PARTNERSHIP FOR THE CONSTRUCTION OF STANDARDIZED APARTMENT BUILDINGS FROM LOW-EMISSION MATERIALS

PARTNERSTVÍ PRO
výstavbu typizovaných bytových domů z nízkoemisních materiálů

INCIEN INSTITUTE OF CIRCULAR ECONOMY

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Built by Nature

The partnership was created as part of a project to strengthen mass low-emission construction in Czechia.

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INTRODUCTION

The Czech Republic is one of the most industrialized economies in the European Union, with industrial production accounting for more than 30% of its gross value added.[1] This economic structure is reflected in a high carbon footprint: the Czech Republic has long been one of the countries with the highest greenhouse gas (GHG) emissions per capita in the European Union (EU). In addition to energy, sectors such as steel, automotive, and construction contribute significantly to this burden.

Construction is a key sector in the Czech Republic, driving GHG emissions, consumption of non-renewable raw materials, and production of construction waste. At the same time, the sector is facing pressure to accelerate construction, ensure affordable housing, and respond to climate challenges.[2][3]

Given the accelerating housing crisis in the Czech Republic and the current need for a fundamental transformation of the construction sector towards a more sustainable model, strengthening the use of low-emission building materials and solutions is key.[4][5] These materials include wood, low-emission concrete, construction products with recycled content, but also other innovative renewable raw materials.

Timber, highlighted in the June 2024 Raw Materials Policy for Wood (SPpD), is among the key low-emission materials.[6][7] The aim of the policy is to promote the sustainable use of wood as a strategic renewable raw material. A broader coordinated approach is being promoted by the Ministry of Regional Development, the Ministry of Agriculture, the Ministry of the Environment, and the Ministry of Industry and Trade, which are analyzing ways to systematically increase the use of timber in public construction contracts as part of the preparation of the Action Plan for Sustainable Procurement and Minimum Standards for Responsible Public Procurement.

Another example is low-emission concrete. The use of low-emission concrete in Czechia faces several obstacles: outdated standards and regulations, which are slow

[1] Jsme jednou z nejprůmyslovějších zemí EU. Statistika a my, 2017.
[2] Stavba s respektem k životnímu prostředí. Prodesi domesi.
[3] Česku chybí strategie udržitelného stavebnictví, ve které budou vícepodlažní dřevostavby hrát významnou roli v řešení bytové krize. Czech Chamber of Commerce, press release, May 2025.
[4] Nízkoemisní stavební materiály: cesta k udržitelným veřejným zakázkám. Společně udržitelně, October 2024.
[5] S bytovou krizí v Česku má pomoc zákon o podpoře bydlení. Výstavbu ale brzdí byrokracie. Finance, June 2024.
[6] Raw Material Policy for Wood. Ministry of Agriculture of the Czech Republic, Ministry of Industry and Trade of the Czech Republic, and Ministry of the Environment of the Czech Republic, June 2024.
[7] Platforma pro udržitelné stavebnictví ze dřeva: v Česku vznikají první ekologické vícepodlažní dřevostavby. Czech Green Building Council.

to adapt to new material solutions with a lower clinker content;[8][9] cautious designers and contractors who prefer proven mixtures out of concern for the long-term performance of structures and the associated liability; and inconsistent life cycle assessment, limiting the possibilities for comparison and weakens the incentive framework for choosing more sustainable options. Technical challenges include slower hardening of concrete with a lower clinker content. The availability of some decarbonized admixtures, such as fly ash and blast furnace slag, will decline in the long term, threatening their stable use in practice. Wider adoption will require updated standards, pilot projects, and systematic life cycle assessment in design.

Low-emission materials are coming to the forefront of the ministries' interest. For example, the Ministry of Agriculture aims to achieve a minimum 20% share of renewable materials in construction contracts for buildings and their reconstruction awarded by the Ministry of Agriculture and its subsidiary organizations.[12]

The European Competitiveness Compass and Clean Industrial Deal (CID)[13] initiatives, presented by the European Commission in the first quarter of 2025, emphasize the need for industrial transformation as one of the key pillars of EU economic and climate policy. These initiatives respond to growing global competitive pressure and the need to maintain a strong industrial base in Europe while meeting the objectives of the Green Deal.[14] Particular emphasis is placed on reducing GHG emissions in industry, where the EU has set a target of 62% reduction in emissions under the EU ETS by 2030 compared to 2005, 90% overall by 2040, and climate neutrality by 2050.[15]

It is necessary to invest in the development and deployment of low-emission technologies while expanding the use of low-emission materials on the demand side.[16][17] These steps are key not only to decarbonizing industry and construction, but also to maintaining their long-term competitiveness in the European context.

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8 Evropa brzdí dekarbonizaci cementu: Zastaralé normy ohrožují budoucnost průmyslu. O Energetice, October 2024.

9 Snížení uhlíkové stopy cementu (a betonu) využitím alternativních surovin a nových cementů. Institute of Circular Economy, October 2023.

10 Evaluating sustainable building assessment systems: a comparative analysis of GBRS and WBLCA. Frontiers in Built Environment, March 2025.

11 Snížení uhlíkové stopy cementu (a betonu) využitím alternativních surovin a nových cementů. Institute of Circular Economy, October 2023.

12 Raw Material Policy for Wood. Ministry of Agriculture of the Czech Republic, Ministry of Industry and Trade of the Czech Republic, and Ministry of the Environment of the Czech Republic, June 2024

13 Clean Industrial Deal: A plan for EU competitiveness and decarbonisation. European Commission, February 2025.

14 Zelená dohoda pro Evropu. European Council, December 2019.

15 Sdělení o Dohodě o čistém průmyslu: společný plán konkurenceschopnosti a dekarbonizace. European Commission, February 2025.

16 Zero Carbon Roadmap – Cesta ke klimaticky neutrálním budovám v České republice. Czech Green Building Council, 2025.

17 Vytvoření „rozhodujících trhů" pro nízkoemisní výrobky a materiály. Institute of Circular Economy, August 2025.

VISION

This initiative, which aims to promote the wider use of low-emission building materials across the academic, public, and private spheres, follows a similar approach to other European and, in particular, Dutch initiatives, such as the Sustainable Timber Construction deal in the Amsterdam Metropolitan Area and the Dutch Sustainable Concrete deal.

Its basic idea is that environmental, social, and economic sustainability must be aligned within an innovative environment. Ambitions in the field of timber construction and low-emission construction provide solutions to current social challenges: from affordable housing and climate resilience to healthy indoor environments and innovation in production and planning.

As part of this ambition to promote the use of low-emission building materials for the construction of standardized apartment buildings, we will be guided by the following principles:

- **Circular design**: emphasis on demountability, recyclability, and reuse of materials.
- **Readiness for digitalization**: the potential to integrate digital tools to enable accurate and continuous data monitoring throughout the building's life cycle.
- **Standardization for easy replication**: model solutions enabling rapid scaling and cost reduction.

This approach links climate policy goals with the needs of social housing and regional development. At the same time, it opens up space for practical testing of innovative solutions through public and private investment.

PREMISE

We believe that voluntary partnerships between academia and the public and private sectors, focused on promoting innovation, sustainability, and removing barriers to the wider adoption of green solutions, are a key tool for the transition to a sustainable and circular economy. Their aim is to create space for experimental and voluntary cooperation that will enable the testing of eco-innovative projects, new construction methods, and the expanded use of low-emission materials in construction.

This cooperation also reflects the current situation in the Czech construction industry, which is characterized by a severe labor shortage and the problem of construction and demolition waste. At the same time, the construction industry in the Czech Republic faces three major challenges:

- **a shortage of affordable housing**, which most affects low- and middle-income households,
- **a non-digitised permitting process** conducted by a large number of small local authority departments with limited capacity, and
- **the need to increase the cost-effectiveness of low-emission solutions**, which are still often perceived as a more expensive alternative.

Low-emission building materials—such as wood, low-emission concrete, and construction products with recycled content—offer a number of advantages that are key to the transformation of the sector and also present a range of opportunities that can lead to several positive sustainability impacts:

1. **Reducing the carbon footprint**
    - As a renewable building material, wood naturally stores carbon, and its processing and use results in lower emissions than traditional materials.
    - Low-emission concrete uses recycled materials and alternative raw materials, significantly reducing CO_2 emissions.
2. **Support for the circular economy**
    - Recycling building materials enables reuse and reduces the need to extract limited primary raw materials.
    - Circular products and solutions designed according to eco-design principles maximize resource efficiency and minimize waste generation throughout a building's life cycle.
3. **Economic efficiency and innovation**
    - Modular and prefabricated buildings made from low-emission materials reduce construction time, significantly lower the need for labor on site, and reduce costs.
    - Innovative technologies, including digital tools and robotics, increase productivity and reduce material waste.

4. Support for green public and private procurement

- Public procurement can serve as a powerful tool to support the market for sustainable building solutions.[18]
- Giving preference to low-emission materials in public projects stimulates demand, encourages innovation, and helps set new standards that can also be applied in private contracts.

[18] Národní strategie veřejného zadávání v České republice pro období let 2024 až 2028. Ministerstvo pro místní rozvoj (MMR) ČR, 2024.

OBJECTIVE

The goal of this first agreement is to create a "step-by-step" guide = a consensus-based roadmap for planning, piloting, and implementing projects that use low-emission materials and solutions in practice. The roadmap will be freely available to all actors in the construction sector, but is primarily intended as support for municipalities.

The "step-by-step guide" will contain a description of the individual steps for public and private contractors – from project preparation, through the start of construction, to project completion – including recommendations for available tools that can help to ensure the effective running of the entire process (e.g., SBToolCZ).

The aim of the project is also to create space for an experimental approach to the "step-by-step guide" – a clear guide that provides step-by-step information on how to effectively incorporate more low-emission materials into construction – while complying with the requirements for independent certification of their use.

The main output of the partnership will be designed with an emphasis on replicability, support for digitization, and the principles of circular design. At the same time, this agreement focuses on supporting innovation in the construction industry and developing the market for low-emission building materials in the Czech Republic.

The fulfillment of the objective will be continuously monitored and evaluated in cooperation with key players from academia, public administration, and the private sector. The process will also include systematic documentation of the benefits and challenges associated with the implementation of the agreement.

KEY PRINCIPLES

To ensure that the Partnership for the Construction of Standardized Apartment Buildings from Low-Emission Materials will indeed lead to wider application of these solutions in the Czech construction industry, its partners voluntarily commit to fulfilling the obligations arising from this written agreement, in accordance with their specific role in the implementation process. The Partnership is free of financial and other obligations. The only condition is active cooperation. If necessary, it is possible to withdraw from the agreement at any time.

The Partnership Action Plan contains specific phases and milestones, together with precisely defined responsibilities for each partner.

The Partnership focuses on the following principles, which are essential for its implementation. The individual points reflect the requirements for environmental and economic sustainability of construction:

1. **Use of low-emission materials**
   - Promoting the use of materials with a low carbon footprint, such as wood, low-emission cement, and recycled products.
   - Prioritization of construction solutions that contribute to the decarbonization of the sector.
2. **Eco-design with an emphasis on the entire life cycle of a building**
   - Design of buildings taking into account the possibilities of prefabrication, easy maintenance, and future deconstruction.
   - Support for designs that are adaptable, easy to dismantle, and reusable.
3. **Accelerating construction**
   - Providing an affordable model "step-by-step guide."
   - Collaboration on designs for accelerated and efficient construction management
4. **Digital design and data management**
   - Support for transparent and data-driven building design.
   - Potential for digitization of construction management.
5. **Economic feasibility**
   - Seeking ways to achieve economic sustainability in projects: from the preparation phase through implementation to long-term operation, especially from the perspective of public contractors and municipalities.

PARTNERS AND THEIR ROLES

Within the Partnership, a wide range of actors across the public, private, and academic sectors are involved in the implementation and development of the project. Each partner brings specific expertise and capacities to the process, which together create the basis for the successful fulfillment of the agreement's objectives.

The key role of coordinator is played by the **Institute of Circular Economy (INCIEN)**, which acts as a transition broker, i.e., an independent mediator of change that connects the public, private, and academic sectors and coordinates joint efforts towards systemic transformation. INCIEN provides the organizational and communication background for the entire process, including facilitating working meetings, inviting relevant actors, and supporting the marketing and public communication of the Agreement. INCIEN connects expert content with strategic management and ensures that initiatives remain anchored in a long-term perspective. INCIEN acts as the main coordinator in all milestones of the Action Plan.

Other participants in the agreement include:

Association of Prefabricated House Suppliers (ADMD) brings to the project its extensive experience in prefabrication, modular construction, and public sector awareness. It actively supports municipalities, investors, and the professional public in focusing on the advantages and possibilities of wood construction, and thanks to its contacts, it effectively disseminates the outputs of the agreement.

Holcim (Czechia) a.s. is involved as a project partner and supplier of low-emission building materials (especially cement and concrete). It actively participates in awareness-raising and marketing, shares its expertise, and establishes cooperation with other relevant suppliers within the sustainable construction chain.

Czech Green Building Council (CZGBC) acts as an expert partner focusing on green buildings based on the principles of sustainability and thanks to its connections to other entities supporting innovation in construction. It also acts as a partner in the area of dissemination.

Jakub Cigler Architekti, a.s. acts as an expert guarantor for architecture and urban planning, with a special emphasis on integrating low-emission materials and sustainable design principles into the design of a standardized apartment building. Their role is to find architectural solutions that combine aesthetic quality, functionality, and environmental responsibility.

Ministry of Industry and Trade (MPO) supports the initiative in terms of material development, legislative conditions, and support of digitalization. A significant

contribution of the MPO is to provide a platform for bringing innovative construction products to market and connecting with other professional platforms.

Ministry of Agriculture (MZe) supports the use of wood as a renewable material through its raw materials policy and the sharing of good practices, particularly in cooperation with Lesy ČR. It is prepared to contribute to the dissemination of outputs, the sharing of databases, and links with other actors in the wood processing chain.

The Ministry of the Environment (MŽP) acts as an expert guarantor in the area of legislation relating to the promotion of circularity in building materials through its strategic documents and policies. It contributes to the expansion of the use of low-emission and recyclable materials in the Czech construction industry and supports innovative solutions that also allow municipalities greater freedom of choice in the implementation of construction projects.

National Network of Healthy Cities of the Czech Republic (NSZM ČR) focuses on replicating and disseminating agreements between municipalities. It identifies municipalities that may be interested in joining the initiative and serves as an intermediary between the state administration and local governments.

Chance for Buildings (ŠPB) contributes its expertise in sustainable construction, legislative orientation, and communication capacity. As part of the planned expansion of the team, it is prepared to become more involved and actively participate in the agreement process.

University Centre for Energy Efficient Buildings (UCEEB) at the Czech Technical University in Prague (ČVUT) acts as the main expert and research partner. UCEEB provides methodological support, shares the results of related projects, offers access to its outputs (e.g., pre-demolition audit methodology), and contributes to the professional quality of the pilot project documentation. At the same time, it provides the opportunity to organize thematic seminars.

Timber Research and Development Institute (VVÚD) provides a background for technical verification of solutions, revision of project documentation, and support for the possible certification of wooden structural elements. Their involvement ensures that the outputs of the agreement will be feasible in terms of technical correctness and will also speed up the approval process thanks to certifications.

Praha 12, Trojanovice and Žďár nad Sázavou act as consultants based on their experience with completed or planned projects.

This diverse and professionally anchored network of partners confirms that this first Partnership is based on interdisciplinary cooperation and a shared ambition: to accelerate the transition to low-emission, affordable, and easily replicable construction through a "step-by-step guide" approach. **Through our joint efforts, we are laying the foundations for systemic change towards more sustainable, efficient, and higher-quality construction in the Czech Republic.**

Associated Partners

The associated partners act as expert consultants and supporters of the project. They provide valuable insights, recommendations, and feedback on both project outputs and strategic direction. Through their experience and expertise, they help ensure the quality, relevance, and practical applicability of the project's results. Other entities will gradually join the circle of associated partners, including other ministries and professional organizations.

PARTNERSHIP FRAMEWORK

Detailed information on individual aspects of the Partnership will be included in the Action Plan. The Action Plan will be a living and working document that will be adapted over time to changing circumstances in order to fulfill the initiative's objectives as effectively as possible. The Action Plan contains specific tasks and clearly defined responsibilities for each partner. Find below key information regarding the duration of the Partnership, the location of the signing ceremony, and the parties involved.

Implementation period

This initiative will be implemented from November 1, 2025, to October 31, 2027.

Signing ceremony

The ceremonial signing will take place on **October 23, 2025**, as part of a partnership conference dedicated to the presentation of the Partnership at the Hybernská Campus in Prague.

Parties involved

- Association of Prefabricated House Suppliers (ADMD)
- Czech Green Building Council (CZGBC)
- Holcim (Czechia) a.s.
- Jakub Cigler Architekti, a.s.
- Institute of Circular Economy (INCIEN)
- Ministry of Industry and Trade (MPO)
- Ministry of Agriculture (MZe)
- Ministry of the Environment (MŽP)
- Chance for Buildings (ŠPB)
- National Network of Healthy Cities of the Czech Republic (NSZM ČR)
- University Centre for Energy Efficient Buildings (UCEEB) at the Czech Technical University in Prague (ČVUT)
- Timber Research and Development Institute (VVÚD)
- Praha 12
- Trojanovice
- Žďár nad Sázavou

Parties that do not wish to sign this agreement by October 23, 2025, may join it later. The aim is to gain the widest possible support across the public sphere, the private sector, and academia, which share the ambition to achieve the set goals.

ABBREVIATIONS

ADMD	Association of Prefabricated House Suppliers
a.s.	Joint stock company
CID	Clean Industrial Deal
CO_2	Carbon dioxide
CZGBC	Czech Green Building Council
ČVUT	Czech Technical University in Prague
EU	European Union
EU ETS	EU Emissions Trading System
GHG emissions	Greenhouse Gas emissions
INCIEN	Institute of Circular Economy
LCA	Life Cycle Assessment
MMR	Ministry of Regional Development
MPO	Ministry of Industry and Trade
MZe	Ministry of Agriculture
NSZM ČR	Národní síť zdravých měst České republiky (in English, National Network of Healthy Cities of the Czech Republic)
SBToolCZ	Czech certification tool for assessing and certifying the comprehensive quality of buildings in accordance with the principles of sustainable construction
SFPI	State Investment Support Fund
ŠPB	Chance for Buildings
SPpD	Raw Materials Policy for Wood
UCEEB	University Centre for Energy Efficient Buildings at the Czech Technical University in Prague
VVÚD	Timber Research and Development Institute
z. ú.	Registered institute

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