



1918

TALLINNA TEHNIKAÜLIKOO
TALLINN UNIVERSITY OF TECHNOLOGY



Pilot renovation project in Estonia

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H2020 MORE-CONNECT

1st Meeting (Kick-off)

2015 January 12 and 13



General description

- Prefabricated concrete large panel element
- Typical soviet series apartment building:
solutions and results are easily to disseminate
 - Construction date 1986
 - Number of stories 5
 - Net area 3824 m²
 - Heated area 3306 m²

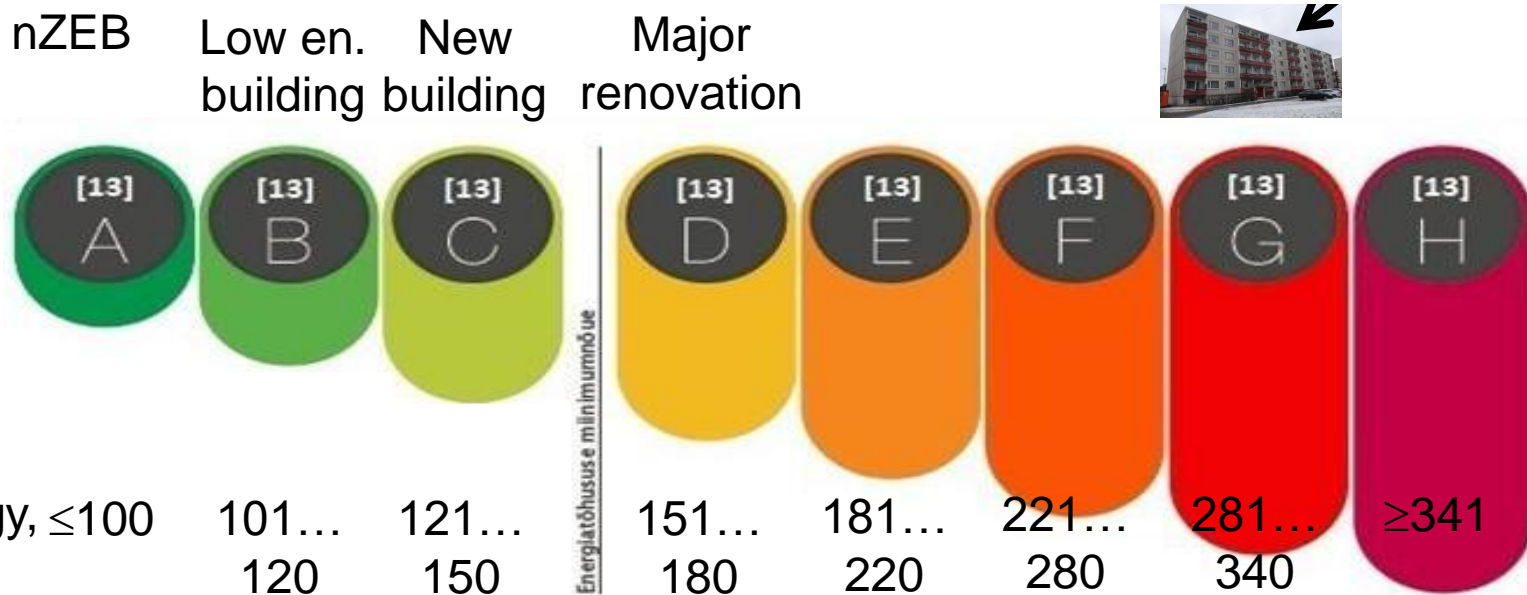






Current energy use ($HDD_{Tallinn} = 4220 \text{ }^\circ\text{C}\cdot\text{h}$)

	2008	2009	2010	Average
Delivered energy, kWh/(m²·a)				
Space heating	126	116	150	131
Domestic hot water	107	93	85	95
Electricity	54	46	46	48





Preliminary estimation about renovation solution

- **Building envelope:**
 - Exterior wall: $U \leq 0,12 \text{ W}/(\text{m}^2\text{K})$
 - Basement wall: $U \leq 0,17 \text{ W}/(\text{m}^2\text{K})$
 - Roof: $U \leq 0,10 \text{ W}/(\text{m}^2\text{K})$
 - Windows: $U \leq 0,80 \text{ W}/(\text{m}^2\text{K})$
 - Basement ceiling: $U \leq 0,26 \text{ W}/(\text{m}^2\text{K})$
 - Insulation of loggias → interior heated area
- **Ventilation:** balanced ventilation with HR in each apartment
- **Heating:** radiators, thermostats, renovation of heat centre
- **Solar collectors** for DHV on roof
- **PV** for electricity on facades
- **MORE-CONNECT engine:**
in loggia or on roof





<u>Preliminary</u> estimation of energy use	Current use		Standard use	
	Now	MoreCon.	Now	MoreCon.
Net energy, kWh/(m²-a)				
Space heating	98	19	98	19
Ventilation	29	13	65	13
Domestic hot water	95	95	30	30
Appliances	48	48	29	29
Fans, pumps	0	6	0	6
Produced energy on site, kWh/(m²-a)				
Solar collectors (heat)	0	-24	0	-24
PV panels (electricity)	0	-5	0	-5
Delivered energy, kWh/(m²-a)				
Space heating	101	20	115	20
Ventilation	30	14	68	14
Domestic hot water	95	71	30	6
Appliances	48	43	29	24
Fans, pumps	0	6	0	6
Primary energy, kWh/(m²-a)				
Energy performance value	313	193	250	96 = nZEB