



**WAGENINGEN**  
UNIVERSITY & RESEARCH

# Wood it be possible: constructing timber houses in the Netherlands

Final wildcard project report

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Towards a materials transition that phases out fossil feedstock

## Introducing the format

When submitting your Wildcard project you committed to providing several deliverables:

1. A short accessible document for the inter- and transdisciplinary group of people involved in the programme that describes your methodological innovation project / proof of principle project and its rationale;
2. A presentation at a community meeting of the investment theme;
3. A report of the results of your learning journey that describes the key lessons learned about your methodological innovation or proof of principle.
4. Additional deliverables formulated by you as part of the submission, labelled 'Project specific deliverables' in this format.

All Wildcard projects already provided presentations as stipulated under 2. This format then is meant to document deliverables 1, 3 and 4.

In section 2 of the format we ask some additional questions related to possible follow-up.

1. A short accessible document following the headers below (max. 600 words to be published on the website)

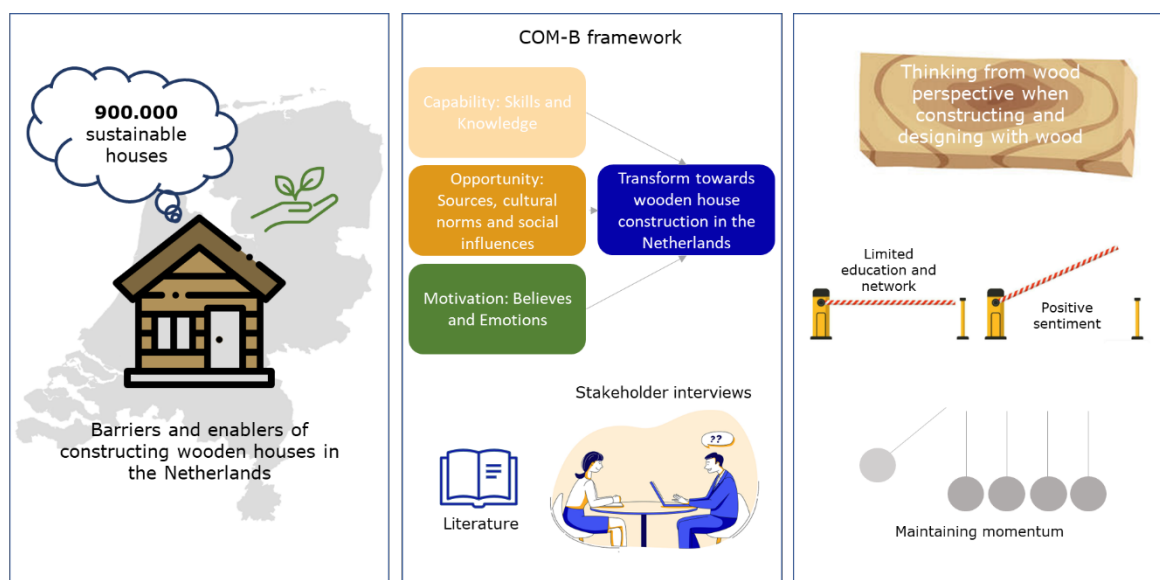


Figure 1. Visual abstract of project Wood it be possible: constructing timber houses in the Netherlands. From left to right the visual abstract describes the research question, method, and results.

The main research question of this study was: *What are the underlying structural barriers and enablers in wooden house construction in the Netherlands that stand in the way or facilitate the realization of the Dutch government’s sustainable housing expansion goal?*

The Dutch government has set a target to build 900,000 new houses by 2030, with a focus on circular and sustainable methods which includes the use of locally sourced and renewable materials, such as wood. To meet these goals, a transformation in the current supply chain of wooden building materials and construction practices in the Netherlands are needed. However, while timber construction’s contributions are commendable, it should not be viewed as the sole solution for attaining the sustainable housing expansion goals — it is likely to play a significant, albeit small, role. This study aims to identify the underlying barriers and enablers to realize more timber constructions in the Netherlands as a contribution to the Dutch government’s sustainable housing expansion goal.

To categorize the different barriers and enablers we rely on the COM-B framework which distinguishes capability, opportunity, and motivation of system behavior. In the context of wooden house construction, ‘capability’ ensures that a person can physically construct the house and has the necessary knowledge to do so effectively. ‘Opportunity’ refers to external factors that obstruct (barrier) or facilitate (enabler) wooden house construction. ‘Motivation’ focuses on a person’s beliefs and emotions behind choosing or not choosing wooden house construction. The COM-B framework is especially useful in this context

because it provides a structured approach to diagnosing and addressing behavioral issues, ultimately allowing for the development of more effective and targeted interventions.

We found that stakeholders, throughout the construction chain, remain positive, with significant investments in timber construction indicating potential growth. In the short term, bridging the knowledge gap and adopting a more wood-centric design philosophy are key. Educational initiatives – e.g. training builders and architects – and robust communication strategies are essential to drive the application of timber construction forward. In the long term, leveraging timber's strengths, empirical research into wood's beneficial properties, educational reforms, and standardization of construction practices are critical.

In summary, to maintain and accelerate the expansion of wood construction, the Dutch market will benefit from an educational push to reduce the knowledge gap, a design philosophy that includes timber as renewable building material, and robust communication strategies – towards clients as well as designers, architects and construction companies – that highlight inspiring projects and encourage a competitive yet collaborative spirit among industry players. With these actions, the industry can navigate the short-term challenges while laying a foundation for long-term growth and innovation in sustainable construction practices.

## 2. Additional questions about progress and 'readiness' (max 200 word, not for the website)

Before this study we conducted a pilot study within the Flagship Building Materials on the construction of timber houses using locally grown and produced wooden materials (ter Hedde et al. 2022); our proposal was based on this pilot study. In addition to this pilot, we also had the opportunity to use interview data from WEnR on the topic of wooden house construction in the Netherlands which gave this research a head start.

We started off from the premise that wooden houses in the Netherlands could not be constructed with the resources sourced from within the Netherlands, but other barriers and enablers of wooden house construction in the Netherlands were not yet identified. Although, this research did not yield a specific pathway for the government to construct more wooden houses in the Netherlands, we did find the barriers and enablers that can make this transition happen.

The next step for our research would be to investigate how to reduce the knowledge gap of wooden house construction in education and how to help stakeholders create a network among wooden house construction.

### Innovation readiness

We think our project has readiness level 8, because a lot of stakeholders are already experimenting with wooden house construction in the Netherlands. They are now testing the capacity in which they can apply wooden house construction. However, research and

development are still needed to for example gain knowledge on standardization of wooden house construction as well as education on this topic.

Innovation readiness score	Innovation readiness level	Description
0	Idea	Genesis of the innovation. Formulating an idea that an innovation can meet specific goal.
1	Hypothesis	Conceptual validation of the idea that an innovation can meet specific goals and development of a hypothesis about the initial idea.
2	Basic Model (unproven)	Researching the hypothesis that the innovation can meet specific goals using existing basic science evidence.
3	Basic Model (proven)	Validation of principles that the innovation can meet specific goals using existing basic science evidence.
4	Application Model (unproven)	Researching the capacity of the innovation to meet specific goals using existing applied-science-evidence.
5	Application Model (proven)	Validation of the capacity of the innovation to meet specific goals using existing applied science evidence.
6	Application (unproven)	Testing of the capacity of the innovation to meet specific goals within a controlled environment that reflects the specific spatial-temporal context in which the innovation is to contribute to achieving impact.
7	Application (proven)	Validation of the capacity of the innovation to meet specific goals within a controlled environment that reflects the specific spatial-temporal context in which the innovation is to contribute to achieving impact.
8	Incubation	Testing the capacity of the innovation to meet specific goals or impact in natural/real/uncontrolled conditions in the specific spatial-temporal context in which the innovation is to contribute to achieving impact with support from an R&D.
9	Ready	Validation of the capacity of the innovation to meet specific goals or impact in natural/real/uncontrolled conditions in the specific spatial-temporal context in which the innovation is to contribute to achieving impact without support from an R&D.

Table 1: Innovation readiness levels as distinguished by Sartas et al, 2020.

### 3. Learning Journey (max 300 words)

We would like to understand a bit more about the process you went through, and whether and how being part of the investment theme Transformative Bioeconomies influenced your learning. We ask the project leaders to consult others when answering these questions.

1. Did your Wildcard project involve new collaboration with disciplines or people? If so, briefly explain what was new.

*Yes, the people from WEcR knew each other, but the collaboration with WU and van Hall Larenstein was completely new. We did not know each other beforehand, and the collaboration was based on this project alone.*

2. If applicable, did the new collaboration alter your original thinking about the topic? Did it change research directions or courses of action? If so, briefly characterize how.

*Yes, at WEcR we had a more theoretical approach while van Hall Larenstein connected with a lot of interesting stakeholders to include in the research by interviewing them.*

3. Did interactions during community days and/or meetings organized by the investment theme alter your original thinking about the topic? Did such interactions change research directions or courses of action? If so, briefly characterize how.

*The community day gave us the inspiration to use the COM-B framework to structure our research outcomes. The meetings, however, did not fundamentally change the direction of our research.*

4. Did you meet any challenges during implementation of your wildcard project? If so, what kind of challenges were these?

*Yes, we started with collaboration with another person from van Hall Larenstein that unfortunately became ill. So, in the middle of the project we had to find a new person to help us with the research. This however, turned out well and we got a lot of work done during the summer. We also ran into the challenge that the expertise at WUR about wooden house construction is very limited, so we did not have a lot of sparring partners to share our ideas with. That is why the collaboration with researchers from van Hall Larenstein were a great addition to the project.*

5. If applicable, how were these challenges eventually addressed? Did activities organized by the investment theme contribute to overcoming challenges? If so, briefly indicate how.

*No, unfortunately the activities of the investment theme did not contribute to overcome the challenge of limited knowledge on wooden house construction within WUR. The collaboration with van Hall Larenstein helped us most in overcoming the challenge.*

6. Has your involvement in the investment theme resulted in any new initiatives or spin-offs that would probably not have emerged if you had not participated? If so, briefly indicate how these new initiatives came about.

*The involvement in the investment theme resulted in a greater network of people that work on biobased materials. Without this involvement it would be more difficult to find the right people that want to work on these topics. Now that we know who works on what new projects can be created around this theme.*

## 4. Additional project specific deliverables

Additional deliverables proposed when submitting the Wildcard project

Milestones and key activities:

- Literature research on existing wooden construction programs
- Interviews with stakeholders to identify barriers in the transformative housing alternatives
- Policy research to find barriers in building with wood

Joint with FEM and HVHL we will help draft a PhD proposal that integrates the key insights from this project. The PhD study can help further the research goal set out in the current proposal. Next to the required deliverables we would aim to publish our results within the journal Economisch Statistische Berichten. We think this journal fits our research since it adds to the relevant economic and policy debate regarding the housing crisis in the Netherlands and want to propose scenarios that might solve the barriers of the government achieving its goals in a circular and sustainable manner.

Status of each project specific deliverable

We met our milestones and key activities. However, due to the illness of one of the team members HVHL did not actively work on the PhD proposal, but they can still use the outcomes of this study to draft one in the future. Instead of publishing our results in ESB, we decided to make it a Wageningen Economic Research report and publish it via WUR.

Links to or copies of deliverables

Will share the report as attachment in the corresponding email. The WEcR report will be published under the name of Wood it be possible: constructing timber houses in the Netherlands.