SOUTH EAST EUROPE
Transnational Cooperation Programme

TRACE

Transnational Cooperation for the Improvement of Buildings Energy Performance and Efficiency

Programme co-funded by the EUROPEAN UNION

ICT use in Buildings Romania

Jointly for our common future

Case studies Transilvania University from Brasov

Solar pannels
Solar pannels + heat pumps

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City of Brasov

Average temperature 7.8^{o}C
Low. temp registered -21°C
High. temp registered +30°C
Low wind speed: aprox 2m/s

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Solar pannels

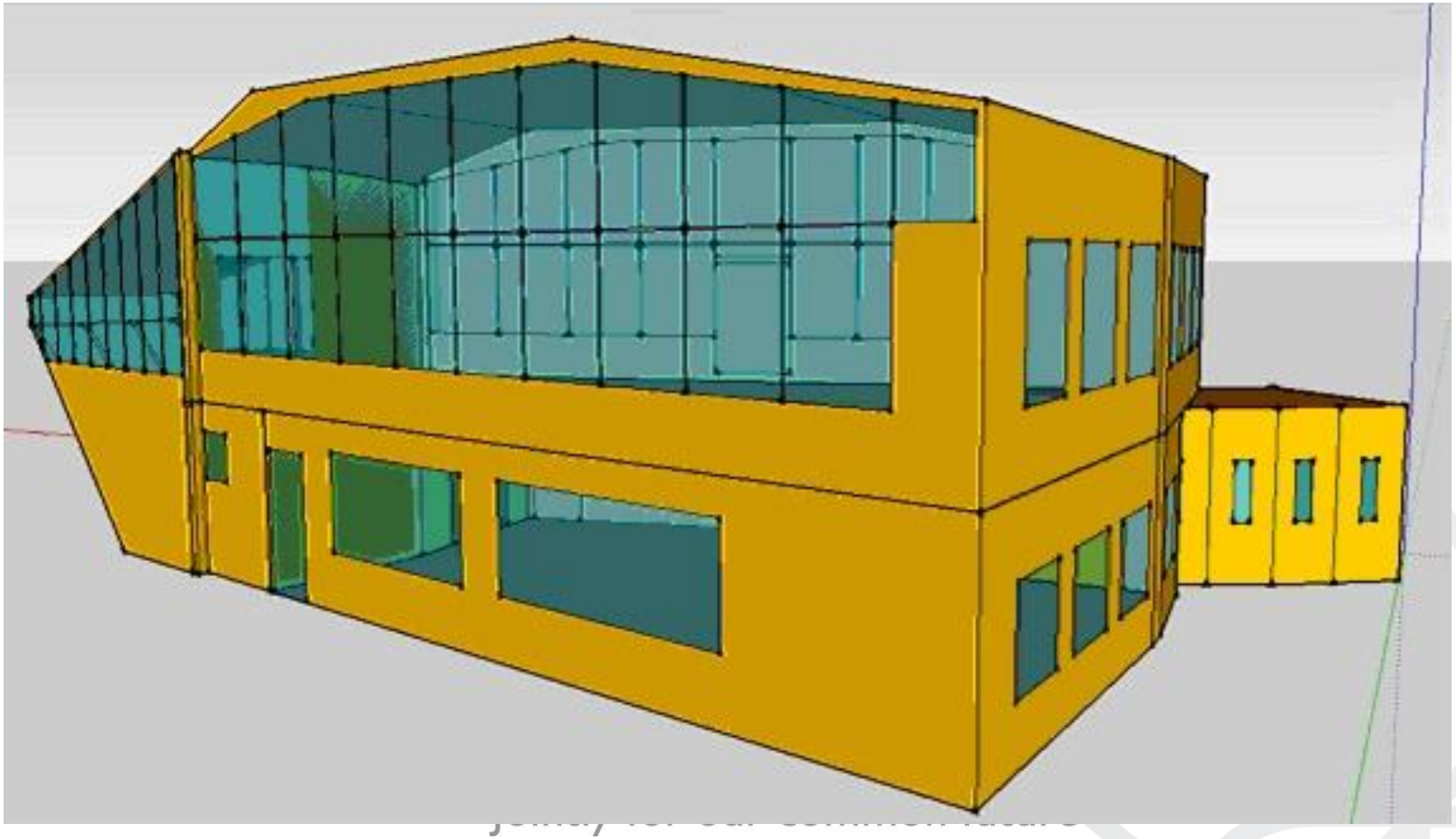
1.solar collector with an optimum inclination angle;

2.solar collector with a single axis tracking system;

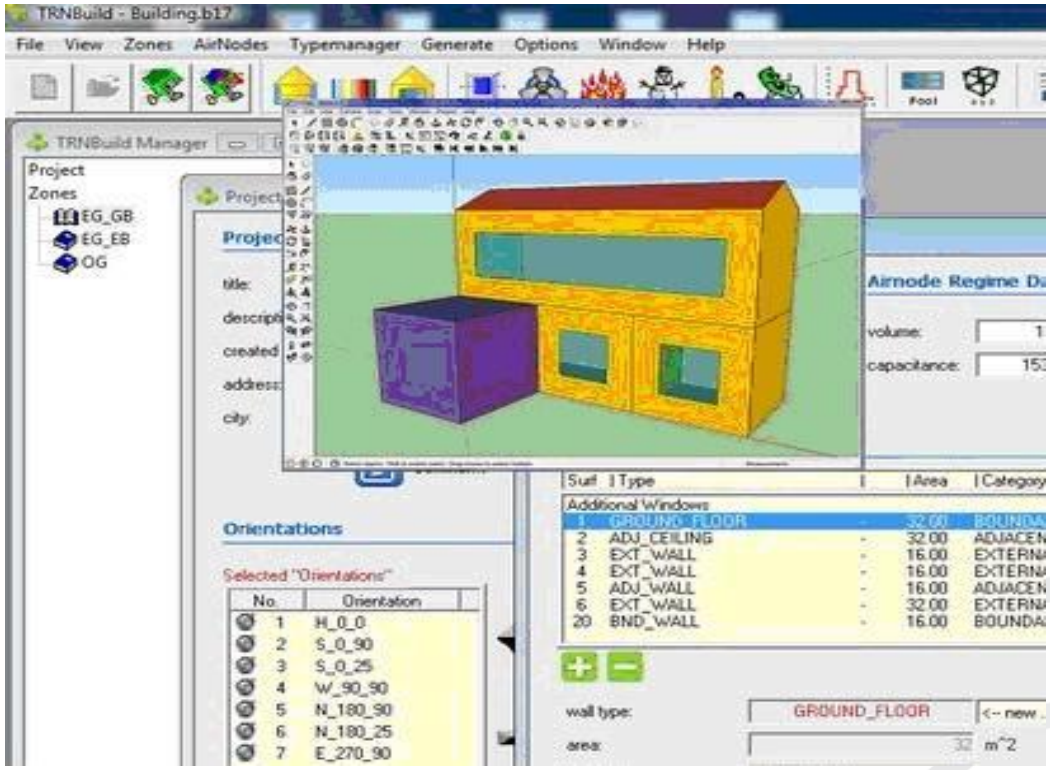
3. solar collector with continuous tracking (the maximum available global energy).

Solar pannels

260 sqm office building
2 floors with radiant under floor heating



TRNSYS simulation software



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Results

the system with single axis tracking proved to be more efficient and the solar gain was greater leading to decrease in auxiliary energy consumption

Solar pannels + heat pump

1st floor used by 12 PhD students
2nd floor used for conferences

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Solar pannels + heat pump

Oct - March the heap pump is used for heating and domestic hot water

April-September the solar pannels are responsable for the hot water

Heat pump just for cooling (if necessary)

Lesson learned

* The potential and the capabilities of TRNSYS software
*TRNSYS -more accurate building energy simulation
* tracking may not be the solution due to the high cost of production, and long payback time
* combination of different renewable en. sources could meet the confort demand

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Thank you !

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