BUILD2LC
Interreg Europe

European Union
European Regional
Development Fund

INNOVATION MAP

ÖSTERSUND, 31th OCTOBER 2017

BUILD2LC Project Boosting Low Carbon Innovative Building Rehabilitation in European Regions

The innovation map is a communication action for the general public and organizations that wish to find other organizations currently working with innovation to collaborate with.

More info: interregeurope.eu/build2lc

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1 ABBREVIATIONS

SME – Small and Medium-sized Enterprise

RJH – Region Jämtland Härjedalen (Sweden)

SWEA – Severn Wye Energy Agency (UK)

VIPA – Public Investment and Development Agency of Lithuania (Lithuania)

RRDA – Rzeszow Regional Development Agency (Poland)

RGEA – North-West Croatia Regional Energy Agency (Croatia)

LEAG – Local Energy Agency of Gorenjska (Slovenia)

AEA – Andalusian Energy Agency (Spain)

2 INTRODUCTION TO THE TOPIC INNO-VATION

The main objective of the BUILD2LC project is **to increase the energy rehabilitation of buildings, enhancing the implementation and change policies**. The project is focused on four different topics:

- New Financial Instruments
- Professionalization of the Construction Sector,
- Activation of Demand and Combating Energy Poverty
- **Innovation**

This report will focus on the fourth topic *Innovation* in the building sector or sectors that have an interface towards buildings e.g. production of electricity. This is made through a survey that has been sent out in the different regions. In the fiches the different organizations answer questions about how their organization works with innovation as well as some basic information about the organization itself. The information acquired is then used in this report to give some statistics about the region. The individual chapters also contain an analysis of each region which gives a more complete picture about that particular region.

The report contains these available statistics from the fiches:

Size of organization: The innovation work is very different if it is made in a big company or a micro SME where the latter often has a dedicated owner but lacks the resources of the bigger company.

Public/private: The driving force of an organization can be very different depending on whether it is private or public.

Type of organization: The type of organization of course has a decisive effect on the innovation work of that particular organization. A business can have a direct connection between innovation work and its profitability while for example a technology cluster the result is seen through its members.

QUESTION 9. ASSES THE IMPORTANCE OF THE FOLLOWING ACTIVITIES FOR YOUR ENTITY:

1. No activity
2. Irrelevant
3. Somewhat important
4. Important
5. Very important

(see chart in each chapter for the specific activities, e.g. Figure 10)

The different organizations graded their innovation works in different activities regarding buildings. The answers to this question often resemble the specific attributes of that specific region; e.g. a region with lots of historic buildings probably will have higher activity in the topic "*Energy solutions for the comprehensive rehabilitation of historic buildings*".

The fiches contain other information as well but it's not available in the report because of a weighting between information included and the readability of the report. In case the reader needs more information please contact:

Region Jämtland –
Härjedalen Energikontoret

The report is a so called ***Innovation Map*** which means that the reader should be able to find the contact ways to different actors within the regions. In each chapter the organizations that submitted fiches have been listed. Also a chapter with the contact info for the main networks in the region is available. If the reader wants further information about a participating organization Appendix A1 contains a short extract of each fiche with homepage and the description of the organization.

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3 CATEGORIZATION OF THE ORGANIZATIONS

The different organizations have been arranged in categories so that organizations with similar background and activity are grouped together.

— CATEGORIES

- ***Building shell:*** Organizations that mainly focuses on the building shell. Products to the building shell or the design of the shell itself.
- ***Construction:*** Organizations that mainly focuses on the complete construction of buildings.
- ***Heating/cooling:*** Auxiliary system for cooling or heating.
- ***Electricity:*** Auxiliary system for electricity.
- ***Ventilation:*** Auxiliary system for ventilation.
- ***Software:*** Organizations that mainly focus on the design of software.
- ***Management:*** Organizations that mainly focus on management, finance, law, governmental, politic, etc.
- ***Education:*** Organizations that mainly focus on education.
- ***Other:*** Organizations that don't fit categories above.

Building Shell

TABLE 1: Organizations categorized as *Building Shell*

COMPANY NAME	*REGION*	
Isotimber	RJH	→
Energiesprong uk	SWEA	→
Wren Sustainable Limited	SWEA	→
Śnieżka sp. z o.o.	RRDA	→
Greinplast sp. z o.o.	RRDA	→
Vidok sp. z o.o.	RRDA	→
Silvaprodukt d.o.o.	LEAG	→
Beton Lučko	RGEA	→
Knauf Insulation	RGEA	→
Planetaris	RGEA	→
Rockwool Adriatic	RGEA	→

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Construction

TABLE 2: Organizations categorized as *Construction*

COMPANY NAME	REGION	
Attacus Trähus I Jämtland AB	RJH	→
CONRESTA JSC	VIPA	→
MERKO STATYBA JSC	VIPA	→
BESTA Construction Company Ltd.	RRDA	→
PPHU CORPORES Sp. z o.o.	RRDA	→
HARTBEX Przedsiębiorstwo Budowlane Sp. z o.o.	RRDA	→
Ytong porobeton	RGEA	→
Gecol Málaga, S.A.	AEA	→
Worldmetor	AEA	→
Grupo Torres y Ocaña, S.L.	AEA	→
VIALCA	AEA	→

Education

TABLE 3: Organizations categorized as *Education*

COMPANY NAME	REGION	
Mid University, Department of Ecotechnology and Sustainable Construction	RJH	→
Rzeszów University of Technology	RRDA	→
University of Rzeszow	RRDA	→
Faculty of Civil Engineering	RGEA	→
University of Córdoba	AEA	→

Electricity

TABLE 4: Organizations categorized as *Electricity*

COMPANY NAME	REGION	
Absolicon Solar Collection AB	RJH	→
Solljus AB	RJH	→
Gwent Energy CIC	SWEA	→
Powerflow Energy	SWEA	→
DHV Tecnologia EAM S.L.	AEA	→

Heating / Cooling

TABLE 5: Organizations categorized as *Heating / Cooling*

COMPANY NAME	REGION	
Flooré AB	RJH	→
Sunamp, UK	SWEA	→
Cooling Inno	LEAG	→
SolAir proizvodnja zračnih kolektorjev, d.o.o.	LEAG	→
Pilotes y Recalces del Sur	AEA	→
CIATESA	AEA	→

Management

TABLE 6: Organizations categorized as *Management*

COMPANY NAME	REGION	
Public institution Housing Energy Efficiency Agency	VIPA	→
Carbon Trust - Wales	SWEA	→
North-west Croatian Regional Energy Agency	RGEA	→
KAIZEN, architects and engineers	AEA	→
Iniesta Nowell architects	AEA	→
Gestora Cordobesa de Residuos, S.A. (GECORSA)	AEA	→

Software

TABLE 7: Organizations categorized as *Software*

COMPANY NAME	REGION	
Build Test Solutions (BTS) Ltd	SWEA	→
Optimal Retrofit	SWEA	→
Asseco Poland	RRDA	→
Optiheat	LEAG	→

Other

TABLE 8: Organizations categorized as *Other*

COMPANY NAME	REGION	
Biogen Active	RJH	→
Ministry of Energy of the Republic of Lithuania	VIPA	→
Stroud District Council	SWEA	→
Podkarpacka Okręgowa Izba Inżynierów Budownictwa	RRDA	→
LED Luks d.o.o.	LEAG	→
Rudan Ltd.	RGEA	→

4 DATA OF THE DIFFERENT REGIONS

The project BUILD2LC is administrated from Andalusien (AEA). The Innovation subproject is administrated in Region Jämtland Härjedalen (RJH). In each chapter the partner of that region has written their own analysis of the region as well as given the contacts of the main networks in that specific region. The analysis and the contacts to the main networks have been pasted into the report without any modification which makes it apparent that there are different authors of the report.

The partners that participate in this project are as seen below from north to south.

RJH – Region Jämtland Härjedalen (Sweden)

VIPA – Public Investment and Development Agency of Lithuania (Lithuania)

SWEA – Severn Wye Energy Agency (UK)

RRDA – Rzeszow Regional Development Agency (Poland)

LEAG – Local Energy Agency of Gorenjska (Slovenia)

RGEA – North-West Croatia Regional Energy Agency (Croatia)

AEA – Andalusian Energy Agency (Spain)

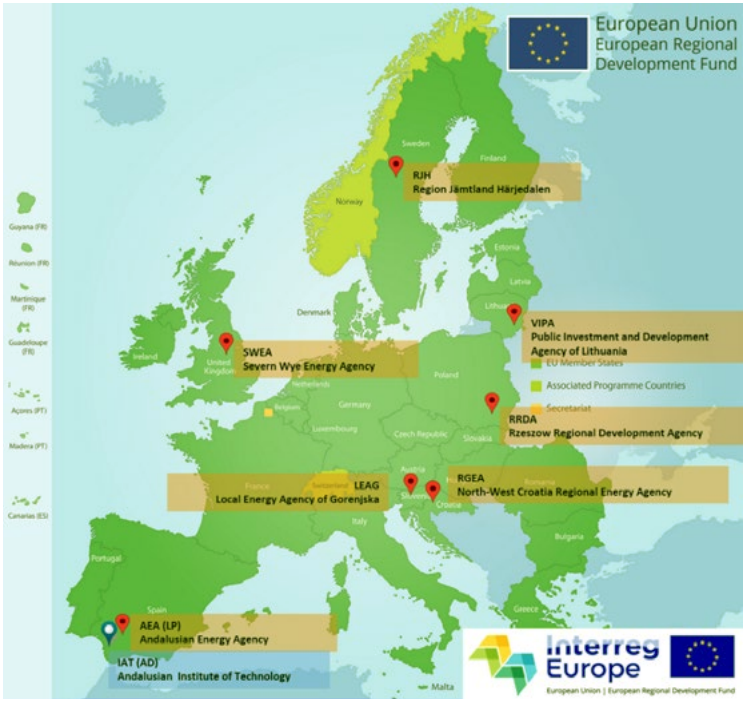

Figure 1: Map with the different regions in the project

This report takes into account the data collected in a fiche which was sent out in the participating regions by the local partner in that region. Each region was supposed to present ten different organizations that would give input through the fiche. Because of the limited number of fiches the result should not be considered to give a complete picture of the status of innovations in that particular region but rather as a picture of the connections that the local partner choose to use. Furthermore not all regions have submitted all ten examples which further reduces the statistical value of the report. Because of this the charts shown should be viewed with caution.

Also the interpretation of the questions by the participating organizations has a big influence on the results. E.g. does a public "Energy agency" conduct innovation work depends on how you define innovation work. Does the agency have to work with innovation itself or is it sufficient if the agency works with other organizations that conduct innovation works.

— JÄMTLAND HÄRJEDALEN, SWEDEN (RJH)

The region is situated in mid Sweden

Nº of fiches: 7

Population: 128 673 (2016-12-31, regionfakta.com)

The following charts show the characteristics of the organizations that submitted fiches in region Jämtland-Härjedalen.

The fiches submitted in the region show a high proportion of micro SME and SME.

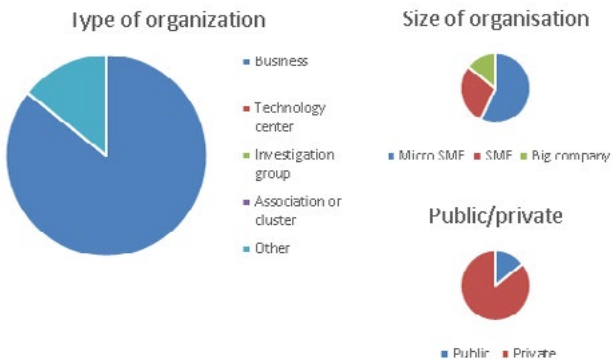

Figure 2-4: Characteristics of organizations in the fiches in Jämtland-Härjedalen.

The organizations are to a large extent private. The organizations are mainly businesses.

Highest ranks:

- 9.8 New materials and/or products used in construction
- 9.7 New construction techniques

Lowest ranks:

- 9.5 Acceleration measures in the market for high energy-efficient buildings
- 9.10 Energy solutions for the comprehensive rehabilitation of historic buildings

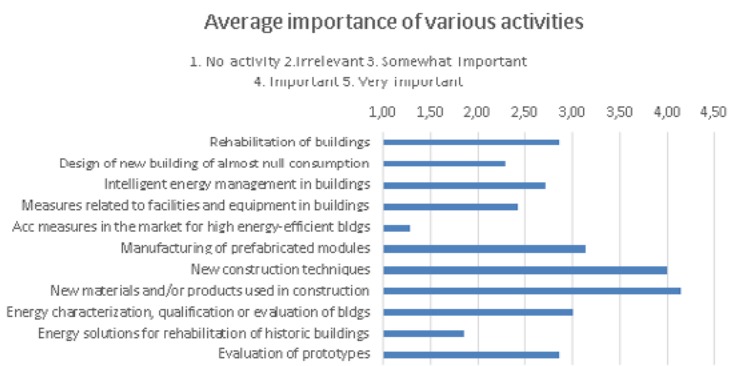

Figure 5: Scaling of importance of various activities.

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Organizations in Jämtland-Härjedalen

TABLE 9

1	Absolicon Solar Collection AB	Manufacturing and sales of solar collectors and automated production lines for the same. Product development of solar collectors.
2	Attacus Trähus I Jämtland AB	Development of wooden houses constructions in technology, durability and energy consumption with increased prefabrication.
3	Biogen Active	What we offer is a safe and environmentally friendly way to restore energy systems, heat exchangers and other water systems to optimal performance and energy performance.
4	Flooré AB	Underfloor heating made easy.
5	Isotimber	Healthy accommodation in houses built with innovative wooden house envelope.
6	Mid University, Department of Ecotechnology and Sustainable Construction	Research in Sustainable Construction, Energy Efficiency, etc.
7	Solljus AB	Simple and efficient light saving actions.

Analysis Jämtland – Härjedalen

The region of Jämtland-Härjedalen has some characteristics that is coincident with the answers in the fiches. The region is relatively small with only one university. The trade and industry consists of mainly small enterprises. Big real estate sector because of the large tourist business in the region which requires a high amount of seasonal accommodations. Together with a cold climate this creates a lot of businesses that focus on the energy costs of houses. The Swedish government does not take an active part in the creation of new companies, hence the businesses are normally privately owned. Additionally the politics influence the building sector since the Swedish law have relatively high energy requirements for new buildings.

Figure 6: The position of Region Jämtland-Härjedalen

The building sector in Jämtland-Härjedalen is together with a small amount of countries in the world somewhat unique since wood makes up such a large part of the used material.

This results in two fiches with businesses with wood as their main material. The country is also very rich on renewable electricity production because of the high amount of available hydro power. The main municipalities also have access to modern central heating systems. The innovations are concentrated within the renewable or energy saving sector since it would be politically incorrect and therefore commercially difficult to innovate something more traditional. This results in one fiche of renewable energy production and one of energy saving in illumination.

The houses are normally well insulated and are equipped with ventilation that use heat recovery. Hence the inner surface of the building shell has the temperature of the air inside which makes radiation a non-existing problem. Therefore the heat should be supplied as low as possible making for example floor heating suitable.

Main networks

TABLE 10

Almi Företagspartner Mitt AB +46 771- 55 85 00	Almi's vision is to create opportunities for all viable ideas and companies to be developed. We offer advisory services, loans and venture capital through all phases of the establishment of a business – from idea to successful company.
Region Jämtland – Härjedalen Energikontoret	The Energy Agency in Region Jämtland Härjedalen is working to reduce emissions of greenhouse gases through projects and activities designed to improve energy efficiency and increased use of renewable energy.
MIUN Innovation	Miun Innovation, Mid Sweden University´s office for Innovation and Business, offers students and employees the opportunity to test the potential of their idea and develop it into a business idea.
MIUN Holding AB Sven Wadman	The holding company of MIUN is working to commercialize ideas developed within the university

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LITHUANIA (VIPA)

Nº of fiches: 4

The following charts show the characteristics of the organizations that submitted fiches in Lithuania.

The fiches submitted in the region show a high proportion of big companies. The organizations are divided into 50% private and 50% public. The organizations are to 50% businesses and to 50% other.

Highest ranks:

- 9.3 Intelligent energy management in buildings
- 9.4 Measures related to facilities and equipment in buildings

Lowest ranks:

- 9.6 Manufacturing of prefabricated modules
- 9.11 Evaluation of prototypes

Organizations in Lithuania

TABLE 11

1	Public institution Housing Energy Efficiency Agency	Management and implementation of energy efficiency improvement programmes.
2	Conresta JSC	Conresta focuses on global construction trends, international standards and certification systems, innovative process management and constant improvement, thus ensuring our company's technological development.
3	Ministry of Energy of the Republic of Lithuania	Promote an integrated renovation of public buildings.
4	Merko Statyba JSC	Merko focuses on general contracting of construction and on providing complete innovative solutions in professional construction and real estate development.

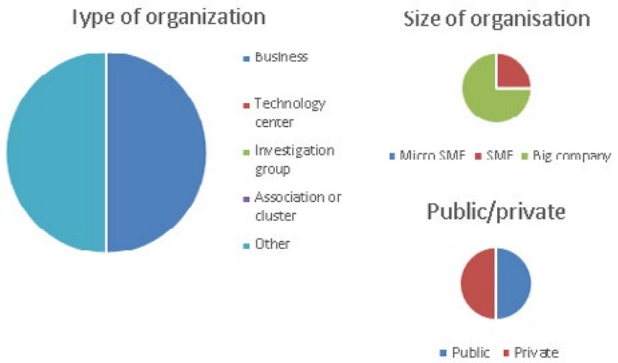

Figure 7-9: Characteristics of organizations in the fiches in Lithuania

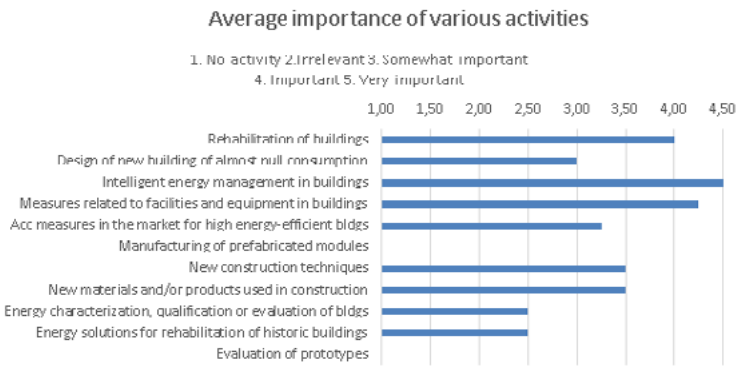

Figure 10: Scaling of importance of various activities

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Analysis Lithuania

The Republic of Lithuania is a country in the Baltic region of northern Europe. One of the three Baltic states, it is situated along the southeastern shore of the Baltic Sea, to the east of Sweden and Denmark. Lithuania has an estimated population of 2.8 million people as of 2017, and its capital and largest city is Vilnius.

Lithuanian Innovation Strategy for the year 2010-2020 (hereinafter – the Strategy) is a long-term strategic planning document which sets vision, objectives, goals and results to be achieved in the field of Lithuanian Innovation up to 2020. The purpose of this Strategy is to mobilize and manage state resources effectively: to create competitive knowledge economy based on the latest technologies and qualified human resources.

There are 23 universities in Lithuania (14 of them are public, 8 are private, and one is a branch of a Polish university.

Figure 11: Position Lithuania

2016 was another record breaking year for the foreign investment promotion agency Invest Lithuania as it attracted 36 foreign direct investment (FDI) projects to Lithuania. These projects are set to create 3,716 jobs over the next three years. By comparison, 28 foreign capital companies decided to set up operations in Lithuania in 2015, creating 2,370 jobs.

Lithuania's financial technologies (FinTech) sector is rapidly gaining momentum, following the government's decision earlier this year to transform the country into a hub for FinTech companies. More and more companies from across the globe are setting up in Lithuania, with many more awaiting approval from the Bank of Lithuania. And these companies clearly like what they see.

R&D and innovation priority areas were approved on the 14th of October, 2013 by the Resolution of the Government of the Republic of Lithuania No 951 Concerning approval of the priority areas of research and (socio-cultural) development and innovation (Smart Specialisation). The Government has identified 6 priority areas for research and development and innovation development direction. One of these is energy and sustainable environment determined by the need to respond insufficient diversification of energy sources, high energy prices, uneconomical and inefficient use of energy and lack of ecosystems' sustainability. One of the "Energy and a sustainable environment" priority is Technology for the development and use of smart low-energy buildings – digital construction.

Lithuanian construction sector can be characterized by a large quantity of little construction companies (9 and less employees). It should be noticed that such a characteristic makes industry and infrastructure profitable. The fragmentation of this sector allows to complete projects in time and with high responsibility. Moreover such situation gives more opportunities for small and medium enterprises development in Lithuania.

In 2015 new construction works carried out in Lithuania are constituted 43,9 % of all construction works, while reconstruction took only 29,7 %, repair and restoration – 26,4 %.

At the same time it was a great difference between growth in activities – the new construction work increased by 21 % in 2013, in comparison to 2012 year, reconstruction grew only 9,3 %, other construction work – 19,3 % of growth. But repairs and restoration work showed drop by 2,9 %.

The main activities, where Lithuanian construction companies are involved, are:

- Engineering design
- Architecture
- Manufacturing, supplying of construction materials
- Building construction
- Digital Construction

Among all sectors, the largest share of final energy consumption belongs to the household 27% and transport 37% sectors.

Main networks

TABLE 12

Ministry of Energy of the Republic of Lithuania	The Ministry of Energy of the Republic of Lithuania is a government department of the Republic of Lithuania. Its mission is to prosecute policy of government of Lithuania in fuel, electricity, thermo-energy production and supply for Lithuania economy.
Public institution Housing Energy Efficiency Agency	Housing Energy Efficiency Agency (BETA) participates in EU-funded international projects, which in turn strengthens cooperation with housing partners from other countries, and enhances skills and experience in developing projects related to the application of alternative energy resources in multi-apartment buildings, and in generating ideas for the construction of passive houses. It also performs activities related to encouraging homeowners to renovate multi-apartment buildings. BETA is also responsible for the implementation of national multiapartment building renewal program and national public building renewal programs in Lithuania.
Conresta	We are among the first companies in Lithuania to implement and use modern construction principles, using advanced certification systems and international construction standards. We implement our projects using the revolutionary digital Building Information Modeling (BIM), the international ISO quality management certification system and we were also among the first in the Baltic States to receive the highest valuation, i.e. LEED Platinum.
Merko Statyba LLC	UAB Merko statyba and UAB Merko būstas represents Merko group in Lithuania. 100% shares of UAB Merko statyba and UAB Merko būstas belongs to holding company AS Merko Ehitus, the leading construction company in the Baltics, which shares have been listed on the NASDAQ OMX Tallinn since 1997. The group employs more than 790 people in the Baltics. The revenue in 2015 was 251 million euros. Long-term experience in various countries, a wide scope of construction services, flexibility, reliability and meeting the deadlines and primarily quality have helped group companies to achieve the market leader position in the Baltics. Depending on the requirements of the contracting entities, the group companies perform both small-scale construction works as well as large scale, complicated and innovative projects, ranging from buildings to infrastructure facilities and energy installations, with a focus on general contracting and project management. Merko is among the leading residential construction companies in the Baltics.

GLOUCESTERSHIRE, UK (SWEA)

Nº of fiches: 10

Population: 597 000 (analysis of the region)

The following charts show the characteristics of the organizations that submitted fiches in Gloucestershire.

The fiches submitted in the region show a high proportion of micro SME. The organizations are mainly private. The organizations are mainly businesses.

Highest ranks:

- 9.3 Intelligent energy management in buildings
- 9.1 Rehabilitation of buildings
- 9.5 Acceleration measures in the market for high energy-efficient buildings
- 9.9 Energy characterization, qualification or evaluation of buildings

Lowest ranks:

- 9.6 Manufacturing of prefabricated modules
- 9.7 New construction techniques

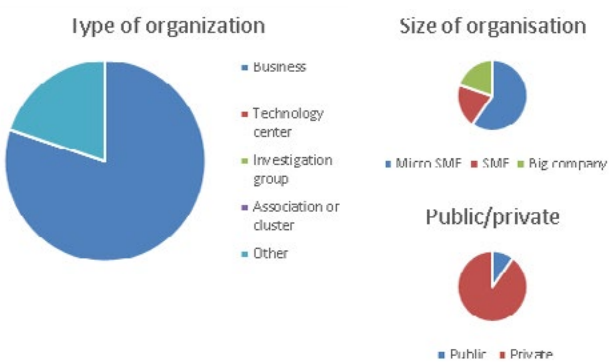


Figure 12-14: Characteristics of organizations in the fiches in Sewern Wye

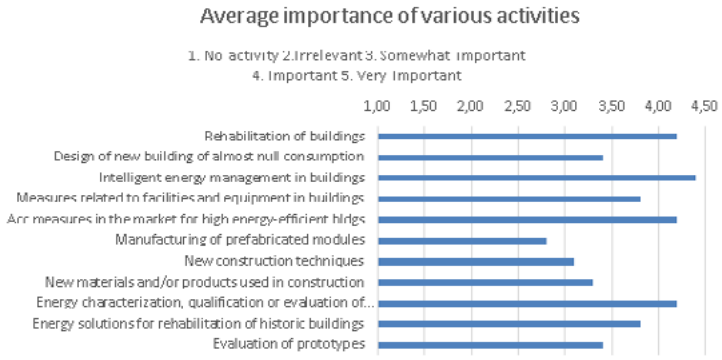
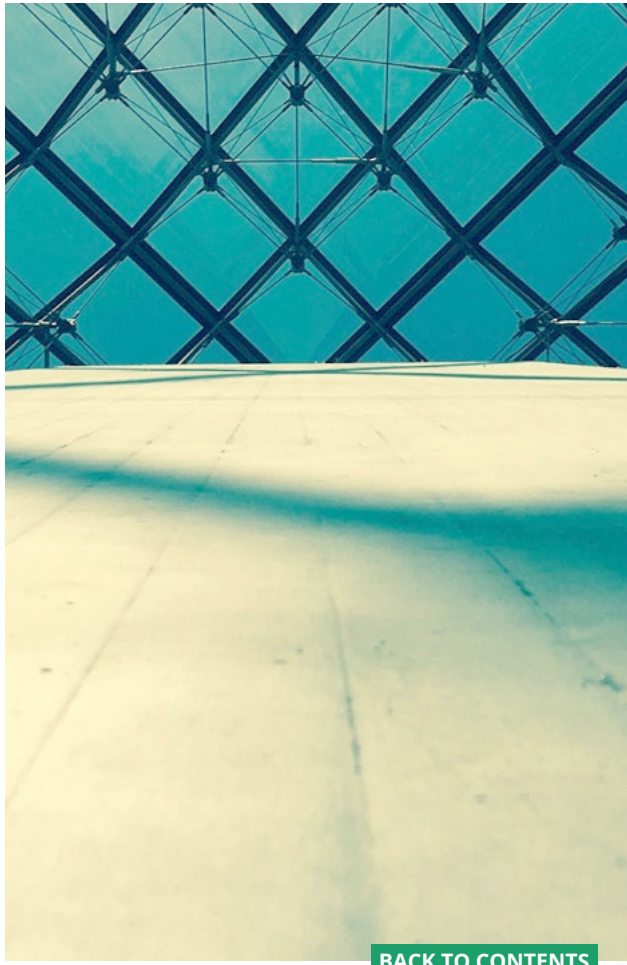


Figure 15: Scaling of importance of various activities



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Organizations in Gloucestershire

TABLE 13

1	Build Test Solutions (BTS) Ltd	BTS is an exciting new tech start up business aiming to discover, develop and promote innovative in-situ testing and performance verification solutions in the built environment sector.
2	Carbon Trust - Wales	Accelerating the move to a sustainable, low carbon economy
3	Energiesprong uk	Desireable warm affordable homes for life
4	Gwent Energy CIC	Community energy for community benefit
5	Optimal Retrofit	Low energy cost–effective solutions for retrofit
6	Stroud District Council	Pioneer in partnership work
7	Sunamp, UK	Storing energy as heat in Phase Change Materials to use for space heating and hot water
8	Wren Sustainable Limited	Development of Passive Housing system for social and affordable housing sector
9	Powerflow Energy	Battery Storage Manufacture
10	Stride Treglown	Fully digitalized BIM capable architecture & building services company across all sectors delivering modular building systems and offering skills and knowledge in sustainable adaptation & re-use of existing buildings.

Analysis Gloucestershire

Gloucestershire is a county in the South-West of the UK: in 2011 its population was 597,000 and is growing annually. 88% of people currently work within the county which is home to approximately 30,000 businesses, employing 291,500 staff. Whilst Gloucestershire performs above national average for many economic indicators, there is evidence that growth has slowed in recent years compared to other parts of the UK: increasing productivity is a high priority alongside providing housing for the growing population. (GFirst, ESIF strategy 2014-2020)

7.9% of employment was in construction (2013), ranking the sector seventh highest (of 18) in terms of employment: health (12.3%) and manufacturing (11.7%) are the highest employers. Manufacturing is by far the strongest sector in terms of productivity (19.1%); construction is ranked third at 7.9%. Gloucestershire has the highest proportion of employment of all Local Enterprise Partnership regions in 'high and medium technology

manufacturing' at 6.7% (2012). The county is home to Renishaw, a global company with core skills in measurement, motion control, spectroscopy and precision machining, and GE Aviation, a world leading provider of commercial and military jet engines. (GFirst, ESIF strategy 2014-2020)

In terms of priorities in the energy sector, Gloucestershire has a focus on expanding its provision of nuclear power which is currently providing employment to the construction industry. The proportion of energy from renewables is also growing but is still below 20%, with the majority coming from landfill gas projects and biomass. There is still much work to be done to increase the use of renewables hence battery storage is a significant area of innovation both nationally and within the county. The majority of households are heated by gas but there are a significant number of rural homes who are not connected and are 'off grid'. Cost effective and local renewable options are important areas for development.

The construction industry in the UK has innovation priorities in smart construction and digital design. There is also a commitment to developing the Building Information Modelling (BIM) programme to develop more sustainable buildings. Innovation in procurement is important in terms of forming an efficient approach to delivering low carbon assets more quickly and at a lower cost. (Industrial Strategy: government and industry in partnership – Construction 2025, 2013).

Innovative methods of monitoring the energy and moisture performance of buildings is a priority nationally and locally, alongside the development of effective partnerships to deliver high quality retrofit and develop efficient and well-targeted financial support to the most vulnerable people: partnerships development has become increasingly important in times of austerity. Finally, with a need for 50,000 new homes in Gloucestershire and the need for affordable housing nationally, innovation and interest in modular housing is increasing.

Construction type varies considerably within the region: properties range from multi-apartment blocks to solid wall isolated dwellings which are hard to treat; hence a wide range of energy retrofit options are required.

Main networks

TABLE 14

Construction Industry Training Board (CITB)	The industry training board and a partner in the Sector Skills Council for the construction industry in England, Scotland and Wales. It's our job to work with industry to encourage training, which helps build a safe, professional and fully qualified workforce.
Strategic Forum for Construction	The Strategic Forum for Construction brings together the organisations representing the UK construction sector to work collaboratively for a better industry. Forum members work together to identify and respond to issues and challenges faced by the sector. They will also play a key role in the delivery of Construction 2025, the industrial strategy for construction.
EPSRC	The main UK government agency for funding research and training in engineering and the physical sciences
Construction Industry Council (CIC)	The representative forum for the professional bodies, research organisations and specialist business associations in the construction industry.
CECA	Represent the interests of civil engineering contractors registered in the UK as well as to provide a full range of services to members.
Construction excellence	A platform for industry improvement to deliver excellence through clients, industry and users through collaborative working.
Osmosis	A specialist organisation which delivers outstanding training, events and consultancy in the sustainable built environment.
Association for Environment Conscious Building (AECB)	A network of individuals and companies with a common aim of promoting sustainable building.
Federation of Master Builders (FMB)	The largest trade association in the UK construction industry. Champions for continuous improvement in building standards.
Building Information Modelling (BIM) Task Group	The BIM Task Group brings together expertise from industry, government, public sector, institutes and academia to develop BIM.
Construction Clients Group (CCG)	The CCG is client representative body within Constructing Excellence, assisting clients to obtain better value from the construction process by understanding their leadership role when procuring and delivering building and infrastructure assets to fulfil business and the wider built environment needs.
National Federation of Builders (NFB)	Helps members build prosperous businesses and create optimal conditions for the construction industry.
WRAP	Supports the construction industry in reducing waste and improving resource efficiency.
Specialist Engineering Contractors' Group (SEC) Group	Represents the interests of the specialist contractors across the UK.
Innovate UK	UK's innovation agency sponsored by the Department or Business, Energy and Industrial Strategy (BEIS)
The Green Construction Board	A consultative forum for government and the UK design, construction, property and infrastructure industry.
2050 Group	A collaborative forum and platform for members of all construction disciplines and professional bodies to work together to achieve a carbon neutral construction industry by the year 2050.
Construction Products Association	Represents the UK's manufacturers and distributors of construction products and materials.
BRE	An innovative group of researchers, scientists, engineers and technicians who share a common goal – to make the built environment better for all.

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RZESZOW, POLAND (RRDA)

Nº of fiches: 10

Population: 2 100 000 (analysis of the region)

The following charts show the characteristics of the organizations that submitted fiches in Rzeszow.

The fiches submitted in the region show a high proportion of big companies. The organizations are divided into 50% private and 50% public. The organizations 50% businesses and 50% other.

Highest ranks:

- 9.8 New materials and/or products used in construction
- 9.7 New construction techniques

Lowest ranks:

- 9.11 Evaluation of prototypes
- 9.6 Manufacturing of prefabricated modules

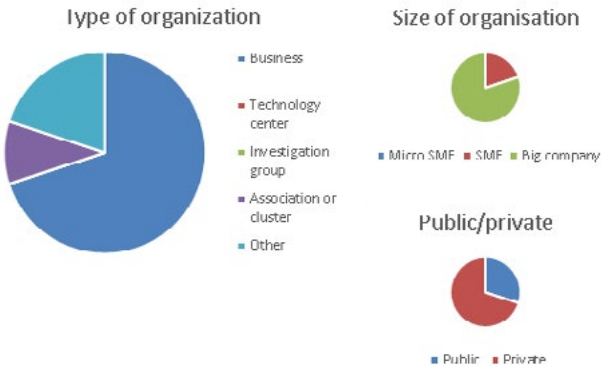

Figure 16-18: Characteristics of organizations in the fiches in Rzeszow

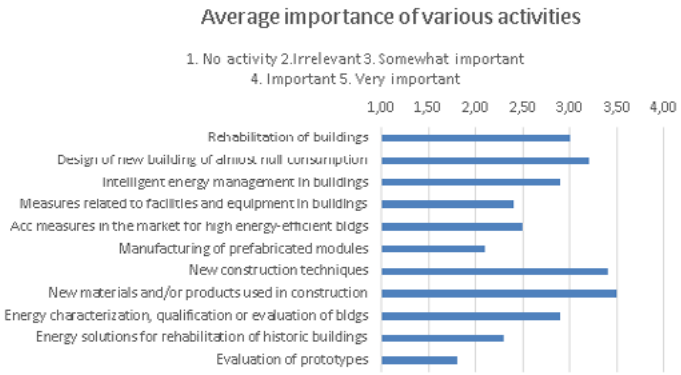

Figure 19: Scaling of importance of various activities

Organizations in Rzeszow

TABLE 15

1	Śnieżka sp. z o.o.	Outdoor and indoor paints
2	Asseco Poland	ICT for business solutions
3	BESTA Construction Company Ltd.	Development of buildings that go afore new trends
4	PPHU CORPORES Sp. z o.o.	Sustainable buildings
5	Greinplast sp. z o.o.	Produces thermal insulation systems and paints
6	HARTBEX Przedsiębiorstwo Budowlane Sp. z o.o.	Construction of energy efficient buildings
7	Podkarpacka Okręgowa Izba Inżynierów Budownictwa	Public organisation for civil engineers
8	Rzeszów University of Technology	Basic and applied research
9	University of Rzeszow	We search for new solutions to everyday life problems
10	Vidok sp. z o.o.	We create innovative windows

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Analysis Rzeszow

Some facts:

- More than 2,100,000 inhabitants: 5.5 % population of Poland
- Population per 1 sq. km: 119
- Population under the age of 25: 36 %
- Enterprises with foreign capital: 1,042
- The number of enterprises: 150,500
- Total area of the region: 17,845 km2
- Capital: Rzeszów – 188,000 inhabitants
- 16 universities (of which 7 is located in Rzeszow). The total number of students in Podkarpackie Region is over 70 000, annually there is about 14 000 graduates.
- Important communication crossroads:
  - International motorway A-4 (direct connection by motorway from Lisbon to Rzeszów)
  - National road No 9 (E- 371)
  - National road No 19
  - Railway main line E-30

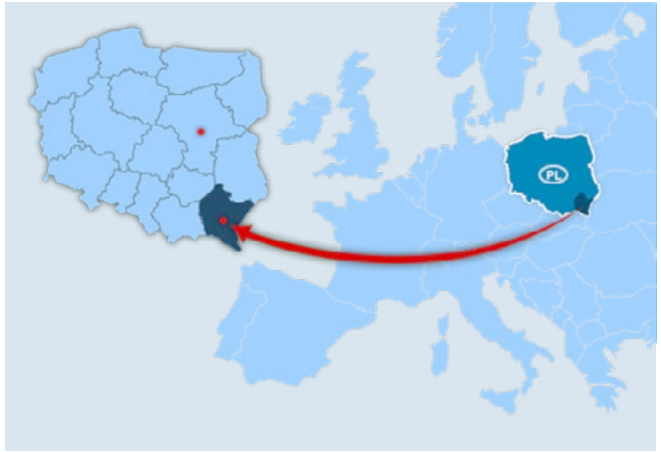

Figure 20, 21: Position Rzeszow and city picture

- International airport Rzeszów-Jasionka
- Podkarpackie Region due to its favorable localization is one of the most popular tourist regions in Poland, offering:
  - Bieszczady National Park, Magurski National Park
  - 10 landscape parks
  - 17 protected landscape areas and 71 nature reserves

Podkarpackie Voivodeship is situated in south-eastern Poland, sharing its border with Ukraine and Slovakia. To the west it is bordered by Małopolskie Voivodeship, to the north-west by Świętokrzyskie Voivodeship, and to the north-east by Lubelskie Voivodeship. The region is the outer border of the European Union. It is known for being rich in natural resources as oil and natural gas as well as several mineral raw materials. Particularly dynamic has been the growth of the IT industry and aviation cluster, so called Aviation Valley, which dominate the region's modern economic image. The Bieszczady Mountains, part of the Carpathians, make the region an attractive destination for domestic and international tourism.

The Podkarpackie region accounted for 3.9% of national gross value-added (GVA) in 2013. There are other six Polish regions out of the total of 16 with lower GVA than Podkarpackie. The share of industry in the generation of GVA is estimated at 28.5%, which is the seventh highest result and above the national average (26.5%). Entities engaged in services generate 25% of regional GVA. In 2015, there were 1,600 foreign firms in the Podkarpackie which represents roughly about 1.8% of all foreign companies located in Poland.

The region is known for its rich deposits of such natural resources as oil and natural gas as well as such mineral raw materials as sulphur, gypsum, sandstone and limestone being currently extracted in modern mines. In addition to the development of traditional sectors based on existing resources (agriculture, industry and mining), the food, pharmaceutical, aviation and IT sectors have also developed. Particularly dynamic has been the growth of the IT industry and so called Aviation Valley, which dominate the region's modern economic image. Among the largest companies settled in the region one can indicate Dębica SA and Kirchhoff Polska (automotive), Asseco (IT) or Nowy Styl (Krosno) (furniture).

The region is famous for its Aviation Valley, which accounts for 90% of Polish aerospace industry output with over 22,000 employees. Currently, the Aviation Valley represents 100 companies within the region, and the number is still growing. The cluster is reinforced by the presence of Rzeszow University of Technology with a strong Faculty of Mechanical Engineering and Aeronautics. The Faculty is a coordinator of Aeronautica Integra Research Network, uniting research institutions which conduct studies in the field of aeronautics and space technology. The Faculty has achieved the status of an Advanced Technology Centre with the AERONET Aviation Valley. Another leading regional research organisation is the Rzeszow University, which is the largest academic institutions in the region.

Main networks

TABLE 16

Marshal Office of the Podkarpackie Region
Podkarpacka Energy Agency
Rzeszow University of Technology
Podkarpacki Renewable Energy Cluster
Podkarpacka District Chamber of Civil Engineers
Regional Fund for Environmental Protection and Water Management

GORENJSKA, SLOVENIA (LEAG)

Nº of fiches: 5

The following charts show the characteristics of the organizations that submitted fiches in Gorenjska.

The fiches submitted in the region are only from Micro SME. The organizations are exclusively private. Only businesses have submitted fiches.

Highest ranks:

- 9.1 Rehabilitation of buildings
- 9.3 Intelligent energy management in buildings
- 9.9 Energy characterization, qualification or evaluation of buildings

Lowest ranks:

- 9.7 New construction techniques
- 9.6 Manufacturing of prefabricated modules

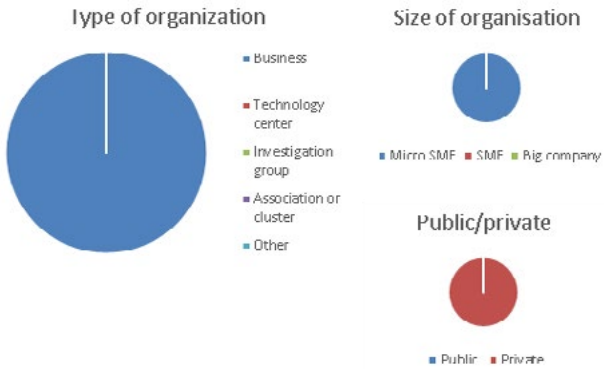

Figure 22-24: Characteristics of organizations in the fiches in Gorenjska

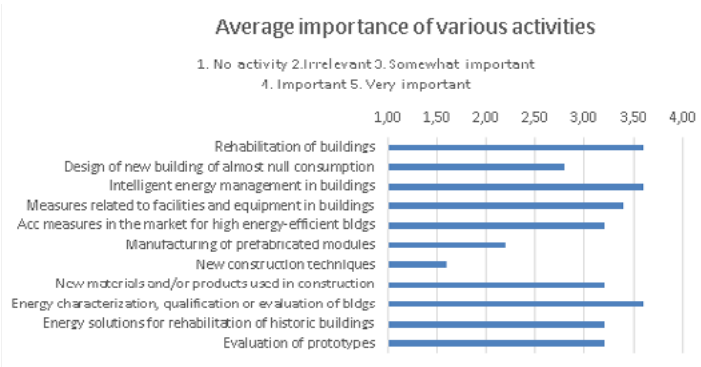

Figure 25: Scaling of importance of various activities

Organizations in Gorenjska

TABLE 17

1	Silvaprodukt d.o.o.	New products and services in environmentally friendly and biocide-free wood preservation
2	Cooling Inno	Passive A/C units without installation
3	Optiheat	Optimization system for heat pumps
4	LED Luks d.o.o.	Next Generation of ALVA Modular with a New Optical System
5	SolAir proizvodnja zračnih kolektorjev, d.o.o.	Solar air heater

Analysis Gorenjska

Slovenia has two million inhabitants and about 863,870 dwellings. Residential buildings represent 81.7% of the total floor area of buildings. The Slovenian building stock is very old, with nearly 70% built before 1979.

The existing building stock represents realistic opportunity to achieve significant energy savings. Slovenian goals are:

- by 2030,26 mio m^2 of useful floor area of existing buildings (over¼ of the stock) will be renovated,
- 1/3 of these buildings has to be renovated in nZEB standard,
- at least 2/3 of energy use in buildings must come from RES (60% by 2020),
- the improved energy performance of buildings (30% by 2030, 16% by 2020) will reduce the total energy consumption in buildings by almost 10 % in the period 2014-2020.

Transition to the green economy in Slovenia requires the transformation of today's production models and patterns of consumption into greener and sustainable forms, supporting economic incentives and the development of environmentally less burdensome technologies and innovations, improving resource and land management, land, water, waste and energy management. By implementing the measures envisaged in the Framework Program, Slovenia will create suitable conditions for sustainable growth and development and direct the process of transition to the green economy.

The overall trend in the development of innovation-active enterprises is positive, which is satisfactory, but additional incentives would be needed, especially in the sectors where Slovenia is most lagging behind - catering, construction, trade, maintenance and repair of motor vehicles, transport and storage.

According to the research among Slovenian companies there is a concern about the poor link between high-quality research and results when innovations should be transferred to the market. In addition, there is a lack of entrepreneurial mindset and "spirit" in Slovenia. Overall the entrepreneurial mindsets and skills are not yet fully developed.

Slovenian government has been implementing reforms in the Slovenian innovation system proposed in several documents:

- Research and Innovation Strategy of Slovenia 2011-2020
- Resolution on the National Higher Education Programme 2011-2020
- Slovenia's Smart Specialisation Strategy
- Framework Program for the Transition to the Green Economy

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Main networks

TABLE 18

SPIRIT Slovenia - Public Agency for Entrepreneurship, Internationalization, Foreign	Investments and Technology - SPIRIT Verovškova ulica 60 SI-1000 Ljubljana Slovenia
Slovenian National Building and Civil Engineering Institute	ZAG Ljubljana Dimičeva ulica 12 SI-1000 Ljubljana Slovenia
The Slovenian Chamber of Engineers	Slovenian Chamber of Engineers Jarška cesta 10b 1000 Ljubljana Slovenia
GI ZRMK d.o.o.	GI ZRMK d.o.o. Dimičeva 12 1000 Ljubljana Slovenia

— NORTH WEST CROATIA (RGEA)

Nº of fiches: 9

The following charts show the characteristics of the organizations that submitted fiches in North West Croatia.

The fiches submitted in the region are mainly big companies.

The organizations are mainly private. Mainly businesses have submitted fiches.

Highest ranks:

- 9.1 Rehabilitation of buildings
- 9.9 Energy characterization, qualification or evaluation of buildings

Lowest ranks:

- 9.6 Manufacturing of prefabricated modules
- 9.7 New construction techniques

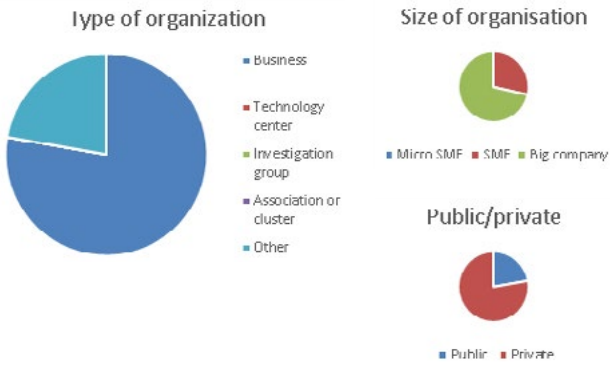

Figure 26-28: Characteristics of organizations in the fiches in North West Croatia

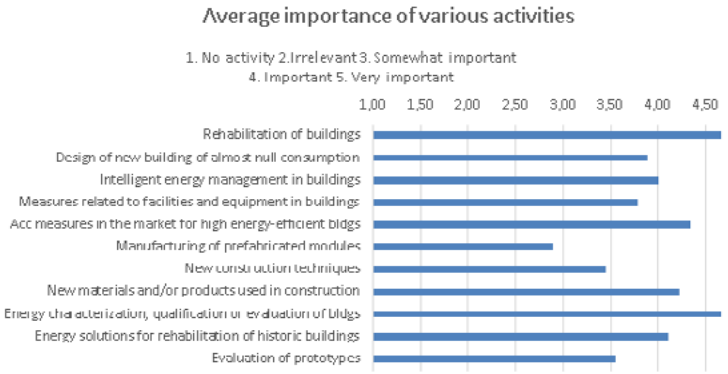

Figure 29: Scaling of importance of various activities.

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Organizations in North West Croatia

TABLE 19

1	Beton Lučko	Eco-sandwich wall panels and Ruconbar Rubberised Concrete Noise Barriers
2	Faculty of Civil Engineering	Faculty of Civil Engineering (University of Zagreb) is the leading construction school in the region
3	Holcim Hrvatska	
4	Knauf Insulation	One of the fastest growing insulation manufacturers in the world that has a wide variety of insulation materials in its offer that meet the increasing demands for energy efficiency in new and existing homes, business buildings and industry
5	Planetaris	We take you, step by step, through experts's solutions for nearly zero energy buildings and through energy renovation of buildings
6	North-west Croatian Regional Energy Agency	
7	Rockwool Adriatic	By using proven energy-efficient techniques, we can reduce up to 90% heat energy consumption in buildings
8	Rudan Ltd.	Efficient energy management
9	Ytong porobeton	The biggest among porobetons

Analysis North West Croatia

Within the BUILD2LC project the target area for the partner North-West Croatia Regional Energy Agency – REGEA is the whole country of Croatia, which is in line with the fact that the Croatian Operational Programme Competitiveness and Cohesion 2014-2020 covers the whole country (i.e. there is no subdivision in regions). The stakeholder fiches for Croatia prepared for this report are focused on the most important national-level innovative construction companies, ESCo-type companies as well as research institutions such as faculties from top Croatian universities.

The construction industry in Croatia has faced considerable difficulties in the period 2009-2015 due to the economic crisis which was the longest in Croatia among all EU member states, with revenues for the whole sector dropping in these six year to approximately 50% of the pre-crisis level. This resulted in approximately 53 thousand jobs in the construction sector being lost in the mentioned period. In order to survive, construction companies in Croatia have to adopt innovative solutions (both technical/technological, but also business models such as EPC/ESCo), and the selected companies presented in the fiches (6 in total) show some examples of such approaches.

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The ESCo market in Croatia is rather undeveloped, with only a few companies which could qualify as a real ESCo (with experience in guaranteeing energy savings), 2 of the most important companies have been included in the fiches (Rudan and Petrol). The Faculty of Civil Engineering of the University of Zagreb has also been included considering its experience in developing innovative solutions and construction materials (among others, within the Eco-Sandwitch project financed through the CIP Eco-Innovation programme, within which an innovative pre-fabricated wall panel has been developed).

Main networks

TABLE 20

Croatian Green Building Council (Hrvatski savjet za zelenu gradnju)
Croatian Chamber of Civil Engineers (Hrvatska komora inženjera građevinarstva)

ANDALUSIA, SPAIN (AEA)

Nº of fiches: 11

The following charts show the characteristics of the organizations that submitted fiches in Andalusia.

The fiches submitted in the region are mainly SME.

The organizations are mainly private. Most of the fiches have been submitted by businesses.

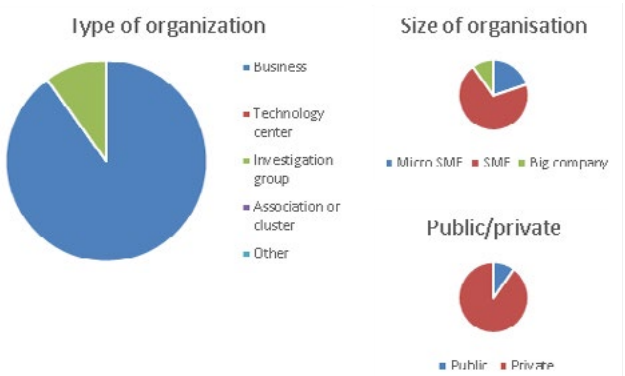

Figure 30-32: Characteristics of organizations in the fiches in Andalusia

Highest ranks:

- 9.1 Rehabilitation of buildings
- 9.9 Energy characterization, qualification or evaluation of buildings

Lowest ranks:

- 9.6 Manufacturing of prefabricated modules
- 9.8 New materials and/or products used in construction

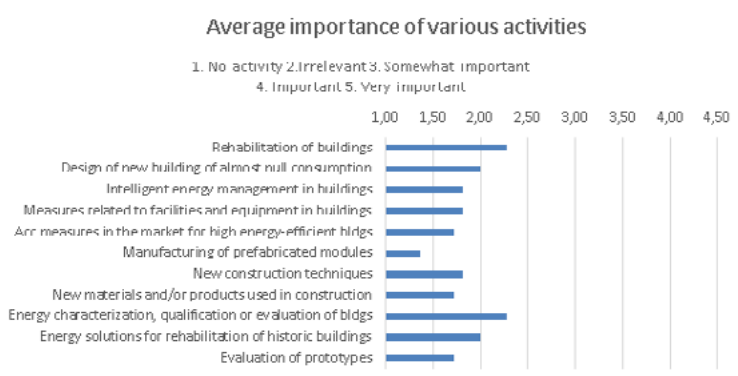

Figure 33: Scaling of importance of various activities.

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Organizations in Andalusia

TABLE 21

1	KAIZEN, architects and engineers	A company that integrates more than 35 years of experience with the mastery of new technologies
2	Iniesta Nowell architects	Office of architecture that is in charge of making and execution of projects of building and urbanism concepts
3	University of Córdoba	Investigation in green roof tops
4	Gecol Málaga, S.A.	Making of mortar for Bio-Construction
5	Worldmetor	WorldMetor has been offering innovation, efficiency and service for all types of industrialized buildings for more than 35 years
6	Grupo Torres y Ocaña, S.L.	Dedicated to civil works, building, energy rehabilitation of buildings
7	Pilotes y Recalces del Sur	A company with a long history in the geothermal and geotechnical sector
8	VIALCA	With over 50 years of professional experience, dedicated to the design, production and sale of prefabricated concrete as well as bulk concrete
9	CIATESA	European leader in the design, manufacture and marketing of air conditioning, refrigeration, air treatment and heat exchange equipment
10	DHV Tecnologia EAM S.L.	DHV Technology manufactures solar panels for space, aeronautical, nautical and automotive applications
11	Gestora Cordobesa de Residuos, S.A. (GECORSA)	Environmental management of waste generated in construction and demolition. Recycled aggregates

Analysis Andalusia

Innovation and sustainable construction in Andalusia. October 2017

Sustainable construction is an integral part of the eight priorities defined by the **Andalusian Innovation Strategy 2014-2020 (RIS3),** which aims to promote innovation as a growth factor and as a basis for a reorientation of the production model in Andalusia, through the identification of areas and priorities of specialization. More specifically, RIS3 raises the challenge of achieving sustainable growth in energy use efficiency rates in urban and rural environments, based on the interaction of technological development and a new culture of sustainability.

More specifically, RIS3 raises the challenge of achieving, in the construction sector, sustainable growth in energy efficiency use rates in urban and rural environments, based on the interaction of technological development and a new culture of sustainability.

The RIS3 specifically addresses the specialization opportunities for innovation to be developed in Andalusia in the field of construction, based on the competitive advantages presented by the Andalusian community, namely: the high energy efficiency facilities and energy rehabilitation of buildings; the use of new construction-efficient materials to support innovative business activity in the construction sector; the light prefabrication of low-cost housing; efficient energy management of productive activities; and the improvement of constructive solutions in the epidermis of buildings.

The need to promote innovation as an opportunity is also reflected in the **Energy Strategy for Andalusia 2020,** the energy planning document for Andalusia in the next period, whose main challenges are to achieve an energy model based on the progressive establishment of a low carbon economy as a response to the major challenges facing the European Union today. Specifically in the sustainable construction sector, this energy strategy defines a series of action lines whose objective is to provoke a change of behavior in Andalusian society regarding the use of energy in buildings and in the urbanized spaces, promoting energy saving and energy efficiency actions with the use of renewable energies, with particular attention to the public area in which measures are foreseen to promote the implementation of projects to improve energy efficiency and the incorporation of renewable energies in the buildings of the Andalusian Regional Government.

More specifically, the Energy Strategy for Andalusia will establish incentives to promote public-private cooperation, as well as the dissemination and transfer of results. In this sense, it aims to intensify the presence of Andalusian companies and research centers abroad, opting for the most innovative technologies that have high returns flows for Andalusia, in particular, renewable energy and energy efficiency technologies.

Under these two strategies (RIS3 and Energy Strategy), the Andalusian Regional Government aims to convert the sustainable construction sector in an international reference in the field of innovation and technological development. This is expressed in the **Development Plan for the Sustainable Rehabilitation and Construction Sector of Andalusia, Horizon 2020, PICSA,** a strategic document published in 2015, and elaborated with the participation of different key actors in the construction sector, including agents of public and private knowledge of Andalusia. With this plan, the Andalusian Regional Government intends to promote the development of innovative solutions throughout the value chain of the sector, from the initial design of a building, district or city, to the end of the useful life of its elements, through rehabilitation, with special attention to solutions aimed at vulnerable groups, promoting the integration of these solutions of high value added by companies in the sector, public administrations and citizens in general, and the export of the capacities of the Andalusian business sector and agents of the knowledge system in international environments.

For this, the PICSA plan (Program to Promote Sustainable Construction in Andalusia) has established three axes of action, and 11 action lines:

- L10- Promote the development of innovative solutions throughout the value chain of the sector, from the initial design of a building, district or city, to the end of the life of its elements, with special attention to solutions aimed at vulnerable groups (includes 4 action lines).
- L11- Promotion of commercialization and technological transference from research centers and groups in sustainable construction to companies of the sector, the Andalusian administration and society as a whole (includes 4 action lines).
- L12- Internationalize Andalusian results in the field of innovation (includes 3 action lines).

According to data collected in PICSA, the efforts of R & D companies is well below the national average and decreasing in recent years (0.38% compared to 0.69% of the national average and below the 1.66% of the leader in innovation, the Basque Country).

Efforts of R+D companies in the Spanish autonomous communities (expenditure on R+D carried out by companies in percentage of regional GDP base 2008), 2012.

** Entre paréntesis datos de 2011.*

Fuente: "Estadística sobre las actividades en Investigación Científica y Desarrollo Tecnológico (I+D). Indicadores básicos 2012, INE (2013).

Figure 34

In the period 2008-2011, companies with their main offices in Andalusia spent more than 1,563 million euros on internal R & D expenditure, but only 3.7% on construction. With regard to personnel related to R & D activities in Andalusia, the percentage in the construction sector is one of the sectors with the lowest percentage, not exceeding 3%. From these figures, and from other parameters analyzed in the PICSA plan, it can be concluded that **spending on research and innovation in the construction sector in Andalusia is very low** compared to sectors such as industry, and also in relation with the one that affects the average company of the subsector in Spain. This could be explained by the labour-intensive needs and by the fact that the main interest of the construction companies is to integrate in their activities the technological advances available. However, the subsector should intensify its efforts in the field of research and innovation to address the high consumption of inputs (such as metallic and non-metallic minerals, chemicals and wood) and the production of large amounts of waste; as well as to develop materials that are easier to collect and reuse, and systems that facilitate the dismantling of works.

However, there is an increasing number of companies that, according to a sensitive demand for environmental issues, design and build under principles and criteria of environmental sustainability, including minimizing energy consumption, reducing and recycling waste, the use of appropriate materials, etc. The link with innovation and research of these new activity lines is shown by the existence of **38 research groups** working in sustainable construction or associated with university centers in Andalusia related to construction, as well as the **15 non-university research centers** that in the region work in the field of sustainable construction, among which are highlighted: Andalusian Innovation Centre for Sustainable Construction, Habitec, Innovarcilla, Andaltec, among others. In addition, there are business associations fully committed to innovation in the field of sustainable construction, such as the Technological Corporation of Andalusia, the Cluster of Sustainable Construction of Andalusia or the Association of Andalusian Manufacturers of Refrigeration.

Main networks

INNOVARCILLA FOUNDATION, CERAMIC TECHNOLOGY CENTRE OF ANDALUSIA

FUNDACIÓN INNOVARCILLA, CENTRO TECNOLÓGICO DE LA CERÁMICA DE ANDALUCÍA

Polígono Industrial el Cruce
C/ Los Alamillos, 25. 23710
Bailén, Jaén
+34 953 678 559
innovarcilla@innovarcilla.es
innovarcilla.es

INNOVARCILLA is the private foundation in charge of managing the Ceramic Technology Centre of Andalusia. This non-profit organization, which was established in April 2005, develops its activity in the ceramics sector and its main objective is the promotion of economy and environmental improvement through the promotion towards the increase of competitiveness of the companies of the sector through technological development, innovation and research.

For this, INNOVARCILLA detects the innovation and technology needs of the sector, developing R+D+i projects and acting as mediators and interlocutors between the sources of knowledge and research (universities, administrations, etc.) and companies to meed the needs and demands of R+D+i in the ceramics sector.

Main services

- Finished product quality control.
- Environmental advice.
- Analysis and characterisation of raw material.
- Graphic and industrial design.
- Communication and marketing.
- Support for obtaining funding.

HABITEC. CENTRE FOR TECHNOLOGIES, ENERGY AND CONSTRUCTION FOR THE HABITAT

FUNDACIÓN HABITEC. CENTRO DE TECNOLOGÍAS, ENERGÍAS Y CONSTRUCCIÓN PARA EL HÁBITAT

Parque Tecnológico de Andalucía (PTA)
C/ Marie Curie 22. 29590 Campanillas, Málaga
+34 952 02 81 25
info@cthabitec.com
cthabitec.com

HABITEC is a private non-profit foundation established in January 2009, qualified as a Technological Centre within the register of the Agents of Andalusian System of Knowledge, which contributes to the development and technological innovation of Andalusian companies related to sustainable construction, as well as to the improvement of its competitiveness.

For this, HABITEC focuses its activity on the implementation of research, development and innovation projects that allow the creation of products and services that transform the habitat or environment in which the life of citizens is developed today. This requires actions in the areas of Information and Communication Technologies (ICT), construction and energy.

Main services

- Preparation and development of R+D+i projects.
- Energy rating of buildings, studies of the improvement of energy rating and the management of incentives from the Andalusian Energy Agency to improve energy rating.
- Business advisory services on the Technical Building Code, sustainable construction, energy rating of buildings, incentives, etc.
- Support to technology-based companies.
- Energy audits.

ANDALUSIAN INNOVATION CENTRE FOR SUSTAINABLE BUILDING

FUNDACION CENTRO DE INNOVACIÓN ANDALUZ PARA LA SOSTENIBILIDAD EN LA CONSTRUCCIÓN (CIAC)

C/ Historiador Díaz Del Moral, 8, 1º Pl.
14001 Córdoba, Córdoba
+34 957 470 080
administracion@fciac.es
fciac.es

The Centre for Sustainable Innovation in Construction stems from the initiative of a group of companies and entities involved in construction, architecture and engineering of national, regional and provincial levels, interested in promoting research, development, innovation and sustainability activities (R+D+I+S) in its scope.

The Innovation Centre for Sustainable Building aims to detect needs of the construction sector, design an offer of high quality services that answer these needs and achieve a higher level of use of the services.

Main services

- Development and implementation of R+D+i projects in advanced materials of high performance, raw materials, products, systems.
- Laboratory tests of identification, characterisation and measurement.
- Applied research on occupational safety and health.
- Advice and technical and strategic assistance.
- Dissemination of results and transfer of technology.
- Training, supervision and dissemination.

ANDALTECH, TECHNOLOGY CENTRE OF PLASTICS

FUNDACIÓN ANDALTEC I+D+I. CENTRO TECNOLÓGICO DEL PLÁSTICO

Ampliación Polígono Industrial
Cañada de la Fuente.
Av. Principal s/n. 23600
Martos, Jaén
+34 953 555 117
info@andaltec.org
andaltec.org

The Technological Centre of Plastics, ANDALTEC, is a non-profit organisation, based in Martos (Jaén) promoted by 31 patrons, public and private institutions, as well as companies linked to the plastics sector. Since 2005 it has been providing advanced technological services and accumulating experience in the various transformation process technologies and in the management of R & D projects. It has powerful leading software in its application in the design and simulation, as well as laboratories managed by expert staff who know the reality of the processes and the requirements of the most demanding customers in this sector.

The goal of ANDALTECH is to create an innovative culture, to be a technological reference and serve as a driving force to create new companies and help existing ones in their consolidation and growth. For this, ANDALTEC assumes the client as the most important of its assets, and takes as its own objective, that the client reaches its own.

Main services

- Transformation and molding process simulations
- Product simulations: dynamic and static, impact and thermal mechanics
- Design of parts and processes
- Metrology and physical-chemical tests
- Research projects

TECHNOLOGICAL CORPORATION OF ANDALUSIA (CTA)

FUNDACIÓN CORPORACIÓN TECNOLÓGICA DE ANDALUCÍA (CTA)

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41092 Sevilla, Sevilla
+34 954 46 13 52
cta@corporaciontecnologica.com
corporaciontecnologica.com

The Technological Corporation of Andalusia (CTA) is a private foundation promoted by the Regional Ministry of Economy, Innovation and Science of the Andalusian Regional Government to promote collaboration between the scientific and productive environment as a way to respond to the needs of innovation and development of the Andalusian society.

CTA brings together researchers from universities and research centres, companies with an innovative vocation, financial institutions and the Public Administration, in a great alliance for innovation, research and development.

It has become a catalyst for opportunities, an effective intermediary between technological supply and demand, with operational capacity to promote and finance R+D+I projects that crystallise into new products, processes and services aimed at increasing the productivity and competitiveness of the regional economy.

At present, of the 149 associated companies, 26 are grouped in the Strategic Sector of the Action "Building and Civil Works" formally constituted in 2010. This sector groups all the construction companies, real estate companies and promoters, as well as those companies that produce materials and raw materials for construction and engineering and service providers. They represent 18% of the companies grouped in CTA.

The Sectorial Committee, which functions as an advisory body of the Strategic Sector of the Action "Building and Civil Works", where the persons in charge of R & D of the related companies participate, has addressed the following subjects in the plenary sessions held until March 2014:

- ICT opportunities in energy efficiency in buildings.
- Use of microorganisms for the stabilisation and improvement of land.
- Technologies for designing smarter construction and maintenance of infrastructures.
- Opportunities for application of the Augmented Reality in industrial operations.
- Resins and adhesives for industrial uses: technological challenges.
- Success stories of business innovation in Andalusia.
- Technological challenges for the energy efficiency of buildings in the tertiary sector.

5 SUMMARY

The building sector in several countries stands in front of a big challenge with many buildings in need of a refurbishment where the energy efficiency needs to increase to meet the climate/energy challenge that the world is facing. To reach a better performance the new innovations in this sector play a significant role. However as for all innovations the aim has not been reached only by creating a new innovation but the innovations also need to be commercialized and hence spread within its market. This report provides a small piece of the puzzle by increasing the possibility of exchange between the regions as well as increasing the knowledge about innovation organizations within the different regions.

The report strives for an improved picture of what type of organizations that have submitted fiches in the different regions by a categorization where the organizations are classified against their individual activity. In the categorization the different organizations can find their match in other regions e.g. different software companies can find a partner in another region. However it also works as a search path for other organizations that search for a partner within a completely different line of business although a partner active in the building sector.

In the individual chapter for each region there are some statistics available which helps the reader to understand the particular region as well as an analysis written by the Build2LC partner from that region. The analysis clarifies the specific circumstances that the region has for its innovation organizations. The analysis, as it has been left relatively free for each region to write it as they want, can also include ideas and strategies of the different regions giving the reader inspiration of new ways of thinking.

To increase the exchange between organizations between the regions each individual chapter ends with a list of main networks in the specific region. These networks can be used to reach the right contact persons in that region. In the end of the report the Appendix A1 also provides the reader with the contact info of each individual organization that submitted a fiche.

The authors of this report hope that the reader will find it interesting and useful for his/her individual purpose and that the report will help to improve the innovation work made within the European Union.

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6 APPEN-DICES

— APPENDIX A1.1 PART OF FICHES OF JÄMTLAND-HÄRJEDALEN, SWEDEN

NAME OF INNOVATION ORGANISATION

Absolicon Solar Collector AB

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Product development

WEBSITE

absolicon.com

DESCRIPTION OF ORGANISATION

Manufacturing and sales of solar collectors and automated production lines for the same. Product development of solar collectors.

NAME OF INNOVATION ORGANISATION

Attacus Trähus I Jämtland AB

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Development of wooden houses constructions in technology, durability and energy consumption with increased prefabrication.

WEBSITE

attacustrahus.se

DESCRIPTION OF ORGANISATION

Attacus Trähus consists of the 3th manufacturer (2st in Jämtland and 1st in Småland).

We supply prefabricated bodies (stub elements) to Småhus and flerbostadshus in Sweden. We are constantly looking for the development of our products and design solutions all according to regulatory requirements and demand, to find complete solutions to our customers with the increased focus on sustainability, energy utilization and cost-effectiveness.

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NAME OF INNOVATION ORGANISATION

Biogen Active

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Cleaning, industry, home, public

WEBSITE

biogenactive.com

DESCRIPTION OF ORGANISATION

Our products based on Bio Gen Active® (whey technology) are characterized by efficiency, ease of use with a focus on personal safety and health and the environment. They are used for reconditioning of water and oil well systems, cleaning of premises and premises as well as personal hygiene.

What we offer is a safe and environmentally friendly way to restore energy systems, heat exchangers and other water systems to optimal performance and energy performance. By cleaning / reconditioning the systems with our Bio Gen Active products, you reduce energy consumption and contribute to Low Carbon.

NAME OF INNOVATION ORGANISATION

Flooré AB

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Underfloor heating made easy

WEBSITE

floore.se

DESCRIPTION OF ORGANISATION

Flooré produces very thin underfloor heating panel, which means that the floor level does not need be raised more than 13 mm. Because of this low extra height, the panels can be used in new buildings and also for renovation purposes. Flooré panels can be installed over most existing floors without any need to dig up the old floor.

The Flooré underfloor heating panel is a patented Swedish product. It is a predecessor to another type which was developed in a project together with the Royal Institute of Technology (KTH, Stockholm).

NAME OF INNOVATION ORGANISATION

Isotimber

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Healthy accommodation in houses built with innovative wooden house envelopes

WEBSITE

isotimber.se

DESCRIPTION OF ORGANISATION

IsoTimber's business idea is based on a unique and patented construction technology that allows for the construction of insulating and supporting walls consisting of only wood and air. Hence there is no need for toxic materials or plasticization. This construction technique in only wood is also a very climate friendly technique, gives very energy efficient climate envelope and can be made cheap.

This building technology allows IsoTimber to deliver houses to end customers as ready-made construction packages, ready-made stems or key-proof houses.

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NAME OF INNOVATION ORGANISATION

Mid University, Department of Ecotechnology and Sustainable Construction

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Research in Sustainable Construction, Energy Efficiency, etc.

WEBSITE

miun.se

DESCRIPTION OF ORGANISATION

Education, research, and interaction with the surrounding community

NAME OF INNOVATION ORGANISATION

Solljus AB

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Simple and efficient light saving actions

WEBSITE

solljus.se

DESCRIPTION OF ORGANISATION

Solljus AB produces energy-saving lighting installations suitable for larger buildings, e.g. industrial and warehouse facilities, sports halls, arenas, riding houses, agriculture and greenhouses. The headquarter is located in Östersund and production in Örnsköldsvik. The products are based on an innovations from Solljus AB. The products aims ay making light flow from light sources more efficient, thereby reducing power and saving energy. Tests have showed up to 70% energy savings compared with previous lighting.

APPENDIX A1.2 PART OF FICHES OF LITHUANIA

NAME OF INNOVATION ORGANISATION

Public institution Housing Energy Efficiency Agency

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Management and implementation of energy efficiency improvement programmes

WEBSITE

betalt.lt

BETA

DESCRIPTION OF ORGANISATION:

Housing Energy Efficiency Agency (BETA) participates in EU-funded international projects, which in turn strengthens cooperation with housing partners from other countries, and enhances skills and experience in developing projects related to the application of alternative energy resources in multi-apartment buildings, and in generating ideas for the construction of passive houses. It also performs activities related to encouraging homeowners to renovate multi-apartment buildings.

BETA is also responsible for the implementation of national multiapartment building renewal program and national public building renewal programs in Lithuania.

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NAME OF INNOVATION ORGANISATION

Conresta JSC

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

CONRESTA focuses on global construction trends, international standards and certification systems, innovative process management and constant improvement, thus ensuring our company's technological development.

WEBSITE

conresta.lt

DESCRIPTION OF ORGANISATION

Conresta is a promising, technologically advanced company with a modern approach to business, providing general contractor and construction services. We provide a broad service package from construction of modern commercial, industrial and residential objects to reconstruction of various buildings.

Conresta is active, ambitious and future oriented. They continuously develop and improve activities in order to ensure technological advancement. They organize the construction processes by following the latest global trends. They implement the international construction standards and certification systems in order to ensure the accurate calculation and clarity of construction works cost outlays. The high quality and results of their activities are ensured not only by their experience and modern approach towards business, but also by financial indicators: in 2015 Conresta became the third largest construction company in Lithuania (providing a full construction services package) and their sales revenue reached EUR 51.8 million.

In 2016 Conresta's progress was also appreciated internationally: the company was chosen among the "1000 Companies to Inspire Europe 2016", drawn by the London Stock Exchange Group (LSEG), while the influential US Inc business magazine labelled us as the third most rapidly developing construction company in Europe, with the turnover larger than EUR 50 million.

NAME OF INNOVATION ORGANISATION

Ministry of Energy of the Republic of Lithuania

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Promote an integrated renovation of public buildings

WEBSITE

enmin.lrv.lt

DESCRIPTION OF ORGANISATION:

The Ministry of Energy of the Republic of Lithuania is a government department of the Republic of Lithuania. Its mission is to prosecute policy of government of Lithuania in fuel, electricity, thermo-energy production and supply for Lithuania economy.

APPENDIX A1.3
PART OF FICHES OF GLOUCESTERSHIRE, UK

NAME OF INNOVATION ORGANISATION

Merko Statyba JSC

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Merko focuses on general contracting of construction and on providing complete innovative solutions in professional construction and real estate development.

WEBSITE

merko.lt

DESCRIPTION OF ORGANISATION

UAB Merko statyba and UAB Merko būstas represents Merko group in Lithuania. 100% shares of UAB Merko statyba and UAB Merko būstas belongs to holding company AS Merko Ehitus, the leading construction company in the Baltics, which shares have been listed on the NASDAQ OMX Tallinn since 1997. The group employs more than 790 people in the Baltics. The revenue in 2015 was 251 million euros. Long-term experience in various countries, a wide scope of construction services, flexibility, reliability and meeting the deadlines and primarily quality have helped group companies to achieve the market leader position in the Baltics. Depending on the requirements of the contracting entities, the group companies perform both small-scale construction works as well as large scale, complicated and innovative projects, ranging from buildings to infrastructure facilities and energy installations, with a focus on general contracting and project management. Merko is among the leading residential construction companies in the Baltics.

NAME OF INNOVATION ORGANISATION

Build Test Solutions (BTS) Ltd

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

BTS is an exciting new tech start up business aiming to discover, develop and promote innovative in-situ testing and performance verification solutions in the built environment sector.

WEBSITE

buildtestsolutions.com

DESCRIPTION OF ORGANISATION

Build Test Solutions mission is to work with likeminded innovators, universities and leading practitioners to deliver world class testing and measurement technologies to the built environment sector. The BTS business first offering to the building testing industry is a new solution to building air permeability testing. The PULSE air test is a pioneering approach to testing which releases a low-pressure air pulse for realistic and accurate measurement of air permeability in seconds. BTS are pioneering the new low air pressure method to bring huge benefits to developers, testers, building product manufacturers and building occupants.

PULSE product equipment illustration:

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NAME OF INNOVATION ORGANISATION

Carbon Trust - Wales

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Accelerating the move to a sustainable, low carbon economy

WEBSITE

carbontrust.com

DESCRIPTION OF ORGANISATION

The Carbon Trust is an independent, expert partner of leading organisations around the world, helping them contribute to and benefit from a more sustainable future through carbon reduction, resource efficiency strategies and commercialising low carbon technologies.

The Carbon Trust helps clean tech ventures to grow. We de-risk and accelerate a wide range of innovative clean tech solutions through our incubation support services. This enables green growth, catalyses green jobs, and stimulates private sector investment and industrial partnerships.

NAME OF INNOVATION ORGANISATION

Energiesprong UK

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Desiderable warm affordable homes for life

WEBSITE

energiesprong.uk

DESCRIPTION OF ORGANISATION

Energiesprong uk is an independent market development team setting a new standard for comfortable, super energy efficient refurbishments (and new built solutions) with guaranteed performance. We also introduce a new financing approach and we work with governments to improve regulations for these solutions. This, to ensure people can get a home that not only fits our time, but is ready for our future.

NAME OF INNOVATION ORGANISATION

Gwent Energy CIC

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Community energy for community benefit

WEBSITE

gwentenergycic.org

DESCRIPTION OF ORGANISATION

Many community organizations delivery vital community activities such as mums and toddlers in village halls. These would benefit from reduced energy bills, but don't have the skills or time to do it

We help community organizations benefit from renewable energy by giving advice, designing and installation solar panels, battery storage and electric car chargers.

Village fete a couple of days after we installed 8 kW of solar panels:

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NAME OF INNOVATION ORGANISATION

Optimal Retrofit

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Low energy cost–effective solutions for retrofit

WEBSITE

optimalretrofit.co.uk

DESCRIPTION OF ORGANISATION

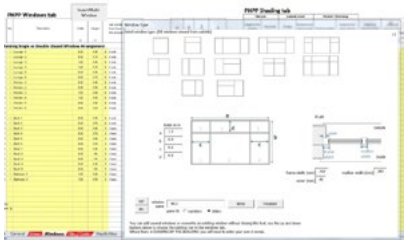
Our main product is energy software which gives the energy performance and cost of 5 different retrofit approaches, these can be modified to find the best according to the project goals. We find solutions for the client and also sell the software and provide training. The software has been adopted as official software of the AECB (Association of Environment Conscious Builders).

Millions of us are living in cold draughty houses where we are literally throwing energy away. Eco-renovation or refurbishment can improve this dramatically. Optimal Retrofit is an independent consultant, experts in solutions that save 50-70% of the energy and meet Building Control and moisture risk best practice.

We look for solutions that pay for themselves over time. Our energy calculations use much more accurate software than SAP (which gave varying answers between 40% too low and 37% too high in our tests). Accurate energy results are very important when energy savings are high and when multiplying projected energy savings over time.

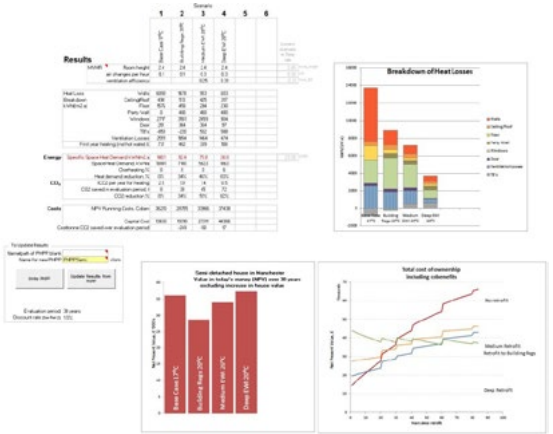
We take a 'systems thinking' approach, through creating an energy model of your house and we favour insulation, 'fabric first' because it lasts much longer than renewables with little or no maintenance. Whole house solutions generally include some form of wall, loft/roof and floor insulation, high performance windows, draughtproofing/airtightness, condensing boilers or other heat sources. It could be phased over 20 years.

- *Retrofit Options report***.** Higher accuracy energy calculations using PHPP giving more reliable answers than SAP based approaches. Indicative costs incl maintenance, MVHR electricity, co-benefits. Also includes: Step-by-Step retrofits as in EuroPHit. Economics for leased property.
- *Moisture Survey and Recommendations*. An on-site service. Recommendations are based from best practice and years of results from the AECB's monitoring programme where houses were tested for moisture risk over 2-5 years.
- *Post-Retrofit monitoring and Assessment.* Sometimes moisture risks cannot be completely eliminated. The effects of modifying an existing building, particularly with Internal Wall Insulation are very complex to predict. Monitoring can check a situation is within reasonable limits and alert the owner if action is needed.
- *Architectural drawings, Building regs compliance* and *Passivhaus design.*



An example of a page in the software: a unique window tool:

Results: tables, energy graphs and cost graphs.



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NAME OF INNOVATION ORGANISATION

Stroud District Council

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Pioneer in partnership work to

WEBSITE

stroud.gov.uk

DESCRIPTION OF ORGANISATION

Stroud District Council is a pioneering municipality in the UK in terms of making energy efficiency improvements in homes, community buildings and businesses. The council is committed to improving energy performance and reducing energy poverty within the area.

Work began in 2001 with the WISE homes project and have since run projects such as Target 2050, Project S2S (Solid to Sustainable), and the Pay As You Save pilot: these are all projects which support citizens to retrofit buildings, install renewable measures, improve the health and well-being, and stimulate economic growth. Stroud District Council has been instrumental in the establishment of the Warm and Well programme and Link to Energy installer network.

Stroud District Council are experts in managing a wide range of building types and know how to engage citizens and stakeholders in the retrofit process. The council work in partnership with a wide range of organisations, including Severn Wye Energy Agency.

NAME OF INNOVATION ORGANISATION

Sunamp, UK

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Storing energy as heat in Phase Change Materials to use for space heating and hot water

WEBSITE

sunamp.com

DESCRIPTION OF ORGANISATION

Sunamp Ltd work closely with Edinburgh University chemistry department and have developed and patented several innovative Phase Change Materials (PCM) that work at different temperatures to store energy as heat in non-toxic non-flammable food grade salts that have been tested >30,000 cycles without degradation. This energy can be from excess generation, solar, wind or hydro, waste heat, or time shifting a process to benefit from low cost energy which can then can be stored and used at other times for space heating and hot water on demand at a domestic level for example to help tenants out of fuel poverty. At commercial or industrial scales, heat can be palletised or containerised and then transported from source to be used with swimming pools, district heating and other schemes such as grain drying.

Sunamp are also trialling PCM's for heating and cooling in electric vehicles for extended range.

A short video of a domestic installation can be seen here.

NAME OF INNOVATION ORGANISATION

Wren Sustainable Limited

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Development of Passive Housing system for social and affordable housing sector

WEBSITE

wrensustainable.co.uk

DESCRIPTION OF ORGANISATION

Wren Sustainable Ltd encompasses the culmination of over ten years of work developing a system to construct low energy housing efficiently and affordably. Working with industry innovators like the Swedish architect Hans Eek we have explored every avenue of current technological development to create a new build housing system elements of which can be applied to retro fit to significantly improve the thermal efficiency of existing housing stock. By extending factory methodology onto the building site we have created a system like no other currently available on the British market for the social and affordable sector. Being ISO9001.2008 accredited our management protocols maintain the highest standards currently achieved in the British market. We are an ethically run organisation.

NAME OF INNOVATION ORGANISATION

Powerflow Energy

POWERFLOW

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Battery Storage Manufacture

WEBSITE

powerflowenergy.com

DESCRIPTION OF ORGANISATION

PowerFlow Energy innovates, designs and manufactures battery storage technologies for the renewables industry. Our patented technologies help to increase the self use of onsite renewable generated energy and minimize energy cost through the time shifting of energy consumption through multi rate energy tariffs.

NAME OF INNOVATION ORGANISATION

Stride Treglown

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Fully digitalised BIM capable architecture & building services company across all sectors delivering modular building systems and offering skills and knowledge in sustainable adaptation & re-use of existing buildings.

WEBSITE

stridetreglown.com

DESCRIPTION OF ORGANISATION

Employee owned company encouraging innovative ideas from within the workforce with a collaborative approach with clients across all building sectors. Strong commitment to the sustainable re-use and adaptation of existing buildings as well as designing up to Passivhaus standard in new build. Early adopter of BIM technology and involved in high level conversations about the Digital Built Britain project.

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APPENDIX A1.4
PART OF FICHES OF RZESZOW, POLAND

NAME OF INNOVATION ORGANISATION

Asseco Poland

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

ICT for business solutions

WEBSITE

pl.asseco.com

DESCRIPTION OF ORGANISATION:

Asseco Poland is the largest IT company listed on the Warsaw Stock Exchange. It has developed technologically advanced software solutions for all key sectors of the economy for more than 25 years.

Today, Asseco Poland stands at the forefront of the multinational Asseco Group. We are the number one provider of state-of-the-art IT solutions in Central and Eastern Europe. Moreover, Asseco is one of the largest software vendors in Europe, taking the sixth place in the Truffle 100 ranking. We are present in more than 50 countries worldwide and employ over 22,300 people.

NAME OF INNOVATION ORGANISATION

BESTA Construction Company Ltd.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Development of buildings that go afore new trends

WEBSITE

pbbesta.pl

DESCRIPTION OF ORGANISATION

BESTA Construction Company Ltd. has been operating in the construction market since 1991 within POLSERVICE Capital Group. It specialises in new apartment buildings construction as well as offices. It acts as developer.

BESTA is a modern company with large technical and personal potential. At the moment the company employs more than 400 people on the territory of Poland and abroad (Germany, Holland, Slovakia) In 2009 the company registers development activity. The company's branches are located in Germany, Holland and Slovakia.

NAME OF INNOVATION ORGANISATION

PPHU CORPORES Sp. z o.o.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Sustainable buildings

WEBSITE

corpores.com.pl

DESCRIPTION OF ORGANISATION

The company is mostly developer of residential buildings and estates. It exists since 1989. Corpores fields of activities are Podkarpackie region, Kielce and Warsaw, where it has its branch offices.

NAME OF INNOVATION ORGANISATION

Greinplast sp. z o.o.

WEBSITE

greinplast.pl

DESCRIPTION OF ORGANISATION

Produces thermal insulation systems and paints. The company was established in 1997 and it is located in Krasne, which are suburbs of Rzeszów. Its offer covers among others: Facade paints, Facade plasters, Interior paints, Internal decoration systems, Adhesives for tiles, Masonry mortars, Plaster mortars, Screeds, Hydro-insulations, Gypsum plasters and adhesives, Surfacers and gypsum finishing coats, Primers and priming preparations, Cleaning preparations and impregnants, External decoration systems, Facade cladding systems, Sealants, Polyurethane foams, cleaners, Adhesives for thermal insulation system. Among regular clients there are a lot of construction, construction and renovation companies, as well as a large number of individual investors from Poland and from abroad.

NAME OF INNOVATION ORGANISATION

HARTBEX Przedsiębiorstwo Budowlane Sp. z o.o.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Construction of energy efficient buildings

WEBSITE

hartbex.pl

DESCRIPTION OF ORGANISATION

The company which specializes in development of housing and accompanying facilities, offices as well as industrial objects. It exists for 23 years. HARTBEX implements new solutions in buildings that it constructs, some of them connected with energy efficiency. It builds not only in Podkarpackie but in whole Poland and abroad, in Germany.

NAME OF INNOVATION ORGANISATION

Podkarpacka Okręgowa Izba Inżynierów Budownictwa

WEBSITE

inzynier.rzeszow.pl

DESCRIPTION OF ORGANISATION

Podkarpacka Okręgowa Izba Inżynierów Budownictwa (PDK OIIB) Podkarpacka Chamber of Civil Engineers in Rzeszów is public organisation for civil engineers. It organises trainings for its members and for other bodies on constructions. The chamber now building a passive building intended to be the chamber's headquarter, training centre and demonstrative building. It aims to raise awareness and develop skills in low energy buildings design and build. It has 7238 members (as for 31.12.2016). Partcipationin the chamber is obligatory for construction engineers.

NAME OF INNOVATION ORGANISATION

Rzeszów University of Technology

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Basic and applied research

WEBSITE

prz.edu.pl

DESCRIPTION OF ORGANISATION

Rzeszów University of Technology, is a state-run institution of higher education in Rzeszów, Poland. According to international ranking by the Webometrics Ranking of World Universities published by the Spanish institute Consejo Superior de Investigaciones Científicas, the university takes 14th place among the technical universities within the country and, on the world scale, number 1,173 within all listed universities.

It provides courses and specialisations in Civil Engineering: building and engineering structures, computer aided design and theory of structures, bridge building and maintenance, road construction, urban building engineering, building engineering and shaping the greens, marketing in building engineering and building objects realization; As well as Environmental Engineering: water conditioning, sewage treatment and waste materials utilisation, water supply and sewage disposal, heat engineering and air conditioning, alternative sources of energy, infrastructure and eco-development.

Rzeszów University of Technology is well equipped with modern laboratories and has highly skilled and experienced researchers and scientists.

NAME OF INNOVATION ORGANISATION

Śnieżka sp. z o.o.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Outdoor and indoor paints

WEBSITE

sniezka.pl

DESCRIPTION OF ORGANISATION

Śnieżka sp. z o.o. is one of the biggest producers of indoor and outdoor paints. ŚNIEŻKA Paints and Varnishes Plant Joint-Stock Company concentrates its activity in the area of emulsion paints (thinned with water),oil and phthalic paints (solvent paints),and putty substances. The Company offers a wide range of high quality paints and varnishes, at the same time providing its Customers with assistance in the implementation and application of its products. The company specialises in paints for walls and ceiling, facade coats as well as for wood and metal.

APPENDIX A1.5
PART OF FICHES OF GORENJSKA, SLOVENIA

NAME OF INNOVATION ORGANISATION

University of Rzeszow

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

We search for new solutions to everyday life problems

WEBSITE

ur.edu.pl

DESCRIPTION OF ORGANISATION

THE UNIVERSITY OF RZESZÓW was established in 2001 through the merger of the Pedagogical University of Rzeszów, the Maria Curie Skłodowska University, Lublin, Rzeszów branch and the Economics Faculty of the Agricultural Academy of Cracow.

The University of Rzeszów successfully continues the policy of these Institutions, but on wider range, with new facilities and courses. University's international cooperation is very fruitful with educational Institutions both from West and East Europe. The University of Rzeszów participates in the ERASMUS and CEEPUS Programmes and Foundations of Alexander Humboldt, DAAD, NATO.

NAME OF INNOVATION ORGANISATION

Vidok sp. z o.o.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

We create innovative windows

WEBSITE

vidok.com

DESCRIPTION OF ORGANISATION

Vidok sp. z o.o. is one of the leading manufacturers of window and door frame woodwork. The company was founded in 1993 and it is located in Rudna Mała, in the suburbs of Rzeszów. It is not only producer of PVC, wood and aluminium products (windows, frames, doors and other like roller blinders, vertical blinders, door roofing etc.) but also has its own outlets located in Podkarpackie and also throughout Poland with teams of certified installers.

NAME OF INNOVATION ORGANISATION

Cooling Inno

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Passive A/C units without installation

WEBSITE

coolinginno.com

DESCRIPTION OF ORGANISATION

We are producing various models of passive air conditioning units that use Phase change materials and absorb the heat during de day hours and with that process decrease the energy consumption for cooling for 90%. The special materials are used to decrease the swinging temperatures in indoor spaces like offices and homes. The products are designed in simple way so tah no installation is needed and therefore they are very suitable for refurbishment in rented buildings or culturally protected buildings.

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NAME OF INNOVATION ORGANISATION

Silvaprodukt d.o.o.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

New products and services in environmentally friendly and biocide-free wood preservation

WEBSITE

silvaprodukt.si

DESCRIPTION OF ORGANISATION

Company Silvaprodukt d.o.o. has been producing high quality wood preservatives and wood surface coatings for several decades. Company offices and an industry shop are located in Ljubljana. Production facilities are located on an area of 15.500 square meters in Ig, 15 km from the main office building.

With current equipment and number of employees (9), Silvaprodukt company can annually produce around 1.300 tons of wood preservatives, 30 tons of surface coatings and around 1.500 cubic meters of thermally modified wood. Beside the industry shop in Ljubljana, our products can be found in numerous shops all over Slovenia. Our important clients are also craftsman (roofers, carpenters, etc.) and other companies using or producing wooden products for indoor and especially outdoor use (e. g. civil engineers, producers of windows, doors, garden furniture, etc.). Our products are also exported to some other EU member countries, to Russia and Serbia.

All of our environment friendly products and services were developed using our own know-how and fruitful collaboration with institutions of knowledge (especially University of Ljubljana). They were tested on various locations all over the world. Silvaprodukt owns several patents (EU, USA, Australia, Russia, etc.) for its wood preservatives. Silvaprodukt d.o.o., its employees, and their business partners have been awarded several times for their innovation activities and innovative products. The last bigger EU project (H2020 SME project WINTHERWAX) was finished in December 2016. Two new outstanding products were developed in Silvaprodukt in the frame of the WINTHERWAX project: nature-based Silvacera® wax for wood protection and façade element made of Silvapro® thermally treated wood and surface treated with Silvacera® wax.

NAME OF INNOVATION ORGANISATION

OptiHeat

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Optimization system for heat pumps

WEBSITE

optiheat.de

DESCRIPTION OF ORGANISATION

We have developed the smart contrller that connects to the heat pump and start sending data to the cloud where we have designed special optimization self-learning algorithms that calculate the best working hours of the heat pump that the consumption is optimized to the weather data. We are building a thermo dynamical model of the house and optimized the workflow so the end client get up to 20% of savings. We have also designed a web application for the end client so that he can remotely control and have a history overview, schedules set up and savings for the past.

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NAME OF INNOVATION ORGANISATION

LED Luks d.o.o.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Next Generation of ALVA Modular with a New Optical System

WEBSITE

ledluks.com

DESCRIPTION OF ORGANISATION

ALVA Family expands with a new optical system, based on small symmetrical reflectors placed in ALVA housing. Thanks to hidden light source, it provides even higher visual comfort and an improved working environment in your office. ALVA is specially designed to be simply integrated into suspended ceilings with grids.

T-bar style ceilings are well used in commercial buildings and require recessed lighting fixtures. ALVA is an attractive solution that matches the most common sizes of ceiling tiles enabling easy installation with no extra cutting needed – all you have to do is to remove a tile from the grid and replace it with an ALVA. Available in different sizes (300X600mm, 600X600mm, 625X625mm, 1200X300mm), ALVA Modular makes the installation into a ceiling grid fast and easy. Characterized by smooth edges, it prevents scratches and makes an easy handling with the fixture.

ALVA is largely used for general lighting in offices and similar ambiences around the world that require an evenly lit space, improved energy efficiency and reduced operational costs. It is often the choice in new buildings with T-bar style ceilings or in projects that are upgrading their traditional lights to LED lighting. We are now pleased to offer a solution with even better glare reduction and new aesthetics.

NAME OF INNOVATION ORGANISATION

SolAir proizvodnja zračnih kolektorjev, d.o.o.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Solar air heater

WEBSITE

sol-air.eu

DESCRIPTION

A solar air heater collects energy from solar radiation and uses it to warm up air. The air is then transported into the building via the ventilation system. With that the building is heated and at the same time ventilated.

APPENDIX A1.6
PART OF FICHES OF NORTH-WEST CROATIA

NAME OF INNOVATION ORGANISATION

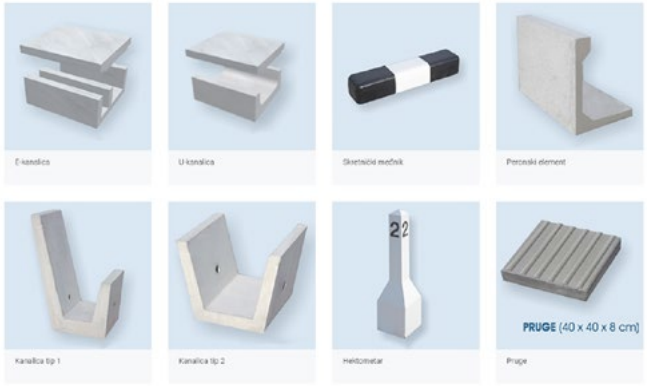
Beton Lučko

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Eco-sandwich wall panels and Ruconbar Rubberised Concrete Noise Barriers

WEBSITE

betonlucko.hr



NAME OF INNOVATION ORGANISATION

Faculty of Civil Engineering

WEBSITE

grad.unizg.hr

DESCRIPTION OF ORGANISATION

Faculty of Civil Engineering (University of Zagreb) is the leading construction school in the region.

NAME OF INNOVATION ORGANISATION

Holcim Hrvatska

WEBSITE

holcim.hr

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NAME OF INNOVATION ORGANISATION

Knauf Insulation

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Saving energy

WEBSITE

knaufinsulation.hr

DESCRIPTION OF ORGANISATION

One of the fastest growing insulation manufacturers in the world that has a wide variety of insulation materials in its offer that meet the increasing demands for energy efficiency in new and existing homes, business buildings and industry.

NAME OF INNOVATION ORGANISATION

Planetaris

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

We take you, step by step, through experts's solutions for nearly zero energy buildings and through energy renovation of buildings

WEBSITE

planetaris.com

DESCRIPTION OF ORGANISATION

An engineering company specializing in modern energy solutions for nearly zero energy buildings and energy-efficient renovation of buildings. Their engineering solutions are based on reducing energy consumption, integrating renewable energy sources and alternative energy systems and increasing comfort in buildings, with a positive impact on the environment.

NAME OF INNOVATION ORGANISATION

North-west Croatian Regional Energy Agency

WEBSITE

regea.org

DESCRIPTION OF ORGANISATION

North-West Croatia Regional Energy Agency – REGEA was established by the City of Zagreb and three neighbouring counties – Zagreb, Karlovac and Krapina-Zagorje in 2008 within the framework of the Intelligent Energy Europe Programme. REGEA's scope of work includes providing information, education and promotion of energy sector's best and brightest examples, support in the development and implementation of national, regional and local energy plans and programmes, energy audits and certifications, energy performance contracting and public private partnerships.

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NAME OF INNOVATION ORGANISATION

Rockwool Adriatic

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

By using proven energy-efficient techniques, we can reduce up to 90% heat energy consumption in buildings.

WEBSITE

rockwool.hr

DESCRIPTION OF ORGANISATION

The main business area of the company ROCKWOOL ADRIATIC is fire protection and sound and heat insulation for buildings and industry.

NAME OF INNOVATION ORGANISATION

Rudan Ltd.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Efficient energy management

WEBSITE

rudan.com

DESCRIPTION OF ORGANISATION

Rudan Ltd. is the leading company in the Republic of Croatia in the area of water consumption according to the ESCO model.

NAME OF INNOVATION ORGANISATION

Ytong porobeton

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

The biggest among porobetons

WEBSITE

ytong.hr

DESCRIPTION OF ORGANISATION

Ytong's main mission is to offer to the market: high quality products for new construction and modernization of existing facilities, the optimization of the construction system according to the principles of sustainable and the green construction.

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APPENDIX A1.7 PART OF FICHES OF ANDALUSIA, SPAIN

NAME OF INNOVATION ORGANISATION

KAIZEN, architects and engineers

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

KAIZEN Arquitectura & Ingeniería is a company that integrates more than 35 years of experience with the mastery of new technologies.

WEBSITE

kaizenai.com

DESCRIPTION OF ORGANISATION

Its activity covers the entire professional spectrum related to Architecture, Urban Planning, Building and Construction Engineering, as well as services of Training and Implementation of New Technologies in these areas.

NAME OF INNOVATION ORGANISATION

Iniesta Nowell architects

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Office of architecture that is in charge of making and execution of projects of building and urbanism concepts.

WEBSITE

iniestanowell.com

DESCRIPTION OF ORGANISATION

Office of architecture that is in charge of making and execution of projects of building and urbanism concepts.

Energy rehabilitation of buildings, Energy Certification.

NAME OF INNOVATION ORGANISATION

University of Córdoba

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Investigation in green roof tops

WEBSITE

uco.es

DESCRIPTION OF ORGANISATION:

Technological development (application of research results for manufacturing or design or technological improvement).

Research group dedicated to plant production on green roofs.

NAME OF INNOVATION ORGANISATION

Gecol Málaga, S.A.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Making of mortar for Bio-Construction.

WEBSITE

gecol.com

DESCRIPTION OF ORGANISATION

Company dedicated to the elaboration of mortars applied in constructions with criteria of bio-construction.

NAME OF INNOVATION ORGANISATION

Worldmetor

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

WorldMetor has been offering innovation, efficiency and service for all types of industrialized buildings for more than 35 years.

WEBSITE

worldmetor.es

DESCRIPTION OF ORGANISATION

The MDR system has already been awarded with the Andalucía award. Emprende in the category of Innovation of the Junta de Andalucía. We build industrialized houses with the highest quality, safety and energy saving. Unique company in Spain to build the whole of its house in factory and first to adapt the system of construction in series.

NAME OF INNOVATION ORGANISATION

Grupo Torres y Ocaña, S.L.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Dedicated to civil works, building, energy rehabilitation of buildings.

WEBSITE

grupotorresocana.com

DESCRIPTION OF ORGANISATION

Business lines of the company are, Building, Asbestos Removal, Civil Works, Edification and Energy rehabilitation.

NAME OF INNOVATION ORGANISATION

Pilotes y Recalces del Sur

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

A company with a long history in the geothermal and geotechnical sector.

WEBSITE

geotermicapilosur.com

DESCRIPTION OF ORGANISATION

Is one of the few companies able to provide and guarantee in a comprehensive way the realization of geothermal projects, from the sizing of the system according to all the parameters involved in it, to its commissioning and subsequent post- sale.

NAME OF INNOVATION ORGANISATION

VIALCA

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

With over 50 years of professional experience, dedicated to the design, production and sale of prefabricated concrete as well as bulk concrete.

WEBSITE

vialca-prefavial.es

DESCRIPTION OF ORGANISATION

Our specialty is prestressed concrete (alveolar plates and joists), reinforced concrete (joists, retaining slabs, pipes and plates) as well as products without reinforcement like blocks, vaults and casetones. Currently, we also offer a new range of sustainable products.

NAME OF INNOVATION ORGANISATION

CIATESA

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

European leader in the design, manufacture and marketing of air conditioning, refrigeration, air treatment and heat exchange equipment.

WEBSITE

grupociat.es

DESCRIPTION OF ORGANISATION

CIAT designs, manufactures and markets solutions for the residential, tertiary, healthcare and industrial sectors. Its activities are founded on optimising energy consumption levels and improving air quality and comfort in buildings. A major player in the heat pump, refrigeration and air handling sectors, CIAT invents cleaner, more economical and safer solutions. The group is also strongly committed to protecting the environment, which is a major part of its development strategy.

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NAME OF INNOVATION ORGANISATION

DHV Tecnologia EAM S.L.

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

DHV Technology manufactures solar panels for space, aeronautical, nautical and automotive applications

WEBSITE

dhvtechnology.com

DESCRIPTION OF ORGANISATION

Photovoltaic product design for non-standard applications:

BIPV (Integrated Photovoltaic Building)

Glass-glass, encapsulations of flour polymers, non-standard approaches.

NAME OF INNOVATION ORGANISATION

Gestora Cordobesa de Residuos, S.A. (GECORSA)

"HEADLINE" TO DESCRIBE YOUR ORGANISATION'S INNOVATION WORK

Environmental management of waste generated in construction and demolition. Recycled aggregates.

WEBSITE

gecorsa.es

DESCRIPTION OF ORGANISATION

GECORSA covers the needs of construction companies to carry out a correct environmental management of the waste generated in its activity.

More info: www.interregeurope.eu/build2lc

BUILD2LC
Interreg Europe

Andalusian Energy Agency
MINISTRY OF EMPLOYMENT, BUSINESS AND TRADE

European Union
European Regional
Development Fund

VIPA
VIEŠŲJŲ INVESTICIJŲ PLĖTROS AGENTŪRA

asiantaeth ynni
SevernWye
energy agency

RARR
RZESZOWSKA AGENCJA
ROZWOJU REGIONALNEGO

REGIONALNA ENERGETSKA AGENCIJA
NORTH-WEST CROATIA
SJEVEROZAPADNE HRVATSKE
REGIONAL ENERGY AGENCY

REGION
JÄMTLAND
HÄRJEDALEN

leag
Lokalna energetska
agencija Gorenjske

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