Rating of the new Student House.

MILJÖ BYGGNAD
CERTIFIERAD | SVERIGE

Indicators		Aspects		Areas		Building
1 Energy use	GOLD	Energy use	GOLD	Energy	GOLD	SILVER
2 Heating output requirement	GOLD	Output requirement	SILVER			
3 Solar heat load	SILVER					
4 Percentage of energy type	GOLD	Energy type	GOLD			
5 Sound class	SILVER	Sound quality	SILVER	Indoor environ-ment	SILVER	
6 Radon content	GOLD	Air quality	SILVER			
7 Ventilation standard	SILVER					
8 Nitrogen dioxide	SILVER					
9 Moisture control	SILVER	Damp	SILVER			
10 Thermal climate winter	SILVER	Thermal climate	SILVER			
11 Thermal climate summer	GOLD					
12 Daylight	BRONZE	Daylight	BRONZE			
13 Legionella	SILVER	Legionella	SILVER			
14 Documentation of building commodities	SILVER	Documentation	SILVER	Material	SILVER	
15 Phasing-out of hazardous substances	SILVER	Phasing-out	SILVER			

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The new Student House, Frescati

A new student building and a natural gathering place

Akademiska Hus is investing MSEK 212 in the new student building, "Studenthuset", in the Frescati area.

The four-storey building will be a new natural gathering place for students.

Studenthuset lies south-west of the Southern building, "Södra huset" in the Frescati area. The student union (SUS) will run its operations on the ground floor, and Stockholm University will bring together all its student-related and social activities on the floor above, where study spaces are also planned. The top two storeys will be offices for the student department. The building will offer an inspiring, creative environment where students can find all the information they need about their studies, life as a student and post-university careers.

The 6.300 m² Studenthuset was designed by Erséus Arkitekter AB. It is being built as a floating wooden box with stone, glass and wood as the main materials. Construction began in August 2011 and is scheduled for completion in August 2013.

Sustainable Building

Akademiska Hus intend to cerificate the new student building for silver in the Swedish certification system, Miljöbyggnad. The main aspects that are adressed are the following:

Energy

The objective has been to meet the entire building's energy requirements with heat pumps and a geothermal energy storage. The entire energy system has been optimised with very low energy use and favourable temperatures for heat pump operation. This is made possible by a geothermal energy storage dimensioned to meet 100% of the entire building's energy requirements! The geothermal energy storage is used in combination with the heat pump for hot water and heat production, and for comfort cooling via free cooling and process cooling via a Chiller. Great care has been taken in designing the building's climate screen with regard to heat insulation and window constructions. Heat is provided via radiators with a larger area than normal, and this has enabled feed temperatures to be reduced from 55 to 40° C. In addition, feed temperatures on the cooling circuit have been raised from 15 to 16° C to make it possible to cool the building using free cooling alone. The heat pumps in the system will be some of the first of this type/model on the market, as the project has been conducted in consultation with a heat pump manufacturer in order to optimise the heat pumps for a lower feed temperature.

Interesting energy solutions:

- Highly efficient heat pump solution
- Geothermal energy storage with 100% energy provision for heat and cooling production
- Low feed temperature to radiators
- High feed temperature to cooling circuit
- Efficient fan operation
- Seasonally adapted ventilation
- Output-limited ventilation
- Heat recovery in café and kitchen with rinsing of heat exchangers
- Waste room with ozone cleaning rather than cooling

Solar heat load and daylight

To meet the requirements for incoming solar energy and daylight, the project has carefully studied glass in combination with sun screening. Natural shading from protruding parts of the building has also been utilised.

Sound environment

"Studenthuset" has been planned for sound class B to achieve environmental class Silver. The greatest acoustic challenge in the project has been to secure a good sound climate in the open spaces of the glass level. This has been achieved by placing a large number of absorbers in the ceiling, along with wall absorbers wherever possible. The glass panes are also tilted slightly outwards so as to guide reflections up towards the absorbers in the ceiling.

Ventilation standard

Ventilation flows have been dimensioned for 50% basic flow with the ability to intensify in rooms with a varying load. Air flows at unit level are seasonally adapted so that the main flow decreases if the outdoor temperature falls. The air flow can also be reduced temporarily to meet temporary heat requirements in certain weather conditions. Heat is recovered using rotating heat exchangers, apart from in the café and kitchen where plate heat exchangers used.

Moisture control

A moisture control checklist was drawn up early on in the planning process. Relevant points have been analysed and have influenced planning so that a moisture control solution could be implemented. Points affected by the execution of the project have formed the basis for the building contractors' own moisture control checklists. Start-up meetings with the contractors have been held with a focus on moisture control in general and the moisture control checklist. During the project, a damp expert has carried out inspections with recorded observations and suggested actions.

Documentation of building material

Building material are documented in the Building Material Assessment, Byggvarubedömningen. The scope of this documentation is greater than the requirements stipulated for "Miljöbyggnad" in Sweden.

Phasing-out of substances with hazardous properties

During the planning process, the Building Material Assessment has been used to check prescribed goods, and to replace initially intended products with products that have a higher environmental classification.

Other sustainability aspects

The building's stonecrop roof helps to slow the flow of surface water, thus reducing the burden on the municipal surface water system. The stonecrop roof also helps to reduce noise and absorb air pollutants. The stonecrop protects the roof from UV radiation and gives the roof increased thermal inertia.