# Towards Sustainable Buildings: Novel Strategies for the Design of Vibration Resistant Cross-Laminated Timber Floors

WP5 – Dissemination,
Communication & Exploitation

# Communication Strategy and Plan

Science Fund of the Republic of Serbia

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Science Fund
of the Republic of Serbia

# 1. Executive summary

In this document dissemination and communication plans of Substrate4CLT project are presented. The aim of the Communication Strategy and Plan is to carefully strategize and coordinate activities in order to ensure adequate communication towards the target audiences, therefore achieving set objectives of the project. Target audiences include scientific community, regional construction industry, especially timber industry, policy makers and general public.

The key messages intended to be presented through communication and dissemination activities are:

- CLT represents environmentally friendly and cost-effective material that should find its place in the current regional construction practices.
- Different possibilities exist for new CLT products and novel CLT floor solutions.
- Performance of long-span CLT floors, primarily vibration related, can be predicted using computational tools intended for the design and construction of CLT panels.

The main source of information will be the Substrate4CLT website (www.substrate4clt.com). Other communication tools will be Social media (Instagram, YouTube, ResearchGate), presentations, lectures and printed promotional materials. The content will be presented in journal papers, conferences, workshops and self-organized events.

This document may be revised after formal delivery, and/or augmented with separate mechanisms for detailed information (such as tables and lists stored in the cooperation tool used by the consortium). Any such revisions will be made available on request.

# 2. Introduction

The dissemination and exploitation of the project's results are fundamental components of the Substrate4CLT project. Therefore, a clear communication strategy and plan are developed for this purpose.

Scientific knowledge gained through the project will be made available to academia and industry through extensive dissemination activities underpinned by open-access data and open science policy.

Our predicted Communication strategy and plan are tailored to boost the overall knowledge and awareness regarding CLT applications among all relevant stakeholders in Serbia and Balkan region. In addition, the project will engage extensive dissemination and communication activities – project website, creation of promotional videos and photos and posting on social media pages, design and distribution of printed promotional materials and handbooks, organization of workshops - to increase the awareness regarding CLT applications in Serbia and Balkan region, to promote the uptake of CLT in construction and to support collaboration with the industry.

# 3. Dissemination and Communication

The main tasks of the work package number 5 are as follows:

1. **Communication strategy, management of project website and social media channels**

Project team will develop a communication strategy specifying the approach, tools and target audiences for communication, with a time plan. Substrate4CLT official web page will be created and constantly updated. The YouTube channel will be created in order to present at least three promotional videos to the general public. Official project pages on social networks ResearchGate and Instagram will be created.

2. **Design and production of printed promotional and educational materials**

Flyers, posters, notebooks, pencils and bags will be designed, produced and distributed during the meetings, workshops and conferences. Handbooks of frequency and spectrum curves for practical use in engineering design will be produced based on the extensive numerical and experimental studies.

3. **Workshops and event management**

Project team will establish demo site at the factory location of the Project industry partner "Kolarević d.o.o.", to present the panel types, standard and novel connections, optimized floor solutions, manufacturing process etc. to all relevant stakeholders. The open days will be organized in the 2nd and the 3rd year of project implementation, for all relevant stakeholders. After the event, the follow up survey will be conducted among participants and evaluation report will be generated.

The project team will prepare and organize two one-day workshops at University of Belgrade, Faculty of Civil Engineering (GRF-BG) and University of Niš, Faculty of Civil Engineering and Architecture (GAF-NIŠ), including lectures and a visit to the testing lab. The workshops will be free of charge, for 30 participants max. After the workshop, the follow up survey will be conducted among participants and evaluation report will be generated.

Full-scale test building (2-storey 140m$^2$ residential house with spans of 3-5m) will be constructed in front of the visitors during 3 days of Association of Structural Engineers of Serbia Congress or International Building Trade Fair in Belgrade.

The Project team will participate at Faculty Open Days organized by GRF-BG to present the project activities to future students in an interesting and exciting way.

4. **Sustainable exploitation of Substrate4CLT**

The LLL course "Design and analysis of vibration-resistant CLT floors" will be offered to the industry sector (architects and civil engineers). After the project completion, a new PhD course "Design and analysis of CLT structures" will be offered to PhD students at GRF-BG and GAF-NIŠ, covering the theoretical and practical aspects of design and construction of CLT structures.

At the end of the project, Project team will develop an exploitation plan specifying the potential for further development and implementation of the project deliverables.

## 3.1. Dissemination Plan

The project visual design principles and logo will be created in order to increase visibility of the results. The main dissemination channels are as follows:

**Journal papers**: Four high-profile journal publications will be generated based on this research, presenting the key advantages of the CLT in terms of dynamic properties and design optimization. The first two publications will target the computational mechanics community, covering the following topics: (i) potential of the dynamic stiffness method to study dynamic properties of CLT floors, (ii) vibration serviceability assessment of conventional and hybrid CLT floors, and (iii) UQ and GSA analyses of both conventional and hybrid CLT floors using the developed metamodel. The next two papers are intended for the community in the field of timber structures, with the following topics: (i) full-scale dynamic testing of CLT buildings, (ii) development of hybrid CLT-FRP floors and (iii) development of hybrid concrete-CLT floors. All journal papers will be made accessible to the wide range of audiences through the open access policy. The papers will be also made available through the local faculty repository. On one hand, to maximize the reach and impact of the project's publications, the team will target open-access journal (Wood Research) for 1 of 4 papers, ensuring its availability to the "quick access to research finding" scientific audience. On the other hand, 3 papers will target high profile journals (Materials and Structures, Composite Structures, Engineering Structures) to certify the high-quality standards of the research.

**Conferences:** The Project team will attend four important scientific conferences, presenting the general concept of the project and the main deliverables, targeting both academia and industry partners, through the extensive communication activities and promotional materials. Project team will prepare and submit papers and actively participate in the following conferences: WCTE 2022 in Oslo, Norway; 17th Symposium of ASES, 2022 in Serbia; EURODYN 2023, and 20th International Symposium of MASE, 2023 in North Macedonia. Participants will enhance their network and inter-personal relations and cooperation. The financial support provided by the Science Fund will be properly acknowledged. After the conferences, the papers will be made available through the local faculty repository.

**Workshops:** In order to present this future-oriented design approach, the Project team will organize two one-day workshops "Design of Vibration Resistant CLT Floors" at GRF-BG and GAF-NIŠ, including both lectures (from researchers and partners from "Kolarević d.o.o.") and visits to the testing lab. The workshops will target the prospective students, engineers from the industry sector, wood producers and building companies interested in the incorporation of CLT solutions in further projects. The workshops will be free of charge and organized for maximum 30 participants.

**Demo site:** The demo site will be established at the factory location during the project open days organized in the 2nd and the 3rd year of project to present the panel types, standard and novel connections, optimized floor solutions, manufacturing process etc. to all relevant national and regional stakeholders.

**Fair/Symposium:** The full-CLT test building (2-storey 140m$^2$ residential house with spans of 3-5m) will be constructed in front of the visitors during 3 days of ASES Symposium or International Building Trade Fair in Belgrade. They will elapse the construction of the building and have the opportunity to "see and touch" real CLT structure, getting acquainted with its high quality. All the promotion content developed during the construction will be available via the project website.

**Open Day:** The Project team will actively participate at public engagement opportunities offered by GRF-BG and GAF-NIŠ. Faculty open days dedicated to future students will be used as an opportunity to present the project ideas in an interesting and exciting way. All media developed for the open days and the public seminars will be available via the project website.

### 3.1.1. Target Groups

The Substrate4CLT communication strategy and plan need to be tailored to the specific needs of the different target audiences of the project. Defining the target groups is a key component, vital for the dissemination strategy. This section identifies the six target audiences of the project:

1. Scientific community
2. Timber producers
3. CLT manufacturers
4. Building companies
5. Policy makers
6. Public

Table 1: Target groups and beneficiaries to be impacted by the Project

| Target Group | Description of impact | Type of impact |
|---|---|---|
| Scientific community | Insight into novel topics on the performance of long-span CLT floors, with possibility to extend the knowledge and methodology to other green materials. | Direct |
| Timber producers | Increased uptake of timber in future green projects including CLT structures. | Indirect |
| CLT manufacturers | Introduction of new CLT products with non-classical layer orientation in their product lines as cost-effective solution for mid-span ranges. | Direct |
| Building companies | Introduction of novel CLT floor solutions in the product lines and their application in future projects for the retrofit of existing and construction of new buildings. | Direct |
| Policy makers | Motivation to improve CLT-related policies to increase its use in future projects | Indirect |
| Public | Being acquainted with the high quality of CLT structures and further interest in environmentally friendly building solutions, which provide safer, more ecofriendly, pleasant and more comfortable buildings. | Indirect |

### 3.1.2. Key Message

Table 2: Defining key messages per target group

| Target audience | Key messages disseminated |
|---|---|
| Public/ Building companies | CLT represents environmentally friendly and cost-effective material that should find its place in the current regional construction practices. |
| CLT manufacturers | Different possibilities exist for new CLT products and novel CLT floor solutions. |
| Scientific community | Performance of long-span CLT floors, primarily vibration related, can be predicted using computational tools intended for the design and construction of CLT panels. |

### 3.1.3. Key Performance Indicators

Table 3: Project Dissemination, Communication and Exploitation KPIs

| Key Performance Indicators (KPIs) | Target |
|---|---|
| number of promotional videos created and posted on social media pages | ≥ 3 |
| number of stakeholders reached through project social media channels | 2000 |
| number of people participating at the workshops | ≥ 50 |
| number of events in which the project will be presented | 3 |
| number of handbooks published | 2 |
| number of journal papers under review | 2 |
| number of completed bachelor and master theses | >3 |
| number of conferences attended | >4 |

### 3.1.4. Events

Dissemination events in international conferences and other promotional events (demo site, workshops) will be important to establish presence, build liaisons, and engage key stakeholders in the social media ecosystem and industry.

Project team will establish **demo site** at the factory location of the Project industry partner “Kolarević d.o.o.“, to present the panel types, standard and novel connections, optimized floor solutions, manufacturing process etc. to all relevant stakeholders. The open days will be organized in the 2nd and the 3rd year of project implementation, for all relevant stakeholders. After the event, the follow up survey will be conducted among participants and evaluation report will be generated.

The project team will prepare and organize two one-day **workshops** at GRF-BG and GAF-NIŠ, including lectures and a visit to the testing lab. The workshops will be free of charge, for 30 participants max. After the workshop, the follow up survey will be conducted among participants and evaluation report will be generated.

The Project team will participate at **Faculty Open Days** organized by GRF-BG to present the project activities to future students in an interesting and exciting way.

## 3.2. Communication Plan

The Project team will include the tools and activities through which the project will present itself outside its own community to a wider variety of stakeholders who are not going to be direct users of the project results, but that should be informed about such result developments.

Project’s wider target audiences are the general public (that needs to be made aware of CLT as a sustainable, ecological and cost-efficient alternative to conventional building materials), media, investors, civil society, regulatory bodies, national and regional authorities. Also, other Project stakeholders are owners, managers and staff of construction companies and their supply partners, scientists, engineers, researchers, lecturers, instructors and researchers working for tertiary institutions, regulators and government staff who provide research funding to the wood industry and finally students of architecture, civil and environmental engineering, and forestry. The Project team intends to communicate through several communication activities:

1. Website
2. Social media
3. Printed promotional materials

### Overview of key communication tools

Table 4: Overview of key communication tools

| Tool/Channel | Description and Purpose | Audience Relevance | | | | | |
|---|---|---|---|---|---|---|---|
| | | Scientific community | Timber producers | CLT manufacturers | Building companies | Policy makers | Public |
| Website | A website will be created to inform the research community about the progress and key results of the project. For non-experts, the general strategy of this design approach and key deliverables will be illustrated in a comprehensive and approachable way, with a target to attract audience and increase interest in the area of study. The website will be constantly updated. | ● | ● | ● | ● | ● | ● |
| Social media | Social media will allow the team members to discuss project recent advances with the interested community. The Project team will create a YouTube channel to present promotional videos to the general public. To maximize the project visibility, official project pages on the social networks ResearchGate and Instagram will be created. As well, live videos will be broadcasted during the workshops, the open days, and the visits to construction sites and thematic companies. | ● | ● | ● | ● | ● | ● |
| Printed promotional materials | Flyers, posters, notebooks, pencils and bags will be designed and produced during the project. The materials will be distributed during the meetings, workshops and conferences. | ● | ○ | ○ | ● | ○ | ○ |
| | | ●: primary target; ○: secondary target | | | | | |

## 3.2.1. Graphic Material

### 3.2.1.1. Colours

The selection of the color identity of the project is very important to ensure the dissemination of the correct message. In Substrate4CLT, the project’s color palette was selected to match the colors on the project logo. The chosen color palette is presented below.

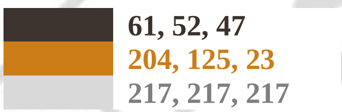


Figure 1: Chosen project's colour combinations

#### 3.2.1.2. Visual identity

The logo plays a central role in the project's visual identity. It aids recollection and recall, and it should be included in all external communications from the project.

The official logo of the project displays both the project's acronym and the pattern visual of wood material (Figure 2). The chosen logo is clear, captures the attention of the public and communicates the main concepts of Substrate4CLT.

Figure 2: Official logo of Substrate4CLT project

A logo of the Faculty of Civil Engineering, University of Belgrade; logo of Science Fund of the Republic of Serbia and logo of the Faculty of Civil Engineering and Architecture, University of Niš will be included in any dissemination material including the electronic ones.

Figure 3: Logos of the Faculty of Civil Engineering, University of Belgrade, Science Fund of the Republic of Serbia and the Faculty of Civil Engineering and Architecture, University of Niš

#### 3.2.1.3. Dissemination templates

To ensure consistency of Substrate4CLT project's visual identity, the project team has prepared and will continue to prepare templates to be used universally for the preparation of deliverables, reports, presentations, etc.

##### Deliverables' template

For the needs of the project's deliverables, template has been produced in an MS Word format applying the project style. The purpose of such a template is to have a consistent and recognizable layout for the project's deliverables.

The deliverable template has a cover page with eye-catching visuals that displays the project's logo in a prominent position, the name of the deliverable and the relevant Work Package.

The second page of the template includes a table with the document's information and a table with the document history. The first and second pages of the template remain static, do not change and contain only the information referred above.

The header of the template contains both logo of the Faculty of Civil Engineering, University of Belgrade and logo of the Faculty of Civil Engineering and Architecture, University of Niš, while the footer of the template contains the logo of Science Fund of the Republic of Serbia.


Figure 4: Substrate4CLT's deliverable template

## Presentation template

The presentation template was designed following the graphic identity guidelines to facilitate the recognition of the project and it will be used in all events and meetings where the project results and activities are presented.


Figure 5: Substrate4CLT's presentation template

## 3.2.2. Digital Material

### 3.2.2.1. Website

A website has been created to inform the research community about the progress and key results of the project  For non-experts, the general strategy of this design approach and key deliverables will be illustrated in a comprehensive and approachable way, with a target to attract audience and increase interest in the area of study. The website will be constantly updated.

**URL -** https://substrate4clt.com/

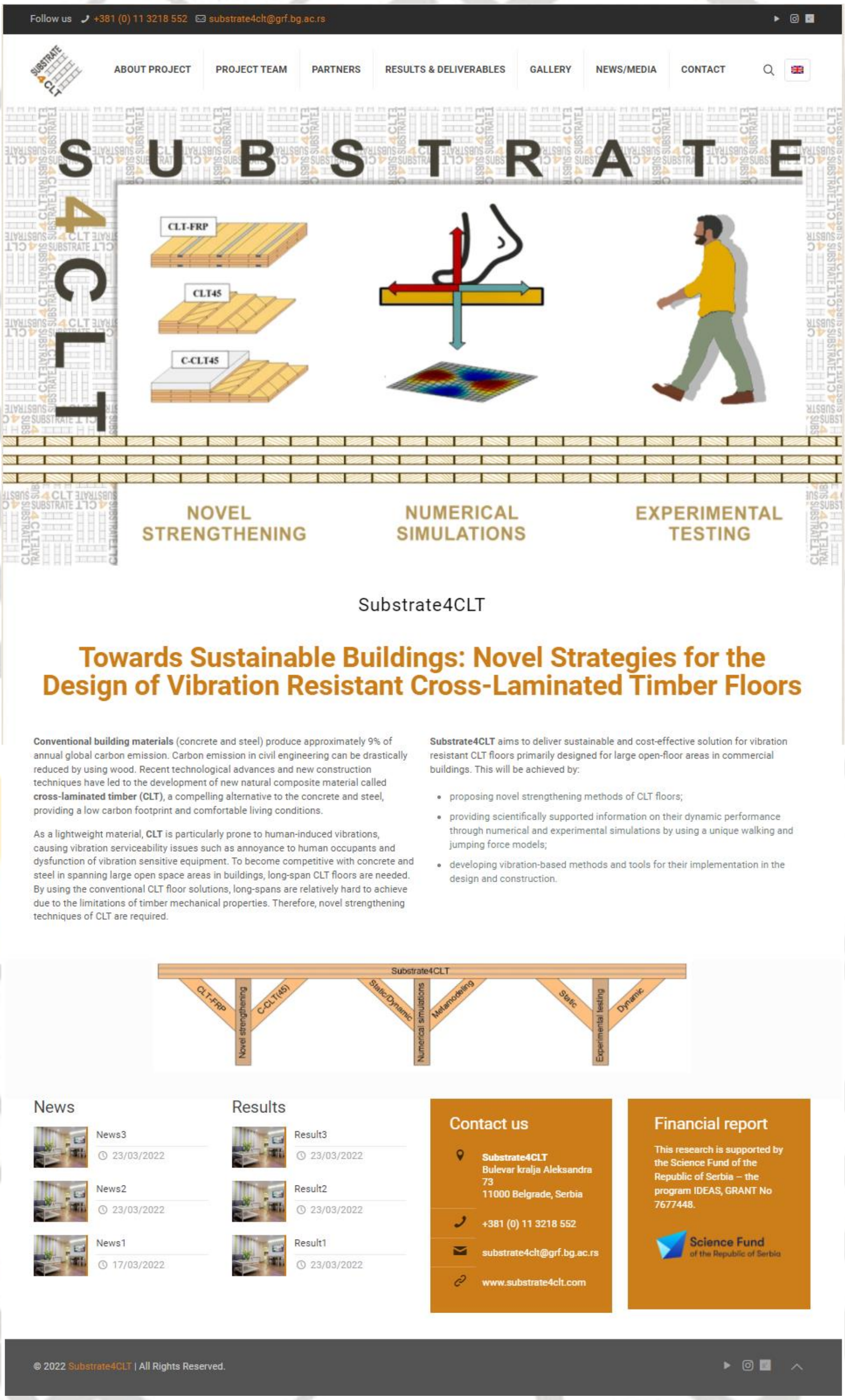


Figure 6: Substrate4CLT's Website

#### 3.2.2.2. E-mail Account

An e-mail account which the public will be able to address for any issue relevant to the Substrate4CLT project has been created: substrate4clt@grf.bg.ac.rs.

### 3.2.2.3. Social Media

Social media will allow the team members to discuss project recent advances with the interested community. The Project team will create a **YouTube** channel to present promotional videos to the general public. To maximize the project visibility, official project pages on the social networks **ResearchGate** and **Instagram** will be created. As well, live videos will be broadcasted during the workshops, the open days, and the visits to construction sites and thematic companies.

You Tube channel

**URL -** https://www.youtube.com/channel/UCPUVNBg3Q-j3nnsNvDIKVeg/about

In order to present at least three promotional videos to the general public, the YouTube channel was created. The YouTube channel will be constantly updated and live videos will be broadcasted during the workshops, the open days, and the visits to construction sites and thematic companies.

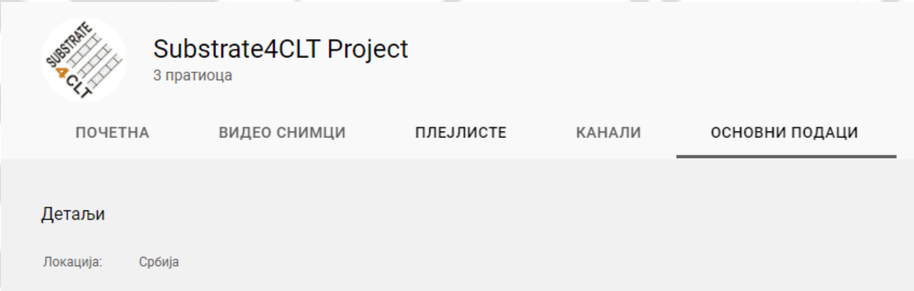


Figure 7: Substrate4CLT YouTube channel

Instagram Page

**URL -** https://www.instagram.com/substrate4clt/

Instagram as a platform enables to quickly disseminate project's results and activities and target specific groups of audiences. Also it will enable to disseminate real time information from workshops and events and thus increase the project visibility. This will allow the team members to discuss project recent advances with the interested community.

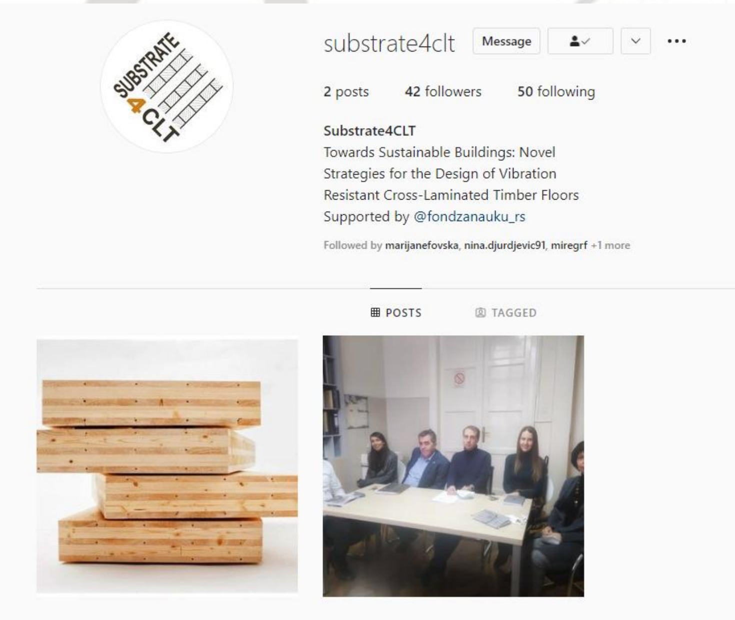


Figure 8: Substrate4CLT Instagram Page

ResearchGate Page

**URL -** https://www.researchgate.net/project/Towards-Sustainable-Buildings-Novel-Strategies-for-the-Design-of-Vibration-Resistant-Cross-Laminated-Timber-Floors-project-acronym-Substrate4CLT

ResearchGate was also selected to be used as a social platform since is one of the largest platforms for scientific community. The networking opportunity that this platform gives enables to target specific stakeholders that are relevant to the project activities and results.

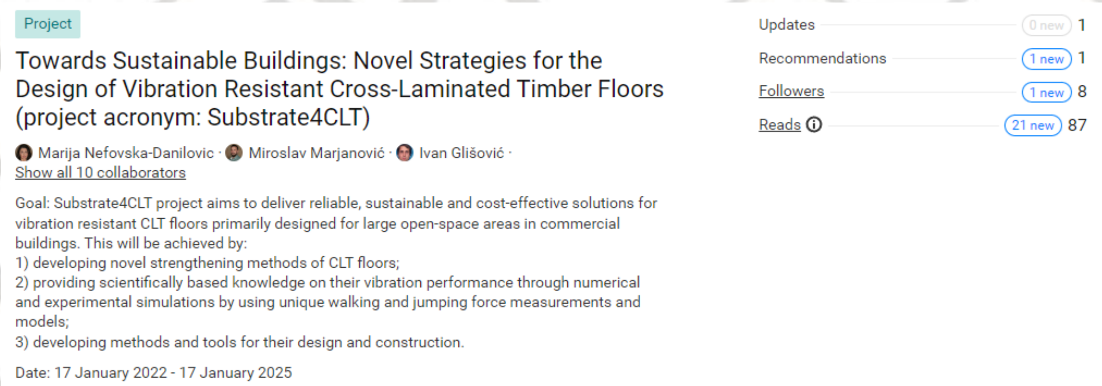


Figure 9: Substrate4CLT ResearchGate Page

### 3.2.3. Promotional Material

#### 3.2.3.1. Printed Material

Poster, bags, notes, pencils and rulers will be designed and produced during the project. The materials will be distributed during the meetings, workshops and conferences.

Poster


Figure 10: Substrate4CLT Poster

Bag


Figure 11: Substrate4CLT Bag

Notes

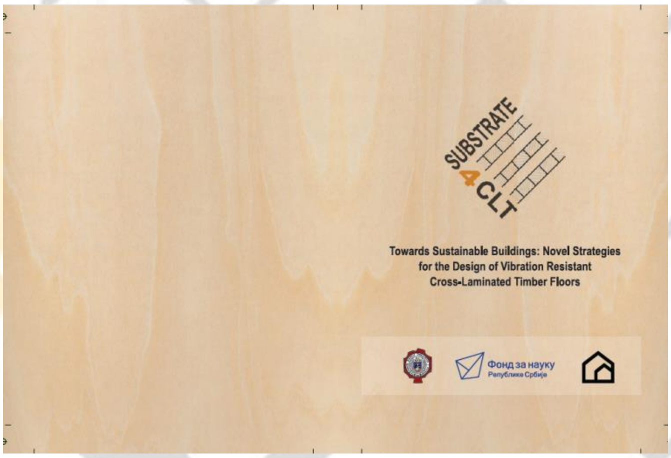


Figure 12: Substrate4CLT Notes

Pencil


Figure 13: Substrate4CLT Pencil

Ruler


Figure 14: Substrate4CLT Ruler

# 4. Exploitation Strategy

The goal of Substrate4CLT exploitation strategy is to offer the LLL course "Design and analysis of vibration-resistant CLT floors" to the industry sector (architects and civil engineers). After the project completion, a new PhD course "Design and analysis of CLT structures" will be offered to PhD students at GRF-BG and GAF-NIŠ, covering the theoretical and practical aspects of design and construction of CLT structures. The project exploitation strategy will be integrated in D5.6. "Communication & dissemination report + Exploitation plan" (M36), where a detailed strategy report for the sustainability of the project and its increased impact after the project is finished will be provided. At the end of the project, Project team will develop an exploitation plan specifying the potential for further development and implementation of the project deliverables.

## 4.1. Project Exploitation Activities

The project's key exploitable assets are grouped into the following categories:

**Computational tools**: The developed computational tools will be licensed as open source (attribution required) and made available through GitHub repository, allowing anyone from the scientific community to the industry to download, use and upgrade it.

**Workshops**: Serving as a pilot during the project, they will be exploited through future organization of LLL courses at GRF-BG and GAF-NIŠ on the design and analysis of vibration resistant CLT floors, offered to the industry sector (architects, civil engineers and CLT manufacturers).

**Demo site**: The established demo site will remain after the project completion, to serve as promotional facility of GRF-BG, GAF-NIŠ and "Kolarević d.o.o." to all relevant stakeholders.

**Test building:** The constructed full-scale test building will remain undamaged and will be dismantled. It can be exploited in the future activities of "Kolarević d.o.o.".

**Data and documentation**: All data collected through the project can continue to be used beyond the end of the project. Public reports, results, handbooks will be made available to all interested parties. To gain access to project data, external researchers will be asked to complete the data usage application form including a brief statement for the intended use of the project data. Data usage will be approved by the principal investigator, while external researchers will be obliged to properly acknowledge the usage of project data in their publications. Data provided by the company "Kolarević, d.o.o." will remain confidential and accessible only by the project participants.

**CLT specimens**: Specimens that will be subjected to dynamic tests will remain undamaged. Therefore, they can be exploited in the future research activities at GRF-BG and GAF-NIŠ.

**Research team**: The research team established through the project will be expanded through collaboration and synergies with other researchers in the future, further increasing the generated knowledge base and exploiting it through new PhD courses offered to students at GRF-BG and GAF-NIŠ.

# End of Document

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