

# RE GREEN EN

Regional Policies  
Towards **Green** Buildings





# Palamuse parish

Novel “Kevade” (“Spring”) by Oskar Luts was published in 1911. Film with the same name was released in 1970. It sold 558 000 tickets in Estonia (population 1,5 million)

The novel and the film depict a school year of 1898-1899 in parish school at Palamuse. The novel and the film had sequels “Suvi” (“Summer”) and “Sügis” (“Fall”).



# Palamuse parish

Main employer of Palamuse parish is Vocational **Luua Forestry School** – about 100 employees of which 40 are pedagogical staff.

- 3500 ha of forest area,
- sawmills,
- a tree nursery,
- 7,5 ha arboretum.

Appr. 200 students graduate annually;

Appr. 800 people annually attend supplementary courses.

**Municipality** employs about 100 people (includes schools and day care)

Main businesses are agriculture, forestry and wood processing.



# Palamuse parish

- Parish Council of 13 members is elected every 4th year
- Administration / Board – 5 members
- Administration / Public servants – 14 people
- Annual budget 2013 – 2,3 M€ of which:
  - 1,35 M€ on education
  - ...
  - ...
  - ~0,16 M€ on housing



The basis of all activities is Development plan.  
Current development plan has a span 2008 – 2016

Development plan is ammended several times.

# Story of a community center

The old parish house was built in XIX century as a stable of a roadside tavern.

By 2008 it had become unfit for its use.

Rooms were cold in winter and hot in summer. Also there was moisture damage.

As the building had never meant to be an office building it was impossible or unreasonable to repair.

Architectural competition was announced in December 2006.



# Story of a community center

There were 14 entries in the competition including several Estonian top architects in spite of rather modest prizes.

The competition was challenging as it was meant to be the first passive office building.



# Story of a community center

The winner of the competition was Sirkel&Mall design office.

Architect Urmas Luure

The project was called  
“Quarter to three”

Bidding for construction was  
announced in August, 2008.

There were 11 companies bidding  
for constructing a 798 m<sup>2</sup> building  
– unusually high number of  
companies.







# Story of a community center

## Insulation of perimeter:

		U-value, W/m <sup>2</sup> K
- Wall	450 mm cell wool + 50 mm reed mat	0,077
- Ceiling	700 mm cell wool	0,056
- Floor slab	400 mm EPS	0,080
- Windows		0,73

## Airtightness

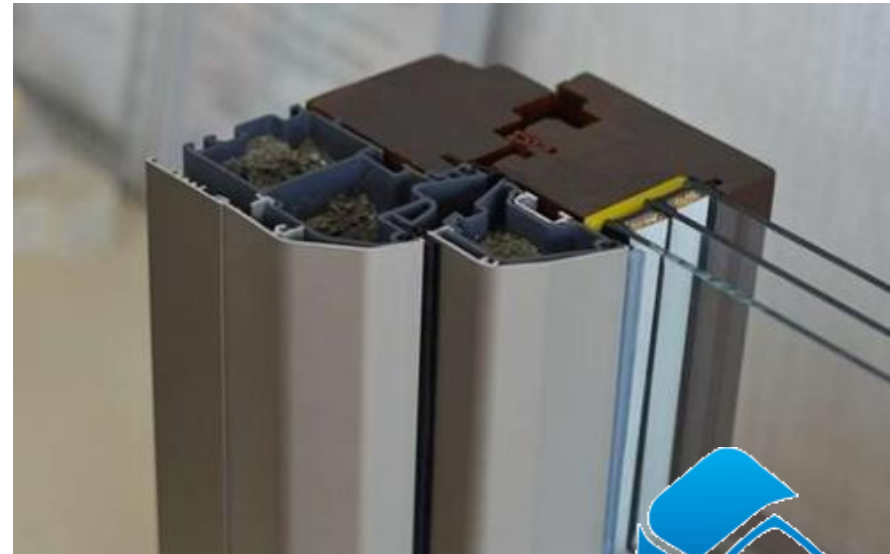
- n <sub>50</sub>	0,6 h <sup>-1</sup>
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## Heat recovery of ventilation

η	81 %
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## Heat consumption per year

Overall	10, 14 MWh
Per square meter	15 kWh



# Story of a community center

What really happened?

Annual heat consumption

42 kWh/m<sup>2</sup>

Hot water

4137 kWh/a

Overall electricity consumption

40 158 kWh/a  
(59 kWh/m<sup>2</sup>a)

Including office machinery

7064 kWh/a  
(10 kWh/m<sup>2</sup>a)

Energy efficiency according to

Estonian Energy Certificate

(weight factor for electricity – 2,0)

118 kWh/m<sup>2</sup>a

“Low Energy House”



# Story of a community center

What went wrong?

Calculations

- Occupancy of building was estimated to be 35 persons. Actually only 15 people in average work in the offices
- Indoor temperature designed 20°C, actual 22 -23°C

Design

- Although heat recovery efficiency was designed to be 81%, in calculations a higher number was used – 90%
- Designed solutions did not guarantee airtightness

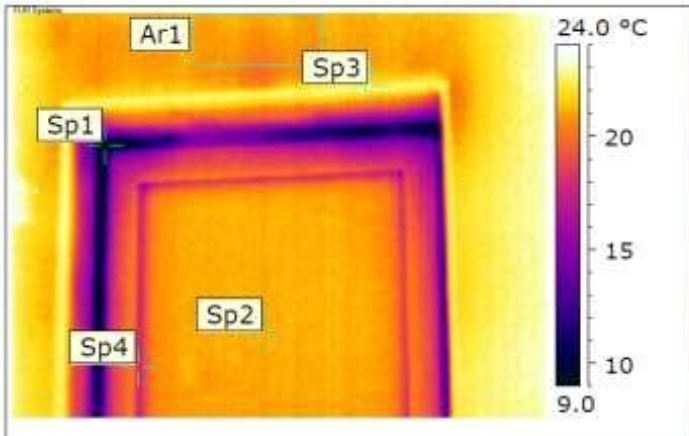
Contractor

- Specified ventilation system was replaced with “equal” with heat recovery rate of 76%
- With current building quality, materials and solutions required air tightness proved impossible to achieve

Building owner

- Too much trust in contractor

# Story of a community center



Label	Value
IR: File Name	IR_9869.jpg
Sp1	6.6 °C
Sp2	20.9 °C
Sp3	22.7 °C
Sp4	17.6 °C
Ar1: Average	20.8 °C

