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GRINSCO
GREEN INSULATION SKILLS
FOR CONSTRUCTION WORKERS



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GRINSCO

Green Insulation Skills for Construction Workers

R1-T4 REPORT

GRINSCO WBL LEARNING OUTCOMES

ERASMUS+ Programme

Project Code:
2021-1-FR01-KA220-VET-000025876





1. INTRODUCTION

ABOUT THE PROJECT - Background:

Green insulation contains less harmful ingredients for the environment, contributes to the reduction of carbon emissions, and life cycle costs are much lower compared to traditional insulation materials. However, the mainstream construction sector has not been applying such materials extensively, due to deficiencies in the supply of skills and training among construction workers. These skills deficits are exacerbated by the rapid greening of the construction sector and the advances in techniques and methods, changing skill requirements faster than the education and training systems have been able to respond. At the same time, the shortage of insulation workers with knowledge of green insulation techniques is considered a major obstacle in implementing EU and national strategies (e.g. EU Green Deal) to cut greenhouse gas emissions and address environmental changes. Upskilling construction workers with green insulation skills through workbased learning VET is therefore essential to improve employability and better pay while contributing to meet the current and future demand for green and sustainable solutions in the construction and renovation sector. As a result, the project responds to

the labour market needs upskilling resources in the domain of sustainable insulation

workers essential need to sustain and improve employability and pay by acquiring enhanced access to relevant trainings.

The consortium has compiled this project in order to alleviate the skills deficit and equip both the participating VET providers as well as all European VET providers with resources suitable to build relevant VET offerings.



Objectives:

GRINSCO forms a Cooperation Partnership to improve work-based learning VET, by developing and making available educational resources. Its main objective is to address current and emerging occupational skills needs and to enable VET providers to adapt offerings in novel insulation techniques and boost construction workers' skills and employability in a rapidly evolving labour market.

SPECIFIC OBJECTIVES

Enrich the mapping and document the needs of green insulation skills in the construction sector.

Design an evidence-based curriculum & training content (i.e. WBL educational resources) on green insulation materials and applications to be embedded into existing formal & non-formal training provision.

Support VET providers to integrate green insulation techniques into their WBL and apprenticeship offerings through teaching materials and guidelines.

Foster the recognition and integration of relevant occupational requirements into certification schemes.

IMPLEMENTATION:

- Analysis of current and future skills and knowledge needs leading to the development of learning outcomes.
- Development of a curriculum on green insulation applications.



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- Creation of corresponding pedagogical materials to be offered as Open Education Resources.
- Development, testing, and delivery of Online Training Scenarios on green insulation in construction, promoting innovative and flexible practices in VET.
- Sharing of results with multiplier events, inviting target groups to uptake GRINSCO results and to act as further multipliers.

For more information about the project, please visit its official website:

www.grinsco.eu



ABOUT RESULT 1 (R1-T4) - GRINSCO WBL LEARNING OUTCOMES

APPROACH

The first result comprises work-based learning outcomes on green insulation techniques and methods; it defines what learners should grasp and be able to upon successful completion of the GRINSCO course. The elaboration of the GRINSCO learning outcomes will be based on research on actual workplace requirements for construction/insulation workers as emerged by new market niches (e.g. green building), technique changes (e.g. application of sheep's wool insulation material) and changing customers' expectations. The primary objective of this result is to make available up-to-date, tailor-suited to occupational needs, innovative green insulation learning outcomes, suitable for integration into construction sector WBL provision. The

compilation and analysis of occupation (R1-T3) and vocational training (R1-T2) evidence will guide the development of GRINSCO learning outcomes, providing the ground for the formulation of GRINSCO learning units.

METHODOLOGY

The result will be based on field & desk research on actual workplace requirements with regards to green and sustainable insulation techniques and methods. Relevant information will be gathered through an online questionnaire and interviews with construction sector employers, sector representatives, VET providers, and field experts. Desk research on existing construction industry apprenticeships will reveal trends in skills supply and highlight gaps in the labour market. R1 will rely on the European reference frameworks and standards (EQF and ECVET) to develop the learning outcomes in terms of definition of knowledge, skills and competences.



INNOVATION, EXPECTED IMPACT & TRANSFERABILITY POTENTIAL

R1 will define the workplace requirements in a sector that drives economic growth and therefore provides solutions for climate challenges. The demand of green buildings has led to changes in the use of materials and the skills required for their application. Evidence-based learning outcomes will support the development of a course curriculum structured in distinct modules, suitable to be embedded into existing WBL schemes for construction industry occupations in the 6 partnership countries (FR, PL, GR, LT, IT, BE). Respectively, VET providers and employers will be able to adopt and/or adapt the GRNISCO modular programme either as a whole or partially, thus enriching their training provision for construction industry learners and sector employees participating in continuous VET. This will create a multiplying effect of the expected impact and the transferability potential of the output.

Studies / analysis – Research study / report

R1-T1 Delivery of tools and guidelines for mapping current and future green insulation skill needs in the construction sector This methodology will guide information collection activities by addressing and providing: a) research methods (e.g. field survey), b) information collection tools, c) sampling considerations, and d) data collection targets. The methodology will also deliver guidelines on how to formulate learning outcomes on learners' acquired knowledge upon completion of learning process, and how to link learning outcomes with teaching and assessment materials. The information gathering tools will include: i) an online questionnaire, ii) a template for documenting evidence drawn from interviews and iii) a documentation form to present information on existing relevant construction sector apprenticeships.



R1-T2 Reviewing construction sector training programmes Secondary research will be carried out to collect information on existing relevant construction sector trainings. This activity will help to define the current level of green insulation skills needed in construction-related occupations, to highlight skills imbalances. This task includes: a) reviewing the content of existing training programmes to identify green insulation components and b) assessing their effectiveness in addressing current construction sector workers' skill needs. Each partner will collect, analyse and present the outcomes of the data analysis for its own country, before forwarding country-specific data and outcomes to the task lead partner

R1-T3 Collection of evidence on learners' skills requirements This task comprises field research (following the methodology in R1-T1) on the current and future construction industry training requirements on the application of green insulation materials. Field research will comprise an online questionnaire and interviews with construction sector employers, sector representatives, VET providers, and field experts. This task will determine the set of skills, knowledge and competences, required by construction sector learners to handle green insulation materials. Interviews with target group selected representatives will be conducted in the case the online survey fails to provide adequate evidence. Research activities will be carried out in the 6 countries of the participating organisations.

R1-T4 Definition of GRINSCO learning outcomes for construction sector WBL schemes This activity defines the GRINSCO learning outcomes based on R1-T2 & R1-T3 and following the methodology report (R1-T1). It will yield a report, addressed to VET providers and construction employers that offer trainings, to define and present the GRINSCO learning outcomes, setting the foundations for an up-to-date course on green insulation methods and techniques. This report,



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as the core aspect of R1, will improve the supply and quality of construction industry WBL by: 1. Detailing the current and future green insulation skill needs and training requirements 2. Providing qualitative input for the elaboration of the GRINSCO learning outcomes 3. Presenting definitions of learning outcomes in the form of definitions of what GRINSCO learners should know, understand and be able to do upon the completion of the course 4. Providing guidelines, examples and templates on how to prepare corresponding learning materials.



2. QUESTIONNAIRES RESULTS AND IDENTIFIED CHALLENGES

The final learning outcomes were carefully selected on the base of the questionnaires results, meetings with important stakeholders and partners expertise in the field of scaffoldings and formworks. In addition to that, every partner reviewed a training provision availability in all partner countries. The research proved that there are very limited training opportunities in the field of green insulation systems. Due to the limited size of GRINSCO training program the most important aspects were chosen. These aspects address green insulation skills issues as the project aims for raising awareness of construction professionals in the field.

Learning outcomes include key aspects of the following:

Overview:

Improvement of green insulation skills - setting the foundations for an up-to-date course on green insulation methods and techniques

As the role of “Green insulation Professional” has to be consolidated in the construction sector, it is important initially to define likely job functions involved and therefore learning outcomes of the foreseen course:

- To recognize need of raising skills in green insulation use.
- To work with requirements in line with European directives and national standards.
- To inspect buildings.
- To identify building materials and systems of green insulations
- To identify building pathology, damages and defects.
- Data collection of all the necessary information, both documentary and within the building (visual information, collection with tools and analytical techniques).



- Interpreting proper application of green insulations.
- To make a qualitative assessment.
- To make a quantitative assessment.
- Coordination of professionals in different subjects.
- Communication skills (oral and writing)
- Soft skills: cooperation at work, coordination and management of work place.

Based on findings from the questionnaires, meetings and interviews, following challenges were identified, that became a starting point for defining learning outcomes and further on, learning units:

CHALLENGE Nr 1: ADDRESSING RECRUITING DIFFICULTIES

Identified problem:

- Low number of applicants with the required insulation technical skills
- Low number of applicants with the required non-technical / transversal skills
- Low number of applicants with the required attitude and motivation
- Low number of applicants in general
- Low awareness of existing green insulation solutions and technologies

Outcome:

Creation of learning module covering topics from the field of raising awareness about modern green insulation technologies and systems and the need to use them. Raising awareness of the need of improving skills of construction professionals in the field in order to be able to recruit more educated construction professionals and perform works better.



CHALLENGE Nr 2: ADDRESSING TRAINING DIFFICULTIES

Identified problem:

Lack of appropriate training offerings in the green insulation field

Employees are too busy to undertake training and development activities

Lack of flexible and convenient training offers in the green insulation sector

Outcome:

Creation of a learning module covering topics from the field of raising awareness about modern green insulation technologies and systems. This module can be structured as a “Trainer’s Handbook” helping trainers to organize and host professional courses in green insulation technologies with the use of created modules in GRINSCO project.

CHALLENGE Nr 3: IMPROVING KNOWLEDGE ABOUT GREEN INSULATION MATERIALS AND SYSTEMS

Creation of a learning module covering topics from the field of green insulation materials and systems:

- Selection of materials and systems
- Understand properties and technical specifications of each green material to be installed



- Select appropriate providers for green insulation materials
- Various systems of insulations available in different EU countries
- Ecological aspects
- Interact and communicate with owner about eco-friendly products being installed and discuss benefits

CHALLENGE Nr 4: IMPROVING KNOWLEDGE AND SKILLS IN TECHNOLOGIES OF USING GREEN INSULATION – PRACTICAL APPLICATION

Creation of a learning module covering topics from the field of green insulation practical application – construction works with the use of modern green insulation materials and technologies. Improvement and application of practical skills in order to:

- Measure and cut insulation materials to adhere to specifications
- Read and comprehend construction plans/ blueprints
- Follow safety guidelines when installing green insulation materials
- Perform quality assurance on site after finalized installation
- Execute installation of green insulation materials
- Communicate effectively with construction manager/ engineer/ site managers/ owner
- Determine amounts and types of insulation needed, based on factors such as location, surface shape and equipment use, energy efficiency etc.
- Management of construction waste created during insulation works (hazardous materials, sorting, utilization etc.)



CHALLENGE Nr 5: IMPROVING KNOWLEDGE ABOUT LEGISLATION AND H&S REGULATIONS IN EU COUNTRIES RELATED TO INSULATION WORKS

Creation of a learning module covering topics from the field of green insulation related regulation in the EU.

- H&S measures during works – individual and collective
- Safety regulations and restrictions in various EU countries
- Familiarity with EU & national construction regulations & legislation
- Sustainability measures



3. GRINSCO LEARNING OUTCOMES (R1-T4)

| LEARNING OUTCOME 1 | KNOWLEDGE OF THE QUALITIES OF GREEN INSULATION MATERIALS IN CONSTRUCTION | | |
|--------------------|---|--|--|
| EQF LEVEL 4 | EXPECTED LEARNING OUTCOMES | | |
| | KNOWLEDGE | SKILLS | COMPETENCES |
| | Knows / Aware of: <ul style="list-style-type: none"> • ecological relevance and technical properties of materials and systems • how to classify insulations • the necessity of using green materials • basic concepts of building physics • most important ecological labels | Be able to: <ul style="list-style-type: none"> • to perform a product assessment • perform works properly using green insulation materials • identify proper insulation material for the given work | Be able to: <ul style="list-style-type: none"> • account for own and others actions in ensuring that the application is correctly integrated within a complex environment and complies with user/customer needs in terms of selecting proper green insulation materials |



| LEARNING OUTCOME 2 | APPLICATION OF GREEN INSULATION MATERIALS IN DIFFERENT CONSTRUCTION STRUCTURES | | |
|--------------------|--|---|---|
| EQF LEVEL 4 | EXPECTED LEARNING OUTCOMES | | |
| | KNOWLEDGE | SKILLS | COMPETENCES |
| | <p>Knows / Aware of:</p> <ul style="list-style-type: none"> • how to apply thermal insulation composite systems or other systems • health and safety requirements • differences of construction structures and climate differences in various regions of the EU • differences of availability of green insulation materials in various countries | <p>Be able to:</p> <ul style="list-style-type: none"> • read and comprehend construction plans/ blueprints • determine amounts and types of insulation needed, based on factors such as location, surface shape and equipment use, energy efficiency etc. | <p>Be able to:</p> <ul style="list-style-type: none"> • measure and cut insulation materials to adhere to specifications • perform quality assurance on site after finalized installation • execute installation of green insulation materials • manage construction waste created during insulation works (hazardous materials, sorting, utilization etc.) |



| LEARNING OUTCOME 3 | MAINTENANCE OF GREEN INSULATION MATERIALS | | |
|-----------------------|--|---|---|
| EQF LEVEL 4 | EXPECTED LEARNING OUTCOMES | | |
| | KNOWLEDGE | SKILLS | COMPETENCES |
| | <p>Knows / Aware of:</p> <ul style="list-style-type: none"> • influence of weather conditions on insulations • difference between ordinary and extraordinary maintenance • about different surface textures and renovation techniques • about ordinary and extraordinary maintenance – how to do it • how to prepare cost calculation | <p>Be able to:</p> <ul style="list-style-type: none"> • make use of knowledge about life-cycle of systems and buildings • to prepare calculations of materials, work, equipment | <p>Be able to:</p> <ul style="list-style-type: none"> • perform an assessment and diagnosis of the installed system • perform a proper maintenance of green insulation materials and facades • perform regular works, like cleaning or fixing green insulation elements in buildings and structures. |



| LEARNING OUTCOME 4 | SUSTAINABILITY OBJECTIVES AND CONSIDERATIONS, SOFT SKILLS, COMMUNICATION, JOB OPPORTUNITIES, PROFESSIONAL DEVELOPMENT | | |
|--------------------|---|---|---|
| EQF LEVEL 4 | EXPECTED LEARNING OUTCOMES | | |
| | KNOWLEDGE | SKILLS | COMPETENCES |
| | <p>Knows / Aware of:</p> <ul style="list-style-type: none"> • importance of professional development and motivation for upskilling and improving competence to keep people competitive on job market • importance of soft skills meaning at work and how they influence communication and overall performance of work | <p>Be able to:</p> <ul style="list-style-type: none"> • recognize benefits of personal development • understand ethos of being a construction professional and act according in on a day-to-day basis at work • put in practice the circular economy concept at work | <p>Be able to:</p> <ul style="list-style-type: none"> • to interact and communicate with owner about eco-friendly products being installed and discuss benefits • communicate effectively with construction manager/ engineer/ site managers/ foreman/ owner • highlight the advantages of green materials |



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