

## Project information

Project type:	Eco rehabilitation
Address:	Rypeveien 2-58 and 1-27 Traneveien 2-42 and 1-31 Vipeveien 2-44 and 1-15
End construction year:	2010
Building type:	Apartments/ Row housing
Units:	201
Floors:	2-4
Persons in building:	-
Gross area BTA:	16 930 m <sup>2</sup>
Net heated area:	16 735m <sup>2</sup>
Additional cost for eco-application:	50 €/m <sup>2</sup>
Total building cost:	n.a.



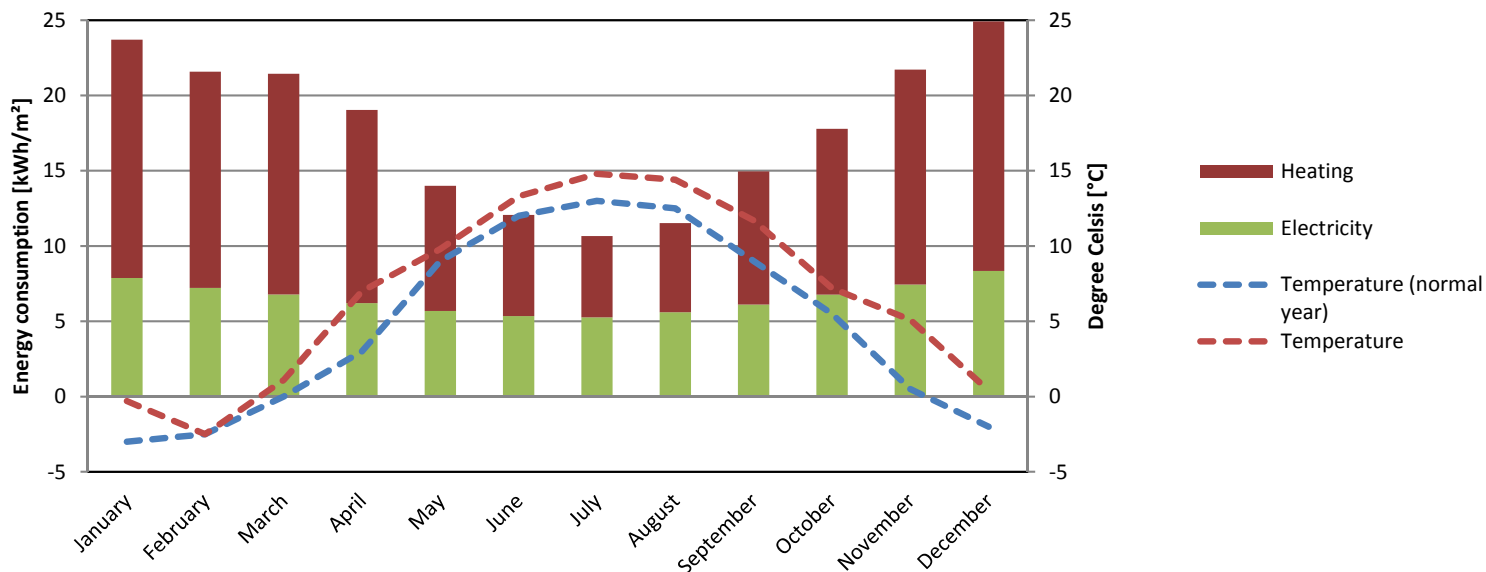
## Special ECO-technologies used:

- Masonry / concrete / wood construction
- After insulation of facades so that the total thickness of insulation corresponding to 22 cm
- Extra air sealing
- New cladding - plates and wood
- New window U = 0.9
- New doors U = 0.9
- After isolation of loft: 15 cm cellulose insufflation
- New balconies - minimizing thermal bridges
- Lighting - All outdoor LED
- Fire fighters new emergency lighting
- Garages with light control



## Energy consumption

Energy Consumption 2011



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### What have been done:

In Torvsletta BRL it has been implemented a façade rehabilitation where it has moved on from the measures that were selected in Ustmyra BRL. The main measures in relation to energy is the following. The facades are insulated with 5 cm traditional insulation plus a 5 cm rock wall (which is equivalent to 7 cm traditional insulation). The old windows and doors are replaced and fitted with new aluminum-clad U-value of 0.9.

### Why it has been done:

The rehabilitation was planned and implemented on the basis that the buildings no longer met the residents' wishes and requirements as well as structural components such as windows began to be bad. The reason for the housing association decided to implement further measures in relation to what neighboring housing association had made earlier was that the first had been a greater focus on energy-efficient renovations and that it had new products on the market that easily enabled good results.

### How has it been:

It was not set the same type of energy target for Torvsletta as it was for Ustmyra. It was conservative calculations showed a potential of 20-30% savings in consumption. In retrospect, we see that we decline has already exceeded 20% and approaching 30%. Also here we see that residents must learn to live in a more energy-efficient houses, especially in the winter when they open windows in place of to regulate the heat.



## Key figures

### U-values (ECO-rehab)

W/m <sup>2</sup> K	Before rehab	Concerto Specification	Actual
Facade wall	0.5	0.2	
Roof	0.4	0.35	
Ground Floor	0.4	0.4	
Window	2.8	1.1	
Glazing	2.8	1.1	
Shading			
Doors	2.8	1.1	
Infiltration (n50)	4	2.5	

### ENERGY

[kWh/m <sup>2</sup> ]	Before rehab	CONCERTO specification	Actual 2011
<b>Heat</b>	175	116	134.7
space heating	84	49	
ventilation	46	32	
pipe loss	10	9	
DHW	35	26	
<b>Electricity</b>	56	46	78.6
lighting	25	22	
cooling	0	0	
equipment	5	4	
other	26	20	
<b>Total</b>	<b>231</b>	<b>162</b>	<b>213.4</b>

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