



What is NewTREND about? Project overview

www.newtrend-project.eu

Horizon 2020 Research and Innovation Framework Programme
H2020-EeB-2015 Innovation Action



NewTREND: New integrated methodology and Tools for Retrofit design towards a next generation of Energy efficient and sustainable buildings and Districts

Topic: H2020-EeB-05-2015 – Innovative design tools for refurbishing of buildings at district level

Project budget: 5,730,513 € (EC contribution: 4,715,618 €)

Project duration: 36 months

Starting date: 01/09/2015

Project Coordination: Integrated Environmental Solutions (UK)

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LBS (UK)

STAM (IT)

SANT CUGAT (ES)

UNIPVM (IT)



Yleinen tavoite

NewTREND tavoitteena:

- Kehittää integroitu suunnittelumenetelmä
(*integrated design methodology*)
energiasaneeraukselle
- Käsitellä kaikki saneerausprosessin vaiheet
- Kehittää työkalu tukemaan jokaista vaihetta
aina suunnittelusta käytäntöön
- Edistää yhteistyötä sidosryhmien välillä
- Osallistaa rakennuksen käyttäjät
- Tehdä energiatehokkuudesta
saneerausprosessin ohjaaja

NewTREND laajuus

Tarkempi sisältö:

- **Tarkemmat suunnitelmat** yhdestä tai kahdesta rakennuksesta ottaen huomioon ympäristön/sijainnin
- Maksimissaan 10 rakennusta
- **Kyseessä EI OLE pääsuunnitteluprojekti**
- Lopputuloksen on tarkoitus **tukea yksityiskohtaisempaa suunnittelua**
- Helpottaa **rakennuksen tietomallin käyttöä**

NewTREND software tools

Tools supporting each phase:

- Data collection (data manager)
- Data storage and use (DIM server)
- Collaborative design across the whole process (NewTREND platform)
- Technologies selection (library of technologies)
- **Decision making and assessment (Simulation and design hub)**
- Project implementation (NewTREND platform)

Demonstration

NewTREND will be validated in:

- Three design projects across Europe (Hungary, Finland, Spain)
- Involvement of the design teams across the whole project
- Testing of tools and methodology



BIM model for energy simulation

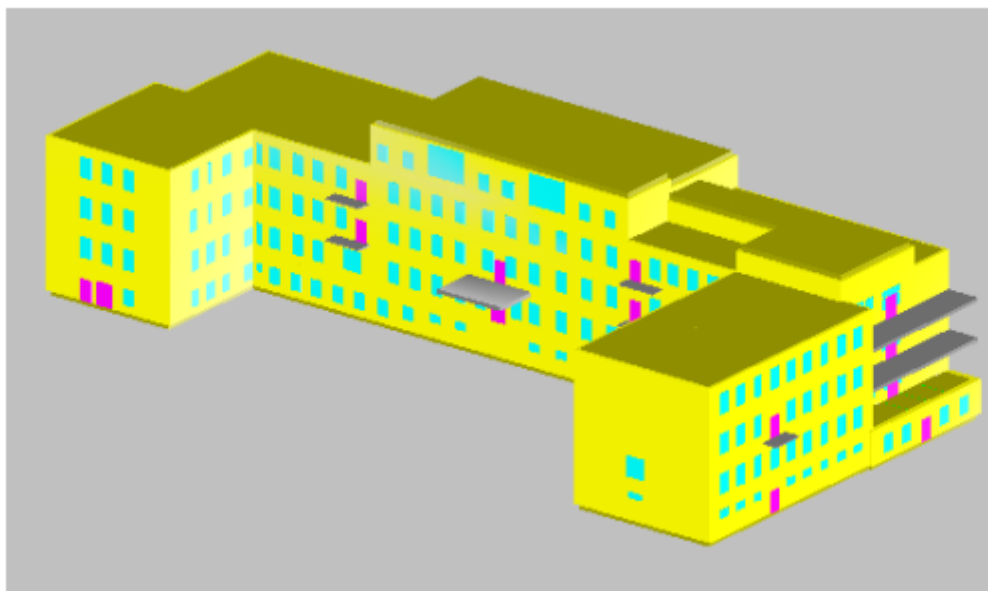


Figure 4.18. Advanced mode geometry model of the main building in MagiCAD Room 3D preview.

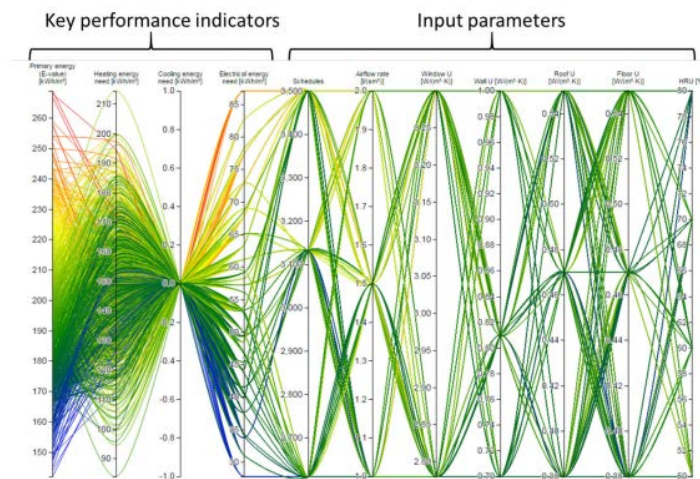


Figure 3.8. Example of a parallel coordinate plot created with the KPA tool.

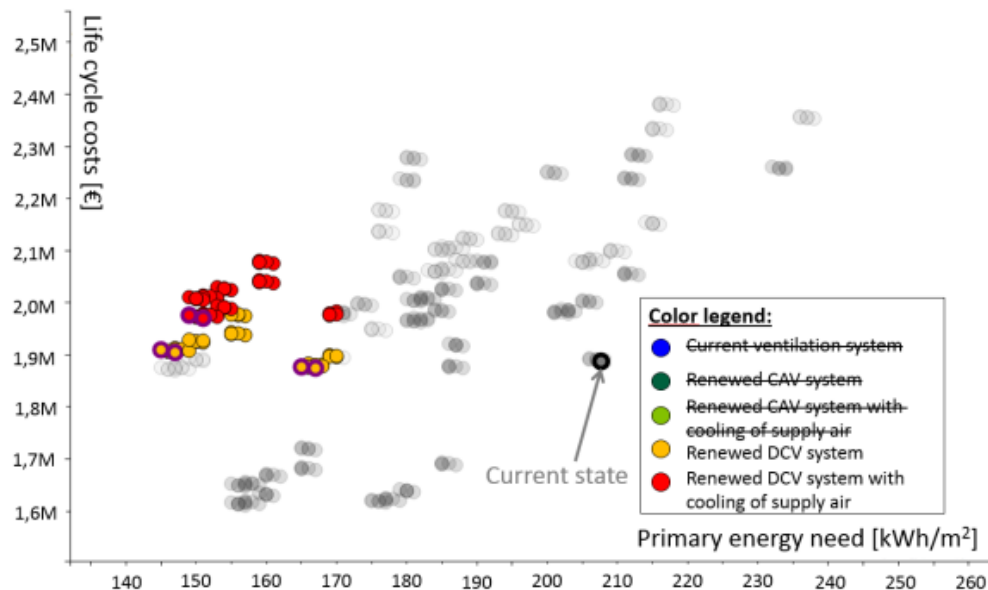


Figure 4.33. Remaining 84 retrofit design alternatives after filtering the results with requirements for primary energy need (<170 kWh/m²a) and for comfort index (>90 %). The six alternatives that were chosen for the next simulation round are highlighted with purple outlines.

Table 4.20. Input values of the chosen six retrofitting alternatives.

Retrofit alternative	Ventilation type	Window		Wall		Roof	
		U-value [W/(m ² ·K)]	g-value [%]	Insulation thickness [mm]	U-value [W/(m ² ·K)]	Insulation thickness [mm]	U-value [W/(m ² ·K)]
1	DCV, no cooling	3,3	48	200	0,14	200	0,19
2		3,3	48	200	0,14	350	0,1
3		0,8	34	200	0,14	200	0,19
4		0,8	34	200	0,14	400	0,09
5	DCV with cooling	1	50	200	0,14	200	0,19
6		1	50	200	0,14	400	0,09
Current state	Current	3,3	48	0	0,9	200	0,19

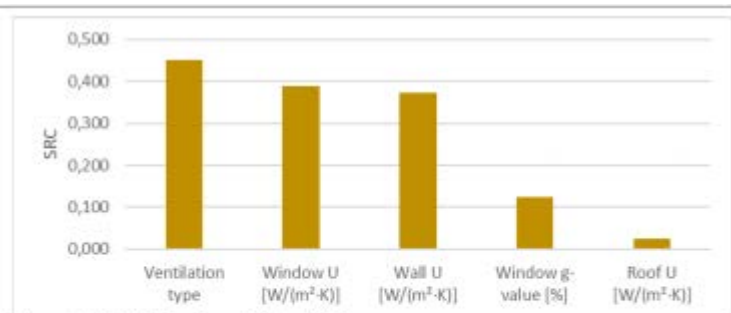


Figure 4.29. Weighted sensitivity with focus on costs.

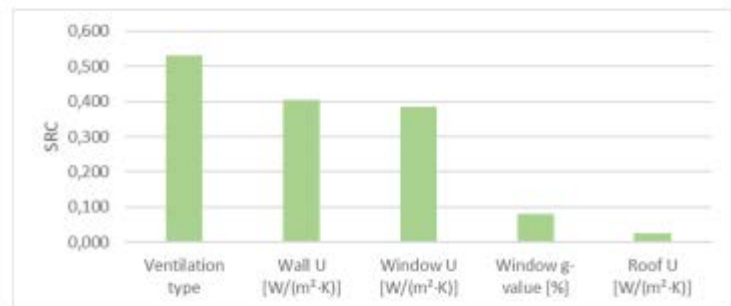


Figure 4.30. Weighted sensitivity with focus on energy.

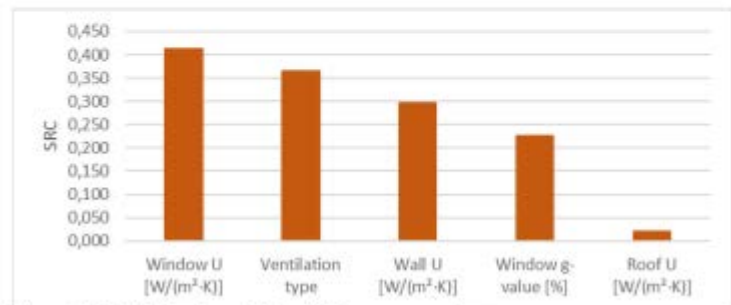
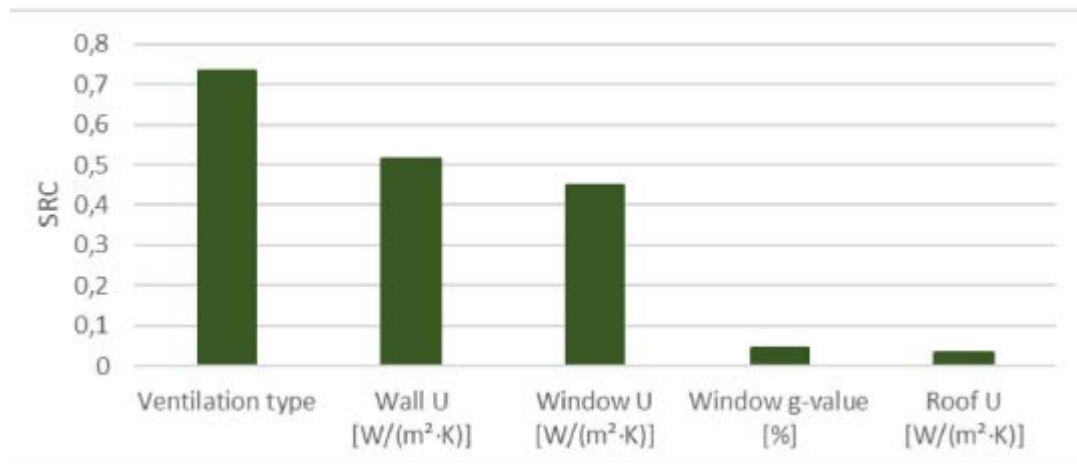


Figure 4.31. Weighted sensitivity with focus on comfort.





KIITOS!

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