

SIEMIANOWICE KINDERGARTEN

The kindergarten was built in 2013/2014. The main targets were design and construction of an energy efficient kindergarten building in a short period of time (all works limited to 5 months). Prefabricated timber technology was chosen to reach this target. For a high level of indoor comfort, balanced mechanical ventilation with heat recovery was implemented. A great issue was to fulfill the fire regulations.





RENEW SCHOOL

GENERAL INFORMATION

Location:	Siemianowice Śląskie, Poland
Project type:	New building
Net cost:	305 000 EURO
Main contractor:	MultiComfort, Poland
Architect:	Adam Skrzypczyk
Building owner:	Association for the promoting Waldorf pedagogy (a non-profit organization)
Gross floor area:	500 m ²
Number of stories:	2
Construction time:	Nov. 2013 – Apr. 2014

COOPERATION MODEL

A private non-profit organization is the building owner. MultiComfort company was the designer and constructor of the building.

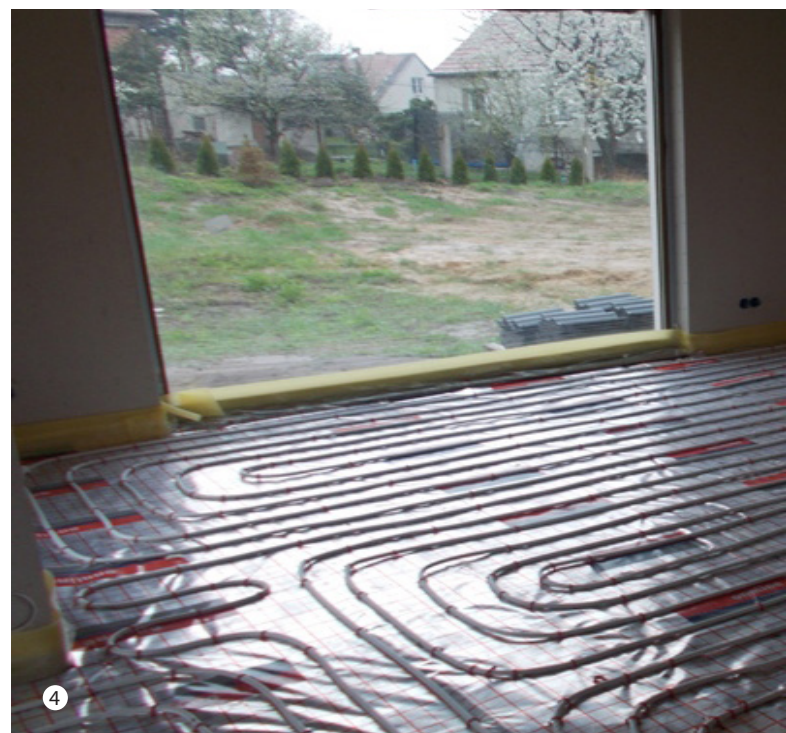
TECHNICAL SOLUTIONS AT A GLANCE

- Energy efficient building (aprox. 35-40 kWh/m²a GFA)
- prefabricated timber technology (one of the first construction of this type in Poland)
- Balanced ventilation with heat recovery (efficiency up to 95 %)
- All fire regulations fulfilled
- Short construction time (15 days of production and 5 days of construction)

DESCRIPTION OF CONSTRUCTION

The building consists of a prefabricated timber frame construction. All elements were produced in the MultiComfort factory, transported to site and constructed in 5 days. The production time was reduced to 15 days.

The external walls have 160 mm mineral wool insulation and 100 mm polystyrene insulation (U-value 0.13 W/m²K). Roof has 300 mm mineral wool insulation (U-value 0.12 W/m²K). All windows are triple-glassed, produced by REHAU and installed according to PHI Darmstadt regulations.





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ENERGY DATA / SUPPLY

Siemianowice Kindergarten is built as an energy efficient kindergarten, with a heating demand of approximately 35-40 kWh/m²a GFA.

The building is heated with floor heating supplied by low-temperature natural gas boiler. There are two boilers: 21kW and 34 kW. The first one is for heating of air supplying to the kitchen, the second is for heating, ventilation and domestic hot water (with 300 dm³ water tank) for the educational part of the building.



VENTILATION AND INDOOR ENVIRONMENT QUALITY

The building is equipped with two ventilation systems. One serves the kitchen and the second one the educational part of building.

All systems are based on balanced mechanical ventilation and the educational part has heat recovery with up to 95 % of efficiency.

LESSONS LEARNED

The construction preceded very shortly, with only a 6 month period of design and one month production and construction on site.

The first real results of energy consumption will be available by the end of 2014, but forecasts show that heating energy consumption should be in the range of 35-40 kWh/m²a GFA including domestic hot water.

The biggest challenge was to fulfil the fire regulations, as it is one of the first prefabricated timber constructed kindergartens in Poland. The big issue was the design of the building envelope, which would provide the best U-value for the budget allocated for the building.



Picture1
Production site of the prefabricated timber facades, MultiComfort

Picture 2
The facades arriving on site

Picture 3
The kindergarten is taking form

Picture 4
The building is heated with floor heating supplied by low-temperature natural gas boiler.

All pictures by Bartosz Pawliczek

THE RENEW SCHOOL PROJECT WILL DISPLAY 18 RENOVATED OR NEW SCHOOL BUILDINGS ALL OVER EUROPE

The RENEW SCHOOL project aims at retrofitting a large number of school buildings to Nearly Zero Energy Building (nZEB) standard. The project will promote and increase high-energy performance and prefabricated timber-based renovation of school buildings in Europe.

The project assists municipalities, school owners/-financiers and companies with appropriate tools and solutions and offers exchange possibilities for them.

Integrated and multifunctional solutions are based on:

- Timber prefabrication (with integrated facilities)
- Ventilation (indoor air quality)
- Intelligent daylight / shading (control)
- Renewables (on-site or nearby)

The project has chosen 18 frontrunner buildings, presenting them to municipalities, school owners, companies and users as good examples and solutions for the renovation of existing school buildings to fully nZEB standard.



1. Romsdal Secondary School
2. Søreide Primary School
3. Risør Technical College
4. Bacsippans Preschool
5. School CVO Heusden-Zolder
6. Detmold Vocational College
7. Gymnasium Reutershagen
8. Schwanenstadt
9. Rainbach
10. Neumarkt
11. St.Leonard
12. Tišina kindergarten
13. Lavrica kindergarten
14. Kekec kindergarten
15. Storžek kindergarten
16. Siemianowice
17. Vibeengen
18. Capriva del Friuli kindergarten

CONTACT INFORMATION:

Maciej Mijakowski, National Energy Conservation Agency
(mmijakowski@nape.pl, +48 501938734)

Armin Knotzer, AEE INTEC (a.knotzer@aee.at, +43-3112-5886-369)
- Coordination Renew School

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