



INTERNATIONAL EVALUATION PANEL @ UNIVERSITY CENTRE FOR ENERGY EFFICIENT BUILDINGS

**Robert Jára, Antonín Lupíšek
25.6.2025**



AGENDA

13:45 Welcome and introduction

13:50 Presentation of our self-evaluation report

14:20 Q&A

14:30 Refreshment

14:35 Demonstration of applied technologies

15:10 Conclusion

15:15 Transfer to the Faculty of Biomedical Engineering

INTRODUCTION

- **Robert Jára** Director
- **Antonín Lupíšek** Director for Research and Innovation
- **Martin Volf** Architecture and the Environment, Head of Department
- **Daniel Adamovský** Quality of the Indoor Environment, Head of Department
- **Petr Kuklík** Materials and Construction of Buildings, Head of Department
- **Radek Divín** Nanomaterials and Biotechnologies, Head of Department
- **Jan Včelák** Electronic Systems and Diagnostics, Head of Research Team
- **Erika Langerová** Cybersecurity for Energy, Head of Research Team
- **Jan Špale** INTENS, Head of Research team
- **Václav Novotný** Member of team LORCA



ČVUT
UCEEB

WHERE WE STAND



***We develop
innovative solutions
for future buildings and cities
that are energy efficient,
sustainable,
and provide a healthy
and safe
environment.***

OUR SOCIETAL CONTRIBUTION

- **Bridging** the gap between **research** and the **construction & energy supply chain**
- **R&D** and **independent testing** for companies
- **Licensing** of proprietary technologies
- **Support** for architects and developers in **applying innovative and sustainable solutions**
- **Expert consulting** for municipalities on energy and urban planning
- **Strategic expertise** for national government – legislation, standards, grant programs
- **Professional training** and specialised courses in construction and energy
- **Collaboration** with professional associations, local authorities, government, and NGOs



10 YEARS WE ARE ALREADY ESTABLISHED ORGANIZATION



CTU UCEEB – INTERDISCIPLINARY CENTRE FOR APPLIED RESEARCH IN SUSTAINABLE BUILDING

2008 Start of application initiated by

- Faculty of Civil Engineering
- Faculty of Mechanical Engineering
- Faculty of Electrical Engineering
- Faculty of Biomedical Engineering

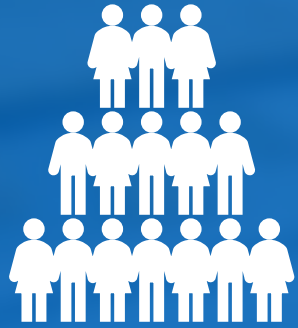
2012 Project application approved

2014 Official opening ceremony

2025 A successfully established centre



2024 IN NUMBERS



210

Staff



21

Research teams



59

Research
projects



166

Contracts
(worth 1.4 m€)



9 m€

Revenue



Sustainable building

Urban ecohydrology

Renewable energy sources

Circular building

Electronic systems

Structural engineering

Control systems

Composite structures

Energy flexibility

Building physics

Photovoltaic systems

Fire safety

Cybersecurity for energy

Nanomaterials

Organic Rankine cycles

Electron microscopy and microanalysis

Industrial thermal energy systems

Indoor environment

Personalised telemedicine

Healthy lighting

Participatory planning and design

Sustainable built environment, clean and affordable energy

MORE SPACE & LABS NEEDED

UCEEB EXTENSION IN PLANNING PHASE





MODULE 3

SELF-EVALUATION REPORT

2019-2023



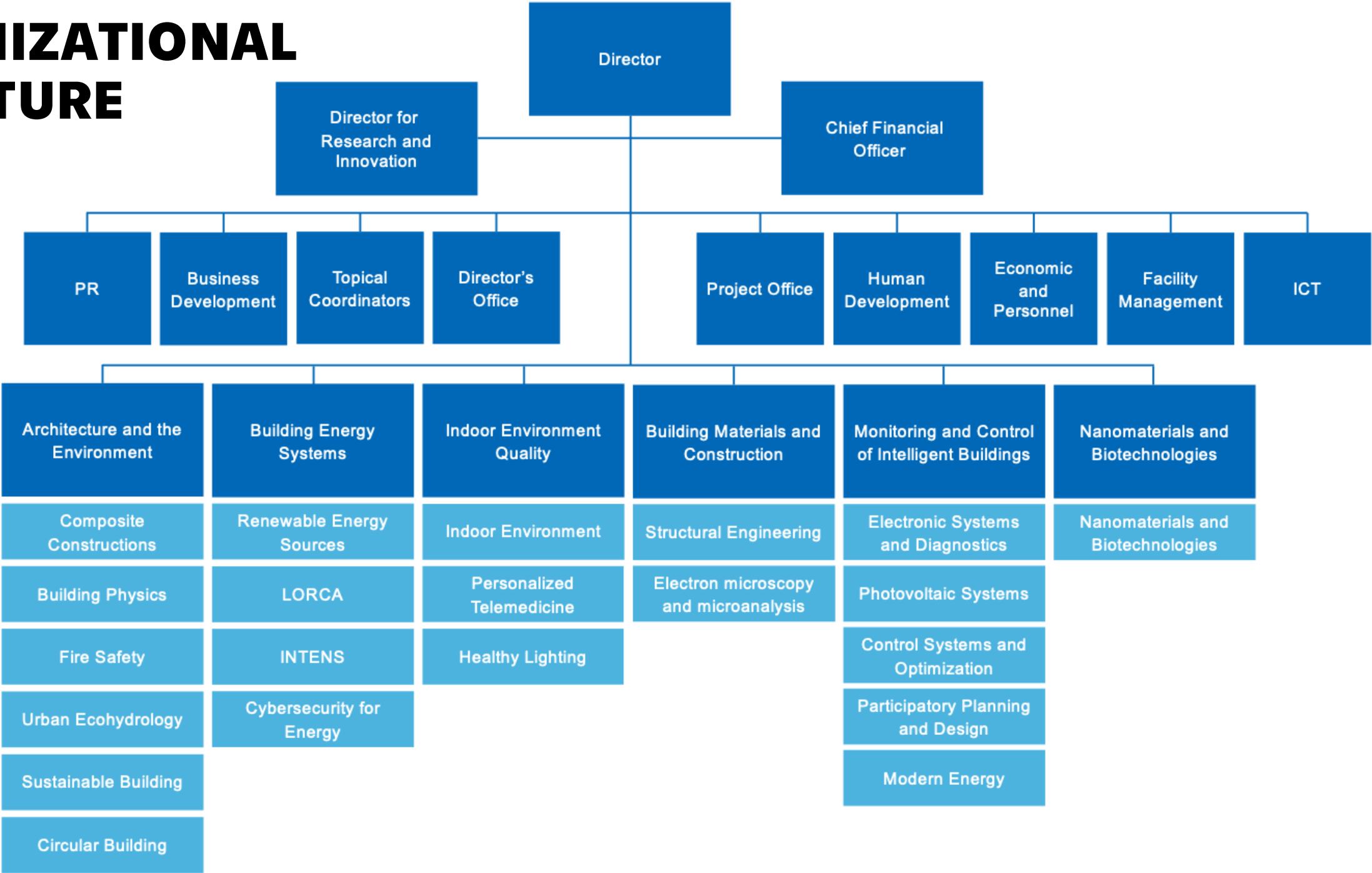
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INTRODUCTORY INFORMATION

FOCUS AREAS LONG-TERM RESEARCH GOALS

- **Buildings and Energy** – Increasing the share of renewable energy sources, improving energy storage and sharing systems, ensuring energy flexibility, enhancing building resilience, and strengthening cybersecurity.
- **Sustainable Construction and Circular Economy in Building** – Developing materials and construction solutions that reduce environmental impact while maintaining high building quality.
- **Healthy and Comfortable Environments** – Innovating solutions to ensure a healthy indoor microclimate, high-quality lighting, and integrating telemedicine services into buildings.
- **Urban Innovations** – Decarbonizing urban energy systems, developing energy communities, and increasing climate adaptation and resilience in cities.
- **Digitalization in Construction** – Advancing digitalization and the use of AI in planning and designing new buildings, manufacturing construction materials and prefabricated structures, and managing buildings and energy networks.

ORGANIZATIONAL STRUCTURE



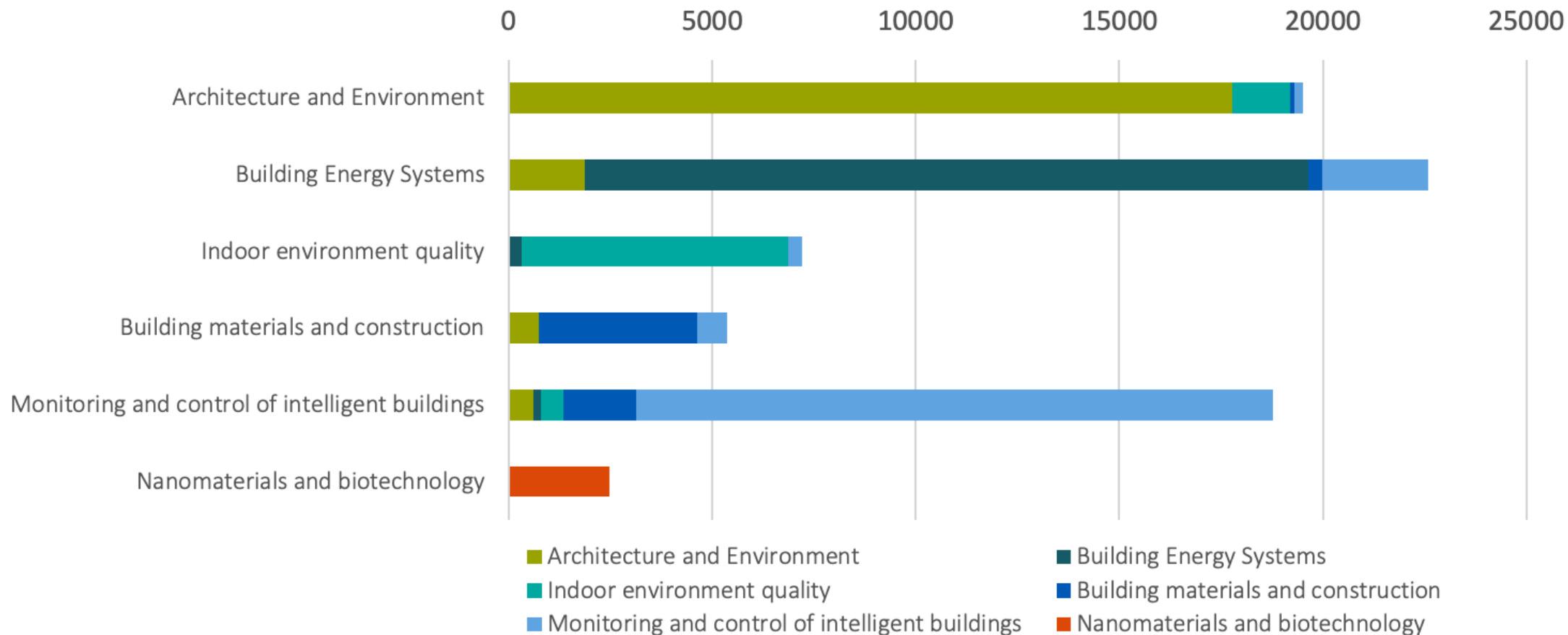
Architecture and the Environment	Building Energy Systems	Indoor Environment Quality	Building Materials and Construction	Monitoring and Control of Intelligent Buildings	Nanomaterials and Biotechnologies
Composite Constructions	Renewable Energy Sources	Indoor Environment	Structural Engineering	Electronic Systems and Diagnostics	Nanomaterials and Biotechnologies
Building Physics	LORCA	Personalized Telemedicine	Electron microscopy and microanalysis	Photovoltaic Systems	
Fire Safety	INTENS	Healthy Lighting		Control Systems and Optimization	
Urban Ecohydrology	Cybersecurity for Energy			Participatory Planning and Design	
Sustainable Building				Modern Energy	
Circular Building					



NEW TEAMS
2024-25

INTERDISCIPLINARY COLLABORATION

RELATIVE SHARE ON PERSONNEL COST (2023)



ACTIVELY DEVELOPING OUR INTERDISCIPLINARY COLLABORATION





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**RECOGNITION BY THE
RESEARCH COMMUNITY**

INTERNATIONAL COLLABORATION

- Involved in various **joint research projects** in EU-funded programs such as Horizon Europe, Interreg, and other international research initiatives that focus on sustainable construction and innovative energy systems.
- In the reported period, UCEEB participated in **29 international projects** (H2020 and HE: 13, Interreg: 5, other funding schemes: 11). In 9 of them UCEEB was coordinator.
- **Academic partnerships and collaborates** with universities and research institutions worldwide to exchange knowledge, share resources, and co-author scientific publication
- **UCEEB hosts and participates** in international conferences, workshops, and expert panels, fostering global dialogue and innovation in the field of sustainable and intelligent buildings.
- Even though UCEEB does not participate in the regular study programs, it **accepts foreign Master and PhD students for fellowships**.

ACTIVE PARTICIPATION IN THE INTERNATIONAL NETWORKS



COST Action

- CircularB
- HELEN
- Water4Reuse

EERA

- JP Smart Cities

ECTP

- IWG5

EUREC

IEA

- EBC
 - Annex 82
 - Annex 89
- Energy Storage
 - Task 36
 - Task 44
- Heat Pump
 - Annex 58





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SOLAR DECATHLON EUROPE 21/22

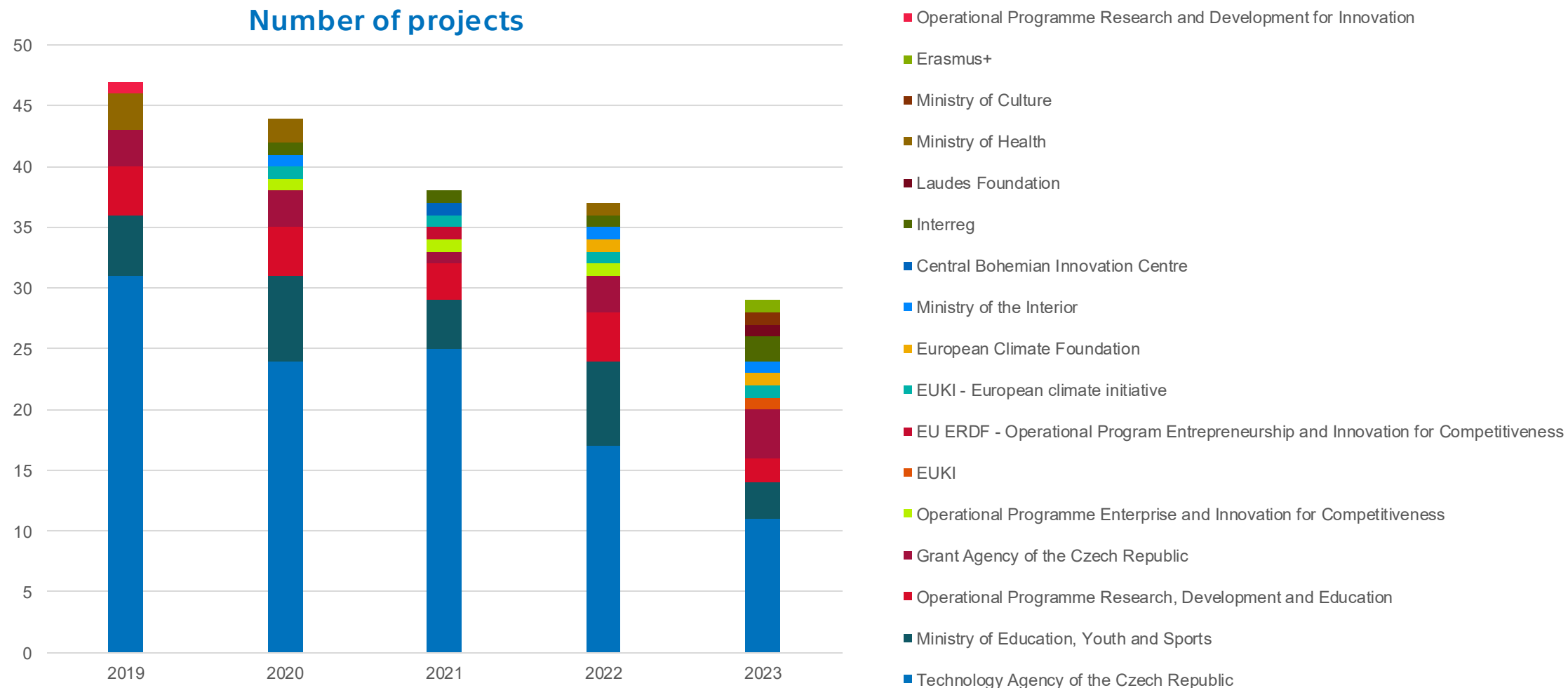




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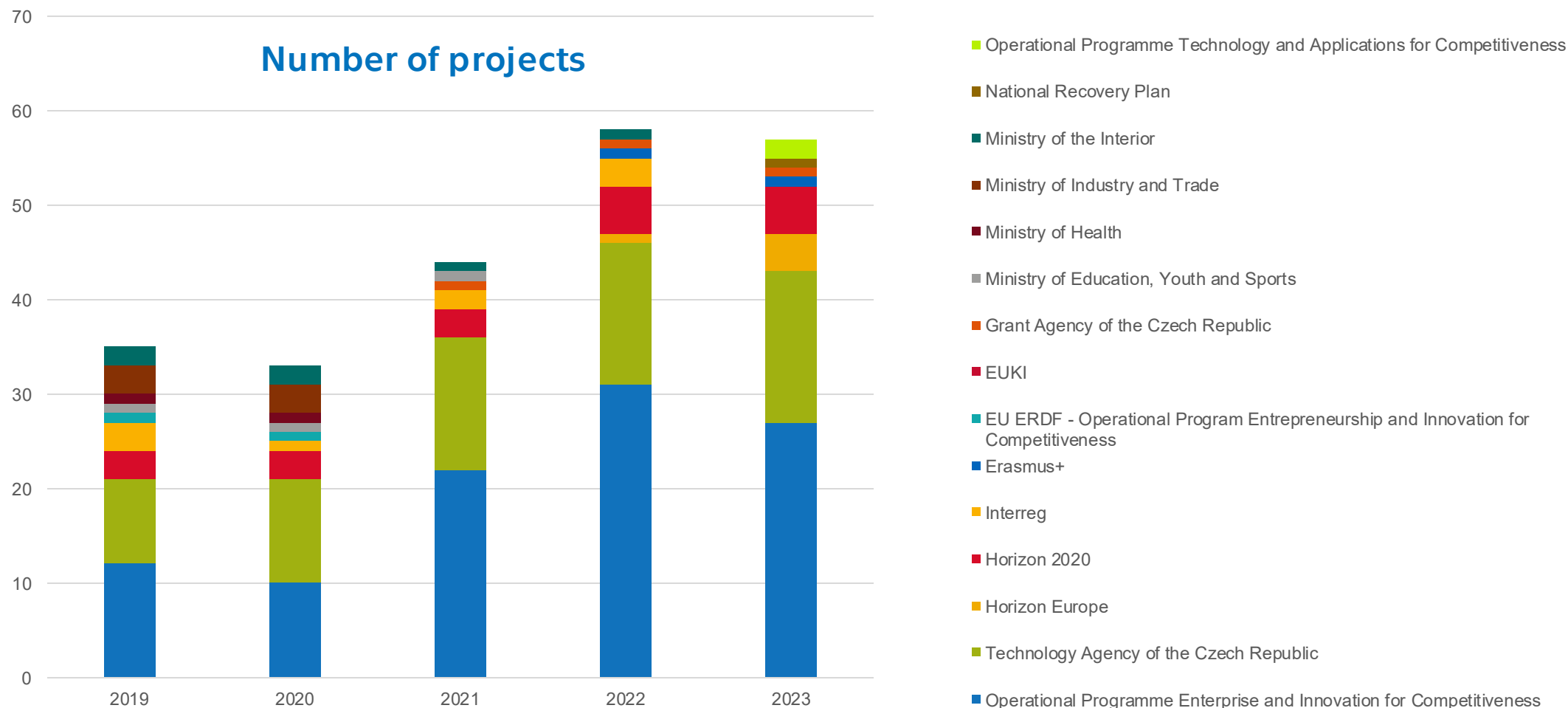
PROJECTS

PROJECTS SUPPORTED BY PUBLIC FUNDS – BENEFICIARY



Revenue from publicly funded projects (EUR)	2019	2020	2021	2022	2023
In the role of beneficiary	4,434.5	3,323.7	2666.8	2475.8	2739.9
In the role of another participant	1,547.5	1,626.0	2,007,4	3,986.8	3,991.9

PROJECTS SUPPORTED BY PUBLIC FUNDS - PARTICIPANT



Revenue from publicly funded projects (EUR)	2019	2020	2021	2022	2023
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APPLICATION OF RESULTS

FIVE MOST TYPICAL USERS OF OUR RESULTS

- **Industrial enterprises** benefit from our technologies and collaborative research efforts, integrating innovative solutions into their production and development processes.
- **Investors in the construction sector** apply our innovations to enhance the sustainability and efficiency of their projects.
- **Start-up companies** leverage our research results as the foundation for their business models, transforming scientific advancements into market-ready solutions.
- **Local governments** utilize our methodologies and tools to improve the sustainability of their investment projects and urban planning strategies.
- **Professional community** gains access to our expertise through specialized training programs and the innovative tools we develop, which facilitate their technical work and decision-making.

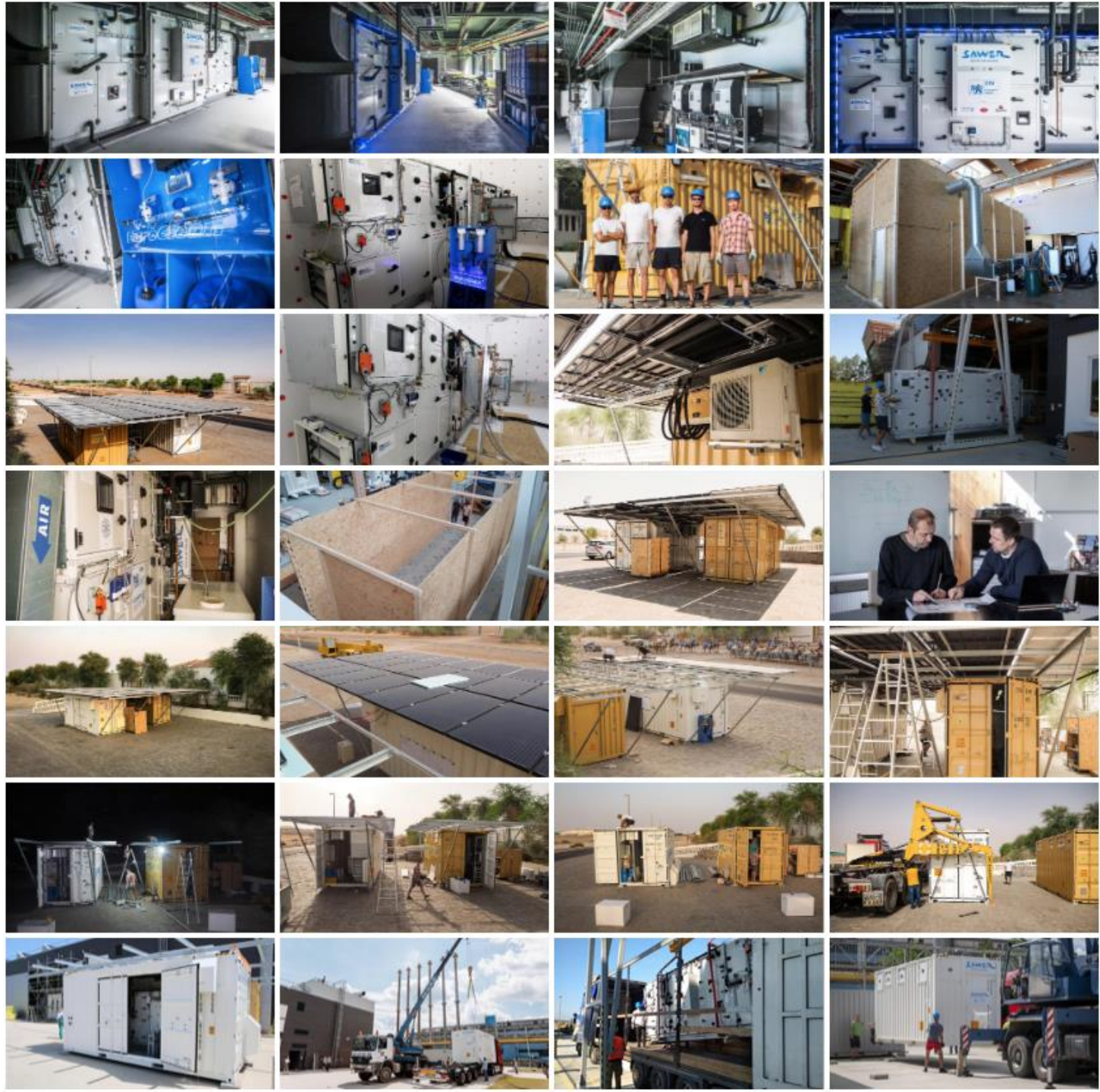
SAWER / MAGDA / EWA: WATER FROM DRY DESERT AIR



S.A.W.E.R.

**EXHIBITOR magazine's
World Expo awards**

**Honorable mention for the
Best use of technology
category**





S.A.W.E.R.
EXPO 2020 DUBAI

S.A.W.E.R.

**UAE
INNOVATES
AWARD
2022**



CENY SDGs 2022

Naplnujeme Cíle udržitelného
rozvoje od OSN

Semifinalista



Zelení hrdinové

Inspirace pro cestu
k **udržitelnosti**

Poznejte **neobyčejné příběhy**
zelených hrdinů

Zelený hrdina #12 – Tomáš Matuška a systém S.A.W.E.R.

Vyrobí vodu ze vzduchu. Přesně to umí unikátní zařízení, které
vévodilo české národní expozici na světové výstavě EXPO 2021
v Dubaji. Za jeho vznikem stojí tým vědců z Univerzitního centra
energetických budov (UCEEB) ČVUT pod vedením profesora Tomáše
Matušky.

[PŘEČTĚTE SI PŘÍBĚH DVANÁCTÉHO HRDINY](#)



BUDIŽ VODA!

CZECH SPRING



S.A.W.E.R. Documentary movie







Visit of Minister for Science, Research, and Innovation



ENVILOP: LOW CARBON CURTAIN WALLING SYSTEM

ENVILOP – TIMBER-BASED CURTAIN WALL SYSTEM

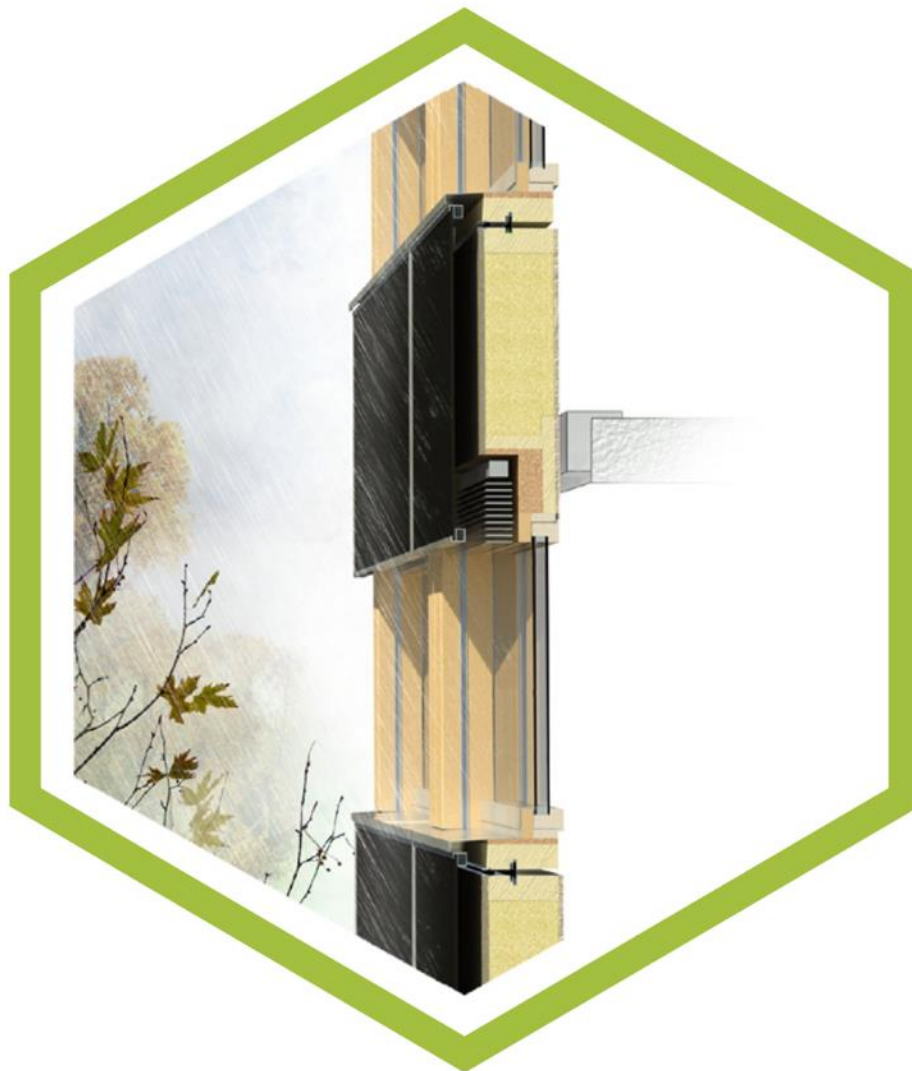
Suitable for replacing old installations and for new construction. Minimised thermal bridges, certified for fire safety. Low environmental impact.



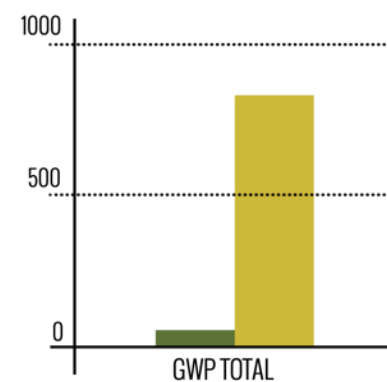
HIGH SCHOOL COPTH ČESKOBRODSKÁ, PRAHA

- Sustainable refurbishment to zero energy standard
- SBToolCZ gold certificate for building design
- Building of the Year Award 2022

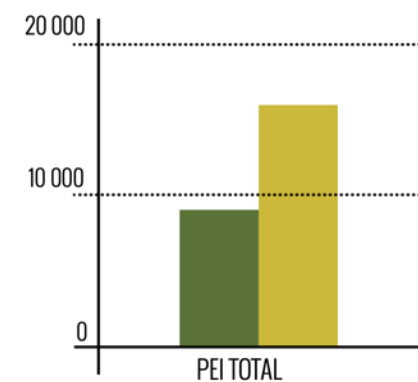




POTENCIÁL GLOBÁLNÍHO OTEPLOVÁNÍ
[kg_{CO2,eq.}]



SPOTŘEBA PRIMÁRNÍ ENERGIE
[MJ]





HIGH SCHOOL COPTH ČESKOBRODSKÁ, PRAGUE

- Sustainable retrofit to zero energy level
- Improved Indoor environment
- SBToolCZ Gold certification



EUROPEAN
SOLARPRIZE
WINNER
2023

EUROSOLAR awards
the European Solar Prize 2023 to

EUROPEAN
SOLARPRIZE
2023

International Conference and Award Ceremony
February 23, 2023
Aula Magna Faculty of Architecture
Piazza Borghese 9, Rome

Adaptterra Awards



Revitalizace
školy
Českobrodská
v Praze 9

Foto: Naasica Partnerství, Vojta Fencel

CENA PRIMÁTORA
HLAVNÍHO MĚSTA PRAHY

Rekonstrukce Centra odborné
přípravy technickohospodářského
Českobrodská
Hlavní město Praha

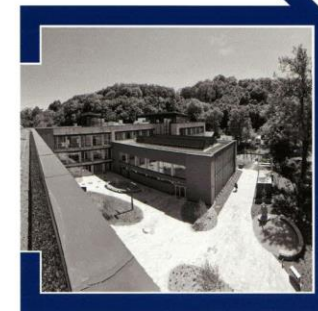
Příhlašovatel: Subterra a.s.
Investor: Střední škola - Centrum odborné přípravy technickohospodářské
Dodavatel: Subterra a.s.
Projektant: ECOTEN s.r.o.

V době klimatických změn vliv, na něj dříve nebylo potřeba, ale nyní je to taková funkce, která
ještě více utvrdí. Zrekonstruovaná škola budova CDPH je právě takovým vzorem pro architekturu budoucnosti.
Už to není jen o hmotném povědomí uspořádání stavebních prvků, ale budova se stává pomocí moderních
technologií chytrým řídicím organismem, který pružně reaguje na vlny i vnější vlivy. A co víc, je energeticky
plusová, čili do velké míry nezávislá. Líbí se mi také záměr nechat na budoucí členy působit přírodní vlivy, až už se
to týká třeba představy přirozeného stárnutí dřevěné fasády nebo postupného očišťování budovy zelení.

Ing. arch. Jan Füllger, CSc.
předseda rady programu Stavba roku 2022



STAVBA
ROKU 2022



Vypracovali:



CENA HLAVNÍHO MEDIÁLNÍHO
PARTNERA ČASOPISU STAVEBNICTVÍ

Rekonstrukce Centra odborné
přípravy technickohospodářského
Českobrodská
Hlavní město Praha

Příhlašovatel: Subterra a.s.
Investor: Střední škola - Centrum odborné přípravy technickohospodářské
Dodavatel: Subterra a.s.
Projektant: ECOTEN s.r.o.

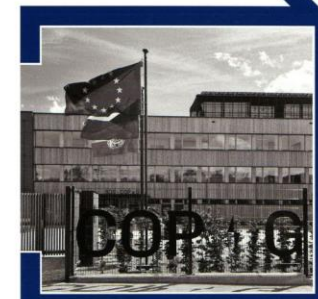
Hodnocení:
Cena byla udělena přeměně stavby ze 70. let na inteligentní, energeticky soběstačnou budovu, která byla
součástí plánovaného projektu pro podobnou novou moderní školu zařízením.

stavebnictví

Ing. arch. Jan Füllger, CSc.
předseda rady programu Stavba roku 2022

Ing. arch. Akad. arch. Jan Vrána
předseda poroty Stavba roku 2022

STAVBA
ROKU 2022



Vypracovali:



AES:

PREDICTIVE CONTROL OF BATTERY STORAGE

PREDICTIVE CONTROL OF BATTERY STORAGE

Energy management software in a family house with PV and storage with respect to a flexible electricity tariff.



Tomáš Novák, týdeník Hrot

250+ COMMERCIAL INSTALLATIONS

- Manufactured by AERS
- Taking advantage of the price difference at different time periods
- Maximizing energy self-sufficiency
- Bridging power peaks



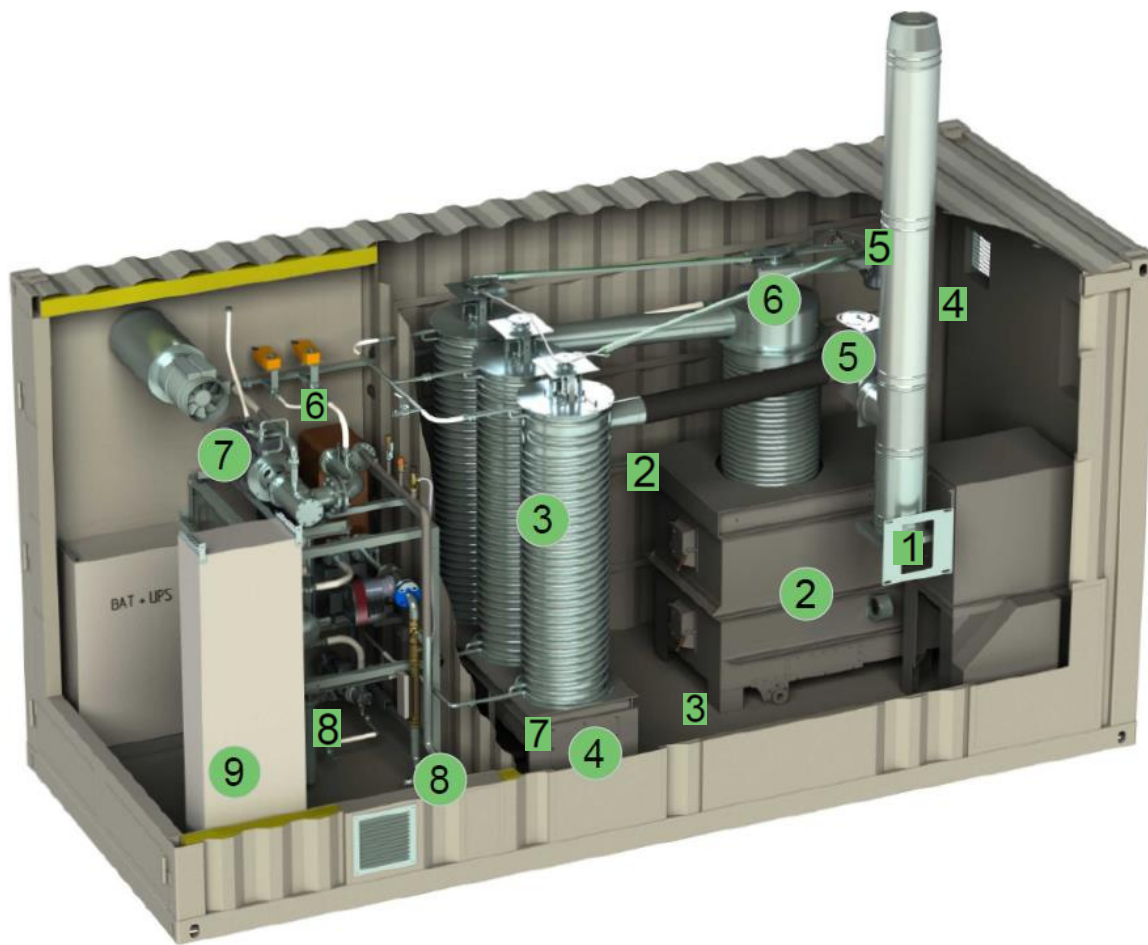
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WAVE: ELECTRICITY AND HEAT FROM BIOMASS

WAVE 200 FULLY EQUIPPED BOILERROOM

WAVE – ELECTRICITY AND HEAT FROM BIOMASS

A cogeneration unit using the organic Rankine cycle. Autonomous operation on wood chips or pellets, fully automatic operation.



- 1 Combustion chamber
- 2 Heat exchanger
- 3 Ash disposal system
- 4 Chimney with flue gas fan
- 5 Automatic cleaning system
- 6 Turbine with generator
- 7 Heating water outlet
- 8 Electric switchboard and UPS

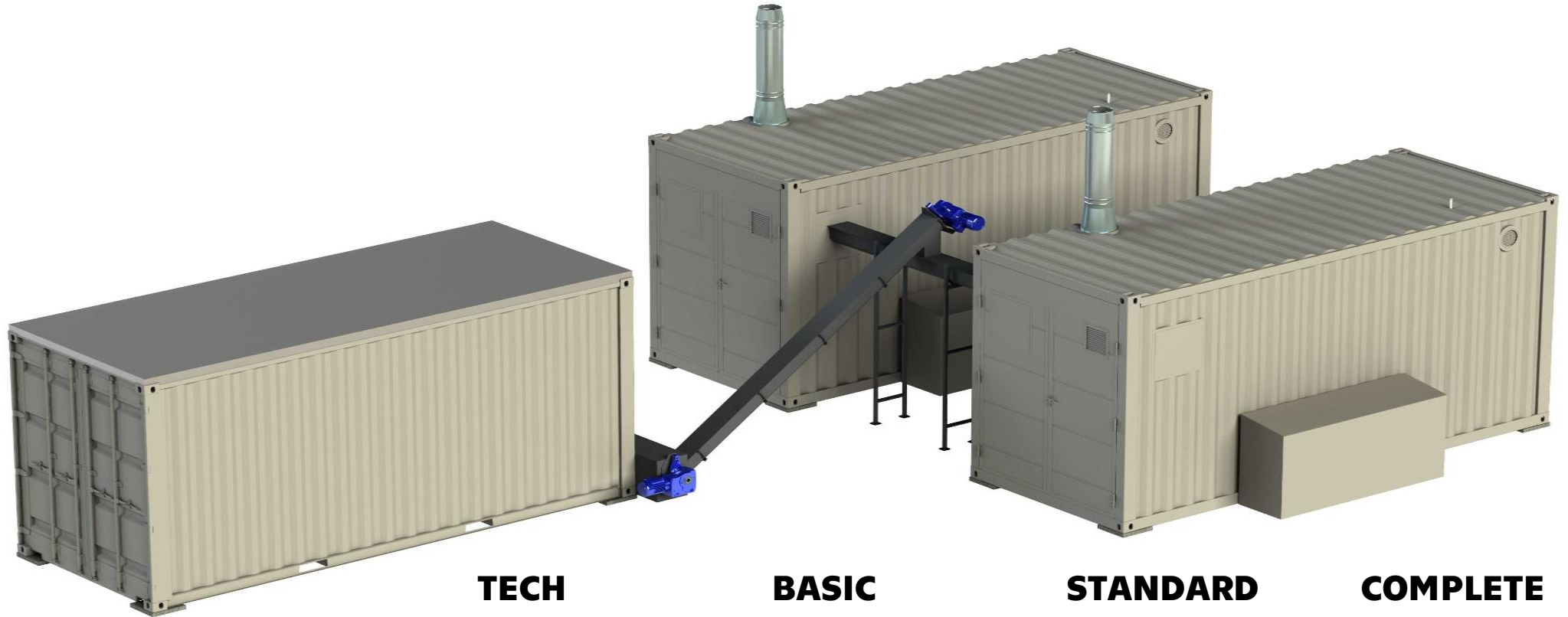


Wave in operation in Mikolajice municipality, CZ.

CHARACTERISTICS

- Organic Rankine cycle
- Fuel: Wood pellets
- $200 \text{ kW}_{\text{th}} + 13,5 \text{ kW}_{\text{el}}$
- On/off-grid operation
- Fully automatic operation, no need for qualified operators + remote control.
- Plug-and-play = fully equipped container solution (1-day installation)
- Investment 180 000 EUR
- Payback 4,5 Y

EXAMPLE: 2 X WAVE200 – WITH FUEL STORAGE



1 x WAVE 200

Transportable, plug-and-play

Fuel storage and transport

Off-grid operation

Remote control

Service cost included (3y)

Investment 1 unit (EXW CZ, EUR)

Construction costs (EUR)

TECH

no

no

no

yes

no

130 000

~60 000

BASIC

yes

no

no

yes

no

210 000

2 500

STANDARD

yes

yes

no

yes

no

280 000

5 000

COMPLETE

yes

yes

yes

yes

yes

350 000

5 000

AWARDS

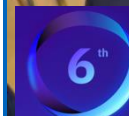


Team LORCA



Jakub Maščuch

SMART CITIES 2022 AWARD TO MIKOLAJICE MUNICIPALITY



soutěž
CHYTRÁ MĚSTA 2022

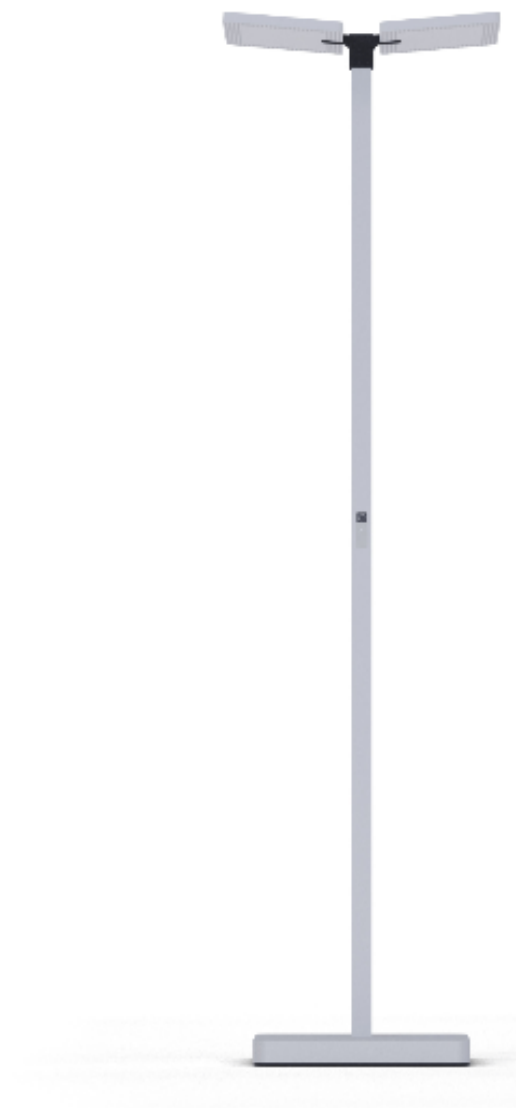




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SUNFLOW: BIODYNAMIC FLOOR LIGHT

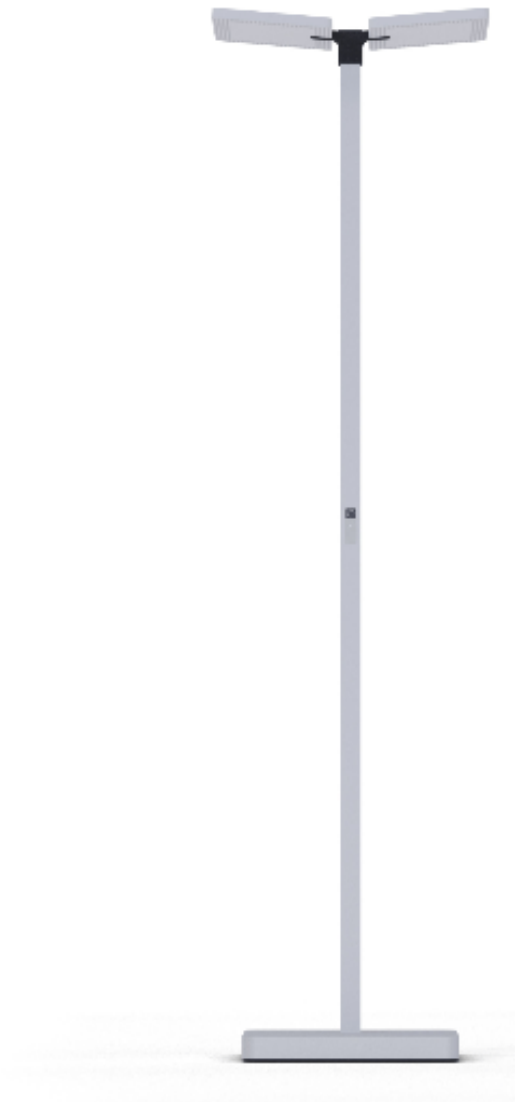
SPECTRASOL sunflow

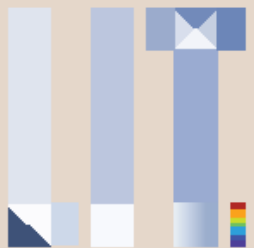


sunflow

SPECTRASOL

- Light inspired by the 24-hour light cycle in nature
- The perfect light for productive days, quiet evenings and undisturbed nights
- In harmony with circadian rhythms
- Unique light system using 3 patented technologies
- Push button control, in-app parameter settings, motion sensor for night mode





WINNER 2023

LIGHTING DESIGN AWARDS

AWARD

LIT LIGHTING DESIGN AWARDS 2023
WINNER

PROJECT NAME

SUNFLOW BIODYNAMIC CIRCADIAN LED FLOOR LAMP

COMPANY

SPECTRASOL, S.R.O.

LEAD DESIGNER

HYNEK MEDRICKY, EEF

OTHER DESIGNERS

DR. DANIEL JESENSKY, BC. MICHAL VOPAT, ANTONIN
NOSEK, EEF, DR. JAN HAVLIK, DR. LENKA MAIEROVA

The jury panel of LIT Lighting Design Awards certifies that Spectrasol, s.r.o. has received this award for "SUNFLOW biodynamic circadian LED floor lamp " in "Desk Lamps, Floor Lamps" category.

HOSSEIN FARMANI FOUNDER

ASTRID HEBERT DIRECTOR





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WATER IN CITIES: BLUE-GREEN INFRASTRUCTURE GUIDEBOOK



WATER IN THE CITY – BLUE AND GREEN INFRASTRUCTURE

- Tool for municipalities that will simplify decision-making during planning and realization of nature-based solutions rainwater retaining system in the urbanized area.
- Opening of the interdisciplinary discussion of social and technical sciences
- Creation attractive green public spaces with emphasis on involving of citizens and application of new technologies and innovations

DOWNLOADS BY USERS

WATER IN THE CITY



5449x

unique downloads

Voda ve městě: pomáháme hospodařit s dešťovou vodou a zelení

[Share project](#)

Pomozte nám vrátit přírodu do měst! Tým mladých odborníků ze dvou českých univerzit chystá rozšířený dotisk úspěšné metodiky Voda ve městě, která se věnuje udržitelnému hospodaření s dešťovou vodou.

Author: [ČVUT UCEEB UJEP IEEP](#)

[Project](#)
[News](#) 4

[Contributors](#) 213

[Questions & Answers \(FAQ\)](#) 0

Voda ve městě dorazila z tiskárny!

📅 Sep 26, 2022

Milí příznivci Vody/vody ve městě,

s radostí vám oznamujeme, že publikace Voda ve městě už dorazila z tiskárny. Děláme vše pro to, abyste svůj výtisk dostali co nejrychleji.

Balíčky s dodáním přes Zásilkovnu jsou připravené a dnes je předáváme dopravci. Nyní připravujeme knížky pro osobní vyzvednutí. Někteří z vás nám však stále nedali vědět, **na kterém výdejním si chtějí metodiku vyzvednout**. Těm, kterých se to týká, jsme dnes opět poslali e-mail a **prosíme o co nejrychlejší odpověď**.

Předem děkujeme za spolupráci a přejeme krásný den,

Soňa z ČVUT UCEEB

EUR 13,171

pledged of EUR 12,906

102% completed

213 contributors pledged

[Literature](#), [Education](#)

Successfully finished

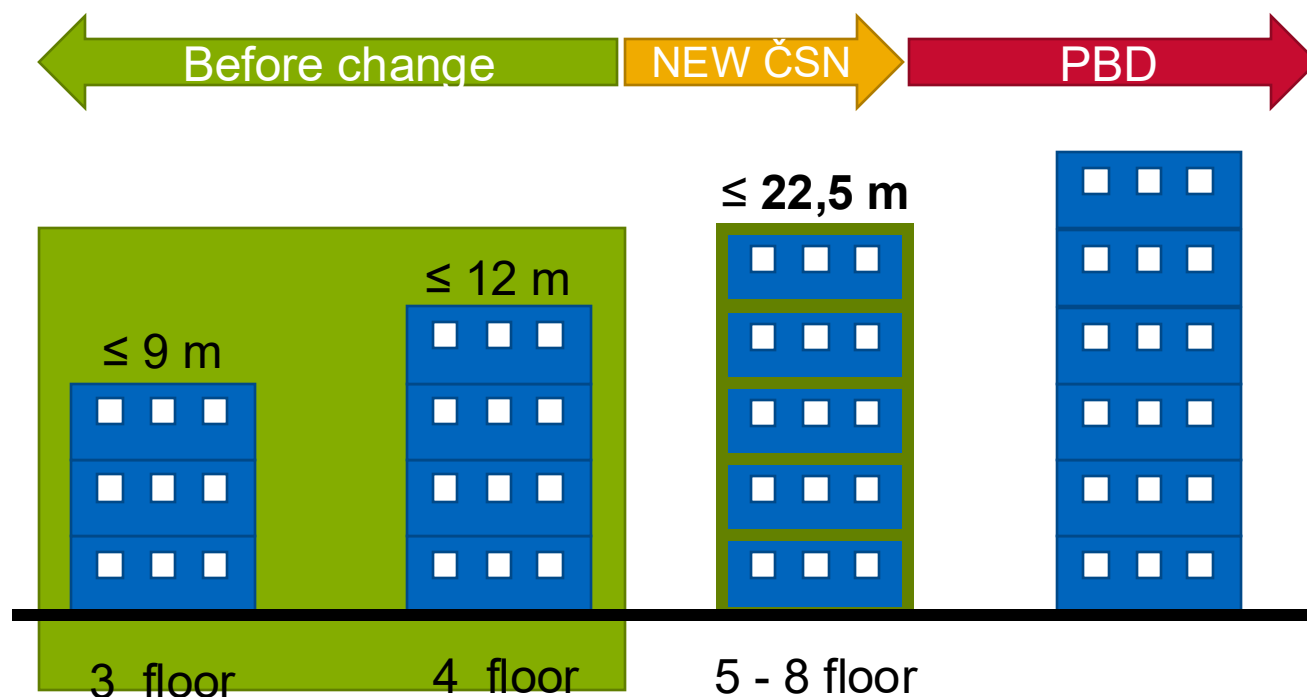
All or nothing. Project finished on Jun 12, 2022 at 09:11.



NEW STANDARDS FOR TIMBER BUILDINGS

CHANGE OF ČSN STANDARDS FOR TIMBER BUILDINGS AND COOPERATION ON EUROCODE

- Amendment to ČSN standards in the field of fire safety of buildings
- Participation in the preparation and translation of EC

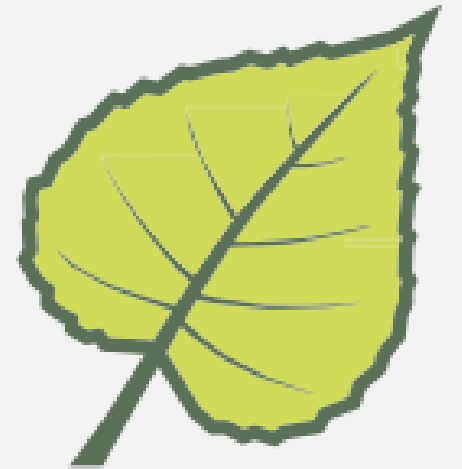


SBTOOLCZ: NATIONAL CERTIFICATION SCHEME FOR SUSTAINABLE BUILDINGS



What is it, SBToolCZ?

SBToolCZ is a national Czech certification tool for expressing the level of building performance, in accordance with the principles of sustainable building.





SBToolCZ 2022 – new certification schemes since 2022

-  **Family houses** (certifications since 08/2010)
-  **Apartment buildings** (certifications since 08/2010)
-  **Office buildings** (certifications since 06/2011)
-  **Primary and secondary schools** (certifications since 03/2016)
-  **Tertiary education buildings** (certifications since 09/2022)

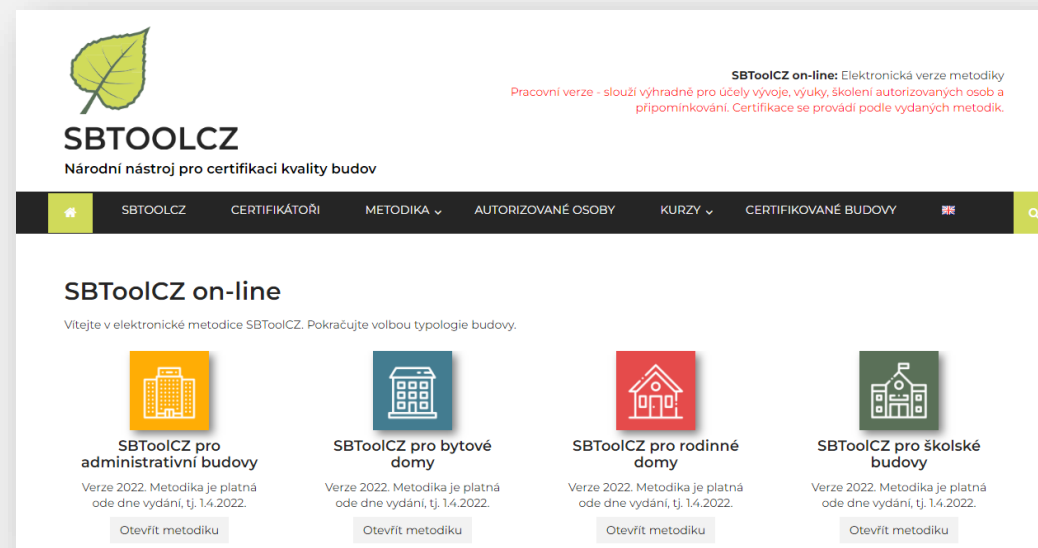
In development:

- Universal methodology
- Kindergartens





SBToolCZ 2022: Open-access & online



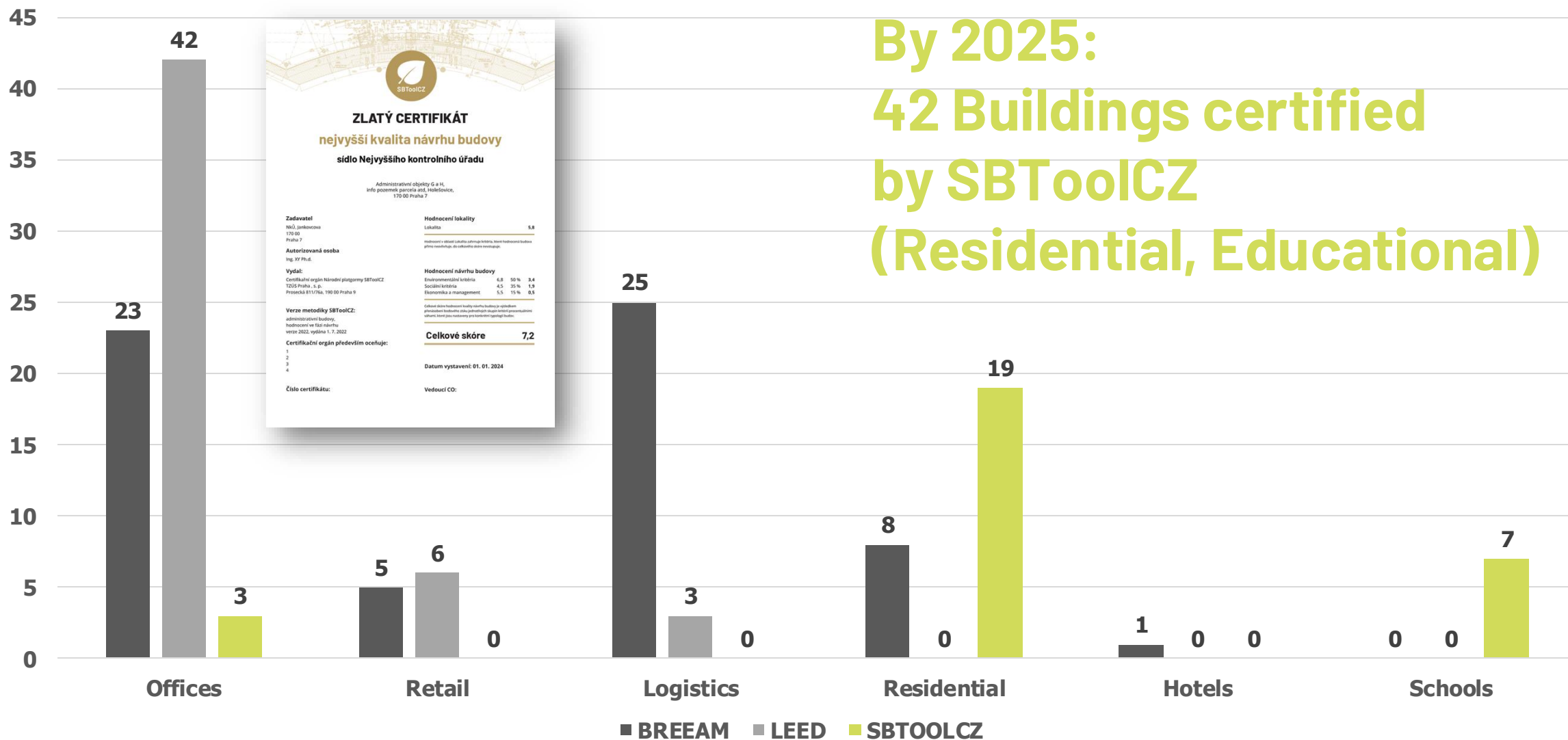
SBToolCZ 2022

sbtool.cz/online



Certifications in Czechia (data according to CZGBC, 2019)

**By 2025:
42 Buildings certified
by SBToolCZ
(Residential, Educational)**





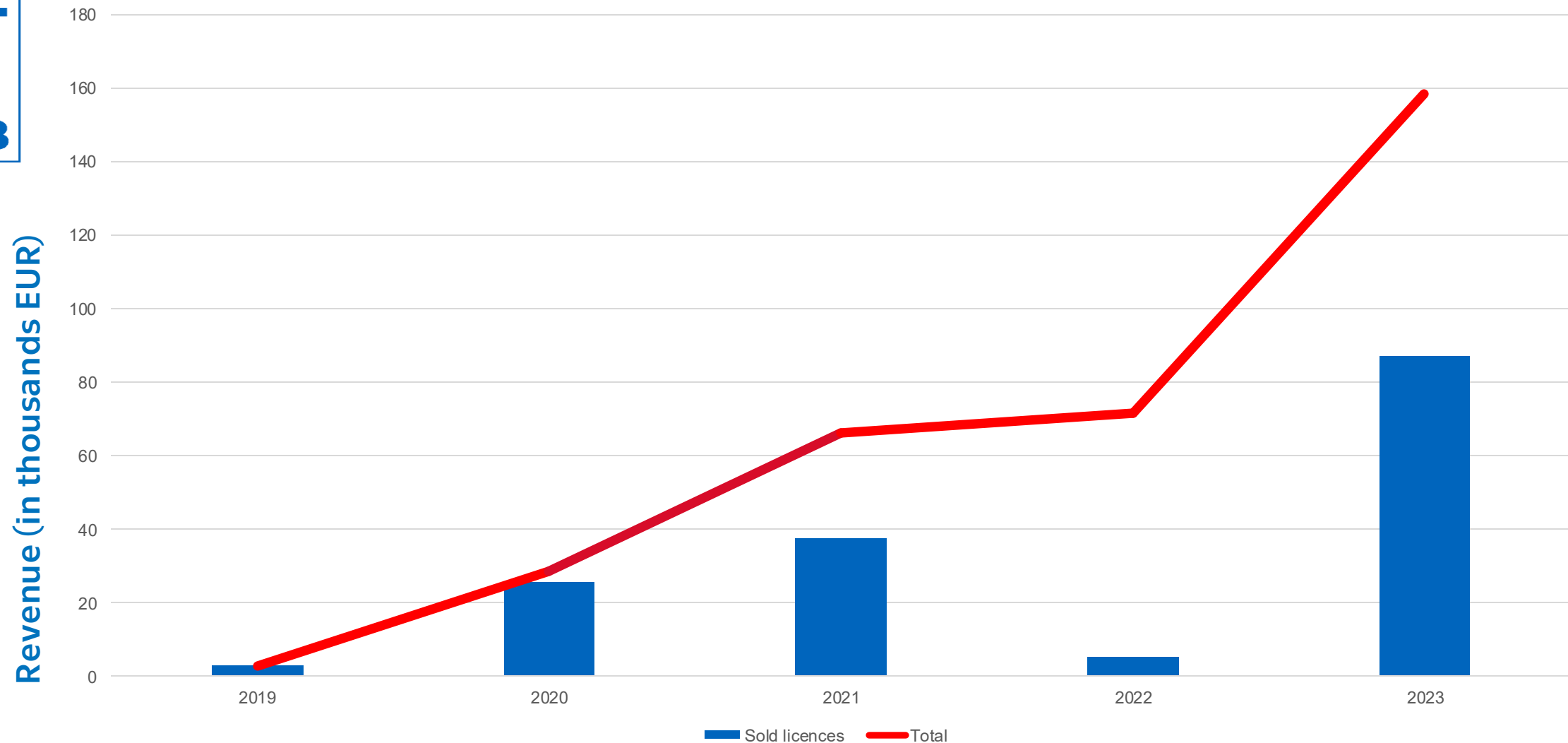
TRANSFER OF RESULTS INTO PRACTICE

TECHNOLOGY TRANSFER

- **Contractual research** and consultancy
- **Licensing** agreements for our intellectual property
- Professional **training programs** and lifelong education
- Transfer of knowledge and expertise to our **students**
 - Hands-on experience through their active involvement in our research projects
 - Participation in education at faculties
 - Experiments for theses in our laboratories
 - Supporting participation in international student competitions
- **Spin-off companies**

Contractual research	2019	2020	2021	2022	2023
Total (in thousands EUR)	1,081.2	1,534.6	1,211.2	1,480.4	1,127.7

REVENUES FROM SOLD LICENSES





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MOISTURE GUARD / SENZOMATIC

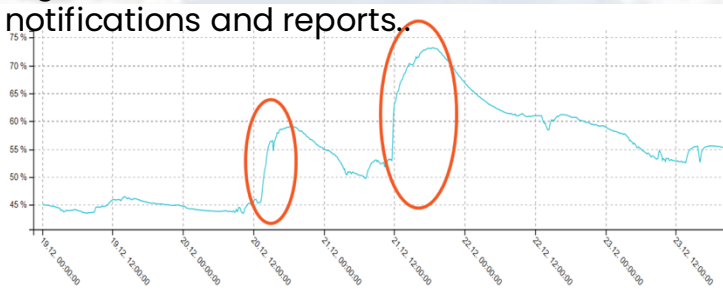
MOISTUREGUARD

"We help wood live forever."

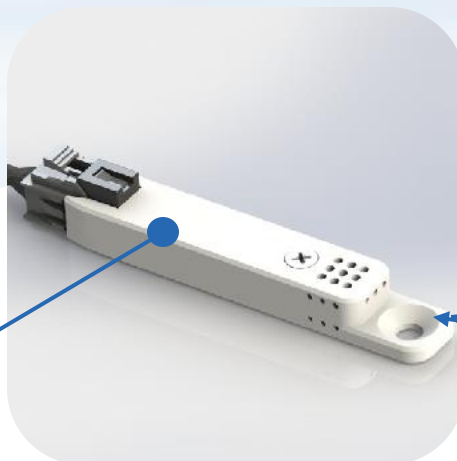
Funded by the Operational Programme Research and Development for Innovations of the Ministry of Education, Youth and Sports and the Technology Agency of the Czech Republic.



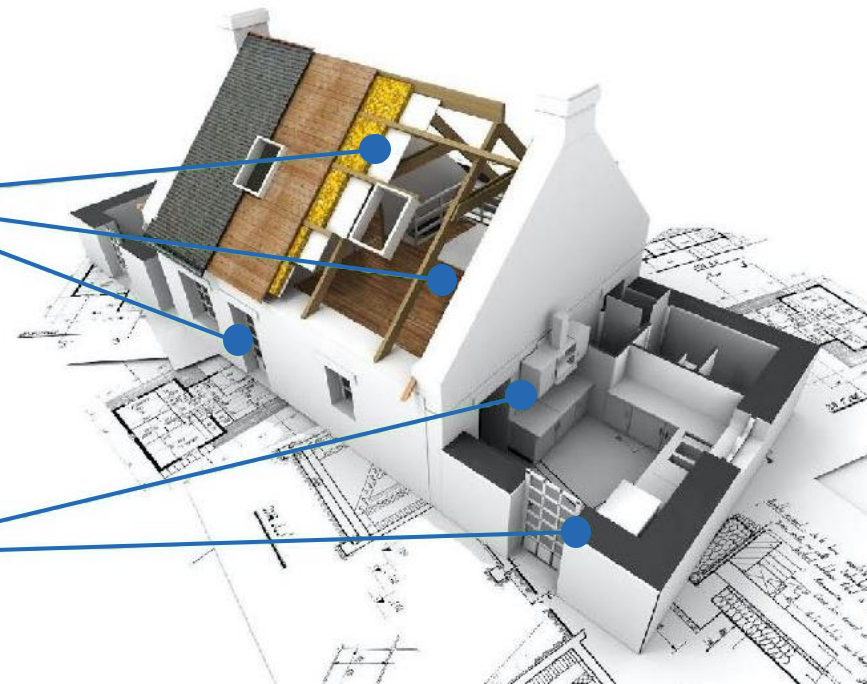
Data processed in real time using proprietary algorithms = real-time notifications and reports.



The central unit on site collects data, creates a backup, and sends it to the cloud.



A series of patented sensors collect data on critical values.



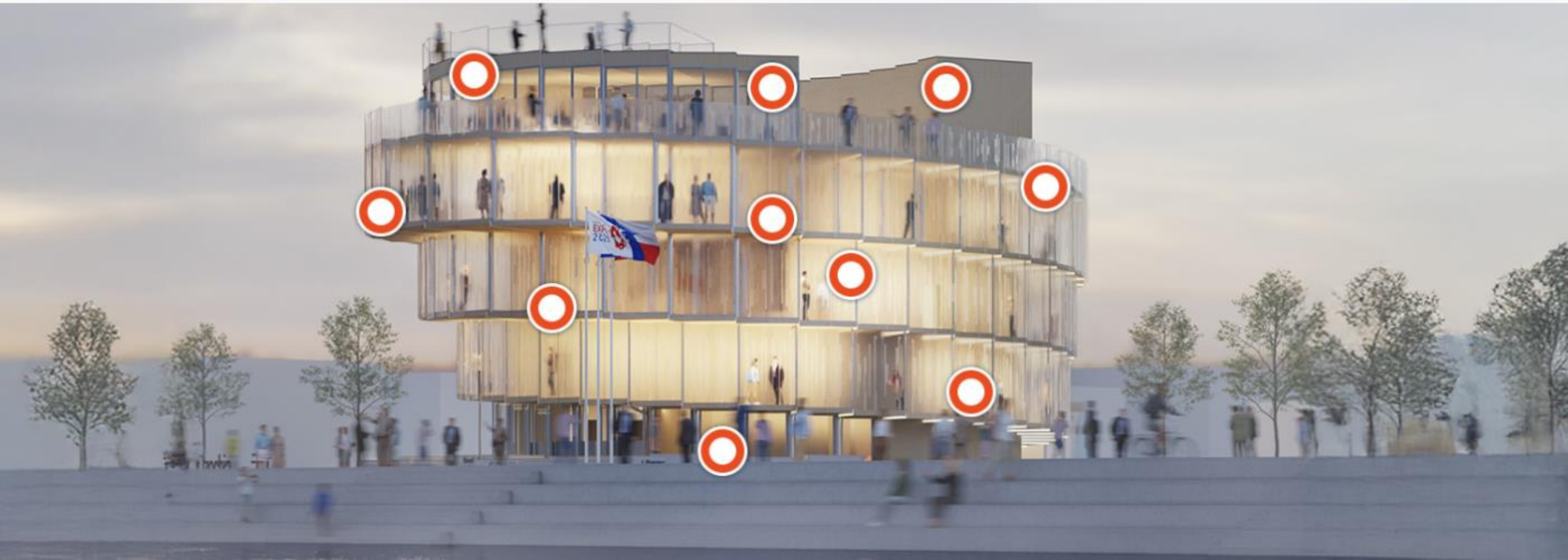
The sensors are placed in critical areas of the house.

Welcome to EXPO 2025!!!



SENZOMATIC
Helping Wood Live Forever

PARTNER





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TiCo

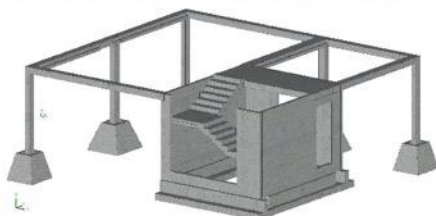
TIMBER + CONCRETE PREFAB HOUSING

VIZUALIZACE POSTUPU VÝSTAVBY EXPERIMENTÁLNÍHO OBJEKTU TRIO TíCo

1.

ŽPSV:

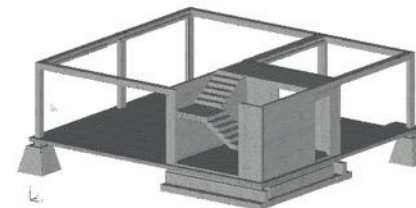
- MONTÁŽ 1NP ŽB SKELETU
- DOBA VÝSTAVBY.....



2.

ŽPSV:

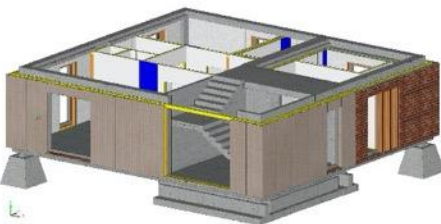
- ZHOTOVENÍ ZÁKLADOVÉ DESKY DLE PODKLADŮ RDR
- DOBA VÝSTAVBY.....



3.

RDR:

- MONTÁŽ STĚN 1NP
- DOBA VÝSTAVBY 2dny



4.

ŽPSV:

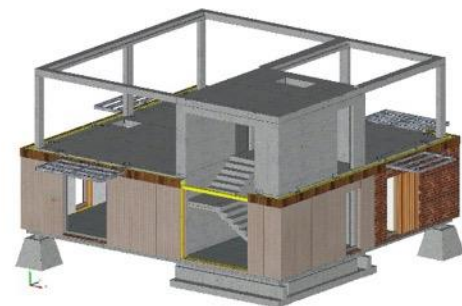
- MONTÁŽ ŽB STROPŮ 1NP
- MONTÁŽ 2NP ŽB SKELETU
- OSAZENÍ OCELOVÝCH RÁMŮ BALKONU
- NAVAŘENÍ KOTVÍCÍHO PLECHU K L-PROFILU A DO STĚN
- DOBA VÝSTAVBY.....



5.

RDR:

- OSAZENÍ STROPNÍHO MEZIKUSU
- ZAFIXOVÁNÍ STĚN POMOCÍ TRNŮ NA KOTVÁCH
- DOBA VÝSTAVBY 1 den



6.

RDR:

- MONTÁŽ STĚN 2NP
- OSAZENÍ NAVÝŠUJÍCÍHO HRANOLU
- DOBA VÝSTAVBY 2 dny



7.

ŽPSV:

- MONTÁŽ ŽB STROPŮ 2NP
- NAVAŘENÍ KOTVÍCÍHO PLECHU K L-PROFILU
- DOBA VÝSTAVBY.....



8.

RDR:

- ZAFIXOVÁNÍ STĚN POMOCÍ TRNŮ NA KOTVÁCH
- MONTÁŽ ATIKOVÝCH STĚN
- DOBA VÝSTAVBY 1 den







3D prefab bathroom





RESEARCH PROJECT: TICO
Flexible construction system based on concrete and timber



POPULARIZATION OF R&D&I AND COMMUNICATION WITH THE PUBLIC

MAIN POPULARIZATION ACTIVITIES BY TARGET GROUPS

▪ Professional community

- Conferences and round tables
- Trade fairs
- Popular science articles
- Podcasts
- Lab tours for professional associations
- LinkedIn posts and website news
- Newsletter

▪ High school students

- Guided lab tours (several hundred of students annually)

▪ General public

- Large-scale international events such as EXPO
- "Starring" in documentaries
- Media appearance in broadcasts on television and radio
- Researchers' Night
- Lectures at events like Science Café



**Jak umělé
osvětlení
ovlivňuje naše
zdraví**

Ing. arch. **Lenka Maierová**, Ph.D.
UCEEB a Fakulta stavební ČVUT



How artificial lighting affects our health
Science café Kladno
18.10.2022



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RESEARCHERS' NIGHT 2024



FAIRS: FOR ARCH / AQUATHERM / TIMBER STRUCTURES VOLYNĚ



ROCK FOR PEOPLE

8-11/6/23

HRADEC KRÁLOVÉ
PARK 360 KB STAC



MEDIA PRESENCE – TELEVISION





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IMPLEMENTATION OF RECOMMENDATIONS

INTERNATIONAL REVENUES

- *The percentage of revenues from abroad should be increased.*
- Efforts to increase our involvement in international projects
 - More **systemic approach to monitoring international** funding opportunities and calls
 - Participation in international **networking and matchmaking** events



- Actively engaged in **international research networks** such as COST, IEA, and EERA, which has strengthened our collaborations and visibility within the global research community.



CTU

UCEEB

SHARE OF INTERNATIONAL REVENUE 2019-2023

	2019		2020		2021		2022		2023	
Income structure UCEEB	mil CZK	%	mil CZK	%	mil CZK	%	mil CZK	%	mil CZK	%
Institutional financing from the university	7,1	3%	8.2	3%	12.6	6%	19.0	7%	27.4	11%
National projects	214,5	80%	190.6	80%	154.5	71%	178.2	70%	138.5	58%
International projects	5,2	2%	10.6	4%	16.4	8%	29.7	12%	40.2	17%
Agreements with companies	41,1	15%	29.3	12%	35.1	16%	27.9	11%	34.2	14%
Total	267,9	100%	238.8	100%	218.6	100%	254.7	100%	240.3	100%
Cost structure UCEEB	mil CZK	%	mil CZK	%	mil CZK	%	mil CZK	%	mil CZK	%
Personnel	102,4	39%	106.9	45%	99.8	48%	129.4	54%	119.4	54%
Material and services	108,6	42%	102.4	43%	76.5	36%	77.3	32%	86.7	40%
Depreciation	48,4	19%	27.8	12%	33.6	16%	32.9	14%	13.1	6%
Total	259,4	100%	237.1	100%	209.9	100%	239.6	100%	219.2	100%



CTU

UCEEB

PROJECTS (AS OF 24/6/2025)

Currently running 55 projects

38 national:

- 14 TA ČR
- 14 OP TAK
- 4 MŠMT
- 2 GA ČR
- 4 others

17 international:

- 6 Horizon Europe
- 2 H2020
- 3 Interreg Europe
- 2 Interreg Central Europe
- 3 International TA CR
- 1 Bilateral Czech Science Foundation

RESEARCH FOCUS

- *Advice is to concentrate on specific research directions, as the topics. / Abstracts of the different projects indicate a very broad thematic range. / To increase the scientific visibility and output even from applied research projects 2 to 3 R&D&I fields should be defined thus to sharpen the profile of the Centre to a larger extent as it is now the case.*
- Our core research areas: **sustainable building and energy efficiency at the scale of buildings and cities.**
- Structured **approval** process for **project proposals**, which includes presentations and discussions to assess their alignment with our center's mission.

We develop innovative solutions for future buildings and cities that are energy efficient,

czech leading research centre in energy efficiency and sustainable buildings - Hledat Googlem

czech leading research centre in energy e X

O vybraných úryvcích • Zpětná vazba

◆ Přehled od AI +3

The leading Czech research center in energy efficiency and sustainable buildings is the **University Centre for Energy Efficient Buildings (UCEEB)**, which is part of the Czech Technical University in Prague (CTU). UCEEB focuses on developing smart, energy-efficient buildings that are environmentally friendly.

Here's a more detailed look at UCEEB:

Interdisciplinary Approach:
UCEEB brings together experts from various fields, including civil engineering, mechanical engineering, material science, electrical engineering, and biomedicine, to tackle the challenges of sustainable building.

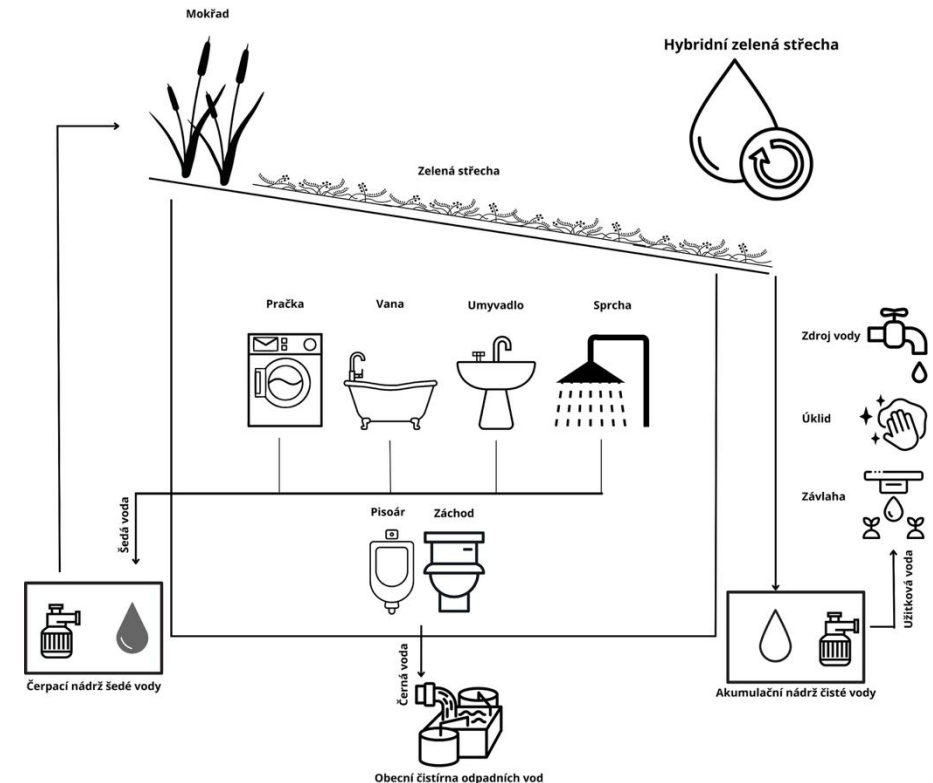
Zobrazit více ▼

PATENTING EFFORTS

- *Collecting patents should not be given priority in the early stage of the UCEEB. / The number of patents should be increased over the years, given the close cooperation with industry. The University or the Centre do not necessarily need to hold all these patents as they become quite costly over the years. Even more important would be that staff members are mentioned as co-inventors when they have contributed to the innovation. Even when the rights are transferred to industry what is typically the case in joint projects with industry it is documented that usefully results were gained through the cooperation, thus serving as basis for future industrial cooperations.*
- We focus on **applied research** – one of the key transfer pathways is the licensing of protected intellectual property. **IP protection is a logical step** in ensuring their impact and successful commercialization.
- Recognizing the **importance** of intellectual property, the number of new patents and the revenues from licensing are **integral parts of our KPI**, reflecting our commitment to transforming research into practical applications.
- 2019-2023: **30 granted patents** (17 Czech, 4 in EU, 4 USA, 3 Australia, 1 Canada, 1 Israel)

SPIN-OFFS

- *The spin-off needs the full commitment of the Rectorate, to grow as expected.*
- The support for research commercialization and the establishment of spin-off companies by our rectorate significantly improved
- Active participation at our Innovation Day
- Courses focused on IP protection and commercialization regularly organized
- Ongoing consultations of opportunities with the technology transfer coordinator
- One case is actually in an advanced stage of negotiation, two in early stages.



**Greywater treatment system
using rooftop wetlands, incorporating recycled
construction materials**

AWARDS

- *Basically, well-established prizes and awards given either on national and on international level need to be targeted, so to strengthen the research activities and to increase the scientific reputation and visibility of the Centre, especially outside Czech Republic.*
- **In the past period, we have received numerous international and national awards recognizing our innovative technologies and demonstration projects, as well as individual contributions to specific activities and lifetime achievements in our field.**
- **Examples in the following slides.**
- **A complete list of awards presented in Table 3.2.1.**



PRESTIGIOUS AWARDS

Project title / Name	Award title	Awarding institution
S.A.W.E.R. – Technology for extracting water from dry desert air	1) UAE Innovates Award 2022 – Best Innovation 2) World Expo Awards – Honorable Mention for the Best Use of Technology 3) ESG Award, category Innovation, technology, and energy 2022 4) Green Hero for Tomáš Matuška	1) Center for Governmental Innovation of Mohammed bin Rashid Al Maktoum, i.e. the ruler of Dubai and prime minister of the United Arab Emirates 2) EXHIBITOR Magazine of EXPO Dubai 3) Social Responsibility Association 4) Komerční banka
Energy plus retrofitting project of CPTH Českobrodská in Prague	1) Urban Planning Award 2022 2) European Solar Prize 2023 in the category Solar Architecture 3) two honourable mentions at Stavba roku 2022 (Building of the Year 2022) 4) Czech Adaptterra Award for the category Built Environment 5) Wood Design & Building Award 6) BIG SEE Architecture Award 2024	1) EUROSOLAR 2) The European Association for Renewable Energy 3) Nadace pro rozvoj architektury a stavitelství (Foundation for the Development of Architecture and Construction) 4) Nadace Partnerství (Partnership Foundation) 5) Canadian Wood Council 6) BIG SEE
Biodynamic circadian LED floor lamp Sunflow developed in our research project	LIT Lighting Design Awards 2023	LIT Design Awards
Municipality of Mikolajice for the smart and ecological municipality energy system incorporating a pellet cogeneration unit WAVE developed and produced at UCEEB	Smart Cities 2022 Award	Smart City Innovations Institute
Prof. Ing. Petr Hájek, CSc.	Medal of Merit 2020	Fédération Internationale du Béton
Ing. Jakub Maščuch, Ph.D.	1) Innovators 20 (2021) 2) Silver Medal of Prof. Vladimír List	1) Hospodářské noviny 2) Czech Union of Employers in the Energy Sector
doc. Ing. Petr Kuklík, CSc.	Čestná uznání Vladimíra Lista (Vladimír List Honorable Mention) for long-term significant contribution to the development of technical standardization in the field of wooden structures	ČAS – Czech Standardization Agency
doc. Ing. Tomáš Matuška, Ph.D.	REHVA Professional Award in Science 2023	REHVA
Ing. Nikola Pokorný	Werner von Siemens Award – Best Thesis 2021	Siemens Česká republika
Project RESINDUSTRY	Top 10 projects of Interreg Europe	Interreg Europe



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Q&A

YOUR QUESTIONS?



**Thank you for your attention.
Your questions?**



REFRESHMENT

■ ■ ■

**A DEMONSTRATION OF APPLIED
TECHNOLOGIES**