The Collaborative Efforts of Nordic Countries to Reduce Climate and Environmental Impact from Construction

Helle Redder Momsen
20 06 2024

Nordic Sustainable Construction

It began with a Vision

Our vision 2030

A **competitive** Nordic region

Together, we will promote green growth in the Nordic region based on knowledge, innovation, mobility and digital integration.

A **green** Nordic region

Together, we will promote a green transition of our societies and work towards carbon neutrality and a sustainable circular and bio-based economy.

The Nordic region will become the most sustainable and integrated region in the world

A **socially sustainable** Nordic region

Together, we will promote an inclusive, equal and interconnected region with shared values and strengthened cultural exchange and welfare.

Nordic collaboration on Building Regulations

Nordic Vision 2030

2019
Nordic Vision 2030
Nordic Prime Ministers

2019
Nordic Ministerial Declaration Housing and Construction

2021
Nordic Sustainable Construction Programme

2023
Nordic Ministerial Declaration Housing and Construction

Nordic Ministerial Declaration, 2023

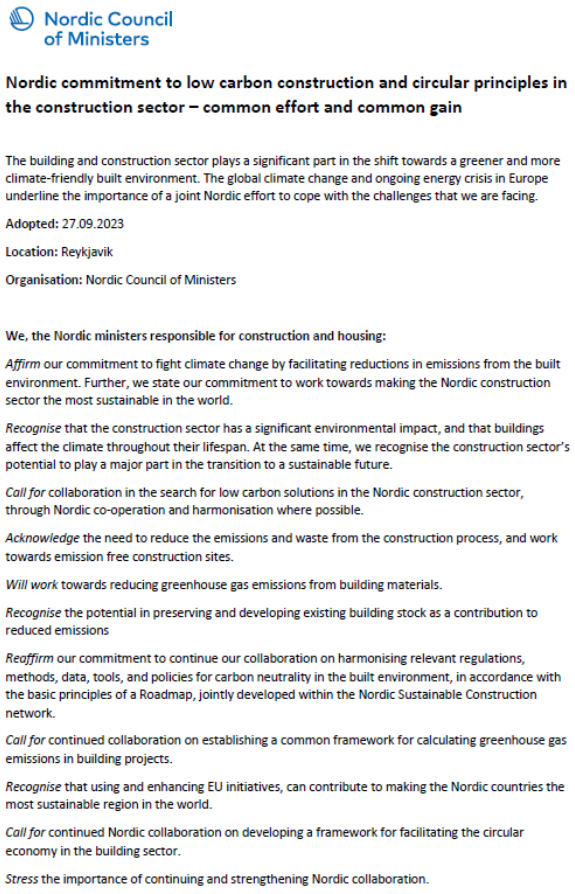
Nordic Ministers responsible for construction and housing

"We reaffirm our commitment to the ongoing work towards **low carbon solutions** and the integration of **circular principles** in the **Nordic construction and building sector**"

"… reaffirm our commitment to continue our collaboration on **harmonising relevant regulations, methods, data, tools, and policies for carbon neutrality in the built environment**, in accordance with the **basic principles of a Roadmap**, jointly developed within the Nordic Sustainable Construction network.

"Acknowledge the need to reduce the **emissions and waste** from the construction process, and **work towards emission free construction sites**"

"Recognise the potential in **preserving** and **developing existing building stock** as a contribution to reduced emissions"



Nordic Council of Ministers

Nordic commitment to low carbon construction and circular principles in the construction sector – common effort and common gain

The building and construction sector plays a significant part in the shift towards a greener and more climate-friendly built environment. The global climate change and ongoing energy crisis in Europe underline the importance of a joint Nordic effort to cope with the challenges that we are facing.

Adopted: 27.09.2023

Location: Reykjavik

Organisation: Nordic Council of Ministers

We, the Nordic ministers responsible for construction and housing:

Affirm our commitment to fight climate change by facilitating reductions in emissions from the built environment. Further, we state our commitment to work towards making the Nordic construction sector the most sustainable in the world.

Recognise that the construction sector has a significant environmental impact, and that buildings affect the climate throughout their lifespan. At the same time, we recognise the construction sector's potential to play a major part in the transition to a sustainable future.

Call for collaboration in the search for low carbon solutions in the Nordic construction sector, through Nordic co-operation and harmonisation where possible.

Acknowledge the need to reduce the emissions and waste from the construction process, and work towards emission free construction sites.

Will work towards reducing greenhouse gas emissions from building materials.

Recognise the potential in preserving and developing existing building stock as a contribution to reduced emissions

Reaffirm our commitment to continue our collaboration on harmonising relevant regulations, methods, data, tools, and policies for carbon neutrality in the built environment, in accordance with the basic principles of a Roadmap, jointly developed within the Nordic Sustainable Construction network.

Call for continued collaboration on establishing a common framework for calculating greenhouse gas emissions in building projects.

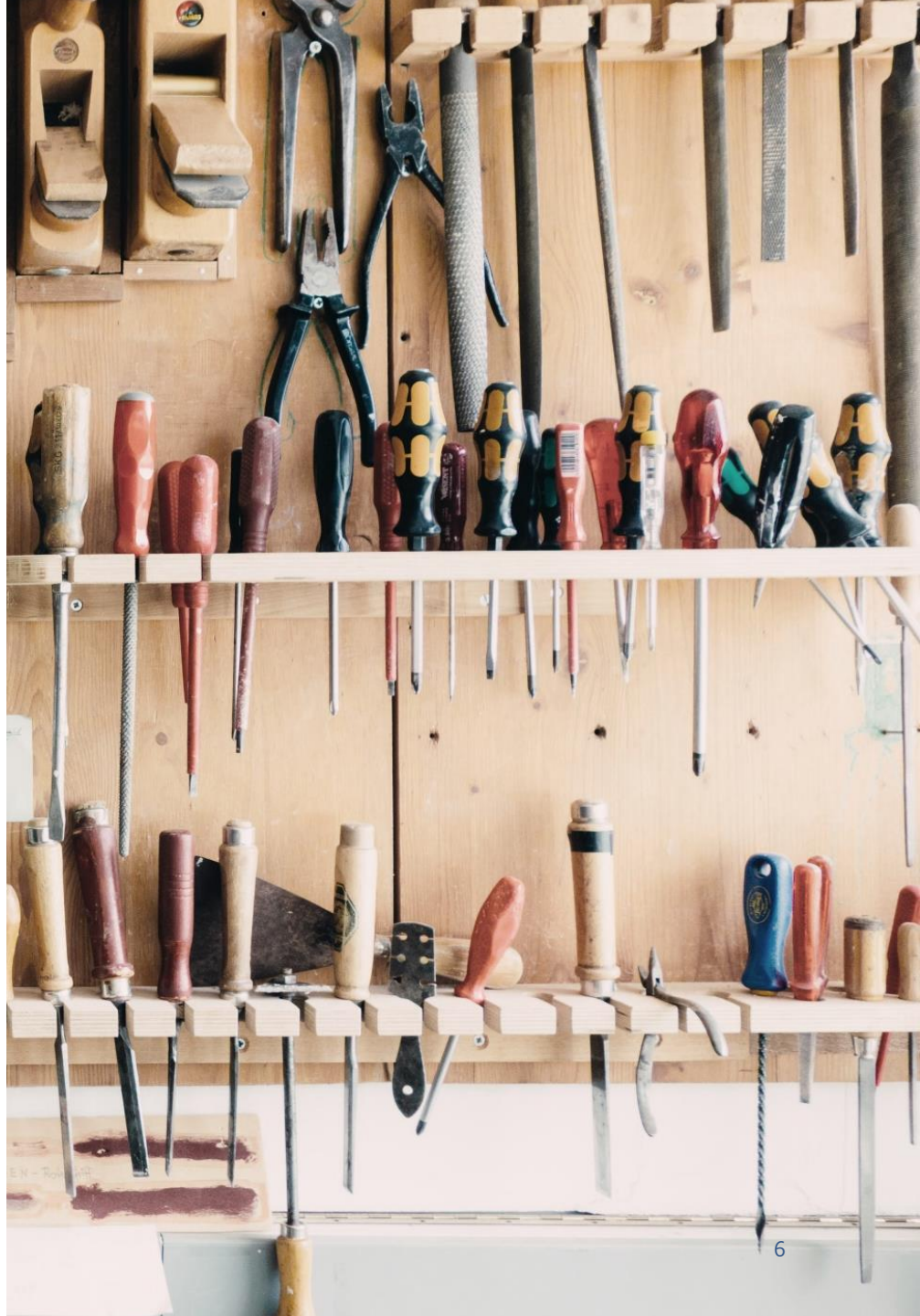
Recognise that using and enhancing EU initiatives, can contribute to making the Nordic countries the most sustainable region in the world.

Call for continued Nordic collaboration on developing a framework for facilitating the circular economy in the building sector.

Stress the importance of continuing and strengthening Nordic collaboration.

Our purpose

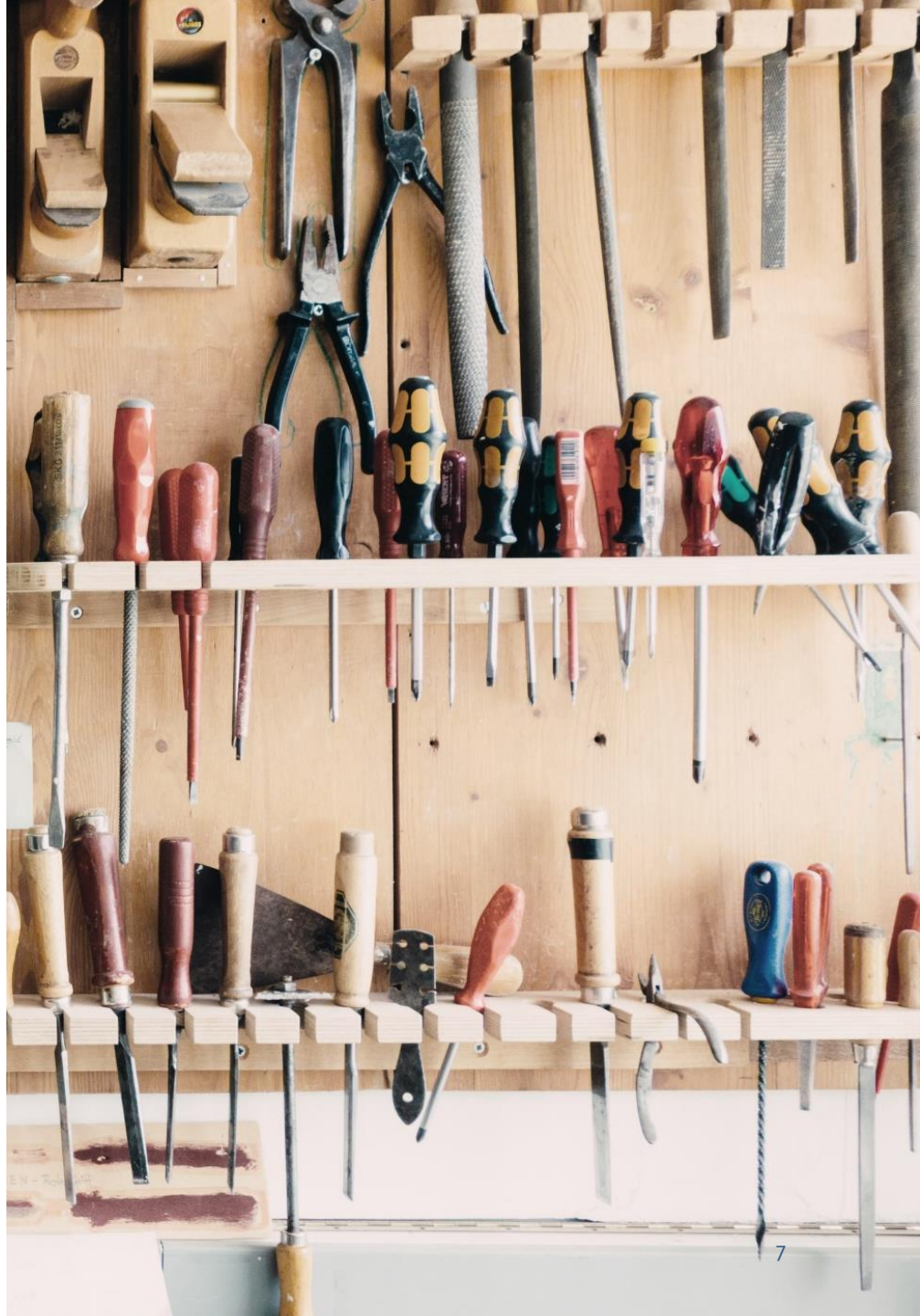
Nordic Sustainable Construction aims to support the ambition in the Nordic Vision 2030 of establishing the Nordics as a leading region in **sustainable** and **competitive** construction and housing – with minimised **environmental** and **climate** impact.



Our purpose

We work to

- accelerate the knowledge and capacity for a green transition in the Nordic construction sector
- strengthen Nordic collaboration
- support an aligned Nordic path
- share experiences and knowledge in EU and beyond



Work Packages

Nordic Harmonisation of Life Cycle Assessment

Harmonisation, regulation, digitalisation, limit values, climate reporting.

Circular Business Models and Procurement

Circularity in the construction industry and for public developer through capacity building.

Sustainable Construction Materials and Architecture

Opportunities and barriers to using wood and other biobased construction materials.

Emission-free Construction Sites

Diminishing emissions through regulation, harmonisation, research and practical guidelines.

Programme Secretariat and Competences for Reuse in Construction

Capacity building, strategic partnerships, knowledge sharing.

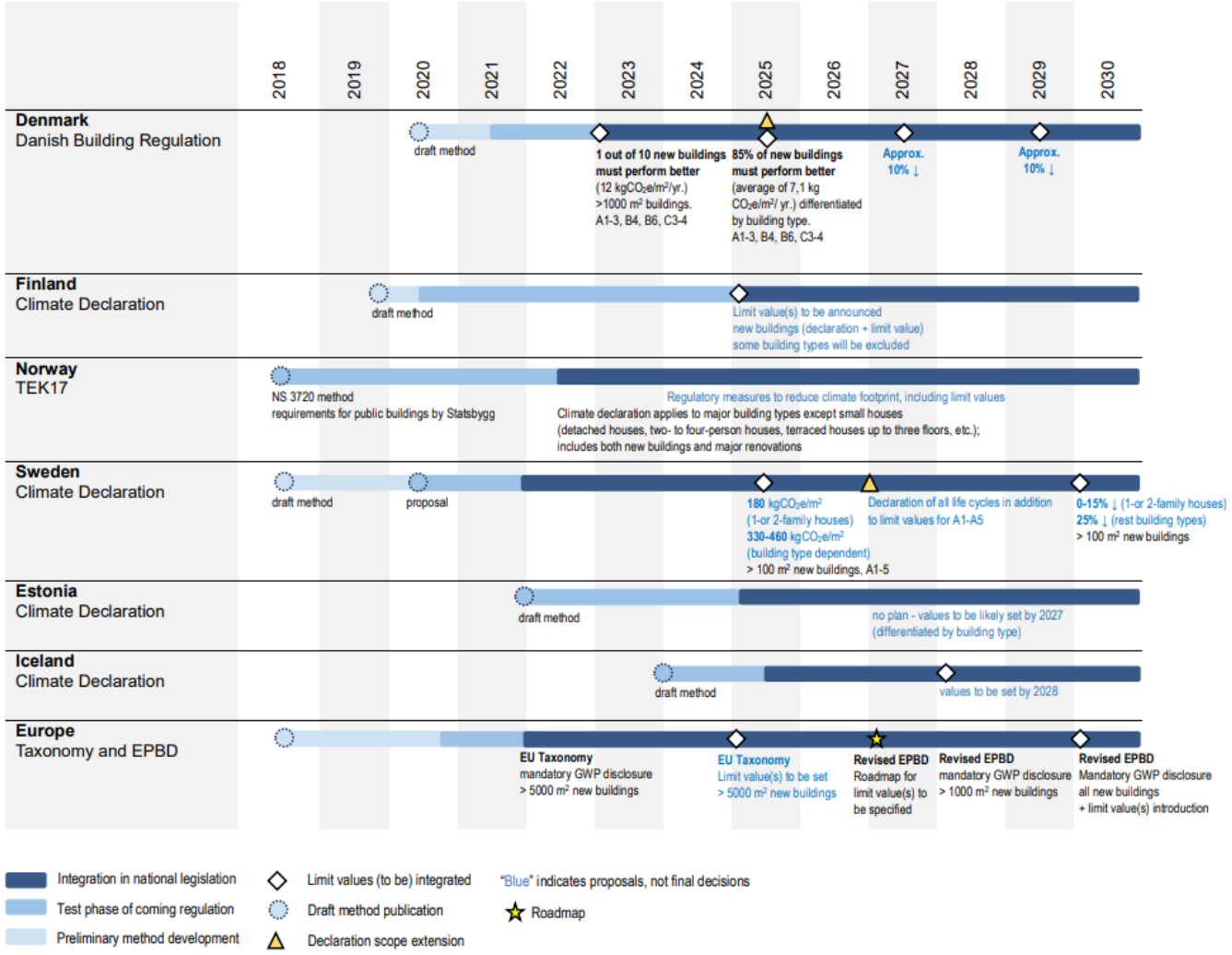
Ympäristöministeriö
Miljöministeriet
Ministry of the Environment

Work Package 1

Nordic Harmonisation of Life Cycle Assessments

Task 1	Task 2	Task 3	Task 4	Task 5
Analysis of Nordic LCA Practices	**Data for LCA**	**BIM for LCA - Calculating the Climate Impact of Buildings Through Digitalisation**	**Limit Values and Monitoring the Decarbonisation of the Nordic Building Stock**	**Acceleration Programme: Knowledge Sharing Clinics and Best Practice Catalogues**
Roadmap for Harmonising Nordic LCA regulation Strategic aims: • Harmonisation and implementation of climate declarations • European collaboration • Strengthened authority coorperation	Report: Nordic view on data needs and scenario settings for full life cycle building environmental assessment See recording of webinar from 18.06.2024 Subtasks: • Collaboration and involvement of Nordic experts • Process for gathering typical data • Data for existing buildings • Data for bio based products • Data for vegetation	Report: The operating environment of building LCA and BIM in the Nordics and Estonia Webinar on BIM-based building LCA Guidance and learning materials in development. Final report coming.	Report: Harmonising limit values for buildings across the Nordics Webinar: Harmonised CO2eq limit values for buildings and monitoring decarbonisation of the building stock Upcoming report: Decarbonization of the building stock Upcoming webinar 05.09.2024	The acceleration programme aims to speed up decarbonisation of the building and construction sector Report end of year.

Climate declaration and limit values

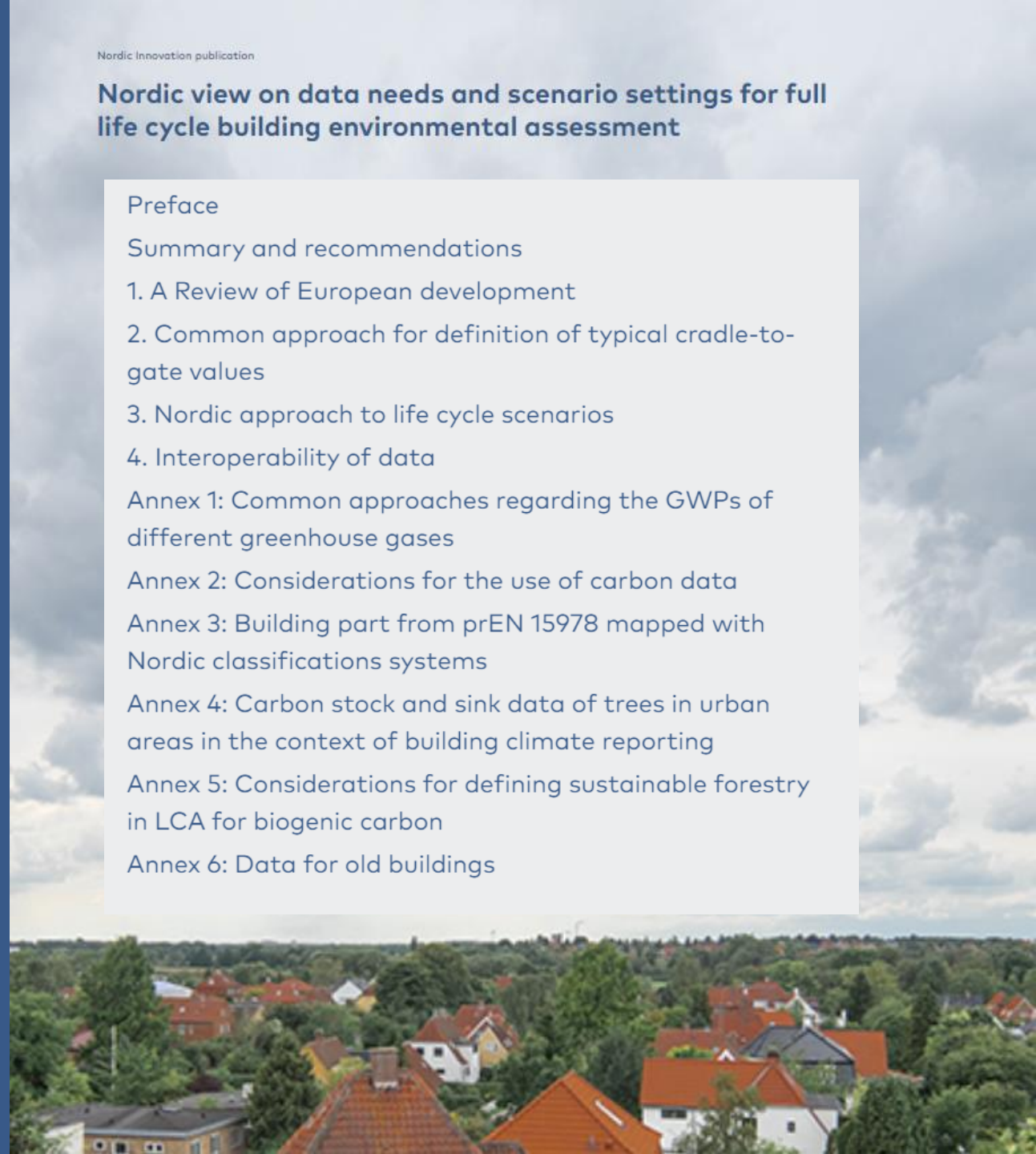


Nordic Sustainable Construction: Nordic Timeline regulations updated.pdf (nordicsustainableconstruction.com)

Results from data for LCA

- Calculation of life-cycle Global Warming Potential (GWP) will be required for all new buildings, but there are no decisions on the specifics of data to be used in calculations
  - Nordic view on data needs and scenario settings for full life cycle building environmental assessment –report offers a detailed Nordic expert recommendation
    - Scenario setting for materials and energy usage
  - Cost effective way would be to use common (European & Nordic) approach where feasible, and national rules and data only where high impact on GWP can be expected (tiered approach)
    - Recommendations on future calculations needed for the EPBD life-cycle GWP indicator for buildings
  - Inclusion of vegetation and carbon sinks is not adequately covered in calculation methods to drive sustainable decisions

NEW REPORT: Recommendations for a Common Nordic Approach to Combat New Buildings Life Cycle Climate Impact | Nordic Sustainable Construction



Low Carbon Clinics

An opportunity to participate in **a local sustainability workshop** with your current design project during August/September

Possibility for **free consultancy by leading experts** in Norway, Denmark, Sweden, Finland, Iceland and Estonia

Get new input, **inspiration and knowledge**

Sign up before 15th of July here:

[Participate in the Nordic Low Carbon Clinic – Task 5.1 (sweco.dk)]

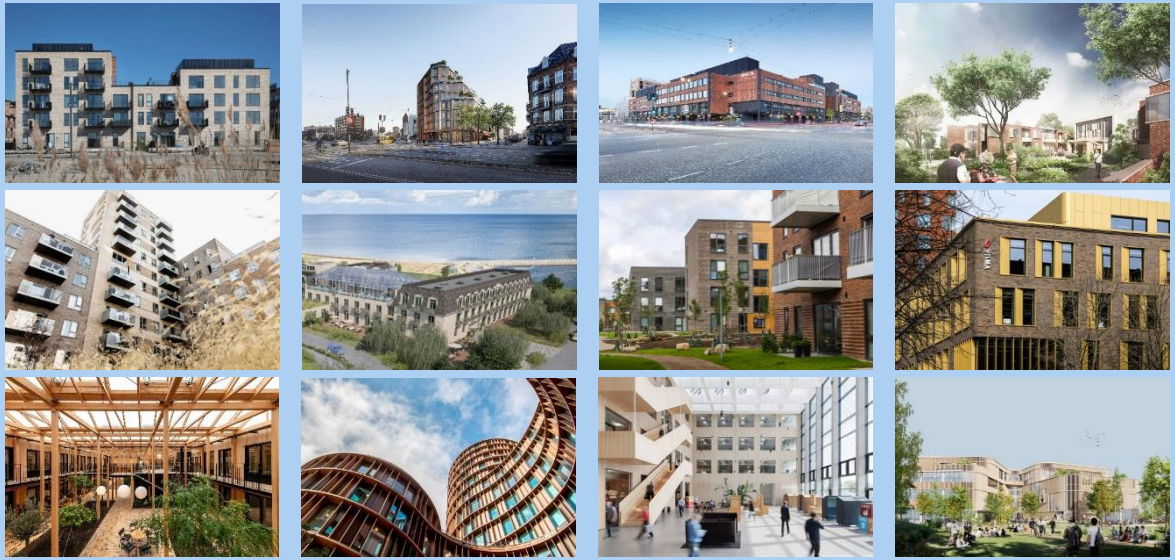
Best Case Catalogue

Showcase **your best low carbon building projects** in the Sustainable Nordic construction best case catalogue!

Your project will be showcased in a report and online on Nordic Sustainable Construction's webpage.

Sign up before 15th of July here:

[Sign your project up for Nordic Low Carbon Building Catalogue – Task 5.2 (sweco.dk)]



Nordic Innovation

Work Package 2

Circular Business Models and Procurement

Smart City Network

Collaborative project between Nordic municipalities and cities.

The two Nordic Smart Cities, Tampere and Stavanger run pilot projects with the goal of including circular thinking and procurement in the planning process as well as in new tenders for buildings.

Upcoming report: Gathering experiences from the mentioned cities and Copenhagen and Stockholm.

Nordic Blue Building Alliance

This work package has established the Nordic Blue Building Alliance.

The project explores marine bio based building materials.

Report: Technical Playbook on Marine based low carbon construction.

Workshops

To help Nordic construction companies identify opportunities, digital capabilities and suitable business models as well as corporation possibilities.

Nordic Tool Box

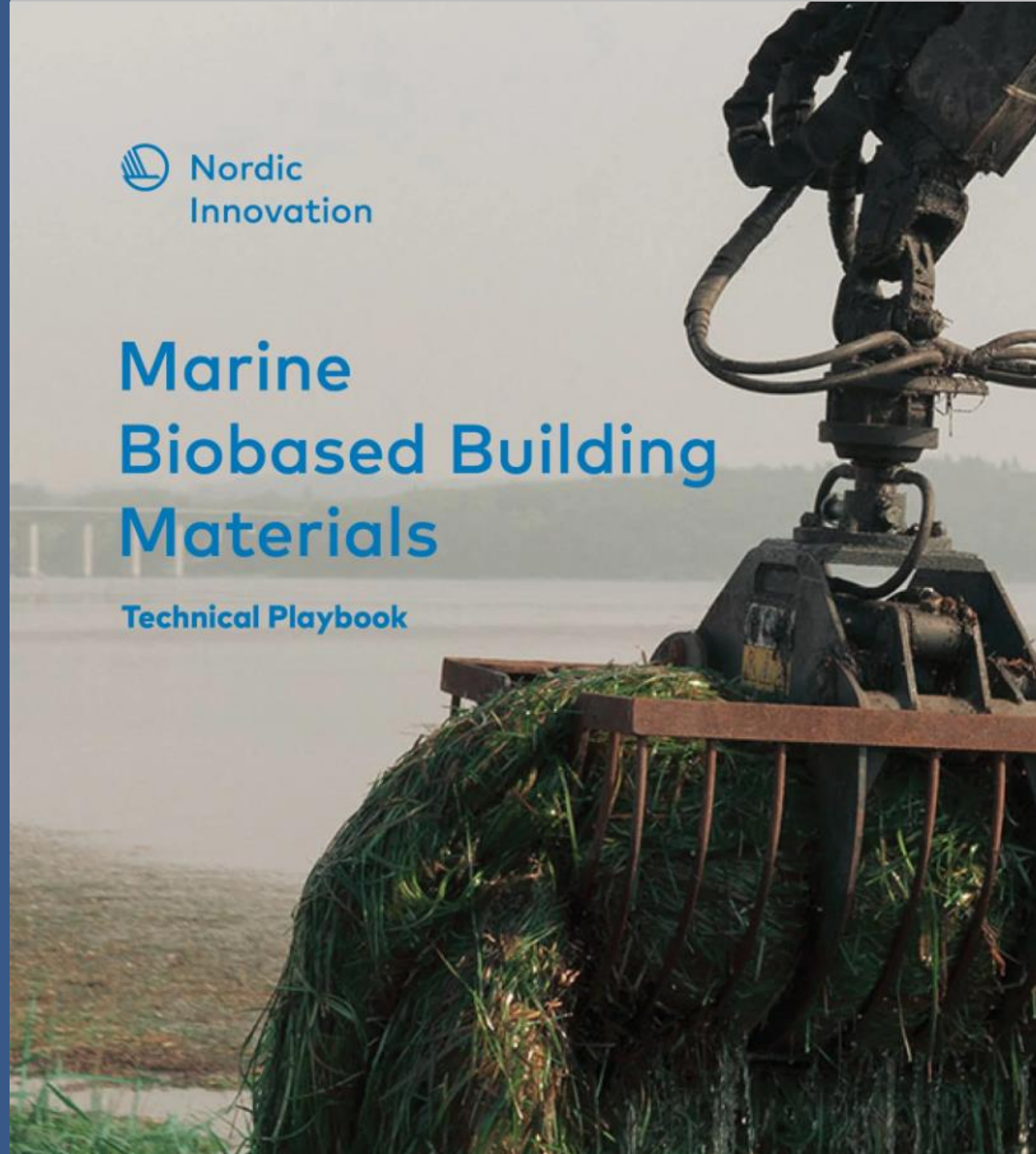
Tool box for businesses and organisations to use in different aspects of their work including two playbooks:

The Nordic Circular Economy Playbook 1.0 and 2.0.

Nordic Blue Building Alliance

— Report assesses the development of regenerative maritime building materials and highlights the challenges that may exist for commercial adoption.

— Showcases how materials like algae, seagrass, and reeds offer significant growth potential to support the green transition of the Nordic construction sector.



Work Package 3

Sustainable Construction Materials and Architecture

Democracy Festivals - Knowledge Gathering Tour	Transformation Panel	The Hierarchy of Material Use in Construction	Place-Based Development and Architecture	Legislation for Sustainable Construction and Architecture	The Unheard Voices in Architecture
Gathered key take aways to define what is important to look at when debating what sustainable construction materials are and the role of architects. Got input from a wide range of debates from 2021-2022. E.g. • Nordic democracy festivals and the first New European Bauhaus Festival • COP26 and COP27 • UIA 2023	Established a Transformation Panel that represents the industry, academia and civil servants in order to test and anchor the findings of the Work Package and have access to state of the art info from the market and researchers.	Article and Roundtable Discussion on the Hierarchy of Material Use in Construction.	Article and Roundtable Discussion on Place-Based Development and Architecture.	Article and Roundtable Discussion on Legislation for Sustainable Construction and Architecture.	Upcoming article and Roundtable Discussion on the Unheard Voices in Architecture.

Highlights

- Restauration, reuse and transformation instead of new built
- Reduce per-capita square meters
- Education, data, and knowledge sharing
- Biobased building materials when virgin material cannot be avoided
- Innovation on knowledge, methods and business models for reuse and transformation

- From the bottom and up
- Local aesthetics, energy, knowledge and material use
- Social and physical infrastructure

- Democratic integration of the interests of future generations
- Democratic representation of the interests of non-human entities

- User involvement and continuous review and revision in policy development
- Ensuring accountability in emissions reporting
- Incentive structures for transformation rather than new construction
- Funding for data collection and research
- New frameworks for safety and risk management with planetary boundaries at the centre.

Government of Iceland
Ministry of Infrastructure

Work Package 4

Emission free Construction Sites

Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
Nordic declaration on emission free construction sites	**Definitions, boundaries and terminology**	**Value chain and ecosystems co-operation**	**Research and Innovation**	**Support for emission free construction sites**	**Rules, standards and legislation, including developments in the EU**
Facilitated the work to update the old declaration from 2019, now including a focus on A4 and A5 and waste. 2023 declaration endorsed by Nordic ministers of Housing and Construction. Declaration introduced to and endorsed by stakeholders in the Nordic construction industry.	Report: Definitions, boundaries and terminology on emission free construction sites.	Establish a platform for co-operation on technology development including a newsletter and developed a cost-effectiveness calculator.	Report: Emission free construction sites - Knowledge gaps and research needs. Encourage and facilitate research and innovation.	Upcoming guidelines to emission free construction sites.	Upcoming report: Mapping barriers and recommendations Collect experiences from pilot projects and conduct dialogue with procurers, contractors and officials on barriers for emission free construction sites.

Definition of a construction site

The major emitting activities are Energy and Materials

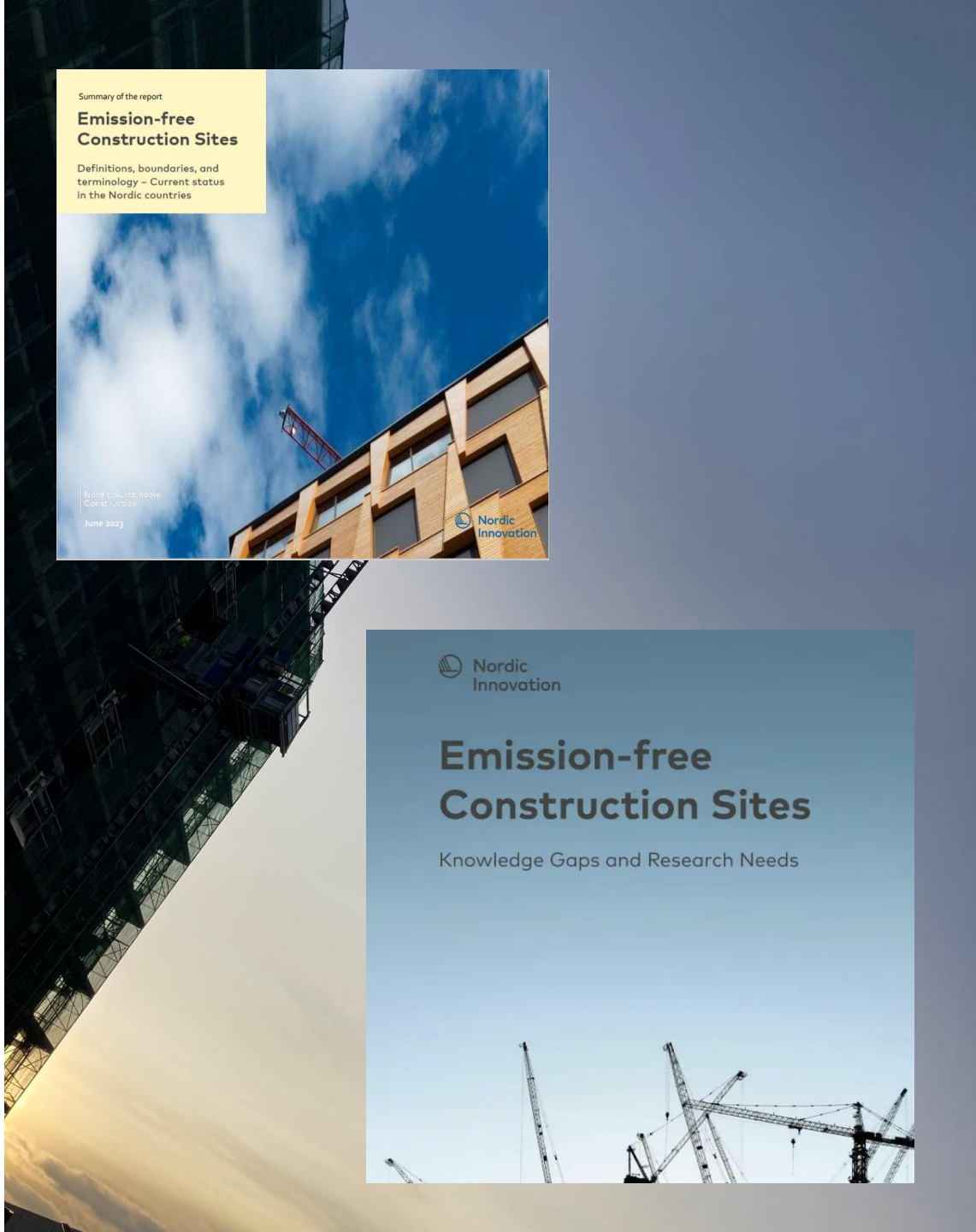
Energy Emissions from energy use -
Transport of materials to and from site
Construction Machinery
Heating, Ventilation etc.

Materials Emissions from production and processing of wasted building material, auxiliary material and other waste

Complexity in implementation

This boundary definition covers most emissions, but is difficult in practical implementation. A step-wise approach is suggested where a construction site can have different ambition levels, such as:

- Fossil free machinery
- Fossil free machinery and transport
- Emission free machinery
- Emission free machinery and transport
- Emission free machinery, transport and waste



Danish Authority of Social Services and Housing

Work Package 5

Programme Secretariat and Competences for Reuse

Programme Secretariat

External and internal communication of the knowledge created in the programme.

4 reference group meetings a year.

Support the monthly meetings and the regular exchange between the Nordic LCA Authorities.

Speaking engagements sharing key findings especially in the Nordics and EU and occasionally internationally.

Examples: Håndværk festival, Global Climate Forum for Buildings, High Level Construction Forums and COP28. And support the yearly Nordic Climate Forum for Construction.

www.nordicsustainableconstruction.com

Linkedin
Newsletter
Twitter

Creating Links and Engaging Stakeholders

Establishing partnerships with key stakeholders in the Nordic construction industry and beyond.

Contributing to focus on the harmonization and/or green potentials across the Nordics during the updating of the national annexes to the Eurocodes mandated by the Nordic Steering Group for Harmonisation.

Collaborate with e.g. Nordic Network for Circular Construction, Nordic Carbon Neutral Bauhaus, various Nordic working groups.

Competences for Reuse in Construction

Developing educational material to strengthen the competences for reuse

Phase 1: Mapping
- Mapping of educational materials on reuse in the Nordics
- Report on policies enabling the reuse of construction products in the Nordics

Phase 2: Development
- Defining learning objectives for the educational material
- Developing the website www.skills4reuse.com

Phase 3: Dissemination
- Disseminating Skills4Reuse to Nordic vocational schools

Phase 4: Evaluation

Material and design optimisation

A. Optimised building design = more efficient ressource use. The national annexes to the Eurocode is an opportunity = Nordic priority paper

Nordic collaboration on harmonisation and a green optimisation of the national annexes to the Eurocodes

Nordic collaboration to harmonise and make the national annexes greener

The Nordic Steering Group for Harmonisation, which consists of representatives from all the Nordic construction authorities, has identified the update of the national annexes to the Eurocodes as a significant window of opportunity to reduce the negative climate- and resource impact from construction and at the same time, where feasible, seek Nordic harmonisation.

To motivate such a transition, Nordic Sustainable Construction has taken the initiative to gather Nordic authorities and Eurocode experts in order to define what to focus on in such a green check of the national annexes to the Eurocodes and further strengthen the cross country collaboration in this field. This has resulted in a Nordic priority paper identifying where to focus the efforts.

This paper will be share to the existing groups working hard to update the national annexes and later in 2024, indicative results will be shared pointing to how much potential there is both for decreasing the negative impact and also to harmonise.

Read the Nordic priority paper here

What is Eurocodes?

Eurocodes are a series of European standards which, together with the associated national annexes containing technical requirements, determine the safety level for load-bearing structures. Eurocodes are used for the design of construction, roads and bridges.

The use of Eurocodes also contributes to strengthening the single market in the field of construction in Europe.

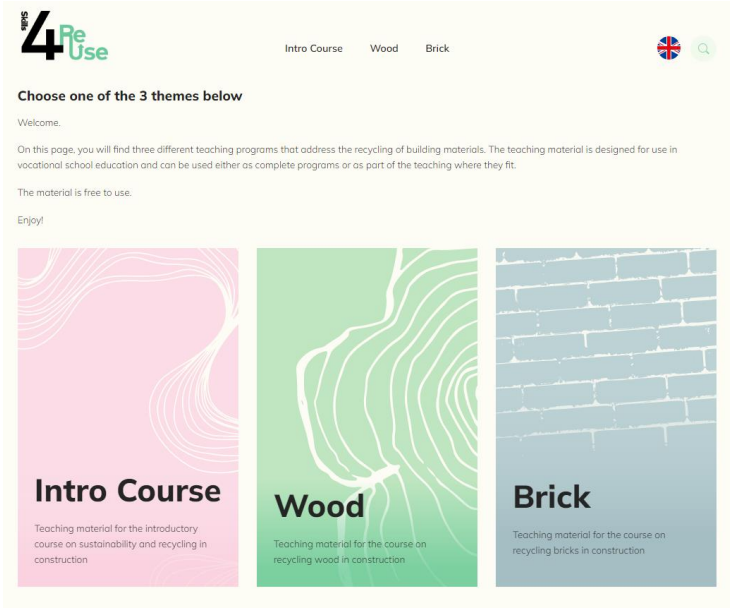
The national annexes to Eurocodes are a series of supplements in which each country can determine the safety level or values and methods that take into account building practices or special national geological and climatic conditions.

Revision of Eurocodes and national annexes

Eurocodes are being revised at European level. The European work is expected to be completed in approx. 2025, and the result is expected to be implemented in the national building regulations in 2026/2027.

In connection with the revision of Eurocodes, the various parts of the national annexes must be revised. The work also includes an evaluation and adjustment of the total safety level, as well as a review of the individual rules in Eurocodes and associated national annexes. **The Nordic collaboration motivate** that this is done with the aim that the rules do not unnecessarily prevent measures to reduce the climate- and resource impact or unnecessarily increase the cost of construction.

Skills4Reuse



Skills4Reuse is a free educational material for Nordic vocational schools. The aim is to strengthen students in their knowledge on sustainability and reuse of wood, tile and brick.

The material consists of three overall modules:

- An introduction to terms within sustainability, circularity, reuse vs. recycle and design for disassembly
- A module on reuse of wood
- A module on reuse of brick

The modules contain a variety of exercises including text, videos, quizzes and practical building exercises – all accompanied by thorough teacher's guides.

It is available in 5 Nordic languages and English.

Find it here: www.skills4reuse.com

Skills4Reuse is developed by:

Nordic Sustainable Construction

VIDENSCENTER FOR HÅNDVÆRK BÆREDYGTIGHED

NORION CONSULT

The Federation of Norwegian Construction Industries - Climate Partnership

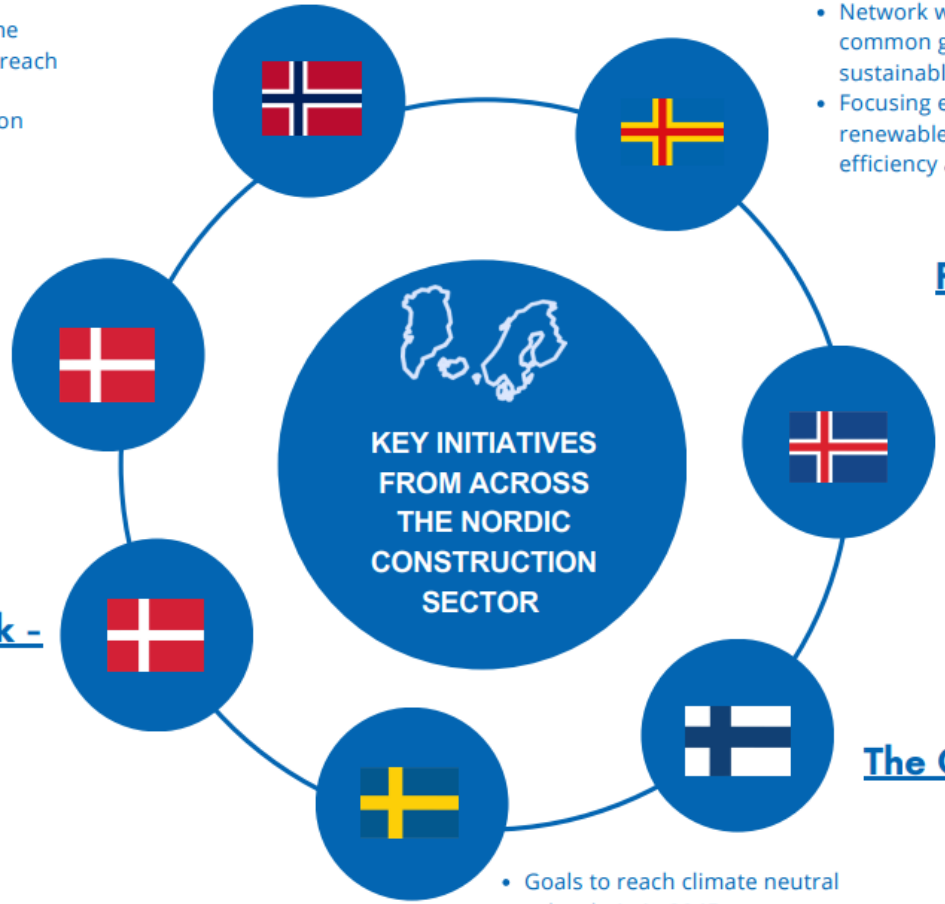
- Norwegian government and partners from the construction sector meets to discuss how to reach the 2030 and 2050 goals
- A task force has made a knowledge foundation (June 2024) to debate what such a climate partnership should contain.

Danish Construction Federation - Construction Framework for Sustainability

- Sector collaboration across the value chain with three overall ambitions within CO2, circular economy and biodiversity

Green Building Council Denmark - Certification manual

- New certification manual for "DGNB Renovation and new build" as a public hearing proposal and pilot project
- Fewer but more strict criteria, enhanced focus on performance and promoting renovations and aligning with EU taxonomy



Fossil-free Sweden - Swedish Roadmap 2045

- Goals to reach climate neutral valuechain in 2045
- Focus areas includes collaboration, knowledge and competences, innovation, digitalisation and leadership

Bärkraft (Åland) - Network

- Network working towards a common goal of a viable and sustainable region
- Focusing eg. on renovation, renewable materials, energy efficiency and waste reduction

Federation of Icelandic Industries - Roadmap to 2030

- 74 actions to support more sustainable construction
- Focus points includes building materials, construction stage, use stage, circularity, LCA, certifications, eco-friendly urban areas and incentives for transition

GBC Finland - The Circular Economy Green Deal

- Government initiative, with FIGBC facilitating construction and building sector and further supporting companies in actions taken
- Strategic commitment model, where operators voluntarily commit to goals and measures promoting reduction of natural resource and a carbon-neutral circular economy

Work Package 1

Harmonisation of Nordic LCA

Deliverables so far:

- ✓ *Roadmap for LCA harmonisation - Presentation at Nordic Climate Forum for Construction.*
- ✓ *Digitalisation of LCA Webinar, report and draft report*
- ✓ *Harmonised CO2eq limit values for buildings and monitoring decarbonisation of building stock webinar and report*
- ✓ Report: Recommendations for a Common Nordic Approach to Combat New Buildings Life Cycle Climate Impact

✓ **Upcoming:**

- 5.9.2024: Final report on limit value and decarbonisation
- Q3 2024: BIM to LCA tool and Youtube training videos on digitalisation of LCA (ongoing)
- Q4 Accelerating decarbonisation through low carbon clinics and good examples of low carbon buildings

Work Package 2

Circular Business models and Procurement

Deliverables so far:

- ✓ *Circular Business models in the construction industry*
- ✓ *The Nordic Blue Building Alliance:* Technical Playbook on marine based low carbon construction materials

Upcoming:

- Public procurement of circular buildings – Network for Nordic Smart Cities (ongoing)
- Procurement pilot cases chosen

- New project on place-based architecture and sustainable construction practices

- Nordic Circular Re-trade project for critical construction materials (Live event in Stockholm showcasing circular frontrunners May 2025)

Work Package 3

Sustainable Construction Materials and Architecture

Deliverables so far:

- ✓ *Debates at Nordic Democracy Festivals & New European Bauhaus Festival*
- ✓ *Policy session at World Congress of Architects*
- ✓ *Article on: the hierarchy of material use in construction*
- ✓ *Article and round table on place based architecture*
- ✓ *Article and round table on regulation & maximum emission requirements for construction*

Upcoming

Three articles on:

- Q3, 2024: Underrepresented stakeholders in construction policy
- Report on long term sustainability in Nordic Construction

Work Package 4

Emission-free Construction Sites

Deliverables so far:

- ✓ *Report clarifying definitions, boundaries and terminology*
- ✓ *Report on knowledge gaps and research needs*
- ✓ *Value chain and ecosystem co-operation*
- ✓ *Virtual videos from emission or fossil free construction sites*
- ✓ *Nordic declaration on emission-free construction sites and sustainable construction*
- ✓ *Webinar: Knowledge gaps and research needs*
- ✓ *Calculator for electric machines vs. Diesel (link)*
- ✓ *Newsletters published*

Upcoming

- 2024: Guidelines for rules, standards and legislation

Work Package 5

Programme Secretariat & Skills

Deliverables so far:

- ✓ *Programme cohesion, communcation and coordination*
- ✓ *Nordic priority paper on Eurocode*
- ✓ *Participated in debates at COP28, Global Forum for Climate and Construction, HLCF and Leap to Zero*
- ✓ *Capacity building activities for reuse.*
  - Mapping and report published
- ✓ *New educational material Skills4Reuse launched and available online in 6 languages*
- ✓ *New newsletter published*
- ✓ Gather communication partners in Bruxelles: Link.
- ✓ Nordic construction sector workshop 2025-2030 (news)

Ongoing or upcoming

- Communication & coordination
- Nordic, EU and international collaborations
- Dissemination of educational material Skills4Reuse
- Exit strategy

Thank you

Ministry of the Environment Finland

Nordic Innovation

Form Design Center

Government of Iceland
Ministry of Infrastructure

Danish Authority of Social Services and Housing

Nordic Sustainable Construction - financed by Nordic Innovation, an organisation under the Nordic Council of Ministers

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