References

The extension of Veljekset Keskinen is heated with Uponor's underfloor heating system



Uponor involvement

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The phenomenal Village Shop Keskinen in Finland, located in a tiny community called Tuuri with 500 people in South Ostrobothnia relies on Uponor underfloor heating system and snow-melt system.

Project Facts:

Location	Completion	
Tuuri, Finland	2010	
Building Type	**Product systems**	
Office	Radiant Heating & Cooling	
Address	**Website**	**Project Type**
Onnentie 7	https://tuuri.fi/	Renovation

Partners

specifier
Insinööritoimisto Sartekno Oy

installer
LVI Kari Mänty Oy & Sähkö-Kaunisto

The Keskinen Village Shop shopping centre continues to be the driving force behind the village of Tuuri in Töysä, Finland. Expanded every few years, it is known as Finland's largest village shop, located as it is in a community of 500 people in South Ostrobothnia. A family-owned business, its sales are the second highest among the Finnish retail businesses, and it maintained its ranking as Finland's top tourist attraction from 2002 through to 2006.

Three consecutive years of expansion have seen the construction of two high-rise warehouse extensions of 9,000 square metres, a food retail outlet, other warehouses, an off-licence, a coffee shop, a restaurant seating area and kitchen built in the foyer, offices, a hotel, an auditorium of 300 square metres, and four other conference rooms.

The expansion was carried out in stages: the food shop was completed first, followed by Hotel OnnenTähti, where the 34 suites were finished before the 'smaller' 40-square-metre hotel rooms. The length of the building came to approximately 260 metres after the expansion. Totalling 18 000 square metres, the entire expansion has been equipped with radiant underfloor heating. The system is powered by a 8.0 megawatt district heating plant, built exclusively to meet the VillageShop’s needs.

Underfloor heating for all areas

The housing solutions for the expansion were designed by consulting engineers Sartekno Ltd of Alavus. ‘‘Underfloor heating is perfectly suited to high warehouse and retail premises. As far as I know, few food retailers have chosen underfloor heating in the past. Nevertheless, it has worked really well because it levels the temperatures in a space where there is a high amount of refrigeration equipment. The heating is partly switched on in the summer too. In hotels, underfloor heating is a good solution for providing guest comfort and ease of furnishing in rooms,’’ says designer Heikki Savioja.

The contractor responsible for installing the heating, water, and cooling systems for the expansion was HVP Kari Mänty Ltd, which also carried out all underfloor heating installations, excluding the food shop. Approximately 50 kilometres of underfloor heating piping was laid down in the extensions. The system features over a hundred manifolds with 5–9 circuits, each of which had to be adjusted separately to provide even temperatures across the building. Project manager Teppo Lehtonen of Sähkö-Kaunisto Ltd was contracted to deliver the heating solution for the food shop. Some 35 kilometres of pipework were installed over three weeks. Lehtonen praises Uponor pipes for their easy-to-install features, commenting that the pipes are not too rigid and their quality is good.

Benefits of low-temperature systems

‘‘I think that it was an excellent idea to install underfloor heating for the food retail side of business, since we use an exceptionally high number of open refrigerating and freezing cabinets. Forced-air systems circulate the air, and if the entire heating system works with blowers, cold air escapes from the cabinets. Last summer showed that underfloor heating was a successful solution, because we managed to keep the temperatures even. We have recently installed underfloor heating in our large warehouses too. A low-temperature heating system allows us to utilise condensation heat easily and in many applications.’’

Keeping courtyards free of snow

In winter, the outdoor areas of the shopping centre, comprising a front courtyard measuring nearly 4,000 square metres and the vehicle ramps, are kept free of ice and snow using the Uponor snow-melt system. A total of 9 kilometres of pipework was laid under the courtyard and ramps.

“The area was divided into four or five groups, which helps the owner to decide which

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