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Report containing research and analysis of the collection of examples of pro-ecological behavior in the workplace in the following industries: catering, construction and electricity.

USING WITHIN THE ERASMUS + PROJECT

„Eco-friendly worker 1.0”

Elements of the report:

1. Pro-ecological behavior in the workplace – introduction, basic definitions on an example Poland, Lithuania and Latvia.
2. Pro-ecological behavior in vocational school curricula on an example school from Poland, Lithuania and Latvia.
3. Pro-ecological behavior in menu of catering, construction and electrical industrial on an example companies from Poland, Lithuania and Latvia.
4. Latest trends of catering, construction and electrical industrial and people expectations. Pro-ecological behavior in the workplace Trends 2022.

Report annexes:

1. Work documentation.
 2. Photo documentation.
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Elements of Diagnosis

1. Pro-ecological behavior in the workplace – introduction, basic definitions on an example Poland, Lithuania and Latvia.

1.1.

Chapter subject: why pro-ecological behavior in the workplace? - health reason, social impact, financial and environmental impact.

a) The role of the employer

Most people believe in the need to act sustainably to protect the environment. A frequent employee understands that small actions add up to collective impact; however human beings are surprisingly averse to change: we struggle to adapt our behaviors and to adopt new habits, even when we want to. Knowing and wanting isn't always enough. Smooth green change requires a clear understanding and acceptance among employees. That is why it is important to have a set of clear organizational core values that are communicated effectively and discussed with the employees so that they feel part of it. It is the commitment that an organization or a company makes to certain policies and actions "going green". It is not enough to state this in the mission statement, brand story or in marketing and promotional material. It is crucial that demonstrable actions are taken regularly so that the employees feel an individual and personal responsibility towards these values. This will ensure that they can evaluate their own attitudes towards these positive core values, and take pride in them. The involvement of employees in the "green change" process could increase employee awareness, accommodate their initial doubts and thus lead to increased consciousness for "green change". This could result in higher employee motivation to up-skill and thus a smoother implementation of the related new green procedures and technologies. Furthermore, employee participation can reduce the negative effects of green change on job quality. Employees need to know both why an action is important and how to do it. And hearing a message multiple times, in multiple ways, is often necessary for it to sink in.

Evidence shows that although "green change" definitely brings savings to business, it is not automatically beneficial for employees in terms of, for example, saved jobs, higher income or qualification, better health and safety, etc. The benefits resulting from "green change" are usually either not clearly communicated and thus not understood or not provided altogether. Lack or limited awareness of the benefits of "green change" and a lack of understanding of this process may lead to employee resistance to "green change", inadequate efforts and adverse attitudes towards the implementation of "green change" processes. Thus, benefits need not only be shared, but also clearly communicated.

Many organizations are adding Sustainability or Green Practices sections to their websites as a way to communicate their commitment to sustainability to their customers and employees as well. These web pages often explain the organizations' goals and current green practices. Another source of information may be Sustainability Reports. They can range from informal quarterly reports to more formal annual reports, which can be distributed to staff or the public by email, intranet or website.

b) The role of the employee

As they're deciding how to act, people look to both leaders and peers. If others they respect are doing or endorsing behaviors, people are likely to follow them. Group activities can be a way to make people feel that peers are also engaged. Green teams are instrumental in creating positive environmental



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change within an organization. Gaining the support of management for your green team is important to ensure the team has the resources it needs to be successful. Before meeting with management, prepare a strong value statement to articulate the green team's benefit to the organization. Value statement should define why being green is meaningful to the business and its employees. Not every green team will have management support via official status, budgets, or endorsed initiatives. Even on a volunteer status, a team can accomplish no-cost, easy actions such as setting up basic recycling and educating coworkers about behaviors that save energy and resources.

Establishing and prioritizing clear goals will keep the team focused and motivated, and provide the team, coworkers and management with a clear picture of what the team accomplishes. A good goal is specific, contains actions, and can be measured and accomplished in a reasonable timeframe. Prioritizing goals will help guide the direction of green team's activities and initiatives. That is why the team should have a simple sustainability plan that incorporates focus areas, baseline information, goals and prioritized items. Focus areas could include waste prevention, recycling, composting, water, energy, social sustainability, transportation, and purchasing. These tactics may seem simple, but everyday habits and routines are very important for developing environmental habits at work.

There are many easy steps you can take to ensure both your green team and your coworkers are engaged and excited about the work you are doing. Engaging and energizing staff around green team initiatives is a key to green team's success – after all, it's coworkers who implement green team's ideas. So every time communication with staff (during staff meetings, employee blog or newsletters, annual sustainability event, discussion groups, etc.) is an opportunity to educate and engage. Even lunch time gatherings are a great way to raise awareness, engage and educate employees on sustainability issues. It is necessary to discuss the green initiatives, implemented green practices and success stories. It's also okay to share some upcoming projects, but they should be coupled with goals already attained.

1.2. Terms and definitions

Chapter subject: definitions of ecological behavior in the workplace (construction sector).

1.2.1. Terms

Construction works means **buildings** and **civil engineering works**.

Sustainability is the ability to exist constantly. **Sustainability** means making only such use of natural, renewable resources that people can continue to rely on their yields in the long term.

Environmental impact is defined as any change to the environment, whether adverse or beneficial, resulting from a facility's activities, products, or services. In other words it is the effect that people's actions have on the environment.

Lifecycle of building (construction works) – it is environmental impact of construction works through its whole existence, from extraction of raw materials to construction phase, use of construction works and finally demolition and disposal of waste. Environmental impact includes, but not limited to **carbon footprint**. It is possible to make a **lifecycle assessment** of a construction works to find out how it will affect the environment in every stage of lifecycle.

Carbon footprint – the amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization, or community.

Energy performance certificate means a certificate which indicates the energy performance of a building or a part of a building, calculated and issued according to a State legislation.



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1.2.2. Definitions

There are many definitions or specific wording concerning different aspects or components of sustainability. It is often used in media, official and non-official announcements or advertisements without any explanation, quite often misleading not directly involved people. For “sustainable” or “green” today’s construction participants necessary to have an understanding of at least some of them.

a) **Life cycle of building (construction works)** – whole existence or all stages starting from extraction of natural resources, transportation, production of materials or products, designing, construction (assembly), use, repair, renovation, demolition, extraction and separation of waste to materials in the same composition or shape found in nature and put back to nature or put to the beginning of other life cycle. It shall be taken care in every stage of impact on environment including CO2 emission, waste generation and other impacts on. It shall be taken care in every stage of possibility to separate or extract some materials in the same composition or shape found in nature instead of generation of waste.

b) **Circular economy** – an economic system aimed at eliminating waste and the continual use of resources. Circular systems employ reuse, sharing, repair, refurbishments, remanufacturing and recycling to create a close-loop system, minimizing the use of resource inputs and the creation of waste, pollution and carbon emissions. The circular economy aims to keep products, equipment and infrastructure in use for longer, thus improving the productivity of these resources. It does not mean a drop in the quality of life for consumers, it allowing us to keep enjoying similar products and services.

c) **Energy performance of building** - European parliament and of the Council directive 2010/31/EU with amendment of 30 May 2018 promotes the improvement of the energy performance of buildings within the Union, taking into account outdoor climatic and local conditions, as well as indoor climate requirements and cost-effectiveness following ambitious Union commitments to reduce greenhouse gas emissions further by at least 40 % by 2030 as compared with 1990, to increase the proportion of renewable energy consumed, to make energy savings in accordance with Union level ambitions, and to improve Europe’s energy security, competitiveness and sustainability. The Directive obliges every country of EU to establish legislative minimum requirements for energy efficiency of buildings expressing them in short and understandable energy efficiency classes. Today’s requirements are mostly known as A++ class or nearly zero energy building.

d) **BREEAM** is the world’s leading UK sustainability assessment method for masterplanning projects, infrastructure and buildings. It recognizes and reflects the value in higher performing assets across the built environment lifecycle, from new construction to in-use and refurbishment (renovation). BREEAM assessment evaluates the procurement, design, construction and operation of a development against a range of targets based on performance benchmarks. It focuses on sustainable value across range of categories: Energy, Land use and ecology, Water, Health and wellbeing, Pollution, Transport, Materials, Waste, and Management. Each category focusses on the most influential factors, including reduced carbon emissions, low impact design, adaption to climate change, ecological value and biodiversity protection.

e) **Green building** is a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment. Green buildings preserve precious natural resources and improve our quality of life. There are a number of features which can make a building ‘green’. These include: Efficient use of energy, water and other resources; Use of renewable energy, such as solar energy; Pollution and waste reduction measures,



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and the enabling of re-use and recycling; Good indoor environmental air quality; Use of materials that are non-toxic, ethical and sustainable; Consideration of the environment in design, construction and operation; Consideration of the quality of life of occupants in design, construction and operation; A design that enables adaptation to a changing environment.

f) **LEED** - (Leadership in Energy and Environmental Design) is widely used green building rating system. Available for all building types, LEED provides a framework for healthy, highly efficient, and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement and leadership. LEED is for all building types and all building phases including new construction, interior fit outs, operations and maintenance as well as core and shell.

g) **ISO 14001 standard** – is defined as an international environmental management standard specifying requirements for establishing an environmental management policy, determining environmental impacts of products or services, planning environmental objectives, implementing programs to meet objectives, and conducting corrective action and management reviews. Implementation of requirements of the ISO 14001 standard shall be proved by third party certificate.

h) **EU Ecolabel** – is recognized across Europe and worldwide, *the EU Ecolabel is a label of environmental excellence* that is awarded to products and services meeting high environmental standards throughout their life-cycle: from raw material extraction, to production, distribution and disposal. *The EU Ecolabel promotes the circular economy* by encouraging producers to generate less waste and CO2 during the manufacturing process. The EU Ecolabel criteria *also encourage companies to develop products that are durable, easy to repair and recycle. The EU Ecolabel is not mandatory and for granting of it companies' efficiency of environmental actions shall be guaranteed through third party controls.*

i) **Eco design** – is an approach to designing product with special consideration for the environmental impacts of the product during its whole lifecycle. In a life cycle assessment, the life cycle of a product is usually divided into procurement, manufacture, use, and disposal. Eco-design is a growing responsibility and understanding of our ecological footprint on the planet. Green awareness, overpopulation, industrialization and an increased environmental population have led to the questioning of consumer values. It is imperative to search for new building solutions that are environmentally friendly and lead to a reduction in the consumption of materials and energy.

j) **Passive house** – is a voluntary German standard for energy efficiency in a building, which reduces the building's ecological footprint. It results in low energy buildings that require little energy for space heating or cooling. It is first well known private initiative on energy performance of buildings especially focusing on using 'passive energy' occasionally generated in a building by uses, residents or (household) equipment.



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1.3. Political and law regulations (Lithuania)

Chapter subject: political and law regulations in each country and regarding certain industry

Lithuania has prepared a *National Energy and Climate Action Plan for 2021–2030*¹ (hereinafter referred to as the National Plan) in accordance with the requirements set out in the Regulation on the Governance of the Energy Union and Climate Action². The National Plan has been prepared on the basis of and integrating the provisions, objectives, tasks and measures implemented and planned to be implemented by Lithuanian national legislation, international obligations, strategies and other planning documents.

The main strategic documents integrated into the National Plan are the *National Energy Independence Strategy*³ approved in June 2018 and the *National Climate Change Management Policy Strategy* approved in 2012 and updated in 2021⁴, and the *National Air Pollution Reduction Plan*⁵ approved in April 2019. Some of the strategies are still being developed, some are still in the process of being developed, therefore their expected content is reflected as far as possible in the planned (unapproved) policies and measures.

In parallel with the preparation of the National Plan, the *National Progress Plan for 2021–2030*⁶ (hereinafter referred to as the NDP) was prepared. The aim of the NDP is to identify the main changes in Lithuania over the next decade that will ensure progress in the social, economic, environmental and security fields. Objectives and / or targets set by the NDP relevant to the National Plan:

- to ensure good quality of the environment and sustainability of the use of natural resources, to mitigate Lithuania's impact on climate change and increase its resilience to its impact;
- to increase the competitiveness of the energy sector;
- integrate the Lithuanian natural gas market into the common EU gas market;
- to connect the Lithuanian electricity system with the continental European electricity system for synchronous operation;
- to ensure the adequacy of the Lithuanian electricity market and electricity system and to increase the share of local electricity generation;
- to reduce the energy poverty of the population;
- increase the use of renewable and alternative fuels in the transport sector and promote sustainable intermodality;
- to increase the share of renewable energy sources in domestic energy production and gross final energy consumption and to implement pollution reduction measures in the energy sector;
- to increase the energy efficiency of residential and public buildings and the use of energy from renewable sources in them;
- safe closure of the Ignalina Nuclear Power Plant and disposal of the generated radioactive waste.

¹ <https://am.lrv.lt/uploads/am/documents/files/KLIMATO%20KAITA/Integruotas%20planas/Final%20NECP.pdf>

² <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1999&from=LT>

³ <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.429490/asr>

⁴ <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/7eb37fc0db3311eb866fe2e083228059?jfwid=k9sqd7y7j>

⁵ <https://www.e-tar.lt/portal/lt/legalAct/410fbc3067f511e9917e8e4938a80ccb>

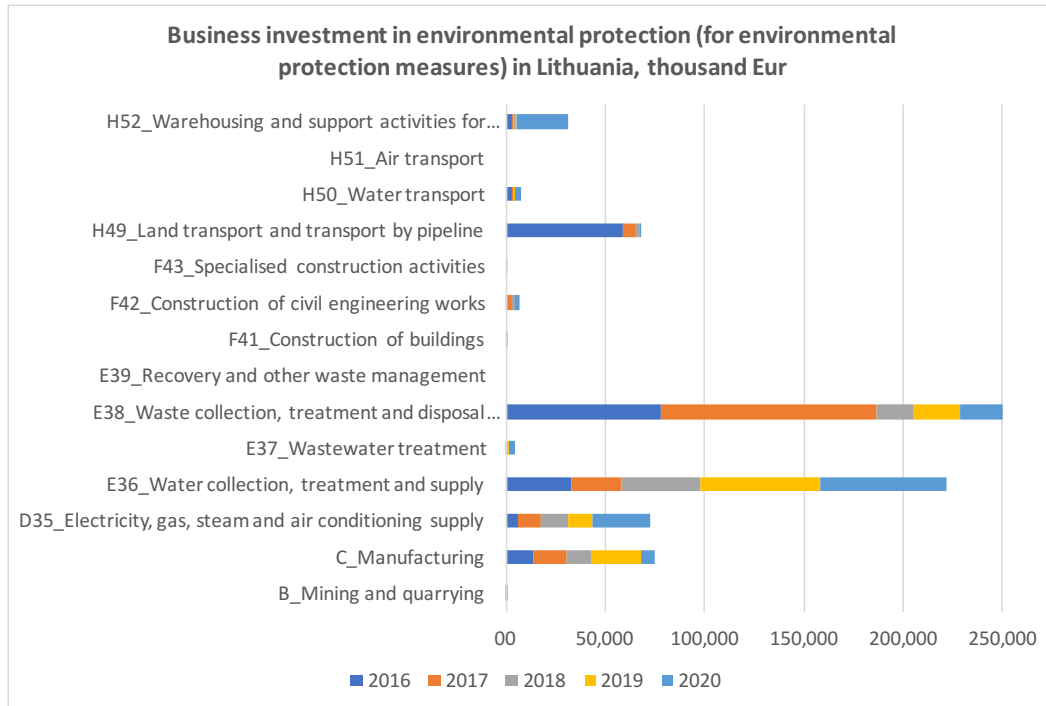
⁶ <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/c1259440f7dd11eab72ddb4a109da1b5?jfwid=32wf90sn>



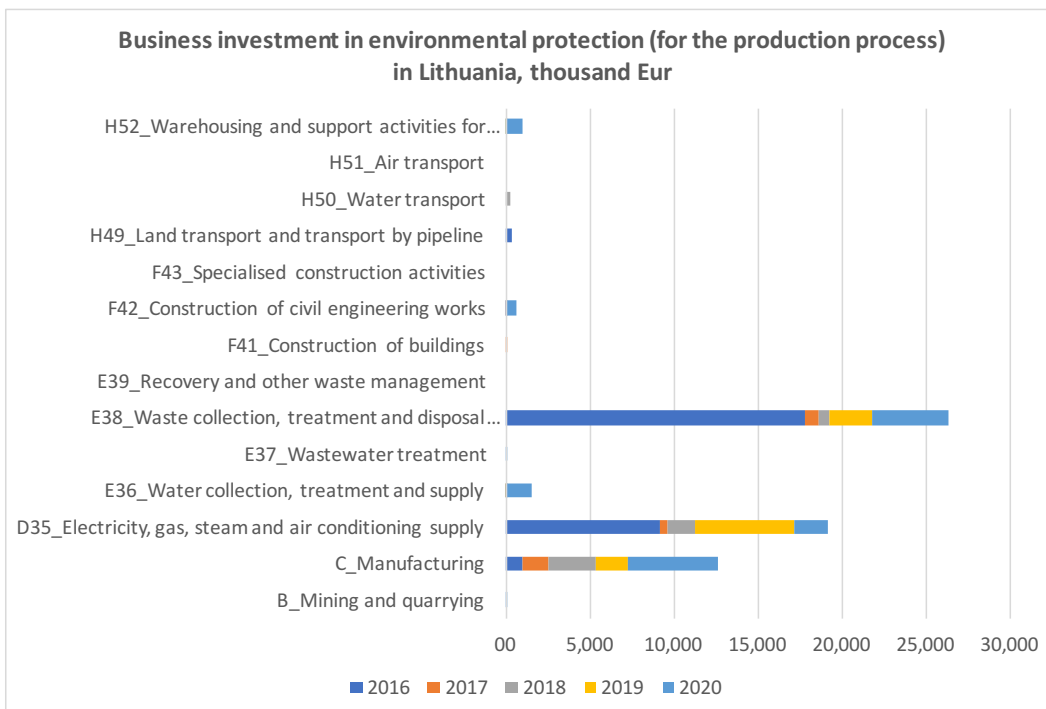
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1.4. Statistical data of pro-ecological behavior in the workplace (construction sector in Lithuania)

Chapter subject: statistical data of pro-ecological behavior in the workplace use in each country, EU.



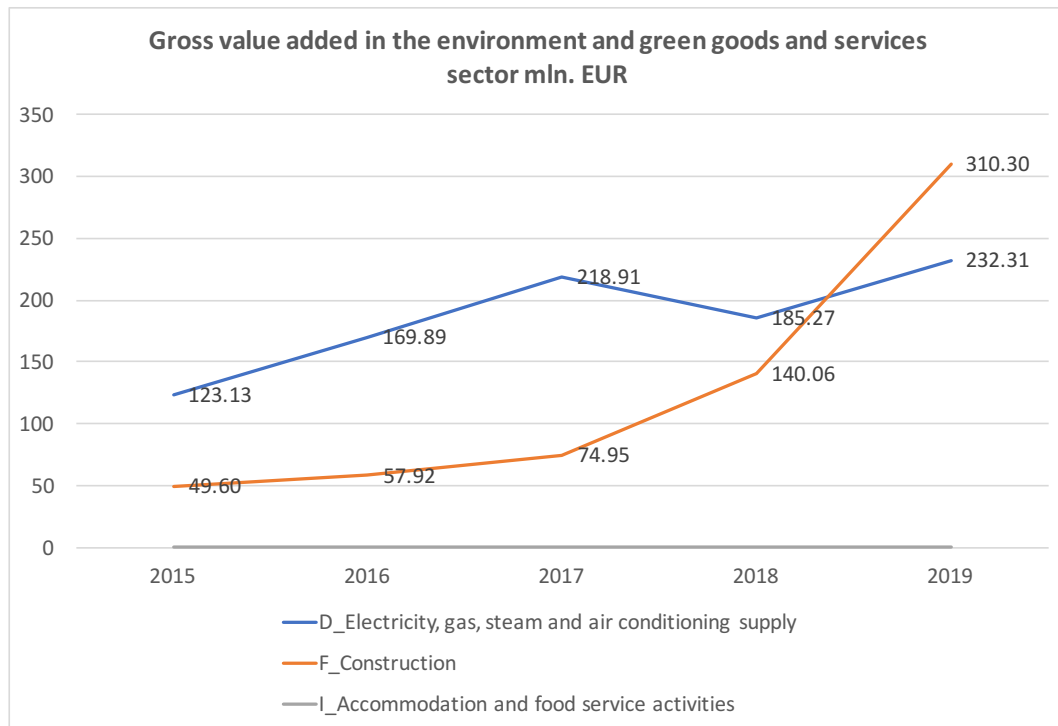
Source: Lithuanian Official Statistics Portal; viewed 05 06 2022



Source: Lithuanian Official Statistics Portal; viewed 05 06 2022



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Source: Lithuanian Official Statistics Portal; viewed 05 06 2022

1.5. Pro-ecological behavior in the workplace and local products. Local traditions, history in field of construction industry with local products traditions in Lithuania.

Chapter subject: pro-ecological behavior in the workplace and local products. Local traditions, history in field of construction industry with local products traditions in Lithuania.

Environmental initiatives, research proving progressive climate pollution and materials illustrating the animals suffering from it are especially abundant in Lithuanian public space. Manifestations of the great attention paid to the care of nature are often found in Baltic mythology: the prevailing cult of nature, the custom of kissing the earth, and unconditional faith in the gods justify it. It seems that the concept of "Zero Waste" mentioned by Daniel Knapp has been sounding in Lithuania for many years. A large part of Lithuanians are familiar with the concept of sustainability and can name quite precisely what sustainability means in everyday life. True, it has various meanings. It is usually associated with longevity, durability, environmental friendliness, and less often with ecology, reliability or social responsibility. If we talk about the problem of climate change that is relevant to the whole world, including Lithuania, then the related sustainability initiatives can be divided into several main areas: goods, services and energy sources.

Sustainability in everyday life is most about conscious and responsible consumption. It can start with small steps such as giving up a plastic bag and a disposable cup or buying locally produced organic produce, and include solutions that require more investment, such as a solar power plant or an electric car. Goods are the area where Lithuanians have come the furthest on the journey of sustainability. According to the survey, a quarter (23%) of the country's population regularly chooses sustainable goods and services, and about a third (31%) say they do so occasionally. In terms of energy sources, only 7% points out that it uses energy from renewable sources and 3% have purchased clean vehicles. In the area of services, sustainability is also of little importance so far, with more frequent choices



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based on price, convenience and other criteria. According to the results of the survey, Lithuanians now more often support sustainability initiatives in words, but not in their daily choices. Some may argue that sustainable choices come at an additional cost, but in many cases this is not true.

In recent years, real estate developers in Lithuania have included more and more elements of sustainable construction in the projects of high-energy-class apartment blocks: recycled raw materials, non-allergenic and natural materials, water filters, rainwater tanks and solar energy modules. In the Lithuanian construction sector, sustainability is primarily expressed in terms of the impact and consequences of the construction process. Sustainable construction seeks to avoid any negative effects on the climate, the ecosystem, the economy or public health and to reduce the energy consumption of new buildings.

With ever-changing energy efficiency requirements, classical construction solutions are becoming less acceptable to the market. In order to find exclusive alternative solutions to reduce the impact on the environment, but not to lose architectural expressiveness, in order to speed up construction and reduce prices, one of the alternatives to classical construction in Lithuania is light thin-walled steel structures. The use of light steel structures in buildings includes walls, floors, roofs, ceilings, stairs from C, U, O sigma cold-formed 1.2 - 2 mm thick profiles. The most common form of lightweight steel structures is prefabricated wall panels and floors, in which the beams are installed as separate elements. Lightweight thin-walled steel profiles are combined with gypsum board or prefabricated cement boards, sandwich-type multi-layer boards, mineral / stone wool or polyurethane foam filling the frame. LPPK frame constructions are arranged according to architectural needs and connected with screws. Convertible frame systems are used for the construction of the roof and floor, the filling of the frames is analogous to the walls.

Most representatives of the construction business in Lithuania point out that the madness of raw material prices and supply continues for the third year. However, due to the Russian war in Ukraine, the market for traditional building materials seems to have reached a stage of agony. Therefore, what has been available for some time in the vision of the European Green Course has been set in motion. Steel and concrete in construction will be replaced by organic matter. Not just for sustainability goals. There are simply no more cost-effective alternatives.

Until a few months ago, it would have been just a matter of talking about the fact that the traditional building materials that dominate the sector, although valued for their performance and strength properties, make a significant contribution to the negative effects of climate change. Steel and concrete alone account for about 8% of global CO2 emissions. But now we have to put an even stronger argument on the table. Closed Eastern markets complicate the supply of steel and concrete in such a way that organic matter rises on the pedestal. Scandinavia and the major markets in Western Europe have had this solution for some time. Engineered wood became the new concrete and steel there. It is becoming a panacea for the transformation that the traditional construction sector will inevitably have to go through. Technological development and sustainable extraction allow wood to lead the list of the most sustainable building materials. It is possible to talk not only about sustainability, but also about other benefits of this material. Structural solutions made of wood do not give in to strength, are cheaper, several times lighter, meet the requirements of fire safety and create a more favorable environment for emotional and physical health.

Seeing clearly the global production potential, the Lithuanian woodworking and furniture industry foresaw ahead of schedule and at the beginning of last year spoke about the development of production capacity to meet the demand of the major world markets in the engineering wood segment. It is already clear that in the near future the country will produce a full range of construction



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materials, including not only load-bearing materials, but also chipboard, double beams (I-joint), plywood (glulam) and crossed plywood (CLT). Also prefabricated components - ceilings and wall panels. This set of measures is quite unique on a global scale. Thus, Lithuania has not only the opportunity to adapt to changing conditions, but also discovered the opportunity to create a global standard: a product that would become a mark of quality and reliability in the international market. The criteria are clear: structures must be durable and load-bearing. Also - to ensure sound insulation, good thermal properties and fire safety.

2. Pro-ecological behavior in vocational school curricula on an example school from Poland, Lithuania and Latvia.

Chapter subject: is there pro-ecological behavior in school programs? is school teaching pro-ecological challenges? Examples, professions; foreign cooperation, implemented internship programs pupils construction sector

Every school should encourage its students to try and make sense of the most pressing issues defining our times. The high demands placed on schools to help their students cope and succeed in an increasingly interconnected environment can only be met if education systems define new learning objectives based on a solid framework, and use different types of assessment to reflect on the effectiveness of their initiatives and teaching practices. In this context, PISA aims to provide a comprehensive overview of education systems' efforts to create learning environments that invite young people to understand the world beyond their immediate environment, interact with others with respect for their rights and dignity, and take action towards building sustainable and thriving communities. A fundamental goal of this work is to support evidence-based decisions on how to improve curricula, teaching, assessments and schools' responses to cultural diversity in order to prepare young people to become global citizens.

VET centers and high schools are users of buildings and engineering works. It is key importance, that future specialist form habits of behavior practically all day, not only theoretically during lectures and seminars.

It would be very helpful, if center or high school could demonstrate and involve everyone in own advanced waste sorting, energy use of building observation, photo voltaic elements, heat pump, ventilation and recuperation, LED lighting system, indoor climate indicators registration, outdoor weather sensors in use observation. Would be much appropriated to organize participation in airtightness and thermovission test, preferably of problematic zones of own premises or building. All staff of VET center or high school shall follow internal rules on sustainable use of building and silently be an example of habits and behavior.

Finally, educating for global competence can help form new generations who care about global issues and engage in tackling social, political, economic and environmental challenges. The 2030 Agenda for Sustainable Development recognizes the critical role of education in reaching sustainability goals, calling on all countries "to ensure, by 2030, that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development" (*Target 4.7, Education 2030, Incheon Declaration and Framework for Action, page 20*).



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The role of the initiatives of pupils and students

Every pupil and every student can take action for collective well-being and sustainable development. This dimension focuses on young people's role as active and responsible members of society, and refers to individuals' readiness to respond to a given local, global or intercultural issue or situation. This dimension recognizes that young people have multiple realms of influence ranging from personal and local to digital and global. Competent people create opportunities to take informed, reflective action and have their voices heard. Taking action may imply standing up for a schoolmate whose human dignity is in jeopardy, initiating a global media campaign at school, or disseminating a personal view point on the sustainability via social media. Globally competent people are engaged to improve living conditions in their own communities and also to build a more just, peaceful, inclusive and environmentally sustainable world.

Any initiative on sustainable use or small refurbishment (renovation) of center or school should be promoted and supported. It even can replace some lectures or trainings. Better, but not must it is in connection with future qualification.

3. Pro-ecological behavior in menu of construction industry on an example companies from Lithuania.

Chapter subject: examples of pro-ecological behavior in the workplace in the construction industry, i.e. in producing prefabricated houses, at construction sites, in architectural offices. How often, when, why? Examples. Good and bad practices on an example of real companies.

Different forms of social responsibility, behavior in the workplace, and the development of environmentally friendly behavior in the workplace, depending on the nature of the activity, are relevant to different areas of business⁷. Organizational culture and the development of environmentally friendly behavior in the workplace encompass everything that is closely related to the organization, from the values developed, employee relationships, created work environments, employee clothing, communication with customers, to social responsibility in the workplace.

Both corporate social responsibility and the organizational culture that the company strives to create by creating environmentally friendly behavior in the workplace and their impact on the performance of the organization and each of its employees are relevant parts of the modern organizational management process. However, in Lithuania, managers rarely use social responsibility and organizational culture to promote the activities of organizations and develop environmentally friendly behavior in the workplace, thus creating a competitive advantage over other companies. The result is insufficient use of organizational culture and social responsibility in the company's activities, creating environmentally friendly behavior in the workplace.

The desire of the proponents of sustainable development to make the environmentally friendly behavior of employees one of the core values of each individual. Environmentally friendly behavior in the workplace is generally understood as a behavior that we consciously aim to preserve a cleaner environment, save both renewable and non-renewable resources, and use less polluting resources. Environmentally friendly behavior in the workplace encourages fair, responsible and conscious behavior. Increasingly, people are being encouraged to be environmentally friendly, to save energy, to use non-toxic substances, to reduce waste, to use the same cleaning agents or solvents more than once instead of pouring them down the drain. The development of environmentally friendly behavior

⁷ More information on the elements of environmentally friendly behavior in the construction sector is provided in the Annex



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in the workplace is closely linked to economic development. On the one hand, economic development requires more natural resources, and on the other hand, a strong economy has more opportunities to use cleaner technologies and to address environmental issues more smoothly and quickly.

On the one hand, for a company to be called a 'green' or environmentally friendly company, it is not enough to apply basic practices alone. The company should take more sophisticated initiatives, such as planning or developing a strategy to protect nature. For example, install energy-saving lighting, use electric cars, sort, save water, use biodegradable or rapidly degradable starch bags in the workplace. The company should strive to organize production processes in a way that consumes little electricity and saves water. Many Lithuanian companies are successfully doing one thing or another, and this is a welcome starting position. However, the company will achieve the best results when environmentally friendly behavior is developed in a structured, planned and continuous manner.

Research has shown that one of the most effective discoveries in the social psychological literature is that both men and women, regardless of age, social status, or education, learn by observing the behavior of others and then themselves initiate and maintain similar patterns of behavior. Current research suggests that organizational culture can be "passed on" to employees through managerial modeling. It has been observed that everything can be learned and learned by observing the behavior of others. In this case under analysis, everything works like this: if a manager is the leader of an organization, employees learn from it, they will behave exactly as the behavior pattern created by the leader will be seen in the organization.

4. Latest trends of catering, construction and energetic industry and people expectations. Pro-ecological behavior in the workplace Trends 2022.

Chapter subject: expert's opinions on market expectations, the main challenges and impacts; pro-ecological behavior –local activities and local culture; 10 most important principles of pro-ecological behavior in the workplace, 10 principles of an environmentally conscious employee.

Sustainability starts with our choices as consumers. *We can all think about* our daily shopping cart so we don't have to throw away food later, resist the temptations of fast fashion, or limit excess travel - all of which can save money, natural resources, and become the first step in starting a sustainability journey. *The second step* is to find a variety of more sustainable alternatives. There are also a variety of options, such as organic, recycled or renewable products. Also, choose good quality, durable items that will last much longer, or choose a less polluting replacement, such as used clothing or a low-emission car. *The third step* is solutions that increase the energy efficiency of the home. Switching to energy from renewable sources would reduce the carbon footprint of everyday travel. Clearly, in this case, an electric car or a solar power plant is likely to come to mind, and it is understandable that these innovations are not available to everyone. But it is possible to start with the use of green electricity at home, which can be ordered from various independent electricity suppliers, or to change daily travel by car to bicycle or public transport. In this case, sustainability is the replacement of established habits with new ones.

Entrepreneurs surveyed in Lithuania also confirmed that they understand the importance of sustainability, but are not in a hurry to invest in it yet, because, in their opinion, they do not see a competitive advantage. It is clear that this will change over time, but how soon it happens will depend on us as consumers - whether we demand more sustainable products and services and other initiatives from businesses and whether we reward companies with that sympathy. The more people prefer sustainable products and services, the sooner businesses will be encouraged to take this into account, increasing supply and availability.



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Another thing worth noting is the trust in product manufacturers and service providers. Currently, 58 percent Lithuanians trust the statements of businesses about the sustainability of their products or services and do not go into it further. However, the packaging of a product made from recycled paper, if there is nothing sustainable in its entire production and supply chain, is just a marketing ploy. We, as consumers, should inquire and ask about the ways in which our favorite brands or companies pursue sustainability. This will ensure that our money goes to real rather than supposed sustainability efforts.

As it is widely acknowledged that an environmentally friendly work culture depends on the demonstration of environmentally friendly behavior and the management of environmentally friendly activities by senior construction workers, the role of an environmental engineer is crucial in every construction site. Environmental engineer must be responsible for a variety of tasks relating to reporting on the environmental impacts of construction work. The job role of an environmental engineer involves the following duties:

- Carrying out site assessments and conducting technical audits;
- Evaluating environmental impact;
- Making recommendations on clean-up, reclamation and waste management activities;
- Assessing how a site complies with environmental regulations;
- Using mathematical techniques and computer modelling to assess or forecast past, present and future environmental problems;
- Designing, developing, testing and implementing technical solutions which will help organisations actively reduce their negative impact on the environment;
- Interpreting data;
- Keeping abreast of legislative changes in environmental law;
- Identification and consideration of potential contaminant sources;
- Obtaining and maintaining plans, permits and standard operating procedures.

LITERATURE

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ANNEX. Examples and features of environmentally friendly actions in the construction sector

The *construction works itself* and the *users* are main “influencers” of energy consumption of construction works. The energy consumption of buildings first of all determined by designer and expressed by energy performance class. The requirements for class may be slightly different in every country. Highest is “A” or “A++” class. For buildings it is mandatory to start designing having targeted energy performance class not lower than required by country legislation for certain type of building. For engineering works (as roads, pipelines, sport fields etc.), where usually is no heating or cooling systems or they are radically different from buildings, energy consumption as a target is set by the owner and it’s needs. In other words *intended use* or predicted processes in building and engineering works, users’ needs and typical users’ behavior are primer preconditions for energy performance as a target. It is because high energy performance may fail when owner starts using building or engineering works for different, than was foreseen in design purpose. Every user of building shall follow rules (in most of cases unwritten), but not refuse of hygiene, health or beauty habits and living comfort. Very low or zero external not renewable energy use of building is final goal of designers, construction products or elements producers and construction engineers as well as workers, not compromising high comfort and hygiene level.

Energy performance of building must cover at least the following aspects of energy consumption:

- a) Actual thermal characteristics of the building (thermal capacity; insulation; passive heating; cooling elements and thermal bridges);
- b) Heating installation and hot water supply, including their insulation characteristics;
- c) Air-conditioning installations;
- d) Natural and mechanical ventilation which may include air-tightness;
- e) Built-in lighting installation;
- f) The orientation of the building and outdoor climate of the place of building;
- g) Passive solar systems and solar overheating protection;
- h) Indoor climatic conditions;
- i) Internal loads of heating (people, equipment generating heat (computers, TV and other).

Energy performance of building must cover also the positive influences – energy saving aspects:

- 1) Solar exposure conditions, active solar heating and electricity systems;
- 2) Electricity produced by cogeneration;
- 3) Natural lighting;
- 4) Use of on energy from renewable sources at the building or nearby.

Energy performance certificate of building shall be issued before starting use of building after construction or refurbishment. Issuing the certificate includes simple check of building, “A” and higher classes usually includes airtightness testing by accredited laboratory. Threshold values. Energy consumption during use of construction works mainly depends on design solutions and use of right products and materials. Bad quality of installation works has crucial influence on it: thermal bridges, airtightness, thermal insulation envelope, heat loss in piping system or overheating of some parts of building because of that (extra cooling needs), lower than foreseen thermal insertion of walls and ceilings - in buildings, heat loss in pipelines, extra heating needs against dangerous icing of outside elements – in engineering works and other. Correct maintenance of building is underestimated today. For example adjusting and lubricating windows and doors in every second year to have the same



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airpermeability class of building envelope or reprogramming the automated heating/cooling system depending on number of residents or schedule of use. *Big danger of bad quality or defects – mostly it has no evidences at the beginning of use. When evidences appear – it is much too expensive or sometimes impossible to correct!*

Energy consumption during construction. Cranes, trucks, lighting, heating winter time, welding, drying by heat generation, drilling and use of many other machinery and processes shall be planned basing on 'best available' technology. Proper consequences and seeking to do everything once without repair or replacing. 'In time' has a meaning in chain of sustainability – if all or a part of building finished earlier than planned or some parts finished too late – empty premises would be necessary to heat and keep at least some energy using systems running for no purpose. In many countries 'demolishing' is a type of construction activity. So, it would be time to plan energy needed to demolish construction works during design and construction. Selection of proper product characteristics, structural solutions and assembling could minimize energy for demolishing and sorting all waste into reusable, recyclable and disposable.

Use of other resources. It covers all stages – construction, use, repair and use construction works stages. For workers most important are construction, repair and renovation stages. In construction and renovation stages it is unavoidable to use all resources foreseen in design. Main issue – how to minimize extras: extra land, will not be under the construction works, but necessary to install temporary office, storage, waste collection place, cranes, reinforcement and other construction elements production or assembly place, security and workers premises. Engineers shall take care in planning stage of it, but workers play a crucial role in construction stage. Other recourse No 1 is water. We are: drinking water, using water for technology processes, using water for household at site, hygiene needs and for auxiliaries (equipment, site washing etc.). Waste water is also important to consider. When used water in necessary way gets to sewerage system, somewhere electricity will be used to pump it and to clean it up; in addition certain amount of oxygen will be used for that.

All practical measures are welcome:

- settlement tanks, where dust can be settled down and water shall become suitable to use once again;
- cleaning firs when washing instruments and tools;
- accounting consumption of water and installing bonus system, when used amount is going down and staying low etc.

Important other recourse still is timber (or wood). It means timber for installation auxiliary things like stairs, paths, fences, temporary supports and other construction site needs. It does not mean making paths or stairs of thinner section of timber comprising security, but it means cutting timber in such a way, to get as little as possible or zero small pieces to waste. List shall cover but not limit to soil, aggregates, solvents, plywood for formwork, cleaners, lubricants, temporary fasteners etc. *It means keep all pieces clean in dry tidy place and reuse them as many times as possible – task for construction workers!* Important to remember – employer can increase salary of workers having significant savings of recourses in site.

Use of environment friendly construction products and auxiliary materials. Some countries already have databases of environment friendly products or suppliers of them. *Even two identical construction products can be totally different in impact on environment because of different quantity of energy used to produce and transport them to construction site!* Today is slowly growing initiatives, but in near future can become mandatory in European countries to calculate and declare the amount of energy



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used to produce and transport every construction product! It should be a part of Declaration of performance of construction product.

In present time in EU and in many countries legislation limits or prohibits some substances in construction products. European Union regulations REACH adopted and directly valid in every EU country to improve the protection of human health and the environment from the risks that can be posed by chemicals. It also establishes assessment methods to be used, order and rules for registration of products, declaration of substances in them and information of uses of products. Worker shall know that the result of REACH is safety label on every construction product, containing substance from the REACH register. Safety Data Sheet demonstrates that the product conforms to legal requirements and there are mandatory workers' and environment's protection measures on it.

Water-based materials - they do not need the solvents needed to prepare the mixture or wash the instruments; they are also an important ingredient in the preparation of many dry mixtures (paints or glues) by hand.

Eco-labels contribute significantly to the selection and development of environmentally-friendly building products. Their purpose is very wide, as they can be used starting with providing clear information to the user and ending with evidence supporting building certificates. There are 3 types of ecolabels: Type I Ecolabels - Consumer-friendly and externally-tested; Type II Ecolabels: Self-declared environmental claims; Type III Ecolabels: Transparent, Comprehensive, and Independently Verified.



Packaging of some construction products and auxiliary products often is an issue for environment as well. There is usually a choice of products or materials packaged in different ways. It is possible that the method of packaging is determined by the quantity of products or materials selected as well as the way they are transported to the site. However, when choosing materials or products, the company could assess the amount of packaging waste each time and try to choose a packaging method that minimizes waste.

Due to the wide range of offers on the market, an environmentally friendly company should only look for and purchase auxiliary products and materials that can be reused or have the shortest life cycle. *If the choice of construction products is the task of the worker, it is necessary for him to consider the choice of such products which: are the most natural; contains no solvent; uses as less as possible packaging material; are Eco labeled with manufactures declaration of performance; are the shortest transported to the construction site; are supplied by supplier from "green suppliers" list or those who have ISO 14001 certified environment management system; are recyclable after use, but durable at needed degree.*

Waste management. There are defined two types of waste in construction – construction waste and hazardous waste. All requirements to management are different depending on type of waste. Best management of waste – reduce generation of waste. It can be even economically beneficial for construction company. Or opposite – excess generation of waste always affects profit of company and negatively influencing salaries, including workers. Second good practice of waste management – reuse or convert waste into raw materials. Non-hazardous inert construction waste generated on site can be shredded by mobile equipment and reused in construction as provided in the construction design (project). Third possibility – sort waste and supply it for reuse directly in other construction processes or supply it for recycling.



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Sorting, accounting and storage at site shall be done at least according to country and local requirements, but often according to more accurate company policy and rules. Hazardous waste usually shall be handled, packed, marked, stored and accounted according to legislation (rules or procedures). Most of these requirements should be part of the training curricula. Pupils and students should be able to recognize hazardous waste common in every construction site.

Durability of construction works. The construction works designed to be used specific time taking into account certain maintenance actions and measures under 'normal' exploitation conditions within allowable degradation. It is called "durability". Durability is a basic performance characteristic of mostly every construction product. If construction works not durable enough (compare to planed period) it will be necessary repair, renovate or demolish – it would be clear failure of sustainably - resources, products, energy, waste etc. again instead of successful use and planning finances maintenance only. In other hand too durable construction works would be too expensive or would demand too much energy for 'too early' demolish taking into account good physical condition of some parts of construction works.

What durability characteristics shall be respected of certain elements of construction works:

- Wear resistance of flooring, paving and other surfaces;
 - Freeze-thaw cycling resistance;
 - Resistance to light and UV radiation exposure;
 - Resistance to rotting of organic materials;
 - Resistance to corrosion of steel elements;
 - Resistance to crumbling or other failure as a result of evaporation of bonding resin or plasticizer;
 - Resistance to loss of thermal resistance because of leakage of inert gasses;
 - Resistance to cleaning agents and solvents;
 - Resistance to fatigue from many times repeated loading.
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