

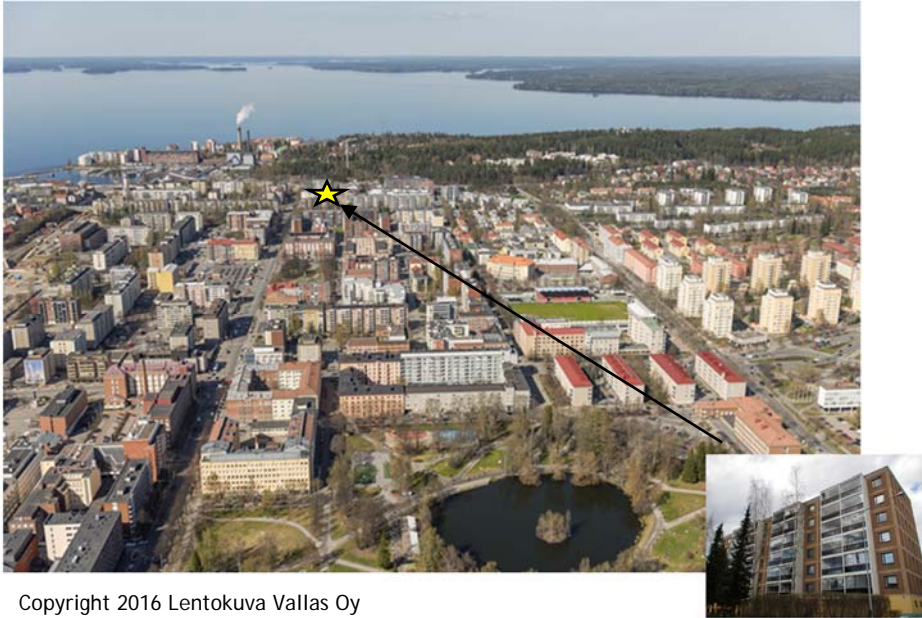
Factsheet

BEST 7 Ltd housing company Tampereen Pohjolankatu 18-20

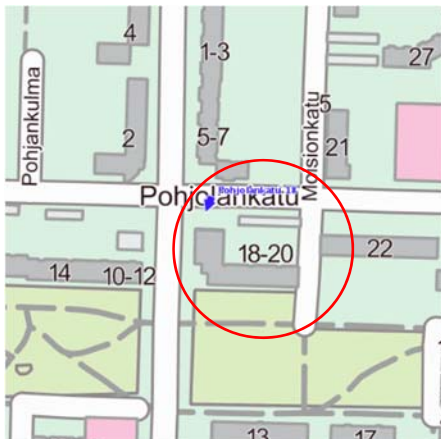


EU-GUGLE stands for “European cities serving as Green Urban Gate towards Leadership in sustainable Energy” and is funded under the 7th Framework Programme for Research and Technological Innovation.
It is co-ordinated by CENER, Spain’s National Centre for Renewable Energies.

1 - PROFILE

Name and address	<i>The demonstration area Tammela district and BEST 7 Ltd housing company Tampereen Pohjolankatu 18-20</i>	
Map	 <p>Copyright 2016 Lentokuva Vallas Oy</p>	
Description	<p><i>Tammela district, where the renovations take place, has around 7000 inhabitants. The age distribution of Tammela is one-sidedly mostly elderly people. 94 % of the inhabitants are between ages 18-over 85 and only 6 % between the ages 0-17. Decision making in the privately owned limited liability housing companies can be challenging because of lack of interest to do big renovations and lack of funds. Tammela district is also demonstration area for infill development. And there are several projects that are trying to help and encourage the limited liability housing companies in the area to use infill development as a means of funding renovations and improve quality of living.</i></p>	
Ownership	<i>Owner occupied building</i>	
Gross volume	4117 m ²	
Number of dwellings	54	
Energy performance	<i>BEFORE</i>	<i>E</i>
	<i>TARGET/AFTER</i>	<i>C</i>

2 - Description before refurbishment

Plot map																						
Building envelope	Concrete panel building walls U value 0,35; Windows U value 2,1																					
Technical system	District heating; central heating; mechanical exhaust air Renewables in district heat production 17 % Renewables in grid electricity 13 %																					
Energy performance certificate*	<table><tr><td>-75</td><td>A</td><td></td></tr><tr><td>76-100</td><td>B</td><td></td></tr><tr><td>101-130</td><td>C</td><td></td></tr><tr><td>131-160</td><td>D</td><td></td></tr><tr><td>161-190</td><td>E</td><td>E</td></tr><tr><td>191-240</td><td>F</td><td></td></tr><tr><td>241-</td><td>G</td><td></td></tr></table> <p><i>Note: weightned by energy form factors 2012</i></p> <p><i>Includes standard use by households (cooking, white line, entertainment electronics, etc.)</i></p>	-75	A		76-100	B		101-130	C		131-160	D		161-190	E	E	191-240	F		241-	G	
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*Not the official energy certificate calculation.



3 - Implementation

Stakeholders involved	
Project manager	<i>Ltd Tampereen Pohjolankatu 18-20</i>
Main contractor	<i>ESP Tekniikka Oy</i>
Sub contractor	<i>Nap Solar Oy</i>
Sub contractor	<i>LVI-urakointi Kuokkanen</i>
Sub contractor	<i>Rototec Oy</i>
Remote monitoring and control system	<i>Talotohtori/Enermix Oy</i>
Window and door supplier, partly	<i>Metallityö Välimäki Oy</i>
Door supplier, carage	<i>Turner Oy</i>

Costs and financing			
Refurbishment costs	<i>Windows (2009) and doors</i>		<i>225 000</i>
	<i>Heating, ventilation, own energy production</i>		<i>460 000</i>
	<i>LED lighting and electricity improvements</i>		<i>17 000</i>
	<i>Planning, supervision, etc.</i>		<i>23 000</i>
	<i>VAT 24 %</i>		<i>174 000</i>
	<i>Total €</i>		<i>899 000</i>
	<i>€ / m2</i>		<i>218</i>
Financial resources	<i>National subsidy</i>	<i>28 000</i>	<i>3 %</i>
	<i>EU grant</i>	<i>205 850</i>	<i>23 %</i>
	<i>Bank loan</i>	<i>754 150</i>	<i>74 %</i>

Planning and implementation	
1 - step	2013
<i>Decision of the General Meeting to start planning. The planning included several site visits to recently renovated buildings.</i>	
2 - step	2014
<i>Detailed planning and procurement of exhaust air heat recovery system and air-to-water heatpump, energy efficient lighting, solar heat collectors.</i>	
3 - step	2016-2017
<i>Detailed planning and procurement of GSHP, PVs, waste water heat recovery system and two-way district heating system.</i>	

4 - After refurbishment

New windows; balcony glasses; PVs	 																						
Envelope characteristics	New windows and doors (U value 1)																						
Technical system	Two-way district heating; GSHP; Central heating; Exhaust air and waste water heat recovery; Solar collectors; PVs; LED lighting with presence control; Water saving faucets																						
Renewable energy sources	Ground heat, solar heat and electricity Renewables in district heat 47 % Renewables in grid energy 100 %																						
Energy consumption	60 kWh/m ² /a																						
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5 - Performance monitoring

Monitoring System	<i>Remote monitoring system Talotohtori ®. Smart metering by utility company (district heat and electricity)</i>
Monitored variable	<i>Harvested heat District heat Electricity production Electricity from grid</i>

		Before	After
Electricity from grid	kWh/m ² /year	10	30
DH from network	kWh/m ² /year	130	-6
Purchased energy	kWh/m ² /year	140	24
Operational costs	€/ m ² /year	12	2