Götene, Sweden, at Arla's central warehouse for cheese and butter.

The Vaisala Weather Transmitter WXT510 is a compact multi-sensor that measures wind speed and direction, precipitation, barometric pressure, temperature and relative humidity. It was chosen for the Turning Torso because of its small size, easy maintenance, and the RS-485 communications capability. During the first year, all radiators are compensated for according to the measurements of the weather transmitters.

During the second year, Honeywell will be using weather forecasts as a point of reference for energy consumption. The first priority is to collect some data about the construction of the building - like type of building, type of windows, window area, number of people living there, airflow, energy source, energy consumption, etc. Based on this data, Honeywell will then obtain a code for the building and an area code for the location from the Swedish Meteorological and Hydrological Institute. The outdoor temperature will then be estimated with these codes, combined with the five-day weather forecast.

Further information:

www.honeywell.com
www.turningtorso.com