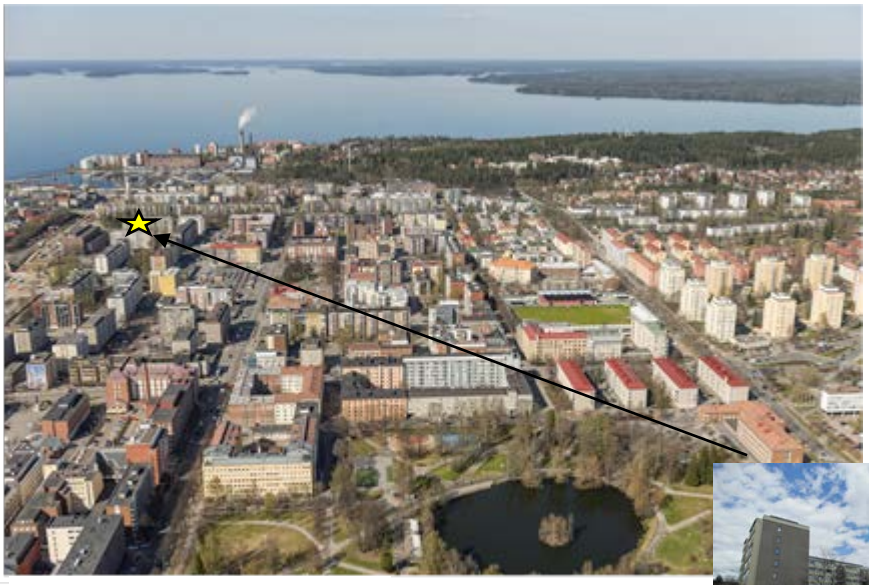
Factsheet

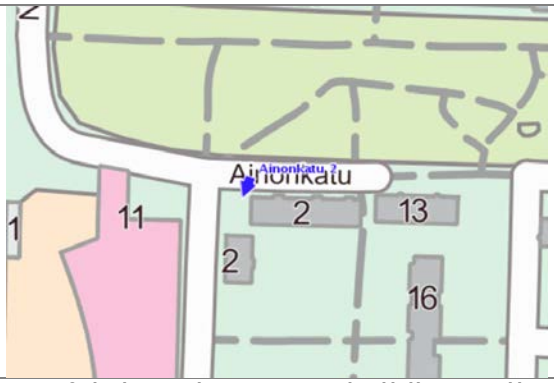
BEST 4 Limited liability housing company Ainonkatu 2

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.

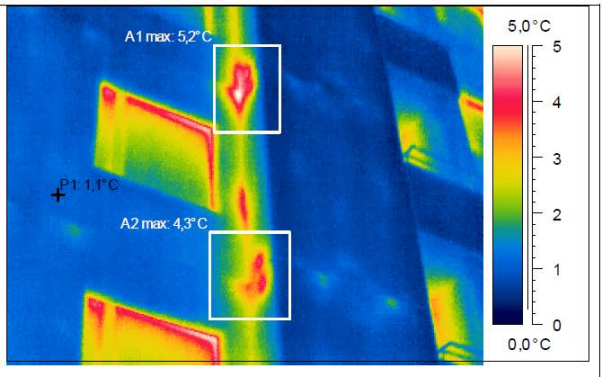
PROFILE

Name and address	*The demonstartion area Tammela district and DEMO 4 Limited liability housing company Ainonkatu 2*	
Map	  Copyright 2016 Lentokuva Vallas Oy	
Description	*Tammela district, where the renovations take place, has around 7000 inhabitants. The age distribution of Tammela is one-sidedly mostly elderly people, young couples and students. 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.*	
Ownership	*Owner occupied building*	
Gross volume	*5554 m2*	
Number of dwellings	*70*	
Energy performance	*BEFORE*	*E*
	TARGET/AFTER	*D*

1 – Description before refurbishment

Detailed characteristics of building	
Plot map	
Building envelope	*Pre-fabricated concrete building walls U value 0,4; windows U value 2,5*
Technical system	*District heating; central heating; mechanical exhaust air* *Renewables in district heat production 17 %* *Renewables in grid electricity 13 %*

Thermal imaging before refurbishment



Energy performance certificate*

-75	A	
76-100	B	
101-130	C	
131-160	D	
161-190	E	F
191-240	F	
241-	G	

*Not the official energy certificate calculation. Calculation is based on the Finnish 2013 legislation of the buildings' energy certificate 18.1.2013/50 but it takes into account more precisely the technical values of the measures done in the building.

Concept	
Envelope	*New windows and doors*
Building service systems	*District heating;* *Energy efficiency improvements of central heating, ventilation and lighting* *Renewables in district heat production 38 %* *Renewables in grid electricity 25 %*
Thermal renewable integration	*Heat recovery and exhaust air heat pump*
Electric renewable integration	
Financing model	*Bank loan; EU grant*

3 - Implementation

Stakeholders involved	
Project manager	*As Oy Ainonkatu 2, Chair Veli-Matti Rekola*
Technical system designer	*Insinööritoimisto Mikko Ilvesmäki Oy*
Main contractor	*Honkoliini Professional Oy*
Sub-contractor	*Putkialan Remonttipalvelu Oy*
Sub-contractor	*Remonttipalvelu V Mäkelä Oy*
Sub-contractor	*Pirkanmaan Ilmastointipuhdistus Oy*

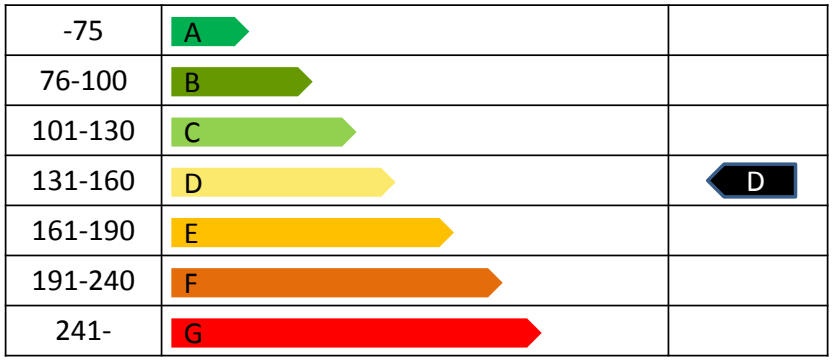
Costs and financing**		
Refurbishment costs	*Ventilation and heating incl. heatpump; monitoring system*	*141 000*
	Windows and balcony glasses	*314 000*
	Other renovation costs	*40 000*
	Planning, supervision, etc.	*24 800*
	VAT 24 %	*124 800*
	Total €	*644 600*
	Total €/m2	*115*
Financial resources	*Bank loan 84 %; EU grant 16 %; National grant 1 %*	

**Costs are based on different actual and calculated costs shifted to the comparison year 2014-2016 with the construction cost index.

Planning and implementation	
1 - step one	**2012**
New windows; balcony glasses	
2 - step two	**2014**
Design brief and new front doors	
3 - step three	**2015-2016**
Detailed planning (heating, ventilation); call for bids; implementation of measures; commissioning	

Work progress	
New windows, balcony glasses and pipeline from roof (heat recovery unit) basement (heat pump unit)	 
Renovated boiler room (storage tank, heat pump)	 
Low pressure device and control unit	 

4 - Description after refurbishment

Photo to show architectonic concept	*No measures*
A thermal imaging showing before/after insulation	*N/A*
Envelope characteristics	*Windows U value 1*
Technical system	*LED lighting*
Renewable energy sources	*Exhaust air heat pump; 46 kW* *Renewables in district heat production 38%* *Renewables in grid electricity 25%*
Energy consumption (final and primary)	*116 kWh/m²/a*
Enery efficiency certificate*	

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5 - Performance monitoring

Monitoring System	*Remote monitoring system; Smart metering by utility company*
Monitored variable	*District heat to space heating and DHW* *Harvested heat* *Water* *Electricity*

Performances ***

	Existing	Planned	Monitored
Electric consumption kWh/m2/year	*8*	*27*	N/A
Thermal consumption kWh/m2/year (HP electricity)	-	*19*	N/A
Thermal consumption kWh/m2/year (DH)	*184*	*111*	N/A
Thermal consumption kWh/m2/year (Own production)	-	*-48*	N/A
Gross energy consumption in final energy	*191*	*90*	N/A
Electric RES contribution kWh/m2/year	*1*	*7*	N/A
Thermal RES contribution kWh/m2/year	*31*	*90*	N/A
Operational costs €/m2/year	*10*	*6*	N/A

***The first results available in 3/2017. Comparison between the calculated original state and the planned as well as monitored values of the completed building after at least one whole year of monitoring.