



Faculty of Civil Engineering  
Warsaw University of Technology

# Sustainable Buildings

Presentation of specialisations



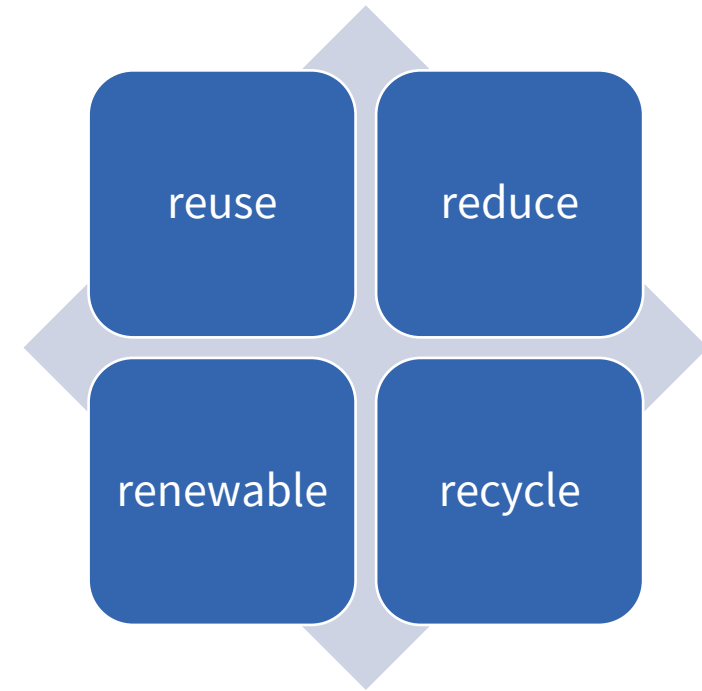
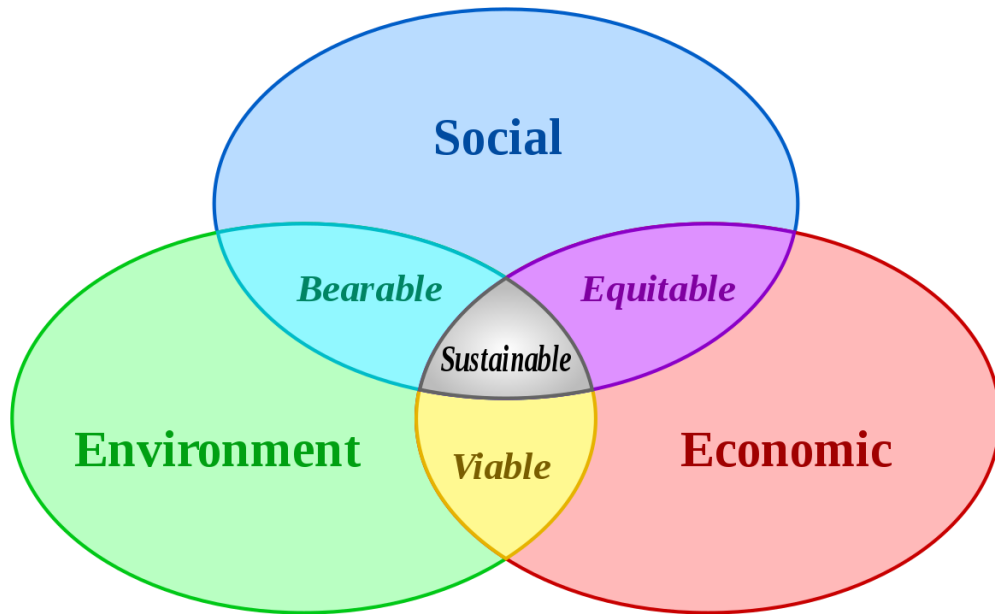
## Sustainable Buildings - Presentation of specialisations

### Environmental aspects in construction





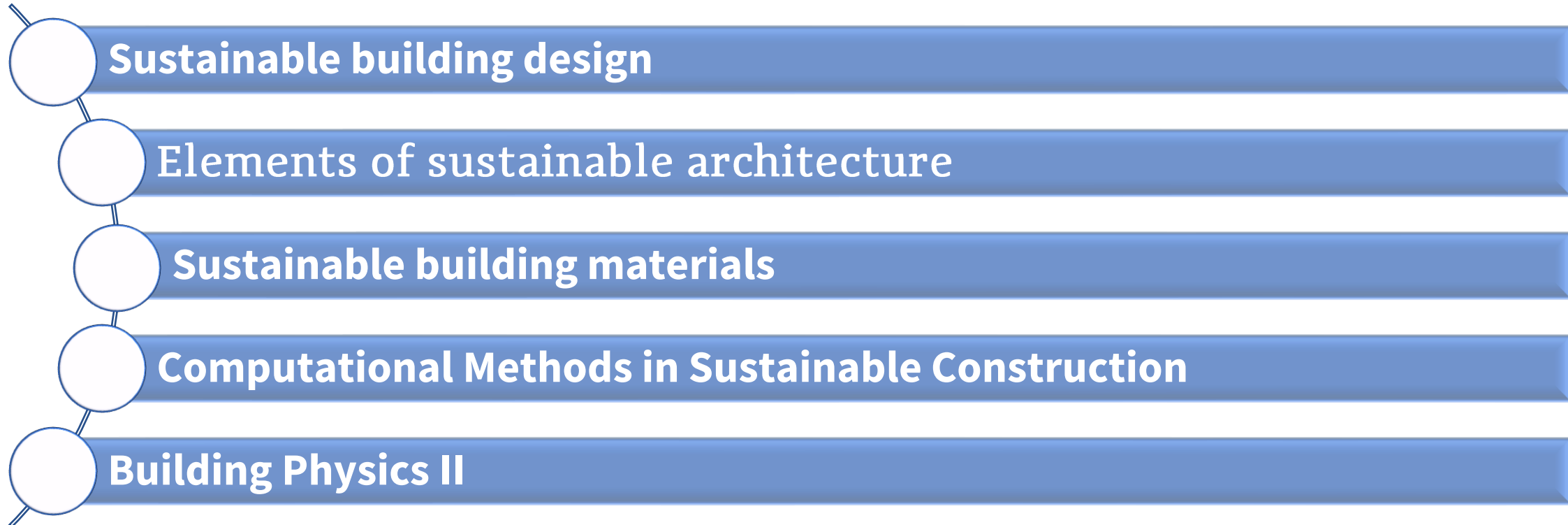
Environmentally friendly construction should implement the principles of sustainable and balanced development.



Sustainability - meeting the needs of today's society while leaving opportunities to meet the needs of future generations.



## Specialist subjects (First degree studies):





### Elements of sustainable development architecture



Masdar City in the United Arab Emirates. First zero-waste city with zero carbon emissions





## Sustainable building design



Gary Neville's house



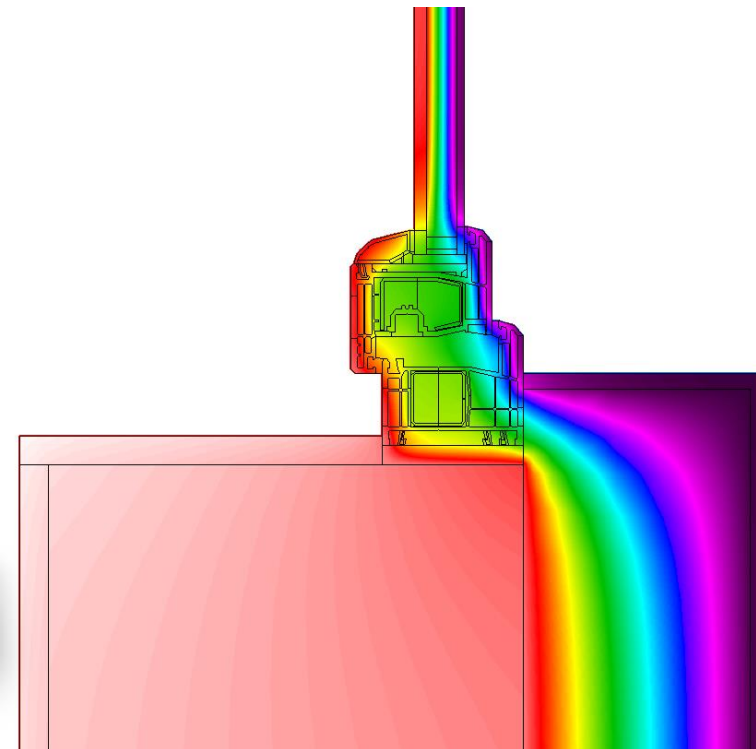
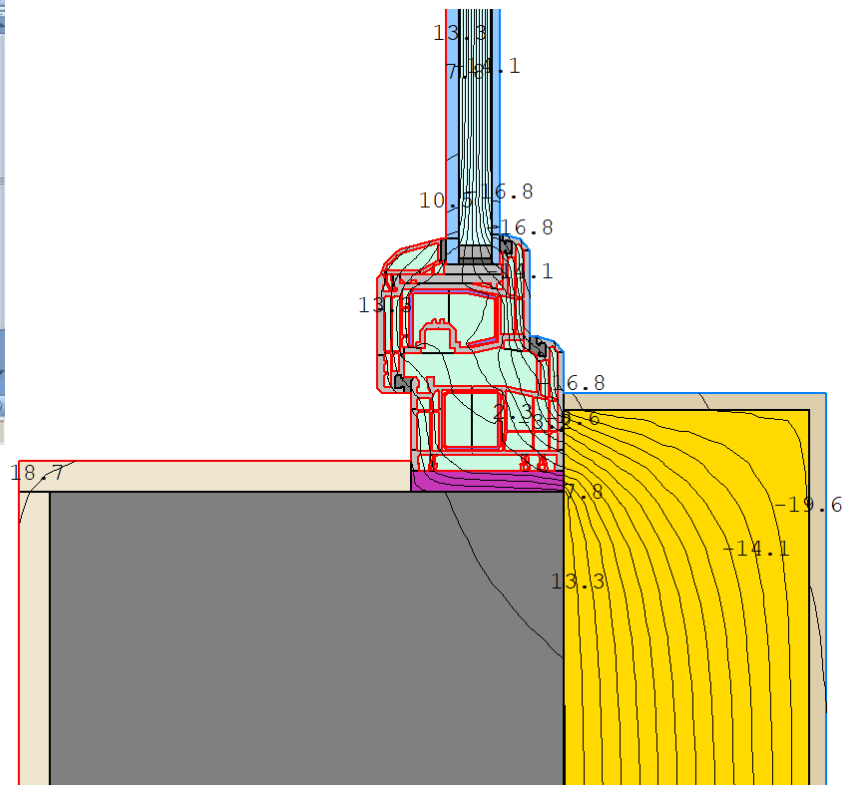
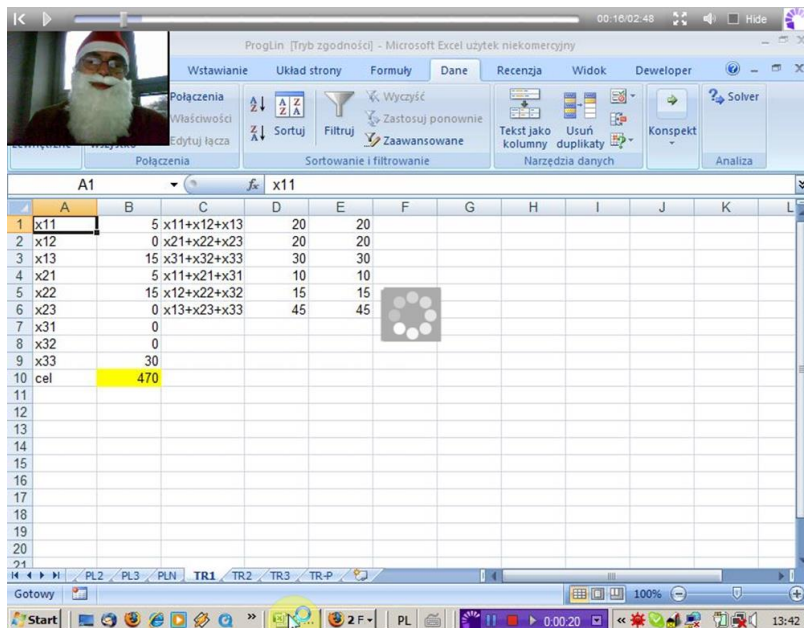
Urban cactus,  
Rotterdam



Mjøstarnet - the world's tallest wooden skyscraper was built in the Norwegian town of Brumunddal. It is 18 floors and 85 metres high.



## Computational Methods in Sustainable Construction





## Sustainable building materials

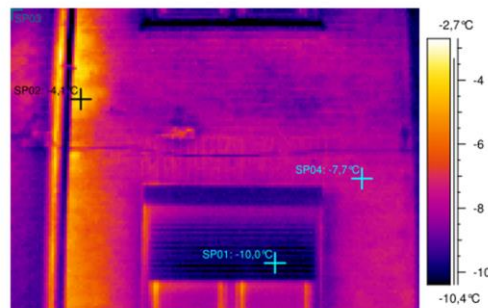
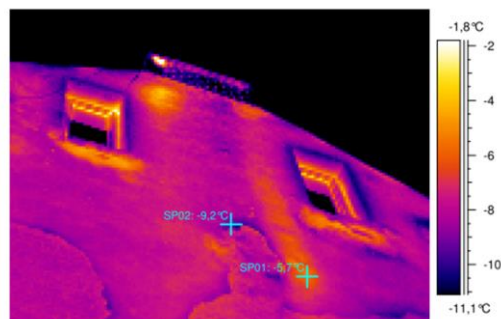


Experimental building of the Warsaw University of Technology with rammed earth





## Building Physics II



ŚWIADECTWO CHARAKTERYSTYKI ENERGETYCZNEJ		
dla budynku mieszkalnego nr 1		
Ważne do: 2021-12-07		
Budynek oceniany		
Rodzaj budynku	Blok 4-piętrowy	
Adres budynku		
Całość/Część budynku	Całość budynku	
Rok zakończenia budowy/rok oddania do użytkowania	1976	
Rok budowy instalacji	1976	
Liczba lokali mieszkalnych	50	
Powierzchnia użytkowa (A <sub>t</sub> , m <sup>2</sup> )	2500,0	
Cel wykonania świadectwa	<input type="checkbox"/> budynek nowy	<input checked="" type="checkbox"/> budynek istniejący
	<input type="checkbox"/> najem/sprzedaż	<input type="checkbox"/> rozbudowa
Obliczeniowe zapotrzebowanie na nieodnawialną energię pierwotną <sup>1)</sup>		
EP - budynek oceniany		
↓ 302.6 kWh/(m <sup>2</sup> rok)		
Wg wymagań WT2008 <sup>2)</sup> budynek nowy      Wg wymagań WT2008 <sup>2)</sup> budynek przebudowany		



## **Additional opportunities for student development within the specialisation:**

- Opportunity to be active in research clubs related to the specialisation (KING);
- Classes taught by external experts;
- Participation in research work and scientific publications;
- Opportunity to participate in specialised expeditions (also abroad)
- Learning about knowledge in a pleasant atmosphere.



## Sample thesis:



- extension of second part of house
- removal of roof, first floor extension
- thermo-modernisation of the building including installation of a heat pump and mechanical ventilation
- revitalisation of buildings







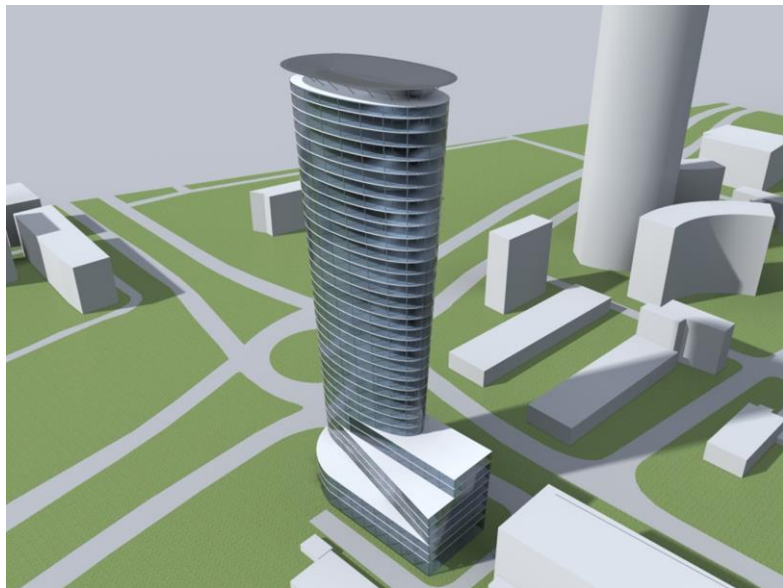
# Sustainable Buildings - Presentation of specialisations



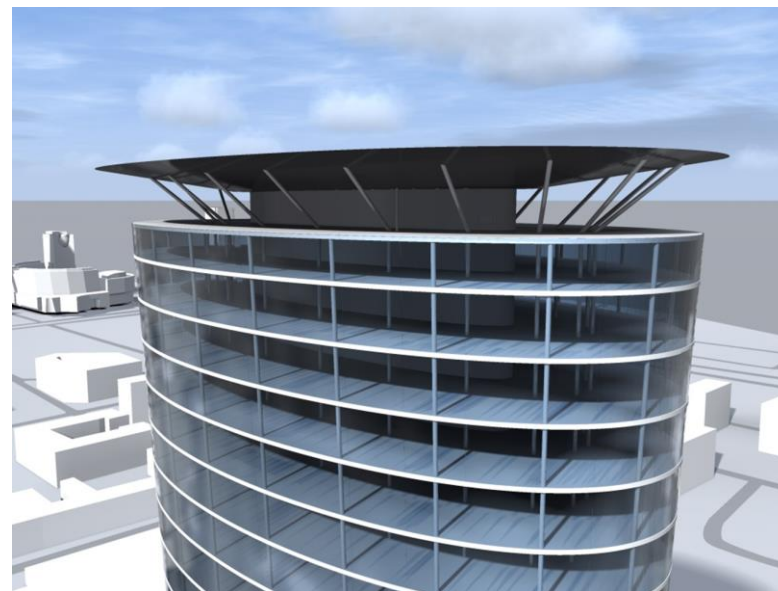
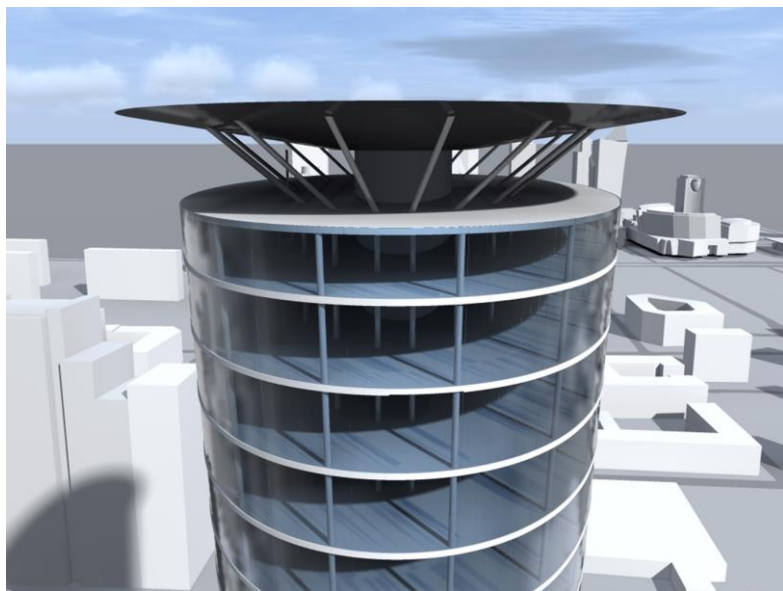
## Sample thesis:







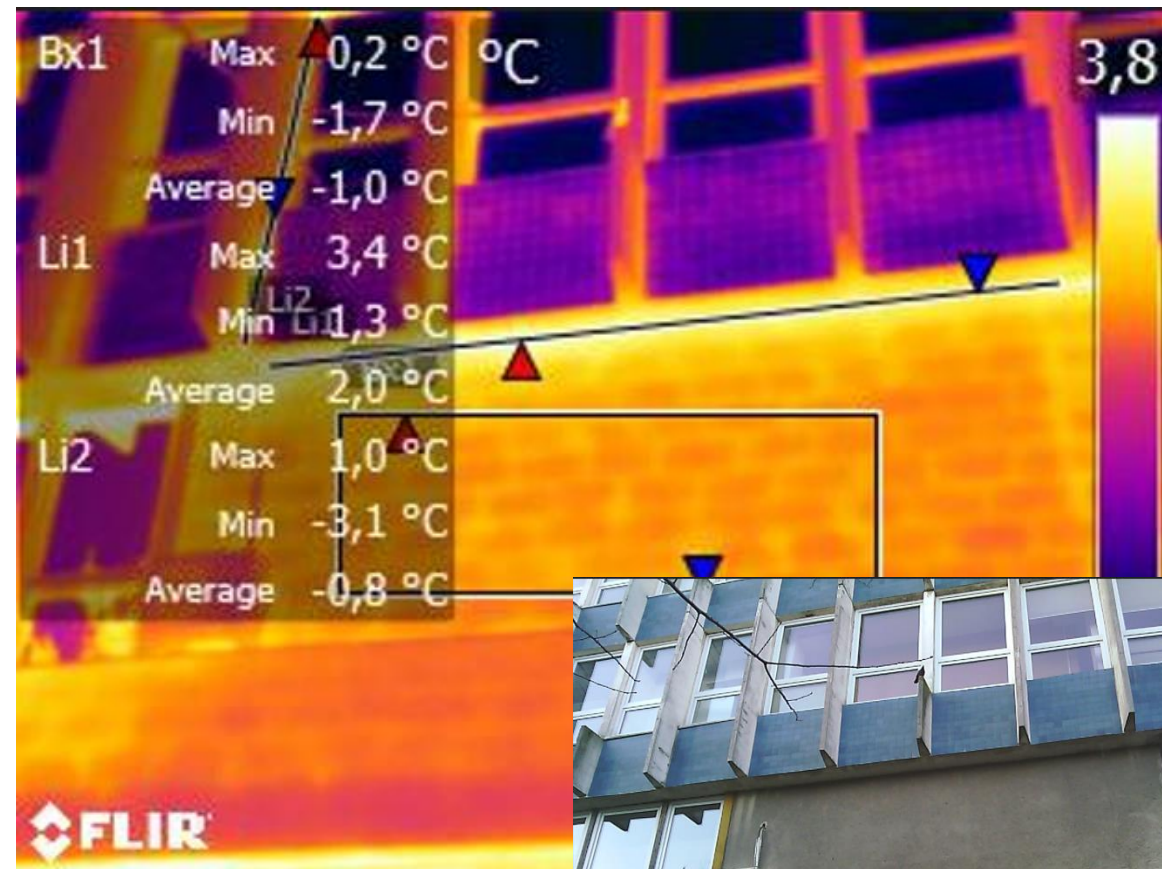
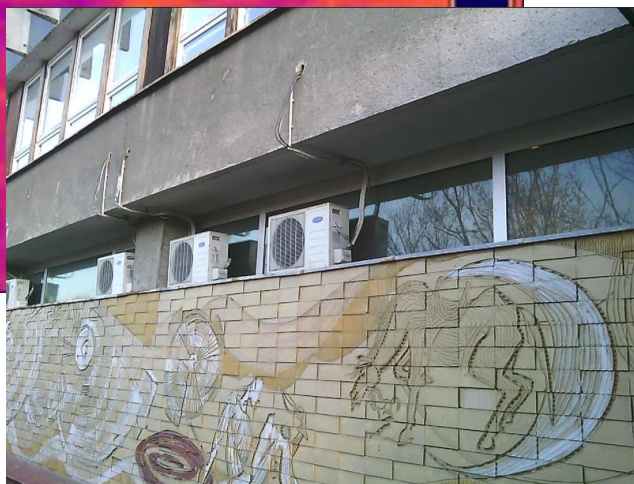
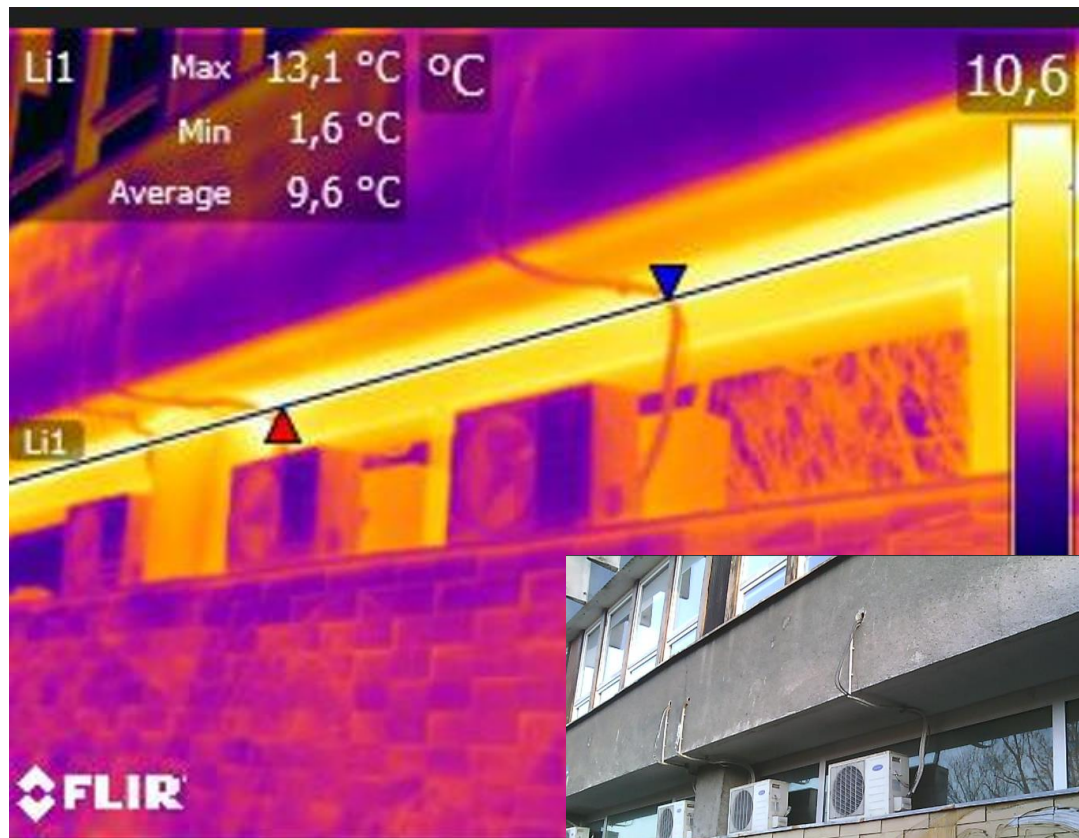
**Example of a high  
building design  
diploma:**







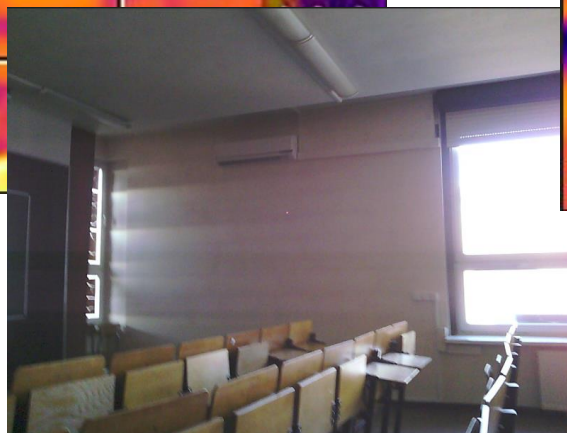
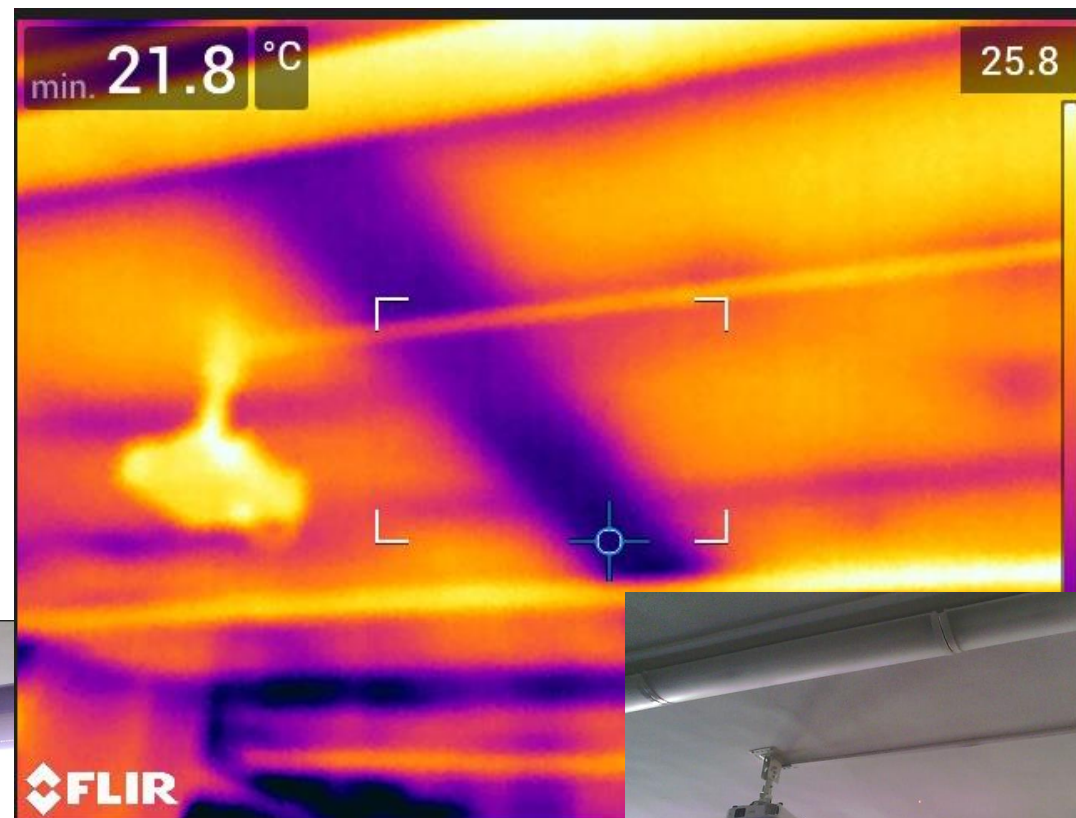
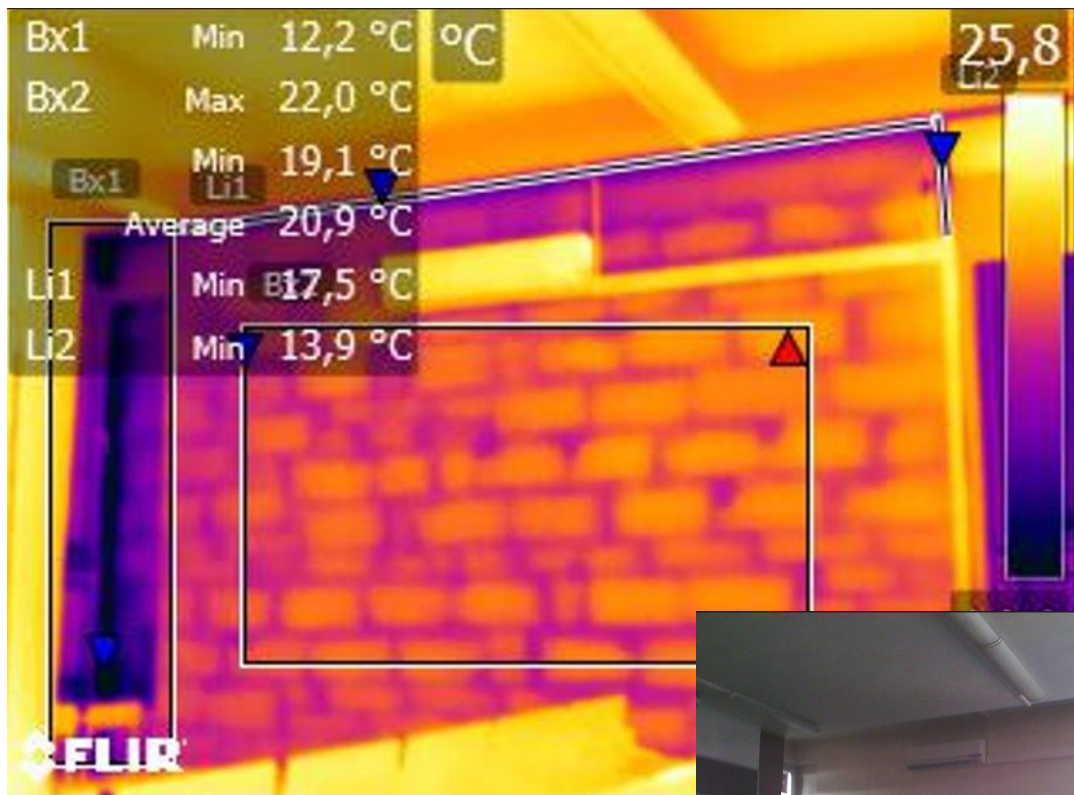
## WORKS OF THE STUDENTS FROM KING - Decarbonisation of the WIL building - facades





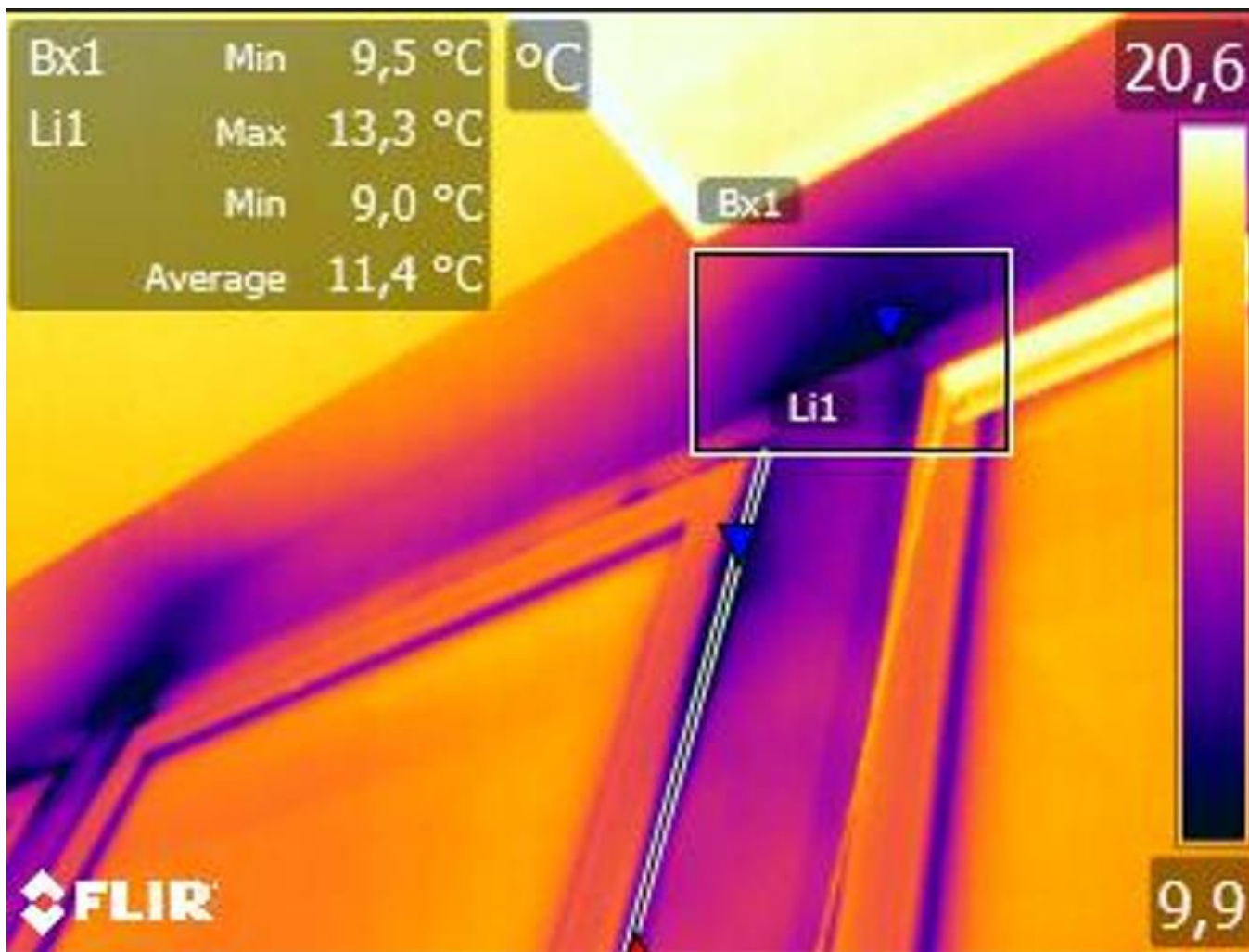


## WORKS OF THE STUDENTS FROM KING - Decarbonisation of the WIL building - facades





## WORKS OF THE STUDENTS FROM KING - Decarbonisation of the WIL building - facades







## WORKS OF THE STUDENTS FROM KING – Workshops „Let's make our WIL”







## WORKS OF THE STUDENTS FROM KING – Workshops „Let’s make our WIL” reference photos





## Employment opportunities after graduation:

***SELF-EMPLOYMENT  
in the field of energy  
auditing and energy  
certification***

***CONTRACTOR COMPANIES  
implementing the  
thermomodernisation of  
buildings***

***LOCAL GOVERNMENT  
ADMINISTRATION  
environmental protection  
and building departments***

***CONSULTANCY  
COMPANIES focusing on  
energy efficiency and  
green building***

***PROJECT OFFICES  
specialising in energy-  
efficient construction***



Thank you  
for your attention

