

ENGINEERING
TOMORROW

Danfoss

Case story

Low heating bills for students with a modern **EvoFlat** solution

ERBA Island, Bamberg, Germany

15%

Energy savings

Compared to traditional
hot water tank systems.

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A new attraction for beautiful Bamberg

A former textile factory was converted into high comfort flats with a state-of-the-art heating system.



"This is more energy efficient than a traditional boiler, which would be the alternative, since there is no need for a hot water cylinder. That saves a lot of energy".

Mr. Valentin Dittrich, Installation contractor



Last year, Bamberg's small ERBA-Island in the middle of the river Regnitz was consisting of nothing but old industrial buildings in a bad condition after not having been used for its original purpose for several decades. But in a very short time, 363 student flats have been constructed inside the old imposing industrial walls, giving new life to the old 60.000 square metre former textile factory. The outer walls have been refurbished in respect to their history and the original purpose of the impressive 6-storey building is still clearly visible from outside.

A flat station in each student flat

63 students have already moved into their new 1-room flats equipped with state-of-the-art kitchen and bathroom. The rooms

are fully furnished and supplied with the newest equipment concerning heating, hot water supply and sanitary appliances. Each flat has its own flat station, delivered by Danfoss, placed in the bathroom. Danfoss sales engineer Andreas Baberowski and installation contractor Valentin Dittrich show us one of the student flats. Dittrich's company is responsible for the installation of the flat stations and having worked with Danfoss for several years, his employees have a deep knowledge of how they function. The project is planned to be finished in spring 2012 and at that time, 700 flat stations will be functioning in former production areas and administrative buildings of the textile factory.

Technical data:

- Energy source: District heating
- Design temperatures for heating: 70/40 °C
- Pipe system: Double pipe system
- Domestic hot water heat exchanger: Capacity: 40 kW, 70/20 °C, 10/50 °C
- Heat emission: In-wall pipes
- DanFlat units: Termix VMTD-F-1 T24 Bamberg

Hot water on demand saves energy

The 40 KW flat station in each apartment supplies heating and hot water for the tenants. It is equipped with a built-in energy meter that monitors the consumption of heat and water, providing accurate data for billing and trouble shooting. The staff at Stadtwerke Bamberg - the local supplier of district heating - can call the meters through an integral radio link, which enables remote data collection via a hand-held Bluetooth receiver. This way, they don't need ever to enter the apartment to read it.

"It's a big advantage that the flat station gives you hot water on demand because you don't need to store any water. Only the water, which the resident actually uses by

student homes than in general, since students are sometimes away for longer periods of time, e.g. during holidays or similar. "We avoid that risk, because of the absence of hot-water tanks. Here, the water becomes hot in a few seconds, and therefore the Legionella bacteria have no chance," he says.

The energy efficient choice

"The whole ERBA-Island is supplied with district heating delivered by Stadtwerke Bamberg. In the basement under the main building, a pipeline containing water with a temperature of 70 to 80 C (depending on time of the year) is entering from the district heating plant. The pipeline is connected to

a heat exchanger, where hydraulic separation takes places. After this process, each flat station is able to take exactly the amount of energy that it needs. "This is more energy efficient than a traditional boiler, which would be the alternative, since there is no need for a hot water cylinder. That saves a lot of energy", says Valentin Dittrich.

An integral part of the renovation of the University has been modern solutions, high comfort for the students and energy efficiency. In this project, EvoFlat has been a perfect solution by providing tenants with comfortable homes and a heating bill which is affordable to the students who live there.



"We came to study in Bamberg a few months ago and were offered student flats here on the ERBA-Island. It's nice to move into a totally modern flat and then still having the atmosphere of the old industrial buildings", Mona says. "The flat is nicely insulated and heat and hot water is very stable so I don't have to think much about it. In general I do think about the environment but here I actually only have to take care not to spend more hot water than necessary", Veronika says.

turning on the hot water tap, is actually heated. As a result, an estimated 10-15 % of energy is saved compared to old systems with hot-water tanks", Andreas Baberowski explains.

Indirect versions of flat stations feature a heat exchange module, which acts as an interface between the hot water main supply from the heat exchanger in the basement and the circuit within the flat. In this way, heat energy can be taken efficiently from the district heating system, while the heat system within the apartment is sealed. This means that domestic hot water is prepared from fresh water at any time. By experience, Valentin Dittrich knows that the risk of Legionella (pneumophila) is bigger in

Facts:

- The project of the former textile factory involves 400 student flats and 24 apartments for families. Each apartment is supplied with heating and hot water through a flat station from Danfoss. Moreover, several new exclusive blocks of flats and a new department of the university of Bamberg will be built on the ERBA-island.
- Student flats and apartments for families are all new and built with a high degree of energy efficiency. The heating system (EvoFlat units connected to the public district heating system) saves at least 10-15% of energy compared to a traditional heating system including hot water tanks.
- Bamberg is one of Germany's most beautiful cities. The city centre is built in baroque style and is in a very good condition. It is on the UNESCO list of World Cultural Heritage.

3 good reasons to choose Danfoss

Danfoss is more than a wide range supplier of premium solutions. Our customer insight and technical expertise also make us a strong partner for your business.



1 Broad application know-how and customer understanding



2 Supplier of solutions with a wide product range



3 A strong and dedicated business partner

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Danfoss A/S · DK-6430 Nordborg · Denmark · Tel.: +45 74 88 22 22 · Fax: +45 74 49 03 95

E-mail: districtenergy@danfoss.com · www.districtenergy.danfoss.com

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