Heavy-duty pipe for Tallinn’s district heating network
A total of 1.1 kilometres of pre-insulated pipes with a diameter of DN 1,000 will be installed in the largest district of Estonia's capital city Tallinn.

Large-scale construction has been the norm in Lasnamäe, the largest district of Estonia’s capital city Tallinn. Now that they are renovating the district heating network, the pipes are also amply sized. A total of 1.1 kilometres of pre-insulated pipes with a diameter of DN 1,000 will be installed in the area.
Lasnamäe is the largest of the eight districts of Tallinn. The residential area located in the eastern part of the city has over 118,000 residents, and it is known, among other things, for its large prefabricated buildings that date back to the Soviet Era, in the 1980s. Lasnamäe has become accustomed to thinking big. Now that they are renovating the district heating network, the pipes are also amply sized.

Uponor Infra will supply Lasnamäe with a total of 1.1 kilometres of district heating pipes with a diameter DN 1,000. The steel pipes are insulated with polyurethane, and they have a 1,200mm plastic protective covering.

The customer is Küte ja Ehitus AS, while the end customer is the owner of the district heating network, AS Tallinna Küte. Vjatšeslav Kovaltšuk, Director of the development department of Küte ja Ehitus AS, says that this will not quite be the Estonian record for pipe size, but it comes pretty close.

“The largest pipes installed in Tallinn are in the size category DN 1,200. They were needed in the early 1970s when the Iru power plant was built near the city. At that time, the plant had to supply heating power for the entire city.”

“Today, systems are more modern and the city does not need as much energy. With the district heating network now being renovated, preinsulated DN 1,000 pipes are sufficient,” Kovaltšuk states.

**Two sites at the same time**
Küte ja Ehitus AS is renovating the district heating pipes for Lasnamäe at two different locations. “In the Smuuli area, we are renovating the pipes because a new intersection is being built there. It makes sense to renovate the main pipeline at the same time. Later, if we ran into problems with the old pipes, repairing them would be much more laborious and expensive.”

“Near the Peterburi tee, the pipes are already in such bad condition that they need to be replaced. Lately, there have been several pipe breaks and leaks in the area.” Founded in 1993, Küte ja Ehitus AS is Estonia’s largest engineering company specialising in the design, construction and renovation of heating energy infrastructures and fire safety systems. Its customers mainly comprise energy conglomerates, industrial facilities and main contractors of large buildings.

Moreover, the company is expanding outside the Estonian borders. From the beginning of next year, the company’s name will change to KE Infra.

**Long history of cooperation**

Küte ja Ehitus selected pipes from Uponor Infra for the contract based on its previous good experiences. “We have worked in cooperation with Uponor for a long time, now. This year alone, Uponor has supplied us with pipes and components for twelve different projects in Tallinn,” mentions Vjatšeslav Kovaltšuk. “We have been very satisfied with the quality of the pipes, and the price level is competitive as well.”

Kovaltšuk notes that the schedule has been extremely tight in the Lasnamäe contract.

“The manufacturing and transport of large pipes and installation components has been challenging. The experienced project team and Uponor professionals have; however, managed to meet the stringent requirements without having to compromise on quality or scheduling.”

“The contracts must be completed during the summer season. Work began in July, and it is scheduled to be finished by the end of September at the latest, when the heating season begins.”
A lot of logistics to consider

According to Project Manager Jan-Erik Svarvén from Uponor Infra’s Industry and Energy Plant Sales, the steel company SSAB delivers 16-metre steel pipes to Uponor Infra’s Vaasa plant, where they are insulated.

“The manufacturing of large pipes requires significant lifting capacity as well as foam machines that are capable of spraying the required, larger than usual, amount of urethane in one go. Not all manufacturers have the means for this," Svarvén points out.

Uponor also delivered 44 elbows to Tallinn, the largest of which are up to 4x2 metres in size. Also crossing the Bay of Finland are, for instance, two pre-insulated 3.6x2 metre T-branches with a wall thickness of 20 millimetres. The T-branches will connect the two main lines in Lasnamäe. “The transportation has required a lot of arrangements, as only three pipes or four elbows fit into one vehicle. We had to build a special bed for the T-branches, wider than a regular lorry bed,” Svarvén describes.

Pre-insulated valves, for example, are also used in Lasnamäe. “We have designed the valves in cooperation with the customer and the valve supplier. We want to ensure that the customers get exactly what they want,” Jan-Erik Svarvén emphasises.

In the Smuuli area, a nonconventional solution will be used on the line: The DN 1,000 pipe will be installed in a concrete channel in the location of the bridge, as there was no room to excavate at the location.

“We also had German engineers involved in the planning of this solution with us,” Kovaltšuk says.

Installation requires a lot of space

The excavation and installation work of large pipes naturally requires a lot of space. “At times, it is difficult to get permission from the local traffic department for closing off roads that are heavily trafficked. The planning and preparation phase of this kind of
work takes a significant amount of time.”

Kovaltšuk says that in Lasnamäe, they do not usually run into the same problems as in the Medieval Old Town; there, the museum authorities interrupt work immediately, if excavations reveal something with historical significance. This naturally causes project delays.

“And as we are operating in a city, we also receive complaints from the residents every now and then. It is understandable, as the installation work always causes a certain amount of noise.”

“However, we attempt to find compromises that ensure that the work causes as little disturbance to the environment as possible.”

**Project Information**

**Country**
Estonia

**Completion**
2015

**Project Type**
Renovation

**Size**
1.1 km of district heating pipes DN 1,000

**Partners**