



Funded by the
Erasmus+ Programme
of the European Union



Sustainable, High-Performance Building Solutions in Wood (HiBiWood)

COMPARATIVE ANALYSIS FRAMEWORK OF COMPETENCES

Report prepared by KVK

2022



FRAMEWORK OF COMPETENCES

During the project, a set of competencies to be acquired was prepared and approved, which is based on the results of a survey of labour market representatives, an analysis of the available education and, accordingly, a map of the competencies required for undergraduate/bachelor students in the design and construction of sustainable, high-quality wooden building systems. The tasks and responsibilities related to the analysis of the necessary competences were distributed among the partners according to their competence, as previously approved in the partnership agreements.

Based on the information received from the social partners and reports prepared by the partners on available education on sustainable, high-performance wooden building construction in their countries and internationally, a competence system has been created, which contribute to the preparation of e- learning course, its curriculum and teaching materials, e-mail learning platform and its content, good experience. in sustainable, high-performance timber construction solutions.

At the international conference in Latvia, the system of innovative competences (O1) was presented, at least 20 international and 40 local participants from higher schools, educational institutions and business companies will participate. The prepared system of competences helps to assess the needs and possibilities of sustainable, high-quality wooden building design and construction education on a national and international scale and form the basis for the joint interdisciplinary development of modules. This activity contributes to the implementation of the first objective of the project.

The survey of representatives of the labour market was conducted to determine what competencies of graduates are needed in the labour market. All partners' contacts have been used to reach stakeholders, and a new contact database is being developed. It is expected that 100 representatives of the labour market participated in the survey. The questionnaire was prepared by KVK in digital form. Each partner was responsible for the implementation of the survey at the national level.



Each partner prepared an analysis of the education provided in the organisation. Each partner produced brief reports on the available education on sustainable, high-quality timber building construction in their countries and internationally.

Competence mapping was carried out and the most important competencies required in the modern labour market were identified. The summary set of competences was prepared by KVK in consultation with other partners. Results:

For teachers:

- Shared experience among different countries and institutions, development of new contacts.
- Increased specific and trans-disciplinary knowledge about circular wooden construction, joint transdisciplinary research initiatives.
- Increased inter-cultural awareness and tolerance.
- Improved solidarity, teamwork, and communication skills.
- Awareness of innovative phenomenon based, research based, blended learning and social leadership approaches, application skills.
- Contributions in creation of spinoff effects like joint course curriculum and content development.
- Improved teaching quality based on acquired knowledge and practical skills.
- Improved English language skills.

For students:

- Increased specific and trans-disciplinary knowledge about circular wooden construction.
- Increased awareness about environment friendly materials and sustainable construction.
- Increased practical experience and enthusiasm for active involvement in wooden industry for the future.
- Better comprehension of current industrial requirements and the working conditions.
- Increased inter-cultural awareness and tolerance.



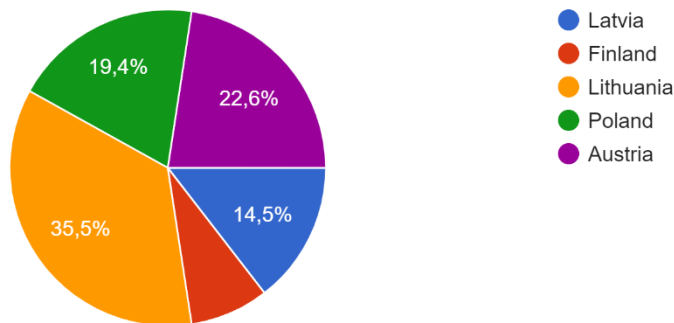
- Improved solidarity, teamwork, communication, cooperation, creative thinking, problem solving, social leadership and research skills.
- Improved English language skills.

Sixty-two respondents from partner countries were interviewed. Respondent answers were received from all partner countries: Latvia, Lithuania, Austria, Poland, Finland.

They were distributed as follows: Lithuania 35.5 %, Austria 22.6 %, Poland 19.4 %, Latvia 14.5 % and Finland 8 %.

SECTION 1. Basic information about the enterprise (establishment) 1.1. Country (please select)

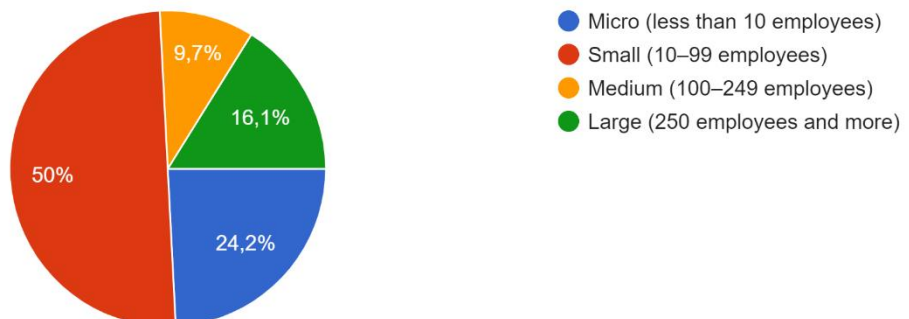
62 atsakymai



Size of enterprises: 50 % of respondents was from small, 24 % - micro, 16 % - large and other from medium enterprises.

1.2. Size of the enterprise (establishment)

62 atsakymai

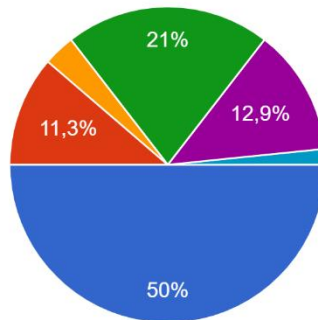




50% of respondents was from limited liability companies, 21 % - privat enterprises, 11 % - joint-stock companies.

1.3. Legal form of the enterprise

62 atsakymai

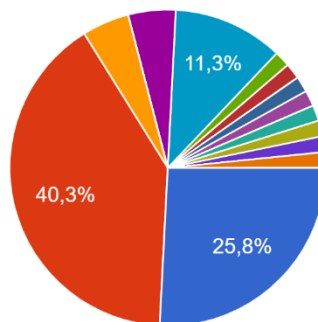


- Limited liability company
- Joint-stock company (open or closed)
- Cooperative
- Private enterprise (certificate)
- Public institution
- Riga Technical University

40 % of respondents have relationships with construction/development of buildings, 25 % - architecture/engineering design, 11 % - consulting/training of specialist.

1.4. In which wood construction related activity does the enterprise operate? (Multiple answers are possible)

62 atsakymai



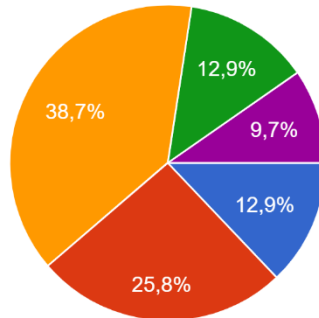
- Architecture/Engineering design
 - Construction/Development of buildings
 - Floor or wall coverings, including joine...
 - Facility management
 - Project management
 - Consulting/ Training of specialists
 - Research
 - We produce sawn timber, gluelam, wo...
- ▲ 1/2 ▼

For the last 12 months 38 % of respondents have been operating at or near full capacity, 25 % - did not have enough skilled workers, 26 % - have not had sufficient work for their workforce or did not have enough skilled workers for the work companies has or could have has.



SECTION 2. Competences 2.1. Thinking about skills over the last 12 months, which one of the following comes closest to the situation in your en...count the challenges due to the Covid19 situation)

62 atsakymai

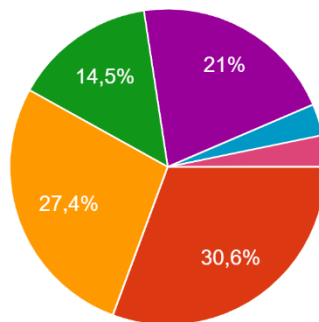


- For all or most of the last 12 months we did not have enough skilled workers for the work we had or could have had
- For some of that time we did not have enough skilled workers
- For most of the last 12 months we have been operating at or near full capacity
- For most of the last 12 months we have not had sufficient work for our workforce
- Unsure

30 % of respondents said they feel not enough young people being trained in the field of wooden construction in recent years, 27 % think - Low number of applicants generally, 21 % - Applicants lack the attitude or motivation we look for, 14 % - Applicants lack the skills they require.

2.2. Which of the following do you feel are the main causes of having hard-to-fill vacancies for skilled staff? (Multiple answers are possible)

62 atsakymai



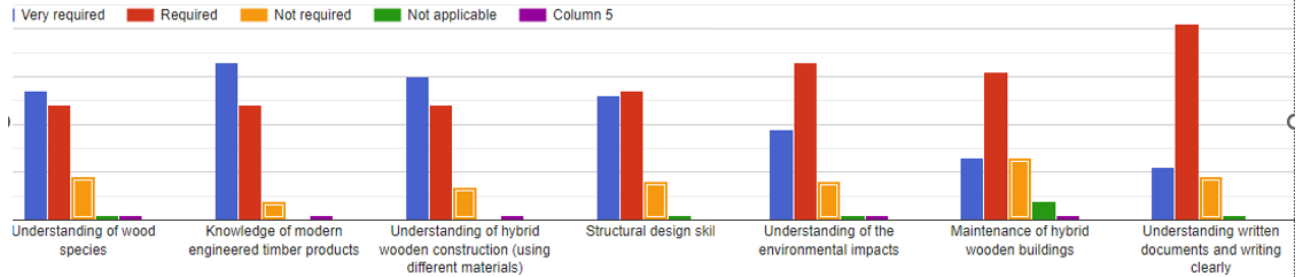
- Competition from other employers
- Not enough young people being trained in the field of wooden construction in r...
- Low number of applicants generally
- Applicants lack the skills we require
- Applicants lack the attitude or motivation we look for
- Applicants have lacked the work experience we look for
- Applicants lack the qualifications we lo...

The respondents answered think the following competences and to what extent are very required/ required in the wooden construction market:

- ✓ Understanding of wood species,
- ✓ Knowledge of modern engineered timber products,
- ✓ Understanding of hybrid wooden construction (using different materials),
- ✓ Structural design skills,
- ✓ Understanding of the environmental impacts,



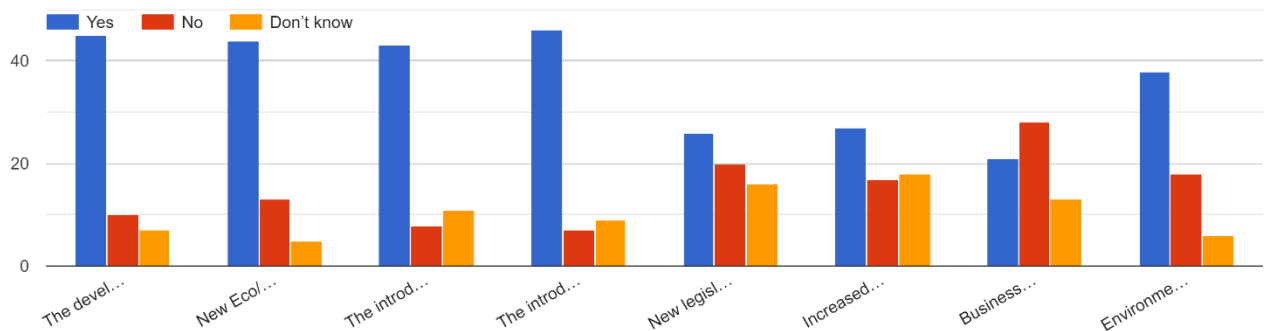
- ✓ Maintenance of hybrid wooden buildings,
- ✓ Understanding written documents and writing clearly.



Respondents explained needs of expectation to acquire new skills or knowledge because of:

- ✓ The development of new products and services,
- ✓ New Eco/Energy saving design/build methods,
- ✓ The introduction of new working practices,
- ✓ The introduction of new technologies or equipment,
- ✓ Environment requirements.

2.4. Over the next 12 months do you expect a need to acquire new skills or knowledge as a result of

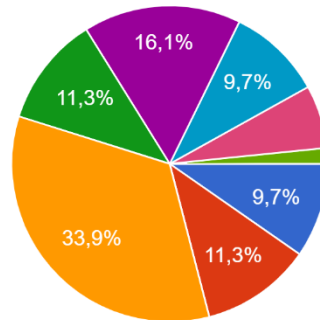


Respondents think that something was done to overcome the problem of skills gaps: 33 % - Further training has been provided inside the company; 16 % - Other strategies have been used to promote learning; 22 % - Influence has been used on (providers of) education in order to ensure the inflow of newcomers or Other strategies have been used to promote learning.



2.5. What is being done to overcome the problem of skills gaps?

62 atsakymai



- Hiring has increased
- Influence has been used on (providers of) education in order to ensure the inf...
- Further training has been provided inside the company
- Further training has been provided by...
- Other strategies have been used to pr...
- Work practice has been changed
- No special measures have been taken
- paši apmācam

Respondents made suggestions for improvement in education of the students:

- Learn about the latest building materials;
- About the construction of wooden buildings;
- Come to the company which works with wood and just work;
- Cooperation with companies;
- Allow more practical workshops;
- Interdisciplinary design classes;
- Educational focus on wooden construction with practical examples and solutions;
- Practice in construction site only;
- To bring back the experience from advanced countries;
- Building site experience;
- We need more schools and universities in our field; More teachers,
- Training required by legislation,
- To include in the study program;
- Increase skills;
- Holistic thinking;
- Prepare for change and make them resistant to fight for it;
- Grants for part-time students;
- Provide learning opportunities as part of the job; Description, take workers on site on informative trips;
- Offer further training opportunities and advertise them;
- It is necessary to involve professionals in the learning process;
- Balance between theoretical and practical skills;
- Try to interest them in future, learn more about work and responsibility what came when they grow up;
- Higher requirements in university.



Deepening theoretical and practical work.

Practical workshop training;

Educate them about timber frame not only brick on concrete method;

Increasing knowledge of wood;

Motivation is key;

To use more systematical knowledge in education process;

Learn about latest materials;

3...5 year project to add practical skill training on site to both construction workers & designers;

The demand for structural designers within timber is increasing heavily due to interest in timber construction;

Hands-on Training at companies, more practice training for a better understanding of the specific topics, for experience

include practical trainings in different parts of construction value chain;

It is necessary to change the way of thinking about wood; Currently, the only right and durable building material in Poland is concrete and steel;

Work in practice on site;

Bringing back physical practice with timber - for understanding of material properties. Wide knowledge of materials - with their production and demolishing after life cycle of a building;

Integral planning skills;

More time for timber structures - relation timber-to-steel or timber-to-concrete highly disadvantageous. More and better qualified in wood academic staff. More emphasis on modern building methods than traditional ones;

Program should be adjustable by market needs, more practical skills (practice during the study);

To use innovative and newest technologies in leaning process;

Competitive salary in building sector;

More accessible education;

More lessons;

Practice.

During the third part of the study, it was hoped to determine the main reasons why the popularity of wooden structures is not as expected. Also to create the Perspectives of hybrid wooden construction. Respondents from all partner countries answered what are the main barriers of hybrid wooden construction development:

Lack of knowledge,

Lack of skills,

Restrictions by law,

Negative public opinion.

Respondents had to analyse what are the main drivers of hybrid wooden construction development? They had to indicate three major drivers and they selected:





New engineered wood products/technological solutions (56 %),

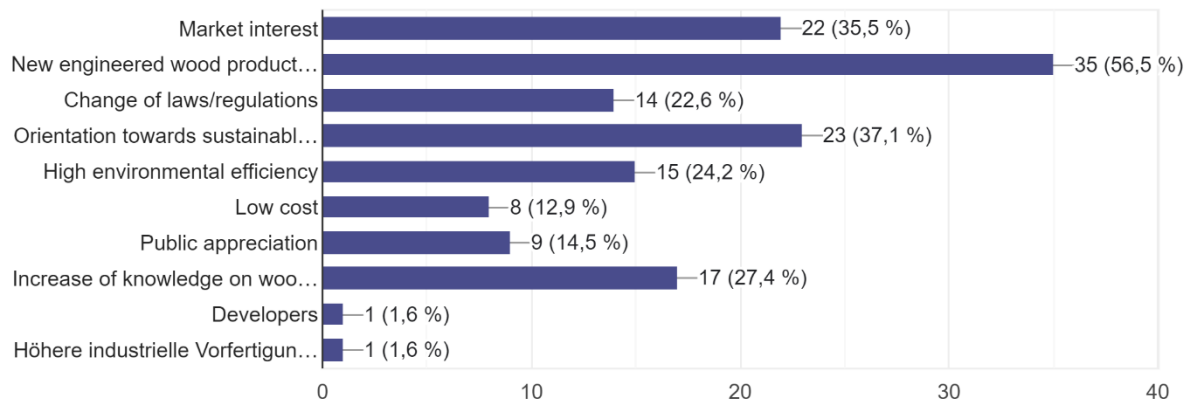
Orientation towards sustainable construction (37 %),

Market interest (35 %),

Increase of knowledge on wooden construction by designers and technicians (27 %)

3.2. What are the main drivers of hybrid wooden construction development? (Please check three major drivers)

62 atsakymai



The respondents described in their own words the possibilities that would encourage more wood construction and the use of wooden structures. They think it could be (speech not corrected):

Increase knowledge of wood technologies;

Price;

New engineered wood products/technological solutions;

How it looks, architecture;

If costs are lower than in "normal" construction;

A pressure by the state / law;

Only education !@#!@#

Information, information, information...

Compulsory Life Cycle Assessments;

Government should change some laws related to wooden buildings;

Short delivery time, eco factor / low energy cost



environmental issues;
Changing the laws to support wood construction;
More students in the field;
Pre-fab production within standards with emphasis in cost-efficiency;
Public opinion;
Promotion to the society;
The change of laws;
More knowledge, breaking with to lobbies;
Effective life cycle costs implemented in investors portfolio
skills and knowledge of investors, planners and builders how to construct cheaper, faster, more efficient, sustainable and climate-friendly;
Supporting the construction on a state or city-level, through law regulations that allow for innovation and maybe also through assistance and financial incentives;
Adaptation of the normative rules for timber construction; Public building projects with a quota requirement for timber construction;
Knowledge;
Financial support of customers;
More experience;
Give more certainty and knowledge and experience on the side of decision makers and who influences them (planners, owners,...)
In my opinion, people with knowledge and those who build themselves already choose to build a house from quality materials, such as wood and concrete;
Encouraging society to use renewable materials or wooden construction should not be a major problem, and as it turns out, the border is still high, Tax breaks could be a big advantage convincing to wooden construction, which, with the certainty of many years of promotion, the use of renewable products could bring incredible benefits to our environment;
Regulation of law;
Education !!!
Technological development of wooden buildings;
Systematic view and knowledge;
More seminars about building in wood;
The market needs to gain trust in the "product" and its cost-efficiency, fire safety, ability to withstand moisture (construction time, in-use failures), and repairability.
Good examples;

Project HiBiWood aims to fulfil the future demands in higher education of students in sustainable, high-performance building construction in wood by transnational and transdisciplinary innovative student-centred learning approaches. To educate a new generation of students in design and construction of sustainable, high-performance wood buildings, it is necessary to develop and



integrate an innovative multidisciplinary BSc/BA study module at participating and other HEIs, based on project based learning, learning by doing and blended learning approaches. Moreover, innovative project based learning, learning by doing and blended learning methods will be spread across the countries. International academic and public awareness about sustainable, high-performance wooden building systems will be increased by wide dissemination activities. Project will promote cooperation and innovation among European HEIs, researchers, business partners, associations, networks and broader society to foster design and construction of sustainable, high-performance buildings.

The specific objectives of the project are

- 1) To develop and deliver a new trans-disciplinary module on sustainable, high-performance wooden building systems, which meets the needs of the HEIs and employment market representatives.
- 2) To improve competencies of students and teachers in problem solving and teamwork, innovative thinking, motivation, awareness of cross-professional project input and project management by using PBL, learning by doing and blended learning approaches.
- 3) To educate all participants (students, teachers, entrepreneurs) in the field of sustainable, high-performance building solutions in wood construction.
- 4) To ensure open awareness of the project results to local, national, EU level and international target groups



CONCLUSIONS AND RECOMMENDATIONS

Respondents' responses confirmed that the use of Mass Wood technology in larger buildings faces cultural, societal and financial challenges, especially given the widespread perception that it is flammable. Thanks to existing and well-developed technologies and solutions, used for many years in some regions (USA, Canada) and in some countries (Germany, Austria, Finland) ready to apply knowledge to education and the market.

There are several examples of modern wood technology building best practices that can be used in case studies around the world. For this technology to become popular somewhere, for example in Lithuania, it needs effective PR. Students' awareness creates favourable conditions for including high-quality building solutions that save mass wood in the undergraduate study program. The market will initially treat this new information as soft talent because it can be used after-market calls.

The second step is to dispel misconceptions about the safety of mass wood as a basic building material by demonstrating its exceptional properties and neutral impact on the environment. Recommendations:

- It is advisable to include the entire module as an optional module.
- Add module components to bachelor's programs on current topics;
- Start working together and advocate for the implementation of various wood solutions;
- Establish design/research centers to collaborate in the market (combining the requirements and expertise of countries investing in materials, construction, design, factories);
- Use the main structure of the workshop made of wood;
- Offer design expertise to developers and investors - highlight the advantages of a significantly shorter construction process, structural material as finishing material (ceiling, walls), environmental benefits;
- Inform the environment about the use of wood technologies in newly constructed public buildings, city regulations (lower fees, including construction time as a factor in paying for a building permit);



Funded by the
Erasmus+ Programme
of the European Union

Sustainable, High-Performance Building Solutions in Wood (HiBiWOOD)

2020-1-LV01-KA203-077513



- Environmental impact factors of lobbying activities included in local or national legislation;
- Development and utilization of the project's potential after the end of the project;
- Provide design knowledge to developers and investors, emphasizing the advantages of a much faster construction process, the use of construction materials as finishing materials (ceilings, walls) and environmental benefits;
- Raise awareness of environmental issues related to the use of wood technologies in newly constructed public buildings and city regulations (lower fees, including construction time, as the amount of settlement for building permits);
- Elements of environmental impact are encouraged to be included in regional or national regulations.



KLAIPĖDOS
VALSTYBINĖ
KOLEGIJA



RIGA
BUILDING
COLLEGE



FH
CAMPUS
WIEN
UNIVERSITY OF APPLIED SCIENCES



Cracow University
of Technology

HAMK



STUDY AND CONSULTING CENTER