ENGINEERING
TOMORROW

Danfoss

Case story | Weitblick

Planners of the "Weitblick" project prove that they **have a vision**

Under the German Drinking Water Ordinance, building owners and managers must ensure lasting prevention of Legionella in the domestic hot water systems used in residential buildings. The safest solution is to heat the drinking water immediately prior to consumption, and to make sure that the water has a short way to travel. Decentralized flat stations offer precisely these hygienic advantages. Additional comfort and cost considerations prompted the Weitblick project's planners to opt for Danfoss EvoFlat flat stations.

www.heating.danfoss.com

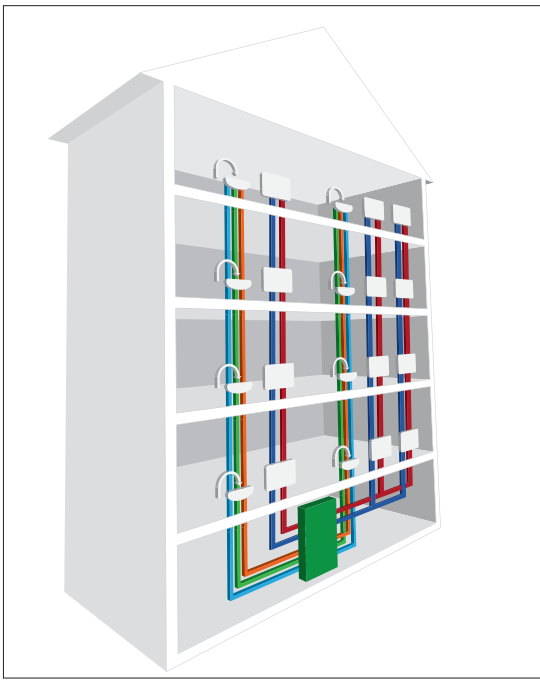
Decentralized hot water supply without Legionella testing

The Project:
A modern and attractive neighborhood now stands in the area of Böblingen where aircrafts used to take off and land. Nord-Süd Hausbau GmbH's Weitblick real estate project is already well advanced: the project developer has built a three-part residential complex with 124 rental and condominium units in an attractive lakefront setting. The 45 m high residential building is the only high-rise building on the former airport grounds, and consists of a 15-storey west wing and a 13-storey east wing that are architecturally connected.
The residential tower is framed by two seven-storey apartment buildings – Haus Hohenwart and Haus Schönbuch. All the buildings in the Weitblick project are built using high-quality materials, and conform to the latest technology and energy standards. The result is a KfW Efficient House 70 rating under the EnEV 2009 energy-saving ordinance – with high-quality insulation and connections to the Böblingen/ Sindelfingen district heating network. Floor heating and individual room control provide residents with maximum comfort. To make sure that showering is also hygienically safe, all of the apartments are equipped with a flat station for decentralized hot water supply.

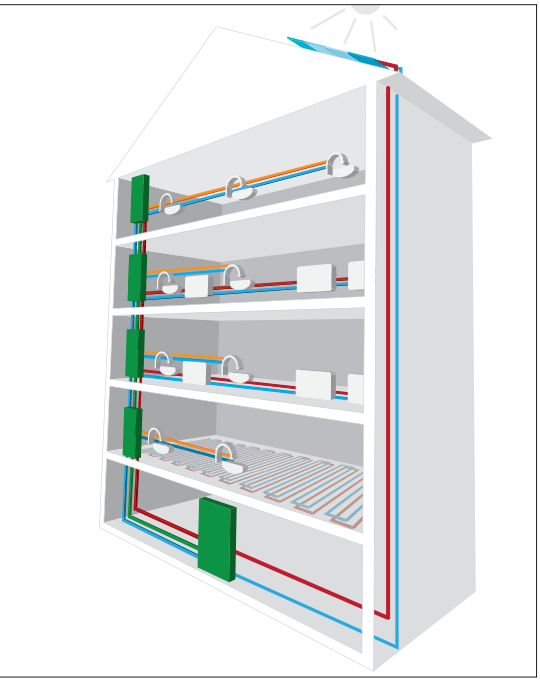
The Weitblick real estate project near to completion

Centralized or decentralized:
In principle, there are two ways of supplying the apartments of a multi-family building with heating water and domestic hot water. The traditional solution is to supply the water via a central heating system with central DHW heating in the basement (characteristic: pipes run vertically). The alternative is to use decentralized heat distribution and decentralized DHW heating via a flat station (characteristic: pipes run horizontally within the apartments).

Nord-Süd Hausbau commissioned a planning office to determine which of the two alternatives represented the better solution. Gottfried Weidner, Managing Director of the Nord-Süd group, summarizes the result of the comparison as follows: "We decided to go with a decentralized hot water supply. In our view the most important advantage is that the flat station, acting as a freshwater station, only provides hot water when the resident needs it. This is hygienically the safest solution!"


Decentralized flat stations offer an alternative to the traditional m

No Legionella testing:
Because each apartment has its own flat station with an integrated freshwater system, the pipe paths are very short, practically ruling out the possibility of the water stagnating and thus the risk of microbial contamination. This eliminates the need to conduct regular Legionella



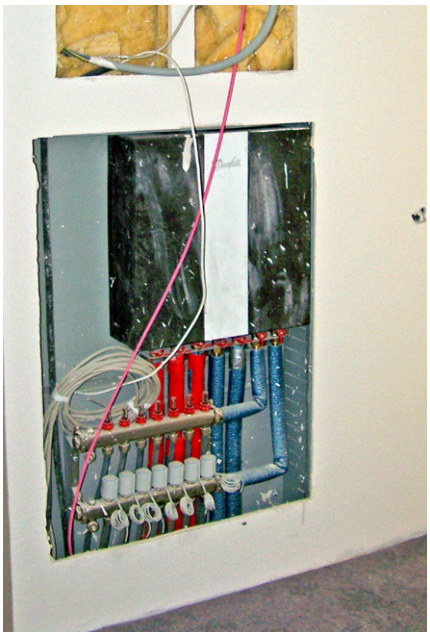
ethod of supplying heating and domestic hot water in buildings.

testing, as is otherwise required for rented residential space under the Drinking Water Ordinance, and also eliminates the need for a circulation line if the pipe volume between the DHW heating system and the taps is less than three liters.

The Solution:

For both technical and financial reasons, the planners and the building owner decided to use directly heated EvoFlat flat stations with an integrated fresh water system. 116 flat stations for two-pipe systems have been installed, and are supplied with heating water by a central heat source (district heating combined with solar energy) via a buffer accumulator. A self-acting TPC-M temperature controller with an integrated differential pressure controller maintains constant heating and domestic hot water temperatures. The mixing circuit provides the right temperature level (e.g. for floor heating in this case). In order to be able to program time-dependent temperature control, the EvoFlat MSS can optionally be equipped with an actuator for the zone valve integrated in the controller, and with a room thermostat.

Domestic hot water heating is accomplished using heat exchangers according to the continuous flow principle. The multi-functional controller (TPC–M with integrated differential pressure controller) works as a combined hydraulic and thermostatic valve: The



116 EvoFlat MSS 3 flat stations made by Danfoss were installed as part of the Weitblick Project. These stations are designed for two-pipe systems in residential buildings supplied with hot water from a central heat source (district heating, boiler, CHP or solar system) or via a buffer accumulator.

flow-controlled portion only permits primary and secondary flow through the heat exchanger when hot water is used. The flow is blocked immediately afterwards. The thermostat, by contrast, controls the hot water temperature. Due to the fast-acting valve, this technology eliminates limescale and bacteria growth as far as possible. This way, the multi-functional controller is able to supply a constant domestic hot water temperature even with fluctuating supply temperatures and differential pressures. For the purpose of metering cold water consumption, the EvoFlat is equipped with a fitting piece for the installation of a DCW meter in the cold water inlet.

The most important benefit offered by decentralized hot water supply is that the flat station, acting as a freshwater station, only provides hot water when the resident needs it. This is the most hygienic solution!

(Gottfried Weidner, Managing Director of the Nord-Süd Group).

Conclusion:

When planning the energy supply system (heating, domestic hot water) for a building, many aspects must be considered: the type of energy sources or combination of sources used (oil, natural gas, renewables, district heating), the structural work required (amount of pipework needed), convenience (radiator, radiant panel heating), the energy efficiency of the chosen technology, and not least hygienic considerations. Taking all these aspects into account, flat stations offer an economical and at the same time individual solution whose structural complexity carries low costs, and also enables individual heat supply (with individual billing) that reliably meets the hygiene requirements of the German Drinking Water Ordinance while protecting everyone involved from unpleasant surprises. The designers and developers of the Weitblick real estate project showed considerable foresight when they decided to use decentralized flat stations.